



Solenoid Valves

Air Operated Valves

Combustion Products

Accessories



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Please fill out the following return card with your e-mail address so that we can provide you with instantaneous changes to the catalog along with new product information for your particular industry. ASCO is always striving to give you the highest quality service, whether it's providing you with a product or getting you the information you need to help you make decisions you need to make.



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## WARNING

Improper selection or use of products and related items in catalog can cause death, serious injury or property damage.

This document and other information from ASCO Valve, Inc., its subsidiaries and authorized distributors provide product options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application and review the information concerning the product in the current product catalog. Due to the variety of operating conditions and applications for these products, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and assuring that all performance, safety and warning requirements of the application are met.

The product described herein, including but without limitation, product features, specifications and options are subject to change by ASCO Valve, Inc. and its subsidiaries at any time without notice.

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8030	Vacuum	7.59	8267	Hot Water/Steam	7.37	8344	Intrinsically Safe	5.03
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8210	Vacuum	7.59	8314	Low Power	5.19	8380	Direct Mount	6.05
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8215	Long Life	7.47	8315	Steam	7.45	8401	Direct Mount	6.05
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8262	Dust Collector	7.25	8321	Harsh Environment	5.01	V012	Check Valves	9.09
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8262	Intrinsically Safe	5.03	8327	General Service	3.27	V043	Quick Exhaust	9.07
8262	Long Life	7.47	8327	Direct Mount	6.03	HV-264-153	Low Power	5.29
8262	Low Power	5.19	8327	Manual Reset	5.47	HV-264-153	Manual Reset	5.51
8262	Vacuum	7.59	8329	Solenoid Operator	9.01			



This catalog has been designed to make it easier to select and order the right valve for your application from the world's broadest line of solenoid and air operated valves.

To assist in selecting the proper valve for your application, we recommend two approaches. First, if you know the valve Series that meets your needs, you can go directly to the appropriate page as listed in the Numerical Listing, page 1.02, or the main Index, page 1.01. If you do not know the proper valve Series, please refer to the Condensed Listing, starting on page 1.04, which provides an overview of key specifications for all General Service valves included in this catalog. This listing is organized by valve type and operation, then indexed by pipe size, flow factor, and other vital specifications.

Should you be unable to locate the desired valve in the Condensed Listing, refer to the individual Valve Series in the main catalog for a more complete listing.

*In order to select a valve*, you will need the following application information:

<b>Valve Type</b>	2 way, 3 way, 4 way
<b>Operation</b>	Normally Open, Normally Closed, Universal
<b>Pipe Size</b>	Pipe size or flow requirement
<b>Media</b>	Fluid to be controlled
<b>Pressure</b>	Maximum operating pressure
<b>Temperature</b>	Minimum and maximum fluid and ambient temperature (if unusual, call us)
<b>Voltage</b>	Voltage and frequency to be used
<b>Extras</b>	Special seals, special seats, brackets, etc.

Once provided with the above, the next steps can navigate you to the appropriate valve in this catalog:

Turn to the Condensed Listing section relevant to the VALVE TYPE and OPERATION you are looking for (Example: 2 Way, Normally Closed).

Locate the family of valves corresponding to the PIPE SIZE of the valve desired (Example: 1/8").

Select the applicable MEDIA and relevant PRESSURE rating in the "Operating Pressure Differential" column for AC or DC, respectively (Example: 300 psi for water, maximum AC).

If the field of possible valves has not been narrowed to one valve at this point, the Cv Flow Factor, Orifice Size, Maximum Fluid Temperature, or Watt Rating (power consumption) may then be used as additional deciding factors.

After the proper valve Catalog Number has been identified, refer to the "Page No." column to find more specifications on any given valve Series (Example: 8210 Series).

After you have made your selection, order by catalog number with its appropriate prefix or suffix, voltage and frequency. If necessary, include fluid handled, and the operating pressure of your application. We strongly recommend ordering strainers for your valves.

## Example:

For an 8210G2 valve with an Explosionproof enclosure, to control a 100 psi air application in a hazardous area, order:

<b>Option Prefix and Catalog Number:</b>	EF8210G2
<b>Voltage and Frequency:</b>	120/60
<b>Fluid:</b>	Air
<b>Pressure:</b>	100 psi

Note that Type 7 Explosionproof enclosures do not require a different catalog number, but simply add the prefix "EF."

## Stock Valves

We keep thousands of valves on our shelves, ready for immediate delivery. These valves have been manufactured in facilities certified to meet ISO international quality standards and are 100% tested. Coils, spare parts kits, accessories, and other ASCO products are also available from stock.

## Whom to Contact for Assistance

ASCO's nationwide sales and service organization, listed on page 1.19, is staffed by factory-trained sales engineers. They are highly qualified to verify that your selection is best for your application or to help with your selection. They can also help customize an ASCO valve to meet unique application requirements or help you contact your local Authorized Valve Distributor.

For additional technical assistance, contact ASCO's World Headquarters in Florham Park, New Jersey, by calling our Valve Sales Department at (973) 966-2082. For assistance with valve parts, contact the Valve Service Department at (973) 966-2062, and for assistance with service problems, call (973) 966-2066.

Furthermore, we recommend you visit our Web site at [www.ascovalve.com](http://www.ascovalve.com) to find a glossary of frequently asked questions and a wealth of other ASCO product- and company-related information.

## 2 Way/2 Position Valves

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Operating Pressure Differential (psi)							Maximum Fluid Temp. °F		Catalog Number	Body Material	Watt Rating / Class of Coil Insulation		Page No. ①	
			Min	Maximum AC			Maximum DC			AC	DC			AC	DC		
				Air- Inert Gas	Water	Light Oil @ 300 SSU	Air- Inert Gas	Water	Light Oil @ 300 SSU								
NORMALLY CLOSED (Closed when de-energized)																	
1/8	3/64	.05	0	500	500	500	200	200	200	180	77	U8225B1V	BRASS	6.3/F	6.9/F	2.21	
1/8	3/64	.05	0	500	500	500	200	200	200	180	77	U8225B5V	SS	6.3/F	6.9/F	2.21	
1/8	3/64	.05	0	150	-	-	150	-	-	180	77	U8280B1	ALUM	6.3/F	6.9/F	2.21	
1/8	3/64	.05	0	150	-	-	150	-	-	180	77	U8280B2	ALUM	6.3/F	6.9/F	2.21	
1/8	3/64	.06	0	750	750	530	650	640	550	180	120	8262G1	BRASS	6.1/F	10.6/F	2.27	
1/8	3/64	.06	0	750	750	530	650	640	550	180	120	8262G12	SS	6.1/F	10.6/F	2.27	
1/8	1/16	.07	0	300	300	300	125	125	125	180	77	U8225B2V	BRASS	6.3/F	6.9/F	2.21	
1/8	1/16	.07	0	300	300	300	125	125	125	180	77	U8225B6V	SS	6.3/F	6.9/F	2.21	
1/8	3/32	.17	0	175	175	175	30	30	30	180	77	U8225B3V	BRASS	6.3/F	6.9/F	2.21	
1/8	3/32	.17	0	175	175	175	30	30	30	180	77	U8225B7V	SS	6.3/F	6.9/F	2.21	
1/8	3/32	.20	0	275	290	130	150	140	145	180	120	8262G14	BRASS	6.1/F	10.6/F	2.27	
1/8	3/32	.20	0	275	290	130	150	140	145	180	120	8262G15	SS	6.1/F	10.6/F	2.27	
1/8	1/8	.23	0	125	125	125	20	20	20	180	77	U8225B4V	BRASS	6.3/F	6.9/F	2.21	
1/8	1/8	.23	0	125	125	125	20	20	20	180	77	U8225B8V	SS	6.3/F	6.9/F	2.21	
1/8	1/8	.34	0	155	180	140	80	80	80	180	120	8262G2	BRASS	6.1/F	10.6/F	2.27	
1/8	1/8	.34	0	155	180	140	80	80	80	180	120	8262G6	SS	6.1/F	10.6/F	2.27	
1/8	3/8	1.0	0	15	-	-	-	-	-	125	-	8040H6	ALUM	6.1/F	-	2.05	
1/4	3/64	.06	0	750	750	500	500	500	500	180	120	8262G19	BRASS	6.1/F	10.6/F	2.27	
1/4	3/64	.06	0	750	750	500	500	500	500	180	120	8262G80	SS	6.1/F	10.6/F	2.27	
1/4	3/64	.06	0	1500	1500	1100	475	475	450	140	140	8262G200	BRASS	10.1/F	11.6/F	2.27	
1/4	3/64	.06	0	2200	2000	1100	-	-	-	140	140	8262G214	SS	10.1/F	-	2.27	
1/4	3/32	.17	0	360	340	160	150	125	125	180	120	8262G20	BRASS	6.1/F	10.6/F	2.27	
1/4	3/32	.17	0	360	340	160	150	125	125	180	120	8262G86	SS	6.1/F	10.6/F	2.27	
1/4	1/8	.35	0	140	165	90	65	60	60	180	120	8262G22	BRASS	6.1/F	10.6/F	2.27	
1/4	1/8	.35	0	140	165	90	65	60	60	180	120	8262G7	SS	6.1/F	10.6/F	2.27	
1/4	1/8	.35	0	300	300	200	75	70	70	180	150	8262G232	BRASS	10.1/F	11.6/F	2.27	
1/4	9/64	.35	0	120	120	-	50	50	-	130	120	8260G71	PLAST	6.1/F	10.6/F	2.23	
1/4	9/64	.35	0	120	120	-	50	50	-	130	120	8260G54	PLAST	6.1/F	10.6/F	2.23	
1/4	9/64	.35	0	120	120	-	50	50	-	130	120	8260G42	PLAST	6.1/F	10.6/F	2.23	
1/4	5/32	.50	0	180	200	145	40	40	45	180	150	8262G202	BRASS	10.1/F	11.6/F	2.27	
1/4	5/32	.50	0	180	200	145	40	40	45	180	150	8262G220	SS	10.1/F	11.6/F	2.27	
1/4	7/32	.72	0	90	100	100	25	25	25	180	150	8262G208	BRASS	10.1/F	11.6/F	2.27	
1/4	7/32	.72	0	90	100	100	25	25	25	180	150	8262G226	SS	10.1/F	11.6/F	2.27	
1/4	7/32	.85	0	40	50	40	17	20	21	180	120	8262G13	BRASS	6.1/F	10.6/F	2.27	
1/4	7/32	.85	0	40	50	40	17	20	21	180	120	8262G36	SS	6.1/F	10.6/F	2.27	
1/4	9/32	.88	0	60	75	60	18	15	18	180	150	8262G210	BRASS	10.1/F	11.6/F	2.27	
1/4	9/32	.88	0	90	100	90	25	20	22	180	150	8262G212	BRASS	17.1/F	22.6/F	2.27	
1/4	9/32	.88	0	90	100	90	25	20	22	180	150	8262G230	SS	17.1/F	22.6/F	2.27	
1/4	9/32	.96	0	27	36	28	15	16	16	180	120	8262G90	BRASS	6.1/F	10.6/F	2.27	
1/4	9/32	.96	0	27	36	28	15	16	16	180	120	8262G38	SS	6.1/F	10.6/F	2.27	
1/4	5/16	1.5	10	750	750	750	-	-	-	200	-	8223G21	BRASS	10.1/F	-	2.27	
1/4	5/16	1.5	10	1500	1500	1500	500	500	500	200	150	8223G25	BRASS	17.1/F	22.6/F	2.27	
1/4	3/8	1.1	0	15	-	-	-	-	-	125	-	8040H7	ALUM	6.1/F	-	2.05	
3/8	1/8	.35	0	160	150	90	65	60	60	180	120	8263G2	BRASS	6.1/F	10.6/F	2.27	
3/8	1/8	.35	0	160	150	90	65	60	60	180	120	8263G330	SS	6.1/F	10.6/F	2.27	
3/8	5/32	.52	0	100	100	100	35	35	35	180	150	8263G200	BRASS	10.1/F	11.6/F	2.27	
3/8	5/32	.52	0	100	100	100	35	35	35	180	150	8263G331	SS	10.1/F	11.6/F	2.27	
3/8	7/32	.72	0	100	100	100	25	25	25	180	150	8263G206	BRASS	17.1/F	11.6/F	2.27	
3/8	7/32	.72	0	100	100	100	25	25	25	180	150	8263G332	SS	17.1/F	11.6/F	2.27	
3/8	9/32	.85	0	100	100	70	-	-	-	180	-	8263G210	BRASS	17.1/F	-	2.27	
3/8	9/32	.85	0	100	100	70	-	-	-	180	-	8263G333	SS	17.1/F	-	2.27	
3/8	5/16	1.5	10	750	750	750	400	400	400	200	150	8223G23	BRASS	10.1/F	22.6/F	2.19	
3/8	5/16	1.5	10	1500	1500	1500	500	500	500	200	150	8223G27	BRASS	17.1/F	22.6/F	2.19	
3/8	3/8	1.2	0	15	-	-	-	-	-	125	-	8040H8	ALUM	6.1/F	-	2.05	
3/8	3/8	1.5	②	150	125	-	40	40	-	180	150	8210G73	BRASS	6.1/F	11.6/F	2.09	
3/8	3/8	1.5	②	150	125	-	40	40	-	180	150	8210G36	SS	6.1/F	11.6/F	2.09	
3/8	3/8	1.8	0	7	5	-	3	3	-	180	120	8030G10	BRASS	6.1/F	10.6/F	2.01	
3/8	3/8	1.8	0	7	5	-	3	3	-	180	120	8030G64	SS	6.1/F	10.6/F	2.01	
3/8	3/8	1.8	0	15	15	-	3.5	3.5	-	180	150	8030G13	BRASS	10.1/F	11.6/F	2.01	
3/8	3/8	1.8	0	15	15	-	3.5	3.5	-	180	150	8030G65	SS	10.1/F	11.6/F	2.01	
3/8	9/16	3	5	-	150	-	-	125	-	180	150	8221G1	BRASS	6.1/F	11.6/F	2.15	
3/8	5/8	3	0	150	150	-	40	40	-	180	150	8210G93	BRASS	10.1/F	11.6/F	2.09	
3/8	5/8	3	5	200	150	135	125	100	100	180	150	8210G1	BRASS	6.1/F	11.6/F	2.09	
3/8	5/8	3	5	300	300	300	-	-	-	175	-	8210G6	BRASS	17.1/F	-	2.09	
3/8	3/4	3.4	0	50	-	-	25	-	-	125	104	8215G10	ALUM	10.1/F	11.6/F	2.05	

Notes: ① See specific valve series for detailed specifications.

## 2 Way/2 Position Valves

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Operating Pressure Differential (psi)							Maximum Fluid Temp. °F		Catalog Number	Body Material	Watt Rating / Class of Coil Insulation		Page No. ①
			Min	Maximum AC			Maximum DC			AC	DC			AC	DC	
				Air- Inert Gas	Water	Light Oil @ 300 SSU	Air- Inert Gas	Water	Light Oil @ 300 SSU							
3/8	3/4	3.5	5	125	-	-	125	-	-	125	104	8215G1	ALUM	6.1/F	11.6/F	2.05
1/2	3/8	3.2	25	1500	1500	1500	500	500	500	200	150	8223G3	BRASS	17.1/F	22.6/F	2.19
1/2	3/8	3.2	25	1500	1500	1500	500	500	500	200	150	8223G10	SS	17.1/F	22.6/F	2.19
1/2	7/16	2.2	②	150	125	-	40	40	-	180	150	8210G15	BRASS	6.1/F	11.6/F	2.09
1/2	7/16	2.2	②	150	125	-	40	40	-	180	150	8210G37	SS	6.1/F	11.6/F	2.09
1/2	7/16	2.8	0	4	6	-	-	-	-	180	-	8030G16	BRASS	6.1/F	-	2.01
1/2	7/16	2.8	0	4	6	-	-	-	-	180	-	8030G66	SS	6.1/F	-	2.01
1/2	7/16	2.8	0	15	15	-	-	-	-	200	-	8030G17	BRASS	16.1/F	-	2.01
1/2	7/16	2.8	0	15	15	-	-	-	-	200	-	8030G67	SS	16.1/F	-	2.01
1/2	9/16	3.5	5	-	150	-	-	125	-	180	150	8221G3	BRASS	6.1/F	11.6/F	2.15
1/2	5/8	4	0	150	150	-	40	40	-	180	150	8210G94	BRASS	10.1/F	11.6/F	2.09
1/2	5/8	4	0	150	150	125	40	40	-	175	150	8210G87	SS	17.1/F	11.6/F	2.09
1/2	5/8	4	5	200	150	135	125	100	100	180	150	8210G2	BRASS	6.1/F	11.6/F	2.09
1/2	5/8	4	5	300	300	300	-	-	-	175	-	8210G7	BRASS	17.1/F	-	2.09
1/2	5/8	4	5	300	300	-	300	300	-	180	125	8210G227	BRASS	17.1/F	40.6/H	2.09
1/2	3/4	4.4	0	50	-	-	25	-	-	125	104	8215G20	ALUM	10.1/F	11.6/F	2.05
1/2	3/4	4.8	5	125	-	-	125	-	-	125	104	8215G2	ALUM	6.1/F	11.6/F	2.05
1/2	3/4	5.4	0	2	-	-	-	-	-	125	-	8040G22	ALUM	10.1/F	-	2.05
3/4	5/8	4.5	0	150	150	125	40	40	-	175	150	8210G88	SS	17.1/F	11.6/F	2.09
3/4	5/8	5.4	0	2.5	2.5	-	-	-	-	180	-	8030G63	SS	10./F	-	2.01
3/4	3/4	5	0	2	2	-	1	1	-	180	150	8030G3	BRASS	10.1/F	11.6/F	2.01
3/4	3/4	5	0	4	4	-	-	-	-	180	-	8030G43	BRASS	17.1/F	-	2.01
3/4	3/4	5	0	150	150	-	40	40	-	180	150	8210G95	BRASS	10.1/F	11.6/F	2.09
3/4	3/4	5	5	125	125	125	100	90	75	180	150	8210G9	BRASS	6.1/F	11.6/F	2.09
3/4	3/4	5.1	0	50	-	-	25	-	-	125	104	8215G30	ALUM	10.1/F	11.6/F	2.05
3/4	3/4	5.1	5	125	-	-	125	-	-	125	104	8215G3	ALUM	6.1/F	11.6/F	2.05
3/4	3/4	5.5	5	-	150	-	-	125	-	180	150	8221G5	BRASS	6.1/F	11.6/F	2.15
3/4	3/4	6	0	-	-	-	200	180	180	-	77	8210B26	BRASS	-	30.6/H	2.09
3/4	3/4	6	0	350	300	200	-	-	-	200	77	8210G26	BRASS	16.1/F	-	2.09
3/4	3/4	6.5	5	250	150	100	125	125	125	180	150	8210G3	BRASS	6.1/F	11.6/F	2.09
3/4	3/4	7.8	25	750	750	750	450	450	450	200	150	8223G5	BRASS	17.1/F	22.6/F	2.19
3/4	3/4	7.8	25	750	750	750	450	450	450	200	150	8223G12	SS	17.1/F	22.6/F	2.19
3/4	3/4	9.5	0	2	-	-	-	-	-	125	-	8040G23	ALUM	10.1/F	-	2.05
1	1	11.5	5	-	150	-	-	125	-	180	150	8221G7	BRASS	6.1/F	11.6/F	2.15
1	1	13	0	-	-	-	100	100	80	-	77	8210B54	BRASS	-	30.6/H	2.09
1	1	13	0	-	-	-	100	100	80	-	77	8210D89	SS	-	30.6/H	2.09
1	1	13	0	150	125	125	-	-	-	180	-	8210G54	BRASS	16.1/F	-	2.09
1	1	13	0	150	125	125	-	-	-	180	-	8210G89	SS	16.1/F	-	2.09
1	1	13	5	150	150	100	125	125	125	180	150	8210G4	BRASS	6.1/F	11.6/F	2.09
1	1	13.5	0	300	225	115	-	-	-	200	-	8210G27	BRASS	20.1/F	-	2.09
1	1	13.5	10	300	300	300	-	-	-	175	-	8210G78	BRASS	17.1/F	-	2.09
1	1 5/8	21	0	25	-	-	25	-	-	125	77	8215B50	ALUM	15.4/F	14.9/B	2.05
1 1/4	1 1/8	13	5	-	150	-	-	125	-	180	150	8221G9	BRASS	6.1/F	11.6/F	2.15
1 1/4	1 1/8	15	0	-	-	-	100	100	80	-	77	8210B55	BRASS	-	30.6/F	2.09
1 1/4	1 1/8	15	0	150	125	125	-	-	-	180	77	8210G55	BRASS	16.1/F	-	2.09
1 1/4	1 1/8	15	5	150	150	100	125	125	125	180	150	8210G8	BRASS	6.1/F	11.6/F	2.09
1 1/4	1 5/8	32	0	25	-	-	25	-	-	125	77	8215B60	ALUM	15.4/F	14.9/B	2.05
1 1/2	1 1/4	22.5	0	-	-	-	100	100	80	-	77	8210B56	BRASS	-	30.6/F	2.09
1 1/2	1 1/4	22.5	0	150	125	125	-	-	-	180	-	8210G56	BRASS	16.1/F	-	2.09
1 1/2	1 1/4	22.5	5	150	150	100	125	125	125	180	150	8210G22	BRASS	6.1/F	11.6/F	2.09
1 1/2	1 1/4	24	5	-	150	-	-	125	-	180	150	8221G11	BRASS	6.1/F	11.6/F	2.15
1 1/2	1 5/8	35	0	25	-	-	25	-	-	125	77	8215B70	ALUM	15.4/F	14.9/B	2.05
2	1 3/4	36	5	-	150	-	-	125	-	180	150	8221G13	BRASS	6.1/F	22.6/F	2.15
2	1 3/4	43	5	150	125	90	50	50	50	180	150	8210G100	BRASS	6.1/F	11.6/F	2.09
2	2 3/32	60	0	25	-	-	15	-	-	125	77	8215B80	ALUM	15.4/F	14.9/B	2.05
2 1/2	1 3/4	38	5	-	150	-	-	125	-	180	150	8221G15	BRASS	6.1/F	22.6/F	2.15
2 1/2	1 3/4	45	5	150	125	90	50	50	50	180	150	8210G101	BRASS	6.1/F	11.6/F	2.09
2 1/2	3	117	0	5	-	-	-	-	-	125	-	8215A90	ALUM	28.2/F	-	2.05
3	3	138	0	5	-	-	-	-	-	125	-	8215A40	ALUM	28.2/F	-	2.05
NORMALLY OPEN (Open when de-energized)																
1/8	1/16	.09	0	500	300	225	400	250	150	180	120	8262G91	BRASS	6.1/F	10.6/F	2.27
1/8	1/16	.09	0	500	300	225	400	250	150	180	120	8262G92	SS	6.1/F	10.6/F	2.27
1/8	3/32	.15	0	275	200	150	190	110	110	180	120	8262G93	BRASS	6.1/F	10.6/F	2.27
1/8	3/32	.15	0	275	200	150	190	110	110	180	120	8262G94	SS	6.1/F	10.6/F	2.27
1/8	1/8	.21	0	125	100	85	80	60	50	180	120	8262G31	BRASS	6.1/F	10.6/F	2.27
Notes: ① See specific valve series for detailed specifications. ② 5 psi on Air, 1 psi on Water																

Notes: ① See specific valve series for detailed specifications.  
② 5 psi on Air, 1 psi on Water.

### 2 Way/2 Position Valves

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Operating Pressure Differential (psi)							Maximum Fluid Temp. °F		Catalog Number	Body Material	Watt Rating / Class of Coil Insulation		Page No. ①
			Min	Maximum AC			Maximum DC			AC	DC			AC	DC	
				Air- Inert Gas	Water	Light Oil @ 300 SSU	Air- Inert Gas	Water	Light Oil @ 300 SSU							
1/8	1/8	.21	0	125	100	85	80	60	50	180	120	8262G35	SS	6.1/F	10.6/F	2.27
1/4	3/64	.06	0	750	700	700	500	500	500	140	140	8262G260	BRASS	10.1/F	11.6/F	2.27
1/4	3/64	.06	0	750	700	700	500	500	500	140	140	8262G130	SS	10.1/F	11.6/F	2.27
1/4	3/32	.17	0	300	250	230	200	150	125	140	140	8262G261	BRASS	10.1/F	11.6/F	2.27
1/4	3/32	.17	0	300	250	230	200	150	125	140	140	8262G134	SS	10.1/F	11.6/F	2.27
1/4	1/8	.35	0	130	110	100	80	60	60	180	150	8262G262	BRASS	10.1/F	11.6/F	2.27
1/4	1/8	.35	0	130	110	100	80	60	60	180	150	8262G138	SS	10.1/F	11.6/F	2.27
1/4	5/32	.49	0	85	75	60	45	30	30	180	150	8262G263	BRASS	10.1/F	11.6/F	2.27
1/4	5/32	.49	0	85	75	60	45	30	30	180	150	8262G142	SS	10.1/F	11.6/F	2.27
1/4	7/32	.83	0	45	45	40	25	20	20	180	150	8262G264	BRASS	10.1/F	11.6/F	2.27
1/4	7/32	.83	0	45	45	40	25	20	20	180	150	8262G148	SS	10.1/F	11.6/F	2.27
1/4	9/32	.96	0	30	25	20	15	15	15	180	150	8262G265	BRASS	10.1/F	11.6/F	2.27
1/4	9/32	.96	0	30	25	20	15	15	15	180	150	8262G152	SS	10.1/F	11.6/F	2.27
3/8	3/8	1.6	0	15	15	-	-	-	-	200	-	8030G70	BRASS	16.1/F	-	2.01
3/8	9/16	3	5	-	-	-	-	125	-	-	150	822121	BRASS	-	16.8/F	2.15
3/8	9/16	3	5	-	150	-	-	-	-	180	-	8221G21	BRASS	16.1/F	-	2.15
3/8	5/8	3	0	150	150	125	125	125	80	180	150	8210G33	BRASS	10.1/F	11.6/F	2.09
3/8	5/8	3	5	250	200	200	250	200	200	180	180	8210G11	BRASS	10.1/F	11.6/F	2.09
3/8	3/4	3.2	0	125	-	-	125	-	-	125	104	8215G13	ALUM	10.1/F	11.6/F	2.05
1/2	7/16	2.2	0	15	15	-	-	-	-	200	-	8030G71	BRASS	20.1/F	-	2.01
1/2	9/16	3.5	5	-	-	-	-	125	-	-	150	822123	BRASS	-	16.8/F	2.15
1/2	9/16	3.5	5	-	150	-	-	-	-	180	-	8221G23	BRASS	16.1/F	-	2.15
1/2	5/8	3	0	150	150	100	125	125	80	180	150	8210G30	SS	10.1/F	11.6/F	2.09
1/2	5/8	4	0	150	150	125	125	125	80	180	150	8210G34	BRASS	10.1/F	11.6/F	2.09
1/2	5/8	4	5	250	200	200	250	200	200	180	180	8210G12	BRASS	10.1/F	11.6/F	2.09
1/2	3/4	4	0	125	-	-	125	-	-	125	104	8215G23	ALUM	10.1/F	11.6/F	2.05
1/2	3/4	5	0	2	2	-	-	-	-	180	-	8030G82	BRASS	10.1/F	-	2.01
3/4	5/8	3	0	150	150	100	125	125	80	180	150	8210G38	SS	10.1/F	11.6/F	2.09
3/4	3/4	4.6	0	125	-	-	125	-	-	125	104	8215G33	ALUM	10.1/F	11.6/F	2.05
3/4	3/4	5.5	5	-	-	-	-	125	-	-	150	822125	BRASS	-	16.8/F	2.15
3/4	3/4	5.5	5	-	150	-	-	-	-	180	-	8221G25	BRASS	16.1/F	-	2.15
3/4	3/4	5.5	0	2	2	-	-	-	-	180	-	8030G83	BRASS	10.1/F	-	2.01
3/4	3/4	5.5	0	150	150	125	125	125	80	180	150	8210G35	BRASS	10.1/F	11.6/F	2.09
3/4	3/4	6.5	5	-	-	-	250	200	200	-	180	8210C13	BRASS	-	16.8/F	2.09
3/4	3/4	6.5	5	250	200	200	-	-	-	180	-	8210G13	BRASS	16.1/F	-	2.09
1	1	11.5	5	-	-	-	-	125	-	-	150	822127	BRASS	-	16.8/F	2.15
1	1	11.5	5	-	150	-	-	-	-	180	-	8221G27	BRASS	16.1/F	-	2.15
1	1	13	0	125	125	125	-	-	-	180	-	8210B57	BRASS	20/F	-	2.09
1	1	13	5	-	-	-	125	125	125	-	180	8210D14	BRASS	-	16.8/F	2.09
1	1	13	5	150	150	125	-	-	-	180	-	8210G14	BRASS	16.1/F	-	2.09
1	1 5/8	22	0	25	-	-	15	-	-	125	77	8215C53	ALUM	15.4/F	14.9/B	2.05
1 1/4	1 1/8	13	5	-	-	-	-	125	-	-	150	822129	BRASS	-	16.8/F	2.15
1 1/4	1 1/8	13	5	-	150	-	-	-	-	180	-	8221G29	BRASS	16.1/F	-	2.15
1 1/4	1 1/8	15	0	125	125	125	-	-	-	180	-	8210B58	BRASS	20/F	-	2.09
1 1/4	1 1/8	15	5	-	-	-	125	125	125	-	180	8210D18	BRASS	-	16.8/F	2.09
1 1/4	1 1/8	15	5	150	150	125	-	-	-	180	-	8210G18	BRASS	16.1/F	-	2.09
1 1/4	1 5/8	33	0	25	-	-	15	-	-	125	77	8215C63	ALUM	15.4/F	14.9/B	2.05
1 1/2	1 1/4	22.5	0	125	125	125	-	-	-	180	-	8210B59	BRASS	20/F	-	2.09
1 1/2	1 1/4	22.5	5	-	-	-	125	125	125	-	180	8210D32	BRASS	-	16.8/F	2.09
1 1/2	1 1/4	22.5	5	150	150	125	-	-	-	180	-	8210G32	BRASS	16.1/F	-	2.09
1 1/2	1 1/4	24	5	-	-	-	-	125	-	-	150	822131	BRASS	-	16.8/F	2.15
1 1/2	1 1/4	24	5	-	150	-	-	-	-	180	-	8221G31	BRASS	16.1/F	-	2.15
1 1/2	1 5/8	37	0	25	-	-	15	-	-	125	77	8215C73	ALUM	15.4/F	14.9/B	2.05
2	1 3/4	36	5	-	-	-	-	125	-	-	150	822133	BRASS	-	16.8/F	2.15
2	1 3/4	36	5	-	150	-	-	-	-	180	-	8221G33	BRASS	16.1/F	-	2.15
2	1 3/4	43	5	-	-	-	125	125	125	-	150	8210103	BRASS	-	16.8/F	2.09
2	1 3/4	43	5	125	125	125	-	-	-	180	-	8210G103	BRASS	16.1/F	-	2.09
2	2 3/32	58	0	25	-	-	15	-	-	125	77	8215C83	ALUM	15.4/F	14.9/B	2.05
2 1/2	1 3/4	38	5	-	-	-	-	125	-	-	150	822135	BRASS	-	16.8/F	2.15
2 1/2	1 3/4	38	5	-	150	-	-	-	-	180	-	8221G35	BRASS	16.1/F	-	2.15
2 1/2	1 3/4	45	5	-	-	-	125	125	125	-	150	8210104	BRASS	-	16.8/F	2.09
2 1/2	1 3/4	45	5	125	125	125	-	-	-	180	-	8210G104	BRASS	16.1/F	-	2.09
2 1/2	3	117	0	5	-	-	-	-	-	125	-	8215B93	ALUM	28.2/F	-	2.05

Notes: ① See specific valve series for detailed specifications.

### 3 Way/2 Position Valves

Pipe Size Size (ins.)	Orifice Size (ins.)		Cv Flow Factor		Operating Pressure Differential							Maximum Fluid Temp. °F		Catalog Number	Body Material	Watt Rating/ Class of Coil Insulation		Page No. ①
	Press.	Exh.	Press.	Exh.	Min	Maximum AC			Maximum DC			AC	DC			AC	DC	
						Air- Inert Gas	Water	Light Oil @ 300 SSU	Air- Inert Gas	Water	Light Oil @ 300 SSU							
NORMALLY CLOSED (Closed when de-energized)																		
1/8	3/64	-	.04	-	0	230	230	230	120	140	135	200	104	8314G31	BRASS	10.1/F	11.6/F	3.05
1/8	3/64	-	.06	-	0	200	200	200	200	200	200	180	120	8320G132	BRASS	6.1/F	10.6/F	3.19
1/8	3/64	-	.06	-	0	200	200	200	200	200	200	180	120	8320G142	SS	6.1/F	10.6/F	3.19
1/8	3/64	-	.05	.07	0	150	150	120	150	150	120	180	77	U8325B5V	BRASS	6.3/F	6.9/F	3.23
1/8	3/64	-	.05	.07	0	150	150	120	150	150	120	180	77	U8325B35V	SS	6.3/F	6.9/F	3.23
1/8	3/64	-	.05	.07	0	150	-	-	150	-	-	180	77	U8380B1	ALUM	6.3/F	6.9/F	3.23
1/8	3/64	-	.05	.07	0	150	-	-	150	-	-	180	77	U8380B2	ALUM	6.3/F	6.9/F	3.23
1/8	1/16	-	.09	-	0	150	125	125	125	125	125	180	120	8320G13	BRASS	6.1/F	10.6/F	3.19
1/8	1/16	-	.09	-	0	150	125	125	125	125	125	180	120	8320G45	SS	6.1/F	10.6/F	3.19
1/8	1/16	-	.09	.07	0	110	110	75	110	110	75	180	77	U8325B6V	BRASS	6.3/F	6.9/F	3.23
1/8	1/16	-	.09	.07	0	110	110	75	110	110	75	180	77	U8325B36V	BRASS	6.3/F	6.9/F	3.23
1/8	3/32	-	.12	-	0	100	100	100	100	100	100	180	120	8320G15	BRASS	6.1/F	10.6/F	3.19
1/8	3/32	-	.12	-	0	100	100	100	100	100	100	180	120	8320G47	SS	6.1/F	10.6/F	3.19
1/8	3/32	-	.17	.07	0	60	60	40	60	60	40	180	77	U8325B7V	BRASS	6.3/F	6.9/F	3.23
1/8	3/32	-	.17	.07	0	60	60	40	60	60	40	180	77	U8325B37V	SS	6.3/F	6.9/F	3.23
1/8	1/8	-	.13	-	0	-	-	-	250	250	250	-	180	8300D55F	BRASS	-	36.2/H	3.01
1/8	1/8	-	.13	-	0	550	550	550	-	-	-	200	-	8300G55F	BRASS	20.1/F	-	3.01
1/8	1/8	-	.21	-	0	40	40	40	40	40	40	180	120	8320G17	BRASS	6.1/F	10.6/F	3.19
1/8	1/8	-	.21	-	0	40	40	40	40	40	40	180	120	8320G49	SS	6.1/F	10.6/F	3.19
1/8	1/8	-	.23	.07	0	40	35	30	40	35	30	180	77	U8325B8V	BRASS	6.3/F	6.9/F	3.23
1/8	1/8	-	.23	.07	0	40	35	30	40	35	30	180	77	U8325B38V	SS	6.3/F	6.9/F	3.23
1/8	3/16	-	.35	-	0	-	-	-	125	125	125	-	180	8300D3F	BRASS	-	36.2/H	3.01
1/8	3/16	-	.35	-	0	250	250	250	-	-	-	200	-	8300G3F	BRASS	20.1/F	-	3.01
1/4	3/64	-	.04	-	0	230	-	-	120	-	-	200	104	8314G22	BRASS	10.1/F	11.6/F	3.05
1/4	3/64	-	.04	-	0	230	230	230	120	140	135	200	104	8314G34	BRASS	10.1/F	11.6/F	3.05
1/4	1/16	-	.09	-	0	210	225	225	160	160	160	200	150	8320G182	BRASS	17.1/F	11.6/F	3.19
1/4	1/16	-	.07	-	0	125	125	-	125	125	-	130	120	8360G75	PLAST	6.1/F	10.6/F	3.29
1/4	3/32	1/4	.20	.73	5	150	-	-	-	-	-	180	-	8317G23	BRASS	10.1/F	-	3.15
1/4	3/32	1/4	.20	.73	5	150	-	-	-	-	-	180	-	8317G24	SS	10.1/F	-	3.15
1/4	3/32	1/4	.20	.73	5	150	150	95	75	55	30	180	104	8317G35	BRASS	10.1/F	11.6/F	3.15
1/4	3/32	1/4	.20	.73	5	150	150	95	75	55	30	180	104	8317G36	SS	10.1/F	11.6/F	3.15
1/4	3/32	-	.15	-	0	150	-	-	60	-	-	200	104	8314G23	BRASS	10.1/F	11.6/F	3.05
1/4	3/32	-	.15	-	0	150	100	100	60	70	30	200	104	8314G35	BRASS	10.1/F	11.6/F	3.05
1/4	3/32	-	.15	-	0	150	100	100	60	70	30	200	104	8314G121	SS	10.1/F	11.6/F	3.05
1/4	3/32	-	.12	-	0	150	150	150	115	115	115	200	150	8320G184	BRASS	10.1/F	11.6/F	3.19
1/4	3/32	-	.12	-	0	150	150	150	115	115	115	200	150	8320G202	SS	10.1/F	11.6/F	3.19
1/4	3/32	-	.11	-	0	100	100	-	100	100	-	130	120	8360G77	PLAST	6.1/F	10.6/F	3.29
1/4	1/8	-	.25	-	0	75	60	60	30	40	25	200	104	8314G36	BRASS	10.1/F	11.6/F	3.05
1/4	1/8	-	.25	-	0	85	85	85	60	60	60	200	150	8320G186	BRASS	10.1/F	11.6/F	3.19
1/4	1/8	-	.25	-	0	85	85	85	60	60	60	200	150	8320G203	SS	10.1/F	11.6/F	3.19
1/4	1/8	-	.16	-	0	40	40	-	40	40	-	130	120	8360G78	PLAST	6.1/F	10.6/F	3.29
1/4	11/64	-	.35	-	0	45	45	45	25	25	25	200	150	8320G188	BRASS	10.1/F	11.6/F	3.19
1/4	3/16	-	.35	-	0	-	-	-	125	125	125	-	180	8300D58F	BRASS	-	36.2/H	3.01
1/4	3/16	-	.25	-	0	-	-	-	125	125	125	-	180	8300D58RF	BRASS	-	36.2/H	3.01
1/4	3/16	-	.35	-	0	250	250	250	-	-	-	200	-	8300G58F	BRASS	20.1/F	-	3.01
1/4	3/16	-	.25	-	0	250	250	250	-	-	-	180	-	8300G58RF	BRASS	20.1/F	-	3.01
1/4	1/4	-	.45	-	0	250	250	250	-	-	-	200	-	8300D61F	BRASS	28/H	-	3.01
1/4	1/4	-	.39	-	0	-	-	-	75	75	75	-	180	8300A81RF	BRASS	-	36.2/H	3.01
1/4	1/4	-	.45	-	0	-	-	-	75	75	75	-	180	8300A81F	BRASS	-	36.2/H	3.01

Note: ① See specific valve series for detailed specifications.



### 3 Way/2 Position Valves

Pipe Size Size (ins.)	Orifice Size (ins.)		Cv Flow Factor		Operating Pressure Differential							Maximum Fluid Temp. °F		Catalog Number	Body Material	Watt Rating/ Class of Coil Insulation		Page No. ①
					Maximum AC			Maximum DC										
	Press.	Exh.	Press.	Exh.	Min	Air- Inert Gas	Water	Light Oil @ 300 SSU	Air- Inert Gas	Water	Light Oil @ 300 SSU	AC	DC			AC	DC	
1/4	1/4	-	.45	-	0	190	190	190	-	-	-	200	-	8300G81F	BRASS	20.1/F	-	3.01
1/4	1/4	-	.39	-	0	150	150	150	-	-	-	180	-	8300G81RF	BRASS	20.1/F	-	3.01
1/4	1/4	-	.45	-	0	100	100	100	-	-	-	344	-	8315G2F	BRASS	15.4/H	-	3.01
1/4	9/32	11/32	.80	1.20	10	200	200	200	200	200	200	180	120	8321G1	BRASS	6.1/F	10.6/F	3.15
1/4	5/16	-	1.5	-	0	150	-	-	120	-	-	180	120	8316G1	BRASS	10.1	11.6	3.13
1/4	5/16	-	1.5	-	0	150	-	-	120	-	-	180	120	EV8316G81V	SS	10.1	11.6	3.13
3/8	1/4	-	.45	-	0	250	250	250	-	-	-	200	-	8300D9F	BRASS	28/H	-	3.01
3/8	1/4	-	.45	-	0	-	-	-	75	75	75	-	180	8300A82F	BRASS	-	36.2/H	3.01
3/8	1/4	-	.39	-	0	-	-	-	75	75	75	-	180	8300A82RF	BRASS	-	36.2/H	3.01
3/8	1/4	-	.45	-	0	190	190	190	-	-	-	200	-	8300G82F	BRASS	20.1/F	-	3.01
3/8	1/4	-	.39	-	0	150	150	150	-	-	-	180	-	8300G82RF	BRASS	20.1/F	-	3.01
3/8	1/4	-	.45	-	0	-	-	-	50	50	50	-	180	8300B410F	SS	-	36.2/H	3.01
3/8	1/4	-	.45	-	0	150	150	150	-	-	-	200	-	8300G410F	SS	20.1/F	-	3.01
3/8	1/4	-	.45	-	0	175	175	175	-	-	-	200	-	8300B411F	SS	28/H	-	3.01
3/8	1/4	-	.45	-	0	100	100	100	-	-	-	344	-	8315G3F	BRASS	15.4/H	-	3.01
3/8	9/32	11/32	.80	1.20	10	200	200	200	200	200	200	180	120	8321G2	BRASS	6.1/F	10.6/F	3.15
3/8	5/16	-	.75	-	0	-	-	-	40	40	40	-	180	8300D64F	BRASS	-	36.2/H	3.01
3/8	5/16	-	.53	-	0	-	-	-	40	40	40	-	180	8300D64RF	BRASS	-	36.2/H	3.01
3/8	5/16	-	.75	-	0	120	120	120	-	-	-	200	-	8300G64F	BRASS	20.1/F	-	3.01
3/8	5/16	-	.53	-	0	120	120	120	-	-	-	180	-	8300G64RF	BRASS	20.1/F	-	3.01
3/8	5/16	-	.75	-	0	-	-	-	40	40	40	-	180	8300B412F	SS	-	36.2/H	3.01
3/8	5/16	-	.75	-	0	120	120	120	-	-	-	200	-	8300G412F	SS	20.1/F	-	3.01
3/8	5/16	-	.75	-	0	100	100	100	-	-	-	344	-	831534F	BRASS	28.2/H		3.01
3/8	5/16	-	1.8	-	1	150	-	-	120	-	-	180	120	8316G2	BRASS	10.1	11.6	3.13
3/8	5/16	-	1.8	-	1	150	-	-	120	-	-	180	120	EV8316G82V	BRASS	10.1	11.6	3.13
3/8	3/8	-	1	-	0	-	-	-	30	30	30	-	180	8300D72F	BRASS	-	36.2/H	3.01
3/8	3/8	-	1	-	0	75	75	75	-	-	-	200	-	8300G72F	BRASS	20.1/F	-	3.01
3/8	3/8	-	1	-	0	-	-	-	30	30	30	-	180	8300B413F	SS	-	36.2/H	3.01
3/8	3/8	-	1	-	0	75	75	75	-	-	-	200	-	8300G413F	SS	20.1/F	-	3.01
3/8	5/8	-	4	-	-	150	-	-	120	-	-	180	120	8316G3	BRASS	10.1	11.6	3.13
3/8	5/8	-	2.5	-	10	250	250	-	250	250	-	180	120	8316G14	BRASS	17.1/F	22.6/F	3.09
3/8	5/8	-	3	-	10	150	125	-	125	125	-	180	120	8316G54	BRASS	6.1/F	10.6/F	3.09
1/2	5/16	-	.75	-	0	-	-	-	40	40	40	-	180	8300D68F	BRASS	-	36.2/H	3.01
1/2	5/16	-	.53	-	0	-	-	-	40	40	40	-	180	8300D68RF	BRASS	-	36.2/H	3.01
1/2	5/16	-	.75	-	0	120	120	120	-	-	-	200	-	8300G68F	BRASS	20.1/F	-	3.01
1/2	5/16	-	.53	-	0	120	120	120	-	-	-	180	-	8300G68RF	BRASS	20.1/F	-	3.01
1/2	5/16	-	.75	-	0	-	-	-	40	40	40	-	180	8300B403F	SS	-	36.2/H	3.01
1/2	5/16	-	.75	-	0	120	120	120	-	-	-	200	-	8300G403F	SS	20.1/F	-	3.01
1/2	5/16	-	.75	-	0	100	100	100	-	-	-	344	-	831535F	BRASS	28.2/H	-	3.01
1/2	3/8	-	1	-	0	-	-	-	30	30	30	-	180	8300D76F	BRASS	-	36.2/H	3.01
1/2	3/8	-	1	-	0	75	75	75	-	-	-	200	-	8300G76F	BRASS	20.1/F	-	3.01
1/2	3/8	-	1	-	0	-	-	-	30	30	30	-	180	8300B404F	SS	-	36.2/H	3.01
1/2	3/8	-	1	-	0	75	75	75	-	-	-	200	-	8300G404F	SS	20.1/F	-	3.01
1/2	5/8	-	4	-	0	150	-	-	120	-	-	180	120	8316G4	BRASS	10.1	11.6	3.13
1/2	5/8	-	3.2	-	10	250	250	-	250	250	-	180	120	8316G24	BRASS	17.1/F	22.6/F	3.09
1/2	5/8	-	3.2	-	10	150	125	-	125	125	-	180	120	8316G64	BRASS	6.1/F	10.6/F	3.09
1/2	5/8	-	4	-	0	150	-	-	120	-	-	180	120	EV8316G84V	SS	10.1	11.6	3.13
3/4	11/16	-	4.8	-	10	150	125	-	125	125	-	180	120	8316G74	BRASS	6.1/F	10.6/F	3.09
3/4	11/16	-	4.8	-	10	250	250	-	250	250	-	180	120	8316G44	BRASS	17.1/F	22.6/F	3.09
1	1	-	12.5	-	10.5	150	125	-	125	125	-	180	120	8316G34	BRASS	6.1/F	10.6/F	3.09
Note: ① See specific valve series for detailed specifications.																		

**Note:** ① See specific valve series for detailed specifications.

### 3 Way/2 Position Valves

Pipe Size Size (ins.)	Orifice Size (ins.)		Cv Flow Factor		Operating Pressure Differential							Maximum Fluid Temp. °F		Catalog Number	Body Material	Watt Rating/ Class of Coil Insulation		Page No. ①
	Press.	Exh.	Press.	Exh.	Min	Maximum AC			Maximum DC			AC	DC			AC	DC	
						Air- Inert Gas	Water	Light Oil @ 300 SSU	Air- Inert Gas	Water	Light Oil @ 300 SSU							
NORMALLY OPEN (Open when de-energized)																		
1/8	3/64	-	.04	-	0	300	300	300	200	200	120	200	104	8314G49	BRASS	10.1/F	11.6/F	3.05
1/8	3/64	-	.06	-	0	200	200	200	200	200	200	180	120	8320G136	BRASS	6.1/F	10.6/F	3.19
1/8	3/64	-	.06	-	0	200	200	200	200	200	200	180	120	8320G146	SS	6.1/F	10.6/F	3.19
1/8	3/64	-	.05	.07	0	110	110	110	110	70	50	180	77	U8325B9V	BRASS	6.3/F	6.9/F	3.23
1/8	3/64	-	.05	.07	0	110	110	110	110	70	50	180	77	U8325B39V	SS	6.3/F	6.9/F	3.23
1/8	1/16	-	.09	-	0	150	125	125	125	125	125	180	120	8320G27	BRASS	6.1/F	10.6/F	3.19
1/8	1/16	-	.09	-	0	150	125	125	125	125	125	180	120	8320G51	SS	6.1/F	10.6/F	3.19
1/8	1/16	-	.09	.07	0	110	110	110	55	35	30	180	77	U8325B10V	BRASS	6.3/F	6.9/F	3.23
1/8	1/16	-	.09	.07	0	110	110	110	55	35	30	180	77	U8325B40V	SS	6.3/F	6.9/F	3.23
1/8	3/32	-	.12	-	0	100	100	100	100	100	100	180	120	8320G29	BRASS	6.1/F	10.6/F	3.19
1/8	3/32	-	.12	-	0	100	100	100	100	100	100	180	120	8320G53	SS	6.1/F	10.6/F	3.19
1/8	3/32	-	.17	.07	0	110	110	90	25	20	20	180	77	U8325B11V	BRASS	6.3/F	6.9/F	3.23
1/8	3/32	-	.17	.07	0	110	110	90	25	20	20	180	77	U8325B41V	SS	6.3/F	6.9/F	3.23
1/8	1/8	-	.13	-	0	-	-	-	250	250	250	-	180	8300D55G	BRASS	-	36.2/H	3.01
1/8	1/8	-	.13	-	0	550	550	550	-	-	-	200	-	8300G55G	BRASS	20.1/F	-	3.01
1/8	1/8	-	.21	-	0	40	40	40	40	40	40	180	120	8320G31	BRASS	6.1/F	10.6/F	3.19
1/8	1/8	-	.21	-	0	40	40	40	40	40	40	180	120	8320G55	SS	6.1/F	10.6/F	3.19
1/8	1/8	-	.23	.07	0	75	75	65	15	15	15	180	77	U8325B12V	BRASS	6.3/F	6.9/F	3.23
1/8	1/8	-	.23	.07	0	75	75	65	15	15	15	180	77	U8325B42V	SS	6.3/F	6.9/F	3.23
1/8	3/16	-	.35	-	0	-	-	-	125	125	125	-	180	8300D3G	BRASS	-	36.2/H	3.01
1/8	3/16	-	.35	-	0	250	250	250	-	-	-	200	-	8300G3G	BRASS	20.1/F	-	3.01
1/4	1/16	-	.09	-	0	250	250	250	160	160	160	200	150	8320G192	BRASS	17.1/F	11.6/F	3.19
1/4	1/16	-	.07	-	0	125	125	-	125	125	-	130	120	8360G67	PLAST	6.1/F	10.6/F	3.29
1/4	3/32	1/4	.15	.73	5	160	160	95	75	45	25	180	104	8317G53	BRASS	10.1/F	11.6/F	3.15
1/4	3/32	1/4	.15	.73	5	160	160	95	75	45	25	180	104	8317G54	SS	10.1/F	11.6/F	3.15
1/4	3/32	-	.15	-	0	175	175	175	70	90	45	200	104	8314G53	BRASS	10.1/F	11.6/F	3.05
1/4	3/32	-	.15	-	0	175	175	175	70	90	45	200	104	8314G122	SS	10.1/F	11.6/F	3.05
1/4	3/32	-	.12	-	0	150	140	140	100	100	100	200	150	8320G194	BRASS	10.1/F	11.6/F	3.19
1/4	3/32	-	.12	-	0	150	140	140	100	100	100	200	150	8320G204	SS	10.1/F	11.6/F	3.19
1/4	3/32	-	.11	-	0	100	100	-	100	100	-	130	120	8360G69	PLAST	6.1/F	10.6/F	3.29
1/4	1/8	-	.25	-	0	90	90	90	40	40	25	200	104	8314G54	BRASS	10.1/F	11.6/F	3.05
1/4	1/8	-	.25	-	0	70	70	70	55	55	55	200	150	8320G196	BRASS	10.1/F	11.6/F	3.19
1/4	1/8	-	.25	-	0	70	70	70	55	55	55	200	150	8320G205	SS	10.1/F	11.6/F	3.19
1/4	1/8	-	.16	-	0	40	40	-	40	40	-	130	120	8360G70	PLAST	6.1/F	10.6/F	3.29
1/4	11/64	-	.35	-	0	40	40	40	30	30	30	200	150	8320G198	BRASS	10.1/F	11.6/F	3.19
1/4	3/16	-	.35	-	0	-	-	-	125	125	125	-	180	8300D58G	BRASS	-	36.2/H	3.01
1/4	3/16	-	.25	-	0	-	-	-	125	125	125	-	180	8300D58RG	BRASS	-	36.2/H	3.01
1/4	3/16	-	.35	-	0	250	250	250	-	-	-	200	-	8300G58G	BRASS	20.1/F	-	3.01
1/4	3/16	-	.25	-	0	250	250	250	-	-	-	180	-	8300G58RG	BRASS	20.1/F	-	3.01
1/4	1/4	-	.45	-	0	250	250	250	-	-	-	200	-	8300D61G	BRASS	28/H	-	3.01
1/4	1/4	-	.45	-	0	-	-	-	75	75	75	-	180	8300A81G	BRASS	-	36.2/H	3.01
1/4	1/4	-	.39	-	0	-	-	-	75	75	75	-	180	8300A81RG	BRASS	-	36.2/H	3.01
1/4	1/4	-	.45	-	0	190	190	190	-	-	-	200	-	8300G81G	BRASS	20.1/F	-	3.01
1/4	1/4	-	.39	-	0	150	150	150	-	-	-	180	-	8300G81RG	BRASS	20.1/F	-	3.01
1/4	1/4	-	.45	-	0	100	100	100	-	-	-	344	-	8315G2G	BRASS	15.4/H	-	3.01
1/4	9/32	11/32	.80	1.20	10	200	200	200	200	200	200	180	120	8321G3	BRASS	6.1/F	10.6/F	3.15
3/8	1/4	-	.45	-	0	250	250	250	-	-	-	200	-	8300D9G	BRASS	28/H	-	3.01
3/8	1/4	-	.45	-	0	-	-	-	75	75	75	-	180	8300A82G	BRASS	-	36.2/H	3.01
3/8	1/4	-	.39	-	0	-	-	-	75	75	75	-	180	8300A82RG	BRASS	-	36.2/H	3.01

**Note:** ① See specific valve series for detailed specifications.

### 3 Way/2 Position Valves

Pipe Size Size (ins.)	Orifice Size (ins.)		Cv Flow Factor		Operating Pressure Differential							Maximum Fluid Temp. °F		Catalog Number	Body Material	Watt Rating/ Class of Coil Insulation		Page No. ①
					Maximum AC			Maximum DC										
	Press.	Exh.	Press.	Exh.	Min	Air- Inert Gas	Water	Light Oil @ 300 SSU	Air- Inert Gas	Water	Light Oil @ 300 SSU	AC	DC					
3/8	1/4	-	.45	-	0	190	190	190	-	-	-	200	-	8300G82G	BRASS	20.1/F	-	3.01
3/8	1/4	-	.39	-	0	150	150	150	-	-	-	180	-	8300G82RG	BRASS	20.1/F	-	3.01
3/8	1/4	-	.45	-	0	-	-	-	50	50	50	-	180	8300B410G	SS	-	36.2/H	3.01
3/8	1/4	-	.45	-	0	150	150	150	-	-	-	200	-	8300G410G	SS	20.1/F	-	3.01
3/8	1/4	-	.45	-	0	175	175	175	-	-	-	200	-	8300B411G	SS	28/H	-	3.01
3/8	1/4	-	.45	-	0	100	100	100	-	-	-	344	-	8315G3G	BRASS	15.4/H	-	3.01
3/8	9/32	11/32	.80	1.20	10	200	200	200	200	200	200	180	120	8321G4	BRASS	6.1/F	10.6/F	3.15
3/8	5/16	-	.75	-	0	-	-	-	40	40	40	-	180	8300D64G	BRASS	-	36.2/H	3.01
3/8	5/16	-	.53	-	0	-	-	-	40	40	40	-	180	8300D64RG	BRASS	-	36.2/H	3.01
3/8	5/16	-	.75	-	0	120	120	120	-	-	-	200	-	8300G64G	BRASS	20.1/F	-	3.01
3/8	5/16	-	.53	-	0	120	120	120	-	-	-	180	-	8300G64RG	BRASS	20.1/F	-	3.01
3/8	5/16	-	.75	-	0	-	-	-	40	40	40	-	180	8300B412G	SS	-	36.2/H	3.01
3/8	5/16	-	.75	-	0	120	120	120	-	-	-	200	-	8300G412G	SS	20.1/F	-	3.01
3/8	5/16	-	.75	-	0	100	100	100	-	-	-	344	-	831534G	BRASS	28.2/H	-	3.01
3/8	3/8	-	1	-	0	-	-	-	30	30	30	-	180	8300D72G	BRASS	-	36.2/H	3.01
3/8	3/8	-	1	-	0	75	75	75	-	-	-	200	-	8300G72G	BRASS	20.1/F	-	3.01
3/8	3/8	-	1	-	0	-	-	-	30	30	30	-	180	8300B413G	SS	-	36.2/H	3.01
3/8	3/8	-	1	-	0	75	75	75	-	-	-	200	-	8300G413G	SS	20.1/F	-	3.01
3/8	5/8	-	2.5	-	10	250	250	-	250	250	-	180	120	8316G16	BRASS	17.1/F	22.6/F	3.09
3/8	5/8	-	2.5	-	10	150	125	-	125	125	-	180	120	8316G56	BRASS	6.1/F	10.6/F	3.09
1/2	5/16	-	.75	-	0	-	-	-	40	40	40	-	180	8300D68G	BRASS	-	36.2/H	3.01
1/2	5/16	-	.53	-	0	-	-	-	40	40	40	-	180	8300D68RG	BRASS	-	36.2/H	3.01
1/2	5/16	-	.75	-	0	120	120	120	-	-	-	200	-	8300G68G	BRASS	20.1/F	-	3.01
1/2	5/16	-	.53	-	0	120	120	120	-	-	-	180	-	8300G68RG	BRASS	20.1/F	-	3.01
1/2	5/16	-	.75	-	0	-	-	-	40	40	40	-	180	8300B403G	SS	-	36.2/H	3.01
1/2	5/16	-	.75	-	0	120	120	120	-	-	-	200	-	8300G403G	SS	20.1/F	-	3.01
1/2	5/16	-	.75	-	0	100	100	100	-	-	-	344	-	831535G	BRASS	28.2/H	-	3.01
1/2	3/8	-	1	-	0	-	-	-	30	30	30	-	180	8300D76G	BRASS	-	36.2/H	3.01
1/2	3/8	-	1	-	0	75	75	75	-	-	-	200	-	8300G76G	BRASS	20.1/F	-	3.01
1/2	3/8	-	1	-	0	-	-	-	30	30	30	-	180	8300B404G	SS	-	36.2/H	3.01
1/2	3/8	-	1	-	0	75	75	75	-	-	-	200	-	8300G404G	SS	20.1/F	-	3.01
1/2	5/8	-	3.2	-	10	250	250	-	250	250	-	180	120	8316G26	BRASS	17.1/F	22.6/F	3.09
1/2	5/8	-	3.2	-	10	150	125	-	125	125	-	180	120	8316G66	BRASS	6.1/F	10.6/F	3.09
3/4	11/16	-	4.8	-	10	250	250	-	250	250	-	180	120	8316G46	BRASS	17.1/F	22.6/F	3.09
3/4	11/16	-	4.8	-	10	150	125	-	125	125	-	180	120	8316G76	BRASS	6.1/F	10.6/F	3.09
1	1	-	12.5	-	10	150	125	-	125	125	-	180	120	8316G36	BRASS	6.1/F	10.6/F	3.09
UNIVERSAL OPERATION																		
1/8	3/64	-	.04	-	0	160	160	160	70	65	65	200	104	8314G41	BRASS	10.1/F	11.6/F	3.05
1/8	3/64	-	.07	.07	0	100	-	-	100	-	-	180	77	U8380B3	ALUM	6.3/F	6.9/F	3.23
1/8	3/64	-	.05	.07	0	100	90	90	65	50	40	180	77	U8325B1V	BRASS	6.3/F	6.9/F	3.23
1/8	3/64	-	.05	.07	0	100	90	90	65	50	40	180	77	U8325B31V	SS	6.3/F	6.9/F	3.23
1/8	3/64	-	.06	-	0	175	175	175	125	125	125	140	120	8320G130	BRASS	9.1/F	10.6/F	3.19
1/8	3/64	-	.06	-	0	175	175	175	125	125	125	140	120	8320G140	SS	9.1/F	10.6/F	3.19
1/8	1/16	-	.09	-	0	100	100	100	65	65	65	180	120	8320G1	BRASS	9.1/F	10.6/F	3.19
1/8	1/16	-	.09	-	0	100	100	100	65	65	65	180	120	8320G41	SS	9.1/F	10.6/F	3.19
1/8	1/16	-	.09	.07	0	55	55	55	45	30	25	180	77	U8325B2V	BRASS	6.3/F	6.9/F	3.23
1/8	1/16	-	.09	.07	0	55	55	55	45	30	25	180	77	U8325B32V	SS	6.3/F	6.9/F	3.23
1/8	3/32	-	.12	-	0	50	50	50	50	50	50	180	120	8320G83	BRASS	6.1/F	10.6/F	3.19
1/8	3/32	-	.12	-	0	50	50	50	50	50	50	180	120	8320G87	SS	6.1/F	10.6/F	3.19
1/8	3/32	-	.17	.07	0	30	30	20	15	15	15	180	77	U8325B3V	BRASS	6.3/F	6.9/F	3.23
Note: ① See specific valve series for detailed specifications.																		

Note: ① See specific valve series for detailed specifications.

### 3 Way/2 Position Valves

Pipe Size Size (ins.)	Orifice Size (ins.)		Cv Flow Factor		Operating Pressure Differential						Maximum Fluid Temp. °F		Catalog Number	Body Material	Watt Rating/ Class of Coil Insulation		Page No. ①	
	Press.	Exh.	Press.	Exh.	Min	Maximum AC			Maximum DC			AC			DC	AC		DC
						Air- Inert Gas	Water	Light Oil @ 300 SSU	Air- Inert Gas	Water	Light Oil @ 300 SSU							
1/8	3/32	-	.17	.07	0	30	30	20	15	15	15	180	77	U8325B33V	SS	6.3/F	6.9/F	3.23
1/8	1/8	-	.13	-	0	-	-	-	125	125	125	-	180	8300D55U	BRASS	-	36.2/H	3.01
1/8	1/8	-	.13	-	0	300	300	300	-	-	-	200	-	8300G55U	BRASS	20.1/F	-	3.01
1/8	1/8	-	.21	-	0	30	30	30	20	20	20	180	120	8320G3	BRASS	9.1/F	10.6/F	3.19
1/8	1/8	-	.21	-	0	30	30	30	20	20	20	180	120	8320G43	SS	9.1/F	10.6/F	3.19
1/8	1/8	-	.23	.07	0	15	15	15	12	12	12	180	77	U8325B4V	BRASS	6.3/F	6.9/F	3.23
1/8	1/8	-	.23	.07	0	15	15	15	12	12	12	180	77	U8325B34V	SS	6.3/F	6.9/F	3.23
1/8	3/16	-	.35	-	0	-	-	-	60	60	60	-	180	8300D3U	BRASS	-	36.2/H	3.01
1/8	3/16	-	.35	-	0	150	150	150	-	-	-	200	-	8300G3U	BRASS	20.1/F	-	3.01
1/4	3/64	-	.04	-	0	160	160	160	70	65	65	200	104	8314G6	BRASS	10.1/F	11.6/F	3.05
1/4	1/16	-	.07	-	0	100	100	-	65	65	-	130	120	8360G71	PLAST	9.1/F	10.6/F	3.29
1/4	1/16	-	.09	-	0	125	130	130	75	75	75	200	150	8320G172	BRASS	10.1/F	11.6/F	3.19
1/4	3/32	1/4	.20	.73	5	80	50	50	40	30	15	180	104	8317G7	BRASS	10.1/F	11.6/F	3.15
1/4	3/32	1/4	.20	.73	5	80	50	50	40	30	15	180	104	8317G8	SS	10.1/F	11.6/F	3.15
1/4	3/32	-	.12	-	0	100	100	100	60	60	60	200	150	8320G174	BRASS	17.1/F	11.6/F	3.19
1/4	3/32	-	.12	-	0	100	100	100	60	60	60	200	150	8320G200	SS	17.1/F	11.6/F	3.19
1/4	3/32	-	.11	-	0	50	50	-	50	50	-	130	120	8360G73	PLAST	6.1/F	10.6/F	3.29
1/4	3/32	-	.15	-	0	80	40	40	35	35	15	200	104	8314G7	BRASS	10.1/F	11.6/F	3.05
1/4	3/32	-	.15	-	0	80	40	40	35	35	15	200	104	8314G120	SS	10.1/F	11.6/F	3.05
1/4	1/8	-	.16	-	0	30	30	-	20	20	-	130	120	8360G74	PLAST	9.1/F	10.6/F	3.29
1/4	1/8	-	.25	-	0	45	25	25	20	15	15	200	104	8314G8	BRASS	10.1/F	11.6/F	3.05
1/4	1/8	-	.25	-	0	50	50	50	25	25	25	200	150	8320G176	BRASS	17.1/F	11.6/F	3.19
1/4	1/8	-	.25	-	0	50	50	50	25	25	25	200	150	8320G201	SS	17.1/F	11.6/F	3.19
1/4	11/64	-	.35	-	0	20	20	20	12	12	12	200	150	8320G178	BRASS	10.1/F	11.6/F	3.19
1/4	3/16	-	.35	-	0	-	-	-	60	60	60	-	180	8300D58U	BRASS	-	36.2/H	3.01
1/4	3/16	-	.25	-	0	-	-	-	60	60	60	-	180	8300D58RU	BRASS	-	36.2/H	3.01
1/4	3/16	-	.35	-	0	150	150	150	-	-	-	200	-	8300G58U	BRASS	20.1/F	-	3.01
1/4	3/16	-	.25	-	0	150	150	150	-	-	-	180	-	8300G58RU	BRASS	20.1/F	-	3.01
1/4	1/4	-	.45	-	0	-	-	-	35	35	35	-	180	8300A81U	BRASS	-	36.2/H	3.01
1/4	1/4	-	.39	-	0	-	-	-	35	35	35	-	180	8300A81RU	BRASS	-	36.2/H	3.01
1/4	1/4	-	.45	-	0	120	120	120	-	-	-	200	-	8300D61U	BRASS	28/H	-	3.01
1/4	1/4	-	.45	-	0	90	90	90	-	-	-	200	-	8300G81U	BRASS	20.1/F	-	3.01
1/4	1/4	-	.39	-	0	75	75	75	-	-	-	180	-	8300G81RU	BRASS	20.1/F	-	3.01
1/4	1/4	-	.45	-	0	50	50	50	-	-	-	344	-	8315G2U	BRASS	15.4/H	-	3.01
1/4	1/4	-	.49	.56	0	150	150	150	150	150	150	176	176	8327G1	BRASS	15.1/F	11.6/F	3.27
1/4	1/4	-	.49	.56	0	150	-	-	-	-	-	131	131	8327G11	BRASS	15.1/F	11.6/F	3.27
1/4	1/4	-	.49	.56	0	150	150	150	150	150	150	248	248	EV8327G2	SS	15.1/F	11.6/F	3.27
1/4	1/4	-	.49	.56	0	150	-	-	-	-	-	131	131	EV8327G12	SS	15.1/F	11.6/F	3.27
3/8	1/4	-	.45	-	0	-	-	-	35	35	35	-	180	8300A82U	BRASS	-	36.2/H	3.01
3/8	1/4	-	.39	-	0	-	-	-	35	35	35	-	180	8300A82RU	BRASS	-	36.2/H	3.01
3/8	1/4	-	.45	-	0	120	120	120	-	-	-	200	-	8300D9U	BRASS	28/H	-	3.01
3/8	1/4	-	.45	-	0	90	90	90	-	-	-	200	-	8300G82U	BRASS	20.1/F	-	3.01
3/8	1/4	-	.39	-	0	75	75	75	-	-	-	180	-	8300G82RU	BRASS	20.1/F	-	3.01
3/8	1/4	-	.45	-	0	-	-	-	25	25	25	-	180	8300B410U	SS	-	36.2/H	3.01
3/8	1/4	-	.45	-	0	75	75	75	-	-	-	200	-	8300G410U	SS	20.1/F	-	3.01
3/8	1/4	-	.45	-	0	85	85	85	-	-	-	200	-	8300B411U	SS	28/H	-	3.01
3/8	1/4	-	.45	-	0	50	50	50	-	-	-	344	-	8315G3U	BRASS	15.4/H	-	3.01
3/8	5/16	-	.75	-	0	-	-	-	20	20	20	-	180	8300D64U	BRASS	-	36.2/H	3.01
3/8	5/16	-	.53	-	0	-	-	-	20	20	20	-	180	8300D64RU	BRASS	-	36.2/H	3.01
3/8	5/16	-	.75	-	0	60	60	60	-	-	-	200	-	8300G64U	BRASS	20.1/F	-	3.01

**Note:** ① See specific valve series for detailed specifications.

### 3 Way/2 Position Valves

Pipe Size (ins.)	Orifice Size (ins.)		Cv Flow Factor		Operating Pressure Differential							Maximum Fluid Temp. °F		Catalog Number	Body Material	Watt Rating/ Class of Coil Insulation		Page No. ①
					Min	Maximum AC			Maximum DC							AC	DC	
	Air- Inert Gas	Water	Light Oil @ 300 SSU	Air- Inert Gas		Water	Light Oil @ 300 SSU											
3/8	5/16	-	.53	-	0	60	60	60	-	-	-	180	-	8300G64RU	BRASS	20.1/F	-	3.01
3/8	5/16	-	.75	-	0	-	-	-	20	20	20	-	180	8300B412U	SS	-	36.2/H	3.01
3/8	5/16	-	.75	-	0	60	60	60	-	-	-	200	-	8300G412U	SS	20.1/F	-	3.01
3/8	5/16	-	.75	-	0	50	50	50	-	-	-	344	-	831534U	BRASS	28.2/H	-	3.01
3/8	3/8	-	1	-	0	-	-	-	15	15	15	-	180	8300D72U	BRASS	-	36.2/H	3.01
3/8	3/8	-	1	-	0	35	35	35	-	-	-	200	-	8300G72U	BRASS	20.1/F	-	3.01
3/8	3/8	-	1	-	0	-	-	-	15	15	15	-	180	8300B413U	SS	-	36.2/H	3.01
3/8	3/8	-	1	-	0	35	35	35	-	-	-	200	-	8300G413U	SS	20.1/F	-	3.01
1/2	5/16	-	.75	-	0	-	-	-	20	20	20	-	180	8300D68U	BRASS	-	36.2/H	3.01
1/2	5/16	-	.53	-	0	-	-	-	20	20	20	-	180	8300D68RU	BRASS	-	36.2/H	3.01
1/2	5/16	-	.75	-	0	60	60	60	-	-	-	200	-	8300G68U	BRASS	20.1/F	-	3.01
1/2	5/16	-	.53	-	0	60	60	60	-	-	-	180	-	8300G68RU	BRASS	20.1/F	-	3.01
1/2	5/16	-	.75	-	0	-	-	-	20	20	20	-	180	8300B403U	SS	-	36.2/H	3.01
1/2	5/16	-	.75	-	0	60	60	60	-	-	-	200	-	8300G403U	SS	20.1/F	-	3.01
1/2	5/16	-	.75	-	0	50	50	50	-	-	-	344	-	831535U	BRASS	28.2/H	-	3.01
1/2	3/8	-	1	-	0	-	-	-	15	15	15	-	180	8300D76U	BRASS	-	36.2/H	3.01
1/2	3/8	-	1	-	0	35	35	35	-	-	-	200	-	8300G76U	BRASS	20.1/F	-	3.01
1/2	3/8	-	1	-	0	-	-	-	15	15	15	-	180	8300B404U	SS	-	36.2/H	3.01
1/2	3/8	-	1	-	0	35	35	35	-	-	-	200	-	8300G404U	SS	20.1/F	-	3.01

Note: ① See specific valve series for detailed specifications.



### 4 Way/2 or 3 Position Valves

Pipe Size (ins.)	Orifice Size (ins.)		Cv Flow Factor		Operating Pressure Differential (psi)						Maximum Fluid Temp. °F		Catalog Number	Body Material	Watt Rating/ Class of Coil Insulation		Page No. ①	
	Press.		Press.	Exh.	Min.	Maximum AC			Maximum DC			AC			DC	AC		DC
						Air-Inert Gas	Water	Light Oil @300 SSU	Air-Inert Gas	Water	Light Oil @300 SSU							
1/8	1/4	-	.80	-	20	150	-	-	150	-	-	135	77	U8401B100	ALUM	6.3/F	6.9/F	4.11
1/8	1/4	-	.80	-	20	150	-	-	150	-	-	135	77	U8401B102	ALUM	6.3/F	6.9/F	4.11
1/8	1/4	-	.80	-	20	150	-	-	150	-	-	135	77	U8401B104	ALUM	6.3/F	6.9/F	4.11
1/8	1/4	-	.80	-	20	150	-	-	150	-	-	135	77	U8401B106	ALUM	6.3/F	6.9/F	4.11
1/8	1/4	-	.80	-	20	150	-	-	150	-	-	135	135	8402A100	ALUM	-	-	4.11
1/8	1/4	-	.80	-	20	150	-	-	150	-	-	135	135	8402A102	ALUM	-	-	4.11
1/4	1/16	3/32	.09	.09	10	150	150	150	100	100	100	180	104	8345G1	BRASS	10.1/F	11.6/F	4.09
1/4	1/16	3/32	.09	.09	10	150	150	150	100	100	100	180	104	EV8345G81	SS	10.1/F	11.6/F	4.09
1/4	1/16	3/32	.09	.09	10	150	-	-	100	-	-	180	104	8345H3	BRASS	10.1/F	11.6/F	4.09
1/4	5/64	-	.10	-	0	150	-	-	100	-	-	104	95	8340A3	ALUM	16.7/F	19.7/F	4.01
1/4	5/64	-	.08	-	0	150	-	-	100	-	-	104	95	8340A4	ALUM	16.7/F	19.7/F	4.01
1/4	5/64	-	.08	-	0	150	-	-	150	-	-	104	95	8340A5	ALUM	10.5/F	19.7/F	4.01
1/4	5/64	-	.10	-	0	150	-	-	150	-	-	104	95	8340A8	ALUM	10.5/F	19.7/F	4.01
1/4	5/64	-	.10	-	0	150	-	-	100	-	-	130	95	8340G1	ALUM	17.1/F	22.6/F	4.01
1/4	5/64	-	.10	-	0	150	-	-	150	-	-	104	95	8340G2	ALUM	10.1/F	22.6/F	4.01
1/4	3/16	-	.70	-	0	125	100	100	-	-	-	160	-	8342G1	BRASS	20.1/F	-	4.05
1/4	3/16	-	.70	-	0	125	125	125	-	-	-	160	-	8342G20	BRASS	16.1/F	-	4.05
1/4	3/16	-	.70	-	0	125	100	100	-	-	-	160	-	8342G701	SS	20.1/F	-	4.05
1/4	3/16	-	.70	-	0	125	125	125	-	-	-	160	-	8342G720	SS	16.1/F	-	4.05
1/4	1/4	-	.80	1.0	10	250	250	250	250	250	250	180	180	8344G0	BRASS	17.1/F	22.6/F	4.15
1/4	1/4	-	.80	1.0	10	250	200	125	125	125	100	180	120	8344G44	BRASS	6.1/F	10.6/F	4.07
1/4	1/4	-	.80	1.0	10	150	125	125	125	125	125	180	150	8344G70	BRASS	10.1/F	11.6/F	4.07
1/4	1/4	-	.80	-	20	150	-	-	150	-	-	135	77	U8401B101	ALUM	6.3/F	6.9/F	4.11
1/4	1/4	-	.80	-	20	150	-	-	150	-	-	135	77	U8401B103	ALUM	6.3/F	6.9/F	4.11
1/4	1/4	-	.80	-	20	150	-	-	150	-	-	135	77	U8401B105	ALUM	6.3/F	6.9/F	4.11
1/4	1/4	-	.80	-	20	150	-	-	150	-	-	135	77	U8401B107	ALUM	6.3/F	6.9/F	4.11
1/4	1/4	-	.80	-	20	150	-	-	150	-	-	135	135	8402A101	ALUM	-	-	4.11
1/4	1/4	-	.80	-	20	150	-	-	150	-	-	135	135	8402A103	ALUM	-	-	4.11
1/4	1/4	-	.84	-	35	150	150	150	120	120	120	140	120	8551G453	SS	10.1/F	11.6/F	4.15
1/4	1/4	-	.84	-	35	150	150	150	120	120	120	140	120	8551G455	SS	10.1/F	11.6/F	4.05
3/8	3/16	-	.70	-	0	125	100	100	-	-	-	160	-	8342G3	BRASS	20.1/F	-	4.05
3/8	3/16	-	.70	-	0	125	125	125	-	-	-	160	-	8342G22	BRASS	16.1/F	-	4.05
3/8	3/16	-	.70	-	0	125	100	100	-	-	-	160	-	8342G703	SS	20.1/F	-	4.05
3/8	3/16	-	.70	-	0	125	125	125	-	-	-	160	-	8342G722	SS	16.1/F	-	4.07
3/8	1/4	-	.80	1.0	10	250	250	250	250	250	250	180	180	8344G1	BRASS	17.1/F	22.6/F	4.07
3/8	3/8	-	1.4	2.2	10	300	300	200	-	-	-	180	-	8344G50	BRASS	10.1/F	-	4.07
3/8	3/8	-	1.4	2.2	10	150	125	125	125	125	125	180	150	8344G72	BRASS	10.1/F	11.6/F	4.07
3/8	3/8	-	1.4	2.2	10	250	200	125	125	125	100	180	120	8344G80	BRASS	6.1/F	10.6/F	4.07
1/2	3/8	-	1.4	2.2	10	250	250	250	250	250	250	180	180	8344G27	BRASS	17.1/F	22.6/F	4.07
1/2	3/8	-	1.4	2.2	10	150	125	125	125	125	125	180	150	8344G74	BRASS	10.1/F	11.6/F	4.07
1/2	3/8	-	1.4	2.2	10	250	200	125	125	125	100	180	120	8344G82	BRASS	6.1/F	10.6/F	4.07
3/4	3/4	-	5.2	5.6	10	250	250	250	250	250	250	180	180	8344G29	BRASS	17.1/F	22.6/F	4.07
3/4	3/4	-	5.2	5.6	10	300	300	200	125	125	100	180	120	8344G54	BRASS	10.1/F	10.6/F	4.07
3/4	3/4	-	5.2	5.6	10	150	125	125	125	125	125	180	150	8344G76	BRASS	10.1/F	11.6/F	4.07
1	3/4	-	5.2	5.6	10	250	250	250	250	250	250	180	180	8344G31	BRASS	17.1/F	22.6/F	4.07
1	3/4	-	5.2	5.6	10	300	300	200	125	125	100	180	120	8344G56	BRASS	10.1/F	10.6/F	4.07
1	3/4	-	5.2	5.6	10	150	125	125	125	125	125	180	150	8344G78	BRASS	10.1/F	11.6/F	4.07

**Note:** ① See specific valve series for detailed specifications.

## Bleed-orifice or Bleed Hole

Small orifice or channel, most often located in the diaphragm or piston of pilot-operated valves, to allow the inlet flow to pressurize the top side of the diaphragm or piston.

## Bonnet

Screwed plug or bolted cover on the valve body, on which the core tube with inner parts is fitted.

## Coil

Electrical part of the valve consisting of a spool wound with insulated copper wire which creates a magnetic flux when energized.

## Core

The soft-magnetic stainless steel part of the solenoid which is moved by magnetic forces (flux generated by the coil).

## Core Spring

Spring which returns the core to the original position when the coil is de-energized.

## Core Tube

Stainless steel tube, closed at one end of the core, which isolates the media in the valve from the external solenoid parts.

## Disc, Valve Disc

Sealing material on the core or disc-holder, which shuts off the seat orifice.

## Disc-holder

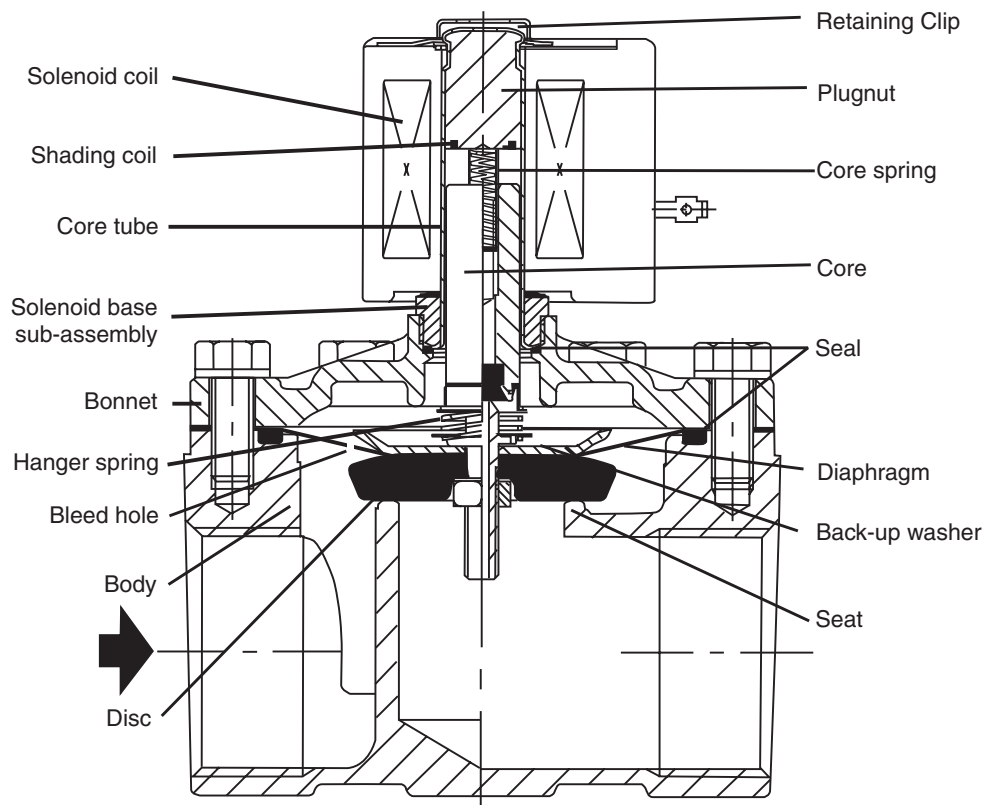
Valve part, actuated by the core, in which a sealing disc is inserted as necessary for valve design.

## Main Orifice

Principle passage between inlet and outlet of the valve.

## Maximum Ambient Temperature

The nominal maximum ambient temperatures listed are based primarily on test conditions in determining safe limits for coil insulation. They are energized conditions, with maximum fluid temperatures existing in the valve.



## Maximum Operating Pressure Differential (M.O.P.D.)

The maximum operating pressure differential refers to the difference in pressure between the inlet and the outlet sides of the valve, against which the solenoid can safely operate. If the pressure at the valve outlet is not known, the conservative approach is to regard the supply pressure as the M.O.P.D.

## Minimum Ambient Temperature

The nominal limitation of 32°F (0°C) is advisable for any valve that might contain moisture (water vapor). Where freezing water is not a factor, minimum ambients as low as -4°F (-20°C) can be tolerated. In addition, special constructions are available for ambient temperatures down to -40°F (-40°C). Consult your local ASCO sales office with your specific needs.

## Minimum Operating Pressure Differential

The minimum operating pressure differential is that which is required to open the valve and keep it open. For 2 way valves with floating piston or diaphragm, the valve will start to close below the minimum differential pressure.

**Note:** Direct acting hung diaphragm or hung piston valves do not require a minimum operating pressure.

For 3 and 4 way pilot valves, the minimum operating pressure is measured between the pressure and exhaust ports and must be maintained throughout the operation cycle to ensure complete transfer from one position to the other.

## Pilot Orifice

Orifice located in the center of a diaphragm or piston, or in the pilot area of pilot operated valves, opened or closed by the core.

## Plugnut

Stationary soft magnetic stainless part, pressed in the closed end of the core tube, installed to improve the magnetic flux of the solenoid coil when energized.

## Response Time

This is the time lapse after energizing (or de-energizing) a solenoid valve until the outlet pressure reaches a specific percentage of its maximum steady value, the outlet being connected to a circuit having specified flow parameters. Response time depends on five factors:

1. Electrical supply: AC or DC.
2. Fluid handled by the valve, viscosity and pressure level.
3. Type of operation: direct or pilot operated.
4. Size of the moving parts of the valve mechanism.
5. Circuit in which the time is measured.

## Seating or Valve Seat

Specially formed border of the main valve.

## Shading Coil

Ring (typically copper) inserted in the core-side surface of the plugnut to limit core vibration in AC-powered solenoids.

## Solenoid Base Sub-assembly

Assembly of core tube, plugnut, and bonnet.

## Solenoid

Electromagnetic part of a valve, comprised of a coil, core tube, core, and enclosure.

## Solenoid Construction

Internal parts in contact with the fluid are made of non-magnetic 300 and magnetic 400 Series stainless steel. In AC constructions, the shading coil is copper, except for valves in which silver is used. Other materials are available, when required. Generally, no shading coil is used in DC valves. The core tube in ASCO valves is 300 Series stainless steel and formed by deep drawing.

## Solenoid Enclosure

Housing around the coil for electrical and mechanical protection, as well as protection against environmental hazards.

## Valve Body

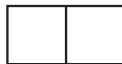
Main part of the valve, in which ports and main seats are located.

The function of a valve is shown by two figures. The first shows the number of ports, the second shows the number of valve positions (pilot ports do not count).

Example: 4/2 = 4 ports, 2 positions (open or closed),

The symbol for a valve has the same number of squares as the valve has positions.

Example: 2 positions =



Arrows in the squares show the flow direction of the fluid.

Examples: One flow path =



Two flow paths =

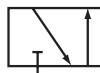


T-lines in the squares show the number of closed ports.

Example:



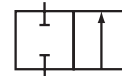
Two flow paths and one closed port =



In this catalog, the vast majority of valves listed have only two positions, in which the right-hand square shows the valve unoperated and the left-hand square shows the valve operated.

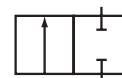
**Normally Open (NO)**

Example:



**Normally Closed (NC)**

Example:



Normally, the pipework is shown connected to the square representing the valve unoperated.

**Symbols Showing Connections to Ports:**

Exhaust that cannot be piped:



Exhaust that can be piped:

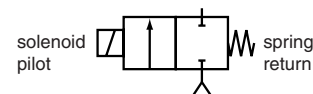


Connected to pressure source:



The methods of controlling the valve are shown as an addition to the squares. The left-hand side control shows the pilot (i.e., solenoid) and the right-hand side control shows the return pilot method (i.e., spring).

Example:



## ISO Symbols for Valves Included in This Catalog.

Ports/Positions	Function	Pilot	Return Pilot	Symbol
2/2	NC	Solenoid	Spring	
2/2	NC	Solenoid/Ext. Pressure	Spring	
2/2	NC	Solenoid/Int. Pressure	Spring	
2/2	NO	Solenoid	Spring	
2/2	NC	Ext. Pressure	Spring	
2/2	NO	Ext. Pressure	Spring	
3/2	NC	Solenoid	Spring	
3/2	NC	Solenoid/Int. Pressure	Spring	
3/2	NO	Solenoid	Spring	
3/2	NO	Solenoid/Ext. Pressure	Spring	
3/2	NO	Solenoid/Int. Pressure	Spring	
3/2	U	Solenoid	Spring	
3/2	NC	Ext. Pressure	Spring	
3/2	NO	Ext. Pressure	Spring	
3/2 – (4/2)	NC	Solenoid/Int. Pressure	Spring	
4/2		Solenoid	Spring	
4/2		Solenoid/Int. Pressure	Spring	





These solenoid valves have one inlet and one outlet, and are used to permit and shut off fluid flow.

## Two Types of Operations Apply:

### Normally Closed

Fluid is shut off when the coil is de-energized, flows through the valve when the coil is energized.

### Normally Open

Fluid flows through the valve when the coil is de-energized, shuts off when the coil is energized.

## Two Types of Constructions Apply:

### Direct Acting

When the solenoid is energized, the core directly opens the orifice of a Normally Closed valve or closes the orifice in a Normally Open valve. The valve will operate at pressures from 0 psi to its rated maximum. The force needed to open the valve is proportional to the orifice size and fluid pressure. As orifice size increases, so does the required force. To open larger orifices without increasing solenoid size, internal pilots are used.

### Internally Piloted

These valves use line pressure to assist operation.

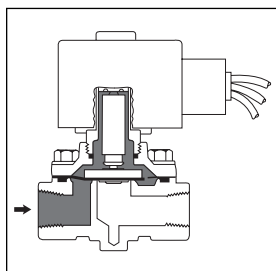
When the coil is de-energized (on a Normally Closed valve), the pilot orifice is closed and line pressure is applied to the top of the piston or diaphragm through the bleed orifice, closing the valve. When the coil is energized, the core opens the pilot orifice, relieving pressure from the diaphragm or piston. Line pressure, alone, opens the valve by lifting the diaphragm or piston off the main orifice.

See Engineering Section for further details.

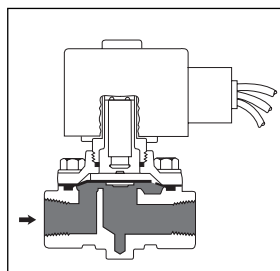
## Standard and Optional Features:

Solenoid valves are supplied, as listed, with either Red-Hat II® molded epoxy solenoids or Red-Hat® solenoids with metal enclosures. Red-Hat II valves are identified by the letter "G" or "H" in their catalog numbers; e.g., 8030G16. Many optional features may be added to your valves; e.g., high-temperature Class H molded coils, manual operators, and metering devices. See the *Optional Features Section* for details.

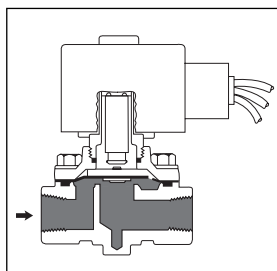
## 2 Way/2 Position Valves Flow Diagrams



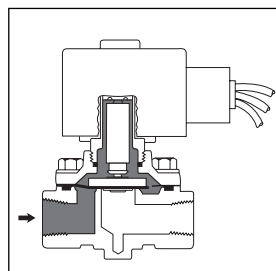
Normally Closed Valve  
De-Energized



Normally Closed Valve  
Energized



Normally Open Valve  
De-Energized



Normally Open Valve  
Energized

## Index

Series	General Description	Pipe Size (NPT)	Page Number
8030	Low Pressure	3/8" - 3/4"	2.01
8040/8215	Aluminum Body	3/8" - 3"	2.05
8210	General Service	3/8" - 2 1/2"	2.09
8221	Slow Closing	3/8" - 2 1/2"	2.15
8223	High Pressure	1/4" - 3/4"	2.19
8225/8280	Sub-Miniature	1/8"	2.21
8260	Plastic Body	1/4"	2.23
8262/8263	General Service	1/8" - 3/8"	2.27

## Features

- Operate at low pressures: no minimum required; up to 15 psi maximum differential.
- Normally Closed or Normally Open operation.
- Widely used for dispensing, collating, gas shutoff, vacuum holding, and tank draining applications.
- Normally Open valve well suited for venting systems.

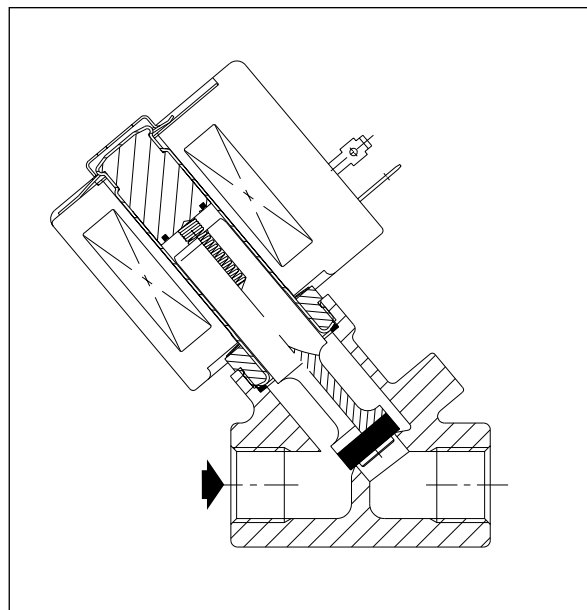
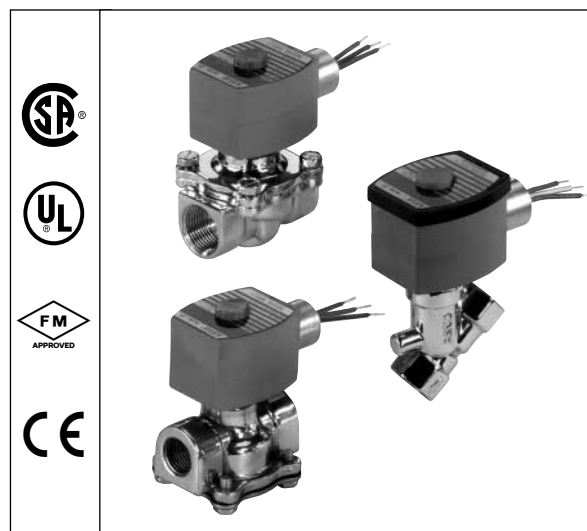
## Construction

Valve Parts in Contact with Fluids		
Body	Brass	304 Stainless Steel
Seals and Disc	NBR	
Core Tube	305 Stainless Steel	
Core and Plugnut	430F Stainless Steel	
Core Spring	302 Stainless Steel	
Shading Coil	Copper	Silver
Stem	PA (Normally Open)	

## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part Number			
	DC Watts	AC			General Purpose		Explosionproof	
		Watts	VA Holding	VA Inrush	AC	DC	AC	DC
F	10.6	6.1	16	40	238210	238310	238214	238314
F	11.6	10.1	25	70	238610	238710	238614	238714
F	--	16.1	35	95	272610	97617	272614	97617
F	--	17.1	40	93	238610	--	238614	--
F	--	20.1	48	240	272610	--	272614	--

**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz), 6, 12, 24, 120, 240 volts DC. Must be specified when ordering. Other voltages available when required.



## Nominal Ambient Temperature Ranges:

AC: 32°F to 125°F (0°C to 52°C)

DC: 32°F to 104°F (0°C to 40°C)

Refer to Engineering Section for details.

## Solenoid Enclosures

**Standard:** Watertight, Types 1, 2, 3, 3S, 4, and 4X.

**Optional:** Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9. (To order, add prefix "EF" to catalog number.)

See Optional Features Section for other available options.

## Approvals:

CSA certified. UL listed, as indicated. FM approved (Normally Closed only except 8030G17 and 8030G67). Meets applicable CE directives.

Refer to Engineering Section for details.

## Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Operating Pressure Differential (psi)						Max. Fluid Temp. °F		Brass Body			Stainless Steel Body			Watt Rating/ Class of Coil Insulation ①	
			Min.	Max. AC		Max. DC		AC									DC	Catalog Number
				Air-Inert Gas	Water	Air-Inert Gas	Water											
NORMALLY CLOSED (Closed when de-energized)																		
3/8	3/8	1.8	0	7	5	3	3	180	120	8030G10	1	○	8030G64	1	○	6.1/F	10.6/F	
3/8	3/8	1.8	0	15	15	3.5	3.5	180	150	8030G13	2	○	8030G65	2	○	10.1/F	11.6/F	
1/2	7/16	2.8	0	4	6	-	-	180	-	8030G16	3	○	8030G66	3	○	6.1/F	-	
1/2	7/16	2.8	0	15	15	-	-	200	-	8030G17	11	○	8030G67	11	○	16.1/F	-	
3/4	3/4	5	0	2	2	1	1	180	150	8030G3	9	○	-	-	-	10.1/F	11.6/F	
3/4	3/4	5	0	4	4	-	-	180	-	8030G43	9	○	-	-	-	17.1/F	-	
3/4	5/8	5.4	0	2.5	2.5	-	-	180	-	-	-	-	8030G63	10	○	10.1/F	-	
NORMALLY OPEN (Open when de-energized)																		
3/8	3/8	1.6	0	15	15	-	-	200	-	8030G70	12	●	-	-	-	16.1/F	-	
1/2	7/16	2.2	0	15	15	-	-	200	-	8030G71	13	●	-	-	-	20.1/F	-	
1/2	3/4	5	0	2	2	-	-	180	-	8030G82	7	●	-	-	-	10.1/F	-	
3/4	3/4	5.5	0	2	2	-	-	180	-	8030G83	8	●	-	-	-	10.1/F	-	
Notes: ① On all 50 hertz service, the watt rating for the 6.1/F solenoid is 8.1 watts. ② ○ = Safety Shutoff Valve; ● = General Purpose Valve. Refer to Engineering Section (Approvals) for details.																		

## Specifications (Metric units)

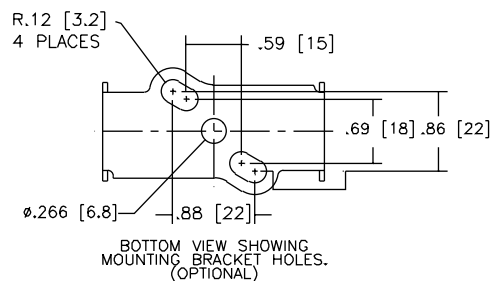
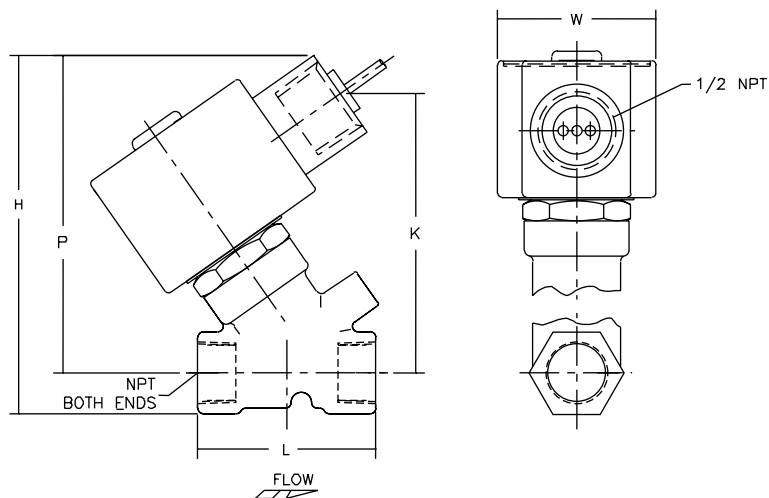
Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Operating Pressure Differential (bar)					Max. Fluid Temp. °C		Brass Body			Stainless Steel Body			Watt Rating/ Class of Coil Insulation ①	
			Min.	Max. AC		Max. DC		AC	DC							Catalog Number	Constr. Ref. No.
				Air-Inert Gas	Water	Air-Inert Gas	Water										
NORMALLY CLOSED (Closed when de-energized)																	
3/8	10	1.5	0	0.5	0.3	0.2	0.2	81	48	8030G10	1	○	8030G64	1	○	6.1/F	10.6/F
3/8	10	1.5	0	1.0	1.0	0.2	0.2	81	65	8030G13	2	○	8030G65	2	○	10.1/F	11.6/F
1/2	11	2.4	0	0.3	0.4	-	-	81		8030G16	3	○	8030G66	3	○	6.1/F	-
1/2	11	2.4	0	1.0	1.0	-	-	92	-	8030G17	11	○	8030G67	11	○	16.1/F	-
3/4	19	4.3	0	0.1	0.1	0.1	0.1	81	65	8030G3	9	○	-	-	-	10.1/F	11.6/F
3/4	19	4.3	0	0.3	0.3	-	-	81	-	8030G43	9	○	-	-	-	17.1/F	-
3/4	16	4.6	0	0.2	0.2	-	-	81	-	-	-	-	8030G63	10	○	10.1/F	-
NORMALLY OPEN (Open when de-energized)																	
3/8	10	1.4	0	1.0	1.0	-	-	92	-	8030G70	12	●	-	-	-	16.1/F	-
1/2	11	1.9	0	1.0	1.0	-	-	92	-	8030G71	13	●	-	-	-	20.1/F	-
1/2	19	4.3	0	0.1	0.1	-	-	81	-	8030G82	7	●	-	-	-	10.1/F	-
3/4	19	4.7	0	0.1	0.1	-	-	81	-	8030G83	8	●	-	-	-	10.1/F	-
Notes: ① On 50 hertz service, the watt rating for the 6.1/F solenoid is 8.1 watts. ② ○ = Safety Shutoff Valve; ● = General Purpose Valve. Refer to Engineering Section (Approvals) for details.																	

Dimensions: inches (mm)

Constr. Ref. No.		H	K	L	P	W
1	ins.	3.85	3	1.91	3.41	1.69
	mm	98	76	49	87	43
2	ins.	4	3.14	1.91	3.55	1.95
	mm	102	80	49	90	50
3	ins.	4.07	3.25	2.28	3.63	1.69
	mm	103	83	58	92	43
7	ins.	3.97	1.88	2.81	2.85	2.29
	mm	101	48	71	72	58
8	ins.	3.97	1.88	2.81	2.85	2.29
	mm	101	48	71	72	58
9	ins.	4.1	2.44	2.81	3.41	2.28
	mm	104	62	71	87	58
10	ins.	4.16	2.47	2.81	3.44	2.28
	mm	106	63	71	87	58
11	ins.	4.31	3.39	2.28	3.77	2.06
	mm	110	86	58	96	52
12	ins.	4.16	1.1	1.91	3.72	2.06
	mm	106	28	49	94	52
13	ins.	4.37	1.05	2.28	3.83	2.06
	mm	111	27	58	97	52

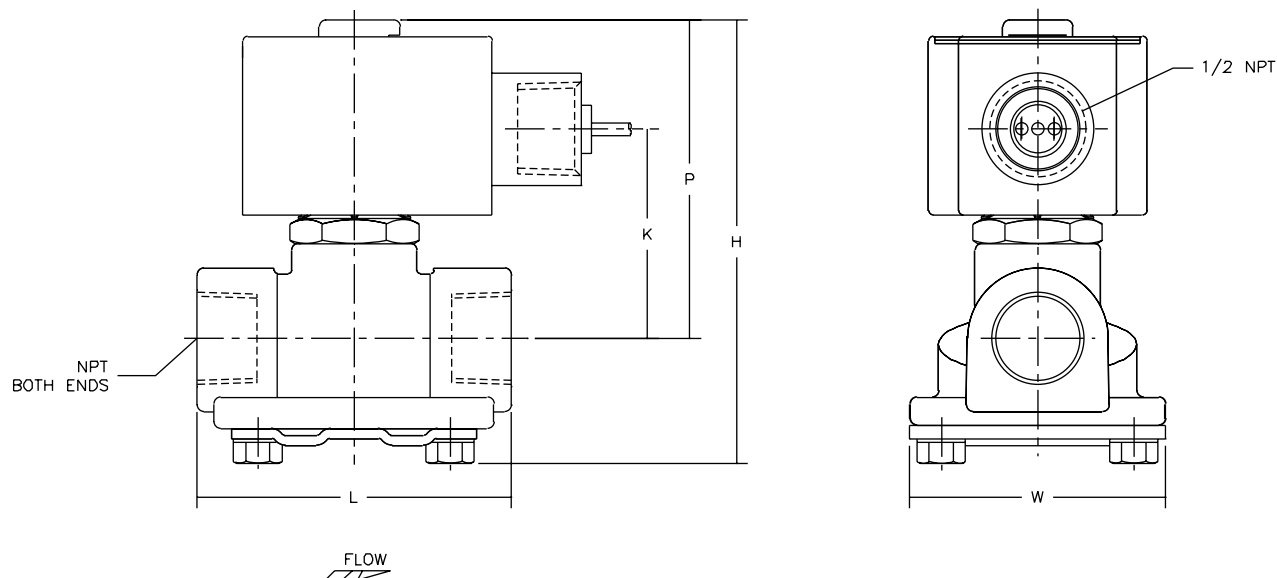
**IMPORTANT:** Valves may be mounted in any position, except for 8030G3 DC.

Constr. Refs. 1, 2, 3



BOTTOM VIEW SHOWING MOUNTING BRACKET HOLES. (OPTIONAL)

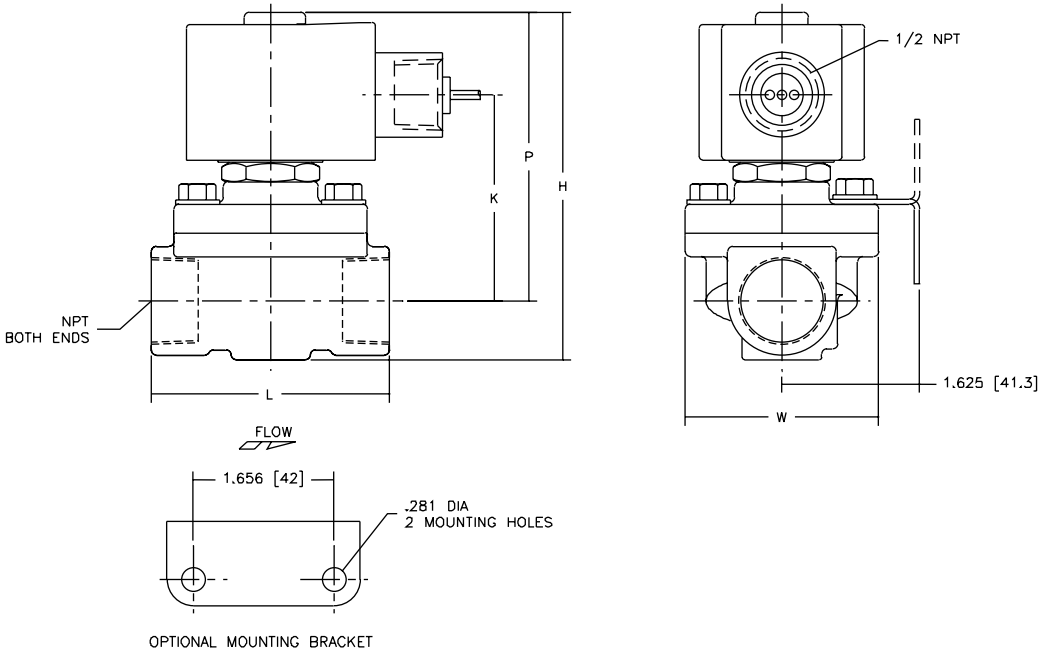
Constr. Refs. 7, 8



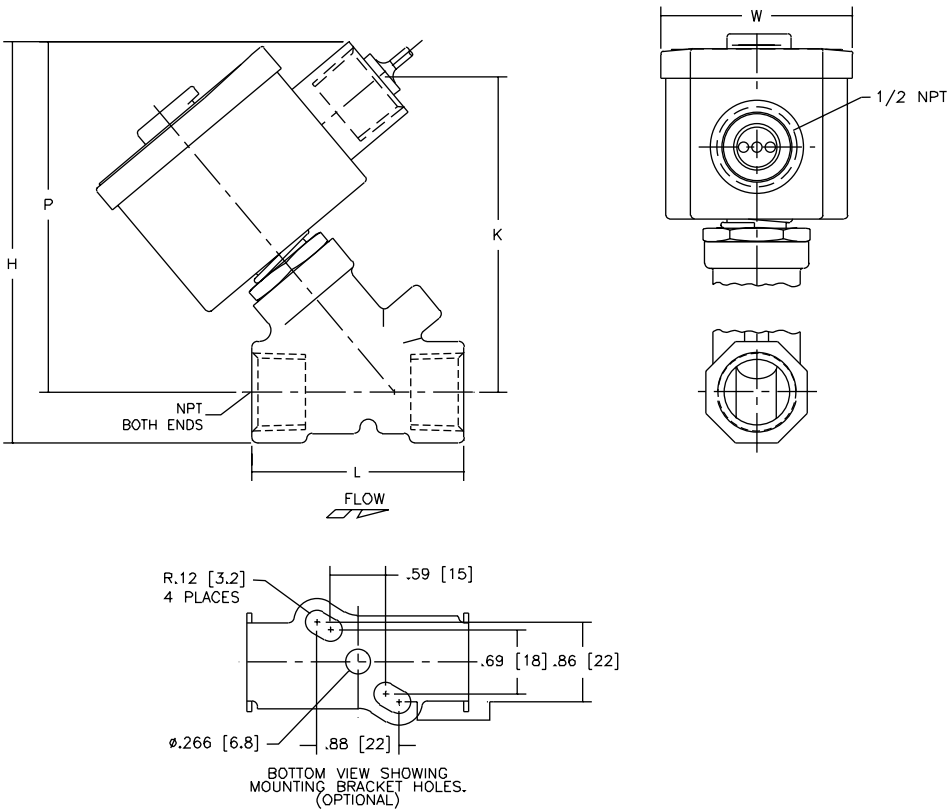


Dimensions: inches (mm)

Constr. Refs. 9, 10



Constr. Refs. 11, 12, 13



## Features

- Lightweight, low-cost valves for air service.
- Ideal for low pressure applications.
- Provides high flow, Cv up to 138 (Kv 118).
- Air and vacuum service.

## Construction

Valve Parts in Contact with Fluids	
Body	Aluminum
Seals, Diaphragms, Disc	NBR
Disc-Holder	PA (10.1 and 11.6 watt Normally Open only)
Core Guide	CA
Core Tube	305 Stainless Steel
Rider Rings	PTFE
Core and Plugnut	430F Stainless Steel
Springs	302 Stainless Steel
Shading Coil	Copper

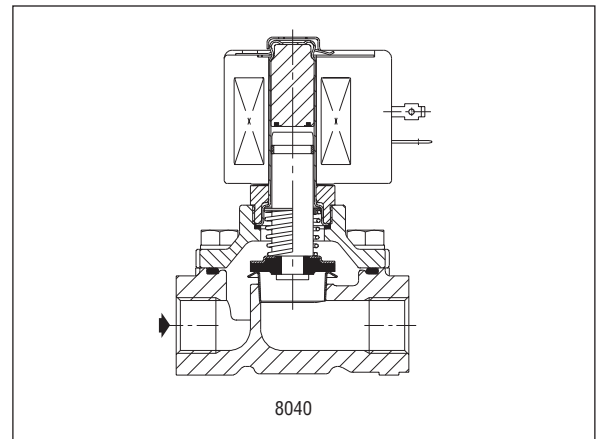
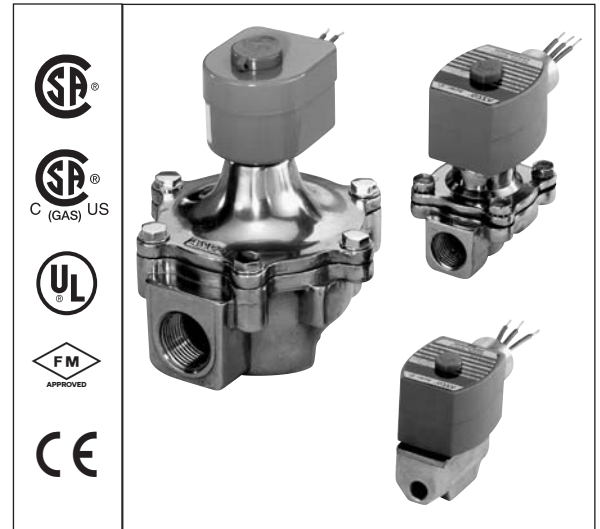
## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part No.			
	DC Watts	AC			General Purpose		Explosionproof	
		Watts	VA Holding	VA Inrush				
F	-	6.1	16	40	238210	-	238214	-
F	11.6	10.1	25	70	238610	238710	238614	238714
B	14.9	-	-	-	-	62691	-	-
F	-	15.4	27	160	99257	-	99257	-
F	-	28.2	50	385	206409	-	206409	-

**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz), 6, 12, 24, 120, 240 volts DC. Must be specified when ordering.  
 Other voltages available when required.

## Solenoid Enclosures

**Standard:** Red-Hat II - Watertight, Types 1, 2, 3, 3S, 4, and 4X; Red-Hat - Type I.  
**Optional:** Red-Hat II - Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9; Red-Hat - Explosionproof and Raintight, Types 3, 7, and 9. (Except EF8215A40 and EF8215A90, which are suitable for Types 3 and 7 (C and D) only and have a T2B temperature rating code.) To order, add prefix "EF" to catalog number.  
 See *Optional Features Section* for other available options.



## Nominal Ambient Temperature Ranges:

Red-Hat II/  
 Red-Hat AC: 32°F to 125°F (0°C to 52°C)  
 Red-Hat II DC: 32°F to 104°F (0°C to 40°C)  
 Red-Hat DC: 32°F to 77°F (0°C to 25°C)  
 (104°F/40°C occasionally)

Refer to *Engineering Section* for details.

## Approvals:

CSA certified to:

### 8040 Series:

- 1) Standard C22.2 No. 139 "Electrically Operated Valves," File 10381.
- 2) Automatic Gas Valves Z21.21 (6.5), File 112872.
- 3) Automatic Gas Safety Shutoff Valves C/I (3.9), File 112972.

### 8215 Series Normally Closed:

- 1) Standard C22.2 No. 139 "Electrically Operated Valves," File 10381.
- 2) Automatic Gas Valves Z21.21 (6.5), File 112872.

### 8215 Series Normally Open:

- 1) Standard C22.2 No. 139 "Electrically Operated Valves," File 10381.

UL listed, as indicated. FM approved  
 (Normally Closed only, except Catalog Numbers 8215A90 and 8215A40). Red-Hat II meets applicable CE directives.  
 Refer to *Engineering Section* for details.

## Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Gas Capacity Btu/hr ⑥	Operating Pressure Differential (psi)			Max. Fluid Temp. °F		Aluminum Body			Watt Rating/ Class of Coil Insulation ②	
				Min.	Max. AC	Max. DC							
					Air-Fuel Gas	Air-Fuel Gas	AC	DC	Catalog Number	Constr. Ref. No	UL ⑤ Listing	AC	DC
NORMALLY CLOSED (Closed when de-energized)													
1/8	5/16	1.0	53,700	0	15	-	125	-	8040H6	11	○	6.1/F	-
1/4	5/16	1.1	59,000	0	15	-	125	-	8040H7	11	○	6.1/F	-
3/8	5/16	1.2	64,400	0	15	-	125	-	8040H8	11	○	6.1/F	-
3/8	3/4	3.4	183,000	0	50	25	125	104	8215G10	2	○	10.1/F	11.6/F
3/8	3/4	3.5	-	5	125	125	125	104	8215G1 ①	1	○	6.1/F	11.6/F
1/2	3/4	5.4	291,000	0	2	-	125	-	8040G22	13A	○	10.1/F	-
1/2	3/4	4.4	238,500	0	50	25	125	104	8215G20	2	○	10.1/F	11.6/F
1/2	3/4	4.8	-	5	125	125	125	104	8215G2 ①	1	○	6.1/F	11.6/F
3/4	3/4	9.5	449,000	0	2	-	125	-	8040G23	13B	○	10.1/F	-
3/4	3/4	5.1	247,500	0	50	25	125	104	8215G30	4	○	10.1/F	11.6/F
3/4	3/4	5.1	-	5	125	125	125	104	8215G3 ①	3	○	6.1/F	11.6/F
1	1 5/8	21	1,119,000	0	25	25	125	77	8215B50 ③	6	○	15.4/F	14.9/B
1 1/4	1 5/8	32	1,730,000	0	25	25	125	77	8215B60 ③	6	○	15.4/F	14.9/B
1 1/2	1 5/8	35	1,900,000	0	25	25	125	77	8215B70 ③	6	○	15.4/F	14.9/B
2	2 3/32	60	3,251,000	0	25	15	125	77	8215B80 ③	7	○	15.4/F	14.9/B
2 1/2	3	117	5,821,000	0	5	-	125	-	8215A90	8	○	28.2/F	-
3	3	138	7,430,000	0	5	-	125	-	8215A40	8	○	28.2/F	-
NORMALLY OPEN (Open when de-energized)													
3/8	3/4	3.2	172,500	0	125	125	125	104	8215G13	9	●	10.1/F	11.6/F
1/2	3/4	4	206,250	0	125	125	125	104	8215G23	9	●	10.1/F	11.6/F
3/4	3/4	4.6	247,500	0	125	125	125	104	8215G33	10	●	10.1/F	11.6/F
1	1 5/8	22	1,191,750	0	25	15	125	77	8215C53	12	●	15.4/F	14.9/B
1 1/4	1 5/8	33	1,793,250	0	25	15	125	77	8215C63	12	●	15.4/F	14.9/B
1 1/2	1 5/8	37	1,988,250	0	25	15	125	77	8215C73	13	●	15.4/F	14.9/B
2	2 3/32	58	3,100,000	0	25	15	125	77	8215C83	14	●	15.4/F	14.9/B
2 1/2	3	117	6,290,000	0	5	-	125	-	8215B93 ④	15	●	28.2/F	-
Notes: ① Do not use for Fuel Gas. ② On 50 hertz service, the watt rating for the 6.1/F solenoid is 8.1 watts. ③ FM Approved Process Control Valves. See Engineering Section (Approvals) for details. ④ Type 1 enclosure only. ⑤ ○ = Safety Shutoff Valve; ● = General Purpose Valve. Refer to Engineering Section (Approvals) for details. ⑥ 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.													

## Specifications (Metric units)

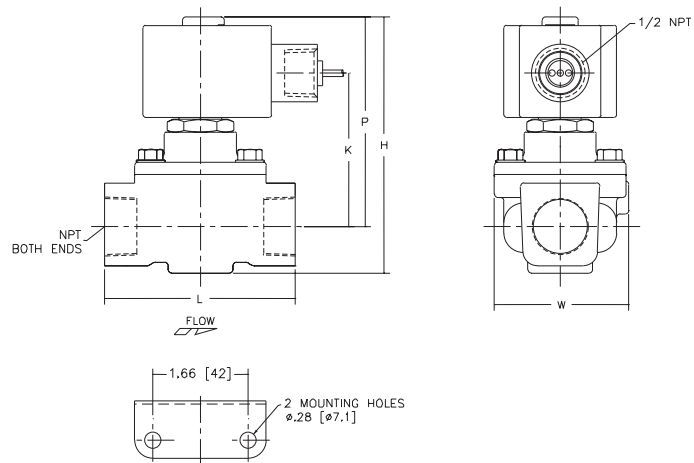
Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Gas Capacity Btu/hr ⑥	Operating Pressure Differential (bar)			Max. Fluid Temp. °C		Aluminum Body			Watt Rating/ Class of Coil Insulation ②	
				Min.	Max. AC	Max. DC							
					Air-Fuel Gas	Air-Fuel Gas	AC	DC	Catalog Number	Constr. Ref. No	UL ⑤ Listing	AC	DC
NORMALLY CLOSED (Closed when de-energized)													
1/8	7.9	.86	53,700	0	1.0	-	51	-	8040H6	11	○	6.1/F	-
1/4	7.9	.94	59,000	0	1.0	-	51	-	8040H7	11	○	6.1/F	-
3/8	7.9	1.03	64,400	0	1.0	-	51	-	8040H8	11	○	6.1/F	-
3/8	19	2.91	183,000	0	3.4	1.7	51	40	8215G10	2	○	10.1/F	11.6/F
3/8	19	3.00	-	0.3	8.6	8.6	51	40	8215G1 ①	1	○	6.1/F	11.6/F
1/2	19	4.63	291,000	0	0.1	-	51	-	8040G22	13A	○	10.1/F	-
1/2	19	3.77	238,500	0	3.4	1.7	51	40	8215G20	2	○	10.1/F	11.6/F
1/2	19	4.11	-	0.3	8.6	8.6	51	40	8215G2 ①	1	○	6.1/F	11.6/F
3/4	19	8.14	449,000	0	0.1	-	51	-	8040G23	13B	○	10.1/F	-
3/4	19	4.37	247,500	0	3.4	1.7	51	40	8215G30	4	○	10.1/F	11.6/F
3/4	19	4.37	-	0.3	8.6	8.6	51	40	8215G3 ①	3	○	6.1/F	11.6/F
1	41	18.00	1,119,000	0	1.7	1.7	51	25	8215B50 ③	6	○	15.4/F	14.9/B
1 1/4	41	27.43	1,730,000	0	1.7	1.7	51	25	8215B60 ③	6	○	15.4/F	14.9/B
1 1/2	41	30.00	1,900,000	0	1.7	1.7	51	25	8215B70 ③	6	○	15.4/F	14.9/B
2	53	51.43	3,251,000	0	1.7	1.0	51	25	8215B80 ③	7	○	15.4/F	14.9/B
2 1/2	76	100.28	5,821,000	0	0.3	-	51	-	8215A90	8	○	28.2/F	-
3	76	118.28	7,430,000	0	0.3	-	51	-	8215A40	8	○	28.2/F	-
NORMALLY OPEN (Open when de-energized)													
3/8	19	2.74	172,500	0	8.6	8.6	51	40	8215G13	9	●	10.1/F	11.6/F
1/2	19	3.43	206,250	0	8.6	8.6	51	40	8215G23	9	●	10.1/F	11.6/F
3/4	19	3.94	247,500	0	8.6	8.6	51	40	8215G33	10	●	10.1/F	11.6/F
1	41	18.86	1,191,750	0	1.7	1.0	51	25	8215C53	12	●	15.4/F	14.9/B
1 1/4	41	28.28	1,793,250	0	1.7	1.0	51	25	8215C63	12	●	15.4/F	14.9/B
1 1/2	41	31.71	1,988,250	0	1.7	1.0	51	25	8215C73	13	●	15.4/F	14.9/B
2	53	49.71	3,100,000	0	1.7	1.0	51	25	8215C83	14	●	15.4/F	14.9/B
2 1/2	76	100.28	6,290,000	0	0.3	-	51	-	8215B93 ④	15	●	28.2/F	-
Notes: ① Do not use for Fuel Gas. ② On 50 hertz service, the watt rating for the 6.1/F solenoid is 8.1 watts. ③ FM Approved Process Control Valves. See Engineering Section (Approvals) for details. ④ Type 1 enclosure only. ⑤ ○ = Safety Shutoff Valve; ● = General Purpose Valve. Refer to Engineering Section (Approvals) for details. ⑥ 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.													

Dimensions: inches (mm)

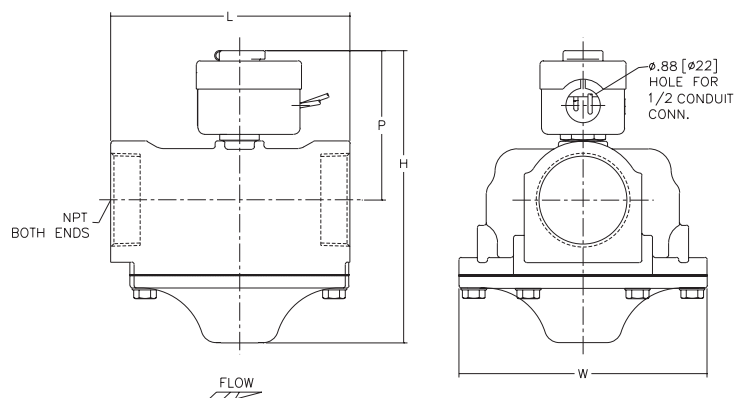
Constr. Ref. No.		H	K	L	P	W
1	ins.	3.42	2.00	2.75	2.87	2.46
	mm	87	51	70	73	63
2	ins.	4.02	2.49	2.75	3.46	2.46
	mm	102	63	70	88	63
3	ins.	3.87	2.19	3.31	3.05	2.33
	mm	98	56	84	77	59
4	ins.	4.46	2.68	3.31	3.64	2.33
	mm	113	68	84	92	59
6 ①	ins.	6.84	x	5.00	5.59	5.38
	mm	174	x	127	142	137
7 ①	ins.	7.47	x	6.09	5.94	6.31
	mm	190	x	155	151	160
8 ①	ins.	10.25	x	7.79	7.91	7.94
	mm	260	x	198	201	202
9	ins.	4.42	2.72	2.75	3.86	2.36
	mm	112	69	70	98	60
10	ins.	4.86	2.72	3.31	4.04	2.36
	mm	123	69	84	103	60
11	ins.	2.74	1.44	2.00	2.30	1.69
	mm	69	36	51	58	43
12	ins.	6.84	x	5.00	3.63	5.38
	mm	174	x	127	92	137
13	ins.	6.84	x	5.00	3.56	5.38
	mm	174	x	127	90	137
13A	ins.	4.05	2.46	2.75	3.44	2.42
	mm	103	63	70	87	62
13B	ins.	4.49	2.65	3.31	3.63	2.39
	mm	114	67	84	92	61
14 ②	ins.	7.44	x	6.09	3.81	6.31
	mm	189	x	155	97	160
15 ②	ins.	10.25	x	7.80	5.22	7.94
	mm	260	x	198	133	202

**IMPORTANT:** Valves may be mounted in any position except all DC constructions and those marked ①, which must be mounted with the solenoid vertical and upright. Constructions marked ② must be mounted with the solenoid vertical and upright or horizontal only.

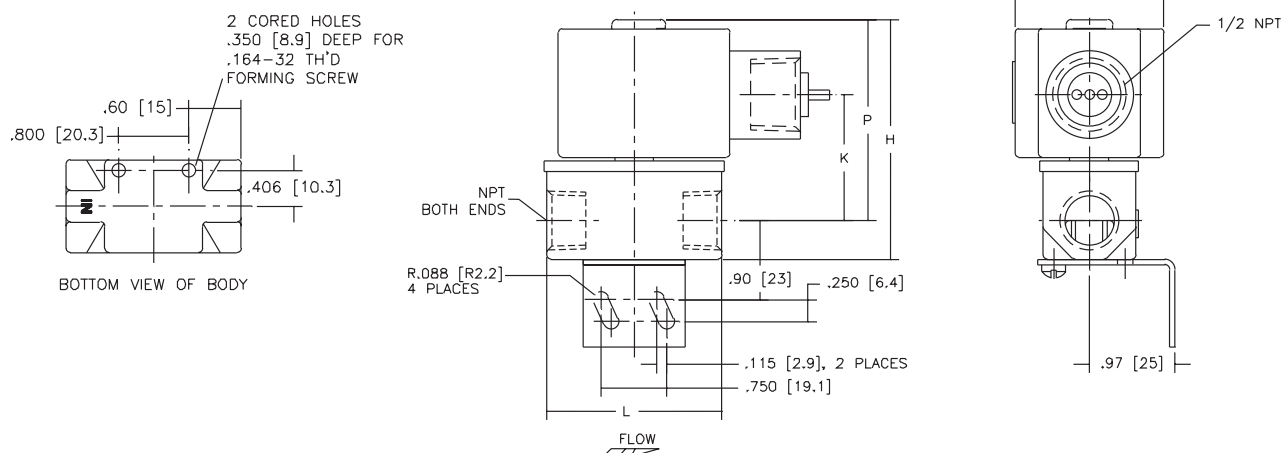
Constr. Refs. 1-4, 9, 10, 13a, 13b



Constr. Refs. 6, 7, 8, 12-15



Constr. Refs. 11



## Features

- Wide range of pressure ratings, sizes, and resilient materials provide long service life and low internal leakage.
- High Flow Valves for liquid, corrosive, and air/inert gas service.
- Industrial applications include:
  - Car wash
  - Laundry equipment
  - Air compressors
  - Industrial water control
  - Pumps

## Construction

Valve Parts in Contact with Fluids		
Body	Brass	304 Stainless Steel
Seals and Discs	NBR or PTFE	
Disc-Holder	PA	
Core Tube	305 Stainless Steel	
Core and Plugnut	430F Stainless Steel	
Springs	302 Stainless Steel	
Shading Coil	Copper	Silver

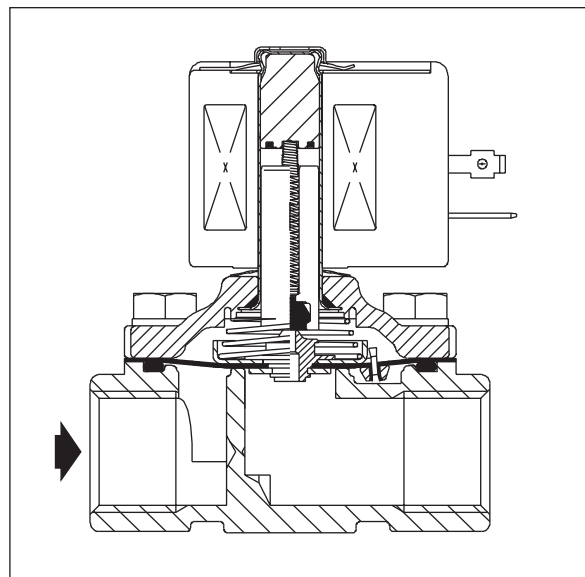
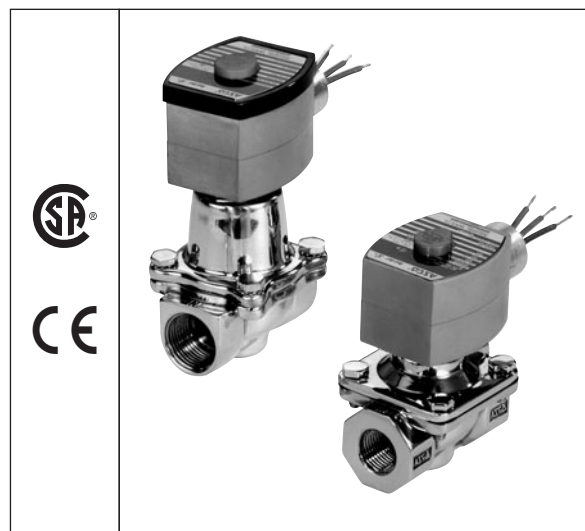
## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part Number			
	DC Watts	AC			General Purpose		Explosionproof	
		Watts	VA Holding	VA Inrush	AC	DC	AC	DC
F	-	6.1	16	40	238210	-	238214	-
F	11.6	10.1	25	70	238610	238710	238614	238714
F	16.8	16.1	35	180	272610	97617	272614	97617
F	-	17.1	40	93	238610	-	238614	-
F	-	20	43	240	99257	-	99257	-
F	-	20.1	48	240	272610	-	272614	-
H	30.6	-	-	-	-	74073	-	74073
H	40.6	-	-	-	-	238910	-	238914

**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz). 6, 12, 24, 120, 240 volts DC. Must be specified when ordering. Other voltages available when required.

## Solenoid Enclosures

**Standard:** Red-Hat II - Watertight, Types 1, 2, 3, 3S, 4, and 4X; Red-Hat - Type I.  
**Optional:** Red-Hat II - Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9; Red-Hat - Explosionproof and Watertight, Types 3, 4, 4X, 7, and 9.  
 (To order, add prefix "EF" to catalog number, except Catalog Numbers 8210B57, 8210B58, and 8210B59. Valves not available with Explosionproof enclosures.)  
 See Optional Features Section for other available options.



## Nominal Ambient Temperature Ranges:

Red-Hat II/  
 Red-Hat AC: 32°F to 125°F (0°C to 52°C)  
 Red-Hat II DC: 32°F to 104°F (0°C to 40°C)  
 Red-Hat DC: 32°F to 77°F (0°C to 25°C)  
 (104°F/40°C occasionally)

Refer to Engineering Section for details.

## Approvals:

CSA certified. Red-Hat II meets applicable CE directives.  
 Refer to Engineering Section for details.

## Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Min.	Operating Pressure Differential (psi)						Max. Fluid Temp. °F		Brass Body			Stainless Steel Body			Watt Rating/ Class of Coil Insulation ⑦	
				Max. AC			Max. DC			AC	DC	Catalog Number	Constr. Ref. No. ④	UL ⑤ Listing	Catalog Number	Constr. Ref. No. ④	UL ⑤ Listing	AC	DC
				Air- Inert Gas	Water	Light Oil @ 300 SSU	Air- Inert Gas	Water	Light Oil @ 300 SSU										
NORMALLY CLOSED (Closed when de-energized), NBR or PTFE ② Seating																			
3/8	3/8	1.5	①	150	125	-	40	40	-	180	150	8210G73 ③	1P	●	8210G36 ③	1P	●	6.1/F	11.6/F
3/8	5/8	3	0	150	150	-	40	40	-	180	150	8210G93	5D	○	-	-	-	10.1/F	11.6/F
3/8	5/8	3	5	200	150	135	125	100	100	180	150	8210G1	6D	○	-	-	-	6.1/F	11.6/F
3/8	5/8	3	5	300	300	300	-	-	-	175	-	8210G6	5D	○	-	-	-	17.1/F	-
1/2	7/16	2.2	①	150	125	-	40	40	-	180	150	8210G15 ③	2P	●	8210G37 ③	2P	●	6.1/F	11.6/F
1/2	5/8	4	0	150	150	-	40	40	-	180	150	8210G94	5D	○	-	-	-	10.1/F	11.6/F
1/2	5/8	4	0	150	150	125	40	40	-	175	150	-	-	-	8210G87	7D	●	17.1/F	11.6/F
1/2	5/8	4	5	200	150	135	125	100	100	180	150	8210G2	6D	○	-	-	-	6.1/F	11.6/F
1/2	5/8	4	5	300	300	300	-	-	-	175	-	8210G7	5D	○	-	-	-	17.1/F	-
1/2	3/4	4	5	-	300	-	-	300	-	180	125	8210G227	5D	○	-	-	-	17.1/F	40.6/H
3/4	5/8	4.5	0	150	150	125	40	40	-	175	150	-	-	-	8210G88	7D	●	17.1/F	11.6/F
3/4	3/4	5	5	125	125	125	100	90	75	180	150	8210G9	9D	○	-	-	-	6.1/F	11.6/F
3/4	3/4	5	0	150	150	-	40	40	-	180	150	8210G95	8D	○	-	-	-	10.1/F	11.6/F
3/4	3/4	6.5	5	250	150	100	125	125	125	180	150	8210G3	11D	○	-	-	-	6.1/F	11.6/F
3/4	3/4	6	0	-	-	-	200	180	180	-	77	8210B26 ② ‡	10P	-	-	-	-	-	30.6/H
3/4	3/4	6	0	350	300	200	-	-	-	200	-	8210G26 ② ‡	40P	●	-	-	-	16.1F	-
1	1	13	0	-	-	-	100	100	80	-	77	8210B54 ‡	31D	-	8210D89	15D	-	-	30.6/H
1	1	13	0	150	125	125	-	-	-	180	-	8210G54	41D	●	8210G89	45D	●	16.1/F	-
1	1	13	5	150	150	100	125	125	125	180	150	8210G4	12D	○	-	-	-	6.1/F	11.6/F
1	1	13.5	0	300	225	115	-	-	-	200	-	8210G27 ‡	42P	●	-	-	-	20.1/F	-
1	1	13.5	10	300	300	300	-	-	-	175	-	8210G78 ②	13P	-	-	-	-	17.1/F	-
1 1/4	1 1/8	15	0	-	-	-	100	100	80	-	77	8210B55 ‡	32D	-	-	-	-	-	30.6/H
1 1/4	1 1/8	15	0	150	125	125	-	-	-	180	-	8210G55	43D	●	-	-	-	16.1/F	-
1 1/4	1 1/8	15	5	150	150	100	125	125	125	180	150	8210G8	16D	○	-	-	-	6.1/F	11.6/F
1 1/2	1 1/4	22.5	0	-	-	-	100	100	80	-	77	8210B56 ‡	33D	-	-	-	-	-	30.6/H
1 1/2	1 1/4	22.5	0	150	125	125	-	-	-	180	-	8210G56 ‡	44D	●	-	-	-	16.1/F	-
1 1/2	1 1/4	22.5	5	150	150	100	125	125	125	180	150	8210G22	18D	●	-	-	-	6.1/F	11.6/F
2	1 3/4	43	5	150	125	90	50	50	50	180	150	8210G100	20P	●	-	-	-	6.1/F	11.6/F
2 1/2	1 3/4	45	5	150	125	90	50	50	50	180	150	8210G101	21P	●	-	-	-	6.1/F	11.6/F
NORMALLY OPEN (Open when de-energized), NBR Seating (PA Disc-Holder, except as noted)																			
3/8	5/8	3	0	150	150	125	125	125	80	180	150	8210G33	23D	●	-	-	-	10.1/F	11.6/F
3/8	5/8	3	5	250	200	200	250	200	200	180	180	8210G11 ⑧ ⑨	39D	●	-	-	-	10.1/F	11.6/F
1/2	5/8	4	0	150	150	125	125	125	80	180	150	8210G34	23D	●	-	-	-	10.1/F	11.6/F
1/2	5/8	3	0	150	150	100	125	125	80	180	150	-	-	-	8210G30	37D	●	10.1/F	11.6/F
1/2	5/8	4	5	250	200	200	250	200	200	180	180	8210G12 ⑧ ⑨	39D	●	-	-	-	10.1/F	11.6/F
3/4	3/4	5.5	0	150	150	125	125	125	80	180	150	8210G35	25D	●	-	-	-	10.1/F	11.6/F
3/4	5/8	3	0	150	150	100	125	125	80	180	150	-	-	-	8210G38	38D	●	10.1/F	11.6/F
3/4	3/4	6.5	5	-	-	-	250	200	200	-	180	8210C13	24D	●	-	-	-	-	16.8/F
3/4	3/4	6.5	5	250	200	200	-	-	-	180	-	8210G13	46D	●	-	-	-	16.1/F	-
1	1	13	0	125	125	125	-	-	-	180	-	8210B57 ⑥ ⑩	34D	●	-	-	-	20/F	-
1	1	13	5	-	-	-	125	125	125	-	180	8210D14	26D	●	-	-	-	-	16.8/F
1	1	13	5	150	150	125	-	-	-	180	-	8210G14	47D	●	-	-	-	16.1/F	-
1 1/4	1 1/8	15	0	125	125	125	-	-	-	180	-	8210B58 ⑥ ⑩	35D	●	-	-	-	20/F	-
1 1/4	1 1/8	15	5	-	-	-	125	125	125	-	180	8210D18	28D	●	-	-	-	-	16.8/F
1 1/4	1 1/8	15	5	150	150	125	-	-	-	180	-	8210G18	48D	●	-	-	-	16.1/F	-
1 1/2	1 1/4	22.5	0	125	125	125	-	-	-	180	-	8210B59 ⑥ ⑩	36D	●	-	-	-	20/F	-
1 1/2	1 1/4	22.5	5	-	-	-	125	125	125	-	180	8210D32	29D	●	-	-	-	-	16.8/F
1 1/2	1 1/4	22.5	5	150	150	125	-	-	-	180	-	8210G32	49D	●	-	-	-	16.1/F	-
2	1 3/4	43	5	-	-	-	125	125	125	-	150	8210I03	30P	●	-	-	-	-	16.8/F
2	1 3/4	43	5	125	125	125	-	-	-	180	-	8210G103	50P	●	-	-	-	16.1/F	-
2 1/2	1 3/4	45	5	-	-	-	125	125	125	-	150	8210I04	27P	●	-	-	-	-	16.8/F
2 1/2	1 3/4	45	5	125	125	125	-	-	-	180	-	8210G104	51P	●	-	-	-	16.1/F	-
Notes: ① 5 psi on Air; 1 psi on Water. ② Valve provided with PTFE main disc. ③ Valve includes Ultem (G.E. trademark) piston. ④ Letter "D" denotes diaphragm construction; "P" denotes piston construction. ⑤ ○ Safety Shutoff Valve; ● General Purpose Valve. Refer to Engineering Section (Approvals) for details.										⑥ Valves not available with Explosionproof enclosures. ⑦ On 50 hertz service, the watt rating for the 6.1/F solenoid is 8.1 watts. ⑧ AC construction also has PA seating. ⑨ No disc-holder. ⑩ Stainless Steel disc-holder. ‡ Must have solenoid mounted vertical and upright.									



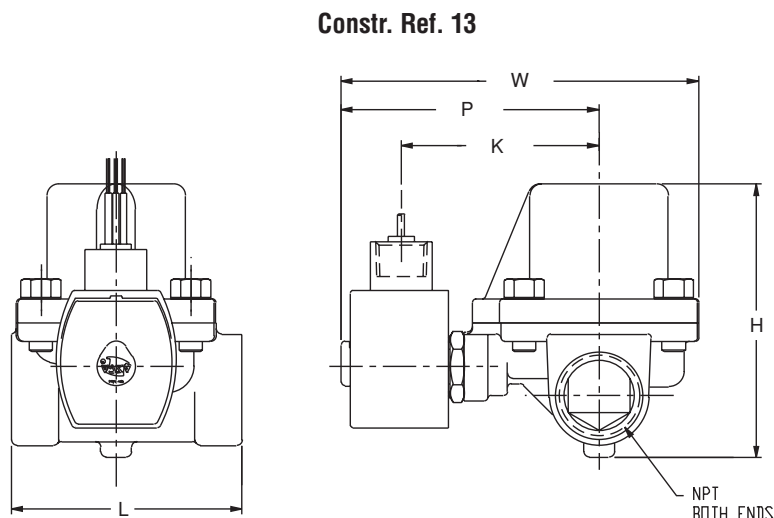
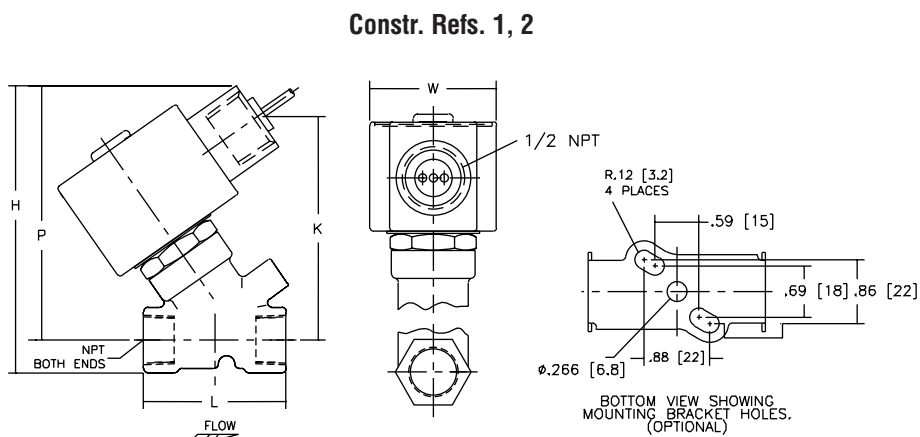
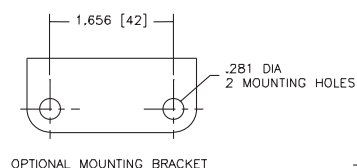
## Specifications (Metric units)

Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m <sup>3</sup> /h)	Operating Pressure Differential (bar)									Max. Fluid Temp. °C		Brass Body			Stainless Steel Body			Watt Rating/ Class of Coil Insulation ⑦		
			Min.	Max. AC			Max. DC			AC	DC	Catalog Number	Constr. Ref. No. ④	UL ⑤ Listing	Catalog Number	Constr. Ref. No. ④	UL ⑤ Listing	AC	DC			
				Air-Inert Gas	Water	Light Oil @ 300 SSU	Air-Inert Gas	Water	Light Oil @ 300 SSU													
<b>NORMALLY CLOSED (Closed when de-energized), NBR or PTFE ② Seating</b>																						
3/8	10	1.29	①	10	9	-	3	3	-	81	65	8210G73 ③	1P	●	8210G36 ③	1P	●	6.1/F	11.6/F			
3/8	16	2.57	0	10	10	-	3	3	-	81	65	8210G93	5D	○	-	-	-	10.1/F	11.6/F			
3/8	16	2.57	0.3	14	10	9	9	7	7	81	65	8210G1	6D	○	-	-	-	6.1/F	11.6/F			
3/8	16	2.57	0.3	21	21	21	-	-	-	79	-	8210G6	5D	○	-	-	-	17.1/F	-			
1/2	11	1.89	①	10	9	-	3	3	-	81	65	8210G15 ③	2P	●	8210G37 ③	2P	●	6.1/F	11.6/F			
1/2	16	3.43	0	10	10	-	3	3	-	81	65	8210G94	5D	○	-	-	-	10.1/F	11.6/F			
1/2	16	3.43	0	10	10	9	3	3	-	79	65	-	-	-	8210G87	7D	●	17.1/F	11.6/F			
1/2	16	3.43	0.3	14	10	9	9	7	7	81	65	8210G2	6D	○	-	-	-	6.1/F	11.6/F			
1/2	16	3.43	0.3	21	21	21	-	-	-	79	-	8210G7	5D	○	-	-	-	17.1/F	-			
1/2	19	3.43	0.3	-	21	-	-	21	-	81	52	8210G227	5D	○	-	-	-	17.1/F	40.6F			
3/4	16	3.86	0	10	10	9	3	3	-	79	65	-	-	-	8210G88	7D	●	17.1/F	11.6/F			
3/4	19	4.29	0.3	9	9	9	7	6	5	81	65	8210G9	9D	○	-	-	-	6.1/F	11.6/F			
3/4	19	4.29	0	10	10	-	3	3	-	81	65	8210G95	8D	○	-	-	-	10.1/F	11.6/F			
3/4	19	5.57	0.3	17	10	7	9	9	9	81	65	8210G3	11D	○	-	-	-	6.1/F	11.6/F			
3/4	19	5.14	0	-	-	-	14	12	12	-	25	8210B26 ② ‡	10P	-	-	-	-	-	30.6/H			
3/4	19	5.14	0	24	21	14	-	-	-	92	-	8210G26 ② ‡	40P	●	-	-	-	-	16.1F	-		
1	25	11.14	0	-	-	-	7	7	6	-	25	8210B54 ‡	31D	-	8210D89	15D	-	-	30.6/H			
1	25	11.14	0	10	9	9	-	-	-	81	-	8210G54	41D	●	8210G89	45D	●	16.1/F	-			
1	25	11.14	0.3	10	10	7	9	9	9	81	65	8210G4	12D	○	-	-	-	6.1/F	11.6/F			
1	25	11.57	0	21	16	8	-	-	-	92	-	8210G27 ‡	42P	●	-	-	-	20.1/F	-			
1	25	11.57	0.7	21	21	21	-	-	-	79	-	8210G78 ②	13P	-	-	-	-	17.1/F	-			
1 1/4	29	12.86	0	-	-	-	7	7	6	-	25	8210B55 ‡	32D	-	-	-	-	-	30.6/H			
1 1/4	29	12.86	0	10	9	9	-	-	-	81	-	8210G55	43D	●	-	-	-	-	16.1/F	-		
1 1/4	29	12.86	0.3	10	10	7	9	9	9	81	65	8210G8	16D	○	-	-	-	-	6.1/F	11.6/F		
1 1/2	32	19.29	0	-	-	-	7	7	6	-	25	8210B56 ‡	33D	-	-	-	-	-	30.6/H			
1 1/2	32	19.29	0	10	9	9	-	-	-	81	-	8210G56 ‡	44D	●	-	-	-	-	16.1/F	-		
1 1/2	32	19.29	0.3	10	10	7	9	9	9	81	65	8210G22	18D	●	-	-	-	-	6.1/F	11.6/F		
2	44	36.86	0.3	10	9	6	3	3	3	81	65	8210G100	20P	●	-	-	-	-	6.1/F	11.6/F		
2 1/2	44	38.57	0.3	10	9	6	3	3	3	81	65	8210G101	21P	●	-	-	-	-	6.1/F	11.6/F		
<b>NORMALLY OPEN (Open when de-energized), NBR Seating (PA Disc-Holder, except as noted)</b>																						
3/8	16	2.57	0.0	10	10	9	9	9	6	81	65	8210G33	23D	●	-	-	-	-	10.1/F	11.6/F		
3/8	16	2.57	0.3	17	14	14	17	14	14	81	81	8210G11 ⑧ ⑨	39D	●	-	-	-	-	10.1/F	11.6/F		
1/2	16	3.43	0	10	10	9	9	9	6	81	65	8210G34	23D	●	-	-	-	-	10.1/F	11.6/F		
1/2	16	2.57	0	10	10	7	9	9	6	81	65	-	-	-	8210G30	37D	●	10.1/F	11.6/F			
1/2	16	3.43	0.3	17	14	14	17	14	14	81	81	8210G12 ⑧ ⑨	39D	●	-	-	-	-	10.1/F	11.6/F		
3/4	19	4.71	0	10	10	9	9	9	6	81	65	8210G35	25D	●	-	-	-	-	10.1/F	11.6/F		
3/4	16	2.57	0	10	10	7	9	9	6	81	65	-	-	-	8210G38	38D	●	10.1/F	11.6/F			
3/4	19	5.57	0.3	-	-	-	17	14	14	-	81	8210C13	24D	●	-	-	-	-	16.8/F			
3/4	19	5.57	0.3	17	14	14	-	-	-	81	-	8210G13	46D	●	-	-	-	-	16.1/F	-		
1	25	11.14	0	9	9	9	-	-	-	81	-	8210B57 ⑥ ⑩	34D	●	-	-	-	-	20/F	-		
1	25	11.14	0.3	-	-	-	9	9	9	-	81	8210D14	26D	●	-	-	-	-	16.8/F			
1	25	11.14	0.3	10	10	9	-	-	-	81	-	8210G14	47D	●	-	-	-	-	16.1/F	-		
1 1/4	29	12.86	0	9	9	9	-	-	-	81	-	8210B58 ⑥ ⑩	35D	●	-	-	-	-	20/F	-		
1 1/4	29	12.86	0.3	-	-	-	9	9	9	-	81	8210D18	28D	●	-	-	-	-	16.8/F			
1 1/4	29	12.86	0.3	10	10	9	-	-	-	81	-	8210G18	48D	●	-	-	-	-	16.1/F	-		
1 1/2	32	19.29	0	9	9	9	-	-	-	81	-	8210B59 ⑥ ⑩	36D	●	-	-	-	-	20/F	-		
1 1/2	32	19.29	0.3	-	-	-	9	9	9	-	81	8210D32	29D	●	-	-	-	-	16.8/F			
1 1/2	32	19.29	0.3	10	10	9	-	-	-	81	-	8210G32	49D	●	-	-	-	-	16.1/F	-		
2	44	36.86	0.3	-	-	-	9	9	9	-	65	8210I03	30P	●	-	-	-	-	16.8/F			
2	44	36.86	0.3	9	9	9	-	-	-	81	-	8210G103	50P	●	-	-	-	-	16.1/F	-		
2 1/2	44	38.57	0.3	-	-	-	9	9	9	-	65	8210I04	27P	●	-	-	-	-	16.8/F			
2 1/2	44	38.57	0.3	9	9	9	-	-	-	81	-	8210G104	51P	●	-	-	-	-	16.1/F	-		
<b>Notes:</b>												① 0.3 bar on Air; 0.0 bar on Water. ② Valve provided with PTFE main disc. ③ Valve includes Ultem (G.E. trademark) piston. ④ Letter "D" denotes diaphragm construction; "P" denotes piston construction. ⑤ ○ Safety Shutoff Valve; ● General Purpose Valve. Refer to Engineering Section (Approvals) for details.										
												⑥ Valves not available with Explosionproof enclosures. ⑦ On 50 hertz service, the watt rating for the 6.1/F solenoid is 8.1 watts. ⑧ AC construction also has PA seating. ⑨ No disc-holder. ⑩ Stainless Steel disc-holder. ‡ Must have solenoid mounted vertical and upright.										

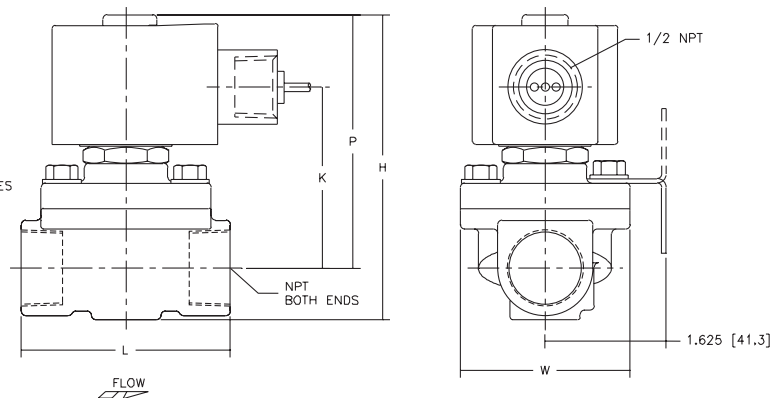
Dimensions: inches (mm)

Constr. Ref. No.		H	K	L	P	W
1*	ins.	3.85	3.00	1.91	3.41	1.69
	mm	98	76	49	87	43
2*	ins.	4.17	3.25	2.28	3.63	1.69
	mm	106	83	58	92	43
13	ins.	4.44	3.22	3.75	4.19	5.81
	mm	113	82	95	106	147
5	ins.	3.84	2.31	2.75	3.28	2.28
	mm	98	59	70	83	58
6*	ins.	3.38	1.94	2.75	2.80	2.28
	mm	86	49	70	71	58
7	ins.	4.19	2.50	2.81	3.47	2.39
	mm	106	64	71	88	61
8	ins.	4.13	2.47	2.81	3.44	2.29
	mm	105	63	71	87	58
9*	ins.	3.66	2.10	2.81	2.96	2.28
	mm	93	53	71	75	58
10*①	ins.	5.25	X	2.81	4.59	2.31
	mm	133	X	71	117	59
11*	ins.	4.16	2.66	3.84	3.52	2.75
	mm	106	68	98	89	70
12	ins.	5.64	3.15	3.75	4.01	3.36
	mm	143	80	95	102	85
15*	ins.	5.34	X	3.75	4.47	3.84
	mm	136	X	95	114	98
16	ins.	5.64	3.15	3.66	4.01	3.56
	mm	143	80	93	102	90
18	ins.	6.11	3.30	4.38	4.16	3.92
	mm	155	84	111	106	100
20*	ins.	7.33	3.71	5.06	4.57	4.87
	mm	186	94	129	116	124
21*	ins.	7.33	3.71	5.50	4.57	4.87
	mm	186	94	140	116	124
23	ins.	4.35	2.65	2.75	3.79	2.28
	mm	110	67	70	96	58
24	ins.	5.06	X	3.78	4.44	2.75
	mm	129	X	96	113	70
25	ins.	4.64	2.81	2.81	3.94	2.28
	mm	118	71	71	100	58
26	ins.	6.53	X	3.75	4.91	3.19
	mm	166	X	95	125	81
27	ins.	8.22	X	5.50	5.47	4.87
	mm	209	X	140	139	124
28	ins.	6.53	X	3.66	4.91	3.19
	mm	166	X	93	125	81
29	ins.	7.03	X	4.38	5.06	4.40
	mm	179	X	111	129	112

① Valves must be mounted with solenoid vertical and upright.  
\* DC dimensions slightly larger.



Constr. Refs. 5-9, 11, 20, 21, 23, 25, 37,38

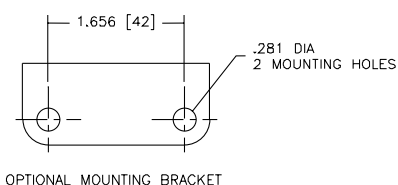
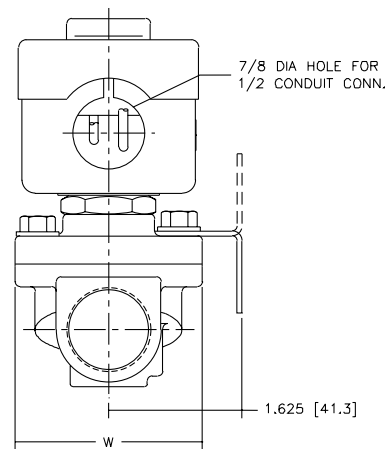
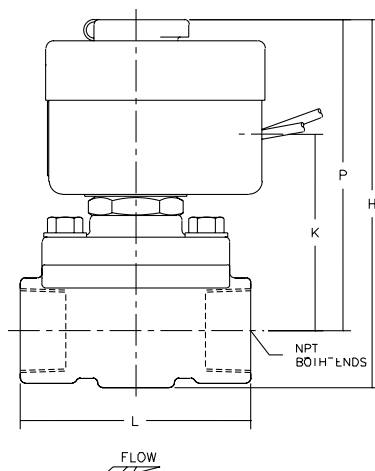


Dimensions: inches (mm)

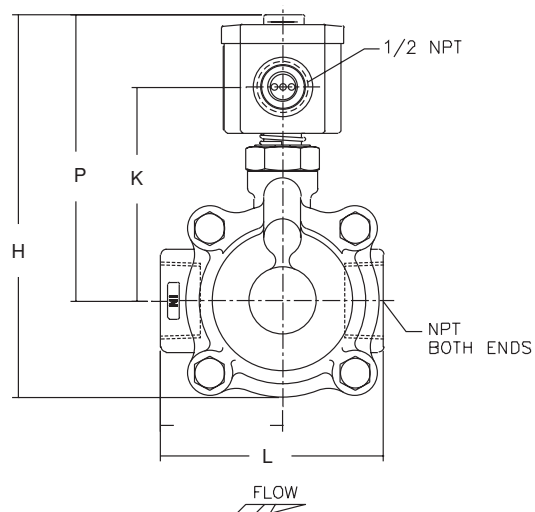
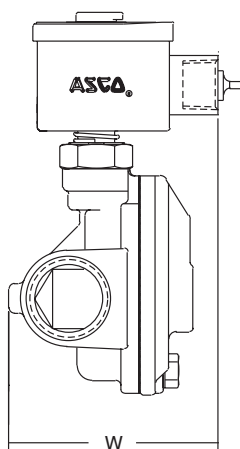
Constr. Ref. No.		H	K	L	P	W
30	ins.	8.22	X	5.06	5.47	4.87
	mm	209	X	129	139	124
31	ins.	5.25	X	3.75	4.44	3.25
	mm	133	X	95	113	83
32	ins.	5.69	X	3.66	4.69	3.25
	mm	145	X	93	119	83
33	ins.	6.06	X	4.38	4.94	3.91
	mm	154	X	111	125	99
34	ins.	6.91	X	3.75	6.09	3.25
	mm	176	X	95	155	83
35	ins.	7.34	X	3.66	6.34	3.25
	mm	186	X	93	161	83
36	ins.	7.66	X	4.38	6.56	3.91
	mm	195	X	111	167	99
37	ins.	4.61	2.75	2.81	3.89	2.39
	mm	117	70	71	99	61
38	ins.	4.61	2.75	2.81	3.89	2.39
	mm	117	70	71	99	61
39	ins.	5.42	2.31	2.75	4.86	3.80
	mm	138	59	70	123	97
40	ins.	5.20	3.29	2.81	4.50	2.28
	mm	132	83	71	114	58
41	ins.	5.13	3.10	3.75	4.32	3.25
	mm	130	79	95	110	83
42	ins.	6.43	4.40	3.93	5.62	3.25
	mm	163	112	100	143	83
43	ins.	5.57	3.35	3.66	4.57	3.25
	mm	142	85	93	116	83
44	ins.	5.90	3.57	4.38	4.79	3.91
	mm	150	91	111	122	99
45	ins.	5.26	3.17	3.75	4.38	3.84
	mm	134	81	95	111	98
46	ins.	4.95	3.10	3.84	4.31	2.75
	mm	126	79	98	110	70
47	ins.	6.43	3.59	3.75	4.81	3.52
	mm	163	91	95	122	90
48	ins.	6.43	3.59	3.66	4.81	3.73
	mm	163	91	93	122	95
49	ins.	6.91	3.75	4.38	4.96	4.40
	mm	176	95	111	126	112
50	ins.	8.13	4.15	5.06	5.37	4.87
	mm	207	105	129	136	124
51	ins.	8.13	4.15	5.50	5.37	5.18
	mm	207	105	140	136	132

**IMPORTANT:** Valves may be mounted in any position, except as noted in specifications table.

Constr. Refs. 10, 15, 24, 26-36



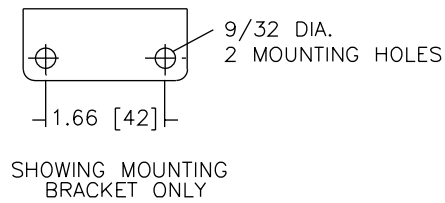
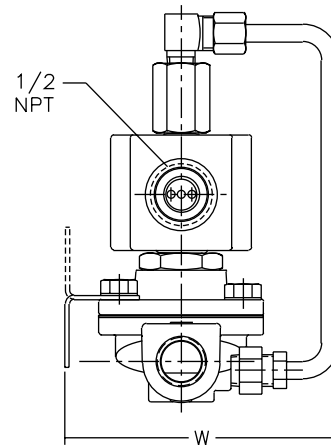
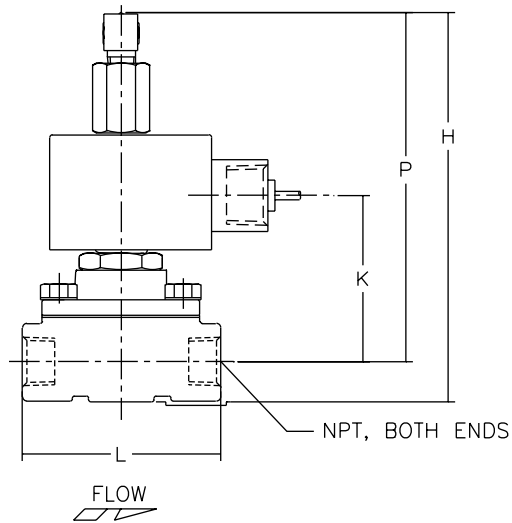
Constr. Refs. 12, 16, 18



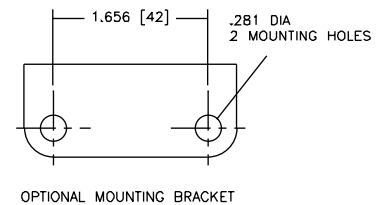
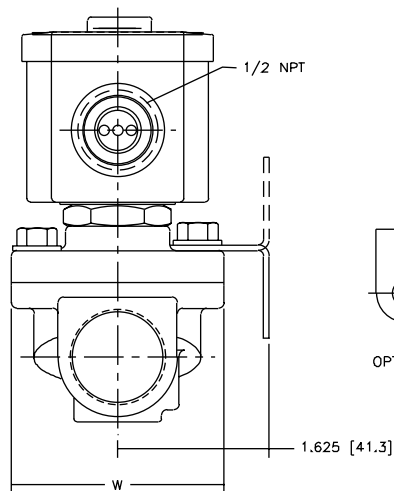
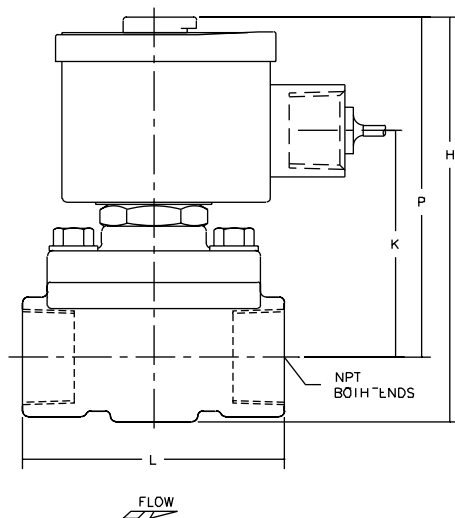
**Note:** Valve must be mounted with solenoid vertical and upright.

Dimensions: inches (mm)

Constr. Refs. 39



Constr. Refs. 40-51



### Features

- Pilot Operated, Normally Open or Normally Closed.
- Snubber slows disc closing speed to protect system against water hammer damage more effectively than other techniques.
- Pressure spike due to water hammer reduced to a point eliminating the need for suppressors or other controls in most water systems.
- Fluid Controls Institute Inc. evaluations have classified these valves:

#### Pipe Sizes

3/8", 1/2", 3/4"

1", 1 1/4", 1 1/2", 2", 2 1/2"

#### FCI-82-1 Class

CC

BB

### Construction

Valve Parts in Contact with Fluids	
Body	Brass
Disc	NBR
Seals	PTFE & NBR
Core Tube	305 Stainless Steel
Core and Plugnut	430F Stainless Steel
Springs	302 Stainless Steel
Piston	Stainless Steel or Brass
Shading Coil	Copper

### Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part No.			
	DC Watts	AC			General Purpose		Explosionproof	
		Watts	VA Holding	VA Inrush	AC	DC	AC	DC
F	11.6	6.1	16	30	238210	238710	238214	238714
F	16.8	16.1	35	95	272610	97617	272614	97617
F	22.6	-	-	-	-	238710	-	238714

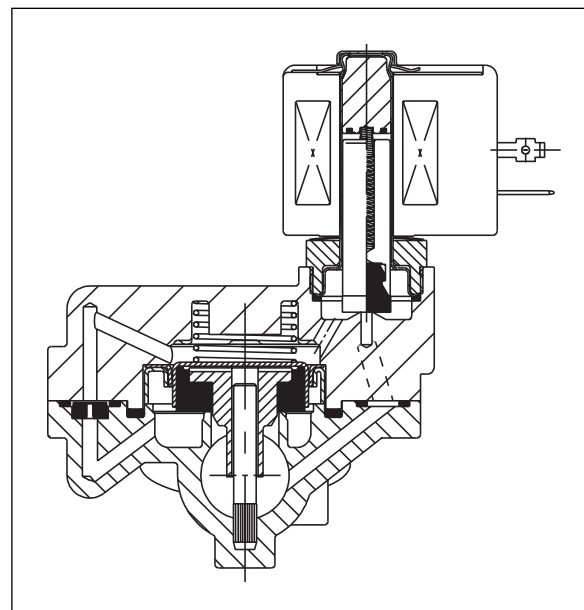
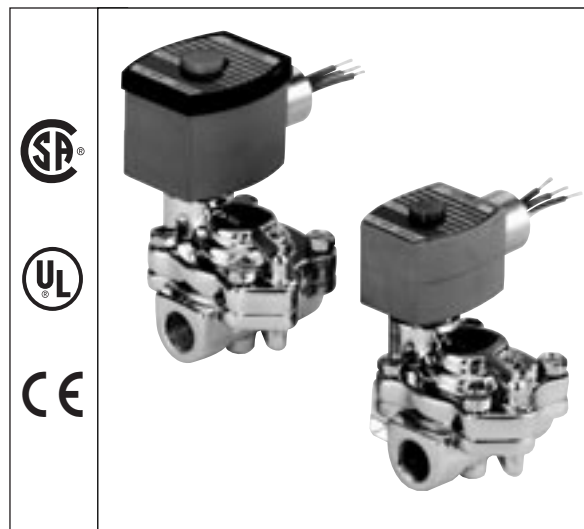
**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz).  
6, 12, 24, 120, 240 volts DC. Must be specified when ordering. Other voltages are available when required.

### Solenoid Enclosures

**Standard:** Red-Hat II - Watertight, Types 1, 2, 3, 3S, 4, and 4X; Red-Hat - Type I.

**Optional:** Red-Hat II - Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9; Red-Hat - Explosionproof and Raintight, Types 3, 7, and 9. (To order, add prefix "EF" to catalog number.)

See *Optional Features Section* for other available options.



### Nominal Ambient Temperature Ranges:

Red-Hat II/  
Red-Hat AC: 32°F to 125°F (0°C to 52°C)

Red-Hat II DC: 32°F to 104°F (0°C to 40°C)

Red-Hat DC: 32°F to 77°F (0°C to 25°C)  
(104°F/40°C occasionally)

Refer to *Engineering Section* for details.

### Approvals:

CSA certified. UL listed, General Purpose Valves.

Red-Hat II meets applicable CE directives.

Refer to *Engineering Section* for details.

## Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Operating Pressure Differential (psi)			Maximum Fluid Temp. °F		Brass Body		Watt Rating/ Class of Coil Insulation ③	
			Min. ①	Max. AC	Max. DC	AC	DC			AC	DC
				Water ②	Water ②			Catalog Number	Constr. Ref. No.		
NORMALLY CLOSED (Closed when de-energized)											
3/8	9/16	3	5	150	125	180	150	8221G1	1	6.1/F	11.6/F
1/2	9/16	3.5	5	150	125	180	150	8221G3	1	6.1/F	11.6/F
3/4	3/4	5.5	5	150	125	180	150	8221G5	2	6.1/F	11.6/F
1	1	11.5	5	150	125	180	150	8221G7	5	6.1/F	11.6/F
1 1/4	1 1/8	13	5	150	125	180	150	8221G9	6	6.1/F	11.6/F
1 1/2	1 1/4	24	5	150	125	180	150	8221G11	7	6.1/F	11.6/F
2	1 3/4	36	5	150	125	180	150	8221G13	11	6.1/F	22.6/F
2 1/2	1 3/4	38	5	150	125	180	150	8221G15	12	6.1/F	22.6/F
NORMALLY OPEN (Open when de-energized)											
3/8	9/16	3	5	-	125	-	150	822121	15	-	16.8/F
3/8	9/16	3	5	150	-	180	-	8221G21	3	16.1/F	-
1/2	9/16	3.5	5	-	125	-	150	822123	15	-	16.8/F
1/2	9/16	3.5	5	150	-	180	-	8221G23	3	16.1/F	-
3/4	3/4	5.5	5	-	125	-	150	822125	16	-	16.8/F
3/4	3/4	5.5	5	150	-	180	-	8221G25	4	16.1/F	-
1	1	11.5	5	-	125	-	150	822127	17	-	16.8/F
1	1	11.5	5	150	-	180	-	8221G27	8	16.1/F	-
1 1/4	1 1/8	13	5	-	125	-	150	822129	18	-	16.8/F
1 1/4	1 1/8	13	5	150	-	180	-	8221G29	9	16.1/F	-
1 1/2	1 1/4	24	5	-	125	-	150	822131	19	-	16.8/F
1 1/2	1 1/4	24	5	150	-	180	-	8221G31	10	16.1/F	-
2	1 3/4	36	5	-	125	-	150	822133	20	-	16.8/F
2	1 3/4	36	5	150	-	180	-	8221G33	13	16.1/F	-
2 1/2	1 3/4	38	5	-	125	-	150	822135	21	-	16.8/F
2 1/2	1 3/4	38	5	150	-	180	-	8221G35	14	16.1/F	-
Notes: ① Valves require a 5 psi Minimum Pressure Differential to open. Once open, they remain open with 3 psi differential pressure. ② Refer to Steam/Hot Water Valve Series for Hot Water constructions. ③ On 50 hertz service, the watt rating for the 6.1/F solenoid is 8.1 watts.											
Response time upon energization: 3/8" - 1/2" (2-4 seconds), 3/4" - 1 1/4" (4-8 seconds), 1 1/2" - 2 1/2" (8-10 seconds)											

## Specifications (Metric units)

Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Operating Pressure Differential (bar)			Maximum Fluid Temp. °C		Brass Body		Watt Rating/ Class of Coil Insulation ③	
			Min. ①	Max. AC	Max. DC	AC	DC			Catalog Number	Constr. Ref. No.
				Water ②	Water ②						
NORMALLY CLOSED (Closed when de-energized)											
3/8	14	2.57	0.3	10	9	81	65	8221G1	1	6.1/F	11.6/F
1/2	14	3.00	0.3	10	9	81	65	8221G3	1	6.1/F	11.6/F
3/4	19	4.71	0.3	10	9	81	65	8221G5	2	6.1/F	11.6/F
1	25	9.86	0.3	10	9	81	65	8221G7	5	6.1/F	11.6/F
1 1/4	29	11.14	0.3	10	9	81	65	8221G9	6	6.1/F	11.6/F
1 1/2	32	20.57	0.3	10	9	81	65	8221G11	7	6.1/F	11.6/F
2	44	30.86	0.3	10	9	81	65	8221G13	11	6.1/F	22.6/F
2 1/2	44	32.57	0.3	10	9	81	65	8221G15	12	6.1/F	22.6/F
NORMALLY OPEN (Open when de-energized)											
3/8	14	2.57	0.3	-	9	-	65	822121	15	-	16.8/F
3/8	14	2.57	0.3	10	-	81	-	8221G21	3	16.1/F	-
1/2	14	3.00	0.3	-	9	-	65	822123	15	-	16.8/F
1/2	14	3.00	0.3	10	-	81	-	8221G23	3	16.1/F	-
3/4	19	4.71	0.3	-	9	-	65	822125	16	-	16.8/F
3/4	19	4.71	0.3	10	-	81	-	8221G25	4	16.1/F	-
1	25	9.86	0.3	-	9	-	65	822127	17	-	16.8/F
1	25	9.86	0.3	10	-	81	-	8221G27	8	16.1/F	-
1 1/4	29	11.14	0.3	-	9	-	65	822129	18	-	16.8/F
1 1/4	29	11.14	0.3	10	-	81	-	8221G29	9	16.1/F	-
1 1/2	32	20.57	0.3	-	9	-	65	822131	19	-	16.8/F
1 1/2	32	20.57	0.3	10	-	81	-	8221G31	10	16.1/F	-
2	44	30.86	0.3	-	9	-	65	822133	20	-	16.8/F
2	44	30.86	0.3	10	-	81	-	8221G33	13	16.1/F	-
2 1/2	44	32.57	0.3	-	9	-	65	822135	21	-	16.8/F
2 1/2	44	32.57	0.3	10	-	81	-	8221G35	14	16.1/F	-
Notes: ① Valves require a 0.3 bar Minimum Pressure Differential to open. Once open, they remain open with 0.2 bar differential pressure. ② Refer to Steam/Hot Water Valve Series for Hot Water constructions. ③ On 50 hertz service, the watt rating for the 6.1/F solenoid is 8.1 watts.											
Response time upon energization: 3/8" - 1/2" (2-4 seconds), 3/4" - 1 1/4" (4-8 seconds), 1 1/2" - 2 1/2" (8-10 seconds)											

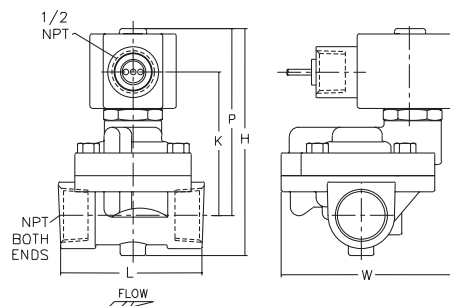


Dimensions: inches (mm)

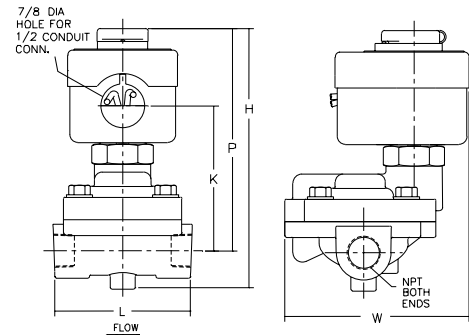
Constr. Ref. No.		H	K	L	P	W
1	ins.	4.34	2.69	2.72	3.59	3.41
	mm	110	68	69	91	87
2	ins.	4.53	2.69	2.78	3.75	3.41
	mm	115	68	71	95	87
3	ins.	5.22	3.14	2.72	4.47	3.69
	mm	133	80	69	114	94
4	ins.	5.41	3.30	2.78	4.62	3.69
	mm	137	84	71	117	94
5	ins.	5.62	3.15	3.75	4.03	3.16
	mm	143	80	95	102	80
6	ins.	5.56	3.15	3.66	4.03	3.56
	mm	141	80	93	102	90
7	ins.	6.12	3.30	4.38	4.19	4.12
	mm	156	84	111	106	105
8	ins.	6.53	3.59	3.75	4.91	3.16
	mm	166	91	95	125	80
9	ins.	6.47	3.59	3.56	4.91	3.56
	mm	164	91	93	125	90
10	ins.	7.03	3.74	4.38	5.06	4.12
	mm	179	95	111	129	105
11	ins.	7.38	3.71	5.06	4.59	4.72
	mm	188	94	129	117	120
12	ins.	7.38	3.71	5.50	4.59	5.19
	mm	188	94	140	117	132
13	ins.	8.22	4.15	5.06	5.47	4.72
	mm	209	105	129	139	120
14	ins.	8.22	4.15	5.50	5.47	5.19
	mm	209	105	140	139	132
15	ins.	5.22	X	2.72	4.47	3.69
	mm	133	X	69	114	94
16	ins.	5.41	X	2.78	4.62	3.69
	mm	137	X	71	117	94
17	ins.	6.53	X	3.75	4.91	3.16
	mm	166	X	95	125	80
18	ins.	6.47	X	3.66	4.91	3.56
	mm	164	X	93	125	90
19	ins.	7.03	X	4.38	5.06	4.12
	mm	179	X	111	129	105
20	ins.	8.22	X	5.06	5.47	4.72
	mm	209	X	129	139	120
21	ins.	8.22	X	5.50	5.47	5.19
	mm	209	X	140	139	132

**IMPORTANT:** Valves may be mounted in any position.

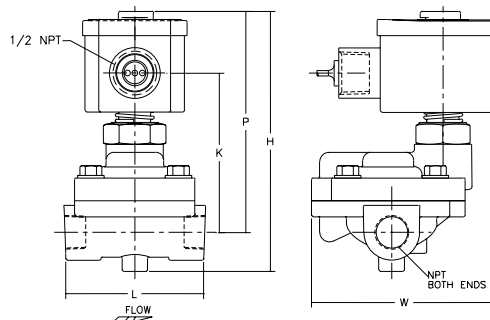
Constr. Refs. 1, 2



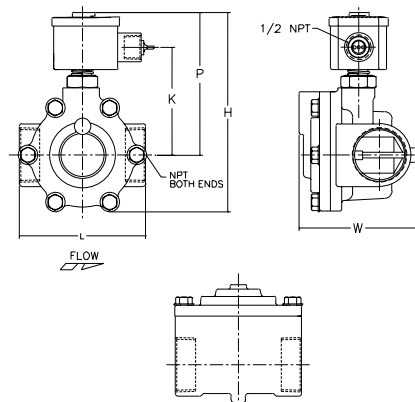
Constr. Refs. 15, 16



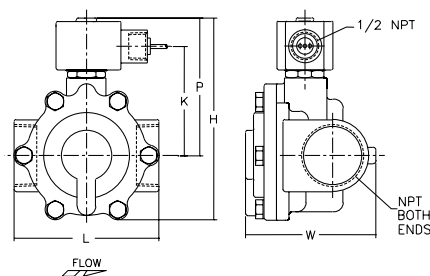
Constr. Refs. 3, 4



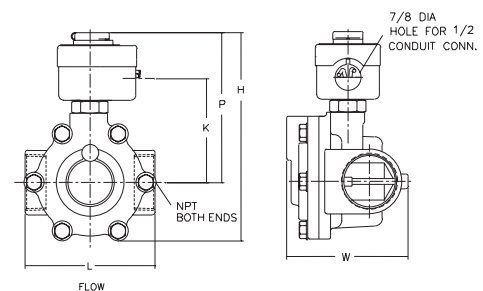
Constr. Refs. 8, 9, 10, 13, 14



Constr. Refs. 5, 6, 7, 11, 12



Constr. Refs. 17 - 21



## Features

- Rugged piston construction built to withstand pressure ratings of 450 to 1500 psi.
- Angle body design for high flows.
- Ideal for high pressure water applications, such as car washes.
- Mountable in any position.

## Construction

Valve Parts in Contact with Fluids		
Body	Brass	300 Stainless Steel
Seals and Disc	NBR, PA, PTFE	PTFE, NBR
Core Tube	305 Stainless Steel	
Core and Plugnut	430F Stainless Steel	
Core Spring	302 Stainless Steel	
Shading Coil	Copper	Silver
Stem	PA (Normally Open)	

## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part Number			
	DC Watts	AC			General Purpose		Explosionproof	
		Watts	VA Holding	VA Inrush	AC	DC	AC	DC
F	-	10.1	25	50	238610	-	238614	-
F	22.6	17.1	40	70	238610	238710	238614	238714

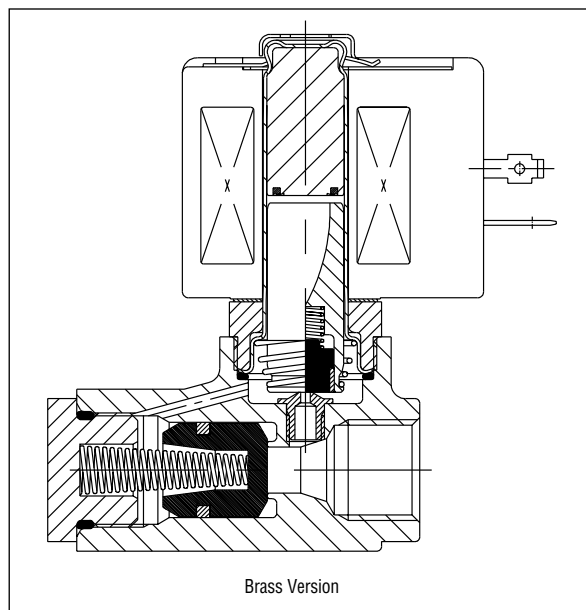
**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz). 6, 12, 24, 120, 240 volts DC. Must be specified when ordering. Other voltages available when required.

## Solenoid Enclosures

**Standard:** Watertight, Types 1, 2, 3, 3S, 4, and 4X.

**Optional:** Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9. (To order, add prefix "EF" to catalog number.)

See *Optional Features Section* for other available options.



## Nominal Ambient Temperature Ranges:

AC: 32°F to 125°F (0°C to 52°C)

DC: 32°F to 104°F (0°C to 40°C)

Refer to *Engineering Section* for details.

## Approvals:

CSA certified. Meets applicable CE directives.

Refer to *Engineering Section* for details.

## Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Operating Pressure Differential (psi)							Maximum Fluid Temp. °F		Brass Body		Stainless Steel Body		Watt Rating/ Class of Coil Insulation	
			Min.	Max. AC			Max. DC			AC	DC					Catalog Number	Constr. Ref. No.
				Air- Inert Gas	Water	Light Oil @ 300 SSU	Air- Inert Gas	Water	Light Oil @ 300 SSU								
NORMALLY CLOSED (Closed when de-energized)																	
1/4	5/16	1.5	10	750	750	750	-	-	-	200	-	8223G21	1	-	-	10.1/F	-
1/4	5/16	1.5	10	1500	1500	1500	500	500	500	200	150	8223G25	1	-	-	17.1/F	22.6/F
3/8	5/16	1.5	10	750	750	750	400	400	400	200	150	8223G23	1	-	-	10.1/F	22.6/F
3/8	5/16	1.5	10	1500	1500	1500	500	500	500	200	150	8223G27	1	-	-	17.1/F	22.6/F
1/2	3/8	3.2	25	1500	1500	1500	500	500	500	200	150	8223G3	2	8223G10	4	17.1/F	22.6/F
3/4	3/4	7.8	25	750	750	750	450	450	450	200	150	8223G5	3	8223G12	5	17.1/F	22.6/F

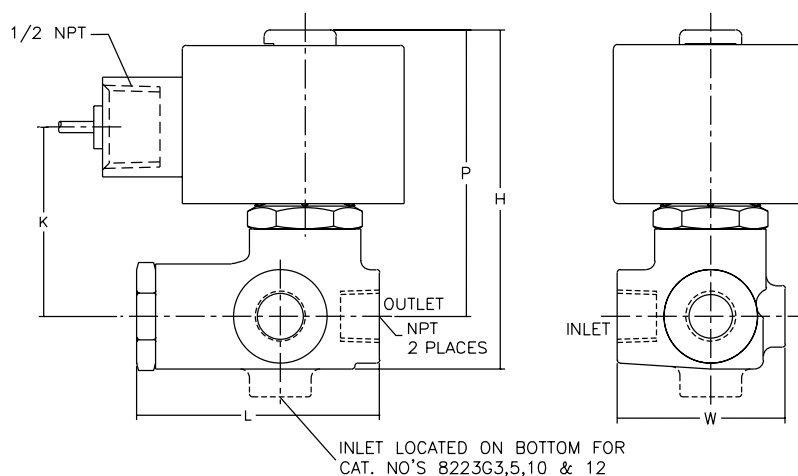
## Specifications (Metric units)

Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Operating Pressure Differential (bar)							Maximum Fluid Temp. °C		Brass Body		Stainless Steel Body		Watt Rating/ Class of Coil Insulation	
			Min.	Max. AC			Max. DC			AC	DC						
				Air- Inert Gas	Water	Light Oil @ 300 SSU	Air- Inert Gas	Water	Light Oil @ 300 SSU			Catalog Number	Constr. Ref. No.	Catalog Number	Constr. Ref. No.	AC	DC
NORMALLY CLOSED (Closed when de-energized)																	
1/4	8	1.29	0.7	52	52	52	-	-	-	92	-	8223G21	1	-	-	10.1/F	-
1/4	8	1.29	0.7	103	103	103	34	34	34	92	65	8223G25	1	-	-	17.1/F	22.6/F
3/8	8	1.29	0.7	52	52	52	28	28	28	92	65	8223G23	1	-	-	10.1/F	22.6/F
3/8	8	1.29	0.7	103	103	103	34	34	34	92	65	8223G27	1	-	-	17.1/F	22.6/F
1/2	10	2.74	1.7	103	103	103	34	34	34	92	65	8223G3	2	8223G10	4	17.1/F	22.6/F
3/4	19	6.69	1.7	52	52	52	31	31	31	92	65	8223G5	3	8223G12	5	17.1/F	22.6/F

## Dimensions: inches (mm)

Constr. Ref. No.		H	K	L	P	W
1	ins.	3.41	1.91	2.44	2.88	1.95
	mm	87	49	62	73	50
2	ins.	4.32	2.17	3.03	3.13	1.95
	mm	110	55	77	80	50
3	ins.	5.03	2.64	3.60	3.61	2.00
	mm	128	67	91	92	51
4	ins.	4.34	2.15	2.50	3.13	1.95
	mm	110	55	64	80	50
5	ins.	5.03	2.53	3.53	3.50	3.50
	mm	128	64	90	89	89

Constr. Refs. 1 - 5



## Features

- Economical, Normally Closed valves for a wide range of OEM applications.
- Convertable from AC to DC by changing the molded epoxy open frame coil.
- Individual valves handle mildly aggressive fluids.
- Group mounted valves (max. 10 valves) have aluminum bodies and built-in manual operators for air service.
- Mountable in any position.

## Construction

Valve Parts in Contact with Fluids		
<b>Body</b>		
<b>Individual Valves</b>	Brass	Stainless Steel
<b>Group Mounted</b>	Aluminum	
<b>Seals and Discs</b>	NBR or FKM	
<b>Core and Plugnut</b>	430F Stainless Steel	
<b>Core Springs</b>	302 Stainless Steel	
<b>Shading Coil</b>	Copper	

## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part Number	
	DC Watts	AC				
		Watts	VA Holding	VA Inrush	AC	DC
F	6.9	6.3	8.8	12.1	400125	400125

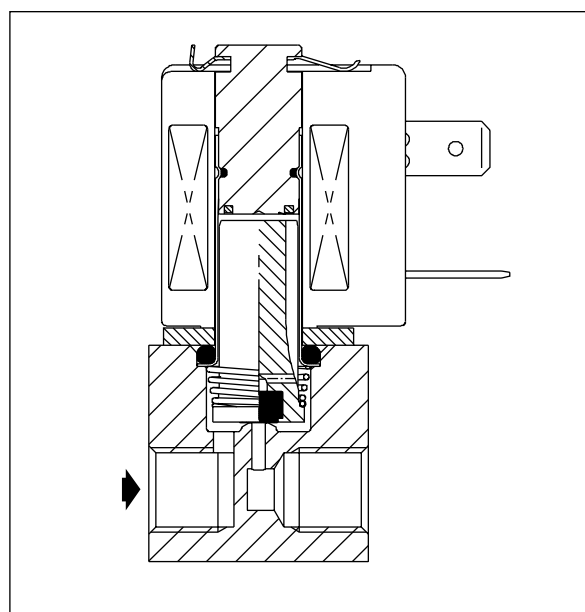
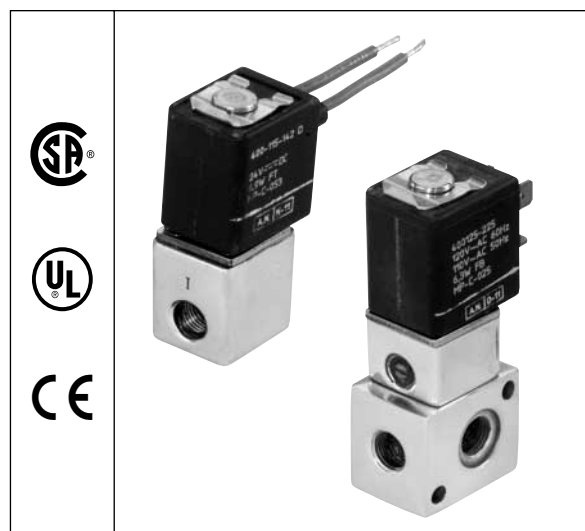
**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz (or 110, 220 volts AC 50 Hz). 6, 12, 24, 120, 240 volts DC. Must be specified when ordering. Other voltages available when required.

## Solenoid

**Standard:** Molded epoxy open frame solenoid can be converted from AC to DC by simply changing the coil.

**Optional:** 3x DIN 46244 coil; 1/2" Threaded Conduit Hub.

See *Optional Features Section, page 10.06*, for other available options.



## Nominal Ambient Temperature Ranges:

AC: 32°F to 135°F (0°C to 57°C)

DC: 32°F to 77°F (0°C to 25°C)

Refer to *Engineering Section* for details.

## Approvals:

CSA certified. UL Recognized Component. Meets applicable CE directives.

Refer to *Engineering Section* for details.

## Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Operating Pressure Differential (psi)						Max. Fluid Temp. °F		Open Frame Solenoid		Watt Rating/ Class of Coil Insulation	
			Max. AC			Max. DC					Brass Body	Stainless Steel Body		
			Air-Inert Gas	Water	Light Oil @ 300 SSU	Air-Inert Gas	Water	Light Oil @ 300 SSU	AC	DC	Catalog Number	Catalog Number	AC	DC
NORMALLY CLOSED (Closed when de-energized), FKM Disc														
1/8	3/64	.05	500	500	500	200	200	200	180	77	U8225B1V	U8225B5V	6.3/F	6.9/F
1/8	1/16	.07	300	300	300	125	125	125	180	77	U8225B2V	U8225B6V	6.3/F	6.9/F
1/8	3/32	.17	175	175	175	30	30	30	180	77	U8225B3V	U8225B7V	6.3/F	6.9/F
1/8	1/8	.23	125	125	125	20	20	20	180	77	U8225B4V	U8225B8V	6.3/F	6.9/F

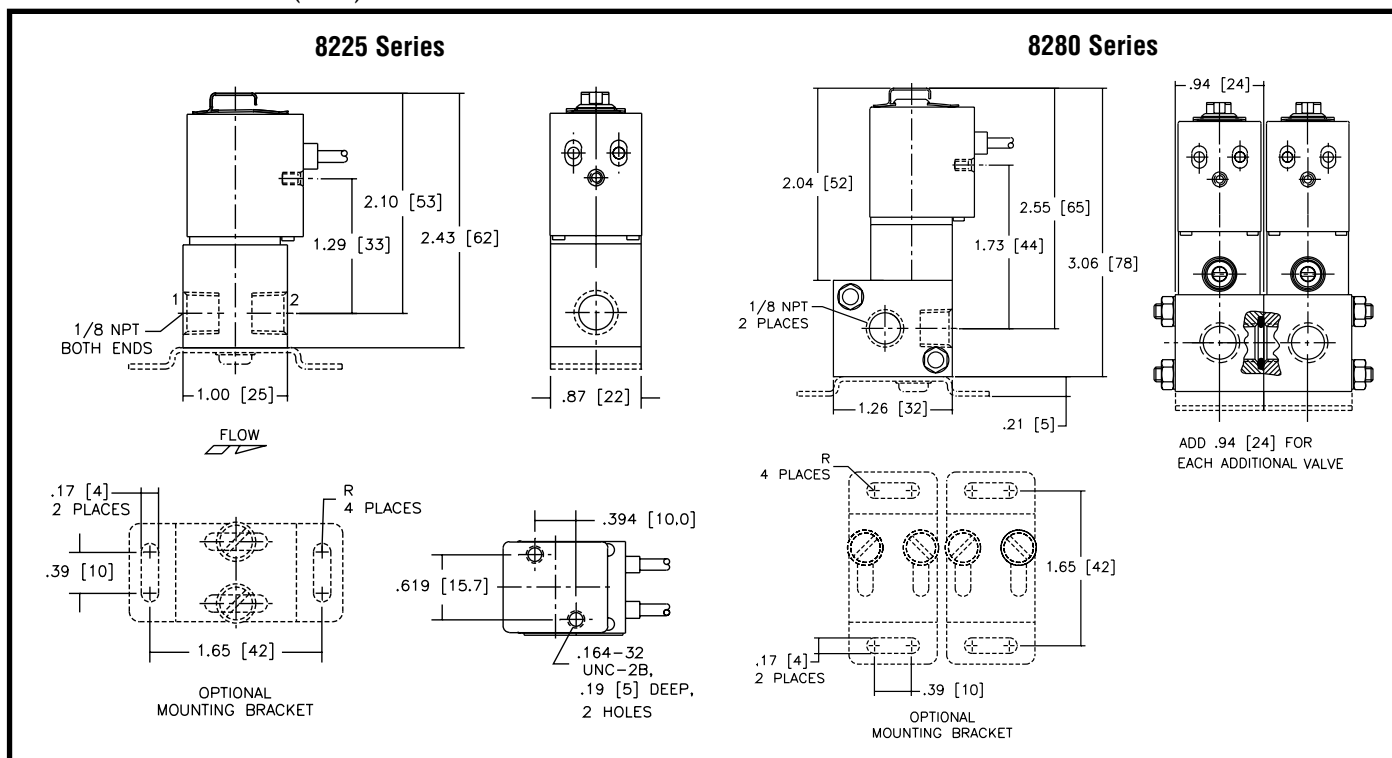
Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Operating Pressure Differential (psi)		Max. Fluid Temp. °F		Open Frame Solenoid		Watt Rating/ Class of Coil Insulation	
			Max. AC	Max. DC			Operator Only	Sub-Base Construction		
			Air-Inert Gas	Air-Inert Gas	AC	DC	Catalog Number	Catalog Number	AC	DC
			GROUP MOUNTING - NORMALLY CLOSED (Closed when de-energized), Aluminum Body, NBR Disc							
1/8	3/64	.05	150	150	180	77	U8280B1	U8280B2	6.3/F	6.9/F

## Specifications (Metric units)

Pipe Size Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Operating Pressure Differential (bar)						Max. Fluid Temp. °C		Open Frame Solenoid		Watt Rating/ Class of Coil Insulation	
			Max. AC			Max DC					Brass Body	Stainless Steel Body		
			Air-Inert Gas	Water	Light Oil @ 300 SSU	Air-Inert Gas	Water	Light Oil @ 300 SSU	AC	DC	Catalog Number	Catalog Number	AC	DC
			NORMALLY CLOSED (Closed when de-energized), FKM Disc											
1/8	1.2	.04	34	34	34	14	14	14	81	27	U8225B1V	U8225B5V	6.3/F	6.9/F
1/8	1.6	.06	21	21	21	9	9	9	81	27	U8225B2V	U8225B6V	6.3/F	6.9/F
1/8	2.4	.15	12	12	12	2	2	2	81	27	U8225B3V	U8225B7V	6.3/F	6.9/F
1/8	3.2	.20	9	9	9	1	1	1	81	27	U8225B4V	U8225B8V	6.3/F	6.9/F

Pipe Size Size (ins.)	Orifice Size Size (mm)	Kv Flow Factor (m3/h)	Operating Pressure Differential (bar)		Max. Fluid Temp °C		Open Frame Solenoid		Watt Rating/ Class of Coil Insulation	
			Max. AC	Max. DC			Operator Only	Sub-Base Construction		
			Air-Inert Gas	Air-Inert Gas	AC	DC	Catalog Number	Catalog Number	AC	DC
GROUP MOUNTING - NORMALLY CLOSED (Closed when de-energized), Aluminum Body, NBR Disc										
1/8	1.2	.04	10	10	81	25	U8280B1	U8280B2	6.3/F	6.9/F

## Dimensions: inches (mm)



## Features

- Corrosion resistant plastic bodies.
- Available with compression fitting ends for metal or plastic tube to save installation cost.
- Mountable in any position.
- Dispensing vending construction NSF listed.

## Construction

Valve Parts in Contact with Fluids	
Body	CA, PA, PP
Seals and Disc	NBR
Core Tube	305 Stainless Steel
Core and Plugnut	430F Stainless Steel
Springs	302 Stainless Steel
Shading Coil	Copper

## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part Number	
	DC Watts	AC			General Purpose	
		Watts	VA Holding	VA Inrush	AC	DC
B	6.4	6.5	9.2	17.3	174879	180555
F	10.6	6.1	16	30	238210	238310

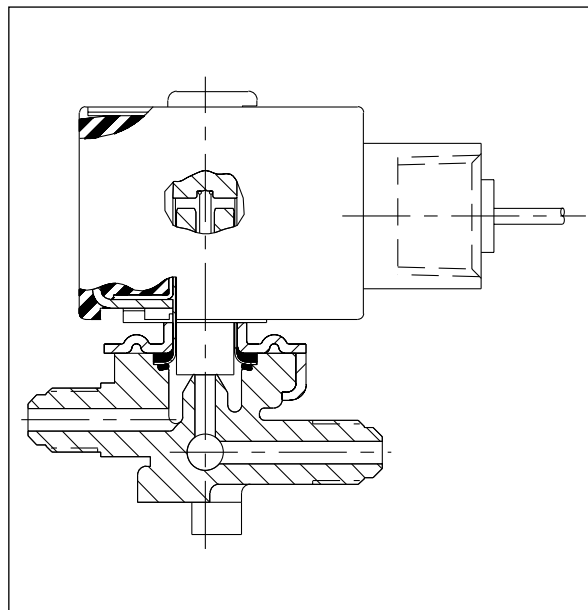
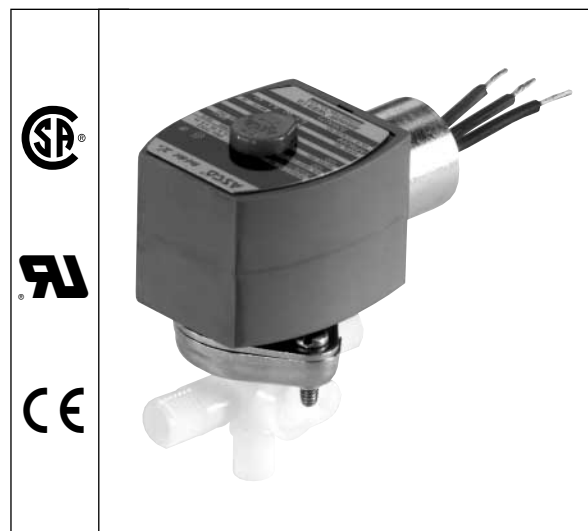
**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz).  
 6, 12, 24, 120, 240 volts DC. Must be specified when ordering. Other voltages available when required.

## Solenoid Enclosures

**Standard:** Watertight, Types 1, 2, 3, 3S, 4, and 4X.

**Optional:** Open Frame Solenoid, Junction Box enclosures.

*See Optional Features Section for descriptions on these options.*



## Nominal Ambient Temperature Range:

AC: 32°F to 125°F (0°C to 52°C)

DC: 32°F to 104°F (0°C to 40°C)

*Refer to Engineering Section for details.*

## Approvals:

CSA certified. UL Recognized Component. Meets applicable CE directives.

*Refer to Engineering Section for details.*

## Specifications (English units)

Pipe Connections	Orifice Size (ins.)	Cv Flow Factor	Operating Pressure Differential (psi)				Max. Fluid Temp. °F		Plastic Body		Watt Rating/ Class of Coil Insulation ②	
			Max. AC		Max. DC							
			Air-Inert Gas	Water	Air-Inert Gas	Water	AC	DC	Catalog Number	Constr. Ref. No.	AC	DC
GENERAL SERVICE CONSTRUCTION - CA Body, Watertight enclosure with leads												
1/4" Male Flare	9/64	.35	120	120	50	50	130	120	8260G42	1	6.1/F	10.6/F
Bib for 1/4" I.D. Tube	9/64	.35	120	120	50	50	130	120	8260G54	2	6.1/F	10.6/F
1/4" O.D. ① Compression	9/64	.35	120	120	50	50	130	120	8260G71	3	6.1/F	10.6/F
GENERAL SERVICE CONSTRUCTION - PP Body, Open Frame Solenoid and Spade Terminal Coils												
1/4" O.D. ① Compression	1/16	.09	150	150	60	60	130	120	USM826073	5	6.5/B	6.4/B
	3/32	.19	100	100	20	20	130	120	USM826074	5	6.5/B	6.4/B
	1/8	.31	60	60	10	10	130	120	USM826075	5	6.5/B	6.4/B
	5/32	.43	35	35	5	5	130	120	USM826076	5	6.5/B	6.4/B
DISPENSING VENDING CONSTRUCTION - NSF Listed - PP Body, Open Frame Solenoid and Spade Terminal Coils												
1/4" O.D. ① Compression	1/16	.09	150	150	60	60	130	120	USM826077	4	6.5/B	6.4/B
	3/32	.19	100	100	20	20	130	120	USM826078	4	6.5/B	6.4/B
	1/8	.31	60	60	10	10	130	120	USM826079	4	6.5/B	6.4/B
	5/32	.43	35	35	5	5	130	120	USM826080	4	6.5/B	6.4/B
DISPENSING VENDING CONSTRUCTION - NSF Listed - PA Body, Open Frame Solenoid and Spade Terminal Coils												
3/8" O.D. ① Compression	5/16	1.3	5	5	-	-	130	-	USM826090	6	6.5/B	-
PA Body, Open Frame Solenoid and Spade Terminal Coils												
3/8" O.D. ① Compression	5/16	1.3	5	5	-	-	130	-	USM826089	6	6.5/B	-
Notes: ① Fittings not supplied with valve. To order, refer to List Price Schedule. Kit No. 224150 - plastic tubing, and Kit No. 224151 - metal tubing. ② On 50 hertz service, the watt rating for the 6.1/F solenoid is 8.1 watts.												

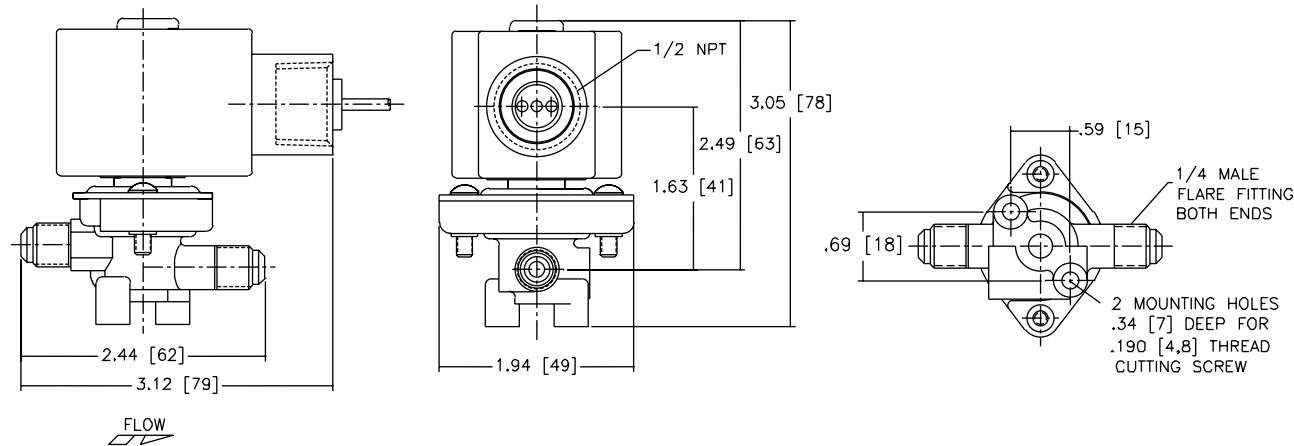
## Specifications (Metric units)

Pipe Connections	Orifice Size (mm)	Kv Flow Factor (m3/h)	Operating Pressure Differential (bar)				Max. Fluid Temp. °C		Plastic Body		Watt Rating/ Class of Coil Insulation ②	
			Max. AC		Max. DC							
			Air-Inert Gas	Water	Air-Inert Gas	Water	AC	DC	Catalog Number	Constr. Ref. No.	AC	DC
GENERAL SERVICE CONSTRUCTION - CA Body, Watertight enclosure with leads												
1/4" Male Flare	3.6	.30	8.3	8.3	3.4	3.4	54	49	8260G42	1	6.1/F	10.6/F
Bib for 1/4" I.D. Tube	3.6	.30	8.3	8.3	3.4	3.4	54	49	8260G54	2	6.1/F	10.6/F
1/4" O.D. ① Compression	3.6	.30	8.3	8.3	3.4	3.4	54	49	8260G71	3	6.1/F	10.6/F
GENERAL SERVICE CONSTRUCTION - PP Body, Open Frame Solenoid and Spade Terminal Coils												
"1/4" O.D. ① Compression	1.6	.08	10.3	10.3	4.1	4.1	54	49	USM826073	5	6.5/B	6.4/B
	2.4	.16	6.9	6.9	1.4	1.4	54	49	USM826074	5	6.5/B	6.4/B
	3.2	.27	4.1	4.1	0.7	0.7	54	49	USM826075	5	6.5/B	6.4/B
	4.0	.37	2.4	2.4	0.3	0.3	54	49	USM826076	5	6.5/B	6.4/B
DISPENSING VENDING CONSTRUCTION - NSF Listed - PP Body, Open Frame Solenoid and Spade Terminal Coils												
1/4" O.D. ① Compression	1.6	.08	10.3	10.3	4.1	4.1	54	49	USM826077	4	6.5/B	6.4/B
	2.4	.16	6.9	6.9	1.4	1.4	54	49	USM826078	4	6.5/B	6.4/B
	3.2	.27	4.1	4.1	0.7	0.7	54	49	USM826079	4	6.5/B	6.4/B
	4.0	.37	2.4	2.4	0.3	0.3	54	49	USM826080	4	6.5/B	6.4/B
DISPENSING VENDING CONSTRUCTION - NSF Listed - PA Body, Open Frame Solenoid and Spade Terminal Coils												
3/8" O.D. ① Compression	7.9	1.11	0.3	0.3	-	-	54	-	USM826090	6	6.5/B	-
PA Body, Open Frame Solenoid and Spade Terminal Coils												
3/8" O.D. ① Compression	7.9	1.11	0.3	0.3	-	-	54	-	USM826089	6	6.5/B	-
Notes: ① Fittings not supplied with valve. To order, refer to List Price Schedule. Kit No. 224150 - plastic tubing, and Kit No. 224151 - metal tubing. ② On 50 hertz service, the watt rating for the 6.1/F solenoid is 8.1 watts.												

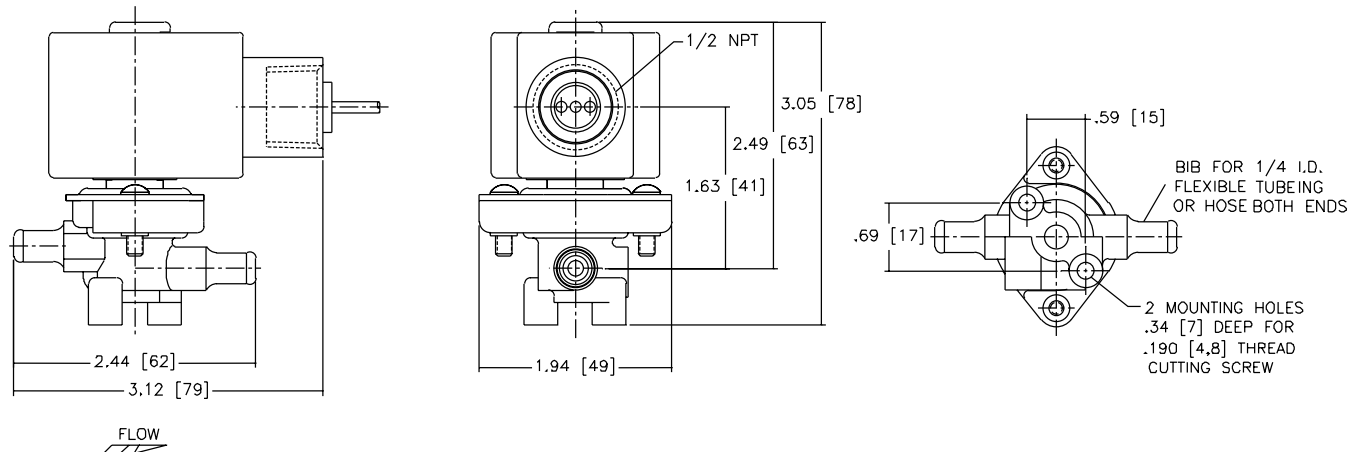


Dimensions: inches (mm)

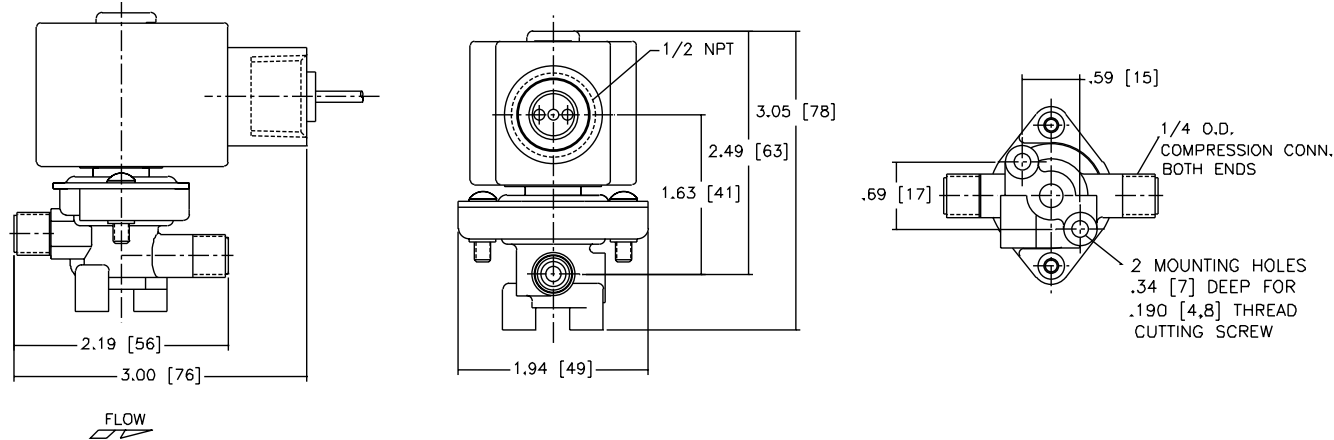
Constr. Refs. 1



Constr. Refs. 2

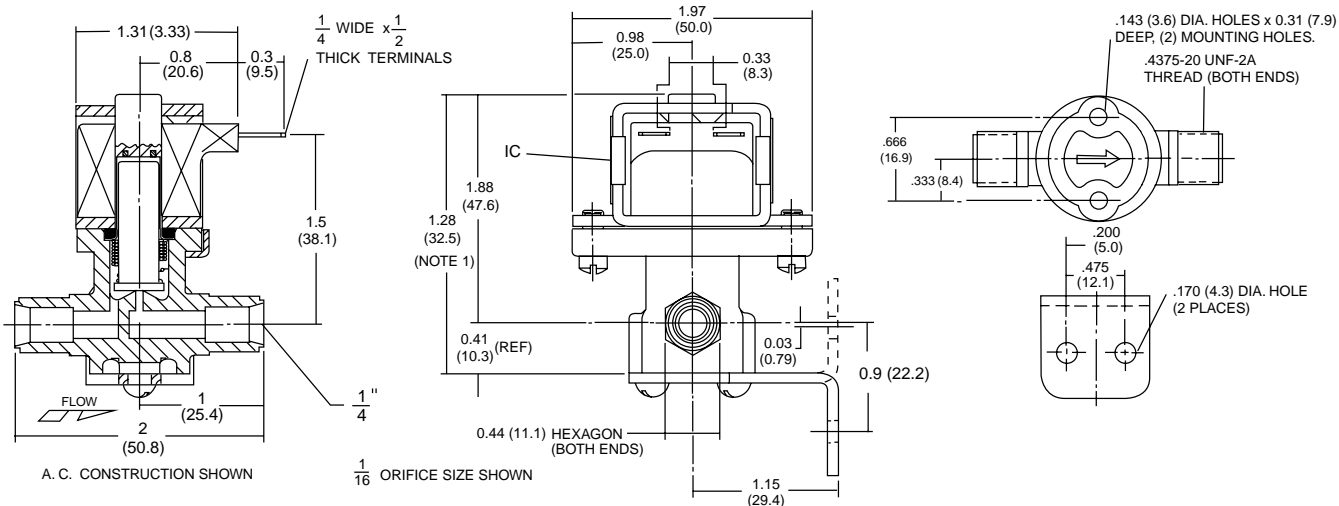


Constr. Refs. 3

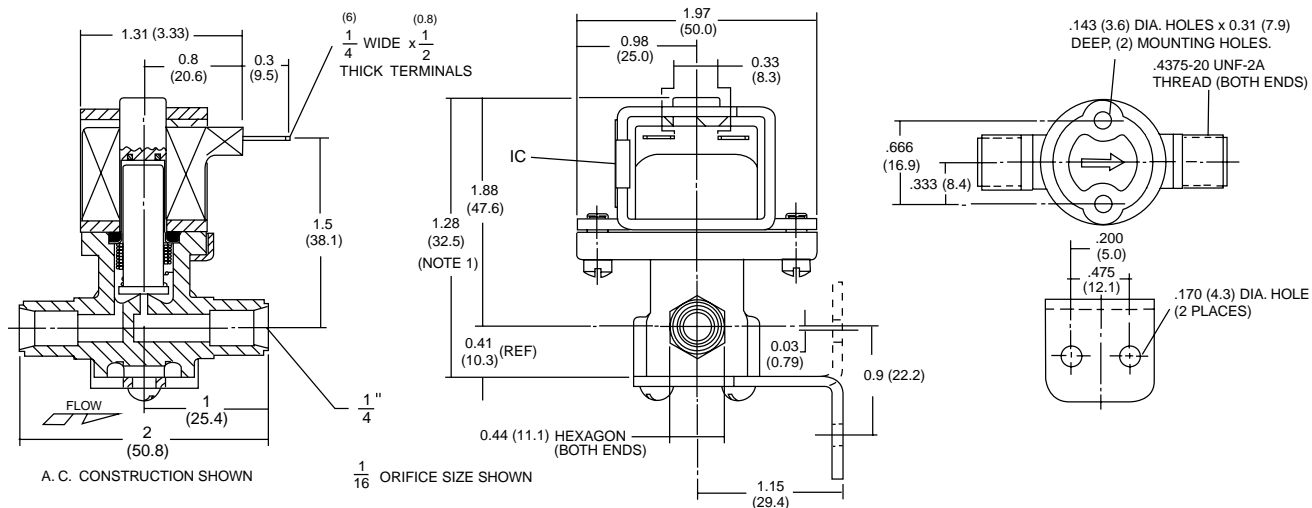


Dimensions: inches (mm)

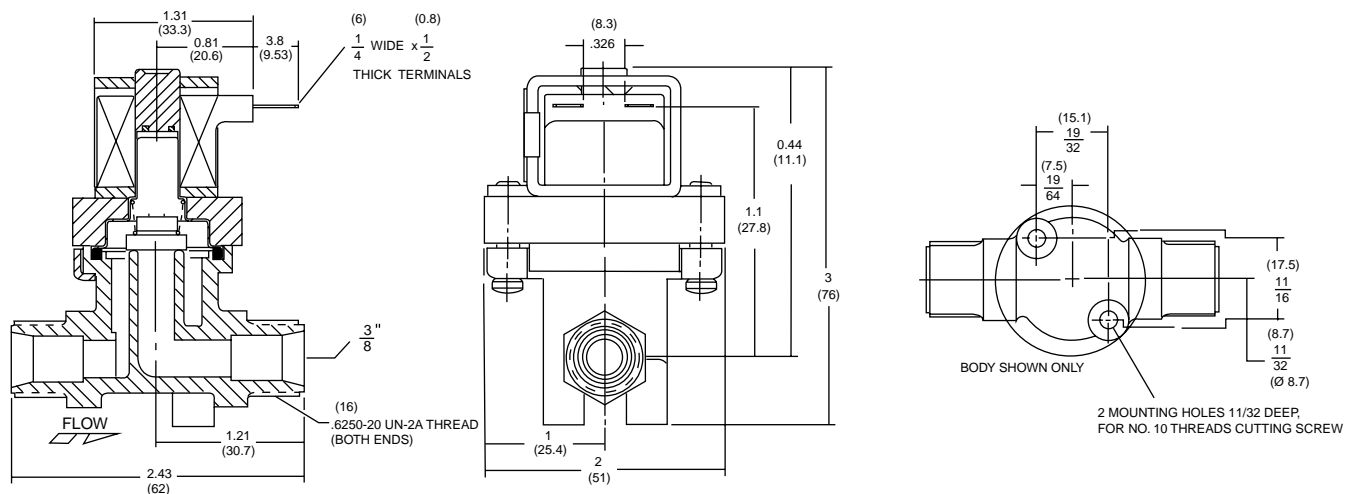
Constr. Refs. 4



Constr. Refs. 5



Constr. Refs. 6



### Features

- Reliable, proven design with high flows.
- Small poppet valves for tight shutoff.
- Wide range of elastomers for specialty service.
- Mountable in any position.
- Brass body construction for general atmospheres; Stainless Steel for corrosive atmospheres.

### Construction

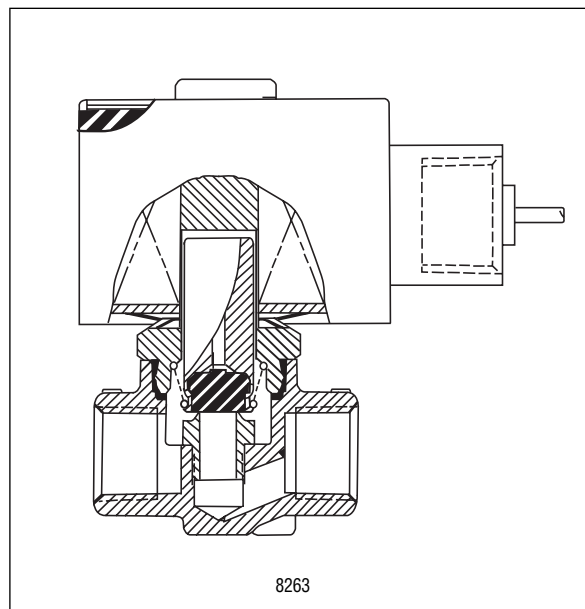
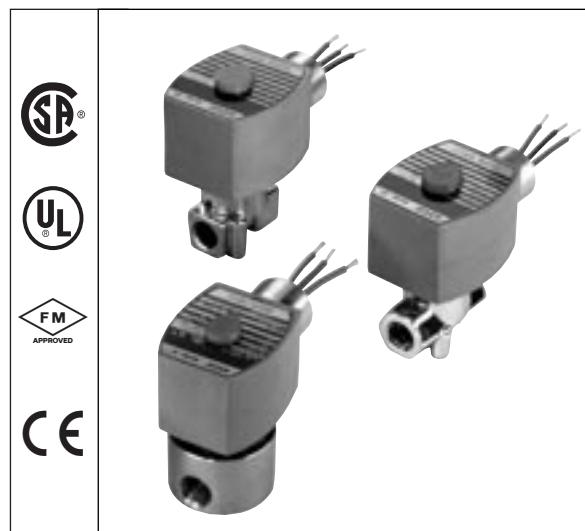
Valve Parts in Contact with Fluids		
Body	Brass	303/304 Stainless Steel
Seals and Discs	NBR or Cast UR	
Core Tube	305 Stainless Steel	
Core and Plugnut	430F Stainless Steel	
Springs	302 Stainless Steel	
Shading Coil	Copper	Silver
Stem	PA (Normally Open)	
<b>Note:</b> All 1/8" NPT Normally Open valves contain CA. All 1/4" NPT Normally Open valves contain PA.		

### Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part No.			
	DC Watts	AC			General Purpose		Explosionproof	
		Watts	VA Holding	VA Inrush	AC	DC	AC	DC
F	10.6	6.1	16	30	238210	238310	238214	238314
F	11.6	10.1	25	50	238610	238710	238614	238714
F	22.6	17.1	40	70	238610	238710	238614	238714
<b>Standard Voltages</b> 24, 120, 240, 480 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz). 6, 12, 24, 120, 240 volts DC. Must be specified when ordering. Other voltages available when required.								

### Solenoid Enclosures

**Standard:** Watertight, Types 1, 2, 3, 3S, 4, and 4X.  
**Optional:** Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9.  
 (To order, add prefix "EF" to catalog number)  
 See *Optional Features Section* for other available options.



### Nominal Ambient Temperature Ranges:

AC: 32°F to 125°F (0°C to 52°C)

DC: 32°F to 104°F (0°C to 40°C)

Refer to *Engineering Section* for details.

### Approvals:

CSA certified. UL listed, as indicated. Normally Closed Valves FM approved. Meets applicable CE directives.  
 Refer to *Engineering Section* for details.

## Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Operating Pressure Differential (psi)						Max. Fluid Temp. °F		Brass Body			Stainless Steel Body			Watt Rating/ Class of Coil Insulation ②	
			Max. AC			Max. DC												
			Air-Inert Gas	Water	Lt. Oil @ 300 SSU	Air-Inert Gas	Water	Lt. Oil @ 300 SSU	AC	DC	Catalog Number	Constr. Ref. No.	UL ③ Listing	Catalog Number	Constr. Ref. No.	UL ③ Listing	AC	DC
NORMALLY CLOSED (Closed when de-energized), NBR Disc																		
1/8	3/64	.06	750	750	530	650	640	550	180	120	8262G1	1	○	8262G12	1	○	6.1/F	10.6/F
1/8	3/32	.20	275	290	130	150	140	145	180	120	8262G14	1	○	8262G15	1	○	6.1/F	10.6/F
1/8	1/8	.34	155	180	140	80	80	80	180	120	8262G2	1	○	8262G6	1	○	6.1/F	10.6/F
1/4	3/64	.06	750	750	500	500	500	500	180	120	8262G19	16	○	8262G80	11	○	6.1/F	10.6/F
1/4	3/64	.06	1500	1500	1100	475	475	450	140	140	8262G200 ①	17	●	-	-	-	10.1/F	11.6/F
1/4	3/64	.06	2200	2000	1100	-	-	-	140	140	-	-	-	8262G214 ①	12	●	10.1/F	-
1/4	3/32	.17	360	340	160	150	125	125	180	120	8262G20	16	○	8262G86	11	○	6.1/F	10.6/F
1/4	1/8	.35	140	165	90	65	60	60	180	120	8262G22	16	○	8262G7	11	○	6.1/F	10.6/F
1/4	1/8	.35	300	300	200	75	70	70	180	150	8262G232	17	○	-	-	-	10.1/F	11.6/F
1/4	5/32	.50	180	200	145	40	40	45	180	150	8262G202	4	○	8262G220	12	○	10.1/F	11.6/F
1/4	7/32	.72	90	100	100	25	25	25	180	150	8262G208	4	○	8262G226	12	○	10.1/F	11.6/F
1/4	7/32	.85	40	50	40	17	20	21	180	120	8262G13	2	○	8262G36	11	○	6.1/F	10.6/F
1/4	9/32	.88	60	75	60	18	15	18	180	150	8262G210	4	○	-	-	-	10.1/F	11.6/F
1/4	9/32	.88	90	100	90	25	20	22	180	150	8262G212	6	○	8262G230	13	○	17.1/F	22.6/F
1/4	9/32	.96	27	36	28	15	16	16	180	120	8262G90	2	○	8262G38	11	○	6.1/F	10.6/F
3/8	1/8	.35	160	150	90	65	60	60	180	120	8263G2	3	○	8263G330	3	○	6.1/F	10.6/F
3/8	5/32	.52	100	100	100	35	35	35	180	150	8263G200	5	○	8263G331	5	○	10.1/F	11.6/F
3/8	7/32	.72	100	100	100	25	25	25	180	150	8263G206	5	○	8263G332	5	○	17.1/F	11.6/F
3/8	9/32	.85	100	100	70	-	-	-	180	—	8263G210	7	○	8263G333	7	○	17.1/F	-
NORMALLY OPEN (Open when de-energized), NBR Disc (except where noted)																		
1/8	1/16	.09	500	300	225	400	250	150	180	120	8262G91	8	●	8262G92	8	●	6.1/F	10.6/F
1/8	3/32	.15	275	200	150	190	110	110	180	120	8262G93	8	●	8262G94	8	●	6.1/F	10.6/F
1/8	1/8	.21	125	100	85	80	60	50	180	120	8262G31	8	●	8262G35	8	●	6.1/F	10.6/F
1/4	3/64	.06	750	700	700	500	500	500	140	140	8262G260 ①	9	●	8262G130 ①	14	●	10.1/F	11.6/F
1/4	3/32	.17	300	250	230	200	150	125	140	140	8262G261 ①	9	●	8262G134 ①	14	●	10.1/F	11.6/F
1/4	1/8	.35	130	110	100	80	60	60	180	150	8262G262	9	●	8262G138	14	●	10.1/F	11.6/F
1/4	5/32	.49	85	75	60	45	30	30	180	150	8262G263	4	●	8262G142	14	●	10.1/F	11.6/F
1/4	7/32	.83	45	45	40	25	20	20	180	150	8262G264	4	●	8262G148	14	●	10.1/F	11.6/F
1/4	9/32	.96	30	25	20	15	15	15	180	150	8262G265	4	●	8262G152	14	●	10.1/F	11.6/F
Notes: ① Cast UR disc supplied as standard. ② On 50 hertz service, the rating for the 6.1/F solenoid is 8.1 watts. ③ ○ Safety Shutoff Valve; ● General Purpose Valve. Refer to Engineering Section (Approvals) for details.																		

## Specifications (Metric units)

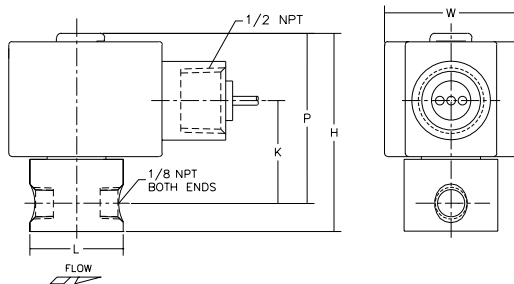
Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Operating Pressure Differential (bar)						Max. Fluid Temp. °C		Brass Body			Stainless Steel Body			Watt Rating/ Class of Coil Insulation ②	
			Max. AC			Max. DC												
			Air-Inert Gas	Water	Lt. Oil @ 300 SSU	Air-Inert Gas	Water	Lt. Oil @ 300 SSU	AC	DC	Catalog Number	Constr. Ref. No.	UL ③	Catalog Number	Constr. Ref. No.	UL ③	AC	DC
NORMALLY CLOSED (Closed when de-energized), NBR Disc																		
1/8	1.2	.05	52	52	37	45	44	38	81	48	8262G1	1	○	8262G12	1	○	6.1/F	10.6/F
1/8	2.4	.17	19	20	9	10	10	10	81	48	8262G14	1	○	8262G15	1	○	6.1/F	10.6/F
1/8	3.2	.29	11	12	10	6	6	6	81	48	8262G2	1	○	8262G6	1	○	6.1/F	10.6/F
1/4	1.2	.05	52	52	34	34	34	34	81	48	8262G19	16	○	8262G80	11	○	6.1/F	10.6/F
1/4	1.2	.05	103	103	76	33	33	31	60	60	8262G200 ①	17	●	-	-	-	10.1/F	11.6/F
1/4	1.2	.05	152	138	76	-	-	-	60	60	-	-	-	8262G214 ①	12	●	10.1/F	-
1/4	2.4	.15	25	23	11	10	9	9	81	48	8262G20	16	○	8262G86	11	○	6.1/F	10.6/F
1/4	3.2	.30	10	11	6	4	4	4	81	48	8262G22	16	○	8262G7	11	○	6.1/F	10.6/F
1/4	3.2	.30	21	21	14	5	5	5	81	65	8262G232	17	○	-	-	-	10.1/F	11.6/F
1/4	4.0	.43	12	14	10	3	3	3	81	65	8262G202	4	○	8262G220	12	○	10.1/F	11.6/F
1/4	5.6	.62	6	7	7	2	2	2	81	65	8262G208	4	○	8262G226	12	○	10.1/F	11.6/F
1/4	5.6	.73	3	3	3	1	1	1	81	48	8262G13	2	○	8262G36	11	○	6.1/F	10.6/F
1/4	7.1	.75	4	5	4	1	1	1	81	65	8262G210	4	○	-	-	-	10.1/F	11.6/F
1/4	7.1	.75	6	7	6	2	1	2	81	65	8262G212	6	○	8262G230	13	○	17.1/F	22.6/F
1/4	7.1	.82	2	2	2	1	1	1	81	48	8262G90	2	○	8262G38	11	○	6.1/F	10.6/F
3/8	3.3	.30	11	10	6	4	4	4	81	48	8263G2	3	○	8263G330	3	○	6.1/F	10.6/F
3/8	4.0	.45	7	7	7	2	2	2	81	65	8263G200	5	○	8263G331	5	○	10.1/F	11.6/F
3/8	5.6	.62	7	7	7	2	2	2	81	65	8263G206	5	○	8263G332	5	○	17.1/F	11.6/F
3/8	7.1	.73	7	7	5	-	-	-	81	-	8263G210	7	○	8263G333	7	○	17.1/F	-
NORMALLY OPEN (Open when de-energized), NBR Disc (except where noted)																		
1/8	1.6	.08	34	21	16	28	17	10	81	48	8262G91	8	●	8262G92	8	●	6.1/F	10.6/F
1/8	2.4	.13	19	14	10	13	8	8	81	48	8262G93	8	●	8262G94	8	●	6.1/F	10.6/F
1/8	3.2	.18	9	7	6	6	4	3	81	48	8262G31	8	●	8262G35	8	●	6.1/F	10.6/F
1/4	1.2	.05	52	48	48	34	34	34	59	59	8262G260 ①	9	●	8262G130 ①	14	●	10.1/F	11.6/F
1/4	2.4	.15	21	17	16	14	10	9	59	59	8262G261 ①	9	●	8262G134 ①	14	●	10.1/F	11.6/F
1/4	3.2	.30	9	8	7	6	4	4	81	65	8262G262	9	●	8262G138	14	●	10.1/F	11.6/F
1/4	4.0	.42	6	5	4	3	2	2	81	65	8262G263	4	●	8262G142	14	●	10.1/F	11.6/F
1/4	5.6	.71	3	3	3	2	1	1	81	65	8262G264	4	●	8262G148	14	●	10.1/F	11.6/F
1/4	7.1	.82	2	2	1	1	1	1	81	65	8262G265	4	●	8262G152	14	●	10.1/F	11.6/F
Notes: ① Cast UR disc supplied as standard. ② On 50 Hertz service, the rating for the 6.1/F solenoid is 8.1 watts. ③ ○ Safety Shutoff Valve; ● General Purpose Valve. Refer to Engineering Section (Approvals) for details.																		

Dimensions: inches (mm)

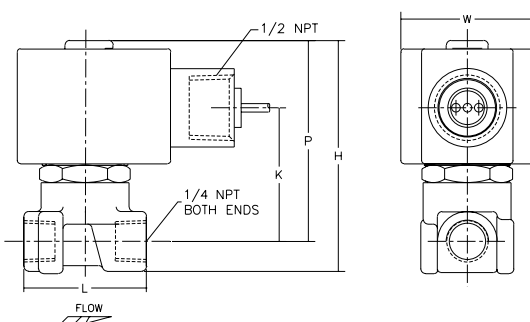
Constr. Ref. No.		H	K	L	P	W
1	ins.	2.52	1.30	1.19	2.16	1.69
	mm	64	33	30	55	43
2	ins.	2.98	1.71	1.56	2.57	1.69
	mm	76	43	40	65	43
3	ins.	3.07	1.63	1.88	2.49	1.69
	mm	78	41	48	63	43
4	ins.	3.20	1.78	1.56	2.79	1.95
	mm	81	45	40	71	50
5	ins.	3.25	1.70	2.00	2.77	1.95
	mm	83	43	51	70	50
6	ins.	3.16	1.78	1.56	2.75	1.95
	mm	80	45	40	70	50
7	ins.	3.25	1.70	2.00	2.67	1.95
	mm	83	43	51	68	50
8	ins.	3.15	1.32	1.19	2.18	1.69
	mm	80	34	30	55	43
9	ins.	3.23	1.67	1.25	2.81	1.95
	mm	82	42	32	71	50
11	ins.	2.94	1.71	1.56	2.57	1.69
	mm	75	43	40	65	43
12	ins.	3.12	1.78	1.56	2.75	1.95
	mm	79	45	40	70	50
13	ins.	3.12	1.78	1.56	2.75	1.95
	mm	79	45	40	70	50
14	ins.	3.16	1.65	1.56	2.79	1.95
	mm	80	42	40	71	50
16	ins.	3.01	1.73	1.25	2.59	1.69
	mm	76	44	32	66	43
17	ins.	3.19	1.80	1.25	2.77	1.95
	mm	81	46	32	70	50

IMPORTANT: Valves may be mounted in any position.

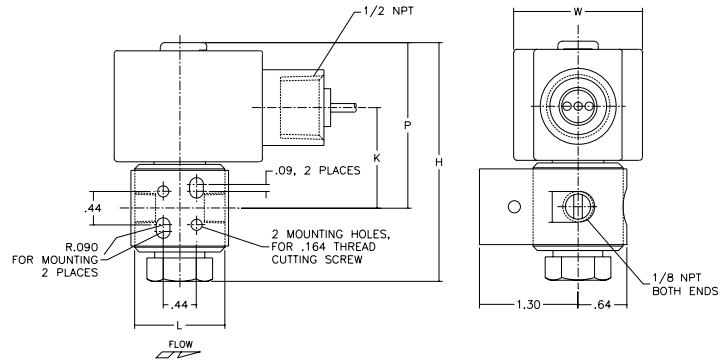
Constr. Refs. 1



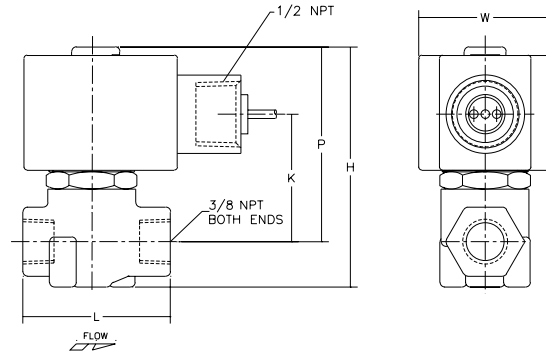
Constr. Refs. 2, 4, 6, 9



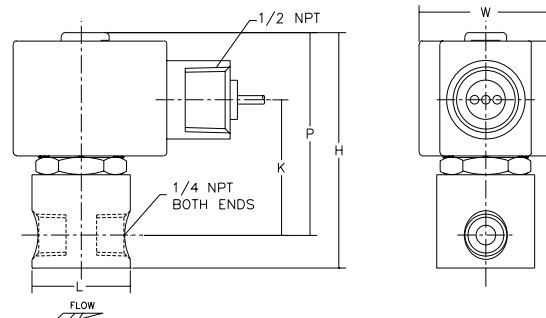
Constr. Refs. 8



Constr. Refs. 3, 5, 7

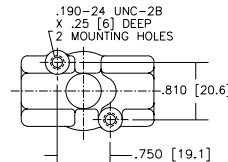


Constr. Refs. 11-14, 16, 17

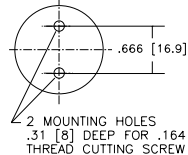


Mounting Details

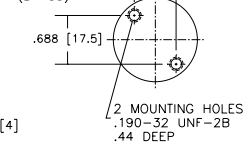
MOUNTING HOLES  
IN VALVE BODY  
BRASS-CONSTR. REFS. 3, 5, 7



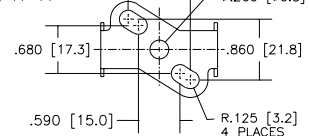
CONSTR. REF.  
9, 16, 17



CONSTR. REF. 1  
(BRASS)



MOUNTING BRACKET  
CONSTR. REFS.  
BRASS: 2, 4, 6, 9, 16, 17  
ST. ST.: 1, 11-14



Three way valves have three pipe connections and two orifices. When one orifice is open, the other is closed, and vice versa. They are commonly used to alternately apply pressure to and exhaust pressure from a valve actuator or a single-acting cylinder.

## Three Types of Operations Apply:

### Normally Closed (NC)

When the valve is de-energized, the pressure port is closed and the exhaust port is connected to the cylinder port. When the valve is energized, the exhaust port is closed and the pressure port is connected to the cylinder port.

### Normally Open (NO)

When the valve is de-energized, the pressure port is connected to the cylinder port and the exhaust port is closed. When the valve is energized, the pressure port is closed and the cylinder port is connected to the exhaust port.

### Universal (Univ)

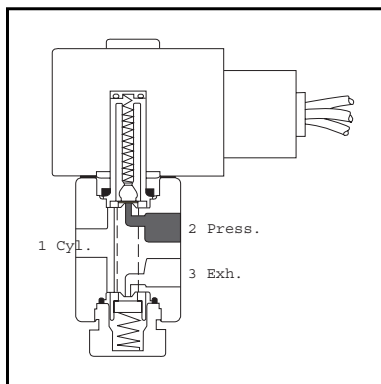
This allows the valve to be connected in either the Normally Closed or Normally Open position ... or to select one of two fluids or to divert flow from one port to another.

*See Engineering Section for further details.*

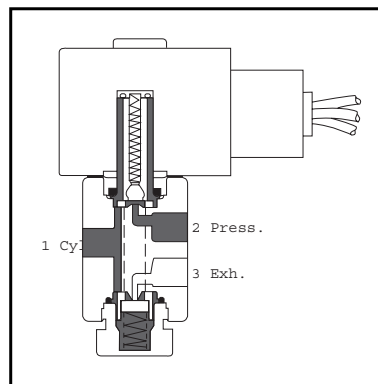
## Standard and Optional Features:

Solenoid valves are supplied, as listed, with either Red-Hat II® molded epoxy solenoids or Red-Hat® solenoids with metal enclosures. Red-Hat II valves are identified by the letter "G" or "H" in their catalog numbers; e.g., 8320G1. Many optional features may be added to your valves; e.g., high-temperature Class H molded coils and manual operators. *See the Optional Features Section for details.*

## 3 Way/2 Position Valves Flow Diagrams



**De-Energized**



**Energized**

## Index

Series	General Description	Pipe Size (NPT)	Page Number
8300/8315	General Service	1/8" - 1/2"	3.01
8314	General Service	1/8" - 1/4"	3.05
8316	Air and Water	3/8" - 1"	3.09
8316	Zero Minimum	1/4" - 1/2"	3.13
8317/8321	Quick Exhaust	1/4" and 3/8"	3.15
8320	General Service	1/8" - 1/4"	3.19
8325/8380	Sub-Miniature	1/8"	3.23
8327	High Flow Poppet	1/4"	3.27
8360	Plastic Body	1/4"	3.29



## Features

- Designed for high flow and high pressure service.
- Direct acting, requires no minimum operating pressure.
- Choice of metal seating materials to handle aggressive fluids, or resilient seating for airtight shutoff.
- Ideal for power plants and similar applications.

## Construction

Valve Parts in Contact with Fluids		
Body	Brass	304 Stainless Steel
Disc	303 Stainless Steel (Metal), PA or Brass (Resilient)	
Seats	NBR, Phosphor Bronze	303 Stainless Steel
Core Tube	305 Stainless Steel	
Core and Plugnut	430 F Stainless Steel	
Springs	302 Stainless Steel, 17-7PH or Inconel	
Shading Coil	Copper	Silver
Gaskets	NBR	PTFE

## Electrical

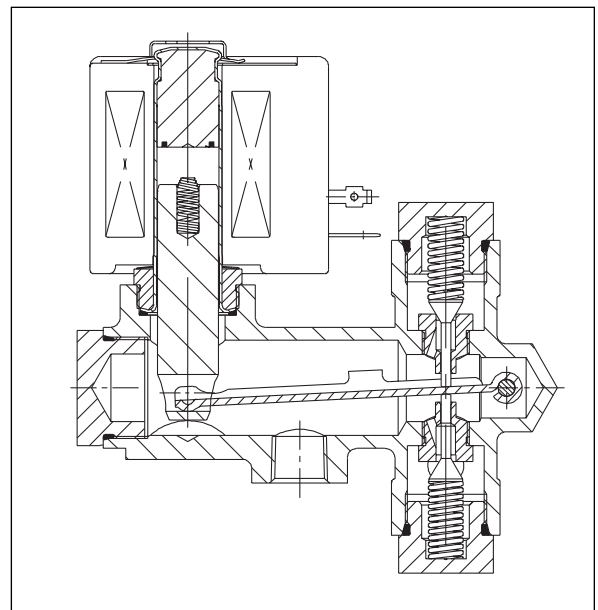
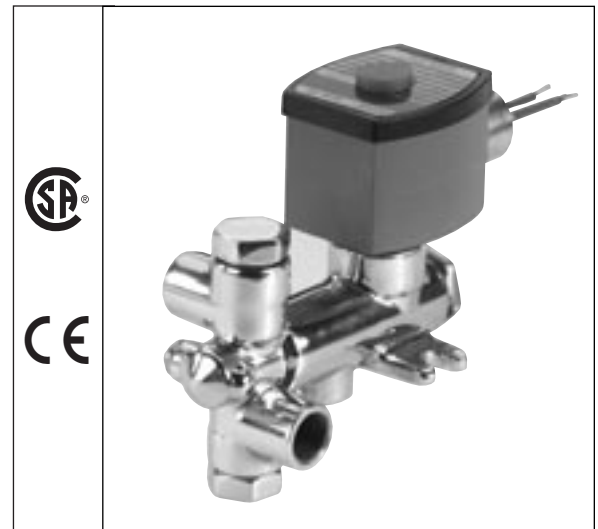
Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part Number			
	DC Watts	AC			General Purpose		Explosionproof	
		Watts	VA Holding	VA Inrush	AC	DC	AC	DC
F	-	20.1	43	240	272610	-	272614	-
H	36.2	28	60	330	222345	222184	222345	222184
H	-	16.1	35	180	272810	-	272814	-
H	-	28.2	50	385	224195	-	224195	-

**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz).  
 6, 12, 24, 120, 240 volts DC. Must be specified when ordering.

**Note:** 125 and 250 volts DC are battery voltages applied in power plants. Special AC and DC constructions are available to pilot power plant control valves. Consult your local ASCO sales office for details.

## Solenoid Enclosures

**Standard:** Red-Hat II - Watertight, Types 1, 2, 3, 3S, 4, and 4X; Red-Hat - Type 1.  
**Optional:** Red-Hat II - Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9; Red-Hat - Explosionproof and Watertight, Types 3, 4, 4X, 7, and 9. See footnote on next page.  
 (To order, add prefix "EF" to catalog number.)  
 See *Optional Features Section* for other available options.



## Nominal Ambient Temperature Ranges:

Class F Coils AC: 32°F to 125°F (0°C to 52°C)

Class H Coils AC: 32°F to 140°F (0°C to 59°C)

Class H Coils DC: 32°F to 77°F (0°C to 25°C)  
 (104°F/40°C occasionally)

Refer to *Engineering Section* for details.

## Approvals:

CSA certified. Meets applicable CE directives.

Refer to *Engineering Section* for details.

## Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Operating Pressure Differential (psi)				Max. Fluid Temp. °F		Brass Body		Stainless Steel Body		Watt Rating/ Class of Coil Insulation	
			Air-Inert Gas, Water, Lt. Oil						① Add Suffix "F" for NC, "G" for NO, "U" for Univ.					
			Max. AC		Max. DC									
			NC/NO	Univ.	NC/NO	Univ.	AC	DC	Catalog Number	Constr. Ref. No.	Catalog Number	Constr. Ref. No.	AC	DC
METAL SEATS AND DISCS														
1/8	1/8	.13	-	-	250	125	-	180	8300D55	1	-	-	-	36.2/H
1/8	1/8	.13	550	300	-	-	200	-	8300G55	1	-	-	20.1/F	-
1/8	3/16	.35	-	-	125	60	-	180	8300D3	1	-	-	-	36.2/H
1/8	3/16	.35	250	150	-	-	200	-	8300G3	1	-	-	20.1/F	-
1/4	3/16	.35	-	-	125	60	-	180	8300D58	1	-	-	-	36.2/H
1/4	3/16	.35	250	150	-	-	200	-	8300G58	1	-	-	20.1/F	-
1/4	1/4	.45	-	-	75	35	-	180	8300A81	1	-	-	-	36.2/H
1/4	1/4	.45	190	90	-	-	200	-	8300G81	1	-	-	20.1/F	-
1/4	1/4	.45	250	120	-	-	200	-	8300D61 ②	1	-	-	28/H	-
3/8	1/4	.45	-	-	50	25	-	180	-	-	8300B410	2	-	36.2/H
3/8	1/4	.45	150	75	-	-	200	-	-	-	8300G410	2	20.1/F	-
3/8	1/4	.45	-	-	75	35	-	180	8300A82	1	-	-	-	36.2/H
3/8	1/4	.45	190	90	-	-	200	-	8300G82	1	-	-	20.1/F	-
3/8	1/4	.45	250	120	-	-	200	-	8300D9 ②	1	-	-	28/H	-
3/8	1/4	.45	175	85	-	-	200	-	-	-	8300B411 ②	2	28/H	-
3/8	5/16	.75	-	-	40	20	-	180	8300D64	2	8300B412	2	-	36.2/H
3/8	5/16	.75	120	60	-	-	200	-	8300G64	2	8300G412	2	20.1/F	-
3/8	3/8	1.00	-	-	30	15	-	180	8300D72	2	8300B413	2	-	36.2/H
3/8	3/8	1.00	75	35	-	-	200	-	8300G72	2	8300G413	2	20.1/F	-
1/2	5/16	.75	-	-	40	20	-	180	8300D68	2	8300B403	3	-	36.2/H
1/2	5/16	.75	120	60	-	-	200	-	8300G68	2	8300G403	3	20.1/F	-
1/2	3/8	1.00	-	-	30	15	-	180	8300D76	2	8300B404	3	-	36.2/H
1/2	3/8	1.00	75	35	-	-	200	-	8300G76	2	8300G404	3	20.1/F	-
NBR SEATS AND BRASS DISCS														
1/4	3/16	.25	-	-	125	60	-	180	8300D58R	1	-	-	-	36.2/H
1/4	3/16	.25	250	150	-	-	180	-	8300G58R	1	-	-	20.1/F	-
1/4	1/4	.39	-	-	75	35	-	180	8300A81R	1	-	-	-	36.2/H
1/4	1/4	.39	150	75	-	-	180	-	8300G81R	1	-	-	20.1/F	-
3/8	1/4	.39	-	-	75	35	-	180	8300A82R	1	-	-	-	36.2/H
3/8	1/4	.39	150	75	-	-	180	-	8300G82R	1	-	-	20.1/F	-
3/8	5/16	.53	-	-	40	20	-	180	8300D64R	2	-	-	-	36.2/H
3/8	5/16	.53	120	60	-	-	180	-	8300G64R	2	-	-	20.1/F	-
1/2	5/16	.53	-	-	40	20	-	180	8300D68R	2	-	-	-	36.2/H
1/2	5/16	.53	120	60	-	-	180	-	8300G68R	2	-	-	20.1/F	-
PHOSPHOR BRONZE SEATS - STEAM SERVICE ONLY														
1/4	1/4	.45	100	50	-	-	344	-	8315G2	1	-	-	16.1/H	-
3/8	1/4	.45	100	50	-	-	344	-	8315G3	1	-	-	16.1/H	-
3/8	5/16	.75	100	50	-	-	344	-	831534	4	-	-	28.2/H	-
1/2	5/16	.75	100	50	-	-	344	-	831535	4	-	-	28.2/H	-
Notes: ① NC = Normally Closed: Exhaust pressure when de-energized. NO = Normally Open: Applies pressure when de-energized. Univ. = Universal: Pressure at any port. ② "EF" Prefix variations are suitable for enclosures Types 3, 4, 7 (C&D), and 9 (E) only and have a temperature range code T3A. Refer to Engineering Section for details.														

## Specifications (Metric units)

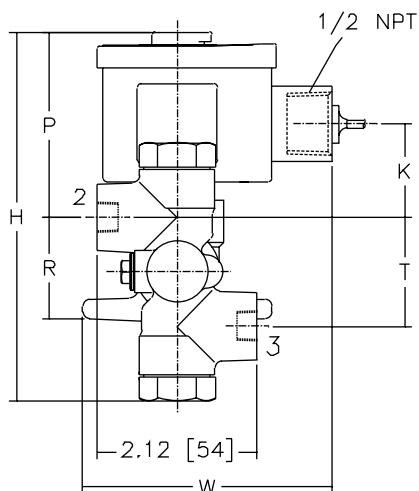
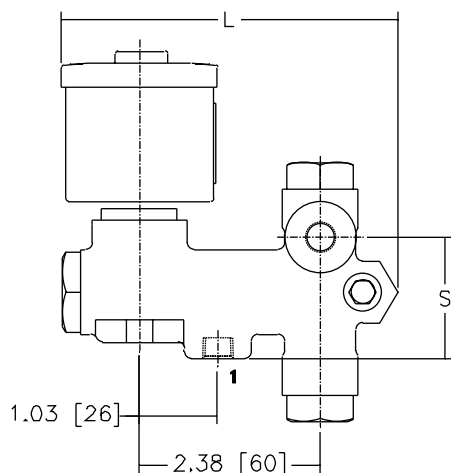
Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Operating Pressure Differential (bar)				Max. Fluid Temp. °C		Brass Body		Stainless Steel Body		Watt Rating/ Class of Coil Insulation	
			Air-Inert Gas, Water, Lt. Oil						① Add Suffix "F" for NC, "G" for NO, "U" for Univ.					
			Max. AC		Max. DC									
			NC/NO	Univ.	NC/NO	Univ.	AC	DC	AC	DC				
METAL SEATS AND DISCS														
1/8	3	.11	-	-	17	9	-	81	8300D55	1	-	-	-	36.2/H
1/8	3	.11	38	21	-	-	92	-	8300G55	1	-	-	20.1/F	-
1/8	5	.30	-	-	9	4	-	81	8300D3	1	-	-	-	36.2/H
1/8	5	.30	17	10	-	-	92	-	8300G3	1	-	-	20.1/F	-
1/4	5	.30	-	-	9	4	-	81	8300D58	1	-	-	-	36.2/H
1/4	5	.30	17	10	-	-	92	-	8300G58	1	-	-	20.1/F	-
1/4	6	.39	-	-	5	2	-	81	8300A81	1	-	-	-	36.2/H
1/4	6	.39	13	6	-	-	92	-	8300G81	1	-	-	20.1/F	-
1/4	6	.39	17	8	-	-	92	-	8300D61 ②	1	-	-	28/H	-
3/8	6	.39	-	-	3	2	-	81	-	-	8300B410	2	-	36.2/H
3/8	6	.39	10	5	-	-	92	-	-	-	8300G410	2	20.1/F	-
3/8	6	.39	-	-	5	2	-	81	8300A82	1	-	-	-	36.2/H
3/8	6	.39	13	6	-	-	92	-	8300G82	1	-	-	20.1/F	-
3/8	6	.39	17	8	-	-	92	-	8300D9 ②	1	-	-	28/H	-
3/8	6	.39	12	6	-	-	92	-	-	-	8300B411 ②	2	28/H	-
3/8	8	.64	-	-	3	1	-	81	8300D64	2	8300B412	2	-	36.2/H
3/8	8	.64	8	4	-	-	92	-	8300G64	2	8300G412	2	20.1/F	-
3/8	10	.86	-	-	2	1	-	81	8300D72	2	8300B413	2	-	36.2/H
3/8	10	.86	5	2	-	-	92	-	8300G72	2	8300G413	2	20.1/F	-
1/2	8	.64	-	-	3	1	-	81	8300D68	2	8300B403	3	-	36.2/H
1/2	8	.64	8	4	-	-	92	-	8300G68	2	8300G403	3	20.1/F	-
1/2	10	.86	-	-	2	1	-	81	8300D76	2	8300B404	3	-	36.2/H
1/2	10	.86	5	2	-	-	92	-	8300G76	2	8300G404	3	20.1/F	-
NBR SEATS AND BRASS DISCS														
1/4	5	.21	-	-	9	4	-	81	8300D58R	1	-	-	-	36.2/H
1/4	5	.21	17	10	-	-	81	-	8300G58R	1	-	-	20.1/F	-
1/4	6	.33	-	-	5	2	-	81	8300A81R	1	-	-	-	36.2/H
1/4	6	.33	10	5	-	-	81	-	8300G81R	1	-	-	20.1/F	-
3/8	6	.33	-	-	5	2	-	81	8300A82R	1	-	-	-	36.2/H
3/8	6	.33	10	5	-	-	81	-	8300G82R	1	-	-	20.1/F	-
3/8	8	.45	-	-	3	1	-	81	8300D64R	2	-	-	-	36.2/H
3/8	8	.45	8	4	-	-	81	-	8300G64R	2	-	-	20.1/F	-
1/2	8	.45	-	-	3	1	-	81	8300D68R	2	-	-	-	36.2/H
1/2	8	.45	8	4	-	-	81	-	8300G68R	2	-	-	20.1/F	-
PHOSPHOR BRONZE SEATS - STEAM SERVICE ONLY														
1/4	.5	.39	7	3	-	-	173	-	8315G2	1	-	-	16.1/H	-
3/8	.5	.39	7	3	-	-	173	-	8315G3	1	-	-	16.1/H	-
3/8	.6	.64	7	3	-	-	173	-	831534	4	-	-	28.2/H	-
1/2	.6	.64	7	3	-	-	173	-	831535	4	-	-	28.2/H	-
Notes: ① NC = Normally Closed: Exhaust pressure when de-energized. NO = Normally Open: Applies pressure when de-energized. Univ. = Universal: Pressure at any port. ② "EF" Prefix variations are suitable for enclosures Types 3, 4, 7 (C&D), and 9 (E) only and have a temperature range code T3A. Refer to Engineering Section for details.														

Dimensions: inches (mm)

Constr. Ref. No.		H	K	L	P	R	S	W	T
1	ins.	4.89	1.44	4.44	2.46	1.34	1.60	3.30	1.44
	mm	124	37	113	62	34	40	84	37
2	ins.	5.91	1.88	4.44	2.37	1.66	2.00	3.30	1.88
	mm	150	48	113	60	42	51	84	48
3	ins.	5.90	1.88	4.62	2.37	1.66	2.00	3.55	1.88
	mm	150	48	117	60	42	51	90	48
4	ins.	4.89	1.44	4.44	2.46	1.34	1.60	3.30	1.44
	mm	124	37	113	62	34	40	84	37

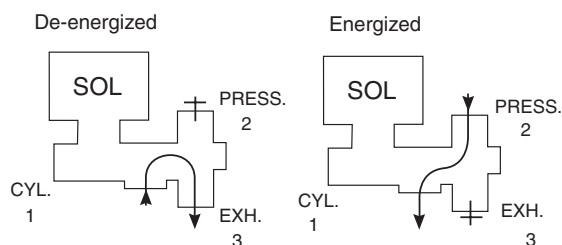
**IMPORTANT:** Valves must be mounted vertical and upright.

Constr. Refs. 1, 2, 3, 4

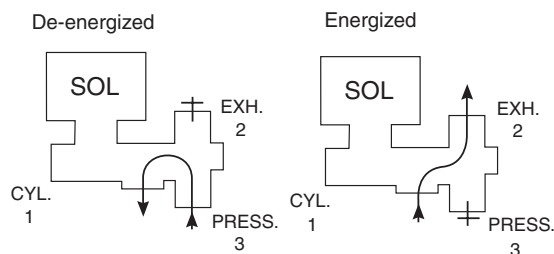


Flow Diagrams

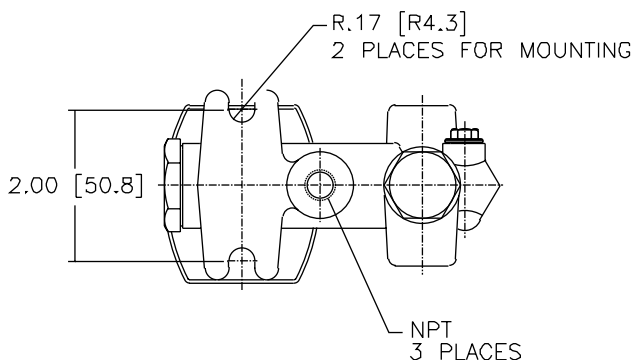
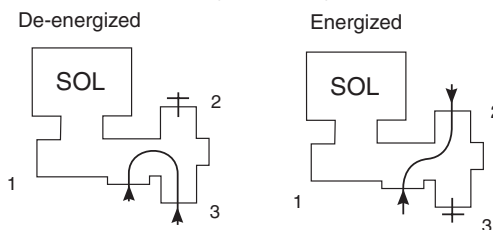
Normally Closed (Suffix "F")



Normally Open (Suffix "G")



Universal (Suffix "U")



## Features

- No minimum operating pressure required.
- The original 3 way valve design.
- High-speed general service.
- Simplest valve for basic 3 way piloting operation, only a spring and two moving parts.
- Moderate flow pilots, smaller control valves and actuators.
- Can also be used for low-volume fluid diversion.

## Construction

Valve Parts in Contact with Fluids		
Body	Brass	303 Stainless Steel
Seals and Disc	NBR, PA	
Core Tube	305 Stainless Steel	
Core and Plugnut	430F Stainless Steel	
Core Springs	302 Stainless Steel and 17-7PH Stainless Steel	
Shading Coil	Copper	Silver
Core Guide	CA (All AC valves and 1/8" orifice Normally Open DC valves)	

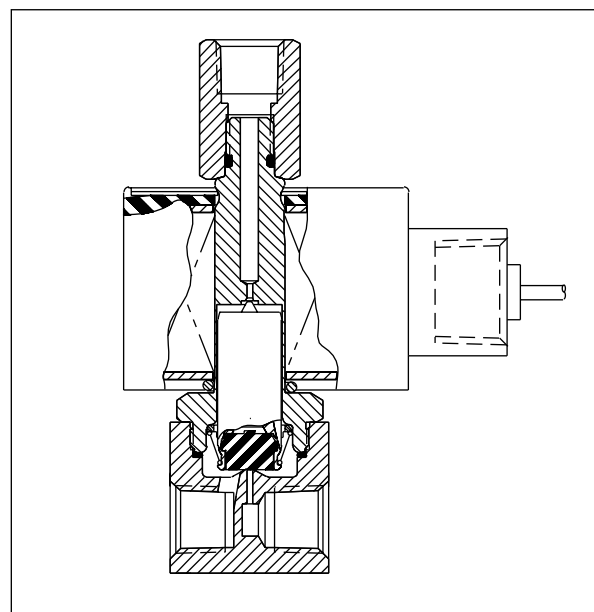
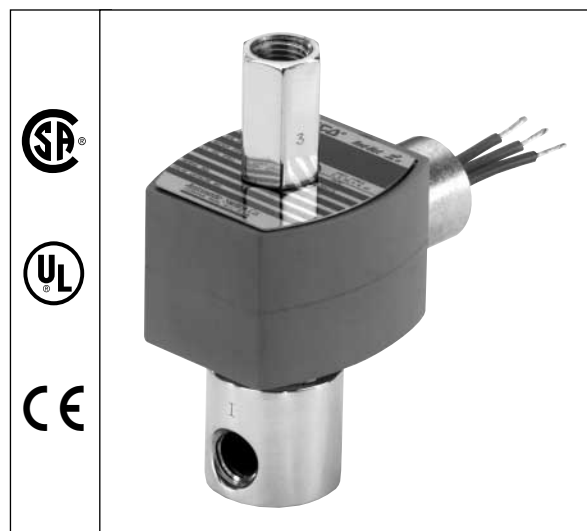
## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part Number			
	DC Watts	AC			General Purpose		Explosionproof	
		Watts	VA Holding	VA Inrush	AC	DC	AC	DC
F	11.6	10.1	25	50	238610	238710	238614	238714

**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz).  
 6, 12, 24, 120, 240 volts DC. Must be specified when ordering. Other voltages are available when required.

## Solenoid Enclosures

**Standard:** Watertight, Types 1, 2, 3, 3S, 4, and 4X.  
**Optional:** Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9.  
 (To order, add prefix "EF" to catalog number.)  
*See Optional Features Section for other available options.*



## Nominal Ambient Temperature Ranges:

AC: 32°F to 125°F (0°C to 52°C)

DC: 32°F to 104°F (0°C to 40°C)

*Refer to Engineering Section for details.*

## Approvals:

CSA certified. UL listed General Purpose Valves. Meets applicable CE directives.

*Refer to Engineering Section for details.*

## Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Operating Pressure Differential (psi)						Max. Fluid Temp. °F		Brass Body		Stainless Steel Body		Watt Rating/ Class of Coil Insulation	
			Max. AC			Max. DC										
			Air-Inert Gas	Water	Lt. Oil @ 45 SSU	Air-Inert Gas	Water	Lt. Oil @ 45 SSU	AC	DC	Catalog Number	Constr. Ref. No.	Catalog Number	Constr. Ref. No.	AC	DC
UNIVERSAL OPERATION (Pressure at any port)																
1/8	3/64	.04	160	160	160	70	65	65	200	104	8314G41	1	-	-	10.1/F	11.6/F
1/4	3/64	.04	160	160	160	70	65	65	200	104	8314G6	2	-	-	10.1/F	11.6/F
1/4	3/32	.15	80	40	40	35	35	15	200	104	8314G7	2	8314G120	4	10.1/F	11.6/F
1/4	1/8	.25	45	25	25	20	15	15	200	104	8314G8	2	-	-	10.1/F	11.6/F
NORMALLY CLOSED (Closed when de-energized)																
1/8	3/64	.04	230	230	230	120	140	135	200	104	8314G31	1	-	-	10.1/F	11.6/F
1/4	3/64	.04	230	230	230	120	140	135	200	104	8314G34	2	-	-	10.1/F	11.6/F
1/4	3/32	.15	150	100	100	60	70	30	200	104	8314G35	2	8314G121	4	10.1/F	11.6/F
1/4	1/8	.25	75	60	60	30	40	25	200	104	8314G36	2	-	-	10.1/F	11.6/F
NORMALLY CLOSED (Closed when de-energized), Air Only - Exhausts to Atmosphere																
1/4	3/64	.04	230	-	-	120	-	-	200	104	8314G22	3	-	-	10.1/F	11.6/F
1/4	3/32	.15	150	-	-	60	-	-	200	104	8314G23	3	-	-	10.1/F	11.6/F
NORMALLY OPEN (Open when de-energized)																
1/8	3/64	.04	300	300	300	200	200	120	200	104	8314G49	1	-	-	10.1/F	11.6/F
1/4	3/32	.15	175	175	175	70	90	45	200	104	8314G53	2	8314G122	4	10.1/F	11.6/F
1/4	1/8	.25	90	90	90	40	40	25	200	104	8314G54	2	-	-	10.1/F	11.6/F

## Specifications (Metric units)

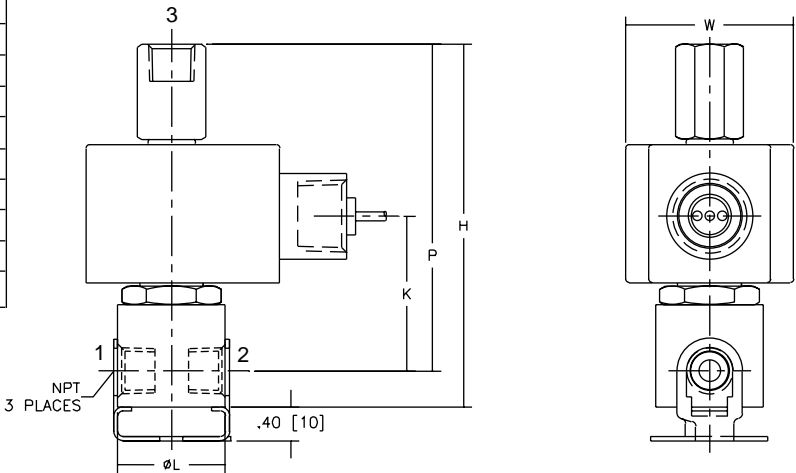
Pipe Size Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Operating Pressure Differential (bar)						Max. Fluid Temp. °C		Brass Body		Stainless Steel Body		Watt Rating/ Class of Coil Insulation	
			Max. AC			Max. DC										
			Air-Inert Gas	Water	Lt. Oil @ 45 SSU	Air-Inert Gas	Water	Lt. Oil @ 45 SSU	AC	DC	Catalog Number	Constr. Ref. No.	Catalog Number	Constr. Ref. No.	AC	DC
UNIVERSAL OPERATION (Pressure at any port)																
1/8	1	.03	11	11	11	5	4	4	92	40	8314G41	1	-	-	10.1/F	11.6/F
1/4	1	.03	11	11	11	5	4	4	92	40	8314G6	2	-	-	10.1/F	11.6/F
1/4	2	.13	6	3	3	2	2	1	92	40	8314G7	2	8314G120	4	10.1/F	11.6/F
1/4	3	.21	3	2	2	1	1	1	92	40	8314G8	2	-	-	10.1/F	11.6/F
NORMALLY CLOSED (Closed when de-energized)																
	1	.03	16	16	16	8	10	9	92	40	8314G31	1	-	-	10.1/F	11.6/F
1/4	1	.03	16	16	16	8	10	9	92	40	8314G34	2	-	-	10.1/F	11.6/F
1/4	2	.13	10	7	7	4	5	2	92	40	8314G35	2	8314G121	4	10.1/F	11.6/F
1/4	3	.21	5	4	4	2	3	2	92	40	8314G36	2	-	-	10.1/F	11.6/F
NORMALLY CLOSED (Closed when de-energized), Air Only - Exhausts to Atmosphere																
1/4	1	.03	16	-	-	8	-	-	92	40	8314G22	3	-	-	10.1/F	11.6/F
1/4	2	.13	10	-	-	4	-	-	92	40	8314G23	3	-	-	10.1/F	11.6/F
NORMALLY OPEN (Open when de-energized)																
1/8	1	.03	21	21	21	14	14	8	92	40	8314G49	1	-	-	10.1/F	11.6/F
1/4	2	.13	12	12	12	5	6	3	92	40	8314G53	2	8314G122	4	10.1/F	11.6/F
1/4	3	.21	6	6	6	3	3	2	92	40	8314G54	2	-	-	10.1/F	11.6/F

Dimensions: inches (mm)

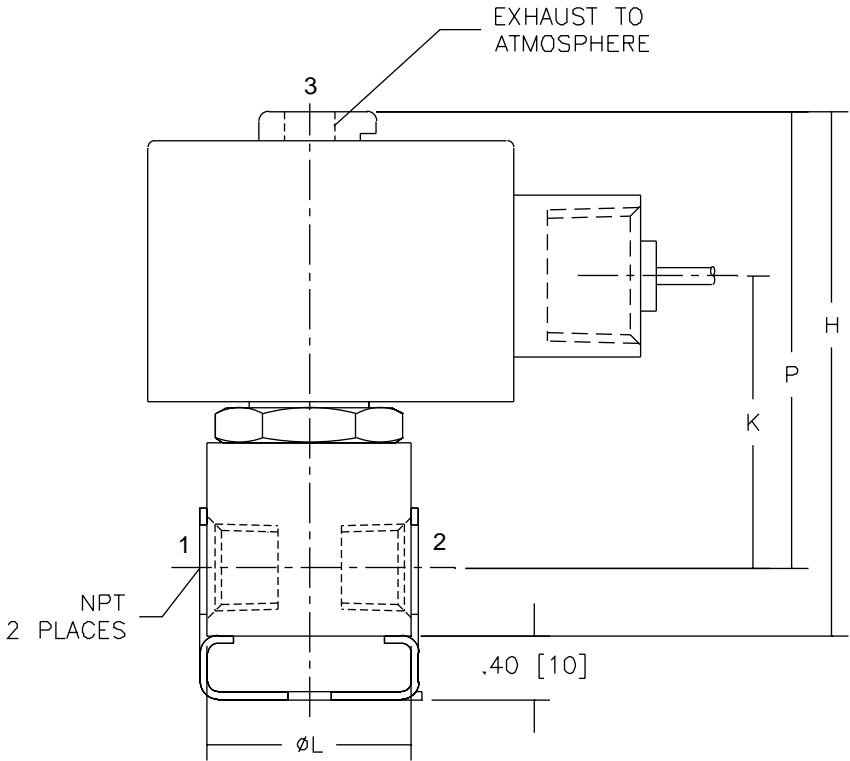
Constr. Ref. No.		H	K	L	P	W
<b>1</b>	ins.	3.87	1.67	Ø1.19	3.51	1.95
	mm	98	42	Ø30	89	50
<b>2</b>	ins.	4.21	1.80	Ø1.25	3.79	1.95
	mm	107	46	Ø32	96	50
<b>3</b>	ins.	3.34	1.80	Ø1.25	2.92	1.95
	mm	85	46	Ø32	74	50
<b>4</b>	ins.	4.14	1.78	Ø1.63	3.77	1.95
	mm	105	45	Ø41	96	50

**IMPORTANT:** Valves can be mounted in any position.

**Constr. Ref. 1, 2, 4**



**Constr. Ref. 3**

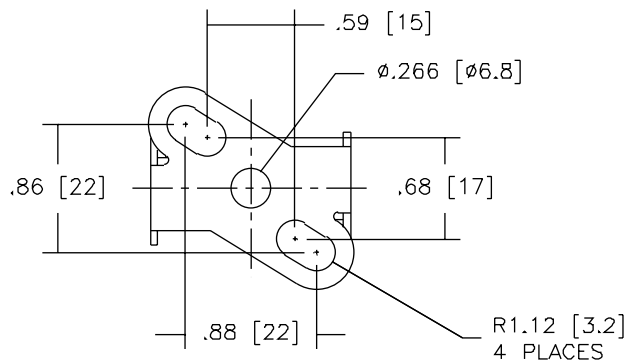




Dimensions: inches (mm)

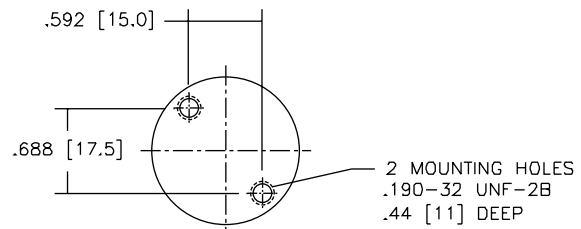
**Constr. Ref. 2, 3, 4**

Mounting Bracket Standard  
1/4 NPT Size only

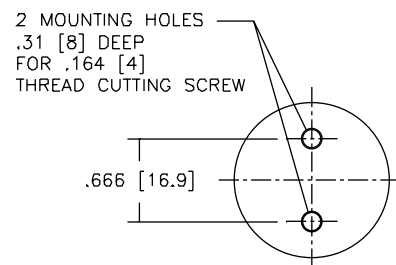


**Mounting Holes in Valve Body**

**Constr. Ref. 1**

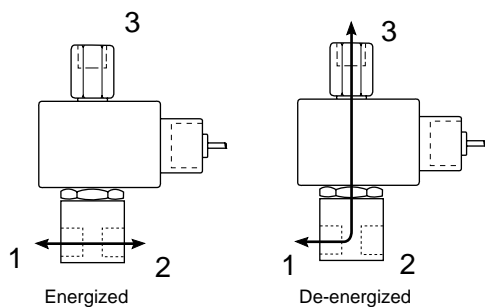


**Constr. Ref. 2, 3**

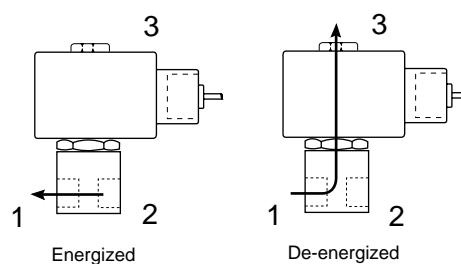


**FLOW DIAGRAMS**

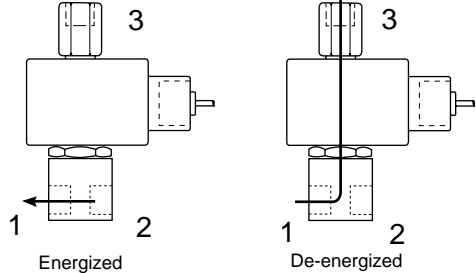
**UNIVERSAL CONSTR.**  
Pressure at any Port



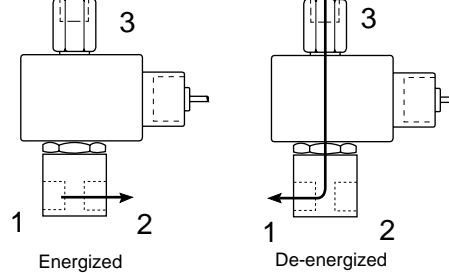
**NORMALLY CLOSED CONSTR.**  
Air Only  
Valve Vents to Atmosphere  
Pressure at 2



**NORMALLY CLOSED CONSTR.**  
Pressure at 2



**NORMALLY OPEN CONSTR.**  
Pressure at 3



## Features

- Diaphragm poppet valves suitable for controlling air-inert gas and liquids.
- Internal piloting controls large orifices to provide high flows.
- Can be used to pilot large actuators to provide quick closing of large control valves.
- Resilient seating for tight shutoff.
- Mountable in any position.

## Construction

Valve Parts in Contact with Fluids	
Body	Brass
Seals and Disc	NBR
Diaphragm Assembly	NBR
Core Tube	305 Stainless Steel
Core and Plugnut	430F Stainless Steel
Core Springs	302 Stainless Steel and 17-7PH Stainless Steel
Shading Coil	Copper
Pilot Seat Cartridge and Disc-Holder	CA

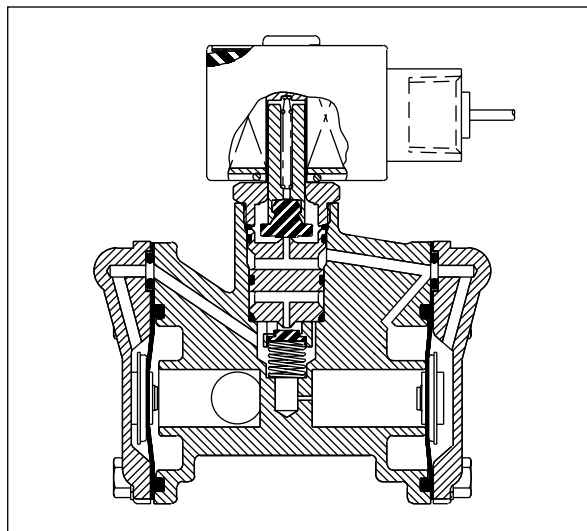
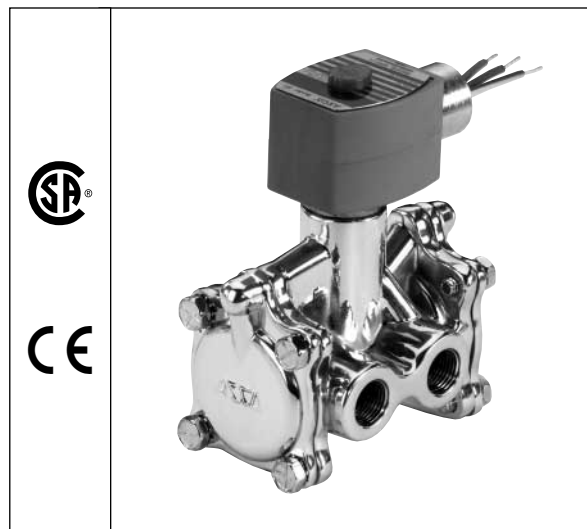
## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part No.			
	DC Watts	AC Watts	VA Holding	VA Inrush	General Purpose		Explosionproof	
					AC	DC	AC	DC
F	10.6	6.1	16	30	238210	238310	238214	238314
F	22.6	17.1	40	70	238610	238710	238614	238714

**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz). 6, 12, 24, 120, 240 volts DC. Must be specified when ordering. Other voltages available when required.

## Solenoid Enclosures

<b>Standard:</b> Watertight, Types 1, 2, 3, 3S, 4, and 4X.
<b>Optional:</b> Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9. (To order, add prefix "EF" to catalog number.) <i>See Optional Features Section for other available options.</i>



## Nominal Ambient Temperature Ranges:

AC: 32°F to 125°F (0°C to 52°C)

DC: 32°F to 104°F (0°C to 40°C)

*Refer to Engineering Section for details.*

## Approvals:

CSA certified. Meets applicable CE directives.

*Refer to Engineering Section for details.*

## Important:

A minimum operating pressure differential must be maintained between the pressure and exhaust ports. Supply and exhaust piping must be full area, unrestricted. ASCO flow controls and other similar components must be installed in the cylinder lines only.

## Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Operating Pressure Differential (psi)					Max. Fluid Temp. °F		Brass Body	Constr. Ref. No	Watt Rating/ Class of Coil Insulation ②	
			Min. ①	Max. AC		Max. DC						AC	DC
				Air-Inert Gas	Water	Air-Inert Gas	Water						
NORMALLY CLOSED (Closed when de-energized)													
3/8	5/8	3	10	150	125	125	125	180	120	8316G54	1	6.1/F	10.6/F
3/8	5/8	2.5	10	250	250	250	250	180	120	8316G14	2	17.1/F	22.6/F
1/2	5/8	3.2	10	150	125	125	125	180	120	8316G64	1	6.1/F	10.6/F
1/2	5/8	3.2	10	250	250	250	250	180	120	8316G24	2	17.1/F	22.6/F
3/4	11/16	4.8	10	150	125	125	125	180	120	8316G74	3	6.1/F	10.6/F
3/4	11/16	4.8	10	250	250	250	250	180	120	8316G44	4	17.1/F	22.6/F
1	1	12.5	10	150	125	125	125	180	120	8316G34	5	6.1/F	10.6/F
NORMALLY OPEN (Open when de-energized)													
3/8	5/8	2.5	10	150	125	125	125	180	120	8316G56	1	6.1/F	10.6/F
3/8	5/8	2.5	10	250	250	250	250	180	120	8316G16	2	17.1/F	22.6/F
1/2	5/8	3.2	10	150	125	125	125	180	120	8316G66	1	6.1/F	10.6/F
1/2	5/8	3.2	10	250	250	250	250	180	120	8316G26	2	17.1/F	22.6/F
3/4	11/16	4.8	10	150	125	125	125	180	120	8316G76	3	6.1/F	10.6/F
3/4	11/16	4.8	10	250	250	250	250	180	120	8316G46	4	17.1/F	22.6/F
1	1	12.5	10	150	125	125	125	180	120	8316G36	5	6.1/F	10.6/F
Notes: ① 10 psi Minimum Operating Pressure Differential required. Valve vents to "zero" psi. ② On 50 hertz service, the watt rating for 6.1/F solenoid is 8.1 watts.													

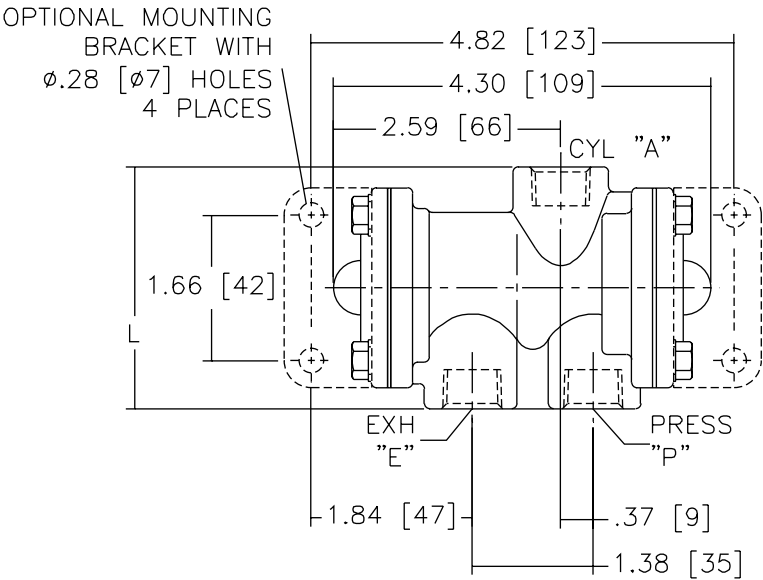
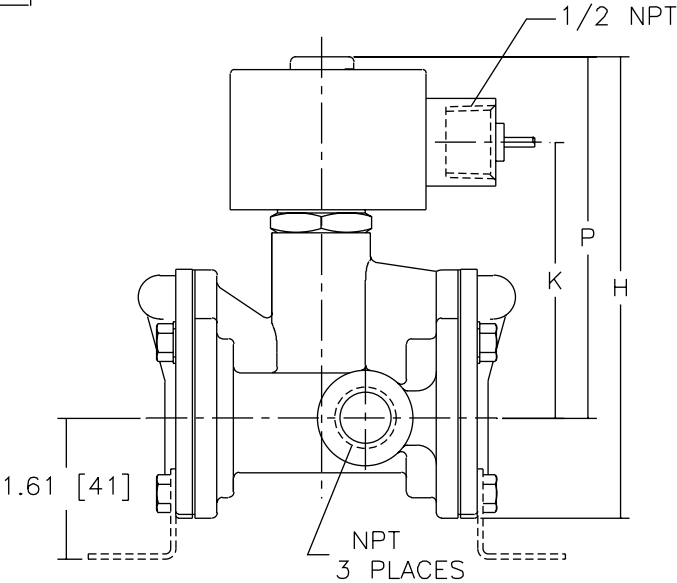
## Specifications (Metric units)

Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Operating Pressure Differential (bar)					Max. Fluid Temp. °C		Brass Body	Constr. Ref. No.	Watt Rating/ Class of Coil Insulation ②	
			Min. ①	Max. AC		Max. DC						AC	DC
				Air-Inert Gas	Water	Air-Inert Gas	Water						
NORMALLY CLOSED (Closed when de-energized)													
3/8	16	2.57	0.7	10	9	9	9	81	48	8316G54	1	6.1/F	10.6/F
3/8	16	2.14	0.7	17	17	17	17	81	48	8316G14	2	17.1/F	22.6/F
1/2	16	2.74	0.7	10	9	9	9	81	48	8316G64	1	6.1/F	10.6/F
1/2	16	2.74	0.7	17	17	17	17	81	48	8316G24	2	17.1/F	22.6/F
3/4	17	4.11	0.7	10	9	9	9	81	48	8316G74	3	6.1/F	10.6/F
3/4	17	4.11	0.7	17	17	17	17	81	48	8316G44	4	17.1/F	22.6/F
1	25	10.71	0.7	10	9	9	9	81	48	8316G34	5	6.1/F	10.6/F
NORMALLY OPEN (Open when de-energized)													
3/8	16	2.14	0.7	10	9	9	9	81	48	8316G56	1	6.1/F	10.6/F
3/8	16	2.14	0.7	17	17	17	17	81	48	8316G16	2	17.1/F	22.6/F
1/2	16	2.74	0.7	10	9	9	9	81	48	8316G66	1	6.1/F	10.6/F
1/2	16	2.74	0.7	17	17	17	17	81	48	8316G26	2	17.1/F	22.6/F
3/4	17	4.11	0.7	10	9	9	9	81	48	8316G76	3	6.1/F	10.6/F
3/4	17	4.11	0.7	17	17	17	17	81	48	8316G46	4	17.1/F	22.6/F
1	25	10.71	0.7	10	9	9	9	81	48	8316G36	5	6.1/F	10.6/F
Notes: ① 1 bar Minimum Operating Pressure Differential required. Valve vents to "zero" bar. ② On 50 hertz service, the watt rating for 6.1/F solenoid is 8.1 watts.													

Dimensions: inches (mm)

Constr. Ref. No.		H	K	L	P
1	ins.	5.08	3.08	2.76	3.94
	mm	129	78	70	100
2	ins.	5.26	3.15	2.76	4.12
	mm	134	80	70	105

Constr. Refs. 1,2

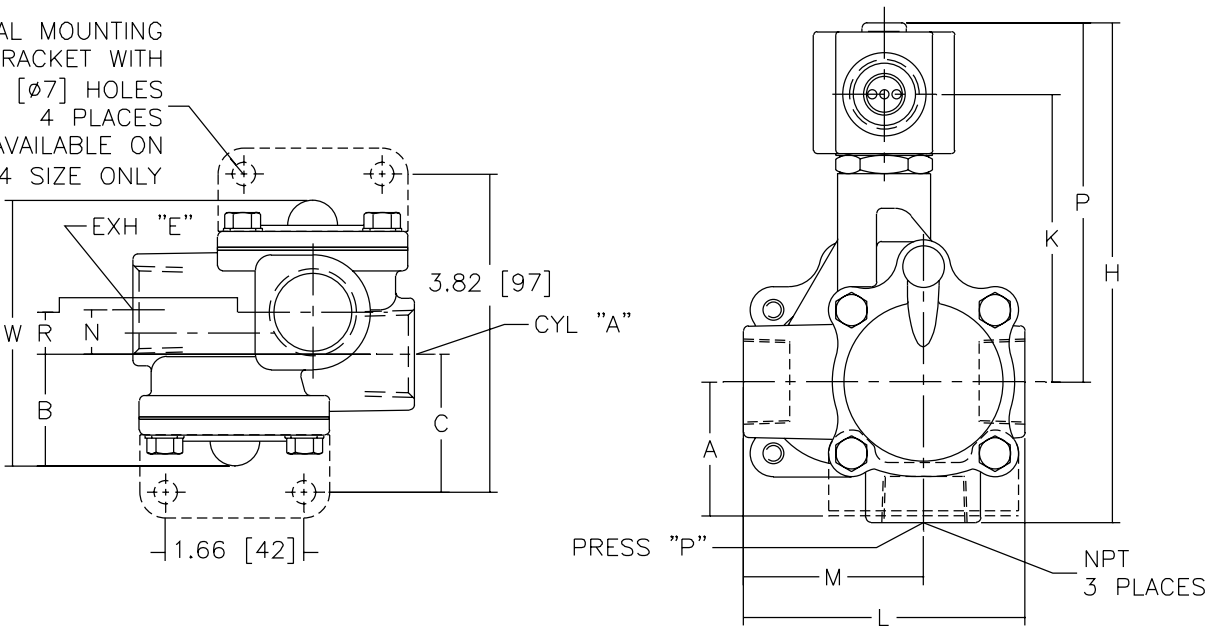


Dimensions: inches (mm)

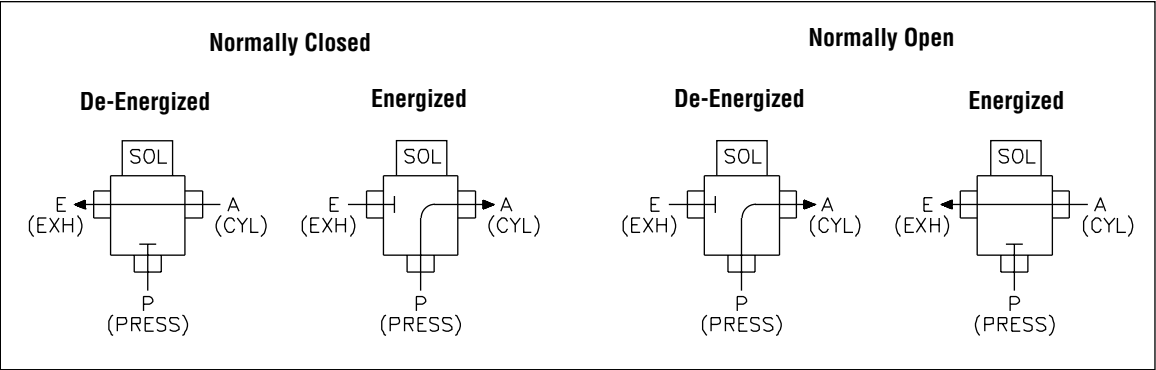
Constr. Ref. No.		A	B	C	H	K	L	M	N	P	R	W
3	ins.	1.61	1.41	1.66	6.01	3.46	3.38	2.16	.53	4.32	.50	3.31
	mm	41	36	42	153	88	86	55	13	110	13	84
4	ins.	1.61	1.41	1.66	6.19	3.53	3.38	2.16	.53	4.50	.50	3.31
	mm	41	36	42	157	90	86	55	13	114	13	84
5	ins.	X	1.80	X	6.63	3.71	4.44	2.81	.88	4.57	1.74	5.32
	mm	X	46	X	168	94	113	71	22	116	44	135

Constr. Refs. 3, 4, 5

OPTIONAL MOUNTING  
BRACKET WITH  
Ø.28 [Ø7] HOLES  
4 PLACES  
AVAILABLE ON  
3/4 SIZE ONLY



FLOW DIAGRAMS



## Features

- Brass body construction for general atmospheres; Stainless Steel for corrosive atmospheres.
- Can be internally piloted, or externally piloted to convert valve to zero minimum operation by flipping a gasket.
- When externally piloted, loss of electrical power or auxiliary air exhausts air from the actuator and shifts process valve to its original position.
- When internally piloted, loss of electric power returns the valve to its original position.
- Also available with Low Power or Intrinsically Safe solenoids. *See Special Service Valve Section.*

## Construction

Valve Parts in Contact with Fluids		
Body	Brass	316 Stainless Steel
End Plate	304 Stainless Steel	316 Stainless Steel
Seals and Discs	Low Temp Buna NBR	FKM (Suffix V)
Core Tube	305 Stainless Steel	
Core Guide	CA	
Shading Coil	Copper	Silver

## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part No.					
	DC Watts	AC			General Purpose		Explosionproof (EF)		Explosionproof (EV)	
		Watts	VA Holding	VA Inrush						
					AC	DC	AC	DC	AC	DC
					F	11.6	10.1	25	50	238610

**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz (or 110, 220 volts, AC, 50 Hz).  
6, 12, 24, 120, 240 volts DC. Must be specified when ordering. Other voltages are  
available when required.

## Solenoid Enclosures

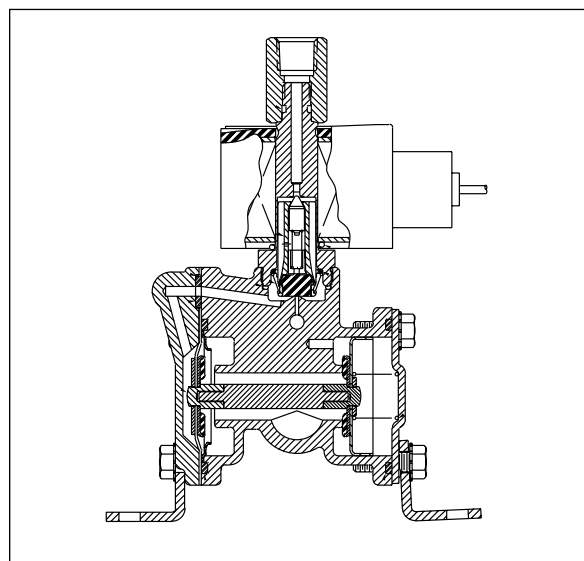
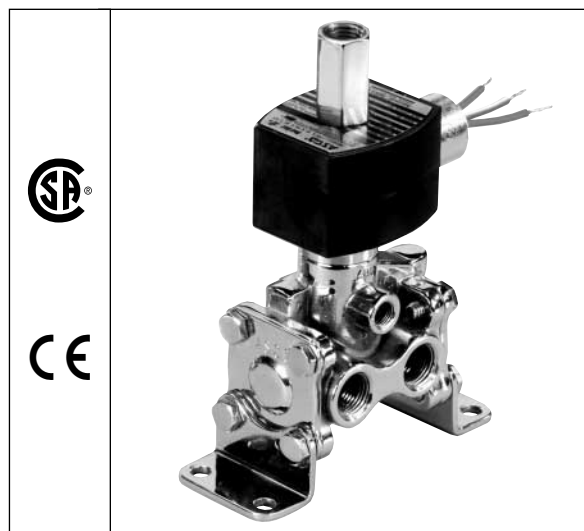
### Brass Body Valves:

**Standard:** Watertight, Types 1, 2, 3, 3S, 4, and 4X.

**Optional:** Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9. (Add prefix "EF" to catalog number.)

### Stainless Steel Valves:

**Standard:** Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9. *See Optional Features Section for other available options.*



## Nominal Ambient Temperature Ranges:

Standard Construction: AC: -4°F to 125°F (-20°C to 52°C)

DC: -4°F to 104°F (-20°C to 40°C)

-40°F on certain models (consult factory)

Suffix V Construction: AC: 32°F to 125°F (0°C to 52°C)

DC: 32°F to 104°F (0°C to 40°C)

## Approvals:

Valves with prefix "EF" or "EV"; UL approved and CSA certified solenoid. Meets applicable CE directives.

## Installation:

All valves may be mounted in any position. 316 Stainless Steel mounting brackets available from ASCO. Add suffix "MB".

## Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Min.	Max. Air Press. (psi)		Catalog Number		Constr. Ref. No.	Max. Fluid Temp. °F		Watt Rating/ Class of Coil Insulation	
				AC	DC	Brass	Stainless Steel		AC	DC	AC	DC
NORMALLY CLOSED (Closed when de-energized) ①												
1/4	5/16	1.5	②	150	120	8316G1	EV8316G81V	1	180	120	10.1/F	11.6/F
3/8	5/16	1.8	②	150	120	8316G2	EV8316G82V	1	180	120	10.1/F	11.6/F
3/8	5/8	4	②	150	120	8316G3	-	3	180	120	10.1/F	11.6/F
1/2	5/8	4	②	150	120	8316G4	EV8316G84V	3	180	120	10.1/F	11.6/F

Notes: ① Consult factory for Normally Open and other forms of flow.

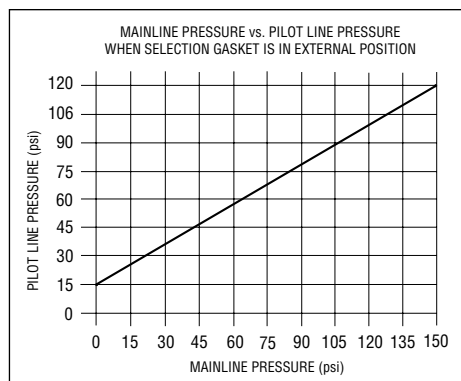
② Zero minimum when valve selection gasket is in external position and proper auxiliary air pressure is applied. See graph below for pilot line pressure vs. mainline pressure. Minimum 15 psi (1 bar) operating pressure differential when selection gasket is in the internal position.

**IMPORTANT:** Internal mode Minimum Operating Pressure Differential must be maintained between the pressure and exhaust ports. Supply and exhaust piping must be full area and unrestricted. ASCO flow controls and similar components must be installed in the cylinder lines only.

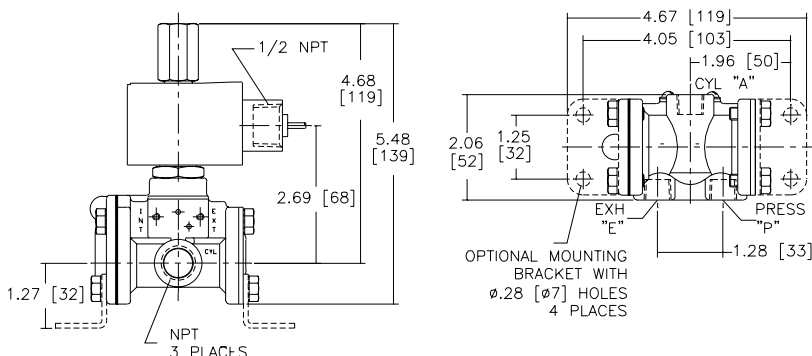
## Specifications (Metric units)

Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Min.	Max. Air Press. (bar)		Catalog Number		Constr. Ref. No.	Max. Fluid Temp. °C		Watt Rating/ Class of Coil Insulation	
				AC	DC	Brass	Stainless Steel		AC	DC	AC	DC
NORMALLY CLOSED (Closed when de-energized)*												
1/4	8	1.29	②	10	8	8316G1	EV8316G81V	1	81.4	48.4	10.1/F	11.6/F
3/8	8	1.54	②	10	8	8316G2	EV8316G82V	1	81.4	48.4	10.1/F	11.6/F
3/8	16	3.43	②	10	8	8316G3	-	3	81.4	48.4	10.1/F	11.6/F
1/2	16	3.43	②	10	8	8316G4	EV8316G84V	3	81.4	48.4	10.1/F	11.6/F

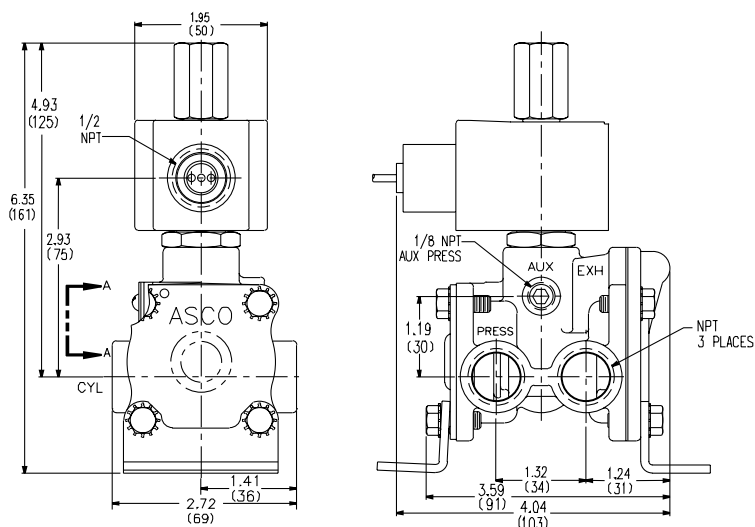
## Dimensions: inches (mm)



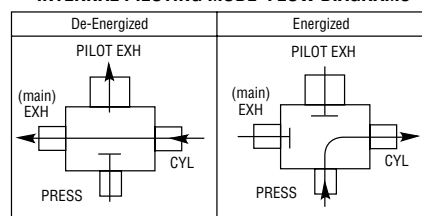
Constr. Refs. 1



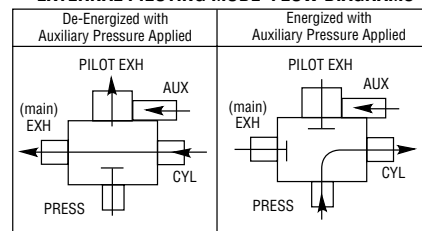
Constr. Refs. 3



INTERNAL PILOTING MODE FLOW DIAGRAMS



EXTERNAL PILOTING MODE FLOW DIAGRAMS





### Features

- Designed for quick venting to 0 psi through the exhaust orifice.
- Resilient seated poppets for tight shutoff.
- Air is exhausted to quickly shift control valves.
- Multi-industry applications.
- Mountable in any position.

### Construction

Valve Parts in Contact with Fluids		
Body	Brass	304 Stainless Steel
Seals and Disc	NBR (PA upper disc for 8317 Series)	
Diaphragm	CR (8317 Series only)	
Core Tube	305 Stainless Steel	
Core and Plugnut	430F Stainless Steel	
Core Springs	302 and 17-7 PH Stainless Steel	
Shading Coil	Copper	Silver
Pilot Seat Cartridge and Disc-Holder	CA (8321 Series only)	
Piston	Brass and 303 Stainless Steel (8321 only)	

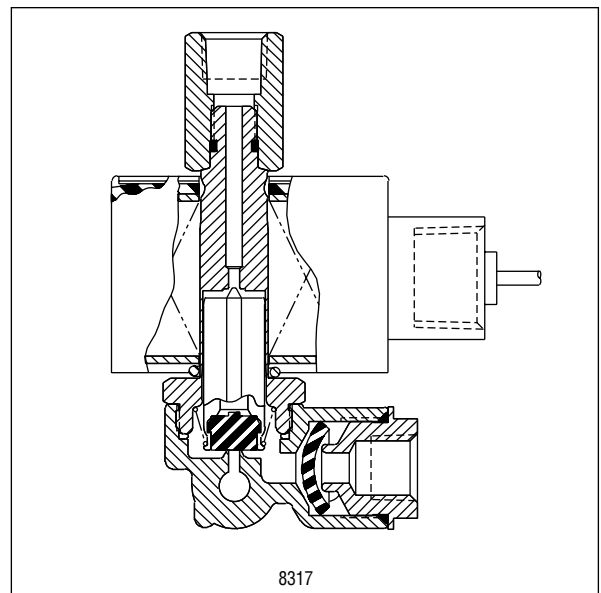
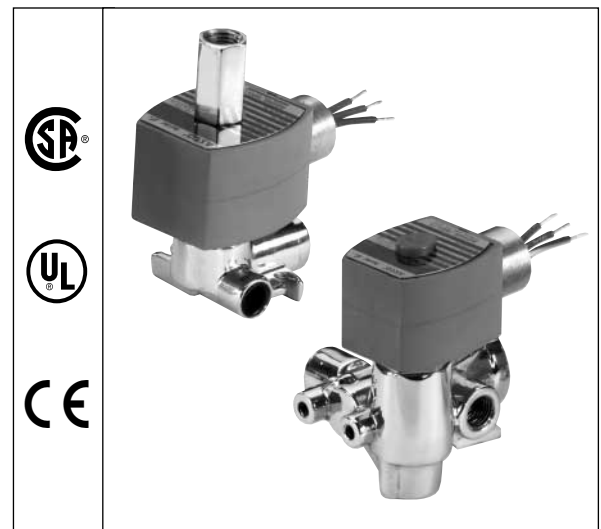
### Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part No.			
	DC Watts	AC			General Purpose		Explosionproof	
		Watts	VA Holding	VA Inrush	AC	DC	AC	DC
F	10.6	6.1	16	30	238210	238310	238214	238314
F	11.6	10.1	25	50	238610	238710	238614	238714

**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz). 6, 12, 24, 120, 240 volts DC. Must be specified when ordering. Other voltages are available when required.

### Solenoid Enclosures

**Standard:** Watertight, Types 1, 2, 3, 3S, 4, and 4X.  
**Optional:** Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9.  
 (To order, add prefix "EF" to the catalog number.)  
*See Optional Features Section for other available options.*



### Nominal Ambient Temperature Ranges:

AC: 32°F to 125°F (0°C to 52°C)  
 DC: 32°F to 104°F (0°C to 40°C)  
*Refer to Engineering Section for details.*

### Approvals:

CSA certified. UL listed General Purpose Valves. Meets applicable CE directives.  
*Refer to Engineering Section for details.*

### Important:

A Minimum Operating Pressure Differential must be maintained between the pressure and exhaust ports. Supply and exhaust piping must be full area, unrestricted. ASCO flow controls and other similar components must be installed in the cylinder lines only.

## Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)		Cv Flow Factor		Operating Pressure Differential (psi)							Max. Fluid Temp. °F		Brass Body		Stainless Steel Body		Watt Rating/ Class of Coil Insulation ③	
	Press.	Exh.	Press.	Exh.	Min. ①	Max. AC			Max. DC			AC	DC	Catalog Number	Constr. Ref. No.	Catalog Number	Constr. Ref. No.	AC	DC
						Air-Inert Gas	Water	Lt. Oil ① @45 SSU	Air-Inert Gas	Water	Lt. Oil ① @45 SSU								
NORMALLY CLOSED (Pressure at Port 2) / NORMALLY OPEN (Pressure at Port 3)																			
1/4	3/32	1/4	.20	.73	5 ②	80	50	50	40	30	15	180	104	8317G7	2	8317G8	4	10.1/F	11.6/F
NORMALLY CLOSED (Closed when de-energized)																			
1/4	3/32	1/4	.20	.73	5 ②	150	150	95	75	55	30	180	104	8317G35	2	8317G36	4	10.1/F	11.6/F
1/4	9/32	11/32	.80	1.20	10	200	200	200	200	200	200	180	120	8321G1	3	-	-	6.1/F	10.6/F
3/8	9/32	11/32	.80	1.20	10	200	200	200	200	200	200	180	120	8321G2	3	-	-	6.1/F	10.6/F
NORMALLY CLOSED (Closed when de-energized), Air Only - Vents to Atmosphere																			
1/4	3/32	1/4	.20	.73	5	150	-	-	-	-	-	180	-	8317G23	1	8317G24	5	10.1/F	-
NORMALLY OPEN (Open when de-energized)																			
1/4	3/32	1/4	.15	.73	5 ②	160	160	95	75	45	25	180	104	8317G53	2	8317G54	4	10.1/F	11.6/F
1/4	9/32	11/32	.80	1.20	10	200	200	200	200	200	200	180	120	8321G3	3	-	-	6.1/F	10.6/F
3/8	9/32	11/32	.80	1.20	10	200	200	200	200	200	200	180	120	8321G4	3	-	-	6.1/F	10.6/F
Notes: ① Rating for 8321 valves established with 300 SSU light oil. ② Minimum Operating Pressure Differential on light oil is 10 psi (.7 bar). ③ On 50 hertz service, the watt rating for the 6.1/F solenoid is 8.1 watts.																			

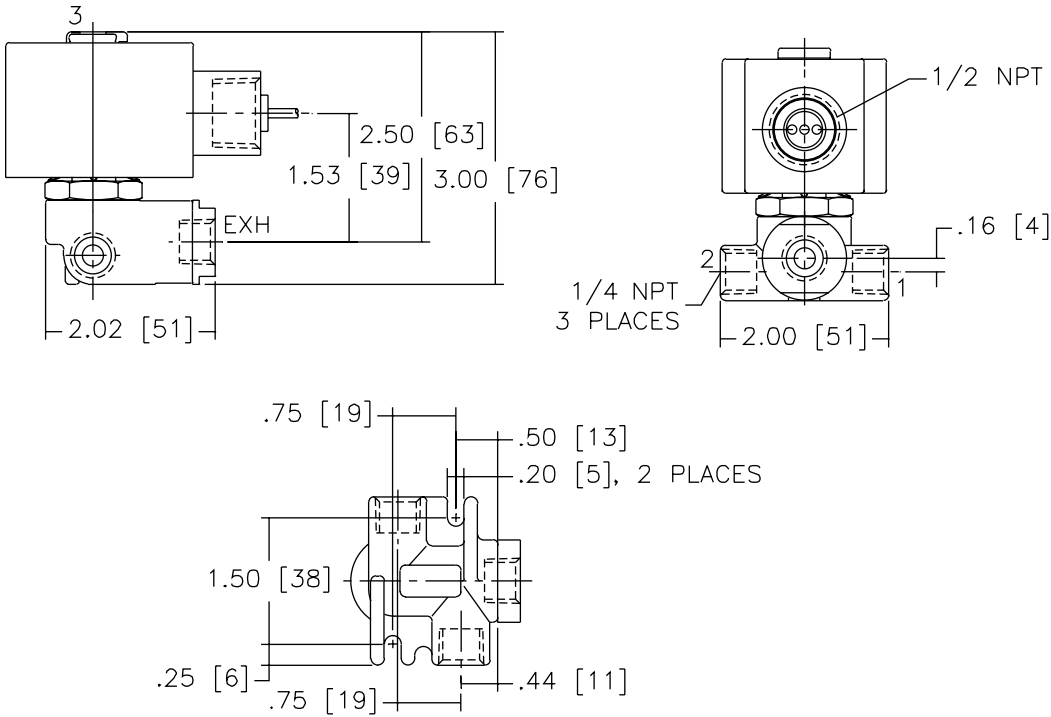
## Specifications (Metric units)

Pipe Size (ins.)	Orifice Size (mm)		Kv Flow Factor (m3/h)		Operating Pressure Differential (bar)							Max. Fluid Temp. °C		Brass Body		Stainless Steel Body		Watt Rating/ Class of Coil Insulation ③	
	Press.	Exh.	Press.	Exh.	Min. ①	Max. AC			Max. DC			AC	DC	Catalog Number	Constr. Ref. No.	Catalog Number	Constr. Ref. No.	AC	DC
						Air-Inert Gas	Water	Lt. Oil ① @45 SSU	Air-Inert Gas	Water	Lt. Oil ① @45 SSU								
NORMALLY CLOSED (Pressure at Port 2) / NORMALLY OPEN (Pressure at Port 3)																			
1/4	2	6	.17	.63	.3 ②	6	3	50	40	30	15	81	40	8317G7	2	8317G8	4	10.1/F	11.6/F
NORMALLY CLOSED (Closed when de-energized)																			
1/4	2	6	.17	.63	.3 ②	10	7	95	75	55	30	81	40	8317G35	2	8317G36	4	10.1/F	11.6/F
1/4	7	9	.69	1.03	.7	14	14	200	200	200	200	81	48	8321G1	3	-	-	6.1/F	10.6/F
3/8	7	9	.69	1.03	.7	14	14	200	200	200	200	81	48	8321G2	3	-	-	6.1/F	10.6/F
NORMALLY CLOSED (Closed when de-energized), Air Only - Vents to Atmosphere																			
1/4	2	6	.17	.63	.3	10	-	-	-	-	-	81	-	8317G23	1	8317G24	5	10.1/F	-
NORMALLY OPEN (Open when de-energized)																			
1/4	2	6	.13	.63	.3 ②	11	11	7	5	3	2	81	40	8317G53	2	8317G54	4	10.1/F	11.6/F
1/4	7	9	.69	1.03	.7	14	14	14	14	14	14	81	48	8321G3	3	-	-	6.1/F	10.6/F
3/8	7	9	.69	1.03	.7	14	14	14	14	14	14	81	48	8321G4	3	-	-	6.1/F	10.6/F

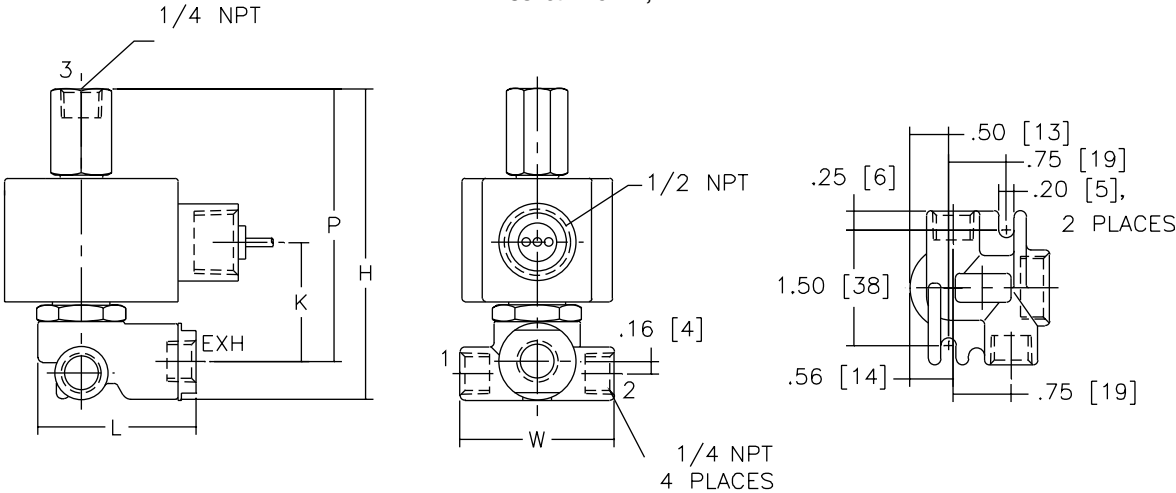
**Dimensions: inches (mm)**

Constr. Ref. No		H	K	L	P	W
2	ins.	4.04	1.55	2.05	3.54	2.00
	mm	103	39	52	90	51
4	ins.	4.02	1.53	2.02	3.52	2.00
	mm	102	39	51	89	51

**Constr. Ref. 1, 5**

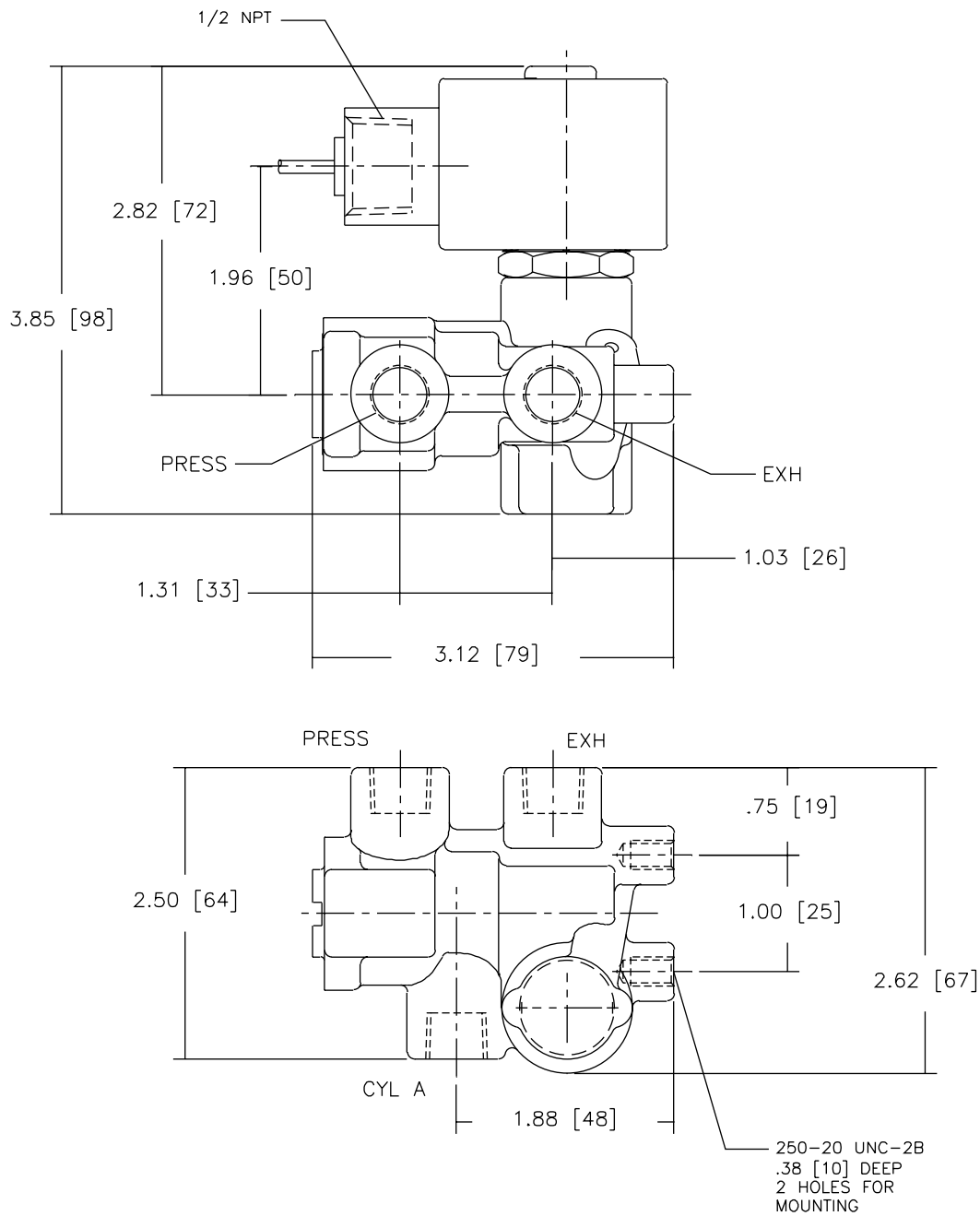


**Constr. Ref. 2, 4**



Dimensions: inches (mm)

Constr. Ref. 3



## Features

- All NPT connections are in the valve body to allow in-line piping.
- No Minimum Operating Pressure Differential required.
- Sturdy design for long years of reliable service.
- Broadest range of applications.
- Mountable in any position.

## Construction

Valve Parts in Contact with Fluids		
Body	Brass	303 Stainless Steel
Seals and Discs	NBR or Cast UR, as Listed	
Core Tube	305 Stainless Steel	
Core and Plugnut	430F Stainless Steel	
Core Springs	302 Stainless Steel	
Shading Coil	Copper	Silver
Disc-Holder	CA	
Core Guide	CA (10.1 and 17.1 Watt only)	

## Electrical

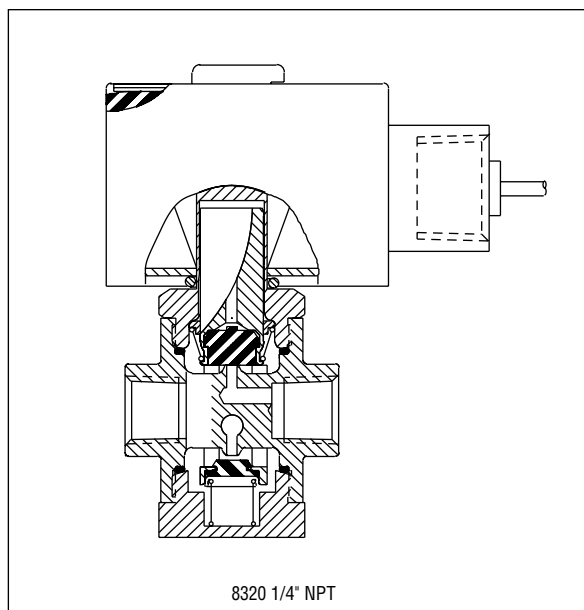
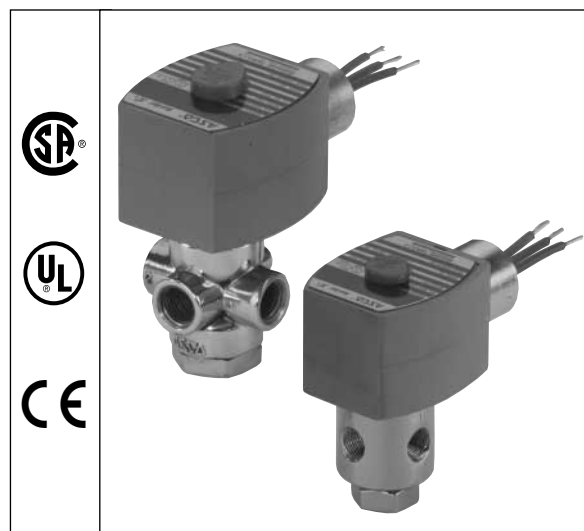
Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part No.			
	DC Watts	AC			General Purpose		Explosionproof	
		Watts	VA Holding	VA Inrush	AC	DC	AC	DC
F	10.6	6.1	16	30	238210	238310	238214	238314
F	-	9.1	25	40	238210	-	238214	-
F	11.6	10.1	25	50	238610	238710	238614	238714
F	-	17.1	40	70	238610	-	238614	-

**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz (or 110, 220, volts AC, 50 Hz). 6, 12, 24, 120, 240 volts DC. Must be specified when ordering. Other voltages are available when required.

## Solenoid Enclosures

**Standard:** Watertight, Types 1, 2, 3, 3S, 4, and 4X.

**Optional:** Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9. (To order, add prefix "EF" to the catalog number.)  
 See Optional Features Section for other available options.



## Nominal Ambient Temperature Ranges:

AC: 32°F to 125°F (0°C to 52°C)

DC: 32°F to 104°F (0°C to 40°C)

Refer to Engineering Section for details.

## Approvals:

CSA certified. UL listed General Purpose Valves.  
 Meets applicable CE directives.

Refer to Engineering Section for details.

## Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Operating Pressure Differential (psi)						Max. Fluid Temp. °F		Brass Body		Stainless Steel Body		Watt Rating/ Class of Coil Insulation ②	
			Max. AC			Max. DC										
			Air-Inert Gas	Water	Lt. Oil @ 300 SSU	Air-Inert Gas	Water	Lt. Oil @ 300 SSU	AC	DC	Catalog Number	Constr. Ref. No.	Catalog Number	Constr. Ref. No.	AC	DC
UNIVERSAL OPERATION (Pressure at any port)																
1/8	3/64	.06	175	175	175	125	125	125	140	120	8320G130 ①	1	8320G140 ①	1	9.1/F	10.6/F
1/8	1/16	.09	100	100	100	65	65	65	180	120	8320G1	1	8320G41	1	9.1/F	10.6/F
1/8	3/32	.12	50	50	50	50	50	50	180	120	8320G83	1	8320G87	1	6.1/F	10.6/F
1/8	1/8	.21	30	30	30	20	20	20	180	120	8320G3	1	8320G43	1	9.1/F	10.6/F
1/4	1/16	.09	125	130	130	75	75	75	200	150	8320G172	2	--	--	10.1/F	11.6/F
1/4	3/32	.12	100	100	100	60	60	60	200	150	8320G174	2	8320G200	3	17.1/F	11.6/F
1/4	1/8	.25	50	50	50	25	25	25	200	150	8320G176	2	8320G201	3	17.1/F	11.6/F
1/4	11/64	.35	20	20	20	12	12	12	200	150	8320G178	2	--	--	10.1/F	11.6/F
NORMALLY CLOSED (Closed when de-energized)																
1/8	3/64	.06	200	200	200	200	200	200	180	120	8320G132	1	8320G142	1	6.1/F	10.6/F
1/8	1/16	.09	150	125	125	125	125	125	180	120	8320G13	1	8320G45	1	6.1/F	10.6/F
1/8	3/32	.12	100	100	100	100	100	100	180	120	8320G15	1	8320G47	1	6.1/F	10.6/F
1/8	1/8	.21	40	40	40	40	40	40	180	120	8320G17	1	8320G49	1	6.1/F	10.6/F
1/4	1/16	.09	210	225	225	160	160	160	200	150	8320G182	2	--	--	17.1/F	11.6/F
1/4	3/32	.12	150	150	150	115	115	115	200	150	8320G184	2	8320G202	3	10.1/F	11.6/F
1/4	1/8	.25	85	85	85	60	60	60	200	150	8320G186	2	8320G203	3	10.1/F	11.6/F
1/4	11/64	.35	45	45	45	25	25	25	200	150	8320G188	2	--	--	10.1/F	11.6/F
NORMALLY OPEN (Open when de-energized)																
1/8	3/64	.06	200	200	200	200	200	200	180	120	8320G136	1	8320G146	1	6.1/F	10.6/F
1/8	1/16	.09	150	125	125	125	125	125	180	120	8320G27	1	8320G51	1	6.1/F	10.6/F
1/8	3/32	.12	100	100	100	100	100	100	180	120	8320G29	1	8320G53	1	6.1/F	10.6/F
1/8	1/8	.21	40	40	40	40	40	40	180	120	8320G31	1	8320G55	1	6.1/F	10.6/F
1/4	1/16	.09	250	250	250	160	160	160	200	150	8320G192	2	--	--	17.1/F	11.6/F
1/4	3/32	.12	150	140	140	100	100	100	200	150	8320G194	2	8320G204	3	10.1/F	11.6/F
1/4	1/8	.25	70	70	70	55	55	55	200	150	8320G196	2	8320G205	3	10.1/F	11.6/F
1/4	11/64	.35	40	40	40	30	30	30	200	150	8320G198	2	--	--	10.1/F	11.6/F
Notes: ① Supplied with cast UR disc. ② On 50 hertz service, the watt rating for the 6.1/F solenoid is 8.1 watts; the watt rating for the 9.1/F solenoid is 11.1 watts.																

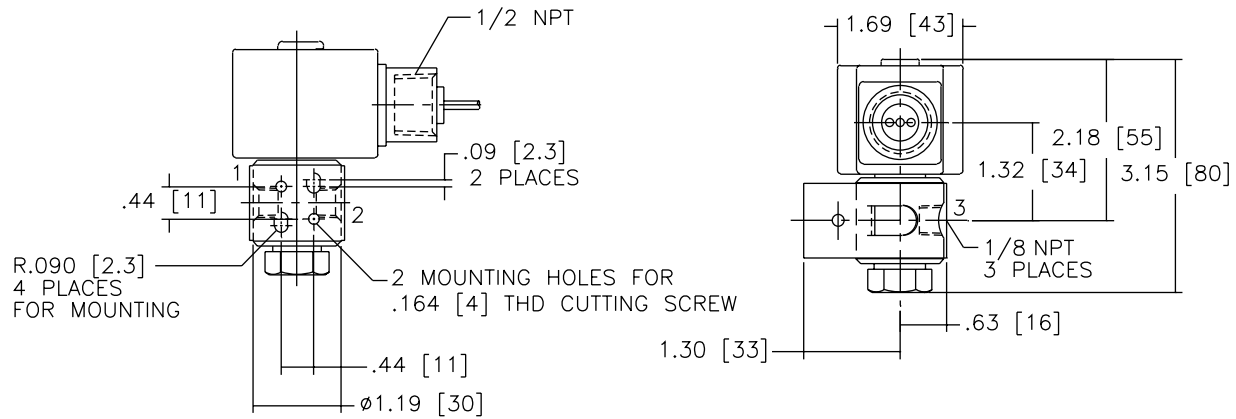
## Specifications (Metric units)

Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Operating Pressure Differential (bar)						Max. Fluid Temp. °C		Brass Body		Stainless Steel Body		Watt Rating/ Class of Coil Insulation ②	
			Max. AC			Max. DC										
			Air-Inert Gas	Water	Lt. Oil @ 300 SSU	Air-Inert Gas	Water	Lt. Oil @ 300 SSU	AC	DC	Catalog Number	Constr. Ref. No.	Catalog Number	Constr. Ref. No.	AC	DC
UNIVERSAL OPERATION (Pressure at any port)																
1/8	1.2	.05	12	12	12	9	9	9	59	48.4	8320G130 ①	1	8320G140 ①	1	9.1/F	10.6/F
1/8	1.6	.08	7	7	7	4	4	4	81	48.4	8320G1	1	8320G41	1	9.1/F	10.6/F
1/8	2.4	.10	3	3	3	3	3	3	81	48.4	8320G83	1	8320G87	1	6.1/F	10.6/F
1/8	3.2	.18	2	2	2	1	1	1	81	48.4	8320G3	1	8320G43	1	9.1/F	10.6/F
1/4	1.6	.08	9	9	9	5	5	5	92	64.9	8320G172	2	--	--	10.1/F	11.6/F
1/4	2.4	.10	7	7	7	4	4	4	92	64.9	8320G174	2	8320G200	3	17.1/F	11.6/F
1/4	3.2	.21	3	3	3	2	2	2	92	64.9	8320G176	2	8320G201	3	17.1/F	11.6/F
1/4	4.4	.30	1	1	1	1	1	1	92	64.9	8320G178	2	--	--	10.1/F	11.6/F
NORMALLY CLOSED (Closed when de-energized)																
1/8	1.2	.05	14	14	14	14	14	14	81	48.4	8320G132	1	8320G142	1	6.1/F	10.6/F
1/8	1.6	.08	10	9	9	9	9	9	81	48.4	8320G13	1	8320G45	1	6.1/F	10.6/F
1/8	2.4	.10	7	7	7	7	7	7	81	48.4	8320G15	1	8320G47	1	6.1/F	10.6/F
1/8	3.2	.18	3	3	3	3	3	3	81	48.4	8320G17	1	8320G49	1	6.1/F	10.6/F
1/4	1.6	.08	14	16	16	11	11	11	92	64.9	8320G182	2	--	--	17.1/F	11.6/F
1/4	2.4	.10	10	10	10	8	8	8	92	64.9	8320G184	2	8320G202	3	10.1/F	11.6/F
1/4	3.2	.21	6	6	6	4	4	4	92	64.9	8320G186	2	8320G203	3	10.1/F	11.6/F
1/4	4.4	.30	3	3	3	2	2	2	92	64.9	8320G188	2	--	--	10.1/F	11.6/F
NORMALLY OPEN (Open when de-energized)																
1/8	1.2	.05	14	14	14	14	14	14	81	48	8320G136	1	8320G146	1	6.1/F	10.6/F
1/8	1.6	.08	10	9	9	9	9	9	81	48	8320G27	1	8320G51	1	6.1/F	10.6/F
1/8	2.4	.01	7	7	7	7	7	7	81	48	8320G29	1	8320G53	1	6.1/F	10.6/F
1/8	3.2	.18	3	3	3	3	3	3	81	48	8320G31	1	8320G55	1	6.1/F	10.6/F
1/4	1.6	.08	17	17	17	11	11	11	92	65	8320G192	2	--	--	17.1/F	11.6/F
1/4	2.4	.10	10	10	10	7	7	7	92	65	8320G194	2	8320G204	3	10.1/F	11.6/F
1/4	3.2	.21	5	5	5	4	4	4	92	65	8320G196	2	8320G205	3	10.1/F	11.6/F
1/4	4.4	.30	3	3	3	2	2	2	92	65	8320G198	2	--	--	10.1/F	11.6/F
Notes: ① Supplied with cast UR disc. ② On 50 hertz service, the watt rating for the 6.1/F solenoid is 8.1 watts; the watt rating for the 9.1/F solenoid is 11.1 watts.																

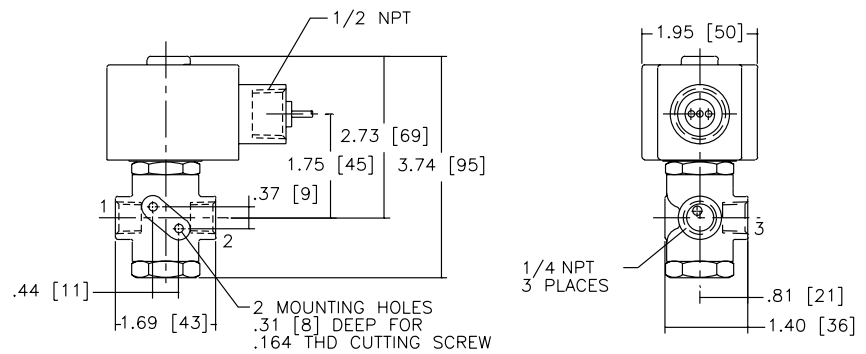


Dimensions: inches (mm)

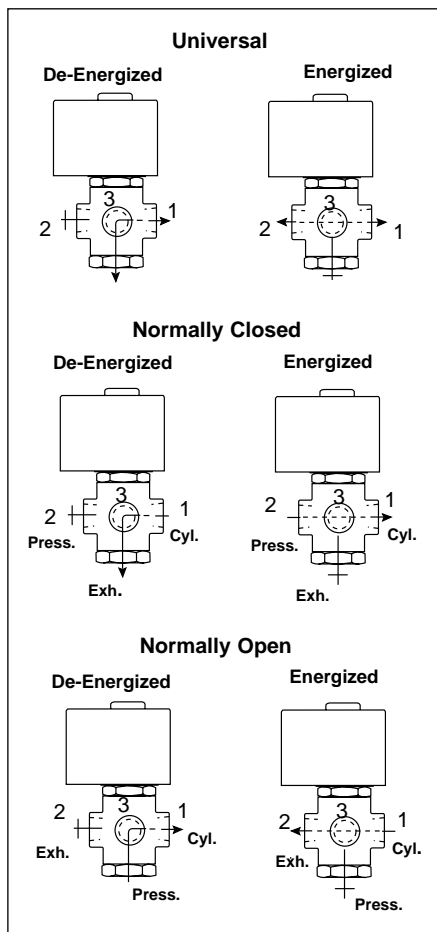
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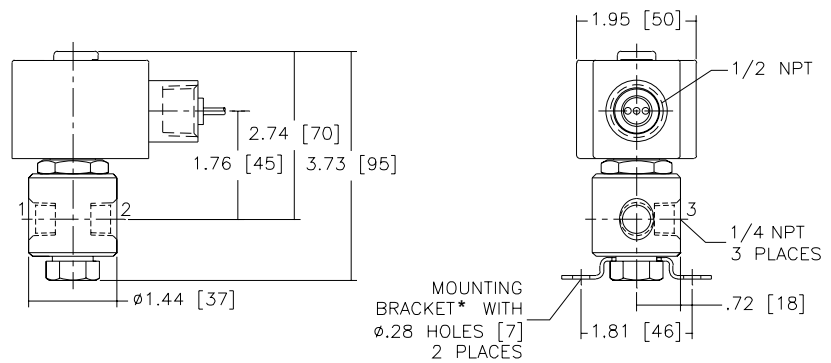
Constr. Ref. 2



FLOW DIAGRAMS



Constr. Ref. 3

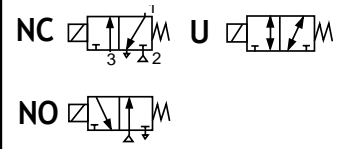


\* MOUNTING BRACKET IS STANDARD ON THIS CONSTRUCTION



# Direct Acting Sub-Miniature Solenoid Valves

Brass, Stainless Steel, or Aluminum Bodies  
1/8" NPT



3/2  
SERIES  
8325  
8380

## Features

- Smallest poppet valve, suitable for a wide range of inert gasses and liquids.
- Convertible from AC to DC by changing the molded epoxy open frame coil.
- No Minimum Operating Pressure Differential required.
- Ideal valve for OEM applications.
- Group mounted constructions (max. 10 valves) have aluminum bodies and built-in manual operators for air service.
- Mountable in any position.

## Construction

Valve Parts in Contact with Fluids		
<b>Body</b>		
<b>Individual Valves</b>	Brass	303 Stainless Steel
<b>Group Mounted</b>	Aluminum	
<b>Seals and Discs</b>	NBR or FKM, as listed	
<b>Core and Plugnut</b>	430F Stainless Steel	
<b>Core Spring</b>	302 Stainless Steel	
<b>Shading Coil</b>	Copper	

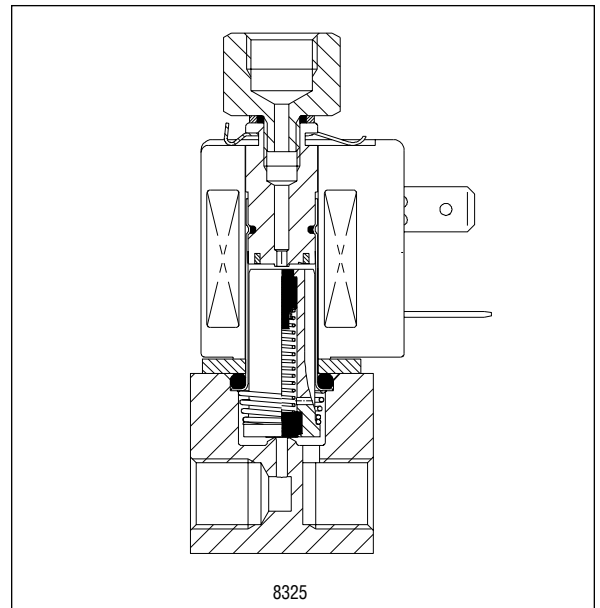
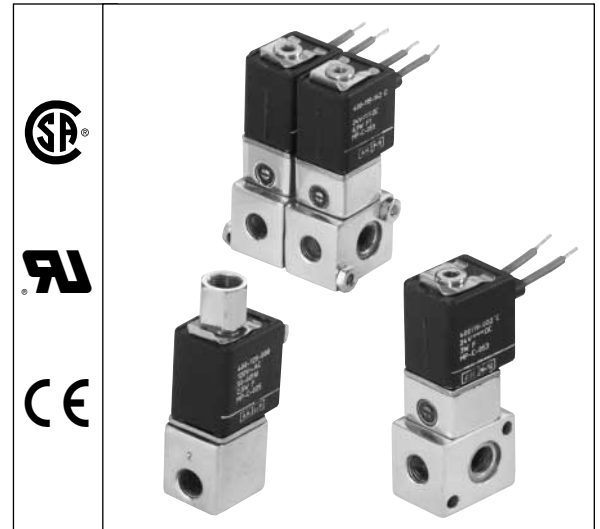
## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part No.	
	DC Watts	AC			AC	DC
		Watts	VA Holding	VA Inrush		
F	6.9	6.3	8.8	12.1	400115	400115

**Standard Voltages:** 24, 120, 240 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz). 6, 12, 24, 120, 240 volts DC. Must be specified when ordering. Other voltages are available when required.

## Solenoid

**Standard:** Molded epoxy open frame solenoid. Can be converted from AC to DC, or vice versa, by changing the coil.  
**Optional:** 3x DIN 46244 coil; 1/2" threaded conduit hub.  
*See Optional Feature section for other available options.*



## Nominal Ambient Temperature Ranges:

AC: 32°F to 125°F (0°C to 52°C)

DC: 32°F to 77°F (0°C to 25°C)

*Refer to Engineering Section for details.*

## Approvals:

CSA certified. UL recognized components. Meets applicable CE directives.

*Refer to Engineering Section for details.*

## Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor		Operating Pressure Differential (psi) ①						Max. Fluid Temp. °F		Open Frame Solenoid		Watt Rating/ Class of Coil Insulation	
				Max. AC			Max. DC					Brass Body	Stainless Steel Body		
		At Port 2	At Port 3	Air-Inert Gas	Water	Light Oil @ 45 SSU	Air-Inert Gas	Water	Light Oil @ 45 SSU	AC	DC	Catalog Number	Catalog Number	AC	DC
UNIVERSAL OPERATION (Pressure at any port), FKM Disc															
1/8	3/64	.05	.07	100	90	90	65	50	40	180	77	U8325B1V	U8325B31V	6.3/F	6.9/F
1/8	1/16	.09	.07	55	55	55	45	30	25	180	77	U8325B2V	U8325B32V	6.3/F	6.9/F
1/8	3/32	.17	.07	30	30	20	15	15	15	180	77	U8325B3V	U8325B33V	6.3/F	6.9/F
1/8	1/8	.23	.07	15	15	15	12	12	12	180	77	U8325B4V	U8325B34V	6.3/F	6.9/F
NORMALLY CLOSED (Closed when de-energized), FKM Disc															
1/8	3/64	.05	.07	150	150	120	150	150	120	180	77	U8325B5V	U8325B35V	6.3/F	6.9/F
1/8	1/16	.09	.07	110	110	75	110	110	75	180	77	U8325B6V	U8325B36V	6.3/F	6.9/F
1/8	3/32	.17	.07	60	60	40	60	60	40	180	77	U8325B7V	U8325B37V	6.3/F	6.9/F
1/8	1/8	.23	.07	40	35	30	40	35	30	180	77	U8325B8V	U8325B38V	6.3/F	6.9/F
NORMALLY OPEN (Open when de-energized), FKM Disc															
1/8	3/64	.05	.07	110	110	110	110	70	50	180	77	U8325B9V	U8325B39V	6.3/F	6.9/F
1/8	1/16	.09	.07	110	110	110	55	35	30	180	77	U8325B10V	U8325B40V	6.3/F	6.9/F
1/8	3/32	.17	.07	110	110	90	25	20	20	180	77	U8325B11V	U8325B41V	6.3/F	6.9/F
1/8	1/8	.23	.07	75	75	65	15	15	15	180	77	U8325B12V	U8325B42V	6.3/F	6.9/F

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor		Operating Pressure Differential (psi) ①		Max. Fluid Temp. °F		Open Frame Solenoid		Watt Rating/Class of Coil Insulation	
				Max. AC	Max. DC			Operator Only	Sub-Base Construction		
		At Port 2	At Port 3	Air-Inert Gas	Air-Inert Gas	AC	DC	Catalog Number	Catalog Number	AC	DC
GROUP MOUNTING NORMALLY CLOSED (Closed when de-energized), Aluminum Body, NBR Disc											
1/8	3/64	.05	.07	150	150	180	77	U8380B1	8380B2	6.3/F	6.9/F
GROUP MOUNTING UNIVERSAL OPERATION (Pressure at any port), Aluminum Body, NBR Disc											
1/8	3/64	.07	.07	100	100	180	77	-	U8380B3	6.3/F	6.9/F
Notes: ① Ratings are for valves controlling cylinders and diaphragms having dead end flow conditions. When using common pressure to divert flow, valves may be provided to control higher pressure. Consult ASCO for details.											

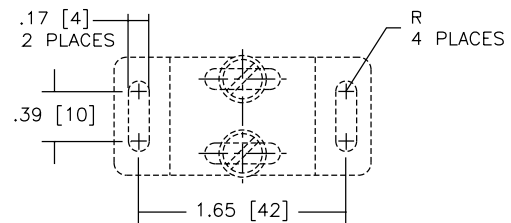
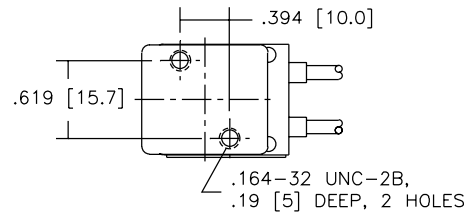
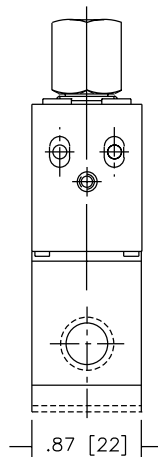
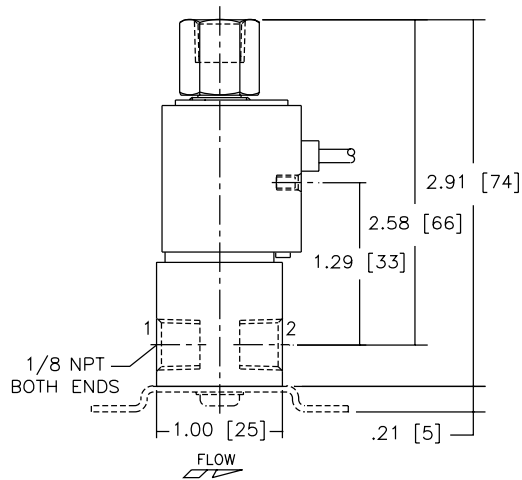
## Specifications (Metric units)

Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)		Operating Pressure Differential (bar) ①						Max. Fluid Temp. °C		Open Frame Solenoid		Watt Rating/ Class of Coil Insulation	
				Max. AC			Max. DC					Brass Body	Stainless Steel Body		
		At Port 2	At Port 3	Air-Inert Gas	Water	Light Oil @ 45 SSU	Air-Inert Gas	Water	Light Oil @ 45 SSU	AC	DC	Catalog Number	Catalog Number	AC	DC
UNIVERSAL OPERATION (Pressure at any port), FKM Disc															
1/8	1.2	.04	.06	7	6	6	4	3	3	81	25	U8325B1V	U8325B31V	6.3/F	6.9/F
1/8	1.6	.08	.06	4	4	4	3	2	2	81	25	U8325B2V	U8325B32V	6.3/F	6.9/F
1/8	2.4	.15	.06	2	2	1	1	1	1	81	25	U8325B3V	U8325B33V	6.3/F	6.9/F
1/8	3.2	.20	.06	1	1	1	1	1	1	81	25	U8325B4V	U8325B34V	6.3/F	6.9/F
NORMALLY CLOSED (Closed when de-energized), FKM Disc															
1/8	1.2	.04	.06	10	10	8	10	10	8	81	25	U8325B5V	U8325B35V	6.3/F	6.9/F
1/8	1.6	.08	.06	8	8	5	8	8	5	81	25	U8325B6V	U8325B36V	6.3/F	6.9/F
1/8	2.4	.15	.06	4	4	3	4	4	3	81	25	U8325B7V	U8325B37V	6.3/F	6.9/F
1/8	3.2	.20	.06	3	2	2	3	2	2	81	25	U8325B8V	U8325B38V	6.3/F	6.9/F
NORMALLY OPEN (Open when de-energized), FKM Disc															
1/8	1.2	.04	.06	8	8	8	8	5	3	81	25	U8325B9V	U8325B39V	6.3/F	6.9/F
1/8	1.6	.08	.06	8	8	8	4	2	2	81	25	U8325B10V	U8325B40V	6.3/F	6.9/F
1/8	2.4	.15	.06	8	8	6	2	1	1	81	25	U8325B11V	U8325B41V	6.3/F	6.9/F
1/8	3.2	.20	.06	5	5	4	1	1	1	81	25	U8325B12V	U8325B42V	6.3/F	6.9/F

Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)		Operating Pressure Differential (bar) ①		Max. Fluid Temp. °C		Open Frame Solenoid		Watt Rating/Class of Coil Insulation	
				Max. AC	Max. DC			Operator Only	Sub-Base Construction		
		At Port 2	At Port 3	Air-Inert Gas	Air-Inert Gas	AC	DC	Catalog Number	Catalog Number	AC	DC
GROUP MOUNTING NORMALLY CLOSED (Closed when de-energized), Aluminum Body, NBR Disc											
1/8	1.2	.04	.06	10	10	81	25	U8380B1	8380B2	6.3/F	6.9/F
GROUP MOUNTING UNIVERSAL OPERATION (Pressure at any port), Aluminum body, NBR Disc											
1/8	1.2	.04	.06	7	7	81	25	-	U8380B3	6.3/F	6.9/F
Notes: ① Ratings are for valves controlling cylinders and diaphragms having dead end flow conditions. When using common pressure to divert flow, valves may be provided to control higher pressure. Consult ASCO for details.											

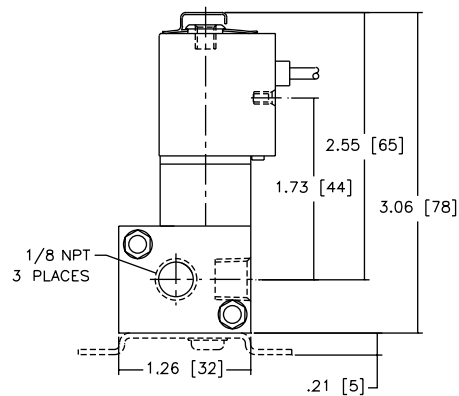
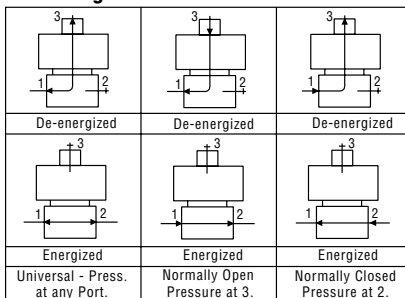
Dimensions: inches (mm)

SERIES 8325

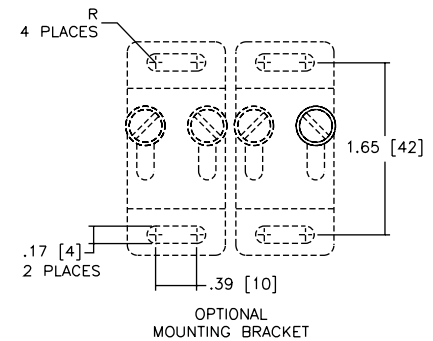
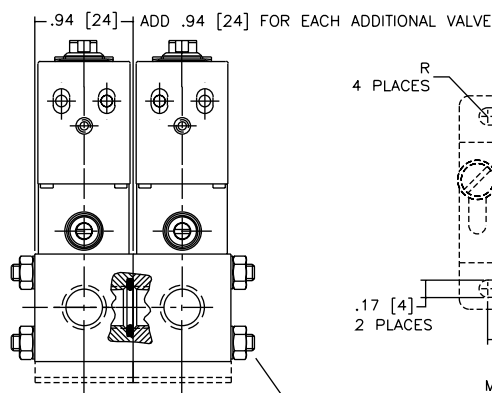


OPTIONAL  
MOUNTING BRACKET

Flow Diagrams

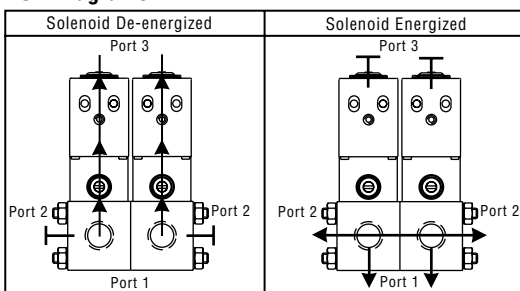


SERIES 8380



OPTIONAL  
MOUNTING BRACKET

Flow Diagrams



### Features

- Designed for high flow piloting with no minimum operating pressure required; e.g., power plants, refineries, chemical processing.
- Balanced Poppet construction for high flow at minimum power levels.
- PTFE rider rings and graphite-filled seals reduce friction and eliminate sticking to provide exceptional service life.
- 316 Stainless Steel construction for highly corrosive atmospheres.
- Available with manual reset. *See Special Service Section.*

### Construction

Valve Parts in Contact with Fluids		
Body	Brass	316 Stainless Steel
Core Tube	305 Stainless Steel	
Stem and Insert	303 Stainless Steel	
Core and Plugnut	430F Stainless Steel	
O-ring Holder	430F Stainless Steel	
Springs	302 Stainless Steel	
Seals and Discs	NBR	FKM
	VMQ (Low-Temperature Construction)	
Rider Ring	PTFE	

### Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part Number			
	DC Watts	AC			General Purpose		Explosionproof	
		Watts	VA Holding	VA Inrush	AC	DC	AC	DC
F	11.6	12	12	12	276000	238710	276002	238714
<b>Standard Voltages:</b> 24/50-60, 120/50-60, 240/50-60, and 480/50-60, or 6, 12, 24, 120, and 240 DC.								

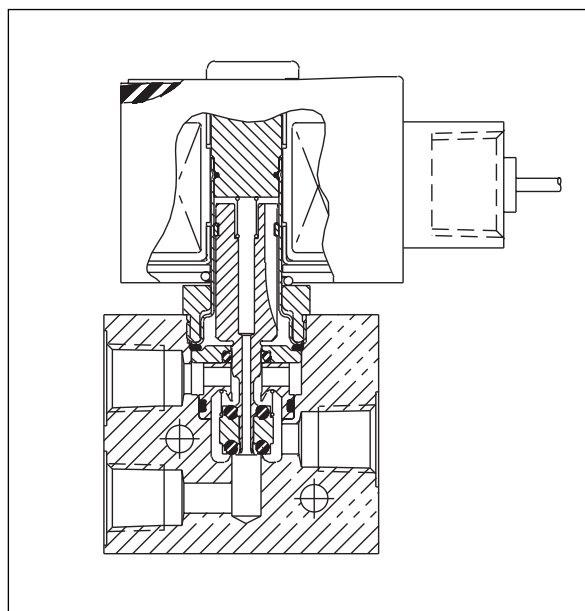
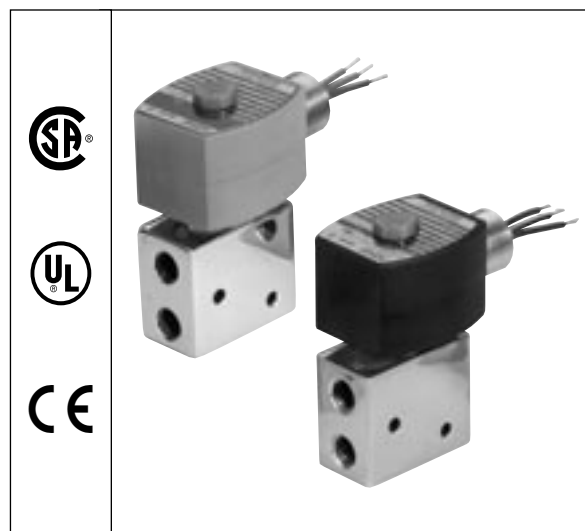
### Solenoid Enclosures

**Standard:** For Brass Valves: Standard Solenoid enclosure is Types, 1, 2, 3, 3S, 4, and 4X.  
For 316 Stainless Steel valves: Standard Solenoid enclosure is Explosionproof and Watertight Types 3, 3S, 4, 4X, 6, and 6P.

**Optional:** Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9. (To order, add prefix "EF" or, for Explosionproof Stainless Steel trim and hub on Brass-Bodied valves, add "EV" to catalog number.)  
*See Optional Features Section for other available options.*

### SIL (Safety Integrity Level) Information:

- PFD (Probability of Failure on Demand)  $<4 \times 10^{-7}$  at a confidence factor of 95%.
- SFF (Safe Failure Fraction) according to IEC 61508-2 Table A1 is  $\geq 0.99$ .
- Only constructions without manual operators apply to the above criteria.



### Nominal Ambient Temperature Ranges:

8327G41,-42, -21, -22, -31, -32: -4°F to 131°F  
(-20°C to 55°C)

8327G51 and -52: -40°F to 131°F (-40°C to 55°C)  
*Refer to Engineering Section for details.*

### Approvals:

CSA certified. UL listed General Purpose Valves. Meets applicable CE directives.

*Refer to Engineering Section for details.*

## Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor		Maximum Operating Pressure Differential (psi)			Max. Fluid Temp. °F	Brass Body	316 Stainless Steel Body	Constr. Ref. No.	Watt Rating/ Class of Coil Insulation	
		Ports 1-2	Ports 2-3	Air- Inert Gas	Water	Light Oil @ 300 SSU		Catalog Number	Catalog Number		AC	DC
UNIVERSAL OPERATION (Pressure at any port)												
1/4	1/4	.49	.56	150	150	150	176	8327G041	—	1	12.0/F	11.6/F
1/4	1/4	.49	.56	150	150	150	248	—	EV8327G042	1	12.0/F	11.6/F
UNIVERSAL LOW-TEMPERATURE OPERATION (Pressure at any port)												
1/4	1/4	.49	.56	150	—	—	131	8327G051	—	1	12.0F	11.6/F
1/4	1/4	.49	.56	150	—	—	131	—	EV8327G052	1	12.0/F	11.6/F

## Specifications (Metric units)

Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor m3/h		Maximum Operating Pressure Differential (bar)			Max. Fluid Temp. °C	Brass Body	316 Stainless Steel Body	Constr. Ref. No.	Watt Rating/ Class of Coil Insulation	
		Ports 1-2	Ports 2-3	Air- Inert Gas	Water	Light Oil @ 300 SSU		Catalog Number	Catalog Number		AC	DC
		UNIVERSAL OPERATION (Pressure at any port)										
1/4	6	.42	.48	10	10	10	79	8327G041	—	1	12.0/F	11.6/F
1/4	6	.42	.48	10	10	10	119	—	EV8327G042	1	12.0/F	11.6/F
UNIVERSAL LOW-TEMPERATURE OPERATION (Pressure at any port)												
1/4	6	.42	.48	10	—	—	54	8327G051	—	1	12.0/F	11.6/F
1/4	6	.42	.48	10	—	—	54	—	EV8327G052	1	12.0/F	11.6/F

## Dimensions: inches (mm)

### FLOW DIAGRAMS

OPERATION	DE-ENERGIZED	ENERGIZED
NORMALLY CLOSED PRESSURE AT 3		
NORMALLY OPEN PRESSURE AT 1		
UNIVERSAL PRESSURE AT ANY PORT		

### Constr. Ref. 1

Technical drawing of the ASCO 8327 valve showing side and front views with dimensions in inches and millimeters.

**Side View Dimensions:**

- Top width: 3.03 [77]
- Top flange width: 2.04 [52]
- Body height: 3.45 [88]
- Mounting flange height: 3.89 [99]
- Port 1 offset: .94 [24]
- Port 2 offset: 1.06 [27]
- Port 3 offset: .51 [13]
- Bottom width: 2.17 [55]
- Port 2 diameter: 2 MOUNTING HOLES Ø.216 [Ø5.5]
- Port 2 offset: .47 [12]
- Port 2 diameter: 2.01 [51]

**Front View Dimensions:**

- Top flange width: 1.95 [50]
- Top flange thread: 1/2 NPT
- Port 2 diameter: 1/4 NPT 3 PLACES
- Port 2 offset: 1.18 [30]

**IMPORTANT:** Valves may be mounted in any position.



## Features

- Available with compression fitting ends for metal or plastic tube to save installation cost.
- Direct acting for reliable performance; resilient seating for tight shutoff.
- Operation similar to 8320, but with plastic body.
- Ideal valve for dispensing, damper control, and water applications.
- Mountable in any position.

## Construction

Valve Parts in Contact with Fluids	
Body	CA
Disc	NBR
Disc-Holder	CA
Core Tube	305 Stainless Steel
Core and Plugnut	403F Stainless Steel
Springs	302 Stainless Steel or 17-7PH Stainless Steel
Shading Coil	Copper

## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part No.	
	DC Watts	AC				
		Watts	VA Holding	VA Inrush	AC	DC
F	10.6	6.1	16	30	238210	238310
F	-	9.1	25	40	238210	-

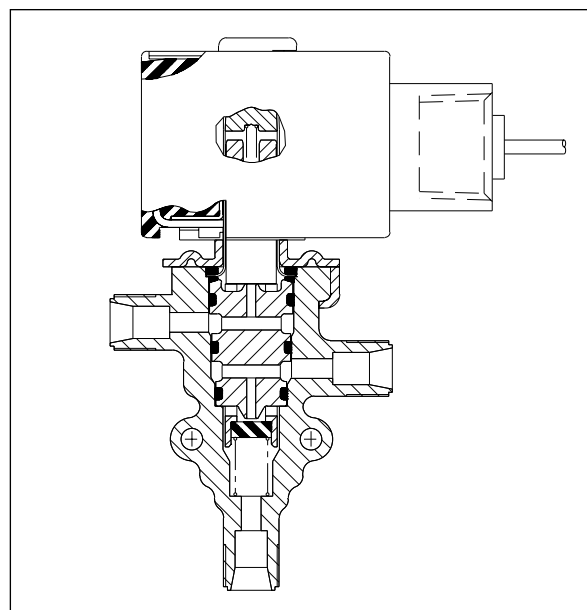
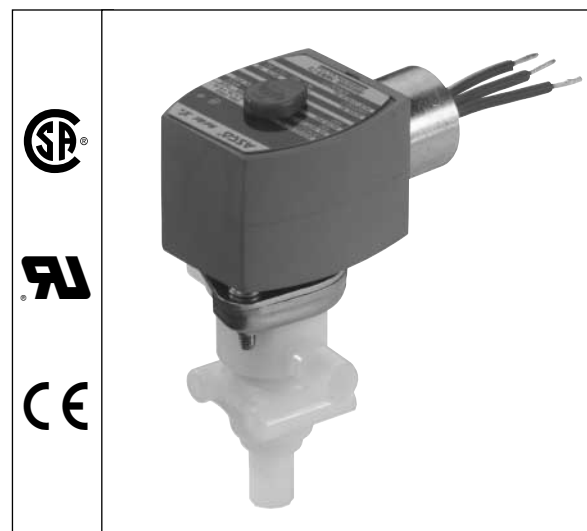
**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz). 6, 12, 24, 120, 240 volts DC. Must be specified when ordering. Other voltages are available when required.

## Solenoid Enclosures

**Standard:** Watertight, Types 1, 2, 3, 3S, 4, and 4X.

**Optional:** Open Frame Solenoid, Junction Box.

*See Optional Features Section for descriptions on these and other available options.*



## Nominal Ambient Temperature Ranges:

AC: 32°F to 125°F (0°C to 52°C)

DC: 32°F to 104°F (0°C to 40°C)

*Refer to Engineering Section for details.*

## Approvals:

CSA certified. UL recognized components. Meets applicable CE directives.

*Refer to Engineering Section for details.*

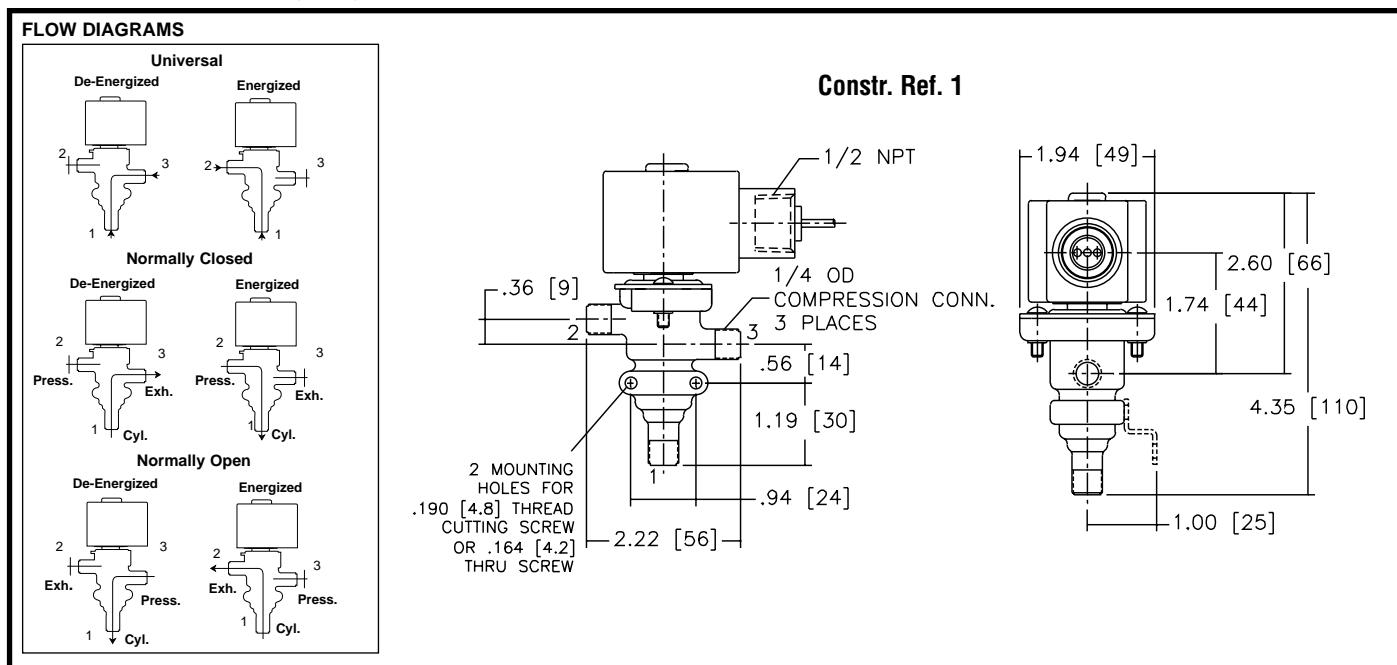
## Specifications (English units)

Pipe Connections	Orifice Size (ins.)	Cv Flow Factor)	Operating Pressure Differential (psi)				Max. Fluid Temp. °F		Catalog Number	Constr. Ref. No.	Watt Rating/ Class of Coil Insulation ②	
			Max. AC		Max. DC						AC	DC
			Air-Inert Gas	Water	Air-Inert Gas	Water	AC	DC				
UNIVERSAL OPERATION (Pressure at any port)												
1/4" O.D. Compression ①	1/16	.07	100	100	65	65	130	120	8360G71	1	9.1/F	10.6/F
	3/32	.11	50	50	50	50	130	120	8360G73	1	6.1/F	10.6/F
	1/8	.16	30	30	20	20	130	120	8360G74	1	9.1/F	10.6/F
NORMALLY CLOSED (Closed when de-energized)												
1/4" O.D. Compression ①	1/16	.07	125	125	125	125	130	120	8360G75	1	6.1/F	10.6/F
	3/32	.11	100	100	100	100	130	120	8360G77	1	6.1/F	10.6/F
	1/8	.16	40	40	40	40	130	120	8360G78	1	6.1/F	10.6/F
NORMALLY OPEN (Open when de-energized)												
1/4" O.D. Compression ①	1/16	.07	125	125	125	125	130	120	8360G67	1	6.1/F	10.6/F
	3/32	.11	100	100	100	100	130	120	8360G69	1	6.1/F	10.6/F
	1/8	.16	40	40	40	40	130	120	8360G70	1	6.1/F	10.6/F
Notes: ① Fittings not supplied with valve. To order, refer to List Price Schedule. ② On 50 hertz service, the watt rating for the 6.1/F solenoid is 8.1 watts; the watt rating for the 9.1/F solenoid is 11.1 watts.												

## Specifications (Metric units)

Pipe Connections	Orifice Size (mm)	Kv Flow Factor (m3/h)	Operating Pressure Differential (bar)				Max. Fluid Temp. °C		Catalog Number	Constr. Ref. No.	Watt Rating/ Class of Coil Insulation ②	
			Max. AC		Max. DC						AC	DC
			Air-Inert Gas	Water	Air-Inert Gas	Water	AC	DC				
UNIVERSAL OPERATION (Pressure at any port)												
1/4" O.D. Compression ①	1.6	.06	7	7	4	4	54	48	8360G71	1	9.1/F	10.6/F
	2.4	.09	3	3	3	3	54	48	8360G73	1	6.1/F	10.6/F
	3.2	.14	2	2	1	1	54	48	8360G74	1	9.1/F	10.6/F
NORMALLY CLOSED (Closed when de-energized)												
1/4" O.D. Compression ①	1.6	.06	9	9	9	9	54	48	8360G75	1	6.1/F	10.6/F
	2.4	.09	7	7	7	7	54	48	8360G77	1	6.1/F	10.6/F
	3.2	.14	3	3	3	3	54	48	8360G78	1	6.1/F	10.6/F
NORMALLY OPEN (Open when de-energized)												
1/4" O.D. Compression ①	1.6	.06	9	9	9	9	54	48	8360G67	1	6.1/F	10.6/F
	2.4	.09	7	7	7	7	54	48	8360G69	1	6.1/F	10.6/F
	3.2	.14	3	3	3	3	54	48	8360G70	1	6.1/F	10.6/F

## Dimensions: inches (mm)



Four ported valves are generally used to operate double-acting cylinders or actuators.

They have four or five pipe connections, commonly called ports:

- One pressure inlet.
- Two cylinder ports providing pressure to the double-acting cylinder or actuator.
- One or two outlets to exhaust pressure from the cylinders.

In a de-energized position, pressure is connected to one cylinder port; the other port is connected to the exhaust. In an energized position, pressure and exhaust are reversed.

Four ports means less piping is required. With five ports, independent speed controls can be mounted in each port.

### Three Types of Constructions Apply: Single Solenoid

When the solenoid is energized, the valve shifts, then returns to the original position when de-energized.

### Dual Solenoid

When one solenoid is energized, the valve shifts, then returns when the other solenoid is energized. They may be energized momentarily or continuously, but never concurrently. Some valves, both single and dual solenoid, may change position on loss of fluid pressure.

### Single Air Operator

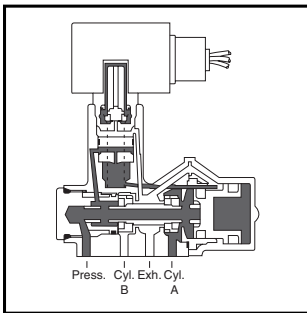
When the operator is pressurized, the valve shifts, then returns when the pressure is removed.

*See Engineering Section for further details.*

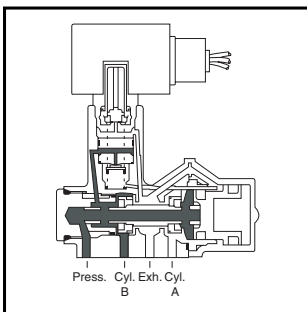
### Standard and Optional Features:

Solenoid valves are supplied, as listed, with either Red-Hat II® molded epoxy solenoids or Red-Hat® solenoids with metal enclosures (except for Series 8401). Red-Hat II valves are identified by the letter "G" or "H" in their catalog numbers; e.g., 8344G27. Many optional features may be added to your valves; e.g., high-temperature Class H molded coils and manual operators. *See the Optional Features Section for details.*

## 4 and 5 Ported Valves Flow Diagrams

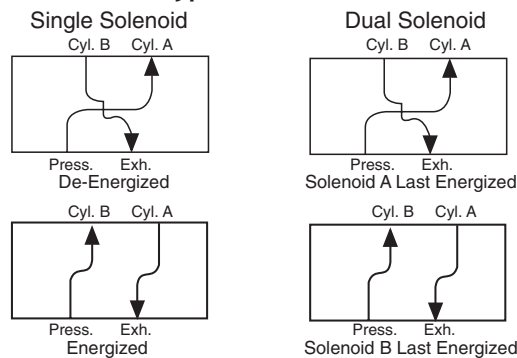


De-Energized

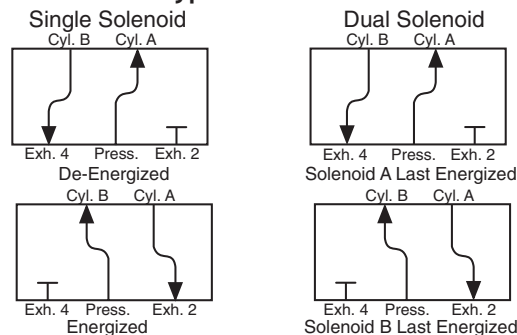


Energized

### Typical 4 Ported



### Typical 5 Ported

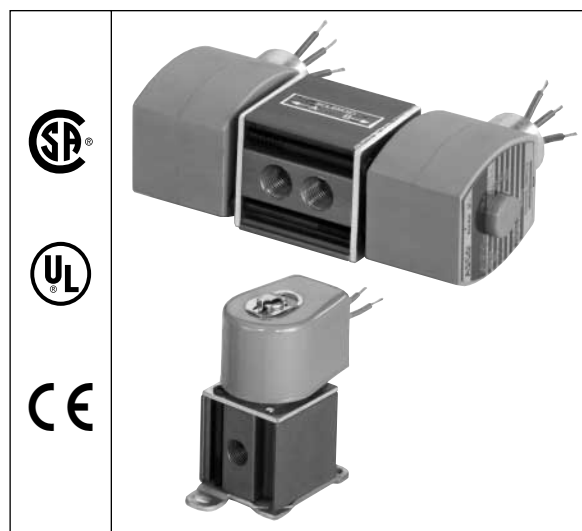


## Index

Series	General Description	Pipe Size (NPT)	Page Number
8340	Air Only	1/4"	4.01
8342	General Service	1/4" and 3/8"	4.05
8344	Piston/Poppet	1/4" - 1"	4.07
8345	Compact General Service	1/4"	4.09
8401/8402	Miniature Slide	1/8" and 1/4"	4.11
8551	Stainless Steel	1/4"	4.15
-	Directional Control	-	4.17

## Features

- Air-only design for cylinder control.
- Up to eight single and dual solenoid valves, in any combination, can be manifolded.
- Sub-Base constructions have separate cylinder connections and common pressure and exhaust connections at each end. Can be assembled in the field by simply inserting tie rods through holes in base.
- Group-Mounted constructions have common pressure connections at each end and separate cylinder and exhaust connections.
- Can be factory assembled or grouped in the field with strong snap-on clamps, supplied.



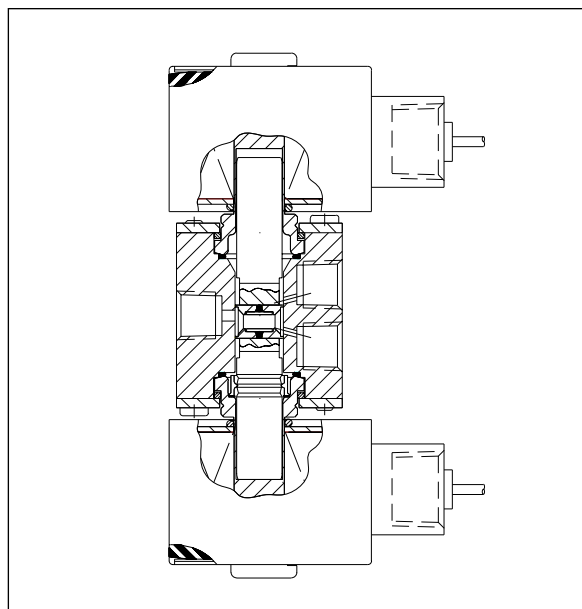
## Construction

Valve Parts in Contact with Fluids	
Body	Hard Anodized Aluminum
Disc	PE
Core Tube	305 Stainless Steel
Core and Plugnut	430F Stainless Steel
Core Spring	302 Stainless Steel
Shading Coil	Copper
Seals	NBR
Miscellaneous	PA, CA

## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part No.			
	DC Watts	AC			General Purpose		Explosionproof	
		Watts	VA Holding	VA Inrush	AC	DC	AC	DC
F	-	10.5	24	65	64982	-	64982	-
F	19.7	16.7	36	85	64982	66611	64982	66611
F	-	10.1	25	70	238610	-	238614	-
F	22.6	17.1	40	93	238610	238710	238614	238714

**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz). 6, 12, 24, 120, 240 volts DC. Must be specified when ordering.  
 Other voltages available when required.



## Nominal Ambient Temperature Ranges:

AC: 32°F to 125°F (0°C to 52°C)

DC: 32°F to 77°F (0°C to 25°C)(104°F/40°C occasionally)

Refer to Engineering Section for details.

## Solenoid Enclosures

**Standard:** Red-Hat II - Watertight, Types 1, 2, 3, 3S, 4, and 4X; Red-Hat - Type 1.  
**Optional:** Red-Hat II - Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9 (For 8340G1 and 8340G2 only); Red-Hat - Types 3, 4, 4X, 7, and 9. (To order, add prefix "EF" to catalog number.)  
 See Optional Features Section for other available options.

**Leakage:** Break-in leakage rate of 2 SCFH is reduced to a very slight amount as the valve wears in.

## Approvals:

CSA certified. AC is UL listed as General Purpose Valve.  
 Red-Hat II meets applicable CE directives.  
 Refer to Engineering Section for details.

## Specifications (English units)

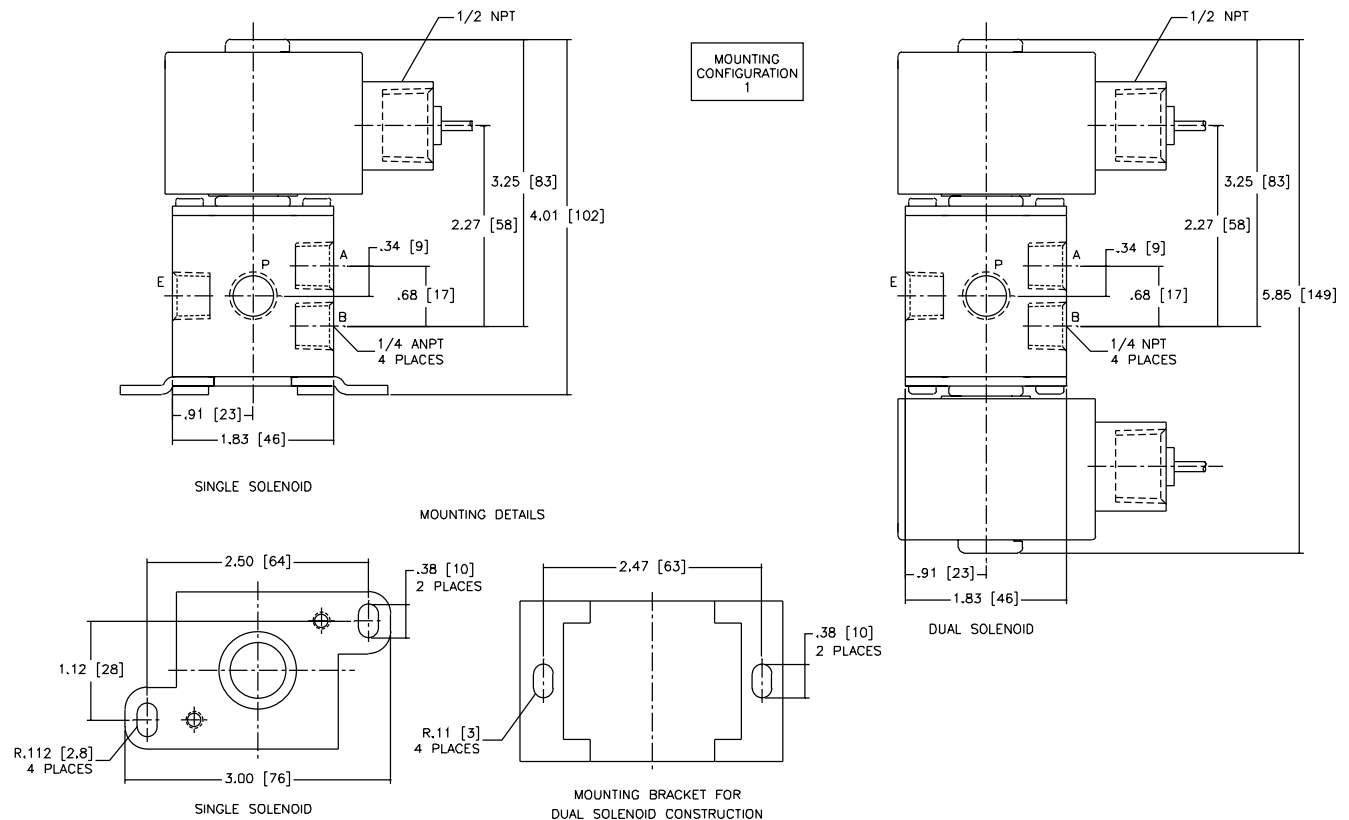
Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Operating Pressure Differential (psi)		Max. Fluid Temp. °F		Aluminum Body	Watt Rating/ Class of Coil Insulation	
			Max. AC	Max. DC				AC	DC
			Air-Inert Gas	Air-Inert Gas	AC	DC	Catalog Number		
SINGLE VALVE CONSTRUCTION - Single Solenoid									
1/4	5/64	.10	150	100	130	95	8340G1	17.1/F	22.6/F
SINGLE VALVE CONSTRUCTION - Dual Solenoid									
1/4	5/64	.10	150	100	104	95	8340G2	10.1/F	22.6/F
GROUP MOUNTED CONSTRUCTION - Single Solenoid									
1/4	5/64	.10	150	100	104	95	8340A3	16.7/F	19.7/F
GROUP MOUNTED CONSTRUCTION - Dual Solenoid									
1/4	5/64	.10	150	100	104 ①	95 ①	8340A8	10.5/F	19.7/F
SUB-BASE MOUNTED CONSTRUCTION - Single Solenoid									
1/4	5/64	.08	150	100	104	95	8340A4	16.7/F	19.7/F
SUB-BASE MOUNTED CONSTRUCTION - Dual Solenoid									
1/4	5/64	.08	150	100	104 ①	95 ①	8340A5	10.5/F	19.7/F
Notes: ① Rating shown for individual mounted valves; when group mounted, maximum UL allowable fluid and ambient temperature is 86°F.									

## Specifications (Metric units)

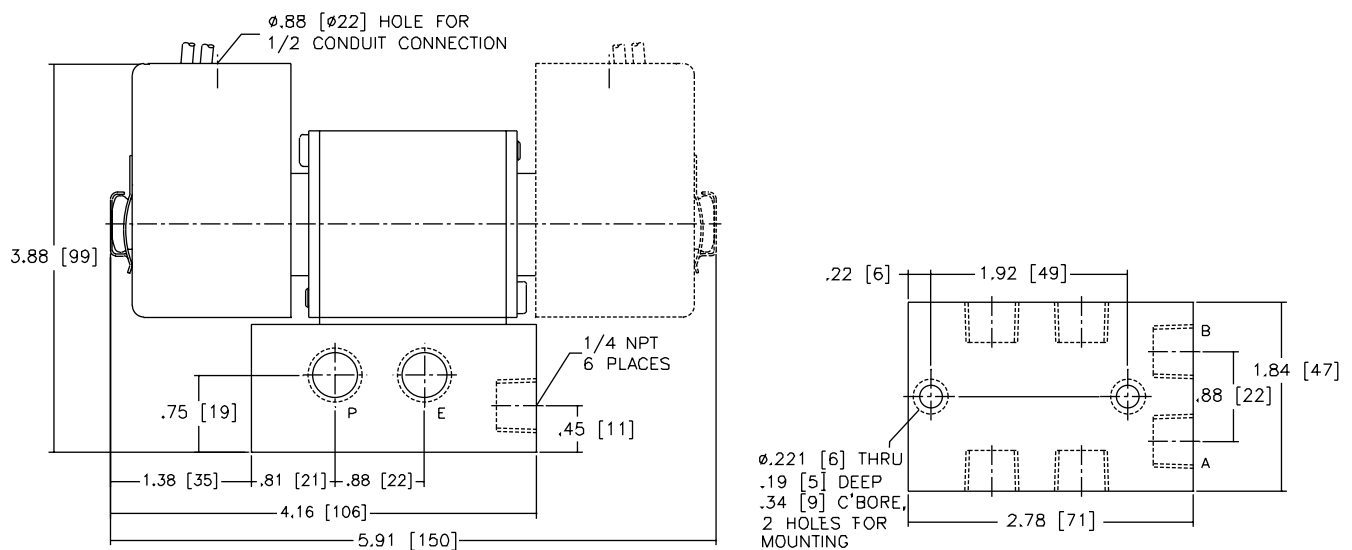
Pipe Size Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Operating Pressure Differential (bar)		Max. Fluid Temp. °C		Aluminum Body	Watt Rating/ Class of Coil Insulation	
			Max. AC	Max. DC					
			Air-Inert Gas	Air-Inert Gas	AC	DC	Catalog Number	AC	DC
SINGLE VALVE CONSTRUCTION - Single Solenoid									
1/4	2.0	.09	10	7	54	35	8340G1	17.1/F	22.6/F
SINGLE VALVE CONSTRUCTION - Dual Solenoid									
1/4	2.0	.09	10	7	40	35	8340G2	10.1/F	22.6/F
GROUP MOUNTED CONSTRUCTION - Single Solenoid									
1/4	2.0	.09	10	7	40	35	8340A3	16.7/F	19.7/F
GROUP MOUNTED CONSTRUCTION - Dual Solenoid									
1/4	2.0	.09	10	7	40 ①	35 ①	8340A8	10.5/F	19.7/F
SUB-BASE MOUNTED CONSTRUCTION - Single Solenoid									
1/4	2.0	.07	10	7	40	35	8340A4	16.7/F	19.7/F
SUB-BASE MOUNTED CONSTRUCTION - Dual Solenoid									
1/4	2.0	.07	10	7	40 ①	35 ①	8340A5	10.5/F	19.7/F
Notes: ① Rating shown for individual mounted valves; when group mounted, maximum UL allowable fluid and ambient temperature is 30°C.									

**Dimensions: inches (mm)**

**SINGLE VALVE CONSTRUCTION - SINGLE AND DUAL SOLENOIDS**



**SUB-BASE MOUNTED SINGLE AND DUAL SOLENOID CONSTRUCTION**



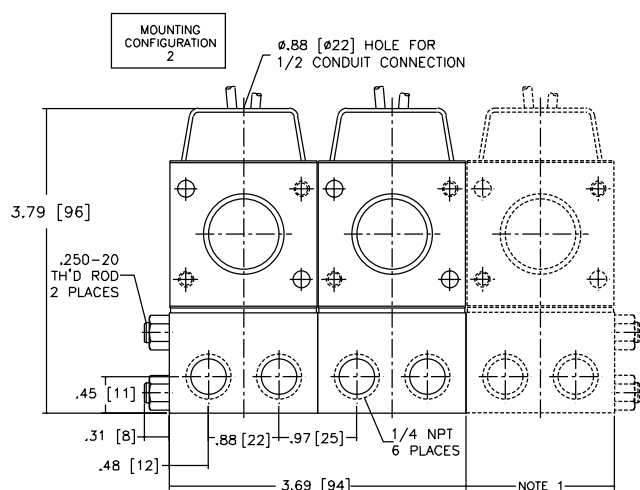
**Note:** Dual solenoid shown dotted in.

Dimensions: inches (mm)

Mounting Brackets		
Catalog Number	With General Purpose Solenoid Enclosure	When Manual Operator Is Used
8340G1	Mounting Holes on Body	Order Kit No. 206-737
8340G2	Standard	NA
8340A3	Mounting Holes on Body	Order Kit No. 206-554
8340A4	Mounting Holes on Body	NA
8340A5	Mounting Holes on Body	NA
8340A8	Standard when factory assembled, but must order Kit No. 206-554 for individual valves.	NA

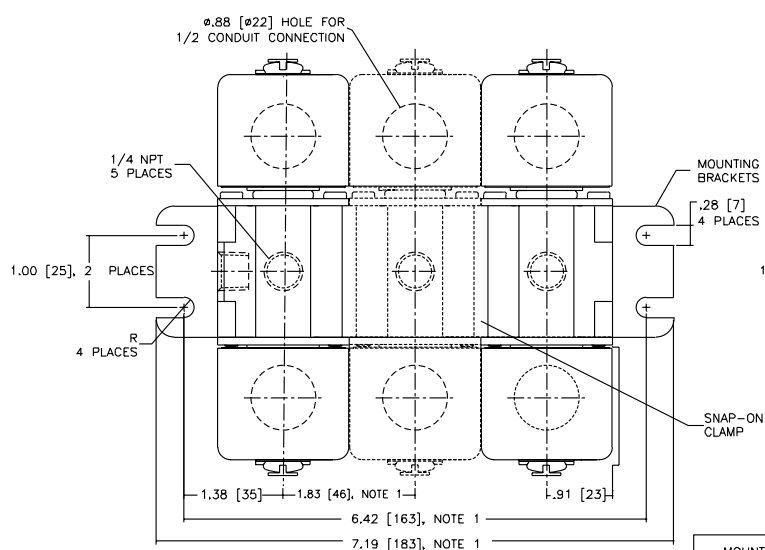
NA - Not Available.

**SUB-BASE MOUNTED CONSTRUCTION**  
(Shown as Group Mounted)



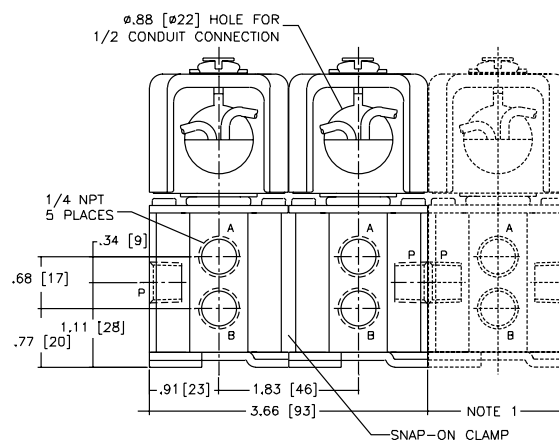
NOTE 1: FOR EACH ADDITIONAL VALVE ADD 1.84 [47].

**GROUP MOUNTED CONSTRUCTION - DUAL SOLENOID**

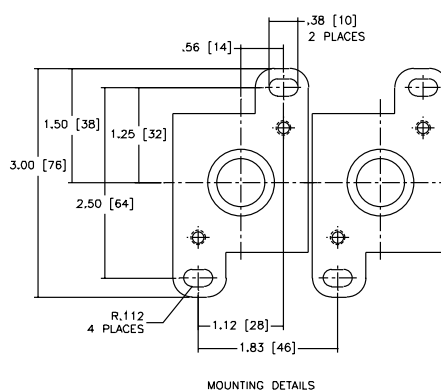


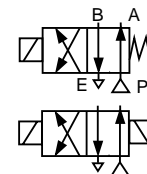
NOTE 1: THIS DIMENSION IS FOR ONE VALVE;  
FOR EACH ADDITIONAL VALVE ADD 1.83 [46].

**GROUP MOUNTED CONSTRUCTION  
SINGLE SOLENOID**



NOTE 1: FOR EACH ADDITIONAL VALVE ADD 1.83 [46].





## Features

- Direct acting operation and high flow construction.
- Direct acting, high flow slide-style valve.
- Optional flow control regulates cylinder speed independently, in either direction.
- Mechanical detent on dual solenoids holds last position, even after loss of electric power, pneumatics or pressure.
- No Minimum Operating Pressure Differential required to shift valve.
- Dual solenoid operation: solenoid may be energized momentarily (1/10 second) or continuously.
- Mountable in any position.

## Construction

Valve Parts in Contact with Fluids		
Body	Brass	304 Stainless Steel
Seals and Discs	NBR and FKM	
Core Tube	305 Stainless Steel	
Core and Plugnut	430F Stainless Steel	
Springs	302 Stainless Steel / 17-7 PH Stainless Steel	
Shading Coil	Copper	
Sleeve	PA	
Seats	Graphite-filled PTFE	

## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption			Spare Coil Part No.	
	AC			General Purpose	Explosionproof
	Watts	VA Holding	VA Inrush	AC	AC
F	16.1	35	115	272610	272614
F	20.1	45	140	272610	272614

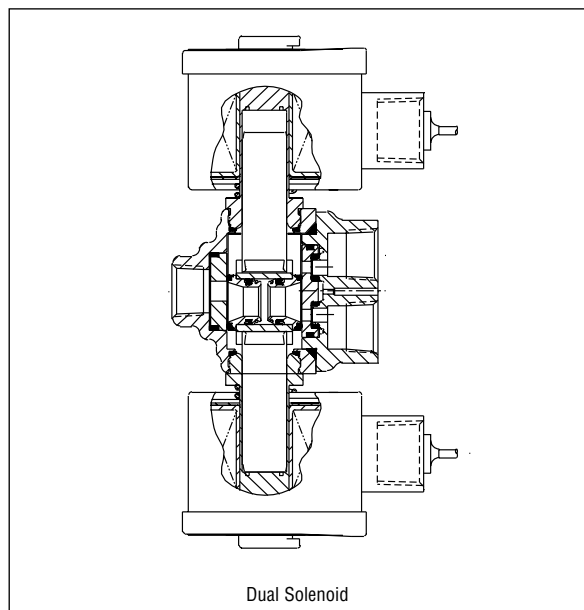
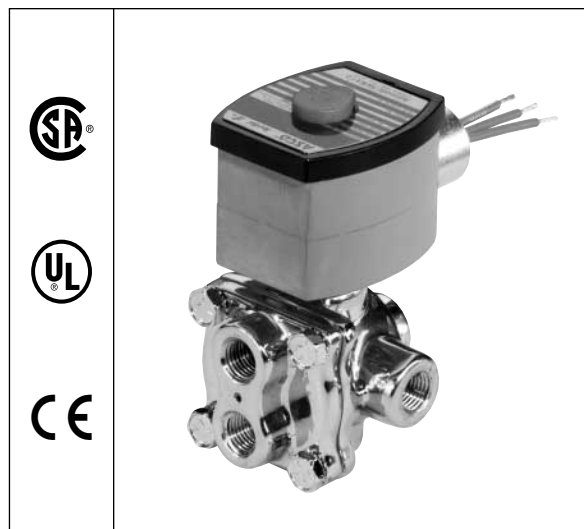
**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz. 24, 110, 115, 220, 230 volts AC, 50 Hz. Other voltages are available when required.

**Note:** No combination 120/60, 110/50 coil available. Must order either 120/60 or 110/50, etc.

## Solenoid Enclosures

**Standard:** Watertight, Types 1, 2, 3, 3S, 4, and 4X.  
**Optional:** Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9.  
 (To order, add prefix "EF" to catalog number.)

*See Optional Features Section for other available options.*



## Nominal Ambient Temperature Ranges:

Standard Class F insulation: 32°F to 125°F (0°C to 52°C)  
 Optional Class H insulation: 32°F to 140°F (0°C to 60°C)  
*Refer to Engineering Section for details.*

## Approvals:

CSA certified. UL listed as General Purpose Valves. Meets applicable CE directives.  
*Refer to Engineering Section for details.*



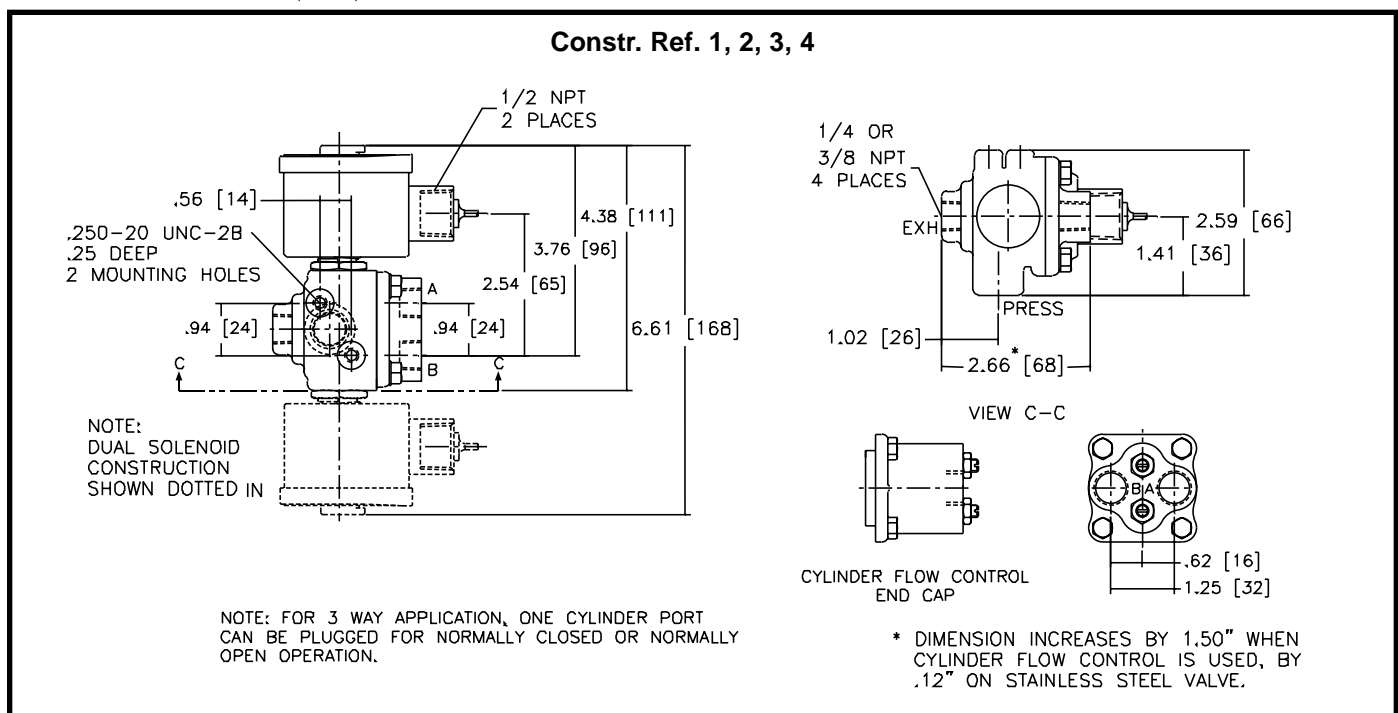
## Specifications (English units)

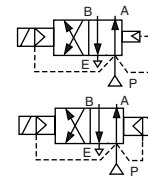
Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor ①	Operating Pressure Differential (psi)			Max. Fluid Temp. °F	Brass Body		Stainless Steel Body		Watt Rating/ Class of Coil Insulation
			Maximum AC								
			Air-Inert Gas	Water	Lt. Oil @ 300 SSU	AC	Catalog Number	Constr. Ref. No.	Catalog Number	Constr. Ref. No.	AC
SINGLE SOLENOID CONSTRUCTION											
1/4	3/16	.70	125	100	100	160	8342G1	1	8342G701	2	20.1/F
3/8	3/16	.70	125	100	100	160	8342G3	1	8342G703	2	20.1/F
DUAL SOLENOID CONSTRUCTION											
1/4	3/16	.70	125	125	125	160	8342G20	3	8342G720	4	16.1/F
3/8	3/16	.70	125	125	125	160	8342G22	3	8342G722	4	16.1/F
Notes: ① With built-in flow control (Suffix "M"), the Cv is 0.44 and an 0.5 psi minimum operating pressure is required.											

## Specifications (Metric units)

Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h) ①	Operating Pressure Differential (bar)			Max. Fluid Temp. °C	Brass Body		Stainless Steel Body		Watt Rating/ Class of Coil Insulation
			Maximum AC								
			Air-Inert Gas	Water	Lt. Oil @ 300 SSU		AC	Catalog Number	Constr. Ref. No.	Catalog Number	
SINGLE SOLENOID CONSTRUCTION											
1/4	4.8	.60	9	7	7	70	8342G1	1	8342G701	2	20.1/F
3/8	4.8	.60	9	7	7	70	8342G3	1	8342G703	2	20.1/F
DUAL SOLENOID CONSTRUCTION											
1/4	4.8	.60	9	9	9	70	8342G20	3	8342G720	4	16.1/F
3/8	4.8	.60	9	9	9	70	8342G22	3	8342G722	4	16.1/F
Notes: ① With built-in flow control (Suffix "M"), the Kv is 0.38 and an 0.03 bar minimum operating pressure is required.											

## Dimensions: inches (mm)





## Features

- Sturdy, solid construction.
- Piston-operated poppet design provides high flow.
- Can use air or water for piloting control valves.
- Wide range of sizes and flow rates.
- Single or dual solenoid construction.
- Dual solenoid can be shifted with a momentary signal and remain in position even if electrical power is lost.
- Mountable in any position.

## Construction

Valve Parts in Contact with Fluids	
Body	Brass
Seals and Disc	NBR
Core Tube	305 Stainless Steel
Core and Plugnut	430F Stainless Steel
Springs	302 Stainless Steel and 17-7PH Stainless Steel
Shading Coil	Copper
Pilot Seat Cartridge and Disc-Holder	CA
Shaft Gasket	Lead/Copper

## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part No.			
	DC Watts	AC			General Purpose		Explosionproof	
		Watts	VA Holding	VA Inrush				
F	10.6	6.1	16	30	238210	238310	238214	238314
F	11.6	10.1	25	50	238610	238710	238614	238714
F	22.6	17.1	40	70	238610	238710	238614	238714

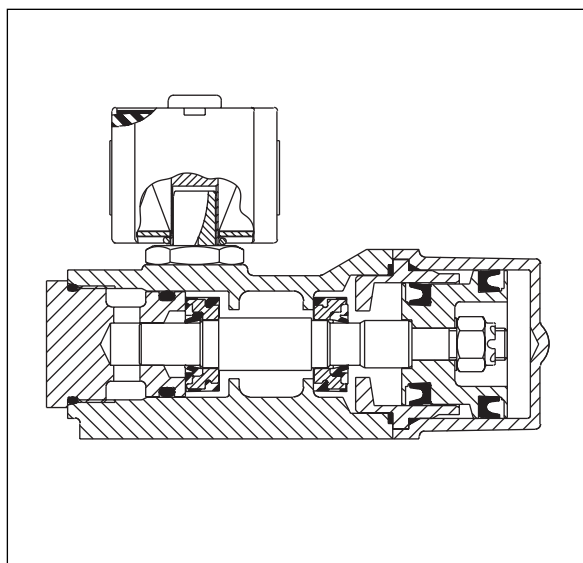
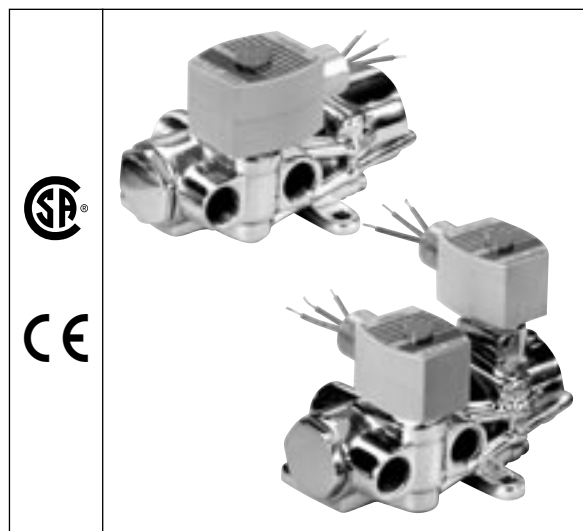
**Dual Solenoid Operation:** Minimum coil on-time for dual solenoid valves is 0.3 seconds on air service and 1.0 seconds on liquids.

**Caution:** Do not energize both solenoids simultaneously.  
Refer to Engineering Section for details.

**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz). 6, 12, 24, 120, 240 volts DC. Must be specified when ordering.  
Other voltages are available when required.

## Solenoid Enclosures

**Standard:** Watertight, Types 1, 2, 3, 3S, 4, and 4X.  
**Optional:** Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9.  
(To order, add prefix "EF" to the catalog number.)  
See Optional Features Section for other available options.



## Nominal Ambient Temperature Ranges:

AC: 32°F to 125°F (0°C to 52°C)

DC: 32°F to 104°F (0°C to 40°C)

Refer to Engineering Section for details.

## Approvals:

CSA certified. Meets applicable CE directives.

## Important:

A Minimum Operating Pressure Differential must be maintained between the pressure and exhaust ports. Supply and exhaust piping must be full area, unrestricted. ASCO flow controls and other similar components must be installed in the cylinder lines only.

- Loss of air pressure may allow valve to shift on dual solenoid constructions.

## Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor		Operating Pressure Differential (psi)							Max. Fluid Temp. °F		Brass Body		Watt Rating/ Class of Coil Insulation	
				① Min.	Max. AC			Max. DC								
		Press.	Exh.		Air-Inert Gas	Water	Lt. Oil @ 300 SSU	Air-Inert Gas	Water	Lt. Oil @ 300 SSU	AC	DC	Catalog Number	Constr. Ref. No.	AC	DC
SINGLE SOLENOID																
1/4	1/4	.80	1.0	10	150	125	125	125	125	125	180	150	8344G70	1	10.1/F	11.6/F
1/4	1/4	.80	1.0	10	250 ②	250 ②	250 ②	250 ②	250 ②	250 ②	180	180	8344G0	1	17.1/F	22.6/F
3/8	3/8	1.4	2.2	10	150	125	125	125	125	125	180	150	8344G72	2	10.1/F	11.6/F
3/8	1/4	.80	1.0	10	250 ②	250 ②	250 ②	250 ②	250 ②	250 ②	180	180	8344G1	1	17.1/F	22.6/F
1/2	3/8	1.4	2.2	10	150	125	125	125	125	125	180	150	8344G74	2	10.1/F	11.6/F
1/2	3/8	1.4	2.2	10	250 ②	250 ②	250 ②	250 ②	250 ②	250 ②	180	180	8344G27	2	17.1/F	22.6/F
3/4	3/4	5.2	5.6	10	150	125	125	125	125	125	180	150	8344G76	3	10.1/F	11.6/F
3/4	3/4	5.2	5.6	10	250 ②	250 ②	250 ②	250 ②	250 ②	250 ②	180	180	8344G29	3	17.1/F	22.6/F
1	3/4	5.2	5.6	10	150	125	125	125	125	125	180	150	8344G78	3	10.1/F	11.6/F
1	3/4	5.2	5.6	10	250 ②	250 ②	250 ②	250 ②	250 ②	250 ②	180	180	8344G31	3	17.1/F	22.6/F
DUAL SOLENOID ③																
1/4	1/4	.80	1.0	10	250	200	125	125	125	100	180	120	8344G44	4	6.1/F	10.6/F
3/8	3/8	1.4	2.2	10	250	200	125	125	125	100	180	120	8344G80	6	6.1/F	10.6/F
3/8	3/8	1.4	2.2	10	300	300	200	-	-	-	180	-	8344G50	7	10.1/F	-
1/2	3/8	1.4	2.2	10	250	200	125	125	125	100	180	120	8344G82	6	6.1/F	10.6/F
3/4	3/4	5.2	5.6	10	300	300	200	125	125	100	180	120	8344G54	8	10.1/F	10.6/F
1	3/4	5.2	5.6	10	300	300	200	125	125	100	180	120	8344G56	8	10.1/F	10.6/F
Notes: ① 25 psi (1.7 bar) minimum on light oil service. ③ On 50 hertz service, the watt rating for the 6.1/F solenoid is 8.1 watts.																
② For best results, do not use valve rated 250 psi (17 bar) on mainline pressure of less than 125 psi (9 bar).																

Notes: ① 25 psi (1.7 bar) minimum on light oil service.

③ On 50 hertz service, the watt rating for the 6.1/F solenoid is 8.1 watts.

② For best results, do not use valve rated 250 psi (17 bar) on mainline pressure of less than 125 psi (9 bar).

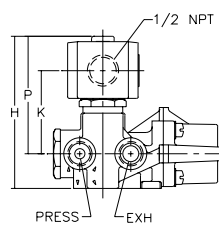
## Specifications (Metric units)

Pipe Size Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)		Operating Pressure Differential (bar)							Max. Fluid Temp. °C		Brass Body		Watt Rating / Class of Coil Insulation	
				① Min.	Max. AC			Max. DC								
		Press.	Exh.		Air-Inert Gas	Water	Lt. Oil @ 300 SSU	Air-Inert Gas	Water	Lt. Oil @ 300 SSU	AC	DC	Catalog Number	Constr. Ref. No.	AC	DC
SINGLE SOLENOID																
1/4	6	.69	.86	0.7	10	9	9	9	9	9	81	65	8344G70	1	10.1/F	11.6/F
1/4	6	.69	.86	0.7	17 ②	17 ②	17 ②	17 ②	17 ②	17 ②	81	81	8344G0	1	17.1/F	22.6/F
3/8	10	1.2	1.89	0.7	10	9	9	9	9	9	81	65	8344G72	2	10.1/F	11.6/F
3/8	6	.69	.86	0.7	17 ②	17 ②	17 ②	17 ②	17 ②	17 ②	81	81	8344G1	1	17.1/F	22.6/F
1/2	10	1.2	1.89	0.7	10	9	9	9	9	9	81	65	8344G74	2	10.1/F	11.6/F
1/2	10	1.2	1.89	0.7	17 ②	17 ②	17 ②	17 ②	17 ②	17 ②	81	81	8344G27	2	17.1/F	22.6/F
3/4	19	4.5	4.80	0.7	10	9	9	9	9	9	81	65	8344G76	3	10.1/F	11.6/F
3/4	19	4.5	4.80	0.7	17 ②	17 ②	17 ②	17 ②	17 ②	17 ②	81	81	8344G29	3	17.1/F	22.6/F
1	19	4.5	4.80	0.7	10	9	9	9	9	9	81	65	8344G78	3	10.1/F	11.6/F
1	19	4.5	4.80	0.7	17 ②	17 ②	17 ②	17 ②	17 ②	17 ②	81	81	8344G31	3	17.1/F	22.6/F
DUAL SOLENOID ③																
1/4	6	.69	.86	0.7	17	14	9	9	9	7	81	48	8344G44	4	6.1/F	10.6/F
3/8	10	1.2	1.89	0.7	17	14	9	9	9	7	81	48	8344G80	6	6.1/F	10.6/F
3/8	10	1.2	1.89	0.7	21	21	14	-	-	-	81	-	8344G50	7	10.1/F	-
1/2	10	1.2	1.89	0.7	17	14	9	9	9	7	81	48	8344G82	6	6.1/F	10.6/F
3/4	19	4.5	4.80	0.7	21	21	14	9	9	7	81	48	8344G54	8	10.1/F	10.6/F
1	19	4.5	4.80	0.7	21	21	14	9	9	7	81	48	8344G56	8	10.1/F	10.6/F

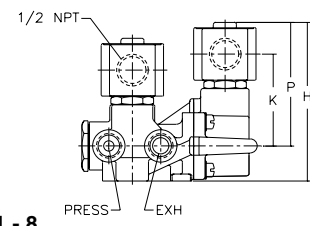
## Dimensions: inches (mm)

Constr. Ref. No.		ØD	E	F	G	H	J	K	L	N	P	W	X	Y	Z	Exhaust Pipe Size
1	ins.	0.28	.56	2.41	1.88	4.08	1.03	2.15	3.13	.72	3.12	4.75	1.41	1.56	.81	3/8
	mm	Ø7.1	14	61	48	104	26	55	80	18	79	121	36	40	21	3/8
2	ins.	0.34	.75	3.12	2.63	4.06	1.50	1.97	3.18	.83	2.94	6.06	1.88	1.90	.84	1/2
	mm	Ø8.6	19	79	67	103	38	50	81	21	75	154	47	48	21	1/2
3	ins.	0.34	1.34	3.81	3.88	4.86	2.09	2.34	4.56	1.56	3.31	8.25	2.12	2.63	1.16	1
	mm	Ø8.6	34	97	99	123	53	59	116	39	84	210	54	67	30	1
4	ins.	0.28	.56	2.41	1.88	4.34	1.03	2.52	3.13	.72	3.38	4.81	1.41	1.56	.81	3/8
	mm	Ø7.1	14	61	48	110	26	64	80	18	86	122	36	40	21	3/8
6	ins.	0.34	.75	3.12	2.63	4.50	1.50	2.52	3.18	.83	3.38	6.06	1.88	1.90	.84	1/2
	mm	Ø8.6	19	79	67	114	38	64	81	21	86	154	47	48	21	1/2
7	ins.	0.34	.75	3.12	2.63	4.68	1.50	2.59	3.18	.83	3.56	6.06	1.88	1.90	.84	1/2
	mm	Ø8.6	19	79	67	119	38	66	81	21	90	154	47	48	21	1/2
8	ins.	0.34	1.34	3.81	3.88	5.56	2.09	3.03	4.56	1.55	4.00	8.25	2.12	2.63	1.16	1
	mm	Ø8.6	34	97	99	141	53	77	116	39	102	210	54	67	30	1

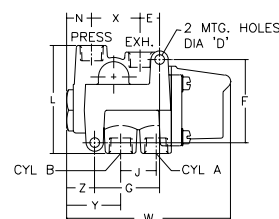
Constr. Ref 1 - 3

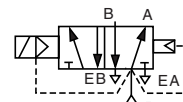


Constr. Ref. 4 - 8



Constr. Ref 1 - 8





## Features

- Compact valves for general service applications.
- Low-cost, 4 way valve when low flow is sufficient.
- Mountable in any position.

## Construction

Valve Parts in Contact with Fluids		
Body	Brass	316 Stainless Steel
Seals and Discs	NBR and PA	FKM, PA and UR
Core Tube	305 Stainless Steel	
Core and Plugnut	430F Stainless Steel	
Springs	302 Stainless Steel	
Shading Coil	Copper	
Piston	PA	

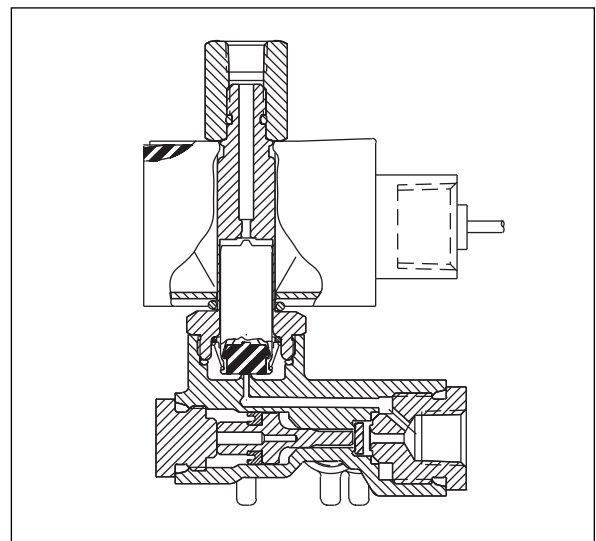
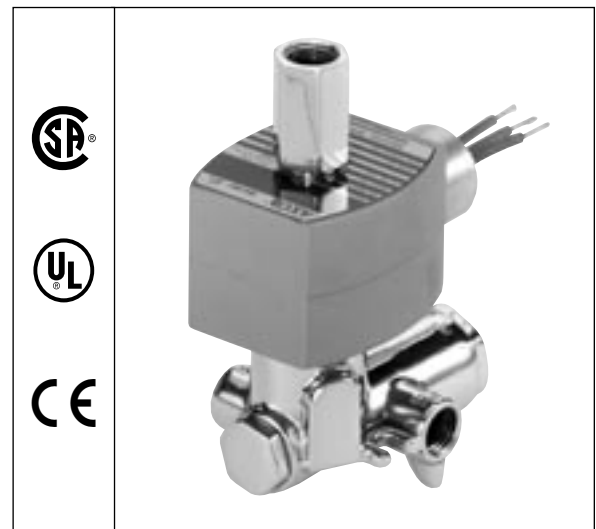
## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part No.					
	DC Watts	AC			General Purpose		Explosionproof (EF)		Explosionproof (EV)	
		Watts	VA Holding	VA Inrush						
					AC	DC	AC	DC	AC	DC
					F	11.6	10.1	25	50	238610

**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz).  
6, 12, 24, 120, 240 volts DC. Must be specified when ordering. Other voltages are  
available when required.

## Solenoid Enclosures

**Standard:** Watertight, Types 1, 2, 3, 3S, 4, and 4X.  
**Optional:** Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9.  
 (To order, add prefix "EF" or, for Explosionproof Stainless Steel trim and hub on Brass-Bodied valves, add "EV" to catalog number.)  
 See *Optional Features Section* for other available options.



## Nominal Ambient Temperature Ranges:

AC: 32°F to 125°F (0°C to 52°C)

DC: 32°F to 104°F (0°C to 40°C)

Refer to *Engineering Section* for details.

## Approvals:

CSA certified. UL listed as General Purpose Valve.

EV8345G81 solenoid only UL approved.

Meets applicable CE directives.

Refer to *Engineering Section* for details.

## Important:

A Minimum Operating Pressure Differential must be maintained between the pressure and exhaust ports. Supply and exhaust piping must be full area, unrestricted. ASCO flow controls and other similar components must be installed in the cylinder lines only.

Refer to *Engineering Section* for details.

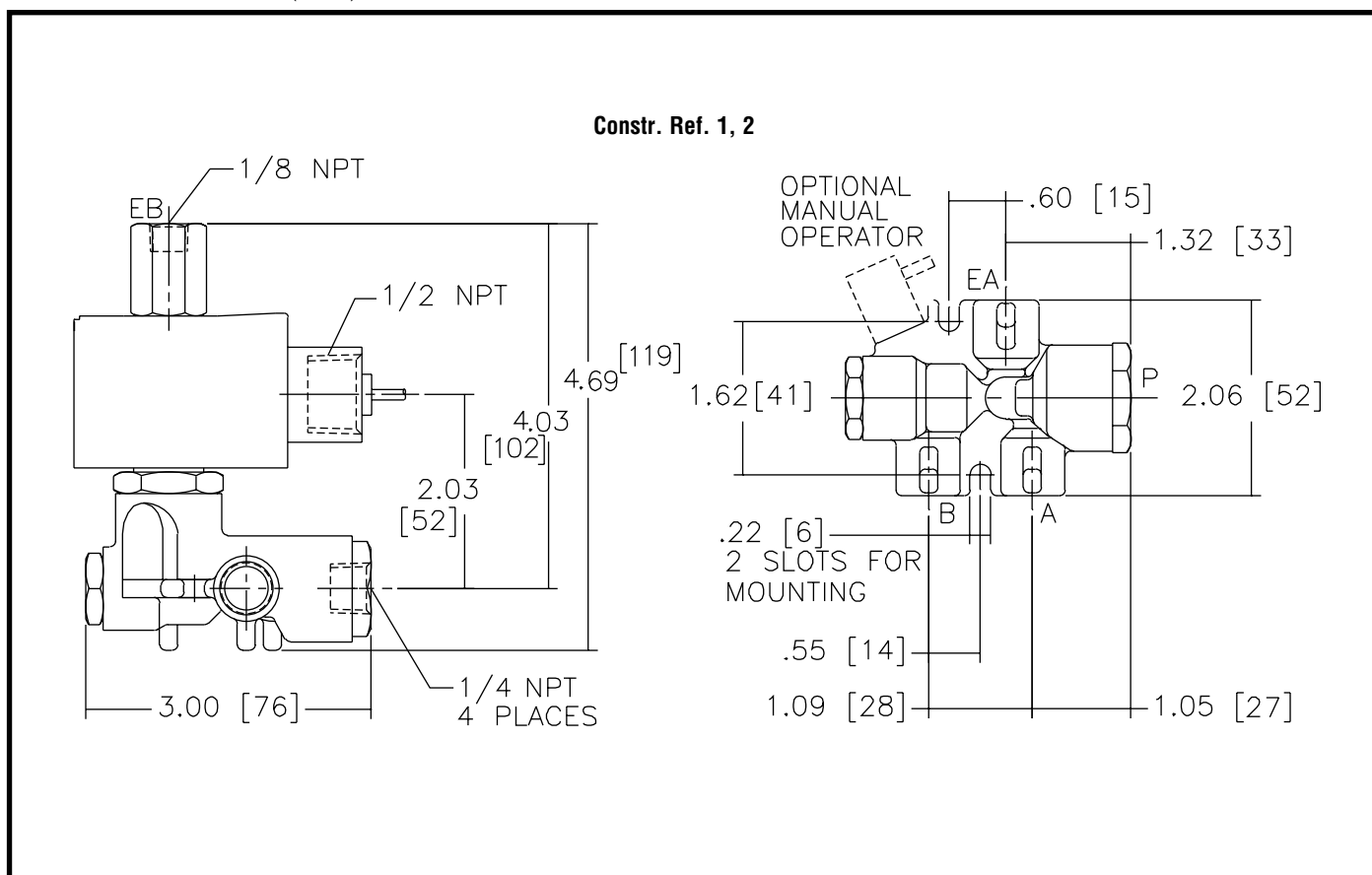
## Specifications (English units)

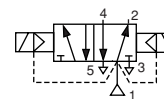
Pipe Size (ins.)	Orifice Size (ins.)		Cv Flow Factor		Operating Pressure Differential (psi)							Max. Fluid Temp. °F		Brass Body	316 Stainless Steel Body		Watt Rating/ Class of Coil Insulation	
					Min.	Max. AC			Max. DC									
	Pressure	Exhaust	Inlet	Exhaust		Air-Inert Gas	Water	Lt. Oil @ 50 SSU	Air-Inert Gas	Water	Lt. Oil @ 50 SSU	AC	DC	Catalog Number	Catalog Number	Constr. Ref. No.	AC	DC
SINGLE SOLENOID																		
1/4	1/16	3/32	.09	.09	10	150	150	150	100	100	100	180	104	8345G1	EV8345G81	1	10.1/F	11.6/F
SINGLE SOLENOID AIR-ONLY CONSTRUCTION - Exhaust to Atmosphere																		
1/4	1/16	3/32	.09	.09	10	150	-	-	100	-	-	180	104	8345H3	-	2	10.1/F	11.6/F

## Specifications (Metric units)

Pipe Size (ins.)	Orifice Size (mm)		Kv Flow Factor (m3/h)		Operating Pressure Differential (bar)							Max. Fluid Temp. °C		Brass Body	316 Stainless Steel Body		Watt Rating/ Class of Coil Insulation	
					Max. AC			Max. DC										
	Pressure	Exhaust	Inlet	Exhaust	Min.	Air-Inert Gas	Water	Lt. Oil @ 50 SSU	Air-Inert Gas	Water	Lt. Oil @ 50 SSU	AC	DC	Catalog Number	Catalog Number	Constr. Ref. No.	AC	DC
SINGLE SOLENOID																		
1/4	2	2	.08	.08	0.7	10	10	10	7	7	7	82	40	8345G1	EV8345G81	1	10.1/F	11.6/F
SINGLE SOLENOID AIR-ONLY CONSTRUCTION - Exhaust to Atmosphere																		
1/4	2	2	.08	.08	0.7	10	-	-	7	-	-	82	40	8345H3	-	2	10.1/F	11.6/F

## Dimensions: inches (mm)





## Features

- Unique guillotine action with sliding, sealing member.
- Optional flow control regulates cylinder speed in either direction.
- Dual solenoid versions hold last position, even after loss of electric power.
- Dual solenoid operation: solenoid may be energized momentarily (1/10 second) or continuously.
- Air/inert gas service only.
- Durable and “non-sticking” sealing method.
- Standard manual operator both momentary and maintained.
- Optional flow control provides adjustable Cv from 0.2 to 0.8.

## Construction

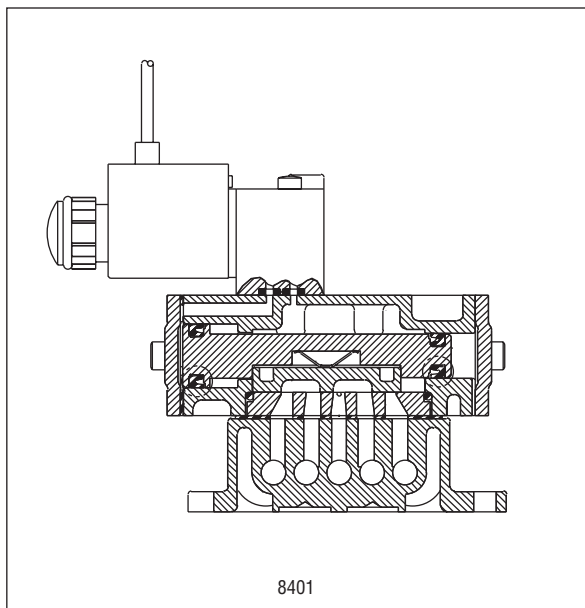
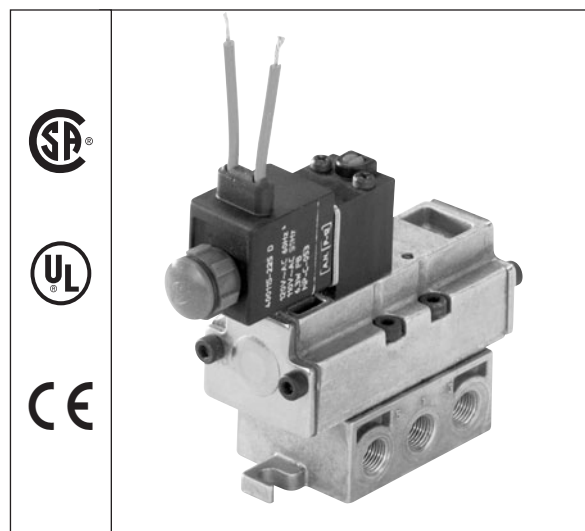
Valve Parts in Contact with Fluids	
Main Valve Body, Sub- and Manifold Base, End Caps	Aluminum
Pilot Valve Body	Molded CA
End Caps	Stainless Steel (non-metering) Molded CA (metering)
Seals	NBR (Carboxylated Nitrile)
Spool	Molded CA
Slide	Graphite-filled PTFE
Flow Plate	Ceramic (alumina)
Core Tube	305 Stainless Steel
Core and Plugnut	430F Stainless Steel
Springs	302 Stainless Steel

## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption					
	DC Watts	AC			Spare Coil Part No.	
		Watts	VA Holding	VA Inrush	AC	DC
F	6.9	6.3	8.8	12.1	400125	400125
<b>Standard Voltages:</b> 24, 120, 240, 480 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz). 6, 12, 24, 120, 240 volts DC. Must be specified when ordering. Other voltages are available when required.						

## Solenoid Enclosures

**Standard:** Open Frame Solenoid.  
**Optional:** Watertight, Types 1, 2, 3, 3S, 4, and 4X. (To order, substitute with prefix “WT”.) Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9. (To order, substitute with prefix “EF”.)  
 See *Optional Features Section* for other available options.



## Nominal Ambient Temperature Ranges:

Standard Class F insulation:

AC: 0°F to 135°F (-18°C to 57°C) (“U” and “SC” prefix)

AC: 0°F to 104°F (-18°C to 40°C) (optional “WT” or “EF” prefix)

DC: 0°F to 77°F (-18°C to 25°C)

Refer to *Engineering Section* for details.

## Approvals:

CSA certified. UL recognized components for “U” and “SC” prefix. With prefix “WT”, UL listed as a General Purpose Valve. Meets applicable CE directives.

Refer to *Engineering Section* for details.

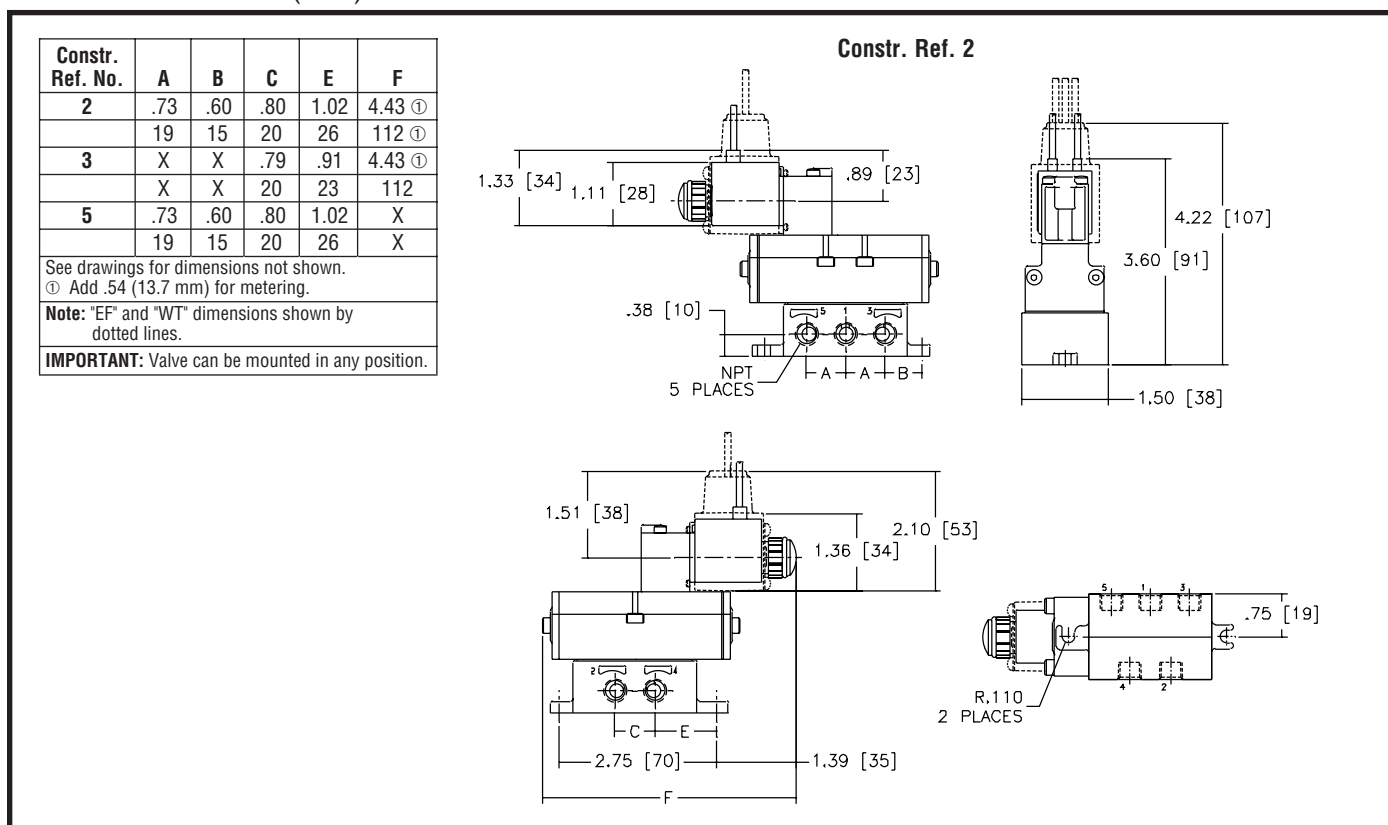
## Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Main Line Supply Pressure (psi)			Max. Fluid Temp. °F		Molded Epoxy Open Frame Solenoid				Watt Rating/ Class of Coil Insulation	
			Min.	Air-Inert Gas				Sub-Base Mounted		Manifold Mounted			
				Max. AC	Max . DC	AC	DC	Catalog Number	Constr. Ref. No.	Catalog Number	Constr. Ref. No.	AC	DC
SINGLE SOLENOID													
1/4	1/4	.80	20	150	150	135	77	U8401B101	2	U8401B103	3	6.3/F	6.9/F
DUAL SOLENOID													
1/4	1/4	.80	20	150	150	135	77	U8401B105	5	U8401B107	6	6.3/F	6.9/F
SINGLE AIR PILOTED													
1/4	1/4	.80	20	150	150	135	135	8402A101	8	8402A103	9	-	-

## Specifications (Metric units)

Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Main Line Supply Pressure (bar)			Max. Fluid Temp. °C		Molded Epoxy Open Frame Solenoid				Watt Rating/ Class of Coil Insulation	
			Min.	Air-Inert Gas				Sub-Base Mounted		Manifold Mounted			
				Max. AC	Max. DC	AC	DC	Catalog Number	Constr. Ref. No.	Catalog Number	Constr. Ref. No.	AC	DC
SINGLE SOLENOID													
1/4	6	.69	1.4	10	10	57	25	U8401B101	2	U8401B103	3	6.3/F	6.9/F
DUAL SOLENOID													
1/4	6	.69	1.4	10	10	57	25	U8401B105	5	U8401B107	6	6.3/F	6.9/F
SINGLE AIR PILOTED													
1/4	6	.69	1.4	10	10	57	57	8402A101	8	8402A103	9	-	-

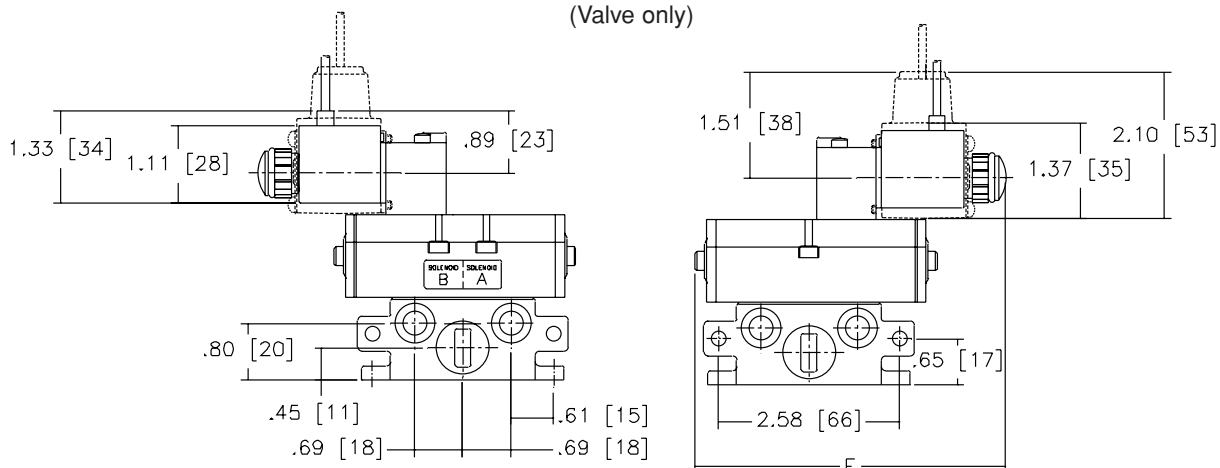
## Dimensions: inches (mm)



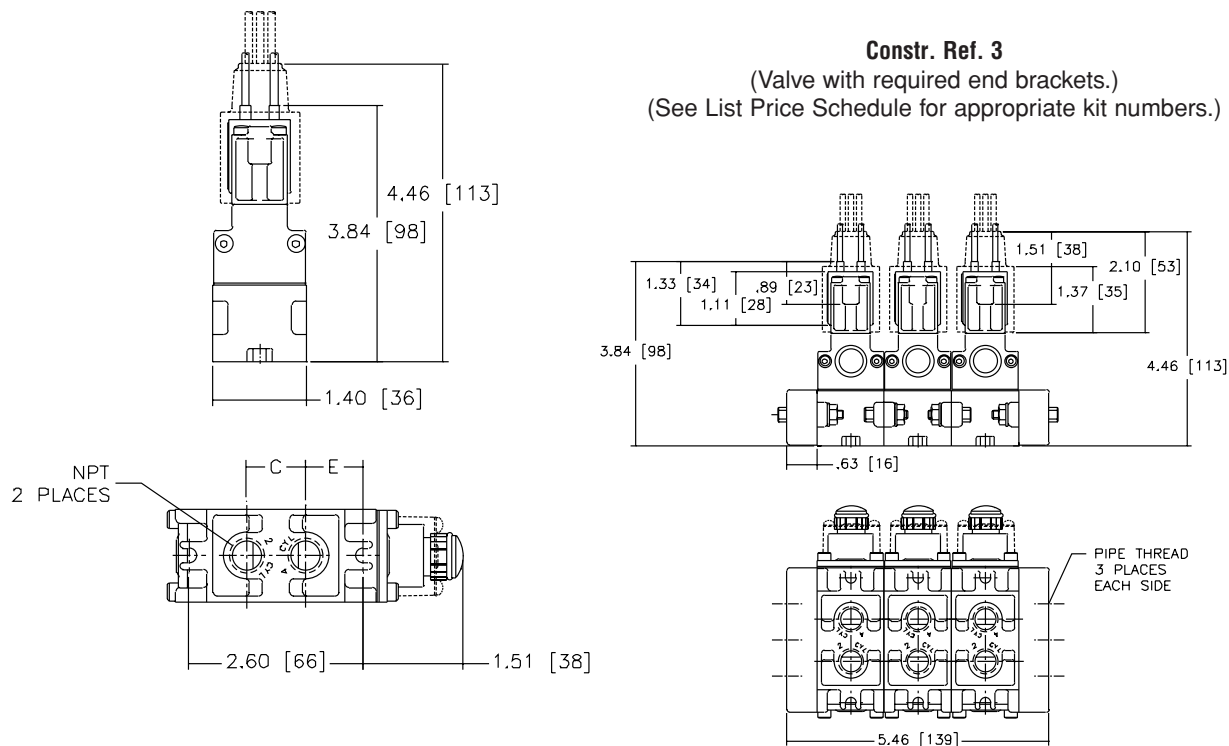


Dimensions: inches (mm)

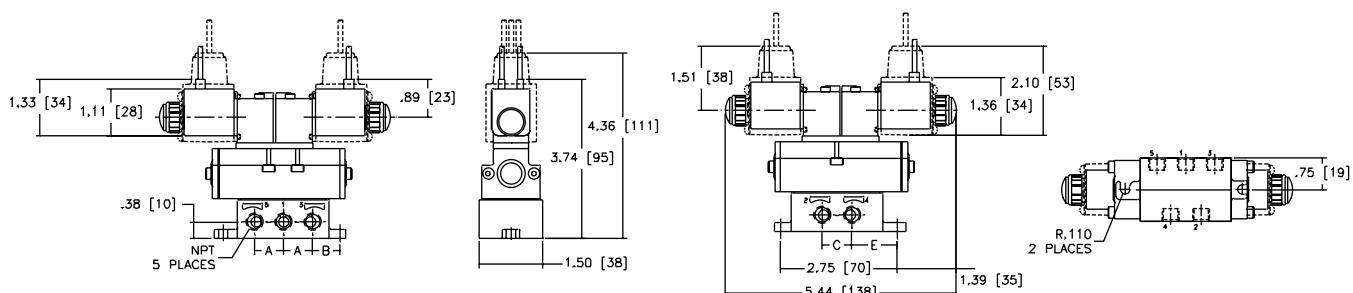
**Constr. Ref. 3**  
(Valve only)



**Constr. Ref. 3**  
(Valve with required end brackets.)  
(See List Price Schedule for appropriate kit numbers.)



**Constr. Ref. 5**





Dimensions: inches (mm)

Const. Ref. No.	A	B	C	E	F	G	H
6*	X	X	.79	.91	X	X	X
8	.73	.60	.80	1.02	.41	3.45 ②	1.22 ①
9*	X	X	.79	.91	X	3.45 ②	1.22 ①
	X	X	20	23	X	88 ②	31 ①

See drawings for dimensions not shown.

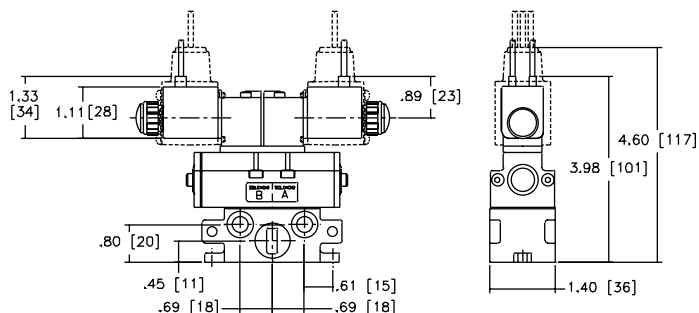
① Add .54 (13.7 mm) for metering. ② Add 1.07 (27.2 mm).

Note: "EF" and "WT" dimensions shown by dotted lines. Male 1/2" connection on EF/WT coil, conduit connector provided.

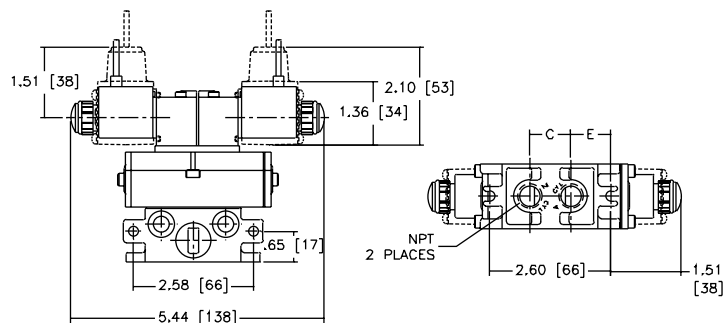
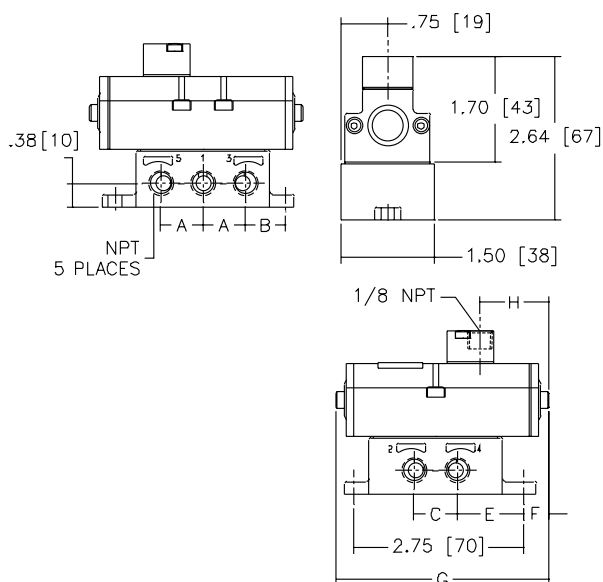
\* For dimensions with required end brackets see Const. Ref. 3

**IMPORTANT:** Valve can be mounted in any position.

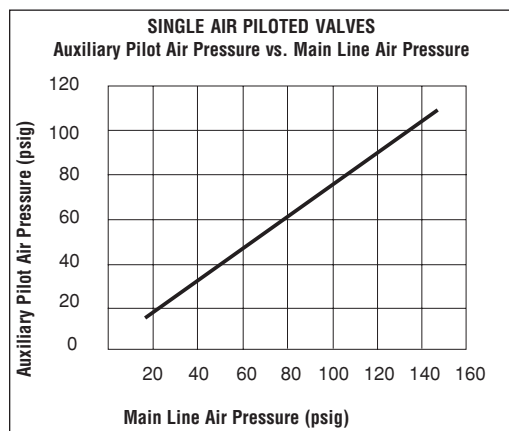
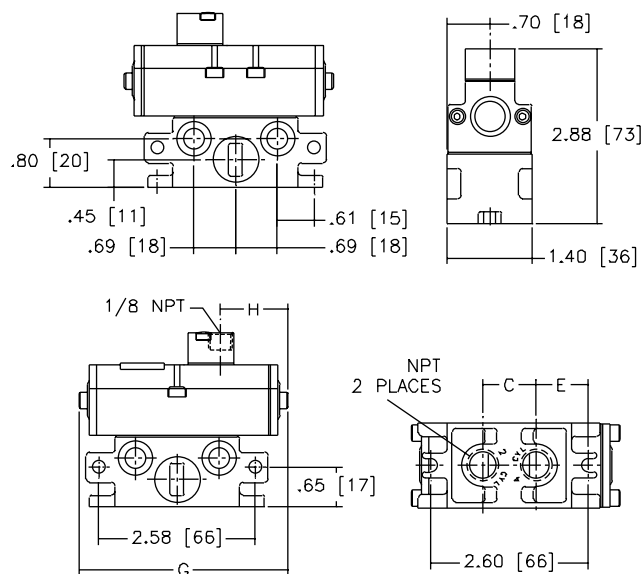
Constr. Ref. 6



Constr. Ref. 8



Constr. Ref. 9



## Features

- Compact spool valve with threaded port connections.
- All exhaust ports are pipable, providing better protection against harsh environments.
- Standard manual operator.
- DIN, Watertight and Explosionproof solenoids available.
- Single and dual solenoid constructions.
- Mountable in any position.

## Construction

Valve Parts in Contact with Fluid	
Body	Black Anodized Aluminum
Spring	Phosphate treated black steel
Shading Coil	Copper
Seals	NBR + PUR
Core and Core tube	Stainless Steel/Brass
End Covers	6/6 glass filled PA/FG
Spool	Aluminum
Internal Parts	Zamak, Steel, CA, Aluminum

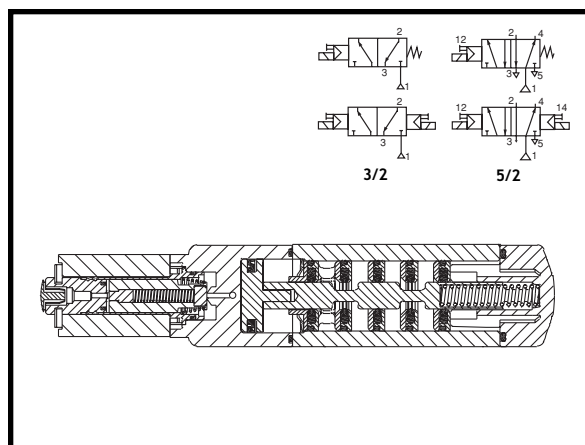
## Electrical

Standard Coil and Class of Insulation	Enclosure Type	Watt Rating and Power Consumption				Spare Coil Part Number	
		DC Watts	AC Watts	VA Holding	VA Inrush	AC	DC
F	SC	3	2.5	3.5	6	400125	400125
F	EF	6.9	6.3	7	10.1	266762	270007
F	WT	6.9	6.3	7	10.1	266763	270008

**Standard Voltages:** SC: 24, 120, 240 volts AC, 50-60 Hz; 12, 24, 120 volts DC.  
 WT and EF: 24/50-60Hz, (120/60, 110-120/50)①, (240/60, 220-240/50)②  
 volts AC; 6, 12, 24, 120 volts DC.  
**Notes:** ① Order as 120/60, 110/50  
 ② Order as 240/60, 220/50

## Solenoid Enclosures

<b>Standard: - Prefix</b>
<b>SC</b> = IP65 type DIN (open frame) per 46244
<b>WT</b> = Combination General Purpose and Watertight Types 1, 2, 3, 3S, 4, and 4X
<b>EF</b> = Combination Explosionproof and Watertight Types 3, 3S, 4, 4X, 6, 6P, 7, 9
CLASS 1, DIV. 1 (Groups A - D) and CLASS 2, DIV.1 Type 9 (Groups E-G)



## Nominal Ambient Temperature Ranges:

**SC:** AC/DC: 5°F to +140°F (-15°C to 60°C)

**EF:** AC: 5°F to +104°F (-15°C to 40°C)  
 DC: 5°F to +77°F (-15°C to 25°C)

**WT:** AC: 5°F to +140°F (-15°C to 60°C)  
 DC: 5°F to +77°F (-15°C to 25°C)

**Note:** For temperatures below 32°F (0°C) moisture-free air must be used. *Refer to Engineering Section for details.*

## Approvals:

SC: UL recognized component.

EF: UL and CSA solenoid approval.

WT: UL General Purpose valve.

Meets applicable CE directives. *Refer to Engineering Section for details.*

## Option:

Metering: order metering device pkg. of 20 pcs.  
 Order kit number: 276790-002-\*

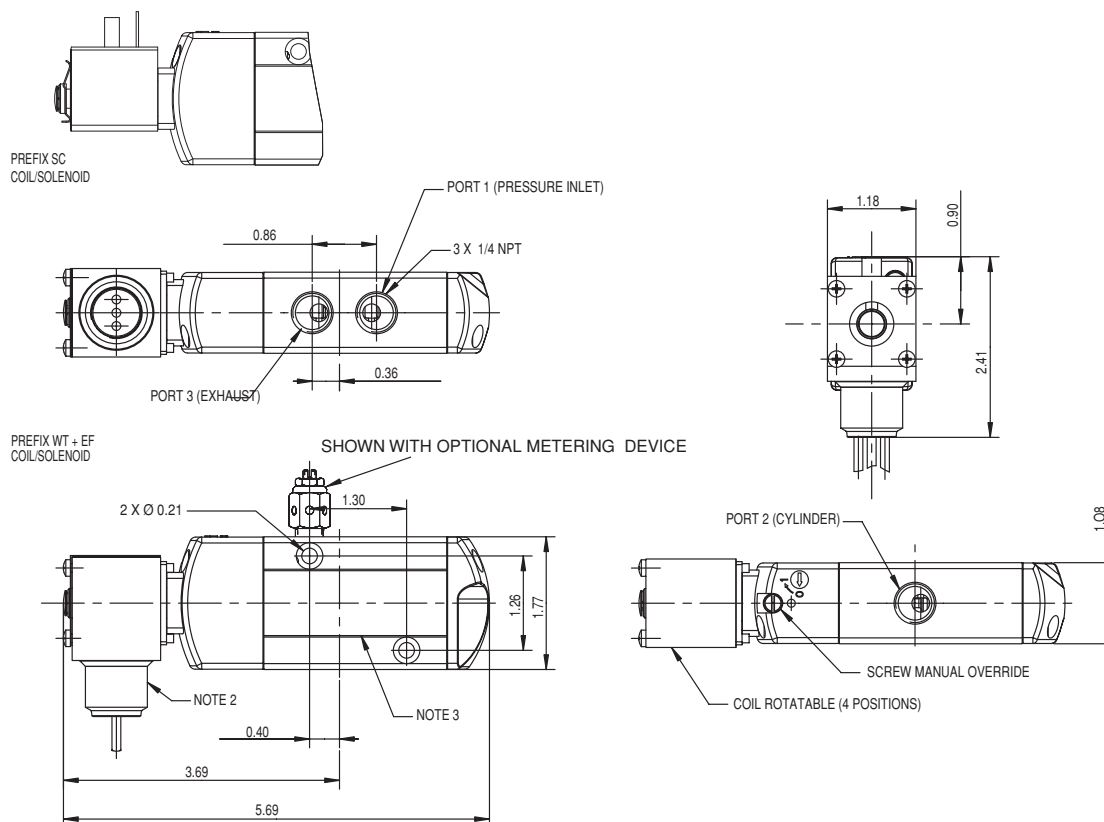
**NOTE:** When mounting inline 8551 valves with WT & EF solenoids (6.3 & 6.9 watts), ASCO recommends using two (2) 1/8" thick washers under the valve body to provide clearance for the solenoid coil.

## Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Pilot Pressure		Fluid Temp. °F (for single and dual solenoid)			Single Solenoid		Dual Solenoid		Watt Rating/ Class of Coil Insulation	
			Min.	Max.	Min.	Max. AC	Max. DC	Catalog Number	Constr. Ref. No.	Catalog Number	Const. Ref. No.	AC	DC
OPEN FRAME DIN COIL													
3 WAY													
1/4	1/4	.86	30	150	5	140	140	SC8551A005MS	1	SC8551A006MS	3	2.5	3
4 WAY													
1/4	1/4	.86	30	150	5	140	140	SC8551A017MS	2	SC8551A018MS	4	2.5	3
WATERTIGHT ENCLOSURE													
3 WAY													
1/4	1/4	.86	30	150	5	140	77	WT8551A005MS	1	WT8551A006MS	3	6.3	6.9
4 WAY													
1/4	1/4	.86	30	150	5	140	77	WT8551A017MS	2	WT8551A018MS	4	6.3	6.9
EXPLOSIONPROOF ENCLOSURE													
3 WAY													
1/4	1/4	.86	30	150	5	104	77	EF8551A005MS	1	EF8551A006MS	3	6.3	6.9
4 WAY													
1/4	1/4	.86	30	150	5	104	77	EF8551A017MS	2	EF8551A018MS	4	6.3	6.9

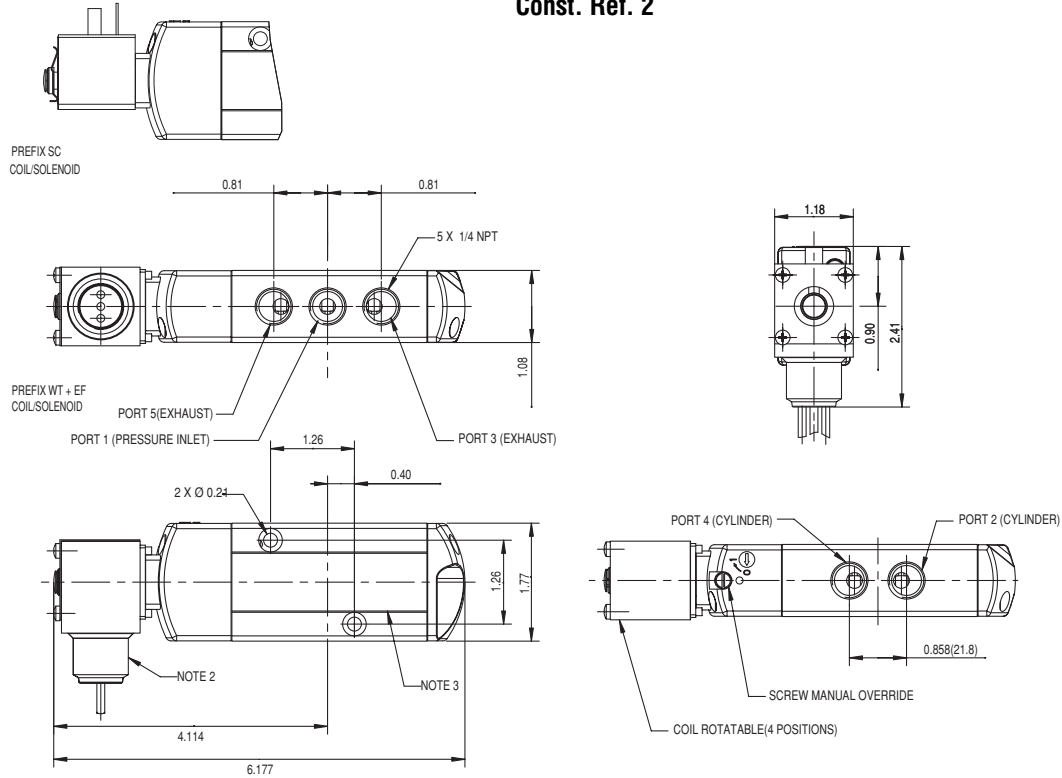
## Dimensions: inches

### Const. Ref. 1

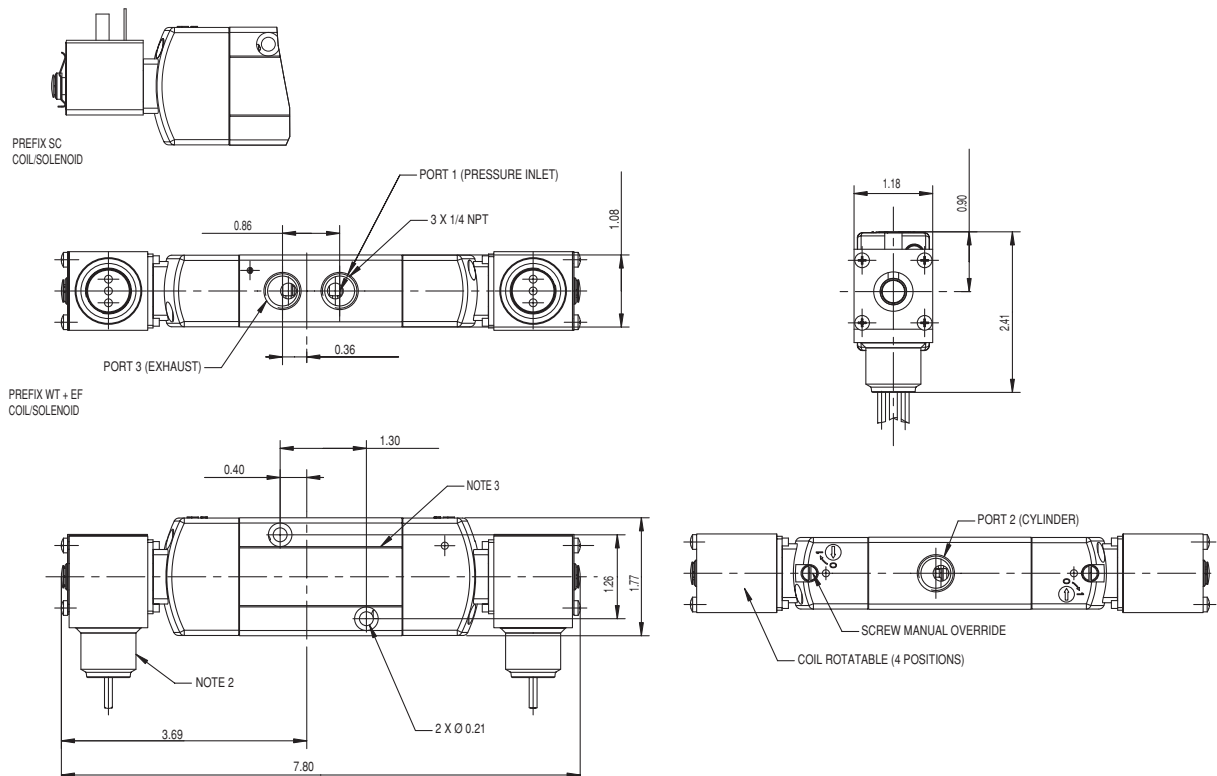


Dimensions: inches

Const. Ref. 2

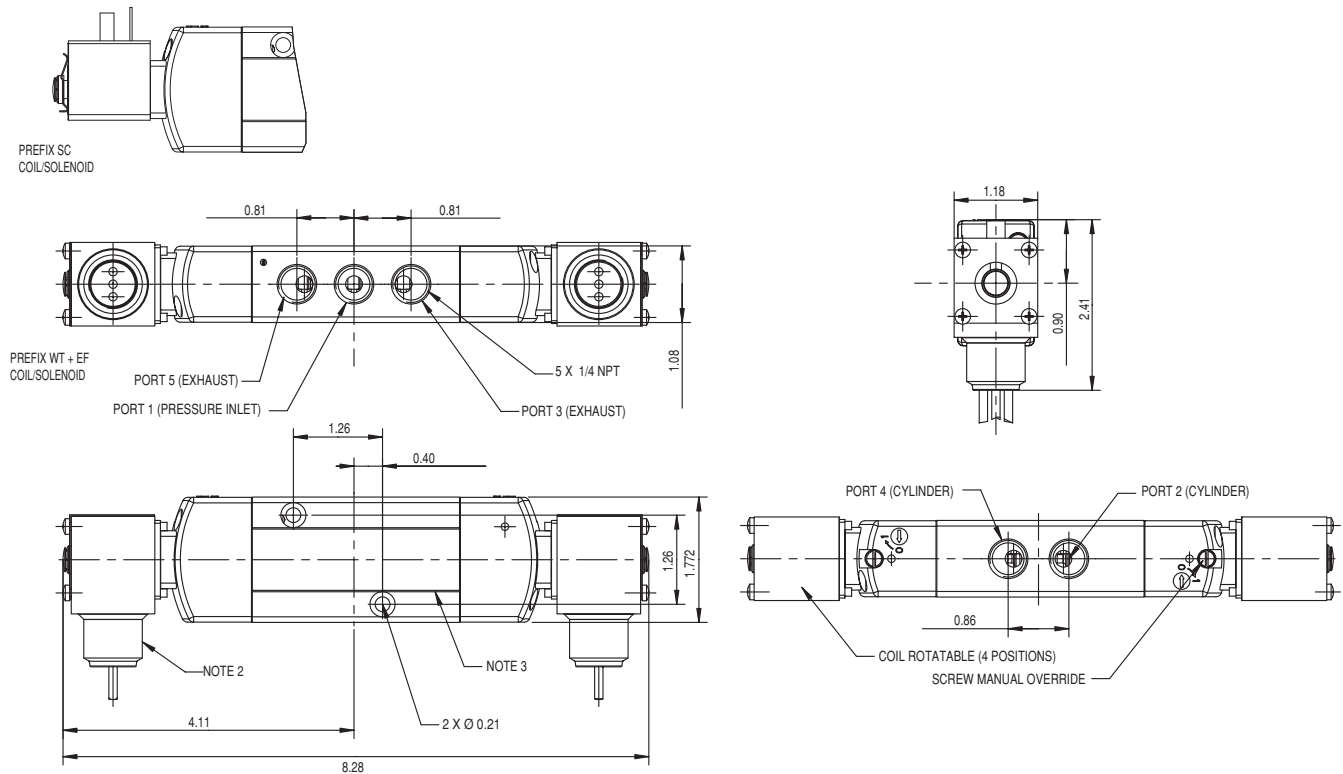


Const. Ref. 3



Dimensions: inches

Constr. Ref. 4



## Features

- Unique sealing technology combines hard T-seals and flexible o-rings for bubble tight shutoff, dirt resistance, and multimillion cycle life.
- Designed for use in corrosive atmospheres.
- Single or dual solenoids.
- Mountable in any position.
- Dual solenoid operation: solenoid may be energized momentarily (1/10 second) or continuously.
- Low Power and Intrinsically Safe constructions are available.  
*See Special Service Valve Section for details.*

## Construction

Valve Parts in Contact with Fluids	
Body	316 Stainless Steel
Seals and Discs	NBR and PUR
Core and Plugnut	430F Stainless Steel
Core Tube	305 Stainless Steel
Springs	302 Stainless Steel
Shading Coil	Copper
End Covers	316 Stainless Steel
Spool	316 Stainless Steel
Internal Parts	Zamak, Steel, CA, Brass

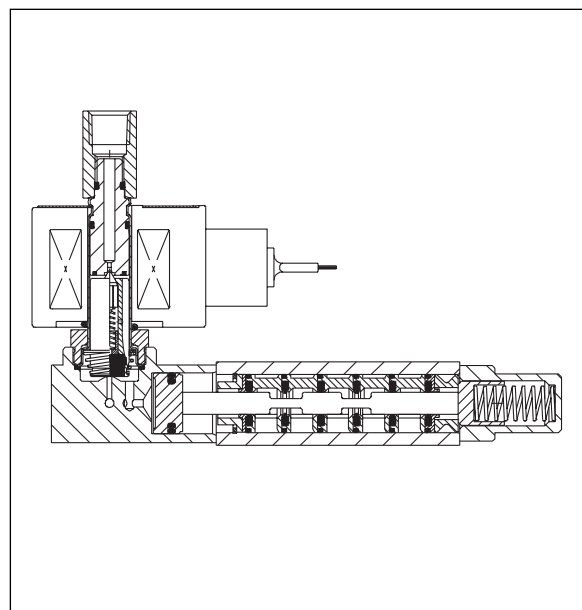
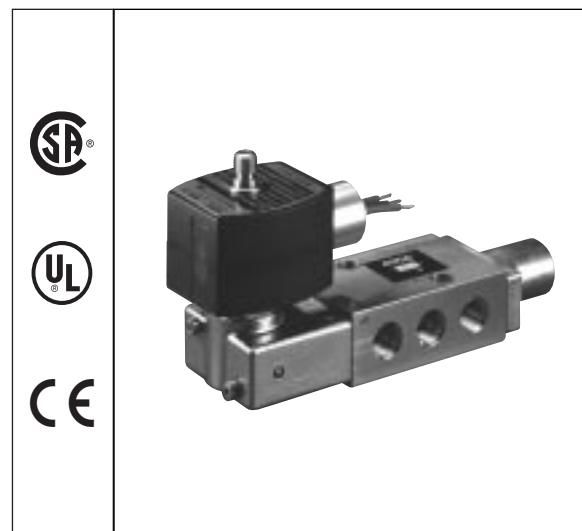
## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part No.			
	DC Watts	AC			General Purpose		Explosionproof (EV)	
		Watts	VA Holding	VA Inrush				
F	11.6	10.1	25	50	238610	238710	274614	274714

**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz (115 - 230 volts AC, 50 Hz). 6, 12, 24, 120, 240 volts DC. Must be specified when ordering. Other voltages available when required.

## Solenoid Enclosures

<b>Standard:</b> Watertight, Types 1, 2, 3, 3S, 4, and 4X.
<b>Optional:</b> Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9. (For Stainless Steel trim and conduit hub, add prefix "EV" to catalog number.) <i>See Optional Features Section for other available options.</i>



## Nominal Ambient Temperature Ranges:

AC: -4°F to 125°F (-20°C to 52°C)

DC: -4°F to 104°F (-20°C to 40°C)

*Refer to Engineering Section for details.*

## Approvals:

UL listed for General Purpose valve.

UL recognized components for "SC" prefix (open frame version).

Meets applicable CE directives. Optional "EV" solenoid is CSA certified and UL listed.

*Refer to Engineering Section for details.*

## Specifications (English units)

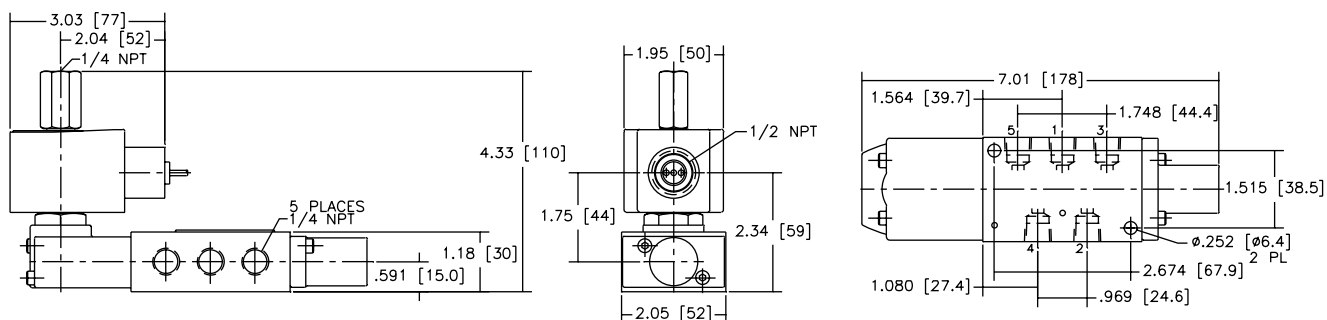
Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Single Solenoid							Dual Solenoid							Watt Rating/ Class of Coil Insulation	
			Operating Pressure Differential (psi)			Max. Fluid Temp. °F		Stainless Steel Catalog Number	Constr. Ref. No.	Operating Pressure Differential (psi)			Max. Fluid Temp. °F		Stainless Steel Catalog Number	Constr. Ref. No.		
			Min.	AC	DC	AC	DC	8551G453	1	Min.	AC	DC	AC	DC	8551G455	2	AC	DC
1/4	1/4	.84	35	150	120	140	120	8551G453	1	20	150	120	140	120	8551G455	2	10.1/F	11.6/F

## Specifications (Metric units)

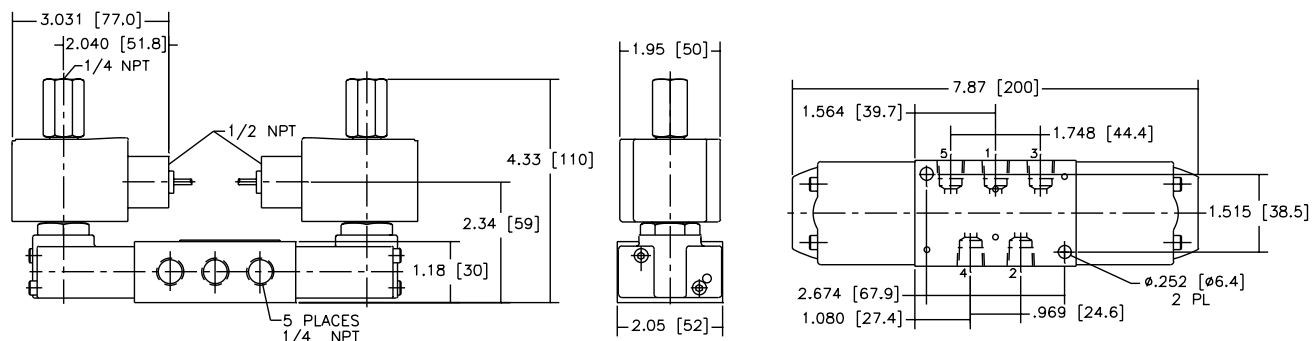
Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Single Solenoid							Dual Solenoid							Watt Rating/ Class of Coil Insulation	
			Operating Pressure Differential (bar)			Max. Fluid Temp. °C		Stainless Steel Catalog Number	Constr. Ref. No.	Operating Pressure Differential (bar)			Max. Fluid Temp. °C		Stainless Steel Catalog Number	Constr. Ref. No.		
			Min.	Max.						Min.	Max.						Min.	Max.
				AC	DC	AC	DC	AC	DC		AC	DC	AC	DC				
1/4	6	.72	2	10	8	59	48	8551G453	1	1	10	8	59	48	8551G455	2	10.1/F	11.6/F

## Dimensions: inches (mm)

### SINGLE SOLENOID Constr. Ref. 1



### DUAL SOLENOID Constr. Ref. 2



## Features

- Designed for harsh, hazardous environments, including offshore applications.
- Provides quick shutdown of valves and actuators.
- Low power DC for solar panels and PLC control.
- Factory-sealed leads or epoxy filled conduit connection.
- Explosionproof Types 4 and 7, Class 1, Division 1, Groups C and D protection, or Cenelec EEx d IIB T6 with EC or ED prefix.
- Mountable in any position.

## Construction

Valve Parts in Contact with Fluids	
Body	316 Stainless Steel
Seals and Disc	FKM
Core and Plugnut	430F Stainless Steel
Core Spring	302 Stainless Steel
Rider Rings	PTFE
Disc-Holder and Core Guide	CA

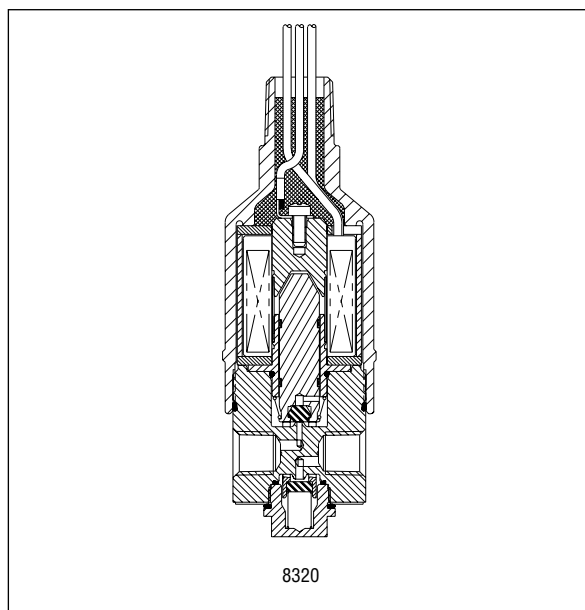
## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption
	DC Watts
F	1.44
F	2.88
Standard Voltages: 12 and 24 volts DC.	

## Solenoid Enclosures

**Standard:** 316 Stainless Steel, Explosionproof and Watertight with 72" leads. Types 1, 2, 3, 4, 4X, 6, 6P, 7, and 9, Class I, Division 1, Groups C & D.

**Optional:** For CENELEC approved valves with 20mm conduit connection use prefix "EC" instead of "EF". Use prefix "ED" for 1/2" NPT conduits. See Engineering Section under "Enclosures" for details.



## Nominal Ambient Temperature Ranges:

-4°F to 120°F (-20°C to 49°C)

Refer to Engineering Section for details.

## Approvals:

UL listed, CSA certified General Purpose valve, hazardous location classified. Meets applicable CE directives. CENELEC EEx d IIB T6 approved. Refer to Engineering Section for details.



## Specifications (English units)

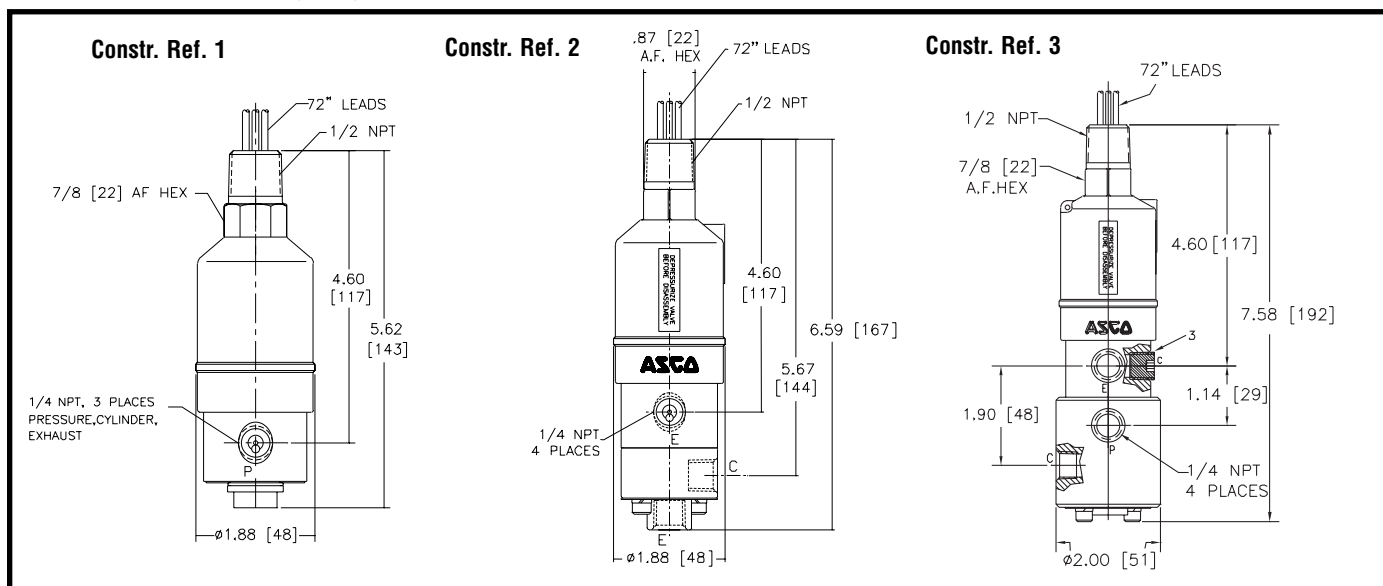
Pipe Size Size (ins.)	Orifice Size (ins.)		Cv Flow Factor		Operating Pressure Differential (psi)				Watt Rating/ Class of Insulation
					Air/Natural Gas		Catalog Number	Constr. Ref. No.	
	Pressure	Exhaust	Pressure	Exhaust	Min.	Max.			
NORMALLY CLOSED (Closed when de-energized)									
1/4	1/16	3/32	.08	.16	0	150 ①	EF8320511 ②	1	2.88/F
1/4	1/16	3/32	.08	.16	0	55	EF8320512 ②	1	1.44/F
1/4	1/16	1/4	.08	1.4	15	150	EF8317511 ② ③	2	2.88/F
1/4	1/16	1/4	.08	1.4	15	55	EF8317512 ② ③	2	1.44/F
1/4	3/8	3/8	1.12	1.23	20	150	EF8321511 ②	3	2.88/F
1/4	3/8	3/8	1.12	1.23	20	55	EF8321512 ②	3	1.44/F
UNIVERSAL FLOW (Pressure at any port)									
1/4	1/16	3/32	.08	.16	0	65	EF8320505	1	2.88/F
Notes: ① Light Oil Max Pressure 100 psi (7 bar). ② Factory-sealed leads. ③ This valve has a Hytrel diaphragm.									

Notes: ① Light Oil Max Pressure 100 psi (7 bar). ② Factory-sealed leads. ③ This valve has a Hytrel diaphragm.

## Specifications (Metric units)

Pipe Size (ins.)	Orifice Size (mm)		Kv Flow Factor (m3/h)		Operating Pressure Differential (bar)				Watt Rating/ Class of Coil Insulation
					Air/Natural Gas		Catalog Number	Constr. Ref. No.	
	Pressure	Exhaust	Pressure	Exhaust	Min.	Max.			
NORMALLY CLOSED (Closed when de-energized)									
1/4	1.6	2.4	.07	.14	0	10 ①	EF8320511 ②	1	2.88/F
1/4	1.6	2.4	.07	.14	0	4	EF8320512 ②	1	1.44/F
1/4	1.6	6.4	.07	1.20	1	10	EF8317511 ② ③	2	2.88/F
1/4	1.6	6.4	.07	1.20	1	4	EF8317512 ② ③	2	1.44/F
1/4	9.5	9.5	0.96	1.05	1.4	10.3	EF8321511 ②	3	2.88/F
1/4	9.5	9.5	0.96	1.05	1.4	3.8	EF8321512 ②	3	1.44/F
UNIVERSAL FLOW (Pressure at any port)									
1/4	1.6	2.4	.07	.14	0	4	EF8320505	1	2.88/F

## Dimensions: inches (mm)



## Features

- Intrinsically safe solenoid enclosures to provide corrosion resistance in harsh environments.
- Designed solely for installation in intrinsically safe areas, with properly approved and sized current and voltage-limiting safety barriers.
- Acceptable for use in hazardous locations, as classified by the National Electrical Code: Classes I, II, and III, Division 1, including Groups A through G.
- Electronically enhanced solenoids have efficient cartridge operators and nonpolarized coils.
- Triple redundant diodes prevent electrical pulse for flowing back into the hazardous area.
- Mountable in any position.

## Solenoid Operators

**WBIS:** Watertight, Type 3, 3S, 4, 4X, IP-67

Liquid Crystal Polymer (LCP) overmolded with 1/2" NPT conduit connection and screw terminals for simple wiring. The terminal block will accommodate 18 gage (AWG) wire and grounding screw is located inside the enclosure.

**ISSC:** DIN 43650/ISO 4400, IP-65

Epoxy overmolded with Din Connector supplied, suitable to accept wiring cable diameters of 0.310 to 0.400 inches.

## Solenoid Construction

Gasket Cover	NBR
Cover Screw	18-8 Stainless Steel
Cover Screw Gasket	NBR
Sleeve	430F Stainless Steel
Nameplate	Stainless Steel
Burp Cap Assembly	PA/NE

## Valve Construction

Valve Parts in Contact with Fluids			
Body	Brass	Stainless Steel	Aluminum
Seals, Discs	NBR		NBR/PUR
Sleeve	304L Stainless Steel		304L Stainless Steel
Core and Plugnut	430F Stainless Steel		430F Stainless Steel
Springs	302 Stainless Steel		302 Stainless Steel
Rider Rings	PTFE		PTFE
Spring Retainer	CA		CA
Piston Assembly 8223	SS/NBR		NA
Piston Assembly 8345	PA/NBR		NA
8344 Internals	Brass/300 Stainless Steel		NA
8316 Internals	NBR/Stainless Steel	FKM/Stainless Steel	NA
8551 Internals	NA		PA/FV, AL, CA, Steel

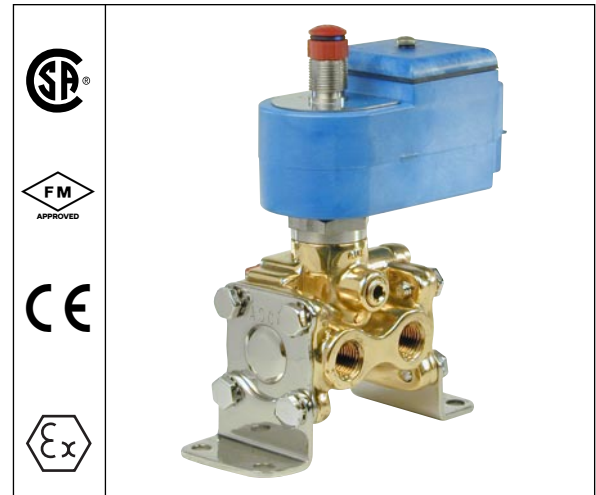
## Electrical

Nominal Wattage is 0.35 @ 24 VDC  
 Maximum Allowable "Off" State Current to the Valves must be less than 1 mA.

### Electronically Enhanced "IS" Solenoid:

Maximum Capacitor Charge Time — 1 second  
 Minimum Time between Cycles — 1 second  
 Minimum Drop Current to Reset Electronic Coil — 2 mA  
 Nominal Temperature Rise at 24 VDC and 300 Ohms — 2°C (36°F)  
 Maximum Recommended Wire Run (#18 Wire) — 1.5 miles from barrier to valve

**Important:** Minimum series resistance of 200 ohms required in wiring circuit if a safety barrier is not used for non-"IS" system.



## Ordering Information

The LCP Intrinsically Safe solenoid enclosure is designated by the prefix, "WBIS". The Epoxy Din Connector is ordered by prefix, "ISSC".

Example: **WBIS8314A300**  
**ISSC8314A300**

**Spare Coil P/Ns**  
 WBIS: 274445-001\*  
 ISSC: 268976-001\*

## Nominal Ambient Temperature Ranges:

**Series 8314, 8262, 8317:**

-40°F to 140°F (-40°C to 60°C)

**Series 8223, 8316, 8344, 8345, 8551:**

-4°F to 140°F (-20°C to 60°C)

**Series 8316 suffix V**

32°F to 140°F (0°C to 60°C)

Refer to Engineering Section for details.

## Approvals:

FM approved under J.I.3W8A8. AX (3610).  
 CSA certified under File LR-13976-116C.  
 CENELEC EEx ia IIC T6 approved - pending  
 Meets applicable CE directives.  
 Refer to Engineering Section for details.

## Important:

These solenoids are intended for use on clean, dry air or inert gas filtered to 50 micrometers or better. To prevent freezing, the dew point of the media should be at least 18°F (-8°C) below the minimum temperature to which any portion of the clean air or gas system could be exposed. Instrument air in compliance with ANSI/ISA Standard S7.3-1975 (R1981) exceeds the above requirements and is, therefore, an acceptable medium for these valves.

## Maximum Entity Parameters

Entity	Groups A-D	Groups C-D
Parameters	V max - 30 VDC	V max - 34 VDC
	I max - 100 mA	I max - 125 mA
	Capacitance = 0	Capacitance = 0
	Inductance = 0	Inductance = 0

## Standard Voltage

24 VDC only (±10%)

## Minimum Operating Current

0.028 amps

5.03 R3

## Specifications (English units)

2/2 VALVES, NORMALLY CLOSED, with NBR Disc										
Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor		Operating Pressure Differential (psi)		Max. Fluid and Ambient Temp. °F	Brass Body		Stainless Steel Body	
				Air-Inert Gas			Catalog Number	Constr. Ref. No.	Catalog Number	Constr. Ref. No.
				Min.	Max.					
1/4	1/16	.08		0	150	140	WBIS8262A320	1	WBIS8262A386	1A
3/8	5/16	1.5		10	150	140	WBIS8223A323	2	-	-
1/2	3/8	3.2		25	150	140	WBIS8223A303	3	WBIS8223A310	3
3/2 VALVES										
Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor		Operating Pressure Differential (psi)		Max. Fluid and Ambient Temp. °F	Brass Body		Stainless Steel Body	
				Air-Inert Gas			Catalog Number	Constr. Ref. No.	Catalog Number	Constr. Ref. No.
		Pressure to Cylinder	Cylinder to Exhaust	Min.	Max.					
UNIVERSAL OPERATION (Pressure at any port) with NBR Disc										
1/4	1/16	.08	.08	0	150	140	WBIS8314A300	4	WBIS8314A301	4A
NORMALLY CLOSED (Closed when de-energized)										
1/4	5/16	1.5	1.5	⑥	150	140	WBIS8316A301 ③	5	WBIS8316A381V ⑤	8
3/8	5/16	1.8	1.8	⑥	150	140	WBIS8316A302 ③	5	WBIS8316A382V ⑤	8
3/8	5/8	4	4	⑥	150	140	WBIS8316A303 ③	6	-	-
1/2	5/8	4	4	⑥	150	140	WBIS8316A304 ③	6	WBIS8316A384V ⑤	9
3/4	11/16	5.5	5.5	10	150	140	WBIS8316A374 ③	7	-	-
1	1	13	13	10	150	140	WBIS8316A334 ③	7A	-	-
UNIVERSAL OPERATION (Normally Closed or Normally Open) "Quick Exhaust" with CR Diaphragm and NBR Disc										
1/4	②	.08	.73	5	150	140	WBIS8317A307 ①	10	WBIS8317A308 ①	11
4/2 VALVES, with NBR Disc and Seal										
1/4	1/16	.08	.08	10	150	140	WBIS8345A301 ①③	12	WBIS8345A381 ①③	12
4/2 VALVES, Brass Body with NBR Disc							Single Solenoid	Constr. Ref. No.	Dual Solenoid	Constr. Ref. No.
1/4	1/4	.80	1	10	150	140	WBIS8344A370 ①③	13	WBIS8344A344 ③	16
3/8	3/8	1.4	2.2	10	150	140	WBIS8344A372 ①③	14	WBIS8344A380 ③	17
1/2	3/8	1.4	2.2	10	150	140	WBIS8344A374 ①③	14	WBIS8344A382 ③	17
3/4	3/4	5.2	5.6	10	150	140	WBIS8344A376 ①③	15	WBIS8344A354 ③	18
1	3/4	5.2	5.6	10	150	140	WBIS8344A378 ①③	15	WBIS8344A356 ③	18
Notes:	① There are two exhaust flows in the exhaust mode (pilot and main). The pilot exhaust must be connected to the main exhaust when the air or inert gas cannot be exhausted to atmosphere. ② For "Quick Exhaust" valves, pressure port is 1/16", exhaust port is 1/4". ③ <b>IMPORTANT:</b> A minimum operating pressure differential must be maintained between the pressure and exhaust ports. Supply and exhaust piping must be full area, unrestricted. ASCO flow controls and other similar components must be installed in the cylinder lines only.						⑤ Diaphragm and main disc FKM only (pilot is low-temperature NBR). ⑥ Zero minimum when valve selection gasket is in external position and proper auxiliary air pressure is applied. <i>See chart on page 5.14 for auxiliary pressure vs. mainline pressure.</i> Minimum 15 psi Operating Pressure Differential when selection gasket is in the internal position.			

## Direct Mount 8551 NAMUR Specifications (Convertible 3/2 and 5/2 valve)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Single Solenoid					Dual Solenoid				
			Operating Pressure Differential (psi) Air-Inert Gas		Max. Fluid Temp. °F	Anodized Aluminum Body	Constr. Ref. No.	Operating Pressure Differential (psi) Air-Inert Gas		Max. Fluid Temp. °F	Anodized Aluminum Body	Constr. Ref. No.
			Min.	Max.	24/DC Only	Catalog Number		Min.	Max.	24/DC Only	Catalog Number	
1/4 ①	1/4	.7	30	150	140	WBIS8551A301	19	30	150	140	WBIS8551A302	20
Direct Mount 8551 NAMUR - Stainless Steel 5/2 valves												
1/4	1/4	.7	30	150	140	WBIS8551A388	21	30	150	140	WBIS8551A390	22

## Specifications (Metric units)

2/2 VALVES, NORMALLY CLOSED, with NBR Disc										
Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Operating Pressure Differential (bar)		Max. Fluid and Ambient Temp. °C	Brass Body		Stainless Steel Body		
			Air-Inert Gas			Catalog Number	Constr. Ref. No.		Constr. Ref. No.	
			Min.	Max.						
1/4	1	.07	0	10.3	59	WBIS8262A320	1	WBIS8262A386	1A	
3/8	8	1.29	0.7	10.3	59	WBIS8223A323	2	-	-	
1/2	10	2.74	1.7	10.3	59	WBIS8223A303	3	WBIS8223A310	3	
3/2 VALVES										
Pipe Size (ins.)	Orifice Size (ins.)	Kv Flow Factor (m3/h)		Operating Pressure Differential (bar)		Max. Fluid and Ambient Temp. °C	Brass Body		Stainless Steel Body	
		Pressure to Cylinder	Cylinder to Exhaust	Air-Inert Gas			Catalog Number	Constr. Ref. No.	Catalog Number	Constr. Ref. No.
				Min.	Max.					
UNIVERSAL OPERATION (Pressure at any port) with NBR Disc										
1/4	2	.07	.07	0	10.3	59	WBIS8314A300	4	WBIS8314A301	4A
NORMALLY CLOSED (Closed when de-energized)										
1/4	8	1.29	1.29	⑥	10.3	59	WBIS8316A301 ③	5	WBIS8316A381V ⑤	8
3/8	8	1.54	1.54	⑥	10.3	59	WBIS8316A302 ③	5	WBIS8316A382V ⑤	8
3/8	16	3.43	3.43	⑥	10.3	59	WBIS8316A303 ③	6	-	-
1/2	16	3.43	3.43	⑥	10.3	59	WBIS8316A304 ③	6	WBIS8316A384V ⑤	9
3/4	17	4.71	4.71	0.7	10.3	59	WBIS8316A374 ③	7	-	-
1	25	11.14	11.14	0.7	10.3	59	WBIS8316A334 ③	7A	-	-
UNIVERSAL OPERATION (Normally Closed or Normally Open) "Quick Exhaust" with CR Diaphragm and NBR Disc										
1/4	②	.07	.63	0.3	10.3	59	WBIS8317A307 ①	10	WBIS8317A308①	11
4/2 VALVES, with NBR Disc and Seal										
1/4	2	.07	.07	0.7	10.3	59	WBIS8345A301 ①③	12	WBIS8345A381 ①③	12
4/2 VALVES, Brass Body with NBR Disc							Single Solenoid	Constr. Ref. No.	Dual Solenoid	Constr. Ref. No.
1/4	6	.69	.86	0.7	10.3	59	WBIS8344A370 ①③	13	WBIS8344A344 ③	16
3/8	10	1.20	1.89	0.7	10.3	59	WBIS8344A372 ①③	14	WBIS8344A380 ③	17
1/2	10	1.20	1.89	0.7	10.3	59	WBIS8344A374 ①③	14	WBIS8344A382 ③	17
3/4	19	4.46	4.80	0.7	10.3	59	WBIS8344A376 ①③	15	WBIS8344A354 ③	18
1	19	4.46	4.80	0.7	10.3	59	WBIS8344A378 ①③	15	WBIS8344A356 ③	18
Notes:	① There are two exhaust flows in the exhaust mode (pilot and main). The pilot exhaust must be connected to the main exhaust when the air or inert gas cannot be exhausted to atmosphere.					⑤ Diaphragm and main disc FKM only (pilot is low-temperature NBR).				
	② For "Quick Exhaust" valves, pressure port is 1/16", exhaust port is 1/4".					⑥ Zero minimum when valve selection gasket is in external position and proper auxiliary air pressure is applied. <i>See chart on page 5.14 for auxiliary pressure vs. mainline pressure.</i> Minimum 1 bar Operating Pressure Differential when selection gasket is in the internal position.				
	③ <b>IMPORTANT:</b> A minimum operating pressure differential must be maintained between the pressure and exhaust ports. Supply and exhaust piping must be full area, unrestricted. ASCO flow controls and other similar components must be installed in the cylinder lines only.									

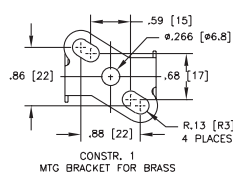
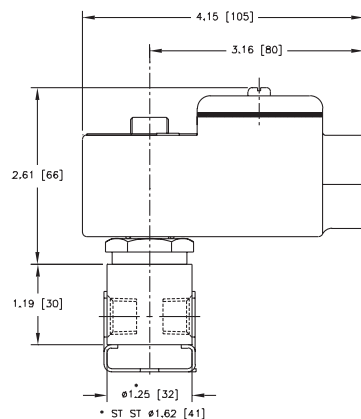
## Direct Mount 8551 NAMUR (Convertible 3/2 and 5/2 valves)

Pipe Size Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Single Solenoid					Dual Solenoid				
			Operating Pressure Differential (bar) Air-Inert Gas		Max. Fluid Temp. °C	Anodized Aluminum Body	Constr. Ref. No.	Operating Pressure Differential (bar) Air-Inert Gas		Max. Fluid Temp. °C	Anodized Aluminum Body	Constr. Ref. No.
			Min.	Max.	24/DC Only	Catalog Number		Min.	Max.	24/DC Only	Catalog Number	
1/4 ①	6	.6	2	10	60	WBIS8551A301	19	2	10	60	WBIS8551A302	20
Direct Mount 8551 NAMUR - Stainless Steel 5/2 valves												
1/4 ①	6	.6	2	10	60	WBIS8551A388	21	2	10	60	WBIS8551A390	22

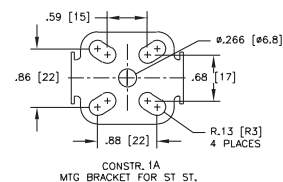
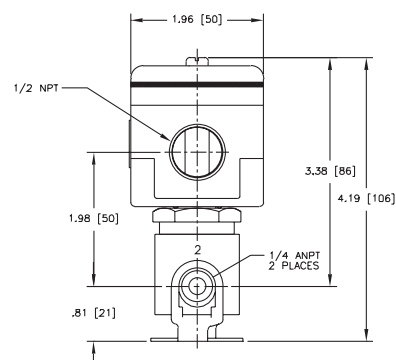
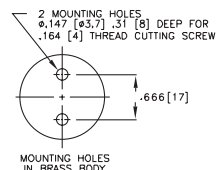
Dimensions: inches (mm)



Constr. Ref. 1, 1A



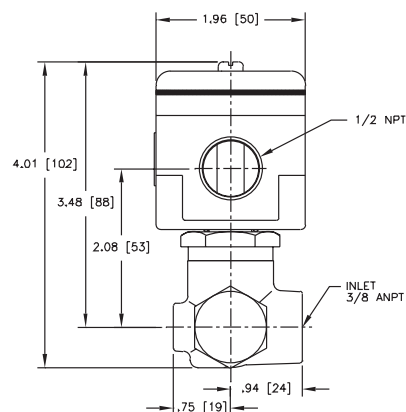
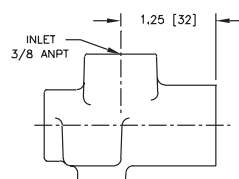
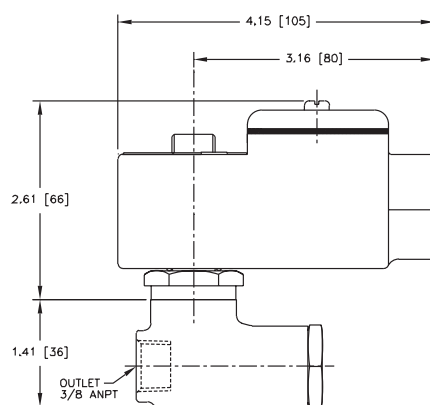
Brass Version



Stainless Steel Version



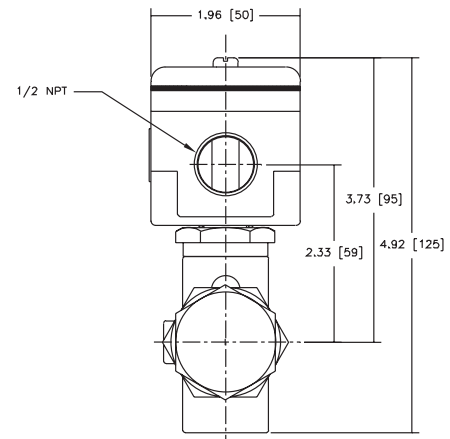
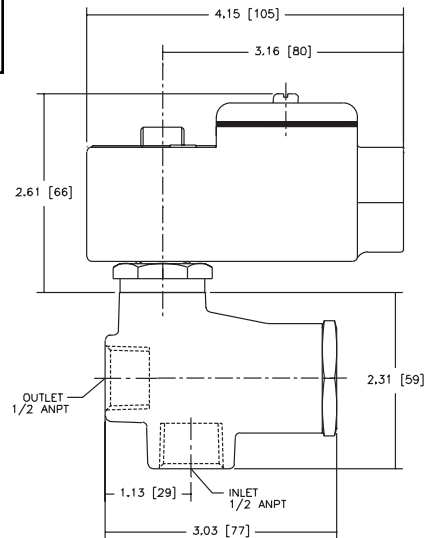
Constr. Ref. 2



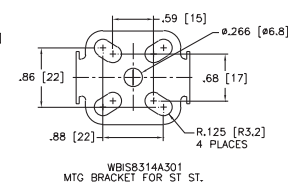
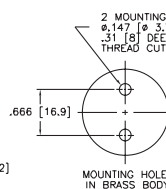
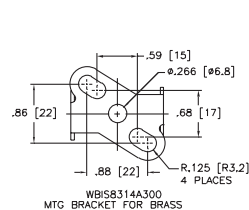
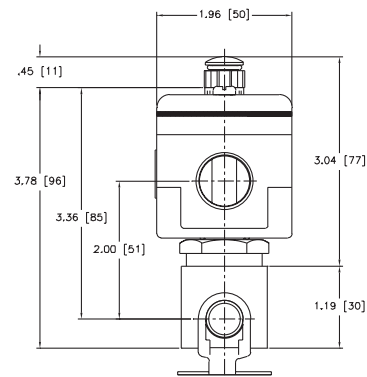
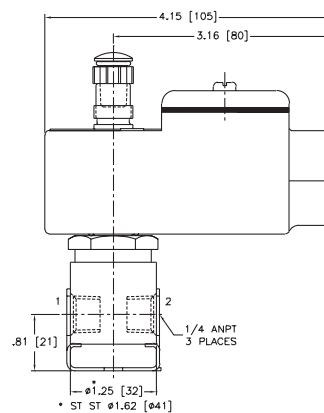
Dimensions: inches (mm)



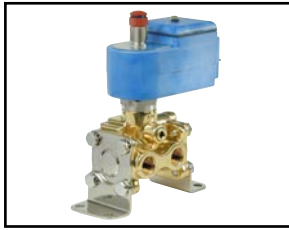
Constr. Ref. 3



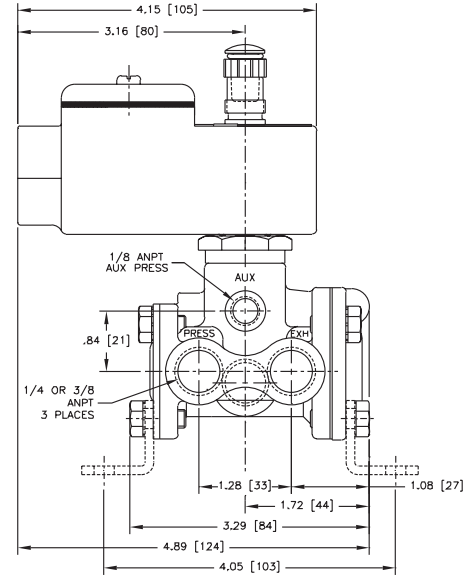
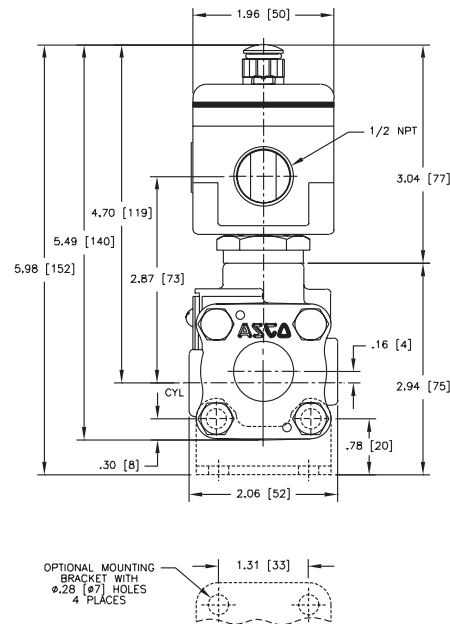
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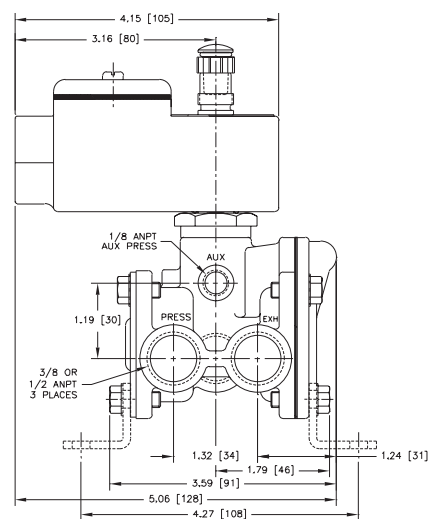
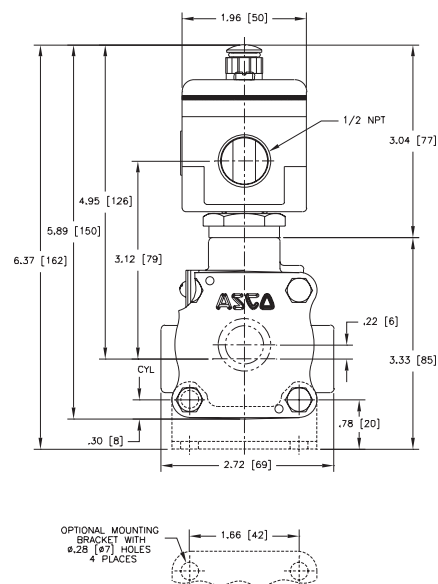
Dimensions: inches (mm)



Constr. Ref. 5



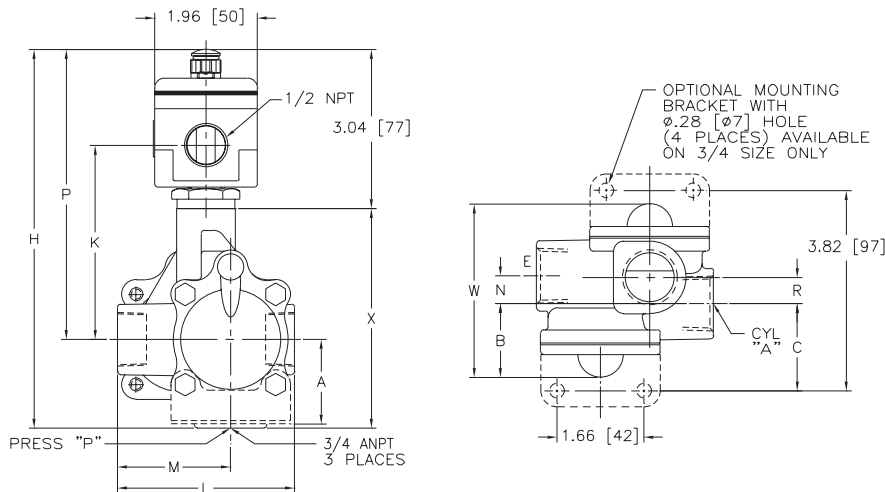
Constr. Ref. 6



Dimensions: inches (mm)



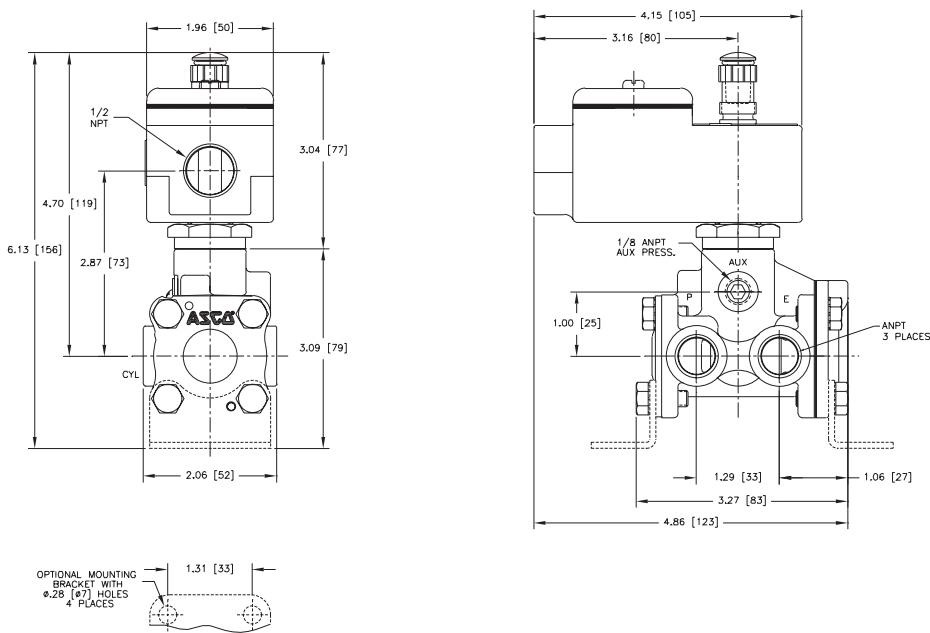
Constr. Ref. 7, 7A



CATALOG NUMBER	A	B	C	H	K	L	M	N	P	R	W	X
WBIS8316A374	1.61 [41]	1.41 [36]	1.66 [42]	7.23 [184]	3.71 [94]	3.38 [86]	2.16 [55]	.53 [13]	5.54 [141]	.50 [13]	3.31 [84]	4.19 [106]
WBIS8316A344	1.78 [45]	1.78 [45]	1.78 [45]	7.85 [199]	3.96 [100]	4.44 [113]	2.81 [71]	.87 [22]	5.79 [147]	1.74 [44]	5.32 [135]	4.81 [122]



Constr. Ref. 8

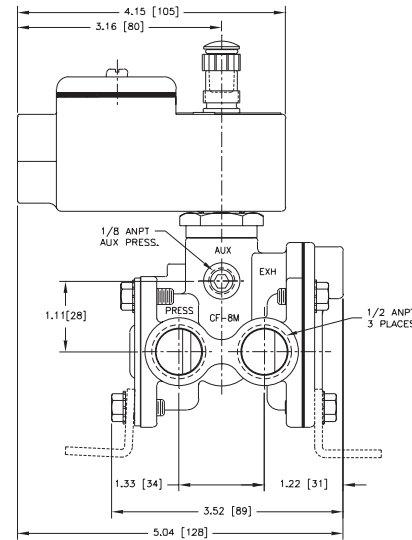
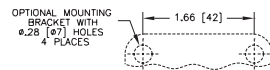
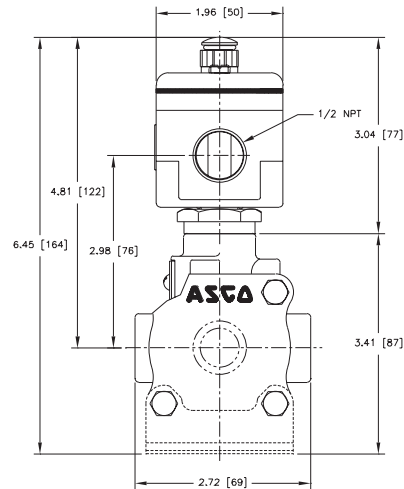




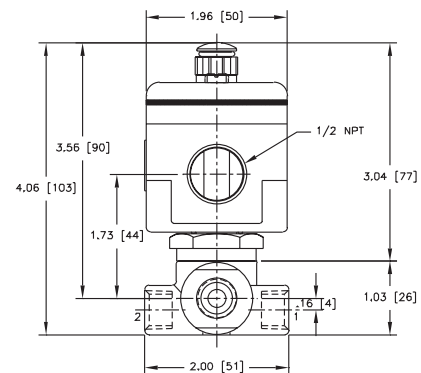
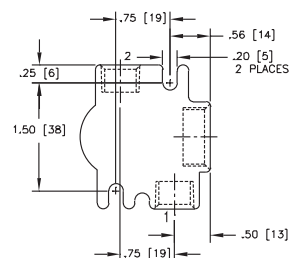
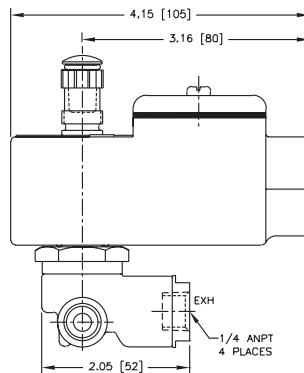
Dimensions: inches (mm)



Constr. Ref. 9



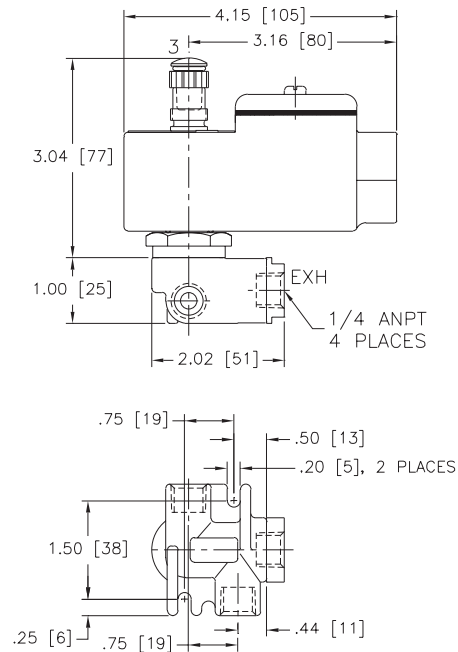
Constr. Ref. 10



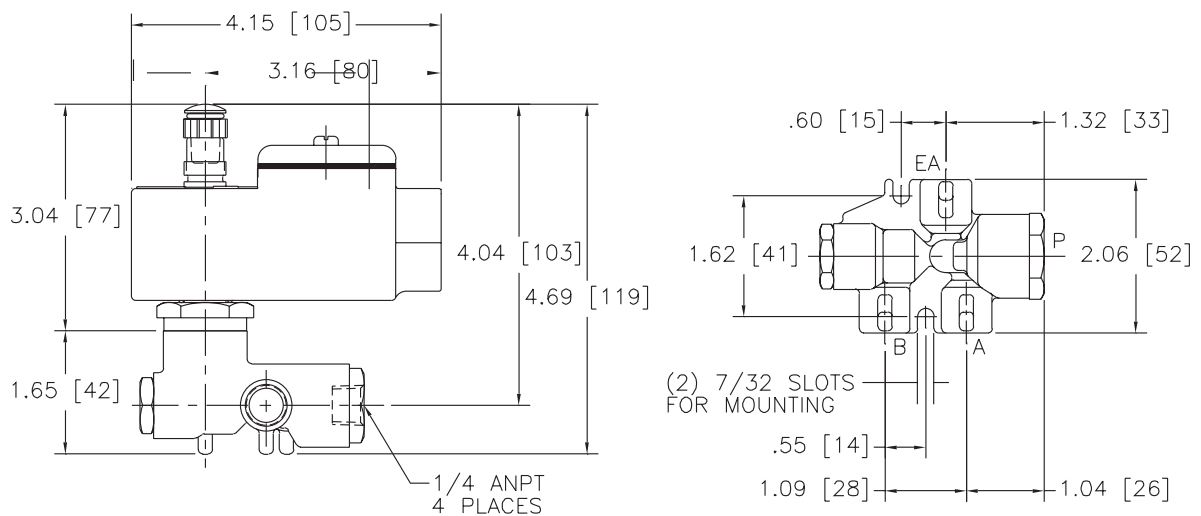
Dimensions: inches (mm)



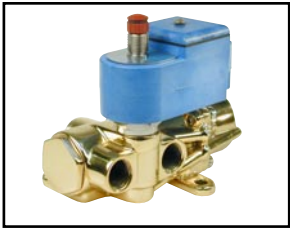
Constr. Ref. 11



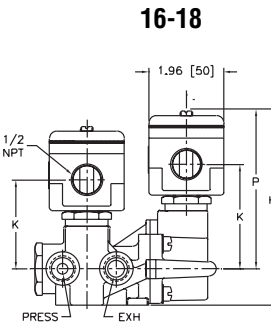
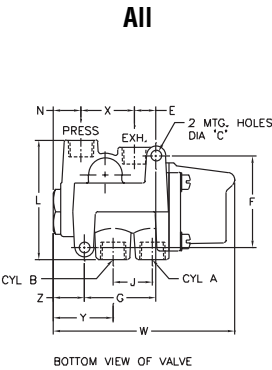
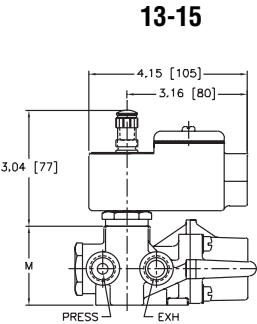
Constr. Ref. 12



Dimensions: inches (mm)



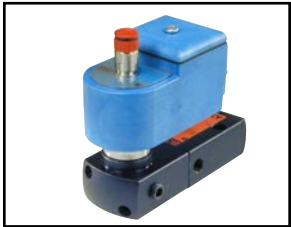
Constr. Ref. 13-18



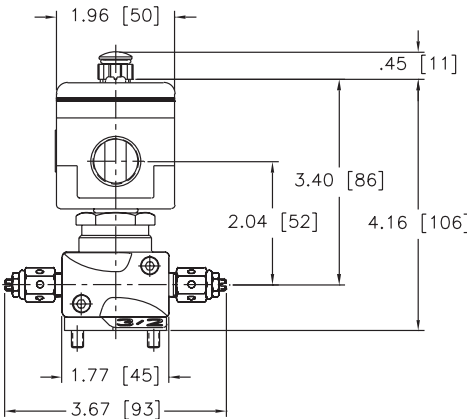
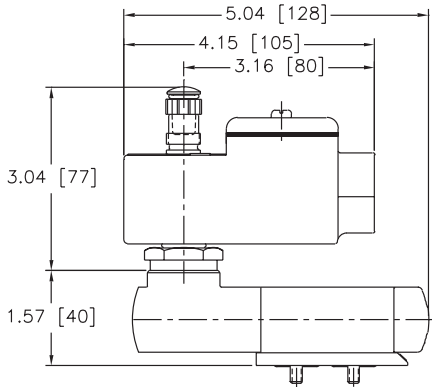
CATALOG NUMBER	ØC	E	F	G	H	J	K	L	M	N	P	W	X	Y	Z	EXHAUST PIPE SIZE
WBIS8344A370	ø.28 [ø7.1]	.56 [14]	2.41 [61]	1.88 [48]	5.12 [130]	1.03 [26]	2.33 [59]	3.13 [80]	2.08 [53]	.72 [18]	4.16 [106]	4.75 [121]	1.41 [36]	1.56 [40]	.81 [21]	3/8
WBIS8344A380,382	ø.34 [ø8.6]	.77 [20]	3.12 [79]	2.62 [67]	5.72 [145]	1.50 [38]	2.77 [70]	3.18 [81]	2.06 [52]	.83 [21]	4.60 [117]	6.06 [154]	1.86 [47]	1.90 [48]	.84 [21]	1/2
WBIS8344A372,374	ø.34 [ø8.6]	.77 [20]	3.12 [79]	2.62 [67]	5.10 [120]	1.50 [38]	2.14 [54]	3.18 [81]	2.06 [52]	.83 [21]	3.98 [101]	6.06 [154]	1.86 [47]	1.90 [48]	.84 [21]	1/2
WBIS8344A344	ø.28 [ø7.1]	.56 [14]	2.41 [61]	1.88 [48]	5.12 [130]	1.03 [26]	2.74 [70]	3.13 [80]	2.08 [53]	.72 [18]	4.16 [106]	4.75 [121]	1.41 [36]	1.56 [40]	.81 [21]	3/8
WBIS8344A376,378	ø.34 [ø8.6]	1.37 [35]	3.81 [97]	3.88 [99]	5.90 [150]	2.09 [53]	2.52 [64]	4.56 [116]	2.86 [73]	1.55 [39]	4.35 [110]	8.25 [210]	2.12 [54]	2.63 [67]	1.16 [30]	1
WBIS8344A354,356	ø.34 [ø8.6]	1.37 [35]	3.81 [97]	3.88 [99]	5.54 [168]	2.09 [53]	3.21 [81]	4.56 [116]	2.81 [71]	1.55 [39]	4.35 [110]	8.25 [210]	2.12 [54]	2.63 [67]	1.16 [30]	1

IMPORTANT: VALVES CAN BE MOUNTED IN ANY POSITION.

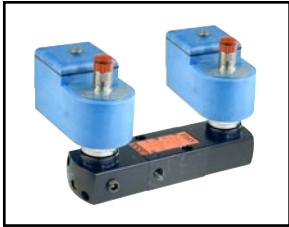
INCHES  
MM



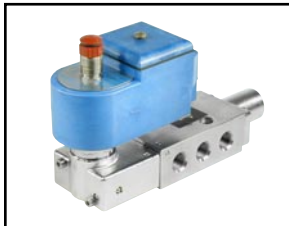
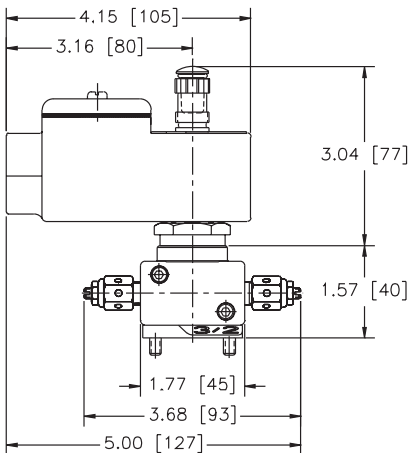
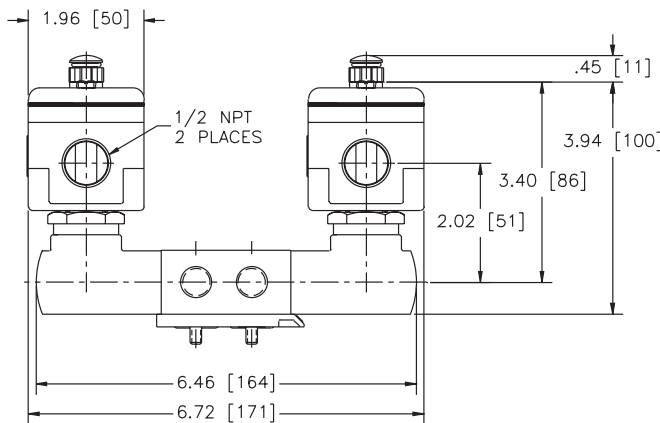
Constr. Ref. 19



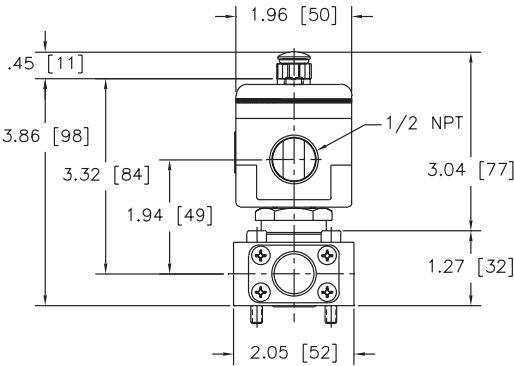
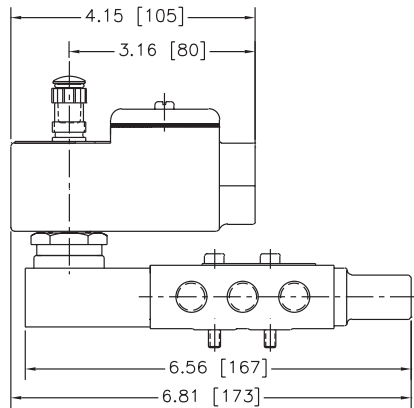
Dimensions: inches (mm)



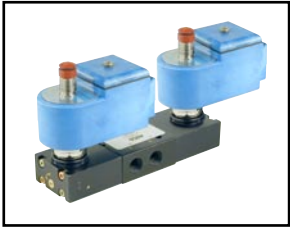
Constr. Ref. 20



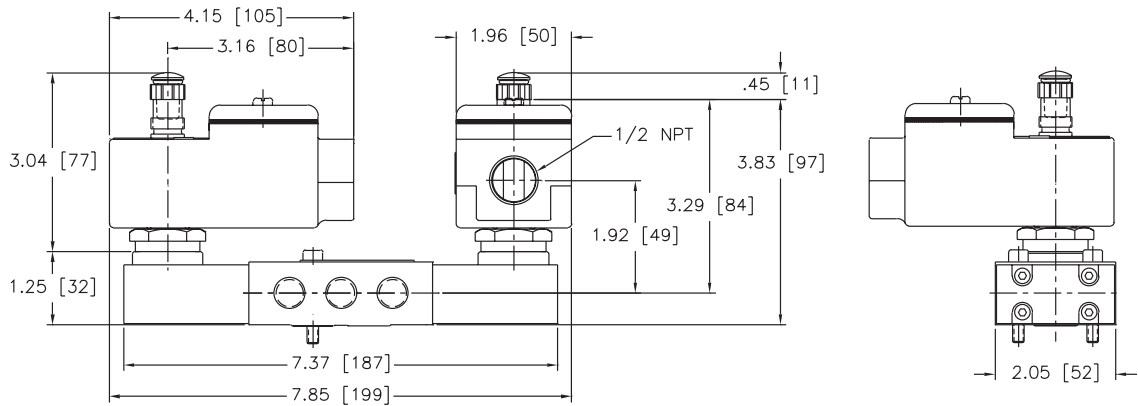
Constr. Ref. 21



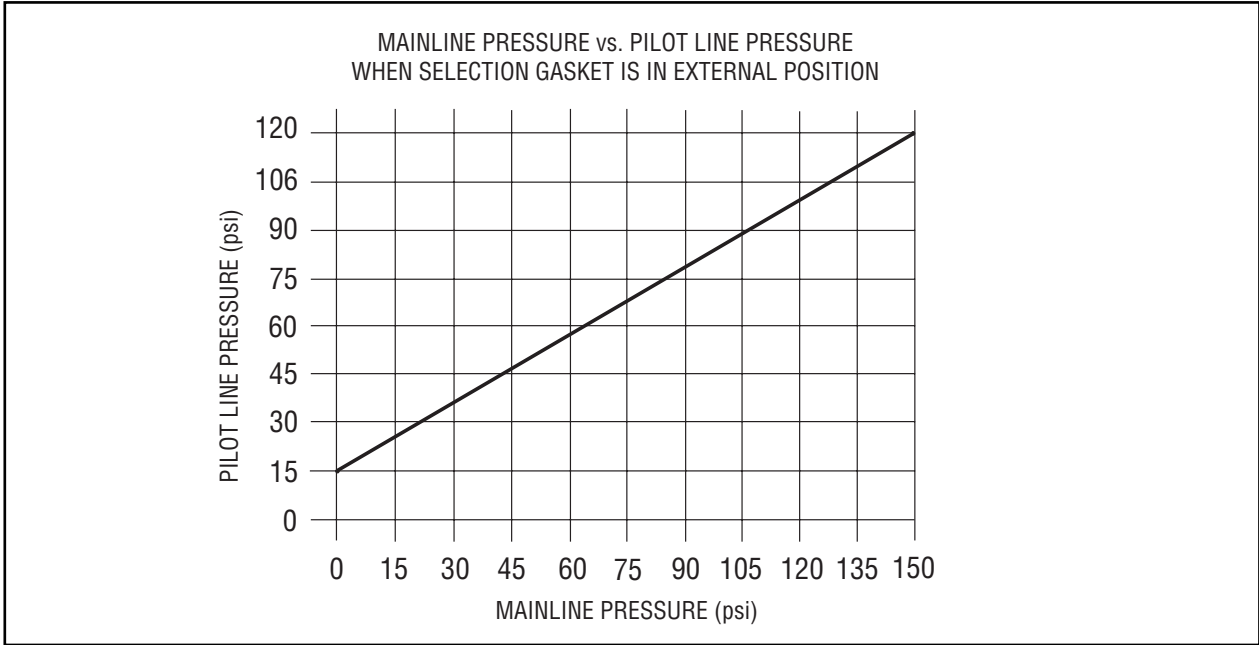
Dimensions: inches (mm)



Constr. Ref. 22



Refer to note ⑥. For 8316 series only.



## Features

- Intrinsically safe solenoid when energized, holds the manual reset mechanism in the latched position.
- Normally Closed, Normally Open, or Universal constructions.
- Valve operates when the solenoid has been energized and the lever latched while holding in the yellow button.
- Valve trips when power is interrupted. Valve can be manually cycled, but must be manually reset for automatic operation.
- Designed solely for installation in intrinsically safe areas, with properly approved and sized current and voltage-limiting safety barriers.
- Acceptable for use in hazardous locations as classified by the National Electrical Code: Classes I, II, and III, Division I, including Groups A through G.

## Construction

Valve Parts in Contact with Fluids		
Body	Brass	Stainless Steel
Seals and Disc	NBR	
Core and Plugnut	430F Stainless Steel	
Core Springs	302 Stainless Steel	
Core Tube	305 Stainless Steel	
Pilot Seat Cartridge	CA (Series WPIS8308A41, -2, -3)	
Rider Rings	PTFE	
Spring Retainer	CA	

## Electrical:

**Standard Voltages:** 24 volts DC

**Coil:** Continuous duty molded Class A.

**Minimum Operating Current:** 0.024 amps

Parameters	Groups A-D	Groups C-D
Entity	V max - 28 VDC	V max - 34 VDC
	I max - 92 mA	I max - 125 mA
	Capacitance = 0	Capacitance = 0
	Inductance = 0	Inductance = 0

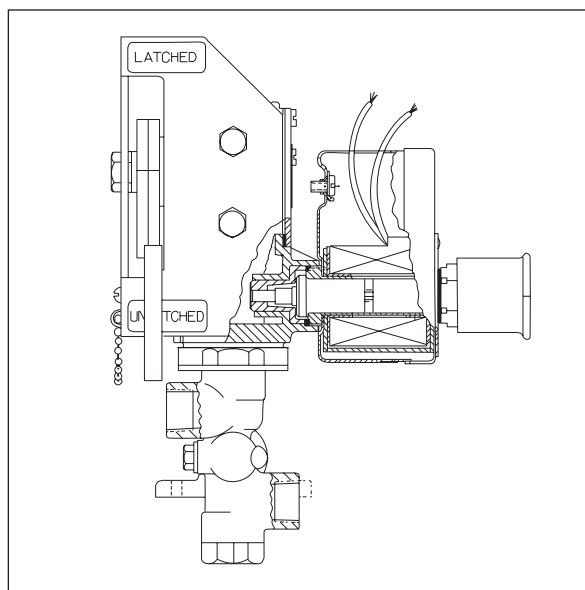
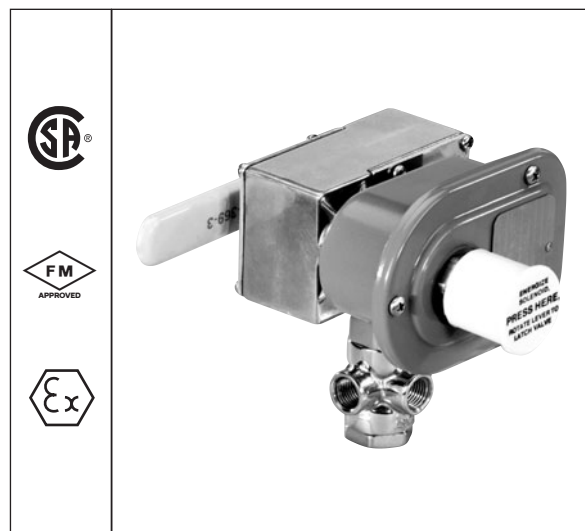
**IMPORTANT:** Electrical parameters are unique to the manual reset line and will differ from Series 300 electrical data.

## Enclosure

**Standard:** Red-Hat Type 4, Watertight Splice Box enclosure.

**Optional:** No standard options are available.

*Consult local sales office for your needs.*



## Nominal Ambient Temperature Ranges:

-4°F to 200°F (-20°C to 93°C), as indicated.

*Refer to Engineering Section for details.*

## Approvals:

FM approved under J. I. 3W2A7.AX (3610).

CSA certified under File LR-13976-114C. FM Nonincendive approved for Class 1, Division 2.

CENELEC EEx ia IIC T6 approved.

*Refer to Engineering Section for details.*

Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Operating Pressure Differential (psi)		Max. Fluid and Ambient Temp. °F	Catalog Number	Constr. Ref. No.
			Air-Inert Gas				
			Min.	Max.			
3/2 UNIVERSAL OPERATION, Brass Body with NBR Disc or Stainless Steel Seats and Discs ②							
1/4	11/64	.38	0	125	180	WPIS8308B40	4
1/4	1/4	.45	0	125	180	WPIS830844 ②	1
3/8	1/4	.45	0	125	180	WPIS830845 ②	1
1/2	5/16	.75	0	125	180	WPIS830846 ②	2
3/2 NORMALLY CLOSED OR NORMALLY OPEN, Brass Body with NBR Disc							
3/8	5/8	3	10	250	180	WPIS8308C41 ①	5
1/2	5/8	4	10	250	180	WPIS8308C42 ①	5
3/4	11/16	5.5	10	250	180	WPIS8308C43 ①	6
3/2 UNIVERSAL OPERATION, Stainless Steel Body with Stainless Steel Seats and Discs							
1/2	5/16	.75	0	125	200	WPIS830847	3
4/2 OPERATION, Brass Body with PTFE and FPM Seats and Discs							
1/4	3/16	.80	0	250	160	WPIS8408B6	7
3/8	3/16	.80	0	250	160	WPIS8408B7	7
Notes: ① For Normally Closed operation, add suffix “F” to catalog number; for Normally Open operation, add suffix “G” to catalog number. ② Supplied with stainless steel seats and discs.							

Specifications (Metric units)

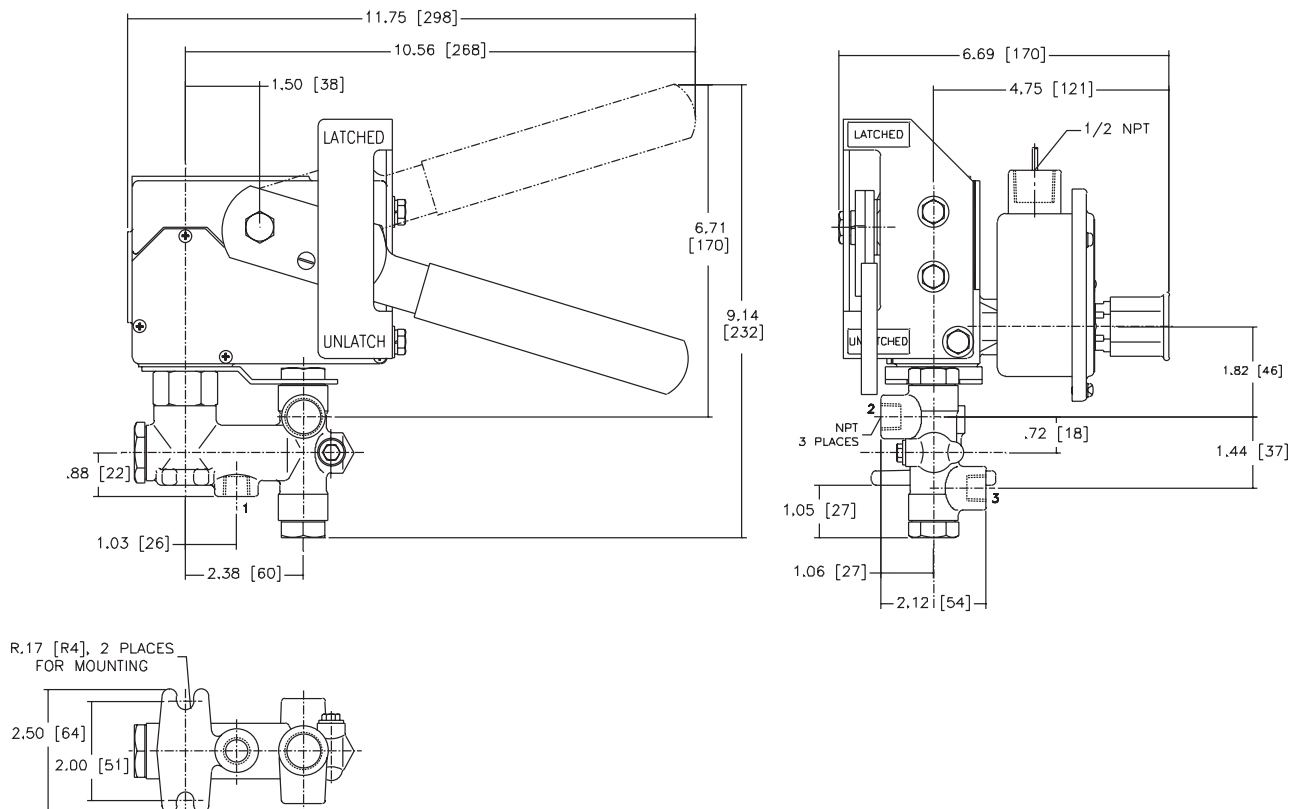
Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Operating Pressure Differential (bar)		Max. Fluid and Ambient Temp. °C	Catalog Number	Constr. Ref. No.
			Air-Inert Gas				
			Min.	Max.			
3/2 UNIVERSAL OPERATION, Brass Body with NBR Disc or Stainless Steel Seats and Discs ②							
1/4	4	.33	0	8.6	81	WPIS8308B40	4
1/4	6	.39	0	8.6	81	WPIS830844 ②	1
3/8	6	.39	0	8.6	81	WPIS830845 ②	1
1/2	8	.64	0	8.6	81	WPIS830846 ②	2
3/2 NORMALLY CLOSED OR NORMALLY OPEN, Brass Body with NBR Disc							
3/8	16	2.57	0.7	17.2	81	WPIS8308C41 ①	5
1/2	16	3.43	0.7	17.2	81	WPIS8308C42 ①	5
3/4	17	4.71	0.7	17.2	81	WPIS8308C43 ①	6
3/2 UNIVERSAL OPERATION, Stainless Steel Body with Stainless Steel Seats and Discs							
1/2	8	.64	0	8.6	92	WPIS830847	3
4/2 OPERATION, Brass Body with PTFE and FPM Seats and Discs							
1/4	5	.69	0	17.2	70	WPIS8408B6	7
3/8	5	.69	0	17.2	70	WPIS8408B7	7
<b>Notes:</b> ① For Normally Closed operation, add suffix “F” to catalog number; for Normally Open operation, add suffix “G” to catalog number. ② Supplied with stainless steel seats and discs.							

SERIES  
Intrinsically Safe  
Manual Reset

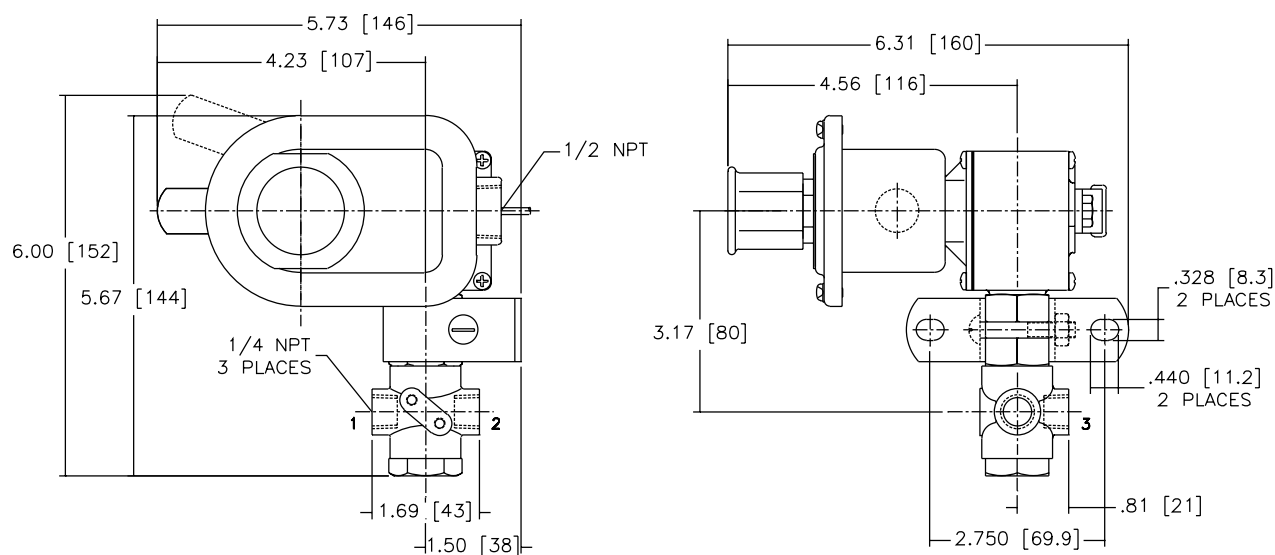


Dimensions: inches (mm)

Constr. Ref. 1, 2, 3



Constr. Ref. 4



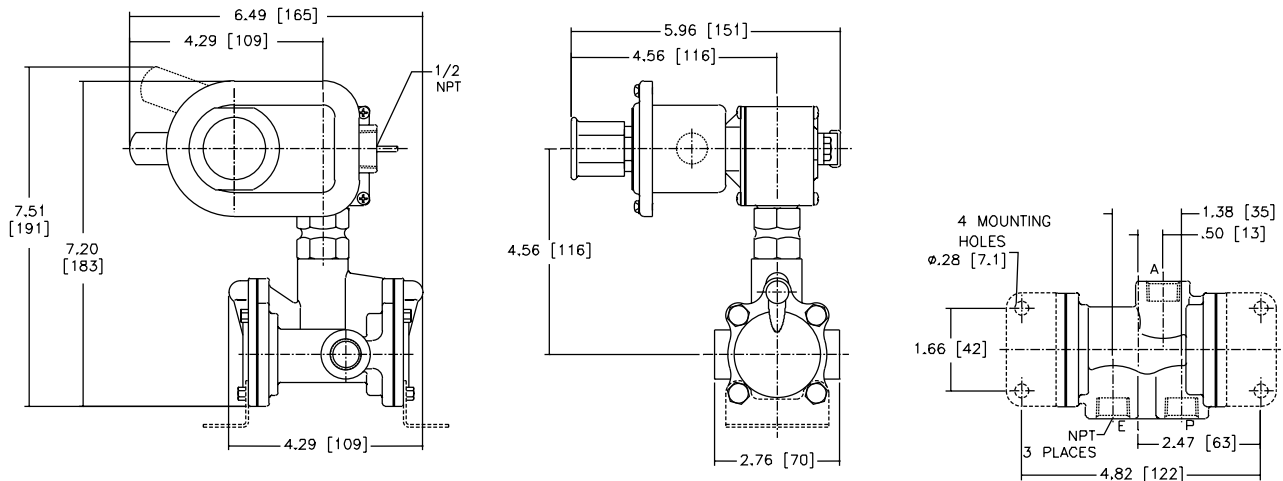


SERIES  
Intrinsically Safe  
Manual Reset

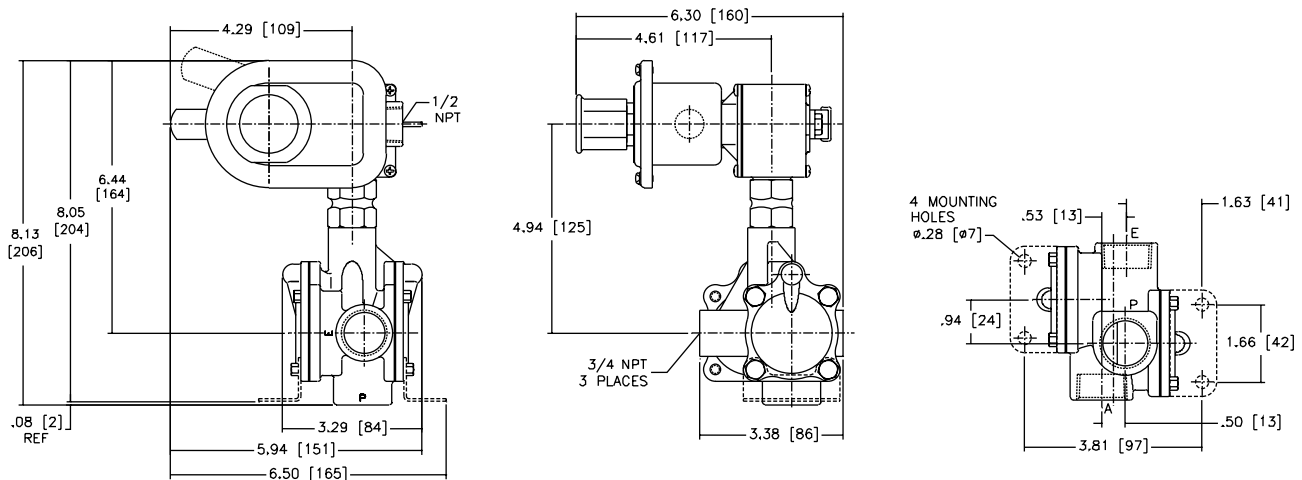


Dimensions: inches (mm)

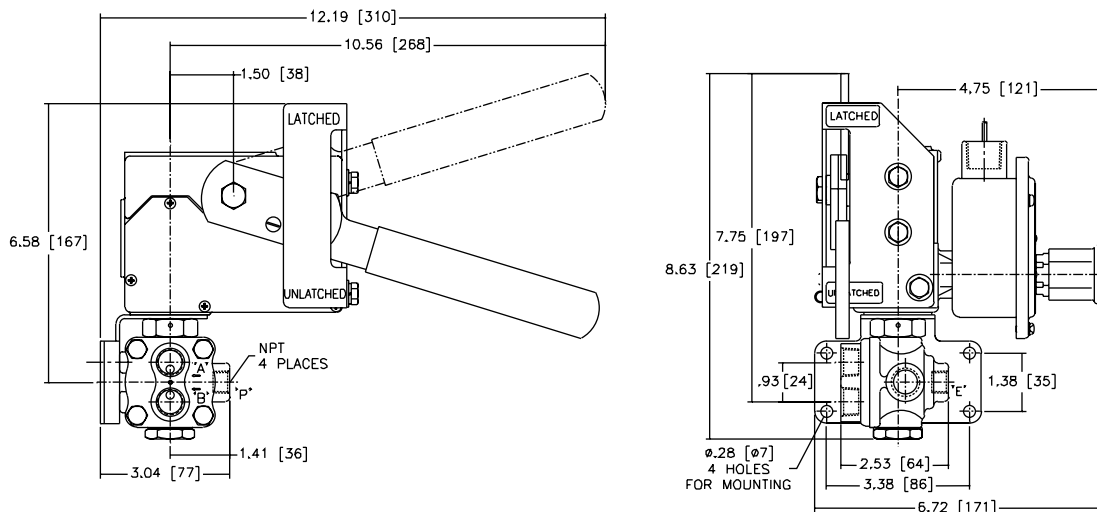
Constr. Ref. 5



Constr. Ref. 6



Constr. Ref. 7



### Features

- Molded one-piece solenoid with highly efficient solenoid cartridge and special low wattage coil.
- Increased Ambient temperature capabilities up to 80°C (175°F)
- Designed for use in automation of plant control systems to provide:
  - PLC compatibility      Reduced battery drain
  - Reduced heat rise      Reduced wiring cost
- Wide selection includes 2/2 Normally Closed, 3/2 Normally Closed (including Quick Exhaust), 3/2 Universal, and 4/2 with single or dual solenoid.
- Air or inert gas only.
- Lower-cost alternative to intrinsically safe valves in critical applications not requiring a safety barrier.

### Construction

Valve Parts in Contact with Fluids		
Body	Brass	Stainless Steel
Seals and Discs	NBR, FKM, CR, as listed	
Sleeve	304L Stainless Steel	
Core and Plugnut	430F Stainless Steel	
Core Springs	302 Stainless Steel	
Pilot Seat Cartridge (Series 8316 & 8344 only)	CA	
Rider Rings	PTFE	
Spring Retainer	CA	

### Electrical

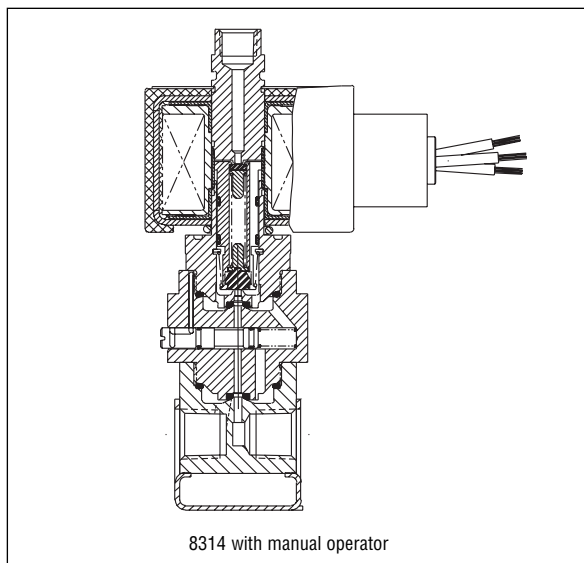
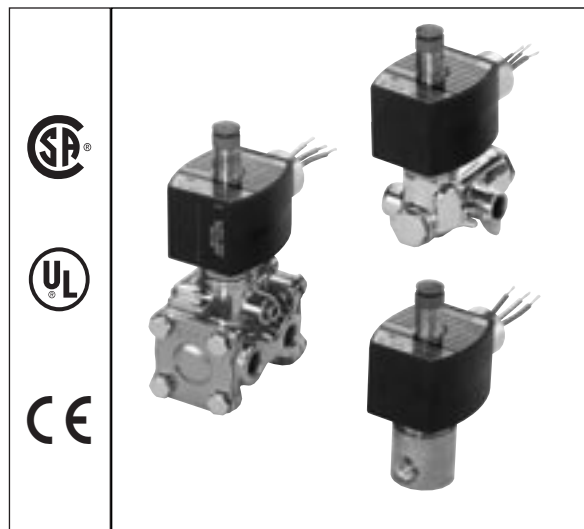
**Coil:** Continuous duty Class F. **IMPORTANT:** Leakage current existing in your system above 8 mA will cause improper operation.

DC Watt Rating and Power Consumption	24 DC Spare Coil Part No.		Maximum Line Resistance vs. Length of Wire		
	General Purpose	Explosionproof	Power Source	Max. Loop Resistance	Max. Wire Run 18 AWG 7x26 Stranded (ft)
1.8 at 68°F (20°C)	238710-908-D	238714-905-D	Volts	Ohms	
<b>Low Power Solenoid:</b> Standard voltages 12, 24 and 48 VDC Nominal Operating Range +10%, -15% Must be specified when ordering  <b>Typical 24 Volts DC System:</b> Min. pull-in: 0.051 amps Min. dropout: 0.008 amps Coil resistance: 320 ohms at 68°F (20°C) ±10% Max. ambient temp: 175°F (80°C)			21	3.8	260
			22	23.4	1590
			23	43	2920
			24	62.6	4260
Note: The applicable T code for the 1.8 watt construction is T5 (100°C)					

**Ordering:** EV X 8316G381V - 23033, EV X 8314G300 - 23033

### Solenoid Enclosures

**Standard:** Watertight, Types 1, 2, 3, 3S, 4, and 4X.  
**Optional:** Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9.  
 (To order, add prefix "EF" to catalog number. For explosionproof with 316 Stainless Steel hub and trim, specify prefix "EV".)  
 Surge suppression coils also available "MF" prefix.  
 See *Optional Features Section* for other available options.



### Nominal Ambient Temperature Ranges:

8314, 8262, 8317: -40°F to 175°F (-40°C to 80°C)  
 8316 Suffix V: 32°F to 175°F (0°C to 80°C)  
 All other: -4°F to 175°F (-20°C to 80°C)

Refer to *Engineering Section* for details.

### Approvals:

UL listed General Purpose Valves (Hazardous Location Classified). EV8345G381 solenoid only UL listed. CSA certified; nonincendive for Class I, Division 2 UL E25549. Meets applicable CE directives.

Refer to *Engineering Section* for details.

### Important:

These solenoids are intended for use on clean, dry air or inert gas filtered to 50 micrometers or better. To prevent freezing, the dew point of the media should be at least 18°F (-8°C) below the minimum temperature to which any portion of the clean air or gas system could be exposed. Instrument air in compliance with ANSI/ISA Standard S7.3-1975 (R1981) exceeds the above requirements and is, therefore, an acceptable medium for these valves.

## Specifications (English units)

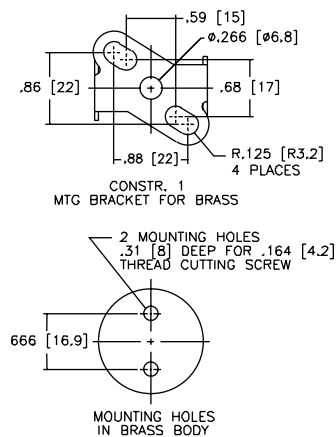
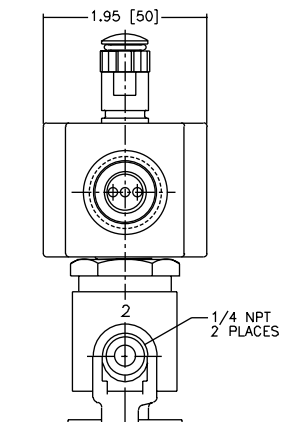
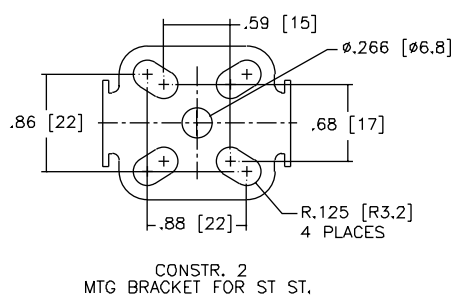
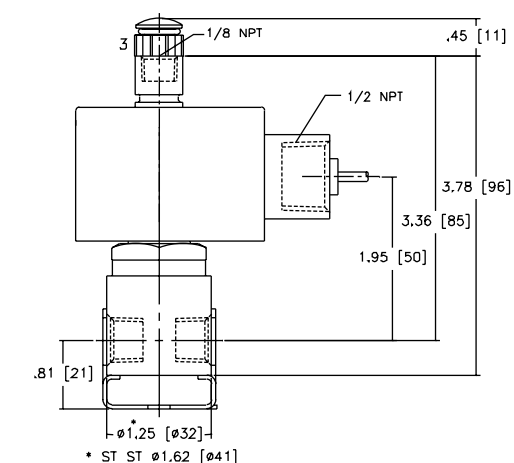
Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor		Operating Pressure Differential (psi)		Max. Fluid and Ambient Temp. °F	Brass Body		Stainless Steel Body	
				Air-Inert Gas						
		Pressure to Cylinder	Cylinder to Exhaust	Min.	Max.		Catalog Number	Constr. Ref. No.	Catalog Number	Constr. Ref. No.
2/2 VALVES, NORMALLY CLOSED, with NBR Disc										
1/4	1/16	.08		0	150	140	8262G320	18	8262G386	18
3/8	5/16	1.5		10	150	140	8223G323	19	-	-
1/2	3/8	3.2		25	150	140	8223G303	20	8223G310	20
3/2 VALVES, UNIVERSAL OPERATION (Pressure at any port) with NBR Disc										
1/4	1/16	.08	.08	0	150	140	8314G300	1	8314G301	2
3/2 VALVES, NORMALLY CLOSED (Closed when de-energized) with NBR Disc or FPM, as Listed										
1/4	5/16	1.5	1.5	⑥	150	140	8316G301③	3	EV8316G381V ⑤	3
3/8	5/16	1.8	1.8	⑥	150	140	8316G302 ③	3	EV8316G382V ⑤	3
3/8	5/8	4	4	⑥	150	140	8316G303 ③	3A	-	-
1/2	5/8	4	4	⑥	150	140	8316G304 ③	3A	EV8316G384V ⑤	3A
3/4	11/16	5.5	5.5	10	150	140	8316G374 ③	4	-	-
1	1	13	13	10	150	140	8316G334 ③	5	-	-
3/2 VALVES, UNIVERSAL (Normally Closed or Normally Open) "Quick Exhaust" with CR Diaphragm and NBR Disc										
1/4	②	.08	.73	5	150	140	8317G307 ①	6	8317G308 ①	7
4/2 VALVES, with NBR Disc and Seals										
1/4	1/16	.08	.08	10	150	140	8345G301 ① ③	8	EV8345G381① ③	8
4/2 VALVES, Brass Body with NBR Disc										
Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor		Operating Pressure Differential (psi)		Max. Fluid and Ambient Temp. °F	Single Solenoid		Dual Solenoid	
				Air-Inert Gas						
		Pressure to Cylinder	Cylinder to Exhaust	Min.	Max.		Catalog Number	Constr. Ref. No.	Catalog Number	Constr. Ref. No.
1/4	1/4	.80	1	10	150	140	8344G370 ① ③	9	8344G344 ③	12
3/8	3/8	1.4	2.2	10	150	140	8344G372 ① ③	11	8344G380 ③	10
1/2	3/8	1.4	2.2	10	150	140	8344G374 ① ③	11	8344G382 ③	10
3/4	3/4	5.2	5.6	10	150	140	8344G376 ① ③	13	8344G354 ③	14
1	3/4	5.2	5.6	10	150	140	8344G378 ① ③	13	8344G356 ③	14
<b>Notes:</b> ① There are two exhaust flows in the exhaust mode (pilot and main). The pilot exhaust must be connected to the main exhaust when the air or inert gas cannot be exhausted to atmosphere. ② For "Quick Exhaust" valves, pressure port is 1/16", exhaust port is 1/4". ③ <b>IMPORTANT:</b> A Minimum Operating Pressure Differential must be maintained between the pressure and exhaust ports. Supply and exhaust piping must be full area, unrestricted. ASCO flow controls and other similar components must be installed in the cylinder lines only. ⑤ Diaphragm and main disc FKM only (pilot is low-temperature NBR). ⑥ Zero minimum when valve selection gasket is in external position and proper auxiliary air pressure is applied. Minimum 15 psi Operating Pressure Differential when selection gasket is in the internal position.										

## Specifications (Metric units)

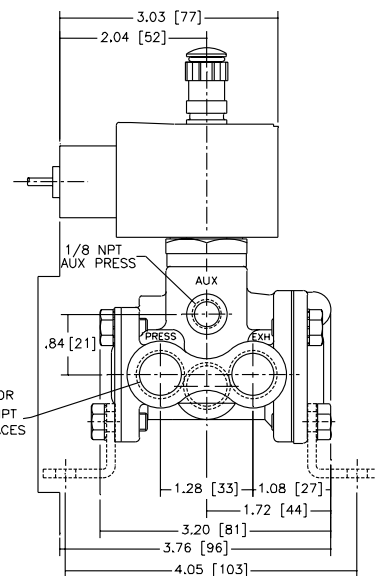
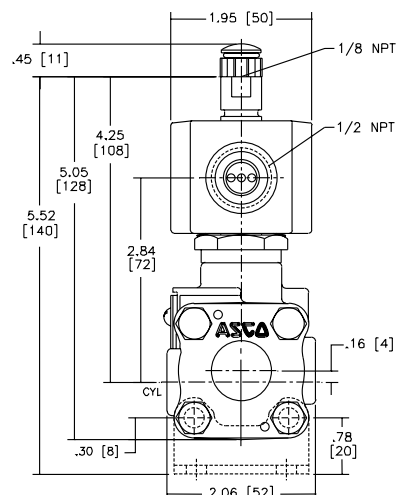
Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)		Operating Pressure Differential (bar)		Max. Fluid and Ambient Temp. °C	Brass Body		Stainless Steel Body	
				Air-Inert Gas						
		Pressure to Cylinder	Cylinder to Exhaust	Min.	Max.		Catalog Number	Constr. Ref. No.	Catalog Number	Constr. Ref. No.
2/2 VALVES, NORMALLY CLOSED, with NBR Disc										
1/4	2	.07		0	10	59	8262G320	18	8262G386	18
3/8	8	1.29		0.7	10	59	8223G323	19	-	-
1/2	10	2.74		1.7	10	59	8223G303	20	8223G310	20
3/2 VALVES, UNIVERSAL OPERATION (Pressure at any port) with NBR Disc										
1/4	2	.07	.07	0.00	10	59	8314G300	1	8314G301	2
3/2 VALVES, NORMALLY CLOSED (Closed when de-energized) with NBR Disc or FPM, as Listed										
1/4	8	1.29	1.29	⑥	10	59	8316G301 ③	3	EV8316G381V ⑤	3
3/8	8	1.37	1.37	⑥	10	59	8316G302 ③	3	EV8316G382V ⑤	3
3/8	16	2.57	2.57	⑥	10	59	8316G303 ③	3A	-	-
1/2	16	3.43	3.43	⑥	10	59	8316G304 ③	3A	EV8316G384V ⑤	3A
3/4	17	4.71	4.71	0.7	10	59	8316G374 ③	4	-	-
1	25	11.14	11.14	0.7	10	59	8316G334 ③	5	-	-
3/2 VALVES, UNIVERSAL (Normally Closed or Normally Open) "Quick Exhaust" with CR Diaphragm and NBR Disc										
1/4	-51 ②	.07	.63	0.3	10	59	8317G307 ①	6	8317G308 ①	7
4/2 VALVES, with NBR Disc and Seals										
1/4	2	.07	.07	0.7	10	59	8345G301① ③	8	EV8345G381 ① ③	8
4/2 VALVES, Brass Body with NBR Disc										
Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)		Operating Pressure Differential (bar)		Max. Fluid and Ambient Temp. °C	Single Solenoid		Dual Solenoid	
				Air-Inert Gas						
		Pressure to Cylinder	Cylinder to Exhaust	Min.	Max.		Catalog Number	Constr. Ref. No.	Catalog Number	Constr. Ref. No.
1/4	6	0.69	0.86	0.7	10	59	8344G370 ① ③	9	8344G344 ③	12
3/8	10	1.20	1.89	0.7	10	59	8344G372 ① ③	11	8344G380 ③	10
1/2	10	1.20	1.89	0.7	10	59	8344G374 ① ③	11	8344G382 ③	10
3/4	19	4.46	4.80	0.7	10	59	8344G376 ① ③	13	8344G354 ③	14
1	19	4.46	4.80	0.7	10	59	8344G378 ① ③	13	8344G356 ③	14
<b>Notes:</b> ① There are two exhaust flows in the exhaust mode (pilot and main). The pilot exhaust must be connected to the main exhaust when the air or inert gas cannot be exhausted to atmosphere. ② For "Quick Exhaust" valves, pressure port is 1/16", exhaust port is 1/4". ③ <b>IMPORTANT:</b> A Minimum Operating Pressure Differential must be maintained between the pressure and exhaust ports. Supply and exhaust piping must be full area, unrestricted. ASCO flow controls and other similar components must be installed in the cylinder lines only. ⑤ Diaphragm and main disc FKM only (pilot is low-temperature NBR). ⑥ Zero minimum when valve selection gasket is in external position and proper auxiliary air pressure is applied. Minimum 1.0 bar operating pressure differential when selection gasket is in the internal position.										

Dimensions: inches (mm)

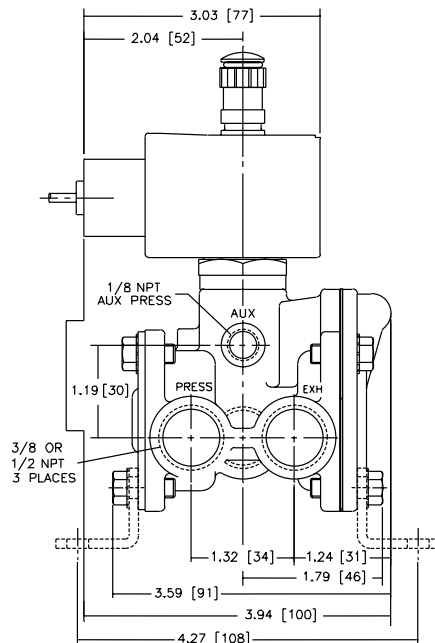
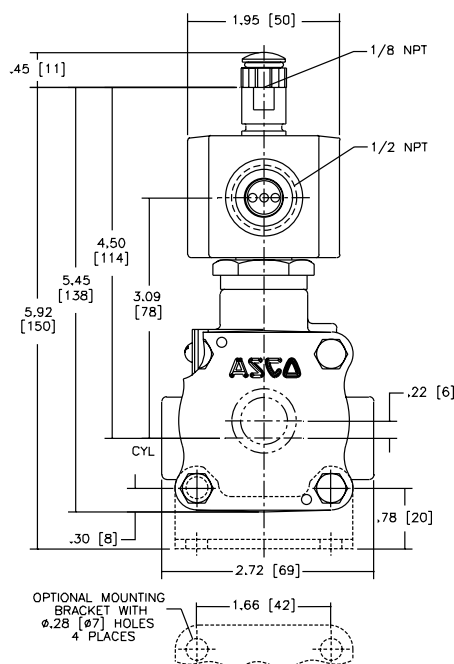
Constr. Ref. 1, 2



Constr. Ref. 3



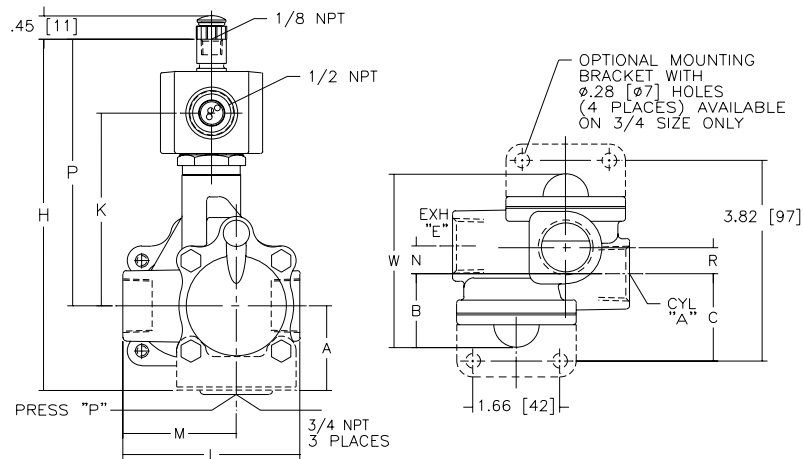
Constr. Ref. 3A



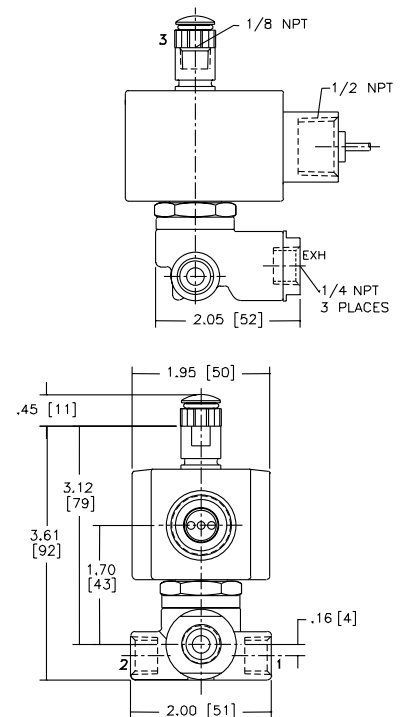
Dimensions: inches (mm)

Constr. Ref. No.		A	B	C	H	K	L	M	N	P	R	W
4	ins.	1.61	1.41	1.66	6.78	3.68	3.38	2.16	.53	5.09	.50	3.31
	mm	41	36	42	172	93	86	55	13	129	13	84
5	ins.	X	1.78	X	7.40	3.93	4.44	2.81	.87	5.34	1.74	5.31
	mm	X	45	X	188	100	113	71	22	136	44	135

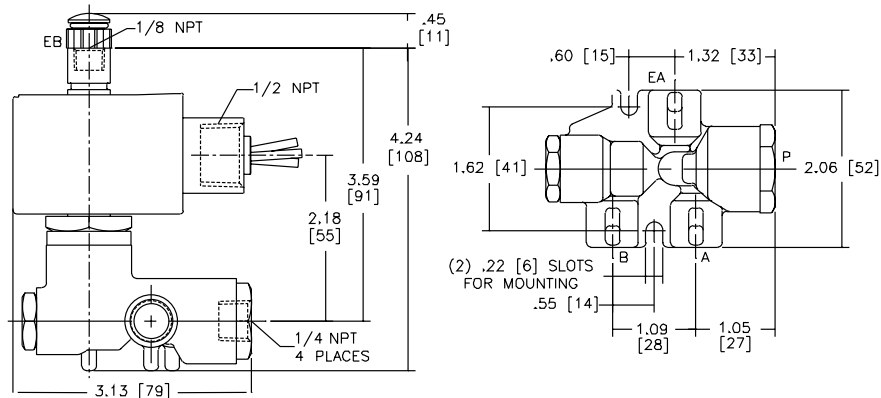
Constr. Ref. 4, 5



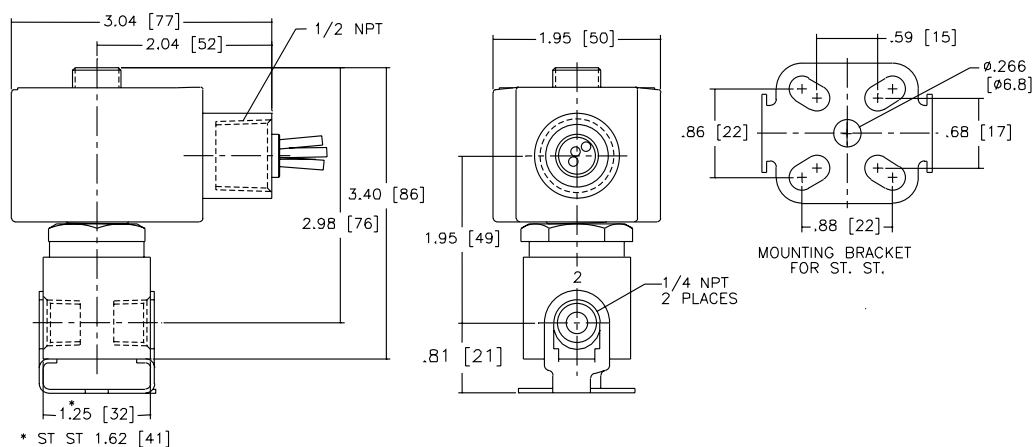
Constr. Ref. 6, 7



Constr. Ref. 8



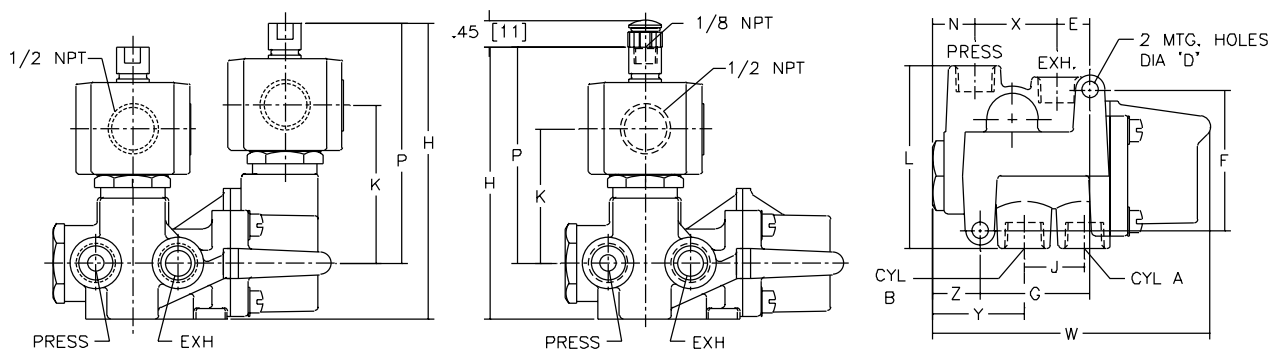
Constr. Ref. 18



Dimensions: inches (mm)

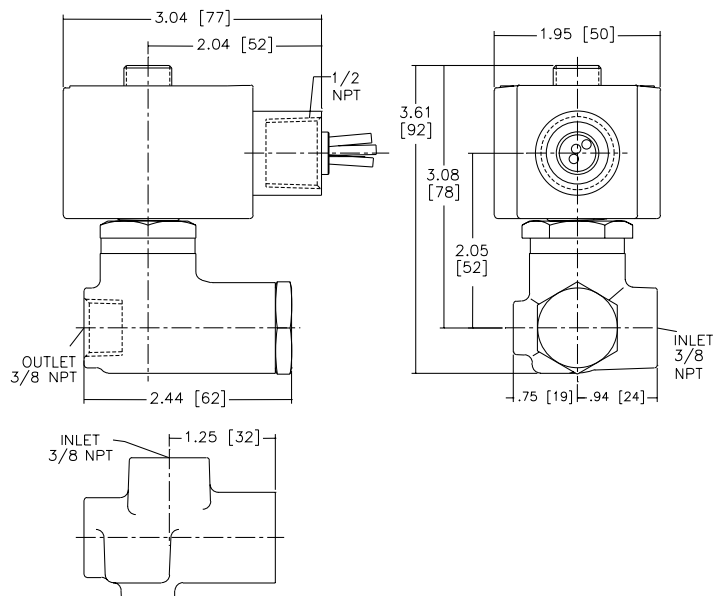
Constr. Ref. No.		Dia "D"	E	F	G	H	J	K	L	N	P	W	X	Y	Z	Exhaust Pipe Size
9	ins.	Ø.28	.56	2.41	1.88	4.67	1.03	2.30	3.12	.72	3.72	4.75	1.41	1.56	.81	3/8
	mm	7	14	61	48	119	26	58	79	18	95	121	36	40	21	
10	ins.	Ø.34	.76	3.12	2.62	4.89	1.50	2.11	3.18	.83	3.77	6.06	1.86	1.89	.83	1/2
	mm	9	16	79	67	118	38	70	81	21	90	154	48	49	21	
11	ins.	Ø.34	.76	3.12	2.62	4.65	1.50	2.11	3.18	.83	3.53	6.06	1.86	1.89	.83	1
	mm	9	35	97	99	138	53	54	116	40	99	210	54	67	30	
12	ins.	Ø.28	.56	2.41	1.88	5.06	1.03	2.71	3.12	.72	4.12	4.81	1.41	1.56	.81	3/8
	mm	7	14	61	48	129	26	69	79	18	105	122	36	40	21	
13	ins.	Ø.34	.78	3.12	2.62	5.27	1.50	2.49	3.19	.84	4.16	6.06	1.88	1.91	.84	1/2
	mm	9	16	79	67	134	38	63	81	21	106	154	48	49	21	
14	ins.	Ø.34	1.38	3.81	3.88	6.09	2.09	3.18	4.56	1.56	4.59	8.25	2.12	2.62	1.16	1
	mm	9	35	97	99	155	53	81	116	40	117	210	54	67	30	

Constr. Ref. 9, 10, 11, 12, 13, 14

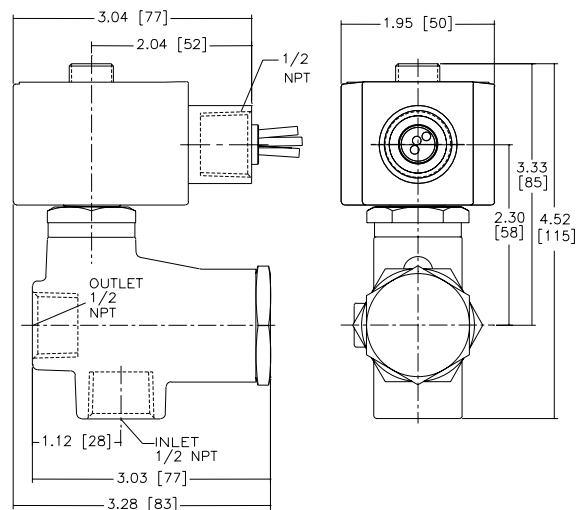


BOTTOM VIEW OF VALVE

Constr. Ref. 19



Constr. Ref. 20





## Features

- Compact spool valve convertible from 3/2 to 5/2. (Aluminum only)
- Mounts directly to actuators with NAMUR Interfaces per VDI/VDE 3845.
- Single and dual solenoid constructions.
- Integral breather block vents to spring side of actuator to exhaust, preventing corrosion of the actuator.
- Designed for use in automation of plant control systems.
- Molded one-piece solenoid with highly efficient solenoid cartridge and special low wattage coil.
- Lower-cost alternative to intrinsically safe valves in critical applications not requiring a safety barrier.
- Designed to provide:
  - PLC compatibility.      - Reduced wiring cost.
  - Reduced battery drain.   - Reduced heat rise.
- Unique technology combines hard T-seals and flexible o-rings to provide bubble-tight shutoff, resistance to dirt, and multimillion cycle life.
- Intrinsically Safe and General Purpose constructions are available.

## Construction

Valve Parts in Contact with Fluids		
<b>Body and Pilot End Cap</b>	Black Anodized Aluminum	Stainless Steel
<b>Seals</b>	NBR and PUR	
<b>Sleeve</b>	304L Stainless Steel	
<b>Core and Plugnut</b>	430F Stainless Steel	
<b>Core Spring</b>	302 Stainless Steel/17-7PH	
<b>Spool Return Spring</b>	Phosphate treated Black Steel	
<b>End Cover and Plate</b>	Glass-Filled PA/FV	316 Stainless Steel
<b>Spool</b>	Aluminum	Stainless Steel
<b>Internal Parts</b>	Zamak, Steel, CA	

## Electrical

**Coil:** Continuous duty Class F. **IMPORTANT:** Leakage current existing in your system above 7 mA will cause improper operation.

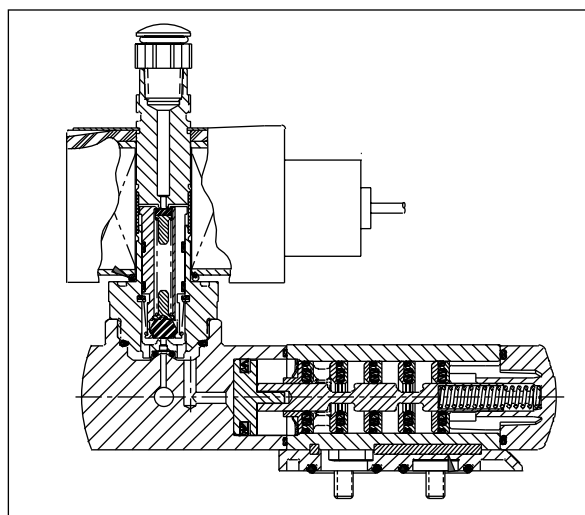
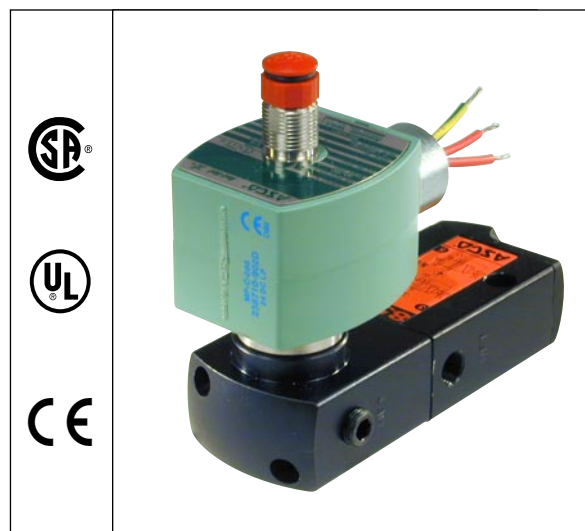
DC Watt Rating and Power Consumption	24 DC Spare Coil Part No.		Maximum Line Resistance vs. Length of Wire		
	General Purpose	Explosionproof	Power Source	Max. Loop Resistance	Max. Wire Run 18 AWG 7x26 Stranded
1.4 at 68°F (20°C)	238710-902-D	238714-902-D	Volts	Ohms	
<b>Low Power Solenoid:</b> Standard voltages 12 and 24 DC Nominal Operating Range +10%, -15% Must be specified when ordering  <b>Typical 24 Volts DC System:</b> Min. pull-in: 0.042 amps Min. dropout: 0.007 amps Coil resistance: 410 ohms at 68°F (20°C) ±10% Max. ambient temp: 140°F (60°C)			21	16.5	1120
			22	40.5	2750
			23	64.0	4350
			24	88	5980

## Solenoid Enclosures

**Standard:** Watertight, Types 1, 2, 3, 3S, 4, and 4X.  
**Optional:** Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9.  
 (To order, add prefix "EF" to catalog number.)  
*See Optional Features Section for other available options.*

### SIL (Safety Integrity Level) Information:

- PFD (Probability of Failure on Demand)  $<4 \times 10^{-7}$  at a confidence factor of 95%.
- SFF (Safe Failure Fraction) according to IEC 61508-2 Table A1 is  $\geq 0.99$ .
- Only constructions without manual operators apply to the above criteria.



## Options:

Metering use suffix "M"  
 Manual Operator use suffix "MO"

## Nominal Ambient Temperature Ranges:

5°F to 140°F (-15°C to 60°C)  
*Refer to Engineering Section for details.*

## Approvals:

UL recognized component; CSA certified. Meets applicable CE directives. For explosion option (prefix EF): UL listed solenoid; CSA certified. (Hazard location classified) nonincendive for Class I, Division 2 UL E25549.  
*Refer to Engineering Section for details.*

## Important:

These solenoids are intended for use on clean, dry air or inert gas filtered to 50 micrometers or better. To prevent freezing, the dew point of the media should be at least 18°F (-8°C) below the minimum temperature to which any portion of the clean air or gas system could be exposed. Instrument air in compliance with ANSI/ISA Standard S7.3-1975 (R1981) exceeds the above requirements and is, therefore, an acceptable medium for these valves.



## Specifications (English units)

Pipe Size Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Single Solenoid						Dual Solenoid					
			Operating Pressure Differential (psi)		Max. Fluid Temp. °F	Aluminum Catalog Number	316 Stainless Steel Catalog Number	Constr. Ref. No.	Operating Pressure Differential (psi)		Max. Fluid Temp. °F	Aluminum Catalog Number	316 Stainless Steel Catalog Number	Constr. Ref. No.
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.				
3/4 WAY CONVERTIBLE VALVES - NORMALLY CLOSED with Breather Block														
1/4 ①	1/4	.7	30	150	140	8551G301	--	1	30	150	140	8551G302	--	2
4 WAY VALVES ONLY														
1/4	1/4	.84	35	150	140	--	8551G388	3	20	150	140	--	8551G390	4

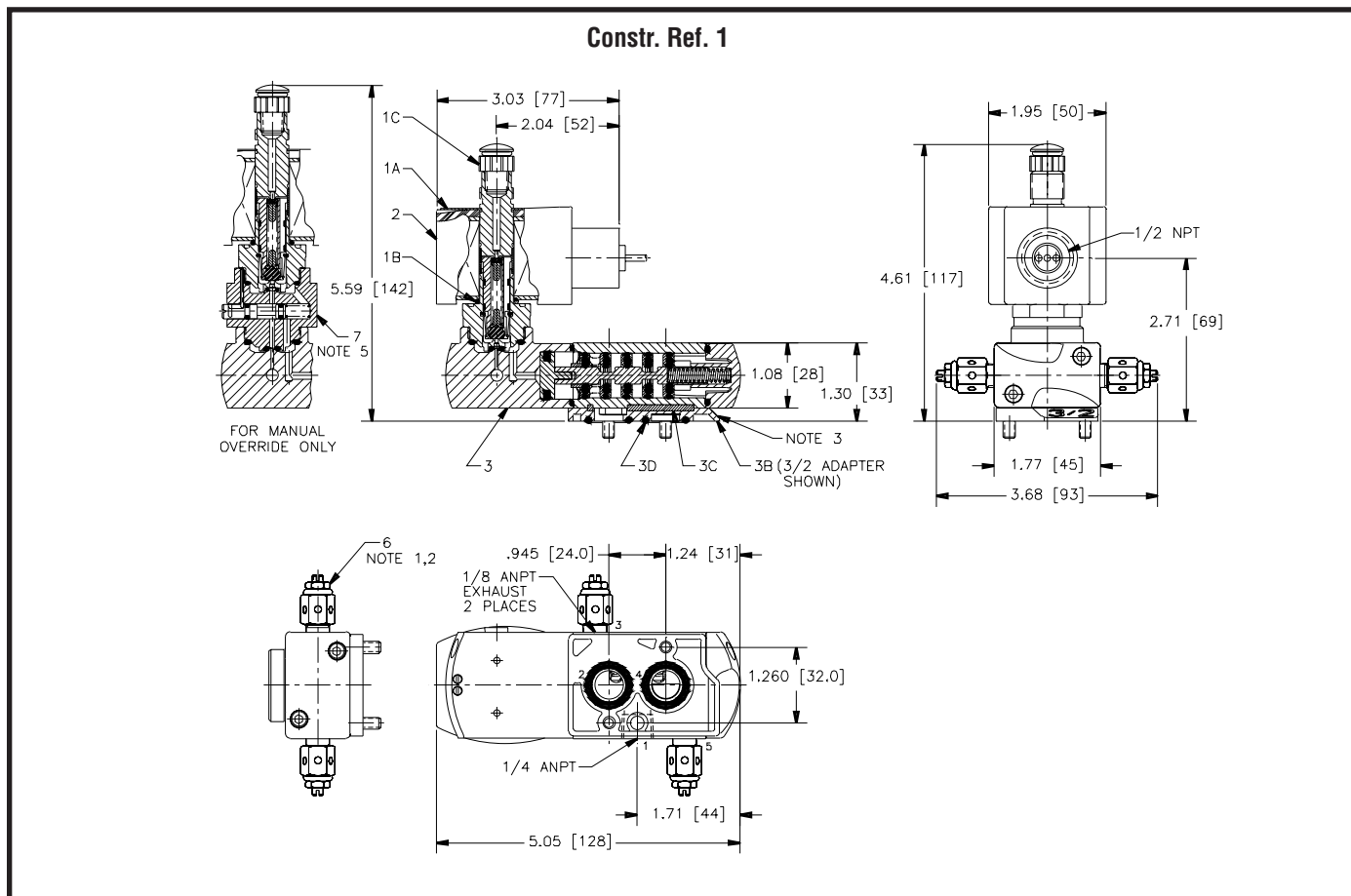
Note: ① 1/8 inch NPT Exhaust

## Specifications (Metric units)

Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Single Solenoid						Dual Solenoid					
			Operating Pressure Differential (bar)		Max. Fluid Temp. °C	Aluminum	316 Stainless Steel	Constr. Ref. No.	Operating Pressure Differential (bar)		Max. Fluid Temp. °C	Aluminum	316 Stainless Steel	Constr. Ref. No.
			Min.	Max .					Min.	Max.				
3/4 WAY CONVERTIBLE VALVES - NORMALLY CLOSED with Breather Block														
1/4 ①	6	.6	2	10	60	8551G301	--	1	2	10	60	8551G302	--	2
4 WAY VALVES ONLY														
1/4	6	.72	2.4	10.3	59	--	8551G388	3	1.4	10.3	59	--	8551G390	4

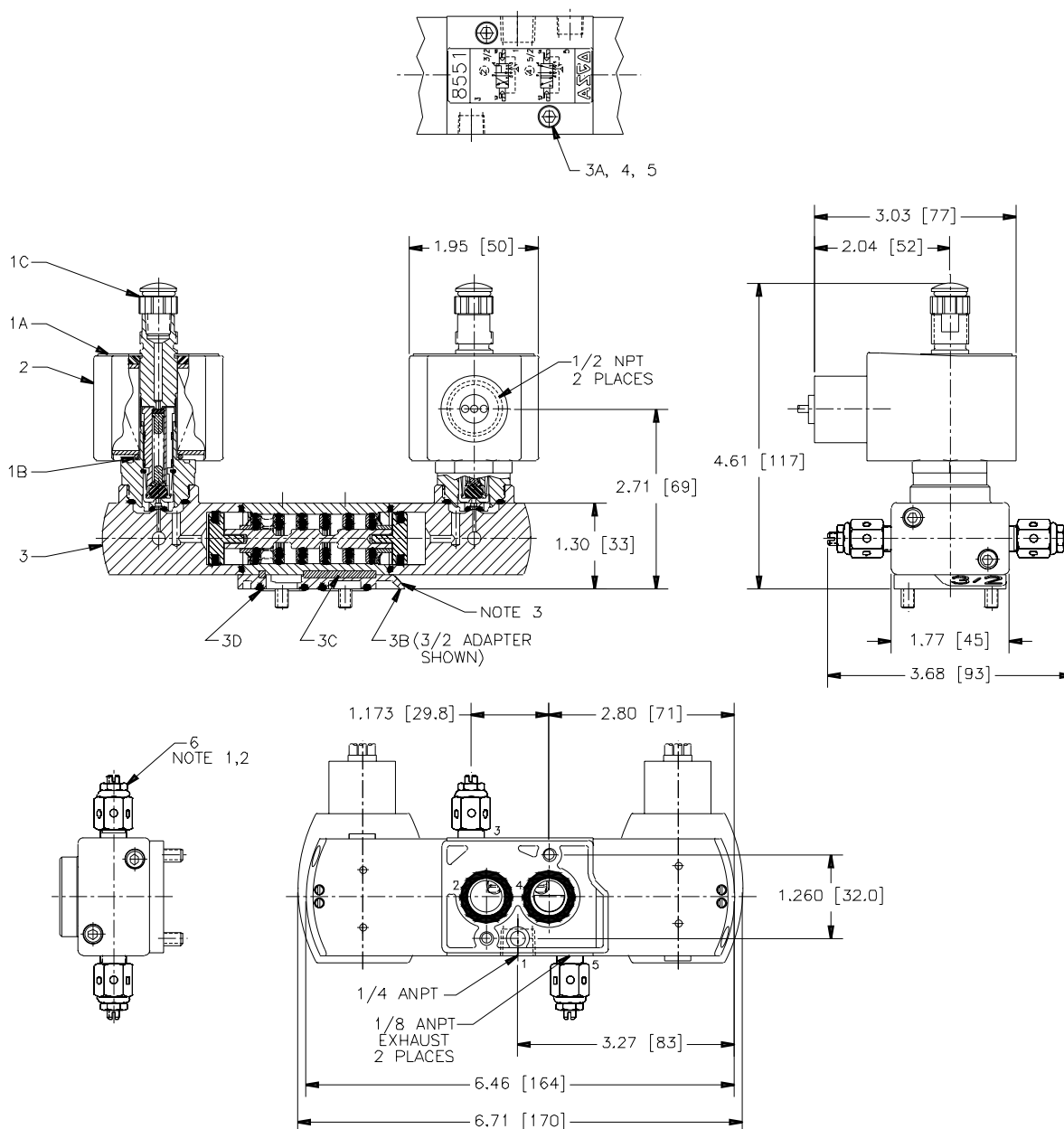
Note: ① 1/8 inch NPT Exhaust

## Dimensions: inches (mm)

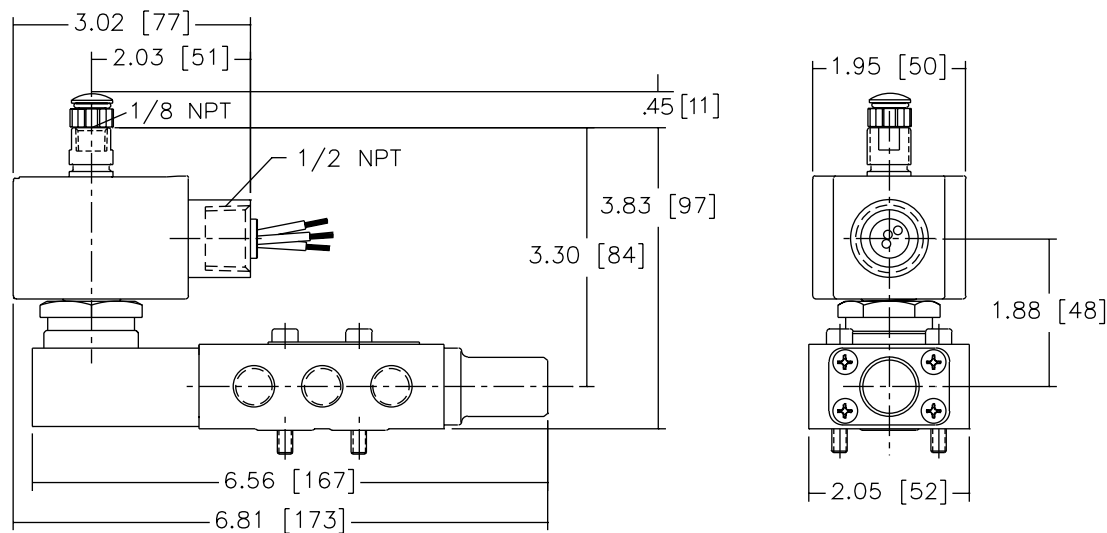


Dimensions: inches (mm)

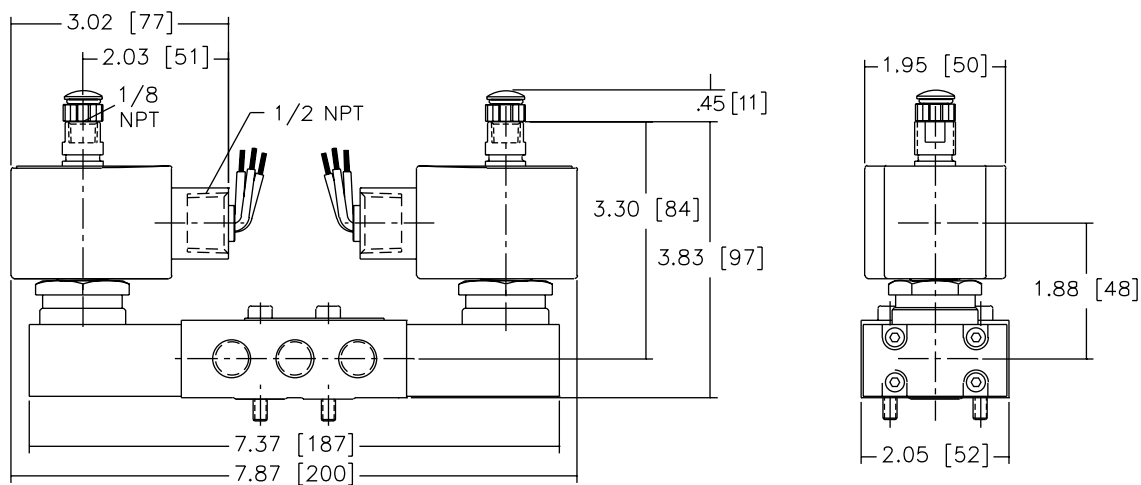
Constr. Ref. 2



**Constr. Ref. 3**



**Constr. Ref. 4**



## Features

- Designed to meet vibration and/or shock per ISA specification S71.03C2. High shock construction.
- Handles aggressive atmosphere per salt resistance testing (ASTM B117).
- Most hardware is stainless steel, and all aluminum components are hard anodized and Nituff\* coated for corrosion resistance.
- Manual reset housing is sealed with closed-cell CR sponge rubber, and equipped with sintered bronze breather to prevent condensation.
- Last chance filter installed in auxiliary air port of the pilot valve.
- Intrinsically Safe and General Service constructions available.

\*Nimet Industrial trademark.

## Construction

Valve Parts in Contact with Fluids	
<b>Main Valve</b>	
Body	Brass
Disc	303 Stainless Steel
Seats	Phosphor Bronze
Springs	17.7 PH Stainless Steel
Seals	FKM
Air Operator Diaphragm	FMQ
Bearing Screw	430 Stainless Steel
Lever	302 Stainless Steel
<b>Low Power Pilot Valve (1.4 watts)</b>	
Body	Brass
Seals	Low Temperature NBR
Rider Rings	PTFE
Spring Retainer	CA
Core and Plugnut	430F Stainless Steel
Sleeve	304L Stainless Steel
Core Springs	302 Stainless Steel

## Electrical

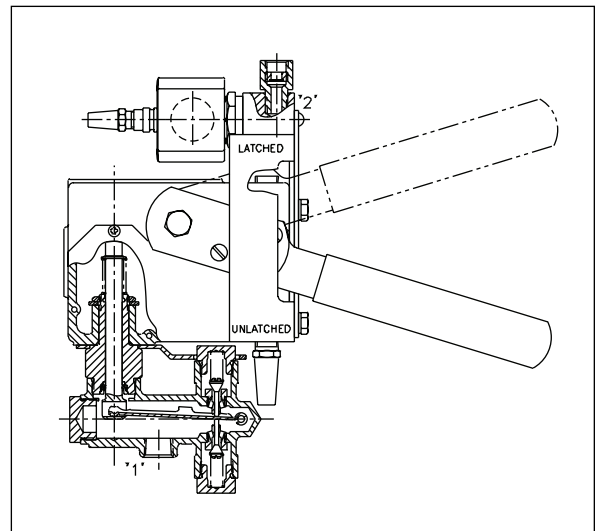
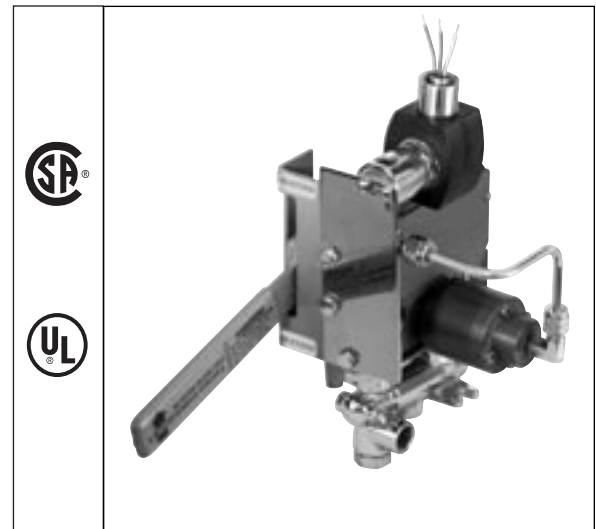
Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part Number DC	
	DC Watts	AC Watts	VA Holding	VA Inrush	General Purpose	Explosionproof
F	1.4	-	-	-	238710-902-D	238714-902-D

**Low-Power Voltages:** 12 and 24 volts DC, +10% -15%. Other voltages are available when required.

## Solenoid Enclosures

**Standard:** Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6D, 7, and 9.

**Approvals:** CSA certified and UL listed General Purpose Valve (pilot).



## Options:

Stainless steel body; 1/8" to 1/2" NPT pipe sizes; position indicator switch; main valve resilient seats; 4 way construction with metering; pneumatic time delay; redundant pilot valves.

Contact factory for ordering information.

## Operation Alternatives:

**Electrically Tripped** – Valves move to latched position when the solenoid is de-energized, trip when they receive a continuous or momentary (at least 0.3 seconds) electrical signal. When tripped, they can be manually cycled open/closed, but must be reset when the solenoid has once again been de-energized. If auxiliary air supply to the pilot valve is lost, the main valve will shift position.

**No Voltage Release** – Valves move to latched position when the solenoid is energized, trips when de-energized. When tripped, they can be manually cycled open/closed, but must be reset when the solenoid has once again been energized. If the auxiliary air supply to the pilot valve is lost, the main valve will shift position.

SERIES  
**HV264153**  
Low Power



Specifications (English units)

MAIN VALVE					
Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Operating Press. Diff. (psi)		Max. Fluid and Ambient Temp. °F
			Min.	Max.	
3/8	1/4	.45	0	125	200

Catalog Number	Construction Type	Pilot Pressure (psi)		Fluid Temperature °F		Ambient Temperature °F		Watt Rating/ Class of Coil Insulation	Pilot Valve (For reference only)
		Min.	Max.	Min.	Max.	Min.	Max.		
HV264153-13	No Voltage Release	25	125	-40	140	-40	140	1.4/F	EF8314G300
HV264153-14	Electrically Tripped	25	125	-40	140	-40	140	1.4/F	EF8314G300

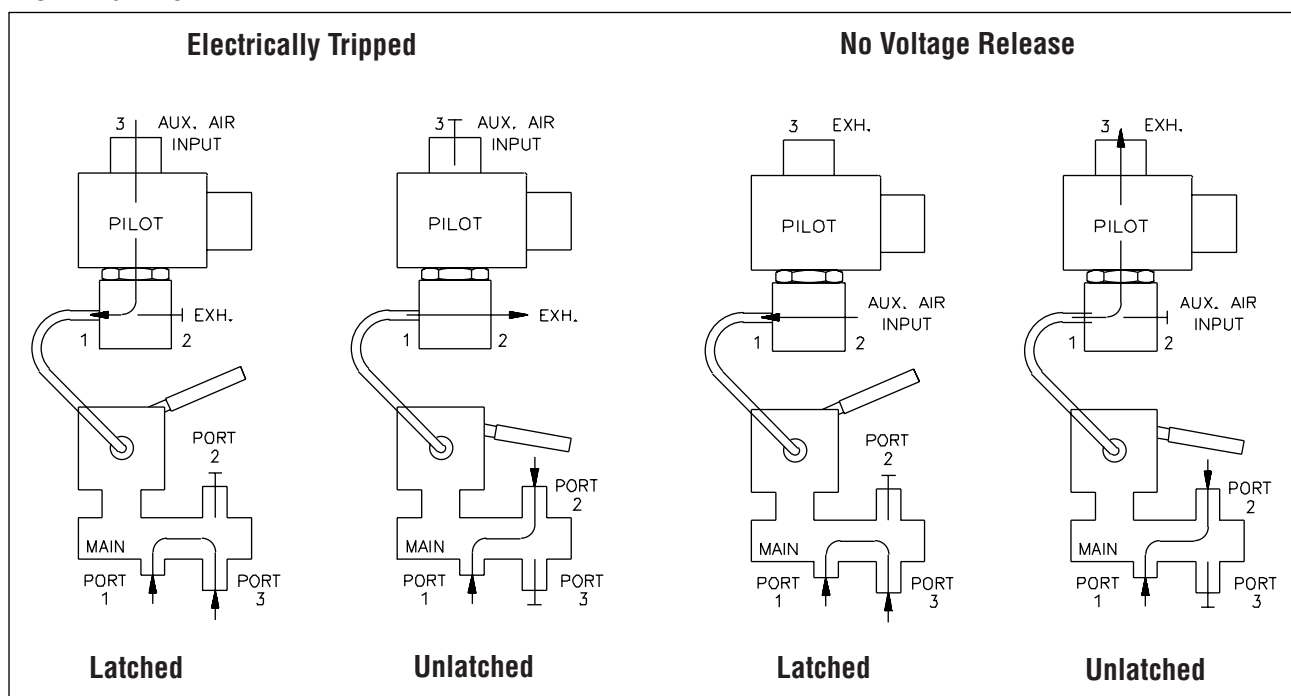
Specifications (Metric units)

MAIN VALVE					
Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Operating Press. Diff. (bar)		Max. Fluid and Ambient Temp. °C
			Min.	Max.	
3/8	6	0.39	0	9	92

Catalog Number	Construction Type	Pilot Pressure (bar)		Fluid Temperature °C		Ambient Temperature °C		Watt Rating/ Class of Coil Insulation	Pilot Valve (For reference only)
		Min.	Max.	Min.	Max.	Min.	Max.		
HV264153-13	No Voltage Release	2	9	-40	59	-40	59	1.4/F	EF8314G300
HV264153-14	Electrically Tripped	2	9	-40	59	-40	59	1.4/F	EF8314G300

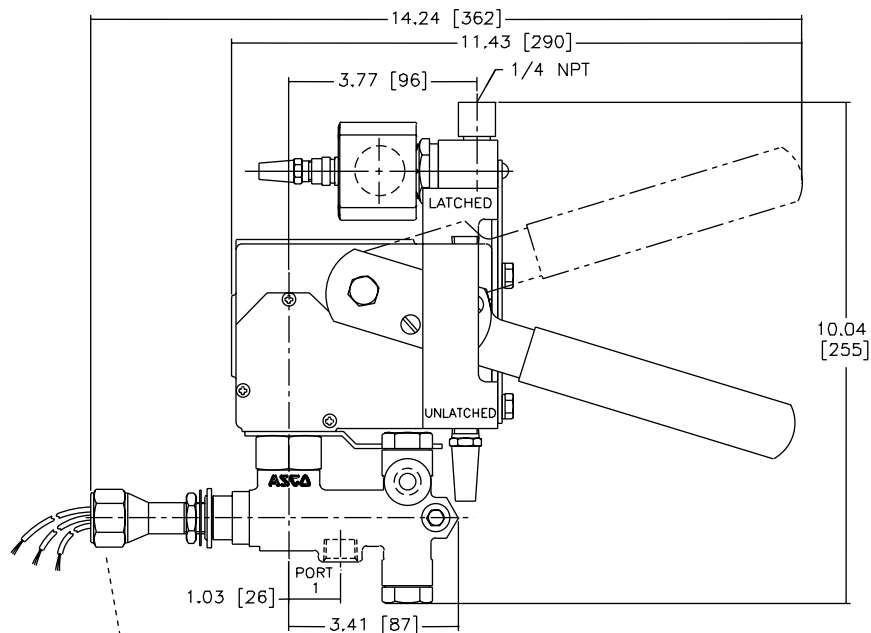
Dimensions: inches (mm)

FLOW DIAGRAMS

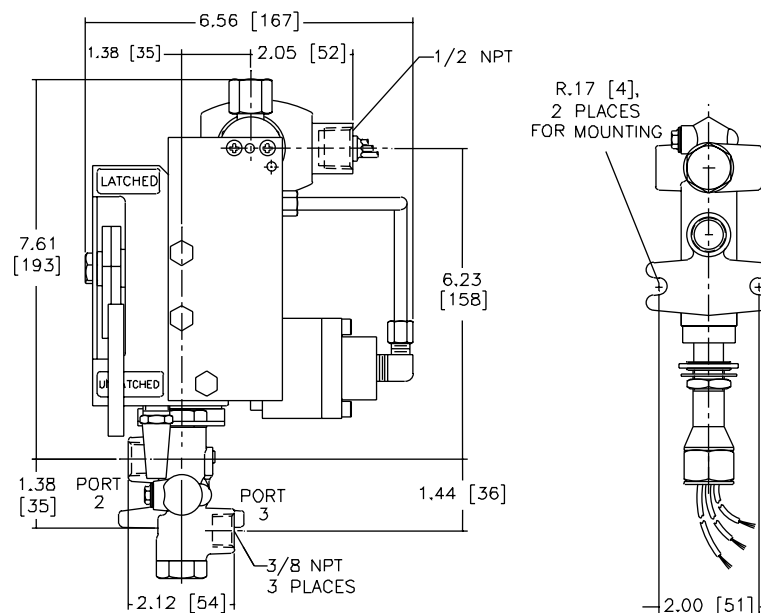


Dimensions: inches (mm)

**No Voltage Release Construction**



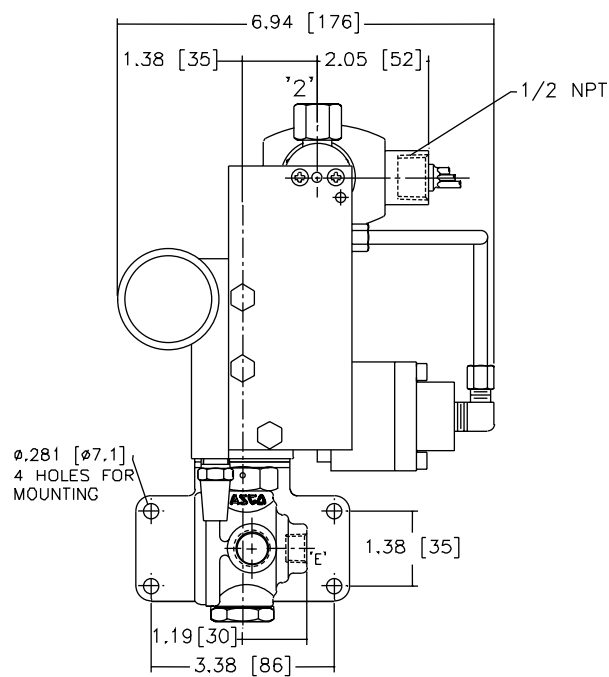
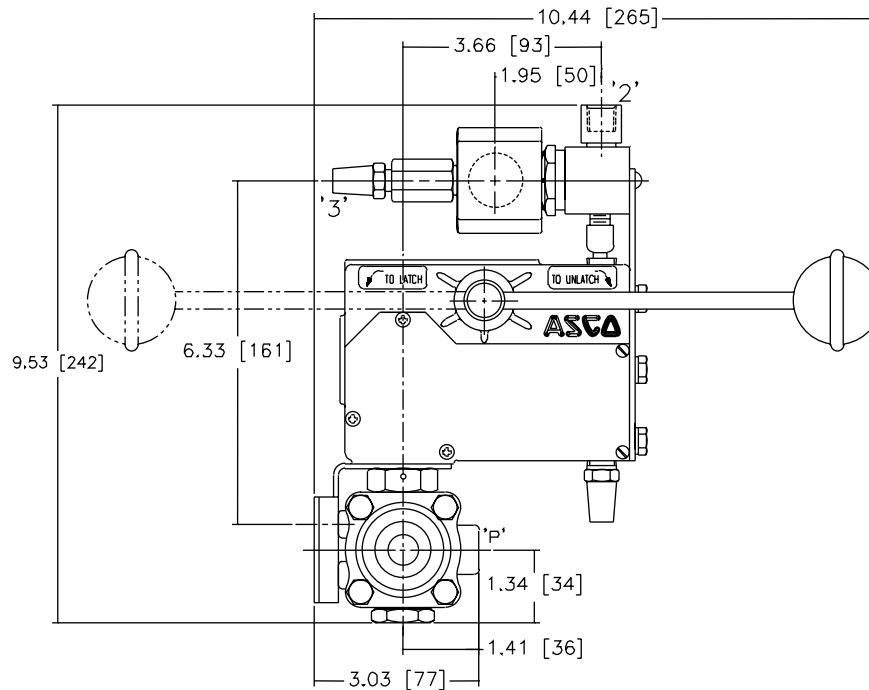
Shown with  
Optional Position  
Indicator Switch



**IMPORTANT:** Mount with manual reset operator vertical and upright.

Dimensions: inches (mm)

**Free Handle Construction (shown with optional 4 way valve)**



**IMPORTANT:** Mount with manual reset operator vertical and upright (as shown).

## Features

- Designed to prevent inadvertent valve start-up in their designed failure modes.
- Once tripped, requires electrical power restoration and manual operation to reset.
- Electrically Tripped (trips when energized) or No Voltage Release (trips when de-energized) constructions.
- Available for Latched Open or Latched Closed operation.
- Ideal for controlling critical processes.
- Handles air, inert gas, water, light oil, steam, and corrosive fluids.

## Construction

Valve Parts in Contact with Fluids		
Body	Brass	Stainless Steel
Stem	303 Stainless Steel	
Springs	302 Stainless Steel	
Disc, Diaphragm, Seat, & Seal Material	FKM, NBR, PTFE, or EPDM, as listed	

## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part No.	
	DC Watts	AC				
		Watts	VA Holding	VA Inrush	AC	DC
F	-	20	45	96	99257	-
H	36.2	-	-	-	-	222184

**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz. 6, 12, 24, 120, 240 volts DC. Must be specified when ordering. Other voltages are available when required.

**Note:** 125 and 250 volts DC are battery voltages applied in power plants. Special valves are available to pilot control valves in power plants.

*Consult your local ASCO sales office for a listing.*

## Solenoid Enclosures

**Standard:** Red-Hat II - Red-Hat metal solenoid enclosure.  
Type 1 General Purpose Junction Box.

**Optional:** Explosionproof and Watertight, Types 3, 7(C and D), and 9.  
(To order, add prefix "EF" to catalog number.)  
See *Optional Features Section* for other available options.

## Nominal Ambient Temperature Ranges:

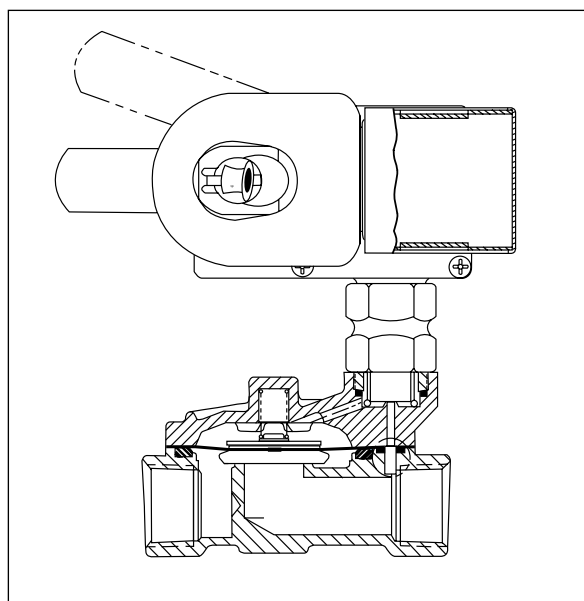
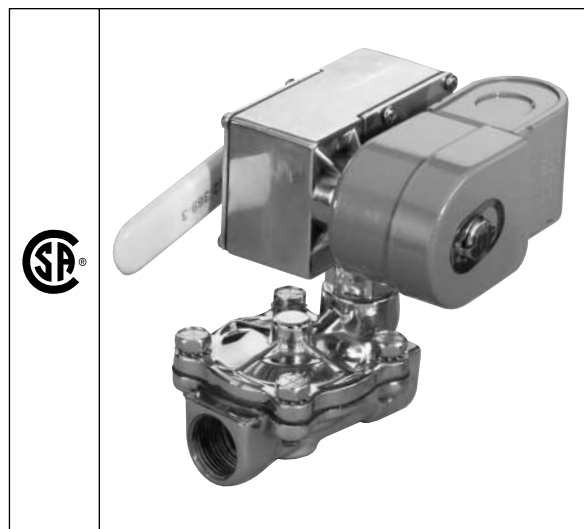
-20°F to 104°F (-29°C to 40°C)

Refer to *Engineering Section* for details.

## Approvals:

CSA certified. Meets shock and vibration ISA S71.03C2.

Refer to *Engineering Section* for details.



## Operation Alternatives:

**Electrically Tripped** – Valves move to latched position when the solenoid is de-energized, trips when they receive a continuous or momentary (at least 0.3 seconds) electrical signal. When tripped, they can be manually cycled open/closed, but must be reset when the solenoid has once again been de-energized.

**No Voltage Release** – Valves move to latched position when the solenoid is energized, trips when de-energized. When tripped, they can be manually cycled open/closed, but must be reset when the solenoid has once again been energized.



## Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Operating Pressure Differential (psi)			Max. Fluid Temp. °F		Latched Open		Latched Closed		Watt Rating/ Class of Coil Insulation	
								No Voltage Release	Electrically Tripped	No Voltage Release	Electrically Tripped		
								(closes when coil is de-energized)	(closes when coil is energized)	(opens when coil is de-energized)	(opens when coil is energized)		
			Min.	Max. AC	Max. DC	AC	DC	Catalog Number	Catalog Number	Catalog Number	Catalog Number		
BRASS BODY with NBR Diaphragm for Air, Inert Gas, Water, and Light Oil													
3/4	3/4	6.5	5	250	250	180	180	8025B201	8015B201	8025B214	8015B214	20/F	36.2/H
1	1	13	5	125	125	180	180	8025B202	8015B202	8025B215	8015B215	20/F	36.2/H
1 1/4	1 1/8	15	5	125	125	180	180	8025B203	8015B203	8025B216	8015B216	20/F	36.2/H
1 1/2	1 1/4	22.5	5	125	125	180	180	8025B204	8015B204	8025B217	8015B217	20/F	36.2/H
2	1 3/4	43	5	125	125	180	180	8025B205	8015B205	8025B218	8015B218	20/F	36.2/H
2 1/2	1 3/4	45	5	125	125	180	180	8025B206	8015B206	8025B219	8015B219	20/F	36.2/H
BRASS BODY with PTFE Disc (EPDM, FPM and PTFE Seals) for Steam Service													
3/4	3/4	7.8	5	125	125	353	353	8025B207	8015B207	8025B220	8015B220	20/F	36.2/H
1	1	13.5	5	125	125	353	353	8025B208	8015B208	8025B221	8015B221	20/F	36.2/H
1 1/4	1 1/8	15	5	125	125	353	353	8025B209	8015B209	8025B222	8015B222	20/F	36.2/H
1 1/2	1 1/4	22.5	5	125	125	353	353	8025B210	8015B210	8025B223	8015B223	20/F	36.2/H
STAINLESS STEEL BODY with PTFE Disc (FPM Seals) for Corrosive Service													
1/2	3/8	3.2	5	250	250	350	350	8025B211	8015B211	8025B224	8015B224	20/F	36.2/H
3/4	3/4	7.8	5	250	250	350	350	8025B212	8015B212	8025B225	8015B225	20/F	36.2/H
1	1	11.2	5	125	125	350	350	8025B213	8015B213	8025B226	8015B226	20/F	36.2/H

## Specifications (Metric units)

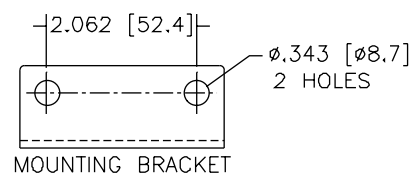
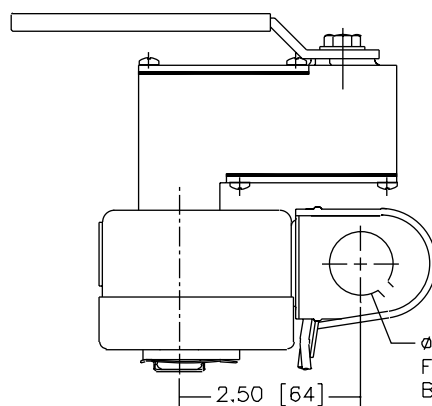
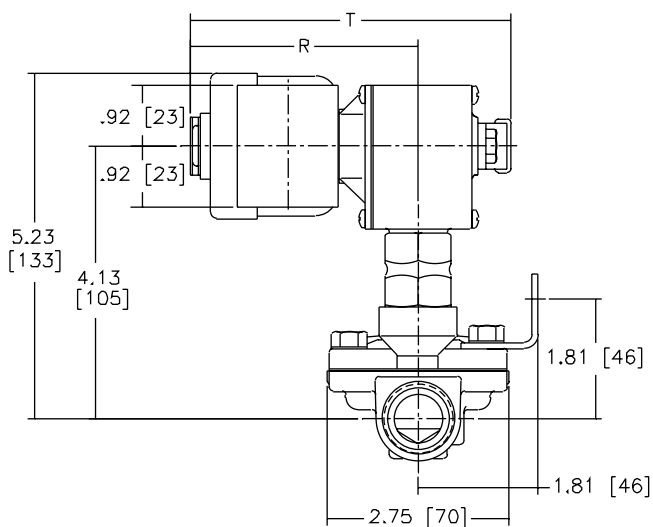
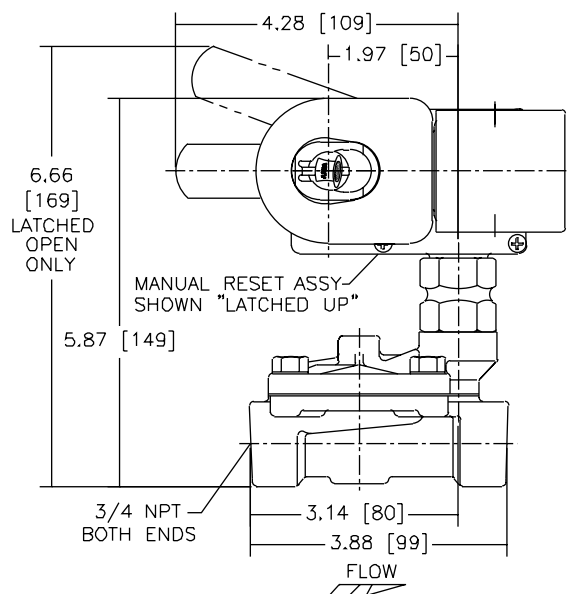
Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Operating Pressure Differential (bar)			Max. Fluid Temp. °C		Latched Open		Latched Closed		Watt Rating/ Class of Coil Insulation	
								No Voltage Release	Electrically Tripped	No Voltage Release	Electrically Tripped		
								(closes when coil is de-energized)	(closes when coil is energized)	(closes when coil is de-energized)	(closes when coil is energized)		
			Min.	Max. AC	Max. DC	AC	DC	Catalog Number	Catalog Number	Catalog Number	Catalog Number	AC	DC
BRASS BODY with NBR Diaphragm for Air, Inert Gas, Water, and Light Oil													
3/4	19	5.57	0.3	17	17	81	81	8025B201	8015B201	8025B214	8015B214	20/F	36.2/H
1	25	11.14	0.3	9	9	81	81	8025B202	8015B202	8025B215	8015B215	20/F	36.2/H
1 1/4	29	12.86	0.3	9	9	81	81	8025B203	8015B203	8025B216	8015B216	20/F	36.2/H
1 1/2	32	19.29	0.3	9	9	81	81	8025B204	8015B204	8025B217	8015B217	20/F	36.2/H
2	44	36.86	0.3	9	9	81	81	8025B205	8015B205	8025B218	8015B218	20/F	36.2/H
2 1/2	44	38.57	0.3	9	9	81	81	8025B206	8015B206	8025B219	8015B219	20/F	36.2/H
BRASS BODY with PTFE Disc (EPDM, FPM and PTFE Seals) for Steam Service													
3/4	19	6.69	0.3	9	9	177	177	8025B207	8015B207	8025B220	8015B220	20/F	36.2/H
1	25	11.57	0.3	9	9	177	177	8025B208	8015B208	8025B221	8015B221	20/F	36.2/H
1 1/4	29	12.86	0.3	9	9	177	177	8025B209	8015B209	8025B222	8015B222	20/F	36.2/H
1 1/2	32	19.29	0.3	9	9	177	177	8025B210	8015B210	8025B223	8015B223	20/F	36.2/H
STAINLESS STEEL BODY with PTFE Disc (FPM Seals) for Corrosive Service													
1/2	10	2.74	0.3	17	17	175	175	8025B211	8015B211	8025B224	8015B224	20/F	36.2/H
3/4	19	6.69	0.3	17	17	175	175	8025B212	8015B212	8025B225	8015B225	20/F	36.2/H
1	25	9.60	0.3	9	9	175	175	8025B213	8015B213	8025B226	8015B226	20/F	36.2/H

SERIES  
**8015/8025**  
**Manual Reset**



Dimensions: inches (mm)

Catalog Number		R	T
8025B201 8025B214	ins.	3.44	4.84
	mm	87	123
8015B201 8015B214	ins.	3.22	4.62
	mm	82	117

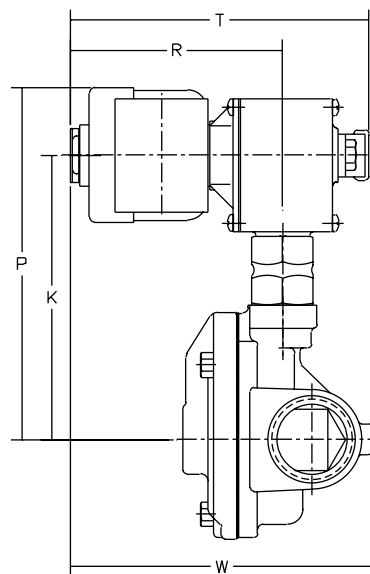
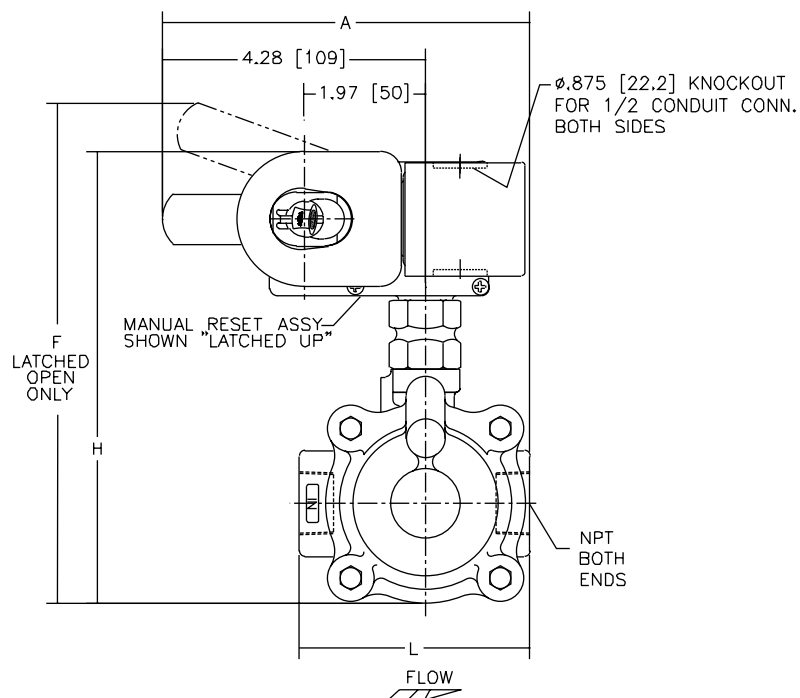


0.875 [22.2] KNOCKOUT  
 FOR 1/2 CONDUIT CONN  
 BOTH SIDES

Dimensions: inches (mm)

Catalog Number		A	F	H	K	L	P	R	T	W
8025B215	ins.	5.98	8.13	7.36	4.63	3.75	5.74	3.44	4.84	4.91
	mm	152	207	187	118	95	146	87	123	125
8025B202	ins.	5.98	8.13	7.36	4.63	3.75	5.74	3.44	4.84	4.91
	mm	152	207	187	118	95	146	87	123	125
8015B215	ins.	5.98	8.13	7.36	4.63	3.75	5.74	3.22	4.62	4.69
	mm	152	207	187	118	95	146	82	117	119
8015B202	ins.	5.98	8.13	7.36	4.63	3.75	5.74	3.22	4.62	4.69
	mm	152	207	187	118	95	146	82	117	119
8025B216	ins.	5.91	8.13	7.36	4.63	3.66	5.74	3.44	4.84	5.11
	mm	150	207	187	118	93	146	87	123	130
8025B203	ins.	5.91	8.13	7.36	4.63	3.66	5.74	3.44	4.84	5.11
	mm	150	207	187	118	93	146	87	123	130
8015B216	ins.	5.91	8.13	7.36	4.63	3.66	5.74	3.22	4.62	4.89
	mm	150	207	187	118	93	146	82	117	124
8015B203	ins.	5.91	8.13	7.36	4.63	3.66	5.74	3.22	4.62	4.89
	mm	150	207	187	118	93	146	82	117	124
8025B217	ins.	6.47	8.60	7.84	4.78	4.38	5.89	3.44	4.84	5.47
	mm	164	219	199	121	111	150	87	123	139
8025B204	ins.	6.47	8.60	7.84	4.78	4.38	5.89	3.44	4.84	5.47
	mm	164	219	199	121	111	150	87	123	139
8015B217	ins.	6.47	8.60	7.84	4.78	4.38	5.89	3.22	4.62	5.25
	mm	164	219	199	121	111	150	82	117	133
8015B204	ins.	6.47	8.60	7.84	4.78	4.38	5.89	3.22	4.62	5.25
	mm	164	219	199	121	111	150	82	117	133
8025B221	ins.	5.75	8.13	7.63	4.63	3.75	5.74	3.44	4.84	5.48
	mm	146	207	194	118	95	146	87	123	139

Catalog Number		A	F	H	K	L	P	R	T	
8025B208	ins.	5.75	8.13	7.63	4.63	3.75	5.74	3.44	4.84	5.48
	mm	146	207	194	118	95	146	87	123	139
8015B221	ins.	5.75	8.13	7.63	4.63	3.75	5.74	3.22	4.62	5.27
	mm	146	207	194	118	95	146	82	117	134
8015B208	ins.	5.75	8.13	7.63	4.63	3.75	5.74	3.22	4.62	5.27
	mm	146	207	194	118	95	146	82	117	134
8025B222	ins.	5.95	8.13	7.63	4.63	3.66	5.74	3.44	4.84	5.47
	mm	151	207	194	118	93	146	87	123	139
8025B209	ins.	5.95	8.13	7.63	4.63	3.66	5.74	3.44	4.84	5.47
	mm	151	207	194	118	93	146	87	123	139
8015B222	ins.	5.95	8.13	7.63	4.63	3.66	5.74	3.22	4.62	5.25
	mm	151	207	194	118	93	146	82	117	133
8015B209	ins.	5.95	8.13	7.63	4.63	3.66	5.74	3.22	4.62	5.25
	mm	151	207	194	118	93	146	82	117	133
8025B223	ins.	6.31	8.60	8.10	4.78	4.38	5.89	3.44	4.84	5.63
	mm	160	219	206	121	111	150	87	123	143
8025B210	ins.	6.31	8.60	8.10	4.78	4.38	5.89	3.44	4.84	5.63
	mm	160	219	206	121	111	150	87	123	143
8015B223	ins.	6.31	8.60	8.10	4.78	4.38	5.89	3.22	4.62	5.41
	mm	160	219	206	121	111	150	82	117	137
8015B210	ins.	6.31	8.60	8.10	4.78	4.38	5.89	3.22	4.62	5.41
	mm	160	219	206	121	111	150	82	117	137

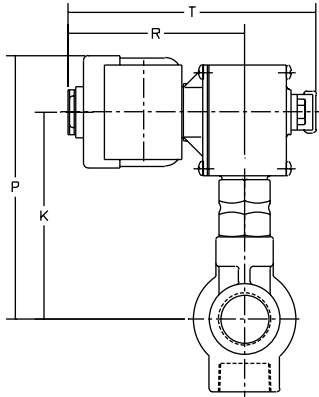
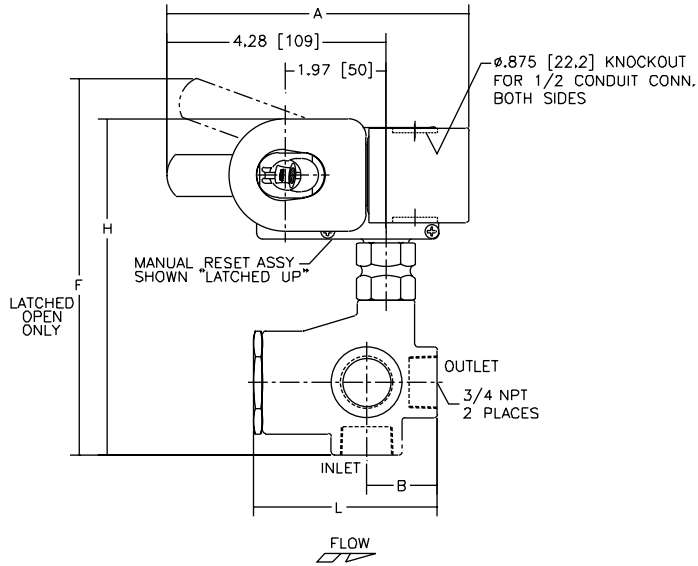


SERIES  
**8015/8025**  
**Manual Reset**

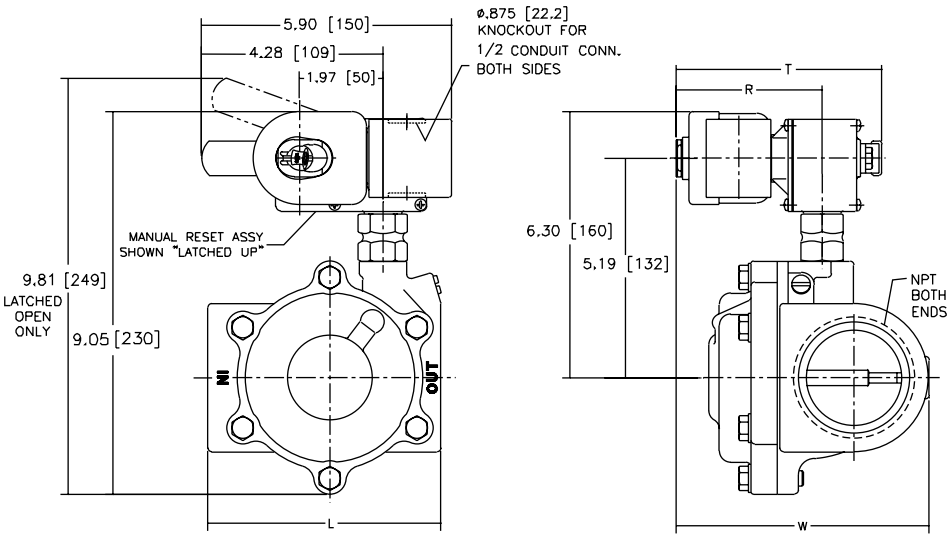


Dimensions: inches (mm)

Catalog Number		A	B	F	H	K	L	P	R	T
8015B207	ins.	5.31	1.38	7.34	6.58	4.05	3.59	5.16	3.22	4.62
	mm	135	35	186	167	103	91	131	82	117
8015B220	ins.	5.31	1.35	7.34	6.58	4.05	3.59	5.16	3.22	4.62
	mm	135	35	186	167	103	91	131	82	117
8025B207	ins.	5.31	1.38	7.34	6.58	4.05	3.59	5.16	3.44	4.84
	mm	135	35	186	167	103	91	131	87	123
8025B220	ins.	5.31	1.38	7.34	6.58	4.05	3.59	5.16	3.44	4.84
	mm	135	35	186	167	103	91	131	87	123
8015B211	ins.	5.90	1.19	6.66	5.89	3.56	3.13	4.67	3.22	4.62
	mm	150	30	169	150	90	80	119	82	117
8015B224	ins.	5.90	1.19	6.66	5.89	3.56	3.13	4.67	3.22	4.62
	mm	150	30	169	150	90	80	119	82	117
8025B211	ins.	5.90	1.19	6.66	5.89	3.56	3.13	4.67	3.44	4.84
	mm	150	30	169	150	90	80	119	87	123
8025B224	ins.	5.90	1.19	6.66	5.89	3.56	3.13	4.67	3.44	4.84
	mm	150	30	169	150	90	80	119	87	123

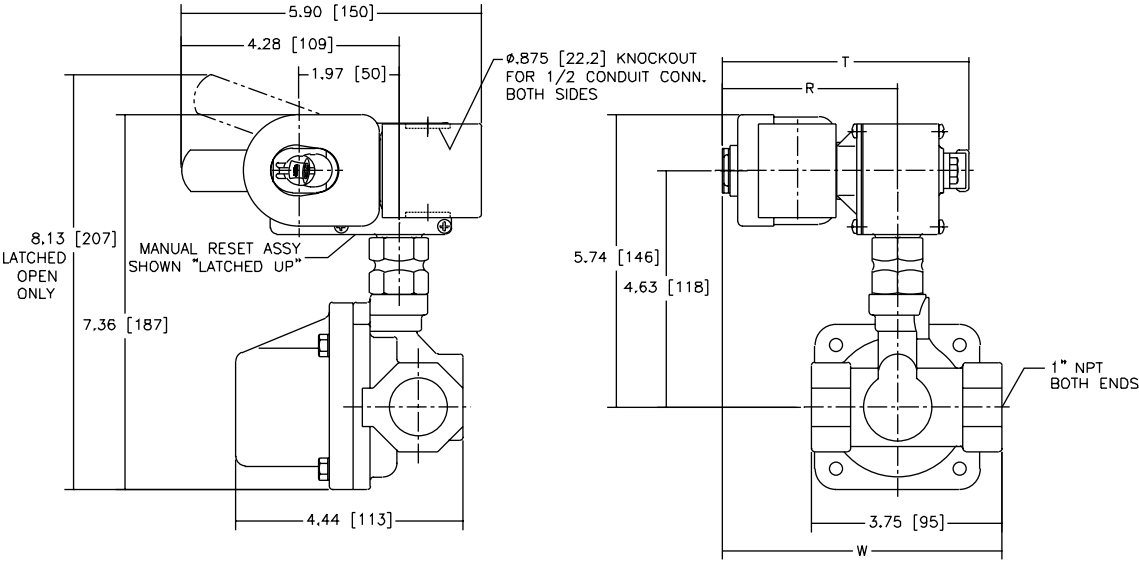


Catalog Number		L	R	T	W
8025B218	ins.	5.06	3.44	4.84	5.47
	mm	129	87	123	139
8025B205	ins.	5.06	3.44	4.84	5.47
	mm	129	87	123	139
8015B218	ins.	5.06	3.22	4.62	5.25
	mm	129	82	117	133
8015B205	ins.	5.06	3.22	4.62	5.25
	mm	129	82	117	133
8025B219	ins.	5.50	3.44	4.84	5.94
	mm	140	87	123	151
8025B206	ins.	5.50	3.44	4.84	5.94
	mm	140	87	123	151
8015B219	ins.	5.50	3.22	4.62	5.72
	mm	140	82	117	145
8015B206	ins.	5.50	3.22	4.62	5.72
	mm	140	82	117	145

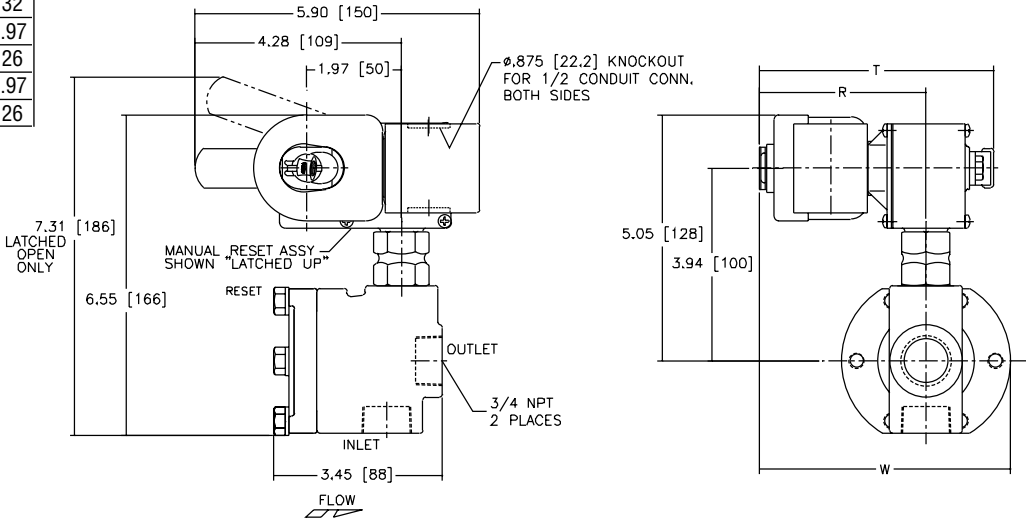


Dimensions: inches (mm)

Catalog Number		R	T	W
8025B213	ins.	3.44	4.84	5.48
	mm	87	123	139
8025B226	ins.	3.44	4.84	5.48
	mm	87	123	139
8015B213	ins.	3.22	4.62	5.27
	mm	82	117	134
8015B226	ins.	3.22	4.62	5.27
	mm	82	117	134



Catalog Number		R	T	W
8025B212	ins.	3.44	4.84	5.19
	mm	87	123	132
8025B225	ins.	3.44	4.84	5.19
	mm	87	123	132
8015B212	ins.	3.22	4.62	4.97
	mm	82	117	126
8015B225	ins.	3.22	4.62	4.97
	mm	82	117	126



## Features

- High flow/high-pressure bodies with manual operators to prevent inadvertent valve start-up in their designed failure modes.
- Once tripped, can only be manually reset to automatic operation.
- Electrically Tripped (trips when energized), No Voltage Release (trips when de-energized), or Free Handle constructions.
- Available for Latched Open or Latched Closed operation.
- Ideal for controlling critical processes.
- Some constructions can control aggressive fluids, including steam.
- Intrinsically Safe constructions are available.  
*See Pilot Valve Section for details.*

## Construction

Valve Parts in Contact with Fluids		
Body	Brass	Stainless Steel
Stem	303 Stainless Steel	
Springs	302 Stainless Steel	
Pilot Seat Cartridge	CA (when listed)	
Disc, Diaphragm, Seat	NBR, PA, PTFE, or Stainless Steel, as listed	

## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part Number	
	DC Watts	AC			AC	DC
		Watts	VA Holding	VA Inrush		
F	-	20	45	96	99257	-
H	36.2	-	-	-	-	222184

**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz. 6, 12, 24, 120, 240 volts DC. Must be specified when ordering. Other voltages are available when required.

**Note:** 125 and 250 volts DC are battery voltages applied in power plants. Special valves are available to pilot control valves in power plants.

*Consult your local ASCO sales office for a listing.*

## Solenoid Enclosures

<b>Standard:</b> Red-Hat II - Red-Hat metal solenoid enclosure. Type 1 General Purpose Junction Box.
<b>Optional:</b> Explosionproof and Watertight, Types 3, 7 (C and D), and 9. (To order, add prefix "EF" to catalog number.) <i>See Optional Features Section for other available options.</i>

## Nominal Ambient Temperature Ranges:

AC: -20°F to 104°F (-29°C to 40°C)

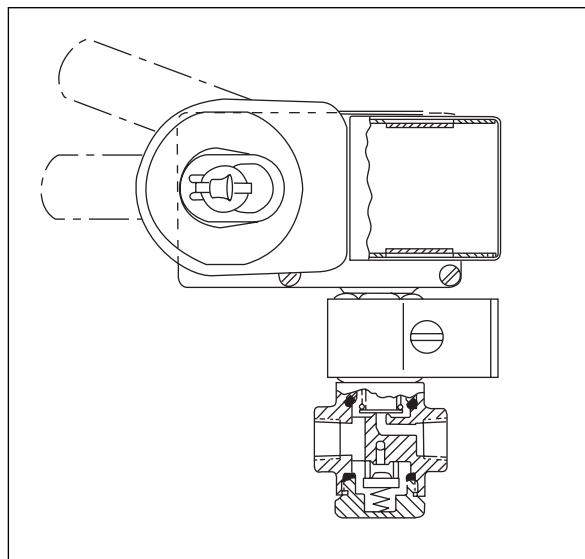
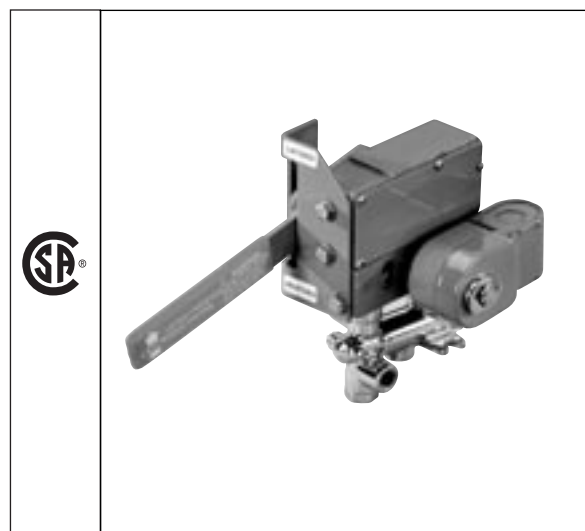
DC: -20°F to 77°F (-29°C to 25°C)

*Refer to Engineering Section for details.*

## Approvals:

CSA certified. Some constructions meet shock and vibration ISA S71.03C2.

*Refer to Engineering Section for details.*



## Operation Alternatives:

**Electrically Tripped** – Valves move to latched position when the solenoid is de-energized, trips when they receive a continuous or momentary (at least 0.3 seconds) electrical signal. When tripped, they can be manually cycled open/closed, but must be reset when the solenoid has once again been de-energized.

**No Voltage Release** – Valves move to latched position when the solenoid is energized, trips when de-energized. When tripped, they can be manually cycled open/closed, but must be reset when the solenoid has once again been energized.

**Free Handle** – Valves move to latched position when the solenoid is energized, trips when de-energized. They cannot be manually cycled open/closed when de-energized. They can be manually cycled open/closed or reset only when energized.

## Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Operating Pressure Differential			Max. Fluid Temperature °F		No Voltage Release Catalog Number	Electrically Tripped Catalog Number	Constr. Ref. No.	Flow Diagram	Watt Rating/Class of Coil Insulation	
			Min.	Max. AC	Max. DC	AC	DC					AC	DC
UNIVERSAL OPERATION (Except as Noted ① ), Brass Body with NBR Disc/Diaphragm (CA Pilot Cartridge) for Air-Inert Gas and Water. This group of valves meets shock and vibration ISA S71.03C2.													
1/4	11/64	.38	0	125	125	180	180	8308B40	8310B40	1	B	20/F	36.2/H
3/8	5/8	3	10	250	250	180	180	8308C41 ① ②	8310C41 ① ②	2	C	20/F	36.2/H
1/2	5/8	4	10	250	250	180	180	8308C42 ① ②	8310C42 ① ②	2	C	20/F	36.2/H
3/4	11/16	5.5	10	250	250	180	180	8308C43 ① ②	8310C43 ① ②	3	C	20/F	36.2/H
1	1	13	10	125	125	180	180	8308A50 ① ②	8310A50 ① ②	8	C	20/F	36.2/H
UNIVERSAL OPERATION, Brass Body with Stainless Steel Seats and Discs for Air-Inert Gas, Water and Light Oil													
1/4	1/4	.45	0	125	125	200	200	830844	831044	4	A	20/F	36.2/H
3/8	1/4	.45	0	125	125	200	200	830845	831045	4	A	20/F	36.2/H
1/2	5/16	.75	0	125	125	200	200	830846	831046	5	A	20/F	36.2/H
UNIVERSAL OPERATION, Brass Body with NBR Seats and PA Discs for Air-Inert Gas, Water and Light Oil													
1/4	1/4	.39	0	125	125	180	180	830844R	831044R	4	A	20/F	36.2/H
3/8	1/4	.39	0	125	125	180	180	830845R	831045R	4	A	20/F	36.2/H
1/2	5/16	.53	0	125	125	180	180	830846R	831046R	5	A	20/F	36.2/H
UNIVERSAL OPERATION, Stainless Steel Body with FKM Discs for Air-Inert Gas and Water													
1/4	1/8	.21	0	125	125	180	180	8308A11	8310A11	1	B	20/F	36.2/H
UNIVERSAL OPERATION, Stainless Steel Body with Stainless Steel Seats and Discs for Corrosive Service													
1/2	5/16	.75	0	125	125	200	200	830847	831047	5	A	20/F	36.2/H
								Free Handle Construction					
UNIVERSAL OPERATION, Brass Body with NBR Discs for Air-Inert Gas and Water													
1/4	11/64	.38	0	125	125	180	180	803714		6	D	20/F	36.2/H
UNIVERSAL OPERATION, Brass Body with PTFE Seats and FKM Discs for Air-Inert Gas, Water and Light Oil													
1/4	3/16	.70	0	125	125	160	160	8037A8 ①		7	E	20/F	36.2/H
3/8	3/16	.70	0	125	125	160	160	8037A10 ①		7	E	20/F	36.2/H
UNIVERSAL OPERATION, Stainless Steel Body with FKM Discs for Air-Inert Gas and Water													
1/4	1/8	.21	0	125	125	180	180	803712		6	D	20/F	36.2/H
Notes: ① When ordering, specify suffix "F" for Normally Closed construction or Suffix "G" for Normally Open construction. ② Supplied with CA pilot cartridge.													

**Notes:** ① When ordering, specify suffix "F" for Normally Closed construction or Suffix "G" for Normally Open construction.  
② Supplied with CA pilot cartridge.

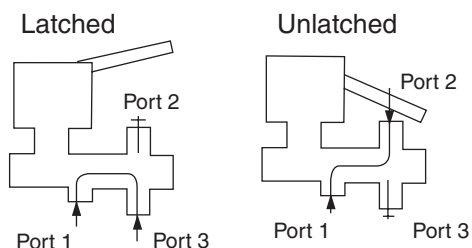
## Specifications (Metric units)

Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Operating Pressure Differential (bar)			Max. Fluid Temperature °C		No Voltage Release	Electrically Tripped	Constr. Ref. No.	Flow Diagram	Watt Rating/ Class of Coil Insulation	
			Min.	Max. AC	Max. DC	AC	DC	Catalog Number	Catalog Number			AC	DC
UNIVERSAL OPERATION (Except as Noted ① ), Brass Body with NBR Disc/Diaphragm (CA Pilot Cartridge) for Air-Inert Gas and Water. This group of valves meets shock and vibration ISA S71.03C2.													
1/4	4	.33	0.0	9	9	81	81	8308B40	8310B40	1	B	20/F	36.2/H
3/8	16	2.57	0.7	17	17	81	81	8308C41 ① ②	8310C41 ① ②	2	C	20/F	36.2/H
1/2	16	3.43	0.7	17	17	81	81	8308C42 ① ②	8310C42 ① ②	2	C	20/F	36.2/H
3/4	17	4.71	0.7	17	17	81	81	8308C43 ① ②	8310C43 ① ②	3	C	20/F	36.2/H
1	25	11.14	0.7	9	9	81	81	8308A50 ① ②	8310A50 ① ②	8	C	20/F	36.2/H
UNIVERSAL OPERATION, Brass Body with Stainless Steel Seats and Discs for Air-Inert Gas, Water and Light Oil													
1/4	6	.39	0	9	9	92	92	830844	831044	4	A	20/F	36.2/H
3/8	6	.39	0	9	9	92	92	830845	831045	4	A	20/F	36.2/H
1/2	8	.64	0	9	9	92	92	830846	831046	5	A	20/F	36.2/H
UNIVERSAL OPERATION, Brass Body with NBR Seats and PA Discs for Air-Inert Gas, Water and Light Oil													
1/4	6	.33	0	9	9	81	81	830844R	831044R	4	A	20/F	36.2/H
3/8	6	.33	0	9	9	81	81	830845R	831045R	4	A	20/F	36.2/H
1/2	8	.45	0	9	9	81	81	830846R	831046R	5	A	20/F	36.2/H
UNIVERSAL OPERATION, Stainless Steel Body with FKM Discs for Air-Inert Gas and Water													
1/4	8	.18	0	9	9	81	81	8308A11	8310A11	1	B	20/F	36.2/H
UNIVERSAL OPERATION, Stainless Steel Body with Stainless Steel Seats and Discs for Corrosive Service													
1/2	8	.64	0	9	9	92	92	830847	831047	5	A	20/F	36.2/H
Free Handle Construction													
UNIVERSAL OPERATION, Brass Body with NBR Discs for Air-Inert Gas and Water													
1/4	4	.33	0	9	9	81	81	803714		6	D	20/F	36.2/H
UNIVERSAL OPERATION, Brass Body with PTFE Seats and FKM Discs for Air-Inert Gas, Water and Light Oil													
1/4	5	.60	0	9	9	70	70	8037A8 ①		7	E	20/F	36.2/H
3/8	5	.60	0	9	9	70	70	8037A10 ①		7	E	20/F	36.2/H
UNIVERSAL OPERATION, Stainless Steel Body with FKM Discs for Air-Inert Gas and Water													
1/4	3	.18	0	9	9	81	81	803712		6	D	20/F	36.2/H

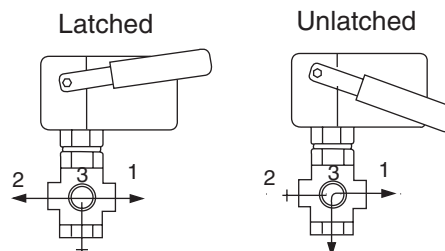
## Flow Diagrams

### Electrically Tripped and No Voltage Release Constructions

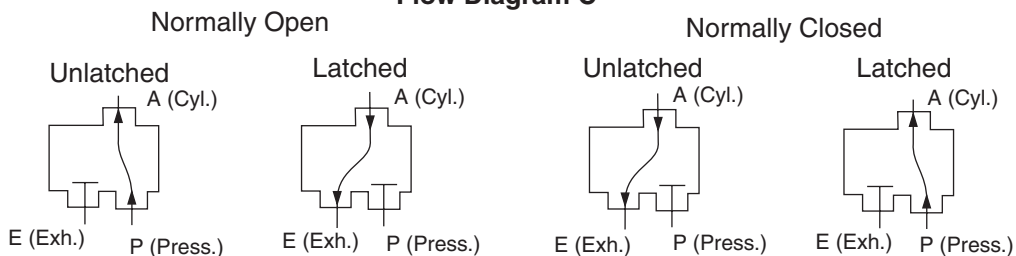
**Flow Diagram A**



**Flow Diagram B**

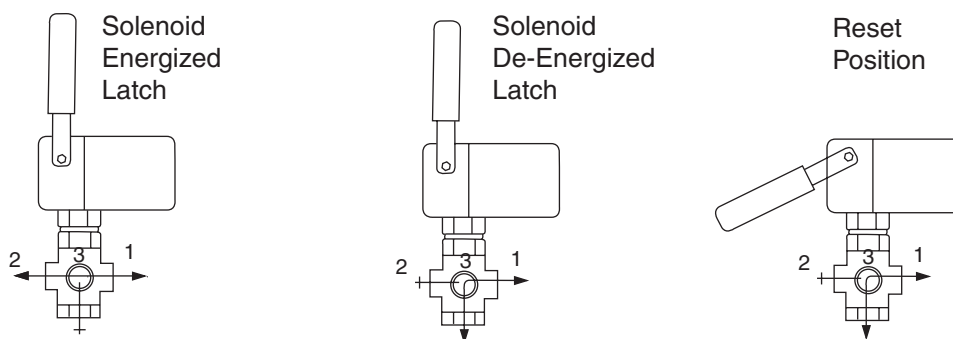


**Flow Diagram C**

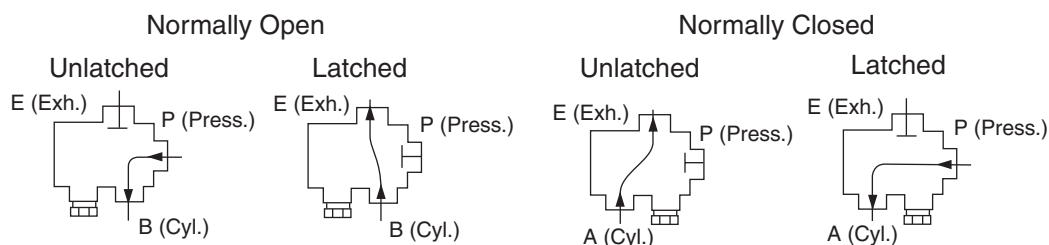


### Free Handle Construction

**Flow Diagram D**



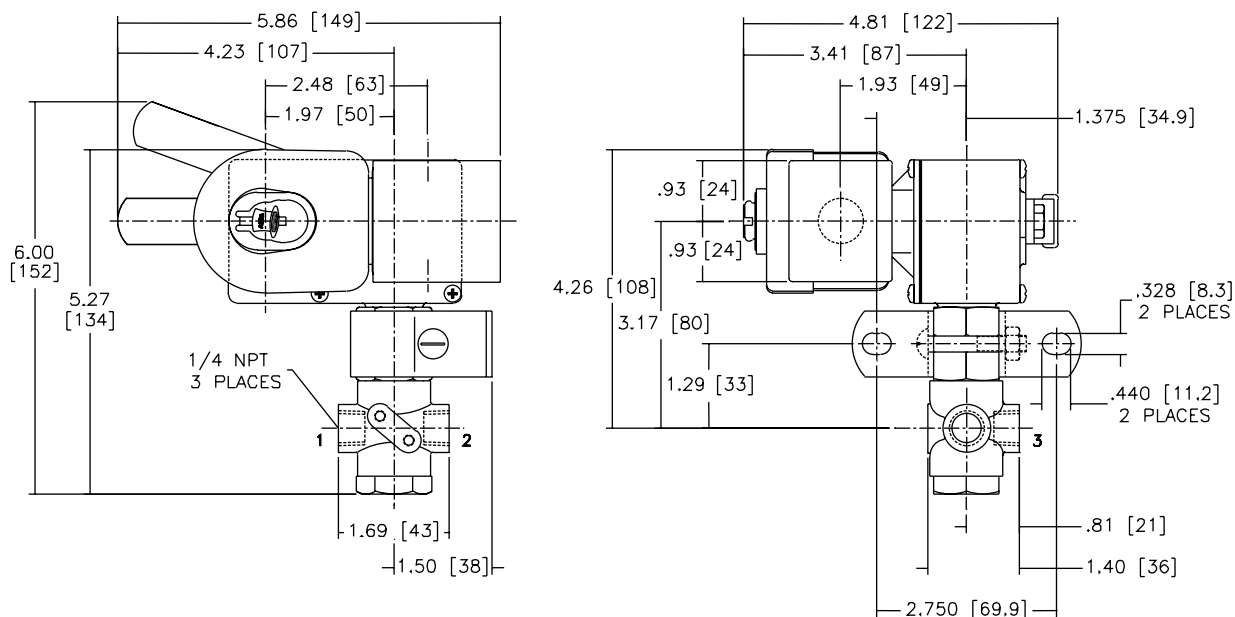
**Flow Diagram E**



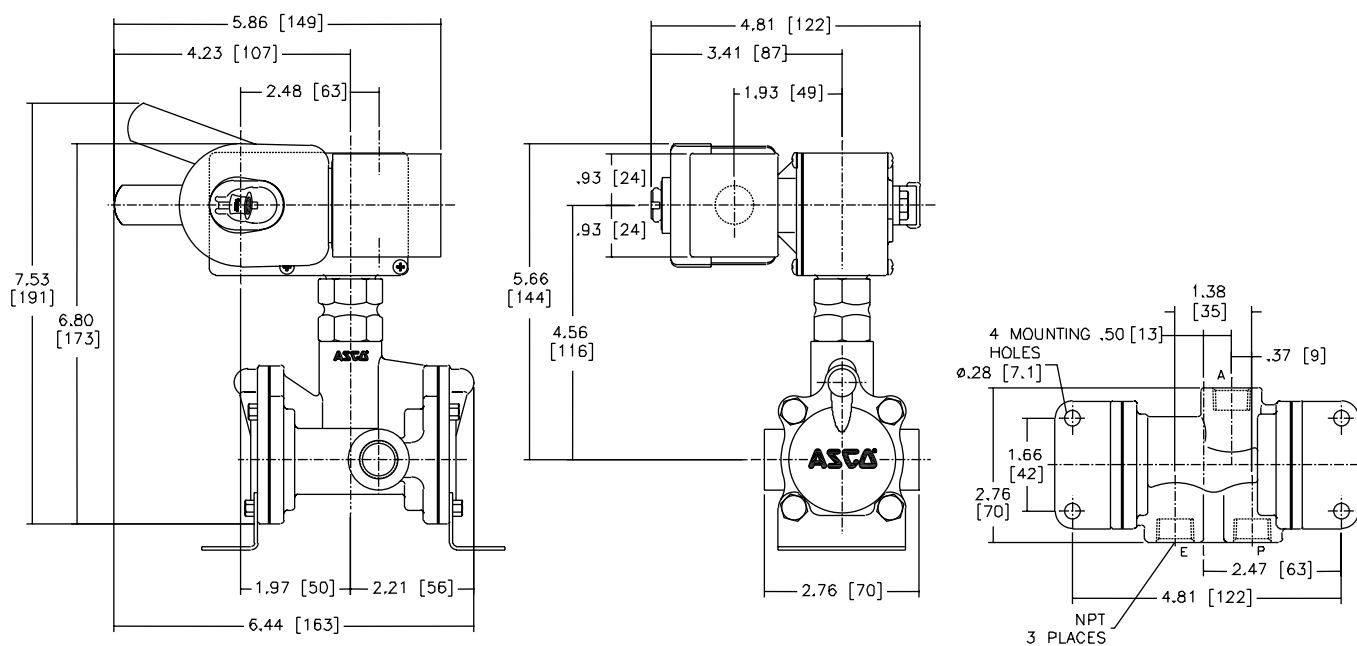


Dimensions: inches (mm)

**Const. Ref. No. 1**

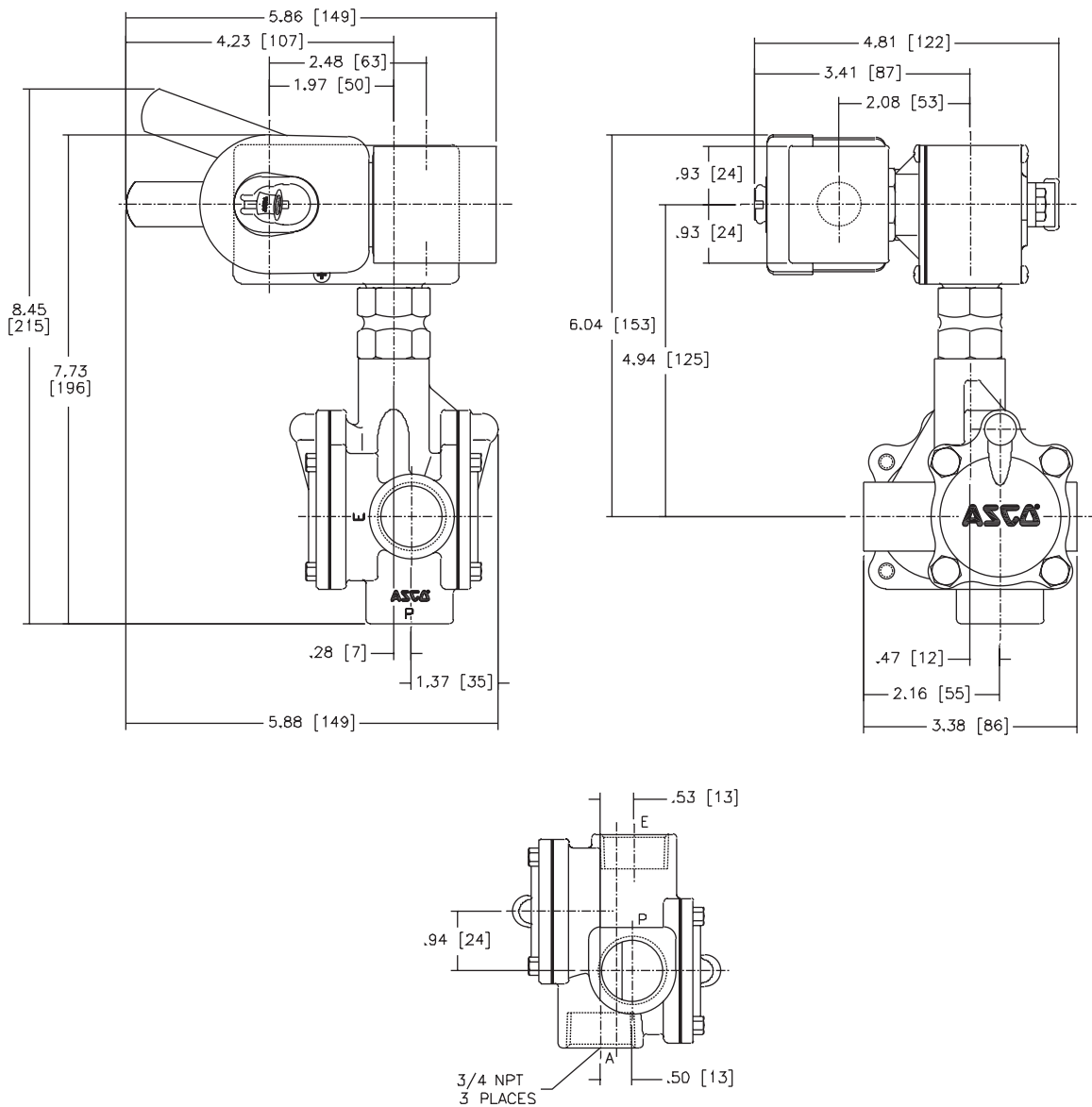


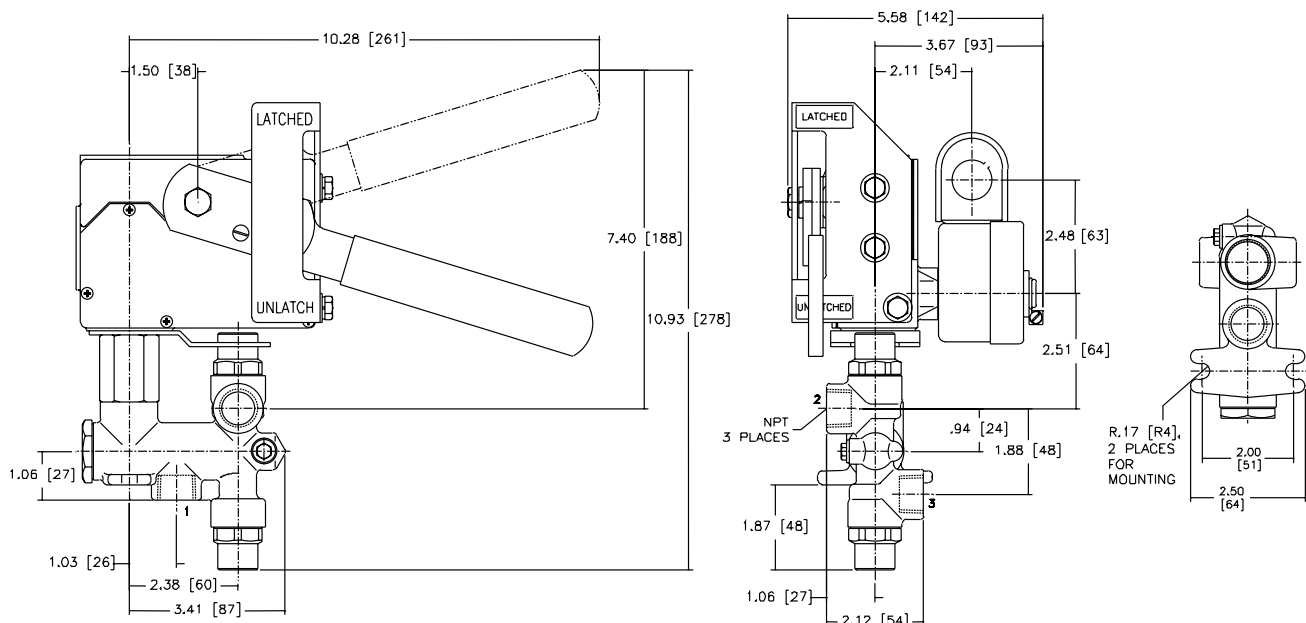
**Const. Ref. No. 2**



Dimensions: inches (mm)

Const. Ref. No. 3

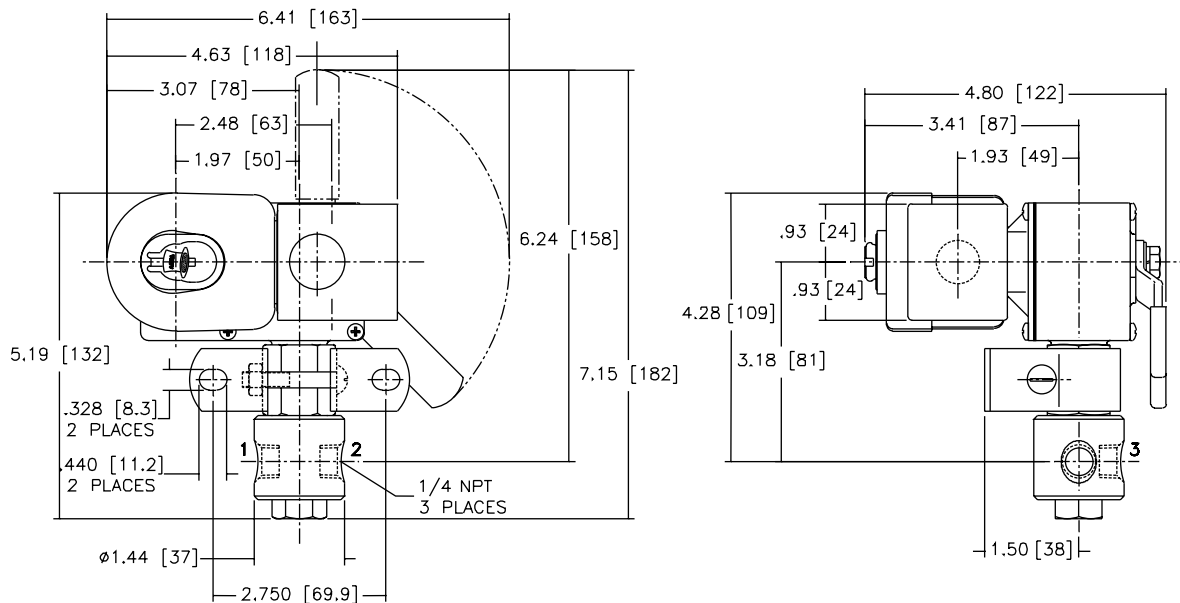


**Const. Ref. No. 4 ①**

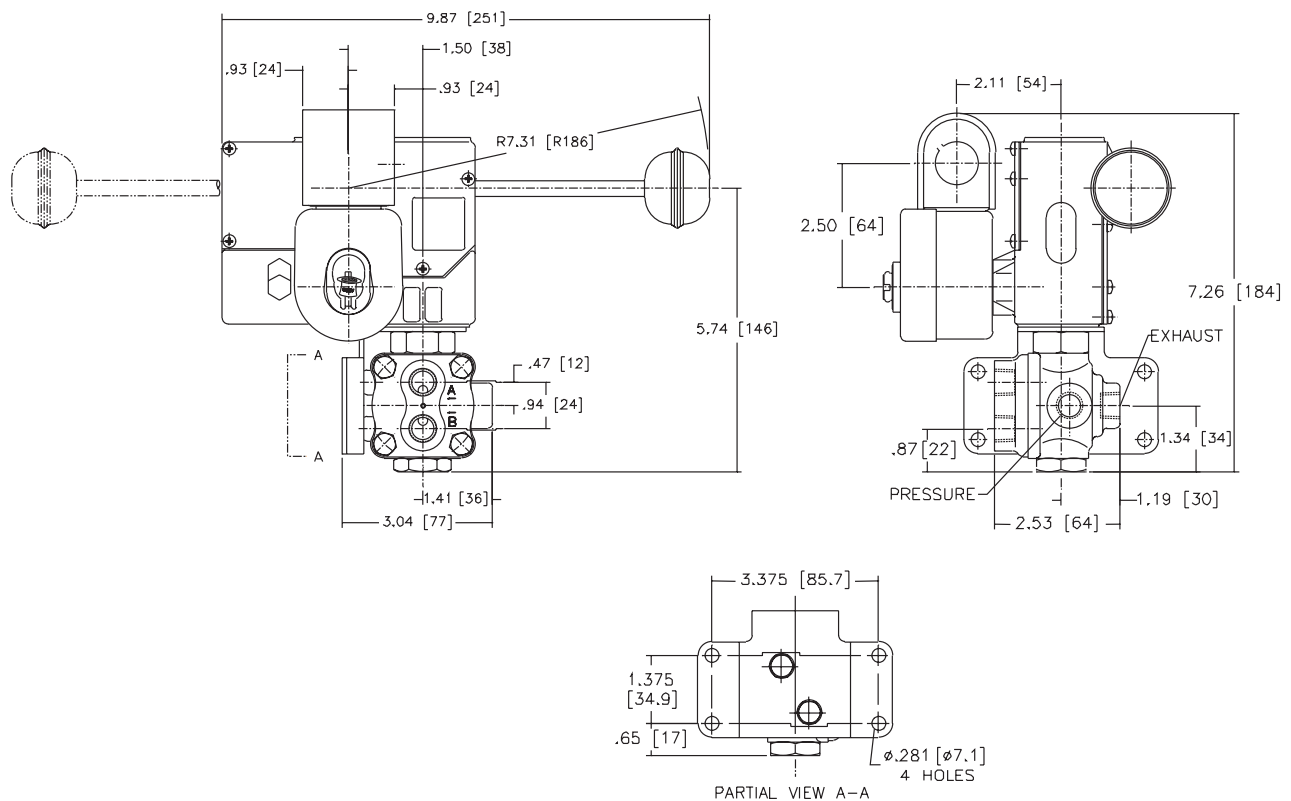
## Index

Dimensions: inches (mm)

Const. Ref. No. 6 ①



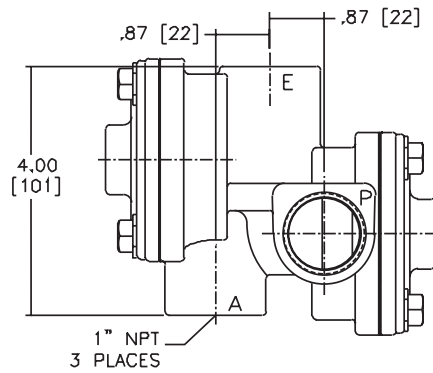
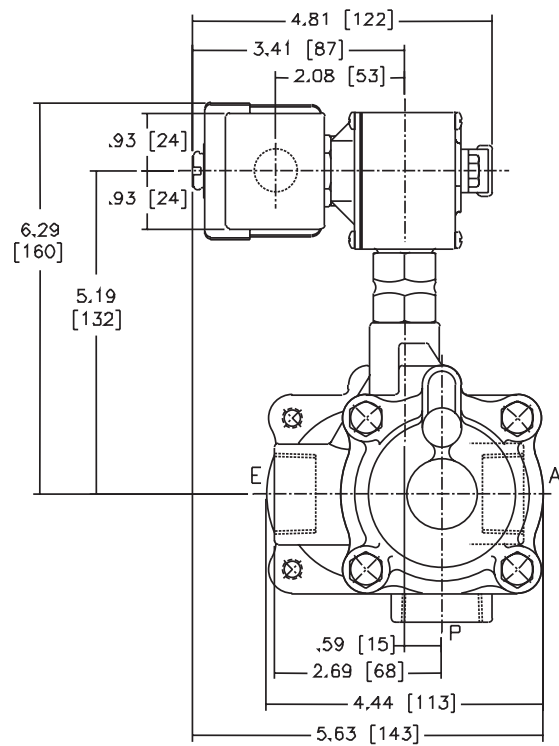
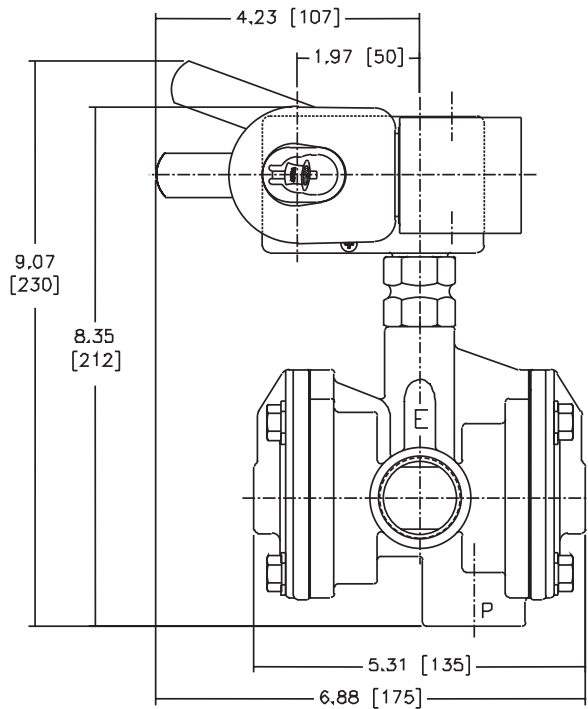
Const. Ref. No. 7 ①



① **IMPORTANT:** Valves must be mounted with manual reset operator vertical and upright.

Dimensions: inches (mm)

Const. Ref. No. 8



## Features

- Designed for high flow piloting with no minimum operating pressure required; e.g., power plants, refineries, chemical processing.
- Balanced Poppet construction for high flow at minimum power levels.
- PTFE rider rings and graphite-filled seals reduce friction and eliminate sticking to provide exceptional service life.
- 316 Stainless Steel construction for highly corrosive atmospheres.

## Construction

Valve Parts in Contact with Fluids		
Body	Brass	316 Stainless Steel
Core Tube	305 Stainless Steel	
Stem and Insert	303 Stainless Steel	
Core and Plugnut	430F Stainless Steel	
O-Ring Holder	430F Stainless Steel	
Springs	302 Stainless Steel	
Seals and Discs	NBR	FKM
	VMQ (Low-temperature construction)	
Rider Ring	PTFE	

## Electrical

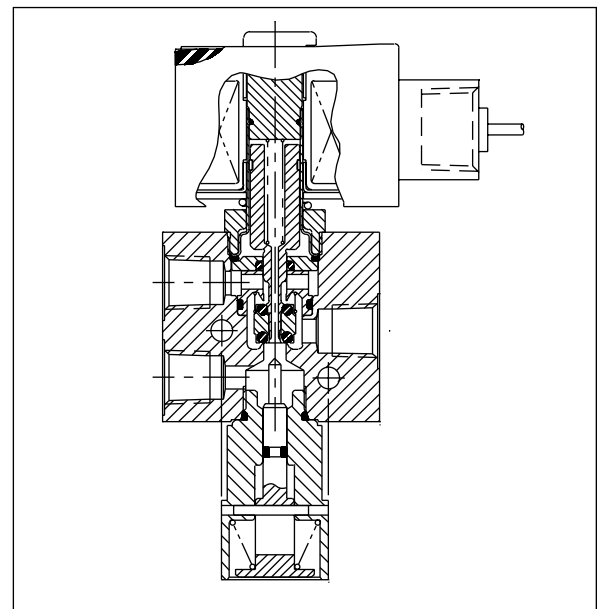
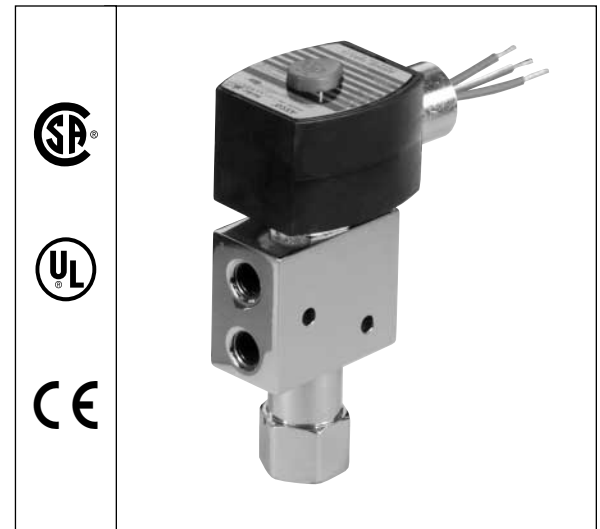
Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part Number			
	DC Watts	AC			General Purpose		Explosionproof	
		Watts	VA Holding	VA Inrush				
					AC	DC	AC	DC
F	11.6	-	-	-	-	238710	-	238714
F	-	12.0	12	12	276000	-	276002	-

**Standard Voltages:** 24/50-60, 120/50-60, 240/50-60, and 480/50-60 volts AC, or 6, 12, 24, 120 and 240 volts DC.

## Solenoid Enclosures

**Standard:** Brass valves: Types, 1, 2, 3, 3S, 4, and 4X.  
 316 Stainless Steel valves: Explosionproof and Watertight Types 3, 3S, 4, 4X, 6, and 6P.

**Optional:** Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9.  
 (To order, add prefix "EF", or for explosionproof Stainless Steel trim and hub on Brass-Bodied valves, add "EV" to catalog number.)  
*See Optional Features Section for other available options.*



## Nominal Ambient Temperature Ranges:

-4°F to 131°F (-20°C to 55°C)

*Refer to Engineering Section for details.*

## Approvals:

CSA certified. UL listed General Purpose Valves (12.0 watt pending). Meets applicable CE directives.  
*Refer to Engineering Section for details.*

## Operation Alternatives:

No Voltage Release - valves must be manually moved to the "open" latched position with the solenoid energized.

Tamperproof No Voltage Release - valves operate as above, but cannot be held open manually.

## Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor		Maximum Operating Pressure Differential (psi)			Max. Fluid Temp. °F	Brass Body	316 Stainless Steel Body	Constr. Ref. No.	Watt Rating/ Class of Coil Insulation	
		Ports 1-2	Ports 2-3	Air- Inert Gas	Water	Light Oil @ 300 SSU		Catalog Number	Catalog Number		AC	DC
		UNIVERSAL MANUAL RESET- No Voltage Release										
1/4	1/4	.60	.73	150	150	150	176	8327G21	—	2	12.0/F	11.6/F
1/4	1/4	.60	.73	150	150	150	248	—	EV8327G22	2	12.0/F	11.6/F
UNIVERSAL MANUAL RESET- Tamperproof No Voltage Release												
1/4	1/4	.60	.73	150	150	150	176	8327G31	—	2	12.0/F	11.6/F
1/4	1/4	.60	.73	150	150	150	248	—	EV8327G32	2	12.0/F	11.6/F

## Specifications (Metric units)

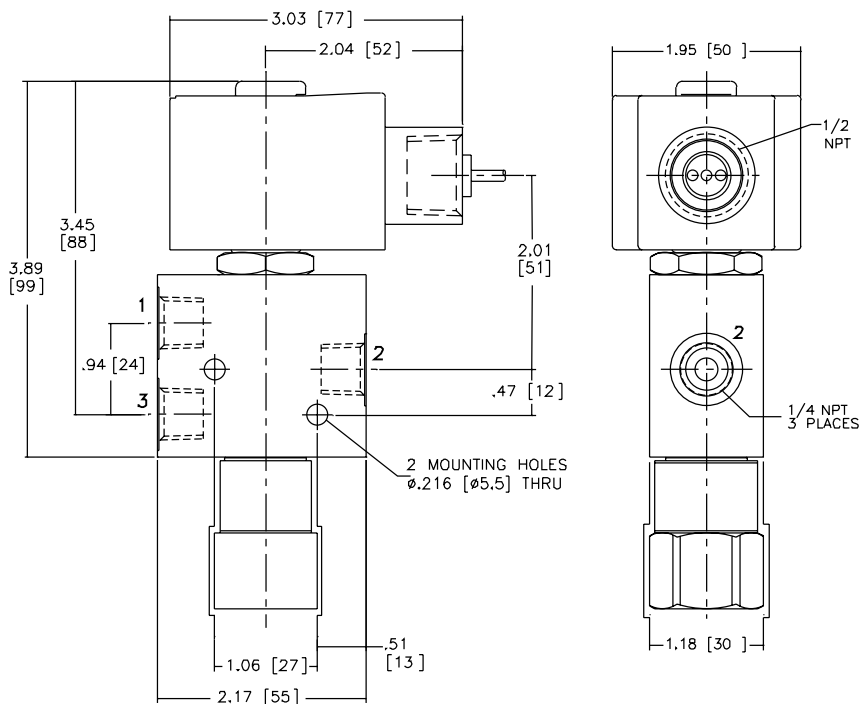
Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor m3/h		Maximum Operating Pressure Differential (bar)			Max. Fluid Temp. °C	Brass Body	316 Stainless Steel Body	Constr. Ref. No.	Watt Rating/ Class of Coil Insulation	
		Ports 1-2	Ports 2-3	Air- Inert Gas	Water	Light Oil @ 300 SSU		Catalog Number	Catalog Number		AC	DC
		UNIVERSAL MANUAL RESET- No Voltage Release										
1/4	6	.51	.63	10	10	10	79	8327G21	—	2	12.0/F	11.6/F
1/4	6	.51	.63	10	10	10	119	—	EV8327G22	2	12.0/F	11.6/F
UNIVERSAL MANUAL RESET- Tamperproof No Voltage Release												
1/4	6	.51	.63	10	10	10	79	8327G31	—	2	12.0/F	11.6/F
1/4	6	.51	.63	10	10	10	119	—	EV8327G32	2	12.0/F	11.6/F

## Dimensions: inches (mm)

### FLOW DIAGRAMS

OPERATION	DE-ENERGIZED	ENERGIZED
NORMALLY CLOSED PRESSURE AT 3		
NORMALLY OPEN PRESSURE AT 1		
UNIVERSAL PRESSURE AT ANY PORT		

### Constr. Ref. 2



**IMPORTANT:** Valves may be mounted in any position.

## Features

- NAMUR direct mount construction.
- Balanced Poppet construction provides high flow with low power consumption.
- PTFE rider rings and graphite-filled PTFE seals reduce friction and eliminate sticking for long life.
- No minimum pressure required.
- Tamperproof no-voltage release manual reset provides added safety.

## Construction

Valve Parts in Contact with Fluids		
Body	Aluminum	316 Stainless Steel
Seals and Discs	NBR	FKM
Core Tube	305 Stainless Steel	
Stem and Insert	303 Stainless Steel	
Core and Plugnut	430F Stainless Steel	
Springs	302 Stainless Steel	
Rider Rings	PTFE	

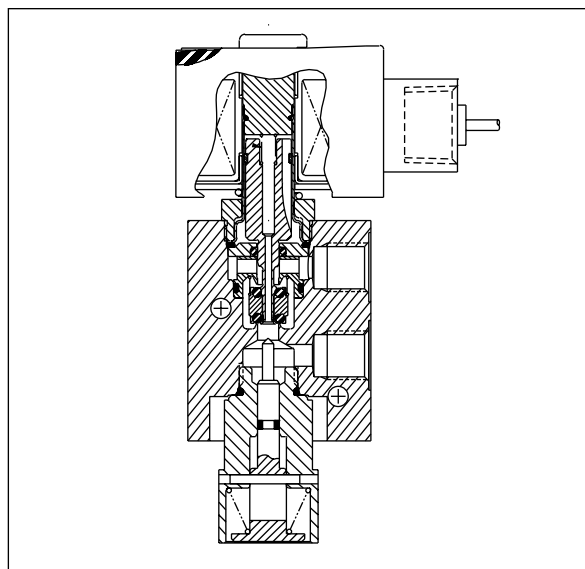
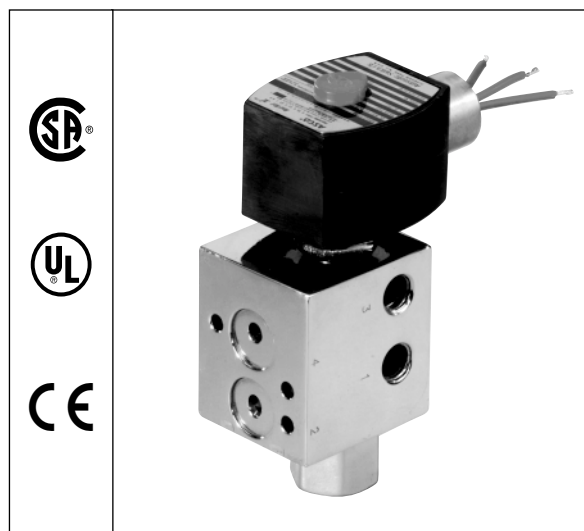
## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part Number			
					General Purpose		Explosionproof	
	DC Watts	AC			AC	DC	AC	DC
		Watts	VA Holding	VA Inrush				
F	11.6	12	12	12	276000	238710	276002	238714

**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz. 6, 12, 24, 120, 240 volts DC. Must be specified when ordering. Other voltages are available when required.

## Solenoid Enclosures

**Standard:** Watertight, Types 1, 2, 3, 3S, 4, and 4X.  
**Optional:** Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9.  
 (To order, add prefix "EF" or, for Explosionproof Stainless Steel trim and hub on Aluminum-Bodied valves, add "EV" to catalog number.)  
*See Optional Features Section for other available options.*



## Nominal Ambient Temperature Ranges:

-4°F to +131°F (-20°C to +55°C)

*Refer to Engineering Section for details.*

## Approvals:

General Purpose Solenoid: UL recognized component, CSA certified (8327G33 pending).

Explosionproof Solenoid: UL listed solenoid. CSA certified for use in hazardous locations.

Meets applicable CE directives.

*Refer to Engineering Section for details.*



Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor		Maximum Operating Pressure Diff. (psi)	Fluid Temp. Range Deg. °F	Aluminum Body	Stainless Steel Body	Constr. Ref. No.	Watt Rating/ Class of Coil Insulation	
		Ports 1-2	Ports 2-3	Air-Inert Gas		Catalog Number	Catalog Number		AC	DC
<b>NORMALLY CLOSED MANUAL RESET - Tamperproof No-Voltage Release</b>										
1/4	1/4	.62	.43	150	-4 to 176	8327G33	--	2	12.0/F	11.6/H
1/4	1/4	.62	.43	150	-4 to 248	--	EV8327G35	2	12.0/F	11.6/H

Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)		Maximum Operating Pressure Diff. (bar)	Fluid Temp. Range Deg. °C	Aluminum Body	Stainless Steel Body	Constr. Ref. No.	Watt Rating/ Class of Coil Insulation	
		Ports 1-2	Ports 2-3	Air-Inert Gas		Catalog Number	Catalog Number		AC	DC
<b>NORMALLY CLOSED MANUAL RESET - Tamperproof No-Voltage Release</b>										
1/4	6.4	.53	.37	10	-20 to 80	8327G33	--	2	12.0/F	11.6/H
1/4	6.4	.53	.37	10	-20 to 120	--	EV8327G35	2	12.0/F	11.6/H

**Constr. Ref. 2**

Technical drawing of a 2-position, 2-way solenoid valve, showing front and side views with dimensions in inches and millimeters.

**Front View Dimensions:**

- Top width: 3.03 [77]
- Top width (inner): 2.04 [52]
- Right side width: .47 [12]
- Right side width (inner): .95 [24]
- Right side width (outer): 1.42 [36]
- Bottom width (inner): 1.26 [32]
- Bottom width (outer): 1.61 [41]
- Bottom width (total): 1.97 [50]

**Side View Dimensions:**

- Top width: 2.55 [65]
- Top width (inner): 1.95 [50]
- Top port: 1/2 NPT
- Top port diameter: .98 [25]
- Top port to centerline: 3.39 [86]
- Centerline to bottom port: 5.46 [139]
- Bottom port: 1/4 NPT
- Bottom port diameter: .95 [24]
- Bottom port to centerline: 1.86 [47]
- Bottom port to bottom flange: 1.10 [28]
- Bottom flange width: .59 [15]
- Bottom flange to centerline: 2.17 [55]
- Bottom flange to bottom port: .30 [7]
- Bottom flange to bottom port (inner): M5
- Bottom flange to bottom port (outer): 4
- Bottom flange to bottom port (total): 2

## Features

- Designed to meet vibration and/or shock per ISA specification S71.03C2.
- Handles aggressive atmosphere per salt resistance testing (ASTM B117).
- Most hardware is stainless steel, and all aluminum components are hard anodized and Nituff\* coated.
- Manual reset housing is sealed with closed-cell CR sponge rubber and equipped with sintered bronze breather to prevent condensation.
- Last chance filter installed in auxiliary air port of the pilot valve.
- Intrinsically Safe and Low Power constructions available.

\*Nimet Industrial trademark.

## Construction

Valve Parts in Contact with Fluids	
<b>Main Valve</b>	
Body	Brass
Disc	303 Stainless Steel
Seats	Phosphor Bronze
Springs	17-7 PH Stainless Steel
Seals	FKM
Air Operator Diaphragm	FMQ
Bearing Screw	430 Stainless Steel
Lever	302 Stainless Steel
<b>Pilot Valve</b>	
Body	Brass
Shading Coil	Copper (AC only)
Seals	NBR and PA (AC), NBR (DC)
Core Tube	305 Stainless Steel
Core and Plugnut	430F Stainless Steel
Core Guide	CA
Core Springs	302 and 17-7PH Stainless Steel

## Electrical

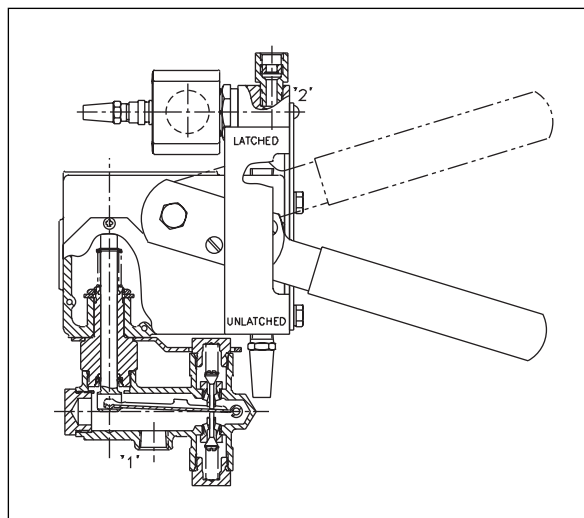
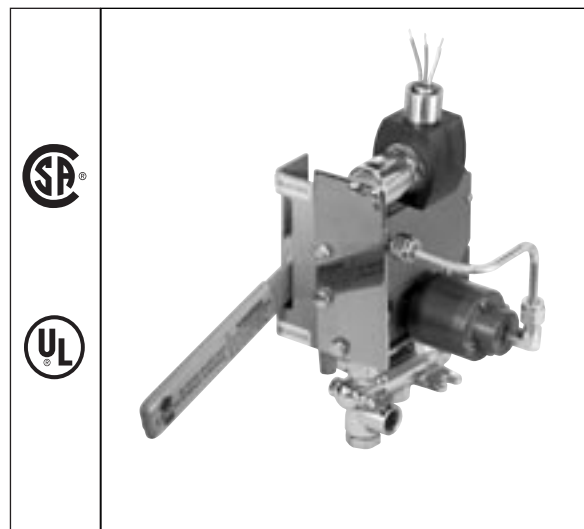
Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part Number			
	DC Watts	AC			General Purpose		Explosionproof	
		Watts	VA Holding	VA Inrush	AC	DC	AC	DC
F	11.6	-	-	-	-	238710	-	238714
F	-	10.1	25	76	238610	-	238614	-

**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz. 6, 12, 24, 120, 240 volts DC.  
 Must be specified when ordering.

## Solenoid Enclosures

**Standard:** Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6D, 7, and 9.

**Approvals:** CSA certified and UL listed General Purpose Valve (pilot).



## Options:

Stainless Steel body; 1/8" to 1/2" NPT pipe sizes; Position Indicator Switch; Main Valve Resilient Seats; 4 way construction with metering; Pneumatic Time Delay; redundant pilot valves.

Contact factory for ordering information.

## Operation Alternatives:

**Electrically Tripped** – Valves move to latched position when the solenoid is de-energized, trips when they receive a continuous or momentary (at least 0.3 seconds) electrical signal. When tripped, they can be manually cycled open/closed, but must be reset when the solenoid has once again been de-energized. If auxiliary air supply to the pilot valve is lost, the main valve will shift position.

**No Voltage Release** – Valves move to latched position when the solenoid is energized, trips when de-energized. When tripped, they can be manually cycled open/closed, but must be reset when the solenoid has once again been energized. If the auxiliary air supply to the pilot valve is lost, the main valve will shift position.

SERIES  
**HV264153**  
Manual Reset



Specifications (English units)

MAIN VALVE - AC or DC Constructions					
Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Operating Press. Diff. (psi)		Max. Fluid and Ambient Temp. °F
			Min.	Max.	
3/8	1/4	.45	0	125	200

Catalog Number	Construction Type	Pilot Pressure (psi)		Fluid Temperature °F		Ambient Temperature °F		Watt Rating/ Class of Coil Insulation	Pilot Valve (For reference only)
		Min.	Max.	Min.	Max.	Min.	Max.		
AC CONSTRUCTION									
HV264153-15	No Voltage Release	25	125	-20	200	-20	125	10.1/F	EF8314G34
HV264153-16	Electrically Tripped	25	125	-20	200	-20	125	10.1/F	EF8314G52
DC CONSTRUCTION									
HV264153-11	No Voltage Release	25	125	-20	104	-20	104	11.6/F	EF8314G34
HV264153-12	Electrically Tripped	25	125	-20	104	-20	104	11.6/F	EF8314G52

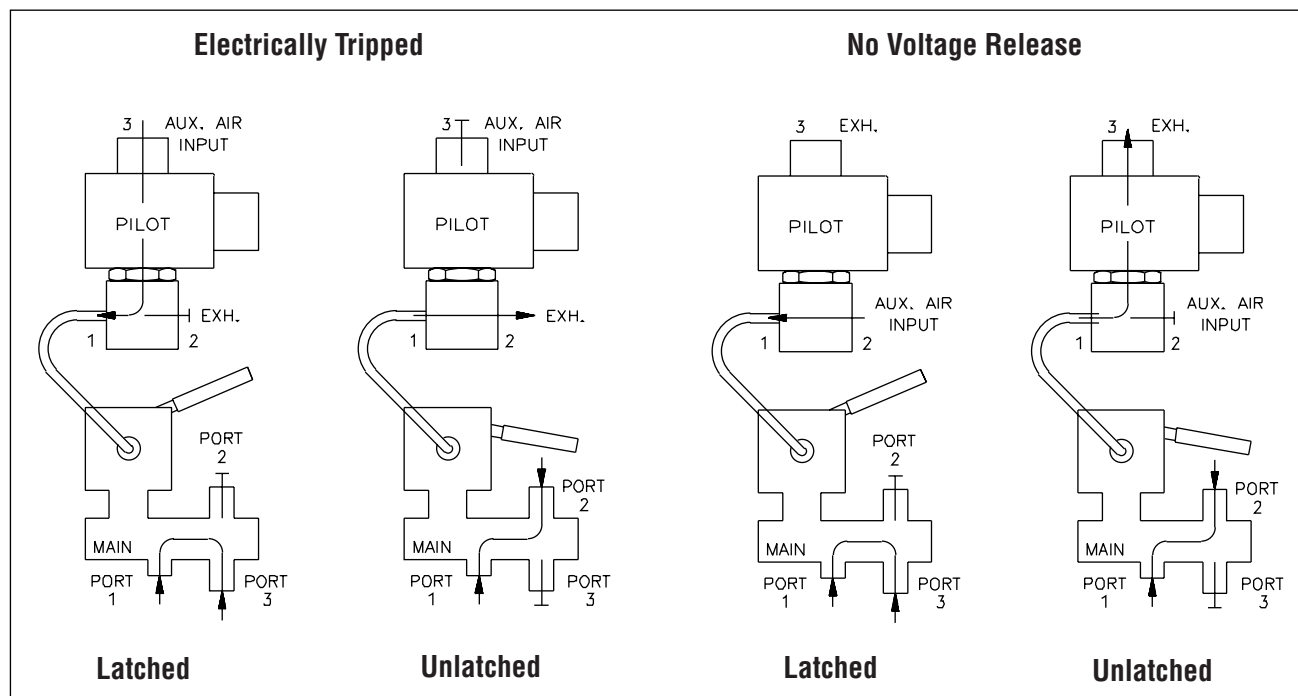
Specifications (Metric units)

MAIN VALVE - AC or DC Constructions					
Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Operating Press. Diff. (bar)		Max. Fluid and Ambient Temp. °C
			Min.	Max.	
3/8	6	0.39	0	9	92

Catalog Number	Construction Type	Pilot Pressure (bar)		Fluid Temperature °C		Ambient Temperature °C		Watt Rating/ Class of Coil Insulation	Pilot Valve (For reference only)
		Min.	Max.	Min.	Max.	Min.	Max.		
AC CONSTRUCTION									
HV264153-15	No Voltage Release	2	9	-29	92	-29	51	10.1/F	EF8314G34
HV264153-16	Electrically Tripped	2	9	-29	92	-29	51	10.1/F	EF8314G52
DC CONSTRUCTION									
HV264153-11	No Voltage Release	2	9	-29	40	-29	40	11.6/F	EF8314G34
HV264153-12	Electrically Tripped	2	9	-29	40	-29	40	11.6/F	EF8314G52

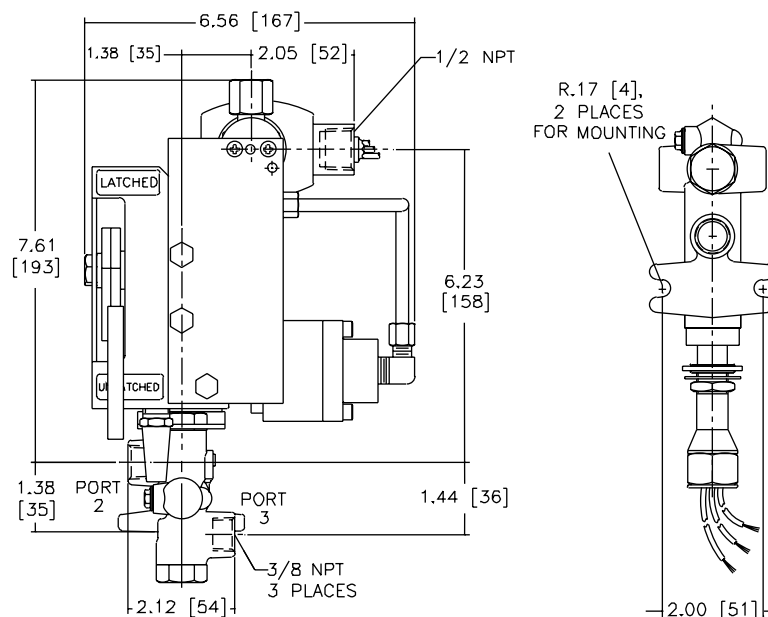
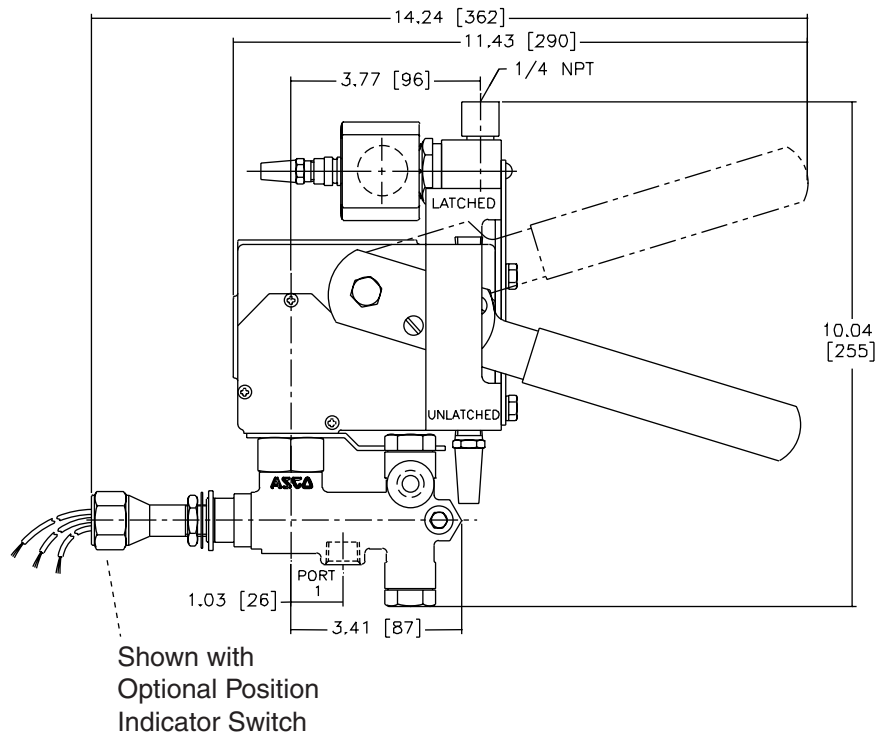
Dimensions: inches (mm)

FLOW DIAGRAMS



Dimensions: inches (mm)

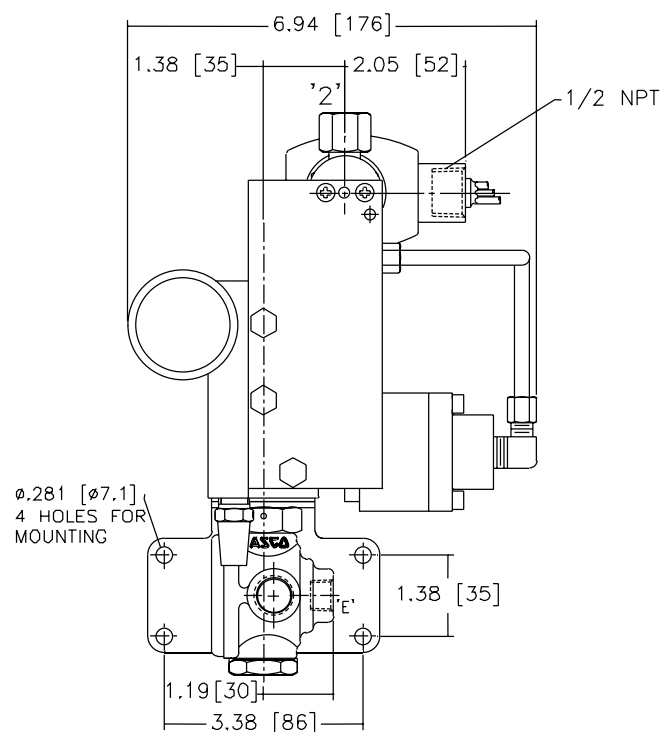
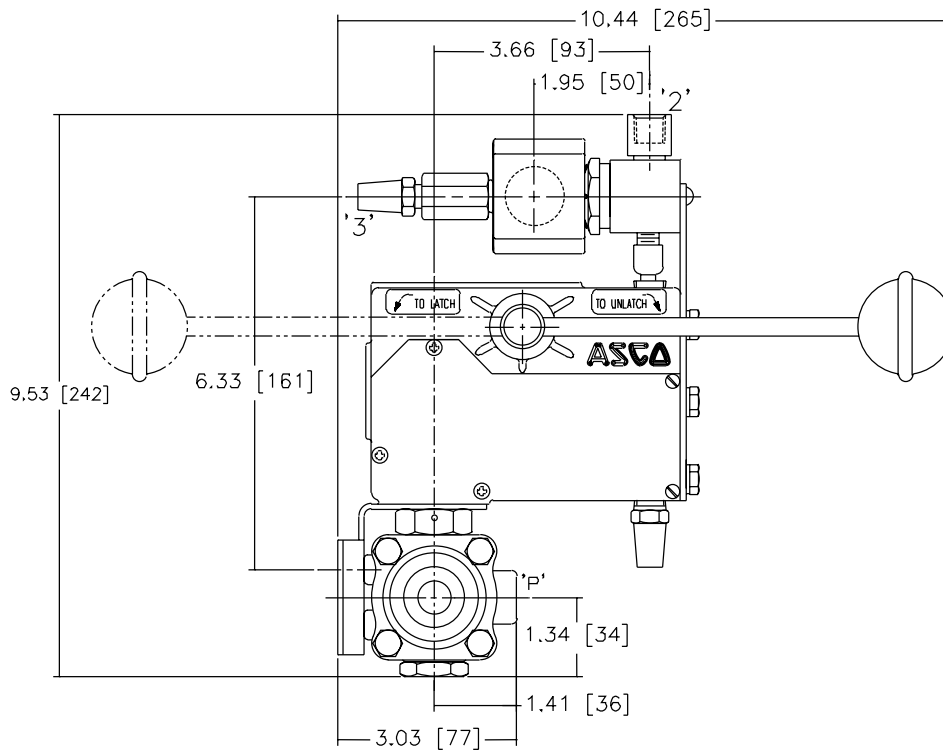
### No Voltage Release Construction



**IMPORTANT:** Mount with manual reset assembly vertical and upright.

Dimensions: inches (mm)

Free Handle Construction (shown with optional 4 way valve)



**IMPORTANT:** Mount with manual reset assembly vertical and upright.

## Features

- Manual reset versions of sturdy ASCO 8342 Series (1/4" and 3/8" NPT) and Series 8344 (1/2" to 1" NPT).
- 1/8" + 3/8" NPT are direct acting to provide maximum flow for their size.
- 1/2" to 1" NPT have Poppet construction for high flows and tight shutoff.
- Once tripped, can only be manually reset to automatic operation.
- Electrically Tripped (trips when energized), No Voltage Release (trips when de-energized), or Free Handle constructions.
- Intrinsically Safe constructions are available. *See Pilot Valve Section for details.*

## Construction

Valve Parts in Contact with Fluids	
Body	Brass
Stem	303 Stainless Steel
Springs	302 Stainless Steel
Pilot Seat Cartridge	CA (when listed)
Disc, Diaphragm, Seat	PTFE, FKM, or NBR (as listed)

## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part Number	
	DC Watts	AC				
		Watts	VA Holding	VA Inrush	AC	DC
F	-	20	45	96	99257	-
H	36.2	-	-	-	-	222184

**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz. 6, 12, 24, 120, 240 volts DC. Must be specified when ordering. Other voltages are available when required.

**Note:** 125 and 250 volts DC are battery voltages applied in power plants. Special valves are available to pilot control valves in power plants. *Consult your local ASCO sales office for a listing.*

## Solenoid Enclosures

**Standard:** Red-Hat metal solenoid enclosure.

Type 1 General Purpose Junction Box.

**Optional:** Explosionproof and Watertight, Types 3, 7(C and D), and 9. (To order, add prefix "EF" to catalog number.)

*See Optional Features Section for other available options.*

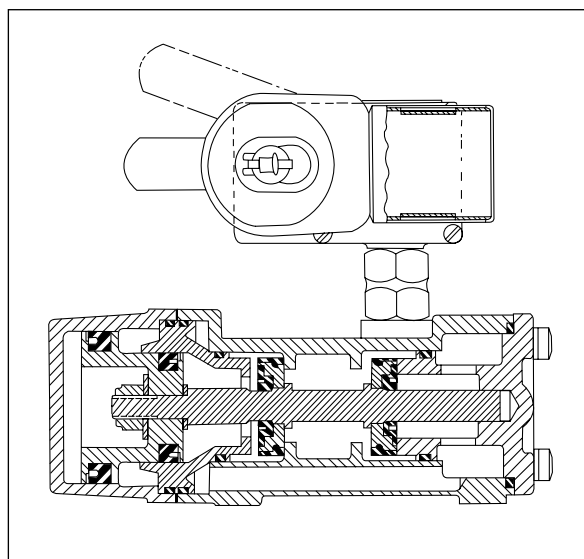
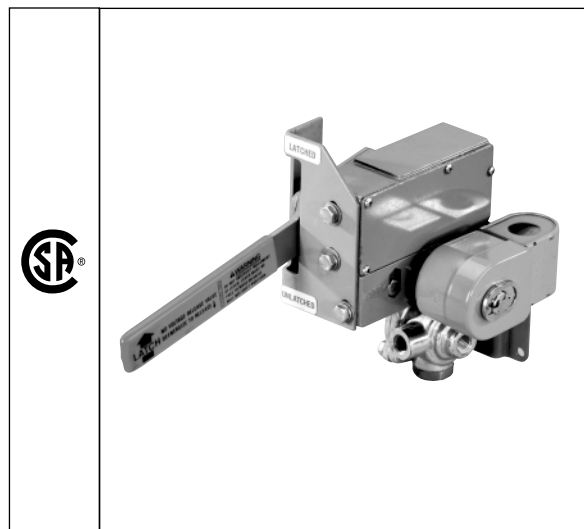
**Nominal Ambient Temperature Ranges:** AC: -20°F to 104°F (-29°C to 40°C)

*Refer to Engineering Section for details.*

## Approvals:

CSA certified. Some constructions meet shock and vibration ISA S71.03C2

*Refer to Engineering Section for details.*



## Operation Alternatives:

**Electrically Tripped** – Valves move to latched position when the solenoid is de-energized, trips when they receive a continuous or momentary (at least 0.3 seconds) electrical signal. When tripped, they can be manually cycled open/closed, but must be reset when the solenoid has once again been de-energized.

**No Voltage Release** – Valves move to latched position when the solenoid is energized, trips when de-energized. When tripped, they can be manually cycled open/closed, but must be reset when the solenoid has once again been energized.

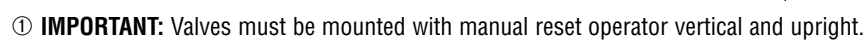
**Free Handle** – Valves move to latched position when the solenoid is energized, trips when de-energized. They cannot be manually cycled open/closed when de-energized. They can be manually cycled open/closed or reset only when energized.

## Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Operating Pressure Differential (psi)			Max. Fluid Temperature °F		No Voltage Release	Electrically Tripped	Constr. Ref. No.	Watt Rating/ Class of Coil Insulation	
			Min.	Max. AC	Max. DC	AC	DC	Catalog Number	Catalog Number		AC	DC
BRASS BODY with PTFE + FKM Seats and Discs for Air and Inert Gas												
1/4	3/16	.70	0	250	250	160	160	8408B6	8410B6	1	20/F	36.2/H
3/8	3/16	.70	0	250	250	160	160	8408B7	8410B7	1	20/F	36.2/H
BRASS BODY with NBR Seats and Discs (CA Pilot Cartridge) for Air, Inert Gas, Water, and Light Oil. This group of valves meets shock and vibration ISA S71.03C2.												
1/2	3/8	2.2	10	250	250	200	200	8408A8	8410A8	4	20/F	36.2/H
3/4	3/4	5.6	10	250	250	200	200	8408A9	8410A9	3	20/F	36.2/H
1	3/4	5.6	10	250	250	200	200	8408A10	8410A10	3	20/F	36.2/H
BRASS BODY with PTFE + FKM Seats and Discs for Air								Free Handle Construction				
1/4	3/16	.70	0	125	125	160	160	8047A1		2	20/F	36.2/H
3/8	3/16	.70	0	125	125	160	160	8047A2		2	20/F	36.2/H

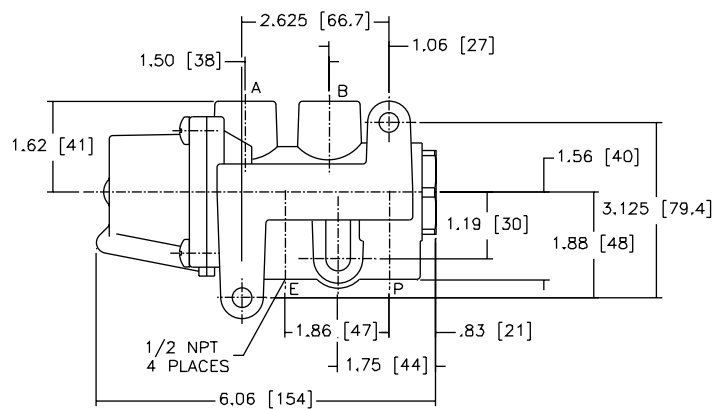
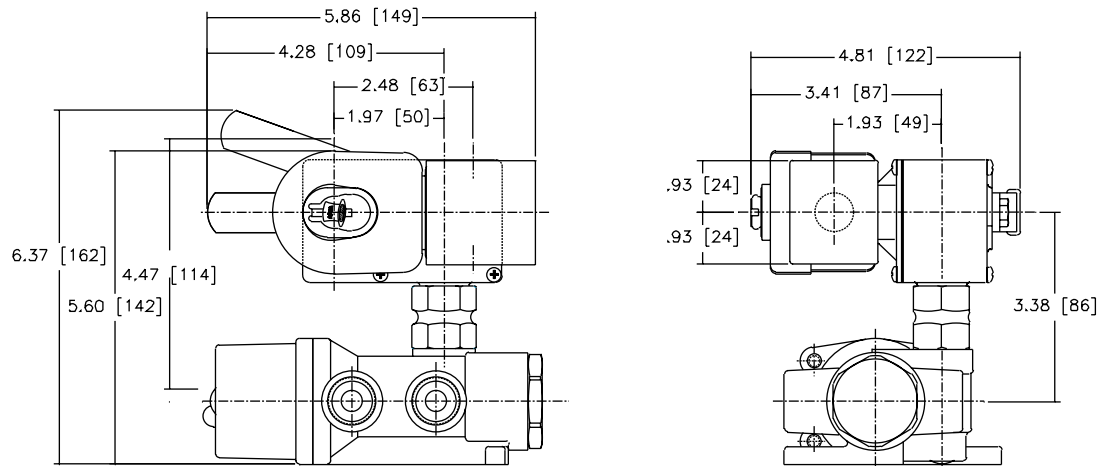
## Specifications (Metric units)

Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Operating Pressure Differential (bar)			Max. Fluid Temperature °C		No Voltage Release	Electrically Tripped	Constr. Ref. No.	Watt Rating/ Class of Coil Insulation	
			Min.	Max. AC	Max. DC	AC	DC	Catalog Number	Catalog Number		AC	DC
BRASS BODY with PTFE + FKM Seats and Discs for Air and Inert Gas												
1/4	5	.60	0	17	17	70	70	8408B6	8410B6	1	20/F	36.2/H
3/8	5	.60	0	17	17	70	70	8408B7	8410B7	1	20/F	36.2/H
BRASS BODY with NBR Seats and Discs (CA Pilot Cartridge) for Air, Inert Gas, Water, and Light Oil. This group of valves meets shock and vibration ISA S71.03C2.												
1/2	10	1.89	0.7	17	17	92	92	8408A8	8410A8	4	20/F	36.2/H
3/4	19	4.80	0.7	17	17	92	92	8408A9	8410A9	3	20/F	36.2/H
1	19	4.80	0.7	17	17	92	92	8408A10	8410A10	3	20/F	36.2/H
BRASS BODY with PTFE + FKM Seats and Discs for Air								Free Handle Construction				
1/4	5	.60	0	9	9	70	70	8047A1		2	20/F	36.2/H
3/8	5	.60	0	9	9	70	70	8047A2		2	20/F	36.2/H

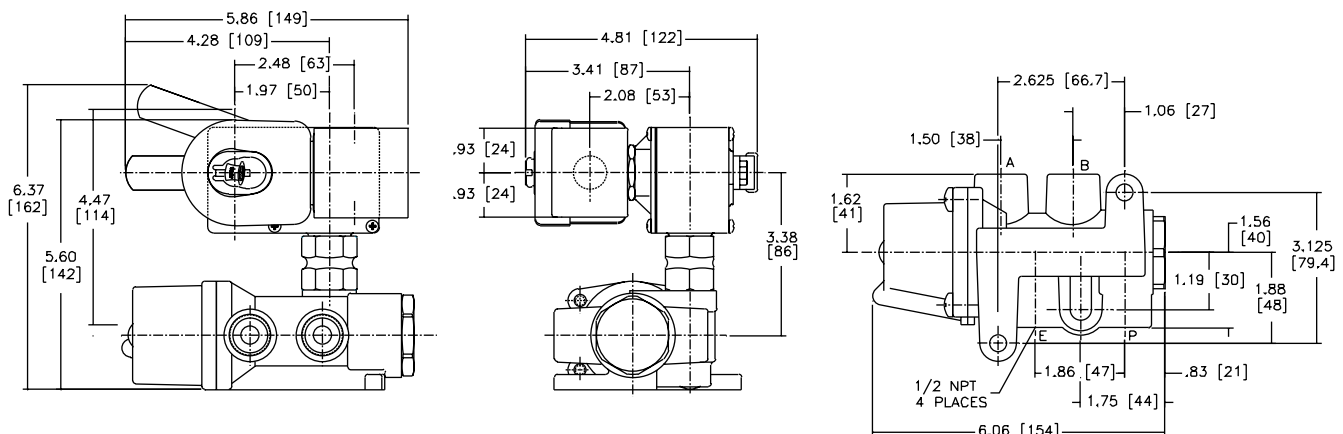
**Constr. Ref. No. 1**



**Constr. Ref. No. 3  
No Voltage Release**



**Constr. Ref. No. 4  
Electrically Tripped**



## Automation Operator Specifications

All of the operators listed below are intended for use on clean, dry air or inert gas filtered to 50 micrometers or better. To prevent freezing, the dew point of the media should be at least 18°F (-8°C) below the minimum temperature to which any portion of the clean air or gas system could be exposed. Instrument air, in compliance with ANSI/ISA Standard S7.3-1975 (R1981), exceeds the above requirements and is, therefore, an acceptable medium for these valves.

## Intrinsically Safe Piezo

Operator Parts in Contact with Fluids	
Cover	Zenite (LCP)
Adapter	Ryton (PPS)
Guide	Ryton (PPS)
Piston	Delrin (CA)
Stem	PC/PBT
Manual Operator Gasket	Santoprene
O-Ring & U-Cup Seals	NBR, FKM

Zenite and Delrin are trademarks of Dupont.

Ryton is a trademark of Philipps 66.

Santoprene is a trademark of Advanced Elastomer Systems.

Enclosure Type: NEMA 4, 4X

Input Voltage: 6-30VDC

Current Usage: 1.4 - 9.3 mA

Power Consumption: 0.0084 - 0.24 watts

Response Time: ≤ 350 ms

Ambient Temperature: 32°F to 140°F

Momentary Manual Operator standard.

Entity	Groups A-D
Parameters	V max - 30 VDC
	I max - 100 mA
	Capacitance = 0
	Inductance = .264 mh

## Approvals:

FM - approved under J.I. 3W8A8AX

CSA pending - file under LR - 13976-116C

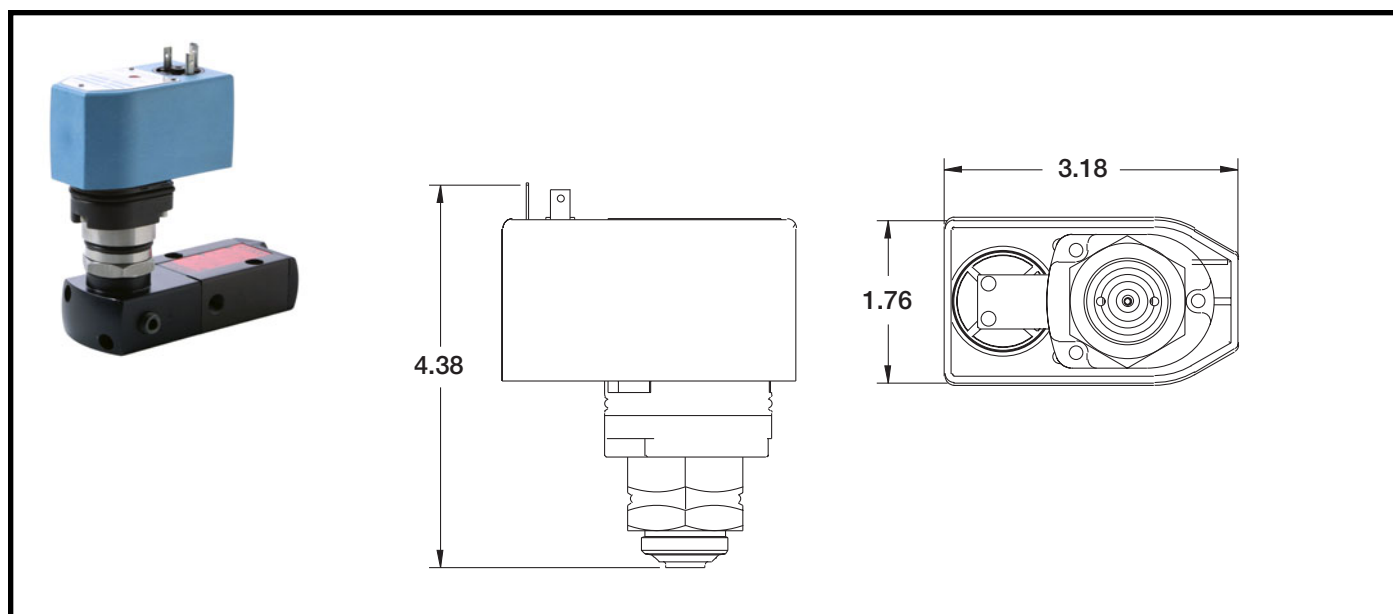
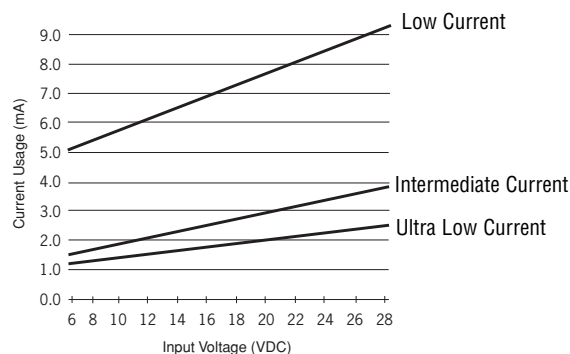
ATEX EEx ia IIC T6 @ 60° pending.

## Ordering:

When ordering the IS Piezo Valve, use the appropriate prefix from the table below.

Connector Types	Valve Catalog Number Prefix		
	Current Type		
	Ultra Low	Intermediate	Low
	1.4mA - 2.3mA	1.7mA - 3.7mA	5.1mA - 9.3mA
M12 4 Pole	PIA	PIB	PIC
DIN	PID	PIE	PIF

Each version will operate anywhere within the range of 6-27 volts. The graph shows the electrical characteristics of the three catalog varieties. The response time for all three versions will increase slightly as the voltage decreases towards the lower limit of 6 VDC.



## Automation Operator Specifications

All of the operators listed below are intended for use on clean, dry air or inert gas filtered to 50 micrometers or better. To prevent freezing, the dew point of the media should be at least 18°F (-8°C) below the minimum temperature to which any portion of the clean air or gas system could be exposed. Instrument air, in compliance with ANSI/ISA Standard S7.3-1975 (R1981), exceeds the above requirements and is, therefore, an acceptable medium for these valves.

## DeviceNet™

### Specifications:

Enclosure Type: NEMA 4, 4X Vendor ID: 11 (0B hex)

Operating Voltage: 11-24 VDC

Operating Current: 100 mA

Bus Address: 0 to 63 (63-default address from factory).

Addressing Software settable by using handheld device or configuration software.

Topology: Trunk/dropline with branching

Ambient Temperature: 14°F to 140°F

Connection: 5-pin mini type (standard) or M12 multipin (optional).

EDS File: Contact ASCO.

Baud Rates	125 Kbps	250 Kbps	500 Kbps
Thick (Type II) cable	500 m (1640 ft)	250 m (820 ft)	100 m (328 ft)
Thin (Type I) cable	100 m (328 ft)	100 m (328 ft)	100 m (328 ft)
Flat (Type III) cable	380 m (1250 ft)	200 m (656 ft)	75 m (246 ft)
Maximum drop Length	6 m (20 ft)	6 m (20 ft)	6 m (20 ft)
Cumulative drop length	156 m (512 ft)	78 m (328 ft)	39 m (128 ft)

Thick cable = Four #16 AWG cable + one #22 AWG drain cable; used as trunk cable.

Thin cable = Four #22 AWG cable + one #22 AWG drain cable; used as drop cable.

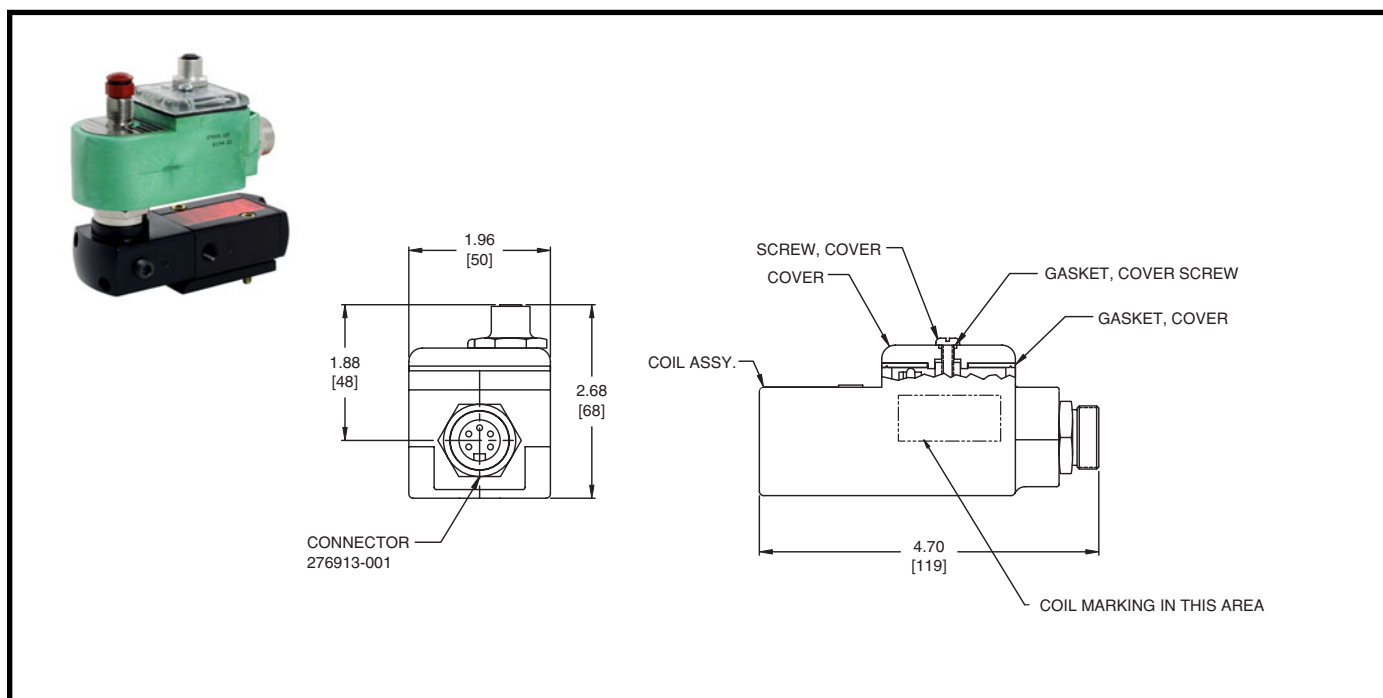
Flat cable = Four #16 AWG cable, no drain cable; used as trunk cable.

### Approvals:

DeviceNet™ certification version A13.

### Ordering:

When ordering the DeviceNet™ Operator, add prefix WBDN for 5-pin mini type connection or WBDM for M12 multipin connection.



## Automation Operator Specifications

All of the operators listed below are intended for use on clean, dry air or inert gas filtered to 50 micrometers or better. To prevent freezing, the dew point of the media should be at least 18°F (-8°C) below the minimum temperature to which any portion of the clean air or gas system could be exposed. Instrument air, in compliance with ANSI/ISA Standard S7.3-1975 (R1981), exceeds the above requirements and is, therefore, an acceptable medium for these valves.



### Specifications:

Enclosure Type: NEMA 4, 4X

Operating Current: 14.3 mA

Operating Voltage: 12.5VDC for IS applications and 24 VDC for non-IS applications.

Bus Address: 0 to 125 (126-default address from factory).

Topology: Bus, line, star and combinations.

Supported Baud Rate: 31.25 Kbps

Operator Response Time: 350 msec

Ambient Temperature: 32°F to 140°F

Connection: (2) M12 multipin; (1) male for network connection; (1) female for connecting up to 2 NAMUR proximity sensors. Momentary Manual Operator standard.

GSD File (General Service Description): Contact ASCO.

DD File (Device Description): Contact ASCO.

Application Area	Supply Voltage	Maximum Supply Current	Typical Number of Devices
EEx ia/ib IIC	12.5 VDC	100 mA	8
EEx ib IIC	12.5 VDC	110 mA	8
Not intrinsically safe	24 VDC	400 mA	32

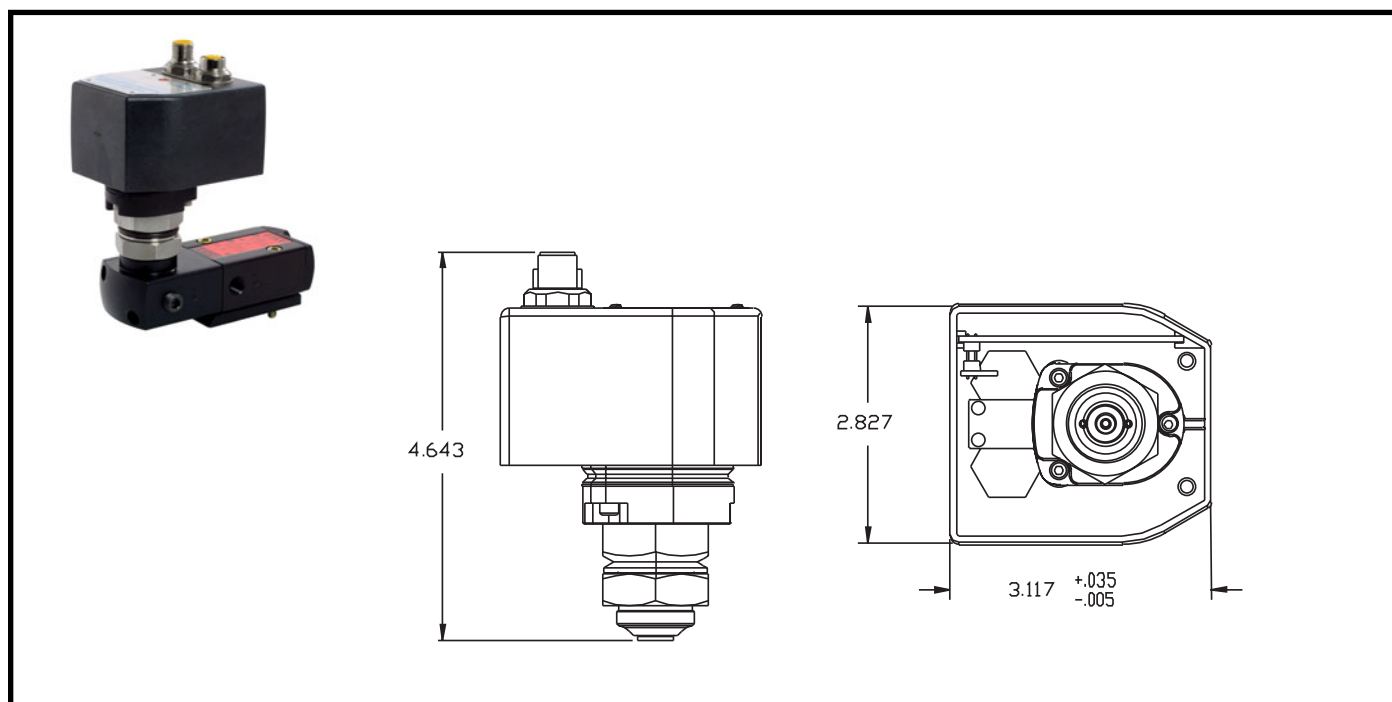
\*This table is based on a minimum current consumption of 14.3 mA per device. If a device consumes more than 14.3 mA, the number of devices that can be connected is reduced. The maximum distance corresponds to a fully loaded Profibus-PA segment.

### Approvals:

Profibus Trade Organization (PTO): PROFIBUS-PA slave.  
Device Certification FM: Intrinsically safety.

### Ordering:

When ordering the Profibus Operator, add prefix PR.



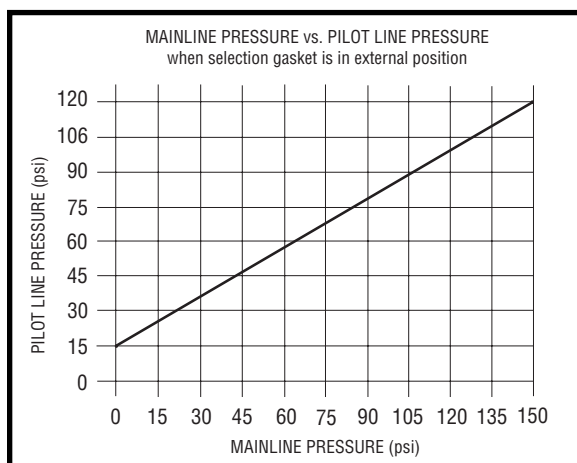
# Bus Controls



## Specifications (Nonelectronic)

Pipe Size (ins.)	Exh. Pipe Size (ins.)	Orifice Dia. (ins.)	Exh. Orifice Dia. (ins.)	Cv Flow Press.	Cv Flow Exh.	Operating Pressure Differential (psi)		Max. Fluid Temp. °F	Brass ②	Const. Ref.	Stainless Steel ②	Const. Ref.	Approx. Shipping Weight (lbs.) ③
						Min.	Max. DC						
							Air-Inert Gas						
3/2 Normally Closed													
1/4	1/4	1/16	1/16	.08	.08	0	150	140	8314A300	1	8314A301	2	1.6
1/4	1/8	1/16	1/4	.08	.73	5	150	140	8317A307	7	8317A308	7	1.7
1/4	1/4	5/16	5/16	1.5	1.5	①	150	140	8316A301	3	8316A381V	3	3.5
3/8	3/8	5/16	5/16	1.8	1.8	①	150	140	8316A302	3	8316A382V	3	3.5
3/8	3/8	5/8	5/8	4.0	4.0	①	150	140	8316A303	4	-	-	4.0
1/2	1/2	5/8	5/8	4.0	4.0	①	150	140	8316A304	4	8316A384V	4	4.1
3/4	3/4	11/16	11/16	5.5	5.5	10	150	140	8316A374	5	-	-	4.7
1	1	1	1	13.0	13.0	10	150	140	8316A334	6	-	-	8.5
4/2 Single Solenoid													
1/4	3/8	1/4	1/4	0.8	1.0	10	150	140	8344A370	9	-	-	5.2
3/8	1/2	3/8	3/8	1.4	2.2	10	150	140	8344A372	10	-	-	9.6
1/2	1/2	3/8	3/8	1.4	2.2	10	150	140	8344A374	10	-	-	9.6
3/4	1	3/4	3/4	5.2	5.6	10	150	140	8344A376	11	-	-	18.6
1	1	3/4	3/4	5.2	5.6	10	150	140	8344A378	11	-	-	18.6
4/2 Dual Solenoid													
1/4	3/8	1/4	1/4	0.8	1.0	10	150	140	8344A344	12	-	-	5.2
3/8	1/2	3/8	3/8	1.4	2.2	10	150	140	8344A380	13	-	-	9.6
1/2	1/2	3/8	3/8	1.4	2.2	10	150	140	8344A382	13	-	-	9.6
3/4	1	3/4	3/4	5.2	5.6	10	150	140	8344A354	14	-	-	18.6
1	1	3/4	3/4	5.2	5.6	10	150	140	8344A356	14	-	-	18.6
5/2 Single Solenoid													
1/4	1/4	1/16	1/16	.08	.08	10	150	140	8345A301	8	8345A381	8	3.8
1/4	1/4	1/4	1/4	.84	.84	35	150	140	-	-	8551A353	15	5.5
5/2 Dual Solenoid													
1/4	1/4	1/4	1/4	.84	.84	35	150	140	-	-	8551A388	17	5.5
5/2 Direct Mount Single Solenoid													
1/4	1/4	1/4	1/4	.84	.84	35	150	140	-	-	8551A355	16	6.5
5/2 Direct Mount Dual Solenoid													
1/4	1/4	1/4	1/4	.84	.84	35	150	140	-	-	8551A390	18	6.5
① Zero minimum when valve selection gasket is in external position and proper auxiliary air pressure is applied. See graph below for pilot line pressure versus mainline pressure. Minimum 15 psi operating pressure differential when selection gasket is in internal position.													
② These valves are not available without one of the prefixes from the Bus Control Section.													
③ Weights are the valve body only. (Add .5 for Piezo, .9 for DeviceNet, or .6 for Profibus.)													

- ① Zero minimum when valve selection gasket is in external position and proper auxiliary air pressure is applied. See graph below for pilot line pressure versus mainline pressure. Minimum 15 psi operating pressure differential when selection gasket is in internal position.  
 ② These valves are not available without one of the prefixes from the Bus Control Section.  
 ③ Weights are the valve body only. (Add .5 for Piezo, .9 for DeviceNet, or .6 for Profibus.)



For dimensional information on specific valve configurations see the relevant catalog page.

## Capabilities Chart (Nonelectronic)

Base Catalog Number		Resilient Materials								Other		Standard Rebuild Kit	
Brass	Stainless Steel	NBR	FKM	EPDM	Neoprene	Oxygen Service	PTFE	Urethane	Vacuum	Manual Operator	Mounting Bracket	Brass DC	Stainless Steel DC
8314A300	8314A301	●	V	-	-	-	T	-	-	MS	-	322295	322295
8316A301	-	●	-	-	-	-	-	-	-	MO	MB	316982	-
-	8316A381V	-	●	-	-	-	-	-	-	MO	MB	-	316982-V
8316A302	-	●	-	-	-	-	-	-	-	MO	MB	316982	-
-	8316A382V	-	●	-	-	-	-	-	-	MO	MB	-	316982-V
8316A303	-	●	-	-	-	-	-	-	-	MO	MB	316966	-
8316A304	-	●	-	-	-	-	-	-	-	MO	MB	316966	-
-	8316A384V	-	●	-	-	-	-	-	-	MO	MB	-	318399-V
8316A374	-	●	-	-	-	-	-	-	-	MO	MB	316847	-
8316A334	-	●	-	-	-	-	-	-	-	MO	MB	316850	-
8317A307	8317A308	●	V	-	-	-	T	-	-	-	-	322295	322295
8345A301	8345A381	●	V	-	-	-	-	-	-	MO	-	316844	318802
8344A370	-	●	-	-	-	-	-	-	-	MO	-	316841	-
8344A372	-	●	-	-	-	-	-	-	-	MO	-	316842	-
8344A374	-	●	-	-	-	-	-	-	-	MO	-	316842	-
8344A376	-	●	-	-	-	-	-	-	-	MO	-	316848	-
8344A378	-	●	-	-	-	-	-	-	-	MO	-	316848	-
8344A344	-	●	-	-	-	-	-	-	-	MO	-	316843	-
8344A380	-	●	-	-	-	-	-	-	-	MO	-	316846	-
8344A382	-	●	-	-	-	-	-	-	-	MO	-	316846	-
8344A354	-	●	-	-	-	-	-	-	-	MO	-	316851	-
8344A356	-	●	-	-	-	-	-	-	-	MO	-	316851	-

● = Standard

The valve automation market has demanding product requirements and specifications. ASCO is uniquely qualified to meet these needs. With our offering of direct mount NAMUR valves and valve position indicators ASCO can offer one source of supply for your valve automation solutions.

ASCO offers a complete range of 3 and 4 way valves which mount directly onto single acting and double acting actuators, including 3/2 - 5/2 combination valves that can be converted from 3 way operation to 4 way operation by simply flipping a gasket or changing a plate. These direct mount pilot valves eliminate the need for piping the valve to the actuator, and allow for fast, easy installation on the actuator. These valves are offered with Red-Hat II® molded epoxy solenoids, along with optional features such as high temperature Class H molded coils and manual operators. Additional coil types are available.

## Index

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Special Service Description	Page Number
Direct Mount (NAMUR)	6.01

## Features

- Mount directly to spring return actuators with NAMUR interface.
- Same poppet valve performance as in standard 8320 valves.
- Integral breather block prevents ingestion of contaminants or corrosives.
- Variety of flow and pressure ratings.
- Mountable in any position.

## Construction

Valve Parts in Contact with Fluids		
Body	Brass	303 Stainless Steel
Seals and Disc	NBR	
Core Tube	305 Stainless Steel	
Core and Plugnut	430F Stainless Steel	
Core Springs	302 Stainless Steel	
Shading Coil	Copper	Silver
Disc-Holder	CA	
Core Guide	CA (10.1 and 17.1 watts only)	

## Electrical

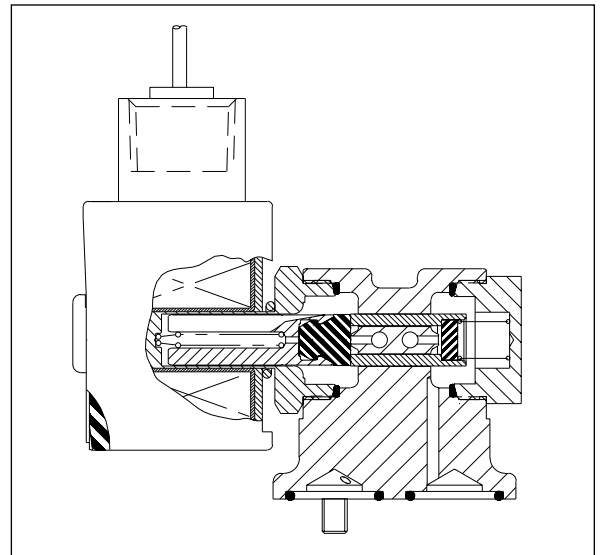
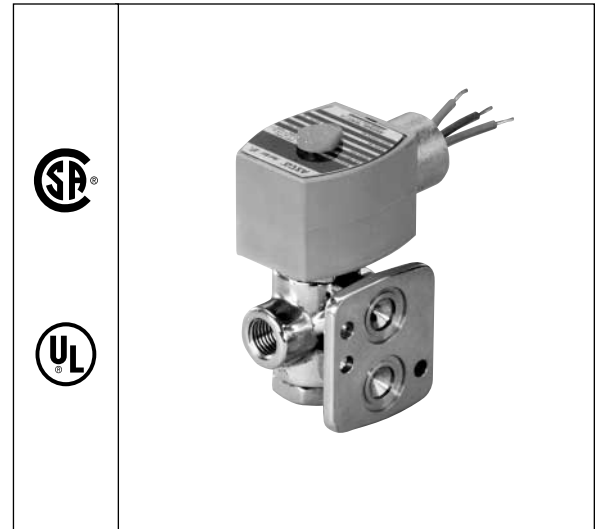
Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part Number			
	DC Watts	AC			General Purpose		Explosionproof	
		Watts	VA Holding	VA Inrush	AC	DC	AC	DC
F	10.6	6.1	16	30	238210	238310	238214	238314
F	11.6	10.1	25	50	238610	238710	238614	238714
F	22.6	17.1	40	70	238610	238710	238614	238714

**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz). 6, 12, 24, 120, 240 volts DC. Must be specified when ordering. Other voltages are available when required.

**Special Construction:** Dual solenoid construction for redundant controls and dribble control available. *Consult your local ASCO sales office for details.*

## Solenoid Enclosures

**Standard:** Watertight, Types 1, 2, 3, 3S, 4, and 4X.  
**Optional:** Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9.  
 (To order, add prefix "EF" to catalog number.)  
*See Optional Features Section for other available options.*



## Nominal Ambient Temperature Ranges:

AC: 0°F to 125°F (-18°C to 52°C)

DC: 0°F to 104°F (-18°C to 40°C)

When used at temperatures below 32°F (0°C), media must be moisture free. Also available: -40° construction.

*Please contact ASCO sales office for details.*

## Approvals:

UL component and CSA certified.

*Refer to Engineering Section for details.*



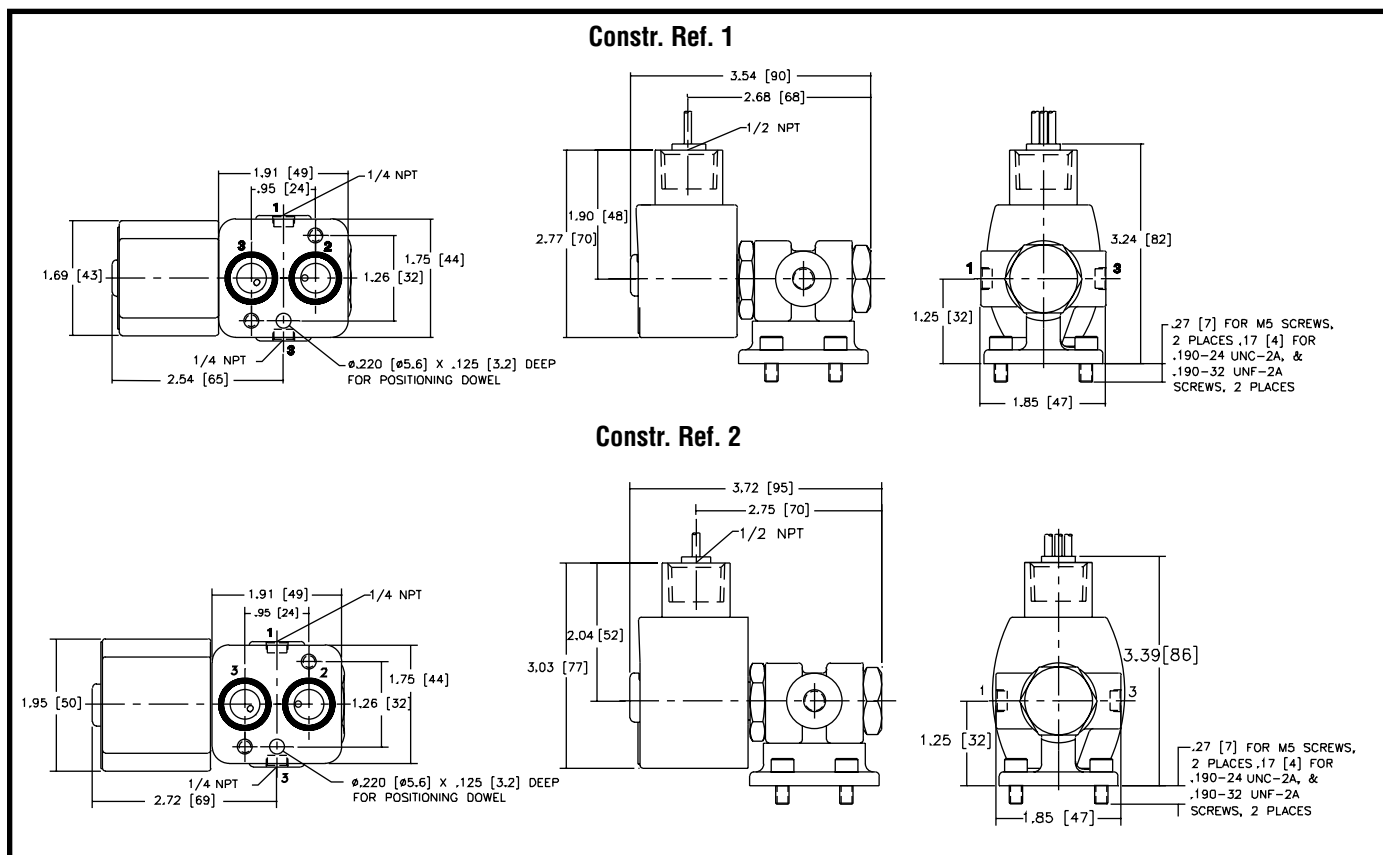
## Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Maximum Operating Pressure Differential (psi) Air-Inert Gas		Max. Fluid Temp. °F		Brass Body	Stainless Steel Body	Constr. Ref. No.	Watt Rating/ Class of Coil Insulation	
			Max. AC	Max. DC	AC	DC	Catalog Number	Catalog Number		AC	DC
NORMALLY CLOSED (Closed when de-energized)											
1/4	1/16	.09	150	125	180	120	8320G701	8320G711	1	6.1/F	10.6/F
1/4	3/32	.12	100	100	180	120	8320G702	8320G712	1	6.1/F	10.6/F
1/4	1/16	.09	210	160	200	150	8320G703	8320G713	2	17.1/F	11.6/F
1/4	3/32	.12	150	150	200	150	8320G704	8320G714	2	10.1/F	22.6/F
1/4	1/8	.21	100	-	200	-	8320G705	8320G715	2	17.1/F	-

## Specifications (Metric units)

Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Maximum Operating Pressure Differential (bar) Air-Inert Gas		Max. Fluid Temp. °C		Brass Body	Stainless Steel Body	Constr. Ref. No.	Watt Rating/ Class of Coil Insulation	
			Max. AC	Max. DC	AC	DC	Catalog Number	Catalog Number		AC	DC
NORMALLY CLOSED (Closed when de-energized)											
1/4	2	.08	10	9	81	48	8320G701	8320G711	1	6.1/F	10.6/F
1/4	2	.10	7	7	81	48	8320G702	8320G712	1	6.1/F	10.6/F
1/4	2	.08	14	11	92	65	8320G703	8320G713	2	17.1/F	11.6/F
1/4	2	.10	10	10	92	65	8320G704	8320G714	2	10.1/F	22.6/F
1/4	3	.18	7	-	92	-	8320G705	8320G715	2	17.1/F	-

## Dimensions: inches (mm)



## Features

- NAMUR direct mount construction.
- Balanced Poppet construction provides high flow with low power consumption.
- PTFE rider rings and graphite-filled PTFE seals reduce friction and eliminate sticking for long life.
- No minimum pressure required.
- Tamperproof no-voltage release manual reset provides added safety.

## Construction

Valve Parts in Contact with Fluids		
Body	Aluminum	316 Stainless Steel
Seals and Discs	VMQ	
	NBR	FKM
Core Tube	305 Stainless Steel	
Stem and Insert	303 Stainless Steel	
Core and Plugnut	430F Stainless Steel	
Springs	302 Stainless Steel	
Rider Rings	PTFE	

## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part Number			
					General Purpose		Explosionproof	
	AC				AC	DC	AC	DC
	DC Watts	Watts	VA Holding	VA Inrush				
F	11.6	12	24	24	276000	238710	276002	238714
F	--	12	12	12	276000	--	276002	--

**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz. 6, 12, 24, 120, 240 volts DC. Must be specified when ordering. Other voltages are available when required.

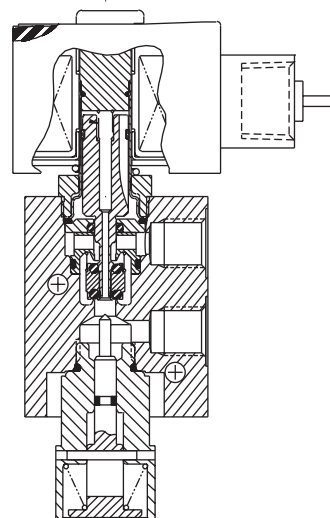
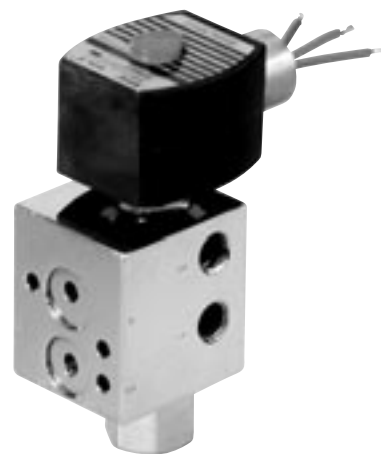
## Solenoid Enclosures

**Standard:** Watertight, Types 1, 2, 3, 3S, 4, and 4X.

**Optional:** Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9.  
 (To order, add prefix "EF" or, for Explosionproof Stainless Steel trim and hub on Aluminum-Bodied valves, add "EV" to catalog number.)  
 See *Optional Features Section* for other available options.

**SIL (Safety Integrity Level) Information:**

- PFD (Probability of Failure on Demand)  $<4 \times 10^{-7}$  at a confidence factor of 95%.
- SFF (Safe Failure Fraction) according to IEC 61508-2 Table A1 is  $\geq 0.99$ .
- Only constructions without manual operators apply to the above criteria.



## Nominal Ambient Temperature Ranges:

8327G33 and 35: -4°F to +131°F (-20°C to +55°C)

8327G53 and 55: -40°F to +131°F (-40°C to +55°C)

Refer to *Engineering Section* for details.

## Approvals:

General Purpose Solenoid: UL recognized component, CSA certified.

Explosionproof Solenoid: UL listed solenoid. CSA certified for use in hazardous locations.

Meets applicable CE directives.

Refer to *Engineering Section* for details.

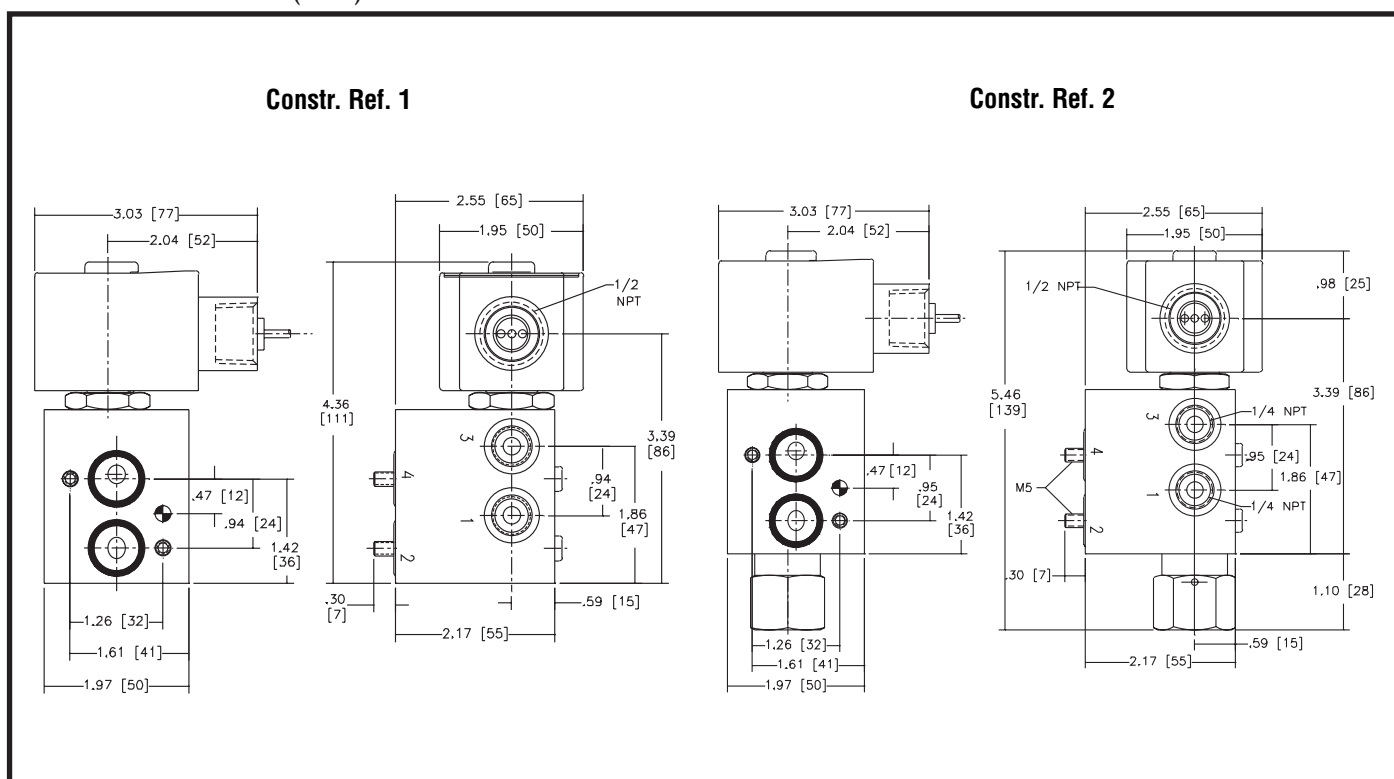
## Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor		Maximum Operating Pressure Diff. (psi)	Fluid Temp. Range Deg. °F	Aluminum Body	Stainless Steel Body	Constr. Ref. No.	Watt Rating/ Class of Coil Insulation	
		Ports 1-2	Ports 2-3	Air-Inert Gas		Catalog Number	Catalog Number		AC	DC
UNIVERSAL - Low-Temperature Operation										
1/4	1/4	.52	.53	150	-40 to 131	8327G53	EV8327G55	1	12.0/F	11.6/F
UNIVERSAL MANUAL RESET - Tamperproof No-Voltage Release										
1/4	1/4	.62	.43	150	-4 to 176	8327G33	--	2	12.0/F	11.6/F
1/4	1/4	.62	.43	150	-4 to 248	--	EV8327G35	2	12.0/F	11.6/F

## Specifications (Metric units)

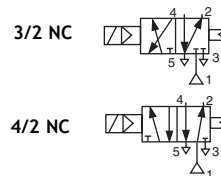
Pipe Size Size (ins.)	Orifice Size Size (mm)	Kv Flow Factor (m3/h)		Maximum Operating Pressure Diff. (bar)	Fluid Temp. Range Deg. °C	Aluminum Body	Stainless Steel Body	Constr. Ref. No.	Watt Rating/ Class of Coil Insulation	
		Ports 1-2	Ports 2-3	Air-Inert Gas		Catalog Number	Catalog Number		AC	DC
UNIVERSAL - Low-Temperature Operation										
1/4	6.4	.45	.45	10	-40 to 55	8327G53	EV8327G55	1	12.0/F	11.6/F
UNIVERSAL MANUAL RESET - Tamperproof No-Voltage Release										
1/4	6.4	.53	.37	10	-20 to 80	8327G33	--	2	12.0/F	11.6/F
1/4	6.4	.53	.37	10	-20 to 120	--	EV8327G35	2	12.0/F	11.6/F

## Dimensions: inches (mm)





Corrosion Resistant  
**Direct Mount Pilot Valves**  
Thermoplastic Bodies  
1/8" and 1/4" NPT



**3/2 • 5/2**  
SERIES  
**8380/8401**  
**Direct Mount**

## Features

- Mount directly to actuators with NAMUR, Keystone, or Worcester interfaces.
- Easy conversion from AC to DC by simply changing coil.
- Standard momentary/maintained manual operator.
- 3/2 is Normally Closed poppet design for spring return actuators.
- 3/2 Normally Closed or 4/2 operation can be selected by rotating sub-base gasket.
- 3/2 Normally Closed or 4/2 valves have built-in linear flow device capable of controlling Cv from 0.10 to 0.50.
- Breather block exhausts to spring side of actuator to prevent corrosion of the actuator.
- Unique CA slide and ceramic flow plate for extra-long life.

## Construction

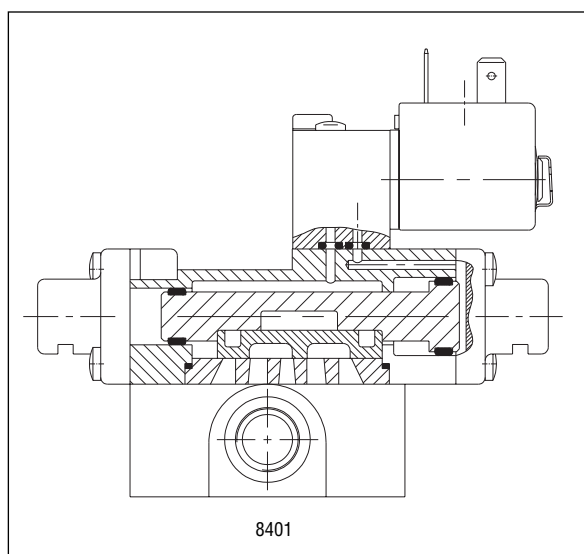
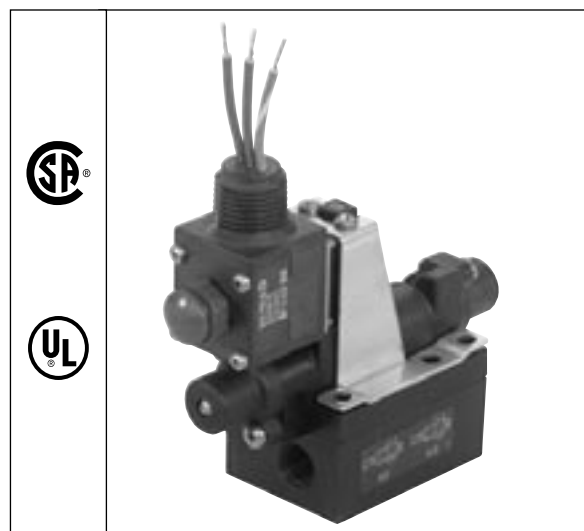
Valve Parts in Contact with Fluids	
Core Tube	305 Stainless Steel
Core and Plugnut	430F Stainless Steel
Springs	302 Stainless Steel
Seals	Low-Friction, Low-Wear NBR
Interface Plate	Molded PA
8401 Series Only:	
Pressure Port	303 Stainless Steel
Main and Pilot Body	Molded PA
Spool	CA
Slide	Graphite-filled PTFE
Flow Plate	Ceramic (Alumina)
Worcester Version:	
Main Body and Sub-Base	Anodized Aluminum

## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part No.	
	DC Watts	AC				
		Watts	VA Holding	VA Inrush	AC	DC
F	6.9	6.3	8.8	12.1	266763	270008
<b>Standard Voltages:</b> 24, 120, 240 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz). 6, 12, 24, 120, 240 volts DC. Must be specified when ordering. Other voltages available upon request.						

## Solenoid Enclosures

**Standard:** Watertight, Types 1, 2, 3, 3S, 4, and 4X.  
**Optional:** Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9.  
(To order, change "WT" catalog number prefix to "EF". Molded epoxy coil per 3 x DIN 46244. To order, change "WT" catalog number prefix to "SC". Molded epoxy open frame Class F coil with 18" leads. To order, change "WT" catalog number prefix to "U".)  
*See Optional Features Section for other available options.*



## Nominal Ambient Temperature Ranges:

AC: 0°F to 104°F (-18°C to 40°C), except prefixes "U" and "SC" to 135°F (57°C)

DC: 0°F to 77°F (-18°C to 25°C)

## Approvals:

"WT" - UL recognized component General Purpose Valve, CSA certified.

"EF" - UL listed solenoid, CSA certified.

"U" and "SC" - UL recognized component, CSA certified.

*Refer to Engineering Section for details.*

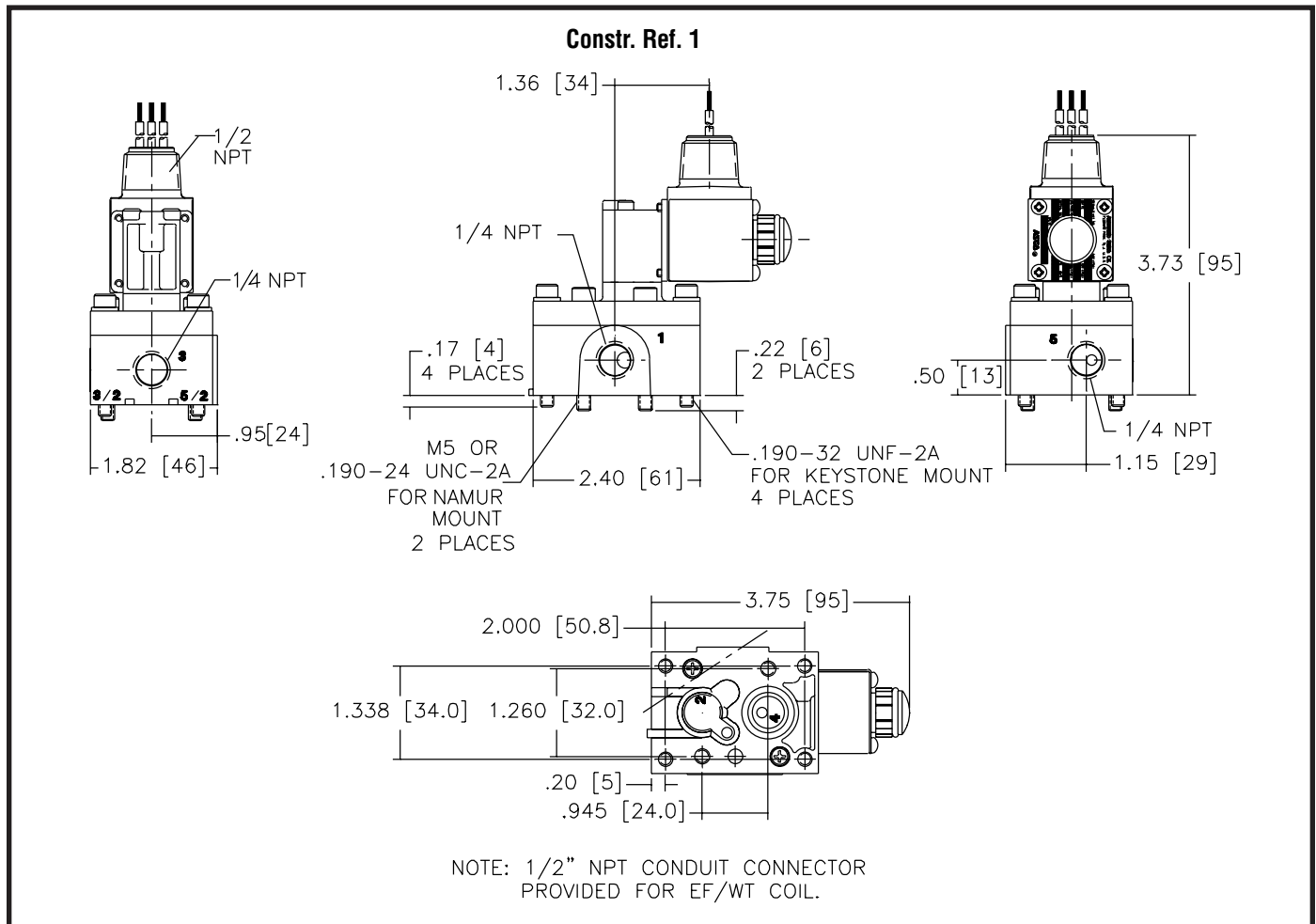
## Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Main Line Supply Pressure (psi) AC and DC				Catalog Number	Constr. Ref. No.	Interface Type	Watt Rating/ Class of Coil Insulation	
			Air-Inert Gas		Max. Fluid Temp. °F					AC	DC
			Min.	Max.	AC	DC					
3 WAY NORMALLY CLOSED (Closed when de-energized)											
1/4	3/64	.05	0	150	104	77	WT8380B202	1	NAMUR	6.3/F	6.9/F
3 WAY NORMALLY CLOSED or 4 WAY											
1/4	1/4	.50	20	150	104	77	WT8401B202M	2	NAMUR	6.3/F	6.9/F
1/4	1/4	.50	20	150	104	77	WT8401B204M	2	Keystone	6.3/F	6.9/F
1/8	1/4	.40	20	135	104	77	WT8401B200M	3	Worcester	6.3/F	6.9/F

## Specifications (Metric units)

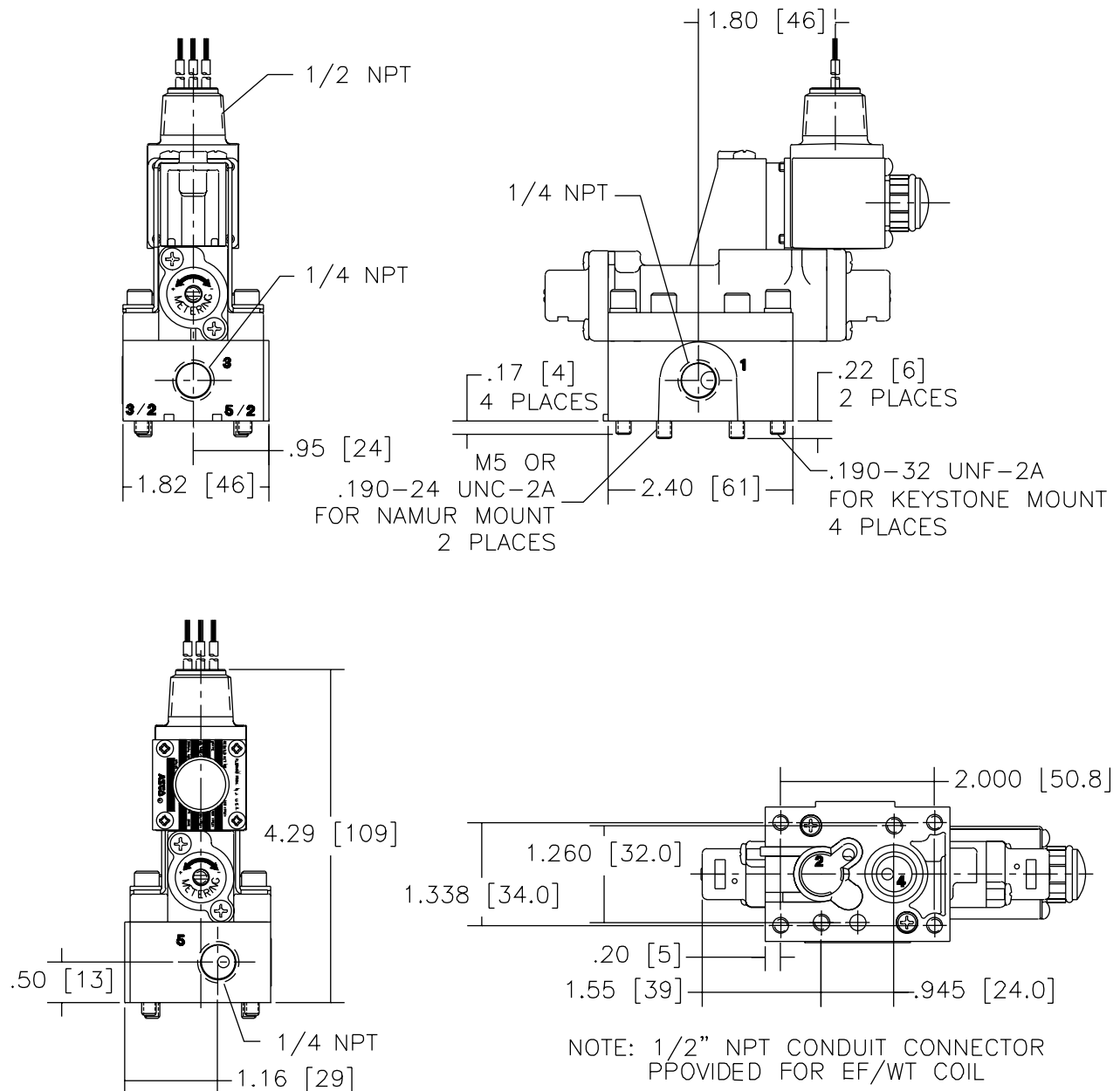
Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Main Line Supply Pressure (bar) AC and DC				Catalog Number	Constr. Ref. No.	Interface Type	Watt Rating/ Class of Coil Insulation	
			Air-Inert Gas		Max. Fluid Temp. °C					AC	DC
			Min.	Max.	AC	DC					
3 WAY NORMALLY CLOSED (Closed when de-energized)											
1/4	1	.04	0	10	40	25	WT8380B202	1	NAMUR	6.3/F	6.9/F
3 WAY NORMALLY CLOSED or 4 WAY											
1/4	6	.43	1	10	40	25	WT8401B202M	2	NAMUR	6.3/F	6.9/F
1/4	6	.43	1	10	40	25	WT8401B204M	2	Keystone	6.3/F	6.9/F
1/8	6	.34	1	9	40	25	WT8401B200M	3	Worcester	6.3/F	6.9/F

## Dimensions: inches (mm)



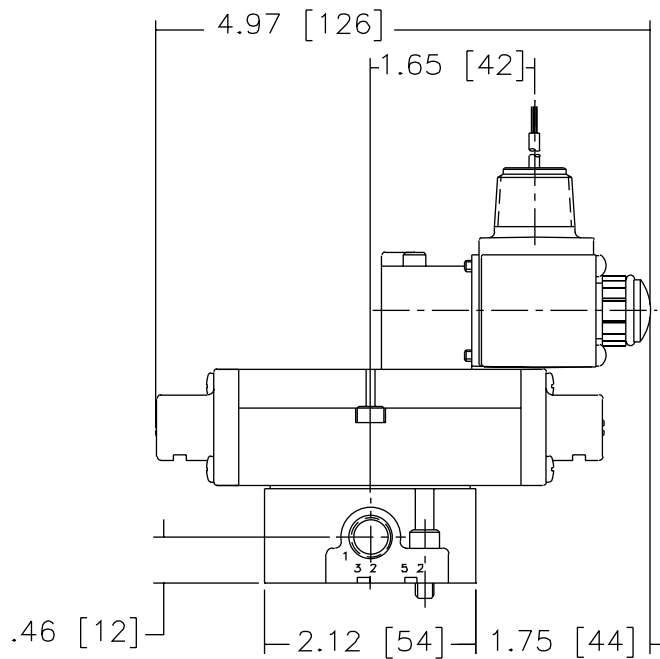
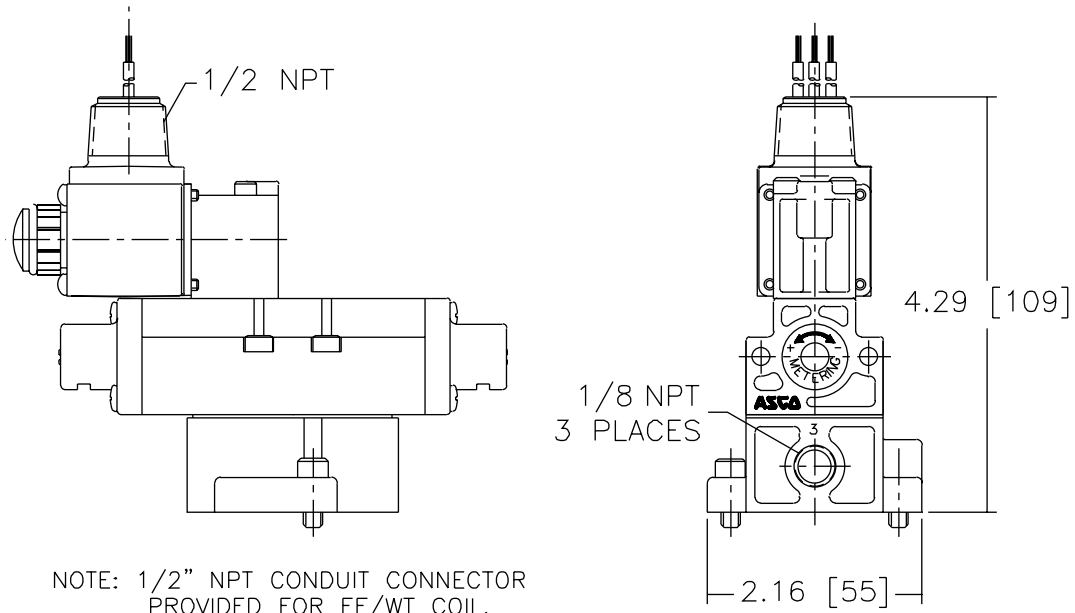
Dimensions: inches (mm)

Constr. Ref. 2



Dimensions: inches (mm)

Constr. Ref. 3



## Features

- Mechanical detent on dual solenoids holds last position, even after loss of electric power, pneumatics, or pressure.
- No Minimum Operating Pressure Differential required to shift valve.
- NAMUR direct mount version of the rugged, dependable 8342 Series valves.
- Available with single or dual solenoid operation.
- Direct acting, high flow slide-style valve.

## Construction

Valve Parts in Contact with Fluids		
Body	Brass	303 Stainless Steel
Seals and Disc	NBR and FKM	
Core Tube	305 Stainless Steel	
Core and Plugnut	430F Stainless Steel	
Springs	302 Stainless Steel	
Shading Coil	Copper	
Sleeve	PA	
Seats	PTFE	

## Electrical

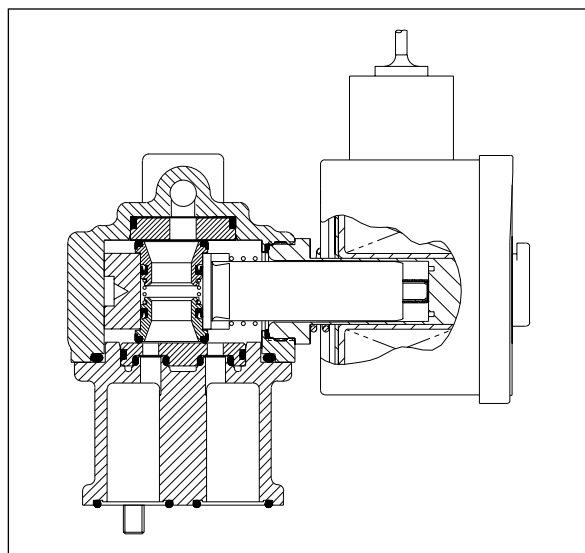
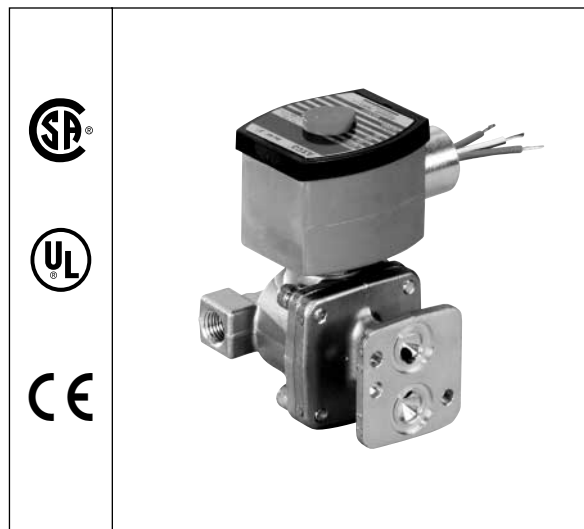
Standard Coil and Class of Insulation	Watt Rating and Power Consumption			Spare Coil Part No.	
	AC			General Purpose	Explosionproof
	Watts	VA Holding	VA Inrush	AC	AC
F	20.1	35	115	272610	272614
F	16.1	45	140	272610	272614

**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz). Must be specified when ordering. Other voltages, except combinations 120/60 and 110/50, are available when required.

## Solenoid Enclosures

**Standard:** Watertight, Types 1, 2, 3, 3S, 4, and 4X.  
**Optional:** Explosionproof and Watertight, Types 3, 3S, 4, 6, 6P, 4X, 7, and 9.  
 (To order, add prefix "EF" to catalog number.)

*See Optional Features Section for other available options.*



## Nominal Ambient Temperature Ranges:

32°F to 125°F (0°C to 52°C)

*Refer to Engineering Section for details.*

## Approvals:

General Purpose Solenoid: UL recognized component, CSA certification pending.

Explosionproof Solenoid: UL listed solenoid. CSA certified for use in hazardous locations.  
 (EF Brass)  
 (EV Stainless Steel)

Meets applicable CE directives.

*Refer to Engineering Section for details.*



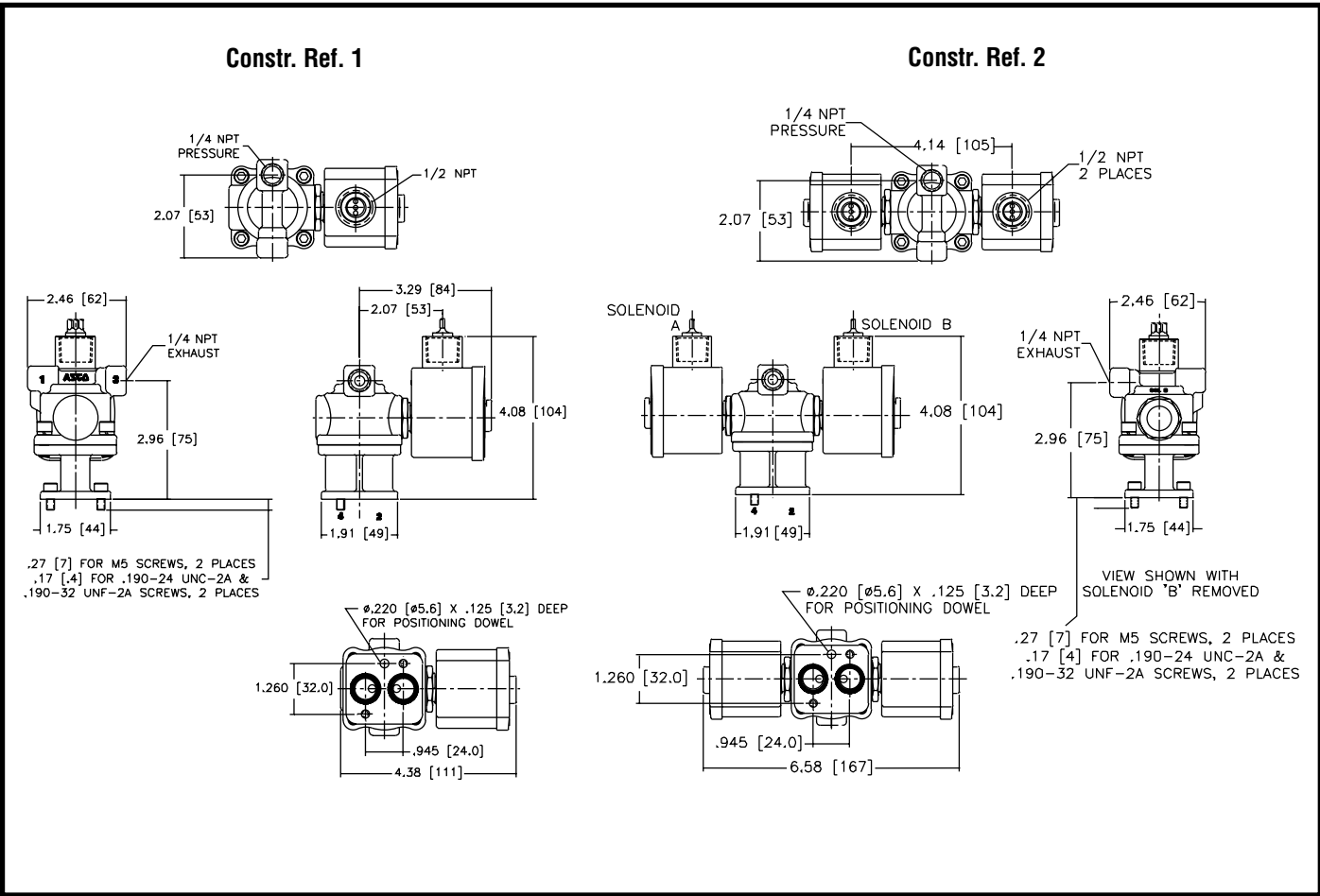
Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor Ports 1-2	Cv Flow Factor Ports 2-3	Maximum Operating Pressure Diff. (psi)	Maximum Fluid Temperature Range °F	Brass Body	Stainless Steel Body	Constr. Ref. No.	Watt Rating/ Class of Coil Insulation
						Catalog Number	Catalog Number		AC
SINGLE SOLENOID									
1/4	3/16	.7	.5	125	160	8342G501	8342G511	1	20.1/F
DUAL SOLENOID									
1/4	3/16	.7	.5	125	160	8342G502	8342G512	2	16.1/F

Specifications (Metric units)

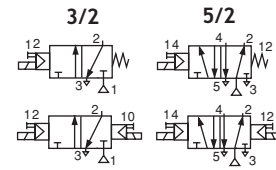
Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor Ports 1-2 (m3/h)	Kv Flow Factor Ports 2-3 (m3/h)	Maximum Operating Pressure Diff. (bar)	Maximum Fluid Temperature Range °C	Brass Body	Stainless Steel Body	Constr. Ref. No.	Watt Rating/ Class of Coil Insulation
						Catalog Number	Catalog Number		AC
SINGLE SOLENOID									
1/4	5	.60	.43	9	71	8342G501	8342G511	1	20.1/F
DUAL SOLENOID									
1/4	5	.60	.43	9	71	8342G502	8342G512	2	16.1/F

Dimensions: inches (mm)





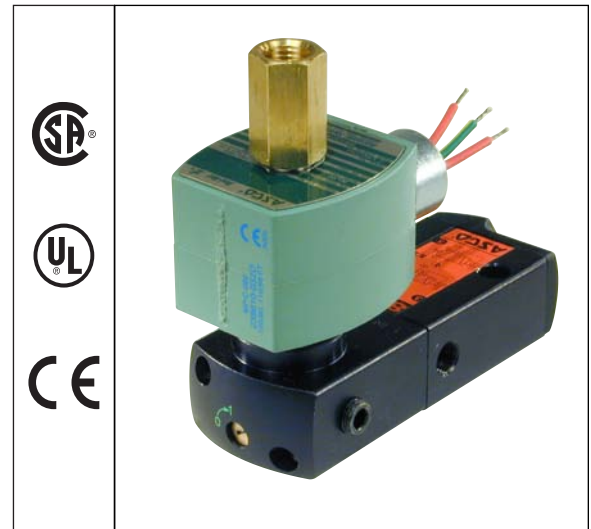
# Pilot Operated • High Flow Direct Mount Pilot Valves Anodized Aluminum Bodies 1/4" NPT



**3/2 • 5/2**  
**SERIES**  
**8551**  
**Direct Mount**

## Features

- Compact Spool Valve convertible from 3/2 to 5/2 with flow plates.
- Mount directly to actuators with NAMUR interface per VDI/VDE 3845.
- Single and dual solenoid solenoid constructions.
- Integral Breather Block vents to spring side of actuator to exhaust, preventing corrosion of the actuator.
- Unique design combines hard T-seals and flexible o-rings, provides bubble-tight shutoff, resistance to dirt and multimillion cycle life controlling air or inert gas.
- Low Power and Intrinsically Safe construction available.  
*See Special Service Section for details.*



## Construction

Valve Parts in Contact with Fluids	
Body and Pilot End Cap	Black Anodized Aluminum
Seals and discs	NBR and PUR
Core Tube	305 Stainless Steel
Core and Plugnut	430F Stainless Steel
Core Spring	302 Stainless Steel/17-7PH
Shading Coil	Copper
End Cover and Plate	Glass Filled PA / FV
Spool	Aluminum
Internal Parts	Zamak, Steel, CA (Acetal)
Spring-Spool Return*	Phosphate Treated Black Steel

\* Single solenoid construction

## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part Number			
	DC Watts	AC			General Purpose		Explosionproof	
		Watts	VA Holding	VA Inrush	AC	DC	AC	DC
F	11.6	10.1	25	50	238610	238710	238614	238714

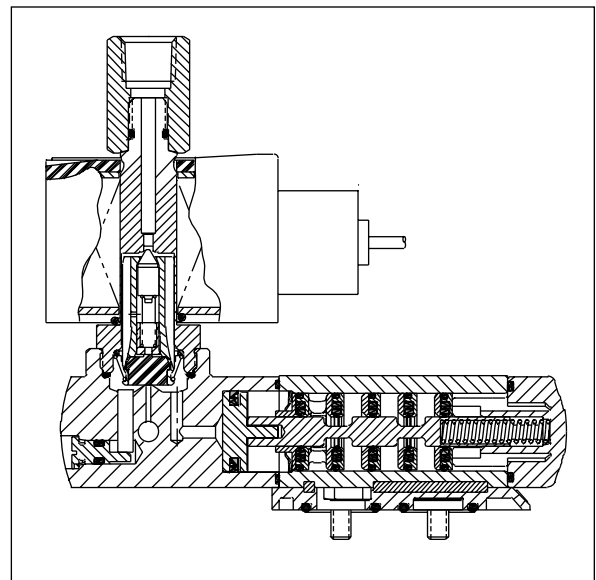
**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz (110, 220 volts AC, 50 Hz). 6, 12, 24, 120, 240 volts DC. Must be specified when ordering. Other voltages are available when required.

## Solenoid Enclosures

**Standard:** Watertight, Types 1, 2, 3, 3S, 4, and 4X.  
**Optional:** Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9.  
 (To order, add prefix "EF" to catalog number.)  
*See Optional Features Section for other available options.*

## SIL (Safety Integrity Level) Information:

- PFD (Probability of Failure on Demand)  $<4 \times 10^{-7}$  at a confidence factor of 95%.
- SFF (Safe Failure Fraction) according to IEC 61508-2 Table A1 is  $\geq 0.99$ .
- Only constructions without manual operators apply to the above criteria.



## Options:

Manual Operator standard  
 Metering use suffix "M"

## Nominal Ambient Temperature Ranges:

AC: 5°F to +125°F (-15°C to 52°C)  
 DC: 5°F to +104°F (-15°C to 40°C)

## Approvals:

UL recognized components. CSA certified.

EF is UL listed solenoid. CSA certified. Meets applicable CE directives.

*Refer to Engineering Section for details.*

Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Single Solenoid									Dual Solenoid								
			Operating Pressure Differential (psi)			Max. Fluid Temp. °F		Aluminum Aluminum Body	316 Stainless Steel Body	Constr. Ref. No.	Operating Pressure Differential (psi)			Max. Fluid Temp. °F		Aluminum Body	316 Stainless Steel Body	Constr. Ref. No.	Watt Rating/ Class of Coil Insulation	
			Min.	Max. AC	Max. DC	AC	DC	Catalog Number	Catalog Number		Min.	Max. AC	Max. DC	AC	DC	Catalog Number	Catalog Number		AC	DC
1/4 ①	1/4	.7	30	150	120	140	120	8551G401MS	-	1	30	150	120	140	120	8551G402MS	-	2	10.1/F	11.6/F
4/2 VALVES																				
1/4	1/4	.84	35	150	120	140	120	-	8551G488	3	20	150	120	140	120	-	8551G490	4	10.1/F	11.6/F
4/3 DUAL SOLENOID VALVES - CLOSED CENTER																				
1/4	1/4	.84	-	-	-	-	-	-	-	-	35	150	120	140	120	8551G496	-	4	10.1/F	11.6/F

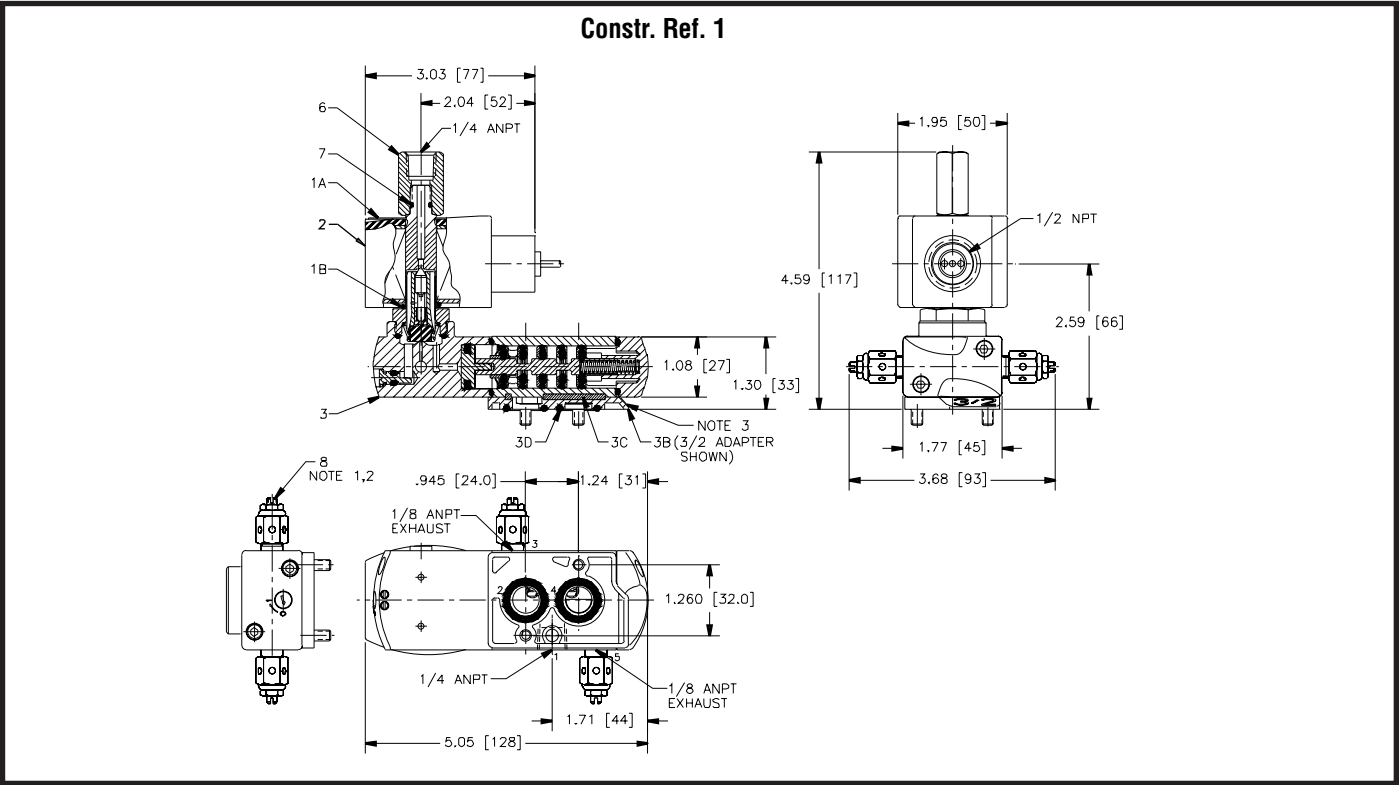
Note: ① 1/8 inch NPT Exhaust

Specifications (Metric units)

Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor	Single Solenoid									Dual Solenoid								
			Operating Pressure Differential (bar)			Max. Fluid Temp. °C		Aluminum Aluminum Body	316 Stainless Steel Body	Constr. Ref. No.	Operating Pressure Differential (bar)			Max. Fluid Temp. °C		Aluminum Body	316 Stainless Steel Body	Constr. Ref. No.	Watt Rating/ Class of Coil Insulation	
			Min.	Max. AC	Max. DC	AC	DC	Catalog Number	Catalog Number		Min.	Max. AC	Max. DC	AC	DC	Catalog Number	Catalog Number		AC	DC
1/4 ①	6.4	.6	2	10	8.2	60	48	8551G401MS	-	1	2	10	8.2	60	48	8551G402MS	-	2	10.1/F	11.6/F
4/2 VALVES																				
1/4	6.4	.72	2	10	8	59	48	-	8551G488	3	2	10	8.2	60	48	-	8551G490	4	10.1/F	11.6/F
4/3 DUAL SOLENOID VALVES - CLOSED CENTER																				
1/4	6.4	.72	-	-	-	-	-	-	-	-	2	10	8.2	60	48	8551G496	-	4	10.1/F	11.6/F

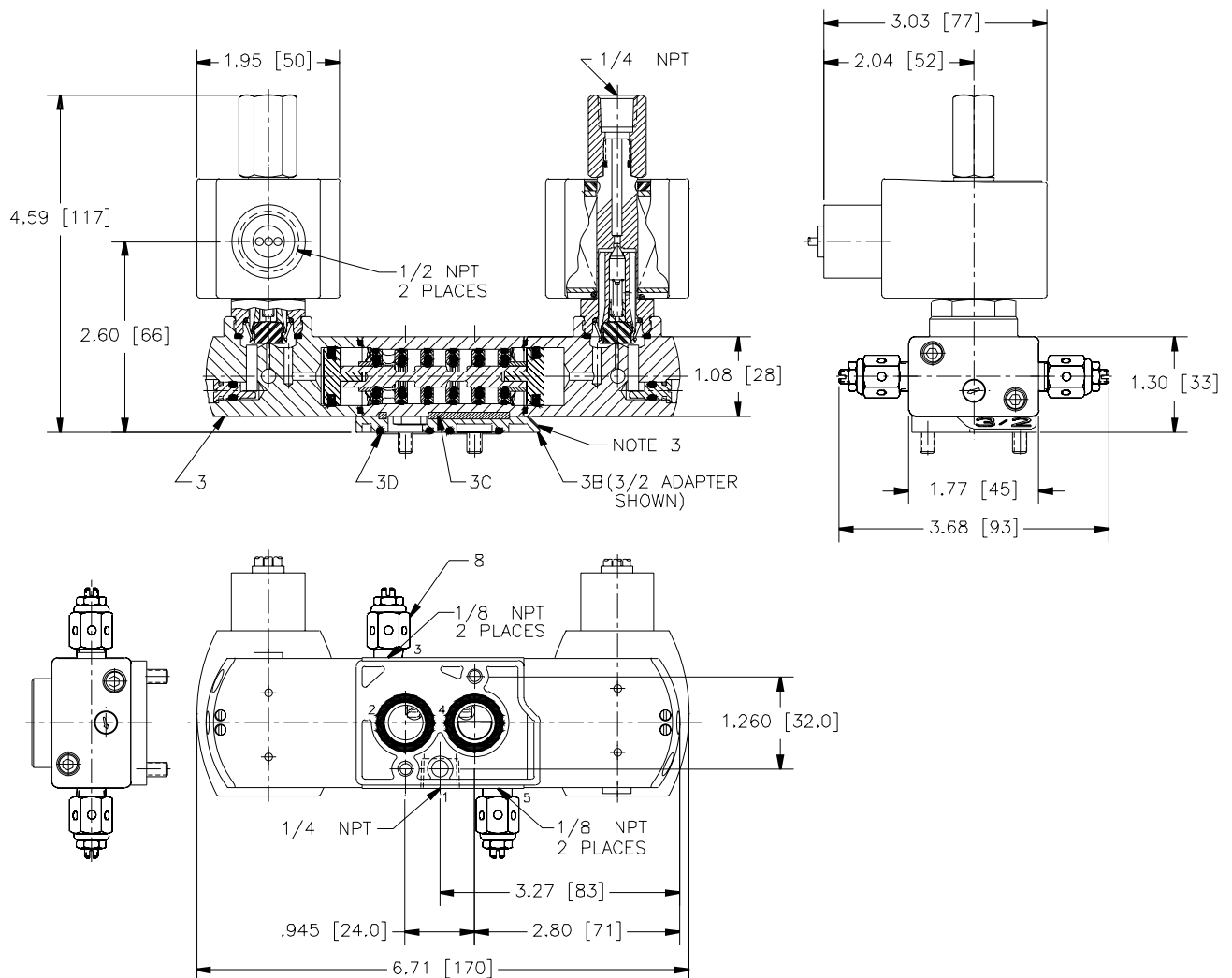
Note: ① 1/8 inch NPT Exhaust

Dimensions: inches (mm)

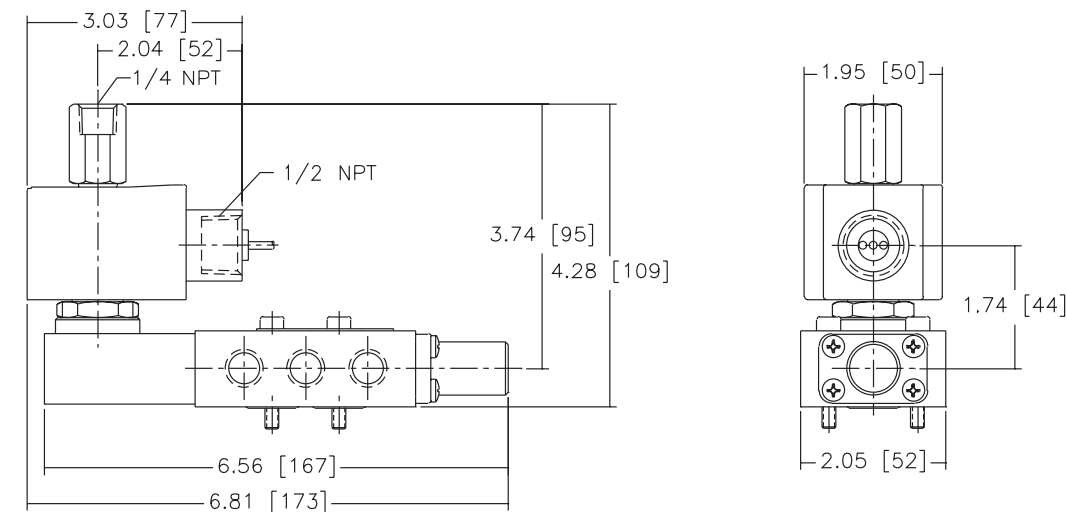


Dimensions: inches (mm)

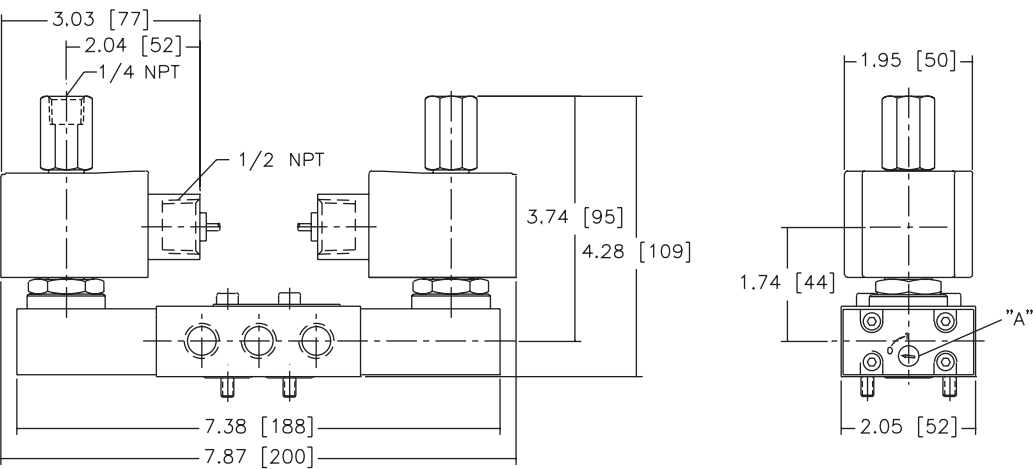
Constr. Ref. 2



**Constr. Ref. 3**



**Constr. Ref. 4**



NOTE: MANUAL OPERATOR "A" ON ALUMINUM  
CONSTRUCTION ONLY.

## Features

- Compact spool valve convertible from 3/2 to 5/2.
- NAMUR Mount construction.
- Standard manual operator.
- DIN, Watertight and Explosionproof solenoids available.
- Single and dual solenoid constructions.
- Mountable in any position.
- Vents air from spring side of actuator to prevent corrosion of actuator.

## Construction

Valve Parts in Contact with Fluid	
Body	Black Anodized Aluminum
Spring	Phosphate treated black steel
Shading Coil	Copper
Seals	NBR + PUR
Core and Core tube	Stainless Steel / Brass
End Covers and Plate	6/6 glass filled PA/FV
Spool	Aluminum
Internal Parts	Zamak, Steel, CA

## Electrical

Standard Coil and Class of Insulation	Enclosure Type	Watt Rating and Power Consumption				Spare Coil Part Number	
		DC Watts	AC Watts	VA Holding	VA Inrush	AC	DC
F	SC	3	2.5	3.5	6	400125	400125
F	EF	6.9	6.3	7	10.1	266762	270007
F	WT	6.9	6.3	7	10.1	266763	270008

**Standard Voltages:** SC: 24, 120, 240 volts AC, 50-60 Hz; 12, 24, 120 volts DC.  
 WT and EF: 24/50-60Hz, (120/60, 110-120/50)①, (240/60, 220-240/50)②  
 volts AC; 6, 12, 24, 120 volts DC.

**Notes:** ① Order as 120/60, 110/50

② Order as 240/60, 220/50

## Solenoid Enclosures

### Standard: - Prefix

**SC** = IP65 type DIN (open frame) per 46244

**WT** = Combination General Purpose and Watertight Types 1, 2, 3, 3S, 4, and 4X

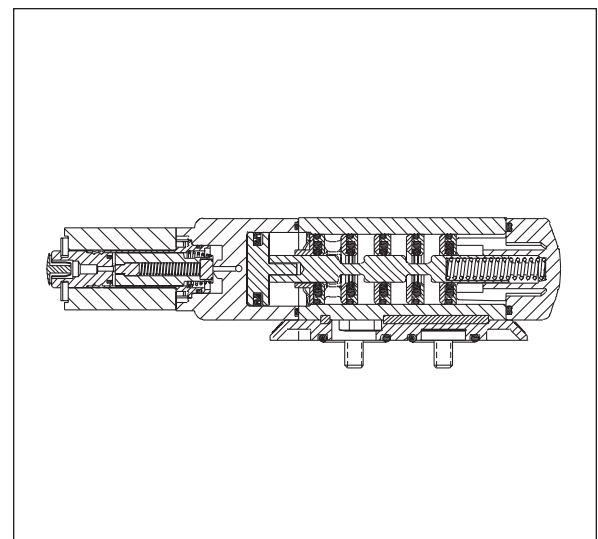
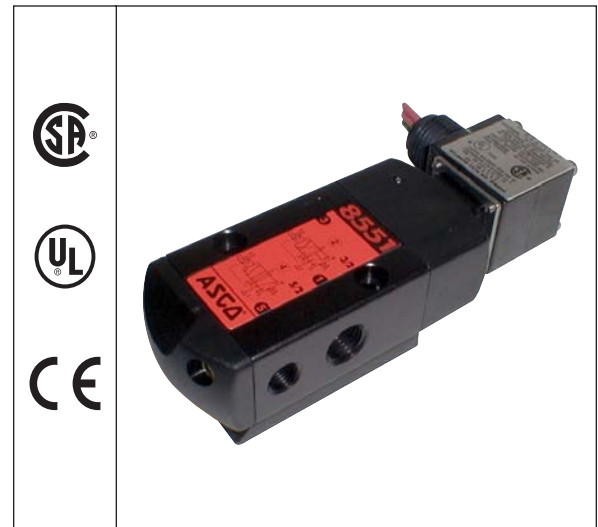
**EF** = Combination Explosionproof and Watertight Types 3, 3S, 4, 4X, 6, 6P, 7, 9  
 CLASS 1, DIV. 1 (Groups A - D) and CLASS 1, DIV.2 Type 9 (Groups E-G)

### Optional:

CENELEC (EEx d,m,em, and i)

Low Power, Intrinsically Safe, and Red-Hat II versions.

*Consult factory for details.*



## Nominal Ambient Temperature Ranges:

**SC:** AC/DC: 5°F to +140°F (-15°C to 60°C)

**EF:** AC: 5°F to +104°F (-15°C to 40°C)  
 DC: 5°F to +77°F (-15°C to 25°C)

**WT:** AC: 5°F to +104°F (-15°C to 60°C)  
 DC: 5°F to +77°F (-15°C to 25°C)

**Note:** For temperatures below 32°F (0°C) moisture-free air must be used. *Refer to Engineering Section for details.*

## Approvals:

SC, WT: UL recognized component, CSA certified.

EF: UL and CSA solenoid approval. Meets applicable CE directives. *Refer to Engineering Section for details.*

## Option:

Metering-Specify suffix "M" when ordering.

i.e.: SC8551A001MMS.

Specify X and TPL 23006 for non breathing construction.

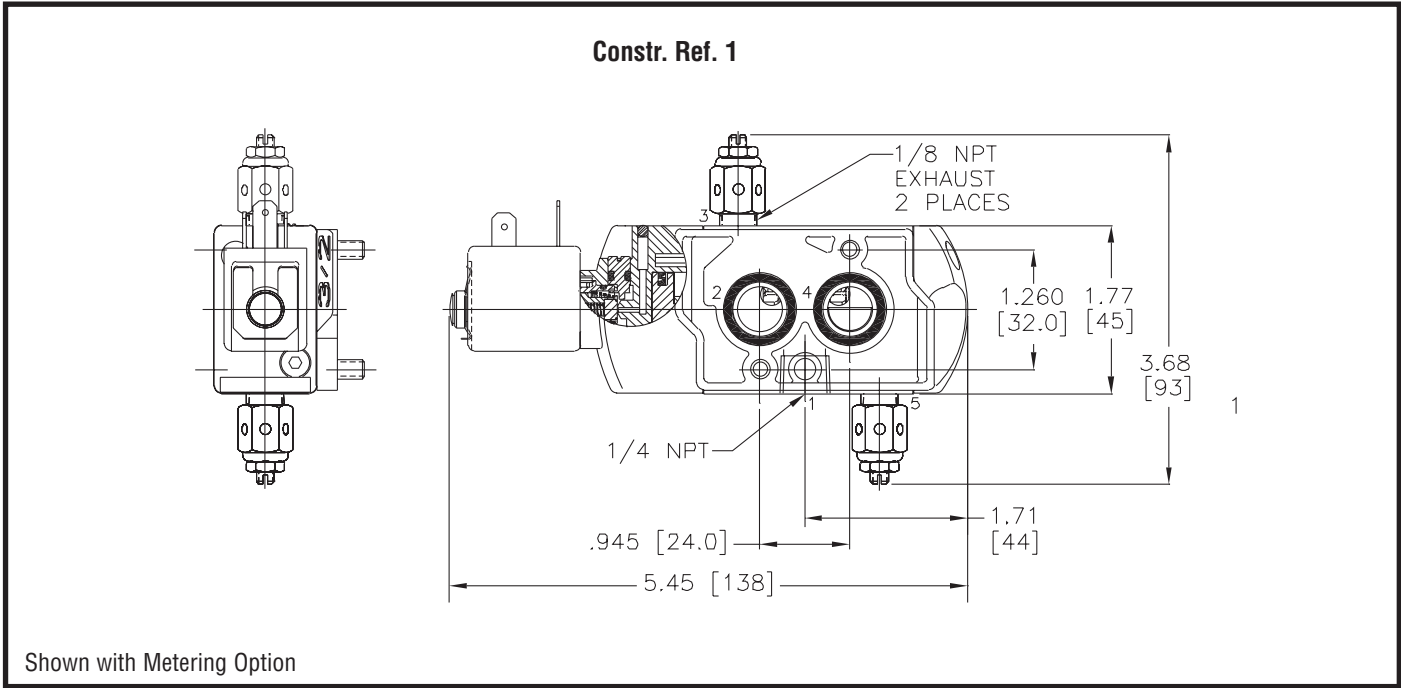
Specifications (English units)

Pipe Size Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Pilot Pressure		Fluid Temperature °F (for single and dual solenoid)			Single Solenoid		Dual Solenoid		Watt Rating/ Class of Coil Insulation	
			Minimum	Maximum	Minimum	Maximum AC	Maximum DC	Catalog Number	Constr. Ref. No.	Catalog Number	Constr. Ref. No.	AC	DC
OPEN FRAME DIN COIL													
1/4 ①	1/4	.7	30	150	5	140	140	SC8551A001MS	1	SC8551A002MS	3	2.5	3
WATERTIGHT ENCLOSURE													
1/4 ①	1/4	.7	30	150	5	140	77	WT8551A001MS	2	WT8551A002MS	4	6.3	6.9
EXPLOSIONPROOF ENCLOSURE													
1/4 ①	1/4	.7	30	150	5	104	77	EF8551A001MS	2	EF8551A002MS	4	6.3	6.9
Note: ① 1/8 inch NPT exhausts.													

Specifications (Metric units)

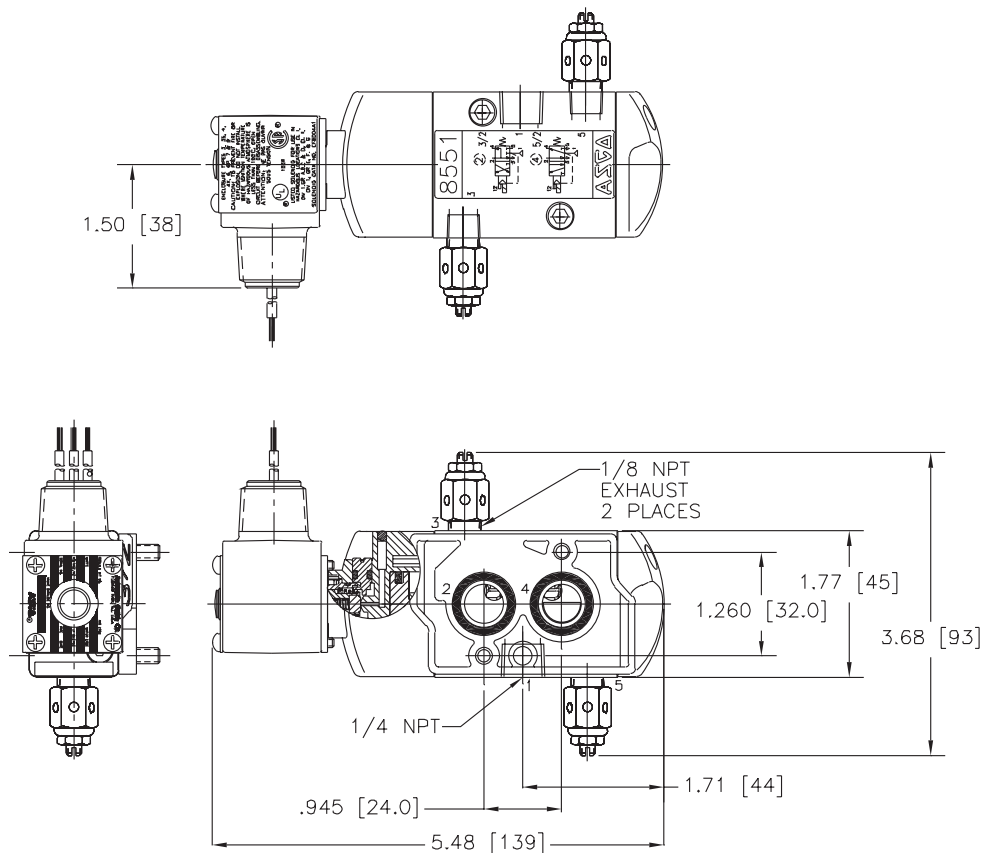
Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Pilot Pressure (bars)		Fluid Temperature °C (for single and dual solenoid)			Single Solenoid		Dual Solenoid		Watt Rating/ Class of Coil Insulation	
			Minimum	Maximum	Minimum	Maximum AC	Maximum DC	Catalog Number	Constr. Ref. No.	Catalog Number	Constr. Ref. No.	AC	DC
OPEN FRAME DIN COIL													
1/4 ①	6.4	.6	2	10	-15	60	60	SC8551A001MS	1	SC8551A002MS	3	2.5	3
WATERTIGHT ENCLOSURE													
1/4 ①	6.4	.6	2	10	-15	60	25	WT8551A001MS	2	WT8551A002MS	4	6.3	6.9
EXPLOSIONPROOF ENCLOSURE													
1/4 ①	6.4	.6	2	10	-15	40	25	EF8551A001MS	2	EF8551A002MS	4	6.3	6.9
Note: ① 1/8 inch NPT exhausts.													

Dimensions: inches (mm)



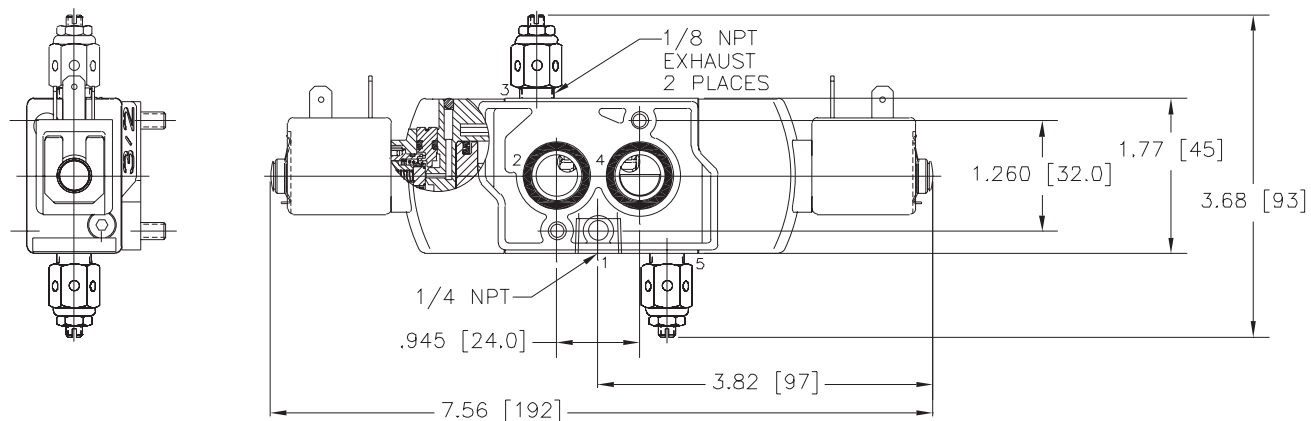
Dimensions: inches (mm)

**Constr. Ref. 2**



Shown with Metering Option

**Constr. Ref. 3**

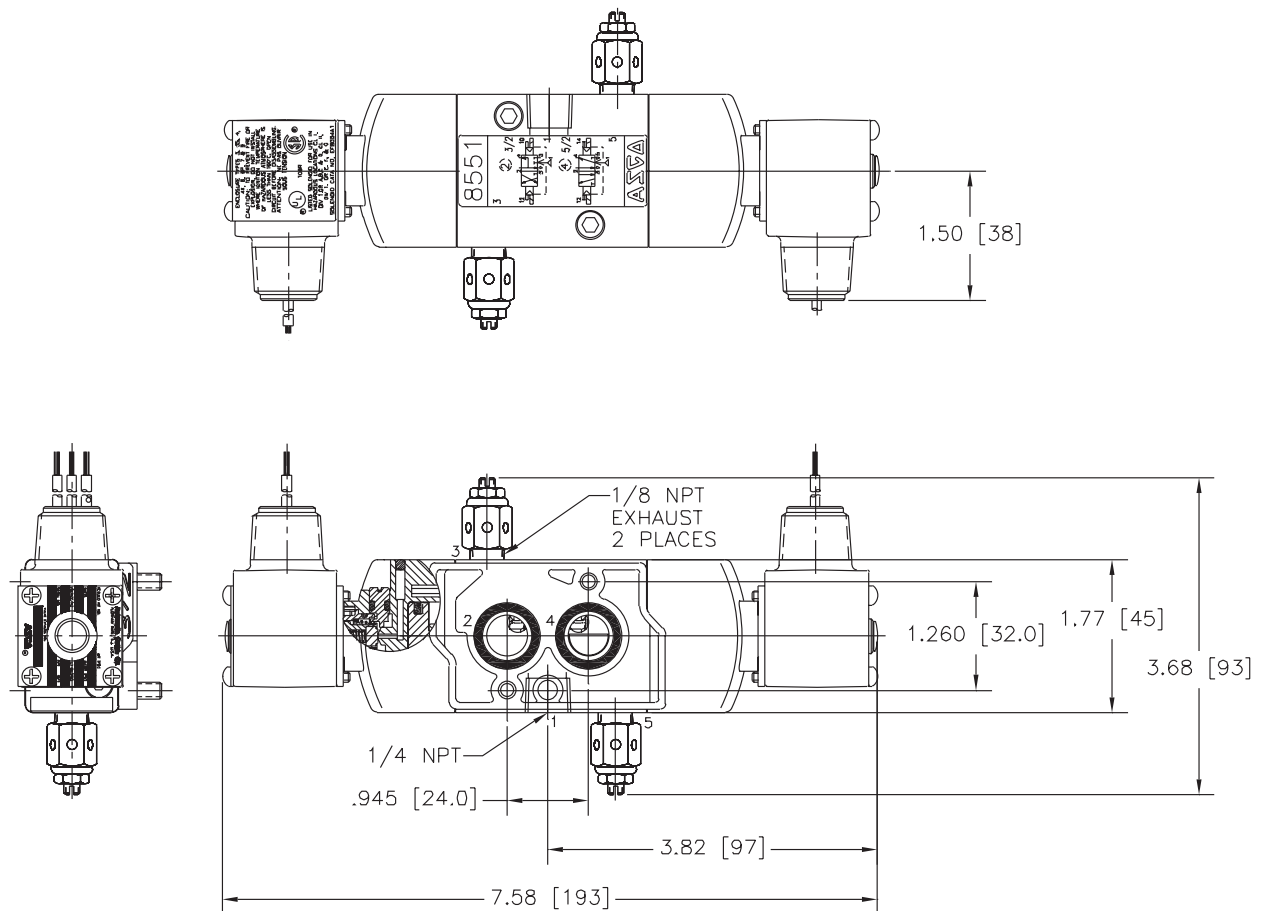


Shown with Metering Option

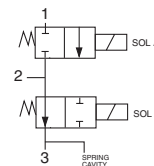


Dimensions: inches (mm)

Constr. Ref. 4



Shown with Metering Option



### Features

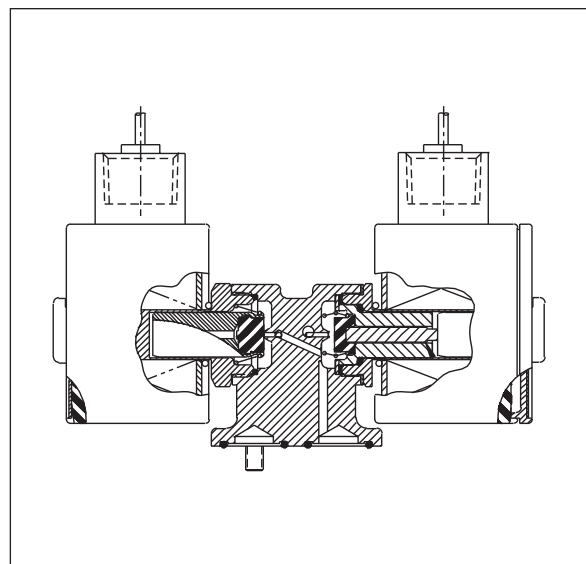
- Unique 3 way design for locking quarter turn actuators in multiple positions for applications which require modulated flow.
- Solenoids can be pulsed independently to bleed air into or out of actuator for fine positioning.
- Direct acting on/off construction.
- Namur mount construction reduces complex piping arrangements.
- 10X32, 10X24, M5 hardware supplied.



US Patent No. 6,155,531

### Construction

Valve Parts in Contact with Fluids		
Body	Brass	303 Stainless Steel
Seals and Discs	NBR	
Core Tube	305 Stainless Steel	
Core and Plugnut	430F Stainless Steel	
Core Springs	302 Stainless Steel	
Shading Coil	Copper	Silver
Disc-Holder	CA	
Core Guide	CA	



### Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part No.			
	DC Watts	AC			General Purpose		Explosionproof	
		Watts	VA Holding	VA Inrush	AC	DC	AC	DC
F	11.6	10.1	25	50	238610	238710	238614	238714

**Standard:** 24, 120, 240, 480 volts AC, (or 100, 200 volts AC, 50 Hz)  
6, 12, 24, 120, 240 volts DC. Must be specified when ordering. Other voltages available when required.

### Options:

Explosion proof solenoids are available

Prefix EF - Brass

Prefix EV - Stainless Steel

All other Red-Hat Solenoid options are available.

Optional elastomer contact ASCO.

### Nominal Ambient Temperature Ranges:

AC: 32°F to 125°F (0°C to 52°C)

DC: 32°F to 104°F (0°C to 40°C)

Refer to Engineering Section for details.

### Solenoid Enclosures

**Standard:** Watertight, Types 1, 2, 3, 3S, 4, and 4X.

**Optional:** Explosion proof and Watertight, Types 3, 3S, 4 and 4X, 6, 6P, 7 and 9.

### Approvals:

UL and CSA pending.

Refer to Engineering Section for details.

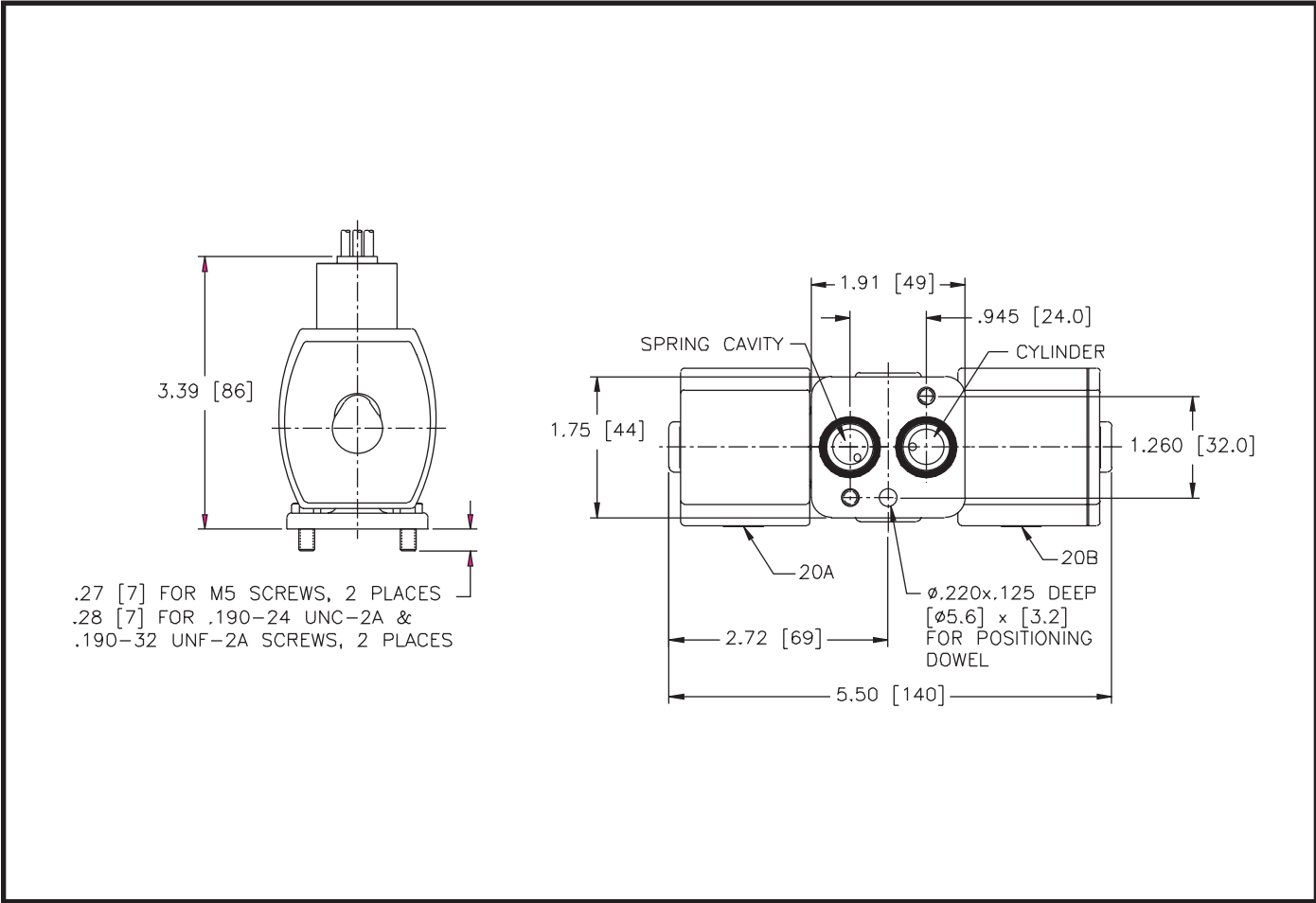
Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Operating Pressure Differential (psi)		Max. Fluid Temp. °F		Brass Body	Stainless Steel Body	Watt Rating/ Class of Coil Insulation	
			Max. AC	Max. DC					AC	DC
					AC	DC				
1/4	1/16	.09	150	125	140	120	8320G706	8320G716	10.1/F	11.6/F
1/4	3/32	.12	120	100	140	120	8320G707	8320G717	10.1/F	11.6/F
1/4	1/8	.25	100	65	140	120	8320G708	8320G718	10.1/F	11.6/F

Specifications (Metric units)

Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor	Operating Pressure Differential (bar)		Max. Fluid Temp. °C		Brass Body	Stainless Steel Body	Watt Rating/ Class of Coil Insulation	
			Max. AC	Max. DC					AC	DC
					AC	DC				
1/4	1.6	.07	10	9	60	50	8320G706	8320G716	10.1/F	11.6/F
1/4	2.4	.10	8	6.9	60	50	8320G707	8320G717	10.1/F	11.6/F
1/4	3.2	.16	6.9	4	60	50	8320G708	8320G718	10.1/F	11.6/F

Dimensions: inches (mm)



One of ASCO's many strengths is the breadth of our product line and our ability to provide the customer with the best valve for the application. Our Special Service valves are key to meeting these varied requirements. As listed in the index below ASCO has focused product lines, which meet special application parameters from steam, to intrinsically safe and low power environments. These Special Service valves are capable of meeting typically harsh applications where more standard solenoid valves are not able to meet the specifications or lifetime requirements. They also

can relate to the media which is being handled, the operating conditions, the application specifications or environment. The valve in this section consist of 2-way valves, 3-way valves, 4-way valves, air operated valves.

If you cannot find the valves you need in this section, ASCO has the industry's largest staff of design engineers to possibly create the special valve you might need for your unique application.

*Contact the ASCO office nearest you for details.*

## Index

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Special Service Description	Page Number
Air Operated	7.01
Cryogenic	7.13
Dust Collector	7.17
Hot Water/Steam	7.31
Long Life	7.47
Proportional	7.51
Shielded Core	7.55
Vacuum	7.59

The 8290 Series is a 2-Way Direct Acting valve available in a Normally Closed or Normally Open construction. They are air-operated with a straight-through design available with bronze or stainless steel bodies built for serious applications. There are many optional features including visual position indicator and electrical connections. The 8290 Series is suitable for the following applications:

- General Service (air, inert gas, water, oil, light slurries)
- Steam and Hot Water

## Construction

Part	Valve Parts in Contact with Fluids		
	32mm	50mm - 125mm	50mm - 125mm ①
<b>Body</b>	316L Stainless Steel	Bronze	316L Stainless Steel
<b>Stem</b>	316L Stainless Steel	431 Stainless Steel	431 Stainless Steel
<b>Stuffing Box</b>	316L Stainless Steel	Brass	303 Stainless Steel
<b>Stuffing Box Seal</b>	PTFE	PTFE Chevron	PTFE Chevron
<b>Wiper Seal</b>	FKM	FKM	FKM
<b>Disc</b>	316L Stainless Steel	Brass	304L Stainless Steel
<b>Disc Seal</b>	PTFE	PTFE	PTFE
<b>Screw</b>	316L Stainless Steel	-	-

① For all optional AISI 316L Stainless Steel constructions, contact ASCO.

## Specifications

**Ambient Temperature Range:** 15°F to 150°F

**Maximum Viscosity:** 2,700 SSU

## Alternate Valve Constructions:

- Oxygen service, add suffix "N".
- Medium vacuum service up to  $7 \times 10^{-3}$  Torrs, add suffix "VM".
- Visual Position Indicator for Normally Closed valve with 32mm or 50mm operator, add suffix "VI" (note: position indicator standard on 63mm through 125mm operators).
- NET-INOX treatment (stainless steel valve body pickled in nitric/hydrofluoric acid bath), add suffix "NI".
- All 316L stainless steel versions (available on request).

See inside back cover for the following constructions:

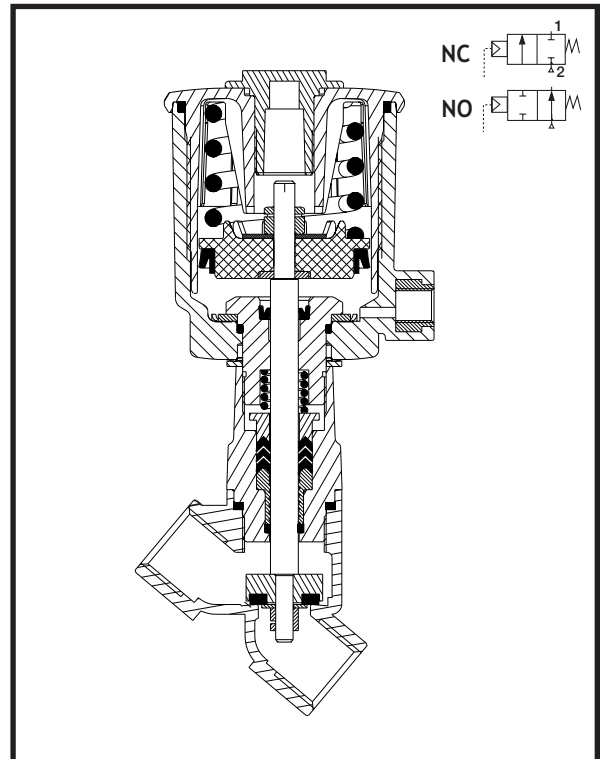
Compact Positioner for proportional control

Compact Signaling Unit

Signaling Box

Linear Position Indicator

Stroke Limiter



## Specifications

Pipe Size (ins.)	Orifice Dia. (ins.)	Cv Flow		Operating Pressure Differential (psi)			Max. Fluid Temp. °F	Bronze	Stainless Steel ①	Pilot Pressure (psi)		Approx. Shipping Weight (lbs.)
				Min.	Max. Fluids	Max. Steam				Min.	Max.	
		On-Off	Prop.	Min.	Max.	Max.				Min.	Max.	
32 mm Operator												
Normally Closed - Entry Under the Disc ③												
3/8	3/8	2.3	-	0	240	150	366	-	8290A791	60	150	1.3
1/2	1/2	4.1	-	0	180	150	366	-	8290A792	60	150	1.4
3/4	3/4	7.6	-	0	90	90	366	-	8290A793	60	150	1.6
Normally Open - Entry Under the Disc												
3/8	3/8	2.3	-	0	240	150	366	-	8290A794	I ②	150	1.3
1/2	1/2	4.1	-	0	240	150	366	-	8290A795	I ②	150	1.4
3/4	3/4	7.6	-	0	240	150	366	-	8290A796	I ②	150	1.6
Normally Closed - Entry Above the Disc for Rapid Cycling Steam Applications												
3/8	3/8	2.3	-	0	-	150	366	-	8290A797	II ②	150	1.3
1/2	1/2	4.1	-	0	-	150	366	-	8290A798	II ②	150	1.4
3/4	3/4	7.6	-	0	-	150	366	-	8290A799	II ②	150	1.6
50 mm Operator												
Normally Closed - Entry Under the Disc ③												
1/2	1/2	5.7	5.3	0	240	150	366	8290A384	8290A393	60	150	2.7
3/4	3/4	11	8.3	0	150	150	366	8290A385	8290A394	60	150	2.9
1	1	15	-	0	90	90	366	8290A386	8290A395	60	150	3.7
Normally Open - Entry Under the Disc												
1/2	1/2	5.7	-	0	240	150	366	8290A387	8290A396	III ②	150	2.7
3/4	3/4	11	-	0	240	150	366	8290A388	8290A397	III ②	150	2.9
1	1	15	-	0	240	150	366	8290A389	8290A398	III ②	150	3.7
Normally Closed - Entry Above the Disc for Rapid Cycling Steam Applications ③												
1/2	1/2	5.7	-	0	-	150	366	8290A390	8290A399	IV ②	150	2.7
3/4	3/4	11	-	0	-	150	366	8290A391	8290A400	IV ②	150	2.9
1	1	15	-	0	-	150	366	8290A392	8290A401	IV ②	150	3.7
63 mm Operator												
Normally Closed - Entry Under the Disc												
1/2	1/2	5.7	-	0	240	150	366	8290B002	8290B045	60	150	3.6
3/4	3/4	11	8.3	0	240	150	366	8290B005	8290B048	60	150	3.9
1	1	19	17	0	150	150	366	8290B010	8290B053	60	150	4.7
1 1/4	1 1/4	32	24	0	90	90	366	8290A016	8290A059	60	150	6.0
1 1/2	1 1/2	52	33	0	60	60	366	8290A020	8290A063	60	150	8.0
2	2	68	46	0	40	40	366	8290A024	8290A067	60	150	10.0
Normally Open - Entry Under the Disc												
1/2	1/2	5.7	-	0	240	150	366	8290B026	8290B069	V ②	150	3.6
3/4	3/4	11	-	0	240	150	366	8290B027	8290B070	V ②	150	3.9
1	1	19	-	0	240	150	366	8290B028	8290B071	V ②	150	4.7
1 1/4	1 1/4	32	-	0	240	150	366	8290A030	8290A073	V ②	150	6.0
1 1/2	1 1/2	52	-	0	160	150	366	8290A032	8290A075	V ②	150	8.0
2	2	68	-	0	105	105	366	8290A034	8290A077	V ②	150	10.0
Normally Closed - Entry Above the Disc for Rapid Cycling Steam Applications												
1/2	1/2	5.7	-	0	-	150	366	8290B036	8290B079	VI ②	150	3.6
3/4	3/4	11	-	0	-	150	366	8290B037	8290B080	VI ②	150	3.9
1	1	19	-	0	-	150	366	8290B038	8290B081	VI ②	150	4.7
1 1/4	1 1/4	32	-	0	-	150	366	8290A039	8290A082	VI ②	150	6.0
1 1/2	1 1/2	52	-	0	-	150	366	8290A040	8290A083	VI ②	150	8.0
2	2	68	-	0	-	135	366	8290A042	8290A085	VI ②	150	10.0

① Available with NET-INOX treatment, add suffix "NI"; ② Minimum pilot pressure varies, see identified graph for appropriate values;  
③ For Visual Position Indicator add suffix "VI".

① Available with NET-INOX treatment, add suffix "NI"; ② Minimum pilot pressure varies, see identified graph for appropriate values;

③ For Visual Position Indicator add suffix "VI".

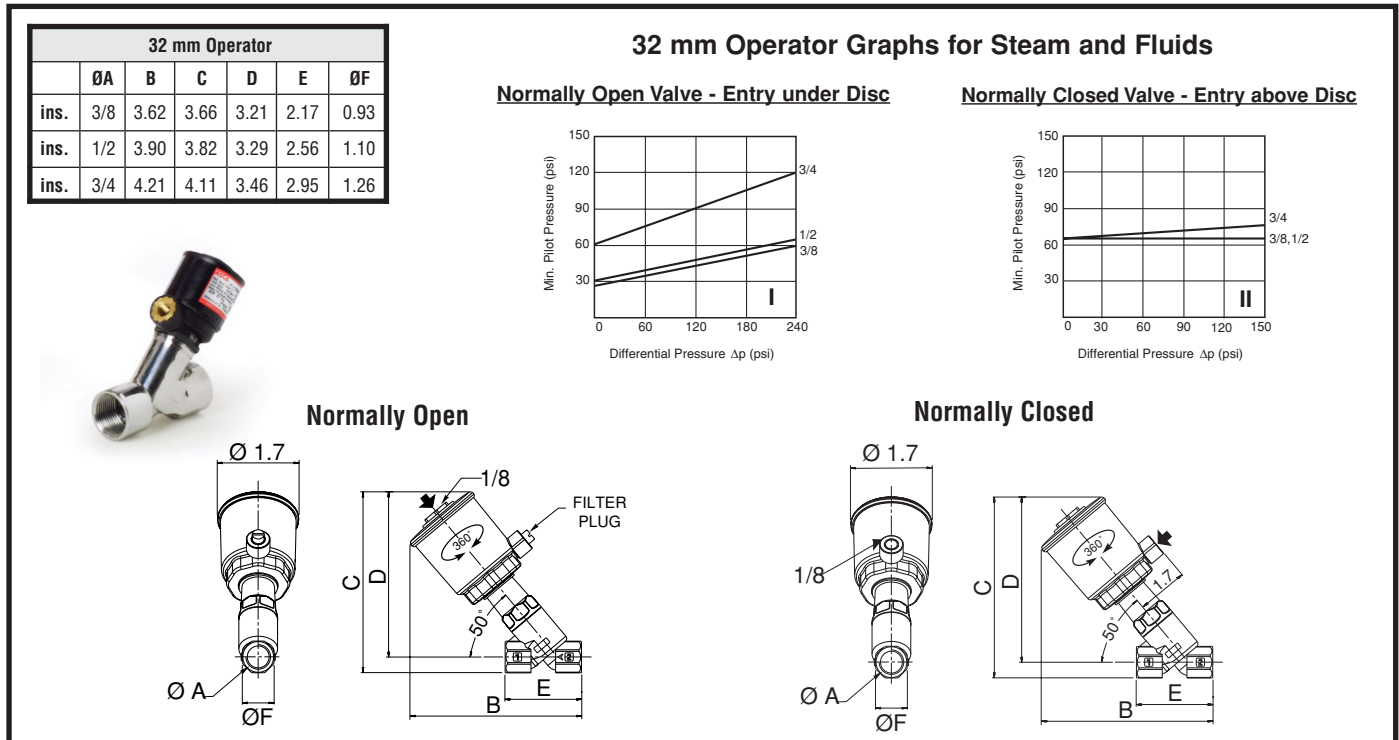


## Specifications

Pipe Size (ins.)	Orifice Dia. (ins.)	Cv Flow		Operating Pressure Differential (psi)			Max. Fluid Temp. °F	Bronze	Stainless Steel ①	Pilot Pressure (psi) ②		Approx. Shipping Weight (lbs.)
				Min.	Max.	Max.				Min.	Max.	
		On-Off	Prop.		Fluids	Steam						
90 mm Operator												
Normally Closed - Entry Under the Disc												
1	1	19	17	0	240	150	366	8290B011	8290B054	60	150	6.5
1 1/4	1 1/4	32	24	0	180	150	366	8290A017	8290A060	60	150	7.7
1 1/2	1 1/2	52	33	0	120	120	366	8290A021	8290A064	60	150	9.5
2	2	68	46	0	90	90	366	8290A025	8290A068	60	150	16.0
Normally Open - Entry Under the Disc												
1	1	19	-	0	240	150	366	8290B029	8290B072	VII ②	150	6.5
1 1/4	1 1/4	32	-	0	240	150	366	8290A031	8290A074	VII ②	150	7.7
1 1/2	1 1/2	52	-	0	240	150	366	8290A033	8290A076	VII ②	150	9.5
2	2	68	-	0	240	150	366	8290A035	8290A078	VII ②	150	16.0
Normally Closed - Entry Above the Disc for Rapid Cycling Steam Applications												
1 1/4	1 1/4	32	-	0	-	150	366	8290A136	8290A137	VIII ②	150	7.7
1 1/2	1 1/2	52	-	0	-	150	366	8290A041	8290A084	VIII ②	150	9.5
2	2	68	-	0	-	150	366	8290A043	8290A086	VIII ②	150	16.0
125 mm Operator												
Normally Closed - Entry Under the Disc												
1 1/4	1 1/4	34	34	0	240	150	366	8290A642	8290A646	60	150	13.5
1 1/2	1 1/2	56	56	0	240	150	366	8290A482	8290A495	60	150	15.0
2	2	77	77	0	150	150	366	8290A485	8290A498	60	150	17.0
2 1/2	2 1/2	130	86	0	90	90	366	8290A488	8290A501	60	150	21.5
Normally Open - Entry Under the Disc												
1 1/4	1 1/4	34	-	0	240	150	366	8290A643	8290A647	IX ②	150	13.5
1 1/2	1 1/2	56	-	0	240	150	366	8290A489	8290A502	IX ②	150	15.0
2	2	77	-	0	240	150	366	8290A490	8290A503	IX ②	150	17.0
2 1/2	2 1/2	130	-	0	240	150	366	8290A492	8290A505	IX ②	150	21.5
① Available with NET-INOX treatment, add suffix "NI"; ② Minimum pilot pressure varies, see identified graph for appropriate values.												

① Available with NET-INOX treatment, add suffix "NI"; ② Minimum pilot pressure varies, see identified graph for appropriate values.

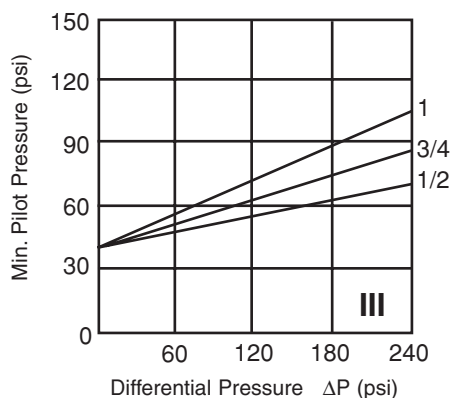
## Dimensions: inches



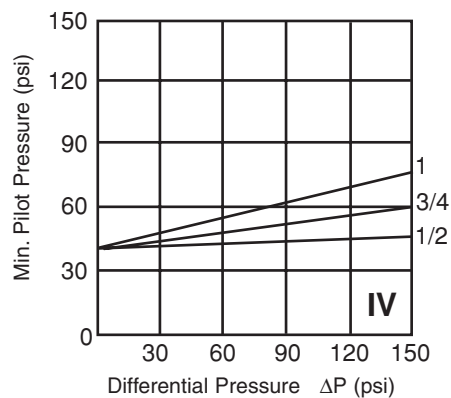
Dimensions: inches

50 mm Operator Graphs for Steam and Fluids

Normally Open Valve - Entry under Disc



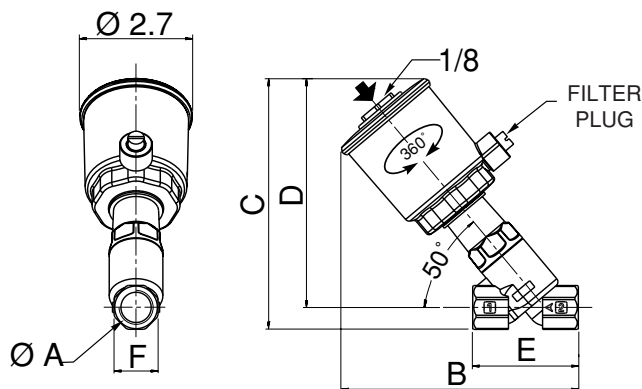
Normally Closed Valve - Entry above Disc



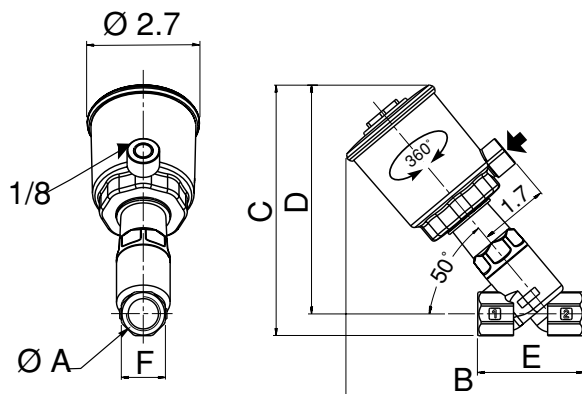
50 mm Operator						
	ØA	B	C	D	E	F
ins. 1/2	1/2	5.59	6.08	5.55	2.56	1.06
ins. 3/4	3/4	5.92	6.26	5.63	2.95	1.26
ins. 1	1	6.10	6.50	5.71	3.54	1.61



Normally Open



Normally Closed

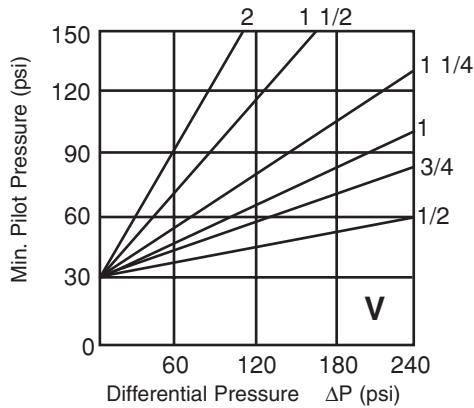




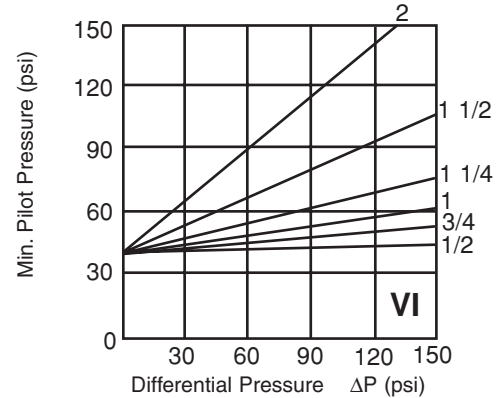
Dimensions: inches

### 63 mm Operator Graphs for Steam and Fluids

**Normally Open Valve - Entry under Disc**



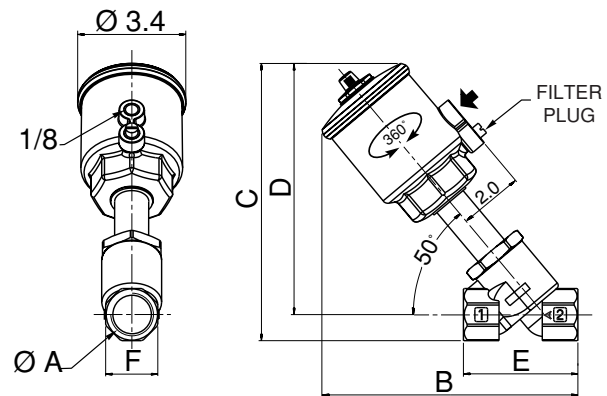
**Normally Closed Valve - Entry above Disc**



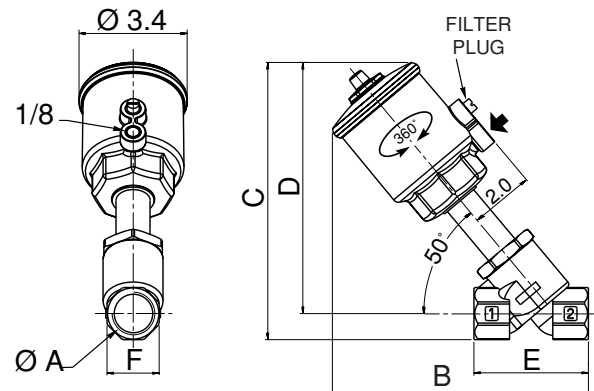
63 mm Operator						
	ØA	B	C	D	E	F
ins. 1/2	6.7	7.2	6.6	2.56	1.06	
ins. 3/4	6.8	7.3	6.7	2.95	1.26	
ins. 1	7.2	7.7	6.9	3.54	1.61	
ins. 1 1/4	8.54	9.01	8.03	4.33	1.97	
ins. 1 1/2	8.82	9.64	8.46	4.72	2.36	
ins. 2	9.80	10.2	8.82	5.9	2.76	



**Normally Open**



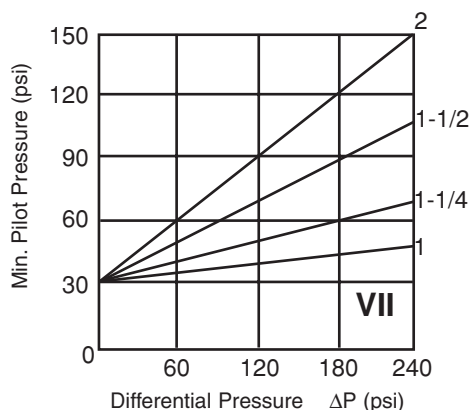
**Normally Closed**



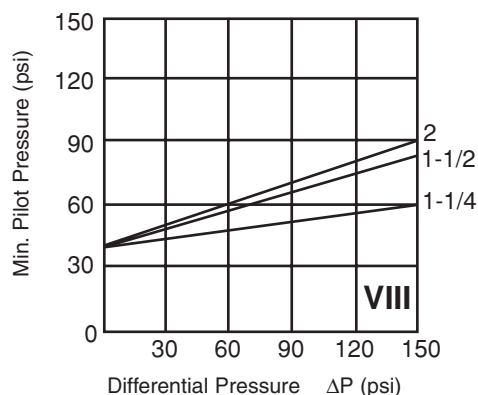
Dimensions: inches

90 mm Operator Graphs for Steam and Fluids

Normally Open Valve - Entry under Disc



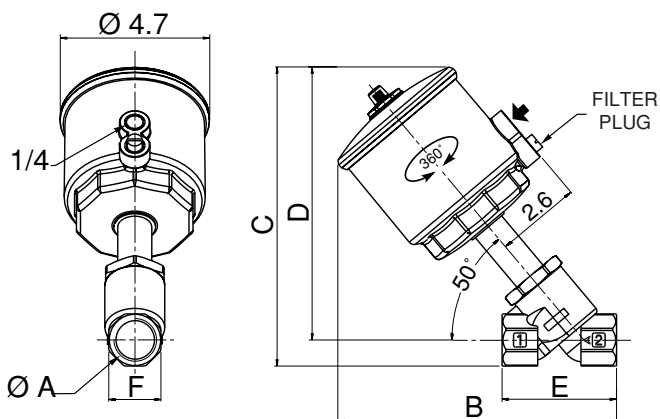
Normally Closed Valve - Entry above Disc



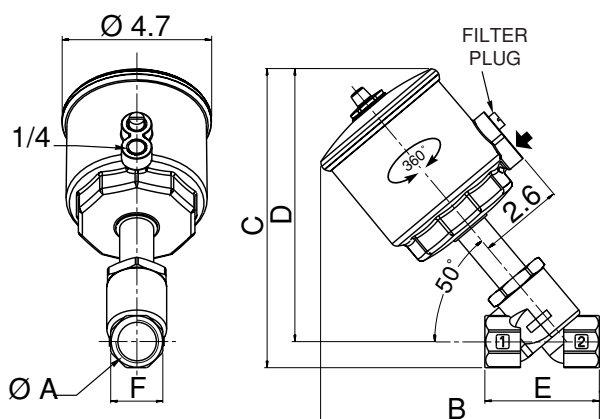
90 mm Operator						
	ØA	B	C	D	E	F
ins.	1	8.0	8.5	7.7	3.54	1.61
ins.	1 1/4	9.29	9.69	8.70	4.33	1.97
ins.	1 1/2	9.57	10.31	9.13	4.72	2.36
ins.	2	10.51	10.87	9.49	5.91	2.76



Normally Open



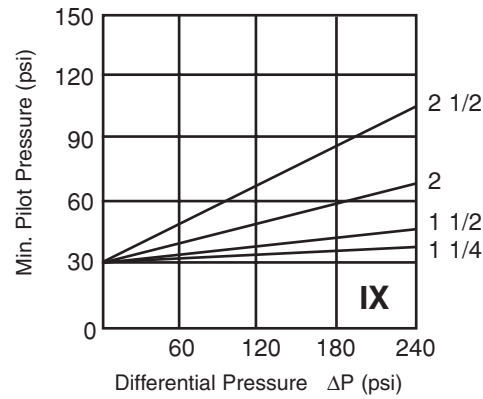
Normally Closed



Dimensions: inches

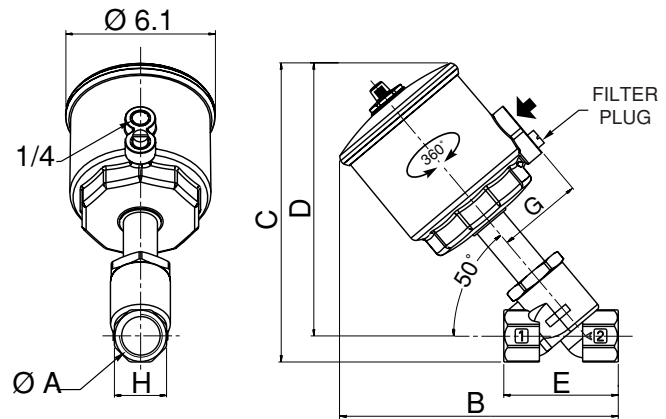
### 125 mm Operator Graphs for Steam and Fluids

#### Normally Open Valve - Entry under Disc

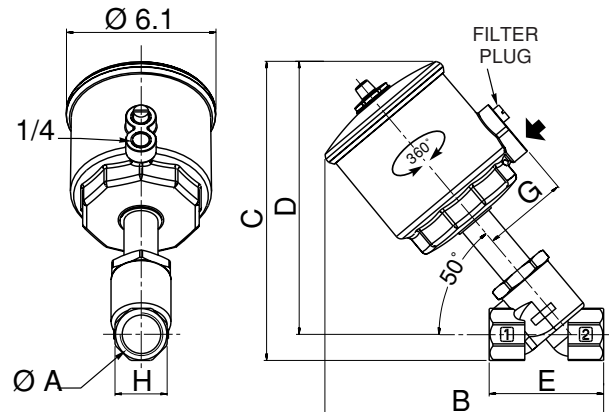


125 mm Operator							
	ØA	B	C	D	E	G	H
ins.	1 1/4	11.1	11.7	10.7	4.3	3.1	2.0
ins.	1 1/2	11.5	12.3	11.2	4.7	3.1	2.4
ins.	2	12.4	12.9	11.5	6.0	3.1	2.8
ins.	2 1/2	13.7	13.9	12.1	7.5	3.1	3.1

#### Normally Open



#### Normally Closed



# ASCO® 8290 SERIES ACCESSORIES

## COMPACT POSITIONERS FOR PROPORTIONAL CONTROL

Varies flow proportional to a 0-10 VDC, 0-20 mA or 4-20 mA control signal. Feedback of valve stem position via a linear potentiometer. Uses profile disc for flow characterization. Available assembled on 50mm through 125mm operator, Normally Closed with fluid entry under disc: (e.g., 8290A384PDB04)

Control Signal	Add Suffix
0-10 VDC	PDB04
0-20 mA	PDB05
4-20 mA	PDB06



## COMPACT SIGNALING UNIT

This unit is attached to the stem of the valve and contains the permanent magnet and field-adjustable mini-detectors. Valve stem position is sensed by one or two mini-reed switch detectors with either an integral M8 3-pin connector or a 2 meter cable with leads. Order "Support & Rod" and "Reed Switches": (e.g. 855 29 032 & 881 00 140)

Support & Rod		Reed Switch (Each)	
50mm NC	63, 90, 125 NC/NO	W/Connector	W/Leads
885 29 032	885 29 027	881 00 140	881 00 142



## SIGNALING BOX

Supplied with two mechanical or inductive switches with LEDs, and mounts on top of the valve operator in place of the standard visual indicator. As the valve cycles, cams on the signal lengthening stem operate the switches to provide electrical signaling of the valve position. The signaling box can rotate 360°. Available assembled on 50mm Normally Closed and 63mm through 125mm Normally Open and Normally Closed. (e.g., 8290A384SM2)

Switches	Add Suffix
Two Mechanical	SM2
Two Inductive	SI2
Two Intrinsically Safe	SH2



## LINEAR POSITION INDICATOR (HS SERIES)

Supplied with two mechanical or Viper Switches and mounts on top of the valve operator in place of the standard visual indicator. Provides wiring box with conduit connections. HS1,2,3 indicators are suitable for hazardous locations while the HS4 indicator is suitable for non-hazardous locations. Optional ASi and DeviceNet communications available. Consult ASCO for details and ordering.



## STROKE LIMITER

The stroke limiter allows Cv flow to be adjusted from 0% to 100%, and mounts on top of any 8290 Series valve in place of the position indicator. It is available assembled for 50mm (Normally Closed) and 63mm through 125mm Normally Open or Normally Closed valves with fluid entry under the disc. Add suffix M: (e.g., 8290B002M)



# PILOT VALVES

ASCO offers a variety of 3-way Direct Acting Normally Closed pilot valves to pilot 32mm through 125mm 8290 valves. Available in direct, in-line and remote mounting. To order, specify catalog number and voltage (24, 120, 240 AC 60Hz or 110, 220 AC 50Hz or 6, 12, 24, 120 DC).



## Series 189

- Direct Mount.
- Swivel "Banjo" fittings, 1/8" NPT male.
- Inlet for 4mm plastic tube.
- DIN plug connection.



## Series 8325

- In-line Mount.
- 1/8" NPT.
- Brass or Stainless Steel.
- DIN plug connection.



## Series 8320

- In-line Mount.
- 1/8" or 1/4" NPT.
- Brass or Stainless Steel.
- (Explosionproof optional, add Prefix EF).



## Bus Island

- Remote Mount.
- 4 to 16 valves.
- Compatible with ASi, DeviceNet, Profibus and others.
- See Catalog 34 for Specifications.

## SPECIFICATIONS (for use on 8290 Series)

Catalog Number	Pipe Size (ins.)	Orifice Dia. (ins.)	Cv Flow ③		Operating Pressure Differential Air (psi)		Max. Fluid Temp. °F		Watt Rating/ Class of Coil Insulation		Body Material	Speed Control Exhaust Port
			P-C	C-E	AC	DC	AC	DC	AC	DC		
SERIES 189												
18900049 ①	1/8	1/16	.04	.06	150	150	140	140	2.2/F	2.5/F	Polyamide	w
18900036 ①	1/8	1/16	.04	.06	150	150	140	140	2.2/F	2.5/F	Polyamide	w/o
SERIES 8325												
SC8325B5V ①	1/8	3/64	.05	.07	150	150	180	77	6.3/F	6.9/F	Brass	w/o
SC8325B35V ①	1/8	3/64	.05	.07	150	150	180	77	6.3/F	6.9/F	Stainless	w/o
SERIES 8320												
8320G130 ①	1/8	3/64	.06	.06	175	125	140	120	9.1/F	10.6/F	Brass	w/o
8320G140 ①	1/8	3/64	.06	.06	175	125	140	120	9.1/F	10.6/F	Stainless	w/o
8320G174 ②	1/4	3/32	.12	.12	100	60	200	150	17.1/F	11.6/F	Brass	w/o
8320G200 ②	1/4	3/32	.12	.12	100	60	200	150	17.1/F	11.6/F	Stainless	w/o

① Use with 32mm, 50mm, and 63mm operators; ② Use with 63mm, 90mm, and 125mm operators; ③ P = Pressure, C = Cylinder, E = Exhaust.

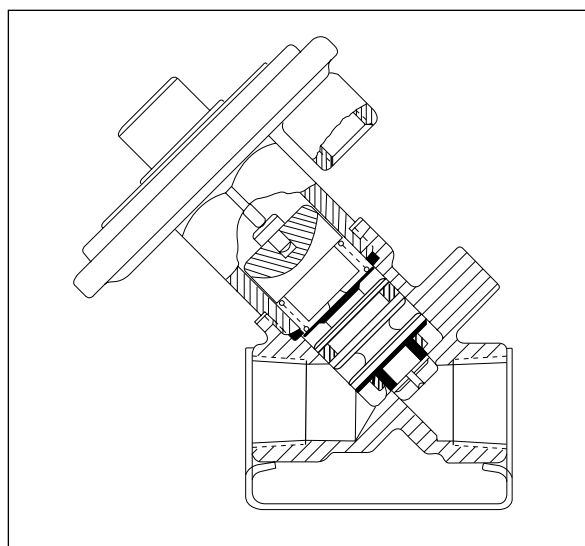
## Features

- Unique sealing member isolates pilot air pressure from mainline fluid.
- Variations in pilot air pressure do not affect valve operation.
- Design provides long life handling of lubricated air.
- Handle fluids up to 200°F (92°C).
- Some constructions handle steam up to 353°F (177°C).
- Mountable in any position.



## Construction

Valve Parts in Contact with Fluids		
<b>Body</b>	Brass	Stainless Steel
<b>Seat</b>	NBR or PTFE (for steam service)	



## Air Operators

**Connection Size** - 1/8" NPT.

### Actuated Displacement Volume -

0.60 cu. ins. for 3-30 psi operators; 0.25 cu. ins. for 30-125 psi operator.

### Media - Air

(For vacuum or other media, consult your local ASCO sales office for details. Refer to Optional Features Section for other available manual operators.)

## Important:

On 3 way and 4 way valves, except for those with zero minimum operating pressure, a Minimum Operating Pressure Differential must be maintained between the pressure and exhaust ports. Supply and exhaust piping must be full area, unrestricted. ASCO flow controls and similar components must be installed in the cylinder lines only.

## Nominal Ambient Temperature Ranges:

32°F to 125°F (0°C to 52°C)

Refer to Engineering Section for details.

## Ordering Information:

We must have catalog number, operating pressure, and fluid to be handled. Use strainers with air operated valves.

Refer to Engineering Section for details.



Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Main Line Operating Pressure (psi)					Max. Fluid Temp. °F	Instrument Air Operator 3-30 psi Range ①		Pneumatic Operator 30-125 psi Range ①	
			Min.	Maximum					Catalog Number	Constr. Ref. No.	Catalog Number	Constr. Ref. No.
				Air-Inert Gas	Water	Lt. Oil @ 300 SSU	Steam					
2/2 VALVES												
NORMALLY CLOSED (Closed when operator exhausted), Brass Body with NBR Seating												
1/4	5/32	.50	0	125	125	125	--	200	F262B202K	1	P262B202	1
1/4	9/32	.96	0	40	40	40	--	200	F262C90K	1	P262C90 ②	1
3/8	5/8	2.8	0	125	125	125	--	180	F210C93K	6	P210C93	6
3/8	3/8	1.5	1⑥	125	125	125	--	200	F210C73K	3	P210C73	3
1/2	7/16	2.2	1⑥	125	125	125	--	200	F210A15K	4	P210A15	4
1/2	5/8	3.6	0	125	125	125	--	180	F210C94K	6	P210C94	6
3/4	3/4	5.5	0	125	125	125	--	180	F210D95K	7	P210D95	7
3/4	3/4	5.5	5	125	125	125	--	180	F210D9K	8	P210D9	8
1	1	13	5	125	125	125	--	180	F210D4K	10	P210D4	10
1 1/4	1 1/8	15	5	125	125	125	--	180	F210D8K	12	P210D8	12
1 1/2	1 1/4	22.5	5	125	125	125	--	180	F210D22K	14	P210D22	14
2	1 3/4	43	5	125	125	125	--	180	F210I00K	15	P210I00	15
NORMALLY OPEN (Open when operator exhausted), Brass Body with NBR Seating												
1/4	5/32	.50	0	125	125	125	--	200	F262B106K	2	P262B106	2
3/8	5/8	2.8	0	125	125	125	--	180	F210C33K	16	P210C33	16
1/2	5/8	3.5	0	125	125	125	--	180	F210C34K	16	P210C34	16
3/4	3/4	5.5	0	125	125	125	--	180	F210C35K	17	P210C35	17
1	1	13	5	125	125	125	--	180	F210D14K	18	P210D14	18
NORMALLY CLOSED (Closed when operator exhausted), Stainless Steel Body with NBR Seating												
1/4	5/32	.50	0	125	125	125	--	200	F262B220K	22	--	--
NORMALLY CLOSED (Closed when operator exhausted), Brass Body with PTFE Seating												
1/4	3/8	1.2	1	--	--	--	125	353	F222A70K	4	P222A70	4
3/8	3/8	2.5	1	--	--	--	125	353	F222A74K	4	P222A74	4
1/2	3/8	2.5	1	--	--	--	125	353	F222A76K	4	P222A76	4
3/2 VALVES												
NORMALLY CLOSED (Closed when operator exhausted), Brass Body with NBR Seats												
1/4	9/32	③	10	125	125	125	--	200	F321A1K	5	P321A1	5
3/8	9/32	③	10	125	125	125	--	200	F321A2K	5	P321A2	5
3/8	5/8	3	10	125	125	--	--	200	F316D14K	2	P316D14	2
1/2	5/8	4	10	125	125	--	--	200	F316D24K	2	P316D24	2
3/4	11/16	5.5	10	125	125	--	--	200	F316E44K	3	P316E44	3
1	1	13	10	125	125	--	--	200	F316E34K	4	P316E34	4
UNIVERSAL (Pressure at any port), Brass Body with NBR Seats												
1/4	1/8	.31	0	125	125	125	--	200	F320A9K	1	P320A9	1
4/2 VALVES												
Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor		Main Line Operating Pressure (psi)				Max. Fluid Temp. °F	Instrument Air Operator 3-30 psi Range		Pneumatic Operator 30-125 psi Range	
		Press. to Cyl.	Exh. to Cyl.	Min.	Maximum		Catalog Number		Constr. Ref. No.	Catalog Number	Constr. Ref. No.	
					Air-Inert Gas	Water						Lt. Oil @ 300 SSU
2-Position Brass Body with Soft Seating ④												
1/4	3/16	.70	.70	0	125	125	125	160	--	--	P442C1	1
1/4	1/4	.80	1	10 ⑤	125	125	125	200	F444B0K	2	P444B0	2
3/8	3/16	.70	.70	0	125	125	125	160	--	--	P442C3	1
3/8	3/8	1.4	2.2	10 ⑤	125	125	125	200	F444C25K	3	P444C25	3
Notes: ① 3-40 psi (.2 - 2.8 bar) and 50-125 psi (3.4 - 8.6 bar) range for steam valves only. ② Refers to operator minimum pressure: Catalog Number P262C90 requires 50 psi (3.4 bar) minimum pressure. ③ Cv pressure to cylinder = 0.8 (.7 Kv); Cv cylinder to exhaust = 1.2 (1.0 Kv). ④ Constr. Ref. 1 has soft seating; Constr. Refs. 2 and 3 have soft to metal seating. ⑤ 25 psi (1.7 bar) required on light oil service. ⑥ 5 psi (0.35 bar) required for air service.												

Specifications (Metric units)

Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Main Line Operating Pressure (bar)					Max. Fluid Temp. °C	Instrument Air Operator 0.2-2 bar Range ①		Pneumatic Operator 2-8.6 bar Range ①	
			Min.	Maximum					Catalog Number	Constr. Ref. No.	Catalog Number	Constr. Ref. No.
				Air-Inert Gas	Water	Lt. Oil @ 300 SSU	Steam					
2/2 VALVES												
NORMALLY CLOSED (Closed when operator exhausted), Brass Body with NBR Seating												
1/4	4	.43	0.0	9	9	9	--	92	F262B202K	1	P262B202	1
1/4	7	.82	0.0	3	3	3	--	92	F262C90K	1	P262C90 ②	1
3/8	16	2.40	0.0	9	9	9	--	81	F210C93K	6	P210C93	6
3/8	10	1.29	0.07 ⑥	9	9	9	--	92	F210C73K	3	P210C73	3
1/2	11	1.89	0.07 ⑥	9	9	9	--	92	F210A15K	4	P210A15	4
1/2	16	3.09	0.0	9	9	9	--	81	F210C94K	6	P210C94	6
3/4	19	4.71	0.0	9	9	9	--	81	F210D95K	7	P210D95	7
3/4	19	4.71	0.3	9	9	9	--	81	F210D9K	8	P210D9	8
1	25	11.14	0.3	9	9	9	--	81	F210D4K	10	P210D4	10
1 1/4	29	12.86	0.3	9	9	9	--	81	F210D8K	12	P210D8	12
1 1/2	32	19.29	0.3	9	9	9	--	81	F210D22K	14	P210D22	14
2	1	36.86	0.3	9	9	9	--	81	F210100K	15	P210100	15
NORMALLY OPEN (Open when operator exhausted), Brass Body with NBR Seating												
1/4	4	.43	0.0	9	9	9	--	92	F262B106K	2	P262B106	2
3/8	16	2.40	0.0	9	9	9	--	81	F210C33K	16	P210C33	16
1/2	16	3.00	0.0	9	9	9	--	81	F210C34K	16	P210C34	16
3/4	19	4.71	0.0	9	9	9	--	81	F210C35K	17	P210C35	17
1	25	11.14	0.3	9	9	9	--	81	F210D14K	18	P210D14	18
NORMALLY CLOSED (Closed when operator exhausted), Stainless Steel Body with NBR Seating												
1/4	4	.43	0.0	9	9	9	--	92	F262B220K	22	--	--
NORMALLY CLOSED (Closed when operator exhausted), Brass Body with PTFE Seating												
1/4	10	1.03	0.1	-	--	--	24	177	F222A70K	4	P222A70	4
3/8	10	2.14	0.1	-	--	--	24	177	F222A74K	4	P222A74	4
1/2	10	2.14	0.1	-	--	--	24	177	F222A76K	4	P222A76	4
3/2 VALVES												
NORMALLY CLOSED (Closed when operator exhausted), Brass Body with NBR Seats												
1/4	7	③	0.6895	9	9	9	--	92	F321A1K	5	P321A1	5
3/8	7	③	0.6895	9	9	9	--	92	F321A2K	5	P321A2	5
3/8	16	2.57	0.6895	9	9	--	--	92	F316D14K	2	P316D14	2
1/2	16	3.43	0.6895	9	9	--	--	92	F316D24K	2	P316D24	2
3/4	17	4.71	0.6895	9	9	--	--	92	F316E44K	3	P316E44	3
1	25	11.14	0.6895	9	9	--	--	92	F316E34K	4	P316E34	4
UNIVERSAL (Pressure at any port), Brass Body with NBR Seats												
1/4	3	.27	0	9	9	9	--	92	F320A9K	1	P320A9	1
4/2 VALVES												
Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)		Main Line Operating Pressure (bar)				Max. Fluid Temp. °C	Instrument Air Operator 0.2-2 bar Range		Pneumatic Operator 2-8.6 bar Range	
		Press. to Cyl.	Exh. to Cyl.	Min.	Maximum				Catalog Number	Constr. Ref. No.	Catalog Number	Constr. Ref. No.
					Air-Inert Gas	Water	Lt. Oil @ 300 SSU					
2-Position Brass Body with Soft Seating ④												
1/4	5	.60	.60	0	9	9	9	70	--	--	P442C1	1
1/4	6	.69	.86	0.7 ⑤	9	9	9	92	F444B0K	2	P444B0	2
3/8	5	.60	.60	0	9	9	9	70	--	--	P442C3	1
3/8	10	1.20	1.89	0.7 ⑤	9	9	9	92	F444C25K	3	P444C25	3

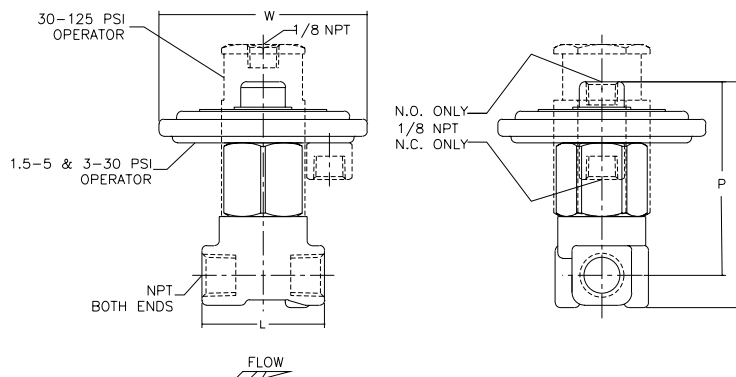


Dimensions: inches (mm)

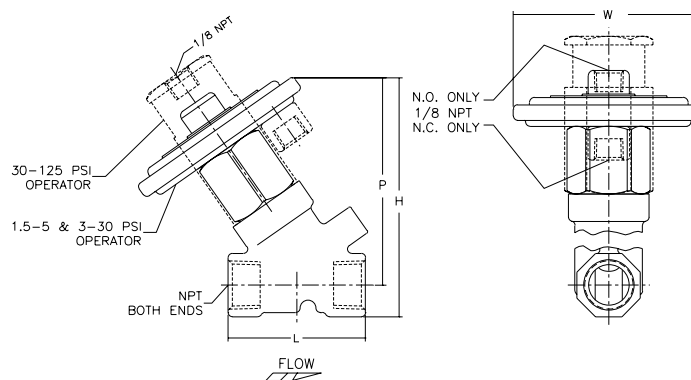
Constr. Ref. No.		Instrument Air Operator 2/2 Valves with 3-30 PSI Operator ①				Pneumatic Operator 2/2 Valves with 30-125 PSI Operator ①			
		H	L	P	W	H	L	P	W ②
1	ins.	2.88	1.57	2.47	Ø 2.66	3.34	1.56	2.94	1.18
	mm	73	40	63	Ø 67	85	40	75	30
2	ins.	2.97	1.56	2.56	Ø 2.66	2.78	1.56	2.38	1.18
	mm	75	40	65	Ø 67	71	40	60	30
3	ins.	3.34	1.91	2.91	Ø 2.66	3.69	1.91	3.25	1.12
	mm	85	49	74	Ø 67	94	49	83	28
4	ins.	3.62	2.28	3.09	Ø 2.66	4.22	2.28	3.66	1.12
	mm	92	58	79	Ø 67	107	58	93	28
6	ins.	3.59	2.75	3.03	Ø 2.66	4.00	2.75	3.44	2.28
	mm	91	70	77	Ø 67	102	70	87	58
7	ins.	3.81	2.81	3.19	Ø 2.66	4.22	2.81	3.59	2.28
	mm	97	71	81	Ø 67	107	71	91	58
8	ins.	3.88	2.81	3.22	Ø 2.66	4.28	2.81	3.62	2.31
	mm	99	71	82	Ø 67	109	71	92	59
10	ins.	5.53	3.75	3.91	Ø 2.66	6.00	3.75	4.38	2.94
	mm	141	95	99	Ø 67	152	95	111	75
12	ins.	5.53	2.66	3.91	Ø 2.66	6.00	3.66	4.38	3.38
	mm	141	68	99	Ø 67	152	93	111	86
14	ins.	6.00	4.38	4.06	4.38	6.50	4.38	4.53	3.75
	mm	152	111	103	111	165	111	115	95
15	ins.	7.22	5.06	4.47	4.68	7.69	5.06	4.94	4.68
	mm	183	129	114	119	195	129	126	119
16	ins.	3.69	2.75	3.12	Ø 2.66	3.44	2.75	2.88	2.28
	mm	94	70	79	Ø 67	87	70	73	58
17	ins.	3.91	2.81	3.28	Ø 2.66	3.69	2.81	3.03	2.28
	mm	99	71	83	Ø 67	94	71	77	58
18	ins.	5.63	3.75	4.00	2.94	5.43	3.75	3.81	2.94
	mm	143	95	102	75	138	95	97	75
22	ins.	2.84	Ø1.62	2.47	Ø 2.66	X	X	X	X
	mm	72	Ø 41	63	Ø 67	X	X	X	X

Notes: ① When barbed tubing adapter is used, add 1.19 (30 mm) to "H" and/or "P" (or overall) dimensions.  
② Represents overall width of valve.

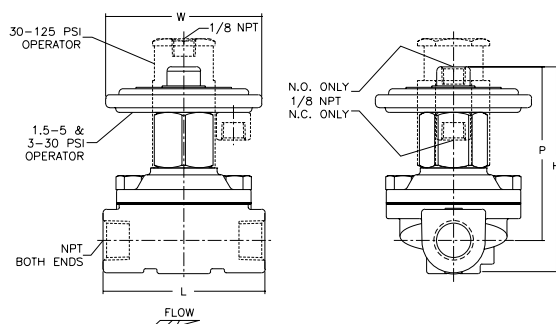
2/2 Valves - Constr. Ref. 1, 2



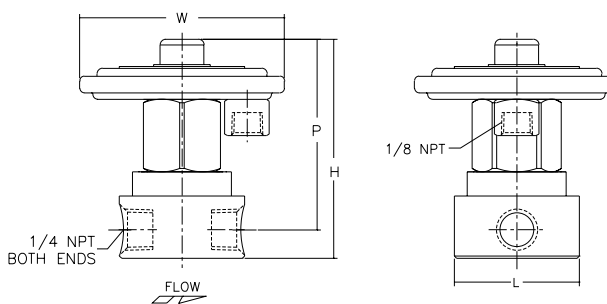
2/2 Valves - Constr. Ref. 3, 4



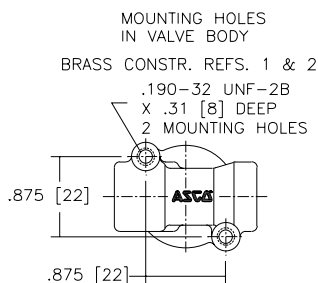
2/2 Valves - Constr. Ref. 6 - 18



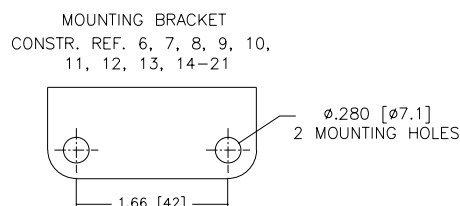
2/2 Valves - Constr. Ref. 22



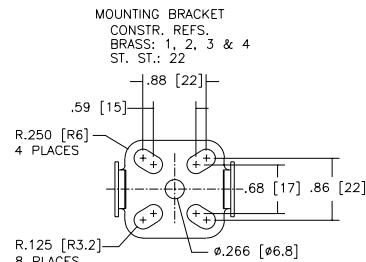
Mounting Bracket Constr. Ref. 1, 2



Mounting Bracket Constr. Ref. 6 - 18



Mounting Bracket Constr. Ref. 1, 2, 3, 4, 22

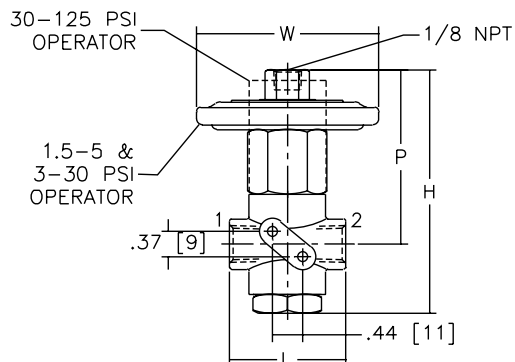


Dimensions: inches (mm)

Const. Ref. No.		Instrument Air Operator 3/2 Valves with 3-30 PSI Operator ①			Pneumatic Operator 3/2 Valves with 30-125 PSI Operator ①						
		H	P	W ②	H	P	W ②	L	N	M	R
1	ins.	3.56	2.56	Ø 2.66	3.38	2.38	1.12	1.69	X	X	X
	mm	90	65	Ø 67	86	61	28	43	X	X	X
2	ins.	5.07	3.93	4.30	4.89	3.75	4.30	2.76	X	X	X
	mm	129	100	109	124	95	109	70	X	X	X
3	ins.	6.00	4.31	3.31	5.82	4.13	3.31	3.38	.53	2.16	.50
	mm	152	109	84	148	105	84	86	13	55	13
4	ins.	6.62	4.56	5.34	6.44	4.38	5.34	4.44	.88	2.68	.88
	mm	168	116	136	164	111	136	113	22	68	22
5	ins.	3.84	2.81	3.39	3.66	2.62	2.62	3.12	X	X	X
	mm	98	71	86	93	67	67	79	X	X	X

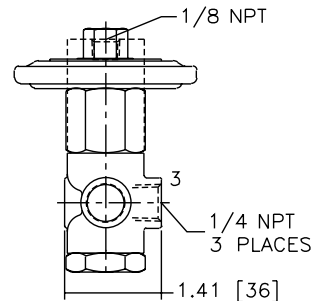
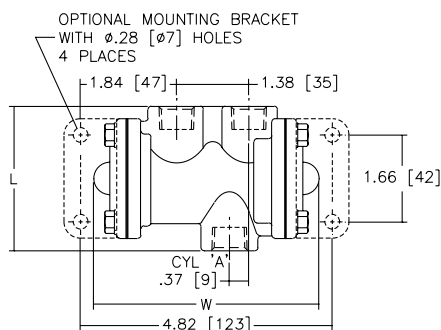
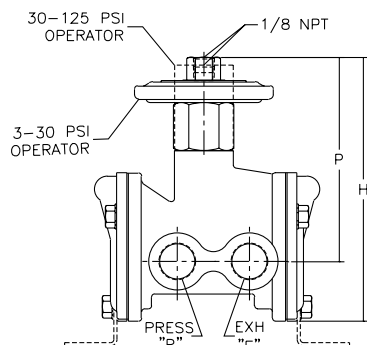
**Notes:** ① When barbed tubing adapter is used, add 1.19 ins. (30 mm) to "H" and/or "P" (or overall) dimensions.  
② Represents overall width of valve.

3/2 Valves - Constr. Ref. 1

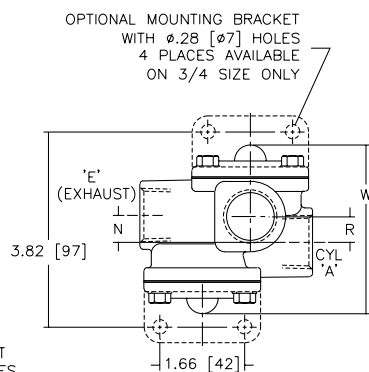
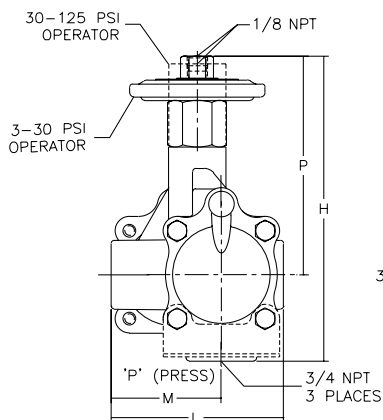


2 Mounting holes 0.28 (0.07 mm) deep for No. 8 thread cutting screw

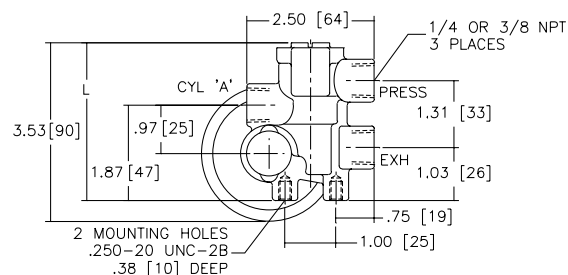
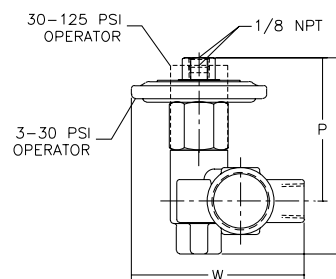
3/2 Valves - Constr. Ref. 2



3/2 Valves - Constr. Ref. 3, 4



3/2 Valves - Constr. Ref. 5



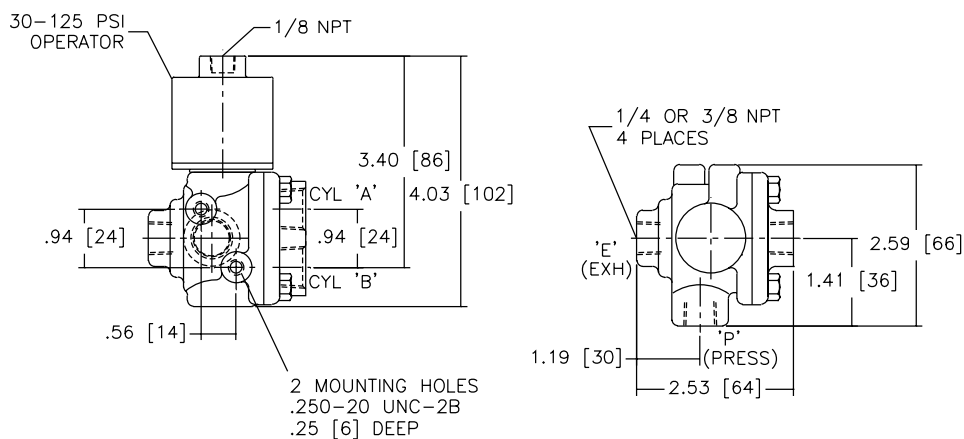
Dimensions: inches (mm)

Constr. Ref. No.		Instrument Air Operator 4/2 Valves with 3-30 PSI Operator ①			Pneumatic Operator 4/2 Valves with 30-125 PSI Operator ①											DIA D
		H	P	W	H	P	W	E	F	J	L	N	X	Y	Z	
2	ins.	3.91	2.94	4.75	3.72	2.75	4.75	.56	2.41	1.03	3.12	.72	1.41	1.56	.81	Ø .28
	mm	99	75	121	94	70	121	14	61	26	79	18	36	40	21	Ø 7
3	ins.	3.88	2.75	6.06	3.69	2.56	6.06	.75	3.12	1.50	3.19	.84	1.88	1.90	.84	Ø .34
	mm	98	70	154	94	65	154	19	79	38	81	21	48	48	21	Ø 9

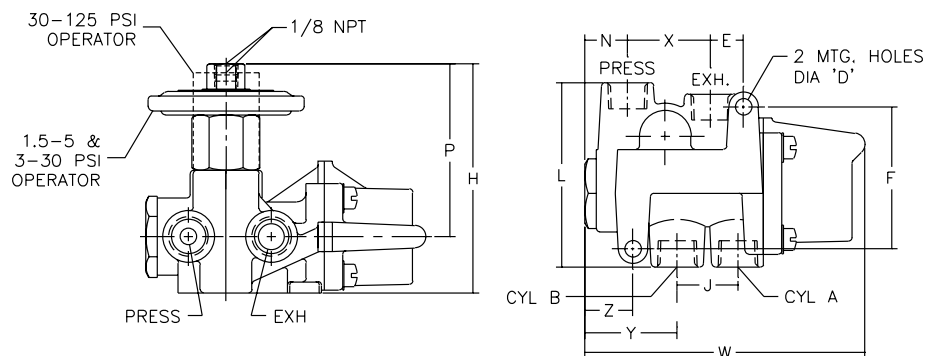
Notes: ① When barbed tubing adapter is used, add 1.19 ins. (30 mm) to "H" and/or "P" (or overall) dimensions.

IMPORTANT: Valves can be mounted in any position.

4/2 Valves - Constr. Ref. 1

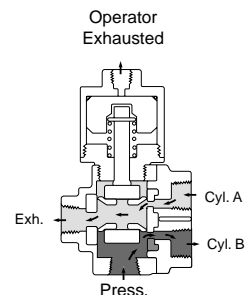


4/2 Valves - Constr. Ref. 2, 3

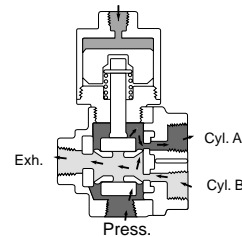


FLOW DIAGRAMS

Constr. Ref. 1

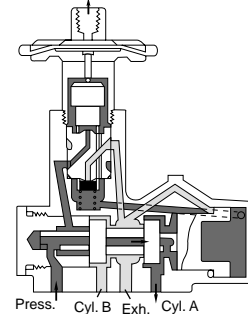


Operator  
Pressurized

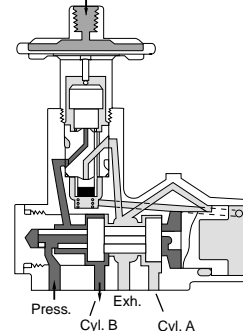


Constr. Ref. 2, 3, 4

Operator  
Exhausted

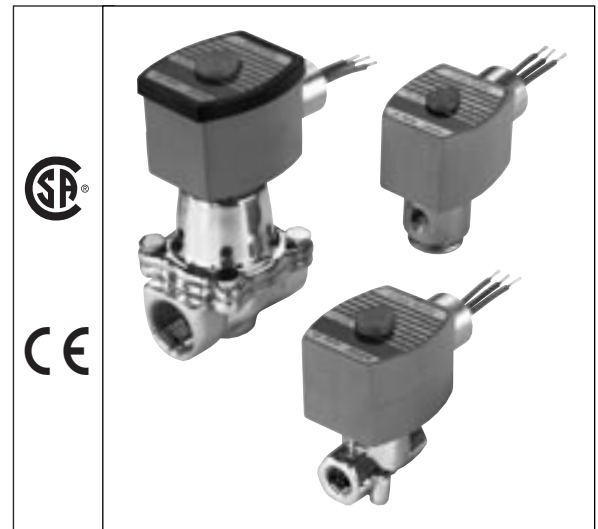


Operator  
Pressurized



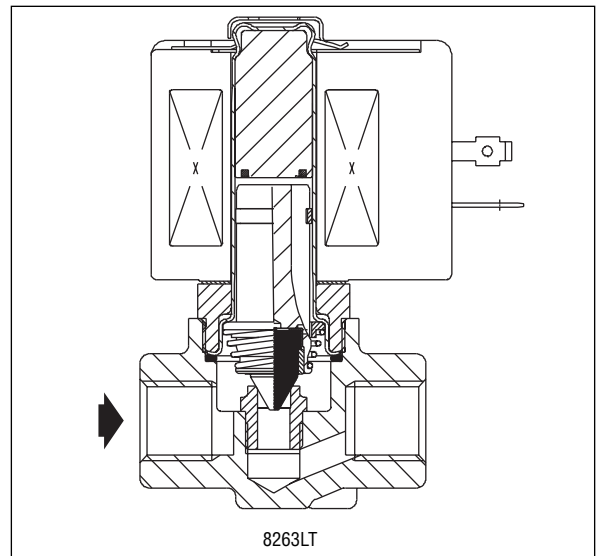
## Features

- “LT” suffix valves are built to control cryogenic fluids, including liquid oxygen (-297°F/-181°C), liquid argon (-303°F/-184°C), and liquid nitrogen (-320°F/-194°C).
- All suffix “LT” valves are degreased, cleaned, tested free of moisture, and black light tested for hydrocarbons.
- Liquid CO<sub>2</sub> valves are suitable for remote mounting or for direct mounting to the refrigerated component by using four-hole bracket, provided.



## Construction

Valve Parts in Contact with Fluids	
<b>Body: Cryogenic Valves</b>	Brass
<b>Body: LCO<sub>2</sub> Valves</b>	Nickel-Plated Brass
<b>Seals</b>	PTFE and/or Lead-Free Copper/UR
<b>Disc</b>	PTFE/UR (8264 only)
<b>Core and Plugnut</b>	430F Stainless Steel or 49 FM Alloy
<b>Core Spring</b>	302 Stainless Steel
<b>Shading Coil</b>	Copper
<b>Seats</b>	Stainless Steel (8264 Series)



## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part No.			
	DC Watts	AC			General Purpose		Explosionproof	
		Watts	VA Holding	VA Inrush	AC	DC	AC	DC
F	11.6	12.1	23	47	238610	238710	238614	238714
F	18.6	13.8	27	43	238210	238310	238214	238314
F	-	17.1	34	64	238610	-	238614	-
H	40.6	17.1	34	64	238810	238910	238814	238914

**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz. 6, 12, 24, 120, 240 volts DC. Must be specified when ordering. Other voltages are available when required.

## Nominal Fluid Temperature Ranges:

AC Cryogenic Valves: -320°F to 150°F (-196°C to 66°C)

DC Cryogenic Valves: -320°F to 120°F (-196°C to 49°C)

All Liquid CO<sub>2</sub> Valves: -75°F to 120°F (-59°C to 49°C)

*Refer to Engineering Section for details.*

## Nominal Ambient Temperature Ranges:

AC Construction: 32°F to 125°F (0°C to 52°C)

DC Construction: 32°F to 104°F (0°C to 40°C)

*Refer to Engineering Section for details.*

## Solenoid Enclosures

**Standard:** Watertight, Types 1, 2, 3, 3S, 4, and 4X.

**Optional:** Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9.  
 (To order, add prefix “EF” to catalog number.)  
*See Optional Features Section for other available options.*

## Approvals:

CSA certified. Meets applicable CE directives.

*Refer to Engineering Section for details.*

## Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Operating Pressure Differential			Catalog Number	Constr. Ref. No.	Watt Rating/ Class of Coil Insulation	
			Min.	Max.				AC	DC
				AC	DC				
CRYOGENIC SERVICE - NORMALLY CLOSED (Closed when de-energized)									
1/8	1/8	.35	0	130	75	8263G240LT	2	12.1/F	11.6/F
1/4	1/8	.35	0	130	-	8262G022LT	1	12.1/F	—
1/4	7/32	.56	0	100	30	8263G205LT	2	17.1/F	11.6/F
1/4	9/32	.70	0	40	18	8263G209LT	2	12.1/F	11.6/F
3/8	1/8	.35	0	130	75	8263G232LT	2	12.1/F	11.6/F
3/8	7/32	.56	0	100	30	8263G206LT	3	17.1/F	11.6/F
3/8	9/32	.70	0	40	18	8263G210LT	3	12.1/F	11.6/F
1/2	5/8	3.8	0	90	50	8222G002LT	4	17.1/H	40.6/H
3/4	3/4	5.8	0	90	50	8222G003LT	4	17.1/H	40.6/H
1	1	13.5	5	200	100	8210G078LT	5	17.1/F	40.6/H
1 1/4	1 1/8	15	5	200	100	8210G080LT	6	17.1/F	40.6/H
1 1/2	1 1/4	22.5	5	200	100	8210G082LT	7	17.1/F	40.6/H
LIQUID CO <sub>2</sub> SERVICE - NORMALLY CLOSED (Closed when de-energized)									
1/8	3/64	.06	0	1000	1000	8264G009 ①	8	13.8/F	18.6/F
1/8	3/32	.20	0	300	300	8264G010 ①	8	13.8/F	18.6/F
Notes: ① Must use tubing with an I.D. no larger than the outlet port orifice to locate the refrigeration point downstream and to prevent freezing of the CO2 inside the valve.									

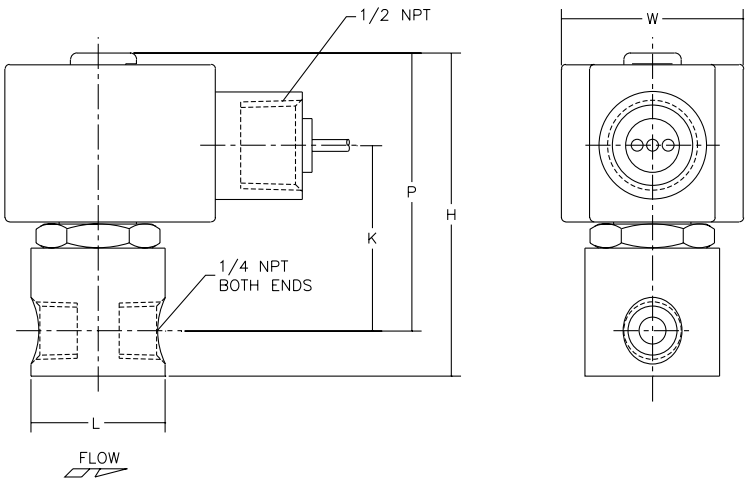
## Specifications (Metric units)

Pipe Size (ins.)	Orifice Size (ins.)	Kv Flow Factor (m3/h)	Operating Pressure Differential (bar)			Catalog Number	Constr. Ref. No.	Watt Rating/ Class of Coil Insulation	
			Min.	Max.				AC	DC
				AC	DC				
CRYOGENIC SERVICE - NORMALLY CLOSED (Closed when de-energized)									
1/8	3	.35	0	9	5	8263G240LT	2	12.1/F	11.6/F
1/4	3	.35	0	9	-	8262G022LT	1	12.1/F	—
1/4	6	.56	0	7	2	8263G205LT	2	17.1/F	11.6/F
1/4	7	.70	0	3	1	8263G209LT	2	12.1/F	11.6/F
3/8	3	.35	0	9	5	8263G232LT	2	12.1/F	11.6/F
3/8	6	.56	0	7	2	8263G206LT	3	17.1/F	11.6/F
3/8	7	.70	0	3	1	8263G210LT	3	12.1/F	11.6/F
1/2	16	3.8	0	6	3	8222G002LT	4	17.1/H	40.6/H
3/4	19	5.8	0	6	3	8222G003LT	4	17.1/H	40.6/H
1	25	13.5	5	14	7	8210G078LT	5	17.1/F	40.6/H
1 1/4	29	15	5	14	7	8210G080LT	6	17.1/F	40.6/H
1 1/2	32	22.5	5	14	7	8210G082LT	7	17.1/F	40.6/H
LIQUID CO <sub>2</sub> SERVICE - NORMALLY CLOSED (Closed when de-energized)									
1/8	1	.05	0	69	69	8264G009 ①	8	13.8/F	18.6/F
1/8	2	.17	0	21	21	8264G010 ①	8	13.8/F	18.6/F
Notes: ① Must use tubing with an I.D. no larger than the outlet port orifice to locate the refrigeration point downstream and to prevent freezing of the CO2 inside the valve.									

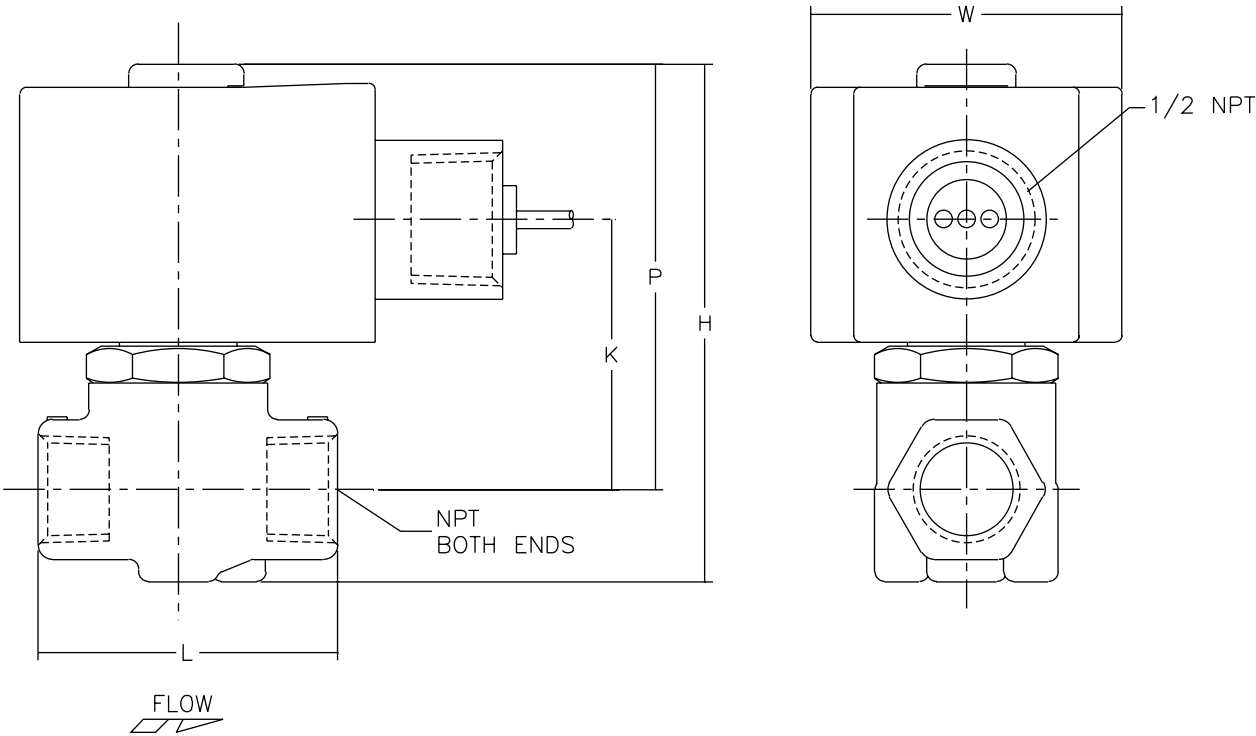
Dimensions: inches (mm)

Constr. Ref. No.		H	K	L	P	W
1	ins.	3.19	1.80	Ø1.25	2.77	1.95
	mm	81	46	Ø32	70	50
2	ins.	3.25	1.70	1.88	2.67	1.95
	mm	83	43	48	68	50
3	ins.	3.25	1.70	2.00	2.67	1.95
	mm	83	43	51	68	50
4	ins.	4.67	3.15	2.75	4.11	1.95
	mm	119	80	70	104	50
5	ins.	5.82	3.22	3.75	4.19	4.44
	mm	148	82	95	106	113
6	ins.	5.82	3.22	3.66	4.19	4.86
	mm	148	82	93	106	123
7	ins.	6.29	3.37	4.38	4.34	5.81
	mm	160	86	111	110	148
8	ins.	2.82	1.27	Ø1.12	2.13	1.69
	mm	72	32	Ø28	54	43
<b>IMPORTANT:</b> Valves may be mounted in any position.						
8222G002LT	Mount vertical and upright.					
8222G003LT						

Constr. Ref. 1

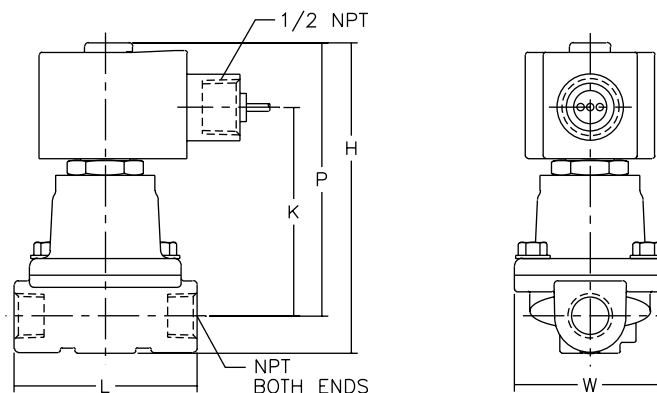


Constr. Ref. 2, 3

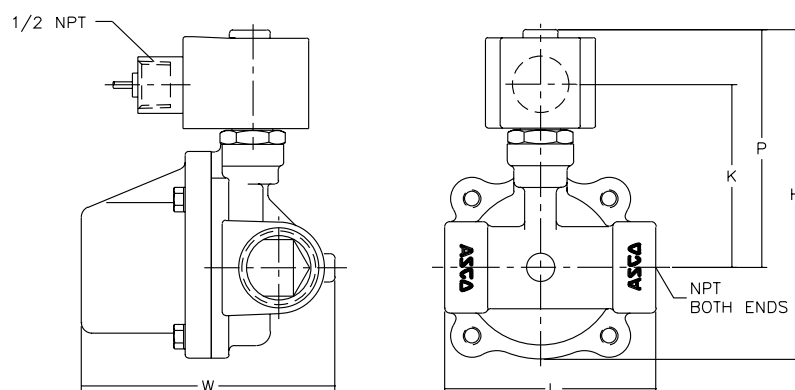


Dimensions: inches (mm)

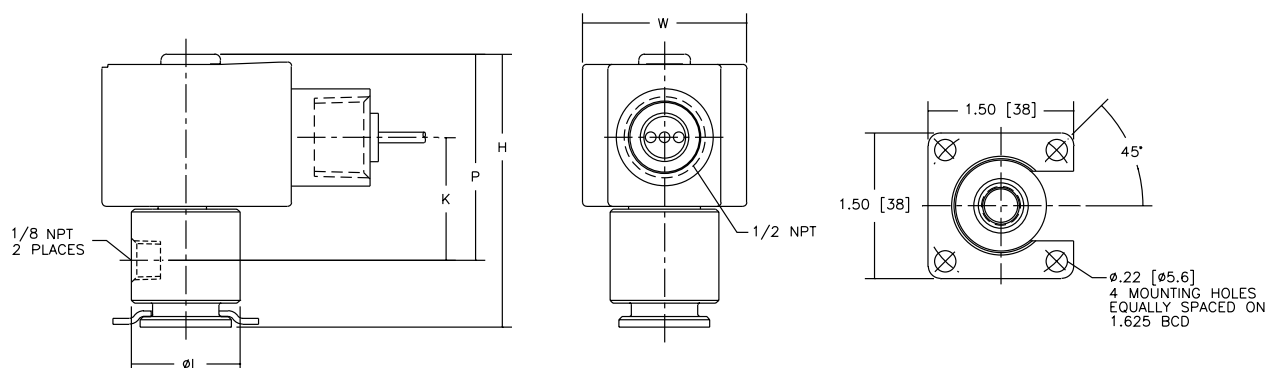
**Constr. Ref. 4**



**Constr. Ref. 5, 6, 7**



**Constr. Ref. 8**



## Features

- Specially designed for reverse jet-type dust collector systems.
- High flow Cv's to 140 for effective bag cleaning.
- High cycle life.
- Fast opening/closing.

## Construction

Valve Parts in Contact with Fluids	
Body	Aluminum
Seals	NBR
Diaphragm	NBR, HYT, or CR, as noted
Discs	NBR or PA, as noted

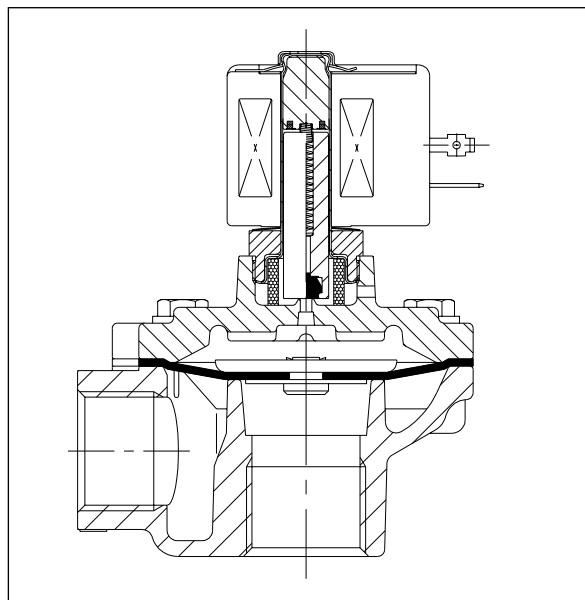
## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption			Spare Coil Part No.	
	AC			General Purpose	Explosionproof
	Watts	VA Holding	VA Inrush	AC	AC
F	6.1	16	30	238210	238214
F	10.1	25	50	238610	238614
F	17.1	40	70	238610	238614

**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz). Consult factory for DC voltage. Other voltages are available when required.

## Solenoid Enclosures

<b>Standard:</b> Watertight, Types 1, 2, 3, 3S, 4, and 4X.
<b>Optional:</b> Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9. (To order, add prefix "EF" to catalog number.) See <i>Optional Features Section</i> for other available options. Consult your local ASCO office for details on accessories.



## Nominal Temperature Ranges:

**Ambient:** AC constructions: 0°F to 185°F (-18°C to 85°C).  
150°F (66°C) maximum for valves with HYT diaphragm.  
Consult local sales office for DC constructions.

**Fluids:** 0°F to 185°F (-18°C to 85°C), except as noted.  
For temperatures to 300°F (149°C), specify FPM, suffix "V" (except where noted).  
Refer to *Engineering Section* for details.



SERIES  
**8353**  
Dust Collector



Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Min. Operating Pressure Differential (psi) ⑩	Max. Operating Pressure Differential (psi) ⑩	Integral Pilot	Remote Pilot Construction (Minimum Pilot Valve Orifice Size = 1/8")	Constr. Ref. No.	Watt Rating/Class of Coil Insulation	Rebuild Kit AC Valves	Diaphragm Only 10 Pack "Zip" Kit
					Catalog Number	Catalog Number		AC	Kit No.	Kit No.
3/4	3/4	10.5	5	125	--	8353C33 ③	1	-	K96875	K238864
3/4 ①	3/4	10.5	5	125	--	8353C30 ③	1	-	K96875	K238864
3/4 ②	3/4	10.5	5	125	--	8353C4 ③	1	-	K96875	K238864
1	1 1/8	20	5	125	--	8353C35 ④	1	-	K200262	K238866
1	1 1/8	20	5	125	8353G41 ④	--	4	6.1/F	K314450	K238866
1	1 5/8	18	15	125	8353G6 ⑤ ⑧	--	3	17.1/F	K300144	--
1 1/4	1 5/8	20	15	125	8353G5 ⑤ ⑧	--	3	17.1/F	K300144	--
1 1/2	1 1/2	35	15	125	8353G1 ⑤ ⑧	--	3	17.1/F	K300144	--
1 1/2	2	53	10	125	--	8353H38 ④	2	-	K276886	K238870
1 1/2	2	53	5	125	8353J39 ④	--	5	10.1/F	K322108	K238870
1 1/2	2	48	5	125	8353G61 ⑨	--	5	10.1/F	K316297	--
1 1/2	2	48	10	125	--	8353A62 ⑨	2	-	K276884	--
2	2	60	15	125	8353G2 ⑤ ⑧	--	3	17.1/F	K300145	--
2	2	76	5	125	--	835348 ⑥ ⑦	2	-	K256802	K256797
2	2	76	5	125	8353G50 ⑥	--	5	10.1/F	K316029	K256797
2 1/2	2 1/2	82	5	125	--	835349 ⑥ ⑦	2	-	K256802	K256797
2 1/2	2 1/2	82	5	125	8353G51 ⑥	--	5	10.1/F	K316029	K256797
2 1/2	3	82	15	125	8353G7 ⑤	--	6	10.1/F	K176878	--
3	3	140	15	125	8353G8 ⑤	--	6	10.1/F	K176878	--

**Notes:** ① Supplied with internal slip fit connection on outlet.  
 ② Extended ends for Dresser connections.  
 ③ NBR diaphragm.  
 ④ HYT diaphragm max. fluid temp. 150°F. For higher temperature, consult factory.  
 ⑤ CR diaphragm/PA disc.  
 ⑥ CR diaphragm.  
 ⑦ Minimum pilot orifice size 7/32".  
 ⑧ Consult factory for remote piloted construction.  
 ⑨ NBR diaphragm, PA disc, long-life construction. Maximum fluid temp. 185°F.  
 ⑩ Contact local sales office for DC pressure requirements.

Specifications (Metric units)

Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Min. Operating Pressure Differential (bar) ⑩	Max. Operating Pressure Differential (bar) ⑩	Integral Pilot	Remote Pilot Construction (Minimum Pilot Valve Orifice Size = 1/8")	Constr. Ref. No.	Watt Rating/Class of Coil Insulation	Rebuild Kit AC Valves	Diaphragm Only 10 Pack "Zip" Kit
					Catalog Number	Catalog Number		AC	Kit No.	Kit No.
3/4	19	9.0	0.3	8.6	--	8353C33 ③	1	-	K96875	K238864
3/4 ①	19	9.0	0.3	8.6	--	8353C30 ③	1	-	K96875	K238864
3/4 ②	19	9.0	0.3	8.6	--	8353C4 ③	1	-	K96875	K238864
1	29	17.1	0.3	8.6	--	8353C35 ④	1	-	K200262	K238866
1	29	17.1	0.3	8.6	8353G41 ④	--	4	6.1/F	K314450	K238866
1	41	15.4	1.0	8.6	8353G6 ⑤ ⑧	--	3	17.1/F	K300144	--
1 1/4	41	17.1	1.0	8.6	8353G5 ⑤ ⑧	--	3	17.1/F	K300144	--
1 1/2	38	30.0	1.0	8.6	8353G1 ⑤ ⑧	--	3	17.1/F	K300144	--
1 1/2	51	45.4	0.7	8.6	--	8353H38 ④	2	-	K276886	K238870
1 1/2	51	45.4	0.3	8.6	8353J39 ④	--	5	10.1/F	K322108	K238870
1 1/2	51	41.1	0.3	8.6	8353G61 ⑨	--	5	10.1/F	K316297	--
1 1/2	51	41.1	0.7	8.6	--	8353A62 ⑨	2	-	K276884	--
2	51	51.4	1.0	8.6	8353G2 ⑤ ⑧	--	3	17.1/F	K300145	--
2	51	65.1	0.3	8.6	--	835348 ⑥ ⑦	2	-	K256802	K256797
2	51	65.1	0.3	8.6	8353G50 ⑥	--	5	10.1/F	K316029	K256797
2 1/2	64	70.3	0.3	8.6	--	835349 ⑥ ⑦	2	-	K256802	K256797
2 1/2	64	70.3	0.3	8.6	8353G51 ⑥	--	5	10.1/F	K316029	K256797
2 1/2	76	70.3	1.0	8.6	8353G7 ⑤	--	6	10.1/F	K176878	--
3	76	120.0	1.0	8.6	8353G8 ⑤	--	6	10.1/F	K176878	--

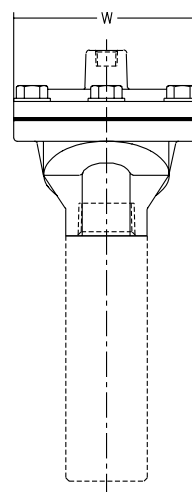
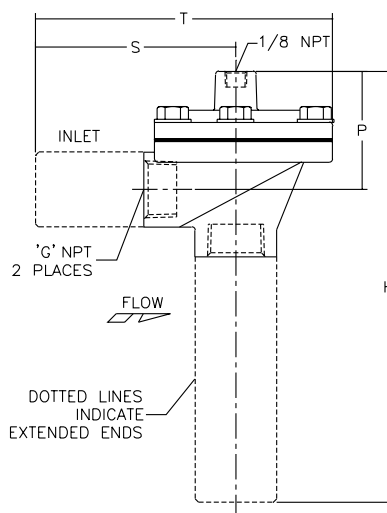
SERIES  
**8353**  
Dust Collector



Dimensions: inches (mm)

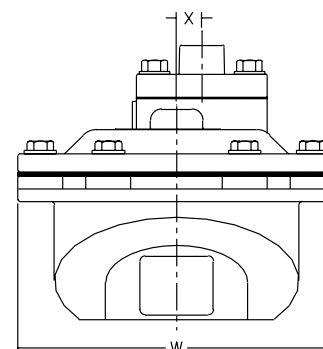
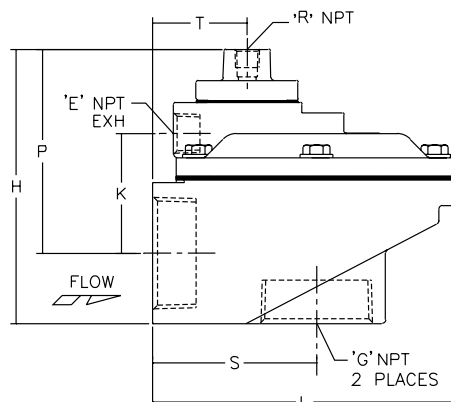
Cat. No.	"G"		H	L	P	Bonnet Bolts	T	W
<b>8353C4</b>	Extended End	ins.	7.94	3.69	2.16	5.00	5.16	3.44
		mm	201.6	93.7	54.8	127.0	131.0	87.3
<b>8353C30</b>	3/4 NPT (Inlet)	ins.	3.44	1.69	2.19	5.00	3.47	3.44
		mm	87.3	42.9	55.6	127.0	88.1	87.3
	3/4 Socket (Outlet)	ins.	3.44	1.69	2.19	5.00	3.47	3.44
		mm	87.3	42.9	55.6	127.0	88.1	87.3
<b>8353C33</b>	3/4 NPT	ins.	3.44	1.69	2.19	5.00	3.47	3.44
		mm	87.3	42.9	55.6	127.0	88.1	87.3
<b>8353C35</b>	1 NPT	ins.	2.53	2.03	1.69	4.00	3.50	2.94
		mm	64.3	51.6	42.9	101.6	88.9	74.6

Constr. Ref. 1



Cat. No.	"E" NPT	"G" NPT		H	L	P	"R" NPT	S	T	W	X
<b>8353H38</b>	3/8	1 1/2	ins.	4.63	5.16	3.44	1/8	2.78	1.61	5.38	0.44
			mm	117.5	131.0	87.3		70.6	40.9	136.5	11.1
<b>8353A62</b>	3/8	1 1/2	ins.	5.16	5.16	3.44	1/8	2.78	1.61	5.38	0.44
			mm	131.0	131.0	87.3		70.6	40.9	136.5	11.1
<b>835348</b>	3/4	2	ins.	6.47	6.63	4.69	1/4	3.75	2.56	6.50	--
			mm	164.3	168.3	119.1		95.3	65.1	165.1	--
<b>835349</b>	3/4	2 1/2	ins.	6.47	6.63	4.69	1/4	3.75	2.56	6.50	--
			mm	164.3	168.3	119.1		95.3	65.1	165.1	--

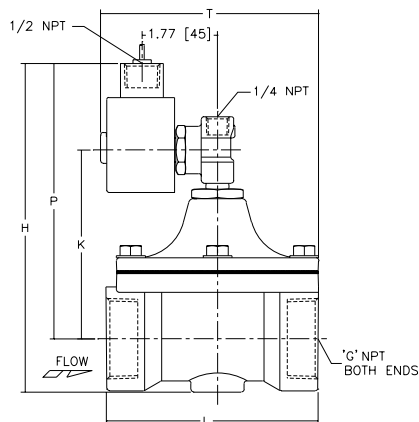
Constr. Ref. 2



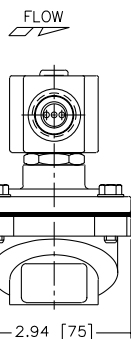
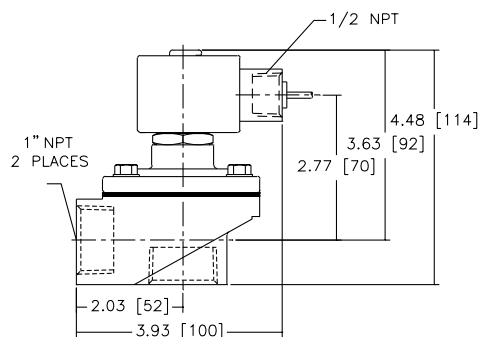
Dimensions: inches (mm)

**Constr. Ref. 3**

Cat. No.	"G" NPT		H	L	P	S	T	W
<b>8353G1</b>	1 1/2	ins.	7.72	5.00	6.47	1.78	5.13	5.38
		mm	196.1	127.0	164.3	45.2	130.2	136.5
<b>8353G2</b>	2	ins.	8.34	6.09	6.84	1.78	5.56	6.34
		mm	211.9	154.8	173.8	45.2	141.3	161.1
<b>8353G5</b>	1 1/4	ins.	7.72	5.00	6.47	1.78	5.13	5.38
		mm	196.1	127.0	164.3	45.2	130.2	136.5
<b>8353G6</b>	1	ins.	7.72	5.00	6.41	1.78	5.13	5.38
		mm	196.1	127.0	162.7	45.2	130.2	136.5

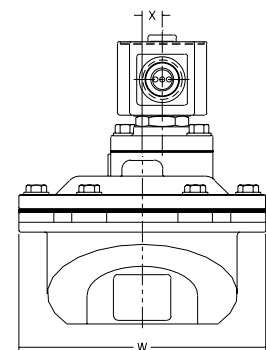
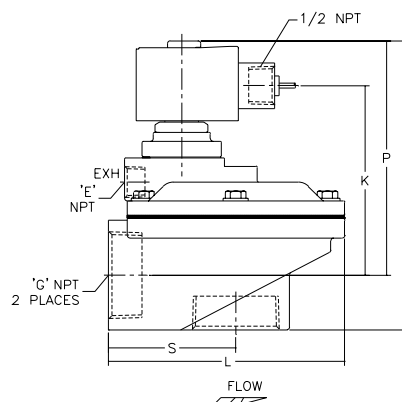


**Constr. Ref. 4**

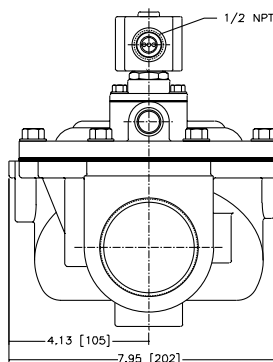
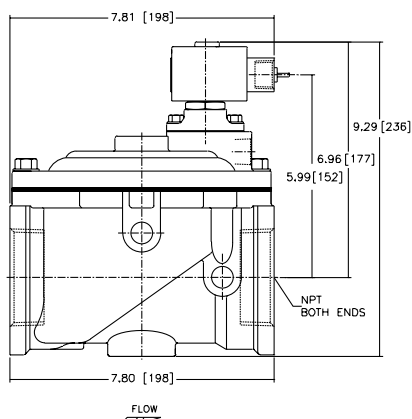


**Constr. Ref. 5**

Cat. No.	"E" NPT	"G" NPT		H	L	P	S	T	W	X
<b>8353J39</b>	3/8	1 1/2	ins.	6.28	5.16	5.08	2.78	1.61	5.38	0.44
			mm	159.5	131.0	129.0	70.6	40.9	136.5	11.1
<b>8353G61</b>	3/8	1 1/2	ins.	6.28	5.16	5.08	2.78	1.61	5.38	0.44
			mm	159.5	131.0	129.0	70.6	40.9	136.5	11.1
<b>8353G50</b>	3/4	2	ins.	8.25	6.63	6.47	3.75	2.56	6.50	--
			mm	209.6	168.3	164.3	95.3	65.1	165.1	--
<b>8353G51</b>	3/4	2 1/2	ins.	8.25	6.63	6.47	3.75	2.56	6.50	--
			mm	209.6	168.3	164.3	95.3	65.1	165.1	--



**Constr. Ref. 6**



## Features

- Die-cast aluminum bodies and diaphragm operation.
- Integral compression fittings for fast, easy, secure installation.

## Construction

Valve Parts in Contact with Fluid	
Body	Aluminum
Seals & Gasket	NBR
Diaphragms	NBR or HYT, as noted
Discs	PA
Retainer	Carbon Steel

## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption			Spare Coil Part No.	
	AC			General Purpose	Explosionproof
	Watts	VA Holding	VA Inrush	AC	AC
F	6.1	16	30	238210	238214
F	10.1	25	50	238610	238614

**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz). Consult factory for DC voltage. Other voltages are available when required.

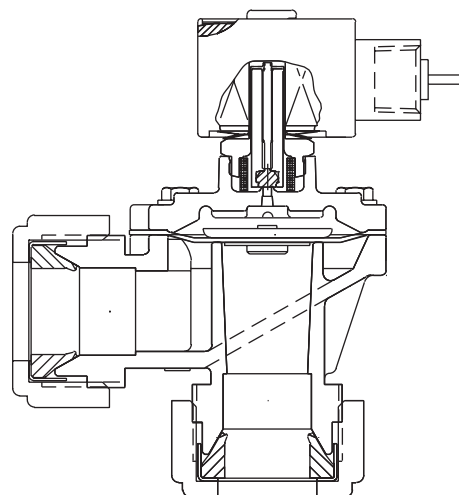
## Solenoid Enclosures

**Standard:** Watertight, Types 1, 2, 3, 3S, 4, and 4X.

**Optional:** Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9.  
(To order, add prefix EF to catalog number.)

Also available Open Frame Solenoids, Junction Box, DIN connections.

See *Optional Features Section* for details on these and other available options.



## Nominal Temperature Ranges:

**Ambient:** AC constructions: 0°F to 185°F (-18°C to 85°C);  
150°F (66°C) for valves with HYT diaphragms.

**Fluids:** 0°F to 185°F (-18°C to 85°C), except as noted. For temperatures to 300°F (149°C), specify FPM, suffix "V" (except where noted).

## Pressure Ranges:

AC minimum 5 psi (0.3 bar).

AC maximum 125 psi (8.6 bar).

Consult ASCO for DC pressure ratings.

## Specifications (English, Metric units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Kv Flow Factor (m3/h)	Min. & Max. Operating Pressure Differential (psi)	Min. & Max. Operating Pressure Differential (bar)	Integral Pilot Catalog Number	Remote Pilot Construction (Minimum Pilot Valve Orifice Size = 1/8")	Watt Rating/ Class of Coil Insulation	Rebuild Kit AC Valves	Diaphragm Only 10 Pack "Zip" Kit
							Catalog Number	AC	Kit No.	Kit No.
3/4	3/4	15	12.9	5 & 125	0.3 & 8.6	8353G52 ①	--	6.1/F	K316563	K238866
3/4	3/4	15	12.9	5 & 125	0.3 & 8.6	--	835355 ①	-	K200262	K238866
1	1 1/8	20	17.1	5 & 125	0.3 & 8.6	8353G53 ①	--	6.1/F	K316563	K238866
1	1 1/8	20	17.1	5 & 125	0.3 & 8.6	--	835356 ①	-	K200262	K238866
1 1/2	2	48	41.1	5 & 125	0.3 & 8.6	8353G59 ②	--	10.1/F	K316297	--
1 1/2	2	48	41.1	10 & 125	0.7 & 8.6	--	8353A64 ②	-	K276884	--
1 1/2	2	50	42.9	5 & 125	0.3 & 8.6	8353H54 ①	--	10.1/F	K322108	K238870
1 1/2	2	50	42.9	10 & 125	0.7 & 8.6	--	8353A57 ①	-	K276886	K238870

**Notes:** ① HYT diaphragm. Maximum fluid temperature 150°F (66°C). For higher temperature, consult factory.

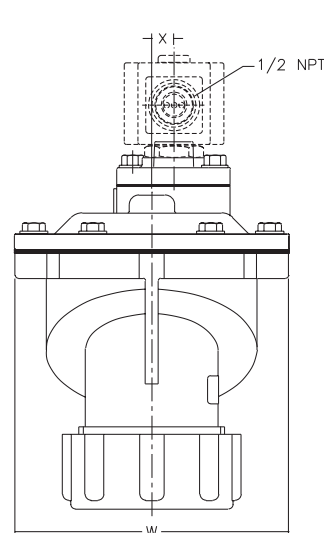
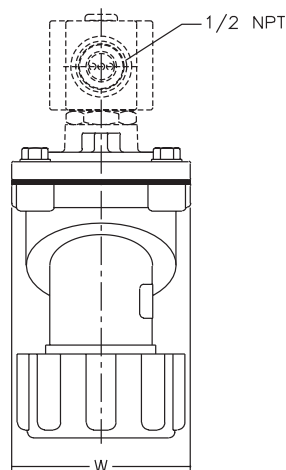
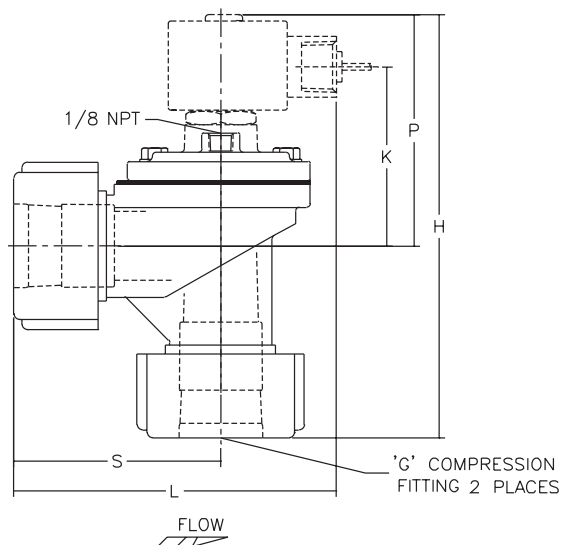
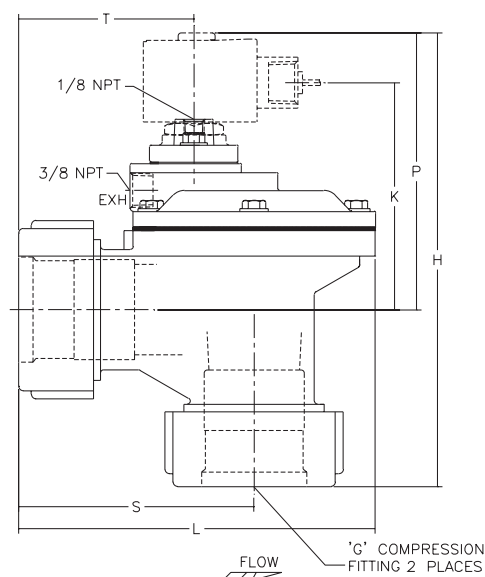
② NBR diaphragm, PA disc, Long-life construction. Maximum fluid temperature 185°F (85°C).

The rubber seal, retainer, and nut provide pressure sealing around the pipes. Inlet and blow pipes must be secured to prevent movement.

## Dimensions: inches (mm)

Catalog No.	"G" Compression Fitting		H	I	P	S	T	W	X
8353G52	3/4	ins.	6.03	5.06	3.75	3.16	--	2.94	--
		mm	153.19	128.59	95.25	80.17	--	74.61	--
835355	3/4	ins.	4.09	4.63	1.78	3.16	--	2.94	--
		mm	103.98	117.48	45.24	80.17	--	74.61	--
8353G53	1	ins.	7.03	5.34	3.81	3.47	--	2.94	--
		mm	178.59	135.73	96.84	88.11	--	74.61	--
835356	1	ins.	5.06	4.94	1.88	3.47	--	2.94	--
		mm	128.59	125.41	47.63	88.11	--	74.61	--
8353H54	1 1/2	ins.	8.84	6.97	5.38	4.63	3.44	5.38	0.44
		mm	224.63	177.01	136.53	117.48	87.31	136.53	11.11
8353A57	1 1/2	ins.	7.19	6.97	3.75	4.63	3.44	5.38	0.44
		mm	182.56	177.01	95.25	117.48	87.31	136.53	11.11
8353G59	1 1/2	ins.	8.84	6.97	5.38	4.63	3.44	5.38	0.44
		mm	224.63	177.01	136.53	117.48	87.31	136.53	11.11
8353A64	1 1/2	ins.	7.19	6.97	3.75	4.63	3.44	5.38	0.44
		mm	182.56	177.01	95.25	117.48	87.31	136.53	11.11

**Note:** Integral Pilot shown dotted in.



**1 1/2" pipe gasket kit for compression, 10 pack - K278426.**

## Features

- Unique flow pattern and special springless piston/diaphragms provide superior dust collector performance.
- Long life and broad temperature range.
- Quick mount connection eliminates thread cutting and sealing.
- Stainless steel clip-ring mounting eliminates bolts that can corrode and seize.
- Integral operators have molded epoxy coils, with available options.
- Valves may be mounted in any position.



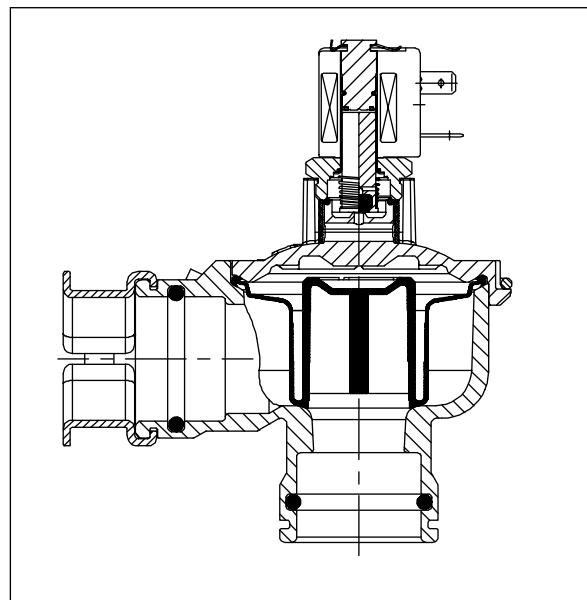
## Construction

Body	Aluminum
Clip Ring/Clamps/Bolts	Stainless Steel
Diaphragm	HYT
Integral Solenoid	
Core Tube/Core & Plugnut/Core Spring	Stainless Steel
Seals and Disc	NBR
Shading Coil	Copper

## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption			Spare Coil Part No.	
	AC			General Purpose	Explosionproof
	Watts	VA Holding	VA Inrush	AC	AC
F	6.1	16	30	238210	238214

**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz). Consult factory for DC voltage. Other voltages are available when required.



## Solenoid Enclosures

**Standard:** Red-Hat II Types 1, 2, 3, 4, and 4X combination. General Purpose and Watertight.

**Optional:** Red-Hat II Types 3, 3S, 4, 4X, 6, 6P, 7, and 9. Explosionproof and Watertight.  
(To order, add prefix "EF" to catalog number.) Other electrical and construction options are also available.  
*Consult your local ASCO office for details on accessories.*

## Nominal Ambient Temperature Ranges:

Remote: -40°F to 185°F (-40°C to 85°C)

Integral: -4°F to 125°F (-20°C to 50°C)

*Refer to Engineering Section for details.*

SERIES  
**8353**  
**Dust Collector**



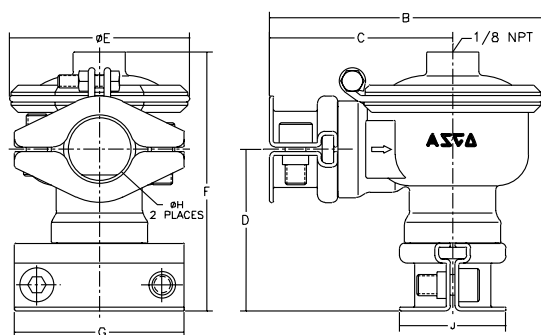
Specifications (English, Metric units)

Pipe Size (ins.)	Orifice Size ins. (mm)	Remote Pilot Connection ins. (mm)	Cv Flow Factor	Kv Flow Factor (m3/h)	Operating Pressure Differential psi (bar)		Quick Mount Catalog Number	Constr. Ref. No.	NPT Connections Catalog Number	Constr. Ref. No.	Watt Rating/ Class of Coil Insulation
					Air						
					Minimum	Maximum					
REMOTE PILOT CONSTRUCTIONS											
3/4	3/4 (19.1)	1/8 (3.2)	16	13.71	5 (0.3)	125 (8.6)	8353A120	1	8353A220	2	-
1	1 (25.4)	1/8 (3.2)	27	23.14	5 (0.3)	125 (8.6)	8353A121	1	8353A221	2	-
INTEGRAL PILOT CONSTRUCTIONS											
3/4	3/4 (19.1)	-	16	13.71	5 (0.3)	125 (8.6)	8353G126	3	8353G226	4	6.1/F
1	1 (25.4)	-	27	23.14	5 (0.3)	125 (8.6)	8353G127	3	8353G227	4	6.1/F

Dimensions: inches (mm)

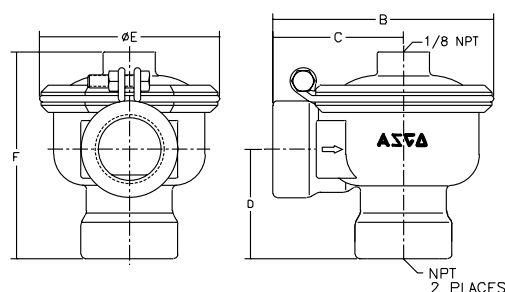
Remote Pilot Constructions

Constr. Ref. 1



Quick Mount

Constr. Ref. 2

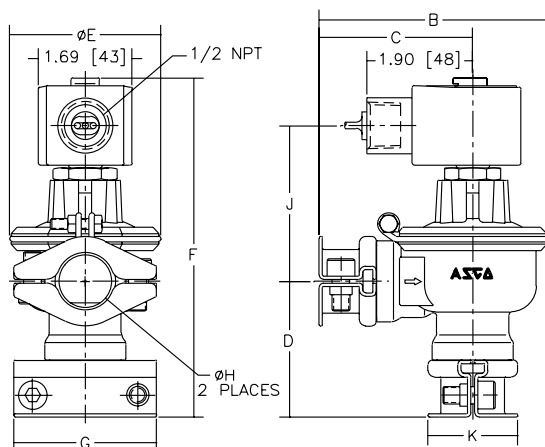


NPT

Pipe Connections	A	B	C	D	E	F	G	H	J
3/4" Quick Mount	-	4.12 (105)	2.76 (70)	2.44 (62)	2.72 (69)	3.91 (99)	2.56 (65)	1.09 (27.6)	1.65 (42)
1" Quick Mount	-	4.92 (125)	3.23 (82)	2.80 (71)	3.35 (85)	4.36 (110.7)	2.84 (72)	1.35 (34.4)	1.89 (48)
3/4" NPT	3/4"	3.33 (85)	1.97 (85)	1.65 (42)	2.72 (69)	3.12 (79)	-	-	-
1" NPT	1"	4.13 (105)	2.44 (62)	2.01 (51)	3.35 (85)	3.57 (90.7)	-	-	-

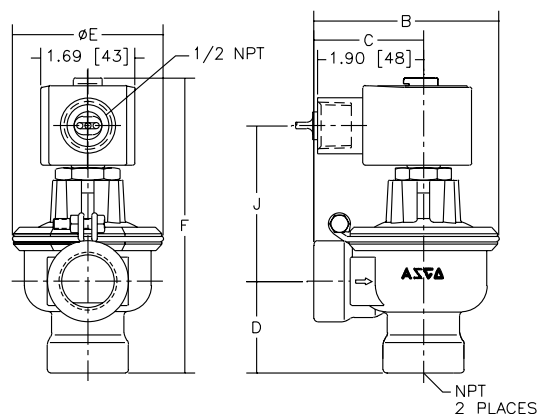
Integral Pilot Constructions

Constr. Ref. 3



Quick Mount

Constr. Ref. 4



NPT

Pipe Connections	A	B	C	D	E	F	G	H	J	K
3/4" Quick Mount	-	4.12 (105)	2.76 (70)	2.44 (62)	2.72 (69)	6.10 (155)	2.56 (65)	1.09 (27.6)	2.80 (71)	1.65 (42)
1" Quick Mount	-	4.92 (125)	3.23 (82)	2.80 (71)	3.35 (85)	6.63 (168)	2.84 (72)	1.35 (34.4)	2.97 (75)	1.89 (48)
3/4" NPT	3/4"	3.33 (85)	1.97 (85)	1.65 (42)	2.72 (69)	5.31 (135)	-	-	2.80 (71)	-
1" NPT	1"	4.13 (105)	2.44 (62)	2.01 (51)	3.35 (85)	5.84 (148)	-	-	2.97 (75)	-

## Features

- Designed to pilot large dust collector pulse valves.
- For individual installation or mounting in panel enclosure.
- Brass bodied valve has threaded exhaust port for optional muffler installation, and screw or leaded terminals.
- Plastic body valve designed for plastic or metallic tubing, has spade terminals.
- All with bubble-tight seals.
- Zero minimum pressure.

## Construction

Valve Parts in Contact with Fluids	
Body	Brass or PA, as listed
Seals and Discs	NBR
Core Tube	305 Stainless Steel
Core and Plugnut	430F Stainless Steel
Shading Coil	Copper
Springs	302 Stainless Steel

## Electrical

Standard Coil & Class of Insulation	Watt Rating and Power Consumption AC			Spare Coil Part No. AC	
	Watts	VA Holding	VA Inrush	General Purpose	Explosionproof
F	6	15.6	27.5	99216 (spade)	-
F	6	15.6	27.5	125472 (screw)	-
F	6.1	16	30	238210	238214
B	24.9	34.8	43.2	174879 ①	-

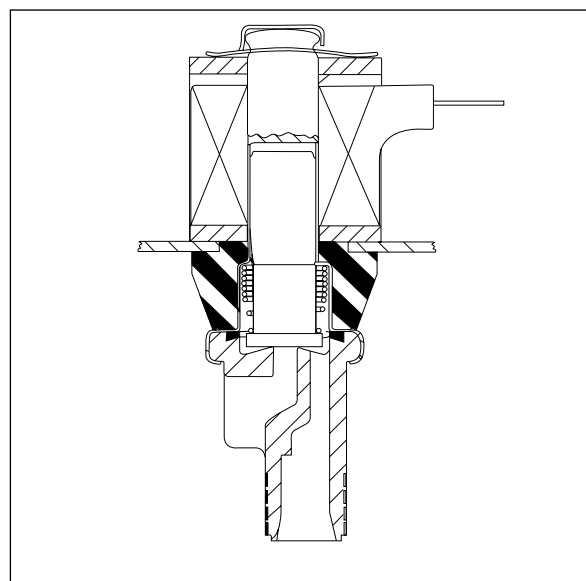
**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz). Consult factory for DC voltage. Other voltages are available when required.

**Note:** ① Maximum voltage 120/60. Higher voltages use Class F Coil, 186548.

## Solenoid Enclosures

**Standard:** Red-Hat II - Watertight, Types 1, 2, 3, 3S, 4, and 4X;  
 Red-Hat - Open Frame.

**Optional:** Red-Hat II - Explosionproof and Watertight, Types 3, 4, 4X, 6, 6P, 7, and 9. (To order, add prefix "EF" to catalog number.)  
 Red-Hat - Open Frame and Panel Mount.  
*See Optional Features Section for other available options.*



## Nominal Ambient Temperature Ranges:

**Ambient:** AC constructions: 32°F to 125°F (0°C to 52°C)

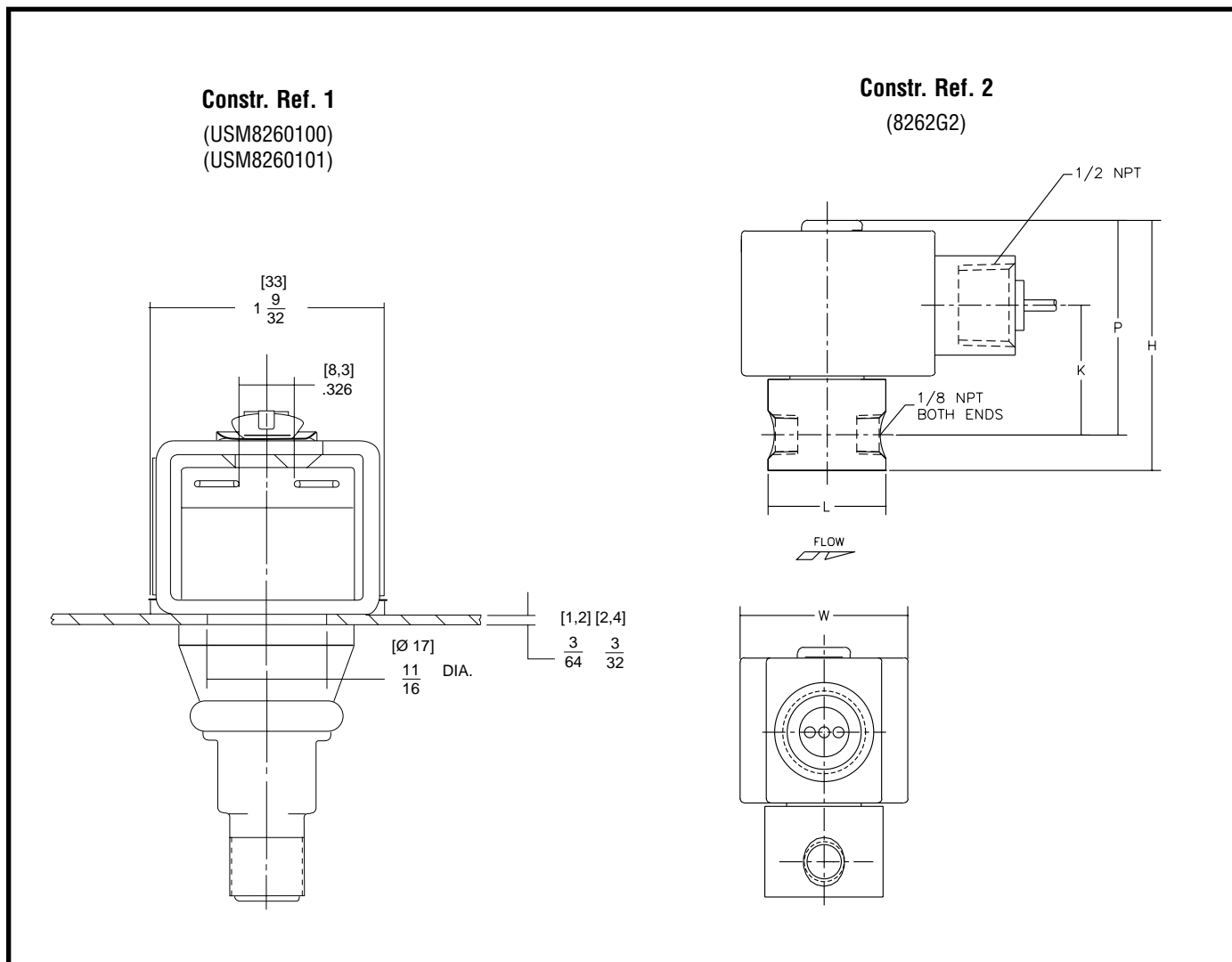
**Fluids:** 32°F to 180°F (0°C to 82°C)



Specifications (English, Metric units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Kv Flow Factor (m3/h)	Max. Operating Pressure Differential (psi)	Max. Operating Pressure Differential (bar)	Red-Hat II Catalog Number	Red-Hat Panel Mount Solenoids with Spade Terminal Coils Standard	Red-Hat Panel Mount Solenoids with Screw Terminal Coils Standard	Watt Rating Class of Coil Insulation
							Catalog Number	Catalog Number	AC
NORMALLY CLOSED (Closed when de-energized), Brass Body - AC Only									
1/8	1/8	.34	.29	125	8.6	8262G2	--	--	6.1/F
1/8	1/8	.34	.29	125	8.6	--	PSF8262C2 ④	--	6/F
1/8	1/8	.34	.29	125	8.6	--	--	PSFX8262C2-17523 ③ ④	6/F
NORMALLY CLOSED (Closed when de-energized), PA Body - AC Only									
1/4 O.D. ② Comp.	1/8	.30	.26	125	8.6	--	USM8260100 ①	--	24.9/B
1/8 External NPT	1/8	.30	.26	125	8.6	--	USM8260101 ①	--	24.9/B
<b>Notes:</b> ① Spade terminal coils are standard; leaded coils are optional. Solenoid will withstand a total energized time of 12 seconds within any 60 second period. ② Fittings not supplied with valve. To order, refer to List Price Schedule. ③ Gasketed panel mount pilot valve used in pilot valve enclosure HV125468, -69, and -70. ④ For dimensional drawing contact local sales office.									

Dimensions: inches (mm)



## Features

- Eliminates welding in through-the-wall installations.
- Normally used with ASCO pulse valves having integral Dresser fittings.
- Top loading-type dust collectors require installation and removal of collector bags or cartridges from the top of the housing, above the blow tubes.
- Bottom loading types require installation and removal of bags or cartridges for the bottom from the housing, below the blow tubes.

## Installation

Fittings are installed through the dust collector wall, gasketed in place, and secured with a retaining ring. Compression nut, retainer, and pipe seal are then installed on the pipe, making certain the beveled edge of the seal faces the connector body. The pipe assembly then slides into the connector body and the nut is firmly hand tightened.



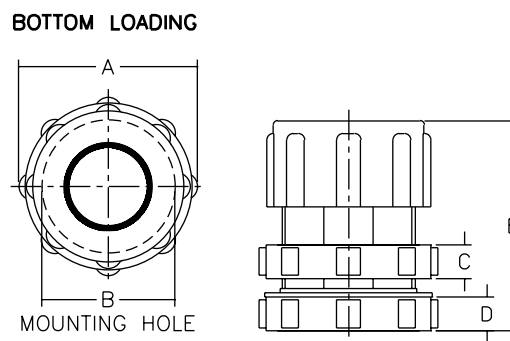
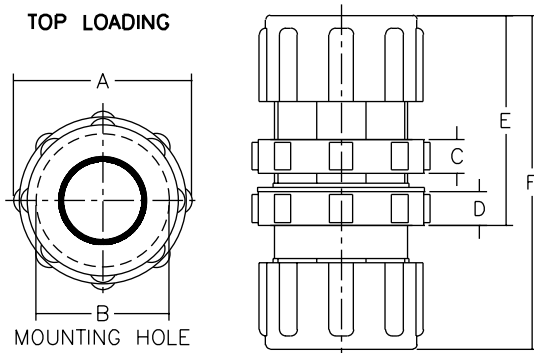
## Nominal Ambient Temperature Ranges:

0°F to 185°F (-18°C to 85°C)

For higher temperatures, specify suffix "V".

**Note:** The rubber seal, retainer, and nut provide pressure sealing around the pipes. Inlet, and blow pipes, must be secured to prevent movement.

## Dimensions: inches (mm)



Connector Size		3/4"	1"	1-1/2"
A	ins.	2.52	3.04	3.92
	mm	64.01	77.22	99.57
B	ins.	1.92	2.20	2.92
	mm	48.77	55.88	74.17
C	ins.	0.48	0.48	0.60
	mm	12.19	12.19	15.24
D	ins.	0.48	0.48	0.60
	mm	12.19	12.19	15.24
E	ins.	2.92	2.88	3.68
	mm	74.17	73.15	93.47
F	ins.	4.64	4.72	5.76
	mm	117.86	119.89	146.30
Top Loading Kit Number	Pipe Size (ins.)	Bottom Loading Kit Number		
266015	3/4	266014		
266017	1	266016		
266019	1-1/2	266018		



## Features

- Protection for pre-wired ASCO remote pilot valves.
- Corrosion resistant, cast aluminum enclosures available with Type 4 Watertight or Types 7 and 9 Explosionproof protection.
- Installer-friendly valve layout.
- For Explosionproof enclosure, manual operation possible through exhaust port in base.
- Enclosures may be mounted in any position.



## Pilot Valve Enclosures

**Standard:** Watertight enclosure: Types 1, 2, 3, 3S, and 4.  
 Explosionproof enclosure: Types 4, 4X, 6, 7 and 9.  
 Class I, Div 1, Groups C and D.  
 Class II, Div 1, Groups E, F, and G.

**Optional:** For corrosion resistance, Type 4X on Watertight enclosures, add suffix "A" to catalog number. Type 4X is standard on Explosionproof enclosure.  
 See *Optional Features Section* for other available options.

## Optional Heater Kit

Not available on explosionproof enclosure.  
 3-5 valve configuration, Kit #125675-001.  
 6-8 valve configuration, Kit #125675-002.  
 Not available for 9-12 valve configuration.

## Approvals for Pilot Valve Enclosures:

CSA certified.

## Ordering instructions for Pilot Valve Enclosures - 3 to 12 Pilot Valves

No. of Valves	Catalog Number			Catalog Number		
	Watertight/Dusttight	Suffix		Explosionproof	Suffix	
		120/60 V	240/60 V		120/60 V	240/60 V
3	125468-003-	-01	-02	125847-003-	-01	-02
4	125468-004-	-01	-02	125847-004-	-01	-02
5	125468-005-	-01	-02	125847-005-	-01	-02
6	125469-006-	-01	-02	125847-006-	-01	-02
7	125469-007-	-01	-02			
8	125469-008-	-01	-02			
9	125470-009-	-01	-02			
10	125470-010-	-01	-02			
11	125470-011-	-01	-02			
12	125470-012-	-01	-02			

To order for different voltages, add suffix to catalog numbers, as shown above: -01" for 120 volt, 60 Hz valves; -02" for 240 volt, 60 Hz valves.  
 Example: Specify Catalog Number 125470-009-02 for a Type 4 box, which includes nine 240 volt, 60 Hz PSFX8262C2-17523 pilot valve with screw terminal coils.

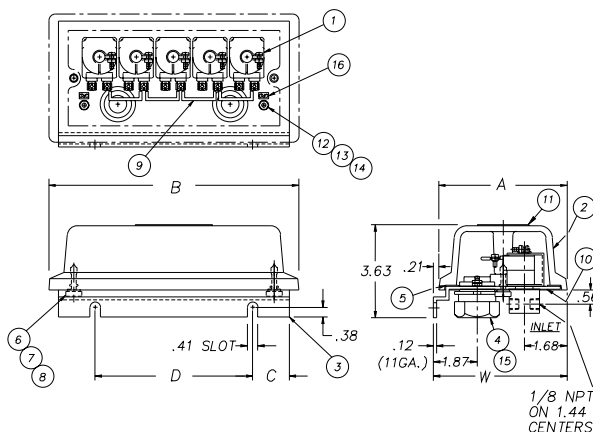
## Pilot Valve Specifications (English, Metric units)

Pipe Size (ins.)	Orifice Size ins. (mm)	Cv Flow Factor (KV flow factor m <sup>3</sup> /h)	Max. Pressure psi (bar)	Catalog Number	Watt Rating/ Class of Coil Insulation	Spare Coil
<b>Watertight Enclosure includes these built-in pilot valves:</b>						
1/8	1/8 (3.2)	0.34 (0.29)	150 (10)	PSFX8262C2-17523	6/F	125472
<b>Explosionproof Enclosure includes these built-in pilot valves:</b>						
1/8	1/8 (3.2)	0.34 (0.29)	150 (10)	X82001-17579	6/F	125472

Dimensions: inches (mm)

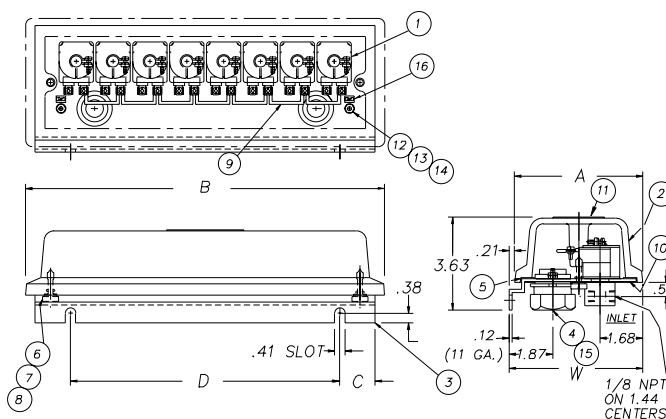
### Type 4 Watertight Enclosures

5 Valve Maximum



Catalog No.		A	B	C	D	W
125-468	ins.	5.00	9.75	1.43	6.14	5.21
	mm	127	248	36	156	132

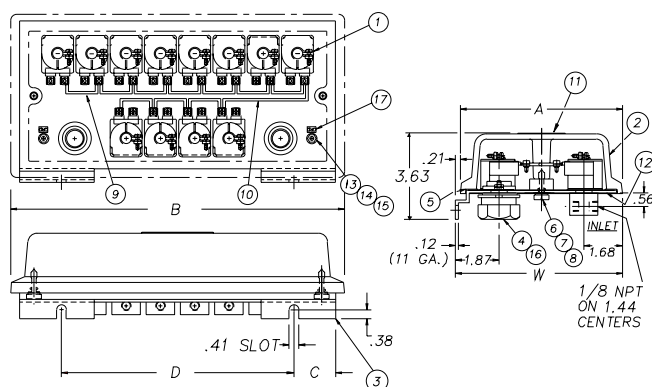
8 Valve Maximum



Catalog No.		A	B	C	D	W
125-469	ins.	5.00	14.00	1.38	10.50	5.21
	mm	127	356	35	267	132

### Type 4 Watertight Enclosure

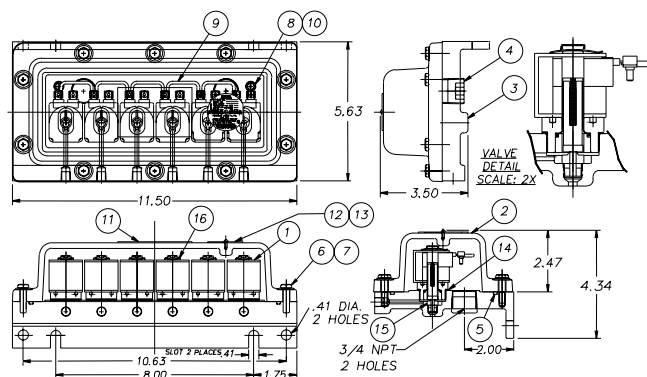
12 Valve Maximum



Catalog No.		A	B	C	D	W
125-470	ins.	6.81	14.00	1.75	9.75	7.02
	mm	173	356	44	248	178

### Types 7 and 9 Explosionproof Enclosure

Explosionproof Assembly - 6 Valve Maximum



### Features

- Handle the challenges of high-temperature fluids.
- PTFE and EPDM discs, stainless steel seats, plus high-temperature coils, help provide long, reliable service life.
- Wide range of valve constructions, including Straight Through and Slow Closing, with Normally Closed and Normally Open operation.
- Specify these valves for the high-temperature applications found in laundries, molding, steam atomization, sterilizers, autoclaves, and many others.
  - Series 8263: direct acting miniature valves.
  - Series 8267: direct acting straight through, self-cleaning design.
  - Series 8210/8222: pilot operated diaphragm valves.
  - Series 8220: heavy-duty, pilot operated piston valves have stainless steel pistons.
  - Series 8221: slow-closing, anti-water hammer design.
  - Series 8222: pilot operated diaphragm and piston valves. Y-body floating piston design.

### Construction

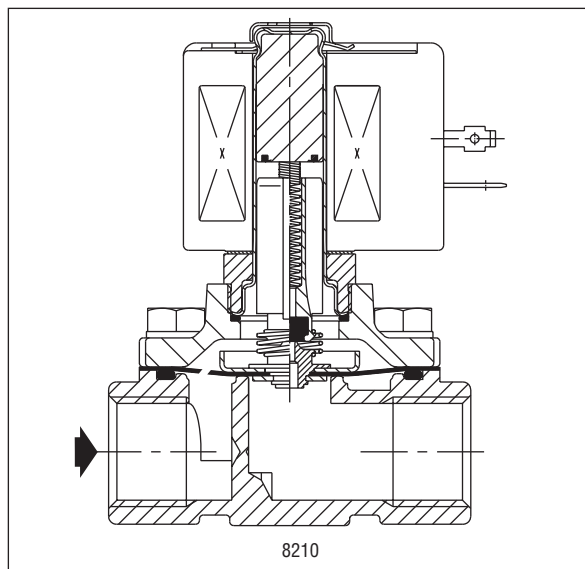
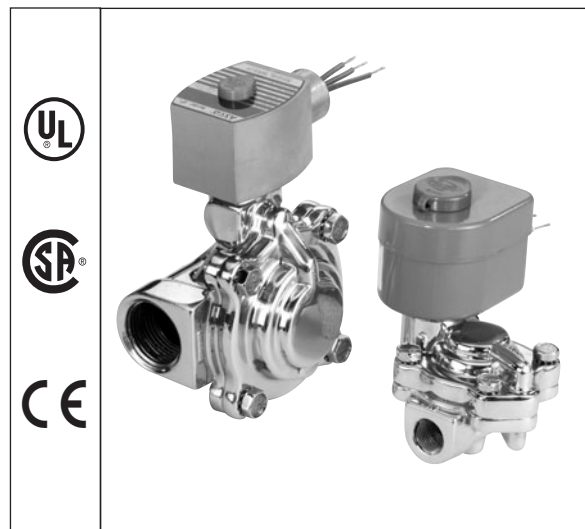
Valve Parts in Contact with Fluids		
Common Parts		
Body	Brass	Stainless Steel
Core Tube	305 Stainless Steel	
Core and Plugnut	430F Stainless Steel	
Springs	302 Stainless Steel	
Shading Coil	Copper	Silver
8210HW Series		
Seals, Discs, and Diaphragms	EPDM	
8263 Series		
Seals	PTFE	
Disc	EPDM or PTFE	
8220/8221 Series		
Piston	Stainless Steel	
Discs	EPDM or PTFE	
Seals	EPDM, PTFE	
8222 Series		
Seals, Discs, and Diaphragms	EPDM and/or PTFE	
Piston	Brass or PTFE	
8267 Series		
Seals	FKM, PTFE	
Disc	Stainless Steel	
Seat	Glass-Filled PTFE	

### Electrical

See individual valve series in General Service Section for details.

### Solenoid Enclosures

**Standard:** Red-Hat II - Watertight, Types 1, 2, 3, 3S, 4, and 4X; Red-Hat - Type 1.  
**Optional:** Red-Hat II - Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9; Red-Hat - Explosionproof and Raintight, Types 3, 7, and 9.  
 (To order, add prefix "EF" to catalog number.)  
 See Optional Features Section for other available options.



### Nominal Ambient Temperature Ranges:

Red-Hat II/  
 Red-Hat AC: 32°F to 125°F (0°C to 52°C)  
 Red-Hat II DC: 32°F to 104°F (0°C to 40°C)  
 Red-Hat DC: 32°F to 77°F (0°C to 25°C)  
 (104°F/40°C occasionally)

Refer to Engineering Section for details.

### Approvals:

Most are UL listed, CSA certified, and meet applicable CE directives. Contact ASCO for details.

**Important:** Explosionproof Catalog Numbers EF8210HW, EF8220, EF8221, and EF8263 are not UL listed. They are suitable for Types 4, 7 (C and D), and 9 (E and F) only, and have a temperature range code of T3A.

## Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Operating Pressure Differential (psi)			Max. Fluid Temp. °F				AC Watt Rating/ Class of Coil Insulation	
			Hot Water			Hot Water		Brass Body			
			Min. ④	Max. AC	Max. DC	AC	DC	Catalog Number	Constr. Ref. No.	AC	DC
HOT WATER SERVICE ONLY - NORMALLY CLOSED (Closed when de-energized), EPDM Diaphragm											
3/8	5/8	3	0 ③	100	40	210	150	8210G93HW	32	10.1/F	11.6/F
3/8	5/8	3	5	125	100	210	150	8210G1HW	33	6.1/F	11.6/F
1/2	5/8	4	0 ③	100	40	210	150	8210G94HW	32	10.1/F	11.6/F
1/2	5/8	4	5	125	100	210	150	8210G2HW	33	6.1/F	11.6/F
3/4	3/4	5	0 ③	100	40	210	150	8210G95HW	34	10.1/F	11.6/F
3/4	3/4	5	5	125	100	210	150	8210G9HW	35	6.1/F	11.6/F
SLOW CLOSING - NORMALLY CLOSED (Closed when de-energized), EPDM Disc											
3/8	9/16	3	5 ②	150	-	210	-	8221G1HW	36	6.1/F	-
1/2	9/16	3.5	5 ②	150	-	210	-	8221G3HW	36	6.1/F	-
3/4	3/4	5.5	5 ②	150	-	210	-	8221G5HW	36	6.1/F	-
1	1	11.5	5 ②	150	-	210	-	8221G7HW	38	6.1/F	-
1 1/4	1 1/8	13	5 ②	150	-	210	-	8221G9HW	39	6.1/F	-
1 1/2	1 1/4	24	5 ②	150	-	210	-	8221G11HW	40	6.1/F	-
2	1 3/4	36	5 ②	150	-	210	-	8221G13HW	41	6.1/F	-
2 1/2	1 3/4	38	5 ②	150	-	210	-	8221G15HW	42	6.1/F	-
SLOW CLOSING - NORMALLY OPEN (Open when de-energized), EPDM Disc											
3/8	9/16	3	5 ②	150	-	210	-	8221G21HW	43	16.1/F	-
1/2	9/16	3.5	5 ②	150	-	210	-	8221G23HW	43	16.1/F	-
3/4	3/4	5.5	5 ②	150	-	210	-	8221G25HW	44	16.1/F	-
1	1	11.5	5 ②	150	-	210	-	8221G27HW	45	16.1/F	-
1 1/4	1 1/8	13	5 ②	150	-	210	-	8221G29HW	46	16.1/F	-
1 1/2	1 1/4	24	5 ②	150	-	210	-	8221G31HW	47	16.1/F	-
2	1 3/4	36	5 ②	150	-	210	-	8221G33HW	48	16.1/F	-
2 1/2	1 3/4	38	5 ②	150	-	210	-	8221G35HW	49	16.1/F	-

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Operating Pressure Differential (psi)			Max. Fluid Temp. °F		Brass Body		Stainless Steel Body		AC Watt Rating/ Class of Coil Insulation
			Min. ④	Max.		Steam	Hot Water	Catalog Number	Constr. Ref. No.	Catalog Number	Constr. Ref. No.	
				Steam	Hot Water							
DIRECT ACTING - NORMALLY CLOSED (Closed when de-energized), Stainless Steel Seat, EPDM ⑤, or PTFE Disc												
1/8	1/8	.34	0	50	-	298	-	8263G52 ⑤	1	-	-	6.1/F
1/8	1/8	.34	0	90	-	331	-	8263G58	1	-	-	6.1/F
1/4	1/8	.34	0	50	-	298	-	8263G53 ⑤	2	-	-	6.1/F
1/4	1/8	.34	0	90	-	331	-	8263G59	2	-	-	6.1/F
1/4	5/32	.52	0	110	110	344	210	8263G300	3	-	-	10.1/H
1/4	7/32	.72	0	70	70	316	210	8263G301	3	-	-	10.1/H
1/4	9/32	.85	0	60	-	307	-	8263G303	3	-	-	17.1/H
3/8	1/8	.36	0	125	125	353	210	8263G304	3	8263G318	31	10.1/H
3/8	5/32	.52	0	110	110	344	210	8263G305	3	8263G319	31	10.1/H
3/8	7/32	.72	0	70	70	316	210	8263G306	3	8263G320	31	10.1/H
3/8	9/32	.85	0	60	-	307	-	8263G308	3	8263G321	31	17.1/H
PILOT OPERATED - NORMALLY CLOSED (Closed when de-energized)												
1/4	3/8	1.2	1	80	-	324	-	8222G68	4	-	-	6.1/F
1/4	3/8	1.2	1	125	-	353	-	8222G70	4	-	-	6.1/H
3/8	3/8	2.5	1	80	-	324	-	8222G64	4	-	-	6.1/F
3/8	3/8	2.5	1	125	-	353	-	8222G74	4	-	-	6.1/H
3/8	5/8	3.0	5 ①	50	150	300	210	8220G1	5	-	-	10.1/F
3/8	5/8	3.0	5 ①	125	150	353	210	8220G19	5	-	-	10.1/H
3/8	5/8	3.0	0	125	-	353	-	8222G1	6	-	-	17.1/H
3/8	5/8	3.0	0	50	-	300	-	8222G93	7	-	-	10.1/F
1/2	3/8	2.5	1	80	-	324	-	8222G66	4	-	-	6.1/F
1/2	3/8	2.5	1	125	-	353	-	8222G76	4	-	-	6.1/H
1/2	1/2	3.6	2	125	-	353	-	8222G47	9	-	-	10.1/H
1/2	5/8	4.0	0	50	-	300	-	8222G94	7	8222G60	28	10.1/F
1/2	5/8	4.0	0	125	-	353	-	8222G2	6	8222G87	29	17.1/H
1/2	5/8	4.0	5 ①	50	150	300	210	8220G3	5	-	-	10.1/F
1/2	5/8	4.0	5 ①	125	150	353	210	8220G21	5	-	-	10.1/H

Specifications (English units continued)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Operating Pressure Differential (psi)			Max. Fluid Temp. °F		Brass Body		Stainless Steel Body		AC Watt Rating/ Class of Coil Insulation
			Min. ④	Max.		Steam	Hot Water	Catalog Number	Constr. Ref. No.	Catalog Number	Constr. Ref. No.	
				Steam	Hot Water							
PILOT OPERATED - NORMALLY CLOSED (Closed when de-energized)												
3/4	5/8	4.5	0	50	-	300	-	-	-	8222G62	28	10.1/F
3/4	5/8	4.5	0	125	-	353	-	-	-	8222G88	29	17.1/H
3/4	3/4	5.0	0	50	-	300	-	8222G95	10	-	-	10.1/F
3/4	3/4	5.0	5 ①	50	150	300	210	8220G5	8	-	-	10.1/F
3/4	3/4	5.0	5 ①	125	150	353	210	8220G23	8	-	-	10.1/H
3/4	3/4	5.0	0	125	-	353	-	8222G3	11	-	-	17.1/H
3/4	1/2	4.6	2	125	-	353	-	8222G49	9	-	-	10.1/H
3/4	1/2	4.6	5	200	-	388	-	8222G5	12	-	-	10.1/H
1	1	11.2	5	125	-	353	-	-	-	8222G89	30	10.1/F
1	1	13.5	5 ②	50	150	300	210	8220G7	14	-	-	10.1/F
1	1	13.5	5 ②	125	150	353	210	8220G25	14	-	-	10.1/H
1	1	13.5	5	125	-	353	-	8222G4	13	-	-	10.1/H
1	1	13.0	0	200	-	388	-	822299	13	-	-	28.2/H
1 1/4	1 1/8	15	5 ②	50	150	300	210	8220G9	15	-	-	10.1/F
1 1/4	1 1/8	15	5 ②	125	150	353	210	8220G27	15	-	-	10.1/H
1 1/2	1 1/4	22.5	5 ②	50	150	300	210	8220G11	16	-	-	10.1/F
1 1/2	1 1/4	22.5	5 ②	125	150	353	210	8220G29	16	-	-	10.1/H
2	1 3/4	43	5 ②	50	150	300	210	8220G13	17	-	-	10.1/F
2	1 3/4	43	5 ②	125	150	353	210	8220G31	17	-	-	10.1/H
2 1/2	1 3/4	45	5 ②	50	150	300	210	8220G15	18	-	-	10.1/F
2 1/2	1 3/4	45	5 ②	125	150	353	210	8220G33	18	-	-	10.1/H
DIRECT ACTING, STRAIGHT-THROUGH DESIGN - NORMALLY CLOSED (Closed when de-energized)												
3/8	1/4	1.5	0	75	-	320	-	8267G1	19	-	-	16.1/H
3/8	3/8	5.1	0	30	-	280	-	8267G3	19	-	-	16.1/H
1/2	1/4	1.4	0	75	-	320	-	8267G5	19	-	-	16.1/H
1/2	3/8	4.5	0	15	-	250	-	8267G7	19	-	-	16.1/H
3/4	3/8	5.4	0	30	-	280	-	8267G17	20	-	-	16.1/H
3/4	1/2	9.7	0	15	-	250	-	8267G19	20	-	-	16.1/H
DIRECT ACTING, STRAIGHT-THROUGH DESIGN - NORMALLY OPEN (Open when de-energized)												
3/8	1/4	1.5	0	75	-	320	-	8267G9	19	-	-	16.1/H
3/8	3/8	5.1	0	30	-	280	-	8267G11	19	-	-	16.1/H
1/2	1/4	1.4	0	75	-	320	-	8267G13	19	-	-	16.1/H
1/2	3/8	4.5	0	15	-	250	-	8267G15	19	-	-	16.1/H
3/4	3/8	5.4	0	25	-	267	-	8267G21	20	-	-	16.1/H
3/4	1/2	9.7	0	15	-	250	-	8267G23	20	-	-	16.1/H
PILOT OPERATED - NORMALLY OPEN (Open when de-energized)												
3/8	9/16	3	5	50	150	300	210	8220G71	21	-	-	16.1/F
3/8	9/16	3	5	125	150	353	210	8220G91	21	-	-	16.1/H
1/2	9/16	4	5	50	150	300	210	8220G73	21	-	-	16.1/F
1/2	9/16	4	5	125	150	353	210	8220G93	21	-	-	16.1/H
3/4	3/4	5	5	50	150	300	210	8220G75	22	-	-	16.1/F
3/4	3/4	5	5	125	150	353	210	8220G95	22	-	-	16.1/H
1	1	13.5	5	50	150	300	210	8220G77	23	-	-	16.1/F
1	1	13.5	5	125	150	353	210	8220G97	23	-	-	16.1/H
1 1/4	1 1/8	15	5	50	150	300	210	8220G79	24	-	-	16.1/F
1 1/4	1 1/8	15	5	125	150	353	210	8220G99	24	-	-	16.1/H
1 1/2	1 1/4	22.5	5	50	150	300	210	8220G81	25	-	-	16.1/F
1 1/2	1 1/4	22.5	5	125	150	353	210	8220G101	25	-	-	16.1/H
2	1 3/4	43	5	50	150	300	210	8220G83	26	-	-	16.1/F
2	1 3/4	43	5	125	150	353	210	8220G103	26	-	-	16.1/H
2 1/2	1 3/4	45	5	50	150	300	210	8220G85	27	-	-	16.1/F
2 1/2	1 3/4	45	5	125	150	353	210	8220G105	27	-	-	16.1/H
Notes: ① Once opened at higher pressure, valve will remain open to 0 psi at inlet. ② Once opened at higher pressure, valve will remain open to 3 psi at inlet. ③ 0 psi on AC construction, 1/4 psi on DC construction. ④ Series 8220 Normally Closed valves through 3/4" will remain open to 0 psi while energized. Once opened at 5 psi, larger sizes will remain open to 3 psi, as will all Series 8220 Normally Open valves. ⑤ EPDM disc.												



## Specifications (Metric units)

Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Operating Pressure Differential (bar)			Max. Fluid Temp. °C				Watt Rating/ Class of Coil Insulation	
			Hot Water			Hot Water		Brass Body			
			Min. ④	Max. AC	Max. DC	AC	DC	Catalog Number	Constr. Ref. No.	AC	DC
HOT WATER SERVICE ONLY - NORMALLY CLOSED (Closed when de-energized), EPDM Diaphragm											
3/8	16	2.57	0 ③	6.9	2.8	98	65	8210G93HW	32	10.1/F	11.6/F
3/8	16	2.57	0.3	8.6	6.9	98	65	8210G1HW	33	6.1/F	11.6/F
1/2	16	3.43	0 ③	6.9	2.8	98	65	8210G94HW	32	10.1/F	11.6/F
1/2	16	3.43	0.3	8.6	6.9	98	65	8210G2HW	33	6.1/F	11.6/F
3/4	19	4.29	0 ③	6.9	2.8	98	65	8210G95HW	34	10.1/F	11.6/F
3/4	19	4.29	0.03	8.6	6.9	98	65	8210G9HW	35	6.1/F	11.6/F
SLOW CLOSING - NORMALLY CLOSED (Closed when de-energized), EPDM Disc											
3/8	14	2.57	0.3 ②	10.3	-	98	-	8221G1HW	36	6.1/F	-
1/2	14	3.00	0.3 ②	10.3	-	98	-	8221G3HW	36	6.1/F	-
1	25	9.86	0.3 ②	10.3	-	98	-	8221G7HW	38	6.1/F	-
1 1/4	29	11.14	0.3 ②	10.3	-	98	-	8221G9HW	39	6.1/F	-
1 1/2	32	20.57	0.3 ②	10.3	-	98	-	8221G11HW	40	6.1/F	-
2	44	30.86	0.3 ②	10.3	-	98	-	8221G13HW	41	6.1/F	-
2 1/2	44	32.57	0.3 ②	10.3	-	98	-	8221G15HW	42	6.1/F	-
SLOW CLOSING - NORMALLY OPEN (Open when de-energized), EPDM Disc											
3/8	14	2.57	0.3 ②	10.3	-	98	-	8221G21HW	43	16.1/F	-
1/2	14	3.00	0.3 ②	10.3	-	98	-	8221G23HW	43	16.1/F	-
3/4	19	4.71	0.3 ②	10.3	-	98	-	8221G25HW	44	16.1/F	-
1	25	9.86	0.3 ②	10.3	-	98	-	8221G27HW	45	16.1/F	-
1 1/4	29	11.14	0.3 ②	10.3	-	98	-	8221G29HW	46	16.1/F	-
1 1/2	32	20.57	0.3 ②	10.3	-	98	-	8221G31HW	47	16.1/F	-
2	44	30.86	0.3 ②	10.3	-	98	-	8221G33HW	48	16.1/F	-
2 1/2	44	32.57	0.3 ②	10.3	-	98	-	8221G35HW	49	16.1/F	-

Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Operating Pressure Differential (bar)			Max. Fluid Temp. °C		Brass Body		Stainless Steel Body		AC Watt Rating/ Class of Coil Insulation
			Min. ④	Max.		Steam	Hot Water	Catalog Number	Constr. Ref. No.	Catalog Number	Constr. Ref. No.	
				Steam	Hot Water							
DIRECT ACTING - NORMALLY CLOSED (Closed when de-energized), Stainless Steel Seat EPDM ⑤, or PTFE Disc												
1/8	3	.29	0	3	-	146	-	8263G52 ⑤	1	-	-	6.1/F
1/8	3	.29	0	6	-	164	-	8263G58	1	-	-	6.1/F
1/4	3	.29	0	3	-	146	-	8263G53 ⑤	2	-	-	6.1/F
1/4	3	.29	0	6	-	164	-	8263G59	2	-	-	6.1/F
1/4	4	.45	0	8	8	172	98	8263G300	3	-	-	10.1/H
1/4	6	.62	0	5	5	156	98	8263G301	3	-	-	10.1/H
1/4	7	.73	0	4	-	151	-	8263G303	3	-	-	17.1/H
3/8	3	.31	0	9	9	177	98	8263G304	3	8263G318	31	10.1/H
3/8	4	.45	0	8	8	172	98	8263G305	3	8263G319	31	10.1/H
3/8	6	.62	0	5	5	156	98	8263G306	3	8263G320	31	10.1/H
3/8	7	.73	0	4	-	151	-	8263G308	3	8263G321	31	17.1/H
PILOT OPERATED - NORMALLY CLOSED (Closed when de-energized)												
1/4	10	1.03	0.07	6	-	161	-	8222G68	4	-	-	6.1/F
1/4	10	1.03	0.07	9	-	177	-	8222G70	4	-	-	6.1/H
3/8	10	2.14	0.07	6	-	161	-	8222G64	4	-	-	6.1/F
3/8	10	2.14	0.07	9	-	177	-	8222G74	4	-	-	6.1/H
3/8	16	2.57	.3 ①	3	10	147	98	8220G1	5	-	-	10.1/F
3/8	16	2.57	.3 ①	9	10	177	98	8220G19	5	-	-	10.1/H
3/8	16	2.57	0	9	-	177	-	8222G1	6	-	-	17.1/H
3/8	16	2.57	0	3	-	147	-	8222G93	7	-	-	10.1/F
1/2	10	2.14	0.07	6	-	161	-	8222G66	4	-	-	6.1/F
1/2	10	2.14	0.07	9	-	177	-	8222G76	4	-	-	6.1/H
1/2	13	3.09	0.1379	9	-	177	-	8222G47	9	-	-	10.1/H
1/2	16	3.43	0	3	-	147	-	8222G94	7	8222G60	28	10.1/F
1/2	16	3.43	0	9	-	177	-	8222G2	6	8222G87	29	17.1/H
1/2	16	3.43	.3 ①	3	10	147	98	8220G3	5	-	-	10.1/F
1/2	16	3.43	.3 ①	9	10	177	98	8220G21	5	-	-	10.1/H

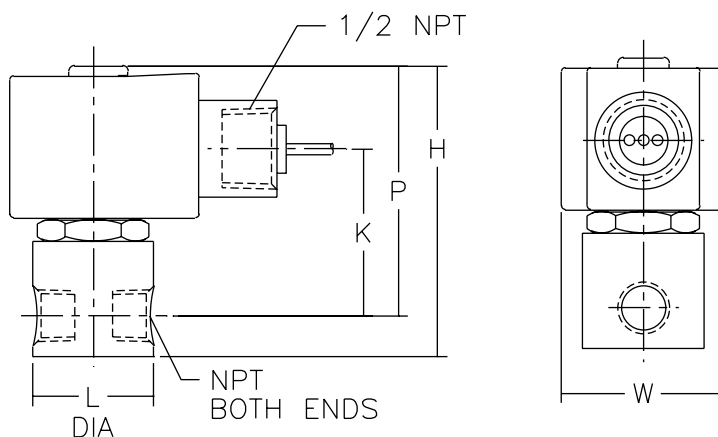
Specifications (Metric units continued)

Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Operating Pressure Differential (bar)			Max. Fluid Temp. °C		Brass Body		Stainless Steel Body		AC Watt Rating/ Class of Coil Insulation
			Min. ④	Max.		Steam	Hot Water	Catalog Number	Constr. Ref. No.	Catalog Number	Constr. Ref. No.	
				Steam	Hot Water							
PILOT OPERATED - NORMALLY CLOSED (Closed when de-energized)												
3/4	16	3.86	0	3	-	147	-	-	-	8222G62	28	10.1/F
3/4	16	3.86	0	9	-	177	-	-	-	8222G88	29	17.1/H
3/4	19	4.29	0	3	-	147	-	8222G95	10	-	-	10.1/F
3/4	19	4.29	.3 ①	3	10	147	98	8220G5	8	-	-	10.1/F
3/4	19	4.29	.3 ①	9	10	177	98	8220G23	8	-	-	10.1/H
3/4	19	4.29	0	9	-	177	-	8222G3	11	-	-	17.1/H
3/4	13	3.94	0.14	9	-	177	-	8222G49	9	-	-	10.1/H
3/4	13	3.94	0.3	14	-	196	-	8222G5	12	-	-	10.1/H
1	25	9.60	0.3	9	-	177	-	-	-	8222G89	30	10.1/F
1	25	11.57	.3 ②	3	10	147	98	8220G7	14	-	-	10.1/F
1	25	11.57	.3 ②	9	10	177	98	8220G25	14	-	-	10.1/H
1	25	11.57	0.3	9	-	177	-	8222G4	13	-	-	10.1/H
1	25	11.14	0	14	-	196	-	822299	13	-	-	28.2/H
1 1/4	29	12.86	.3 ②	3	10	147	98	8220G9	15	-	-	10.1/F
1 1/4	29	12.86	.3 ②	9	10	177	98	8220G27	15	-	-	10.1/H
1 1/2	32	19.29	.3 ②	3	10	147	98	8220G11	16	-	-	10.1/F
1 1/2	32	19.29	.3 ②	9	10	177	98	8220G29	16	-	-	10.1/H
2	44	36.86	.3 ②	3	10	147	98	8220G13	17	-	-	10.1/F
2	44	36.86	.3 ②	9	10	177	98	8220G31	17	-	-	10.1/H
2 1/2	44	38.57	.3 ②	3	10	147	98	8220G15	18	-	-	10.1/F
2 1/2	44	38.57	.3 ②	9	10	177	98	8220G33	18	-	-	10.1/H
DIRECT ACTING, STRAIGHT-THROUGH DESIGN - NORMALLY CLOSED (Closed when de-energized)												
3/8	6	1.29	0	5	-	158	-	8267G1	19	-	-	16.1/H
3/8	10	4.37	0	2	-	136	-	8267G3	19	-	-	16.1/H
1/2	6	1.20	0	5	-	158	-	8267G5	19	-	-	16.1/H
1/2	10	3.86	0	1	-	120	-	8267G7	19	-	-	16.1/H
3/4	10	4.63	0	2	-	136	-	8267G17	20	-	-	16.1/H
3/4	13	8.31	0	1	-	120	-	8267G19	20	-	-	16.1/H
DIRECT ACTING, STRAIGHT-THROUGH DESIGN - NORMALLY OPEN (Open when de-energized)												
3/8	6	1.29	0	5	-	158	-	8267G9	19	-	-	16.1/H
3/8	10	4.37	0	2	-	136	-	8267G11	19	-	-	16.1/H
1/2	6	1.20	0	5	-	158	-	8267G13	19	-	-	16.1/H
1/2	10	3.86	0	1	-	120	-	8267G15	19	-	-	16.1/H
3/4	10	4.63	0	2	-	129	-	8267G21	20	-	-	16.1/H
3/4	13	8.31	0	1	-	120	-	8267G23	20	-	-	16.1/H
PILOT OPERATED - NORMALLY OPEN (Open when de-energized)												
3/8	14	2.57	0.3	3	10	147	98	8220G71	21	-	-	16.1/F
3/8	14	2.57	0.3	9	10	177	98	8220G91	21	-	-	16.1/H
1/2	14	3.43	0.3	3	10	147	98	8220G73	21	-	-	16.1/F
1/2	14	3.43	0.3	9	10	177	98	8220G93	21	-	-	16.1/H
3/4	19	4.29	0.3	3	10	147	98	8220G75	22	-	-	16.1/F
3/4	19	4.29	0.3	9	10	177	98	8220G95	22	-	-	16.1/H
1	25	11.57	0.3	3	10	147	98	8220G77	23	-	-	16.1/F
1	25	11.57	0.3	9	10	177	98	8220G97	23	-	-	16.1/H
1 1/4	29	12.86	0.3	3	10	147	98	8220G79	24	-	-	16.1/F
1 1/4	29	12.86	0.3	9	10	177	98	8220G99	24	-	-	16.1/H
1 1/2	32	19.29	0.3	3	10	147	98	8220G81	25	-	-	16.1/F
1 1/2	32	19.29	0.3	9	10	177	98	8220G101	25	-	-	16.1/H
2	44	36.86	0.3	3	10	147	98	8220G83	26	-	-	16.1/F
2	44	36.86	0.3	9	10	177	98	8220G103	26	-	-	16.1/H
2 1/2	44	38.57	0.3	3	10	147	98	8220G85	27	-	-	16.1/F
2 1/2	44	38.57	0.3	9	10	177	98	8220G105	27	-	-	16.1/H
Notes: ① Once opened at higher pressure, valve will remain open to 0 bar at inlet. ② Once opened at higher pressure, valve will remain open to 0.2 bar at inlet. ③ 0 psi on AC construction, 0.02 bar on DC construction. ④ Series 8220 Normally Closed valves through 3/4" will remain open to 0 bar while energized. Once opened at 0.3 bar, larger sizes will remain open to 0.2 bar, as will all Series 8220 Normally Open valves. ⑤ EPDM disc.												

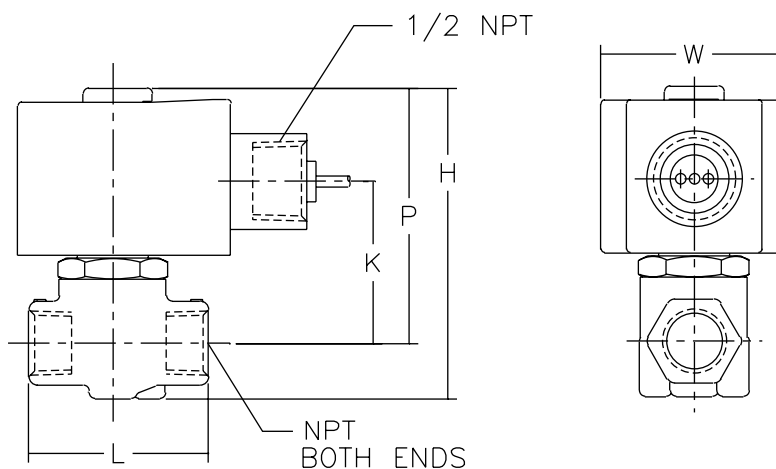
Dimensions: inches (mm)

Const. Ref. No.		H	K	L	P	W
1	ins.	2.52	1.30	Ø 1.19	2.16	1.69
	mm	64	33	Ø 30	55	43
2	ins.	3.01	1.73	Ø 1.25	2.59	1.69
	mm	76	44	Ø 32	66	43
3	ins.	3.25	1.70	1.88	2.67	1.95
	mm	83	43	48	68	50
4	ins.	4.17	3.25	2.28	3.63	1.69
	mm	106	83	58	92	43
5	ins.	4.05	2.52	2.75	3.48	2.28
	mm	103	64	70	88	58
7	ins.	3.84	2.31	2.75	3.28	2.29
	mm	98	59	70	83	58
8	ins.	4.34	2.68	2.81	3.65	2.28
	mm	110	68	71	93	58
9	ins.	4.81	3.62	2.75	4.01	1.95
	mm	122	92	70	102	50
10	ins.	4.14	2.47	2.81	3.44	2.29
	mm	105	63	71	87	58
12	ins.	4.81	3.63	2.75	4.01	1.95
	mm	122	92	70	102	50
32	ins.	3.84	2.31	2.75	3.28	2.29
	mm	98	59	70	83	58
33	ins.	3.36	1.94	2.75	2.80	2.28
	mm	85	49	70	71	58
34	ins.	4.13	2.47	2.81	3.44	2.29
	mm	105	63	71	87	58
35	ins.	3.66	2.10	2.81	2.96	2.28
	mm	93	53	71	75	58

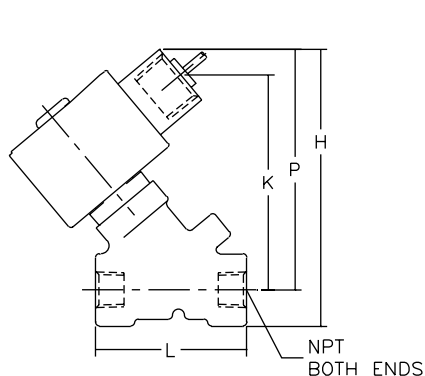
Constr. Ref. 1, 2



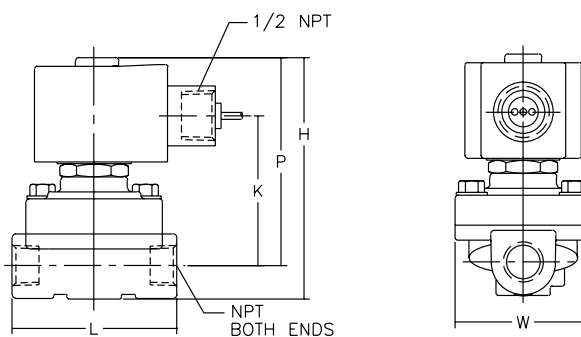
Constr. Ref. 3



Constr. Ref. 4, 9, 12



Constr. Ref. 5, 7, 8, 10, 32-35



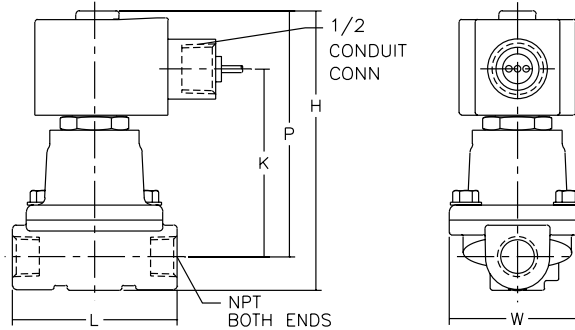
Dimensions: inches (mm)

Const. Ref. No.		H	K	L	P	W
6	ins.	4.68	3.15	2.75	4.12	2.28
	mm	119	80	70	105	58
11	ins.	4.97	3.45	2.81	4.28	2.28
	mm	126	88	71	109	58
13	ins.	5.82	3.22	3.75	4.19	3.31
	mm	148	82	95	106	84
14	ins.	5.81	3.22	3.75	4.19	3.14
	mm	148	82	95	106	80
15	ins.	5.81	3.22	3.66	4.19	3.56
	mm	148	82	93	106	90
16	ins.	6.29	3.37	4.38	4.34	4.10
	mm	160	86	111	110	104
17	ins.	7.51	3.78	5.06	4.75	4.71
	mm	191	96	129	121	120
18	ins.	7.51	3.78	5.50	4.75	5.18
	mm	191	96	140	121	132
23	ins.	6.46	3.36	3.75	4.86	3.14
	mm	164	85	95	123	80
24	ins.	6.39	3.36	3.66	4.86	3.56
	mm	162	85	93	123	90
25	ins.	6.97	3.51	4.38	5.01	4.10
	mm	177	89	111	127	104
26	ins.	8.18	3.92	5.06	5.42	4.71
	mm	208	100	129	138	120
27	ins.	8.18	3.92	5.50	5.42	5.18
	mm	208	100	140	138	132
29	ins.	5.04	3.34	2.81	4.31	2.28
	mm	128	85	71	109	58
38	ins.	5.64	3.15	3.75	4.01	3.14
	mm	143	80	95	102	80
39	ins.	5.64	3.15	3.66	4.01	3.56
	mm	143	80	93	102	90
40	ins.	6.11	3.30	4.38	4.16	4.10
	mm	155	84	111	106	104
41	ins.	7.35	3.63	5.06	4.58	4.71
	mm	187	92	129	116	120
42	ins.	7.35	3.63	5.50	4.58	5.18
	mm	187	92	140	116	132
45	ins.	6.53	3.36	3.75	4.91	3.14
	mm	166	85	95	125	80
46	ins.	6.46	3.36	3.66	4.91	3.56
	mm	164	85	93	125	90
47	ins.	7.03	3.51	4.38	5.06	4.10
	mm	179	89	111	129	104
48	ins.	8.22	3.97	5.06	5.47	4.71
	mm	209	101	129	139	120
49	ins.	8.22	3.97	5.50	5.47	5.18
	mm	209	101	140	139	132

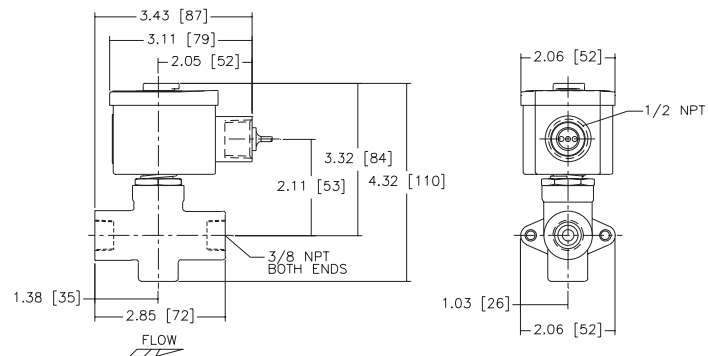
\* Valves must be mounted with solenoid vertical and upright.

Constr. Ref. 6, 11, 13, 29

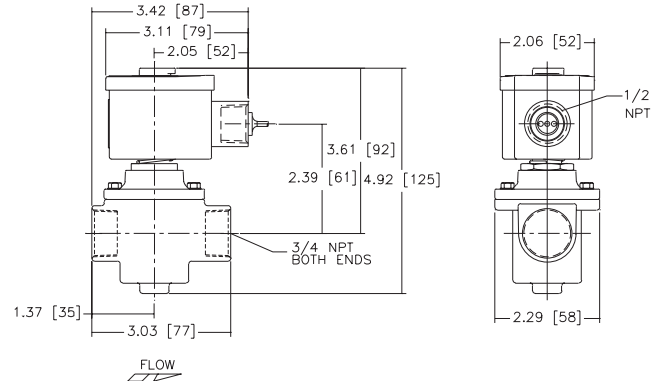
1/2 NPT OR 7/8 DIA HOLE FOR



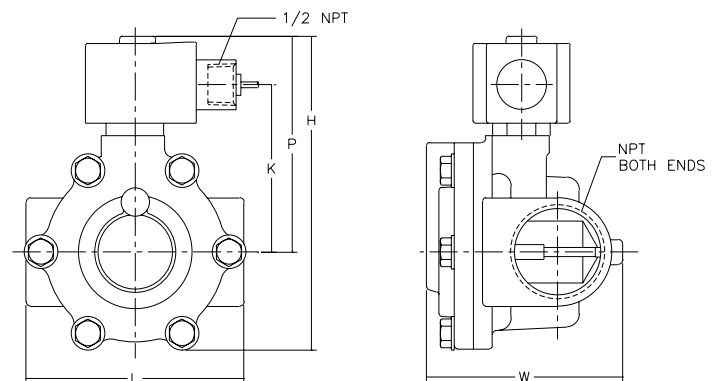
Constr. Ref. 19 \*



Constr. Ref. 20 \*



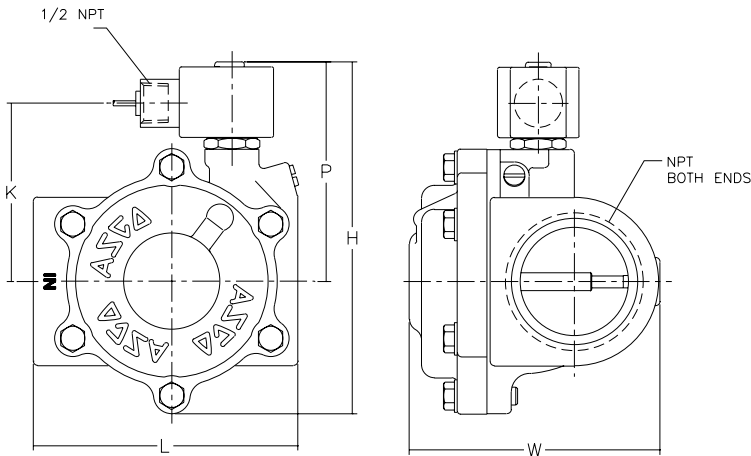
Constr. Ref. 14 - 16, 23 - 25, 45 - 49



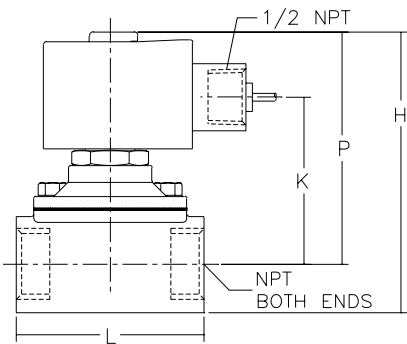
Dimensions: inches (mm)

Const. Ref. No.		H	K	L	P	W
21	ins.	5.11	3.13	2.71	4.35	3.58
	mm	130	80	69	111	91
22	ins.	5.30	3.29	2.78	4.51	3.58
	mm	135	84	71	115	91
28	ins.	4.17	2.47	2.81	3.44	2.28
	mm	106	63	71	87	58
30	ins.	5.82	3.22	3.75	4.19	4.44
	mm	148	82	95	106	113
31	ins.	3.25	1.70	2.00	2.67	1.95
	mm	83	43	51	68	50
36	ins.	4.32	2.69	2.71	3.56	3.45
	mm	110	68	69	90	88
43	ins.	5.12	3.14	2.71	4.35	3.65
	mm	130	80	69	111	93
44	ins.	5.30	3.30	2.78	4.51	3.65
	mm	135	84	71	115	93

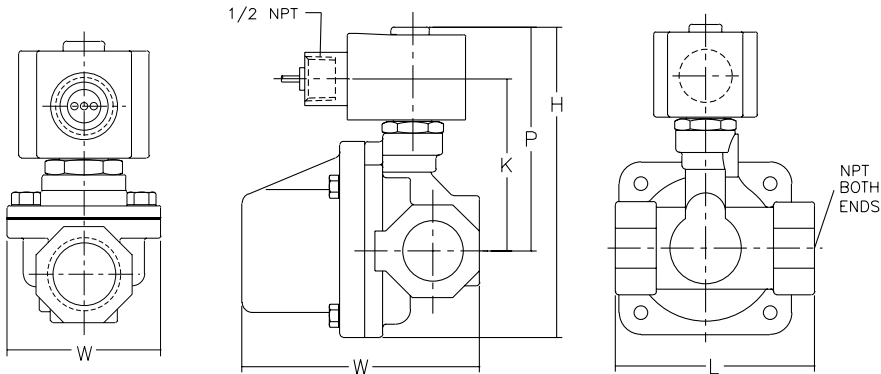
Constr. Ref. 17, 18, 26, 27, 38 - 42



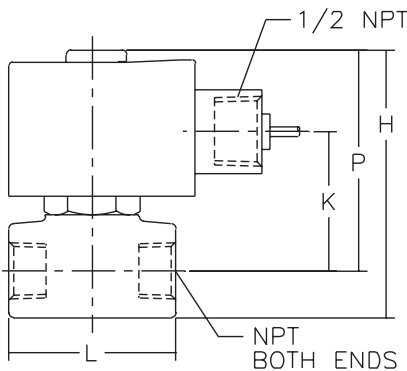
Constr. Ref. 28



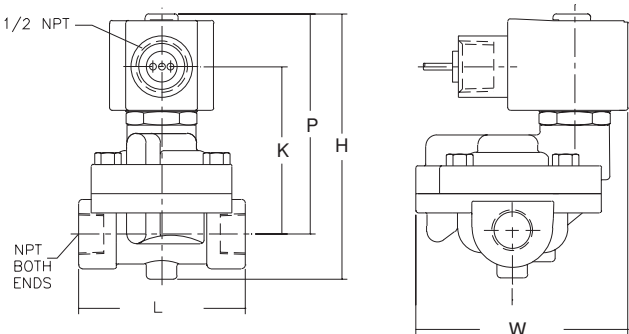
Constr. Ref. 30



Constr. Ref. 31



Constr. Ref. 21, 22, 36, 43, 44



## Features

- Designed for high flow and high pressure service.
- Direct acting, requires no minimum operating pressure.
- Ideal for power plants and similar applications.

## Construction

Valve Parts in Contact with Fluids	
Body	Brass
Disc	303 Stainless Steel (Metal)
Seats	Phosphor Bronze
Core Tube	305 Stainless Steel
Core and Plugnut	430 F Stainless Steel
Springs	302 Stainless Steel, 17-7PH or Inconel
Shading Coil	Copper
Gaskets	NBR

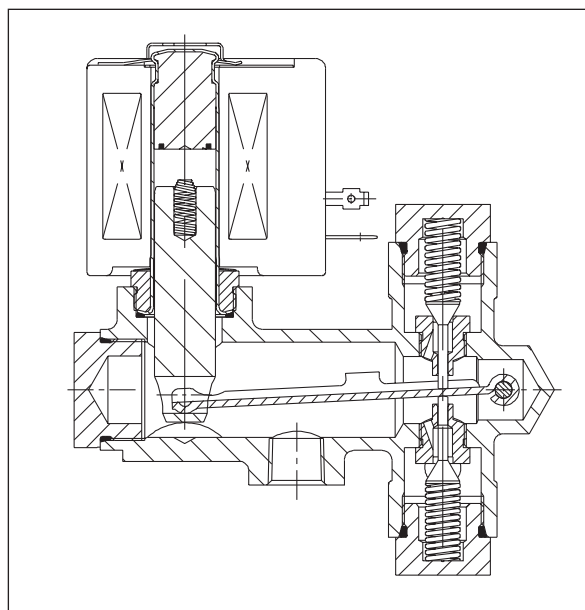
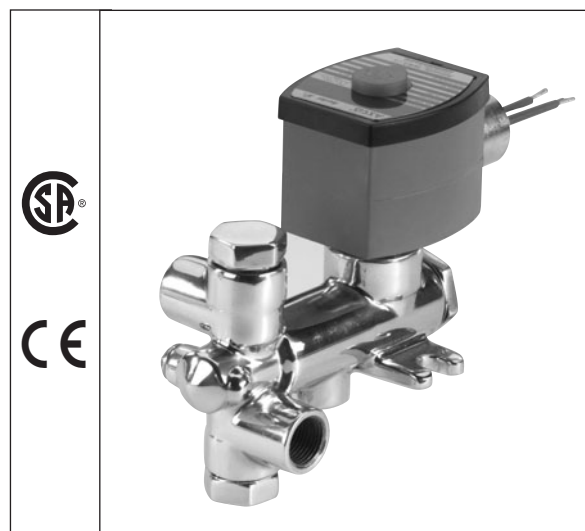
## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption			Spare Coil Part Number	
	AC			General Purpose	Explosionproof
	Watts	VA Holding	VA Inrush	AC	AC
H	16.1	35	180	272810	272814
H	28.2	50	385	224195	224195

**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz).  
Must be specified when ordering.

## Solenoid Enclosures

**Standard:** Red-Hat II - Watertight, Types 1, 2, 3, 3S, 4, and 4X; Red-Hat - Type 1.  
**Optional:** Red-Hat II - Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9; Red-Hat - Explosionproof and Watertight, Types 3, 4, 4X, 7, and 9. (To order, add prefix "EF" to catalog number.)  
*See Optional Features Section for other available options.*



## Nominal Ambient Temperature Ranges:

Class H Coils AC: 32°F to 140°F (0°C to 59°C)

*Refer to Engineering Section for details.*

## Approvals:

CSA certified. Meets applicable CE directives.

*Refer to Engineering Section for details.*

## Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Operating Pressure Differential (psi)		Max. Fluid Temp. °F	Brass Body		Watt Rating/ Class of Coil Insulation
			Max. AC			① Add Suffix "F" for NC, "G" for NO, "U" for Univ.		
			NC/NO	Univ.	AC	Catalog Number	Constr. Ref. No.	AC
PHOSPHOR BRONZE SEATS - STEAM SERVICE ONLY								
1/4	1/4	.45	100	55	344	8315G002	1	16.1/H
3/8	1/4	.45	100	50	344	8315G003	1	16.1/H
3/8	5/16	.75	100	50	344	8315 034	4	28.2/H
1/2	5/16	.75	100	50	344	8315 035	4	28.2/H
<b>Notes:</b> ① NC = Normally Closed: Exhaust pressure when de-energized. NO = Normally Open: Applies pressure when de-energized. Univ. = Universal: Pressure at any port. Refer to Engineering Section for details.								

## Specifications (Metric units)

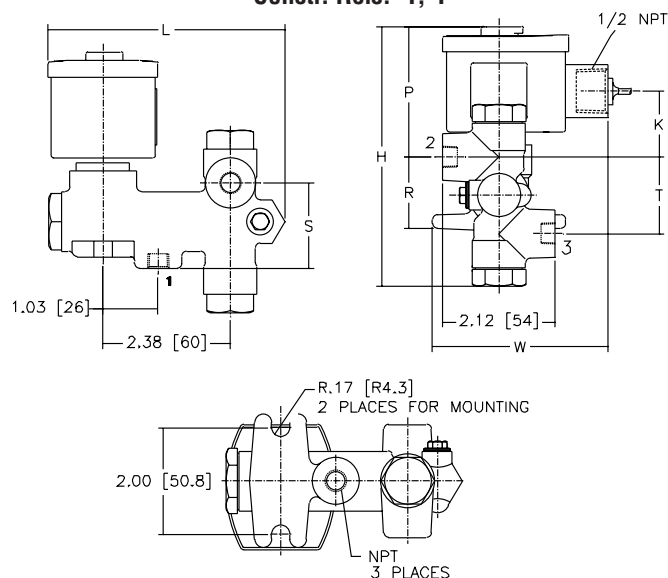
Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Operating Pressure Differential (bar)		Max. Fluid Temp. °C	Brass Body		Watt Rating/ Class of Coil Insulation
			Max. AC			① Add Suffix "F" for NC, "G" for NO, "U" for Univ.		
			NC/NO	Univ.	AC	Catalog Number	Constr. Ref. No.	AC
PHOSPHOR BRONZE SEATS - STEAM SERVICE ONLY								
1/4	.5	.39	7	3.6	173	8315G002	1	16.1/H
3/8	.5	.39	7	3	173	8315G003	1	16.1/H
3/8	.6	.64	7	3	173	8315 034	4	28.2/H
1/2	.6	.64	7	3	173	8315 035	4	28.2/H

## Dimensions: inches (mm)

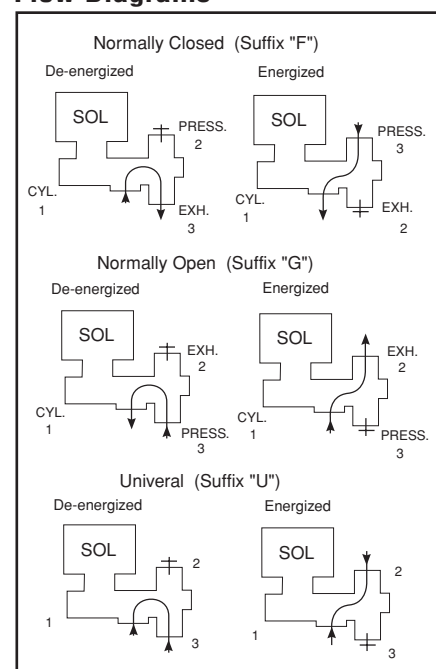
Constr. Ref. No.		H	K	L	P	R	S	W
1	ins.	4.89	1.44	4.44	2.46	1.34	1.60	3.30
	mm	124	37	113	62	34	40	84
4	ins.	4.89	1.44	4.44	2.46	1.34	1.60	3.30
	mm	124	37	113	62	34	40	84

**IMPORTANT:** Valves must be mounted vertical and upright.

### Constr. Refs. 1, 4



## Flow Diagrams



### Features

- Design eliminates metal-to-metal contact to extend life up to 20 million cycles in dry air or gas applications.
- Internal AC hum and metallic click at energization are eliminated. Quiet operating.
- Easily handles applications involving rapid cycling or continuous energization.

### Construction

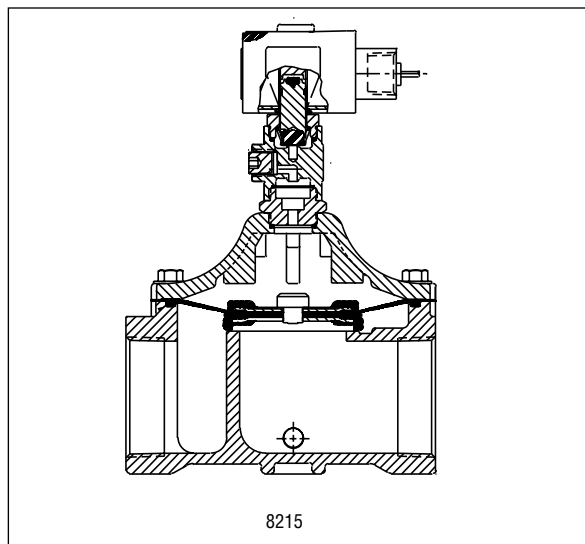
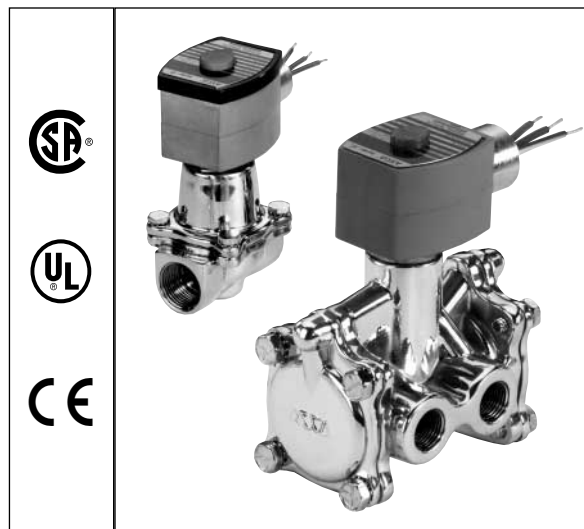
Valve Parts in Contact with Fluids	
Core Bumpers	UR
Rider Rings	PTFE
For more information, see Individual Series in General Service Valve Section.	

### Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part Number	
	DC Watts	AC			General Purpose	Explosionproof
		Watts	VA Holding	VA Inrush	AC	AC
F	①	15.1	22	22	270110	270114
<b>Standard Voltages:</b> 24, 120, 240, 480 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz). Must be specified when ordering. <b>Note:</b> ① Consult your local ASCO sales office for DC voltages.						

### Solenoid Enclosures

<b>Standard:</b> Watertight, Types 1, 2, 3, 3S, 4, and 4X. <b>Optional:</b> Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9P. (To order, add prefix "EF" to catalog number.) See Optional Features Section for other available options.
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### Nominal Ambient Temperature Ranges:

32°F to 104°F (0°C to 40°C)

Refer to Engineering Section for details.

### Approvals:

CSA certified. UL listed General Purpose Valves. Meets applicable CE directives.

### Installation:

For optimum life, the valve should be installed with the solenoid positioned upright and vertical.

Refer to Engineering Section for details.



## Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Operating Pressure Differential (psi)		Max. Fluid Temp. °F	Brass Body Catalog Number	Aluminum Body Catalog Number	Watt Rating/ Class of Coil Insulation
			Min.	Max. AC				
				Air-Inert Gas				
2/2 VALVES								
5 MILLION CYCLE CAPABILITY								
NORMALLY CLOSED (Closed when de-energized)								
3/8	5/8	3	5	125	140	8210G1Q	-	15.1/F
1/2	5/8	4	5	125	140	8210G2Q	-	15.1/F
3/4	3/4	4.5	5	125	140	8210G9Q	-	15.1/F
1	1 5/8	13	1	20	140	-	8215G95Q	15.1/F
1 1/4	1 5/8	15	1	20	140	-	8215G96Q	15.1/F
1 1/2	1 5/8	20	1	20	140	-	8215G97Q	15.1/F
2	2 3/32	34	1	20	140	-	8215G98Q	15.1/F
NORMALLY OPEN (Open when de-energized)								
3/8	5/8	3	5	125	140	8210G11Q	-	15.1/F
1/2	5/8	4	5	125	140	8210G12Q	-	15.1/F
3/4	3/4	4.5	5	125	140	8210G13Q	-	15.1/F
1	1 5/8	13	1	20	140	-	8215G99Q	15.1/F
1 1/4	1 5/8	15	1	20	140	-	8215G100Q	15.1/F
1 1/2	1 5/8	20	1	20	140	-	8215G101Q	15.1/F
2	2 3/32	34	1	20	140	-	8215G102Q	15.1/F
20 MILLION CYCLE CAPABILITY								
NORMALLY CLOSED (Closed when de-energized)								
1/8	1/8	.35	0	125	140	8262G77Q	-	15.1/F
1/4	1/8	.35	0	125	140	8262G232Q	-	15.1/F
1/4	7/32	.85	0	50	140	8262G208Q	-	15.1/F
NORMALLY OPEN (Open when de-energized)								
1/8	1/16	.09	0	125	140	8262G91Q	-	15.1/F
1/4	1/16	.09	0	125	140	8262G32Q	-	15.1/F
3/2 VALVES								
5 MILLION CYCLE CAPABILITY								
NORMALLY CLOSED (Closed when de-energized)								
3/8	5/8	3	10	125	140	8316G14Q ②	-	15.1/F
1/2	5/8	4	10	125	140	8316G24Q ②	-	15.1/F
NORMALLY OPEN (Open when de-energized)								
3/8	5/8	3	10	125	140	8316G16Q ②	-	15.1/F
1/2	5/8	4	10	125	140	8316G26Q ②	-	15.1/F
20 MILLION CYCLE CAPABILITY								
UNIVERSAL OPERATION (Pressure at any port)								
1/8	1/16	.09	0	70	140	8320G1Q	-	15.1/F
1/4	1/16	.09	0	70	140	8320G172Q	-	15.1/F
1/4	3/32	.15	0	40	140	8320G174Q	-	15.1/F
NORMALLY CLOSED (Closed when de-energized)								
1/8	1/16	.09	0	125	140	8320G13Q	-	15.1/F
1/4	1/16	.09	0	125	140	8320G182Q	-	15.1/F
1/4	1/8	.31	0	35	140	8320G186Q	-	15.1/F
NORMALLY OPEN (Open when de-energized)								
1/8	1/16	.09	0	125	140	8320G27Q	-	15.1/F
1/4	1/16	.09	0	125	140	8320G192Q	-	15.1/F
1/4	1/8	.31	0	35	140	8320G196Q	-	15.1/F
4/2 VALVES								
5 MILLION CYCLE CAPABILITY								
SINGLE SOLENOID								
1/4	1/4	.53	10	125	140	8344G70Q ②	-	15.1/F
3/8	1/4	.53	10	125	140	8344G1Q ②	-	15.1/F
1/2	3/8	1.3	10	125	140	8344G74Q ②	-	15.1/F
20 MILLION CYCLE CAPABILITY								
SINGLE SOLENOID								
1/4	1/16	①	10	100	140	8345G2Q ②	-	15.1/F
Notes: ① Inlet Cv is 0.036; exhaust Cv is 0.092. ② <b>IMPORTANT:</b> A Minimum Operating Pressure Differential must be maintained between the pressure and exhaust ports. Supply and exhaust piping must be full area, unrestricted. ASCO flow controls and other similar components must be installed in the cylinder lines only.								

## Specifications (Metric units)

Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Operating Pressure Differential (bar)		Max. Fluid Temp. °C	Brass Body	Aluminum Body	Watt Rating/ Class of Coil Insulation
			Min.	Max. AC				
				Air-Inert Gas				
2/2 VALVES								
5 MILLION CYCLE CAPABILITY								
NORMALLY CLOSED (Closed when de-energized)								
3/8	16	2.57	0.3	8.6	59	8210G1Q	-	15.1/F
1/2	16	3.43	0.3	8.6	59	8210G2Q	-	15.1/F
3/4	19	3.86	0.3	8.6	59	8210G9Q	-	15.1/F
1	41	11.14	0.1	1.4	59	-	8215G95Q	15.1/F
1 1/4	41	12.86	0.1	1.4	59	-	8215G96Q	15.1/F
1 1/2	41	17.14	0.1	1.4	59	-	8215G97Q	15.1/F
2	53	29.14	0.1	1.4	59	-	8215G98Q	15.1/F
NORMALLY OPEN (Open when de-energized)								
3/8	16	2.57	0.3	8.6	59	8210G11Q	-	15.1/F
1/2	16	3.43	0.3	8.6	59	8210G12Q	-	15.1/F
3/4	19	3.86	0.3	8.6	59	8210G13Q	-	15.1/F
1	41	11.14	0.1	1.4	59	-	8215G99Q	15.1/F
1 1/4	41	12.86	0.1	1.4	59	-	8215G100Q	15.1/F
1 1/2	41	17.14	0.1	1.4	59	-	8215G101Q	15.1/F
2	53	29.14	0.1	1.4	59	-	8215G102Q	15.1/F
20 MILLION CYCLE CAPABILITY								
NORMALLY CLOSED (Closed when de-energized)								
1/8	3	.30	0.0	8.6	59	8262G77Q	-	15.1/F
1/4	3	.30	0.0	8.6	59	8262G232Q	-	15.1/F
1/4	6	.72	0.0	3.4	59	8262G208Q	-	15.1/F
NORMALLY OPEN (Open when de-energized)								
1/8	2	.08	0.0	8.6	59	8262G91Q	-	15.1/F
1/4	2	.08	0.0	8.6	59	8262G32Q	-	15.1/F
3/2 VALVES								
5 MILLION CYCLE CAPABILITY								
NORMALLY CLOSED (Closed when de-energized)								
3/8	16	2.57	0.7	8.6	59	8316G14Q ②	-	15.1/F
1/2	16	3.43	0.7	8.6	59	8316G24Q ②	-	15.1/F
NORMALLY OPEN (Open when de-energized)								
3/8	16	2.57	0.7	8.6	59	8316G16Q ②	-	15.1/F
1/2	16	3.43	0.7	8.6	59	8316G26Q ②	-	15.1/F
20 MILLION CYCLE CAPABILITY								
UNIVERSAL OPERATION (Pressure at any port)								
1/8	2	.08	0.0	4.8	59	8320G1Q	-	15.1/F
1/4	2	.08	0.0	4.8	59	8320G172Q	-	15.1/F
1/4	2	.13	0.0	2.8	59	8320G174Q	-	15.1/F
NORMALLY CLOSED (Closed when de-energized)								
1/8	2	.08	0.0	8.6	59	8320G13Q	-	15.1/F
1/4	2	.08	0.0	8.6	59	8320G182Q	-	15.1/F
1/4	3	.27	0.0	2.4	59	8320G186Q	-	15.1/F
NORMALLY OPEN (Open when de-energized)								
1/8	2	.08	0.0	8.6	59	8320G27Q	-	15.1/F
1/4	2	.08	0.0	8.6	59	8320G192Q	-	15.1/F
1/4	3	.27	0.0	2.4	59	8320G196Q	-	15.1/F
4/2 VALVES								
5 MILLION CYCLE CAPABILITY								
SINGLE SOLENOID								
1/4	6	.45	0.7	8.6	59	8344G70Q ②	-	15.1/F
3/8	6	.45	0.7	8.6	59	8344G1Q ②	-	15.1/F
1/2	10	1.11	0.7	8.6	59	8344G74Q ②	-	15.1/F
20 MILLION CYCLE CAPABILITY								
SINGLE SOLENOID								
1/4	2	①	0.7	6.9	59	8345G2Q ②	-	15.1/F
Notes: ① Inlet Kv is 0.031; exhaust Kv is 0.079. ② IMPORTANT: A Minimum Operating Pressure Differential must be maintained between the pressure and exhaust ports. Supply and exhaust piping must be full area, unrestricted. ASCO flow controls and other similar components must be installed in the cylinder lines only.								

Dimensions: inches (mm)

**Note:** Please see General Service Section for applicable 2 way, 3 way and 4 way valve dimensions.

## Features

- Flow rates adjustable between 0% and 100% of rating.
- Control achieved by applying straight voltage between 0 and 24 VDC via potentiometer or other variable power supply.
- Flow rate can also be regulated by a range of electrical inputs (sensors, transmitters, PLC, etc.) via an ASCO Electronic Control Unit or similar circuit.
- Suitable for use in air/gas, low vacuum service, as well as to precisely control flow of water.

## Construction

Valve Parts in Contact with Fluids			
	8202		8203
<b>Body</b>	Brass	303 Stainless Steel	Brass
<b>Seals and Disc/Diaphragm*</b>	FKM		NBR
<b>Core Tube</b>	305 Stainless Steel		
<b>Core and Plugnut</b>	430F Stainless Steel		
<b>Springs</b>	302 Stainless Steel		
<b>Rider Rings</b>	PTFE		
<b>Breaker Piece</b>	Brass	303 Stainless Steel	Brass

## Electrical

Standard voltage: 24 VDC

Coil: Molded Class F

Coil resistance: 25 Ohm at 68°F (20°C)

Operating current: 100 - 500 mA

Electrical coil input: 0 - 24 VDC

Recommended PWM frequency: 300 Hz Air/Gas;

200 Hz Water/Light Oil

Hysteresis: <5% ① (<7.5% for 8203 Valves)

Repeatability: <3% (<1% for 1/8" NPT Valves)①

Sensitivity: <2% (<1% for 1/8" NPT Valves)①

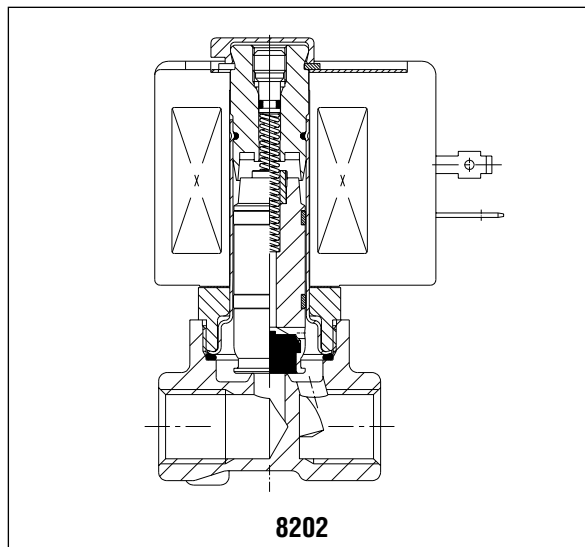
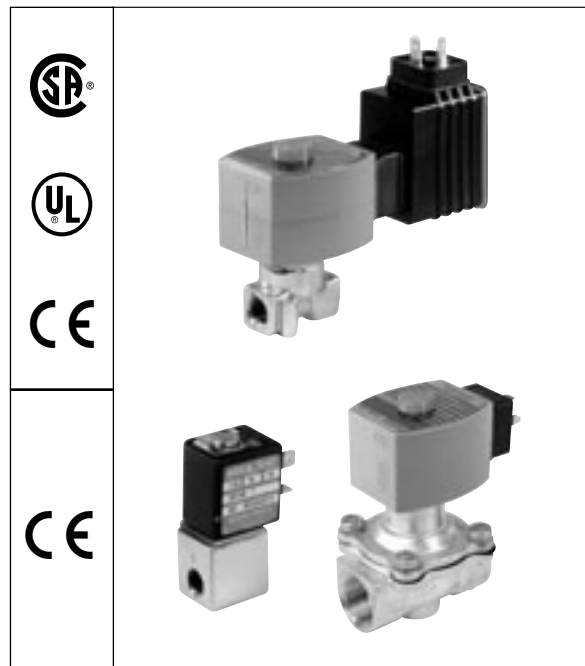
① Percentage of max. value with 24 VDC, PWM,  
300 Hz voltage supply at constant differential pressure.

## Solenoid Enclosures

**Standard:** Red-Hat II Class F coil with DIN connection (meets ISO 4400/DIN 43650A standards). For 22.6 watt solenoids.

8.6 watt 'SC' solenoid uses electrical connector per DIN 46244.

**Optional:** For Class H coil, use prefix "SV" (for use with customer supplied electronics): General Purpose and Watertight, Types 1, 2, 3, 3S, and 4X on 22.6 watt solenoids.



## Nominal Ambient Temperature Ranges:

14°F to 104°F (-10°C to 40°C) for 22.6 watt solenoid.

32°F to 104°F (0°C to 40°C) for 8.6 watt solenoid.

## Approvals: ( 8202 1/4" to 3/8" only)

UL recognized component with DIN solenoid (prefix SD or SV). UL listed with threaded conduit (no prefix). CSA certified.

**Note:** The Electronic control unit (sold separately) is only compatible with DIN connections.

Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Operating Pressure Differential (psi)			Temperature °F		Catalog Number		Constr. Ref. No.	Watt Rating/ Class of Coil Insulation ④
			Min.	Max.		Max.					
				Air/Gas/Low Vacuum	Liquid	Fluid	UL ② Listing	Brass Body	Stainless Steel Body		
1/8	3/64	.04	0	115	75	180	-	SC8202A201V	SC8202A205V	5	8.6/F
1/8	1/16	.06	0	90	60	180	-	SC8202A202V	SC8202A206V	5	8.6/F
1/8	3/32	.14	0	60	45	180	-	SC8202A203V	SC8202A207V	5	8.6/F
1/8	1/8	.20	0	35	35	180	-	SC8202A204V	SC8202A208V	5	8.6/F

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Operating Pressure Differential (psi)			Temperature °F		Catalog Number		Constr. Ref. No.	Watt Rating/ Class of Coil Insulation ③
			Min.	Max.		Fluid	UL ② Listing				
				Low Vacuum (Hg) ①	Air/Gas/ Water/Oil			Air-Inert Gas	Water/Light Oil		

**Brass Body**

1/4	3/64	.06	0	29	230	150	●	SD8202G1V	SD8202G51V	1	22.6/F
1/4	3/32	.14	0	29	115	150	●	SD8202G2V	SD8202G52V	1	22.6/F
1/4	1/8	.28	0	29	60	150	●	SD8202G3V	SD8202G53V	1	22.6/F
1/4	5/32	.50	0	29	35	150	●	SD8202G4V	SD8202G54V	1	22.6/F
1/4	7/32	.85	0	29	20	150	●	SD8202G6V	SD8202G56V	1	22.6/F
1/4	9/32	1.06	0	29	15	150	●	SD8202G7V	SD8202G57V	1	22.6/F
3/8	1/8	.28	0	29	60	150	●	SD8202G23V	SD8202G73V	2	22.6/F
3/8	5/32	.50	0	29	35	150	●	SD8202G24V	SD8202G74V	2	22.6/F
3/8	7/32	.85	0	29	20	150	●	SD8202G26V	SD8202G76V	2	22.6/F
3/8	9/32	1.06	0	29	15	150	●	SD8202G27V	SD8202G77V	2	22.6/F

**Stainless Steel Body**

1/4	3/64	.06	0	29	230	150	●	SD8202G11V	SD8202G61V	3	22.6/F
1/4	3/32	.14	0	29	115	150	●	SD8202G12V	SD8202G62V	3	22.6/F
1/4	1/8	.28	0	29	60	150	●	SD8202G13V	SD8202G63V	3	22.6/F
1/4	5/32	.50	0	29	35	150	●	SD8202G14V	SD8202G64V	3	22.6/F
1/4	7/32	.85	0	29	20	150	●	SD8202G16V	SD8202G66V	3	22.6/F
1/4	9/32	1.06	0	29	15	150	●	SD8202G17V	SD8202G67V	3	22.6/F
3/8	1/8	.28	0	29	60	150	●	SD8202G33V	SD8202G83V	4	22.6/F
3/8	5/32	.50	0	29	35	150	●	SD8202G34V	SD8202G84V	4	22.6/F
3/8	7/32	.85	0	29	20	150	●	SD8202G36V	SD8202G86V	4	22.6/F
3/8	9/32	1.06	0	29	15	150	●	SD8202G37V	SD8202G87V	4	22.6/F

**Notes:** ① Applicable to air-Inert gas valves only.

② ● General Purpose valve. Refer to Engineering Section (Approvals) for more details.

③ Will vary with duty cycle (8.5 watts at 500 mA with ambient temp. = 104°F (40°C).

④ Will vary with duty cycle (Cold = 6.8 watts, hot 9.1 watts at 450 mA with ambient temp. = 69°F (20°C).  
(Cold = 6.3 watts, hot 8.6 watts at 450 mA with ambient temp. = 104°F (40°C).

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Operating Pressure Differential (psi)		Temperature °F		Catalog Number	Constr. Ref. No.	Watt Rating/ Class of Coil Insulation ③
			Min.	Max.	Max.				
				Water/Light Oil	Fluid	UL ② Listing	Water/Light Oil		
Brass Body									
3/8	1/2	2.43	5	150	150	-	SD8203G1	6	22.6/F
1/2	1/2	2.43	5	150	150	-	SD8203G2	6	22.6/F

## Specifications (Metric units)

Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m³/h)	Operating Pressure Differential (bar)			Temperature °C		Catalog Number		Constr. Ref. No.	Watt Rating/ Class of Coil Insulation ④
			Min.	Max.		Max.					
				Air/Gas/Low Vacuum	Liquid	Fluid	UL ② Listing	Brass Body	Stainless Steel Body		
1/8	1.2	.03	0	8	5	81	-	SC8202A201V	SC8202A205V	5	8.6/F
1/8	1.6	.05	0	6	4	81	-	SC8202A202V	SC8202A206V	5	8.6/F
1/8	2.4	.12	0	4	3	81	-	SC8202A203V	SC8202A207V	5	8.6/F
1/8	3.2	.17	0	2.5	2.5	81	-	SC8202A204V	SC8202A208V	5	8.6/F

Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m³/h)	Operating Pressure Differential (bar)			Temperature °C		Catalog Number		Constr. Ref. No.	Watt Rating/ Class of Coil Insulation ③
			Min.	Max.		Fluid	UL ② Listing				
				Low Vacuum (Hg) ①	Air/Gas/ Water/Oil			Air-Inert Gas	Water/Light Oil		

### Brass Body

1/4	1.2	.05	0	2	16	65	●	SD8202G1V	SD8202G51V	1	22.6/F
1/4	2.4	.12	0	2	8	65	●	SD8202G2V	SD8202G52V	1	22.6/F
1/4	3.2	.24	0	2	4	65	●	SD8202G3V	SD8202G53V	1	22.6/F
1/4	4.0	.42	0	2	2	65	●	SD8202G4V	SD8202G54V	1	22.6/F
1/4	5.6	.72	0	2	1	65	●	SD8202G6V	SD8202G56V	1	22.6/F
1/4	7.1	.90	0	2	1	65	●	SD8202G7V	SD8202G57V	1	22.6/F
3/8	3.2	.24	0	2	4	65	●	SD8202G23V	SD8202G73V	2	22.6/F
3/8	4.0	.42	0	2	2	65	●	SD8202G24V	SD8202G74V	2	22.6/F
3/8	5.6	.72	0	2	1	65	●	SD8202G26V	SD8202G76V	2	22.6/F
3/8	7.1	.90	0	2	1	65	●	SD8202G27V	SD8202G77V	2	22.6/F

### Stainless Steel Body

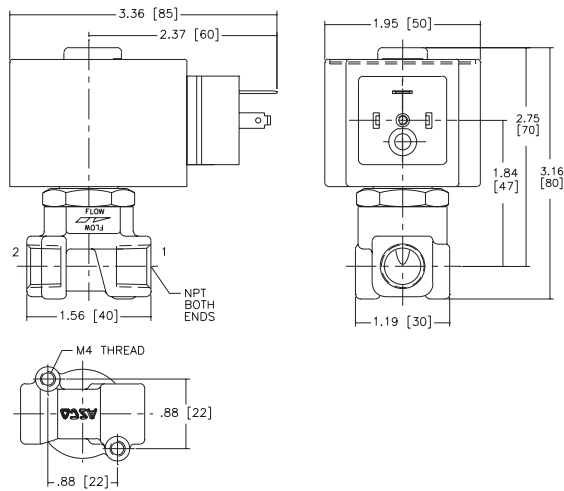
1/4	1.2	.05	0	2	16	65	●	SD8202G11V	SD8202G61V	3	22.6/F
1/4	2.4	.12	0	2	8	65	●	SD8202G12V	SD8202G62V	3	22.6/F
1/4	3.2	.24	0	2	4	65	●	SD8202G13V	SD8202G63V	3	22.6/F
1/4	4.0	.42	0	2	2	65	●	SD8202G14V	SD8202G64V	3	22.6/F
1/4	5.6	.72	0	2	1	65	●	SD8202G16V	SD8202G66V	3	22.6/F
1/4	7.1	.90	0	2	1	65	●	SD8202G17V	SD8202G67V	3	22.6/F
3/8	3.2	.24	0	2	4	65	●	SD8202G33V	SD8202G83V	4	22.6/F
3/8	4.0	.42	0	2	2	65	●	SD8202G34V	SD8202G84V	4	22.6/F
3/8	5.6	.72	0	2	1	65	●	SD8202G36V	SD8202G86V	4	22.6/F
3/8	7.1	.90	0	2	1	65	●	SD8202G37V	SD8202G87V	4	22.6/F

**Notes:** ① Applicable to air-Inert gas valves only.  
 ② ● General Purpose valve. Refer to Engineering Section (Approvals) for more details.  
 ③ Will vary with duty cycle (8.5 watts at 500 mA with ambient temp. = 104°F (40°C)).  
 ④ Will vary with duty cycle (Cold = 6.8 watts, hot 9.1 watts at 450 mA with ambient temp. = 69°F (20°C).  
 (Cold = 6.3 watts, hot 8.6 watts at 450 mA with ambient temp. = 104°F (40°C)).

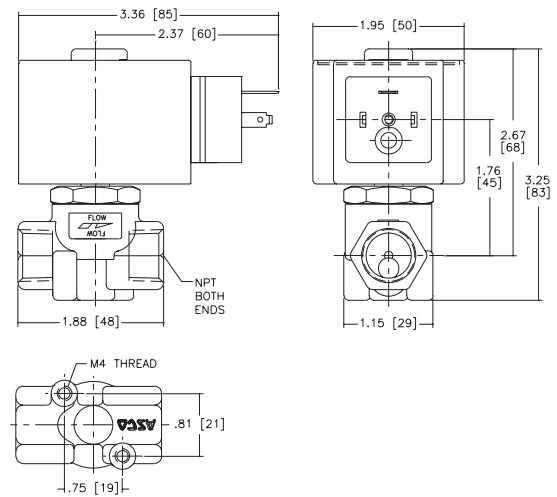
Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m³/h)	Operating Pressure Differential (bar)		Temperature °C		Catalog Number	Constr. Ref. No.	Watt Rating/ Class of Coil Insulation ③
			Min.	Max.	Max.				
				Water/Light Oil	Fluid	UL ② Listing	Water/Light Oil		
Brass Body									
3/8	12.7	2.1	.3	10	65	-	SD8203G1	6	22.6/F
1/2	12.7	2.1	.3	10	65	-	SD8203G2	6	22.6/F

Dimensions: inches (mm)

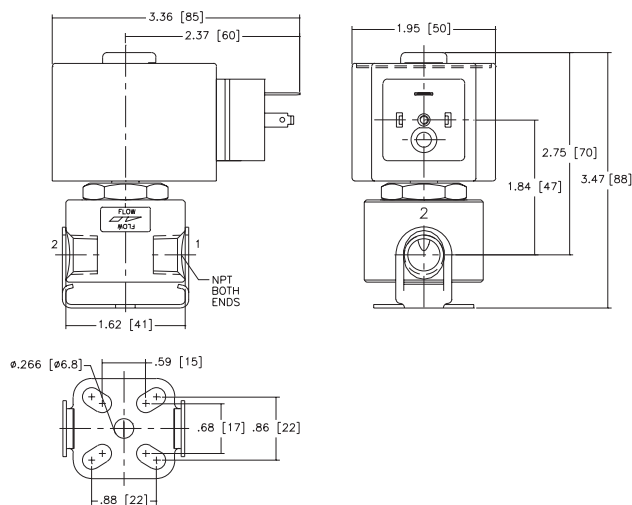
Constr. Ref. 1



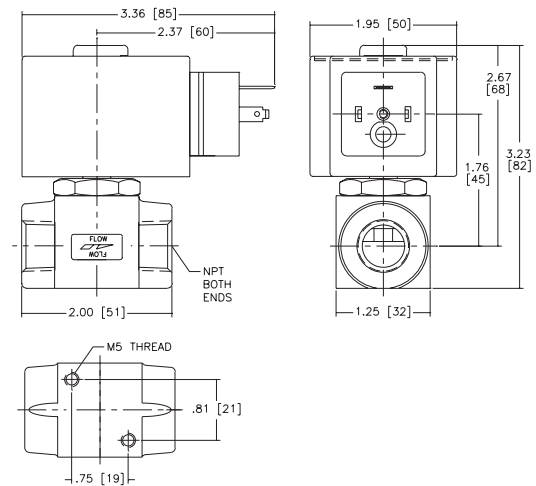
Constr. Ref. 2



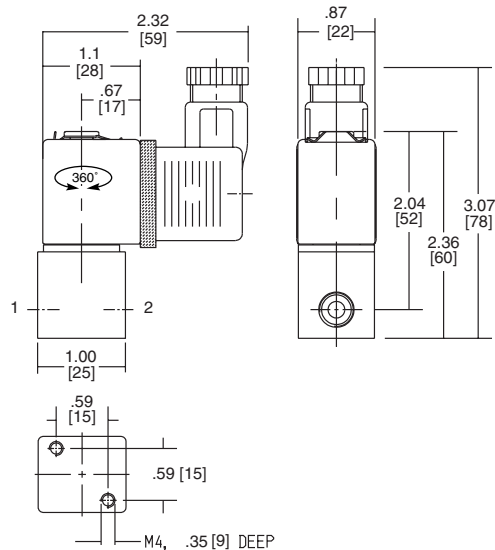
Constr. Ref. 3



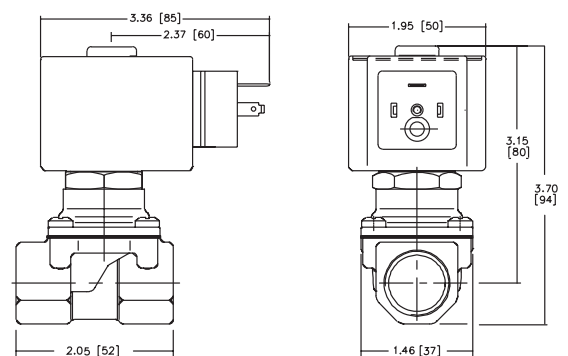
Constr. Ref. 4



Constr. Ref. 5



Constr. Ref. 6



## Electronic Control Unit

### Description

One unit, Catalog Number 8908A001, can be used for all 1/4" to 1/2" Posiflow valves with DIN solenoids. Another unit, Catalog Number 8908A003, can be used for all 1/8" Posiflow valves with DIN solenoids.

To maintain a specific flow rate, current through the coil must be kept constant and substantially independent from changes in the coil winding resistance (caused by temperature variation). The Electronic Control Unit will accomplish this quite efficiently via pulse width modulation. Voltage to the coil is cut into rectangular pulses by rapidly switching it on and off. By varying the "on" time (pulse width) percentage to compensate for temperature variations, current through the coil is kept constant.

### Construction

<b>Housing Assembly</b>	PA + FV
<b>Cover</b>	PA + FV
<b>Screw</b>	Zinc plated steel
<b>Gasket</b>	NBR
<b>Connector Specification</b>	ISO 4400
<b>Protection</b>	IP 65 (Dust-tight Protection against water jets from any direction)

### Electrical Characteristics:

**Nominal supply voltage:** 24 VDC  $\pm$  10%,  
maximum ripple 10%

**Maximum full-load current:** 1100 mA  
(factory set at 500 mA)

**Input control signal (selectable):** 0-10 VDC or 0-20 mA  
or 4-20 mA

**Switch-off current:** <2% of max. input control signal

**Adjustable off-set:** 15-50% of pulse width  
modulation voltage

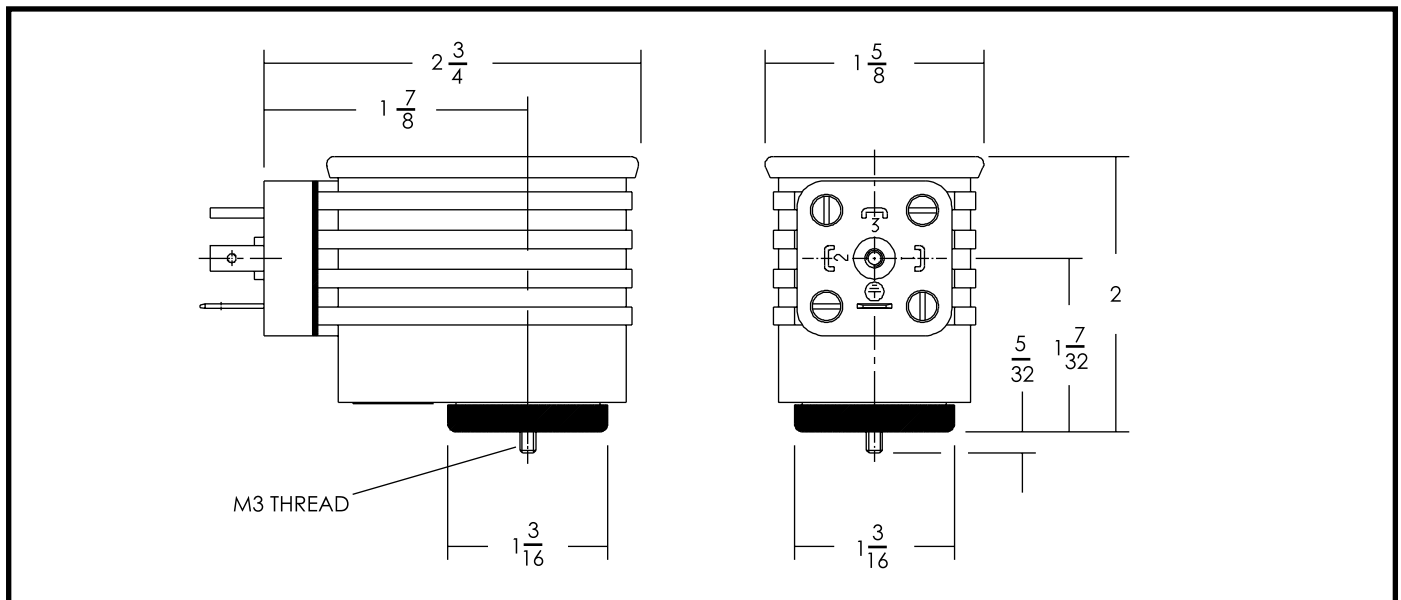
**Adjustable full-load:** 30-100% of pulse width  
modulation voltage

**Ramp time:** Manually activated via on/off switch;  
adjustable 0.1-3 seconds

**Adjustable PWM frequency:** 40-700 Hz

**Power consumption:** 0.8 watts

### Dimensions: inches (mm)





### Features

- Variable flow proportional to the control signal.
- Closed loop control via linear potentiometer.
- Fail-close construction: Valve returns to closed position upon loss of power.
- Supplied factory-assembled.

### General

Differential Pressure	0 to 240 psi
Maximum allowable pressure	240 psi
Fluid Temperature Ranges	See chart on following page.
Ambient Temperature Ranges	0 to 122°F
Response Time	See chart on following page.
Linearity	± 5%
Hysteresis	< 1%

### Compact Positioner

Pilot Fluids	Air or inert gas, filtered 50µm, lubricated or not
Pilot Pressure	60 to 240 psi
Pilot Fluid Temperature	0 to 60°C
Pilot Connection	1/8"
Maximum Current	150mA
Nominal Supply Voltage	24VDC ± 10%, Max. ripple 10%
Maximum Power	3.6 W
Connector Size 15	Spade plug CM6, 4 pins
Coil Insulation Class	F
Positioner Body/Enclosure	Aluminum, PA/IP65

### Control Signal

Control Signal	Suffix ①
0 - 10 VDC	PDB04
0 - 20 mA	PDB05
4 - 20 mA	PDB06

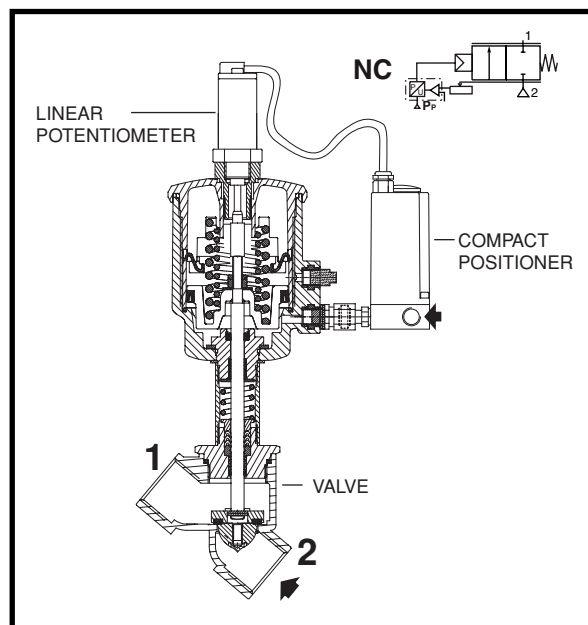
① Add suffix to 8290 catalog number (EG: 8290A384PDB04), see following page for complete product range. Supplied installed on valve and pre-adjusted at the factory. Positioner configured for one, customer specified, control signal.

### Linear Potentiometer

Resistance	500Ω
Body/Enclosure	Aluminum/IP65

### Valve Construction

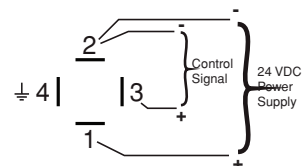
Valve Parts in Contact with Fluids		
Part	50mm - 125mm	50mm - 125mm
Body	Bronze	316L Stainless Steel
Stem	431 Stainless Steel	431 Stainless Steel
Stuffing Box	Brass	303 Stainless Steel
Stuffing Box Seal	PTFE Chevron	PTFE Chevron
Wiper Seal	FKM	FKM
Profile Disc	Brass	304L Stainless Steel
Disc Seal	PTFE	PTFE



### Electrical Connection

#### Compact Positioner

- 1: + 24 VDC (power)
- 2: 0 VDC (power)
- 3: Control Signal (0-10 VDC, 0-20mA, 4-20mA)
- 4: (0-10V) Sensor Feedback for calibration (Factory use only, is not an earth ground).



## Specifications

Pipe Size (ins.)	Orifice Dia. (ins.)	Cv Flow	OPD Min (psi.)	OPD Max. Fluids (psi.)	OPD Max. Steam (psi.)	Max. Fluid Temp. °F	Bronze	Stainless Steel	Pilot Pressure Min (psi)	Pilot Pressure Max (psi)	Approx. Shipping Weight (lbs.)	Suffix ① (0 -10 VDC) Fail closed	Suffix ① (0 -20 mA) Fail closed	Suffix ① (4 -20 mA) Fail closed
50mm Operator												PDB04	PDB05	PDB06
1/2	1/2	5.3	0	240	150	366	8290A384	8290A393	60	150	4.1			
3/4	3/4	8.3	0	150	150	366	8290A385	8290A394	60	150	4.3			
63mm Operator														
3/4	3/4	8.3	0	240	150	366	8290B005	8290B048	60	150	5.3			
1	1	17	0	150	150	366	8290B010	8290B053	60	150	6.3			
1-1/4	1-1/4	24	0	90	90	366	8290A016	8290A059	60	150	7.5			
1-1/2	1-1/2	33	0	60	60	366	8290A020	8290A063	60	150	9.8			
2	2	46	0	40	40	366	8290A024	8290A067	60	150	12.2			
90mm Operator														
1	1	17	0	240	150	366	8290B011	8290B054	60	150	7.9			
1-1/4	1-1/4	24	0	180	150	366	8290A017	8290A060	60	150	9.3			
1-1/2	1-1/2	33	0	120	120	366	8290A021	8290A064	60	150	11.1			
2	2	46	0	90	90	366	8290A025	8290A068	60	150	17.8			
125mm Operator														
1-1/4	1-1/4	34	0	240	150	366	8290A642	8290A646	60	150	15.1			
1-1/2	1-1/2	56	0	240	150	366	8290A482	8290A495	60	150	16.6			
2	2	77	0	150	120	366	8290A485	8290A498	60	150	18.8			
2-1/2	2-1/2	86	0	90	90	366	8290A488	8290A501	60	150	23.7			

① Add suffix to 8290 catalog number (EG: 8290A384PDB04).  
Fail closed construction: Valve returns to closed position upon loss of power.  
Compact Positioner not available on 32mm Operator.

## Response time (in seconds) for NC valves (90 psi air control)

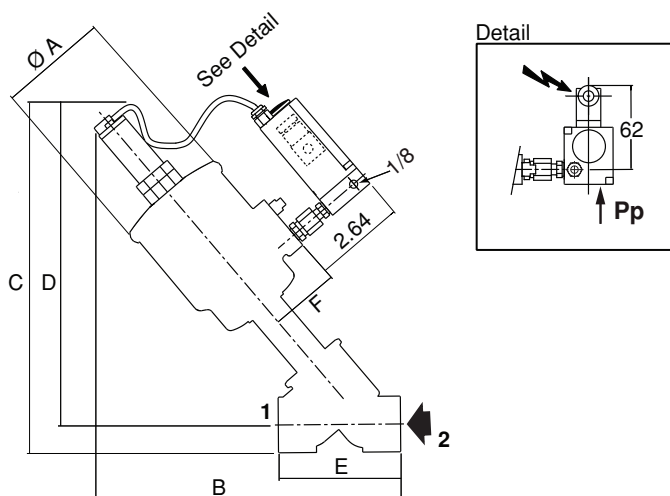
Pipe Size (ins.)	Operator (mm)							
	50		63		90		125	
	Open	Close	Open	Close	Open	Close	Open	Close
1/2	1.26	0.92	-	-	-	-	-	-
3/4	1.30	0.93	1.7	2.25	-	-	-	-
1	-	-	2.7	3.18	5.23	7.26	-	-
1 1/4	-	-	2.7	3.18	5.23	7.26	9.34	17.8
1 1/2	-	-	2.7	3.18	5.23	7.26	13.7	18.3
2	-	-	2.7	3.18	5.23	7.26	13.7	18.3
2 1/2	-	-	-	-	-	-	14.0	19.5

## Installation

- Valves can be mounted in any position.
- Installation and maintenance instructions are included with each valve.

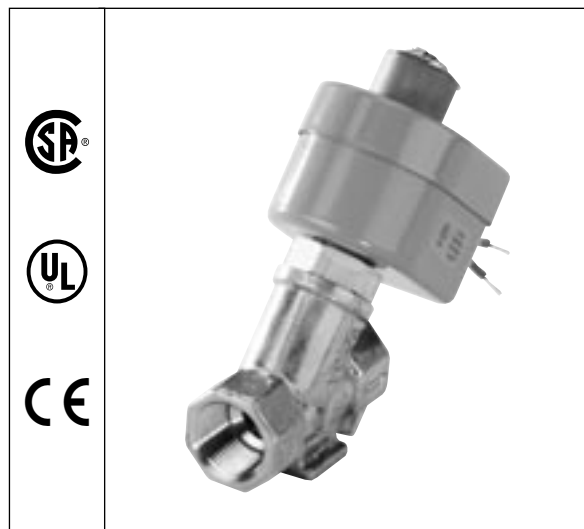
## Dimensions (inches)

Pipe Size	Ø A	B	C	D	E	F
<b>50mm Operator</b>						
1/2	2.7	6.93	8.21	7.68	2.56	1.7
3/4	2.7	7.26	8.39	7.76	2.95	1.7
<b>63mm Operator</b>						
3/4	3.4	7.78	9.11	8.51	2.95	2.0
1	3.4	8.18	9.51	8.71	3.54	2.0
1-1/4	3.4	9.52	10.82	9.84	4.33	2.0
1-1/2	3.4	9.80	11.45	10.27	4.72	2.0
2	3.4	10.78	12.01	10.63	5.90	2.0
<b>90mm Operator</b>						
1	4.7	8.59	9.92	9.12	3.54	2.6
1-1/4	4.7	9.88	11.11	10.12	4.33	2.6
1-1/2	4.7	10.16	11.73	10.55	4.72	2.6
2	4.7	11.10	12.29	10.91	5.91	2.6
<b>125mm Operator</b>						
1-1/4	6.1	11.10	13.63	12.63	4.30	3.1
1-1/2	6.1	11.50	14.23	13.13	4.70	3.1
2	6.1	12.40	14.83	13.43	6.00	3.1
2-1/2	6.1	13.70	15.83	14.03	7.50	3.1



## Features

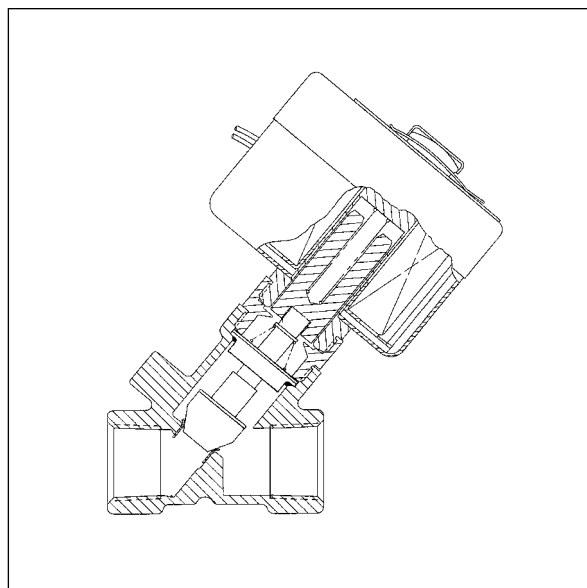
- Designed to isolate corrosive fluids from solenoid parts.
- Only the isolating part, seals, and body are in contact with fluids.
- No minimum operating pressure required.
- Variety of body materials and process connections.
- Many other constructions (not shown here) are available in a wide range of sizes.



## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part No.	
	DC Watts	AC			General Purpose	
		Watts	VA Holding	VA Inrush	AC	DC
F	10.6	6.1	16	30	238210	238310
H	-	20	43	135	222345	-

**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz). 6, 12, 24, 120, 240 volts DC. Must be specified when ordering. Other voltages available when required.



## Solenoid Enclosures

**Standard:** Red-Hat II - Watertight, Types 1, 2, 3, 3S, 4, and 4X; Red-Hat Type 1.

**Optional:** Open Frame Solenoid, Junction Box enclosure, and Panel Mount Constructions. *See Optional Features Section for descriptions on these and other available options.*

## Nominal Ambient Temperature Ranges:

Red-Hat II: AC: 32°F to 125°F (0°C to 52°C)  
DC: 32°F to 104°F (0°C to 40°C)

Red-Hat: 32°F to 77°F (0°C to 25°C)  
(104°F/40°C occasionally)  
*Refer to Engineering Section for details.*

## Approvals:

CSA certified. UL listed as indicated. Meets applicable CE directives.

*Refer to Engineering Section for details.*

## Specifications (English units)

Body Material	Diaphragm/Disc	Seals	Typical Applications	Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Maximum Operating Pressure (psi)		Max. Fluid Temp. °F.		Catalog Number	Constr. Ref. No.	UL Listing	Watt Rating/Class of Coil Insulation ④	
							AC	DC	AC	DC				AC	DC
CA	EPDM	—	Demineralized and Distilled Water, Sea Water	Bib for 1/4" I.D. Flexible Tubing or Hose	9/64	.35	6	6	130	120	D8260G54E	3	—	6.1/F	10.6/F
				1/4" O.D. Compression ①	9/64	.35	6	6	130	120	D8260G71E	4	—	6.1/F	10.6/F
PP	EPDM	—	Photo Solution, 20% Max. Concentration Hydrochloric Acid	Bib for 1/4" I.D. Flexible Tubing or Hose	9/64	.35	6	6	130	120	D8260G53E	3	—	6.1/F	10.6/F
					3/16	.53	6	6	130	120	D8260G56E	3	②	6.1/F	10.6/F
PP	FKM	—	95% Max. Concentration Phosphoric Acid	Bib for 1/4" I.D. Flexible Tubing or Hose	9/64	.35	6	6	130	120	D8260G53V	3	—	6.1/F	10.6/F
			60% Max. Concentration Sulphuric Acid		3/16	.53	6	6	130	120	D8260G56V	3	—	6.1/F	10.6/F
Brass (with S.S. seat)	PTFE	FKM	Hot Water, Steam Boiler Blowdown, Steam Cookers, Hot Cooking Oil, Deep Fat Cookers	3/8	3/8	1.8	15 ③	—	250	—	D803084	1	⑤	20/H	—
				1/2	3/8	2.2	15 ③	—	250	—	D803085	1	⑤	20/H	—
				3/4	3/8	2.2	15 ③	—	250	—	D803086	2	⑤	20/H	—
18-8 S.S.	PTFE	FKM	Hot Water, Steam Boiler Blowdown, Steam Cookers, Hot Cooking Oil, Deep Fat Cookers	1/2	3/8	2.2	15 ③	—	250	—	D803095	1	⑤	20/H	—

**Notes:** ① Fittings not supplied with valve; refer to List Price Schedule. ④ On 50 hz service, the rating for the 6.1/F solenoid is 8.1 watts.  
 ② UL recognized component – AC only. ⑤ General Purpose Valves.  
 ③ Valves are suitable for closing at zero pressure differential.

## Specifications (Metric units)

Body Material	Diaphragm/Disc	Seals	Typical Applications	Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Maximum Operating Pressure (bar)		Max. Fluid Temp. °C.		Catalog Number	Constr. Ref. No.	UL Listing	Watt Rating/Class of Coil Insulation ④	
							AC	DC	AC	DC				AC	DC
CA	EPDM	—	Demineralized and Distilled Water, Sea Water	Bib for 1/4" I.D. Flexible Tubing or Hose	4	.30	0.4	0.4	54	48.8	D8260G54E	3	—	6.1/F	10.6/F
				1/4" O.D. Compression ①	4	.30	0.4	0.4	54	48.8	D8260G71E	4	—	6.1/F	10.6/F
PP	EPDM	—	Photo Solution, 20% Max. Concentration Hydrochloric Acid	Bib for 1/4" I.D. Flexible Tubing or Hose	4	.30	0.4	0.4	54	48.8	D8260G53E	3	—	6.1/F	10.6/F
					5	.45	0.4	0.4	54	48.8	D8260G56E	3	②	6.1/F	10.6/F
PP	FKM	—	95% Max. Concentration Phosphoric Acid	Bib for 1/4" I.D. Flexible Tubing or Hose	4	.30	0.4	0.4	54	48.8	D8260G53V	3	—	6.1/F	10.6/F
			60% Max. Concentration Sulphuric Acid		5	.45	0.4	0.4	54	48.8	D8260G56V	3	—	6.1/F	10.6/F
Brass (with S.S. seat)	PTFE	FKM	Hot Water, Steam Boiler Blowdown, Steam Cookers, Hot Cooking Oil, Deep Fat Cookers	3/8	10	1.54	1 ③	—	120	—	D803084	1	⑤	20/H	—
				1/2	10	1.89	1 ③	—	120	—	D803085	1	⑤	20/H	—
				3/4	10	1.89	1 ③	—	120	—	D803086	2	⑤	20/H	—
18-8 S.S.	PTFE	FKM	Hot Water, Steam Boiler Blowdown, Steam Cookers, Hot Cooking Oil, Deep Fat Cookers	1/2	10	1.89	1 ③	—	120	—	D803095	1	⑤	20/H	—

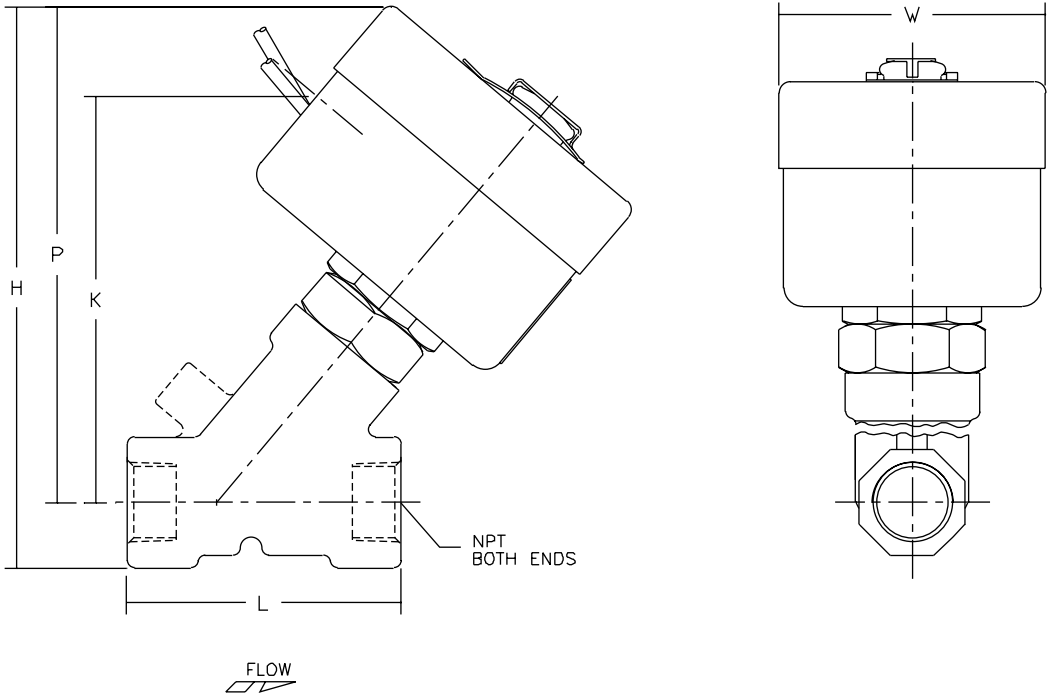
**Notes:** ① Fittings not supplied with valve; refer to List Price Schedule. ④ On 50 hz service, the rating for the 6.1/F solenoid is 8.1 watts.  
 ② UL recognized component – AC only. ⑤ General Purpose Valves.  
 ③ Valves are suitable for closing at zero pressure differential.

Dimensions: inches (mm)

Constr. Ref. No.		H	K	L	P	W
1	ins.	4.68	3.25	2.28	4.13	2.22
	mm	119	83	58	105	56
2	ins.	4.81	3.25	2.75	4.13	2.22
	mm	122	83	70	105	56
3	ins.	3.05	1.63	2.44	2.49	1.94
	mm	77	41	62	63	49
4	ins.	3.05	1.63	2.19	2.49	1.94
	mm	77	41	56	63	49

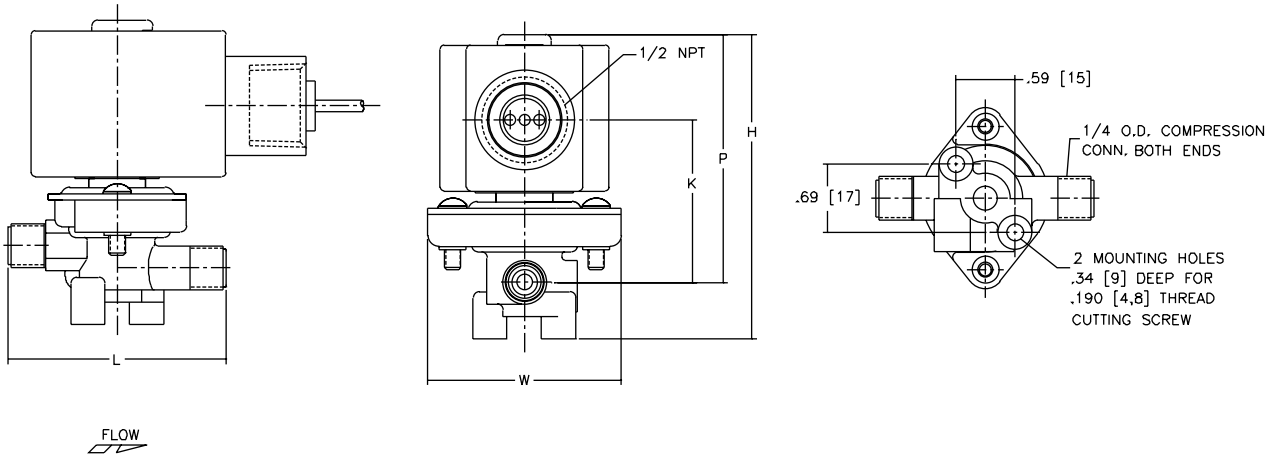
Construction Ref. 1 & 2 must be mounted with solenoid vertical and upright.

Constr. Ref. 1, 2

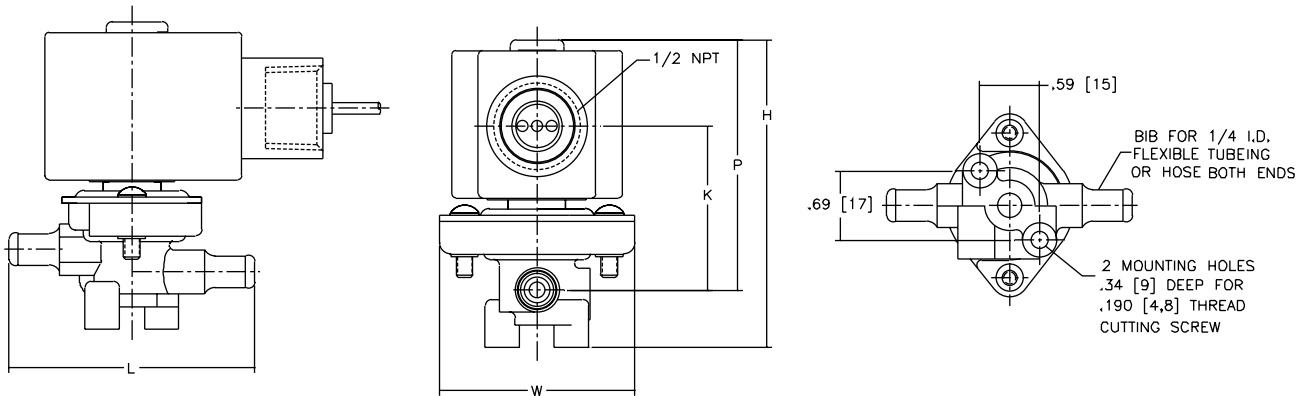


Dimensions: inches (mm)

Constr. Ref. 3



Constr. Ref. 4



### Features

- Range of products for vacuum service applications on vacuum breaking and roughing pumps.
- Zero Minimum Operating Pressure Differential.
- Elastomers de-gassed and cleaned ("VH" suffix).
- Mountable in any position, except as noted.

### Application

Conditions	Pressure
Low (and Rough)	760 to 25 Torr (or 29" Hg)
Medium (and Fine)	25 to 10 <sup>-3</sup> Torr
High	10 <sup>-3</sup> to 10 <sup>-6</sup> Torr
Very High	10 <sup>-6</sup> to 10 <sup>-9</sup> Torr
Ultra High	10 <sup>-9</sup> Torr and Below

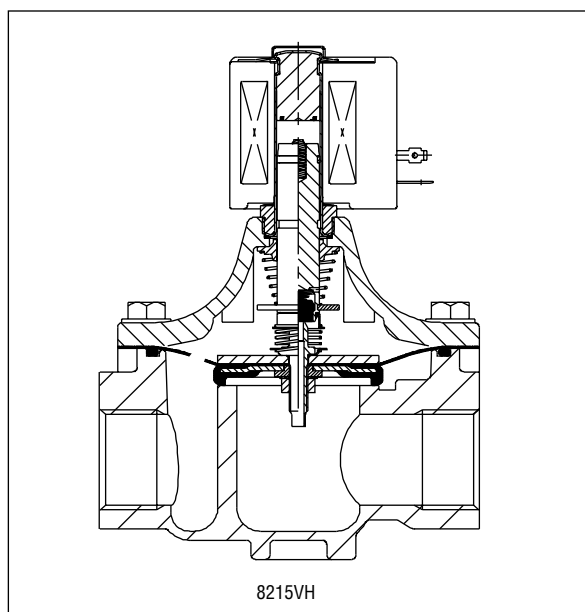
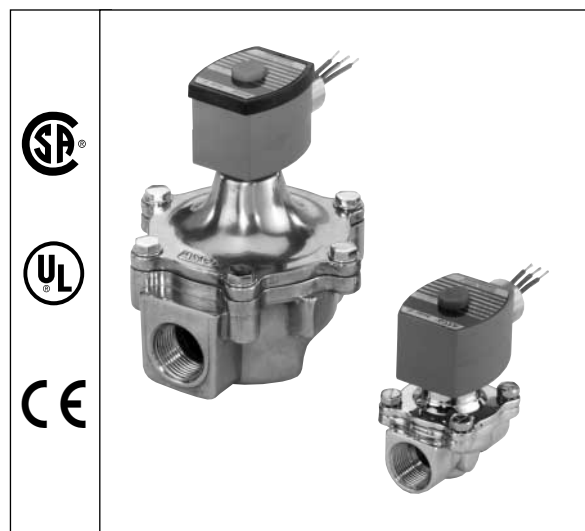
### Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption			Spare Coil Part No.	
	AC			General Purpose	Explosionproof
	Watts	VA Holding	VA Inrush	AC	AC
F	6.1	16	30	238210	238214
F	10.1	25	70	238610	238614
F	16.1	35	180	272610	272614
F	17.1	40	93	238610	238614

**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz).  
Must be specified when ordering. Other voltages, including DC, available when required.

### Solenoid Enclosures

**Standard:** Watertight, Types 1, 2, 3, 3S, 4, and 4X.  
**Optional:** Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9.  
(To order, add prefix "EF" to catalog number.)  
*See Optional Features Section for other available options.*



### Nominal Ambient Temperature Ranges:

32°F to 125°F (0°C to 52°C)

*Refer to Engineering Section for details.*

### Approvals:

CSA certified. Meets applicable CE directives.

*Refer to Engineering Section for details.*

## Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Operating Pressure Differential (psi)		Body Material	Application Guide					Max. Fluid Temp. °F	Medium Vacuum to 10 <sup>-3</sup> Torr ③	High Vacuum to 10 <sup>-6</sup> Torr ③	Constr. Ref. No.	Watt Rating/ Class of Coil Insulation ②
						Electrical Check	Breaker	Roughing	Foreline or High Vacuum	Suction or Release					AC
			Min.	Max.		AC	Catalog Number	Catalog Number	AC						
NORMALLY CLOSED (Closed when de-energized)															
1/4	9/32	0.96	0	15	Brass	●	●	●	●	●	180	8262G90VM	8262G90VH	1	6.1/F
3/8	3/8	1.8	0	15	Brass	●	●	●	●	●	180	8030G13VM	8030G13VH	2	10.1/F
1/2	7/16	2.8	0	15	Brass	●	●	●	●	●	180	8030G17VM	8030G17VH	3	16.1/F
3/4	3/4	5	0	4	Brass	●	-	-	-	-	180	8030G43VM	8030G43VH	4	17.1/F
3/4	3/4	5	0	15	Brass	-	●	-	-	●	180	8210G95VM	8210G95VH	5	10.1/F
1	1 5/8	20.5	0	15	Alum.	-	●	-	-	●	125	8215G50VM ①	8215G50VH ①	8	16.1/F
1 1/4	1 5/8	31.7	0	15	Alum.	-	●	-	-	●	125	8215G60VM ①	8215G60VH ①	8	16.1/F
1 1/2	1 5/8	32.7	0	15	Alum.	-	●	-	-	●	125	8215G70VM ①	8215G70VH ①	9	16.1/F
2	2 3/32	55	0	15	Alum.	-	●	-	-	●	125	8215G80VM ①	8215G80VH ①	10	16.1/F
NORMALLY OPEN (Open when de-energized)															
3/8	5/8	3	0	15	Brass	-	●	-	-	●	180	8210G33VM	8210G33VH	6	10.1/F
1/2	5/8	4	0	15	Brass	-	●	-	-	●	180	8210G34VM	8210G34VH	6	10.1/F
3/4	3/4	5.5	0	15	Brass	-	●	-	-	●	180	8210G35VM	8210G35VH	7	10.1/F
1	1 5/8	20.5	0	15	Alum.	-	●	-	-	●	125	8215G53VM ①	8215G53VH ①	11	16.1/F
1 1/4	1 5/8	31.7	0	15	Alum.	-	●	-	-	●	125	8215G63VM ①	8215G63VH ①	11	16.1/F
1 1/2	1 5/8	32.7	0	15	Alum.	-	●	-	-	●	125	8215G73VM ①	8215G73VH ①	12	16.1/F
2	2 3/32	55	0	15	Alum.	-	●	-	-	●	125	8215G83VM ①	8215G83VH ①	13	16.1/F
Notes: ① Valves must be mounted with solenoid vertical and upright. ② On 50 hertz service, the rating for the 6.1/F solenoid is 8.1 watts. ③ For low vacuum applications to 29" Hg, use standard catalog valves with 0 psi minimum, 15+ psi maxium OPD (except 2" NPT).															

## Specifications (Metric units)

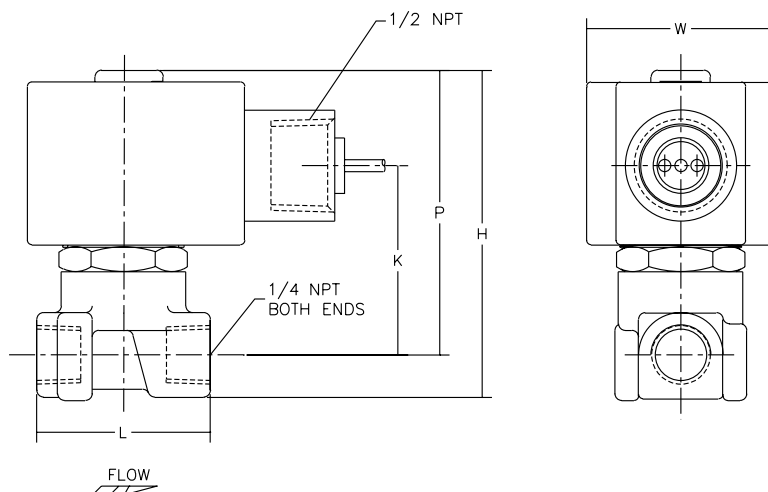
Pipe Size Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Operating Pressure Differential (bar)		Body Material	Application Guide					Max Fluid Temp. °C	Medium Vacuum to 10 <sup>-3</sup> Torr ③	High Vacuum to 10 <sup>-6</sup> Torr ③	Constr. Ref. No.	Watt Rating/ Class of Coil Insulation ②
			Min.	Max.		Electrical Check	Breaker	Roughing	Foreline or High Vacuum	Suction or Release					AC
			AC												
NORMALLY CLOSED (Closed when de-energized)															
1/4	7	0.82	0	1	Brass	●	●	●	●	●	81	8262G90VM	8262G90VH	1	6.1/F
3/8	10	1.54	0	1	Brass	●	●	●	●	●	81	8030G13VM	8030G13VH	2	10.1/F
1/2	11	2.40	0	1	Brass	●	●	●	●	●	81	8030G17VM	8030G17VH	3	16.1/F
3/4	19	4.29	0	0	Brass	●	-	-	-	-	81	8030G43VM	8030G43VH	4	17.1/F
3/4	19	4.29	0	1	Brass	-	●	-	-	●	81	8210G95VM	8210G95VH	5	10.1/F
1	41	17.57	0	1	Alum.	-	●	-	-	●	51	8215G50VM ①	8215G50VH ①	8	16.1/F
1 1/4	41	27.17	0	1	Alum.	-	●	-	-	●	51	8215G60VM ①	8215G60VH ①	8	16.1/F
1 1/2	41	28.03	0	1	Alum.	-	●	-	-	●	51	8215G70VM ①	8215G70VH ①	9	16.1/F
2	53	47.14	0	1	Alum.	-	●	-	-	●	51	8215G80VM ①	8215G80VH ①	10	16.1/F
NORMALLY OPEN (Open when de-energized)															
3/8	16	2.57	0	1	Brass	-	●	-	-	●	81	8210G33VM	8210G33VH	6	10.1/F
1/2	16	3.43	0	1	Brass	-	●	-	-	●	81	8210G34VM	8210G34VH	6	10.1/F
3/4	19	4.71	0	1	Brass	-	●	-	-	●	81	8210G35VM	8210G35VH	7	10.1/F
1	41	17.57	0	1	Alum.	-	●	-	-	●	81	8215G53VM ①	8215G53VH ①	11	16.1/F
1 1/4	41	27.17	0	1	Alum.	-	●	-	-	●	51	8215G63VM ①	8215G63VH ①	11	16.1/F
1 1/2	41	28.03	0	1	Alum.	-	●	-	-	●	51	8215G73VM ①	8215G73VH ①	12	16.1/F
2	53	47.14	0	1	Alum.	-	●	-	-	●	51	8215G83VM ①	8215G83VH ①	13	16.1/F
Notes: ① Valves must be mounted with solenoid vertical and upright. ② On 50 hertz service, the rating for the 6.1/F solenoid is 8.1 watts. ③ For low vacuum applications to 29" Hg, use standard catalog valves with 0 psi minimum, 1+ bar maxium OPD (except 2" NPT).															



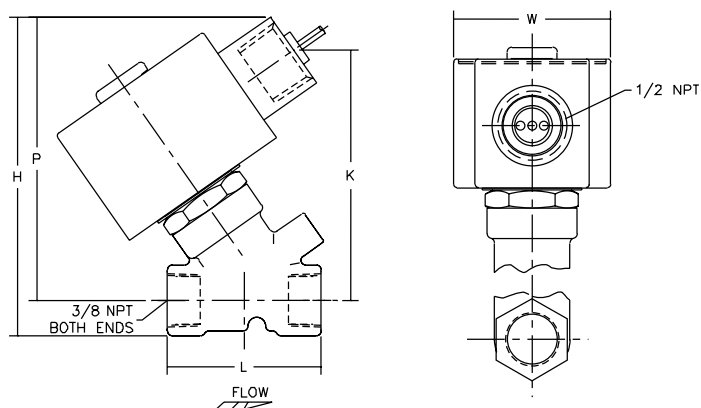
Dimensions: inches (mm)

Constr. Ref. No.		H	K	L	P	W
1	ins.	2.98	1.71	1.56	2.57	1.69
	mm	76	43	40	65	43
2	ins.	4.00	3.14	1.91	3.55	1.95
	mm	102	80	49	90	50
3	ins.	4.13	2.84	2.28	3.56	2.22
	mm	105	72	58	90	56
4	ins.	4.10	2.44	2.81	3.41	2.28
	mm	104	62	71	87	58
5	ins.	4.13	2.47	2.81	3.44	2.28
	mm	105	63	71	87	58
6	ins.	4.35	2.65	2.75	3.79	2.28
	mm	110	67	70	96	58
7	ins.	4.64	2.81	2.81	3.94	2.28
	mm	118	71	71	100	58
8	ins.	6.79	4.26	5.00	5.48	5.38
	mm	174	108	127	139	137
9	ins.	6.79	4.32	5.00	5.54	5.38
	mm	174	110	127	141	137
10	ins.	7.42	4.66	6.09	5.89	6.31
	mm	188	118	155	150	160
11	ins.	6.79	2.35	5.00	3.13	5.38
	mm	172	60	127	79	137
12	ins.	6.79	2.29	5.00	3.06	5.38
	mm	172	58	127	78	137
13	ins.	6.94	2.54	6.09	3.31	6.31
	mm	176	65	155	84	160

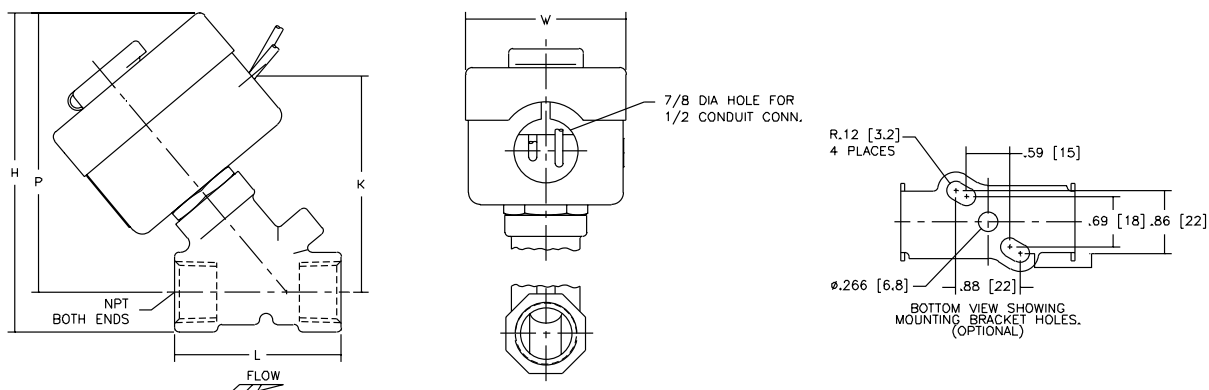
Constr. Ref. 1



Constr. Ref. 2

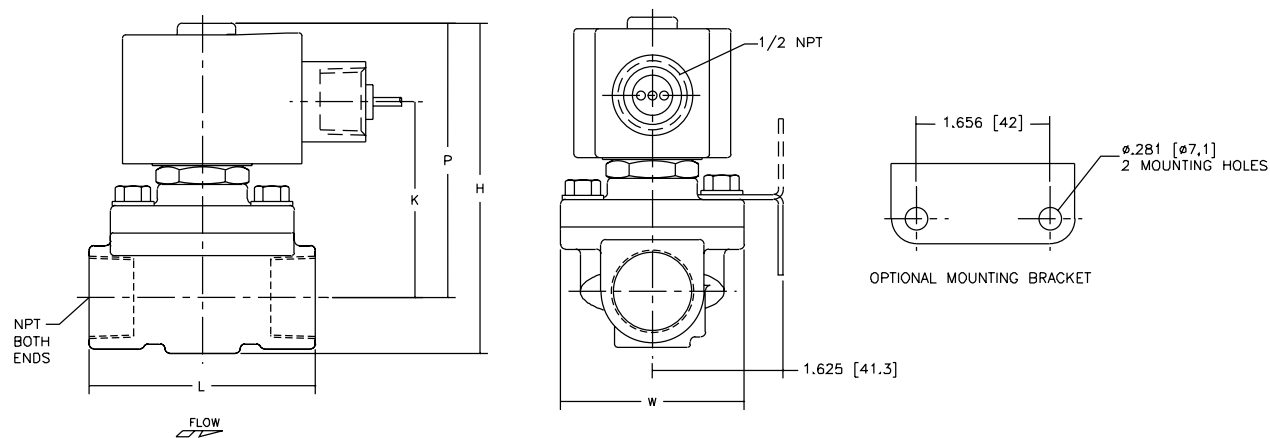


Constr. Ref. 3

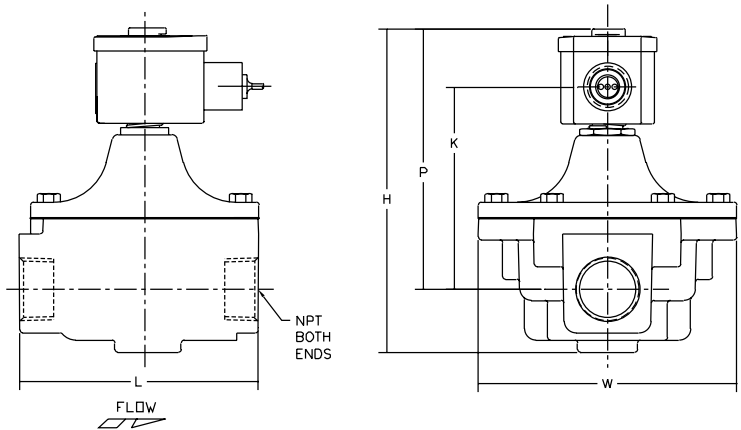


Dimensions: inches (mm)

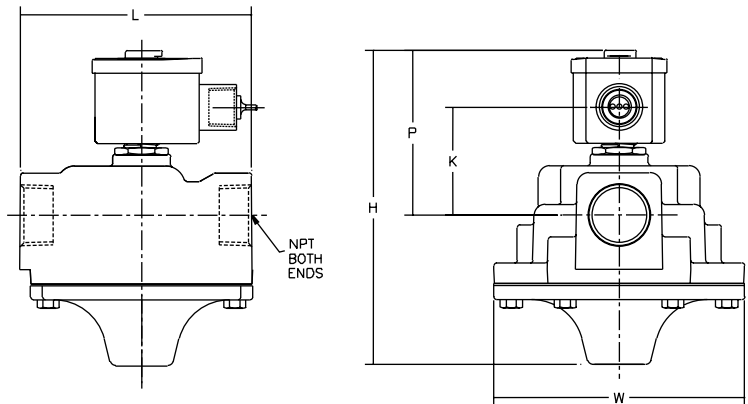
Constr. Ref. 4, 5, 6, 7



Constr. Ref. 8, 9, 10



Constr. Ref. 11, 12, 13



The application of valves and accessories for use on combustible media requires careful consideration of the application and use to assure proper and optimal operation. Consideration in valve selection must be given to the function of the valve. This section includes 2-Way and 3-Way valves for the control of combustible media. Generally a combustion train includes 2 shutoff valves on both the pilot and main media feed lines. The Agency approvals for each product range in this section are included on the individual catalog pages

Combustible media includes natural gas and oil and this section is organized into sections for each media

Additionally special constructions developed for use on combustible media are shown.

## Terminology:

### Normally Closed or Shutoff Valves

2-Way valves to shut off the flow of combustion media when de-energized. These valves permit flow from port 1 to port 2 when energized.

### Normally Open or Vent Valves

2-Way valves that allow flow when de-energized and are primarily used in block and bleed systems, where the Normally Open or Vent Valve is positioned in the pipe train between two blocking or shutoff valves.

Visual and/or Electrical Position Indicators are optional on several series of valves and should be considered when designing products to comply with NFPA standards.

## Index

Series	General Description	Size (NPT)	Solenoid	Additional	Page
<b>Natural Gas</b>					
8030	Normally Closed/Blocking Valves	3/8" - 3/4"	Watertight	Direct Acting	8.01
8030	Normally Open/Vent Valves	3/8" - 3/4"	Watertight	Direct Acting	8.03
8040	Normally Closed/Blocking Valves	1/8" - 3/8"	Watertight	Direct Acting	8.05
8040	Normally Closed/Blocking Valves	3/8" - 1 1/4"	GP and Watertight	Direct Acting	8.07
8042	Normally Closed/Blocking Valves	3/4" - 3"	General Purpose	5 lb closing spring	8.09
8043	Normally Closed/Blocking Valves	3/4" - 3"	GP and Watertight	5 lb closing spring, Visual Position Ind.	8.11
8210	Normally Closed/Blocking Valves	3/8" - 3/4"	Watertight	-	8.13
8210	Normally Open/Vent Valves	3/8" - 3/4"	Watertight	-	8.15
8214	Normally Closed/Blocking Valves	3/8" - 2"	Watertight	-	8.17
8214	Normally Closed/Blocking Valves	3/4" - 2"	Watertight	Visual Indication	8.19
8214	Normally Closed/Blocking Valves	3/4" - 2"	Watertight	Visual Indication and Proof of Closure	8.21
8214	Normally Closed/Blocking Valves	3/4" - 3"	General Purpose	-	8.23
8214	Normally Closed/Blocking Valves	3/4" - 3"	General Purpose	Visual Indication	8.25
8214	Normally Closed/Blocking Valves	3/4" - 3"	General Purpose	Visual Indication and Proof of Closure	8.27
8214	Normally Open/Vent Valves	3/4" - 2"	Watertight	-	8.29
8214	Normally Open/Vent Valves	3/4" - 2"	Watertight	Visual Indication and Proof of Closure	8.31
8214	Normally Open/Vent Valves	3/4" - 2 1/2"	General Purpose	-	8.33
8214	Normally Open/Vent Valves	3/4" - 2"	General Purpose	Visual Indication and Proof of Closure	8.35
8262	Normally Closed/Blocking Valves	1/8" - 1/4"	Watertight	Direct Acting	8.37
AH2D	On/Off Actuator	-	Hydramotor	Use with V710	8.39
AH4D	Low/High/Off Actuator	-	Hydramotor	Use with V710	8.41
AH8D	Modulating Actuator	-	Hydramotor	Use with V710	8.43
V710	Normally Closed/Blocking Valves	3/4" - 4"	-	Use with AH2D, AH4D, AH8D	8.45
H117	Normally Closed/Blocking Valves	2" - 4"	Hydramotor	Cast Iron Body	8.47
H118	Normally Closed/Blocking Valves	1" - 4"	Hydramotor	Cast Iron Body	8.49
H137	Normally Closed/Blocking Valves	2" - 6"	Hydramotor	Cast Iron Body	8.51
HV266	Normally Closed/Blocking Valves	1/2" - 1"	GP and Watertight	Stainless Steel Body	8.53
K3A4	Normally Closed/Blocking Valves	3/8" - 1"	General Purpose	Direct Acting	8.55
K3A5	Normally Closed/Blocking Valves	3/8" - 1"	General Purpose	Direct Acting	8.57
K3A6	Normally Closed/Blocking Valves	3/4" - 1 1/2"	General Purpose	-	8.59
K3A7	Normally Closed/Blocking Valves	1 1/4" - 1 1/2"	General Purpose	Direct Acting	8.61
S261	Normally Closed/Blocking Valves	3/8" - 3"	General Purpose	-	8.63
S262	Normally Open/Vent Valves	3/8" - 3"	General Purpose	-	8.65
SV311	Normally Closed/Blocking Valves	1/8" - 3/8"	General Purpose	Direct Acting	8.67
SV311	Normally Closed/Blocking Valves	3/8" - 3/4"	General Purpose	Direct Acting	8.69
<b>Fuel OIL (No. 2, 4, 5 &amp; Heated No. 6)</b>					
8262/8263	Normally Closed/Blocking Valves	1/8" - 3/8"	Watertight	Direct Acting	8.71
8266	Normally Closed/Blocking Valves	3/8" - 1/2"	General Purpose	-	8.73
HOV1	Normally Closed/Blocking Valves	1/2" - 1"	Hydramotor	Pressures to 300 psi	8.75
SV401	Normally Closed/Blocking Valves	1/4" - 3/8"	Watertight	Pressures to 300 psi	8.77
8377	3-Way	3/8" - 1/2"	General Purpose	Pressures to 100 psi	8.79
HOV13	3-Way	1/2" - 3/4"	Hydramotor	Pressures to 300 psi	8.81
<b>SPECIALTY VALVES - ACCESSORIES</b>					
8044	Normally Closed/Blocking Valves	3/4" - 3"	General Purpose	Manual Reset	8.83
AH2D	Manual Reset Actuator	-	Hydramotor	Manual Reset, Use with V710	8.85
HV216	Normally Closed/Blocking Valves	1/2" - 3"	None	Cable Release or Fusible Link	8.87
Control Panel	Control Panel for Gas Service	-	-	Key Switch Control Panel	8.89

## Features

- 2-way Normally Closed operation.
- For control of commercial and industrial gas burners.
- Ideal for low pressure applications.
- Brass body construction.
- Mountable in any position.

## Construction

Valve Parts in Contact with Fluids	
Body	Brass
Seals and Disc	NBR
Core Tube	305 Stainless Steel
Core Guide	Acetal
Rider Rings	PTFE
Core and Plugnut	430F Stainless Steel
Springs	302 Stainless Steel
Shading Coil	Copper

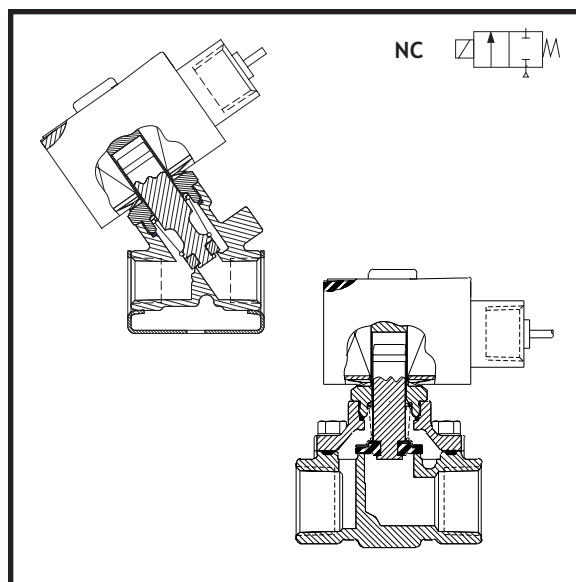
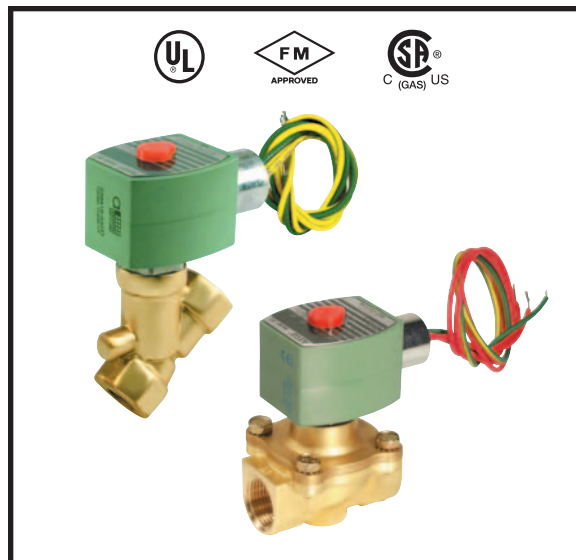
## Electrical

Standard Coil Class of Insulation	Watt Rating and Power Consumption			Ambient Temp. °F	Spare Coil Family	
	AC				General Purpose	Explosionproof
	Watts	VA Holding	VA Inrush			
	F	10.1	25		70	32 to 125

**Standard Voltages:** 24, 120, 240 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz).

## Solenoid Enclosures

**Standard:** Watertight; Types 1, 2, 3, 3S, 4 and 4X with 1/2" conduit hub.



## Approvals:

UL listed to standard 429 "Electrically Operated Valves," Guide Y10Z, File MP618, Safety Valves.

FM approved to Class No. 7400 "Liquid and Gas Safety Shutoff Valves."

CSA Certified to:

- 1) Standard C22.2 No 139 "Electrically Operated Valves," File 010381.
- 2) Automatic Gas Valves Z21.21 (6.5), File 112872.

## Specifications

Pipe Size (ins.)	Orifice Size (ins.)	CV Flow	Gas Capacity ①	Operating Pressure Differential (psi)		Max. Fluid Temp. °F	Catalog Number	Const. Ref.	Agency			Wattage	Approx. Shipping Weight (lbs)
			Btu/hr.	Min.	Max.				UL	FM	CSA		
COMBUSTION (Fuel Gas)- NORMALLY CLOSED													
3/8	3/8	1.8	97,000	0	15	125	8030G068	1	○	○	○	10.1	2.3
1/2	7/16	2.8	151,000	0	8	125	8030G069	2	○	○	○	10.1	2.7
3/4	3/4	5.0	269,000	0	2	125	8030G079	3	○	○	○	10.1	3.4

○ = Safety Shutoff Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.

## Capabilities Chart

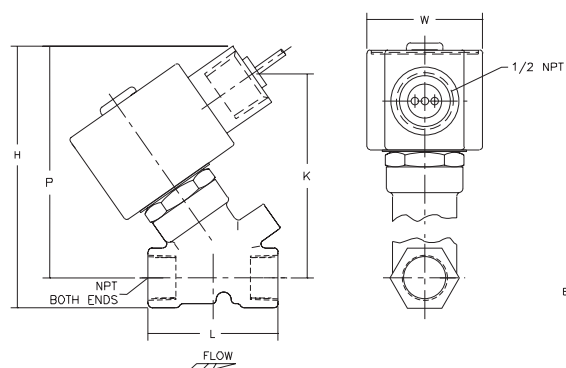
Solenoid Options				Base Catalog Number	Resilient Materials	Standard Rebuild Kit
NEMA Type 3-9	High Temp.	Junction Box	Wiring Box Screw Terminal	Brass	NBR	AC
EF	HT	JB	JKF	8030G068	●	306628
EF	HT	JB	JKF	8030G069	●	306629
EF	HT	JB	JKF	8030G079	●	306630

● = Standard. Other options may be available. All option combinations may not be available.

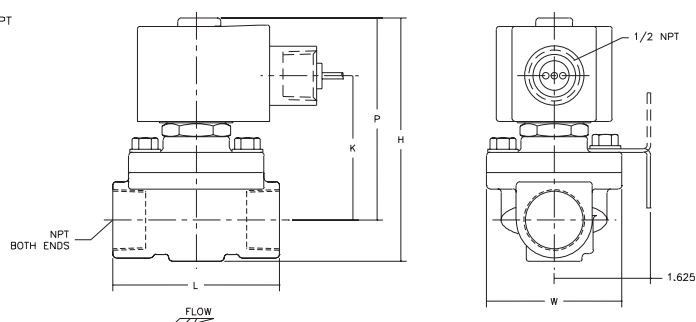
## Dimensions: inches

Const. Ref. No.	H	K	L	P	W
1	4	3.14	1.91	3.55	1.95
2	4.32	3.39	2.28	3.77	1.95
3	4.21	2.54	2.81	3.52	2.28

Const. Ref. 1, 2



Const. Ref. 3



## Features

- 2-Way Normally Open operation.
- For control of commercial and industrial gas burners.
- Ideal for low pressure applications.
- Brass body construction.
- Mountable in any position

## Construction

Valve Parts in Contact with Fluids	
Body	Brass
Seals and Disc	NBR
Core Tube	305 Stainless Steel
Stem	PA
Core and Plugnut	430F Stainless Steel
Springs	302 Stainless Steel
Shading Coil	Copper

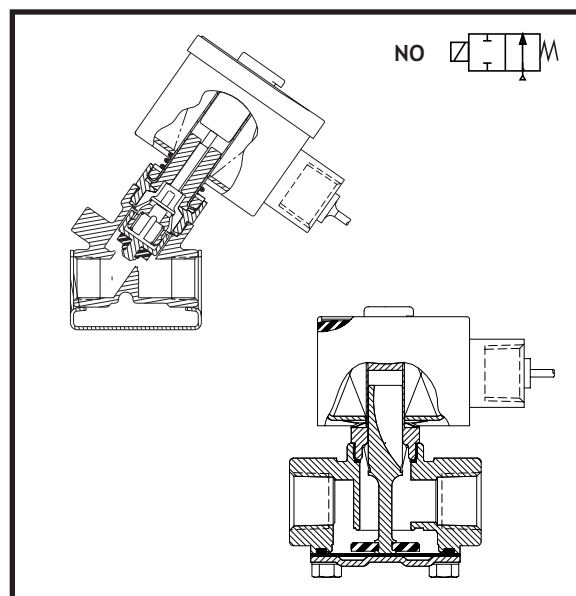
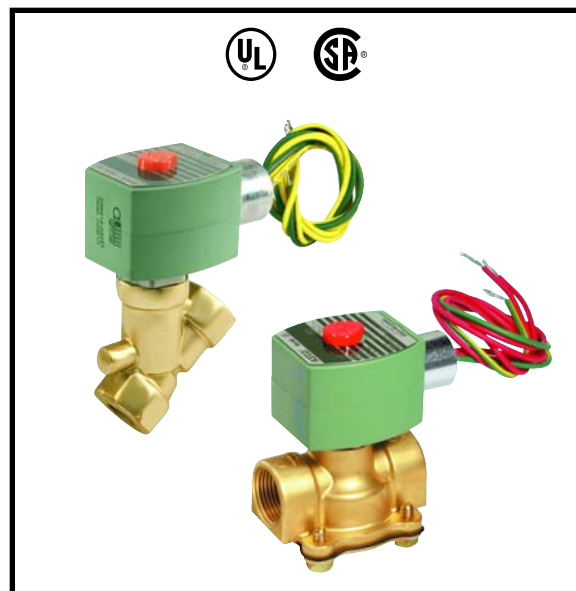
## Electrical

Standard Coil Class of Insulation	Watt Rating and Power Consumption			Ambient Temp. °F	Spare Coil Family	
	AC				General Purpose	Explosionproof
	Watts	VA Holding	VA Inrush			
	AC	AC	AC			
F	10.1	25	70	32 to 125	238610	238614
F	16.1	27	160	32 to 125	272610	272614

**Standard Voltages:** 24, 120, 240 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz).

## Solenoid Enclosures

**Standard:** Watertight; Types 1, 2, 3, 3S, 4 and 4X with 1/2" conduit hub.



## Approvals:

UL listed to standard 429 "Electrically Operated Valves," Guide Y10Z, File MP618, General Purpose Valves.

CSA Certified to:

Standard C22.2 No. 139 "Electrically Operated Valves," File 010381.

## Specifications

Pipe Size (ins.)	Orifice Size (ins.)	CV Flow	Gas Capacity ①	Operating Pressure Differential (psi)		Max. Fluid Temp. °F	Catalog Number	Const. Ref.	Agency			Wattage	Approx. Shipping Weight (lbs.)
			Btu/hr.	Min.	Max.				UL	FM	CSA		
COMBUSTION (Fuel Gas) - NORMALLY OPEN													
3/8	3/8	1.6	86,000	0	15	200	8030G070	1	●	-	●	16.1	3.4
1/2	3/4	5	269,000	0	2	180	8030G082	2	●	-	●	10.1	3.4
3/4	3/4	5.5	295,000	0	2	180	8030G083	3	●	-	●	10.1	3.4
● = General Purpose Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/Cu.Ft. or more, 0.64 Specific Gravity Gas.													

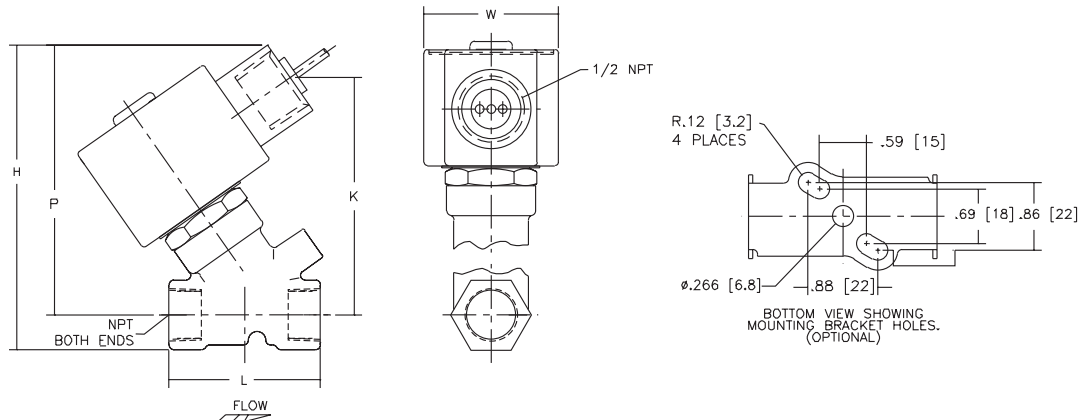
## Capabilities Chart

Solenoid Options				Base Catalog Number	Resilient Materials	Standard Rebuild Kit
NEMA Type 3-9	High Temp.	Junction Box	Wiring Box Screw Terminal	Brass	NBR	AC
EF	HT	JB	JKF	8030G070	●	302797
EF	HT	JB	JKF	8030G082	●	302799
EF	HT	JB	JKF	8030G083	●	302799

● = Standard. Other options may be available. All option combinations may not be available.

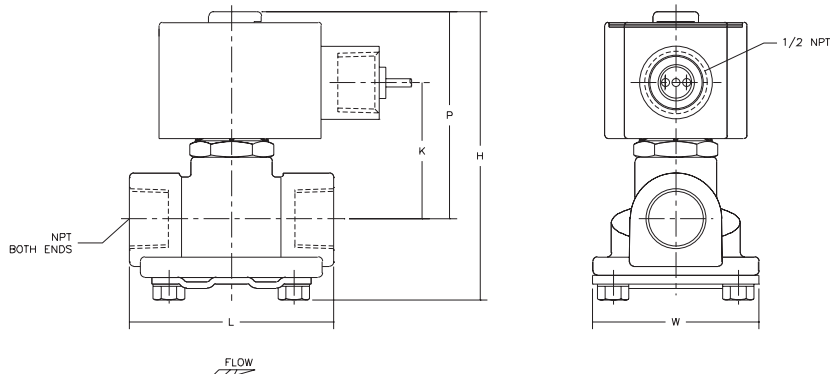
## Dimensions: inches

Const. Ref. 1



Const. Ref. 2, 3

Const. Ref. No.	H	K	L	P	W
1	4.16	1.1	1.91	3.72	2.06
2	3.97	1.88	2.81	2.85	2.29
3	3.97	1.88	2.81	2.85	2.29





## Features

- 2-Way Normally Closed operation.
- For gas pilot control of commercial and industrial gas burners.
- Direct lift with resilient soft seating for tight shut-off.
- Valves provided with 1/8" NPT downstream pipe tap with plug for routine testing.
- Mountable in any position.

## Construction

Valve Parts in Contact with Fluids	
Body	Aluminum
Seals and Disc	NBR
Core Tube	305 Stainless Steel
Core and Plugnut	430F Stainless Steel
Springs	17-7 PH
Shading Coil	Copper
Pipe Plug	Zinc Plated Steel

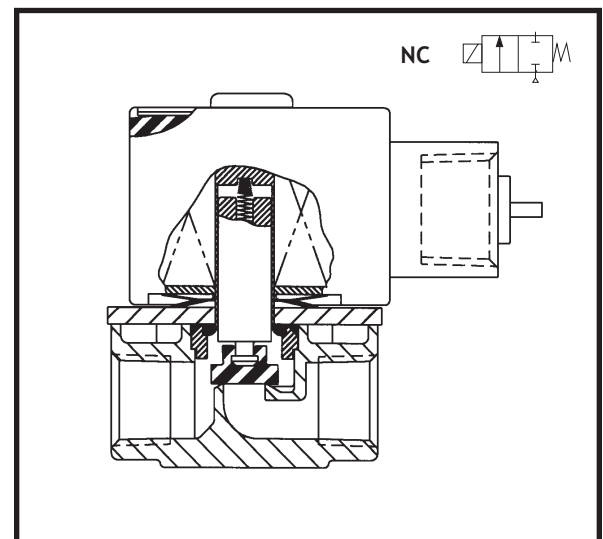
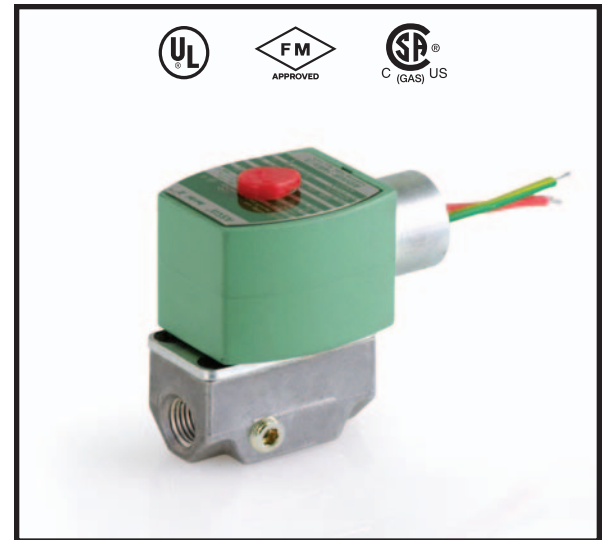
## Electrical

Standard Coil Class of Insulation	Watt Rating and Power Consumption			Ambient Temp. °F	Spare Coil Family	
	AC				General Purpose	Explosionproof
	Watts	VA Holding	VA Inrush			
	F	6.1	16		40	238210

**Standard Voltages:** 24, 120, 240 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz).

## Solenoid Enclosures

**Standard:** Watertight; Types 1, 2, 3, 3S, 4, and 4X with 1/2" conduit hub.



## Approvals:

UL listed to standard 429 "Electrically Operated Valves," Guide YIOZ, File MP618 Safety Valves".

FM Approved to Class 7400 "Liquid and Gas Safety Shutoff Valves."

CSA Certified to:

- 1) Standard C22.2 No. 139 "Electrically Operated Valves," File 010381.
- 2) Automatic Gas Valves Z21.21 (6.5), File 112872.
- 3) Automatic Gas Safety Shutoff Valves C/I (3.9), File 112872.



## Specifications

Pipe Size (ins.)	Orifice Size (ins.)	CV Flow	Gas Capacity ①	Operating Pressure Differential (psi)		Max. Fluid Temp. °F	Catalog Number	Const. Ref.	Agency			Wattage ②	Approx. Shipping Weight (lbs)
			Btu/hr.	Min.	Max.				UL	FM	CSA		
COMBUSTION (Fuel Gas) - NORMALLY CLOSED													
1/8	5/16	1	53,700	0	15	125	8040H006	1	○	○	○	6.1	1.8
1/4	5/16	1.1	59,000	0	15	125	8040H007	1	○	○	○	6.1	1.8
3/8	5/16	1.2	64,400	0	15	125	8040H008	1	○	○	○	6.1	1.8

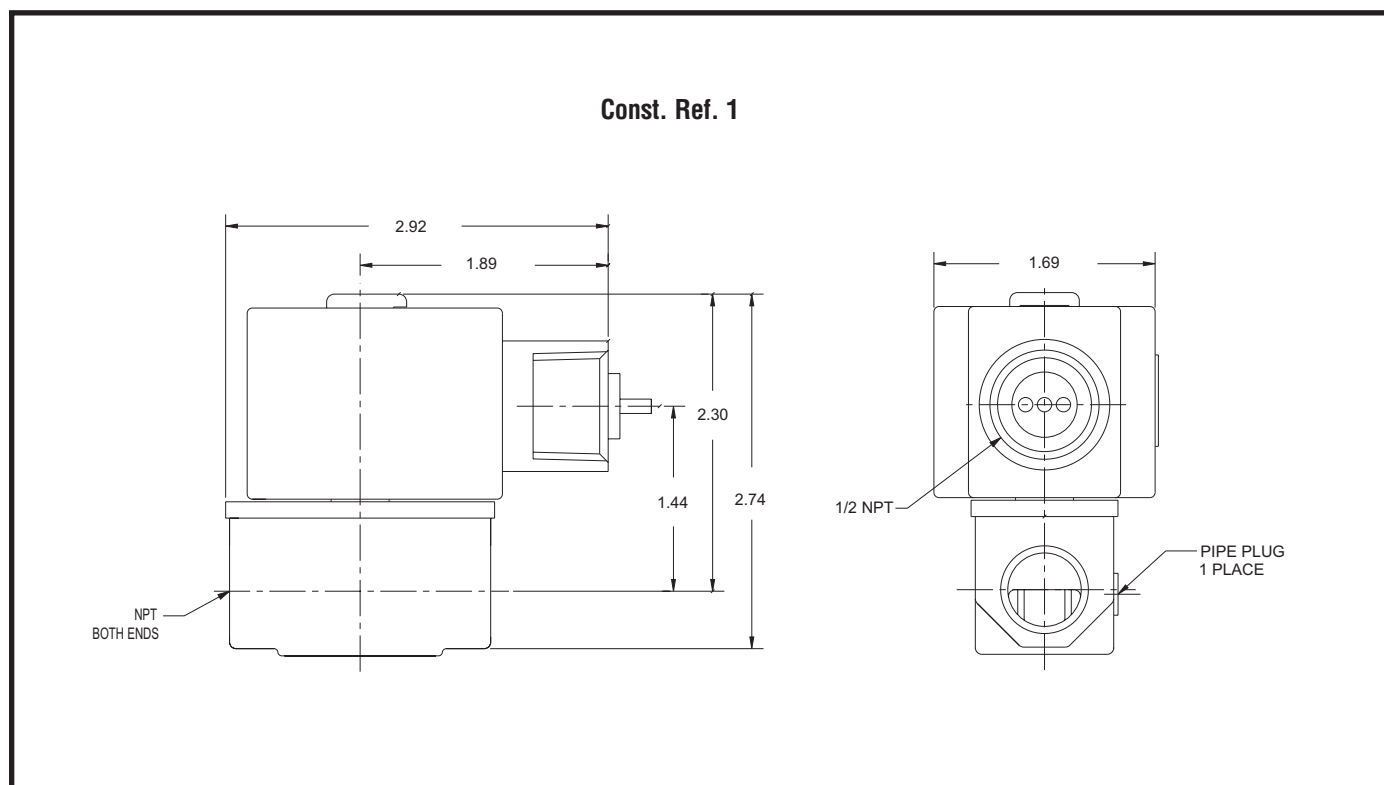
○ = Safety Shutoff Valve; ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.  
② On 50 Hz service watt rating is 8.1; EF option approved to UL and CSA only.

## Capabilities Chart

Solenoid Options				Base Catalog Number	Resilient Materials	Standard Rebuild Kit
NEMA Type 3-9	High Temp.	Junction Box	Wiring Box Screw Terminal	Aluminum	NBR	AC
EF	HT	-	JKF	8040H006	●	318247
EF	HT	JB	JKF	8040H007	●	318247
EF	HT	JB	JKF	8040H008	●	318247

● = Standard. Other options may be available. All option combinations may not be available.

## Dimensions: inches





## Features

- 2-Way Normally Closed operation.
- For gas pilot or main control of commercial and industrial gas burners.
- Valves provided with 1/8" NPT downstream pipe tap with plug for routine testing.
- Mountable in any position.

## Construction

Valve Parts in Contact with Fluids	
Body	Aluminum
Seals and Disc	NBR
Core Tube	305 Stainless Steel
Core Guide	Acetal
Rider Ring	PTFE
Core and Plugnut	430F Stainless Steel
Springs	302 Stainless Steel
Shading Coil	Copper
Pipe Plug	Zinc-Plated Steel

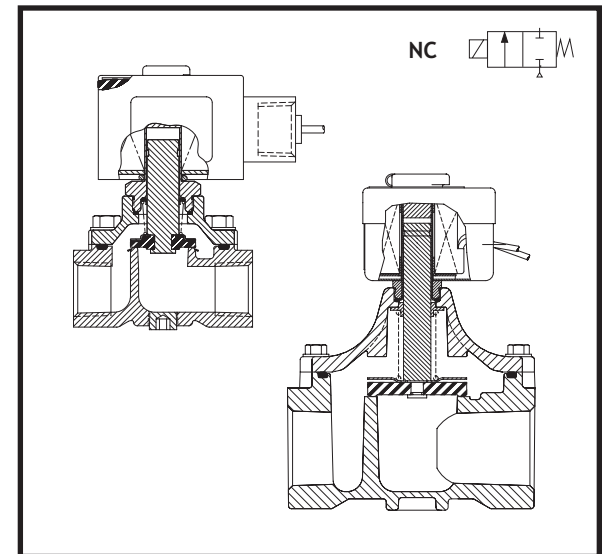
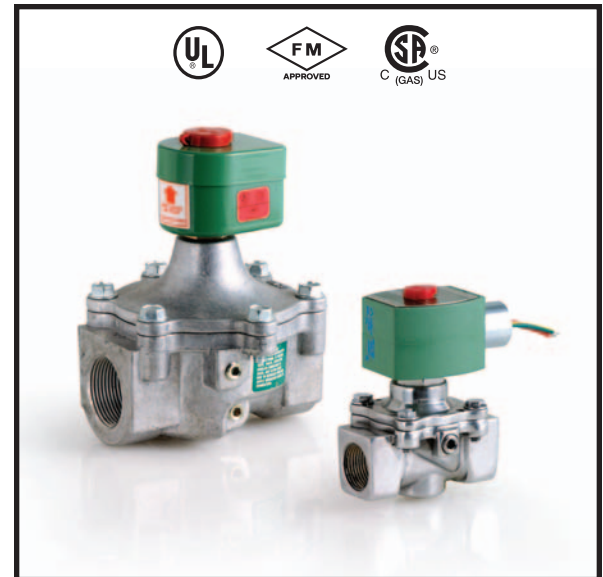
## Electrical

Standard Coil Class of Insulation	Watt Rating and Power Consumption			Ambient Temp. °F	Spare Coil Family	
	AC				General Purpose	Explosionproof
	Watts	VA Holding	VA Inrush			
	AC					
F	10.1	25	70	-40 to 125	238610	238614
F	15.4	27	160	-40 to 125	099257	-
Standard Voltages: 24, 120, 240 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz).						

## Solenoid Enclosures

Valves with the letter "G" in their catalog numbers, e.g. 8040G21, have RedHat® II molded epoxy Types 1, 2, 3, 3S, 4, and 4X combinations General Purpose and Watertight solenoid enclosures with 1/2" conduit hub as standard.

Valves with the letter "C" in their catalog numbers, e.g. 8040C4, have RedHat® metal Type 1 General Purpose enclosures with 7/8" hole for 1/2" conduit connection.



## Approvals:

UL listed to standard 429 "Electrically Operated Valves," Guide Y10Z, File MP618 Safety Valves.

FM Approved to Class 7400 "Liquid and Gas Safety Shutoff Valves" (3/8" thru 3/4" only).

CSA Certified to:

- 1) Standard C22.2 No. 139 "Electrically Operated Valves," File 010381.
- 2) Automatic Gas Valves Z21.21 (6.5), File 112872.
- 3) Automatic Gas Safety Shutoff Valves C/I (3.9), File 112872.

## Specifications

Pipe Size (ins.)	Orifice Size (ins.)	CV Flow	Gas Capacity ①	Operating Pressure Differential (psi)		Max. Fluid Temp. °F	Catalog Number	Const. Ref.	Agency			Wattage	Approx. Shipping Weight (lbs)
			Btu/hr.	Min.	Max.				UL	FM	CSA		
COMBUSTION (Fuel Gas) - NORMALLY CLOSED													
3/8	3/4	3.9	210,000	0	2	125	8040G021	1	○	○	○	10.1	2.8
1/2	3/4	5.4	291,000	0	2	125	8040G022	1	○	○	○	10.1	2.8
3/4	3/4	9.5	512,000	0	2	125	8040G023	2	○	○	○	10.1	2.8
1	1 5/8	16.8	900,000	0	0.5	125	8040C004	3	○	-	○	15.4	4.3
1 1/4	1 5/8	19.6	1,100,000	0	0.5	125	8040C005	3	○	-	○	15.4	4.3
○ = Safety Shutoff Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.													

○ = Safety Shutoff Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.

## Capabilities Chart

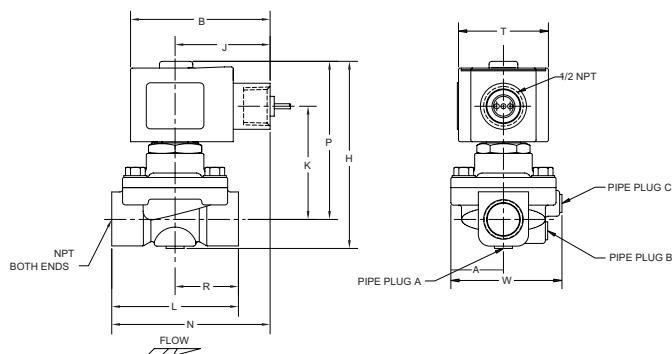
Solenoid Options				Base Catalog Number	Resilient Materials	Standard Rebuild Kit
NEMA Type 3-9	High Temp.	Junction Box	Wiring Box Screw Terminal	Aluminum	NBR	AC
EF	HT	-	JKF	8040G021	●	306633
EF	HT	JB	JKF	8040G022	●	306633
EF	HT	JB	JKF	8040G023	●	306633
-	HT	JB	JKF	8040C004	●	304079
-	HT	JB	JKF	8040C005	●	304079

● = Standard. Other options may be available. All option combinations may not be available.

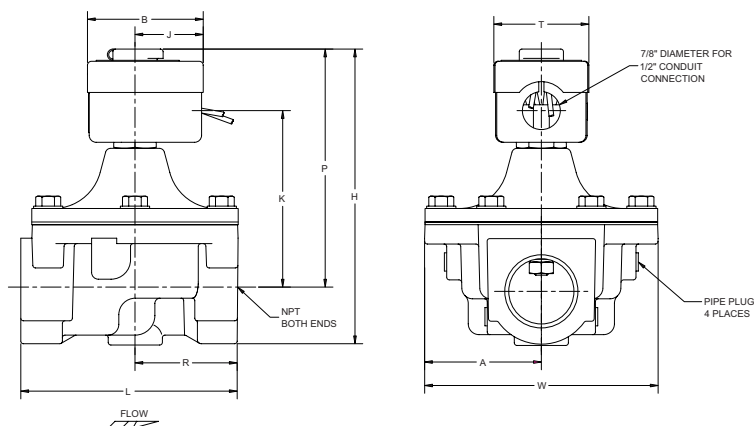
## Dimensions: inches

Const. Ref. No.	1	2	3
A	1.66	1.66	2.69
B	3.03	3.03	2.69
H	4.05	4.49	6.81
J	2.04	2.04	1.59
K	2.46	2.65	4.09
L	2.75	3.31	5.00
N	3.42	3.70	-
R	1.38	1.66	2.38
P	3.44	3.63	5.50
T	1.95	1.95	2.22
W	2.42	2.39	5.38
Pipe Plug	B & C	A & C	-

Const. Ref. 1, 2



Const. Ref. 3



## Features

- 2-Way Normally Closed operation.
- Die-cast aluminum bodies.
- Zero differential piloted diaphragm.
- For on-off control of fuel gas in commercial and industrial gas burners.
- Valves provided with 1/8" NPT upstream and downstream pipe tap with plug for routine testing.
- 5 lb. closing spring for high force shut-off.

## Construction

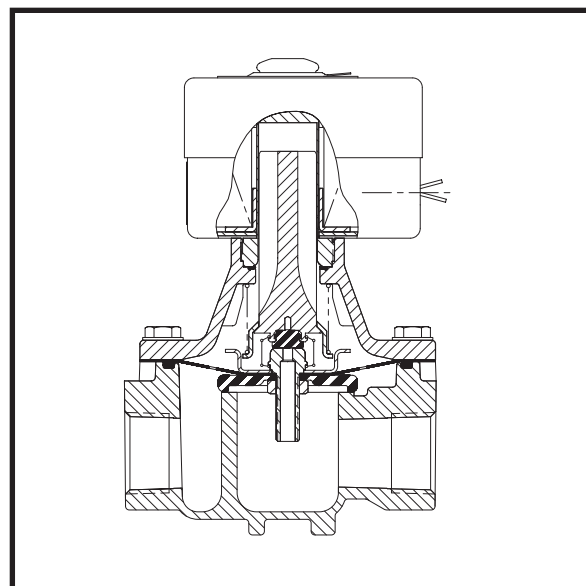
Valve Parts in Contact with Fluids	
Body	Aluminum
Seals and Disc	NBR
Core Tube	305 Stainless Steel
Core and Plugnut	430F Stainless Steel
Springs	302F Stainless Steel
Shading Coil	Copper
Pipe Plug	Zinc-Plated Steel

## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption			Ambient Temp. °F	Spare Coil Family	
	AC				General Purpose	Explosionproof
	Watts	VA Holding	VA Inrush		AC	AC
H	59.5	122	600	32 to 104	224195	-
H	66	128	936	32 to 104	224195	-

## Solenoid Enclosures

RedHat® metal Type 1 General Purpose housing with 7/8" knock-out for 1/2" conduit connection.



## Approvals:

UL listed to standard 429 "Electrically Operated Valves," Guide YIOZ, File MP932, Safety Valves.

FM Approved to Class 7400 "Liquid and Gas Safety Shutoff Valves"(3/4" only).

CSA Certified to:

- 1) Standard C22.2 No 139 "Electrically Operated Valves," File 010381.
- 2) Automatic Gas Valves Z21.21 (6.5), File 112872.

## Specifications

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow	Operating Pressure Differential (psi)		Max. Fluid Temp. °F	Standard Solenoid Enclosure Redhat - Type 1		Gas Capacity 1" W.C. Drop @ 2" E.C. Inlet Pressure	Approvals			Watt Rating/ Class of Coil Insulation
			Min.	Max.		Catalog Number	Const. Ref.	1000 Btu/Cu. Ft. or More 0.64 Sp. Gr. Gas				
								Btu/Hr.	UL	FM	CSA	AC
3/4	1 5/8	12.2	0	20	104	8042D035	1	650,000	○	○	○	59.5/H
1	1 5/8	24	0	20	104	8042C045	2	1,290,000	○	-	○	59.5/H
1 1/4	1 5/8	35	0	20	104	8042C055	2	1,900,000	○	-	○	59.5/H
1 1/2	1 5/8	40	0	20	104	8042C065	2	2,145,000	○	-	○	59.5/H
2	2 3/32	60	0	20	104	8042C075	3	3,241,000	○	-	○	59.5/H
2 1/2	3	120	0	5	104	8042C085	4	6,467,500	○	-	○	66/H
3	3	130	0	5	104	8042C095	4	7,002,500	○	-	○	66/H

○ = Safety Shutoff Valve; ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.

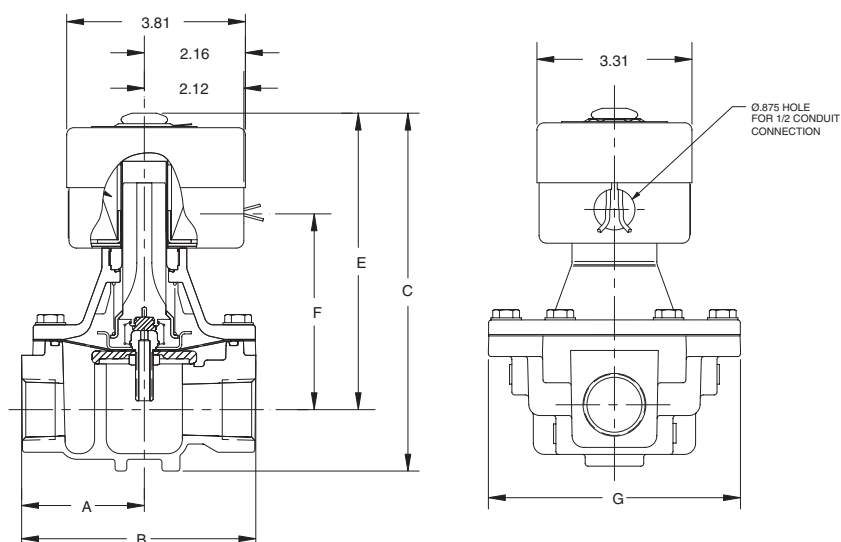
## Capabilities Chart

Solenoid Options		Resilient Materials	Base Catalog Number	Standard Rebuild Kit
Rainproof	Junction Box	NBR	Aluminum	AC
R	JB	●	8042D035	304081
R	JB	●	8042C045	304081
R	JB	●	8042C055	304081
R	JB	●	8042C065	304081
R	JB	●	8042C075	304082
R	JB	●	8042C085	304083
R	JB	●	8042C095	304083

● = Standard. Other options may be available. All option combinations may not be available.

## Dimensions: inches

Const. Ref.	A	B	C	E	F	G
1	2.62	5	7.66	6.34	4.19	5.38
2	2.62	5	7.66	6.39	4.25	5.38
3	3.28	6.09	8.36	6.86	4.72	6.32
4	3.89	7.8	10.22	7.89	5.75	7.99



Must be mounted with solenoid vertical and upright.

## Features

- Visual indication of open and shut position.
- Proof of closure switch 1 Amp.
- 2-Way Normally Closed operation.
- Die-cast aluminum bodies.
- Zero differential piloted diaphragm.
- For on-off control of fuel gas in commercial and industrial gas burners.
- Valves provided with 1/8" NPT upstream and downstream pipe tap with plug for routine testing.
- 5 lb. closing spring for high force shut-off.

## Construction

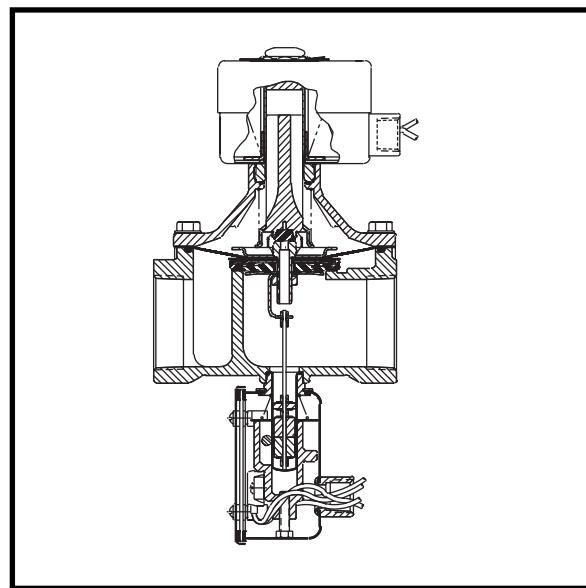
Valve Parts in Contact with Fluids	
Body	Aluminum
Seals and Disc	NBR
Washer	302 Stainless Steel
Core Tube	304L Stainless Steel
Core and Plugnut	430F Stainless Steel
Springs	302F Stainless Steel
Shading Coil	Copper
Pipe Plug	Zinc-Plated Steel

## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption			Ambient Temp. °F	Spare Coil Family	
	AC				General Purpose	Explosionproof
	Watts	VA Holding	VA Inrush		AC	AC
H	59.5	122	600	32 to 104	224195	-
H	66	128	936	32 to 104	224195	-

## Solenoid Enclosures

RedHat® metal Type 1 General Purpose housing with 7/8" knock-out for 1/2" conduit connection. Type 4 Watertight housing optional.



## Approvals:

UL listed to standard 429 "Electrically Operated Valves," Guide YIOZ, File MP932, Safety Valves.

FM Approved to Class 7400 "Liquid and Gas Safety Shutoff Valves."

CSA Certified to:

1) Standard C22.2 No 139 "Electrically Operated Valves," File 010381.

## Specifications

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow	Operating Pressure Differential (psi)		Standard Solenoid Enclosure Redhat - Type 1		Optional Solenoid Enclosure Redhat - Type 4		Gas Capacity 1" W.C. Drop @ 2" E.C. Inlet Pressure	Approval Listing			Watt Rating/ Class of Coil Insulation
			Min.	Max.	Catalog Number	Const. Ref.	Catalog Number	Const. Ref.	1000 Btu/Cu. Ft. or More 0.64 Sp. Gr. Gas				
									Btu/Hr.	UL	FM	CSA	AC
3/4	1 5/8	12.2	0	20	8043B037	1	8043B038	5	650,000	○	○	○	59.5/H
1	1 5/8	22	0	20	8043A047	1	8043A048	5	1,170,000	○	○	○	59.5/H
1 1/4	1 5/8	31	0	20	8043A057	2	8043A058	6	1,657,000	○	○	○	59.5/H
1 1/2	1 5/8	35	0	20	8043A067	2	8043A068	6	1,867,500	○	○	○	59.5/H
2	2 3/32	60	0	20	8043A077	3	8043A078	7	3,247,500	○	○	○	59.5/H
2 1/2	3	105	0	5	8043A087	4	8043A088 ①	8	5,659,500	○	○	○	66/H
3	3	125	0	5	8043A097	4	8043A098 ①	8	6,737,500	○	○	○	66/H

○ = Safety Shutoff Valve. ① Are not UL or CSA approved.

## Capabilities Chart

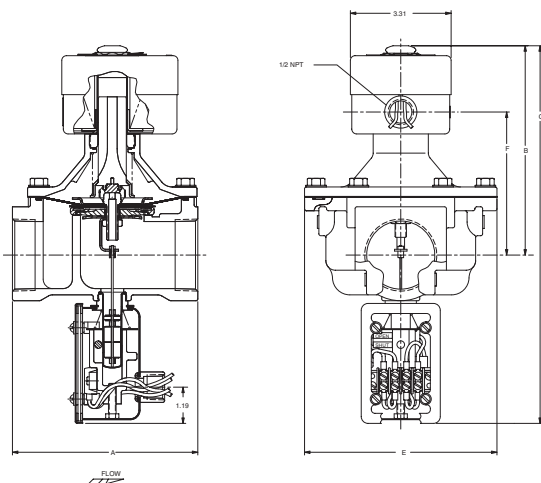
Solenoid Options		Resilient Materials	Base Catalog Number Type 1	Standard Rebuild Kit Type 1	Base Catalog Number Type 4	Standard Rebuild Kit Type 4
Rainproof	Junction Box	NBR	Aluminum	AC	Aluminum	AC
R	JB	●	8043B037	304084	8043B038	206142
R	JB	●	8043A047	304085	8043A048	206143
R	JB	●	8043A057	304085	8043A058	206143
R	JB	●	8043A067	304085	8043A068	206143
R	JB	●	8043A077	304086	8043A078	206144
R	JB	●	8043A087	310835	8043A088	310836
R	JB	●	8043A097	310835	8043A098	310836

● = Standard. Other options may be available. All option combinations may not be available.

## Dimensions: inches

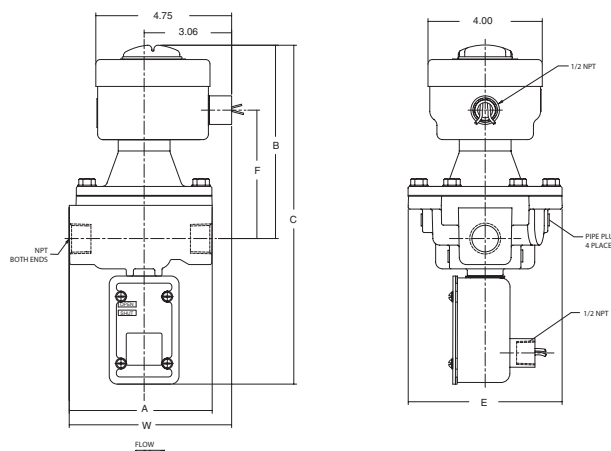
Const. Ref.	A	B	C	E	F	W
1	5.00	6.34	11.69	5.38	4.19	-
2	5.00	6.39	11.69	5.38	4.25	-
3	6.09	6.86	12.39	6.32	4.72	-
4	7.80	7.89	14.47	7.95	5.75	-

Const. Ref. 1,2,3,4



Const. Ref.	A	B	C	E	F	W
5	5.00	6.78	12.13	5.38	4.50	6.69
6	5.00	6.84	12.13	5.38	4.56	6.69
7	6.09	7.31	12.84	6.32	5.03	7.35
8	7.80	8.34	14.89	7.95	6.06	7.96

Const. Ref. 5,6,7,8



## Features

- 2-Way Normally Closed operation.
- For control of commercial and industrial gas burners.
- Ideal for high pressure applications.
- Brass body construction.
- Mountable in any position.

## Construction

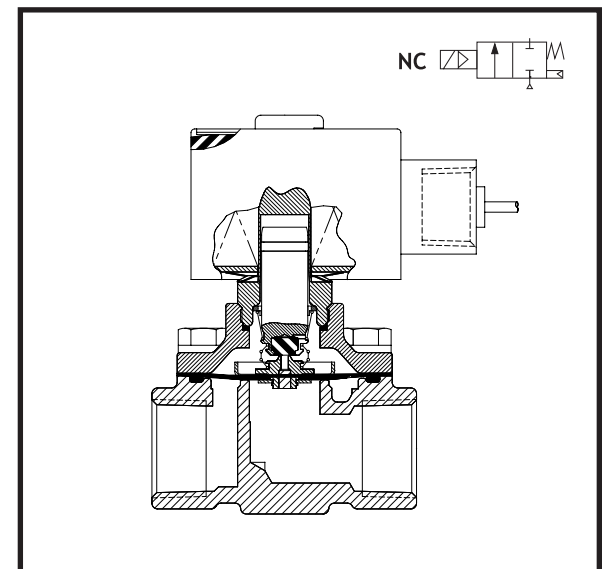
Valve Parts in Contact with Fluids	
Body	Brass
Seals and Disc	NBR
Core Tube	305 Stainless Steel
Core and Plugnut	430F Stainless Steel
Springs	302 Stainless Steel
Shading Coil	Copper

## Electrical

Standard Coil Class of Insulation	Watt Rating and Power Consumption			Ambient Temp. °F	Spare Coil Family	
	AC				General Purpose	Explosionproof
	Watts	VA Holding	VA Inrush			
	AC	AC	AC		AC	
F	10.1	25	70	32 to 125	238610	238614
Standard Voltages: 24, 120, 240 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz).						

## Solenoid Enclosures

**Standard:** Watertight, Types 1, 2, 3, 3S, 4 and 4X with 1/2" conduit hub.



## Approvals:

UL listed to standard 429 "Electrically Operated Valves," Guide YIOZ, File MP618, Safety Valves.

FM Approved to Class 7400 "Liquid and Gas Safety Shutoff Valves."

CSA Certified to:

1) Standard C22.2 No. 139 "Electrically Operated Valves," File 010381

2) Automatic Gas Valves Z21.21 (6.5), File 112872.



## Specifications

Pipe Size (ins.)	Orifice Size (ins.)	CV Flow	Gas Capacity ①	Operating Pressure Differential (psi)		Max. Fluid Temp. °F	Catalog Number	Const. Ref.	Agency			Wattage	Approx. Shipping Weight (lbs)
			Btu/hr.	Min.	Max.				UL	FM	CSA		
COMBUSTION (Fuel Gas) - NORMALLY CLOSED													
3/8	5/8	2.8	150,000	0	50	125	8210G074	1	○	○	○	10.1	3.2
1/2	5/8	3.6	193,000	0	50	125	8210G075	1	○	○	○	10.1	3.2
3/4	3/4	5.0	295,000	0	50	125	8210G076	2	○	○	○	10.1	3.4
○ = Safety Shutoff Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.													

○ = Safety Shutoff Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.

## Capabilities Chart

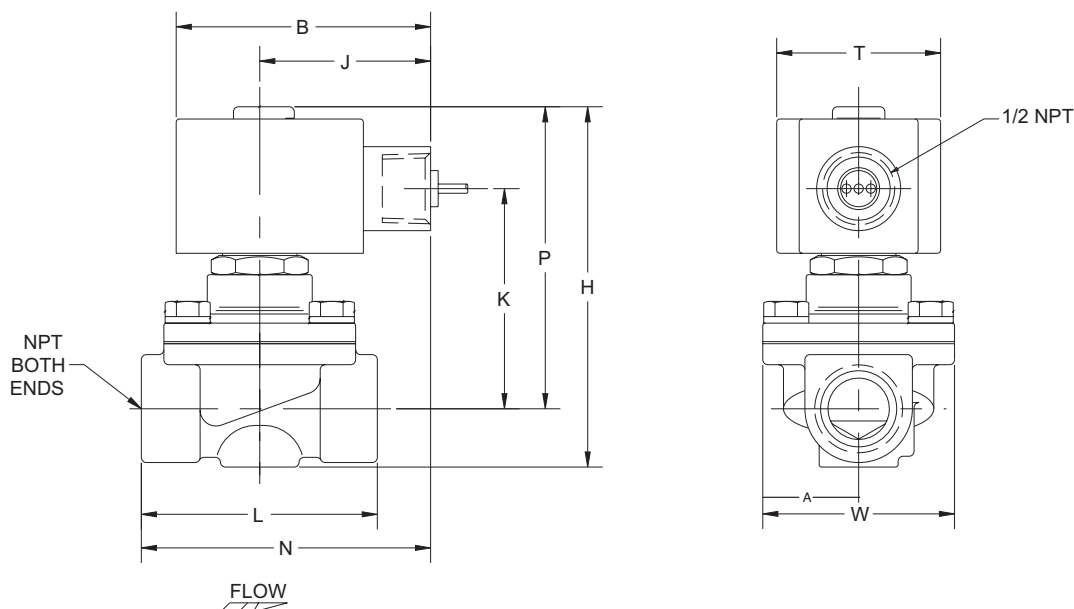
Solenoid Options				Base Catalog Number	Resilient Materials	Standard Rebuild Kit
NEMA Type 3-9	High Temp.	Junction Box	Wiring Box Screw Terminal	Brass	NBR	AC
EF	HT	JB	JKF	8210G074	●	304076
EF	HT	JB	JKF	8210G075	●	304076
EF	HT	JB	JKF	8210G076	●	304076

● = Standard. Other options may be available. All option combinations may not be available.

## Dimensions: inches

Const. Ref. No.	A	B	H	J	K	L	N	P	T	W
1	1.66	3.03	3.95	2.04	2.42	2.75	3.42	3.39	1.95	2.28
2	1.66	3.03	4.20	2.04	2.58	2.81	3.45	3.55	1.95	2.28

Const. Ref. 1, 2



Mountable in any position

## Features

- 2-Way Normally Open operation.
- For control of commercial and industrial gas burners.
- Ideal for high pressure applications.
- Brass body construction.
- Mountable in any position.

## Construction

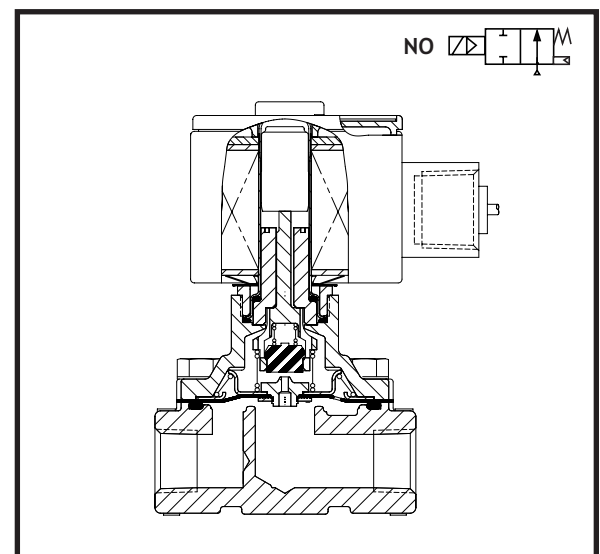
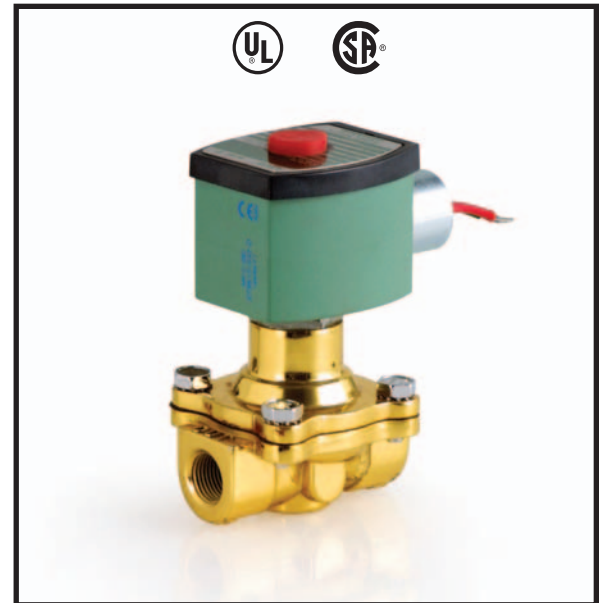
Valve Parts in Contact with Fluids	
Body	Brass
Seals and Disc	NBR
Core Tube	305 Stainless Steel
Core and Plugnut	430F Stainless Steel
Springs	302 Stainless Steel
Shading Coil	Copper

## Electrical

Standard Coil Class of Insulation	Watt Rating and Power Consumption			Ambient Temp. °F	Spare Coil Family	
	AC				General Purpose	Explosionproof
	Watts	VA Holding	VA Inrush			
	AC	AC	AC			
F	10.1	25	70	32 to 125	238610	238614
Standard Voltages: 24, 120, 240 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz).						

## Solenoid Enclosures

**Standard:** Watertight, Types 1, 2, 3, 3S, 4 and 4X with 1/2" conduit hub.



## Approvals:

UL listed to standard 429 "Electrically Operated Valves," Guide Y10Z, File MP618, General Purpose Valves.

CSA Certified to:

Standard C22.2 No. 139 "Electrically Operated Valves," File 010381.

## Specifications

Pipe Size (ins.)	Orifice Size (ins.)	CV Flow	Gas Capacity ①	Operating Pressure Differential (psi)		Max. Fluid Temp. °F	Catalog Number	Const. Ref.	Agency			Wattage	Approx. Shipping Weight (lbs)
			Btu/hr.	Min.	Max.				UL	FM	CSA		
COMBUSTION (Fuel Gas) - NORMALLY OPEN													
3/8	5/8	2.8	150,000	0	125	180	8210G033	1	●	-	●	10.1	3.4
1/2	5/8	3.5	188,000	0	125	180	8210G034	1	●	-	●	10.1	3.4
3/4	3/4	5.5	295,000	0	125	180	8210G035	2	●	-	●	10.1	3.6
● = General Purpose Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.													

● = General Purpose Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.

## Capabilities Chart

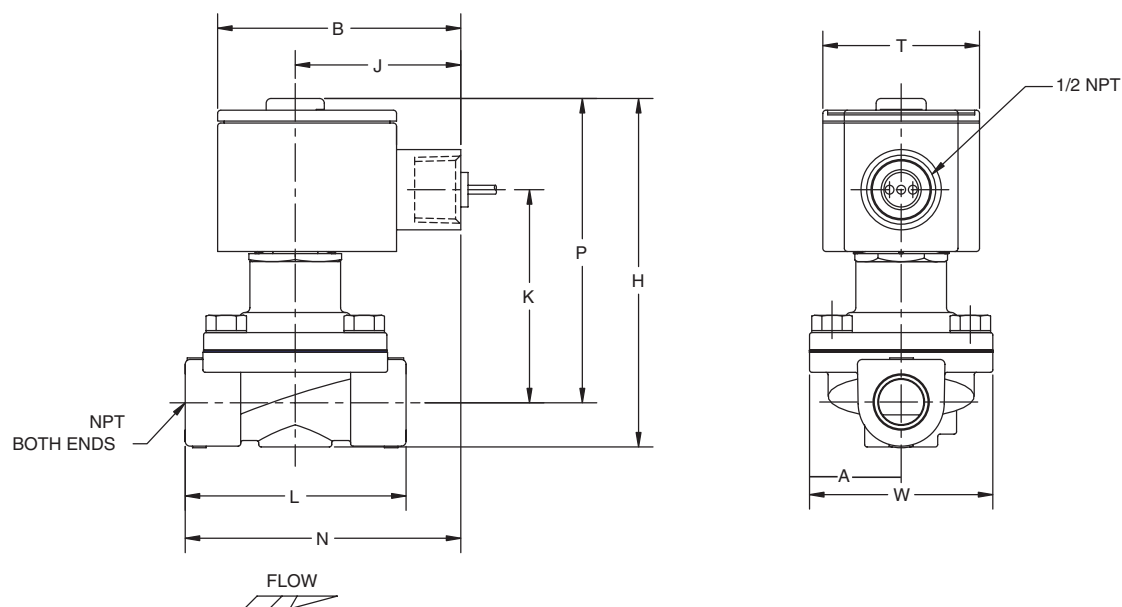
Solenoid Options				Base Catalog Number	Resilient Materials	Standard Rebuild Kit
NEMA Type 3-9	High Temp.	Junction Box	Wiring Box Screw Terminal	Brass	NBR	AC
EF	HT	JB	JKF	8210G033	●	302334
EF	HT	JB	JKF	8210G034	●	302334
EF	HT	JB	JKF	8210G035	●	302335

● = Standard. Other options may be available. All option combinations may not be available.

## Dimensions: inches

Const. Ref.	A	B	H	J	K	L	N	P	T	W
1	1.66	3.03	4.35	2.04	2.65	2.75	3.42	3.79	1.95	2.28
2	1.66	3.03	4.64	2.04	2.81	2.81	3.45	3.94	1.95	2.28

Const. Ref. 1, 2



Mountable in any position

## Features

- 2-Way Normally Closed Operation.
- Unique double disc design with overtravel provides redundant sealing for leak tight shutoff.
- Die-cast aluminum bodies.
- Zero differential piloted diaphragm.
- For on-off control of fuel gas in commercial and industrial gas burners.
- Valves provided with 1/8" NPT upstream and downstream pipe tap with plug for routine testing.

## Construction

Valve Parts in Contact with Fluids	
Body	Aluminum
Seals and Disc	NBR
Core Tube	305 Stainless Steel
Core Guide	Acetal (20.1 watt only)
Rider Ring	PTFE (20.1 watt only)
Core and Plugnut	430F Stainless Steel
Springs	302 Stainless Steel
Shading Coil	Copper
Pipe Plug	Zinc-Plated Steel

## Electrical

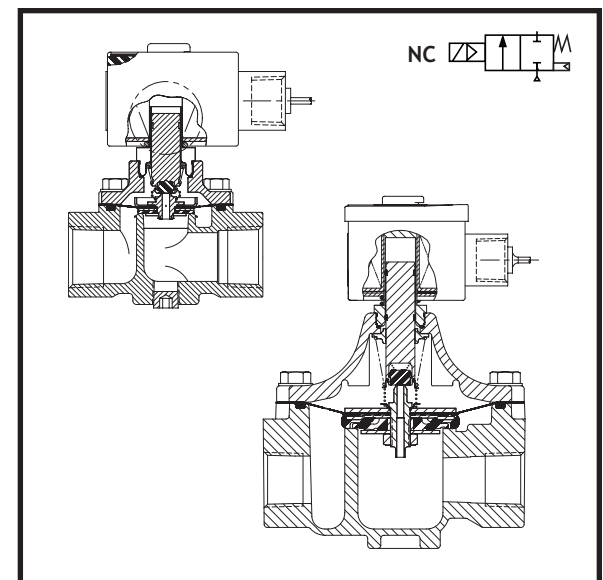
Standard Coil Class of Insulation	Watt Rating and Power Consumption				*Ambient Temp. °F	Spare Coil Family			
	DC Watts	AC				General Purpose		Explosionproof	
		Watts	VA Holding	VA Inrush		AC	DC	AC	DC
F	-	17.1	40	93	-40 to 125	238610	-	-	-
F	-	20.1	48	240	-40 to 125	272610	-	-	-
F	22.6	-	-	-	-20 to 104	-	238710	-	-

**Standard Voltages:** 24, 120, 240 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz) (238610); 120, 240 volts AC, 60 Hz (272610); 12, 24 volts DC.

\*Agency approval pending to extend low ambient temperature rating from -20°F to -40°F for DC constructions.

## Solenoid Enclosures

RedHat® II molded epoxy Type 1, 2, 3, 3S, 4 and 4X combination. General Purpose and Watertight solenoid enclosures with 1/2" conduit hub as standard.



## Approvals:

UL listed to standard 429 "Electrically Operated Valves," Guide YIOZ, File MP618 Safety Shutoff Valves.

FM Approved to Class 7400 "liquid and gas safety shutoff valves."

CSA Certified to:

- 1) Standard C22.2 No. 139 "Electrically Operated Valves," File 010381.
- 2) Automatic Gas Valves Z21.21 (6.5), File 112872.
- 3) Automatic Gas Safety Shutoff Valves C/I (3.9), File 112872.

## Specifications

Pipe Size (ins.)	Orifice Size (ins.)	CV Flow	Gas Capacity ①	Operating Pressure Differential (psi)		Max. Fluid Temp. °F		Catalog Number	Const. Ref.	Agency			Wattage		Approx. Shipping Weight (lbs)
			Btu/hr.	Min.	Max.	AC	DC			UL	FM	CSA	AC	DC	
COMBUSTION (Fuel Gas) - NORMALLY CLOSED															
3/8	3/4	3.4	183,000	0	5	125	104	8214G010	1	○	○	○	17.1	22.6	2
1/2	3/4	4.4	238,500	0	5	125	104	8214G020	1	○	○	○	17.1	22.6	2
3/4	3/4	5.1	247,500	0	5	125	104	8214G030	2	○	○	○	17.1	22.6	2
3/4	1 5/8	11	580,000	0	5	125	-	8214G036	3	○	○	○	20.1	-	4.3
1	1 5/8	21	1,119,000	0	5	125	-	8214G051	3	○	○	○	20.1	-	4.3
1 1/4	1 5/8	32	1,730,000	0	5	125	-	8214G061	4	○	○	○	20.1	-	4.3
1 1/2	1 5/8	35	1,900,000	0	5	125	-	8214G071	4	○	○	○	20.1	-	4.3
2	2 3/32	60	2,800,000	0	5	125	-	8214G081	5	○	○	○	20.1	-	6.3
○ = Safety Shutoff Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.															

## Capabilities Chart

Solenoid Options		Base Catalog Number	Resilient Materials	Standard Rebuild Kit	
High Temp.	Junction Box	Aluminum	NBR	AC	DC
HB	JB	8214G010	●	316233	316790
HB	JB	8214G020	●	316233	316790
HB	JB	8214G030	●	316233	316790
HB	JB	8214G036	●	322374	-
HB	JB	8214G051	●	322374	-
HB	JB	8214G061	●	322374	-
HB	JB	8214G071	●	322374	-
HB	JB	8214G081	●	322376	-

● = Standard. Other options may be available. All option combinations may not be available.

## Dimensions: inches

Const. Ref.	A	B	E	H	J	K	L	N	P	R	T	W
1	1.14	3.03	1.36	4.08	2.04	2.47	2.75	3.42	3.46	1.38	1.95	2.50
2	1.14	3.03	1.25	4.52	2.04	2.66	3.31	3.70	3.64	1.66	1.95	2.39
3	2.69	3.11	2.69	6.73	2.05	4.20	5.00	4.67	5.41	2.62	2.06	5.39
4	2.69	3.11	2.69	6.73	2.05	4.27	5.00	4.67	5.48	2.62	2.06	5.39
5	3.16	3.11	3.16	7.34	2.05	4.63	6.09	5.33	5.48	3.28	2.06	6.32

**Const. Ref. 1, 2**

**Const. Ref. 3, 4, 5**

Must be mounted with solenoid vertical and upright with 20.1 watt coil.

### Features

- 2-Way Normally Closed Operation.
- Unique double disc design with overtravel provides redundant sealing for leak tight shutoff.
- Visual Indication of open & shut position.
- Die-cast aluminum bodies.
- Zero differential piloted diaphragm.
- For on-off control of fuel gas in commercial and industrial gas burners.
- Valves provided with 1/8" NPT upstream and downstream pipe tap with plug for routine testing.

### Construction

Valve Parts in Contact with Fluids	
Body	Aluminum
Seals and Disc	NBR
Core Tube	305 Stainless Steel
Core Guide	Acetal
Rider Ring	PTFE
Core and Plugnut	430F Stainless Steel
Springs	302 Stainless Steel
Shading Coil	Copper
Pipe Plug	Zinc-Plated Steel

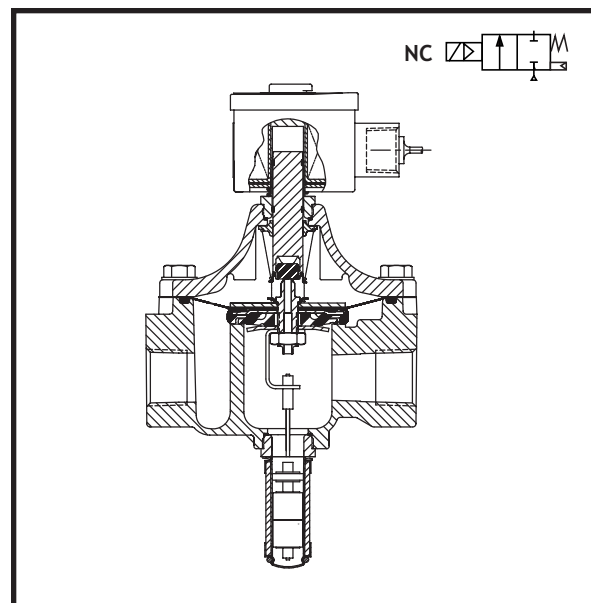
### Electrical

Standard Coil Class of Insulation	Watt Rating and Power Consumption			Ambient Temp. °F	Spare Coil Family	
	AC				General Purpose	Explosionproof
	Watts	VA Holding	VA Inrush			
	AC	AC	AC		AC	
F	20.1	48	240	-40 to 125	272610	-

**Standard Voltages:** 120, 240 volts AC, 60 Hz

### Solenoid Enclosures

RedHat® II molded epoxy Type 1, 2, 3, 3S, 4 and 4X combination. General Purpose and watertight solenoid enclosures with 1/2" conduit hub as standard.



### Approvals:

UL listed to standard 429 "Electrically Operated Valves," Guide YIOZ, File MP618 Safety Shutoff Valves.

FM Approved to Class 7400 "liquid and gas safety shutoff valves".

CSA Certified to:

- 1) Standard C22.2 No. 139 "Electrically Operated Valves," File 010381.
- 2) Automatic Gas Valves Z21.21 (6.5), File 112872.
- 3) Automatic Gas Safety Shutoff Valves C/I (3.9), File 112872.

## Specifications

Pipe Size (ins.)	Orifice Size (ins.)	CV Flow	Gas Capacity ①	Operating Pressure Differential (psi)		Max. Fluid Temp. °F	Catalog Number	Const. Ref.	Agency			Wattage	Approx. Shipping Weight (lbs)
			Btu/hr.	Min.	Max.				UL	FM	CSA		
COMBUSTION (Fuel Gas) - NORMALLY CLOSED													
3/4	1 5/8	11	580,000	0	5	125	8214G036VI	1	○	○	○	20.1	4.5
1	1 5/8	21	1,119,000	0	5	125	8214G051VI	1	○	○	○	20.1	4.5
1 1/4	1 5/8	32	1,730,000	0	5	125	8214G061VI	2	○	○	○	20.1	4.5
1 1/2	1 5/8	35	1,900,000	0	5	125	8214G071VI	2	○	○	○	20.1	4.5
2	2 3/32	60	2,800,000	0	5	125	8214G081VI	3	○	○	○	20.1	6.5
○ = Safety Shutoff Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.													

○ = Safety Shutoff Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.

## Capabilities Chart

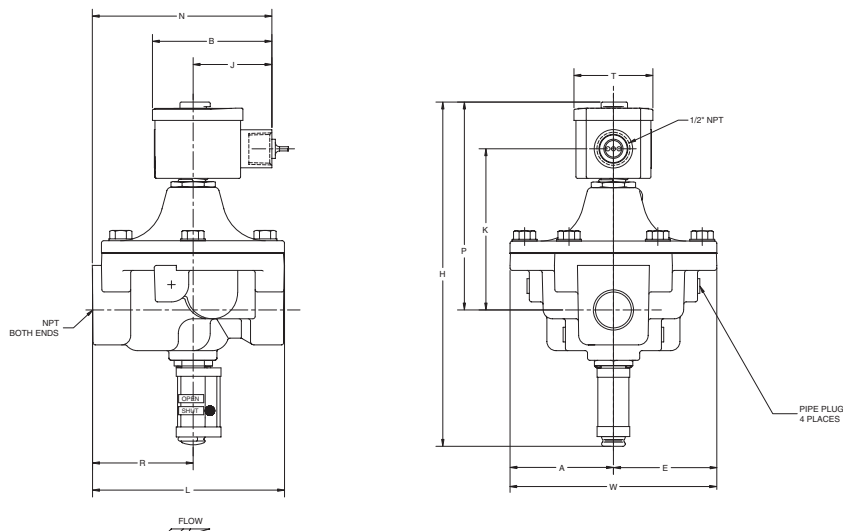
Solenoid Options		Base Catalog Number	Resilient Materials	Standard Rebuild Kit
High Temp.	Junction Box	Aluminum	NBR	AC
HB	JB	8214G036VI	●	322375
HB	JB	8214G051VI	●	322375
HB	JB	8214G061VI	●	322375
HB	JB	8214G071VI	●	322375
HB	JB	8214G081VI	●	322377

● = Standard. Other options may be available. All option combinations may not be available.

## Dimensions: inches

Const. Ref.	A	B	E	H	J	K	L	N	P	R	T	W
1	2.69	3.11	2.69	8.93	2.05	4.20	5.00	4.67	5.41	2.62	2.06	5.39
2	2.69	3.11	2.69	8.93	2.05	4.27	5.00	4.67	5.48	2.62	2.06	5.39
3	3.16	3.11	3.16	9.53	2.05	4.63	6.09	5.33	5.84	3.28	2.06	6.32

Const. Ref. 1, 2, 3



Must be mounted with solenoid vertical and upright.



## Features

- 2-Way Normally Closed Operation.
- Unique double disc design with overtravel provides redundant sealing for leak tight shutoff.
- Visual Indication of open & shut position.
- Proof of closure switch 1 Amp.
- Die-cast aluminum bodies.
- Zero differential piloted diaphragm.
- For on-off control of fuel gas in commercial and industrial gas burners.
- Valves provided with 1/8" NPT upstream and downstream pipe tap with plug for routine testing.

## Construction

Valve Parts in Contact with Fluids	
Body	Aluminum
Seals and Disc	NBR
Core Tube	305 Stainless Steel
Core Guide	Acetal
Rider Ring	PTFE
Core and Plugnut	430F Stainless Steel
Springs	302 Stainless Steel
Shading Coil	Copper
Pipe Plug	Zinc-Plated Steel

## Electrical

Standard Coil Class of Insulation	Watt Rating and Power Consumption			Ambient Temp. °F	Spare Coil Family	
	AC				General Purpose	Explosionproof
	Watts	VA Holding	VA Inrush			
	AC	AC	AC		AC	
F	20.1	48	240	-40 to 125	272610	-
Standard Voltages: 120, 240 volts AC, 60 Hz						

## Proof of Closure Switch

Reed Switch: SPST

Switch Type: NC (closed when valve is in closed position.)

Max. Electricity: 1 amp, 120 volts

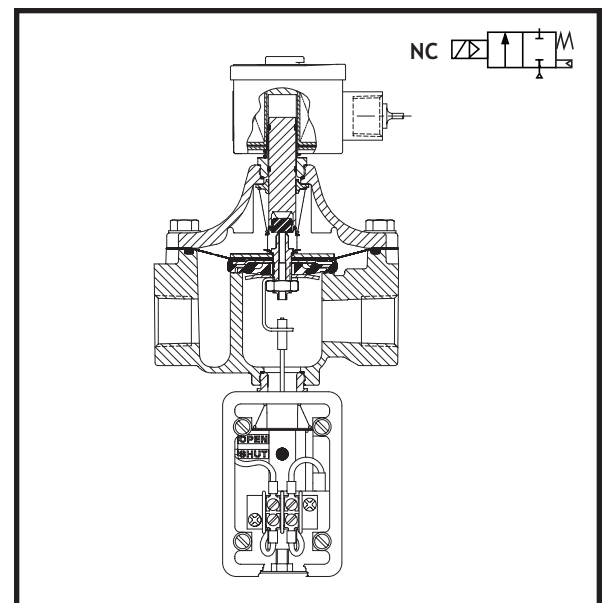
Load: 60 Hz, 15 watt (resistive)

Leads: 18" long

Enclosure: Type 4 watertight

## Solenoid Enclosures

RedHat® II molded epoxy Type 1, 2, 3, 3S, 4 and 4X combination. General Purpose and Watertight solenoid enclosures with 1/2" conduit hub as standard.



## Approvals:

UL listed to standard 429 "Electrically Operated Valves," Guide YIOZ, File MP618 Safety Shutoff Valves.

FM Approved to Class 7400 "liquid and gas safety shutoff valves."

CSA Certified to:

- 1) Standard C22.2 No. 139 "Electrically Operated Valves," File 010381.
- 2) Automatic Gas Valves Z21.21 (6.5), File 112872.
- 3) Automatic Gas Safety Shutoff Valves C/I (3.9), File 112872.



## Specifications

Pipe Size (ins.)	Orifice Size (ins.)	CV Flow	Gas Capacity ①	Operating Pressure Differential (psi)		Max. Fluid Temp. °F	Catalog Number	Const. Ref.	Agency			Wattage	Approx. Shipping Weight (lbs)
			Btu/hr.	Min.	Max.				UL	FM	CSA		
COMBUSTION (Fuel Gas) - NORMALLY CLOSED													
3/4	1 5/8	11	580,000	0	5	125	8214G036C	1	○	○	○	20.1	4.8
1	1 5/8	21	1,119,000	0	5	125	8214G051C	1	○	○	○	20.1	4.8
1 1/4	1 5/8	32	1,730,000	0	5	125	8214G061C	2	○	○	○	20.1	4.8
1 1/2	1 5/8	35	1,900,000	0	5	125	8214G071C	2	○	○	○	20.1	4.8
2	2 3/32	60	2,800,000	0	5	125	8214G081C	3	○	○	○	20.1	6.8
○ = Safety Shutoff Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.													

## Capabilities Chart

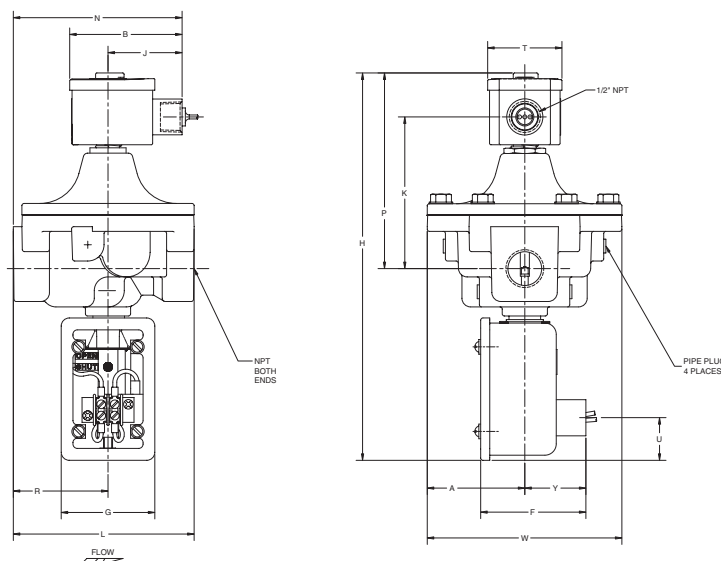
Solenoid Options		Base Catalog Number	Resilient Materials	Standard Rebuild Kit
High Temp.	Junction Box	Aluminum	NBR	AC
HB	JB	8214G036C	●	322375
HB	JB	8214G051C	●	322375
HB	JB	8214G061C	●	322375
HB	JB	8214G071C	●	322375
HB	JB	8214G081C	●	322377

● = Standard. Other options may be available. All option combinations may not be available.

## Dimensions: inches

Const. Ref.	A	B	F	G	H	J	K	L	N	P	R	T	U	W	Y
1	2.69	3.11	2.91	2.44	10.72	2.05	4.20	5.00	4.67	5.41	2.62	2.06	1.18	5.39	1.69
2	2.69	3.11	2.91	2.44	10.72	2.05	4.27	5.00	4.67	5.48	2.62	2.06	1.18	5.39	1.69
3	3.16	3.11	2.91	2.44	11.33	2.05	4.63	6.09	5.33	5.84	3.28	2.06	1.18	6.32	1.69

Const. Ref. 1, 2, 3



Must be mounted with solenoid vertical and upright.

### Features

- 2-Way Normally Closed Operation.
- Unique double disc design with overtravel provides redundant sealing for leak tight shutoff.
- Die-cast aluminum bodies.
- Zero differential piloted diaphragm.
- For on-off control of fuel gas in commercial and industrial gas burners.
- Valves provided with 1/8" NPT upstream and downstream pipe tap with plug for routine testing.

### Construction

Valve Parts in Contact with Fluids	
Body	Aluminum
Seals and Disc	NBR
Core Tube	305 Stainless Steel
Core Guide	Acetal (20 watt only)
Rider Ring	PTFE (20 watt only)
Core and Plugnut	430F Stainless Steel
Springs	302 Stainless Steel
Shading Coil	Copper
Pipe Plug	Zinc-Plated Steel

### Electrical

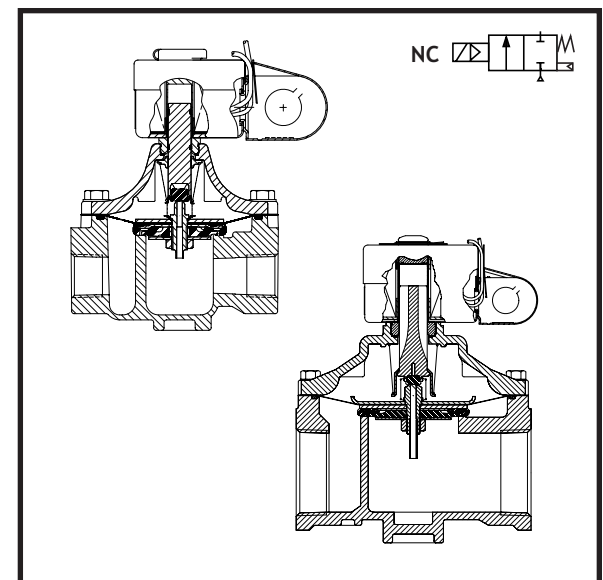
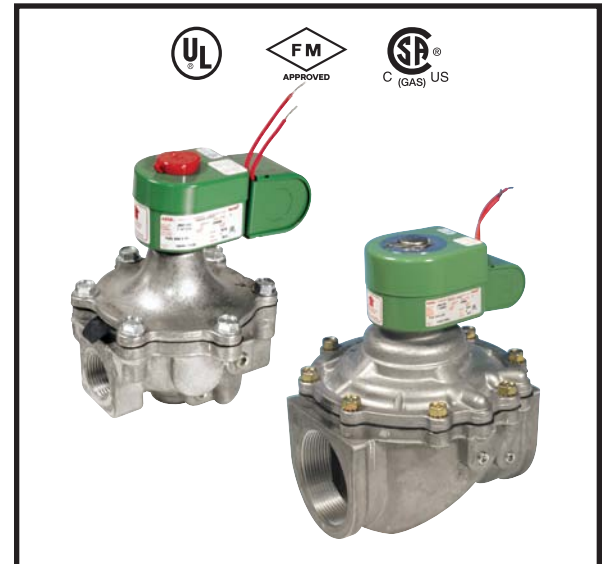
Standard Coil Class of Insulation	Watt Rating and Power Consumption				*Ambient Temp. °F	Spare Coil Family			
	DC Watts	AC				General Purpose		Explosionproof	
		Watts	VA Holding	VA Inrush		AC	DC	AC	DC
F		20	43	240	-40 to 125	099257	-	-	-
F	-	28.2	50	385	-40 to 125	206409	-	-	-
B	14.9	-	-	-	-20 to 77	-	062691	-	-

**Standard Voltages:** 24, 120, 240 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz)  
12, 24 volts DC.

\*Agency approval pending to extend low ambient temperature rating from -20°F to -40°F  
for DC constructions.

### Solenoid Enclosures

RedHat® metal Type 1 General Purpose Junction Box housing with two 7/8" knock-outs for 1/2" conduit connection.



### Approvals:

UL listed to standard 429 "Electrically Operated Valves," Guide YIOZ, File MP618 Safety Shutoff Valves.

FM Approved "Process Control Valves."

CSA Certified to:

- 1) Standard C22.2 No. 139 "Electrically Operated Valves," File 010381.
- 2) Automatic Gas Valves Z21.21 (6.5), File 112872.
- 3) Automatic Gas Safety Shutoff Valves C/I (3.9), File 112872.

## Specifications

Pipe Size (ins.)	Orifice Size (ins.)	CV Flow	Gas Capacity ①	Operating Pressure Differential (psi)		Max. Fluid Temp. °F		Catalog Number	Const. Ref.	Agency			Wattage		Approx. Shipping Weight (lbs)
			Btu/hr.	Min.	Max.	AC	DC			UL	FM	CSA	AC	DC	
COMBUSTION (Fuel Gas) - NORMALLY CLOSED															
3/4	1 5/8	11	580,000	0	5	125	77	8214 035	1	○	②	○	20	14.9	4.3
1	1 5/8	21	1,119,000	0	5	125	77	8214 050	1	○	②	○	20	14.9	4.3
1 1/4	1 5/8	32	1,730,000	0	5	125	77	8214 060	2	○	②	○	20	14.9	4.3
1 1/2	1 5/8	35	1,900,000	0	5	125	77	8214 070	2	○	②	○	20	14.9	4.3
2	2 3/32	60	2,800,000	0	5	125	77	8214 080	3	○	②	○	20	14.9	6.3
2 1/2	3	104	5,765,500	0	5	125	-	8214 090	4	○	②	○	28.2	-	13.0
3	3	105	5,796,000	0	5	125	-	8214 040	4	○	②	○	28.2	-	14.0
○ = Safety Shutoff Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas;															
② FM approved "Process Control Valves".															

## Capabilities Chart

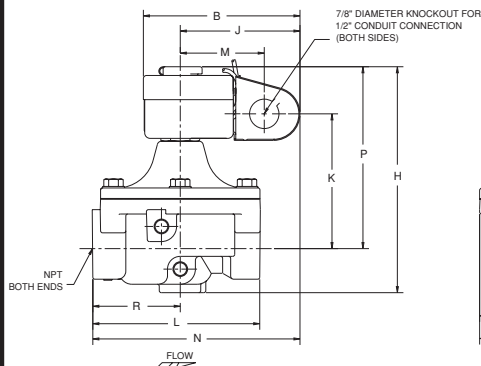
Solenoid Options				Base Catalog Number	Resilient Materials	Standard Rebuild Kit	
Rainproof	High Temp.	Junction Box	Wiring Box Screw Terminal	Aluminum	NBR	AC	DC
R	HB	JB	JKP	8214 035	●	316429	316777
R	HB	JB	JKP	8214 050	●	316429	316777
R	HB	JB	JKP	8214 060	●	316429	316777
R	HB	JB	JKP	8214 070	●	316429	316777
R	HB	JB	JKP	8214 080	●	316430	316778
R	HT	JB	JKF	8214 090	●	316828	-
R	HT	JB	JKF	8214 040	●	316828	-

● = Standard. Other options may be available. All option combinations may not be available.

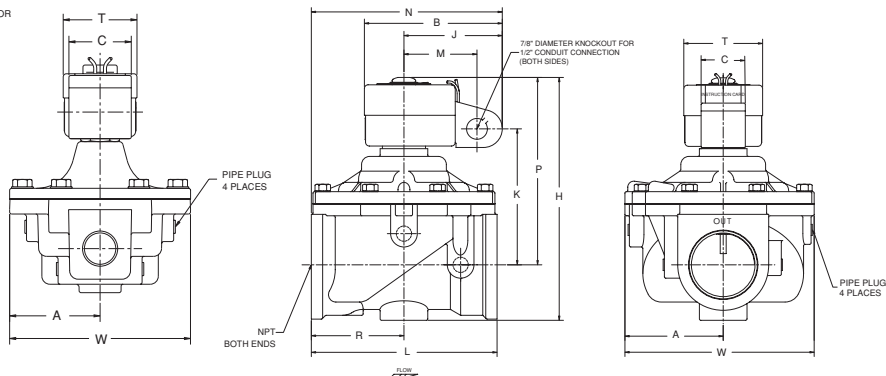
## Dimensions: inches (Shown with optional Junction Box)

Const. Ref.	A	B	C	H	J	K	L	M	N	P	R	T	W
1	2.69	4.59	1.88	6.78	3.53	4.06	5.00	2.50	6.15	5.46	2.62	2.20	5.39
2	2.69	4.59	1.88	6.78	3.53	4.13	5.00	2.50	6.15	5.53	2.62	2.20	5.39
3	3.16	4.59	1.88	7.39	3.53	4.49	6.09	2.50	6.81	5.89	3.28	2.20	6.32
4	4.13	5.72	1.88	10.20	4.07	5.71	7.80	3.07	7.96	7.87	3.89	3.31	7.95

Const. Ref. 1, 2, 3



Const. Ref. 4



Must be mounted with solenoid vertical and upright.

### Features

- 2-Way Normally Closed Operation.
- Unique double disc design with overtravel provides redundant sealing for leak tight shutoff.
- Visual Indication of open & shut position.
- Die-cast aluminum bodies.
- Zero differential piloted diaphragm.
- For on-off control of fuel gas in commercial and industrial gas burners.
- Valves provided with 1/8" NPT upstream and downstream pipe tap with plug for routine testing.

### Construction

Valve Parts in Contact with Fluids	
Body	Aluminum
Seals and Disc	NBR
Core Tube	305 Stainless Steel
Core Guide	Acetal (20 watt only)
Rider Ring	PTFE (20 watt only)
Core and Plugnut	430F Stainless Steel
Springs	302 Stainless Steel
Shading Coil	Copper
Pipe Plug	Zinc-Plated Steel

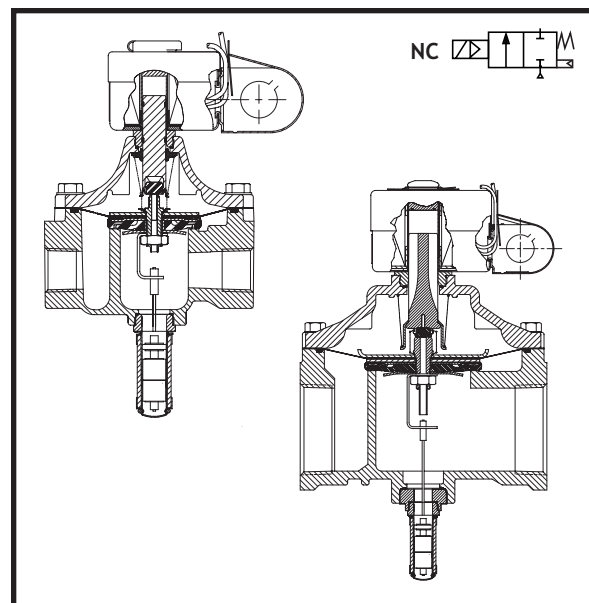
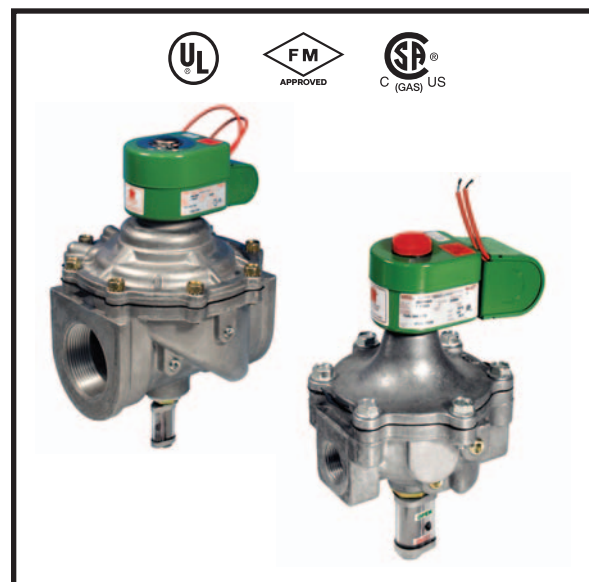
### Electrical

Standard Coil Class of Insulation	Watt Rating and Power Consumption			Ambient Temp. °F	Spare Coil Family	
	AC				General Purpose	Explosionproof
	Watts	VA Holding	VA Inrush			
					AC	AC
F	20	43	240	-40 to 125	99257	-
F	28.2	50	385	-40 to 125	206409	-

Standard Voltages: 24, 120, 240 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz) (99257); 120, 240 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz) (206409).

### Solenoid Enclosures

RedHat® metal Type 1 General Purpose Junction Box housing with two 7/8" knock-outs for 1/2" conduit connection.



### Approvals:

UL listed to standard 429 "Electrically Operated Valves," Guide YIOZ, File MP618 Safety Shutoff Valves.

FM Approved to Class 7400 "liquid and gas safety shutoff valves."

CSA Certified to:

- 1) Standard C22.2 No. 139 "Electrically Operated Valves," File 010381.
- 2) Automatic Gas Valves Z21.21 (6.5), File 112872.
- 3) Automatic Gas Safety Shutoff Valves C/I (3.9), File 112872.

## Specifications

Pipe Size (ins.)	Orifice Size (ins.)	CV Flow	Gas Capacity ①	Operating Pressure Differential (psi)		Max. Fluid Temp. °F	Catalog Number	Const. Ref.	Agency			Wattage	Approx. Shipping Weight (lbs)
			Btu/hr.	Min.	Max.				UL	FM	CSA		
COMBUSTION (Fuel Gas) - NORMALLY CLOSED													
3/4	1 5/8	11	580,000	0	5	125	8214 035VI	1	○	○	○	20	4.5
1	1 5/8	21	1,119,000	0	5	125	8214 050VI	1	○	○	○	20	4.5
1 1/4	1 5/8	32	1,730,000	0	5	125	8214 060VI	2	○	○	○	20	4.5
1 1/2	1 5/8	35	1,900,000	0	5	125	8214 070VI	2	○	○	○	20	4.5
2	2 3/32	60	2,800,000	0	5	125	8214 080VI	3	○	○	○	20	6.5
2 1/2	3	104	5,765,500	0	5	125	8214 090VI	4	○	○	○	28.2	13.2
3	3	105	5,796,000	0	5	125	8214 040VI	4	○	○	○	28.2	14.2
○ = Safety Shutoff Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.													

## Capabilities Chart

Solenoid Options				Base Catalog Number	Resilient Materials	Standard Rebuild Kit
Rainproof	High Temp.	Junction Box	Wiring Box Screw Terminal	Aluminum	NBR	AC
R	HB	JB	JKP	8214 035VI	●	318303
R	HB	JB	JKP	8214 050VI	●	318303
R	HB	JB	JKP	8214 060VI	●	318303
R	HB	JB	JKP	8214 070VI	●	318303
R	HB	JB	JKP	8214 080VI	●	318328
R	HT	JB	JKF	8214 090VI	●	318331
R	HT	JB	JKF	8214 040VI	●	318331

● = Standard. Other options may be available. All option combinations may not be available.

## Dimensions: inches (Shown with optional Junction Box)

Const. Ref.	A	B	C	H	J	K	L	M	N	P	R	T	W
1	2.69	4.59	1.88	8.97	3.53	4.06	5.24	2.50	6.15	5.46	2.62	2.20	5.39
2	2.69	4.59	1.88	8.97	3.53	4.13	5.24	2.50	6.15	5.53	2.62	2.20	5.39
3	3.16	4.59	1.88	9.57	3.53	4.49	6.56	2.50	6.81	5.89	3.28	2.20	6.32
4	4.13	5.72	1.88	12.59	4.07	5.71	7.80	3.07	7.96	7.87	3.89	3.31	7.95

**Const. Ref. 1, 2, 3**

**Const. Ref. 4**

Must be mounted with solenoid vertical and upright.

## Features

- 2-Way Normally Closed Operation.
- Unique double disc design with overtravel provides redundant sealing for leak tight shutoff.
- Visual Indication of open & shut position.
- Proof of closure switch 1 Amp.
- Die-cast aluminum bodies.
- Zero differential piloted diaphragm.
- For on-off control of fuel gas in commercial and industrial gas burners.
- Valves provided with 1/8" NPT upstream and downstream pipe tap with plug for routine testing.

## Construction

Valve Parts in Contact with Fluids	
Body	Aluminum
Seals and Disc	NBR
Core Tube	305 Stainless Steel
Core Guide	Acetal (20 watt only)
Rider Ring	PTFE (20 watt only)
Core and Plugnut	430F Stainless Steel
Springs	302 Stainless Steel
Shading Coil	Copper
Pipe Plug	Zinc-Plated Steel

## Electrical

Standard Coil Class of Insulation	Watt Rating and Power Consumption			Ambient Temp. °F	Spare Coil Family	
	AC				General Purpose	Explosionproof
	Watts	VA Holding	VA Inrush			
	AC	AC	AC			
F	20	43	240	-40 to 125	99257	-
F	28.2	50	385	-40 to 125	206409	-

Standard Voltages: 24, 120, 240 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz) (99257); 120, 240 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz) (206409).

## Proof of Closure Switch

Reed Switch: SPST

Switch Type: NC (closed when valve is in closed position.)

Max. Electricity: 1 amp, 120 volts

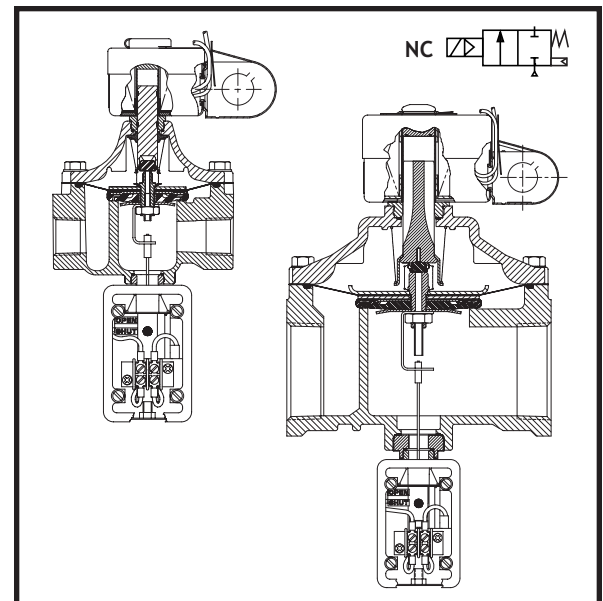
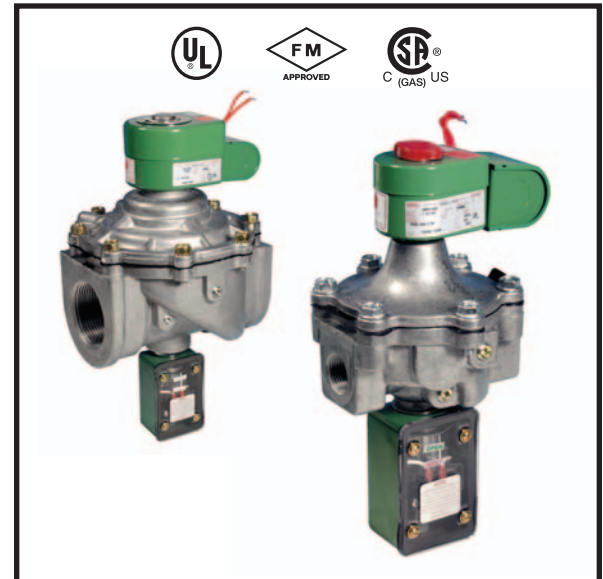
Load: 60 Hz, 15 watt (resistive)

Leads: 18" long

Enclosure: Type I General Purpose

## Solenoid Enclosures

RedHat® metal Type 1 General Purpose Junction Box housing with two 7/8" knock-outs for 1/2" conduit connection.



## Approvals:

UL listed to standard 429 "Electrically Operated Valves," Guide YIOZ, File MP618 Safety Shutoff Valves.

FM Approved to Class 7400 "liquid and gas safety shutoff valves."

CSA Certified to:

- 1) Standard C22.2 No. 139 "Electrically Operated Valves," File 010381.
- 2) Automatic Gas Valves Z21.21 (6.5), File 112872.
- 3) Automatic Gas Safety Shutoff Valves C/I (3.9), File 112872.

## Specifications

Pipe Size (ins.)	Orifice Size (ins.)	CV Flow	Gas Capacity ①	Operating Pressure Differential (psi)		Max. Fluid Temp. °F	Catalog Number	Const. Ref.	Agency			Wattage	Approx. Shipping Weight (lbs)
			Btu/hr.	Min.	Max.				UL	FM	CSA		
COMBUSTION (Fuel Gas) - NORMALLY CLOSED													
3/4	1 5/8	11	580,000	0	5	125	8214 035C	1	○	○	○	20	4.8
1	1 5/8	21	1,119,000	0	5	125	8214 050C	1	○	○	○	20	4.8
1 1/4	1 5/8	32	1,730,000	0	5	125	8214 060C	2	○	○	○	20	4.8
1 1/2	1 5/8	35	1,900,000	0	5	125	8214 070C	2	○	○	○	20	4.8
2	2 3/32	60	2,800,000	0	5	125	8214 080C	3	○	○	○	20	6.8
2 1/2	3	104	5,765,500	0	5	125	8214 090C	4	○	○	○	28.2	13.5
3	3	105	5,796,000	0	5	125	8214 040C	4	○	○	○	28.2	14.5
○ = Safety Shutoff Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.													

## Capabilities Chart

Solenoid Options			Base Catalog Number	Resilient Materials	Standard Rebuild Kit
High Temp.	Junction Box	Wiring Box Screw Terminal	Aluminum	NBR	AC
HB	JB	JKP	8214 035C	●	318303
HB	JB	JKP	8214 050C	●	318303
HB	JB	JKP	8214 060C	●	318303
HB	JB	JKP	8214 070C	●	318303
HB	JB	JKP	8214 080C	●	318328
HT	JB	JKF	8214 090C	●	318330
HT	JB	JKF	8214 040C	●	318330

● = Standard. Other options may be available. All option combinations may not be available.

## Dimensions: inches (Shown with optional Junction Box)

Const. Ref.	A	B	C	E	F	G	H	J	K	L	M	N	P	R	T	U	W	Y
1	2.69	4.59	1.88	2.69	2.75	2.44	10.54	3.53	4.06	5.00	2.50	6.15	5.46	2.62	2.20	1.12	5.39	1.63
2	2.69	4.59	1.88	2.69	2.75	2.44	10.54	3.53	4.13	5.00	2.50	6.15	5.53	2.62	2.20	1.12	5.39	1.63
3	3.16	4.59	1.88	3.16	2.75	2.44	11.15	3.53	4.49	6.09	2.50	6.81	5.89	3.28	2.20	1.12	6.32	1.63
4	4.13	5.72	1.88	3.82	2.75	2.44	14.25	4.07	5.71	7.80	3.07	7.96	7.87	3.89	3.31	1.12	7.95	1.63

**Const. Ref. 1, 2, 3**

**Const. Ref. 4**

Must be mounted with solenoid vertical and upright.



## Features

- 2-Way Normally Open operation.
- Unique double disc design with overtravel provides redundant sealing for leak tight shutoff in the normally closed (energized) position.
- Die-cast aluminum bodies.
- Zero differential piloted diaphragm.
- Valves provided with 1/8" NPT downstream pipe tap with plug for routine testing.

## Construction

Valve Parts in Contact with Fluids	
Body	Aluminum
Seals and Disc	NBR
Core Tube	305 Stainless Steel
Core Guide	Acetal (20.1 watt only)
Rider Ring	PTFE (20.1 watt only)
Core and Plugnut	430F Stainless Steel
Springs	302 Stainless Steel
Shading Coil	Copper
Pipe plug	Zinc Plated Steel

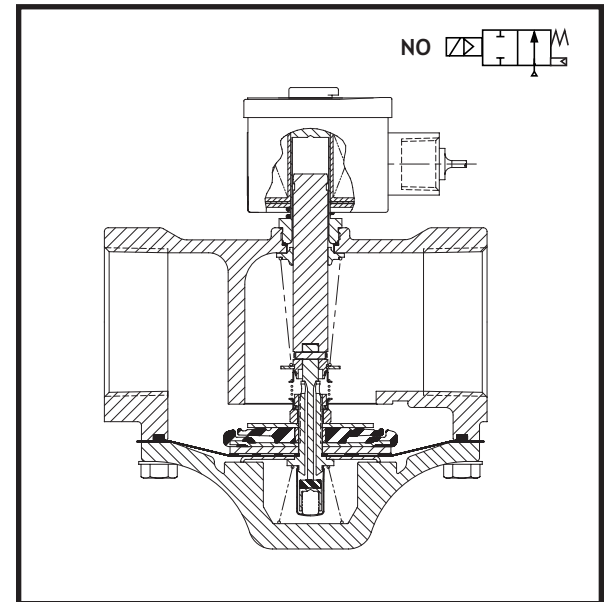
## Electrical

Standard Coil Class of Insulation	Watt Rating and Power Consumption			Ambient Temp. °F	Spare Coil Family	
	Watts	VA Holding	VA Inrush		General Purpose	Explosionproof
					AC	AC
F	17.1	40	93	-40 to 125	238610	-
F	20.1	43	240	-40 to 125	272610	-

**Standard Voltages:** 24, 120, 240 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz) (238610); 120, 240 volts AC, 60 Hz (272610).

## Solenoid Enclosures

RedHat® II molded epoxy Type 1, 2, 3, 3S, 4 and 4X combination. General Purpose and Watertight solenoid enclosures with 1/2" conduit hub as standard.



## Approvals:

UL listed to standard 429 "Electrically Operated Valves," Guide YIOZ, File MP618 Safety Shutoff Valves.

CSA Certified to:

- 1) Standard C22.2 No. 139 "Electrically Operated Valves," File 010381.
- 2) Automatic Gas Valves Z21.21 (6.5), File 112872.



## Specifications

Pipe Size (ins.)	Orifice Size (ins.)	CV Flow	Gas Capacity ①	Operating Pressure Differential (psi)		Max. Fluid Temp. °F	Catalog Number	Const. Ref.	Agency			Wattage	Approx. Shipping Weight (lbs)
			Btu/hr.	Min.	Max.				UL	FM	CSA		
COMBUSTION (Fuel Gas) - NORMALLY OPEN													
3/8	3/4	3.4	172,500	0	5	125	8214G013	1	●	-	●	17.1	2.3
1/2	3/4	4.4	206,250	0	5	125	8214G023	1	●	-	●	17.1	2.3
3/4	3/4	5.1	247,500	0	5	125	8214G033	2	●	-	●	17.1	2.5
3/4	1 5/8	11	659,000	0	5	125	8214G038	3	●	-	●	20.1	4.3
1	1 5/8	21	1,179,000	0	5	125	8214G054	3	●	-	●	20.1	4.3
1 1/4	1 5/8	32	1,538,750	0	5	125	8214G064	4	●	-	●	20.1	4.3
1 1/2	1 5/8	35	1,615,250	0	5	125	8214G074	4	●	-	●	20.1	4.3
2	2 3/32	60	2,924,500	0	5	125	8214G084	5	●	-	●	20.1	6.3
● = General Purpose Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.													

## Capabilities Chart

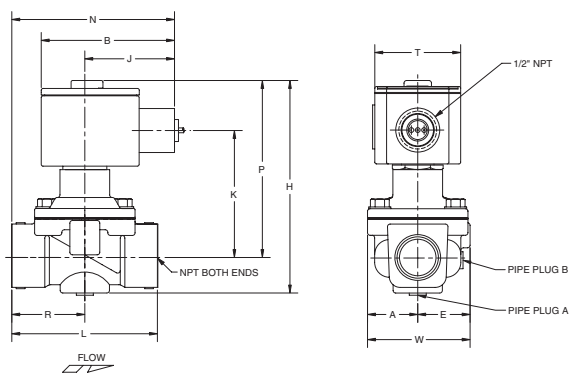
Solenoid Options		Base Catalog Number	Resilient Materials	Standard Rebuild Kit
High Temp.	Junction Box	Aluminum	NBR	AC
HB	JB	8214G013	●	316234
HB	JB	8214G023	●	316234
HB	JB	8214G033	●	316234
HB	JB	8214G038	●	322467
HB	JB	8214G054	●	322467
HB	JB	8214G064	●	322467
HB	JB	8214G074	●	322467
HB	JB	8214G084	●	322468

● = Standard. Other options may be available. All option combinations may not be available.

## Dimensions: inches

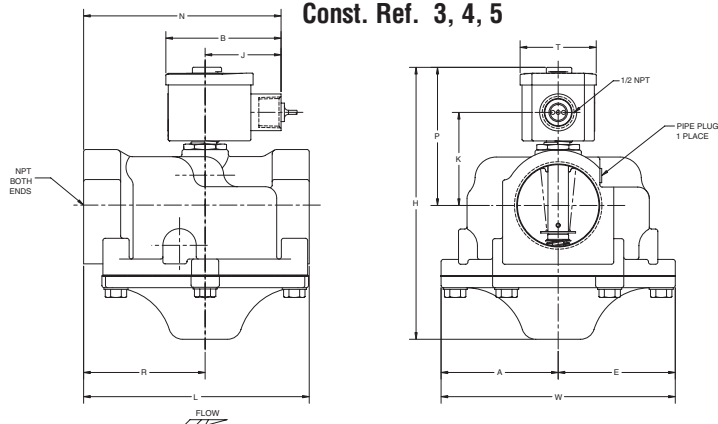
Const. Ref.	A	B	E	H	J	K	L	N	P	R	T	W	Pipe Plug
1	1.14	3.03	1.36	4.48	2.04	2.72	2.75	3.42	3.86	1.38	1.95	2.50	B
2	1.14	3.03	1.25	5.92	2.04	2.90	3.31	3.70	4.04	1.66	1.95	2.39	A
3	2.69	3.11	2.69	6.74	2.05	2.33	5.00	4.67	3.54	2.62	2.06	5.39	-
4	2.69	3.11	2.69	6.74	2.05	2.27	5.00	4.67	3.48	2.62	2.06	5.39	-
5	3.16	3.11	3.16	7.34	2.05	2.52	6.09	4.67	3.73	3.28	2.06	6.32	-

Const. Ref. 1, 2



Can be mounted in any position.

Const. Ref. 3, 4, 5



Must be mounted with solenoid vertical and upright.

## Features

- 2-Way Normally Open operation.
- Unique double disc design with overtravel provides redundant sealing for leak tight shutoff in the normally closed (energized) position.
- Visual Indication of open & shut position.
- Proof of closure switch 1 Amp.
- Die-cast aluminum bodies.
- Zero differential piloted diaphragm.
- Valves provided with 1/8" NPT downstream pipe tap with plug for routine testing.

## Construction

Valve Parts in Contact with Fluids	
Body	Aluminum
Seals and Disc	NBR
Core Tube	305 Stainless Steel
Core Guide	Acetal
Rider Ring	PTFE
Core and Plugnut	430F Stainless Steel
Springs	302 Stainless Steel
Shading Coil	Copper
Pipe plug	Zinc Plated Steel

## Electrical

Standard Coil Class of Insulation	Watt Rating and Power Consumption			Ambient Temp. °F	Spare Coil Family	
	Watts	VA Holding	VA Inrush		General Purpose	Explosionproof
					AC	AC
F	20.1	43	240	-40 to 125	272610	-
Standard Voltages: 120, 240 volts AC, 60 Hz						

## Position Indicator:

Reed Switch: SPST

Switch Type: NO (open when valve is in open position.)

Max. Electricity: 1 amp, 120 volts

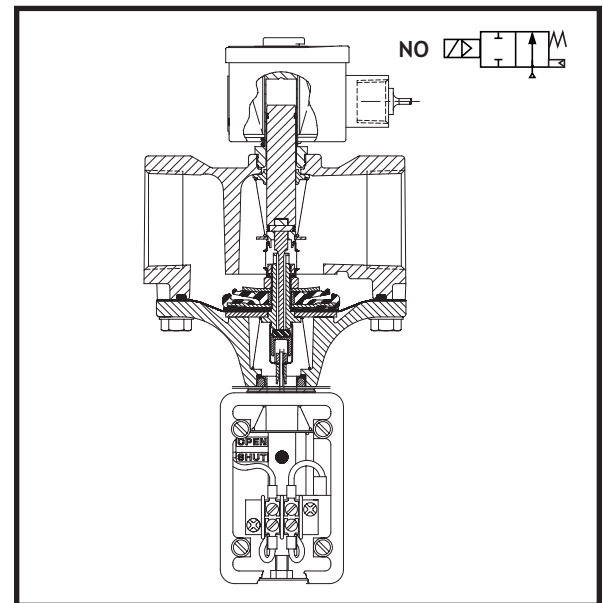
Load: 60 Hz, 15 watt (resistive)

Leads: 18" long

Enclosure: Type 4 Watertight

## Solenoid Enclosures

RedHat® II molded epoxy Type 1, 2, 3, 3S, 4 and 4X combination. General Purpose and Watertight solenoid enclosures with 1/2" conduit hub as standard.



## Approvals:

UL listed to standard 429 "Electrically Operated Valves," Guide YIOZ, File MP618 Safety Shutoff Valves.

CSA Certified to:

1) Standard C22.2 No. 139 "Electrically Operated Valves," File 010381.

2) Automatic Gas Valves Z21.21 (6.5), File 112872.

## Specifications

Pipe Size (ins.)	Orifice Size (ins.)	CV Flow	Gas Capacity ①	Operating Pressure Differential (psi)		Max. Fluid Temp. °F	Catalog Number	Const. Ref.	Agency			Wattage	Approx. Shipping Weight (lbs)
			Btu/hr.	Min.	Max.				UL	FM	CSA		
COMBUSTION (Fuel Gas) - NORMALLY OPEN													
3/4	1 5/8	11	659,000	0	5	125	8214G038C	1	●	-	●	20.1	4.8
1	1 5/8	21	1,179,000	0	5	125	8214G054C	1	●	-	●	20.1	4.8
1 1/4	1 5/8	32	1,538,750	0	5	125	8214G064C	2	●	-	●	20.1	4.8
1 1/2	1 5/8	35	1,615,250	0	5	125	8214G074C	2	●	-	●	20.1	4.8
2	2 3/32	60	2,924,500	0	5	125	8214G084C	3	●	-	●	20.1	6.8
● = General Purpose Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.													

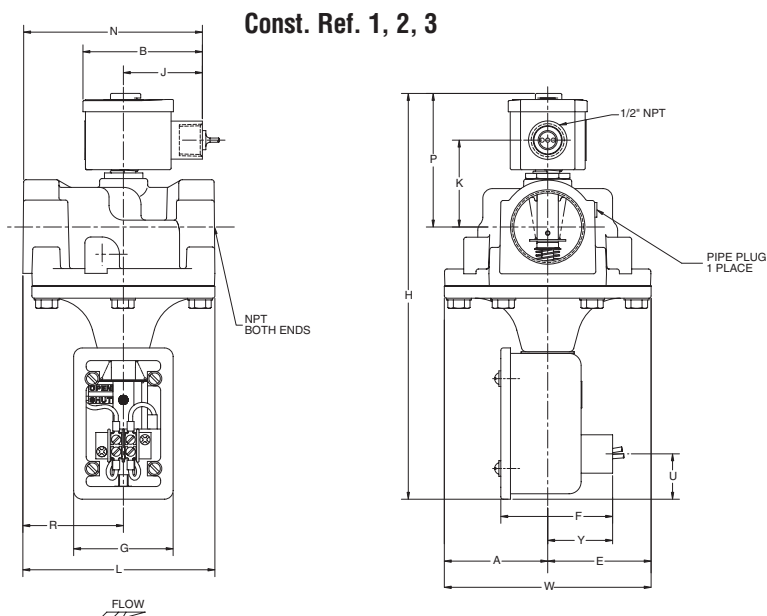
## Capabilities Chart

Solenoid Options		Base Catalog Number	Resilient Materials	Standard Rebuild Kit
High Temp.	Junction Box	Aluminum	NBR	AC
HB	JB	8214G038C	●	322469
HB	JB	8214G054C	●	322469
HB	JB	8214G064C	●	322469
HB	JB	8214G074C	●	322469
HB	JB	8214G084C	●	322470

● = Standard. Other options may be available. All option combinations may not be available.

## Dimensions: inches

Const. Ref.	A	B	F	G	H	J	K	L	N	P	R	U	W	Y
1	2.69	3.11	3.07	2.32	10.54	2.05	4.06	5.00	4.67	5.46	2.62	1.18	5.39	1.69
2	2.69	3.11	3.07	2.32	10.54	2.05	4.13	5.00	4.67	5.53	2.62	1.18	5.39	1.69
3	3.16	3.11	3.07	2.32	11.33	2.05	4.62	6.09	5.33	5.84	3.28	1.18	6.32	1.69



Must be mounted with solenoid vertical and upright.

### Features

- 2-Way Normally Open operation.
- Unique double disc design with overtravel provides redundant sealing for leak tight shutoff in the normally closed (energized) position.
- Die-cast aluminum bodies.
- Zero differential piloted diaphragm.
- Valves provided with 1/8" NPT downstream pipe tap with plug for routine testing.

### Construction

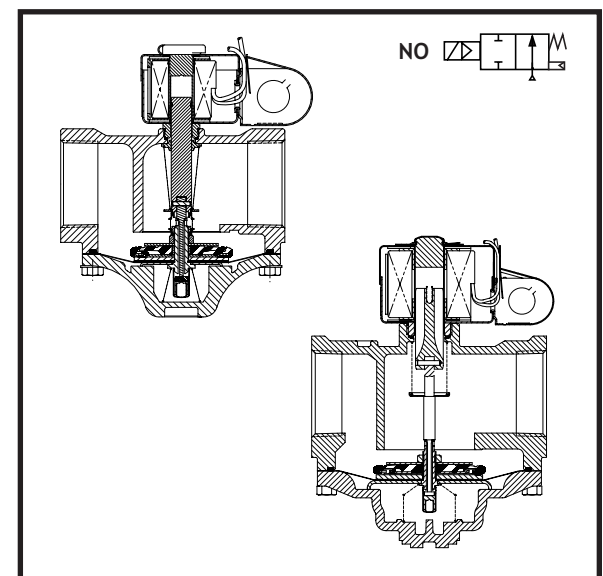
Valve Parts in Contact with Fluids	
Body	Aluminum
Seals and Disc	NBR
Core Tube	305 Stainless Steel
Core Guide	Acetal (20 watt only)
Rider Ring	PTFE (20 watt only)
Core and Plugnut	430F Stainless Steel
Springs	302 Stainless Steel
Shading Coil	Copper
Pipe Plug	Zinc plated steel

### Electrical

Standard Coil Class of Insulation	Watt Rating and Power Consumption			Ambient Temp. °F	Spare Coil Family	
	AC				General Purpose	Explosionproof
	Watts	VA Holding	VA Inrush			
					AC	AC
F	20	43	240	-40 to 125	99257	-
F	28.2	50	385	-40 to 125	206409	-
Standard Voltages: 24, 120, 240 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz) (99257); 120, 240 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz) (206409).						

### Solenoid Enclosures

RedHat® Metal Type 1 General Purpose Junction Box housing with two 7/8" knockouts for conduit connection.



### Approvals:

UL listed to standard 429 "Electrically Operated Valves," Guide YIOZ, File MP618 General Purpose Valves.

CSA Certified to:

- 1) Standard C22.2 No. 139 "Electrically Operated Valves," File 010381.
- 2) Automatic Gas Valves Z21.21 (6.5), File 112872.

## Specifications

Pipe Size (ins.)	Orifice Size (ins.)	CV Flow	Gas Capacity ①	Operating Pressure Differential (psi)		Max. Fluid Temp. °F	Catalog Number	Const. Ref.	Agency			Wattage	Approx. Shipping Weight (lbs)
			Btu/hr.	Min.	Max.				UL	FM	CSA		
COMBUSTION (Fuel Gas) - NORMALLY OPEN													
3/4	1 5/8	11	659,000	0	5	125	8214 037	1	●	-	●	20	4.3
1	1 5/8	21	1,179,000	0	5	125	8214 053	1	●	-	●	20	4.3
1 1/4	1 5/8	32	1,538,750	0	5	125	8214 063	2	●	-	●	20	4.3
1 1/2	1 5/8	35	1,615,250	0	5	125	8214 073	2	●	-	●	20	4.3
2	2 3/32	60	2,924,500	0	5	125	8214 083	3	●	-	●	20	6.3
2 1/2	3	109	6,022,750	0	5	125	8214 093	4	●	-	●	28.2	13.0
● = General Purpose Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.													

## Capabilities Chart

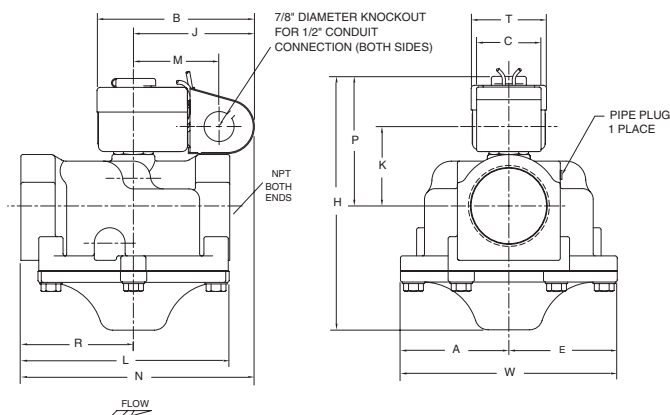
Solenoid Options			Base Catalog Number	Resilient Materials	Standard Rebuild Kit
Rainproof	High Temp.	Junction Box	Aluminum	NBR	AC
R	HB	JB	8214 037	●	316728
R	HB	JB	8214 053	●	316728
R	HB	JB	8214 063	●	316728
R	HB	JB	8214 073	●	316728
R	HB	JB	8214 083	●	316727
R	HT	JB	8214 093	●	316776

● = Standard. Other options may be available. All option combinations may not be available.

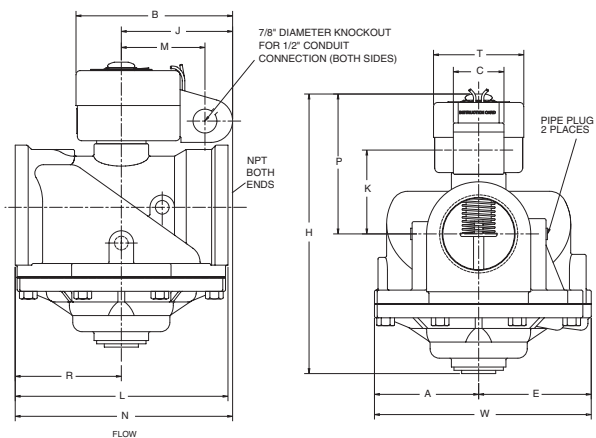
## Dimensions: inches (Shown with optional Junction Box)

Const. Ref.	A	B	C	E	H	J	K	L	M	N	P	R	T	W
1	2.69	4.59	1.88	2.69	6.79	3.53	2.19	5.00	2.50	6.16	3.59	2.62	2.20	5.39
2	2.69	4.59	1.88	2.69	6.79	3.53	2.13	5.00	2.50	6.16	3.53	2.62	2.20	5.39
3	3.16	4.59	1.88	3.16	7.39	3.53	2.38	6.09	2.50	6.34	3.78	2.81	2.20	6.32
4	3.82	5.72	1.88	4.13	10.33	4.07	3.07	7.80	3.07	7.97	5.13	3.89	3.31	3.95

Const. Ref. 1, 2



Const. Ref. 3, 4



Must be mounted with solenoid vertical and upright.



## Features

- 2-Way Normally Open operation.
- Unique double disc design with overtravel provides redundant sealing for leak tight shutoff in the normally closed (energized) position.
- Visual Indication of open & shut position.
- Proof of closure switch 1 Amp.
- Die-cast aluminum bodies.
- Zero differential piloted diaphragm.
- Valves provided with 1/8" NPT downstream pipe tap with plug for routine testing.

## Construction

Valve Parts in Contact with Fluids	
Body	Aluminum
Seals and Disc	NBR
Core Tube	305 Stainless Steel
Core Guide	Acetal
Rider Ring	PTFE
Core and Plugnut	430F Stainless Steel
Springs	302 Stainless Steel
Shading Coil	Copper
Pipe plug	Zinc Plated Steel

## Electrical

Standard Coil Class of Insulation	Watt Rating and Power Consumption			Ambient Temp. °F	Spare Coil Family	
	Watts	VA Holding	VA Inrush		General Purpose	Explosionproof
					AC	AC
F	20	43	240	-40 to 125	99257	-
Standard Voltages: 24, 120, 240 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz) (99257)						

## Position Indicator:

Reed Switch: SPST

Switch Type: NO (open when valve is in open position.)

Max. Electricity: 1 amp, 120 volts

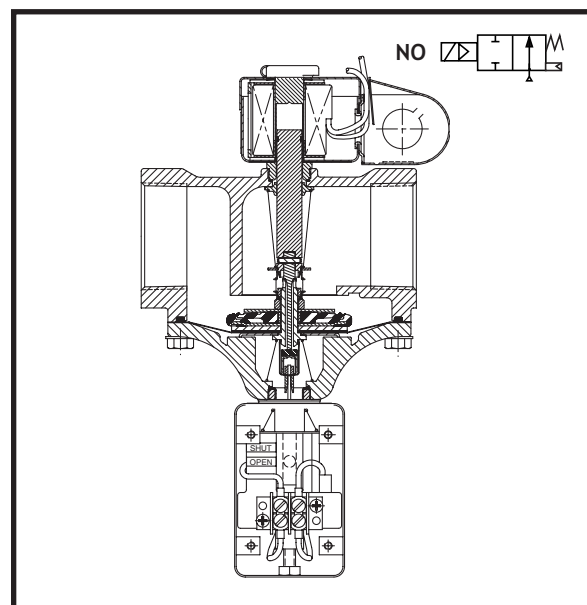
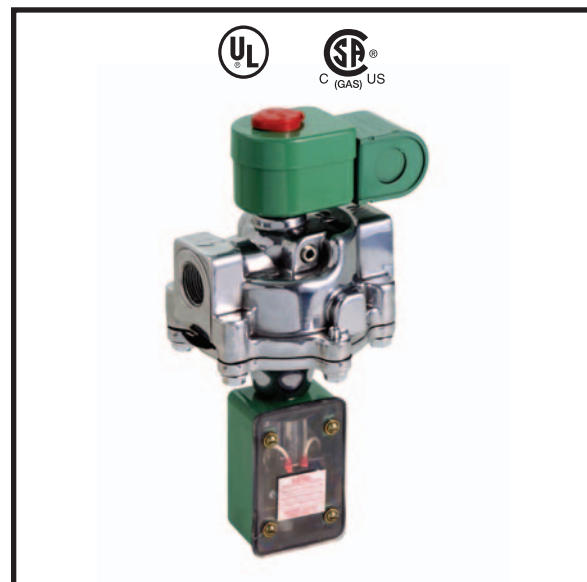
Load: 60 Hz, 15 watt (resistive)

Leads: 18" long

Enclosure: Type I General Purpose

## Solenoid Enclosures

RedHat® metal Type 1 General Purpose Junction Box housing with two 7/8" knock-outs for 1/2" conduit connection.



## Approvals:

UL listed to standard 429 "Electrically Operated Valves," Guide YIOZ, File MP618 Safety Shutoff Valves.

CSA Certified to:

1) Standard C22.2 No. 139 "Electrically Operated Valves," File 010381.

2) Automatic Gas Valves Z21.21 (6.5), File 112872.

## Specifications

Pipe Size (ins.)	Orifice Size (ins.)	CV Flow	Gas Capacity ①	Operating Pressure Differential (psi)		Max. Fluid Temp. °F	Catalog Number	Const. Ref.	Agency			Wattage	Approx. Shipping Weight (lbs)
			Btu/hr.	Min.	Max.				UL	FM	CSA		
COMBUSTION (Fuel Gas) - NORMALLY OPEN													
3/4	1 5/8	11	659,000	0	5	125	8214 037C	1	●	-	●	20	4.8
1	1 5/8	21	1,179,000	0	5	125	8214 053C	1	●	-	●	20	4.8
1 1/4	1 5/8	32	1,538,750	0	5	125	8214 063C	2	●	-	●	20	4.8
1 1/2	1 5/8	35	1,615,250	0	5	125	8214 073C	2	●	-	●	20	4.8
2	2 3/32	60	2,924,500	0	5	125	8214 083C	3	●	-	●	20	6.8
● = General Purpose Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.													

● = General Purpose Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.

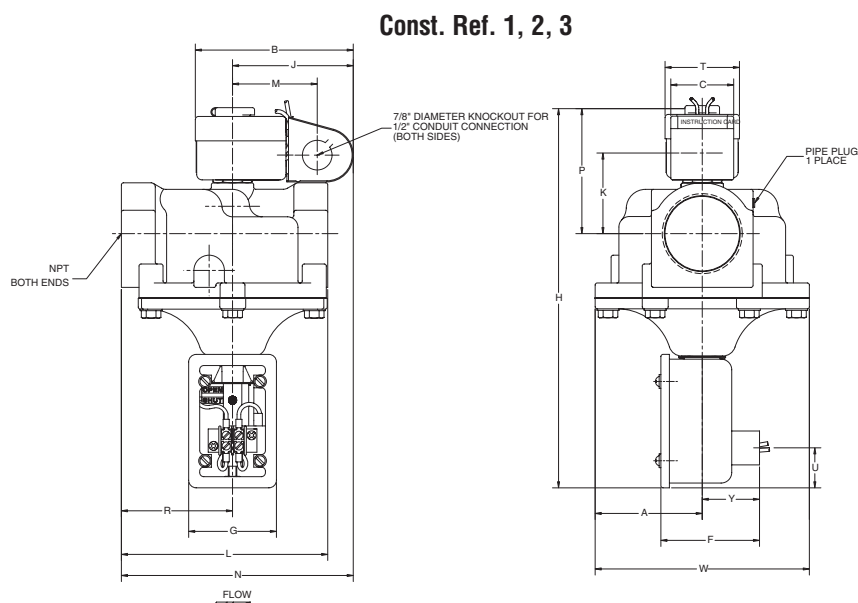
## Capabilities Chart

Solenoid Options		Base Catalog Number	Resilient Materials	Standard Rebuild Kit
High Temp.	Junction Box	Aluminum	NBR	AC
HB	JB	8214 037C	●	322338
HB	JB	8214 053C	●	322338
HB	JB	8214 063C	●	322338
HB	JB	8214 073C	●	322338
HB	JB	8214 083C	●	322496

● = Standard. Other options may be available. All option combinations may not be available.

## Dimensions: inches (Shown with optional Junction Box)

Const. Ref.	A	B	C	F	G	H	J	K	L	M	N	P	R	T	U	W	Y
1	2.69	4.59	1.88	2.82	2.44	10.57	3.53	2.19	5.00	2.50	6.16	3.59	2.62	2.20	1.10	5.39	1.69
2	2.69	4.59	1.88	2.82	2.44	10.57	3.53	2.13	5.00	2.50	6.16	3.53	2.62	2.20	1.10	5.39	1.69
3	3.16	4.59	1.88	2.82	2.44	11.33	3.53	2.38	6.09	2.50	6.82	3.78	3.28	2.20	1.10	6.32	1.69



Must be mounted with solenoid vertical and upright.



### Features

- 2-Way Normally Closed and Normally Open Operation.
- Die-cast aluminum bodies.
- Zero differential piloted diaphragm.
- For on-off control of fuel gas in commercial and industrial gas burners.

### Construction

Valve Parts in Contact with Fluids	
Body	Aluminum
Seals and Disc	NBR
Core Tube	305 Stainless Steel
Core Guide	Acetal (20.1 watt only)
Rider Ring	PTFE (20.1 watt only)
Core and Plugnut	430F Stainless Steel
Springs	302 Stainless Steel
Shading Coil	Copper

### Electrical

Standard Coil Class of Insulation	Watt Rating and Power Consumption				Spare Coil Family			
	DC Watts	AC			General Purpose		Explosionproof	
		Watts	VA Holding	VA Inrush	AC	DC	AC	DC
F	11.6	10.1	25	70	238610	238710	238614	238714
F	-	15.4	27	160	99257	-	99257	-
B	14.9	-	-	-	-	62691	-	-
F	-	28.2	50	385	206409	-	206409	-

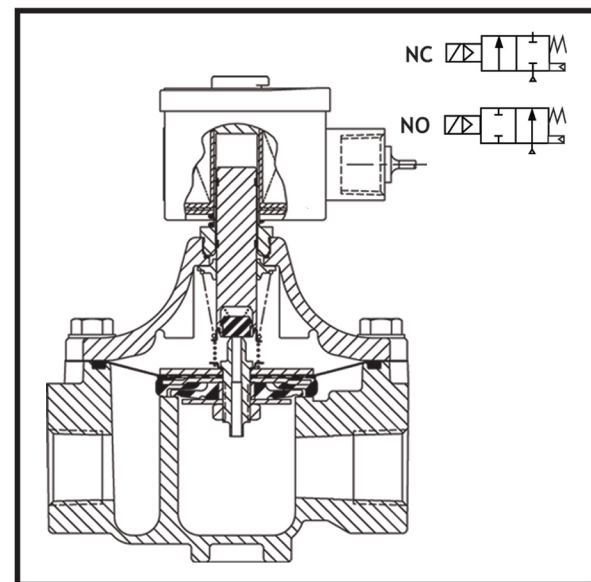
**Standard Voltages:** 24, 120, 240 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz) (238610); 120, 240 volts AC, 60 Hz (272610); 12, 24 volts DC.

\*Agency approval pending to extend low ambient temperature rating from -20°F to -40°F for DC constructions.

### Solenoid Enclosures

**Standard:** Red-Hat - Watertight, Types 1, 2, 3, 3S, 4 and 4X; Red-Hat - Type I.

**Optional:** Red-Hat II - Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7 and 9; Red-Hat - Explosionproof and Raintight, Types 3, 7 and 9. (Except EF8215A40 and EF8215A90, which are suitable for Types 3 and 7 (C and D) only have a T2B temperature rating code.) To order, add prefix "EF" to catalog number. See *Optional Features Section* for other available options.



### Approvals:

UL listed to standard 429 "Electrically Operated Valves," Guide YIOZ, File MP618 Safety Shutoff Valves.

FM Approved to Class 7400 "liquid and gas safety shutoff valves."

CSA Certified to:

- 1) Standard C22.2 No. 139 "Electrically Operated Valves," File 010381.
- 2) Automatic Gas Valves Z21.21 (6.5), File 112872.



## Specifications

Pipe Size (ins.)	Orifice Size (ins.)	CV Flow	Gas Capacity ①	Operating Pressure Differential (psi)		Max. Fluid Temp. °F		Catalog Number	Const. Ref.	Agency			Wattage		Approx. Shipping Weight (lbs)
			Btu/hr.	Min.	Max.	AC	DC			UL	FM	CSA	AC	DC	
COMBUSTION (Fuel Gas) - NORMALLY CLOSED															
3/8	3/4	3.4	183,000	0	50	125	104	8215G010	1	○	○	○	10.1/F	11.6/F	2
1/2	3/4	4.4	238,500	0	50	125	104	8215G020	1	○	○	○	10.1/F	11.6/F	2
3/4	3/4	5.1	247,500	0	50	125	104	8215G030	2	○	○	○	10.1/F	11.6/F	2
1	1 5/8	21	1,119,000	0	25	125	-	8215B050	3	○	○	○	15.4/F	14.9/B	4.3
1 1/4	1 5/8	32	1,730,000	0	25	125	-	8215B060	4	○	○	○	15.4/F	14.9/B	4.3
1 1/2	1 5/8	35	1,900,000	0	25	125	-	8215B070	4	○	○	○	15.4/F	14.9/B	4.3
2	2 3/32	60	2,800,000	0	25	125	-	8215B080	5	○	○	○	15.4/F	14.9/B	6.3
2 1/2	3	108	5,821,000	0	5	125	-	8215A090	6	○	-	○	28.2/F	-	11
3	3	138	7,430,000	0	5	125	-	8215A040	6	○	-	○	28.2/F	-	11
COMBUSTION (Fuel Gas) - NORMALLY OPEN															
3/8	3/4	3.2	172,500	0	125	125	104	8215G013	7	●	-	●	10.1/F	11.6/F	1.1
1/2	3/4	4	206,250	0	125	125	104	8215G023	7	●	-	●	10.1/F	11.6/F	1.1
3/4	3/4	4.6	247,500	0	125	125	104	8215G033	8	●	-	●	10.1/F	11.6/F	1.1
1	1 5/8	22	1,191,750	0	25	125	77	8215C053	9	●	-	●	15.4/F	15.4/F	3.3
1 1/4	1 5/8	33	1,793,250	0	25	125	77	8215C063	9	●	-	●	15.4/F	15.4/F	3.3
1 1/2	1 5/8	37	1,988,250	0	25	125	77	8215C073	10	●	-	●	15.4/F	15.4/F	3.3
2	2 3/32	58	3,100,000	0	25	125	77	8215C083	11	●	-	●	15.4/F	15.4/F	4.6
2 1/2	3	117	6,290,000	0	5	125	-	8215B093②	12	●	-	●	28.2/F	-	11
○ = Safety Shutoff Valve. ● = General Purpose Valve.															
① 1" W.C. Drop @ 2" W.C. Inlet Pressure. 1,000 Btu/cu.ft. or more. 0.64 Specific Gravity Gas. ② Type 1 enclosure only															

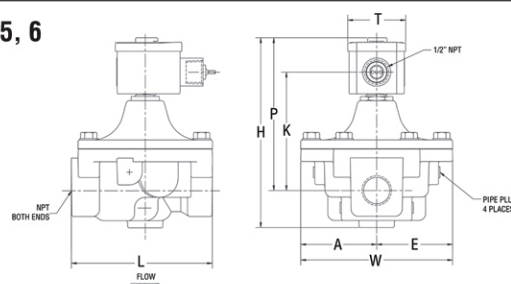
○ = Safety Shutoff Valve. ● = General Purpose Valve.

① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas. ② Type 1 enclosure only

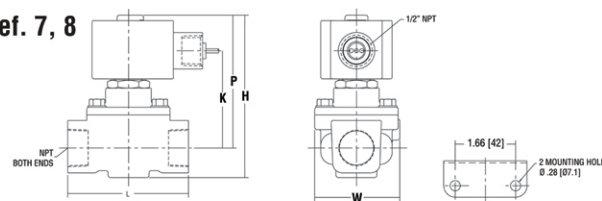
## Dimensions: inches

Const. Ref.	A	E	H	K	L	P	T	W
1	1.14	1.36	4.08	2.47	2.75	3.46	1.95	2.50
2	1.14	1.25	4.52	2.66	3.31	3.64	1.95	2.39
3	2.69	2.69	6.73	4.20	5.00	5.41	2.06	5.39
4	2.69	2.69	6.73	4.27	5.00	5.48	2.06	5.39
5	3.16	3.16	7.34	4.63	6.09	5.48	2.06	6.32
6	3.97	3.97	10.25	5.74	7.79	7.90	3.31	7.95
7	-	-	4.42	2.72	2.75	3.86	-	2.36
8	-	-	4.86	2.72	3.31	4.06	-	2.36
9	-	-	6.84	-	5.00	3.63	-	5.38
10	-	-	6.84	-	5.00	3.56	-	5.38
11	-	-	7.44	-	6.09	3.81	-	6.31
12	-	-	10.25	-	7.80	5.22	-	7.94

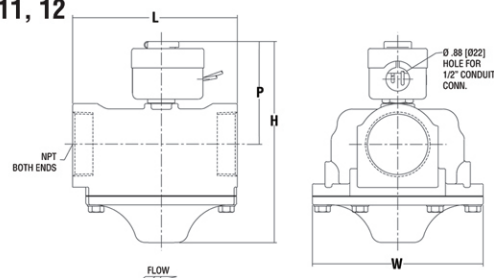
Const. Ref. 3, 4, 5, 6



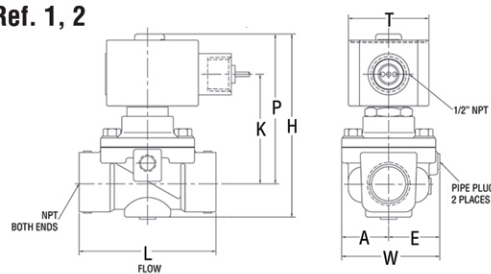
Const. Ref. 7, 8



Const. Ref. 9, 10, 11, 12



Const. Ref. 1, 2





## Features

- 2-Way Normally Closed operation.
- For gas pilot control of commercial and industrial gas burners.
- Direct lift with resilient soft seating for tight shutoff.
- Brass body construction.
- Mountable in any position.

## Construction

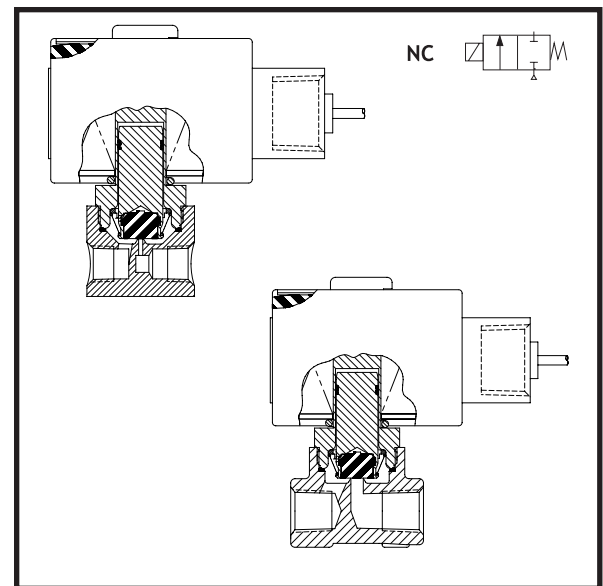
Valve Parts in Contact with Fluids	
Body	Brass
Seals and Discs	NBR
Core Tube	305 Stainless Steel
Core Guide	Acetal
Rider Ring	PTFE
Core and Plugnut	430F Stainless Steel
Springs	Inconel 600
Shading Coil	Copper

## Electrical

Standard Coil Class of Insulation	Watt Rating and Power Consumption			Ambient Temp. °F	Spare Coil Family	
	AC				General Purpose	Explosionproof
	Watts	VA Holding	VA Inrush			
	AC					
F	10.1	25	70	-20 to 125	238610	238614
Standard Voltages: 24, 120, 240 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz).						

## Solenoid Enclosures

**Standard:** Watertight; Types 1, 2, 3, 3S, 4, and 4X with 1/2" conduit hub.



## Approvals:

UL listed to standard 429 "Electrically Operated Valves," Guide Y10Z, File MP618 Safety Shutoff Valves.

FM Approved to Class 7400 "Liquid and Gas Safety Shutoff Valves."

CSA Certified to:

- 1) Standard C22.2 No. 139 "Electrically Operated Valves," File 010381.
- 2) Automatic Gas Valves Z21.21 (6.5), File 112872.
- 3) Automatic Gas Safety Shutoff Valves C/I (3.9), File 112872.

## Specifications

Pipe Size (ins.)	Orifice Size (ins.)	CV Flow	Gas Capacity ①	Operating Pressure Differential (psi)		Max. Fluid Temp. °F	Catalog Number	Const. Ref.	Agency			Wattage	Approx. Shipping Weight (lbs)
			Btu/hr.	Min.	Max.				UL	FM	CSA		
COMBUSTION (Fuel Gas) - NORMALLY CLOSED (Closed when de-energized)													
1/8	1/8	.35	15,000	0	190	125	8262G077	1	○	○	○	10.1	2.3
1/4	9/32	.96	51,700	0	40	125	8262G078	2	○	○	○	10.1	2.4
○ = Safety Shutoff Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.													

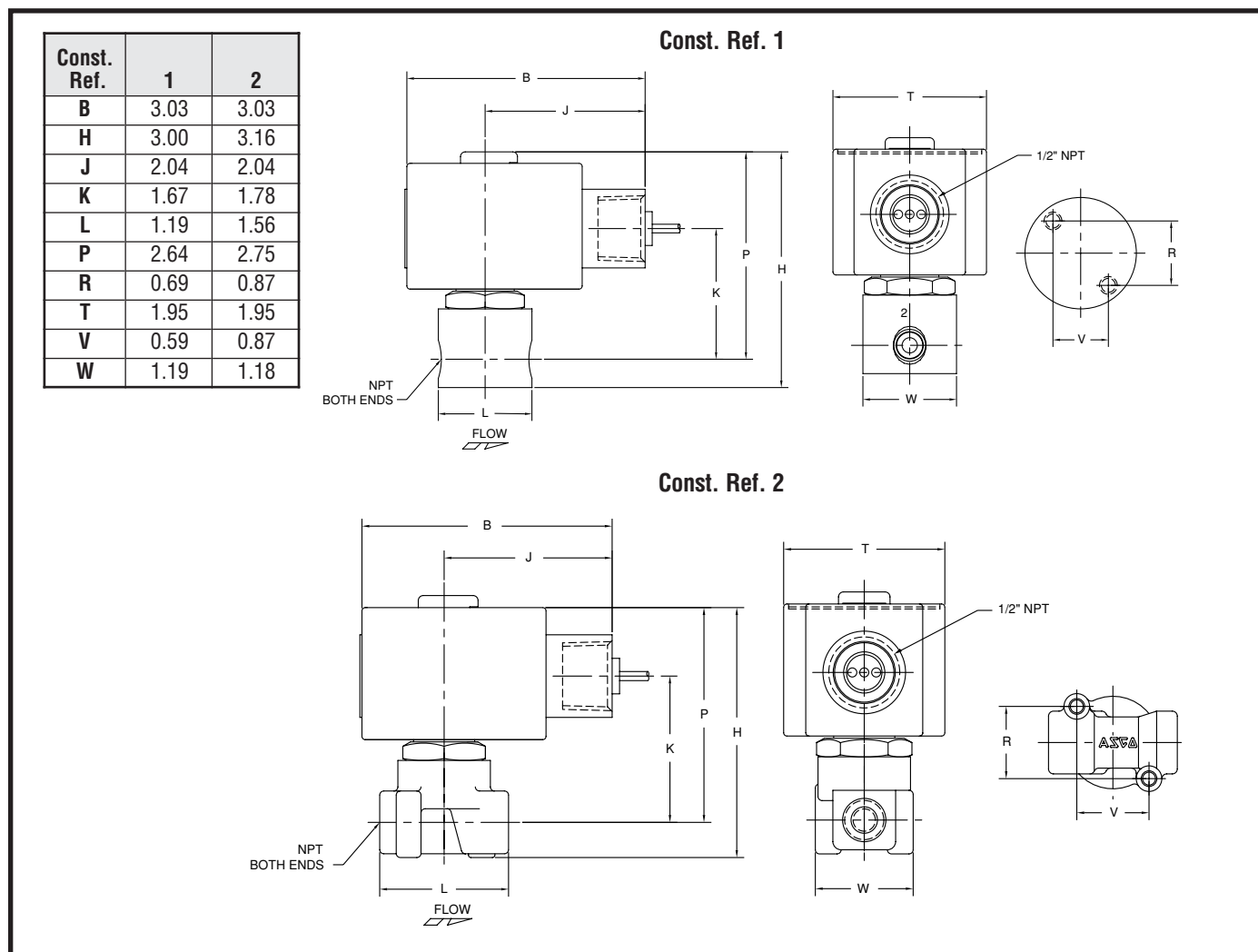
○ = Safety Shutoff Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.

## Capabilities Chart

Solenoid Options			Base Catalog Number	Resilient Materials	Standard Rebuild Kit
NEMA Type 3-9	High Temp.	Wiring Box Screw Terminal	Brass	NBR	AC
EF	HT	JKF	8262G077	●	306631
EF	HT	JKF	8262G078	●	306631

● = Standard. Other options may be available. All option combinations may not be available.

## Dimensions: inches





## General Description

The AH2 Hydramotors are push-type, self-contained, electrohydraulic linear actuators which extend when powered and retract by spring force upon power interruption.

AH2 Hydramotors provide a fast spring return shutoff time of one second or less. When the actuator is mounted to a V710 gas valve, position indicators on both sides of the actuator show the open or closed position of the valve.

The AH2 Hydramotor/V710 gas valve combination provides reliable main line gas control for a wide range of applications, including boilers, furnaces, ovens and all types of industrial and commercial burners. It is available in either a slow or fast opening construction.

## Specifications:

**Power Requirement:** 220 VA max.

**Closing Time:** One second max.

**Opening Time:**

Fast Opening: 14 seconds max.

Slow Opening: 26 seconds max.

**Note:** Opening time is double between -30°F and -40°F ambient.  
Opening time increased 20% when operating on 50Hz.

## Enclosure:

Type 1, 2, 3, 3S, 4, 12, and 13 Combination General Purpose, Watertight, Dusttight and Driptight.

## Ambient Temperature:

-40°F to 150°F (-40°C to 66°C)

## Electrical:

**Actuator:**

**Standard voltages:**

24, 120, 240 volts, AC, 60 Hz (or 110, 220 volts AC, 50 Hz)

**Proof of Closure Switch: (optional)**

A factory set, non-field adjustable SPDT switch. 1800VA max. connected load (e.g. one 15A load @ 120V or two 3.75A loads @ 240V).

**Auxiliary Switches: (optional)**

One or two integral SPDT switches; field adjustable to actuate at any position of stroke. 1800 VA max. connected load (e.g. one 15A load @ 120V or two 3.75A loads @ 240V).

## Electrical Characteristics

Voltage	Amperes		
	Inrush	Opening	Holding
24V	28	8.00	0.73
120V	5.6	1.85	0.11
240V	2.8	0.92	0.05



Series AH2D Hydramotor with V710 valve body.

## Installation:

AH2 Hydramotor mounts in any position directly to a V710 valve with 4 set screws.



## Damper Arm Rating:

Drives damper in one direction only. 20 lb. max. at 2.85" radius at 20°F to 150°F and 10 lb. max. at -40°F to 20°F.

## Approvals:

AH2 Hydramotor with V710 valve.



File # MP932, Vol. 17, Sec. 3;  
Safety Valves



CSA Certified to:

- 1) Automatic Gas Valves Z21.21 (6.5), File 109157 and 113070.
- 2) Automatic Gas Safety Shutoff Valves C/I (3.9), File 113070.



JI 3000606  
Gas Safety Shut-off Valves

## Ordering Information:

Important: Order by Catalog Number and add suffix number for desired optional feature.  
e.g. AH2D112A5

## Specifications

Applications	Catalog Number		
	24 V	120 V	240 V
<b>On-Off Slow Opening (14 to 26 seconds)</b>			
Standard on-off	AH2D101A	AH2D102A	AH2D104A
Proof of closure	AH2D101S	AH2D102S	AH2D104S
<b>On-Off Fast Opening (6 to 14 seconds)</b>			
Standard on-off	AH2D111A	AH2D112A	AH2D114A
Proof of closure	AH2D111S	AH2D112S	AH2D114S

## Optional Features:

(add appropriate suffix number to catalog number)

One Auxiliary Switch (add suffix 2)

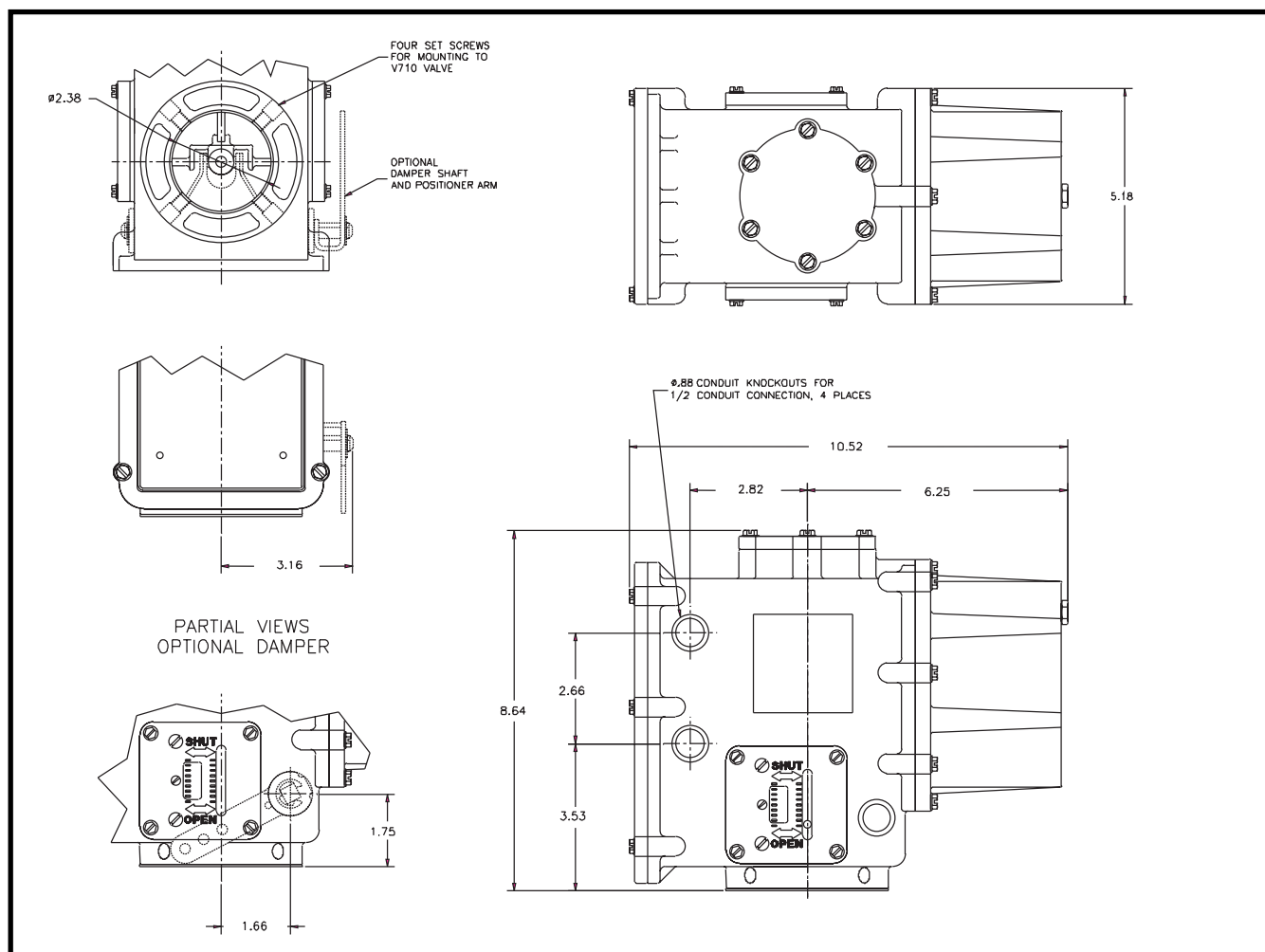
Spring Return Damper Arm (add suffix 3)

Damper Shaft & Arm (add suffix 4)

Damper Shaft, Arm & one Auxiliary Switch, (add suffix 5)

Manual Reset (add suffix R)

## Dimensions: inches







## General Description

The AH4 Hydramotors are three-position push-type, self-contained, electrohydraulic linear actuators featuring an electronic controller for accurate positioning. The low-fire position is factory set at the stroke midpoint, but can be field adjustable to any position up to 100% of stroke.

When power is applied, the actuator shaft travels to the low-fire position. After an external switch completes the low-fire controller circuit, the shaft continues on to the high-fire setting. Opening the external switch returns the shaft to the low-fire setting, and power interruption fully closes the valve in one second or less from any position.

The AH4 Hydramotor/V710 gas valve combination provides reliable main line gas control for a wide range of applications, including boilers, furnaces, ovens and all types of industrial and commercial burners.

## Specifications:

**Power Requirement:** 220 VA max.

**Closing Time:** One second max.

### Opening Time:

Fast Opening: 14 seconds max.

Slow Opening: 26 seconds max.

**Note:** Opening time is double between -30°F and -40°F ambient.

Opening time increased 20% when operating on 50Hz.

## Enclosure:

Type 1, 2, 3, 3S, 4, 12, and 13 Combination General Purpose, Watertight, Dusttight and Driptight.

## Ambient Temperature:

-40°F to 150°F (-40°C to 66°C)

## Electrical:

### Actuator:

#### Standard voltages:

120, 240 volts AC, 60 Hz (or 110, 220volts AC, 50 HZ)

#### Proof of Closure Switch: (optional)

A factory set, non-field adjustable SPDT switch. 1800VA max. connected load (e.g. one 15A load @ 120V or two 3.75A loads @ 240V).

#### Auxiliary Switches: (optional)

One integral SPDT switch; field adjustable to actuate at any position of stroke. 1800 VA maximum connected load (e.g. one 15A load @ 120V or two 3.75A loads @ 240V).

### Output Signal:

A 4-20mA or 1-10VDC output signal relative to actuator stem position is standard.

### Relay Contacts:

One SPST relay; field adjustable to actuate at any position of stroke is standard. Max. load is 2.5A@120V or 1.25A@240V is standard.



Series AH4D Hydramotor with V710 valve body.

## Electrical Characteristics

Voltage	Amperes		
	Inrush	Opening	Holding
120V	5.6	1.85	0.11
240V	2.8	0.92	0.05

## Installation:

AH4 Hydramotor mounts in any position directly to a V710 valve with 4 set screws.



## Damper Arm Rating:

Drives damper in one direction only. 20 lb. max. at 2.85" radius at 20°F to 150°F and 10 lb. max. at -40°F to 20°F.

## Approvals:

AH4 Hydramotor with V710 valve.



File # MP932, Vol. 17, Sec. 3;  
Safety Valves



CSA Certified to:

- 1) Automatic Gas Valves Z21.21 (6.5), File 109157 and 113070.
- 2) Automatic Gas Safety Shutoff Valves C/I (3.9), File 113070.



JI 3000606  
Gas Safety Shut-off Valves

## Ordering Information:

Important: Order by Catalog Number and add suffix number for desired optional feature.  
e.g. AH4D112A2

## Specifications

Applications	Catalog Number	
	120 V	240 V
<b>Low-High-Off Slow Opening (14 to 26 seconds)</b>		
Standard	AH4D102A	AH4D104A
Proof of closure	AH4D102S	AH4D104S
<b>Low-High-Off Fast Opening (6 to 14 seconds)</b>		
Standard	AH4D112A	AH4D114A
Proof of closure	AH4D112S	AH4D114S

## Optional Features:

(add appropriate suffix number to catalog number)

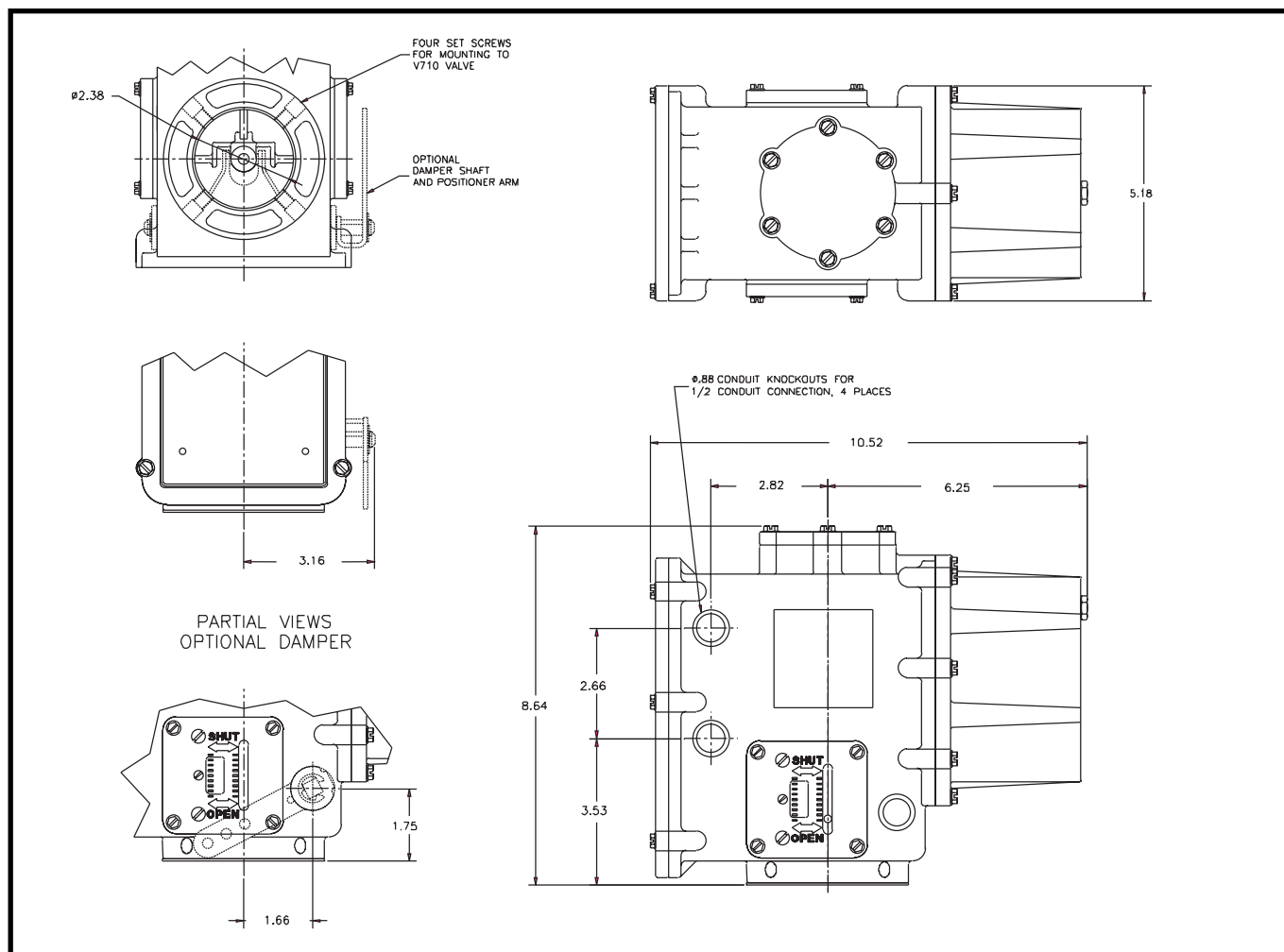
One Auxiliary Switch (add suffix 2)

Spring Return Damper Arm (add suffix 3)

Damper Shaft & Arm (add suffix 4)

Damper Shaft, Arm & one Auxiliary Switch, (add suffix 5)

## Dimensions: inches





## General Description

The AH8 Hydramotors are modulating, push-type, self-contained, electrohydraulic linear actuators featuring an electronic controller for accurate positioning. The AH8 Hydramotor has a low-fire adjustment and responds to remote control signals from either a 135 ohm potentiometer, a 4-20 mA, 1-5 VDC or a 1-10 VDC signal to provide accurate shaft position between low-fire and high-fire (full open) positions. The low-fire position is factory set at the stroke midpoint, but can be field adjustable to any position up to 100% of stroke.

When power with no control signal is applied, the actuator shaft travels to the low-fire position. An external signal then controls the shaft position to any point between low-fire and high-fire positions. Power interruption fully closes the valve in one second or less from any position.

The AH8 Hydramotor/V710 gas valve combination provides reliable main line gas control for a wide range of applications, including boilers, furnaces, ovens and all types of industrial and commercial burners.

## Specifications:

**Power Requirement:** 220 VA max.

**Closing Time:** One second max.

**Opening Time:**

Fast Opening: 14 seconds max.

Slow Opening: 26 seconds max.

**Note:** Opening time is double between -30°F and -40°F ambient.  
Opening time increased 20% when operating on 50 Hz.

**Enclosure:**

Type 1, 2, 3, 3S, 4, 12, and 13 Combination General Purpose, Watertight, Dusttight and Driptight.

**Ambient Temperature:**

-40°F to 150°F (-40°C to 66°C)

**Electrical:**

**Actuator:**

**Standard voltages:**

120, 240 volts AC, 60 Hz (or 110, 220volts AC, 50 HZ)

**Input Signal:**

Actuator accepts a 4-20mA, 1-5VDC, 1-10VDC or 135 ohm potentiometer signal to provide proportional control of actuator stem position between low fire & high fire mode.

**Proof of Closure Switch: (optional)**

A factory set, non-field adjustable SPDT switch. 1800VA max. connected load (e.g. one 15A load @ 120V or two 3.75A loads @ 240V).

**Auxiliary Switches: (optional)**

One integral SPDT switch; field adjustable to actuate at any position of stroke. 1800 VA maximum connected load (e.g. one 15A load @ 120V or two 3.75A loads @ 240V).

**Output Signal:**

A 4-20mA or 1-10VDC output signal relative to actuator stem position is standard.

**Relay Contacts:**

One SPST relay; field adjustable to actuate at any position of stroke is standard. Max. load is 2.5A@120V or 1.25A@240V is standard.



Series AH8D Hydramotor with V710 valve body.

## Electrical Characteristics

Voltage	Amperes		
	Inrush	Opening	Holding
120V	5.6	1.85	0.11
240V	2.8	0.92	0.05

## Installation:

AH8 Hydramotor mounts in any position directly to a V710 valve with 4 set screws.



## Damper Arm Rating:

Drives damper in one direction only. 20 lb. max. at 2.85" radius at 20°F to 150°F and 10 lb. max. at -40°F to 20°F.

## Approvals:

AH8 Hydramotor with V710 valve.



File # MP932, Vol. 17, Sec. 3;  
Safety Valves



CSA Certified to:

- 1) Automatic Gas Valves Z21.21 (6.5), File 109157 and 113070.
- 2) Automatic Gas Safety Shutoff Valves C/I (3.9), File 113070.



JI 3000606  
Gas Safety Shut-off Valves

## Ordering Information:

Important: Order by Catalog Number and add suffix number for desired optional feature.  
e.g. AH8D112A2



## Specifications

Applications	Catalog Number	
	120 V	240 V
<b>Modulating Slow Opening (14 to 26 seconds)</b>		
Standard	AH8D102A	AH8D104A
Proof of closure	AH8D102S	AH8D104S
<b>Modulating Fast Opening (6 to 14 seconds)</b>		
Standard	AH8D112A	AH8D114A
Proof of closure	AH8D112S	AH8D114S

## Optional Features:

(add appropriate suffix number to catalog number)

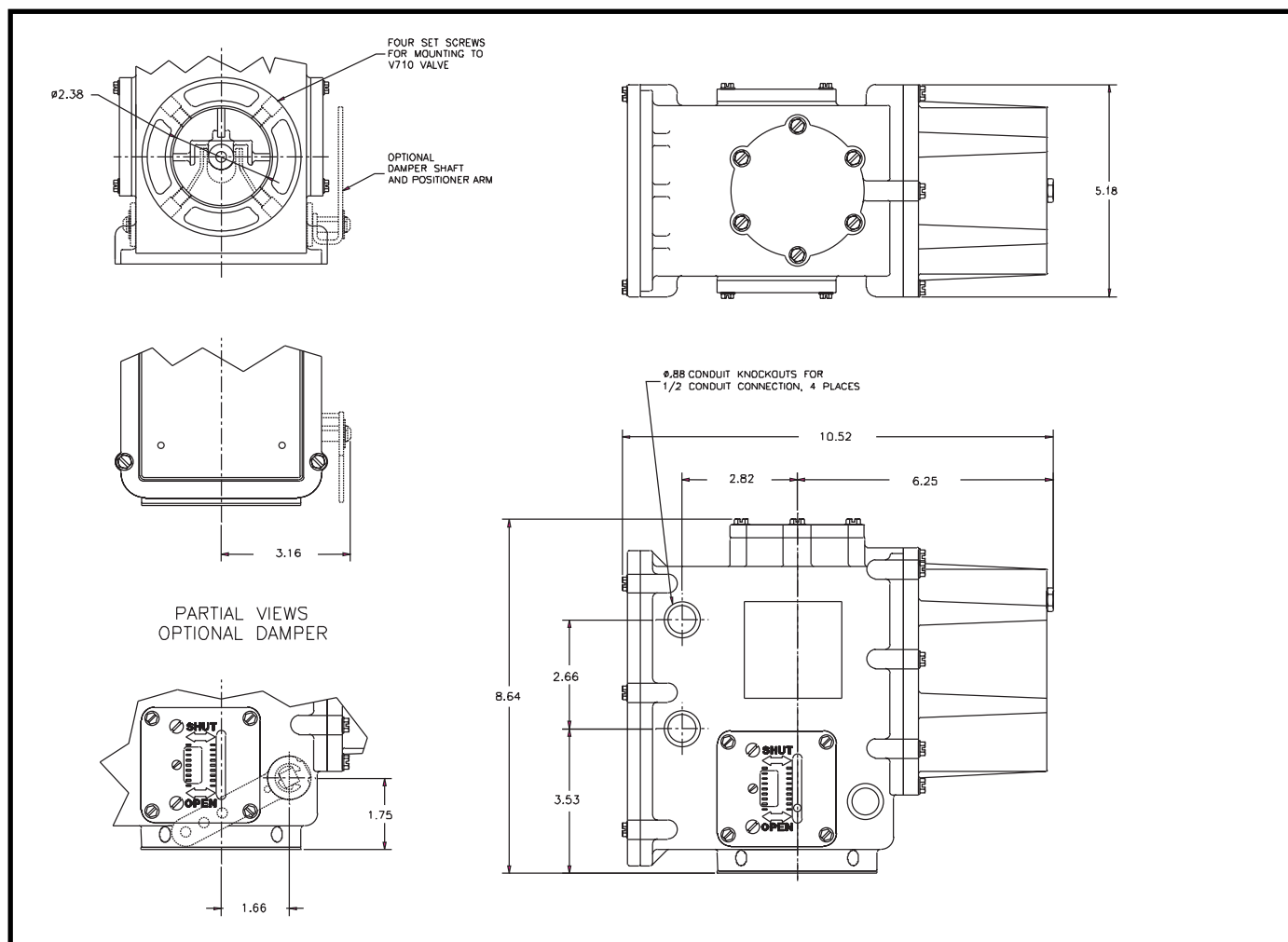
One Auxiliary Switch (add suffix 2)

Spring Return Damper Arm (add suffix 3)

Damper Shaft & Arm (add suffix 4)

Damper Shaft, Arm & one Auxiliary Switch, (add suffix 5)

## Dimensions: inches





2-Way Normally Closed

## V710 Valve Body

Pipe Sizes 3/4" to 3" NPT, 4" Flange

SERIES  
**V710**

### General Description

These 2 way normally closed globe type valve bodies are designed for on/off or proportional control of commercial or industrial gas burners. The V710 is designed exclusively for use with the AH Hydramotor actuator. The AH Hydramotor valve consists of two assemblies; the valve body and the AH Hydramotor actuator.

The V710 is a Push-to-Open valve which opens when the valve stem is depressed by an AH Hydramotor actuator. An internal return spring closes the valve when the Hydramotor actuator is de-energized.

### Model Types:

#### Quick Opening Trim: (Standard)

For applications where metered flow control is not required.

#### Quick Opening w/Valve Seal Overtravel Trim: (Suffix V22)

For any "on-off" application where the user, code or approval agency requires a valve seal overtravel arrangement.

#### Linear Trim: (Suffix V15)

For applications that require flow control, such as slow opening, low fire turn down, or proportional control.

#### Linear w/Valve Seal Overtravel Trim: (Suffix V25)

For applications where both valve seal overtravel and flow control are required. (Not available in 4" flange size.)

### Specifications:

#### Pressure Taps:

Two 1/4" NPT downstream, two 1/4" NPT upstream.

**Fluid:** Fuel Gas

#### Valve Parts in Contact with Fluid:

Body: 3/4" to 3" NPT, Die-cast aluminum, 4" Flange - cast iron

Bonnet: Die-cast aluminum

Seals: Nitrile

Springs: Zinc-plated music wire

Stem Bushing: Delrin

Valve Stem: 303 s.s.

Retaining Pin: 303 s.s.

Retaining Ring: 17-7 s.s.

Pipe Plugs: Zinc-plated steel

Seal Ring: Teflon (models with overtravel)

**Closeoff Pressure:** 25 psi maximum



Series V710 Valve Body with AH Hydramotor

### Installation:

V710 valve body mounts in any position directly to AH2, AH4, AH8 Hydramotor actuator.



### Approvals:

V710 valve with AH Hydramotor.



File # MP932, Vol. 17, Sec. 3;  
Safety Valves



CSA Certified to:

- 1) Automatic Gas Valves Z21.21 (6.5), File 109157 and 113070.
- 2) Automatic Gas Safety Shutoff Valves C/I (3.9), File 113070.



JI 3000606

Gas Safety Shut-off Valves

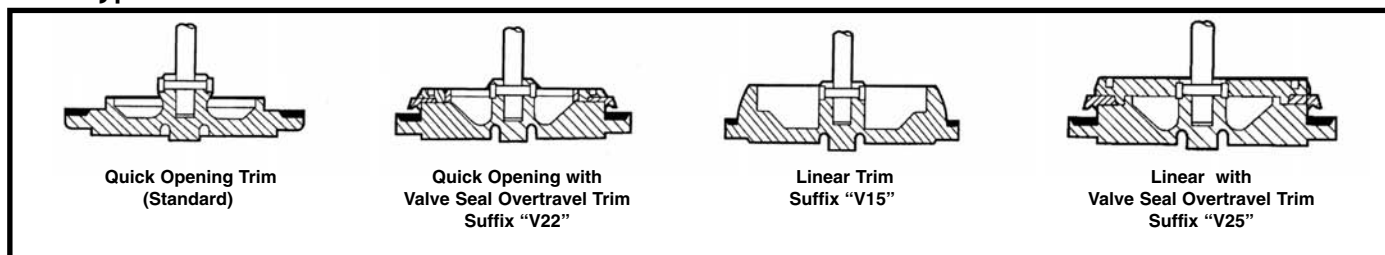
### Ordering Information:

Important: Order by Catalog Number.  
e.g. V710EASV22

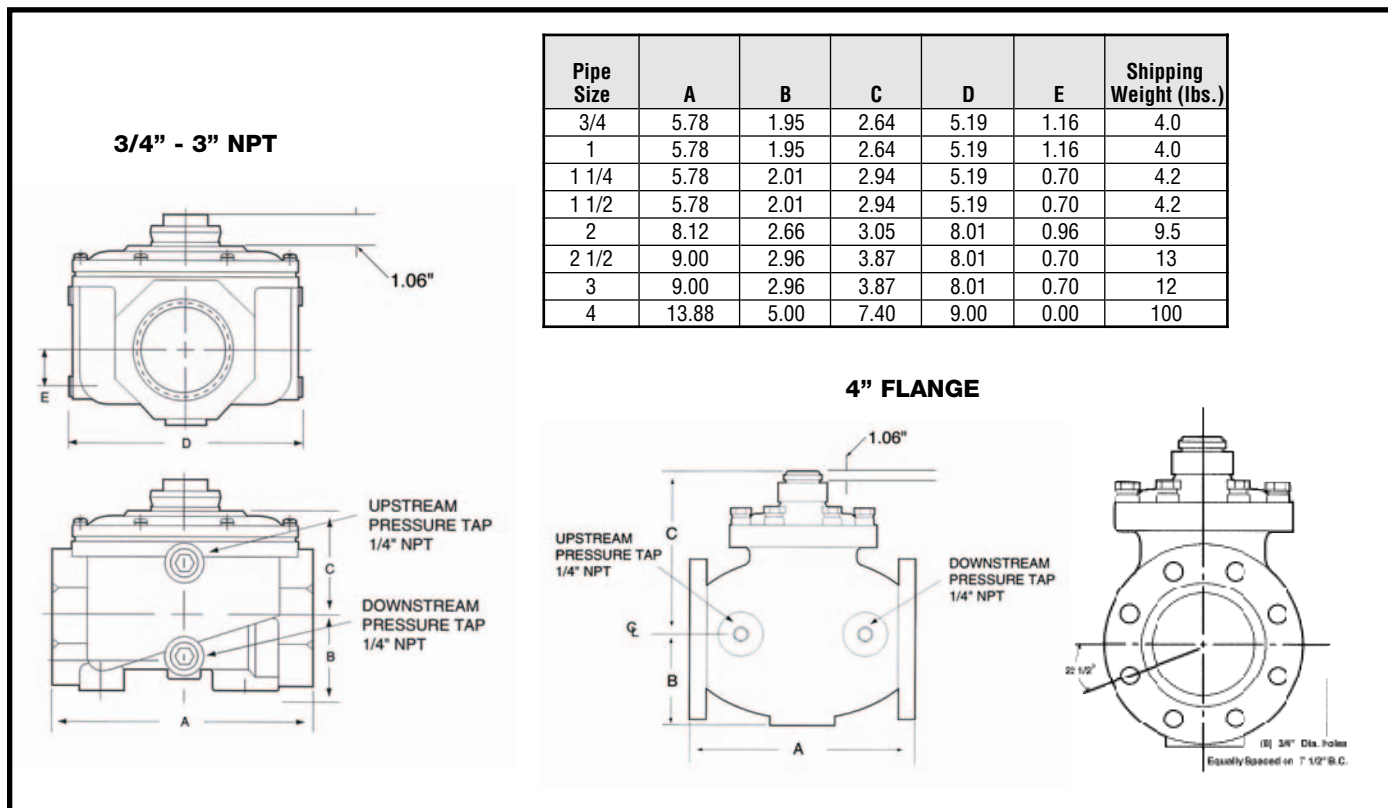
## Specifications

Pipe Size (ins.)	Min. Cv Flow Factor	Min. Gas Capacity* Btu/hr	Operating Pressure Differential (psi)		Fluid & Ambient Temp. °F		Catalog Numbers			
			Min.	Max.	Min.	Max.	Quick Opening Trim	Quick Opening w/Valve Seal Overtravel Trim	Linear Trim	Linear w/ValveSeal OvertravelTrim
Normally Closed (Closed when released)										
3/4	12	665,000	0	15	-40	150	V710EAS	V710EASV22	V710EASV15	V710EASV25
1	17	960,000	0	15	-40	150	V710FAS	V710FASV22	V710FASV15	V710FASV25
1 1/4	25	1,406,000	0	15	-40	150	V710GAS	V710GASV22	V710GASV15	V710GASV25
1 1/2	30	1,717,000	0	15	-40	150	V710HAS	V710HASV22	V710HASV15	V710HASV25
2	64	3,620,000	0	10	-40	150	V710JAS	V710JASV22	V710JASV15	V710JASV25
2 1/2	75	4,250,000	0	10	-40	150	V710KAS	V710KASV22	V710KASV15	V710KASV25
3	92	5,230,000	0	10	-40	150	V710LAS	V710LASV22	V710LASV15	V710LASV25
4	180	10,200,000	0	15	-40	150	V710NCF	V710NCFV22	V710NCFV15	N/A
* 1" W. C. Drop @ 2" W. C. Inlet Pressure, 1,000 Btu/Cu. Ft or more, 0.64 Spec. Grav. Gas										

## Trim Types



## Dimensions: inches



### General Description

The Normally Closed H117 is a combination Hydramotor® actuator and safety shutoff/control gas valve. It is used for commercial and industrial burners in applications such as furnaces, dryers, dehydrators, conversion burners and heaters.

The cast iron valve body provides high flow and self cleaning operation. Its soft synthetic seat and integral, heavy-duty return spring closes the valve tightly upon current interruption, in one second or less.

The self-contained, hermetically sealed, pull-type electrohydraulic actuator consists of a motor/pump unit immersed in oil, reducing wear and providing highly reliable operation.

### Specifications

Fluid: Fuel gas

Opening Time: 20 seconds max.

Closing Time: 1 second max.

Note: Opening time increases 20% with 50Hz

Enclosure: Type 1 General Purpose standard.

Type 4/7 Watertight/Explosion proof optional.

Ambient Temperature: -40°F to 150°F (-40°C to 66°C)

Body Class: Cast Iron, 1" to 3" - 250# screw, 4" - 125# flange.

Pipe Taps: 1/4" upstream & downstream taps for routine leak testing.

### Electrical

Power Requirement: 158 VA max.

Standard Voltage: 110-120V/50-60Hz & 220-240V/50-60Hz

Operating Voltage	Amperes		
	Inrush	Opening	Holding
110-120V/50-60Hz	13.2	1.32	0.14
220-240V/50-60Hz	6.6	.66	0.07

**Auxiliary Switch:** One integral SPDT switch, 15A@120V, 7.5A@240V, (1800VA max.). Actuates at full open position of actuator stroke (not adjustable). Up to 6 adjustable yoke mounted switched may be added.

**Proof of Closure Switch:** Optional factory set non-field adjustable SPDT switch, 15A@120V, 7.5A@240V (1800VA max.).



### Installation

Multi-poise, may be mounted in any position.

### Approvals:

UL listed

FM Approved

CSA Certified to:

1) Automatic Gas Safety Shutoff Valves C/I (3.9), File 113070.

## Specifications

Catalog Number	Pipe Connection (NPT)	Gas Capacity (ft <sup>3</sup> /hr)*	Cv Flow	Max. Operating Pressure Differential (psi)	Const. Ref.	Opening Time (Sec.)	Shipping Weight lbs.
<b>Fast Opening</b>							
H117AJ112F1	2	8,000	151	20	1	12-18	75
H117AK112F1	2 1/2	12,900	244	8	2	12-18	105
H117AL112F1	3	17,000	320	8	3	12-18	105
H117AN112F1	4 (Flange)	27,000	510	4	4	12-20	140
<b>Fast Opening with Valve Seal Overtravel Interlock (FM Proof of Closure)</b>							
H117AJ112F1F26V16	2	8,000	124	20	1	12-18	80
H117AK112F1F26V16	2 1/2	12,900	171	8	2	12-18	110
H117AL112F1F26V16	3	17,000	320	8	3	12-18	110
H117AN112F1F26V16	4 (Flange)	27,000	444	4	4	12-20	145

\*One cubic foot per hour = 1,000 Btu/hr, 0.64 specific gravity natural gas @ 1" W.C.P.D.

## Dimensions: inches

Const. Ref.	A	B	C
1	8.13	18.13	2.50
2	10.88	18.63	2.88
3	10.88	18.63	3.88
4	13.88	20.00	4.06

### Replacement Actuators:

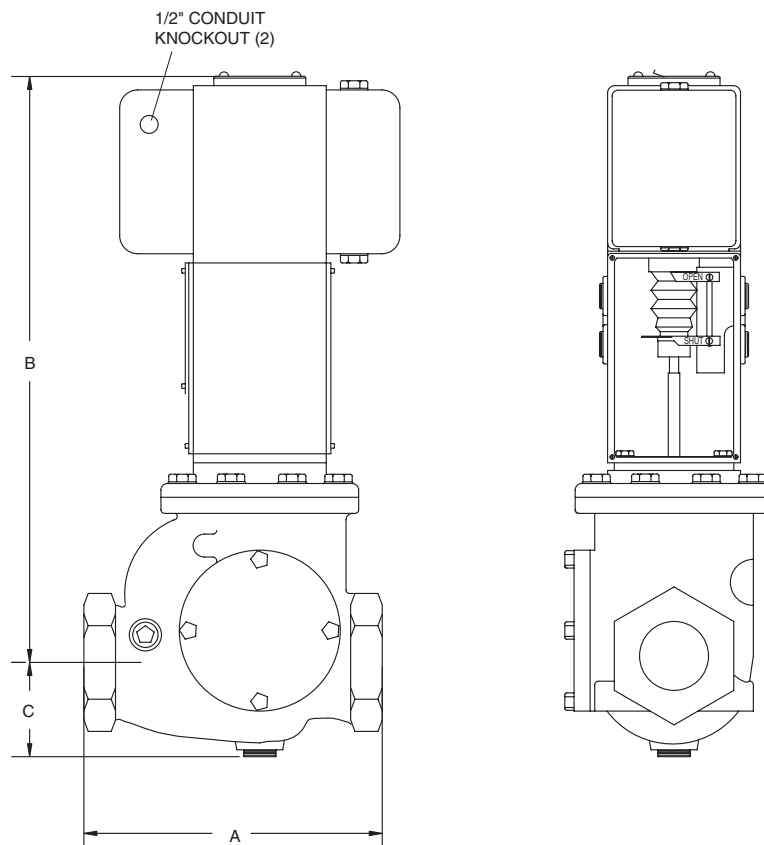
Catalog Number	Voltage
H10A620B5F1	110-120V/50-60Hz
H10A640B5F1	220-240V/50-60Hz

For FM Proof of Closure add F26 to Cat. No.

### Replacement Switches:

Kits	Switches*	Type
104772EA1	1	Auxiliary (Adjustable)
104772EA2	2	
104772EA3	3	
104772EAX1	1	Proof of Closure

\* Yoke Mounted



### General Description

The Normally Closed H118 is a combination Hydramotor® actuator and safety shutoff/control gas valve. It is used for commercial and industrial burners in applications such as furnaces, dryers, dehydrators, conversion burners and heaters.

The cast iron, globe-type valve body features a soft synthetic seat and integral heavy-duty return spring for tight and certain closure in one second or less upon current interruption.

The self contained, hermetically sealed, pull-type electrohydraulic actuator consists of a motor/pump unit immersed in oil, reducing wear and provides highly reliable operation.

### Specifications

Fluid: Fuel gas

Opening Time: 28 seconds max.

Closing Time: 1 second max.

Enclosure: Type 1 General Purpose standard.

Type 4/7 Watertight/Explosionproof optional.

Ambient Temperature: -40°F to 150°F (-40°C to 66°C)

Body Class: Cast Iron, 1" to 3" - 250# screw, 4"- 125# flange.

Pipe Taps: 1/4" upstream & downstream taps for routine leak testing.

### Electrical

Power Requirement: 158 VA max. (1-3"), 288 VA max. (4")

Standard Voltage: 110-120V/50-60Hz

Operating Voltage	Amperes		
	Inrush	Opening	Holding
1" Through 3"			
110-120V/50-60Hz	13.2	1.32	0.14
220-240V/50-60Hz	6.6	.66	0.07
4" Only			
110-120V/50-60Hz	24.0	2.40	0.18
220-240V/50-60Hz	12.0	1.20	0.09

**Auxiliary Switch:** One integral SPDT switch, 15A@120V, 7.5A@240V, (1800VA max.). Actuates at full open position of actuator stroke (not adjustable). Up to 6 adjustable yoke mounted switches may be added.

**Proof of Closure Switch:** Optional factory set non-field adjustable SPDT switch, 15A@120V, 7.5A@240V (1800VA max.).



### Installation

Multi-poise, may be mounted in any position.

### Approvals:

UL listed

FM Approved

CSA Certified to:

1) Automatic Gas Safety Shutoff Valves C/I (3.9), File 113070.

## Specifications

Catalog Number	Pipe Connection (NPT)	Gas Capacity (ft <sup>3</sup> /hr)*	Cv Flow	Max. Operating Pressure Differential (psi)	Const. Ref.	Opening Time (Sec.)	Shipping Weight lbs.
<b>Fast Opening</b>							
H118AF122F1	1	915	17	35	1	7-18	22
H118AG122F1	1 1/4	1,155	25	35	1	7-18	23
H118AH122F1	1 1/2	1,525	35	25	2	8-20	28
H118AJ122F1	2	3,300	67	15	3	10-24	32
H118AK122F1	2 1/2	3,730	86	15	4	11-28	52
H118AL122F1	3	6,095	125	15	5	12-18	54
H118AN132F1	4 (Flange)	9,710	168	15	6	15-24	148
<b>Fast Opening with Valve Seal Overtravel Interlock (FM Proof of Closure)</b>							
H118AJ122F1F26V16	2	3,300	67	15	3	9-17	37
H118AK122F1F26V16	2 1/2	3,730	86	15	4	11-20	57
H118AL122F1F26V16	3	6,095	125	15	5	13-23	59
H118AN132F1F26V16	4 (Flange)	9,710	168	15	6	15-24	153

\*One cubic foot per hour = 1,000 Btu/hr, 0.64 specific gravity natural gas @ 1" W.C.P.D.

## Dimensions: inches

Const. Ref.	A	B	C
1	5.13	14.65	1.93
2	6.50	15.15	2.56
3	8.13	15.00	2.70
4	9.50	15.38	3.28
5	10.88	15.81	3.75
6	13.88	23.88	5.00

### Replacement Actuators:

Catalog Number ①	Voltage
H10A620B5F1	110-120V/50-60Hz
H10A640B5F1	220-240V/50-60Hz
H30A2220B20F1 ②	110-120V/50-60Hz

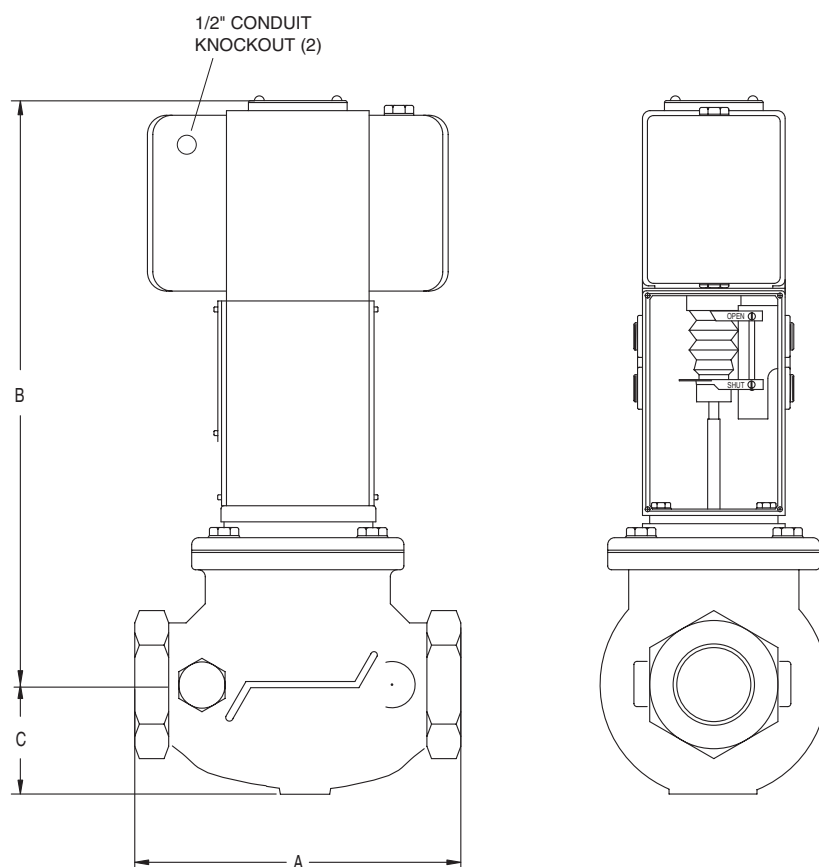
① For FM Proof of Closure add F26 to Cat. No.

② 4-inch size only.

### Replacement Switches:

Kits	Switches*	Type
1" through 3"		
104772EA1	1	Auxiliary (Adjustable)
104772EA2	2	
104772EA3	3	
104772EAX1	1	Proof of Closure
4" only		
104772FA1	1	Auxiliary (Adjustable)
104772FA2	2	
104772FA3	3	
104772FAX1	1	Proof of Closure

\* Yoke Mounted





## General Description

The H137 is a 2-way, normally closed, safety shutoff valve providing trouble free, electrohydraulic on-off control of combustion gas for boilers, industrial furnaces, dryers, dehydrators, large conversion burners, air heaters and similar applications.

The self-contained Hydramotor® actuator is a powerful, pull-type hydraulic ram providing output force of 1,400 pounds to fully open the valve. Upon current interruption, dual redundant relief valves dump hydraulic pressure, closing the valve in one second. The Hydramotor® consists of a motor/pump unit immersed in oil, reducing wear and provides highly reliable operation.

The H137 is a cast iron-bodied valve with Nitrile seat and aluminum trim. Pulling force from the Hydramotor® actuator moves a lever (providing mechanical advantage) against spring and gas pressure to open the soft-seated flap, allowing straight-through gas flow.

A simple, two-wire circuit controls the motorized valve. Each H137 is equipped with one standard SPDT switch which actuates at the fully-open (energized) position. Each is equipped with a valve seal overtravel interlock switch which can be wired into the startup or pre-ignition interlock circuit to permit supervision of the valve's closed position (FM proof of closure).

## Specifications

Fluid: Fuel gas

Opening Time: 27 seconds max.

Closing Time: 1 second max.

Enclosure: Type 4 Watertight standard.

Type 7 Explosionproof optional.

Ambient Temperature: -40°F to 150°F (-40°C to 66°C)

Body Class: Cast Iron, 2" to 3": 250# screw, 4"-6": 125# flanges.

Pipe Taps: 1/4" upstream & downstream taps for routine leak testing.

## Electrical

Power Requirement: 324 VA

Standard Voltage: 110-120V/50-60Hz

Operating Voltage	Amperes		
	Inrush	Opening	Holding
110-120V/50-60Hz	270	2.7	0.18

**Auxiliary Switch:** Integral SPDT switch, 15A@120V Actuates at full open position of actuator stroke (not adjustable). Up to 2 adjustable yoke mounted switches may be added.

**Proof of Closure Switch:** Integral factory set, non-field adjustable SPDT switch, 1/4 HP@120V.



## Installation

Multi-poise, may be mounted in any position.

## Approvals:

UL listed

FM Approved

CSA Certified to:

1) Automatic Gas Safety Shutoff Valves C/I (3.9), File 113070.



## Specifications

Catalog Number	Pipe Connection (NPT)	Gas Capacity ft <sup>3</sup> /hr *		Cv Flow	Max. Operating Pressure Differential (psi)	Const. Ref.	Opening Time	Shipping Weight lbs.
		P 1" W.C.	P 5 psi					
H137CJ12F1F26V16	2	8,000	210,000	151	60	1	22	130
H137CK12F1F26V16	2 1/2	12,900	250,000	244	50	2	22	135
H137CL12F1F26V16	3	17,000	360,000	320	50	2	22	135
H137CN32F1F26V16	4 (Flange)	27,000	600,000	510	30	3	27	143
H137CQ32F1F26V16	6 (Flange)	50,000	1,200,000	1020	20	4	27	150

\*One cubic foot per hour = 1,000 Btu/hr, 0.64 specific gravity natural gas @ 1" W.C.P.D.

## Dimensions: inches

Const. Ref.	A	B	C	D
1	8.12	25.25	2.50	4.95
2	11.00	26.09	2.88	6.50
3	13.87	28.69	4.06	7.75
4	17.81	29.75	5.13	10.35

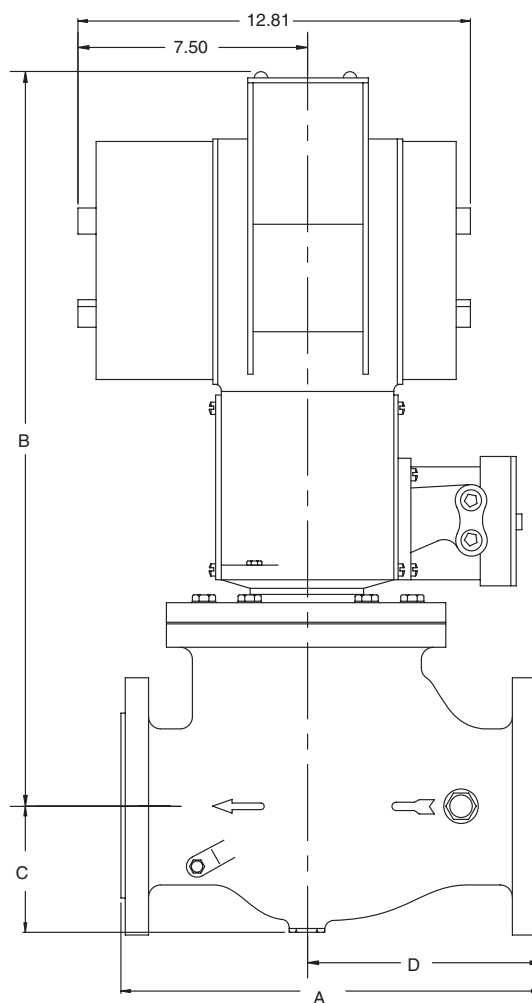
### Replacement Actuators:

Catalog Number	Voltage
H30A4820B20C1F1F26	110-120V/50-60Hz

### Replacement Switches:

Kits	Switches*	Type
104772FAX1	1	Proof of Closure
104772FAX2	2	1 Proof of Closure and 1 Auxiliary
104772FAX3	3	1 Proof of Closure and 2 Auxiliary

\*Yoke Mounted



## Features

- 2-Way Normally Closed operation.
- For control of commercial and industrial gas burners.
- Ideal for high pressure applications.
- Stainless Steel body construction.
- Mountable in any position.

## Construction

Valve Parts in Contact with Fluids	
Body	Stainless Steel (300 Series)
Seals and Disc	NBR
Core Tube	305 Stainless Steel
Core and Plugnut	430F Stainless Steel
Springs	302 Stainless Steel
Shading Coil	Silver

## Electrical

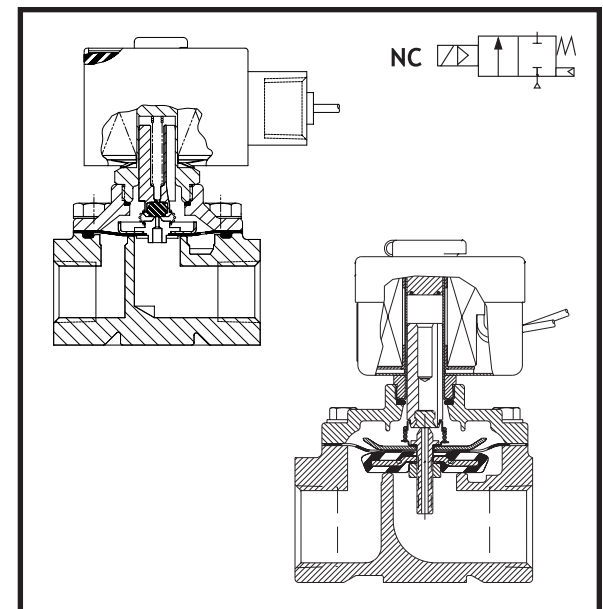
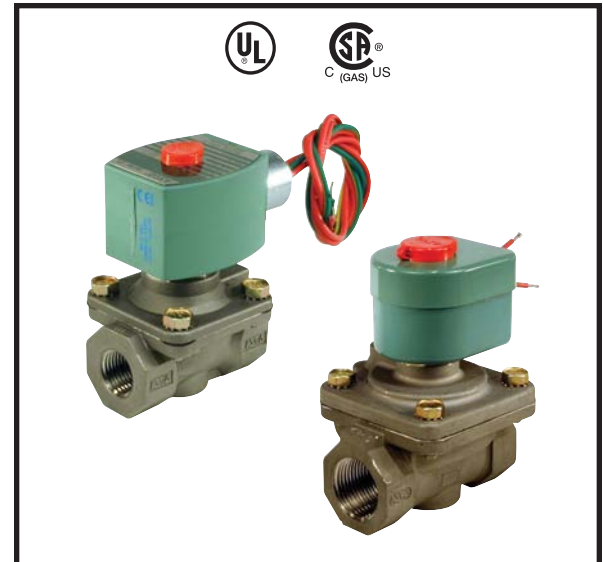
Standard Coil Class of Insulation	Watt Rating and Power Consumption			Ambient Temp. °F	Spare Coil Family	
	AC				General Purpose	Explosionproof
	Watts	VA Holding	VA Inrush			
						AC
F	17.1	40	90	32 to 125	238610	238614
F	15.4	27	160	32 to 125	99257	-
F	16.1	35	180	32 to 125	272610	272614
Standard Voltages: 24, 120, 240 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz).						

## Solenoid Enclosures

General Purpose, Type 1 metal enclosure with 7/8" hole for 1/2 conduit connector (HV266343-1).

Watertight, Types 1, 2, 3, 3S, 4 & 4X molded epoxy enclosure with 1/2" conduit hub (HV266342-1, HV266342-2, HV266343-2).

Explosion & Watertight, Types 1, 2, 3, 3S, 4X, 7 & 9 molded epoxy enclosure with 1/2" conduit hub (HV266342-3, HV266342-4, HV266343-3).



## Approvals:

UL listed to:

- 1) Standard 429 "Electrically Operated Valves," Guide Y10Z, File MP618 Safety Valves.
- 2) Standard 429 "Electrically Operated Valves for use in Hazardous Locations" Guide YTSX, File E25549 Safety Valves.

CSA Certified to:

- 1) Standard C22.2 No. 139 "Electrically Operated Valves," File 010381. (HV266342-1, HV266342-2, HV266343-2)
- 3) Automatic Gas Safety Shutoff Valves C/I (3.9), File 112872. (HV266342-3, HV266342-4, HV266343-3)

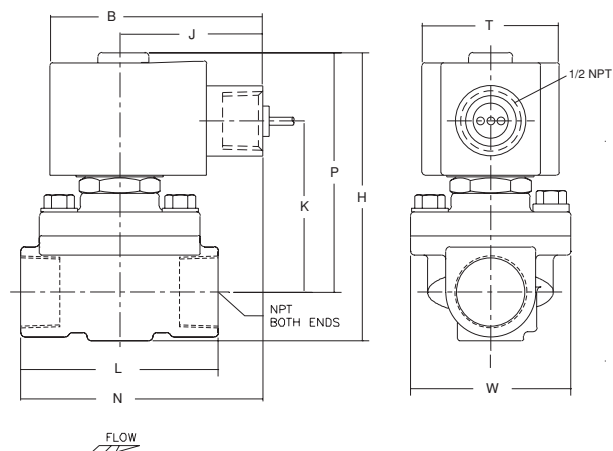
## Specifications

Pipe Size (ins.)	Orifice Size (ins.)	CV Flow	Gas Capacity ①	Operating Pressure Differential (psi)		Max. Fluid Temp. °F	Catalog Number	Const. Ref.	Agency			Wattage	Approx. Shipping Weight (lbs)
			Btu/hr.	Min.	Max.				UL	FM	CSA		
COMBUSTION (Fuel Gas) - NORMALLY CLOSED													
1/2	5/8	4	203,000	0	150	175	HV266342-1	1	○	-	○	17.1	3.5
1/2	5/8	4	203,000	0	150	175	HV266342-3	1	○	-	○	17.1	3.5
3/4	5/8	4.5	203,000	0	150	175	HV266342-2	1	○	-	○	17.1	3.5
3/4	5/8	4.5	203,000	0	150	175	HV266342-4	1	○	-	○	17.1	3.5
1	1	11.2	505,000	0	150	175	HV266343-1	2	○	-	-	15.4	8.8
1	1	11.2	505,000	0	150	175	HV266343-2	3	○	-	○	16.1	8.8
1	1	11.2	505,000	0	150	175	HV266343-3	3	○	-	○	16.1	8.8
○ = Safety Shutoff Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.													

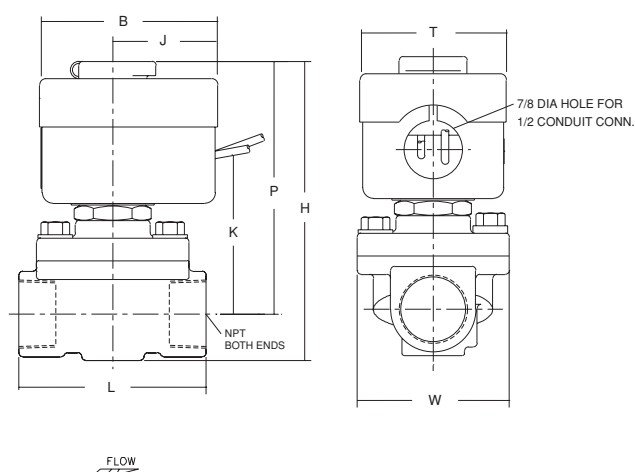
## Dimensions: inches

Const. Ref.	B	H	J	K	L	N	P	T	W
1	3.03	4.19	2.05	2.50	2.81	3.45	3.47	1.95	2.39
2	2.67	5.31	1.58	3.03	3.75	-	4.43	2.20	3.84
3	3.11	5.26	2.05	3.17	3.75	4.10	4.38	2.06	3.84

Const. Ref. 1, 3



Const. Ref. 2



### Features

- 2-Way Normally Closed operation.
- Die-cast aluminum bodies.
- For positive shutoff on pilot or main gas lines of commercial and industrial gas burners.
- Valves provided with 1/8" NPT upstream and downstream pipe tap with plug for routine testing.
- Suitable for ambient temperatures up to 175°F.

### Construction

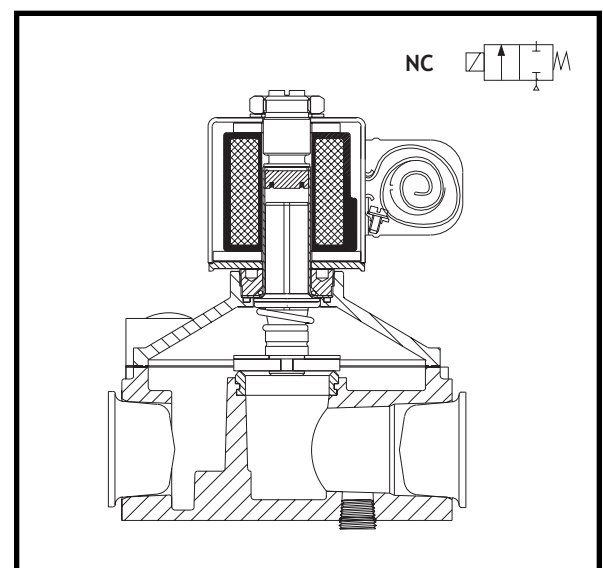
Valve Parts in Contact with Fluids	
Body	Aluminum
Seals and Disc	NBR
Washer	302 Stainless Steel
Core Tube	305 Stainless Steel
Core and Plugnut	430F Stainless Steel
Core Guide	PTFE
Springs	302F Stainless Steel
Shading Coil	Copper
Body Gasket	Cork
Pipe Plug	Zinc-Plated Steel

### Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption			Ambient Temp. °F	Spare Coil Part No.		
	AC				General Purpose		
	Watts	VA Holding	VA Inrush		24/60	120/60 110/50	240/60 220/50
	F	10	18		77	-40 to 175	CS4AF01A18

### Solenoid Enclosures

**Standard:** Type 1 General Purpose Junction Box Housing with two 7/8" knock-outs.



### Approvals

UL listed to standard 429 "Electrically Operated Valves," Guide YIOZ, File MP932 Safety Valves.

FM Approved to Class 7400 "Liquid and Gas Safety Shutoff Valves" (3/8" thru 3/4" only).

CSA Certified to:

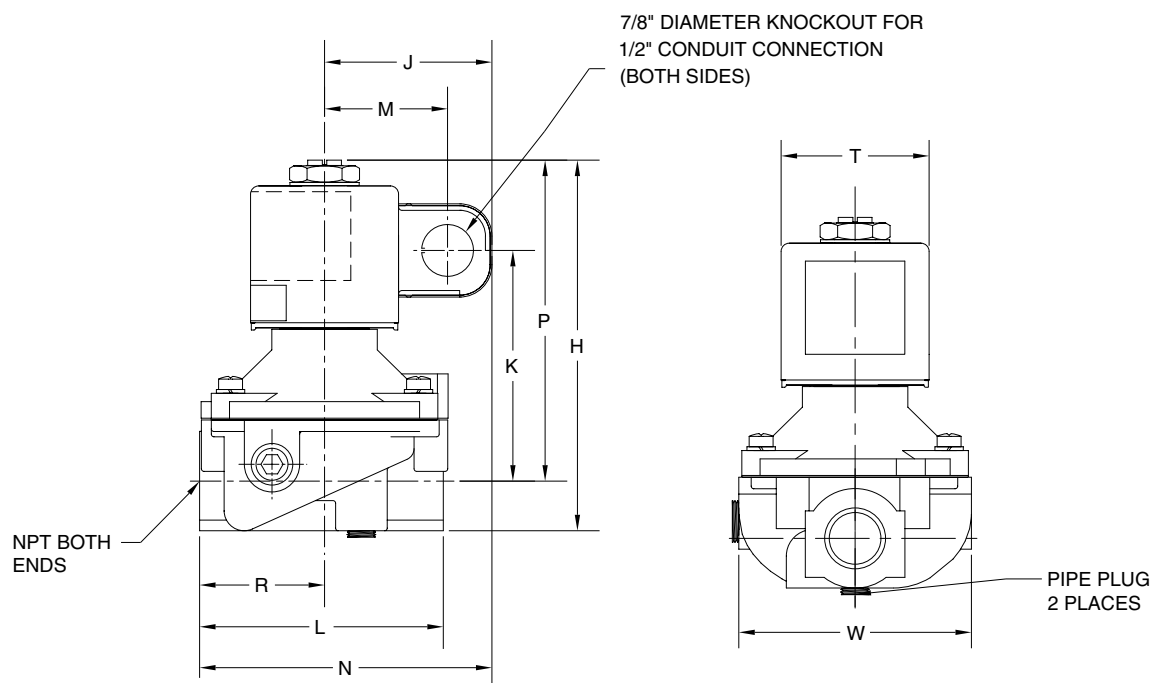
- 1) Standard C22.2 No 139 "Electrically Operated Valves," File 113070.
- 2) Automatic Gas Valves Z21.21 (6.5), File 109157 and 113070.
- 3) Automatic Gas Safety Shutoff Valves C/I (3.9), File 113070.

## Specifications

Pipe Size (ins.)	Orifice Size (ins.)	CV Flow	Gas Capacity ①	Operating Pressure Differential (psi)		Nominal Fluid Temp. °F	Catalog Number			Const. Ref.	Approvals			Wattage	Approx Shipping Weight (lbs)
			Btu/hr.	Min.	Max.		24V 60 Hz	110-120V 50-60 Hz	220-240V 50-60 Hz		UL	FM	CSA		
			COMBUSTION (Fuel Gas) - NORMALLY CLOSED												
3/8	0.456	4	215,000	0	0.5	77	K3A431T	K3A432T	K3A434T	1	○	○	○	10	1.4
1/2	0.687	6	350,000	0	0.5	77	K3A441T	K3A442T	K3A444T	1	○	○	○	10	1.4
3/4	0.812	9	520,000	0	0.5	77	K3A451T	K3A452T	K3A454T	2	○	○	○	10	1.5
1	1.000	14	755,000	0	0.5	77	K3A461T	K3A462T	K3A464T	3	○	-	○	10	1.7
○ = Safety Shutoff Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.															

## Dimensions: inches

Const. Ref.	H	J	K	L	M	N	P	R	T	W
1	4.20	2.42	2.57	2.75	1.62	3.83	3.64	1.41	1.67	2.63
2	4.52	2.42	2.70	2.75	1.62	3.79	3.77	1.37	1.67	2.63
3	4.72	2.42	2.77	4.00	1.62	4.42	3.84	2.00	1.67	3.25



Must be mounted with solenoid upright or horizontal.

### Features

- 2-Way Normally Closed operation.
- Die-cast aluminum bodies.
- For positive shutoff on pilot or main gas lines of commercial and industrial gas burners.
- Valves provided with 1/8" NPT upstream and downstream pipe tap with plug for routine testing.
- Suitable for ambient temperatures up to 175°F.

### Construction

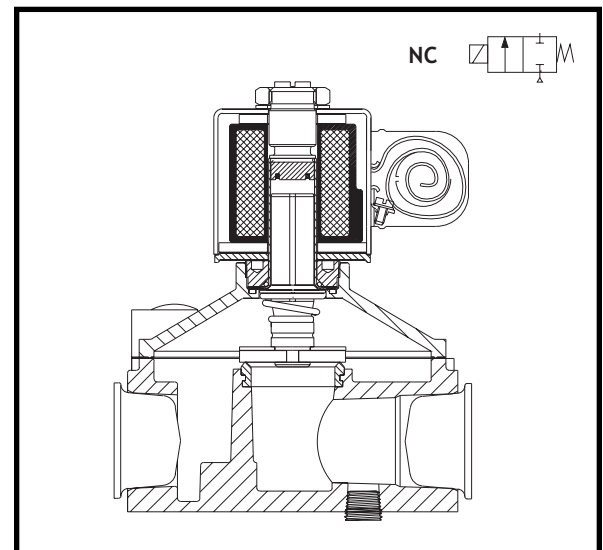
Valve Parts in Contact with Fluids	
Body	Aluminum
Seals and Disc	NBR
Washer	302 Stainless Steel
Core Tube	305 Stainless Steel
Core and Plugnut	430F Stainless Steel
Core Guide	PTFE
Springs	302F Stainless Steel
Shading Coil	Copper
Body Gasket	Cork
Pipe Plug	Zinc-Plated Steel

### Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption			Ambient Temp. °F	Spare Coil Part No.		
					General Purpose		
	AC				24/60	120/60 110/50	240/60 220/50
	Watts	VA Holding	VA Inrush				
F	10	18	77	-40 to 175	CS4AF01A18	CS4AF02A18	CS4AF04A18

### Solenoid Enclosures

**Standard:** Type 1 General Purpose Junction Box housing with two 7/8" knockouts.



### Approvals:

UL listed to standard 429 "Electrically Operated Valves," Guide Y10Z, File MP932 Safety Valves.

FM Approved to Class 7400 "Liquid and Gas Safety Shutoff Valves" (3/8" thru 3/4" only).

CSA Certified to:

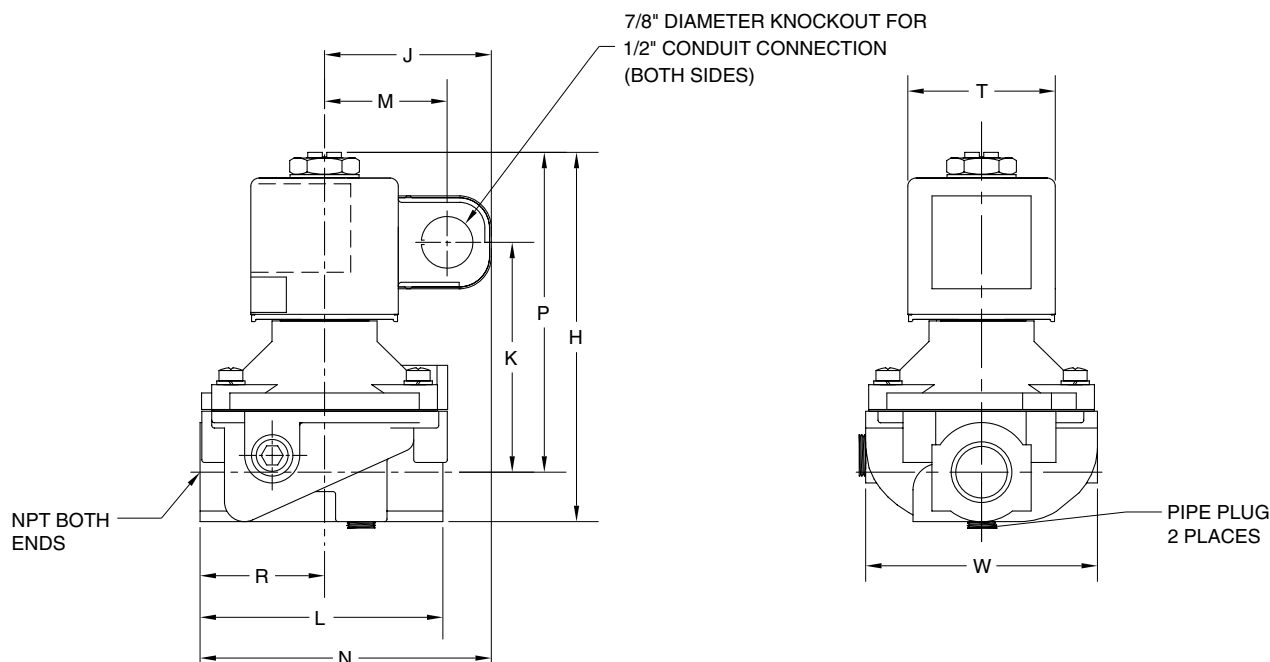
- 1) Standard C22.2 No 139 "Electrically Operated Valves," File 113070.
- 2) Automatic Gas Valves Z21.21 (6.5), File 109157 and 113070.
- 3) Automatic Gas Safety Shutoff Valves C/I (3.9), File 113070.

## Specifications

Pipe Size (ins.)	Orifice Size (ins.)	CV Flow	Gas Capacity	Operating Pressure Differential (psi)		Nominal Fluid Temp. °F	Catalog Number			Const. Ref.	Approvals			Wattage	Approx. Shipping Weight (lbs)
			Btu/hr.	Min.	Max.		24V 60 Hz	110-120V 50-60 Hz	220-240V 50-60 Hz		UL	FM	CSA		
COMBUSTION (Fuel Gas) - NORMALLY CLOSED															
3/8	0.456	4	215,000	0	10	77	K3A531T	K3A532T	K3A534T	1	○	○	○	10	1.4
1/2	0.687	6	350,000	0	6	77	K3A541T	K3A542T	K3A544T	1	○	○	○	10	1.4
3/4	0.812	9	520,000	0	3	77	K3A551T	K3A552T	K3A554T	2	○	○	○	10	1.5
1	1.000	14	755,000	0	1.5	77	K3A561T	K3A562T	K3A564T	3	○	-	○	10	1.7
○ = Safety Shutoff Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.															

## Dimensions: inches

Const. Ref.	H	J	K	L	M	N	P	R	T	W
1	4.20	2.42	2.57	2.75	1.62	3.83	3.64	1.41	1.67	2.63
2	4.52	2.42	2.70	2.75	1.62	3.79	3.77	1.37	1.67	2.63
3	4.72	2.42	2.77	4.00	1.62	4.42	3.84	2.00	1.67	3.25



Must be mounted with solenoid upright or horizontal.

## Features

- 2-Way Normally Closed operation.
- Die-cast aluminum bodies.
- For positive shutoff on pilot or main gas lines of commercial and industrial gas burners.
- Valves provided with 1/8" NPT upstream and downstream pipe tap with plug for routine testing.
- Suitable for ambient temperatures up to 175°F.

## Construction

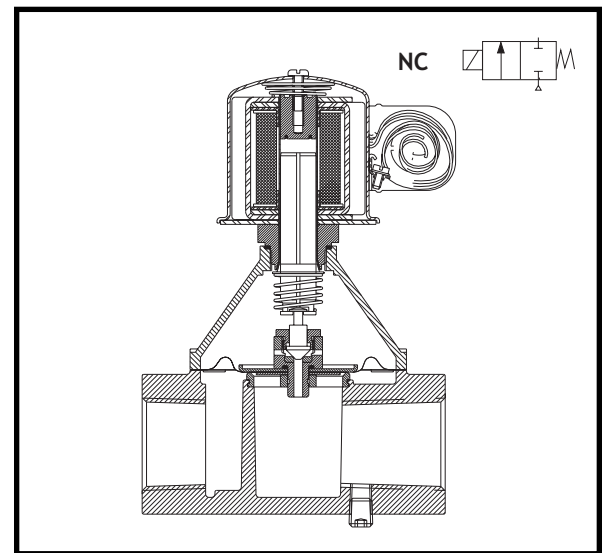
Valve Parts in Contact with Fluids	
Body	Aluminum
Seals and Disc	NBR
Washer	302 Stainless Steel
Core Tube	304L Stainless Steel
Core and Plugnut	430F Stainless Steel
Core Guide	PTFE
Springs	302F Stainless Steel
Shading Coil	Copper
Pipe Plug	Zinc-Plated Steel

## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption			Ambient Temp. °F	Spare Coil Part No.		
	AC				General Purpose		
		VA	VA				
	Watts	Holding	Inrush		24/60	120/60 110/50	240/60 220/50
F	17.5	30	168	-40 to 175	CS5AF01A18	CS5AF02A18	CS5AF04A18

## Solenoid Enclosures

**Standard:** Type 1 General Purpose Junction Box housing with two 7/8" knockouts.



## Approvals

UL listed to standard 429 "Electrically Operated Valves," Guide YIOZ, File MP932 Safety Valves.

FM Approved to Class 7400 "Liquid and Gas Safety Shutoff Valves" (3/4" only).

CSA Certified to:

- 1) Standard C22.2 No 139 "Electrically Operated Valves," File 113070.
- 2) Automatic Gas Valves Z21.21 (6.5), File 109157 and 113070.
- 3) Automatic Gas Safety Shutoff Valves C/I (3.9), File 113070.



## Specifications

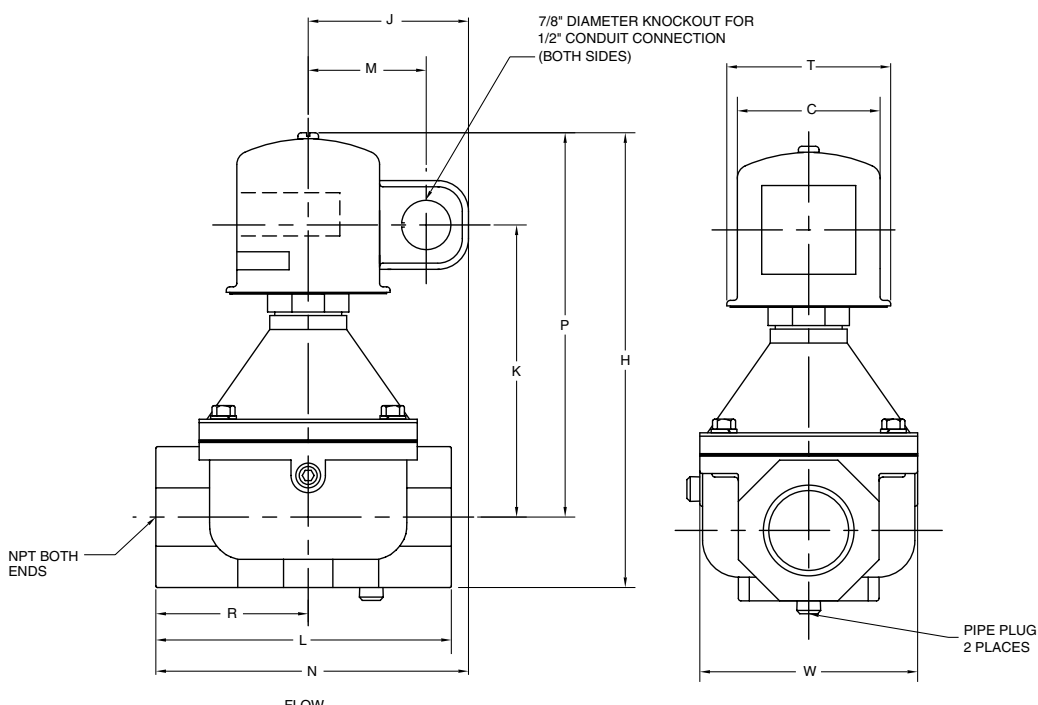
Pipe Size (ins.)	Orifice Size (ins.)	CV Flow	Gas Capacity ①	Operating Pressure Differential (psi)		Nominal Fluid Temp. °F	Catalog Number			Const. Ref.	Approvals			Wattage	Approx. Shipping Weight (lbs)
			Btu/hr.	Min.	Max.		24V 60 Hz	10-120V 50-60Hz	220-240V 50-60Hz		UL	FM	CSA		
			COMBUSTION (Fuel Gas) - NORMALLY CLOSED												
3/4	1.250	12	667,000	0	5	77	K3A651T	K3A652T	K3A654T	1	○	○	○	17.5	4.5
1	1.250	17	960,000	0	5	77	K3A661T	K3A662T	K3A664T	1	○	-	○	17.5	4.7
1 1/4	1.750	23	1,290,000	0	5	77	K3A671T	K3A672T	K3A674T	2	○	-	○	17.5	4.5
1 1/2	1.750	27	1,509,000	0	5	77	K3A681T	K3A682T	K3A684T	2	○	-	○	17.5	4.7
○ = Safety Shutoff Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.															

○ = Safety Shutoff Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.

## Dimensions: inches

Const. Ref.	C	H	J	K	L	M	N	P	R	T	W
1	2.53	7.38	2.85	4.86	4.00	2.05	4.85	6.50	2.00	2.91	3.87
2	2.53	8.08	2.85	5.19	5.19	2.05	5.47	6.83	2.62	2.91	3.87

Const. Ref. 1 and 2



Must be mounted with solenoid upright or horizontal.



## Features

- 2-Way Normally Closed operation.
- Die-cast aluminum bodies.
- For on-off control of fuel gas in commercial and industrial gas burners
- Valves provided with 1/8" NPT upstream and downstream pipe tap with plug for routine testing.
- Suitable for ambient temperatures up to 175°F.

## Construction

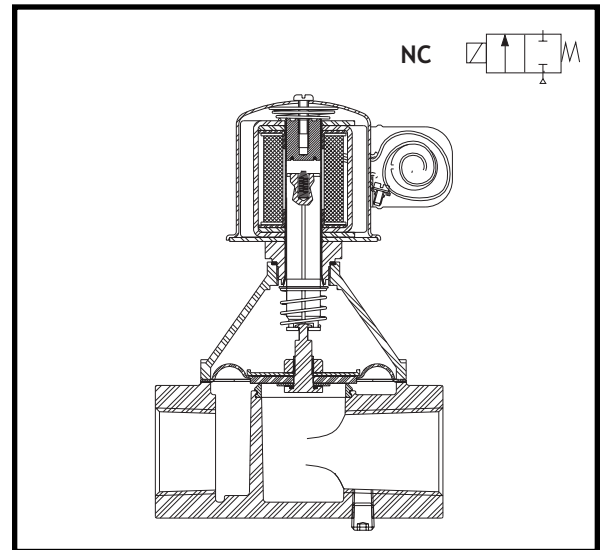
Valve Parts in Contact with Fluids	
Body	Aluminum
Seals and Disc	NBR
Washer	302 Stainless Steel
Core Tube	304L Stainless Steel
Core and Plugnut	430F Stainless Steel
Core Guide	PTFE
Springs	302F Stainless Steel
Shading Coil	Copper
Pipe Plug	Zinc-Plated Steel

## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption			Ambient Temp. °F	Spare Coil Part No.		
	AC				General Purpose		
	Watts	VA Holding	VA Inrush		24/60	120/60 110/50	240/60 220/50
F	17.5	30	168	-40 to 175	CS5AF01A18	CS5AF02A18	CS5AF04A18

## Solenoid Enclosures

**Standard:** Type 1 General Purpose Junction Box housing with two 7/8" knockouts.



## Approvals

UL listed to standard 429 "Electrically Operated Valves," Guide YIOZ, File MP932 Safety Valves.

CSA Certified to:

- 1) Standard C22.2 No 139 "Electrically Operated Valves," File 113070.
- 2) Automatic Gas Valves Z21.21 (6.5), File 109157 and 113070.
- 3) Automatic Gas Safety Shutoff Valves C/I (3.9), File 113070.

## Specifications

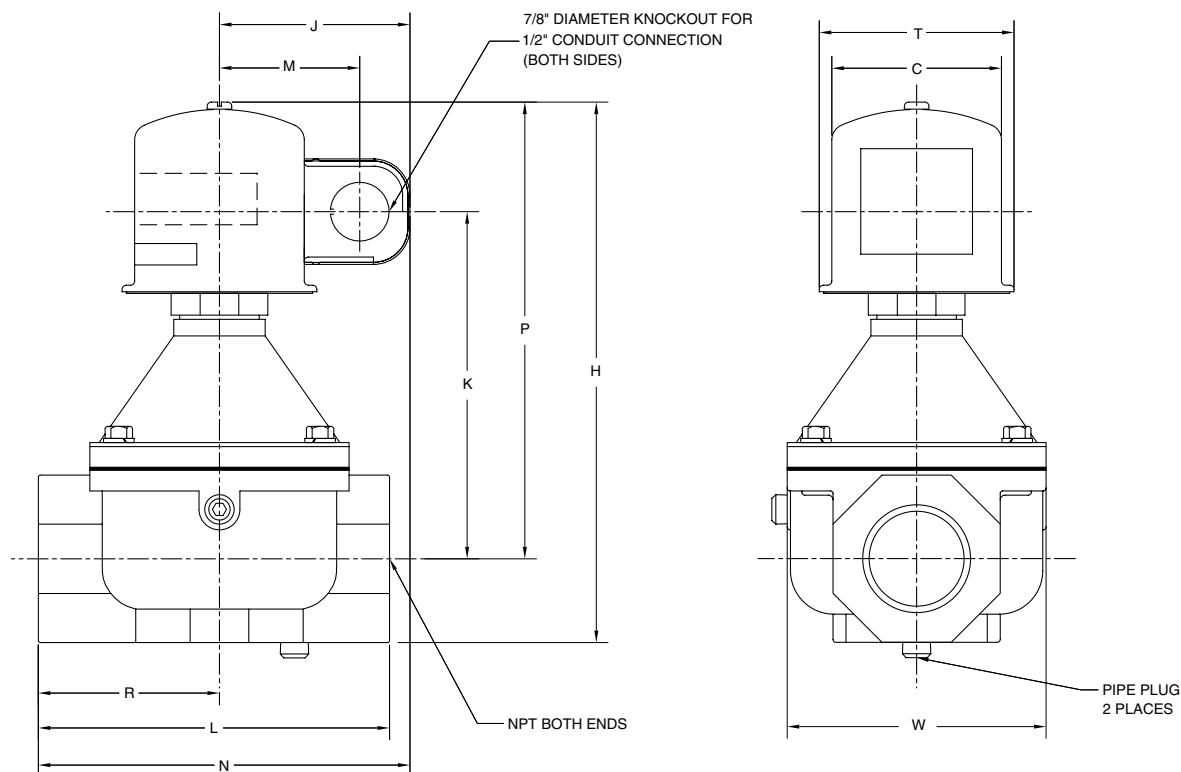
Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow	Gas Capacity ①	Operating Pressure Differential (psi)		Nominal Fluid Temp. °F	Catalog Number			Const. Ref.	Approvals			Wattage	Approx. Shipping Weight (lbs)
			Btu/hr.	Min.	Max.		24V 60 Hz	110-120V 50-60 Hz	220-240V 50-60 Hz		UL	FM	CSA		
COMBUSTION (Fuel Gas) - NORMALLY CLOSED															
1 1/4	1.250	18	1,028,000	0	1.5	77	K3A771T	K3A772T	K3A774T	1	○	-	○	17.5	4.5
1 1/2	1.250	24	1,372,000	0	1.5	77	K3A781T	K3A782T	K3A784T	1	○	-	○	17.5	4.5
○ = Safety Shutoff Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.															

○ = Safety Shutoff Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.

## Dimensions: inches

Const. Ref. No.	C	H	J	K	L	M	N	P	R	T	W
1	2.53	8.08	2.85	5.19	5.25	2.05	5.47	6.83	2.62	2.91	3.87

### Const. Ref. 1



Must be mounted with solenoid upright or horizontal.

## Features

- 2-Way Normally Closed operation.
- Die-cast aluminum bodies.
- Zero differential piloted diaphragm.
- For on-off control of fuel gas in commercial and industrial gas burners.
- Valves provided with 1/4" NPT pipe tap(s) with plug for routine testing.
- Suitable for ambient temperatures up to 175°F.

## Construction

Valve Parts in Contact with Fluids	
Body	Aluminum
Seals and Disc	NBR
Washer	302 Stainless Steel
Core Tube	304L Stainless Steel
Core and Plugnut	430F Stainless Steel
Core Guide	PTFE
Springs	302F Stainless Steel
Shading Coil	Copper
Body Gasket	Cork
Pipe Plug	Zinc-Plated Steel

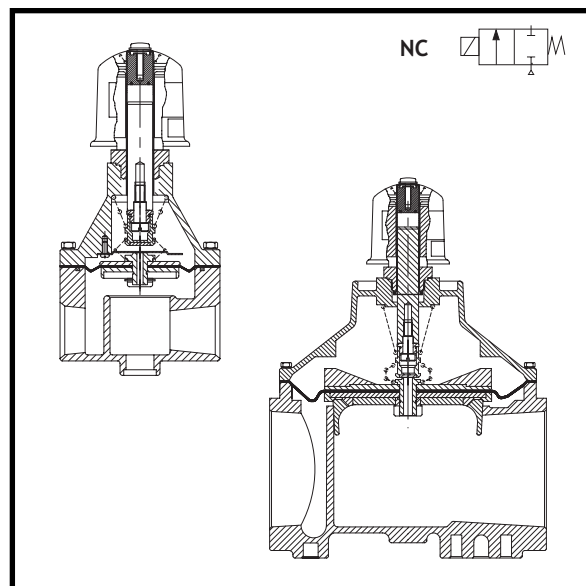
## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption			Ambient Temp. °F	Spare Coil Part No.		
	AC				General Purpose		
		VA	VA*				
	Watts	Holding	Inrush		24/60	120/60 110/50	240/60 220/50
F	17.5	31.2	150	-20 to 175	CS5AF01A18	CS5AF02A18	CS5AF04A18

\*For 1" to 3" sizes VA Inrush is 252.

## Solenoid Enclosures

**Standard:** Junction Box housing with two 7/8" knockouts.  
**Optional:** Rainproof (Type 3R) housing, change digit 5 in catalog number from "S" to "W" (e.g. S261WF02N3CG5).



## Approvals:

UL listed to standard 429 "Electrically Operated Valves," Guide YIOZ, File MP932, Safety Valves.

FM Approved to Class 7400 "Liquid and Gas Safety Shutoff Valves" (3/4" only).

CSA Certified to:

- 1) Standard C22.2 No 139 "Electrically Operated Valves," File 113070.
- 2) Automatic Gas Valves Z21.21 (6.5), File 109157 and 113070.
- 3) Automatic Gas Safety Shutoff Valves C/I (3.9), File 113070.

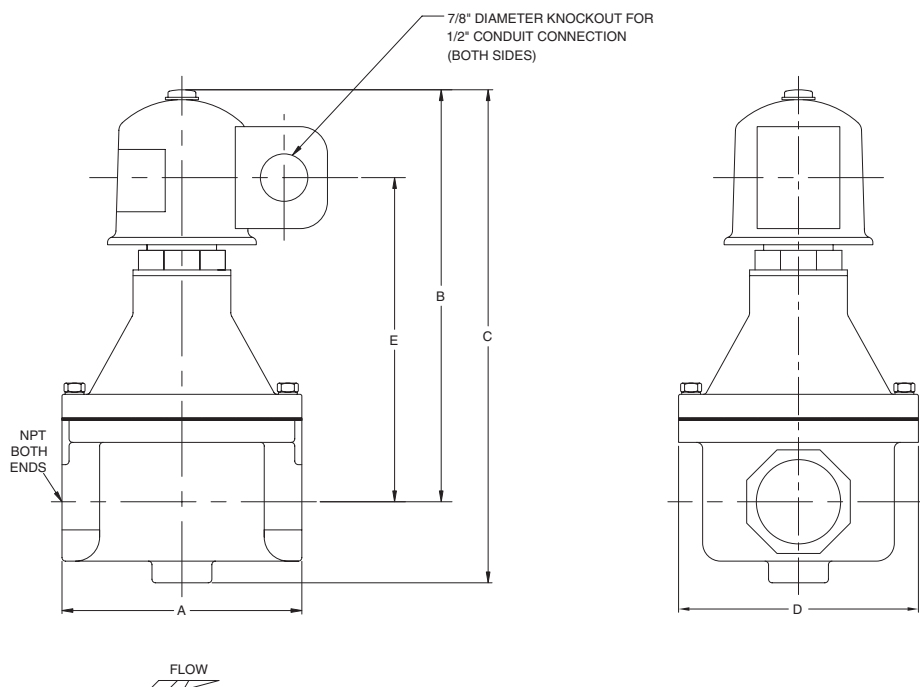
## Specifications

Pipe Size (ins.)	Orifice Size (ins.)	CV Flow	Gas Capacity ①	Operating Pressure Differential (psi)		Nominal Fluid Temp. °F	Catalog Number			Const. Ref.	Approvals			Wattage	Approx Shipping Weight (lbs)
				Min.	Max.		24V 60 Hz	110-120V 50-60 Hz	220-240V 50-60 Hz		UL	FM	CSA		
			COMBUSTION (Fuel Gas) - NORMALLY CLOSED												
3/8	3/4	5.3	217,000	0	30	77	S261SF01N3CG5	S261SF02N3CG5	S261SF04N3CG5	1	○	○	○	17.5	3.0
1/2	3/4	6.2	322,000	0	30	77	S261SF01N3DG5	S261SF02N3DG5	S261SF04N3DG5	1	○	○	○	17.5	3.2
3/4	3/4	8	370,000	0	30	77	S261SF01N3EG5	S261SF02N3EG5	S261SF04N3EG5	1	○	○	○	17.5	3.3
1	1 1/2	18	1,120,000	0	25	77	S261SF01N3FJ5	S261SF02N3FJ5	S261SF04N3FJ5	2	○	-	○	17.5	4.4
1 1/4	2	34	1,710,000	0	25	77	S261SF01N3GJ7	S261SF02N3GJ7	S261SF04N3GJ7	3	○	-	○	17.5	4.4
1 1/2	2	37	1,790,000	0	25	77	S261SF01N3HJ7	S261SF02N3HJ7	S261SF04N3HJ7	3	○	-	○	17.5	12.5
2	4 1/2	80	4,180,000	0	25	77	S261SF01N3JK4	S261SF02N3JK4	S261SF04N3JK4	4	○	-	○	17.5	12.5
2 1/2	4 1/2	110	5,700,000	0	25	77	S261SF01N3KK4	S261SF02N3KK4	S261SF04N3KK4	5	○	-	○	17.5	14.2
3	4 1/2	135	7,100,000	0	25	77	S261SF01N3LK4	S261SF02N3LK4	S261SF04N3LK4	5	○	-	○	17.5	14.2
○ = Safety Shutoff Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.															

○ = Safety Shutoff Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.

## Dimensions: inches

Const. Ref.	A	B	C	D	E
1	2.75	6.33	7.39	2.31	4.60
2	4.00	7.20	8.61	4.27	5.47
3	4.76	7.56	9.35	4.77	5.83
4	8.12	7.61	9.77	7.69	5.95
5	9.00	8.84	11.21	7.69	7.20



Must be mounted with solenoid upright or horizontal on 3/8" to 1 1/2" pipe sizes.  
For 2" to 3", must be mounted with solenoid vertical only.

## Features

- 2-Way Normally Open operation.
- Die-cast aluminum bodies.
- Zero differential piloted diaphragm.
- Valves provided with 1/4" NPT pipe tap(s) with plug for routine testing.
- Suitable for ambient temperatures up to 175°F.

## Construction

Valve Parts in Contact with Fluids	
Body	Aluminum
Seals and Disc	NBR
Washer	302 Stainless Steel
Core Tube	304L Stainless Steel
Core and Plugnut	430F Stainless Steel
Core Guide	PTFE
Springs	302F Stainless Steel
Shading Coil	Copper
Body Gasket	Cork
Pipe Plug*	Zinc-Plated Steel

\* 2" through 3" sizes only.

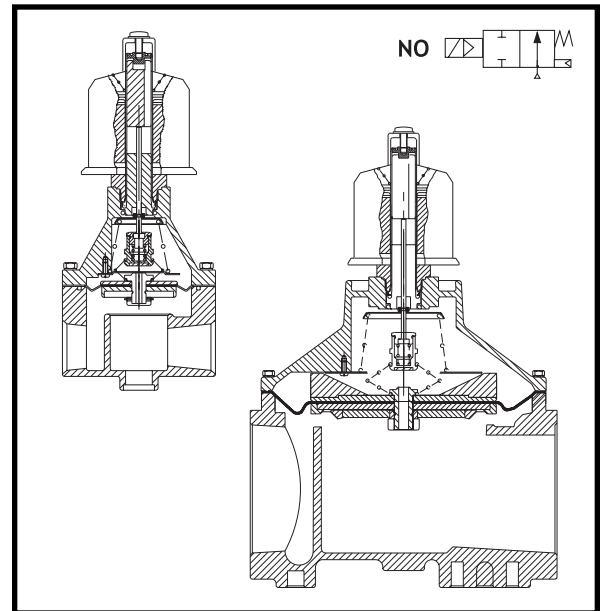
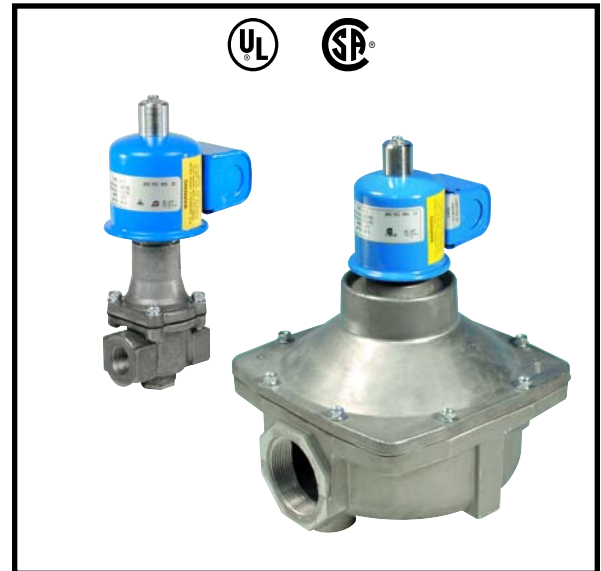
## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption			Ambient Temp. °F	Spare Coil Part No.		
	AC				General Purpose		
	Watts	VA Holding	VA* Inrush		24/60	120/60 110/50	240/60 220/50
F	18.5	37.2	120	-20 to 175	CS5AF01A18	CS5AF02A18	CS5AF04A18

\*For 1" to 3" sizes VA Inrush is 180.

## Solenoid Enclosures

**Standard:** Type 1 General Purpose Junction Box housing with two 7/8" knockouts.  
**Optional:** Rainproof (Type 3R) housing, change digit 5 in catalog number from "S" to "W" (e.g. S262WF02N3CG5).



## Approvals

UL listed to standard 429 "Electrically Operated Valves," Guide YIOZ, File MP932 General Purpose Valves.

CSA Certified to:

- 1) Standard C22.2 No. 139 "Electrically Operated Valves," File 113070.

## Specifications

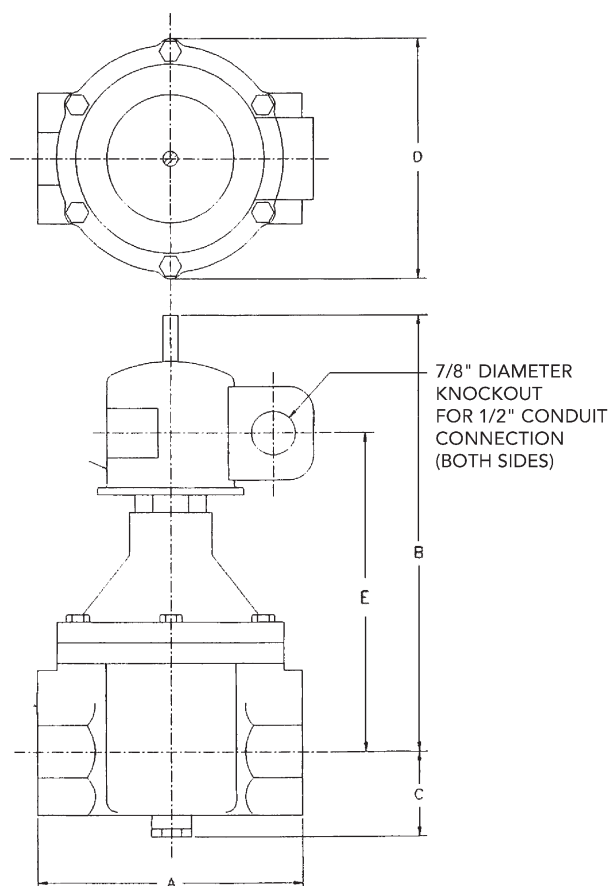
Pipe Size (ins.)	Orifice Size (ins.)	CV Flow	Gas Capacity ①	Operating Pressure Differential (psi)		Nominal Fluid Temp. °F	Catalog Number			Const. Ref.	Approvals			Wattage	Approx. Shipping Weight (lbs)
			Btu/hr.	Min.	Max.		24V 60 Hz	110-120V 50-60 Hz	220-240V 50-60 Hz		UL	FM	CSA		
			COMBUSTION (Fuel Gas) - NORMALLY OPEN												
3/8	3/4	5.3	217,000	0	30	77	S262SF01N3CG5	S262SF02N3CG5	S262SF04N3CG5	1	●	-	●	18.5	3.0
1/2	3/4	6.2	322,000	0	30	77	S262SF01N3DG5	S262SF02N3DG5	S262SF04N3DG5	1	●	-	●	18.5	3.2
3/4	3/4	8	370,000	0	30	77	S262SF01N3EG5	S262SF02N3EG5	S262SF04N3EG5	1	●	-	●	18.5	3.3
1	1 1/2	18	1,120,000	0	25	77	S262SF01N3FJ5	S262SF02N3FJ5	S262SF04N3FJ5	2	●	-	●	18.5	4.4
1 1/4	2	34	1,710,000	0	25	77	S262SF01N3GJ7	S262SF02N3GJ7	S262SF04N3GJ7	3	●	-	●	18.5	4.4
1 1/2	2	37	1,790,000	0	25	77	S262SF01N3HJ7	S262SF02N3HJ7	S262SF04N3HJ7	3	●	-	●	18.5	12.5
2	4 1/2	75	3,840,000	0	15	77	S262SF01N3JK4	S262SF02N3JK4	S262SF04N3JK4	4	●	-	●	18.5	12.5
2 1/2	4 1/2	90	4,750,000	0	15	77	S262SF01N3KK4	S262SF02N3KK4	S262SF04N3KK4	5	●	-	●	18.5	14.2
3	4 1/2	110	5,440,000	0	15	77	S262SF01N3LK4	S262SF02N3LK4	S262SF04N3LK4	5	●	-	●	18.5	14.2
● = General Purpose Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.															

● = General Purpose Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.

## Dimensions: inches

Const. Ref. No.	A	B	C	D	E
1	2.75	7.22	1.06	2.31	4.60
2	4.00	8.09	1.41	4.27	5.47
3	4.76	8.45	1.79	4.77	5.83
4	8.12	8.50	2.16	7.69	5.95
5	9.00	9.83	2.27	7.69	7.20

Vent Valve Requirements	
Manifold Line	Vent Line
3/8" through 1 1/2"	3/4
2"	1
2 1/2" through 3"	1 1/4
3 1/2"	1 1/2
4" through 5"	2
5 1/2" through 6"	2 1/2
6 1/2" through 7 1/2"	3



Must be mounted with solenoid upright or horizontal (3/8" through 1 1/2").  
Must be mounted with solenoid vertical and upright (2" through 3").



Direct Acting  
**Gas Shutoff Valves**  
1/8" to 3/8" NPT

**2/2**  
SERIES  
**SV311**

## Features

- 2-Way Normally Closed operation.
- For gas pilot control of commercial and industrial gas burners.
- Direct lift with resilient soft seating for tight shutoff.
- Valves provided with 1/8" NPT downstream pipe tap with plug for routine testing.
- Suitable for ambient temperatures up to 175°F.

## Construction

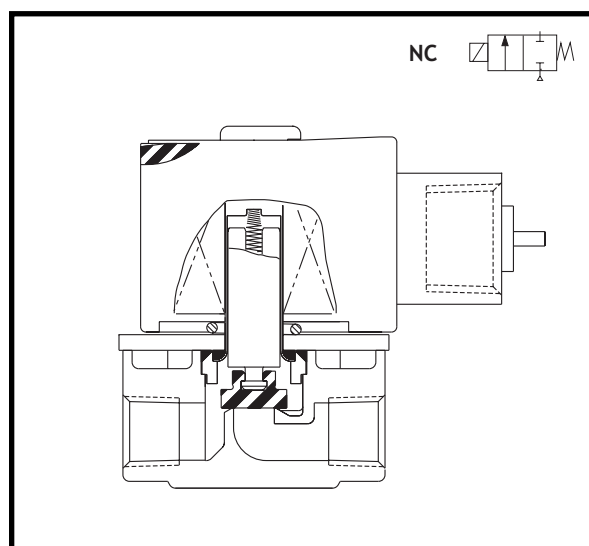
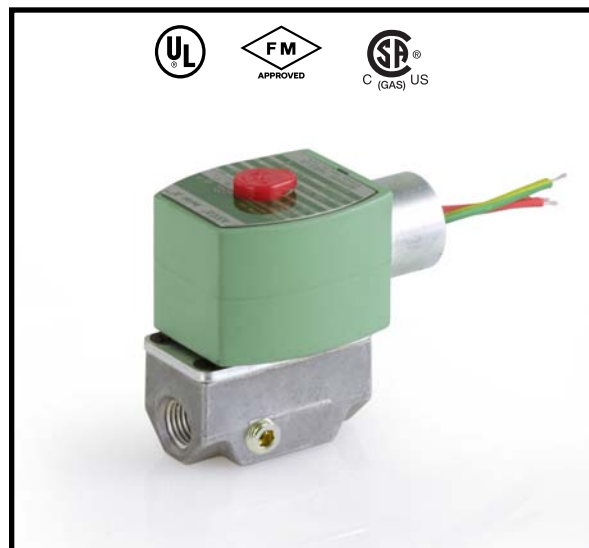
Valve Parts in Contact with Fluids	
Body	Aluminum
Seals and Disc	NBR
Core Tube	305 Stainless Steel
Core and Plugnut	430F Stainless Steel
Springs	302 Stainless Steel
Shading Coil	Copper
Pipe Plug	Zinc-Plated Steel

## Electrical

Standard Coil Class of Insulation	Watt Rating and Power Consumption			Ambient Temp. °F	Spare Coil Family	
	AC				General Purpose	Explosionproof
	Watts	VA Holding	VA Inrush			
	AC	AC	AC			
F	6.1	16	40	-40 to 175	238210	238214
Standard Voltages: 24, 120, 240 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz).						

## Solenoid Enclosures

**Standard:** Watertight; Types 1, 2, 3, 3S, 4, and 4X with 1/2" conduit hub.



## Approvals

UL listed to standard 429 "Electrically Operated Valves."

FM Approved to Class 7400 "Liquid and Gas Safety Shutoff Valves."

CSA Certified to:

- 1) Standard C22.2 No. 139 "Electrically Operated Valves," File 010381.
- 2) Automatic Gas Valves Z21.21 (6.5), File 112872
- 3) Automatic Gas Safety Shutoff Valves C/I (3.9), File 112872.

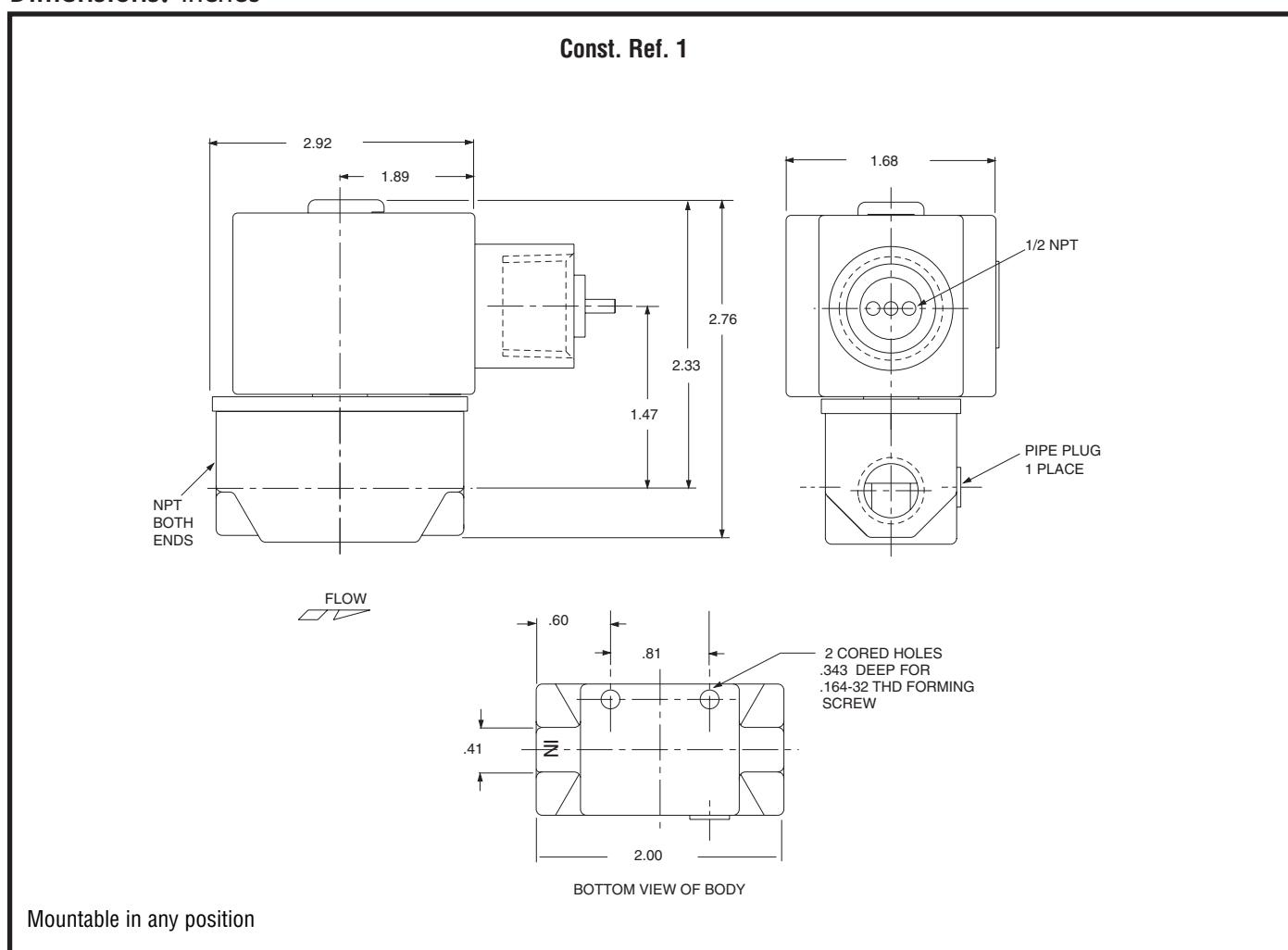


## Specifications

Pipe Size (ins.)	Orifice Size (ins.)	CV Flow	Gas Capacity ①	Operating Pressure Differential (psi)		Max. Fluid Temp. °F	Catalog Number			Const. Ref.	Approvals			Wattage ②	Approx. Shipping Weight (lbs)
			Btu/hr.	Min.	Max.		24V 60 Hz	110-120V 50-60 Hz	220-240V 50-60 Hz		UL	FM	CSA		
			COMBUSTION (Fuel Gas) - NORMALLY CLOSED												
1/8	5/16	1.0	53,700	0	15	125	SV311A01N6AF5	SV311A02N6AF5	SV311A04N6AF5	1	○	○	○	6.1	1.8
1/4	5/16	1.1	59,000	0	15	125	SV311A01N6BF5	SV311A02N6BF5	SV311A04N6BF5	1	○	○	○	6.1	1.8
3/8	5/16	1.2	64,400	0	15	125	SV311A01N6CF5	SV311A02N6CF5	SV311A04N6CF5	1	○	○	○	6.1	1.8
○ = Safety Shutoff Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas; ② On 50 Hz service watt rating is 8.1.															

○ = Safety Shutoff Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas; ② On 50 Hz service watt rating is 8.1.

## Dimensions: inches



## Features

- 2-Way Normally Closed operation.
- For gas pilot control of commercial and industrial gas burners.
- Valves provided with 1/8" NPT downstream pipe tap with plug for routine testing.
- Suitable for ambient temperatures up to 175°F.
- Visual position indicator option for 3/8" and 1/2" sizes.

## Construction

Valve Parts in Contact with Fluids	
Body	Aluminum
Seals and Disc	NBR
Core Tube	305 Stainless Steel
Core Guide	Acetal
Rider Ring	PTFE
Core and Plugnut	430F Stainless Steel
Springs	302 Stainless Steel
Shading Coil	Copper
Pipe Plug	Zinc-Plated Steel

## Electrical

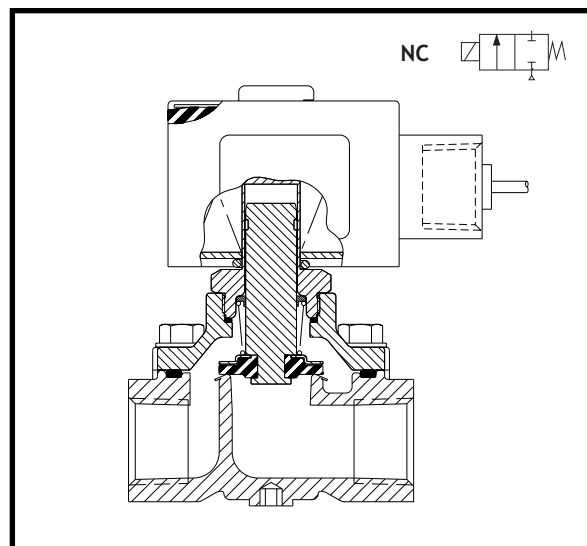
Standard Coil Class of Insulation	Watt Rating and Power Consumption			Ambient Temp. °F	Spare Coil Family	
	AC				General Purpose	Explosionproof
	Watts	VA Holding	VA Inrush			
	F	10.1	25		70	-40 to 175
Standard Voltages: 24, 120, 240 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz).						

## Solenoid Enclosures

**Standard:** Watertight; Types 1, 2, 3, 3S, 4, and 4X, with 1/2" conduit hub.

## Options

Visual Indicator (Suffix "V"): Provides visual indication of the valve's open and shut position. Meets NFPA requirements. Available on 3/8" and 1/2" sizes.



## Approvals:

UL listed to standard 429 "Electrically Operated Valves."

FM Approved to Class 7400 "Liquid and Gas Safety Shutoff Valves."

CSA Certified to:

- 1) Standard C22.2 No. 139 "Electrically Operated Valves," File 010381.
- 2) Automatic Gas Valves Z21.21 (6.5), File 112872
- 3) Automatic Gas Safety Shutoff Valves C/I (3.9), File 112872.

## Specifications

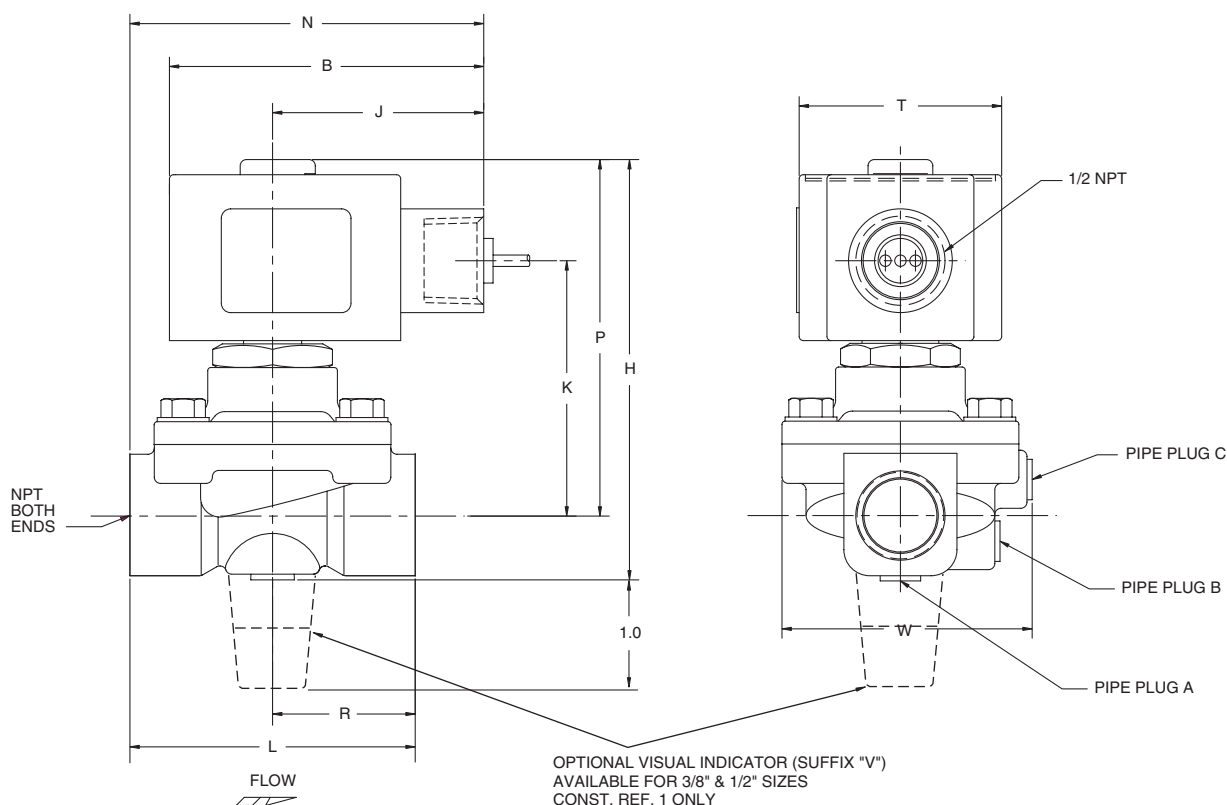
Pipe Size (ins.)	Orifice Size (ins.)	CV Flow	Gas Capacity ① Btu/hr.	Operating Pressure Differential (psi)		Max. Fluid Temp. °F	Catalog Number			Const. Ref.	Approvals			Wattage	Approx. Shipping Weight (lbs)
				Min.	Max.		24V 60 Hz	110-120V 50-60 Hz	220-240V 50-60 Hz		UL	FM	CSA		
COMBUSTION (Fuel Gas) - NORMALLY CLOSED															
3/8	3/4	3.9	210,000	0	2	125	SV311A01N6CG5	SV311A02N6CG5	SV311A04N6CG5	1	○	○	○	10.1	2.8
1/2	3/4	5.4	291,000	0	2	125	SV311A01N6DG5	SV311A02N6DG5	SV311A04N6DG5	1	○	○	○	10.1	2.8
3/4	3/4	9.5	512,000	0	2	125	SV311A01N6EG5	SV311A02N6EG5	SV311A04N6EG5	2	○	○	○	10.1	2.8
○ = Safety Shutoff Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.															

○ = Safety Shutoff Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.

## Dimensions: inches

Const. Ref.	B	H	J	K	L	N	P	R	T	W	Pipe Plug
1	3.03	4.05	2.04	2.46	2.75	3.31	3.44	1.37	1.37	2.42	B & C
2	3.03	4.49	2.04	2.65	3.31	3.70	3.63	1.65	1.65	2.39	A & C

Const. Ref. 1, 2



Mountable in any position.

## Features

- 2-Way Normally Closed operation.
- For control of commercial and industrial oil burners.
- Direct lift with resilient soft seating for tight shutoff.
- Brass body construction.
- Mountable in any position.

## Fluid

No. 2 Fuel Oil at 60 SSU  
 No. 4 Fuel Oil at 300 SSU

## Construction

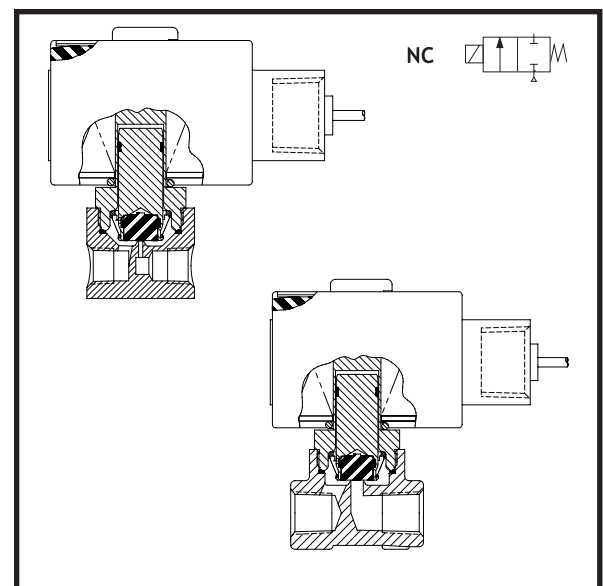
Valve Parts in Contact with Fluids	
Body	Brass
Seals and Discs	FKM
Core Tube	305 Stainless Steel
Core Guide	Acetal
Core and Plugnut	430F Stainless Steel
Springs	302 Stainless Steel
Shading Coil	Copper

## Electrical

Standard Coil Class of Insulation	Watt Rating and Power Consumption			Ambient Temp. °F	Spare Coil Family	
	AC				General Purpose	Explosionproof
	Watts	VA Holding	VA Inrush			
	AC					
F	6.1	16	30	32 to 125	238210	238214
F	9.1	25	40	32 to 125	238210	238214
F	10.1	25	50	32 to 125	238610	238614
F	17.1	40	70	32 to 125	238610	238614
Standard Voltages: 24, 120, 240 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz).						

## Solenoid Enclosures

**Standard:** Watertight; Types 1, 2, 3, 3S, 4, and 4X with 1/2" conduit hub.



## Approvals:

UL listed to standard 429 "Electrically Operated Valves," Guide Y10Z, File MP618 Safety Shutoff Valves.

FM Approved to Class 7400 "Liquid and Gas Safety Shutoff Valves," except 8262G011V, 8262G021V and 8262G023V.

CSA Certified to:

1) Standard C22.2 No. 139 "Electrically Operated Valves," File 010381.

## Specifications

Pipe Size (ins.)	Orifice Size (ins.)	CV Flow	Minimum Operating Pressure Differential (psi)	Maximum Operating Pressure Differential (psi)		Max. Fluid Temp. °F	Standard Solenoid Enclosure Red Hat II - Type 1 2, 3, 3S 4 & 4X	Const. Ref.	Agency			Watt Rating/ Class of Coil Insulation	Approx. Shipping Weight (lbs)
				#2 Fuel Oil at 60 SSU	#4 Fuel Oil at 300 SSU		Catalog Number		UL	FM	CSA		
NORMALLY CLOSED (Closed when de-energized) Brass Body with FKM Seating													
1/8	3/64	.06	0	750	530	180	8262G001V	1	○	○	○	6.1	2.3
1/8	3/32	.20	0	360	300	180	8262G011V	1	○	-	○	9.1	2.3
1/8	1/8	.34	0	190	140	180	8262G002V	1	○	○	○	6.1	2.3
1/4	3/32	.17	0	450	280	180	8262G021V	2	○	-	○	9.1	2.4
1/4	1/8	.35	0	205	160	180	8262G023V	2	○	-	○	9.1	2.4
1/4	7/32	.85	0	100	100	200	8262G208V	3	○	○	○	10.1	2.4
3/8	1/8	.35	0	200	150	180	8263G003V	4	○	○	○	9.1	2.5
3/8	7/32	.72	0	100	100	200	8263G206V	5	○	○	○	17.1	2.5
○ = Safety Shutoff Valve.													

○ = Safety Shutoff Valve.

## Capabilities Chart

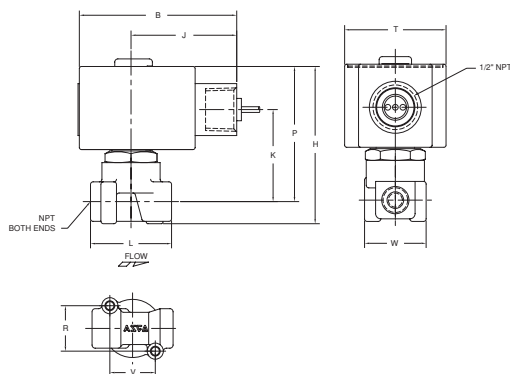
Solenoid Options			Base Catalog Number	Resilient Materials	Standard Rebuild Kit
NEMA Type 3-9	High Temp.	Wiring Box Screw Terminal	Brass	FKM	AC
EF	HT	JKF	8262G001V	●	302006-V
EF	HB	JKP	8262G011V	●	302014-V
EF	HT	JKF	8262G002V	●	302014-V
EF	HB	JKP	8262G021V	●	302018-V
EF	HB	JKP	8262G023V	●	302018-V
EF	HT	JKF	8262G208V	●	304354-V
EF	HB	JKP	8263G003V	●	302018-V
EF	HB	JKP	8263G206V	●	302001-V

● = Standard. Other options may be available. All option combinations may not be available.

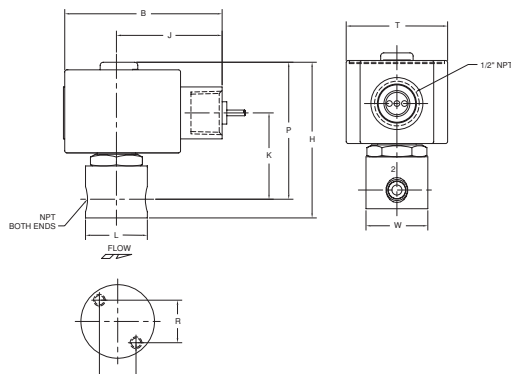
## Dimensions: inches

Const. Ref.	1	2	3	4	5
<b>B</b>	2.76	2.76	3.03	2.76	3.03
<b>H</b>	2.52	3.01	3.16	3.07	3.25
<b>J</b>	1.89	1.89	2.04	1.89	2.04
<b>K</b>	1.3	1.73	1.78	1.63	1.7
<b>L</b>	1.18	1.25	1.56	1.88	1.88
<b>P</b>	2.16	2.59	2.75	2.49	2.67
<b>R</b>	0.94	0.62	0.78	0.88	0.88
<b>T</b>	1.69	1.69	1.95	1.69	1.95

Const. Ref. 1, 2



Const. Ref. 3, 4, 5



## Features

- General Purpose Enclosure.
- 2-Way Normally Closed or Normally Open Operation.
- Zero differential lever actuated.
- For on-off control of fuel oil in commercial and industrial oil burners.
- Suitable for light and heavy fuel oils.

## Fluid

No. 2 Fuel Oil at 60 SSU  
No. 4 Fuel Oil at 300 SSU  
No. 5 Fuel Oil at 5000 SSU  
No. 6 Fuel Oil at 5000 SSU (Heated)

## Construction

Valve Parts in Contact with Fluids	
Body	Brass
Seals and Disc	FKM (Suffix V), SS (Suffix L)
Core and Plugnut	430F Stainless Steel
Springs	302 Stainless Steel
Shading Coil	Copper

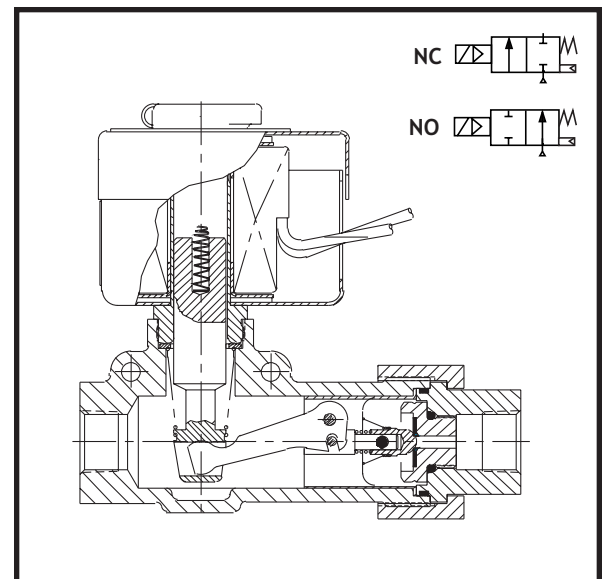
## Electrical

Standard Coil Class of Insulation	Watt Rating and Power Consumption			Spare Coil Family		
	AC			General Purpose		
	Watts	VA Holding	VA Inrush	24/60	120/60 110/50	240/60 220/50
F	15.4	27	160	099257	099257	099257
F	20	43	240	099257	099257	099257

Standard lead length 18" (72" leads optional - change suffix "D" to "K")

## Solenoid Enclosures

**Standard:** RedHat® Type 1 General Purpose.  
**Optional:** RedHat® Type 3R Rainproof (prefix "R").



## Approvals:

### (Normally Closed Valves)

UL listed Shutoff Valve.  
FM Approved Oil Safety Shutoff Valves  
CSA Safety Valves

### (Normally Open Valves)

UL listed General Purpose Valve.  
CSA Electrically Operated Valves

## Specifications

Pipe Size (ins.)	Orifice Size (ins.)	CV Flow	Minimum Operating Pressure Differential (psi)	Maximum Operating Pressure Differential (psi)		Max. Fluid Temp. °F	Standard Solenoid Enclosure Redhat Type 1		Const. Ref.	Approvals			Watt Rating/ Class of Coil Insulation
				#2 Fuel Oil @ 60 SSU, #4 Fuel Oil @ 300 SSU	#5 or Heated #6 Oil up to 5000 SSU		FKM Seating	Stainless Steel Seating		UL	FM	CSA	AC
							Catalog Number	Catalog Number					
NORMALLY CLOSED (Closed when de-energized) (Shutoff) Without Bypass - Brass Body													
3/8	1/8	.34	0	400	350	See Table Below	8266D001V	8266D001L	1	○	○	○	15.4/F
3/8	3/16	.68	0	200	175		8266D007V	8266D007L	1	○	○	○	15.4/F
3/8	3/16	.68	0	300	250		8266D011V	8266D011L	1	○	○	○	20/F
3/8	1/4	1.2	0	110	100		8266D023V	8266D023L	1	○	○	○	15.4/F
1/2	1/8	.34	0	400	350		8266D047V	8266D047L	1	○	○	○	15.4/F
1/2	3/16	.68	0	200	175		8266D053V	8266D053L	1	○	○	○	15.4/F
1/2	3/16	.68	0	300	250		8266D057V	8266D057L	1	○	○	○	20/F
1/2	13/64	.78	0	170	140		8266D061V	8266D061L	1	○	○	○	15.4/F
1/2	1/4	1.2	0	110	100		8266D069V	8266D069L	1	○	○	○	15.4/F
1/2	5/16	1.8	0	70	70		8266D077V	8266D077L	1	○	○	○	15.4/F
1/2	3/8	2.5	0	40	35		8266D085V	8266D085L	1	○	○	○	15.4/F
NORMALLY CLOSED (Closed when de-energized) (Shutoff) With 1/2" NPT Bypass - Brass Body													
1/2	1/8	.34	0	650	600	See Table Below	8266C203V	8266C203L	1	○	○	○	20/F
1/2	1/4	1.2	0	180	160		8266C215V	8266C215L	1	○	○	○	20/F
1/2	5/16	1.8	0	110	100		8266C219V	8266C219L	1	○	○	○	20/F
1/2	3/8	2.5	0	75	70		8266C223V	8266C223L	1	○	○	○	20/F
3/4	1/4	1.2	0	180	160		8266C239V	8266C239L	1	○	○	○	20/F
3/4	5/16	1.8	0	110	100		8266C243V	8266C243L	1	○	○	○	20/F
3/4	3/8	2.5	0	75	70		8266C247V	8266C247L	1	○	○	○	20/F
NORMALLY OPEN (Closed when de-energized) Without Bypass - Brass Body													
3/8	1/8	.34	0	425	400	See Table Below	8266D101V	8266D101L	1	○	-	○	15.4/F
3/8	3/16	.68	0	160	150		8266D107V	8266D107L	1	○	-	○	15.4/F
3/8	1/4	1.2	0	90	75		8266D123V	8266D123L	1	○	-	○	15.4/F
1/2	3/16	.68	0	160	150		8266D153V	8266D153L	1	○	-	○	15.4/F
1/2	13/64	.78	0	130	125		8266D161V	8266D161L	1	○	-	○	15.4/F
1/2	1/4	1.2	0	90	75		8266D169V	8266D169L	1	○	-	○	15.4/F
○ = Safety Shutoff Valve.													

## Dimensions: inches

AC Fluid and Ambient Temperature Table						Const. Ref. 1	
Coil	Watt Rating	Class of Coil Insulation	Fluid Temp. °F	Ambient Temp. °F	Catalog No. Prefix		
Standard	15.4	F	250	95	None Required		
		F	225	104			
	20	F	225	77			
		F	200	95			
For Higher Fluid and/or Ambient Temp. use	15.4	H	250	122	HT		
	20	H	250	122	HB		

Must be mounted with solenoid vertical and upright.

## General Description

The HOV1 is an underported, globe-type, fuel oil valve with a single, quick-opening, stem-guided seat. This 2-way normally closed, bronze safety shutoff valve features a spring-loaded stem which, upon power interruption, drives the teflon seat firmly closed within one second. The HOV1 is available with or without valve seal overtravel interlock (FM proof of closure).

The electrohydraulic actuator consists of a pump applying pressure to a diaphragm attached to the valve stem. Its power unit is immersed in oil and hermetically sealed. The HOV requires no adjustment or service. Stroke is controlled by a travel limit switch and electromagnetic relief valve. The unit rotates 360° for ease of installation. Two-wire connection via 1/2 inch threaded conduit terminal box is standard, and all units are equipped with an auxiliary switch and dust shields.

## Specifications

Fluid: Fuel Oil  
 No. 2 Fuel Oil at 60 SSU  
 No. 4 Fuel Oil at 300 SSU  
 No. 5 Fuel Oil at 5000 SSU  
 No. 6 Fuel Oil at 5000 SSU (Heated)  
 Opening Time: 7-9 seconds  
 Closing Time: 1 second max.  
 Note: Opening time increases 20% with 50Hz  
 Enclosure: Type 1 General Purpose  
 Ambient Temperature: -10°F to 125°F (-23° to 52°C)  
 Fluid Temperature: 267° max.  
 Body/Trim: Bronze, 300# screw  
 Seal Material: PTFE  
 Port Size: 9/16"

## Electrical

Power Requirement: 150 VA  
 Standard Voltage: 120V/50-60Hz

Operating Voltage	Amperes		
	Inrush	Opening	Holding
120V/50-60Hz	12.5	1.25	0.09

**Auxiliary Switch:** One integral SPDT switch, 7.5A@120V, 3.75A@240V, (900VA max.). Switch actuates at energized end of stroke (not adjustable).

**Proof of Closure Switch** (Valve Seal Overtravel Interlock):  
 Optional factory set non-field adjustable SPDT switch, 15A@120V, 7.5A@240V (1800VA max.).



## Installation

May be mounted with actuator upright or horizontal with switches uppermost.

## Approvals:

UL listed  
 FM Approved  
 CSA Certified to:  
 1) Standard C22.2 No. 139 "Electrically Operated Valves,"  
 File 113070.



## Specifications

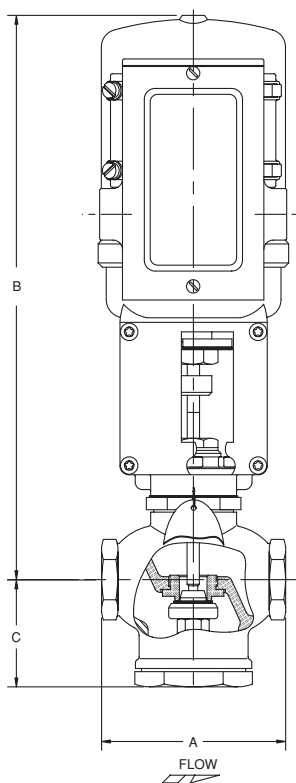
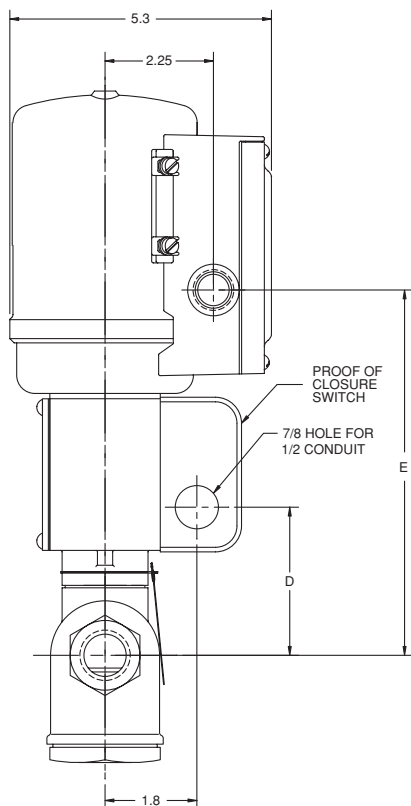
Catalog Number	Pipe Connection (inch NPT)	Cv Flow	Max. Operating Pressure Differential (psi)	Const. Ref.	Opening Time (Sec.)	Shipping Weight lbs.
<b>Standard</b>						
HOV1A302T15	1/2	4	300	1	7-9	12
HOV1A307T15	3/4	5	300	1	7-9	12
HOV1A312T15	1	6	300	2	7-9	13
<b>Valve Seal Overtravel Interlock (FM Proof of Closure)</b>						
HOV1A302T171	1/2	4	300	1	7-9	12
HOV1A307T171	3/4	5	300	1	7-9	12
HOV1A312T171	1	6	300	2	7-9	13

## Dimensions: inches

### Replacement Actuators:

**Standard**  
HO1A252A15  
**Models with FM Proof of Closure Valve Seal Overtravel Switch**  
HO1A252A171

Const. Ref.	A	B	C	D	E
1	3.75	11.56	2.21	3.11	7.55
2	4.25	11.87	2.37	3.42	7.86



### Features

- 2-Way Normally Closed operation.
- Zero minimum.
- For control of commercial and industrial oil burners.
- Ideal for high pressure applications.
- Brass body construction.
- Mountable with solenoid upright and vertical.

### Fluid

No. 2 Fuel Oil at 60 SSU,  
No. 4 Fuel Oil at 300 SSU  
No. 5 up to 5000 SSU  
No. 6 Heated Fuel Oil up to 5000 SSU

### Construction

Valve Parts in Contact with Fluids	
Body	Brass
Seals and Disc	FKM
Core Tube	305 Stainless Steel
Core and Plugnut	430F Stainless Steel
Springs	302 Stainless Steel
Shading Coil	Copper
Piston	Brass

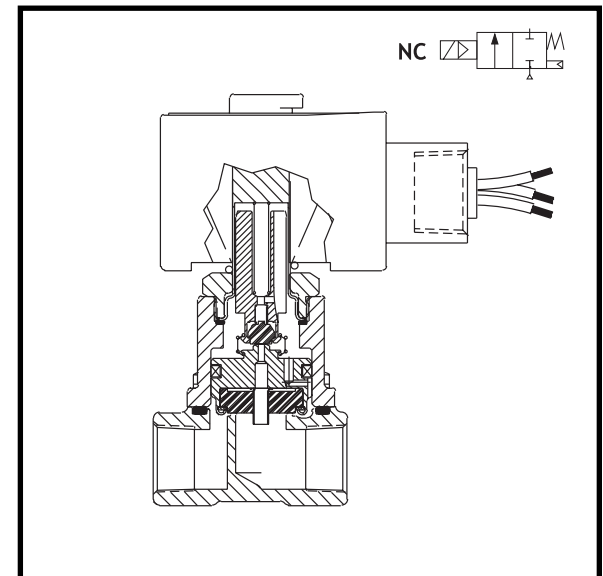
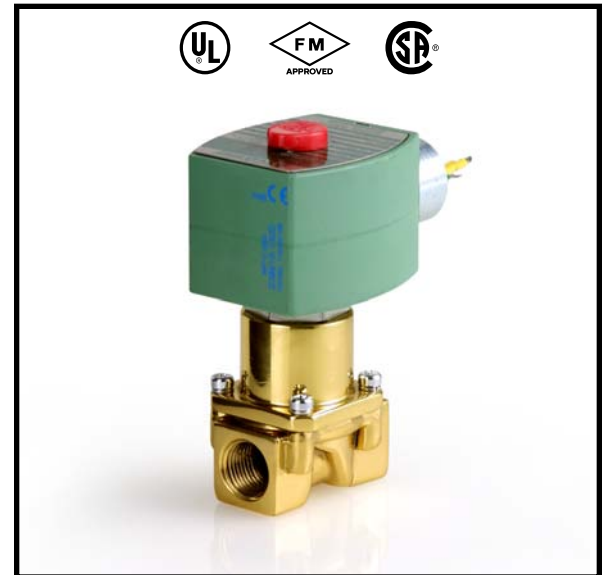
### Electrical

Standard Coil Class of Insulation	Watt Rating and Power Consumption			Ambient Temp. °F	Spare Coil Family
	AC				General Purpose
	Watts	VA Holding	VA Inrush		AC
	H	17.1	40		93
Standard Voltages: 24, 120, 240 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz).					

**Standard Voltages:** 24, 120, 240 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz).

### Solenoid Enclosures

**Standard:** Watertight, Types 1, 2, 3, 3S, 4 and 4X with 1/2" conduit hub.



### Approvals:

UL listed File MO-932 Safety Valves.  
FM Approved "Oil Safety Shutoff Valves." File J10D9A5.AF

CSA Certified to:

- 1) Standard C22.2 No. 139 "Electrically Operated Valves," File 010381.
- 2) Safety Valves File LR702258.

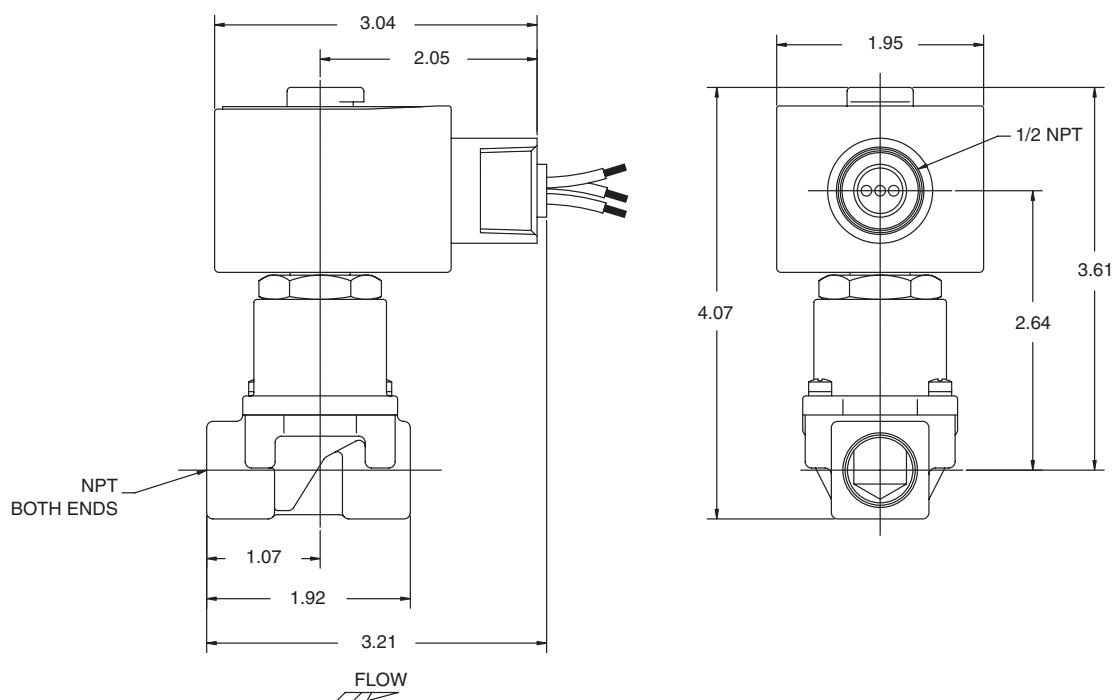
## Specifications

Pipe Size (ins.)	Orifice Size (ins.)	CV Flow	Operating Pressure Differential (psi)		Max. Fluid Temp. °F	Catalog Number			Const. Ref.	Approvals			Wattage	Approx. Shipping Weight (lbs)
			Min.	Max.		24V 60Hz.	120V 60Hz.	240V 60Hz		UL	FM	CSA		
COMBUSTION (Fuel Oil) - NORMALLY CLOSED														
1/4	1/2	1.1	0	300	250	SV401A01V9BF7	SV401A02V9BF7	SV401A04V9BF7	1	○	○	○	17.1	3.2
3/8	1/2	1.5	0	300	250	SV401A01V9CF7	SV401A02V9CF7	SV401A04V9CF7	1	○	○	○	17.1	3.2
○ = Safety Shutoff Valve.														

○ = Safety Shutoff Valve.

## Dimensions: inches

Const. Ref. 1



## Features

- General Purpose Enclosure.
- 3-Way operation allows diversion of flow from commercial/industrial oil burners to recirculatory system.
- Zero differential.

## Fluid Handled

Fuel Oil up to 1500 SSU

## Construction

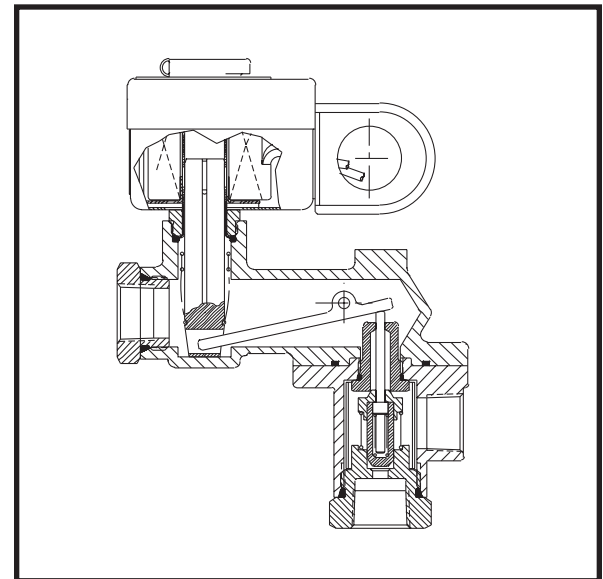
Valve Parts in Contact with Fluids	
Body	Brass
Seals and Disc	NBR
Core and Plugnut	430F Stainless Steel
Springs	302 Stainless Steel
Shading Coil	Copper

## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption			Ambient Temp. °F	Spare Coil Family	
	AC				General Purpose	Explosionproof
	Watts	VA Holding	VA Inrush		AC	AC
F	15.4	27	160	32 to 115	099257	-
Standard Voltages: 24, 120, 240 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz).						

## Solenoid Enclosures

**Standard:** RedHat® Type 1 General Purpose.  
**Optional:** RedHat® Type 3R Rainproof (prefix "R").



## Approvals:

UL listed Shutoff Valve.  
FM Approved Oil Safety Shutoff Valves  
CSA Electrically Operated Valves

**Specifications** (This valve construction is only capable of 3-way operation. DO NOT PLUG or RESTRICT BYPASS PORT.)

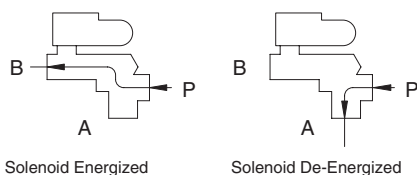
Pipe Size Size (ins.)	Orifice Size Size (ins.)	CV Flow	Operating Pressure Differential (psi) Fuel Oil up to 1500 SSU ②		Max. Temp. °F		① Inlet Positio	Standard Solenoid Enclosure Redhat Type 1 Junction Box	Const. Ref.	Approvals			Watt Rating/ Class of Coil Insulation
			Min.	Max.	Fluid	Ambient		Catalog Number		UL	FM	CSA	AC
			NORMALLY CLOSED (Closed when de-energized) Aluminum Body with NBR Seating										
3/8	1/4	1.0	0	100	265	115	A	8377 001	1	○	○	○	15.4/F
3/8	1/4	1.0	0	100	265	115	B	8377 003	1	○	○	○	15.4/F
3/8	1/4	1.0	0	100	265	115	C	8377 005	1	○	○	○	15.4/F
3/8	1/4	1.0	0	100	265	115	D	8377 013	1	○	○	○	15.4/F
1/2	1/4	1.0	0	100	265	115	A	8377 007	1	○	○	○	15.4/F
1/2	1/4	1.0	0	100	265	115	B	8377 009	1	○	○	○	15.4/F
1/2	1/4	1.0	0	100	265	115	C	8377 011	1	○	○	○	15.4/F
1/2	1/4	1.0	0	100	265	115	D	8377 015	1	○	○	○	15.4/F

○ = Safety Shutoff Valve. ① Before ordering, refer to Diagram A below for description of inlet positions.

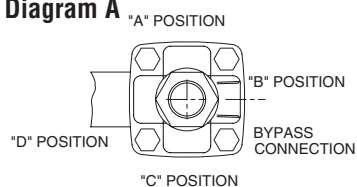
② Valve intended for burner control with low pressure drop when energized. For other applications, be sure pressure drop when energized does not exceed 65 psi.

**Dimensions: inches**

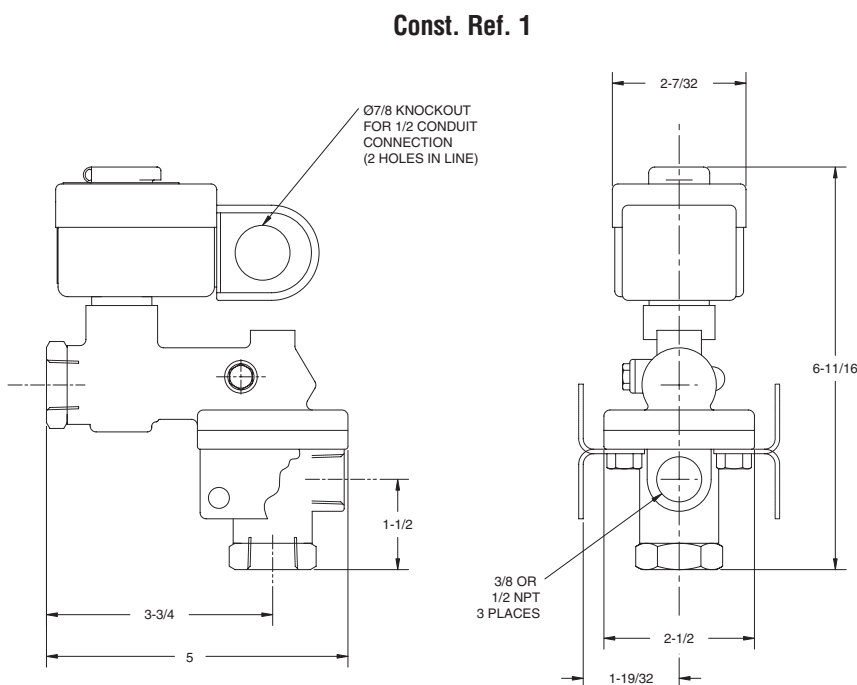
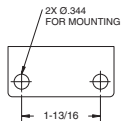
**Flow Diagrams**



**Diagram A**



**MOUNTING BRACKET STANDARD**



Must be mounted with solenoid vertical and upright.

## General Description

The HOV13 is an underported, poppet-type, bronze-bodied safety valve, electrohydraulically operated to provide reliable ON-OFF control of fuel oil. The spring-loaded stem-guided teflon seat opens within seven seconds of power application and firmly closes within one second of power interruption.

The valve is agency approved for fuel oil safety shutoff service on the N.C. port. The N.O. port typically provides return to the oil preheater during the off cycle. The HOV13 is available with or without valve seal overtravel interlock (FM Proof of Closure). All valves are furnished with dust shields.

The electrohydraulic actuator consists of a pump applying pressure to a diaphragm attached to the valve stem. Its power unit is immersed in oil and hermetically sealed, requiring no adjustment or service. Stroke is controlled by a travel limit switch and electromagnetic relief valve. The unit rotates for ease of installation. Two-wire connection via 1/2" threaded conduit terminal box is standard, and all units are equipped with an auxiliary switch.

## Specifications

Fluid: Fuel Oil  
 No. 2 Fuel Oil at 60 SSU  
 No. 4 Fuel Oil at 300 SSU  
 No. 5 Fuel Oil at 5000 SSU,  
 No. 6 Fuel Oil at 5000 SSU (Heated)  
 Opening Time: 7-9 seconds  
 Closing Time: 1 second max.  
 Note: Opening time increases 20% with 50Hz  
 Enclosure: Type 1 General Purpose  
 Ambient Temperature: -10°F to 125°F (-23° to 52°C)  
 Fluid Temperature: 267° max.  
 Body/Trim: Bronze, 300# screw  
 Seal Material: PTFE  
 Port Size: 13/32"

## Electrical

Power Requirement: 150 VA  
 Standard Voltage: 120V/50-60Hz

Operating Voltage	Amperes		
	Inrush	Opening	Holding
120V/50-60Hz	12.5	1.25	0.09

**Auxiliary Switch:** One integral SPDT switch, 7.5A@120V, 3.75A@240V, (900VA max.). Switch actuates at energized end of stroke (not adjustable).

**Proof of Closure Switch** (Valve Seal Overtravel Interlock):  
 Optional factory set non-field adjustable SPDT switch, 15A@120V, 7.5A@240V (1800VA max.).



## Installation

May be mounted with actuator upright or horizontal with switches uppermost.

## Approvals:

UL listed  
 FM Approved  
 CSA Certified to:  
 1) Standard C22.2 No. 139 "Electrically Operated Valves,"  
 File 113070.

## Specifications

Catalog Number	Pipe Connection (inch NPT)	Cv Flow	Max. Operating Pressure Differential (psi)	Const. Ref.	Opening Time (Sec.)	Shipping Weight lbs.
<b>Standard</b>						
HOV13A162T15	1/2	2.5	300	1	7-9	13
HOV13A167T15	3/4	3	300	1	7-9	13
<b>Valve Seal Overtravel Interlock (FM Proof of Closure)</b>						
HOV13A162T171	1/2	2.5	300	1	7-9	13
HOV13A167T171	3/4	3	300	1	7-9	13

## Dimensions: inches

### Replacement Actuators:

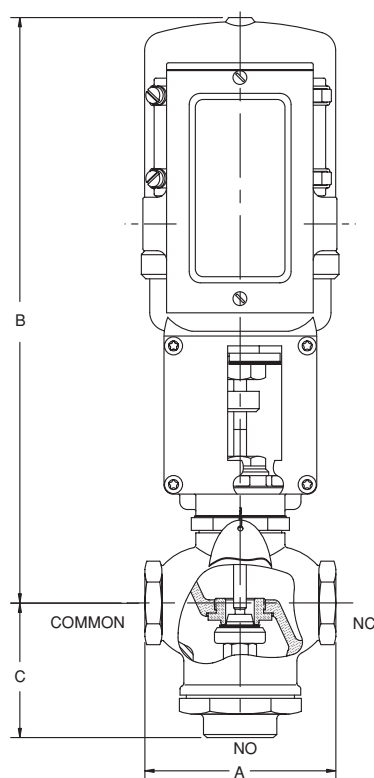
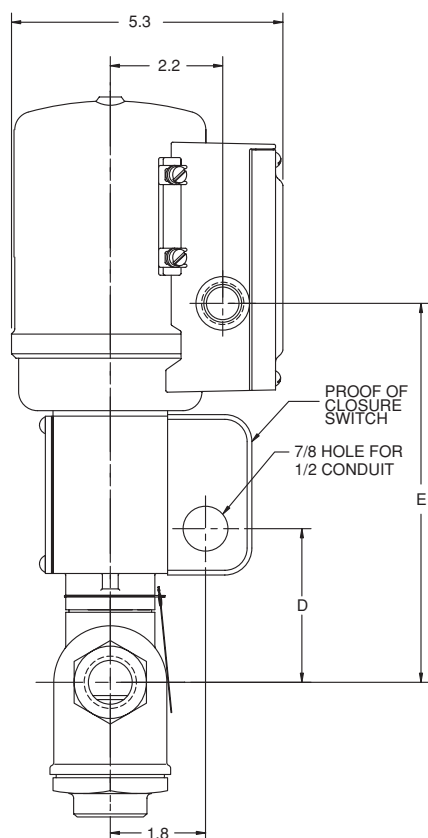
#### Standard

H01A552A15

#### Models with FM Proof of Closure Valve Seal Overtravel Switch

H01A552A171

Const. Ref.	A	B	C	D	E
1	3.75	11.56	3.00	3.11	7.55





## Features

- Free handle will not open valve until solenoid is energized.
- Valve trips closed instantly when solenoid is de-energized.
- Highly visible position indicator.
- Aluminum body construction.

## Construction

Valve Parts in Contact with Fluids	
Body	Aluminum
Seals and Disc	NBR
Core Tube	305 Stainless Steel
Core and Plugnut	430F Stainless Steel
Springs	302 Stainless Steel
Shading Coil	Copper
Pipe Plug	Zinc-Plated Steel

## Electrical

Standard Coil Class of Insulation	Watt Rating and Power Consumption			Ambient Temp. °F	Spare Coil Family	
	AC				General Purpose	Explosionproof
	Watts	VA Holding	VA Inrush			
	AC	AC	AC			
F	20	43	240	-20 to 125	99257	99257
Standard Voltages: 24, 120, 240 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz).						

## Solenoid Enclosures

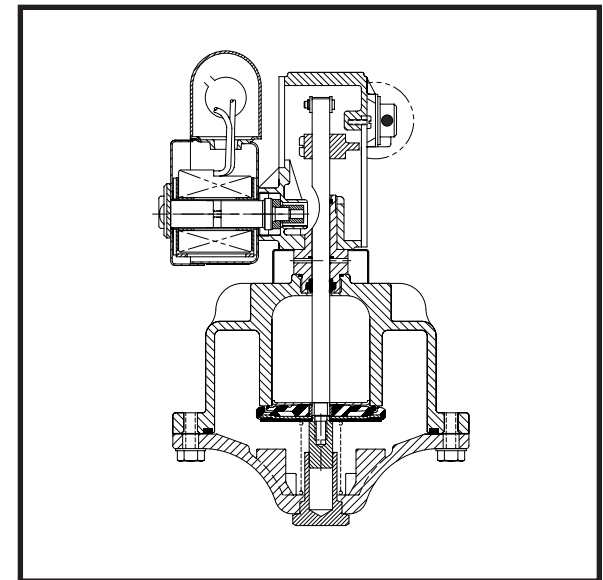
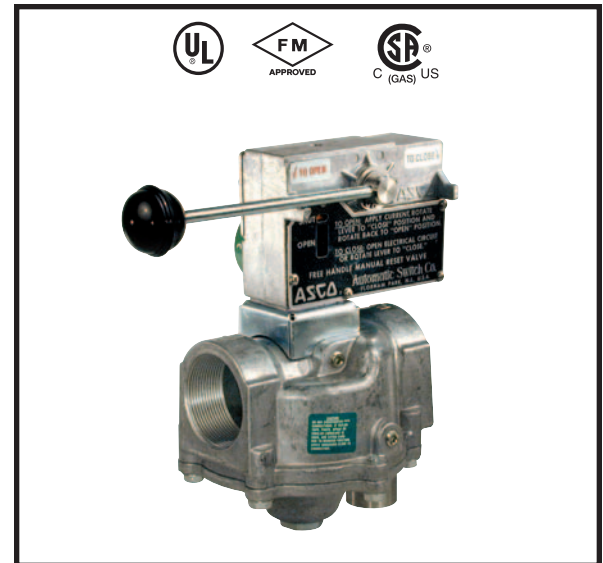
**Standard:** RedHat® metal Types 1 General Purpose enclosures with 7/8" conduit hole for 1/2" conduit connection.

## Options

Electrical Position Indicator: Suffix "SW"

Indicator is furnished with two reed switches (1amp, 120V AC/DC, 15 watts max. resistive load).

One switch closes when the valve is in the "open" position and one switch closes when the valve is in the "closed" position.



## Approvals:

UL listed to standard 429 "Electrically Operated Valves," Guide Y10Z, File MP618 Safety Valves.

FM Approved to Class 7400 "Liquid and Gas Safety Shutoff Valves."

CSA Certified to:

1) Standard C22.2 No. 139 "Electrically Operated Valves," File 010381.

2) Automatic Gas Safety Shutoff Valves C/I (3.9), File 112872.



## Specifications

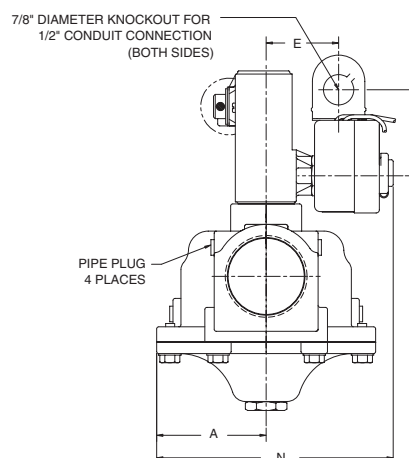
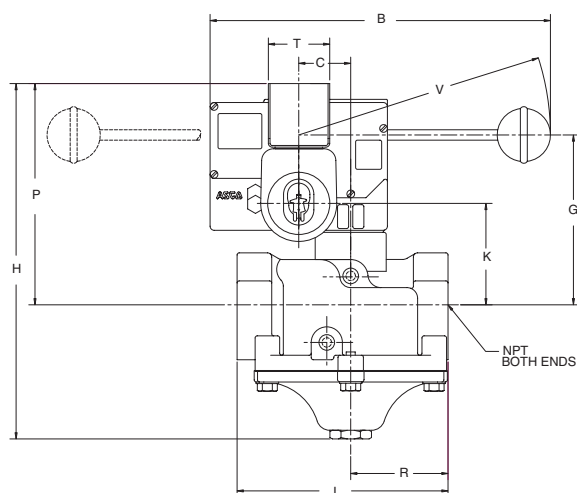
Pipe Size (ins.)	Orifice Size (ins.)	CV Flow	Gas Capacity ①	Operating Pressure Differential (psi)		Max. Fluid Temp. °F	Catalog Number	Const. Ref.	Agency			Wattage	Approx. Shipping Weight (lbs)
			Btu/hr.	Min.	Max.				UL	FM	CSA		
COMBUSTION (Fuel Gas) - NORMALLY CLOSED (Manual Reset)													
3/4	1 5/8	13	717,000	0	25	125	8044B001	1	○	○	○	20	8.3
1	1 5/8	22	1,170,000	0	25	125	8044A002	2	○	○	○	20	8.3
1 1/4	1 5/8	30	1,580,000	0	25	125	8044A003	2	○	○	○	20	8.3
1 1/2	1 5/8	33	1,760,000	0	25	125	8044A004	3	○	○	○	20	8.3
2	2 3/32	55	2,960,000	0	20	125	8044A005	4	○	○	○	20	10.3
2 1/2	3	108	5,810,000	0	10	125	8044A006	5	○	○	○	20	17
3	3	135	7,260,000	0	10	125	8044A007	5	○	○	○	20	18
○ = Safety Shutoff Valve. ① 1" W.C. Drop @ 2" W.C. Inlet Pressure, 1, 000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas.													

## Dimensions: inches

Const. Ref. No.	1	2	3	4	5
A	2.28	2.69	2.69	3.16	4.12
B	9.88	9.88	9.88	9.88	9.88
C	1.50	1.50	1.50	1.50	1.50
E	2.16	2.16	2.16	2.16	2.16
F	2.50	2.50	2.50	2.50	2.50
G	4.22	4.66	4.59	4.84	5.69
H	8.94	9.62	9.62	10.25	12.44
K	2.22	2.66	2.59	2.84	3.69
L	4.50	5.00	5.00	6.09	7.81
N	5.91	6.31	6.31	6.78	7.75
P	5.75	6.19	6.12	6.37	7.22
R	2.25	2.37	2.37	2.81	3.91
T	1.81	1.81	1.81	1.81	1.81
Radius	5.31	5.31	5.31	5.31	5.31

Standard Rebuild Kit	
8044B001	304093
8044A002	304093
8044A003	304093
8044A004	304093
8044A005	304094
8044A006	304095
8044A007	304095

Const. Ref. 1-6



Must be mounted with operator vertical and upright.



## General Description

The AH2 Hydramotors® are self-contained linear, push-type actuators which are mounted to V710 Series Gas Valve assemblies and used to control gas fired heating equipment.

The AH2D (Suffix R) Manual Reset Hydramotor® provides a watertight enclosure, manual reset switch and **Ready to Open** indicator light. With electrical power applied to the actuator, the **Ready to Open** indicator light will be **ON**. To operate the actuator (open the valve), the reset switch must be turned clockwise to the **Open Valve** position and held. The light will remain **ON** until the V710 Series Gas Valve is fully open, then it will go **OFF**. The reset switch may now be released to the center maintained position. It should be noted that if the reset switch is released before the valve is fully open and before the light is **OFF**, the actuator will trip immediately closing the valve. The actuator will trip, closing the V710 Series Gas Valve immediately upon power failure or by turning the reset switch counterclockwise to the **Close Valve** position. Closing time is one second or less. Valve cannot be opened until electrical power is restored to the actuator (**Ready to Open** indicator light **On**) and reset switch is turned clockwise to the **Open Valve** position and held until light goes **OFF**. Visual indication of actual valve stem location is provided by position indicators on both sides of the actuator.

## Specifications:

**Power Requirement:** 220 VA max.

**Closing Time:** One second max.

### Opening Time:

Manual Reset Fast Opening: 14 seconds max.

Manual Reset Slow Opening: 26 seconds max.

**Note:** Opening time is double between -30°F and -40°F ambient.

Opening time increased 20% when operating on 50Hz.

### Enclosure:

Type 1, 2, 3, 3S, 4, 12, and 13 Combination General Purpose, Watertight, Dusttight and Driptight.

**Ambient Temperature:** -40°F to 150°F (-40°C to 66°C)

### Electrical:

#### Actuator:

#### Standard voltages:

120 volts, 60 Hz (110 volts, 50 Hz)

#### Proof of Closure Switch: (optional)

A factory set, non-field adjustable SPDT switch. 1800VA max. connected load (e.g. one 15A load @ 120V or two 3.75A loads @ 240V).

#### Auxiliary Switches: (optional)

One or two integral SPDT switches; field adjustable to actuate at any position of stroke. 1800 VA max. connected load (e.g. one 15A load @ 120V.



Series AH2D Suffix R Manual Reset Hydramotor®  
with V710 valve body.

## Electrical Characteristics

Voltage	Amperes		
	Inrush	Opening	Holding
120V	5.6	1.85	0.11

## Installation:

AH2 Hydramotor mounts in any position directly to a V710 valve with 4 set screws.



## Damper Arm Rating:

Drives damper in one direction only. 20 lb. max. at 2.85" radius at 20°F to 150°F and 10 lb. max. at -40°F to 20°F.

## Approvals:

AH2 Hydramotor with V710 valve.



File # MP19318 Safety Valves



CSA Certified to:

1) Automatic Gas Valves Z21.21 (6.5), File 109157.



Gas Safety Shut-off Valves

## Ordering Information:

**Important:** Order by Catalog Number and add suffix number for desired optional feature. e.g. AH2D112A5R.

## Specifications

Applications	Catalog Numbers
	120 V
<b>Manual Reset Slow Opening (14 to 26 seconds)</b>	
Standard on-off	AH2D102AR
Proof of closure	AH2D102SR
<b>Manual Reset Fast Opening (6 to 14 seconds)</b>	
Standard on-off	AH2D112AR
Proof of closure	AH2D112SR

## Optional Features:

(add appropriate suffix number to catalog number)

One Auxiliary Switch (add suffix 2)

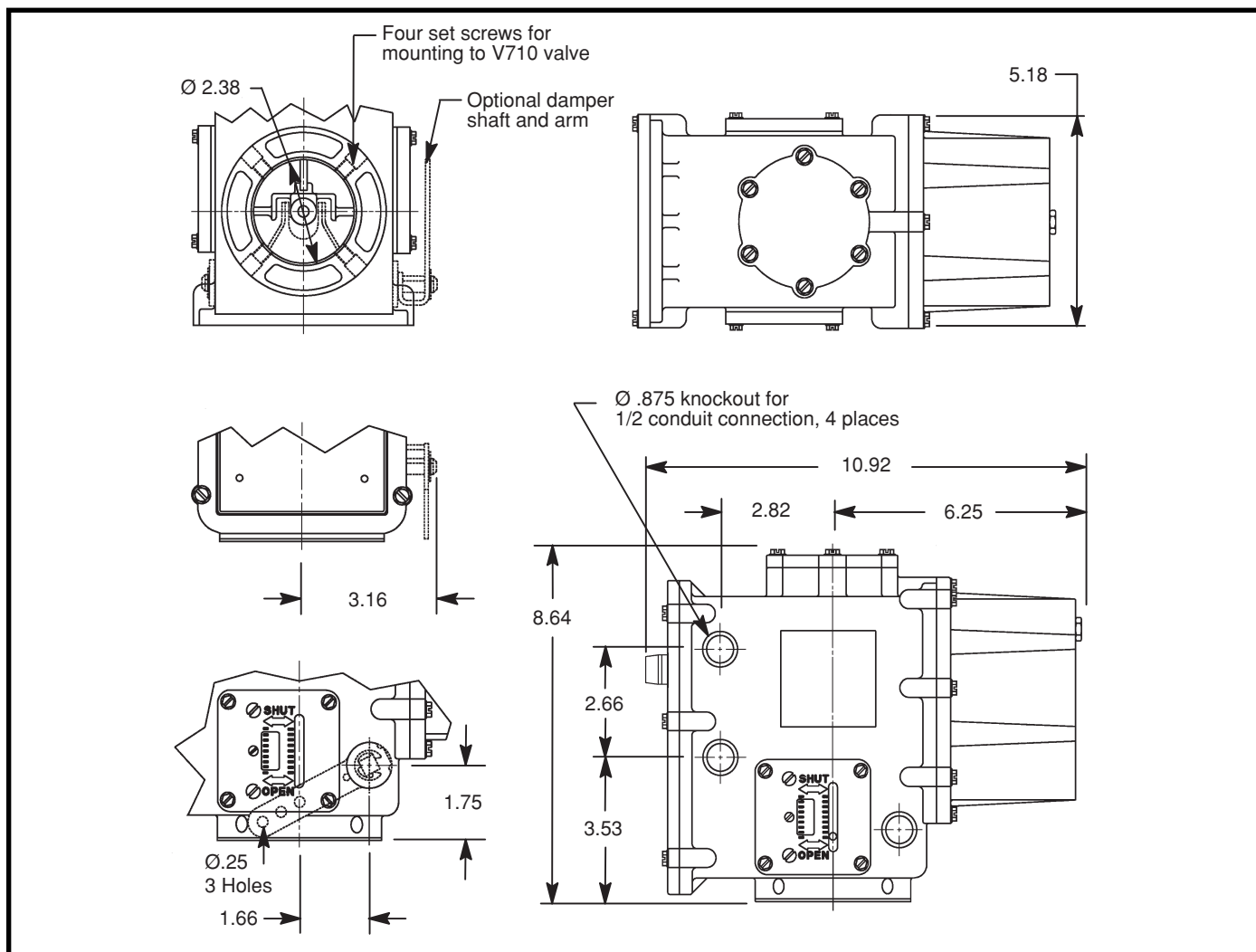
Spring Return Damper Arm (add suffix 3)

Damper Shaft & Arm (add suffix 4)

Damper Shaft, Arm & one Auxiliary Switch, (add suffix 5)

Manual Reset (add suffix R) (shown in catalog number)

## Dimensions: inches





## General Description

These 2-Way aluminum body valves meet the safety standards for commercial industrial and institutional kitchens set by the National Fire protection Association.

Paragraph 1023 in booklet NFPA #96 - "Ventilation of Cooking Equipment" states, "The operation of an extinguishing system shall automatically shut off all sources of fuel and heat to gas pilots. A manual operation shall be required to reestablish the fuel supply or heat supply."

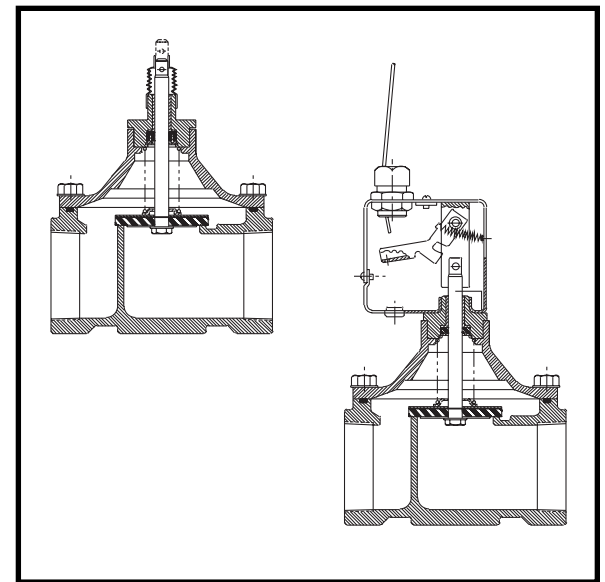
## Construction

Valve Parts in Contact with Fluids	
Body	Aluminum
Seals and Disc	NBR
Core Tube	305 Stainless Steel
Core and Plugnut	430F Stainless Steel
Springs	302 Stainless Steel

## Types of Operation

Series HV216-585 closes to shut off gas flow when the cable holding it in the open position is released.  
Catalog No. HV216-585 replaces HV160-265.

Series JV216-587 closes to shut off gas flow when the cable is pulled. Catalog No. JV216-587 replaces JV182-648



## Approvals:

UL Component listed, File No. MH-8849, Guide No. YRPV2;  
UL of Canada, File MH27283, Guide No. 167E49.

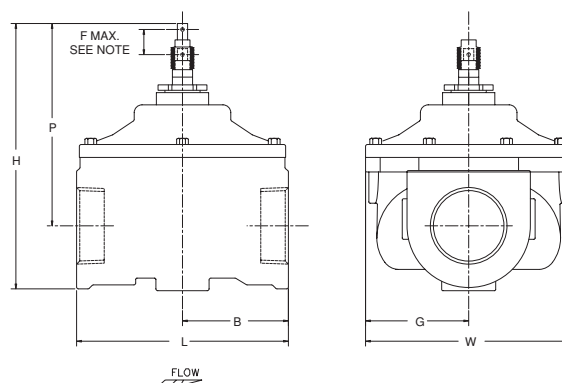
## Specifications

Pipe Size (ins.)	Orifice Size (ins.)	CV Flow	Fluid & Ambient Temp. °F		Operating Pressure Differential (psi)		Catalog Numbers Cable Operation		Agency
			Min	Max.	Min.	Max.	Release to Close	Pull to Close	UL
NORMALLY CLOSED (Closed when de-energized)									
1/2	3/4	5.2	32	132	0	5	HV216-585-8	JV216-587-1	○
3/4	3/4	6.5	32	132	0	5	HV216-585-1	JV216-587-2	○
1	1 5/8	24	32	132	0	5	HV216-585-2	JV216-587-3	○
1 1/4	1 5/8	34	32	132	0	5	HV216-585-3	JV216-587-4	○
1 1/2	1 5/8	38	32	132	0	5	HV216-585-4	JV216-587-5	○
2	2 3/32	54	32	132	0	5	HV216-585-5	JV216-587-6	○
2 1/2	3	110	32	132	0	5	HV216-585-6	JV216-587-7	○
3	3	138	32	132	0	5	HV216-585-7	JV216-587-8	○
○ = Safety Shutoff Valve. Safe working pressure 50 psig.									

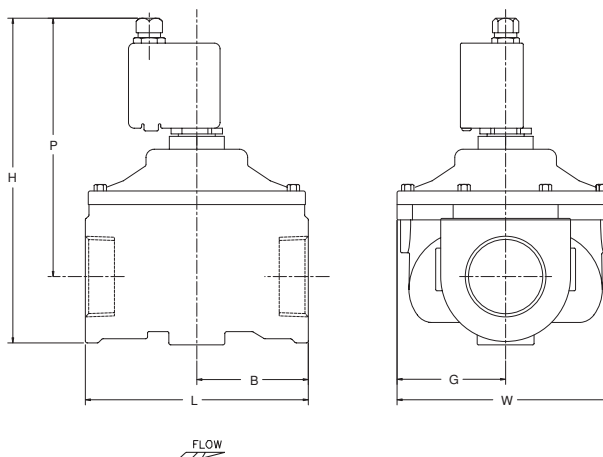
## Dimensions: inches

Catalog No.	B	F	G	H	L	P	W
HV216-585-8	1 3/8	3/16	1 9/64	4 3/8	2 3/4	3 13/16	2 29/64
HV216-585-1	1 21/32	3/16	1 9/64	4 13/16	3 5/16	4	2 29/64
HV216-585-2	2 3/8	17/32	2 11/16	7 5/32	5	5 27/32	5 3/8
HV216-585-3	2 3/8	17/32	2 11/16	7 5/32	5	5 27/32	5 3/8
HV216-585-4	2 3/8	17/32	2 11/16	7 5/32	5	5 51/64	5 3/8
HV216-585-5	2 13/16	39/64	3 5/32	7 3/4	6 3/32	6 1/4	6 5/16
HV216-585-6	3 29/32	29/32	4 1/8	9 61/64	7 51/64	7 5/8	7 61/64
HV216-585-7	3 57/64	29/32	4 1/8	9 61/64	7 25/32	7 5/8	7 61/64

**Note:** Max is the full open position. Do not exceed as distortion of internal parts may result.



Catalog No.	B	G	H	L	P	W
JV216-587-1	1 3/8	1 9/64	6 9/16	2 3/4	6	2 23/64
JV216-587-2	1 21/32	1 5/32	7	3 5/16	6 3/16	2 11/32
JV216-587-3	2 3/8	2 11/16	8 13/16	5	7 1/2	5 3/8
JV216-587-4	2 3/8	2 11/16	8 13/16	5	7 1/2	5 3/8
JV216-587-5	2 3/8	2 11/16	8 13/16	5	7 9/16	5 3/8
JV216-587-6	2 13/16	3 5/32	9 17/32	6 3/32	8 1/32	6 5/16
JV216-587-7	3 29/32	4 1/8	11 25/64	7 51/64	9 1/16	7 61/64
JV216-587-8	3 57/64	4 1/8	11 25/64	7 25/32	9 1/16	7 61/64



# ASCO® CONTROL PANELS

## Controls and Valves for Gas Service

*Originally designed to N.Y.C. Board of Education specifications.*

### PANEL APPLICATIONS

ASCO relay control panels were originally designed to New York City Board of Education specifications to operate ASCO DC solenoid valves controlling gas flow to school kitchens, domestic cooking classes, ceramic and metal shops. Because of its many features and silent operation, the ASCO relay panel has also been used in many other similar institutions and schools outside New York City. Vandalism and malicious mischief have caused some city governments to make it mandatory that the gas supply be locked off during closed hours. Other governmental bodies and consulting engineers have recognized the need and specifying the ASCO relay panel although not mandated by code.

ASCO relay panels are also used in industrial and commercial installations to control various gases and fluids.

### OPERATIONS

Operating the key switch on the control station energizes the relay to open a normally closed ASCO DC solenoid valve which turns on the gas flow.

#### ASCO RELAY PANEL

Catalog No. 108D10C

Input Voltage: 120 volts, 60 Hz

Output Voltage: 80 volts DC

Output Current: 0.8 amp maximum



### PANEL FEATURES

#### • RELIABILITY

ASCO's reputation and long experience in control are assurances of highly dependable systems with complete ASCO coordination. If the control voltage is lost completely, or reduces to approximately 50% of normal value, the relay de-energizes the normally closed valve to shut off gas flow.

The valve will not open at restoration of voltage until an authorized person operates the key switch on the control station. This eliminates the danger of gas unknowingly escaping. The gas may also be shut off by depressing the normally closed pushbutton switch located on the control station.

For convenience, auxiliary push-buttons, such as the ASCO Catalog numbers 173A19 and 173A20 may be located at various accessible points throughout the building.

#### • SILENT OPERATION

Utilization of DC control provided by the relay panel eliminates annoying AC hum.

#### • APPEARANCE

Shallow-depth NEMA Type I flush-mounted enclosure permits installation directly into the wall for convenience and elimination of obstructions in corridors or high traffic areas.

#### • LONG LIFE

ASCO dust-tight industrial relay and solid-state rectifier are designed to provide long life.

#### • EASE OF INSTALLATION

Clearly marked terminals and installation drawings are located on inside of door.

#### • APPROVAL

Approved by New York City Board of Education for use in public schools.

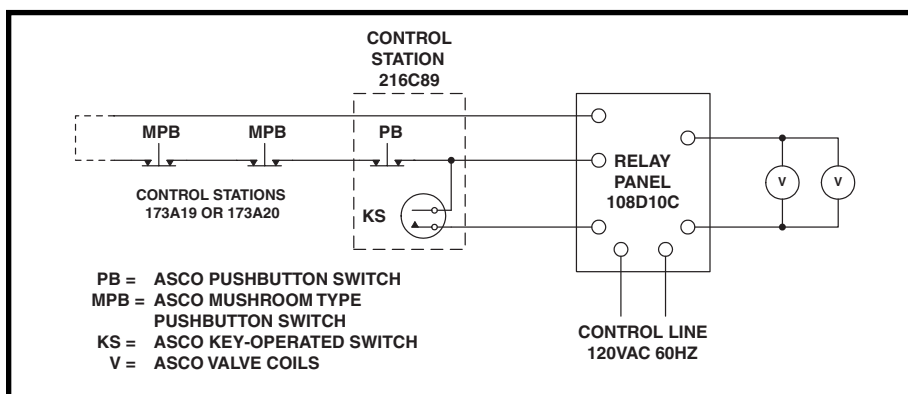


### AC RELAY CONTROL PANEL

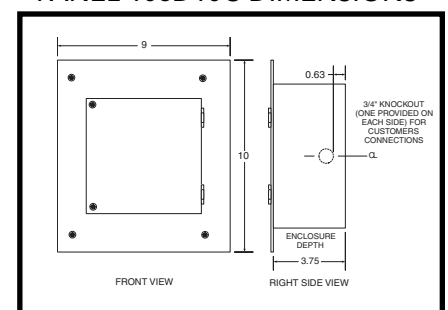
Catalog No. 108D90C (replaces AEP 7200) provides the same features as the DC panels described above except for its 120/60 AC voltage output. Features a key-operated switch with manual "on" and "off" buttons on the cover.

(Has not been submitted for N.Y.C. Board of Education approvals.)

### CONTROL SYSTEM SCHEMATIC



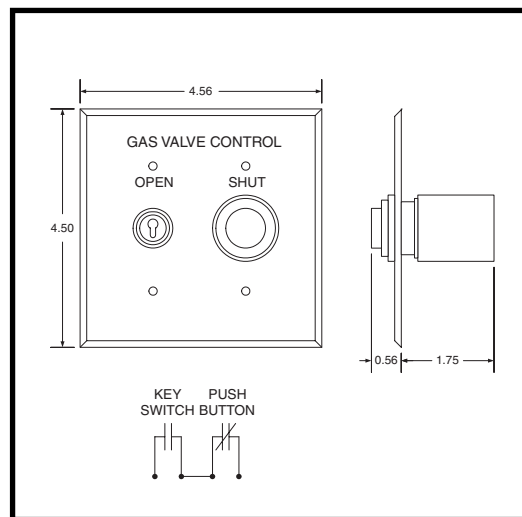
### PANEL 108D10C DIMENSIONS





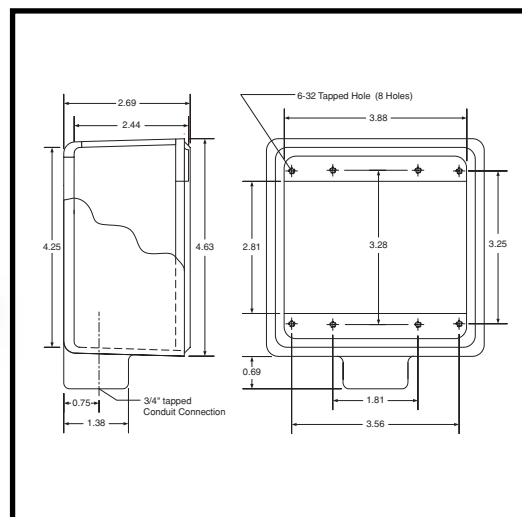
## MASTER CONTROL STATION

Catalog No. 216C89 consists of a key-operated, normally open switch and a normally closed pushbutton mounted in a stainless steel faceplate for flush installation. "Gas Valve Control" is inscribed on the faceplate, and the switches are labeled "Open" over the key switch and "Shut" over the pushbutton. Four inch square wall box is not included.



## CONTROL STATIONS

Catalog No. 173A19 (flush mounted) and Catalog No. 173A20 (surface mounted) consist of a momentary mushroom pushbutton labeled "Emergency Stop." When button is hit, power to valves is shut off and they close in 0.1 second.



## SOLENOID VALVES

Series 8215 Solenoid Valves feature 2-way normally closed operation for gas service. They are explosionproof and designed to handle low pressure city gas. Control voltage is 80 to 90 volts DC or 120/60 volts AC.



### DC Valves for use with Panel 108D10C

Pipe Size (inches)	Cat. No	Max. Pressure (psi)	CV Flow Factor	Holding Watts
1/2	EF8215G20	25	4.4	11.6
3/4	EF8215G30	25	5.1	11.6
1	EF8215B50	25	21	14.9
1 1/4	EF8215B60	25	32	14.9
1 1/2	EF8215B70	25	35	14.9
2	EF8215B80	15	60	14.9

### AC Valves for use with Panel 108D90C (replaces AEP7200)

Pipe Size (inches)	Cat. No	Max. Pressure (psi)	CV Flow Factor	Holding Watts
1/2	EF8215G20	50	4.4	10.1
3/4	EF8215G30	50	5.1	10.1
1	EF8215B50	25	21	15.4
1 1/4	EF8215B60	25	32	15.4
1 1/2	EF8215B70	25	35	15.4
2	EF8215B80	25	60	15.4

When ordering ASCO Gas Control System, specify  
Catalog Number 108D10C or 108D90C  
Catalog Numbers and quantities of:  
Master Control Stations, Control Stations, Solenoid Valves with Voltage

### Features

- Same Red-Hat II molded epoxy solenoid operators used on General Purpose ASCO valves.
- Available in 4 standard wattages, AC or DC.
- Mountable in any position.

### Construction

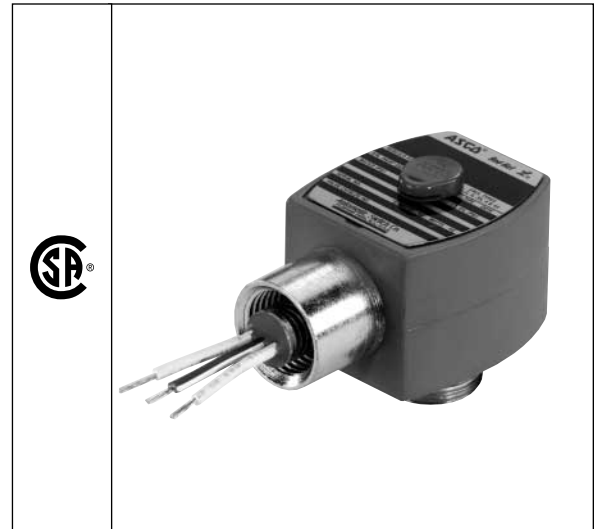
Parts in Contact with Fluids	
Core Tube	305 Stainless Steel
Core and Plugnut	430F Stainless Steel
Seal	NBR
Shading Coil	Copper (AC only)
Additional Parts	
Disc	NBR and PA (3 way upper disc)
Spring	302 Stainless Steel

### Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part No.			
	DC Watts	AC			General Purpose		Explosionproof	
		Watts	VA Holding	VA ① Inrush	AC	DC	AC	DC
F	10.6	6.1	16	30	238210	238310	238214	238314
F	--	9.1	25	40	238210	--	238214	--
F	11.6	10.1	25	50	238610	238710	238614	238714
F	--	17.1	40	70	238610	--	238614	--
F	--	15.4	27	70	99257	--	99257	--
F	--	20	43	90	99257	--	99257	--

**Standard Voltages:** 24, 120, 240, 480 volts AC 60 Hz (or 110, 220 volts AC 50 Hz).  
6, 12, 24, 120, 240 volts, DC. Must be specified when ordering. Other voltages available when required.

**Note:** ① Core Stroke 1/16".



### Solenoid Enclosures

**Standard:** Red-Hat II - Watertight, Types 1, 2, 3, 3S, 4, and 4X. Red-Hat - Type 1.

**Optional:** Red-Hat II - Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9; Red-Hat - Explosionproof and Raintight, Types 3, 7, and 9. (To order, add prefix "EF" to catalog number.) See *Optional Features Section* for further details on Open Frame Solenoids, Junction Box Enclosures, and Panel Mount Constructions.

### Nominal Ambient Temperature Ranges:

AC: 32°F to 125°F (0°C to 52°C)

DC: 32°F to 104°F (0°C to 40°C)

Refer to *Engineering Section* for details.

### Approvals:

CSA certified.

Refer to *Engineering Section* for details.

### Specifications (English units)

Orifice Size (ins.)	Cv Flow Factor	Operating Pressure Differential (psi)						Maximum Fluid Temp. °F		Catalog Number	Constr. Ref. No.	Watt Rating/ Class of Coil Insulation ⑥		Optional Inserted Seat
		Maximum AC			Maximum DC							AC	DC	Part Number
		Air-Inert Gas	Water	Lt. Oil @ 300 SSU ⑤	Air-Inert Gas	Water	Lt. Oil @ 300 SSU ⑤							
2 WAY SOLENOID OPERATORS, ① NORMALLY CLOSED (Closed when de-energized)														
3/64	.06	750	600	400	325	225	300	180	120	8200G1	4	6.1/F	10.6/F	096-429-4 ②
3/32	.17	275	200	130	110	100	100	180	120	8200G1	4	6.1/F	10.6/F	180-222-5D ③
1/8	.35	135	115	90	50	50	50	180	120	8200G1	4	6.1/F	10.6/F	180-222-1D ③
3 WAY SOLENOID OPERATORS, ① NORMALLY CLOSED (Closed when de-energized)														
3/64	.04	230	230	230	120	140	125	200	150	8329G1	5	10.1/F	11.6/F	096-429-4 ②
3/32	.15	125	100	100	60	70	30	200	150	8329G2	5	10.1/F	11.6/F	096-429-3 ②
1/8	.25	75	60	60	30	40	25	200	150	8329G3	5	10.1/F	11.6/F	180-222-1D ③
3 WAY SOLENOID OPERATORS, ① NORMALLY OPEN (Open when de-energized)														
3/64	.04	300	300	300	200	300	120	200	150	8329G7	5	10.1/F	11.6/F	096-429-4 ②
3/32	.15	175	175	175	70	90	45	200	150	8329G8	5	10.1/F	11.6/F	096-429-3 ②
1/8	.25	90	90	90	40	40	25	200	150	8329G9	5	10.1/F	11.6/F	180-222-1D ③
<b>Notes:</b> ① Larger operators, orifice sizes, and higher pressure ratings are available. Consult your local ASCO sales office. ② Inserted seat has 1/4-32 thread for threading. ③ Inserted seat has 3/8-32 thread for threading. ④ Cv will depend upon size and location of connecting passages. ⑤ Maximum viscosity for 3 way solenoid operator is 45 SSU. ⑥ On 50 hertz service, the watt rating for the 6.1/F solenoid is 8.1 watts.														



## Specifications (Metric units)

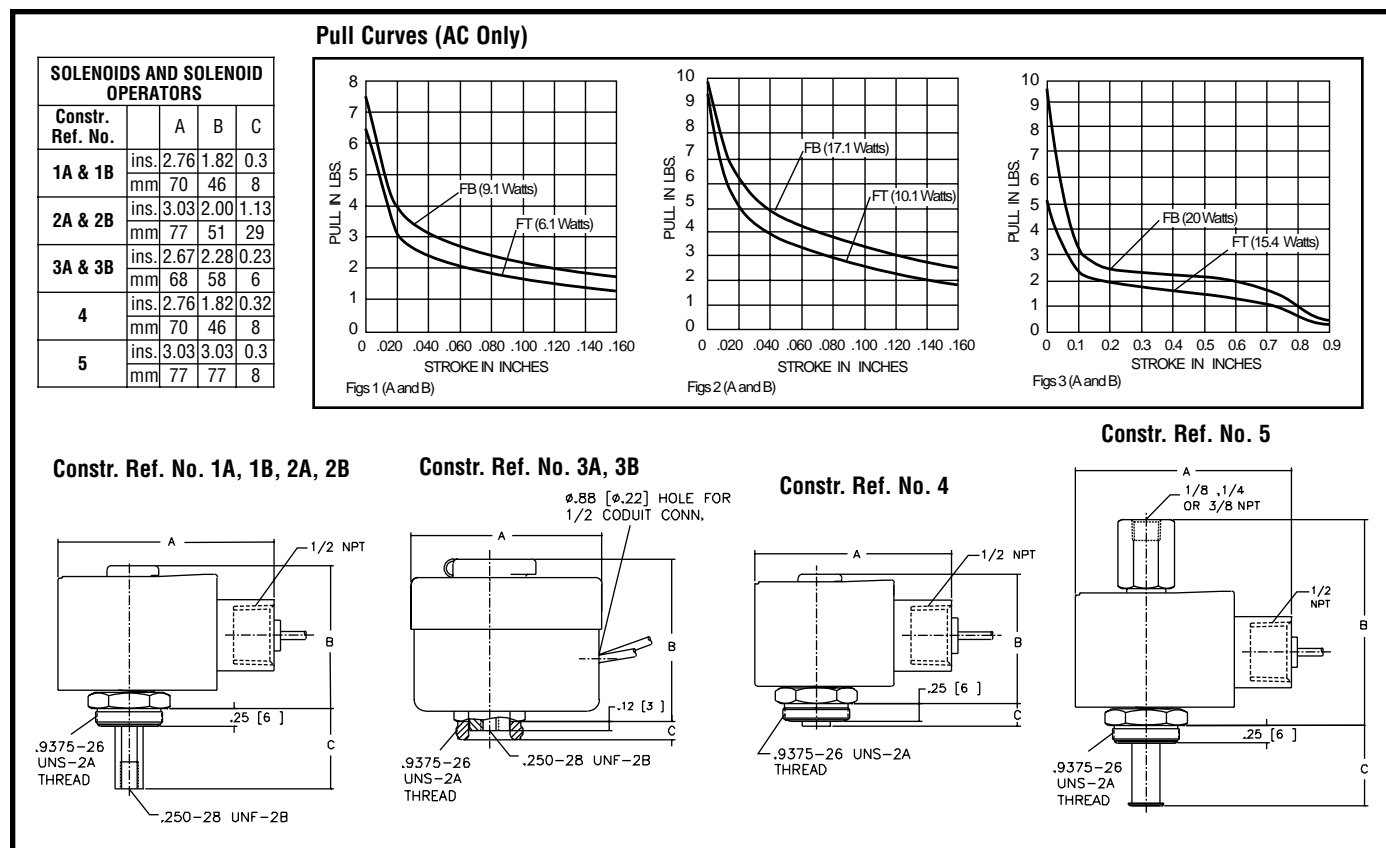
Orifice Size (mm)	Kv Flow Factor (m3/h)	Operating Pressure Differential (bar)						Maximum Fluid Temp. °C		Catalog Number	Constr. Ref. No.	Watt Rating/ Class of Coil Insulation ⑥		Optional Inserted Seat	
		Maximum AC			Maximum DC							AC	DC	AC	DC
		Air-Inert Gas	Water	Lt. Oil @ 300 SSU ⑤	Air-Inert Gas	Water	Lt. Oil @ 300 SSU ⑤								
2 WAY SOLENOID OPERATORS, ① NORMALLY CLOSED (Closed when de-energized)															
1.2	.05	52	41.4	34.5	22.4	15.5	20.7	82	49	8200G1	4	6.1/F	10.6/F	096-429-4 ②	
2.4	.15	19	13.8	9.0	7.6	6.9	6.9	82	49	8200G1	4	6.1/F	10.6/F	180-222-5D ③	
3.2	.30	9	7.9	6.2	3.4	3.4	3.4	82	49	8200G1	4	6.1/F	10.6/F	180-222-1D ③	
3 WAY SOLENOID OPERATORS, ① NORMALLY CLOSED (Closed when de-energized)															
1.2	.03	16	15.9	15.9	8.3	9.7	8.6	93	66	8329G1	5	10.1/F	11.6/F	096-429-4 ②	
2.4	.13	9	6.9	6.9	4.1	4.8	2.1	93	66	8329G2	5	10.1/F	11.6/F	096-429-3 ②	
3.2	.21	5	4.1	4.1	2.1	2.8	1.7	93	66	8329G3	5	10.1/F	11.6/F	180-222-1D ③	
3 WAY SOLENOID OPERATORS, ① NORMALLY OPEN (Open when de-energized)															
1.2	.03	21	20.7	20.7	13.8	20.7	8.3	93	66	8329G7	5	10.1/F	11.6/F	096-429-4 ②	
2.4	.13	12	12.1	12.1	4.8	6.2	3.1	93	66	8329G8	5	10.1/F	11.6/F	096-429-3 ②	
3.2	.21	6	6.2	6.2	2.8	2.8	1.7	93	66	8329G9	5	10.1/F	11.6/F	180-222-1D ③	
<b>Notes:</b> ① Larger operators, orifice sizes, and higher pressure ratings are available. Consult your local ASCO sales office.								④ Cv will depend upon size and location of connecting passages.							
② Inserted seat has 1/4-32 thread for threading.								⑤ Maximum viscosity for 3 way solenoid operator is 45 SSU.							
③ Inserted seat has 3/8-32 thread for threading								⑥ On 50 hertz service, the watt rating for the 6.1/F solenoid is 8.1 watts.							

## Specifications - Solenoids

Catalog Number	8016G1	8016G2	8003G1	8003G2	80171	80172
Constr. Ref. No. and Fig. No.	1A	1B	2A	2B	3A	3B
Watt Rating/ ③ Class of Coil Insulation	6.1/F	9.1/F	10.1/F	17.1/F	15.4/F	20/F
VA Holding	16	25	25	40	27	43
VA Inrush ①	30	40	50	70	70	90
Min. Return Spring Force or Load Value ②	11 oz.	11 oz.	1.3 lb.	1.3 lb.	1.75 lb.	1.75 lb.

**Notes:** ① Core Stroke 1/16". ② Customer to supply return spring, required in solenoid sealed position for proper operation, in accordance with value given.  
 ③ On 50 hertz service, the watt rating for the 6.1/F solenoid is 8.1 watts; the watt rating for the 9.1/F solenoid is 11.1 watts.

## Dimensions: inches (mm)



### Features

- Adjustable flow control design provides greater capacity than most constructions.
- Spring-loaded disc allows free flow in one direction and an adjustable flow in the other.
- Tapered brass stem controls flow through the cross-hole in the disc.
- Unique locking device in adjusting knob.
- Scribed graduations provide position indication for the stem.
- Mountable in any position.



### Construction

Valve Parts in Contact with Fluids	
Body and Stem	Brass
Seals	NBR
Disc	CA
Spring	302 Stainless Steel
Retainer	17-7PH Stainless Steel

### Nominal Ambient Temperature Ranges:

125°F (52°C) maximum.

Refer to Engineering Section for details.

### Operation:

When the pawl is in the up position, it creates a friction lock on the knurled bonnet and the knob cannot rotate. When the pawl is at 90° to the knob, the knob can be rotated.

Refer to Engineering Section for details.

### Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor ①		Opening Pressure (psi)	Maximum Operating Pressure Differential (psi)	Max. Fluid Temp. °F	Catalog Number
		Meter Flow	Free Flow		Air-Inert Gas, Water, and Light Oil		
1/4	3/8	.22	1.2	1	300	180	V022A1
3/8	3/8	.90	1.4	1	300	180	V0222
1/2	7/16	1.2	2.6	1	300	180	V0223
3/4	17/32	1.6	4.0	2.5	300	180	V0224

Note: ① Refer to Chart A for Cv vs. Metering Stem Turns.

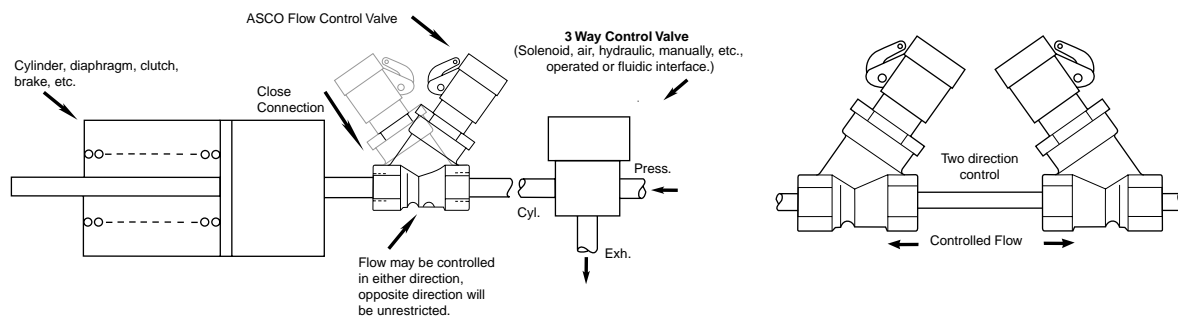
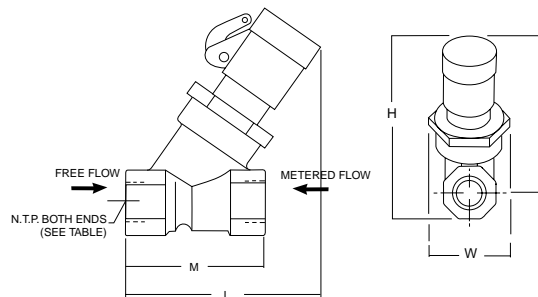
### Specifications (Metric units)

Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h) ①		Opening Pressure (bar)	Maximum Operating Pressure Differential (bar)	Max. Fluid Temp. °C	Catalog Number
		Meter Flow	Free Flow		Air-Inert Gas, Water, and Light Oil		
1/4	10	.2	1.0	0.07	21	82	V022A1
3/8	10	.8	1.2	0.07	21	82	V0222
1/2	11	1.0	2.2	0.07	21	82	V0223
3/4	13	1.4	3.4	0.17	21	82	V0224

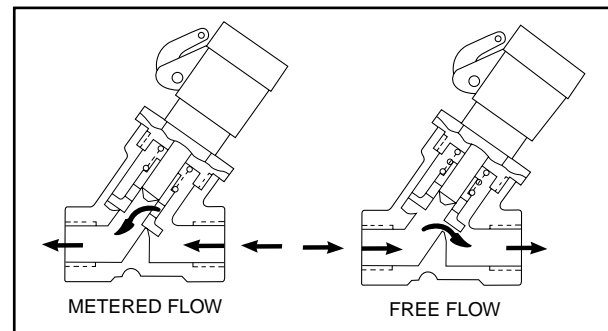
Note: ① Refer to Chart A for Cv vs. Metering Stem Turns.

## Dimensions: inches (mm)

Catalog Number	H	L	M	P	W
V022A1	3.12	2.69	1.91	2.62	1.31
	79	68	49	67	33
V0222	3.12	2.69	1.91	2.69	1.31
	79	68	49	68	33
V0223	3.34	3.22	2.28	2.81	1.31
	85	82	58	71	33
V0224	3.75	3.69	2.75	3.09	1.47
	95	94	70	79	37



## FLOW DIAGRAMS



## CHART A

**Example I:** A 1/2" N.P.T. flow control valve is required to pass 3 GPM of water at a  $\Delta p$  of 16 psi. Determine the position of the metering stem.

$$Cv = \frac{GPM}{\sqrt{\Delta p}} \quad Cv = \frac{3}{\sqrt{16}} = 0.75$$

From the graph for the 1/2" N.P.T. flow control valve with a Cv of .75, the stem should be positioned three turns out from fully closed.

**Example II:** To determine the flow using the same data of 16 psi,  $\Delta p$  and METERED Cv of .75, the solution will be:

$$GPM = Cv \sqrt{\Delta p} = .75 \sqrt{16} = 3$$

**Example III:** The flow through this valve in the FREE FLOW position is:

$$GPM = Cv \sqrt{\Delta p} = 2.6 \sqrt{16} = 10.4$$

\*Cv is obtained from free flow data table.

- P<sub>1</sub> - Inlet Pressure (PSIA)
- P<sub>2</sub> - Outlet Pressure (PSIA)
- $\Delta p$  - Pressure Drop (P<sub>1</sub> - P<sub>2</sub>) psi
- G - Specific Gravity of Gas @ 14.7 PSIA and 60°F.
- T - Absolute Temperature of Flowing Medium (°F + 460)

## SIZING EQUATIONS

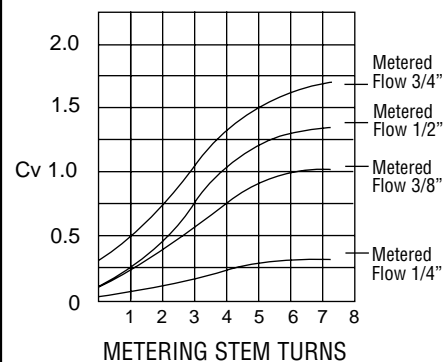
$$\text{WATER } Cv = \frac{GPM}{\sqrt{\Delta p}} \quad GPM = Cv \sqrt{\Delta p}$$

$$\text{AIR } Cv = \frac{SCFH}{960 \sqrt{\frac{\Delta p(P_1 + P_2)}{GT}}}$$

$$SCFH = Cv \cdot 960 \sqrt{\frac{\Delta p(P_1 + P_2)}{GT}}$$

Free Flow Data	
Pipe Size	Cv
1/4	1.2
3/8	1.4
1/2	2.6
3/4	4.0

## Flow Characteristics for ASCO Flow Control Valves



### Features

- Should be used whenever it is essential that fluid be free of foreign solid matter.
- Assure proper flow and prevent damage to valves, controls, and other equipment.

### Constructions

#### Forged Brass, Bronze, Cast Iron, and Stainless Steel Body

Rugged, self-cleaning "Y body" strainers have easily removed strainer of perforated stainless steel or wire mesh. Free hole area shown in table is total of all openings. Suitable for air, water, oil, and steam.

#### Acetal Body

Straight-through flow with large area orifice. Strainers can be easily removed and back flushed. Suitable for air and water.



### Installation:

May be mounted in any position, but should be located on the inlet side of the valve, as close to it as possible.

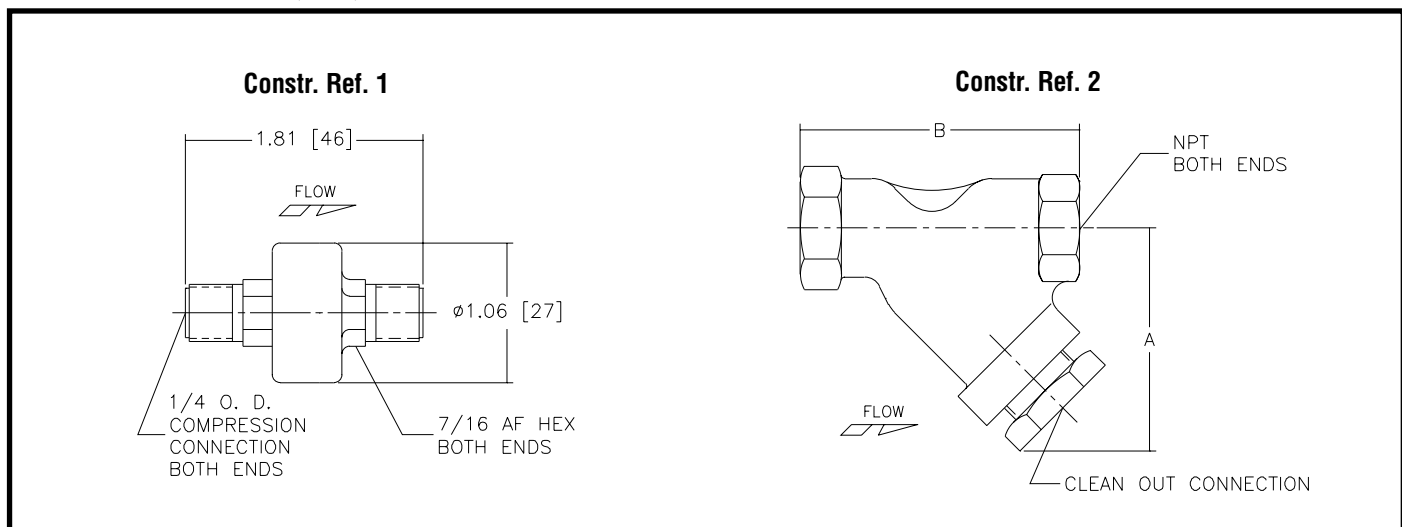
### Specifications (English units)

Pipe Size (ins.)	Cv Flow Factor	Screen Mesh Size ③	Total Free Hole Area (in.²)	Particle Retention Size ③		Blow-Off Pipe Size (ins.)	Maximum Fluid Temp. °F ⑥	Safe Working Pressure (psi) ⑥	Catalog Number	Constr. Ref. No.	Dimensions (ins.)	
				Microns	Inches						A	B
CA BODY with Stainless Steel Strainer Element and NBR Seals												
①	.50	80x80	.116	178	.007	--	130	50	86044	1	②	②
① ⑤	.50	80x80	.116	178	.007	--	130	175	86042	1	②	②
FORGED BRASS BODY with Stainless Steel Strainer Element and PTFE or FPM Seals ⑧												
1/8	1	60x60	.325	155	.0061	--	400	750	8600A1 ⑦ ⑧	2	1 11/32	2
1/4	1.7	60x60	.325	155	.0061	--	400	750	8600A2 ⑦ ⑧	2	1 11/32	2
3/8	1.9	100x100	.35	140	.0055	--	400	750	8600A13 ⑦	2	1 5/8	1 29/32
1/2	2.6	100x100	.50	140	.0055	--	400	750	8600A14 ⑦	2	1 13/16	2 9/32
3/4	4.7	100x100	.75	140	.0055	--	400	750	8600A15 ⑦	2	2 3/32	2 3/4
BRONZE BODY with Stainless Steel Strainer Element												
1	18	60x60	3.52	155	.0061	3/4	150	500	8600B6	2	3 1/2	4 7/8
1 1/4	24	60x60	4.48	155	.0061	3/4	150	500	8600B7	2	4 3/16	5 3/8
1 1/2	36	60x60	6.39	155	.0061	3/4	150	500	8600B8	2	4 3/4	6 3/8
2	63	60x60	6.49	155	.0061	1	150	500	8600B9	2	5 11/16	7 1/2
CAST IRON BODY with Stainless Steel Strainer Element												
1/4	1.8	60x60	0.93	155	.0061	1/4	150	300	8602B12	2	2 3/16	2 7/8
3/8	3.2	60x60	0.93	155	.0061	1/4	150	300	8602B13	2	2 3/16	2 7/8
1/2	5.9	60x60	1.49	155	.0061	3/8	150	300	8602B14	2	2 11/16	3 7/16
3/4	11	60x60	2.70	155	.0061	1/2	150	300	8602B15	2	3/38	4 3/8
1	18	60x60	3.52	155	.0061	3/4	150	300	8602B16	2	3 1/2	4 7/8
1 1/4	24	60x60	4.58	155	.0061	1	150	300	8602B17	2	4 1/8	5 3/8
1 1/2	36	60x60	6.39	155	.0061	1-1/4	150	300	8602B18	2	4 11/16	6 3/8
2	68	60x60	6.49	155	.0061	1-1/2	150	300	8602B19	2	5 7/16	7 1/2
2 1/2	81	60x60	10.01	155	.0061	1-1/4	150	300	8602B20	2	6 7/16	9
STAINLESS STEEL BODY with Stainless Steel Strainer Element and PTFE Seals												
3/8	2.1	60x60	.23	250	.0098	1/4	450	1500	86014	2	1 27/32	1 29/32
1/2	3	60x60	.35	250	.0098	1/4	450	1500	86015	2	2	2 9/32
<b>Notes:</b> ① 1/4" O.D. compression connection. Fittings are not supplied. To order, refer to List Price Schedule. ② See dimensions. ③ Other mesh sizes may be available; consult ASCO.							⑤ Where pressure exceeds 50 psi, it is advisable to use hose or tubing clamps. ⑥ Metal body strainers are rated for steam at 250 psi maximum pressure and 406°F maximum temperature. ⑦ UL recognized component. ⑧ Strainer supplied with FKM seal.					

## Specifications (Metric units)

Pipe Size (ins.)	Kv Flow Factor (m3/h)	Screen Mesh Size ③	Total Free Hole Area (mm²)	Particle Retention Size ③		Blow-Off Pipe Size (ins.)	Maximum Fluid Temp. °C ⑥	Safe Working Pressure (bar) ⑥	Catalog Number	Constr. Ref. No.	Dimensions (ins.)	
				Microns	Inches						A (mm)	B (mm)
CA BODY with Stainless Steel Strainer Element and NBR Seals												
①	.43	80x80	7.5	178	.007	--	54	3	86044	1	②	②
① ⑤	.43	80x80	7.5	178	.007	--	54	12	86042	1	②	②
FORGED BRASS BODY with Stainless Steel Strainer Element and PTFE or FPM Seals ⑧												
1/8	.86	60x60	21	155	.0061	--	204	52	8600A1 ⑦ ⑧	2	34	51
1/4	1.46	60x60	21	155	.0061	--	204	52	8600A2 ⑦ ⑧	2	34	51
3/8	1.63	100x100	22.6	140	.0055	--	204	52	8600A13 ⑦	2	41	48
1/2	2.23	100x100	32.3	140	.0055	--	204	52	8600A14 ⑦	2	46	58
3/4	4.03	100x100	48.4	140	.0055	--	204	52	8600A15 ⑦	2	53	70
BRONZE BODY with Stainless Steel Strainer Element												
1	15.43	60x60	227	155	.0061	3/4	66	34	8600B6	2	89	124
1 1/4	20.57	60x60	289	155	.0061	3/4	66	34	8600B7	2	106	137
1 1/2	30.86	60x60	412.2	155	.0061	3/4	66	34	8600B8	2	121	162
2	54.00	60x60	418.6	155	.0061	1	66	34	8600B9	2	144	191
CAST IRON BODY with Stainless Steel Strainer Element												
1/4	1.54	60x60	60	155	.0061	1/4	66	21	8602B12	2	56	73
3/8	2.74	60x60	60	155	.0061	1/4	66	21	8602B13	2	56	73
1/2	5.06	60x60	96.1	155	.0061	3/8	150	21	8602B14	2	68	87
3/4	9.43	60x60	174.2	155	.0061	1/2	151	21	8602B15	2	2	111
1	101.14	60x60	227	155	.0061	3/4	152	21	8602B16	2	89	124
1 1/4	20.57	60x60	295.4	155	.0061	1	153	21	8602B17	2	105	137
1 1/2	30.86	60x60	412.2	155	.0061	1-1/4	154	21	8602B18	2	119	162
2	58.28	60x60	418.6	155	.0061	1-1/2	155	21	8602B19	2	138	191
2 1/2	69.43	60x60	645.6	155	.0061	1-1/4	156	21	8602B20	2	164	229
STAINLESS STEEL BODY with Stainless Steel Strainer Element and PTFE Seals												
3/8	1.80	60x60	14.8	250	.0098	1/4	232	103	86014	2	47	48
1/2	2.57	60x60	22.6	250	.0098	1/4	232	103	86015	2	51	58
<b>Notes:</b> ① 1/4" O.D. compression connection. Fittings are not supplied. To order, refer to List Price Schedule. ② See dimensions. ③ Other mesh sizes may be available; consult ASCO.							⑤ Where pressure exceeds 3.4 bar, it is advisable to use hose or tubing clamps.					
							⑥ Metal body strainers are rated for steam at 17 bar maximum pressure and 208°C maximum temperature.					
							⑦ UL recognized component.					
							⑧ Strainer supplied with FKM seal.					

## Dimensions: inches (mm)



## Features

- Compact, 3-ported valves have oversized orifice for quick exhaust of cylinders, brakes, actuators, clutches, etc.
- Allow use of smaller pipe lines and control components.
- When used as a shuttle valve, high pressure from the two inlets exits through the common outlet.
- Mountable in any position.



## Construction

Valve Parts in Contact with Fluids	
V04351	
Body and Bonnet	316 Stainless Steel
Seat	HYT
All Others	
Body and Bonnet	Die-Cast Zinc
Seat	NBR

## Nominal Ambient Temperature Ranges:

V04351: -40°F to 125°F (-40°C to 52°C)

All Others: -4°F to 125°F (-20°C to 52°C)

*Refer to Engineering Section for details.*

## Specifications (English units)

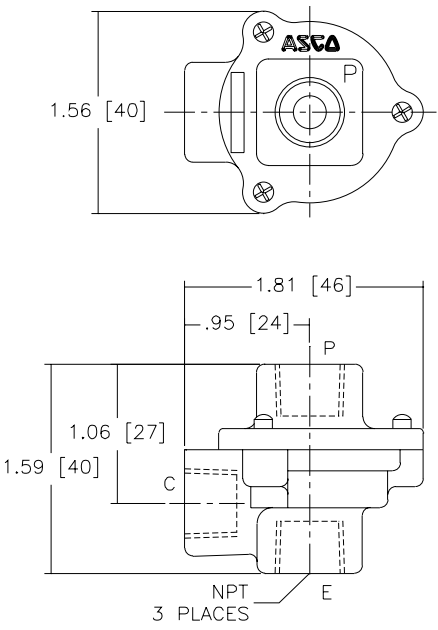
Pipe Size (ins.)	Cv Flow Factor		Opening Pressure (psi)	Maximum Operating Pressure Differential (psi)	Maximum Air Temp. °F	Quick Exhaust/ Shuttle Valve	Shutoff Valve	Body Material	Constr. Ref. No.
	Pressure to Cylinder	Cylinder to Exhaust				Catalog Number	Catalog Number		
1/8	.7	.8	5	125	125	V0435	-	Zinc	1
1/4	.8	1.0	5	125	125	V0436	-	Zinc	1
1/4	.8	1.4	15	150	125	V04351	-	S.S.	3
1/4	2.0	2.0	5	125	125	V0431	V04311	Zinc	2
3/8	3.5	4.5	5	125	125	V0432	V04321	Zinc	2

## Specifications (Metric units)

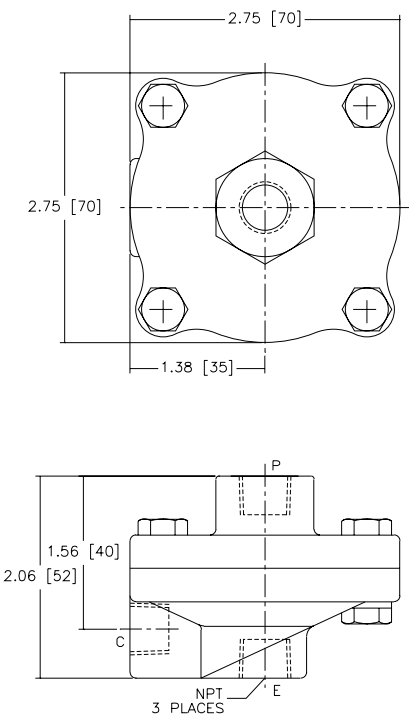
Pipe Size (ins.)	Kv Flow Factor (m3/h)		Opening Pressure (bar)	Maximum Operating Pressure Differential (bar)	Maximum Air Temp. °C	Quick Exhaust/ Shuttle Valve	Shutoff Valve	Body Material	Constr. Ref. No.
	Pressure to Cylinder	Cylinder to Exhaust				Catalog Number	Catalog Number		
1/8	.60	.69	0.3	8.6	52	V0435	-	Zinc	1
1/4	.69	.86	0.3	8.6	52	V0436	-	Zinc	1
1/4	.69	1.20	1.0	10.3	52	V04351	-	S.S.	3
1/4	1.71	1.71	0.3	8.6	52	V0431	V04311	Zinc	2
3/8	3.00	3.86	0.3	8.6	52	V0432	V04321	Zinc	2

Dimensions: inches (mm)

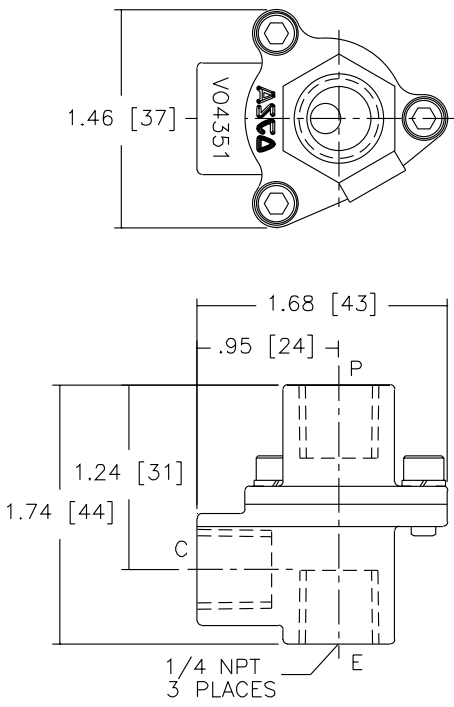
Constr. Ref. 1



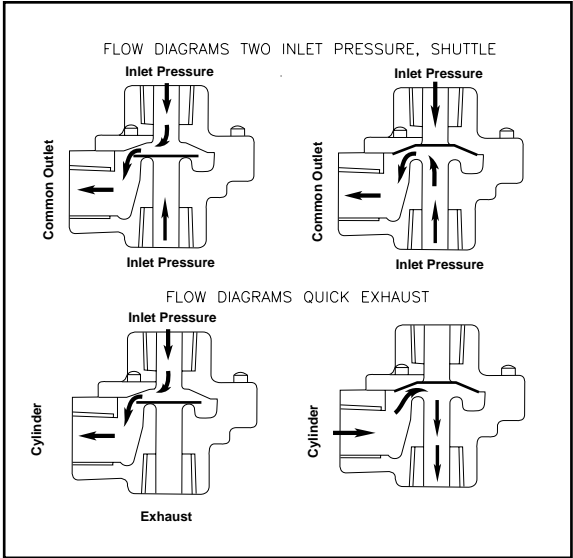
Constr. Ref. 2



Constr. Ref. 3



FLOW DIAGRAMS



### Features

- Compact in design.
- In-line mounted.
- Quiet operation.
- Instantaneous shutoff against reverse flow, low forward pressure opening.
- Disc seats before reverse flow to avoid fluid shock on reverse pressure differential.



### Construction

Valve Parts in Contact with Fluids		
Body	Brass	300 Stainless Steel
Valve Seat	NBR and EPDM seat at zero pressure in spring-loaded valves.	
	Metal seated - leakage on air up to 65 SCFh.	

### Nominal Ambient Temperature Ranges:

32°F to 125°F (0°C to 52°C)

Refer to Engineering Section for details.

### Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Opening Pressure (psi)	Maximum Operating Pressure Differential (psi) Air-Inert Gas, Water, and Light Oil	Maximum Fluid Temp. °F	Catalog Number	Constr. Ref. No.
<b>FORGED BRASS BODY with NBR Disc</b>							
1/4	9/32	.70	1	150	200	V0121	1
3/8	3/8	1.2	1	150	200	V0122	2B
1/2	7/16	2.5	1	150	200	V0123	2C
3/4	1/2	3.6	1	150	200	V0124	2D
<b>STAINLESS STEEL BODY with NBR Disc</b>							
1/4	9/32	.70	1	150	200	V0125	3
3/8	3/8	1.2	1	150	200	V0126	2B
1/2	7/16	2.5	1	150	200	V0127	2C
<b>FORGED BRASS BODY with EPDM Disc for Low-Pressure Steam</b>							
1/4	3/8	1.2	1	50	300	V01210	2A
3/8	3/8	1.2	1	50	300	V01211	2B
1/2	7/16	2.5	1	50	300	V01212	2C
3/4	1/2	3.6	1	50	300	V01213	2D
<b>FORGED BRASS BODY with Metal Seating for High-Pressure Steam</b>							
1/4	3/8	.70	8	200	388	V01214	2E
3/8	3/8	.70	8	200	388	V01215	2E
1/2	1/2	3.4	4	200	388	V01216	2F
3/4	1/2	5.1	4	200	388	V01217	2F



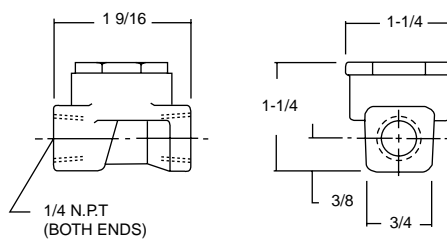
## Specifications (Metric units)

Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h)	Opening Pressure (bar)	Maximum Operating Pressure Differential (bar) Air-Inert Gas, Water, and Light Oil	Maximum Fluid Temp. °C	Catalog Number	Constr. Ref. No.
<b>FORGED BRASS BODY with NBR Disc</b>							
1/4	7	.60	0.07	10	92	V0121	1
3/8	10	1.03	0.07	10	92	V0122	2B
1/2	11	2.14	0.07	10	92	V0123	2C
3/4	13	3.09	0.07	10	92	V0124	2D
<b>STAINLESS STEEL BODY with NBR Disc</b>							
1/4	7	.60	0.07	10	92	V0125	3
3/8	10	1.03	0.07	10	92	V0126	2B
1/2	11	2.14	0.07	10	92	V0127	2C
<b>FORGED BRASS BODY with EPDM Disc for Low-Pressure Steam</b>							
1/4	10	1.03	0.07	3	147	V01210	2A
3/8	10	1.03	0.07	3	147	V01211	2B
1/2	11	2.14	0.07	3	147	V01212	2C
3/4	13	3.09	0.07	3	147	V01213	2D
<b>FORGED BRASS BODY with Metal Seating for High-Pressure Steam</b>							
1/4	10	.60	0.55	14	196	V01214	2E
3/8	10	.60	0.55	14	196	V01215	2E
1/2	13	2.91	0.28	14	196	V01216	2F
3/4	13	4.37	0.28	14	196	V01217	2F

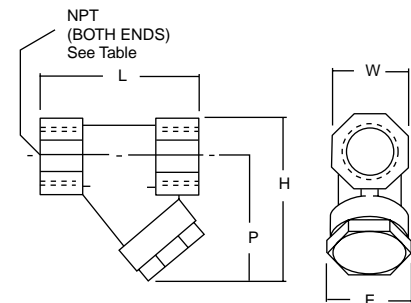
## Dimensions inches (mm)

Constr. Ref. No.		E	H	L	P	W
2A	ins.	1.16	2.03	1.91	1.56	.88
	mm	30	52	49	40	22
2B	ins.	1.16	2.09	1.91	1.66	.88
	mm	30	53	49	42	22
2C	ins.	1.16	2.38	2.28	1.84	1.09
	mm	30	61	58	47	28
2D	ins.	1.31	2.62	2.75	1.84	1.31
	mm	33	67	70	47	33
2E	ins.	1.16	2.38	2.28	1.84	1.09
	mm	30	61	58	47	28
2F	ins.	1.38	2.94	2.75	2.16	1.31
	mm	35	75	70	55	33

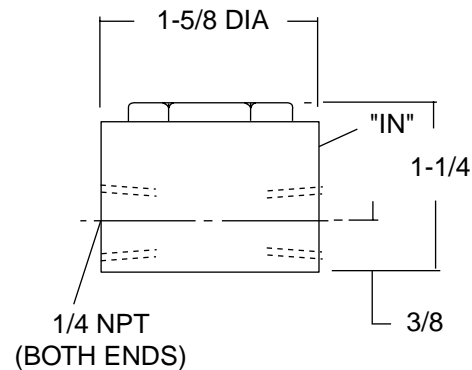
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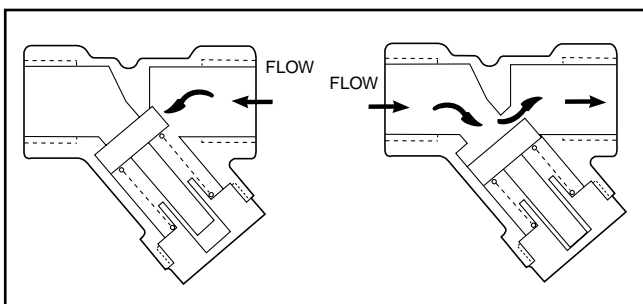
Constr. Ref. 2



Constr. Ref. 3

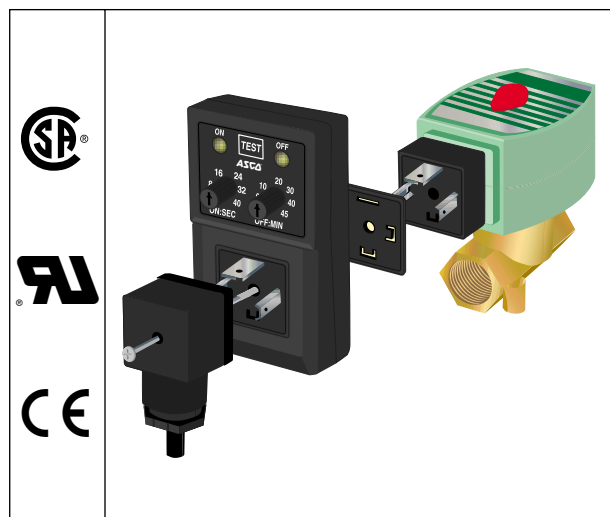


## FLOW DIAGRAMS



### Features

- Solid state electronic timer used to automatically control ASCO solenoid valves.
- Typically used with ASCO Solenoid Valves for automatic draining of condensate in compressed air systems.
- Selectable timing ranges (2-40 seconds “on”; 30 seconds to 45 minutes “off”).
- Manual override for test/reset.
- LED lights to indicate timing phase.



### Technical Specifications

<b>Supply Voltage:</b>	24 – 240V AC/DC 50/60 Hz
<b>Current Consumption:</b>	4 mA max
<b>Operating Temperature:</b>	14°F – 122°F
<b>Environmental Protection:</b>	NEMA 4
<b>Switch Capacity:</b>	1 Amp
<b>Inrush Current Capacity:</b>	10 Amps for 10 mSec
<b>Duty Cycle:</b>	100%
<b>Repeat Accuracy:</b>	± 0.1%
<b>Scale Accuracy:</b>	± 10%
<b>Reset/Test:</b>	Manual Touch Switch
<b>Printed Circuit Board:</b>	UL 94V0
<b>Connection:</b>	DIN 43650 ISO-4400/6952
<b>Indicators:</b>	LEDs to indicate phases
<b>On Time:</b>	Adjustable from 2 to 40 sec
<b>Off Time:</b>	Adjustable from 30 sec to 45 min

### Timer and Accessories Kit Numbers

<b>Timer Catalog Number:</b>	272839-001
<b>Power Cord<sup>‡</sup> Kit Number:</b>	272852
<b>DIN Connector Kit Number:</b>	272873

<sup>‡</sup>6' Power cord has DIN connector and 3-prong plug for wall outlet

### Approvals:

CSA certified. UL recognized components. Meets applicable CE directives.

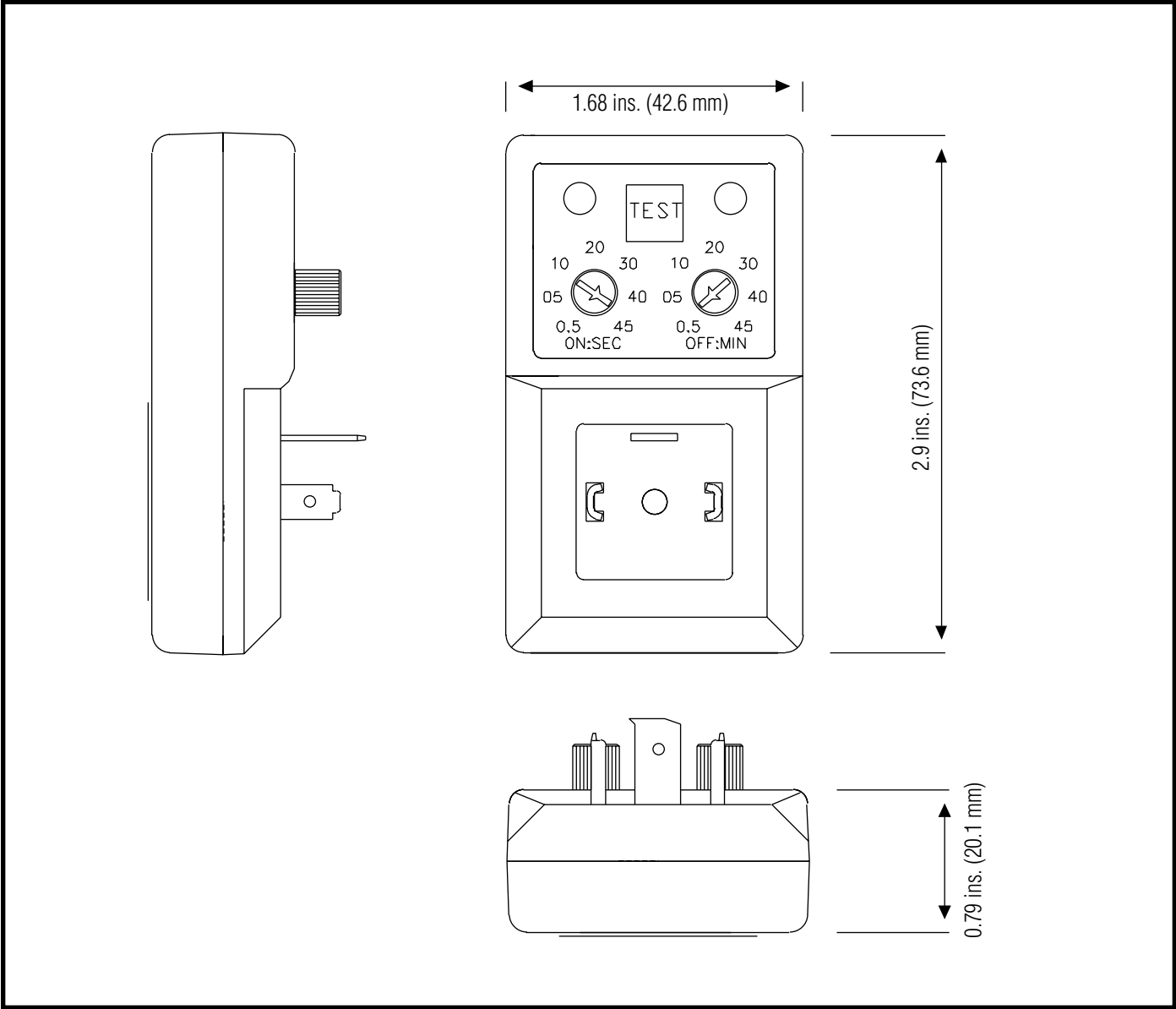
*Refer to Engineering Section for details.*

### Valve Selection:

Timer and valves are available as separate items to be assembled in the field. A Red-Hat II valve with DIN connection coil must be used with the timer. It is important to select a valve whose current draw will not exceed the 1 Amp maximum switch capacity.

*Refer to Engineering Section for calculation of current draw.*

Dimensions inches (mm)





Air Preparation Equipment

Filters, Regulators and Lubricators

Tamper Proof Knob, Bayonette Type Release

1/4" to 1" NPT

## Air Preparation Equipment

ASCO's Modulair 100 Series offers all the control, flexibility and performance you need from your air preparation equipment. Components of the Modulair Series consist of filters, regulators and lubricators (FRLs). These components can be installed separately or can be assembled into a complete unit, as you require.

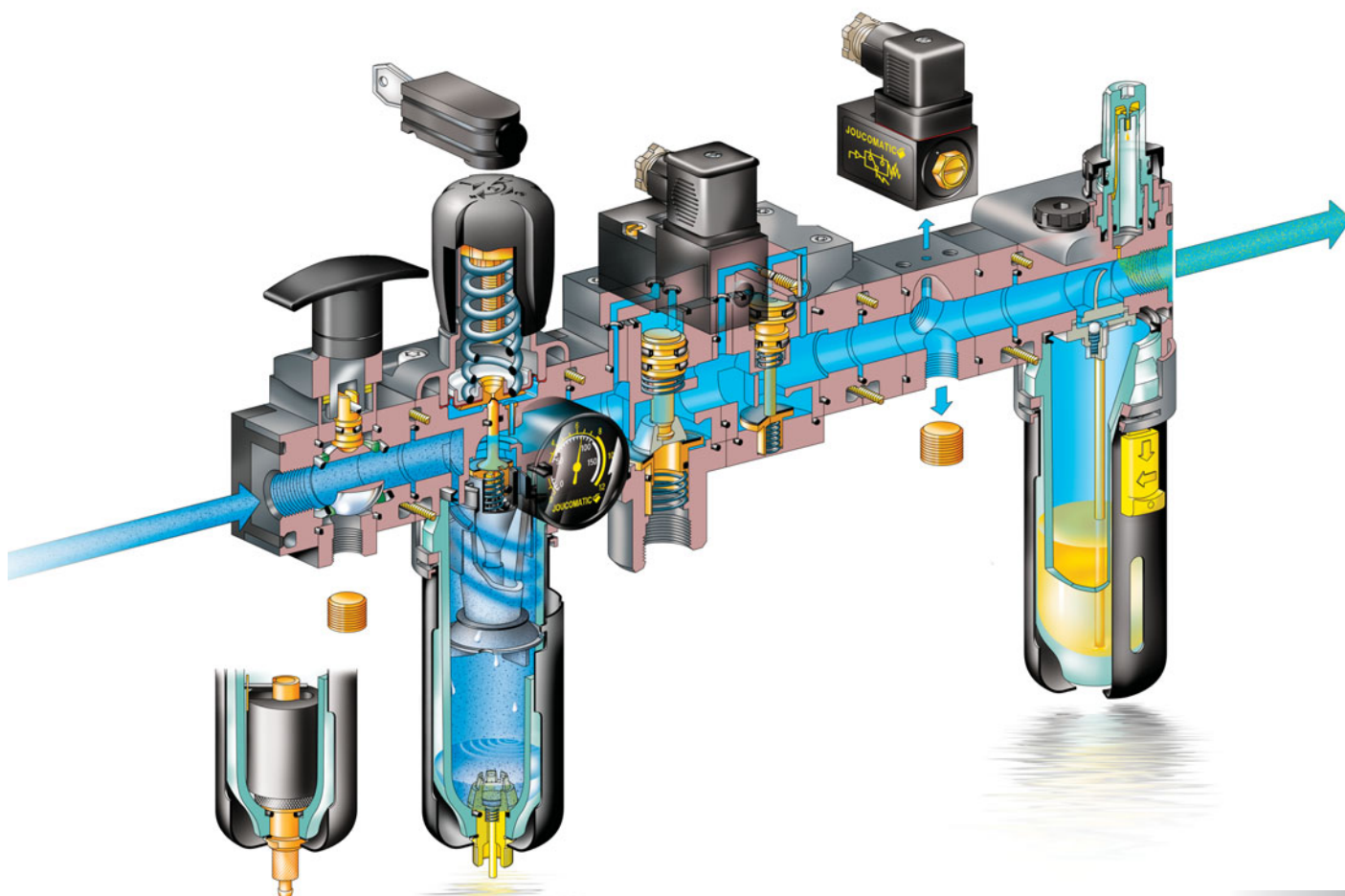
## What are FRLs

and why should they be used?

Pneumatic actuators and controls perform more reliably and efficiently, and have a longer life, when the air is prepared for your specific application. These easy-to-use FRLs are specifically engineered to give you increased airflow from a modular system.

## Filters

Condensation during the compression of air and water vapor can cause particles of pipe scale and other contaminants in the pipes. These particles need to be removed before they reach the pneumatic equipment, such as valves and cylinders. Particles can damage and clog small orifices in the equipment unless they are filtered out. Filters separate the water droplets and particles from the air before they reach your pneumatic equipment.



Index

# Filters, Regulators and Lubricators

Tamper Proof Knob, Bayonette Type Release  
1/4" to 1" NPT



ASCO offers a complete line of air handling equipment. Filters, regulators, and lubricators are essential whenever pneumatic equipment is used. Filters come in a variety of micron ratings to clean the air of moisture and particulate coming out of your compressor. Regulators are located at specific locations to isolate areas of a pipe train that require unique pressures. Lubricators are used on pneumatic air components to give them the required lubrication for extended life. These components can be ordered separately for individual locations, or assembled for a central location.



## Construction

Modulair Series	Pipe Size	Filters	Regulators	Water Reg.	Joinable Reg.	Lubricators	Monobloc F/L
<b>105</b>	1/8", 1/4"	25um, 5um					
Body		Polyamide (PA)	Polyamide	Polyamide	N/A	N/A	Polyamide (PA)
Bowl		Polycarbonate (PC)	-	-	N/A	N/A	Polycarbonate (PC)
Bowl Protector		Polyamide (PA)	-	-	N/A	N/A	Polyamide (PA)
Filter Element		Polyethylene (PE)	-	-	N/A	N/A	Polyethylene (PE)
Seals		Nitrile (NBR)	Nitrile (NBR)	NBR	N/A	N/A	Nitrile (NBR)
<b>107</b>	1/8", 1/4"	25um, 5um					
Body		Painted Zinc Alloy	Painted Zinc Alloy	N/A	N/A	Painted Zinc Alloy	N/A
Bowl		PC or PA	-	N/A	N/A	PC or PA	N/A
Bowl Protector		Painted Steel	-	N/A	N/A	Painted Steel	N/A
Internal Parts		-	-	N/A	N/A	-	N/A
Filter Element		Polyethylene (PE)	-	N/A	N/A	-	N/A
Seals		Nitrile (NBR)	Nitrile (NBR)	N/A	N/A	Nitrile (NBR)	N/A
<b>112</b>	1/4", 3/8", 1/2"	25um, 5um					
Body		Painted Zinc Alloy	Painted Zinc Alloy	N/A	Painted Zinc Alloy	Painted Zinc Alloy	N/A
Bowl		Metal or PC	-	N/A	-	Metal or PC	N/A
Bowl Protector		Painted Steel	-	N/A	-	Painted Steel	N/A
Internal Parts		-	-	N/A	-	-	N/A
Filter Element		Polyethylene (PE)	-	N/A	-	-	N/A
Seals		Nitrile (NBR)	Nitrile (NBR)	N/A	Nitrile (NBR)	Nitrile (NBR)	N/A
<b>150</b>	3/4", 1"	30um, 5um					
Body		Painted Aluminum	Painted Aluminum	N/A	N/A	Painted Aluminum	N/A
Bowl		Metal	-	N/A	N/A	Metal	N/A
Bowl Protector		-	-	N/A	N/A	-	N/A
Internal Parts		-	-	N/A	N/A	-	N/A
Filter Element		Sintered Bronze	-	N/A	N/A	-	N/A
Seals		Nitrile (NBR)	Nitrile (NBR)	N/A	N/A	Nitrile (NBR)	N/A
Page Number		5, 6	7, 8	7, 8	7, 8	9, 10	9, 10

### FILTER/REGULATOR

### FILTER/REGULATOR/ LUBRICATOR

### LUBRICATORS



F/R	FRL	Coalescing Filters	Combination Coalescing Filters	Shut-off Valves	Soft-Start Devices	3/2 Isolation Valves	Bypass Modules
Polyamide (PA)	Polyamide (PA)	N/A	N/A	N/A	N/A	N/A	N/A
Polycarbonate (PC)	Polycarbonate (PC)	N/A	N/A	N/A	N/A	N/A	N/A
Polyamide (PA)	Polyamide (PA)	N/A	N/A	N/A	N/A	N/A	N/A
Polyethylene (PE)	Polyethylene (PE)	N/A	N/A	N/A	N/A	N/A	N/A
Nitrile (NBR)	Nitrile (NBR)	N/A	N/A	N/A	N/A	N/A	N/A
		.01um	5um pre filter -.01um				
Painted Zinc Alloy	Painted Zinc Alloy	Painted Zinc Alloy	Painted Zinc Alloy	Painted Zinc Alloy	Painted Zinc Alloy	Painted Zinc Alloy	Painted Zinc Alloy
PC or PA	PC or PA	PC or PA	PC or PA	-	-	-	-
Painted Steel	Painted Steel	Painted Steel	Painted Steel	-	-	-	-
-	-	-	-	Brass, Acetal Resin	Brass, Acetal Resin	-	-
Polyethylene (PE)	Polyethylene (PE)	Polyethylene (PE)	Polyethylene (PE)	-	-	-	-
Nitrile (NBR)	Nitrile (NBR)	Nitrile (NBR)	Nitrile (NBR)	Nitrile (NBR)	Nitrile (NBR)	Nitrile (NBR)	Nitrile (NBR)
		.01um	5um pre filter -.01um				
Painted Zinc Alloy	Painted Zinc Alloy	Painted Zinc Alloy	Painted Zinc Alloy	Painted Zinc Alloy	Painted Zinc Alloy	Painted Zinc Alloy	Painted Zinc Alloy
PC	PC	PC	PC	-	-	-	-
Painted Steel	Painted Steel	Painted Steel	Painted Steel	-	-	-	-
-	-	-	-	Brass, Acetal Resin	Brass, Acetal Resin	-	-
Polyethylene (PE)	Polyethylene (PE)	Polyethylene (PE)	Polyethylene (PE)	-	-	-	-
Nitrile (NBR)	Nitrile (NBR)	Nitrile (NBR)	Nitrile (NBR)	Nitrile (NBR)	Nitrile (NBR)	Nitrile (NBR)	Nitrile (NBR)
Painted Aluminum	Painted Aluminum	N/A	N/A	Painted Aluminum	Painted Aluminum	Painted Aluminum	Painted Aluminum
Metal	Metal	N/A	N/A	-	-	-	-
-	-	N/A	N/A	-	-	-	-
-	-	N/A	N/A	Aluminum, Brass	Aluminum, Brass	-	-
Sintered Bronze	Sintered Bronze	N/A	N/A	-	-	-	-
Nitrile (NBR)	Nitrile (NBR)	N/A	N/A	Nitrile (NBR)	Nitrile (NBR)	Nitrile (NBR)	Nitrile (NBR)
11, 12	13, 14	15	15	17	17	16	16

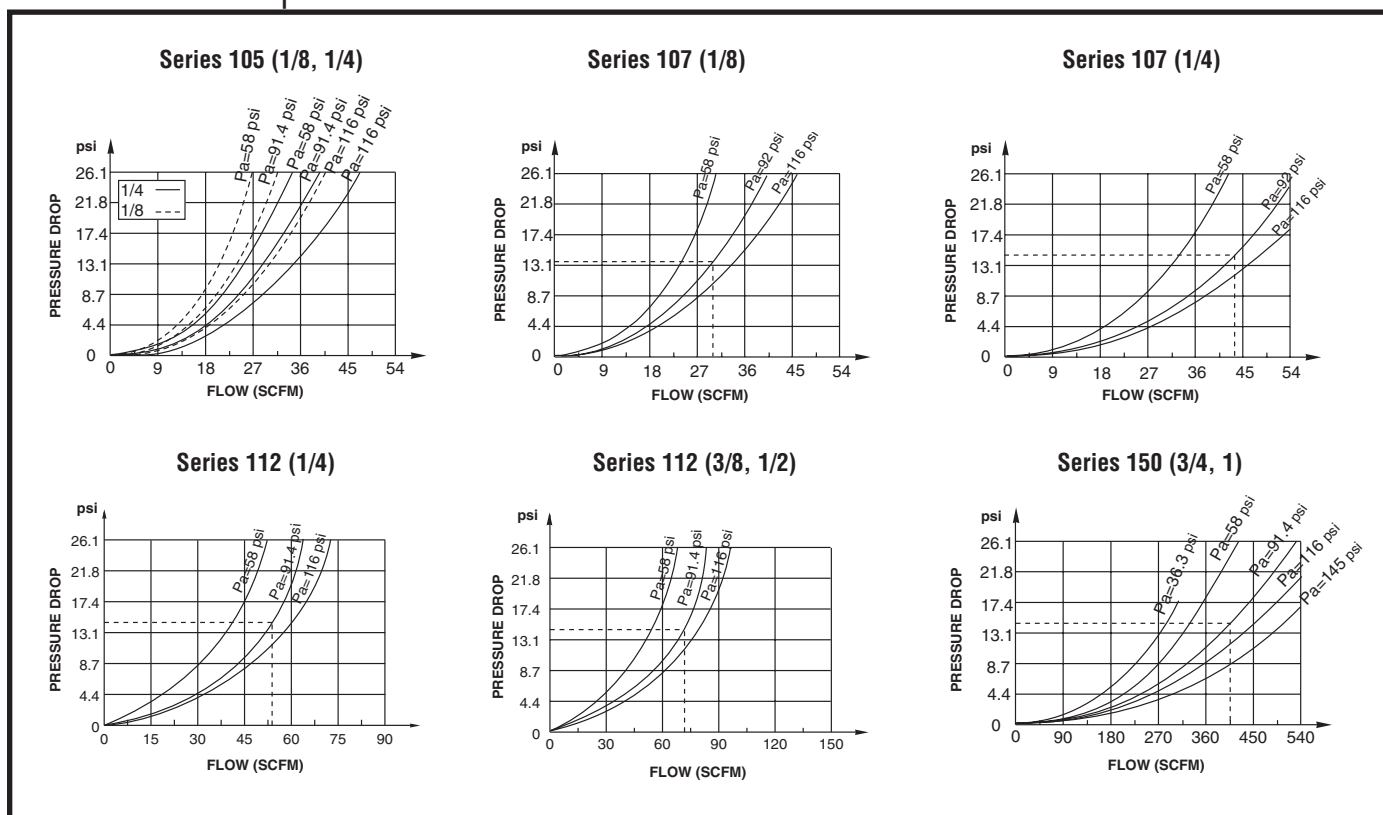
# FILTERS

## FILTER - Specifications

Series	Pipe Size (ins.)	Bowl Capacity (oz.)		Max. Flow @ 90 psi and 1 psi Drop (SCFM)	Max. Inlet Pressure (psi) @125°F	Filter Capacity (microns)	Min. Ambient Temp. °F	Max. Ambient Temp. °F	Semi Automatic Drain		Automatic Drain		
		Total	Useful						With Bowl Protection	Without Bowl Protection	With Bowl Protection	Without Bowl Protection	
Filter - 5 Micron Polycarbonate (PC) Bowl													
105	1/8	0.90	0.32	26.7	150 ①	5	32	125	342 25 255	342 25 175	-	-	
107	1/8	1.61	0.39	30.9	150 ②	5	32	125	342 04 017	342 04 029	-	-	
105	1/4	0.90	0.32	31.5	150 ①	5	32	125	342 25 256	342 25 176	-	-	
107	1/4	1.61	0.39	43.5	150 ②	5	32	125	342 04 018	342 04 030	-	-	
112	1/4	3.65	1.28	54.0	150 ②	5	32	125	342 03 010	-	342 03 022	-	
112	3/8	3.65	1.28	72.0	150 ②	5	32	125	342 03 011	-	342 03 023	-	
112	1/2	3.65	1.28	72.0	150 ②	5	32	125	342 03 012	-	342 03 024	-	
150	3/4	17.6	5.90	375.1	175 ②	5	32	125	342 06 107 ④	-	342 06 109 ④	-	
150	1	17.6	5.90	405.1	175 ②	5	32	125	342 06 108 ④	-	342 06 110 ④	-	
Filter - 25 Micron Polycarbonate (PC) Bowl													
105	1/8	0.90	0.32	31.4	150 ①	25	32	125	342 25 215	342 25 135	-	-	
107	1/8	1.61	0.39	36.4	150 ②	25	32	125	342 04 013	342 04 025	-	-	
105	1/4	0.90	0.32	37.1	150 ①	25	32	125	342 25 216	342 25 136	-	-	
107	1/4	1.61	0.39	51.2	150 ②	25	32	125	342 04 014	342 04 026	-	-	
112	1/4	3.65	1.28	63.5	150 ②	25	32	125	342 03 004	342 03 041	342 03 016	342 03 453	
112	3/8	3.65	1.28	84.7	150 ②	25	32	125	342 03 005	342 03 042	342 03 017	342 03 454	
112	1/2	3.65	1.28	84.7	150 ②	25	32	125	342 03 006	342 03 043	342 03 018	342 03 455	
150	3/4	17.6	5.90	441.3	175 ②	30	32	125	342 06 103 ③④	-	342 06 105 ③④	-	
150	1	17.6	5.90	476.6	175 ②	30	32	125	342 06 104 ③④	-	342 06 106 ③④	-	
① 175 psi @ 75°F Max. Ambient & Fluid Temperature. ② 230 psi @ 75°F Max. Ambient & Fluid Temperature. ③ 30 micron filter. ④ Metal bowl. Consult ASCO for manual drains on 150 Series.													

① 175 psi @ 75°F Max. Ambient & Fluid Temperature. ② 230 psi @ 75°F Max. Ambient & Fluid Temperature. ③ 30 micron filter. ④ Metal bowl.  
Consult ASCO for manual drains on 150 Series.

## FILTER - Flow Graphs

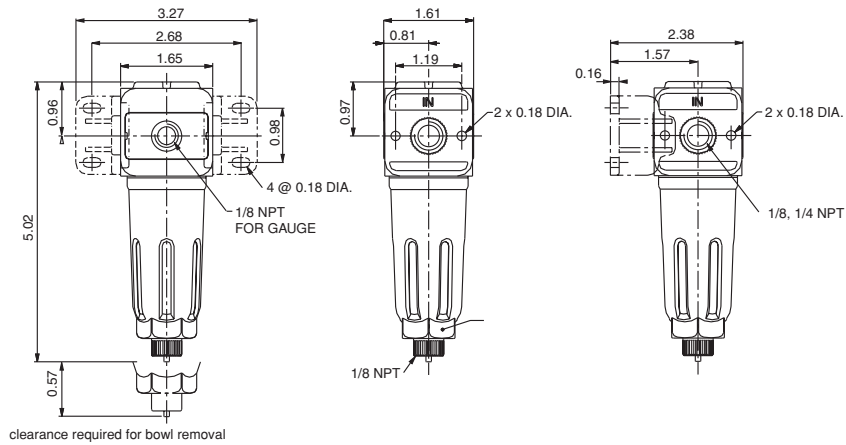




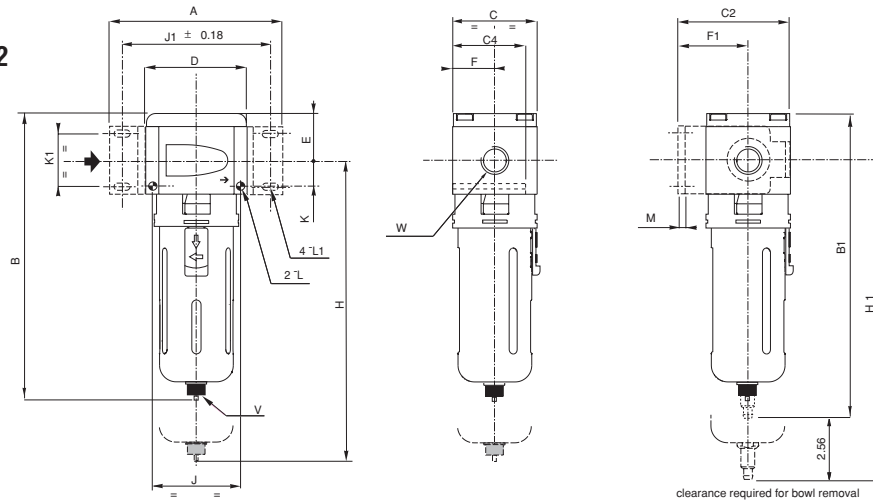
### FILTER - Dimensions (inches)

Series	A	B	B1	C	C2	C4	D	E	F	F1	H	H1	J	J1	K	K1	L (dia.)	L1 (dia.)	M	V	W
107	3.27	6.28	-	1.65	2.40	1.50	1.65	1.00	0.83	1.57	7.48	-	1.26	2.70	0.39	1.10	0.16	0.18	0.12	1/8	1/8", 1/4" NPT
112	4.41	7.36	7.80	2.17	2.89	1.87	2.60	1.20	1.08	1.81	8.72	9.15	2.24	3.78	0.67	1.32	0.22	0.22	0.16	1/8	1/4", 3/8", 1/2" NPT

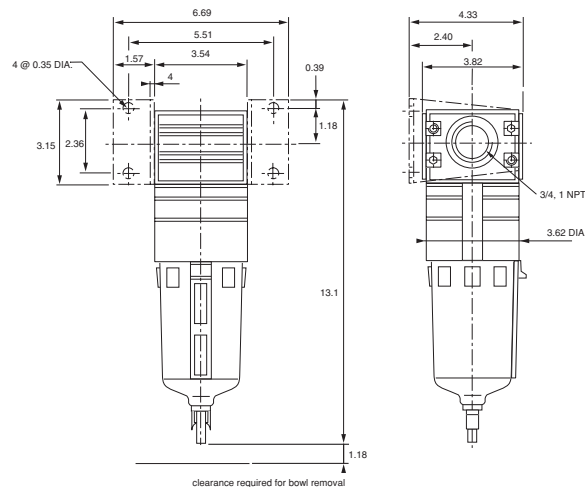
#### Series 105



#### Series 107, 112



#### Series 150







Air Preparation Equipment

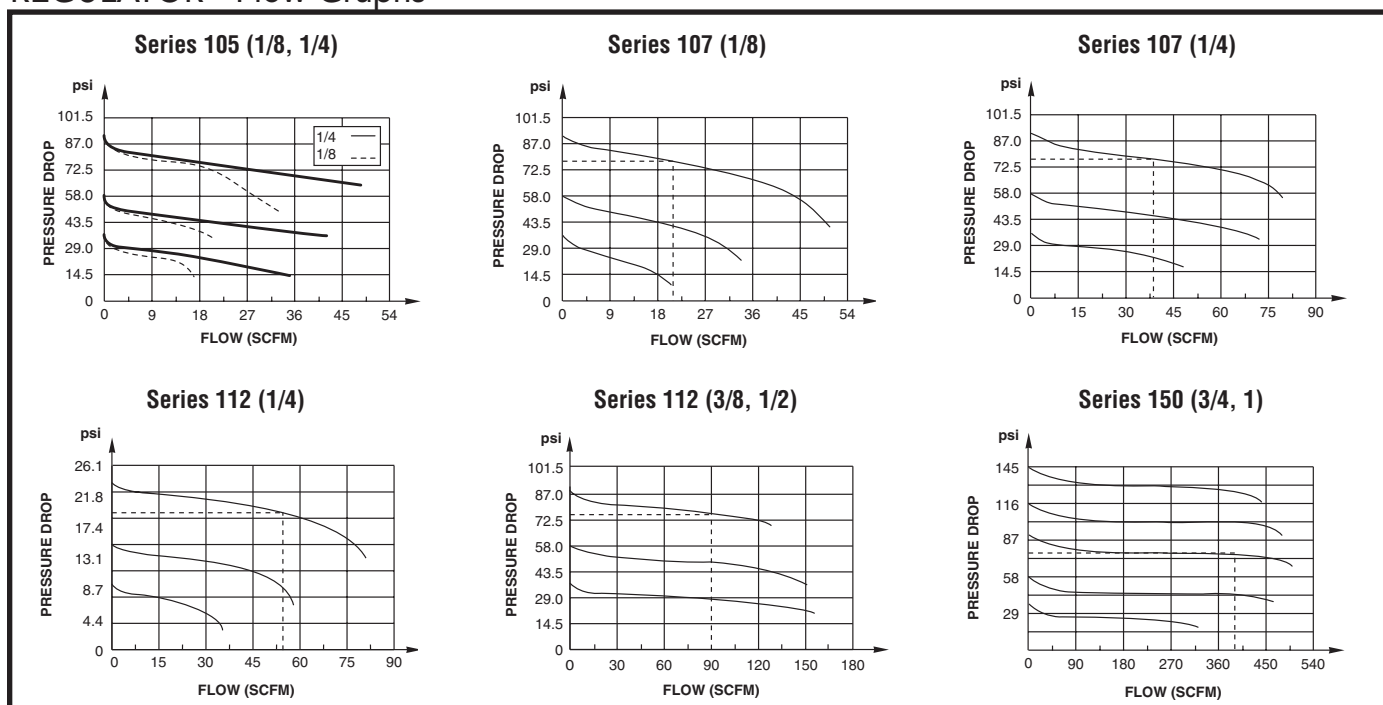
# REGULATORS

## REGULATOR - Specifications

Series	Pipe Size (ins.)	Max. Flow @ 90 psi (CFM)	Max. Inlet Pressure (psi)	Pressure Control Range (psi)	Min. Ambient Temp. °F	Max. Ambient Temp. °F	With Pressure Gauge	Without Pressure Gauge
<b>Regulator - Self-Relieving Air Service</b>								
105	1/8	19.4	175	7 - 120	32	125	342 25 027	342 25 019
105	1/8	19.4	175	3 - 44	32	125	342 25 265	342 25 263
107	1/8	24.7	230	7 - 145	15	140	342 04 200	342 04 035
107	1/8	24.7	230	3 - 44	15	140	342 04 198	342 04 041
105	1/4	22.9	175	7 - 120	32	125	342 25 028	342 25 020
105	1/4	22.9	175	3 - 44	32	125	342 25 266	342 25 264
107	1/4	45.9	230	7 - 145	15	140	342 04 201	342 04 036
107	1/4	45.9	230	3 - 44	15	140	342 04 199	342 04 042
112	1/4	63.5	230	7 - 145	15	140	342 03 061	342 03 055
112	1/4	63.5	230	3 - 44	15	140	342 03 073	342 03 067
112	3/8	105.9	230	7 - 145	15	140	342 03 062	342 03 056
112	3/8	105.9	230	3 - 44	15	140	342 03 074	342 03 068
112	1/2	105.9	230	7 - 145	15	140	342 03 063	342 03 057
112	1/2	105.9	230	3 - 44	15	140	342 03 075	342 03 069
150	3/4	388.3	230	7 - 175	32	140	342 06 113	342 06 111
150	1	458.9	230	7 - 175	32	140	342 06 114	342 06 112
<b>Regulator - Non Self-Relieving Water Service (max. flow in GPM)</b>								
105	1/8	2.6	175	3 - 44	40	125	342 25 277	342 25 275
105	1/8	2.6	175	7 - 87	40	125	342 25 281	342 25 279
105	1/4	4.0	175	3 - 44	40	125	342 25 278	342 25 276
105	1/4	4.0	175	7 - 87	40	125	342 25 282	342 25 280
<b>Joinable Regulator - Self-Relieving Air Service (Common inlet size 1/2" NPT) ①</b>								
112	3/8	105.9	230	3 - 44	15	140	342 03 770	342 03 768
112	3/8	105.9	230	7 - 145	15	140	342 03 774	342 03 772
112	1/2	105.9	230	3 - 44	15	140	342 03 771	342 03 769
112	1/2	105.9	230	7 - 145	15	140	342 03 775	342 03 773

① To supply different circuits with different pressures from a common supply.

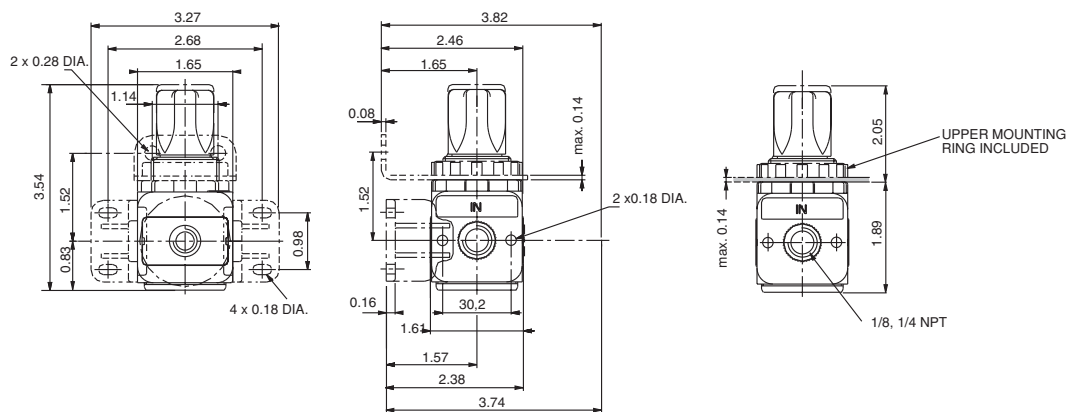
## REGULATOR - Flow Graphs



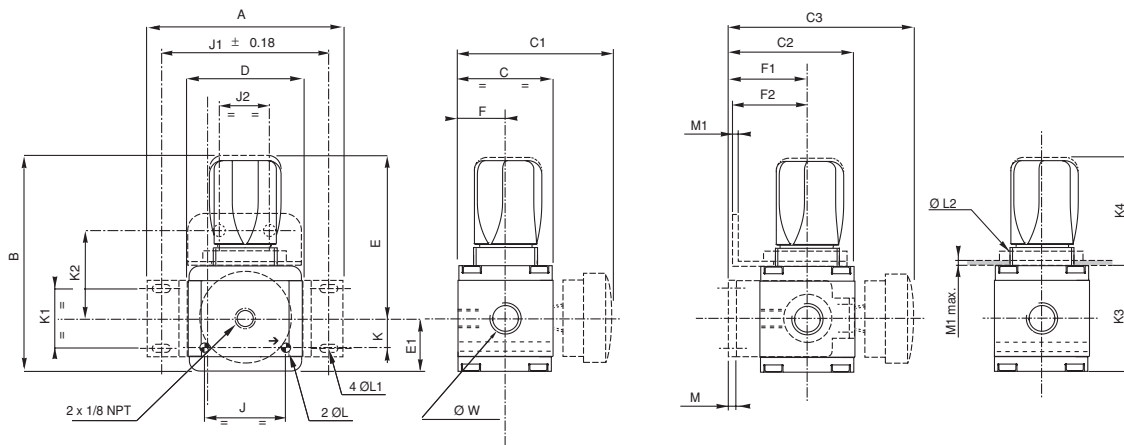
### REGULATOR - Dimensions (inches)

Series	A	B	C	C1	C2	C3	D	E	E1	F	F1	F2	J	J1	J2	K	K1	K2	K3	K4	L (DIA.)	L1 (DIA.)	L2 (DIA.)	M	M1	W
107	3.27	4.09	1.65	2.99	2.40	3.74	1.65	3.09	1.00	0.83	1.57	1.65	1.26	2.70	1.14	0.39	1.10	1.48	2.01	2.09	0.16	0.18	M30 x 2	0.12	0.08	1/8", 1/4" NPT
112	4.41	4.92	2.17	3.43	2.89	4.13	2.60	3.72	1.20	1.08	1.81	1.65	1.77	3.78	1.14	0.67	1.32	1.67	2.40	2.52	0.22	0.22	M37 x 2	0.16	0.08	1/4", 3/8", 1/2" NPT

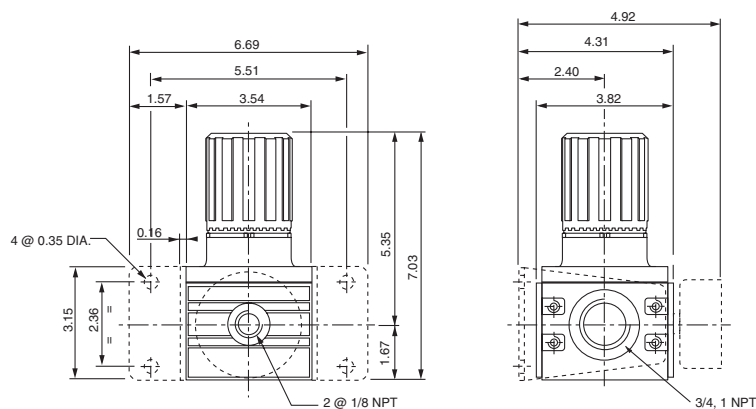
#### Series 105



#### Series 107, 112



#### Series 150



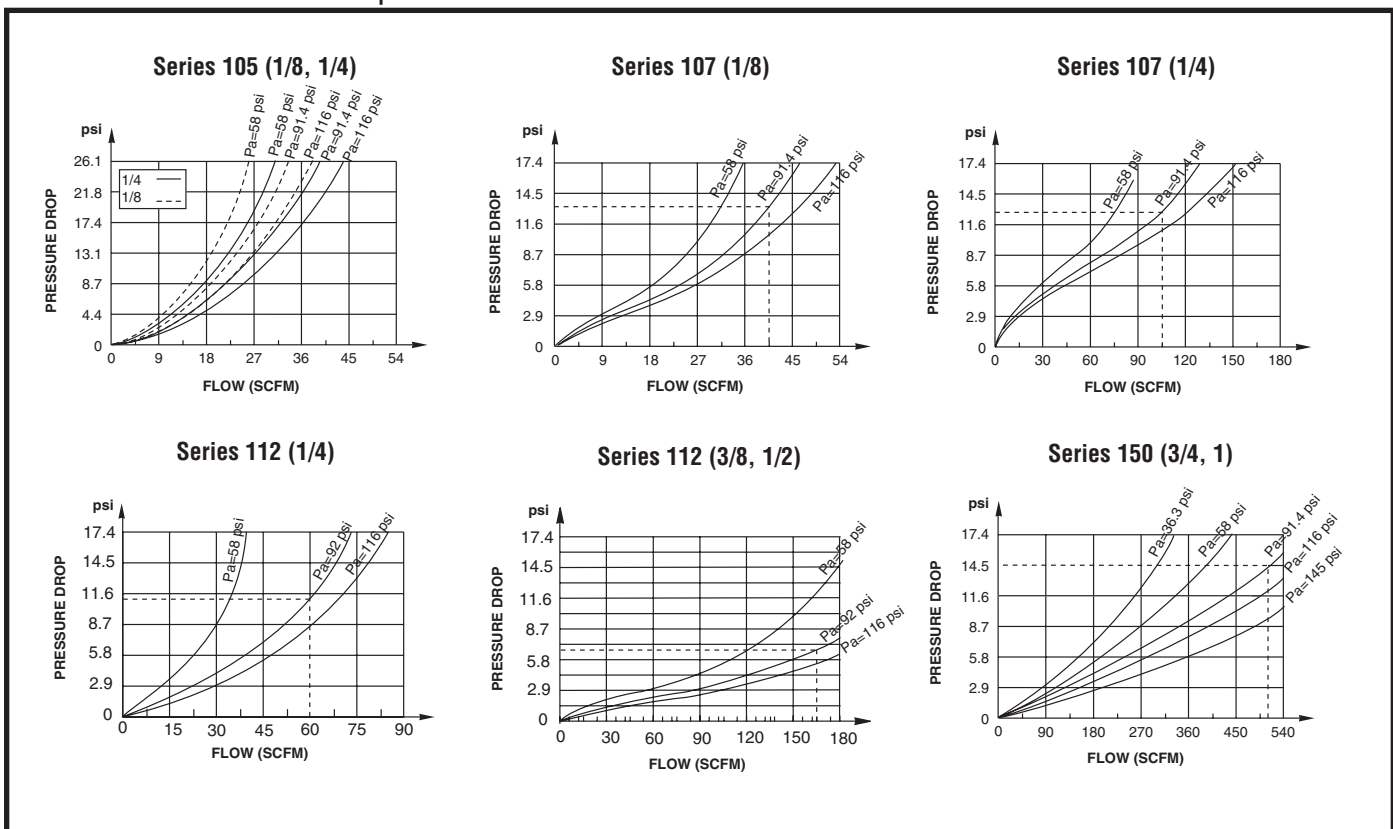
## LUBRICATORS

### LUBRICATOR - Specifications

Series	Pipe Size (ins.)	Bowl Capacity (oz.)	Max. Oil Capacity (oz.)	Min. Flow @ 90 PSI (CFM)	Max. Flow @ 90 PSI (CFM)	Max. Inlet Pressure (psi) @ 125°F	Min. Ambient Temp °F	Max. Ambient Temp °F	With Bowl Guard	Without Bowl Guard
<b>Lubricator - Selective Oil Fog</b>										
105	1/8	0.9	0.74	0.71	29.3	150	32	125	342 25 195 ② ③	342 25 115 ② ③
107	1/8	1.6	0.96	0.71	47.7	150 ①	32	125	342 04 003	342 04 007
105	1/4	0.9	0.74	0.71	33.5	150	32	125	342 25 196 ② ③	342 25 116 ② ③
107	1/4	1.6	0.96	0.71	123.6	150 ①	32	125	342 04 004	342 04 008
112	1/4	3.6	2.3	0.71	70.6	150 ①	32	125	342 03 273	342 03 279
112	3/8	3.6	2.3	0.71	194.2	150 ①	32	125	342 03 274	342 03 280
112	1/2	3.6	2.3	0.71	194.2	150 ①	32	125	342 03 275	342 03 281
150	3/4	17.6	12.0	3.20	547.2	175	32	125	342 06 115	-
150	1	17.6	12.0	3.20	600.1	175	32	125	342 06 116	-

① 175 psi @ 75°F Max. Ambient & Fluid Temperature. ② Includes 25 micron filter (see filter section for specifications). ③ Combination Filter-Lubricator only.

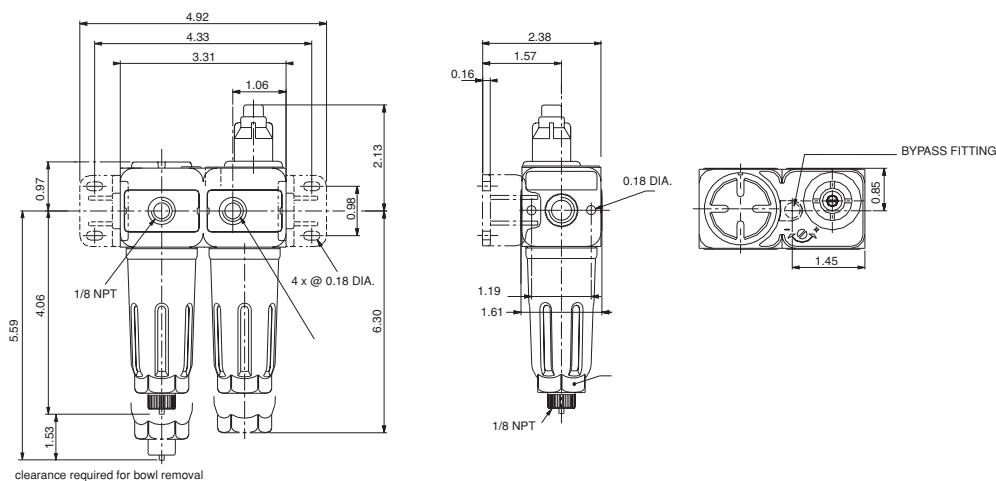
### LUBRICATOR - Flow Graphs



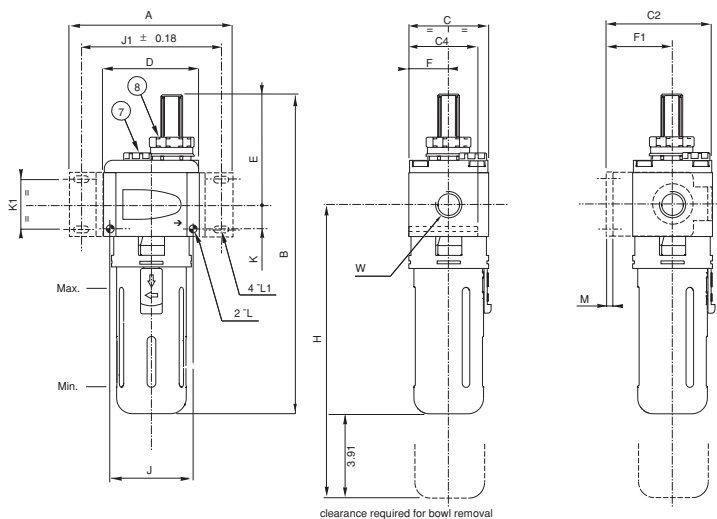
### LUBRICATOR - Dimensions (inches)

Series	A	B	C	C2	C4	D	E	F	F1	H	J	J1	K	K1	L (dia.)	L1 (dia.)	M	W
107	3.27	7.36	1.65	2.40	1.50	1.65	2.56	0.83	1.57	8.46	1.26	2.70	0.39	1.10	0.16	0.18	0.16	1/8", 1/4" NPT
112	4.41	8.46	2.17	2.89	1.87	2.60	2.80	1.08	1.81	9.57	2.24	3.78	0.67	1.32	0.22	0.22	0.16	1/4", 3/8", 1/2" NPT

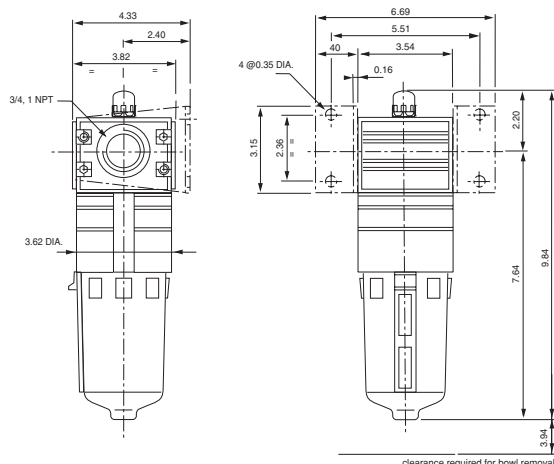
#### Series 105



#### Series 107, 112



#### Series 150



# COMBINATION FILTER/REGULATOR

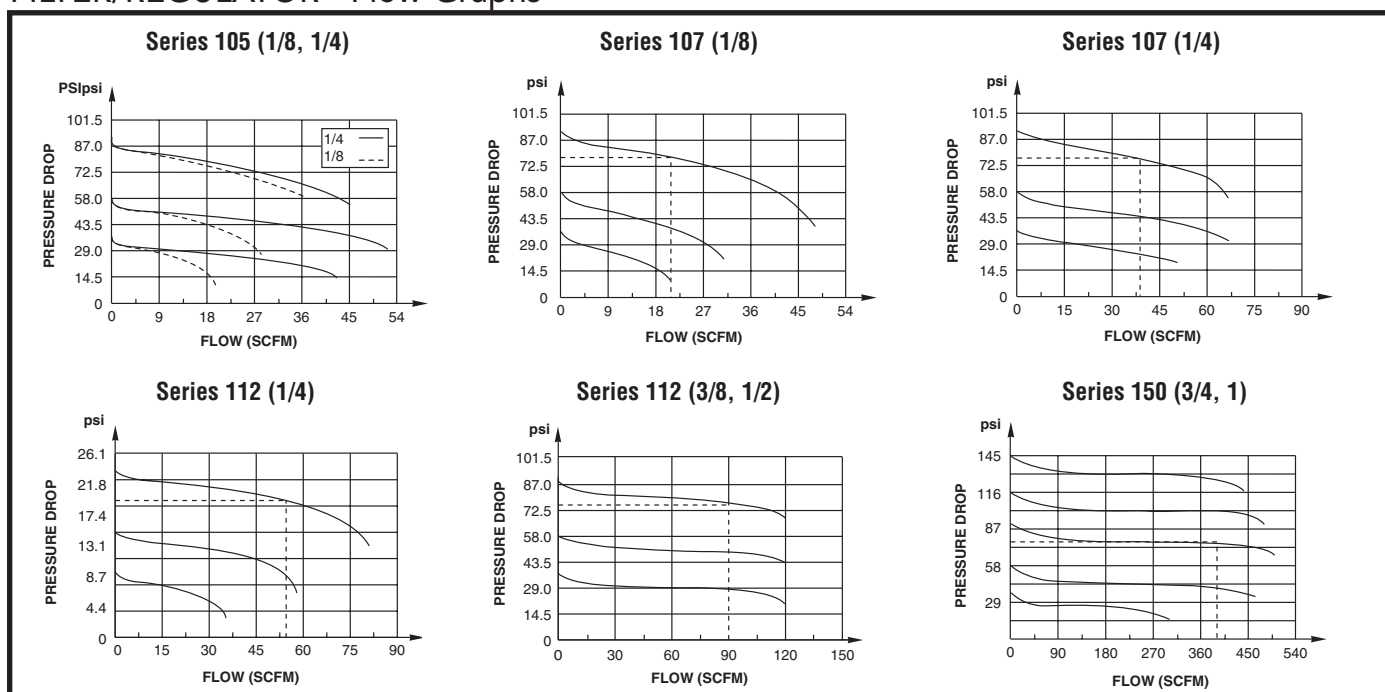


## FILTER/REGULATOR - Specifications

Series	Pipe Size (ins.)	Bowl Capacity (oz.)		Max. Flow @ 90 psi (CFM)	Max. Inlet Pressure (psi) @ 125°F	Pressure Control Range (psi)	Min. Ambient Temp. °F	Max. Ambient Temp. °F	Semi Automatic Drain		Automatic Drain		
		Total	Useful						With Pressure Gauge	Without Pressure Gauge	With Pressure Gauge	Without Pressure Gauge	
Filter/Regulator Combined - 5 Micron Filtration with Bowl Protector													
105	1/8	.90	0.32	15.9	150 ②	7 - 120	32	125	342 25 251	342 25 249	-	-	
107	1/8	1.61	0.39	21.2	150 ①	7 - 145	32	125	342 04 170	342 04 053	-	-	
105	1/4	.90	0.32	15.8	150 ②	7 - 120	32	125	342 25 252	342 25 250	-	-	
107	1/4	1.61	0.39	38.8	150 ①	7 - 145	32	125	342 04 171	342 04 054	-	-	
112	1/4	3.65	1.28	53.0	150 ①	7 - 145	32	125	342 03 101	342 03 095	342 03 150	342 03 144	
112	3/8	3.65	1.28	88.3	150 ①	7 - 145	32	125	342 03 102	342 03 096	342 03 151	342 03 145	
112	1/2	3.65	1.28	88.3	150 ①	7 - 145	32	125	342 03 103	342 03 097	342 03 152	342 03 146	
150	3/4	17.60	5.90	328.3	175 ①	7 - 175	32	125	342 06 085 ④	342 06 083 ④	342 06 089 ④	342 06 087 ④	
150	1	17.60	5.90	388.3	175 ①	7 - 175	32	125	342 06 086 ④	342 06 084 ④	342 06 090 ④	342 06 088 ④	
Filter/Regulator Combined - 25 Micron Filtration with Bowl Protector													
105	1/8	0.90	0.32	19.4	150 ②	7 - 120	32	125	342 25 211	342 25 209	-	-	
107	1/8	1.61	0.39	24.7	150 ①	7 - 145	32	125	342 04 178	342 04 047	-	-	
105	1/4	0.90	0.32	22.9	150 ②	7 - 120	32	125	342 25 212	342 25 210	-	-	
107	1/4	1.61	0.39	45.9	150 ①	7 - 145	32	125	342 04 179	342 04 048	-	-	
112	1/4	3.65	1.28	63.5	150 ①	7 - 145	32	125	342 03 089	342 03 083	342 03 138	342 03 132	
112	3/8	3.65	1.28	105.9	150 ①	7 - 145	32	125	342 03 090	342 03 084	342 03 139	342 03 133	
112	1/2	3.65	1.28	105.9	150 ①	7 - 145	32	125	342 03 091	342 03 085	342 03 140	342 03 134	
150	3/4	17.6	5.90	388.3	175 ①	7 - 175	32	125	342 06 093 ③ ④	342 06 091 ③ ④	342 06 097 ③ ④	342 06 095 ③ ④	
150	1	17.6	5.90	458.9	175 ①	7 - 175	32	125	342 06 094 ③ ④	342 06 092 ③ ④	342 06 098 ③ ④	342 06 096 ③ ④	
Filter/Regulator Combined - 25 Micron Filtration without Bowl Protector													
105	1/8	0.90	0.32	19.4	150 ②	7 - 120	32	125	342 25 131	342 25 129	-	-	
107	1/8	1.61	0.39	24.7	150 ①	7 - 145	32	125	342 04 182	342 04 071	-	-	
105	1/4	0.90	0.32	22.9	150 ②	7 - 120	32	125	342 25 132	342 25 130	-	-	
107	1/4	1.61	0.39	45.9	150 ①	7 - 145	32	125	342 04 183	342 04 072	-	-	
112	1/4	3.65	1.28	63.5	150 ①	7 - 145	32	125	342 03 465	342 03 343	342 03 462	342 03 459	
112	3/8	3.65	1.28	105.9	150 ①	7 - 145	32	125	342 03 466	342 03 344	342 03 463	342 03 460	
112	1/2	3.65	1.28	105.9	150 ①	7 - 145	32	125	342 03 467	342 03 345	342 03 464	342 03 461	
① 230 psi @ 75°F Max. Ambient & Fluid Temperature. ② 175 psi @ 75°F Max. Ambient & Fluid Temperature. ③ 30 micron filtration. ④ Metal bowl. Consult ASCO for metal bowls or Polyamide bowls on 112 Series, and manual drains for 150 Series.													

① 230 psi @ 75°F Max. Ambient & Fluid Temperature. ② 175 psi @ 75°F Max. Ambient & Fluid Temperature. ③ 30 micron filtration. ④ Metal bowl. Consult ASCO for metal bowls or Polyamide bowls on 112 Series, and manual drains for 150 Series.

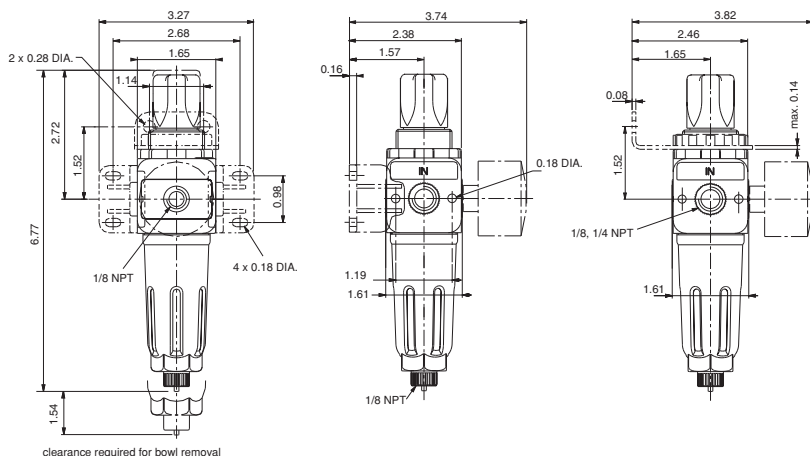
## FILTER/REGULATOR - Flow Graphs



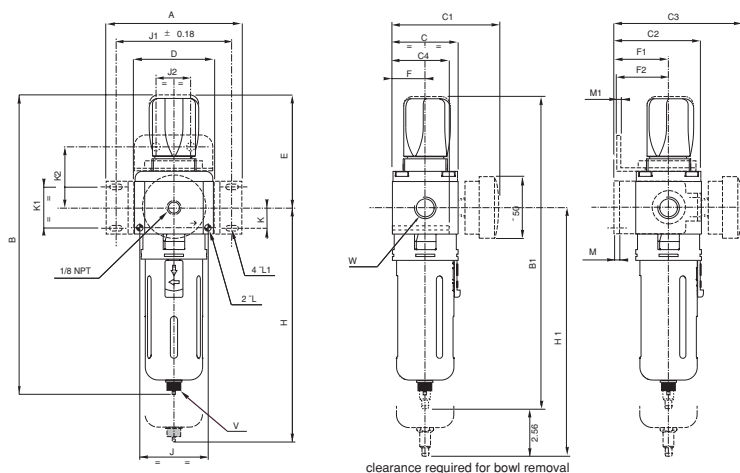
## FILTER/REGULATOR - Dimensions (inches)

Series	A	B	B1	C	C1	C2	C3	C4	D	E	F	F1	F2	H	H1	J	J1	J2	K	K1	K2	L (dia.)	L1 (dia.)	M	M1	V	W
107	3.27	8.38	-	1.65	2.99	2.40	3.74	1.50	1.65	3.11	0.83	1.57	1.65	7.48	-	1.26	2.70	1.14	0.39	1.10	1.48	0.16	0.18	0.12	0.08	1/8	1/8", 1/4" NPT
112	4.41	9.88	10.31	2.17	3.42	2.89	4.13	1.87	2.60	3.72	1.08	1.81	1.65	8.72	9.15	2.24	3.78	1.14	0.67	1.32	1.67	0.22	0.22	0.16	0.08	1/8	1/4", 3/8", 1/2" NPT

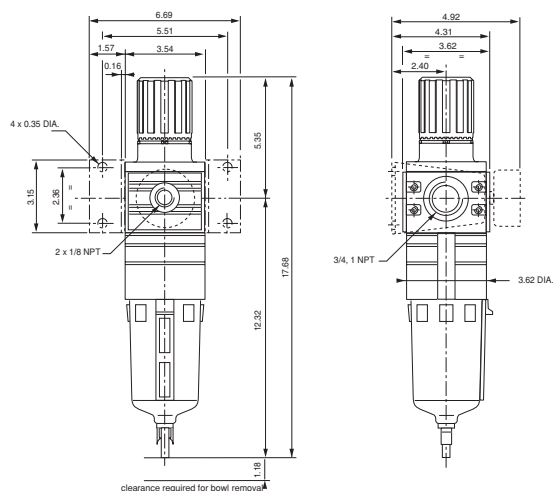
### Series 105



### Series 107, 112



### Series 150



# FILTER/REGULATOR LUBRICATOR SET

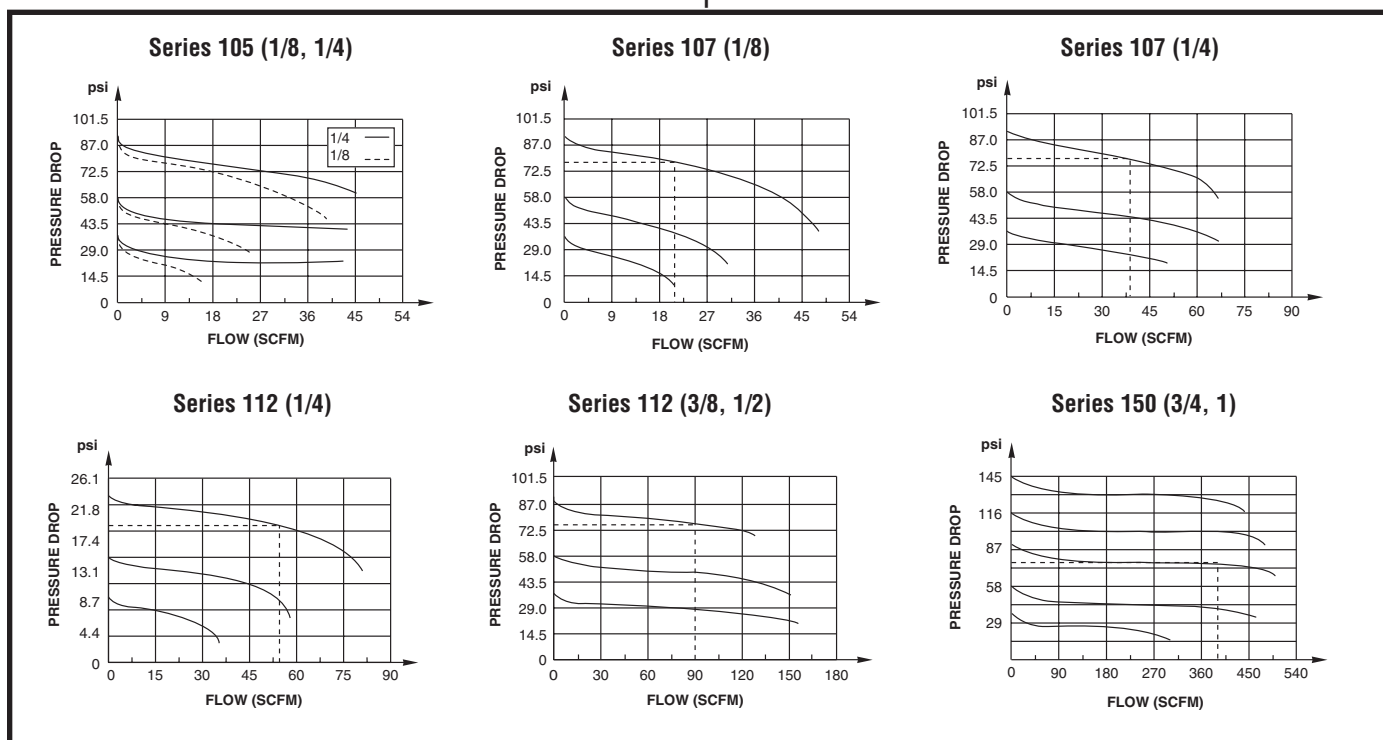


## FILTER/REGULATOR/LUBRICATOR - Specifications

Series	Pipe Size (ins.)	Bowl Capacity (oz.)		Max. Oil Capacity (oz.)	Min. Flow @ 90 psi (CFM)	Max. Flow @ 90 psi (CFM)	Max. Inlet Pressure (psi)	Pressure Control Range (psi)	Min. Ambient Temp. °F	Max. Ambient Temp. °F	Semi Automatic Drain		Automatic Drain	
		Total	Useful								With Pressure Gauge	Without Pressure Gauge	With Pressure Gauge	Without Pressure Gauge
Filter/Regulator/Lubricator Combined - 25 Micron Filtration with Bowl Protector														
105	1/8	0.90	0.32	0.74	1.1	14.1	150 ②	7 - 120	32	125	342 25 191	342 25 189	-	-
107	1/8	1.61	0.39	0.96	1.1	24.7	150 ①	7 - 145	32	125	342 04 204	342 04 129	-	-
105	1/4	0.90	0.32	0.74	1.1	19.4	150 ②	7 - 120	32	125	342 25 192	342 25 190	-	-
107	1/4	1.61	0.39	0.96	1.1	45.9	150 ①	7 - 145	32	125	342 04 205	342 04 130	-	-
112	1/4	3.65	1.28	2.34	1.1	63.5	150 ①	7 - 145	32	125	342 03 293	342 03 305	342 03 441	342 03 438
112	3/8	3.65	1.28	2.34	1.1	105.9	150 ①	7 - 145	32	125	342 03 294	342 03 306	342 03 442	342 03 439
112	1/2	3.65	1.28	2.34	1.1	105.9	150 ①	7 - 145	32	125	342 03 295	342 03 307	342 03 443	342 03 440
150	3/4	17.6	5.90	12.0	3.2	388.3	175 ①	7 - 175	32	125	342 06 069 ③	342 06 067 ③	342 06 073 ③	342 06 071 ③
150	1	17.6	5.90	12.0	3.2	458.9	175 ①	7 - 175	32	125	342 06 070 ③	342 06 068 ③	342 06 074 ③	342 06 072 ③
Filter/Regulator/Lubricator Combined - 25 Micron Filtration without Bowl Protector														
105	1/8	0.90	0.32	0.74	1.1	14.1	150 ②	7 - 120	32	125	342 25 111	342 25 109	-	-
107	1/8	1.61	0.39	0.96	1.1	24.7	150 ①	7 - 145	32	125	342 04 206	342 04 135	-	-
105	1/4	0.90	0.32	0.74	1.1	19.4	150 ②	7 - 120	32	125	342 25 112	342 25 110	-	-
107	1/4	1.61	0.39	0.96	1.1	45.9	150 ①	7 - 145	32	125	342 04 207	342 04 136	-	-
112	1/4	3.65	1.28	2.34	1.1	63.5	150 ①	7 - 145	32	125	342 03 317	342 03 329	342 03 447	342 03 444
112	3/8	3.65	1.28	2.34	1.1	105.9	150 ①	7 - 145	32	125	342 03 318	342 03 330	342 03 448	342 03 445
112	1/2	3.65	1.28	2.34	1.1	105.9	150 ①	7 - 145	32	125	342 03 319	342 03 331	342 03 449	342 03 446
Filter/Regulator/Lubricator Combined - 5 Micron Filtration with Bowl Protector ④														
105	1/8	0.90	0.32	0.74	.94	12	150 ②	7 - 120	32	125	342 25 231	342 25 229	-	-
105	1/4	0.90	0.32	0.74	.94	16.5	150 ②	7 - 120	32	125	342 25 232	342 25 230	-	-
150	3/4	17.6	5.90	12.0	2.7	330	175 ①	7 - 175	32	125	342 06 077 ⑤	342 06 075 ⑤	342 06 081 ⑤	342 06 079 ⑤
150	1	17.6	5.90	12.0	2.7	390	175 ①	7 - 175	32	125	342 06 078 ⑤	342 06 076 ⑤	342 06 082 ⑤	342 06 080 ⑤
① 230 psi @ 75°F Max. Ambient & Fluid Temperature. ② 175 psi @ 75°F Max. Ambient & Fluid Temperature. ③ 30 micron filtration and metal bowl. ④ Approx. 15% flow reduction with 5 micron filter element. ⑤ Metal bowl. Consult ASCO for manual drain on 150 Series.														

① 230 psi @ 75°F Max. Ambient & Fluid Temperature. ② 175 psi @ 75°F Max. Ambient & Fluid Temperature. ③ 30 micron filtration and metal bowl. ④ Approx. 15% flow reduction with 5 micron filter element. ⑤ Metal bowl. Consult ASCO for manual drain on 150 Series.

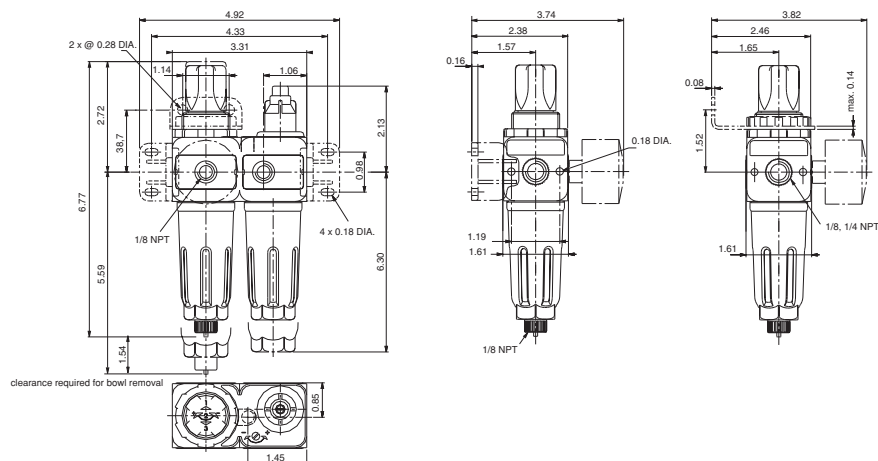
## FILTER/REGULATOR/LUBRICATOR - Flow Graphs



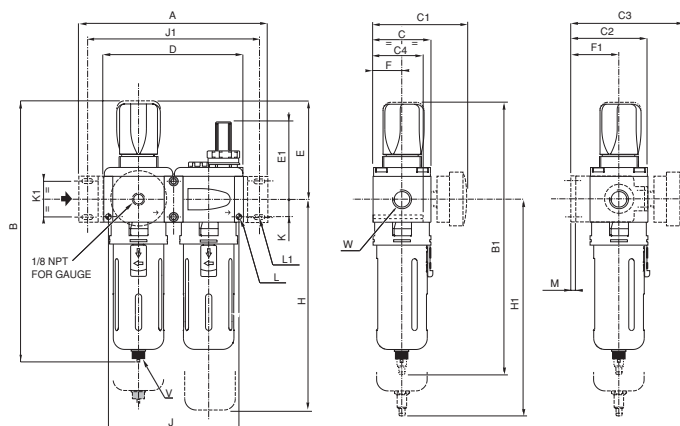
### FILTER/REGULATOR/LUBRICATOR - Dimensions (inches)

Series	A	B	B1	C	C1	C2	C3	C4	D	D1	E	E1	F	F1	H	H1	J	J1	K	K1	L (dia.)	L1 (dia.)	M	V	W
107	4.92	8.38	-	1.65	3.00	2.40	3.74	1.50	3.30	1.65	3.11	2.55	0.83	1.57	8.46	-	2.91	4.35	0.39	1.10	0.16	0.18	0.12	1/8	1/8", 1/4" NPT
112	7.01	9.84	10.33	2.17	3.43	2.89	4.13	1.87	5.20	2.60	3.72	2.80	1.08	1.81	9.57	9.15	4.48	6.38	0.67	1.32	0.22	0.22	0.16	1/8	1/4", 3/8", 1/2" NPT

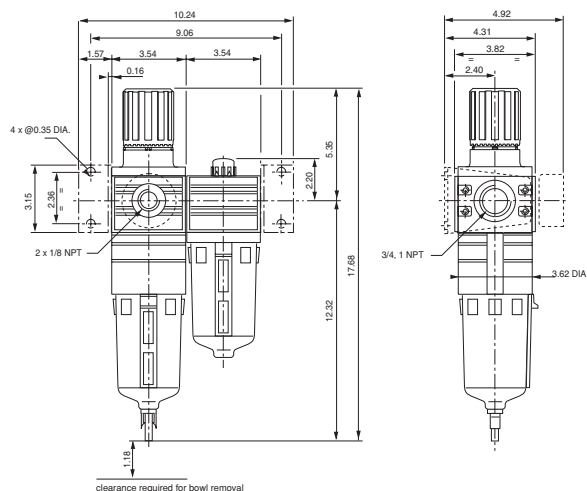
#### Series 105



#### Series 107, 112



#### Series 150





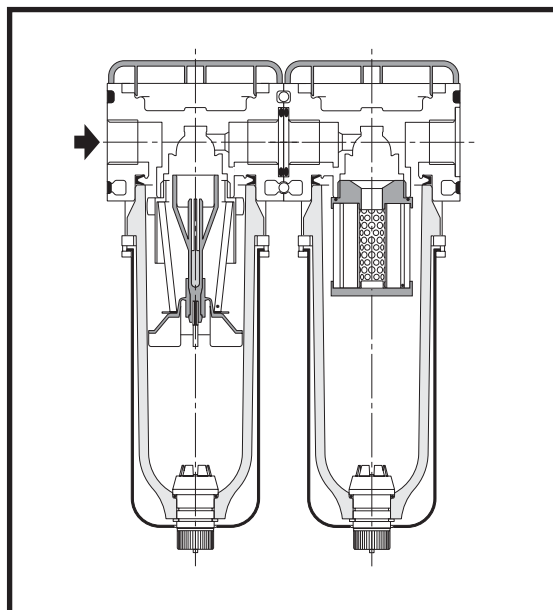
# COALESCING FILTERS & ASSEMBLIES (SUB-MICRON FILTRATION)



## COALESCING FILTERS - Specifications

Series	Pipe Size (ins.)	Bowl Capacity (oz.)		Max. Flow @ 90 psi and 1 psi drop (SCFM)	Max. Inlet Pressure (psi) @ 125°F	Min. Ambient Temp. °F	Max. Ambient Temp. °F	Semi Automatic Drain		Automatic Drain	
		Total	Useful					With Bowl Protection	Without Bowl Protection	With Bowl Protection	Without Bowl Protection
Coalescing Filter - .01 Micron Polycarbonate (PC) Bowl ①											
107	1/8	2.4	0.39	25	150	35	125	342 04 141	-	-	-
107	1/4	2.4	0.39	25	150	35	125	342 04 142	-	-	-
112	1/4	4.0	1.28	37	150	35	125	342 03 468	-	342 03 477	-
112	3/8	4.0	1.28	37	150	35	125	342 03 469	-	342 03 478	-
112	1/2	4.0	1.28	37	150	35	125	342 03 470	-	342 03 479	-
Pre-Filter (5 Micron) and Coalescing Filter (.01 Micron) Polycarbonate (PC) Bowl ①											
107	1/8	2.4	0.39	25	150	35	125	342 04 145	-	-	-
107	1/4	2.4	0.39	25	150	35	125	342 04 146	-	-	-
112	1/4	4.0	1.28	37	150	35	125	342 03 489	-	342 03 501	-
112	3/8	4.0	1.28	37	150	35	125	342 03 490	-	342 03 502	-
112	1/2	4.0	1.28	37	150	35	125	342 03 491	-	342 03 503	-
Pre-Filter/Regulator (5 Micron) and Coalescing Filter (.01 Micron) Polycarbonate (PC) Bowl without gauge ① ②											
107	1/8	2.4	0.39	25	150 ③	35	125	342 04 153	-	-	-
107	1/4	2.4	0.39	25	150 ③	35	125	342 04 154	-	-	-
112	1/4	4.0	1.28	37	150 ③	35	125	342 03 513	-	342 03 525	-
112	3/8	4.0	1.28	37	150 ③	35	125	342 03 514	-	342 03 526	-
112	1/2	4.0	1.28	37	150 ③	35	125	342 03 515	-	342 03 527	-
① See page 6 for filter dimensions. ② See page 12 for filter/regulator dimensions. ③ 7-145 psi pressure control range.											

① See page 6 for filter dimensions. ② See page 12 for filter/regulator dimensions. ③ 7-145 psi pressure control range.



# ADDITIONAL COMPONENTS

### Bypass Module

Installed between two components in the air preparation set and allows the user to tap off for high pressure filtered air or non-lubricated air, depending on where it is located in the air preparation assembly.

A pressure switch can be fitted to some bypass modules to monitor and control the pressure at the end of the air preparation assembly.

Series	1/4"	3/8"	1/2"
112	343 03 026	343 03 027	343 03 028



### Manually Operated Isolation Valve

An isolation valve allows the user to safely turn off the air flow through the air preparation assembly for maintenance or service of the air preparation assembly, or the downstream equipment and machinery.

Series	1/8"	1/4"	3/8"	1/2"	3/4"	1"
107	Standard	-	-			
	Padlockable	343 04 019	343 04 020			
112	Standard		343 03 035	343 03 036	343 03 037	
	Padlockable		343 03 055	343 03 056	343 03 057	
150	Standard				-	-
	Padlockable				343 06 051	343 06 052



### Key Lock for Regulator Adjustment Knob

This accessory is used to lock the adjusting knob to prevent inadvertent adjustment or tampering with the operating pressure settings. Can be fitted to stand-alone regulators or when regulators are combined with other components.

Series	Unit Supplied with Key Lock Installed	Key Lock Supplied Separately
107	Specify S05 Suffix ①	343 03 050
112	Specify S05 Suffix ①	343 03 050
150	Specify S05 Suffix ①	343 03 050
① Use S05 suffix on model number (example: 342 03 071S05).		



## ADDITIONAL COMPONENTS

# ADDITIONAL COMPONENTS

### EMERGENCY SHUT-OFF VALVE AND SOFT-START DEVICES

A 3/2 shut-off valve is controlled by a CNOMO pad-mounted solenoid valve, and vents the air system by de-energizing the solenoid valve when an unsafe condition is sensed.

	Series	1/8" NPT	1/4" NPT	3/8" NPT	1/2" NPT
Size 30 Shut-off Valve	107	343 94 003	343 94 004	-	-
Size 30 Shut-off Valve	112	-	343 93 126	343 93 127	343 93 128

A soft-start device allows for gradual pressurization of the downstream equipment. An adjustable air flow causes the actuators to move slowly, and prevents damage from machinery being started at full speed. It can also return machinery to a safe, end-of-cycle position before re-starting.

**There are two types of controls for this system to switch to the normal speed mode:**

**Automatic Soft-Start** will switch to full flow and normal operating speed when the downstream pressure reaches 60-70% of the supply (upstream) pressure. As long as supply pressure is maintained, it is in the full flow position. When the air supply is cut off, the soft-start returns to the low flow position.

	Series	1/8" NPT	1/4" NPT	3/8" NPT	1/2" NPT
Automatic Soft-Start Valve	107	343 04 023	343 04 024	-	-
Automatic Soft-Start Valve	112	-	343 03 044	343 03 045	343 03 046

**Solenoid/Air Controlled Soft-Start** allows the user to specify when the device switches to the full flow position. Position sensors on the machinery trigger the energization of the solenoid pilot valve. The solenoid pilot valve is energized under normal operating conditions, and upon de-energization the device switches to the low flow position.

	Series	1/8" NPT	1/4" NPT	3/8" NPT	1/2" NPT
Sol/Air Controlled Soft-Start	112	-	343 93 017	343 93 018	343 93 019

The shut-off and soft-start units must be installed after the filter, and before the lubricator.

### Emergency Shut-Off Valve and Soft-Start Devices as a System

	Series	1/8" NPT	1/4" NPT	3/8" NPT	1/2" NPT	Valves Required
Emergency Shut-off/Automatic Soft-Start	107	343 94 007	343 94 008	-	-	1X
Emergency Shut-off/Automatic Soft-Start	112	-	343 93 120	343 93 121	343 93 122	1X
Emergency Shut-off/Sol/Air Soft-Start	107	-	-	-	-	-
Emergency Shut-off/Sol/Air Soft-Start	112	-	343 93 123	343 93 124	343 93 125	2X

### Solenoid Valves

	Without MO	Impulse (Non-Locking) MO
Size 30 Solenoid Valves	189 00 007	-
Size 30 Solenoid Valves	190 00 005	190 00 017
Size 30 Solenoid Valves	192 00 007	192 00 009

### Shut-off Valve Silencers

Shut-off Valve Silencers	Sintered Bronze	Porous Plastic
107 (G 1/4)	346 00 002	346 00 407
112 (G 1/2)	346 00 004	346 00 409

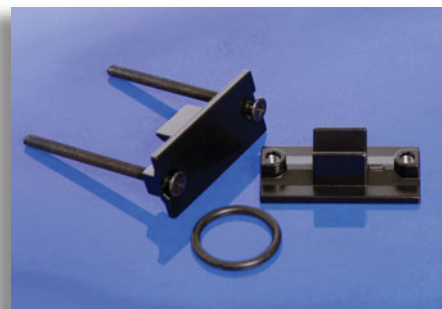


### ACCESSORIES

#### TWO PART ASSEMBLY KIT

This kit enables assembly of two components of the same series.

	Series	Kit Number
2 assembly screws/nuts 1 component joining seal (not shown)	105	343 05 001
1 each front and rear assembly yokes, 2 screws	107	343 04 001
1 component joining seal	112	343 03 001
2 assembly screws/nuts 1 component joining seal (not shown)	150	343 00 028



#### SIDE MOUNTING BRACKETS

For surface mounting of any component in the series.

1 set of 2 mounting brackets.

	Series	Kit Number
2 brackets of glass-fiber reinforced polyamide 6/6	105	343 25 005
	107	343 04 003
2 black painted steel brackets with 4 steel retaining screws	112	343 03 003
	150	343 00 029



#### TOP MOUNTING RING AND BRACKETS

For top mounting regulators and filter/regulator combinations.

The mounting ring can also be used for panel mounting the regulator.

MOUNTING RING	MATERIAL	Series	Kit Number
1 mounting ring	Glass-fiber reinforced polyamide	105	343 00 011
		107	343 00 011
		112	343 00 004
		150	N/A
MOUNTING BRACKET			
1 top mounting bracket	Black zinc plating or epoxy coated steel	105	343 00 016
		107	343 00 016
		112	343 00 017
		150	N/A



#### GAUGES FOR REGULATORS/ASSEMBLIES

	All Series
1 1/2" dia. 0-60 psi	343 00 015
1 1/2" dia. 0-160 psi	343 00 014
2" dia. 0-60 psi	343 00 064
2" dia. 0-200 psi	343 00 062



ASCO's electrical connection devices are designed using the DIN 43650/ISO 4400 or DIN 46244 (Pg 9P) form standards consistent with our solenoid valve coil designs and permitting industry interchangeability. Each size is available for user wiring or factory prewired installations. Other options include 1/2" conduits, and LED/VDR models.

### Features

- Glass fiber reinforced polyamide housing and lid.
- IP65 protection against moisture entry and washdown when properly installed with gaskets.
- LED: Light Emitting Diode. A solid-state diode that emits light to indicate power to the connector.
- VDR: Varistor absorbing the self-inductance of the coil. The VDR is there to protect the coil or controller against supply over-voltage or peak.
- Maximum voltage 240 Volts.



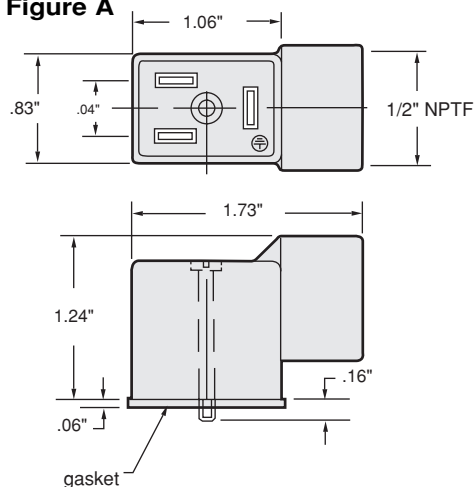
### Size 11 mm, Form B

Part Number	Description	Orientation	Rotatable	Figure
88122403	1/2" conduit	Ground Down	180°	A
97500200	1/2" conduit with LED/VDR	Ground Down	180°	A
88122404*	PG 9 cable gland	Ground Down	180°	B
88122407	PG 9 cable gland with LED/VDR 120/AC-DC	Ground Down	180°	B
88122410	PG 9 cable gland with LED/VDR 240/AC-DC	Ground Down	180°	B
88122405	PG 9 cable gland with LED/VDR 24/AC-DC	Ground Down	180°	B
E1090-04-59**	4.5' leads with LED 120/AC-DC PVC	Ground Up	No	B
E1090-02-59**	4.5' leads with LED 24/AC-DC PVC	Ground Up	No	B
AP2004-02**	6' leads with stripped ends	Ground Down	180°	B

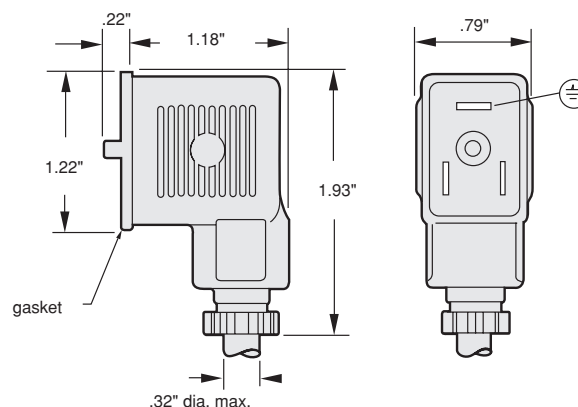
\*Available in 10 pack; part number 226061-001-\*

\*\*Also available in 9', 16', and 33' lengths. Consult factory.

**Figure A**



**Figure B**



## Size 18 mm, Form A

Part Number	Description	Orientation	Rotatable	Figure
88122601	1/2" conduit	Ground Up	90°	C
97500015	1/2" conduit with LED	Ground Up	90°	C
88122602*	PG 11 cable gland	Ground Up	90°	D
88122605	PG 11 cable gland with LED/VDR 120/AC-DC	Ground Up	90°	D
88122608	PG 11 cable gland with LED/VDR 240/AC-DC	Ground Up	90°	D
88122603	PG 11 cable gland with LED/VDR 24/AC-DC	Ground Up	90°	D
88122604	PG 11 cable gland with LED/VDR 48/AC-DC	Ground Up	90°	D
E1089-04-59**	4.5' leads with LED 120/AC-DC PVC	Ground Up	No	D
E1089-06-59**	4.5' leads with LED 240/AC-DC PVC	Ground Up	No	D
E1089-02-59**	4.5' leads with LED 24/AC-DC PVC	Ground Up	No	D
272852	6' leads with North American outlet plug	Ground Up	No	D
272852-003	6' leads with North American outlet plug (rotated 90 degrees)	Ground Up	No	D
AP2003-03**	6' leads with stripped ends	Ground Up	No	D

\*Available in 50 pack; part number 266615.  
 \*\*Also available in 9', 16', and 33' lengths. Consult factory.

Figure C

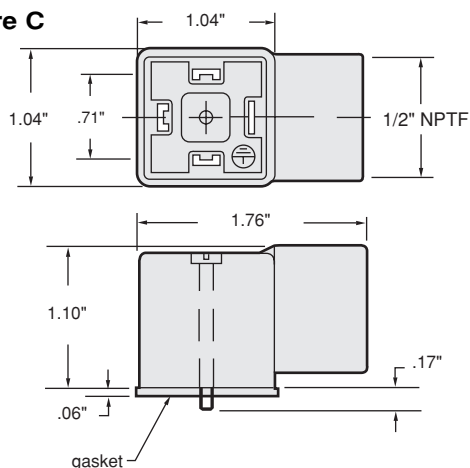
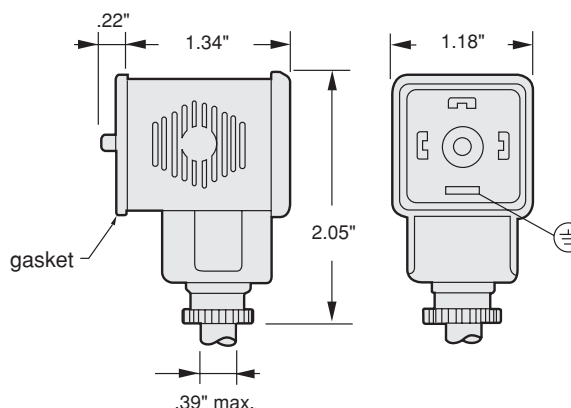


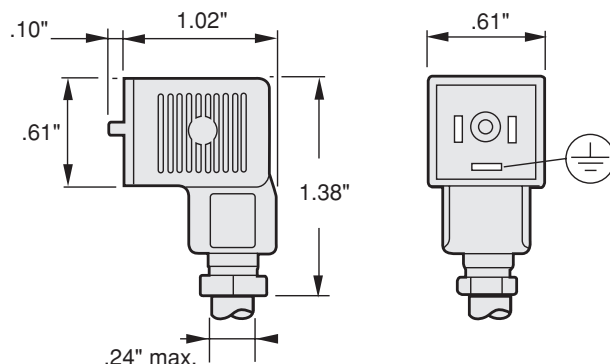
Figure D



## Size 9.4 mm, Form C

Part Number	Description	Orientation	Rotatable
88143581	PG 7 cable gland	Ground Up	180°
AP2002-01	PG 7 cable gland LED/VDR 120-240/AC 50/60	Ground Up	180°
AP2002-05	PG 7 cable gland LED/VDR 48-120/AC 50/60	Ground Up	180°
AP2002-03	PG 7 cable gland LED/VDR 48-120/DC	Ground Up	180°
97500024	PG 7 cable gland LED/VDR 6-48/AC-DC	Ground Up	180°
E1091-04-59**	4.5' leads with LED 120/AC-DC PVC	Ground Up	No
E1091-02-59**	4.5' leads with LED 24/AC-DC PVC	Ground Up	No
88143567**	6' leads	Ground Up	No

\*\*Also available in 9', 16', and 33' lengths. Consult factory.





Standard ASCO solenoid valves will meet the needs of most applications. However, there are times when fluids must be handled at higher temperatures, in less than ideal ambient locations, when the fluids, themselves, are hostile, etc.

For this reason, ASCO offers a wide range of options which can help tailor new valves to your precise applications. Specifying these options when you order is easy. Simply attach the proper prefix (electrical options) or suffix (construction options) to the basic catalog number.

## Optional Electrical Features

- Coils for high-temperature applications.
- Spade and screw terminations in place of leads.
- Battery service coils.
- Open frame solenoids.
- Variety of solenoid enclosures, from Rainproof to Explosionproof, for hydrogen atmospheres.

## Optional Construction Features

- Special materials for handling a wide variety of fluids.
- Manual operators.
- Metering devices.
- Special cleaning procedures.

## Index

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Content	Page Number
How to Select and Specify	10.01
Optional Electrical Features	10.02
Optional Construction Features	10.07

## How to Select and Specify

Not all optional features are appropriate or available for all valves.

Table 1 lists the optional electrical feature prefixes available for each Red-Hat II® solenoid and coil. Specify these features by adding the indicated prefixes to the valve catalog number.

*For those prefixes marked with a “•” or for optional Red-Hat® electrical features not covered here, contact your local ASCO sales office.*

Table 2 lists the suffixes for optional construction features available for each valve Series. Specify these features by adding the indicated suffixes to the valve catalog number.

**Table 2: Suffixes for Optional Construction Features**

SUFFIX I		SUFFIX II		SUFFIX III	
Code	Seat/Disc/Etc. Material	Code	Form of Flow	Code	Feature
E	EPDM (Ethylene Propylene)	† F	Normally Closed	† HW	Hot Water Construction
J	CR (Neoprene)	† G	Normally Open	† LT	Low Temperature
† K	Air Operated, 3-30 psi	† U	Universal	M	Metering Device
N	Oxygen			† MB	Mounting Bracket
† Q	Long-Life Construction			MO	Manual Operator
† R	Resilient			MS	Screw Type Manual Operator
T	PTFE (Teflon*)			† VH	High Vacuum
V	FPM (Viton*)			† VM	Medium Vacuum

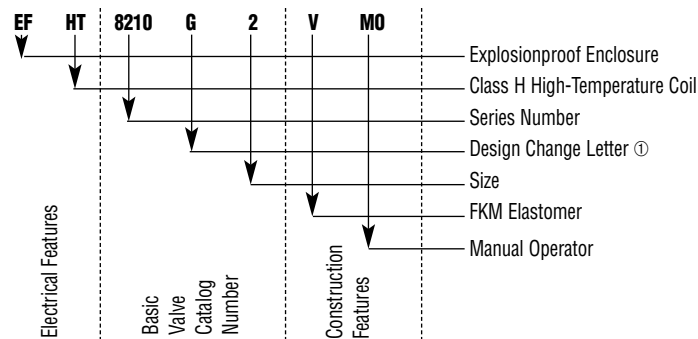
† Covered on the pages of the Series in which it is used.  
\* DuPont Co. trademark.

**Table 1: Optional Red-Hat II® Electrical Feature Prefixes** (For Red-Hat® optional electrical features, contact your local sales office.)

Code	Solenoid
EF	Type 7 Explosionproof
EV	Type 7 Explosionproof with 316 Stainless Steel Hub and Stainless Steel Base Plate
GP	Panel Mount Type 1 General Purpose Solenoid
J	Junction Box
JP	Panel Mount Junction Box
OF	Open Frame Spade and Screw Terminal Solenoids
OP	Panel Mount Spade, Screw and DIN Terminal Solenoids
Code	Coil
HB	Class H - Intermediate Power
• HC	Class H - Battery Charging Coil
HT	Class H - High Temperature
KB	Class H - Intermediate Power - Screw Terminals
• KC	Class H - Battery Charging Circuit - Screw Terminals
KF	Class F - High Temperature - Screw Terminals
KH	Class H - High Temperature - Screw Terminals
KP	Class F - Intermediate Power - Screw Terminals
SC	Class F - High Temperature - DIN Connection
SD	Class F - Intermediate Power - DIN Connection
SF	Class F - High Temperature - Spade Terminals
SP	Class F - Intermediate Power - Spade Terminals
SS	Class H - Intermediate Power - Spade Terminals
ST	Class H - High Temperature - Spade Terminals
SU	Class H - High Temperature - DIN Connection
SV	Class H - Intermediate Power - DIN Connection
• SW	Class H - Battery Charging Circuit - Spade Terminals
Code	Feature
• L	72" continuous leads
• X	Other special constructions

**Note:** See chart on page 10.02 for specific power and temperature ratings.

**An example of an ASCO valve catalog number with prefixes and suffixes:**



① The Design Change Letter indicates a major design change affecting spare parts kits, rebuild kits, and coils. The correct replacement parts for each change letter are shown in ASCO's Rebuild Kits and Coils Catalog.



### Optional Electrical Features

Most optional electrical features shown here can be included on ASCO valves approved by UL, FM, and CSA.

Identify the options you want by adding the appropriate prefix to the catalog number of the valve you are specifying.

To determine the proper prefix, use the Valve Series Specification Table for the valve you are ordering to determine its watt rating/class of coil insulation.

#### Red-Hat II Solenoid Options

Using Table 3, find the desired solenoid option in the left column and the watt rating/class of coil insulation in the next column. The choice of prefixes is shown in the next two columns on that line. The first column indicates the prefix if Class F temperature protection is sufficient for your requirements. The second column provides the desired solenoid option, plus the higher temperature protection of a Class H coil.

For example, to select an 8262G2 valve with a Class H Open Frame Spade Terminal Solenoid, assuming the voltage to be 120 volts AC, 60 Hz:

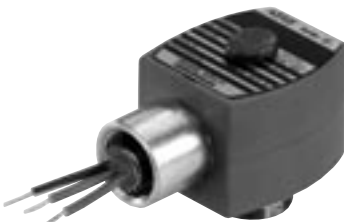
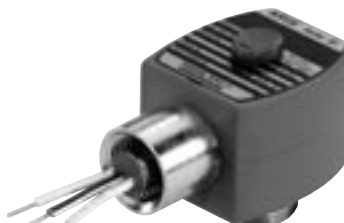


- In the Specification Table for Series 8262, the Watt Rating/Class of Coil Insulation is 6.1/F for Catalog Number 8262G2.
- Using Table 3, find the listing for "Open Frame Solenoid with Spade Terminal Coil" in the left column. Then, find 6.1/F under AC coils in the next column. Reading across the column headed "Class H Coil," you'll find the prefix "OFST." To order, specify Catalog Number OFST8262G2, 120/60.

(Note: Always include the voltage and frequency.)






**Table 3: Solenoid Options for Red-Hat II® Valves**





Solenoid Option Required	Watt Rating/ Class of Insulation		Class F Coil Prefix	Class H Coil Prefix
	AC	DC		
General Purpose Solenoid (Standard Valve Construction)	6.1/F 10.1/F	1.4/F 10.6/F 11.6/F	—	— HT HT
	9.1/F 17.1/F	22.6/F	—	HB
Panel Mount Type 1 General Purpose Solenoid	6.1/F 10.1/F	10.6/F 11.6/F	GP	GPHT
	9.1/F 17.1/F	22.6/F	GP	GPHB
Type 7 Explosionproof Solenoid	6.1/F 10.1/F	10.6/F 11.6/F	EF	EFHT
	9.1/F 17.1/F	22.6/F	EF	EFHB
	10.1/F 15.1/F 17.1/F	1.4/F 11.6/F 22.6/F	EV	— EVHT EVHB
Open Frame Solenoid with Spade Terminal Coil	6.1/F 10.1/F	10.6/F 11.6/F	OFSF	OFST
	9.1/F 17.1/F	22.6/F	OFSP	OFSS
Panel Mount Solenoid with Spade Terminal Coil	6.1/F 10.1/F	10.6/F 11.6/F	OPSF	OPST
	9.1/F 17.1/F	22.6/F	OPSP	OPSS
Open Frame Solenoid with Screw Terminal Coil	6.1/F 10.1/F	10.6/F 11.6/F	OFKF	OFKH
	9.1/F 17.1/F	22.6/F	OFKP	OFKB
Panel Mount Solenoid with Screw Terminal Coil	6.1/F 10.1/F	10.6/F 11.6/F	OPKF	OPKH
	9.1/F 17.1/F	22.6/F	OPKP	OPKH
Junction Box with Spade Terminal Coil	6.1/F 10.1/F	10.6/F 11.6/F	JSF	JST
	9.1/F 17.1/F	22.6/F	JSP	JSS
Panel Mount Junction Box with Spade Terminal Coil	6.1/F 10.1/F	10.6/F 11.6/F	JPSF	JPST
	9.1/F 17.1/F	22.6/F	JPSP	JPSS
Junction Box with Screw Terminal Coil	6.1/F 10.1/F	10.6/F 11.6/F	JKF	JKH
	9.1/F 17.1/F	22.6/F	JKP	JKB
Panel Mount Junction Box with Screw Terminal Coil	6.1/F 10.1/F	10.6/F 11.6/F	JPKF	JPKH
	9.1/F 17.1/F	22.6/F	JPKP	JPKB
DIN Connection Solenoid	6.1/F 10.1/F	10.6/F 11.6/F	SC	SU
	9.1/F 17.1/F	22.6/F	SD	SV
Panel Mount DIN Connection Solenoid	6.1/F 10.1/F	10.6/F 11.6/F	OPSC	OPSU
	9.1/F 17.1/F	22.6/F	OPSD	OPSV

**Important Note:** One-piece molded epoxy Red-Hat II® solenoids are a unique combination of coil and enclosure. When ordering some Red-Hat II options, it may be necessary to specify the appropriate catalog number prefixes for both the enclosure and the coil.





<p>Type 1 General Purpose Solenoids with <b>Class F</b> High-Temperature Coils</p>	<p><b>Enclosures:</b></p> <ul style="list-style-type: none"> <li>Also meet Type 2 Dripproof, Types 3 and 3S Raintight, and Types 4 and 4X Watertight requirements.</li> <li>Supplied standard with 1/2" threaded conduit hub and built-in strain relief for leads.</li> </ul> <p><b>Coils:</b></p> <ul style="list-style-type: none"> <li>Insulation system for coil temperatures up to 311°F (155°C).<sup>①</sup></li> <li>For ambient temperature requirement, refer to specific Series and charts in Engineering Information Section, beginning on page 11.00.</li> <li>Suitable for 50 and 60 Hz.<sup>②</sup></li> </ul>	<p><b>Ordering Information:</b> Supplied standard on all Red-Hat II valves.</p>	
<p>Type 1 General Purpose Solenoids with <b>Class H</b> High-Temperature Coils</p>	<p><b>Enclosures:</b></p> <ul style="list-style-type: none"> <li>Same as Class F.</li> </ul> <p><b>Coils:</b></p> <ul style="list-style-type: none"> <li>Insulation system suitable for coil temperatures up to 356°F (180°C).<sup>①</sup></li> <li>For ambient temperature requirements, refer to specific Series and charts in Engineering Information Section, page 11.00.</li> <li>Suitable for 50 and 60 Hz.<sup>②</sup></li> </ul>	<p><b>Ordering Information:</b> Depending on wattage, use catalog number prefix "HT" or "HB" (e.g., HT8210G2).</p>	
<p><b>Panel Mount</b> Type 1 General Purpose Solenoids with <b>Class F or H</b> High-Temperature Coils</p>	<p><b>Enclosures:</b></p> <ul style="list-style-type: none"> <li>Same as above, but with provision for mounting on a panel (panel not included).</li> </ul> <p><b>Coils:</b></p> <ul style="list-style-type: none"> <li>Same as Class F or H above.</li> </ul>	<p><b>Ordering Information:</b> For Class F coil, use catalog number prefix "GP" (e.g., GP8210G2) and specify voltage. For Class H coil, depending on wattage, use catalog number prefix "GPHT" or "GPHB" (e.g., GPHT8210G2) and specify voltage.</p>	
<p>Type 7 (A, B, C, and D) <b>Explosionproof</b> Solenoids with <b>Class F</b> High-Temperature Coils</p>	<p><b>Enclosures:</b></p> <ul style="list-style-type: none"> <li>Also meets Types 3 and 3S Raintight, Types 4 and 4X Watertight, Types 6 and 6P Submersible, and Type 9 (E, F, and G) Dust Ignitionproof requirements. Refer to Engineering Information Section, beginning on page 11.00 for details.</li> </ul> <p><b>Coils:</b></p> <ul style="list-style-type: none"> <li>Insulation systems suitable for coil temperatures up to 311°F (155°C) <sup>①</sup></li> <li>For ambient temperature requirements, refer to specific Series charts in Engineering Section, page 11.00.</li> <li>Suitable for 50 and 60 Hz. <sup>②</sup></li> </ul>	<p><b>Approvals:</b> UL listed; CSA certified.</p> <p><b>Ordering Information:</b> Use catalog number prefix "EF" (e.g., EF8210G2) and specify voltage.</p>	

**Notes:** <sup>①</sup> UL limitations are 284°F (140°C) for Class F insulation systems and 320°F (160°C) for Class H insulation systems.  
<sup>②</sup> Can be supplied for 50 Hz at a reduced voltage, which is standard throughout the world; i.e., 120/60, 110/50.

<p>Type 7 (A, B, C, and D) <b>Explosionproof</b> Solenoids with <b>Class H</b> High-Temperature Coils</p>	<p><b>Enclosure:</b></p> <ul style="list-style-type: none"> <li>Same as Class F Explosionproof Coil: Insulation system suitable for coil temperatures up to 356°F (180°C).<sup>①</sup> <i>For ambient temperature requirements, refer to specific Series and charts in Engineering Information Section, beginning on page 11.00</i></li> <li>Suitable for 50 and 60 Hz.<sup>②</sup></li> </ul>	<p><b>Approvals:</b> UL listed; CSA certified.</p> <p><b>Ordering Information:</b> Depending on wattage, use catalog number prefix "EFHT" or "EFHB" (e.g., EFHT8210G2) and specify voltage.</p>	
<p>Type 7 (A, B, C, and D) <b>Explosionproof</b> Solenoids with <b>Class F or H</b> High-Temperature Coils</p>	<p><b>Enclosure:</b></p> <ul style="list-style-type: none"> <li>Same as above, but with 316 stainless steel conduit hub and stainless steel base plate.</li> </ul> <p><b>Coils:</b></p> <ul style="list-style-type: none"> <li>Same as Class F or H Coil.</li> </ul>	<p><b>Ordering Information:</b> For Class F Coil, use catalog number prefix "EV" (e.g., EV8262G220) and specify voltage. For Class H coil, depending on wattage, use catalog number prefix "EVHT" or "EVHB" (e.g., EVHT8327G2) and specify voltage.</p>	
<p>Type 7 (A, B, C, and D) <b>Low Power</b> Solenoids with <b>Class F DC Surge</b> <b>Suppression</b> Coils</p>	<p><b>Enclosure:</b></p> <ul style="list-style-type: none"> <li>Same as Class F Explosionproof coil.</li> </ul> <p><b>Coils:</b></p> <ul style="list-style-type: none"> <li>Built-in surge suppression diodes.</li> <li>Low power – 1.7 Watts.</li> <li>Class F insulation only.</li> </ul>	<p><b>Ordering Information:</b> For Surge Suppression coils, use catalog number prefix "EFMF" or "EVMF" (e.g., EFMF8314G300), and specify voltage.</p> <p><b>Note:</b> Surge Suppression coils are only available for Explosionproof Low Power coils.</p>	
<p><b>Open Frame</b> Solenoids with Class F or H High-Temperature <b>Spade Terminal</b> Coils</p>	<ul style="list-style-type: none"> <li>Valves with Open Frame solenoid construction are intended for use when a solenoid enclosure is not needed; e.g., mounting in a control cabinet.</li> <li>Same as Class F or H above, but with 1/4" spade terminals.</li> <li>Suitable for 50 and 60 Hz. <sup>②</sup></li> </ul>	<p><b>Ordering Information:</b> For Class F coil, depending on wattage, use catalog number prefix "OFSP" or "OFSP" (e.g., OFSF8210G2) and specify voltage. For Class H coil, depending on wattage, use catalog number prefix "OFSS" or "OFST" (e.g., OFST8210G2) and specify voltage.</p> <p><b>Note:</b> Spade Terminal Coils are not available above 250 volts AC or DC.</p>	
<p><b>Panel Mount</b> Solenoids with Class F or H High-Temperature <b>Spade Terminal</b> Coils</p>	<p>Same as above, but with provision for mounting on a panel (panel not included).</p>	<p><b>Ordering Information:</b> For Class F coil, use catalog number prefix "OPSF" or "OPSP" (e.g., OPSF8210G2) and specify voltage. For Class H coil, depending on wattage, use catalog number prefix "OPSS" or "OPST" (e.g., OPST8210G2) and specify voltage.</p> <p><b>Note:</b> Spade Terminal Coils are not available above 250 volts AC or DC.</p>	
<p><b>Notes:</b> <sup>①</sup> UL limitations are 284°F (140°C) for Class F insulation systems and 320°F (160°C) for Class H insulation systems.  <sup>②</sup> Can be supplied for 50 Hz at a reduced voltage, which is standard throughout the world; i.e., 120/60, 110/50.</p>			

<b>Open Frame Solenoids</b> with Class F or H High-Temperature <b>Screw Terminal Coils</b>	<ul style="list-style-type: none"> <li>Valves with Open Frame solenoid construction are intended for use when a solenoid enclosure is not needed; e.g., mounting in a control cabinet.</li> <li>Same as Class F or H above, but with #8 screws terminals.</li> <li>Suitable for 50 and 60 Hz. ②</li> </ul>	<b>Ordering Information:</b> For Class F coil, depending on wattage, use catalog number prefix "OFKF" or "OFKP" (e.g., OFKF8210G2) and specify voltage. For Class H coil, depending on wattage, use catalog number prefix "OFKH" or "OFKB" (e.g., OFKH8210G2) and specify voltage.  <b>Note:</b> Screw Terminal Coils are not available above 250 volts AC or DC.	
<b>Panel Mount Solenoids</b> with Class F or H High-Temperature <b>Screw Terminal Coils</b>	<b>Coils:</b> <ul style="list-style-type: none"> <li>Same as above, but with provision for mounting on a panel (panel not included).</li> </ul>	<b>Ordering Information:</b> For Class F coil, depending on wattage, use catalog number prefix "OPKF" or "OPKP" (e.g., OPKP8210G2) and specify voltage. For Class H coil, depending on wattage, use catalog number prefix "OPKH" or "OPKB" (e.g., OPKH8210G2) and specify voltage.  <b>Note:</b> Screw Terminal Coils are not available above 250 volts AC or DC.  For replacement coil, order coil and kit number 276982.	
<b>Junction Box Solenoids</b> with Class F or H High-Temperature <b>Spade or Screw Terminal Coils</b>	<ul style="list-style-type: none"> <li>Enclosures meet Type 1 General Purpose, Type 2 Dripproof, Types 3 and 3S Raintight, and Types 4 and 4X Watertight requirements.</li> <li>Supplied standard with 1/2" threaded conduit hub and grounding provision.</li> <li>Must be ordered with spade or screw terminals.</li> </ul>	<b>Ordering Information:</b> For Class F coil, depending on wattage, use catalog number prefix "JSF," "JSP," "JKE," or "JKB" (e.g., JSF8210G2) and specify voltage.  For Class H coil, depending on wattage, use catalog number prefix "JSS," "JST," "JKH," or "JKB" (e.g., JKH8210G2) and specify voltage.  <b>Note:</b> Junction Box Options are not available above 250 volts AC or DC.	
<b>Class F General Purpose Only with Quick Disconnect Pin Connectors</b>	<ul style="list-style-type: none"> <li>Available for wattages 10.1, 17.1, 11.6, and 22.6.</li> <li>Materials: aluminum, 3 &amp; 4 pin in popular sizes.</li> <li>Electrical Connection Size: 1/2 - 20 unf.</li> <li>ZT or ZB 3 pin epoxy coated zinc electrical termination.</li> <li>VT or VB 4 pin - anodized aluminum electrical termination.</li> </ul>	<b>Ordering Information:</b> For Class F coil, depending on wattage, use catalog number prefix "VT" or "VB" and specify voltage.	

**Notes:** ① UL limitations are 284°F (140°C) for Class F insulation systems and 320°F (160°C) for Class H insulation systems.  
 ② Can be supplied for 50 Hz at a reduced voltage, which is standard throughout the world; i.e., 120/60, 110/50.

<p>Class F or H High-Temperature Coils with <b>DIN Connections</b></p>	<ul style="list-style-type: none"> <li>• Meets ISO 4400/DIN 43650 requirements.</li> <li>• Class F insulation system suitable for coil temperatures up to 311°F (155°C).<sup>①</sup> <i>For ambient temperature requirements, refer to specific Series and charts in Engineering Information Section, beginning on page 11.00.</i></li> <li>• Class H insulation system suitable for coil temperatures up to 356°F (180°C).<sup>①</sup> <i>For ambient temperature requirements, refer to specific Series and charts in Engineering Information Section, beginning on page 11.00.</i></li> <li>• Enclosure protection with DIN connector equivalent to Types 1 and 4.</li> <li>• Suitable for 50 and 60 Hz.<sup>②</sup></li> </ul>	<p><b>Ordering Information:</b> For Class F Coil, depending on wattage, use catalog number prefix "SC" or "SD" (e.g., SC8210G2) and specify voltage.</p> <p>For Class H coil, depending on wattage, use catalog number prefix "SU" or "SV" (e.g., SU8210G2) and specify voltage.</p> <p><b>Note:</b> Optional DIN-type strain-relief connector kit includes a gasket and mounting screw. Outlet accommodates cable with O.D. of 0.310" to 0.400".</p> <p><b>Note:</b> DIN Connection Coils are not available above 250 volts AC or DC.</p> <p>Must be ordered separately as Kit No. K236034.</p> <p>For replacement coil, order coil and Kit No. 258631.</p>	
<p><b>Junction Box</b> for Class F or H Coils</p>	<p>Junction box (shown installed on Red-Hat II solenoid) is a zinc coated steel housing with two 7/8" knock-outs for through wiring. UL listed when ordered factory assembled. Also available, without UL listing, as a kit with grounding screw for field installation.</p>	<p><b>Ordering Information:</b> For factory assembly, add prefix "JB" to Valve Catalog Number. For kit, use number K272140.</p>	
<p><b>Sub-Miniature Coils</b> for Series 8225, 8325, 8280, 8380, 8401, and 8551 Class F High-Temperature Molded Coils with <b>DIN Connection</b></p>	<p>These sub-miniature coils meet 3 x DIN 46244 requirements.</p> <ul style="list-style-type: none"> <li>• Insulation system suitable for coil temperatures up to 311°F (155°C).<sup>①</sup> <i>For ambient temperature requirements, refer to specific Series and charts in Engineering Information Section, beginning on page 11.00.</i></li> <li>• Suitable for 50 and 60 Hz.<sup>②</sup></li> <li>• "Enclosure Protection" with DIN connector equivalent to Types 1 and 4.</li> </ul>	<p><b>Ordering Information:</b> Use catalog prefix "SC" (e.g., SC8225A1V) and specify voltage.</p> <p><b>Note:</b> Optional DIN-type strain-relief connector kit includes a gasket and mounting screw. Outlet accommodates cables with O.D. of 0.310" to 0.400". Must be ordered separately as Kit No. K226061-1.</p>	
<p><b>1/2" Threaded Conduit Hubs</b></p>	<p>These conventional threaded hubs allow connection with 1/2" BX cable. Can be supplied with leaded coil only. Kit includes gasket and attaching screw.</p>	<p><b>Ordering Information:</b> Order separate Kit No. K224735.</p>	

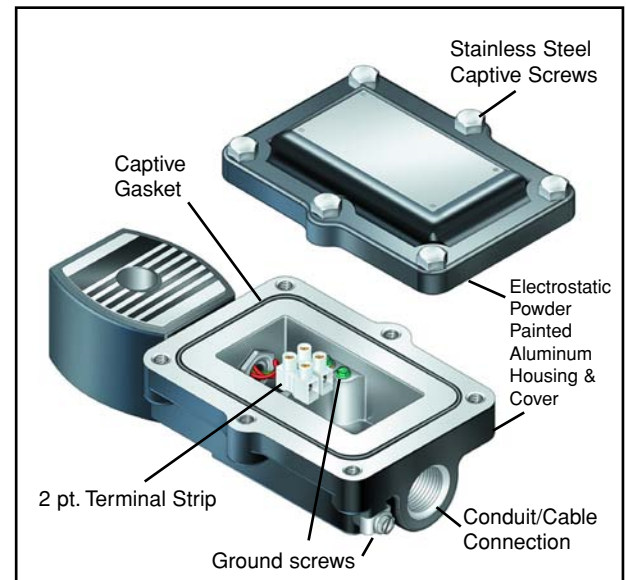
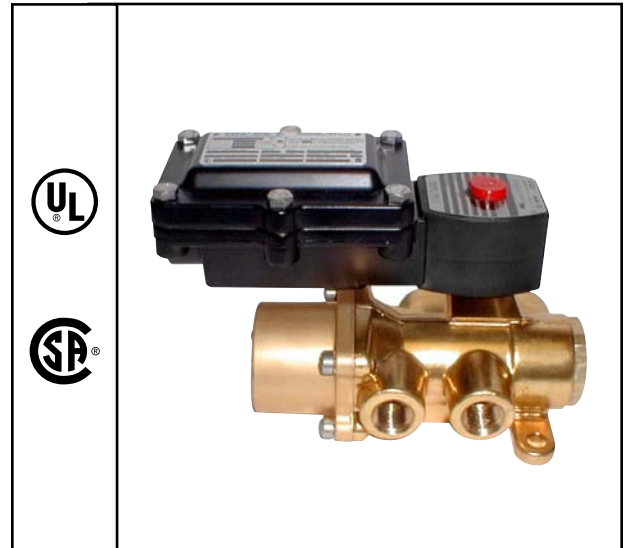
**Notes:** ① UL limitations are 284°F (140°C) for Class F insulation systems and 320°F (160°C) for Class H insulation systems.  
 ② Can be supplied for 50 Hz at a reduced voltage, which is standard throughout the world; i.e., 120/60, 110/50.

### Features

- Junction Box Enclosure for the wiring of ASCO solenoids are Rain-tight Type 3 and 3S, Water-tight Type 4 and 4X, Submersible Type 6 and 6P, Explosion proof Class 7, Class I, Groups B, C, and D Dust-Ignition proof Type 9, Class II, Div. I, Groups E, F and G, Nonincendive Class I, Div. II (1.4 watts only).
- Approvals: UL, CSA.
- Electrostatic powder paint, stainless steel screws, and molded epoxy coils provide excellent protection in corrosion environments.
- Factory pre-wired and assembled to any explosion proof ASCO Red-Hat II solenoid valve.
- Reduces installation costs by eliminating the need to use a separate explosion proof splice box to terminate the solenoid valve's wiring.

### Materials of Construction

<b>Housing &amp; Cover</b>	Epoxy painted die cast aluminum
<b>Gasket</b>	Buna-N
<b>Cover Screws</b>	Stainless Steel
<b>Coil</b>	Epoxy Molded
<b>Ground Screws</b>	Steel
<b>Terminal Block</b>	Plastic
<b>Lock Nut</b>	Zinc



### Electrical

**Standard Voltages**    **AC:** 24, 120, 240, 480 volts, 60 Hz  
or (110, 220 volts, 50 Hz)

**DC:** 6, 12, 24, 120, 240

(Valves with JBEF housing maintain wattage and current ratings as shown on individual catalog sheets.)

**Conduit Sizes**

1/2" NPT	JBEF Prefix (Standard)
3/4" NPT	JCEF Prefix (Optional)
M20	JDEF Prefix (Optional)

### Ordering Information

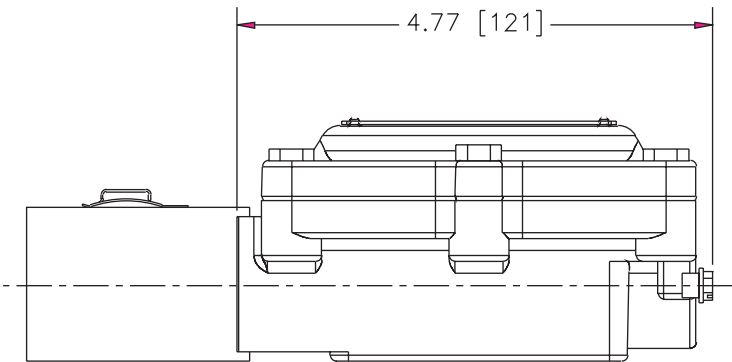
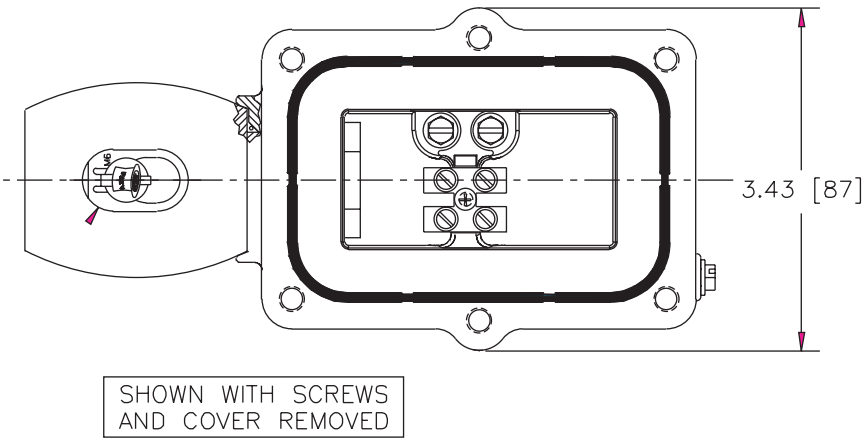
Add prefix corresponding to specific conduit size required to any Red-Hat II valve catalog numbers & specify the voltage. Example JBEF8210G095, 120/60.

### Approvals

UL & CSA

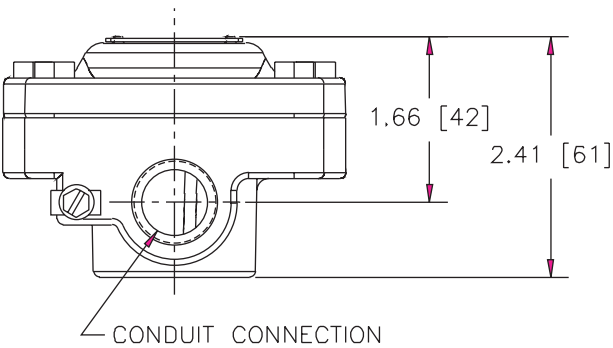


Dimensions: inches (mm)



Replavement Coil Kits

Kit Number	Size (watts)	Voltage
278000-032	6.1	120/60
278000-132	9.1	120/60
278001-006	10.6	24DC
278012-032	10.1	120/60
278012-132	17.1	120/60
278013-006	11.6	24/DC
278024-032	20.1	120/60



### Optional Construction Features

Standard valve construction materials for standard valves are shown on the Series pages. If handling fluids other than those listed in the Specifications section, you may require special constructions, however. The most frequently used elastomers are listed in Table 4 along with the Valve Series in which they are available. Other considerations for a variety of liquids and gases are included in the Valve Material Selection Guide, which starts on page 11.20. A solenoid valve must use certain construction material for proper electrical function. *If you cannot find the specific fluid in the guide, please consult your local ASCO office.*

Certain fluids may also require that we change the solenoid shading coil. The standard valves use a copper shading coil. Aluminum and silver are also available and, due to their different magnetic properties, additional electrical changes may be necessary. *When a change in shading coil material is indicated in the guide, please consult your local ASCO office.*

**Table 4: Optional Construction Features for ASCO Solenoid Valves Handling Liquids and Gases other than Air, Inert Gas, Water, and Light Oil.** Orders entered using this table **MUST** state actual fluid and pressure of application.

Pipe Size (ins.)	Series Number or Valve Type	Valve Construction Number	Special Construction Features ③ ELASTOMERS				
			EPDM	Oxygen Service	PTFE	FKM	CR
			Use Suffix “E”	Use Suffix “N” ①	Use Suffix “T” ②	Use Suffix “V”	Use Suffix “J”
SOLENOID OPERATED VALVES							
3/8 - 3/4	8030, 8040	1-10, 13	Available on all constructions	Available on all constructions	Not Available	Available	Available on all constructions
3/8 - 1 1/2	8210	1, 2, 5, 6, 7, 8, 9, 11, 12, 16, 18, 23, 24, 25, 26, 28, 29, 31-51			Not Available	Available	
3/4 - 2 1/2	8210	10, 20, 21, 27, 30			Available	Available	
3/8 - 3	8215	All			Not Available	Available	
All	8260	1, 2, 3			Not Available	Available	
All	8260	4, 5, 6			Not Available	Not Available	
1/8 - 3/8	8262, 8263	1 - 7, 11, 12, 13, 16, 17			Available	Available	
1/8 & 1/4	8262	8, 9, 14			Available	Available	
3/8 & 1/2	8316	1, 2			Not Available	Available	
3/4 & 1	8316	3, 4, 5			Not Available	Available	
All	8320, 8360	All			Available	Available	
AIR OPERATED VALVES							
1/4	2 Ports	1, 2, 22	Available on all constructions	Available on all constructions	Available	Available	Available on all constructions
3/8 - 3/4	2 Ports	8			Not Available	Available	
3/8 - 3/4	2 Ports	3, 4			Not Available	Not Available	
3/8 - 3/4	2 Ports	6, 7, 16, 17			Not Available	Available	
1 & 1 1/4	2 Ports	10, 12, 18, 19			Not Available	Available	
1 1/2	2 Ports	14, 20			Not Available	Available	
1/4	3 Ports	1			Available	Available	
3/8 & 1/2	3 Ports	2			Not Available	Available	
3/4 & 1	3 Ports	3, 4			Not Available	Not Available	
<b>Notes:</b> ① For valves requiring special cleaning and/or testing procedures, such as for oxygen, freon, & sanitary service, refer to Table 6. ② Pressure ratings must be reduced by 25%. ③ Unless otherwise indicated in the Series Specification Tables, all soft seating valves are supplied with NBR discs, diaphragms, or gaskets.							



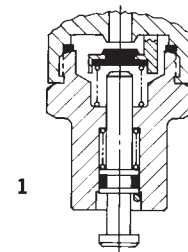
### Manual Operators

Manual operators are provided to operate the valve manually when electric power is off. There are basically two types of manual operators: momentary and maintained. Series 8320, 8321, and 8342 can be fitted with either type.

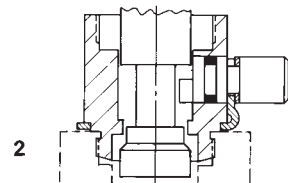
To determine which type is available for your valves, check the Construction Reference Numbers in their Series Specification Tables against the Table below. Schematics of the manual operators and how they are fitted to the valves are shown on the right. *If no manual operator is listed or a different type is required, consult your local ASCO office. Add suffix "MO" or "MS" to the catalog number.*

**Table 5: Manual Operators**

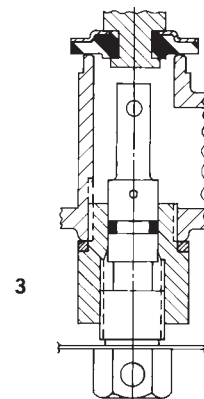
MANUAL OPERATORS ④ FOR 2 WAY SOLENOID VALVES						
Series Number	Pipe Size (ins.)	Valve Construction Reference Number	Valve Body Materials	Manual Operator Suffix	Type of Manual Operator	Illustration Number
8030	3/8, 1/2	1, 2, 3, 11	Brass	MO	Maintained	5
8030	3/4	9	Brass	MO	Maintained	3
8030	3/8, 1/2	1, 2, 3, 11	Stainless Steel	MO	Maintained	5
8030	3/4	10	Stainless Steel	MO	Maintained	3
8210	3/8, 1/2	1, 2	Stainless Steel	MO	Maintained	5
8210	3/8, 1/2	1, 2	Brass	MO	Maintained	5
8210	3/8 to 2 1/2	3, 5, 6, 8, 9, 11, 12, 16, 18, 20, 21	Brass	MO	Maintained	2
8210	3/4 to 1 1/2	10, 31, 32, 33	Brass	MO	Maintained	3
8210	1	42	Brass	MO	Maintained	4
8210	3/4	7	Stainless Steel	MO	Maintained	2
8221	3/8 to 3/4	1, 2, 5, 6, 7, 11, 12	Brass	MO	Maintained	2
8262	1/8	1	Brass	MO	Maintained	3
8262	1/8	1	Stainless Steel	MO	Maintained	3
8262	1/8	8	Brass	MS MO	Maintained Momentary	3 1
8262	1/8	8	Stainless Steel	MS MO	Maintained Momentary	3 1
8262	1/4	2, 4, 6, 16, 17	Brass	MO	Maintained	2
8262	1/4	11, 12, 13	Stainless Steel	MO ⑥	Maintained	2
8263	3/8	3, 5, 7	Brass	MO	Maintained	2
MANUAL OPERATORS ④ FOR 3 WAY SOLENOID VALVES						
8300	All	All	Brass	MO	Maintained	4
8300	All	All	Stainless Steel	MO	Maintained	4
8316	All	All	Brass	MO	Maintained	2
8320	1/8, 1/4	All	Brass Stainless Steel	MS ⑤ MO ①	Maintained Momentary	3 1
8321	All	All	Brass	MS MO	Maintained Momentary	3 1
MANUAL OPERATORS ④ FOR 4 WAY SOLENOID VALVES						
8340	1/4	8340A1, A3, A4	Aluminum	MO	Momentary	1
8342	1/4, 3/8	Single Solenoid Only	Brass Stainless Steel	MS MO	Maintained Momentary	4 1
8344 ③	All	All	Brass	MO	Maintained	2
8345	1/4	1	Brass	MO	Maintained	5
8401	1/8, 1/4	All	Aluminum	②	Momentary Maintained	— —
MANUAL OPERATORS ARE ALSO AVAILABLE FOR ALL LOW POWER AND INTRINSICALLY SAFE VALVES (MANUAL OR MOMENTARY). USE SUFFIX "MO."						
<b>Notes:</b> ① Limited to 100 psi (7 bar) maximum on Normally Open and Universal operation. ② Supplied as standard, no suffix required. ③ Two manual operators required for Dual Solenoid construction. ④ Limited to 250 psi (17 bar) pressure, except where noted otherwise. ⑤ Valves with MS suffix maintain full catalog ratings. ⑥ Manual operator not available for this series with steam application.						



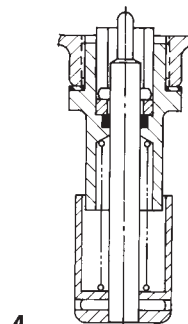
Push in and Hold



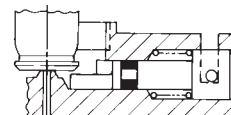
Rotary Stem in Bonnet



Threaded Stem in Body



Push in and Lock



Rotary Stem in Body

## Metering Devices

Metering Devices are used for obtaining an exact flow from solenoid valves for dispensing or for moving an air operator in a given time period. Valves which can be fitted with metering devices are Series 8262 (1/8" NPT size only), 8260, 8401, 8402, and 8342. Add suffix "M" to catalog numbers.

## Special Cleaning and Testing Procedures:

If special cleaning and testing procedures are required, they must be specified when ordered. *These procedures cannot be done after the valve is built.*

**Table 6: ASCO Special Cleaning and Testing Procedures**

Fluid	Description of Cleaning or Testing Procedure	Order by Specifying
Freon	All valve parts inspected for oil, grease, metal dust, and other foreign matter and degreased, if necessary. Assembled in clean, dry area and helium mass spectrometer tested for external leakage. Pipe connections sealed with plugs.	Clean and test per ASCO AP-1-005 Procedure.
Oxygen	All valve parts degreased and blacklight inspected for cleanliness. Assembled and tested in clean area using oil-free air or nitrogen. Helium mass spectrometer tested for external leakage. Pipe connections sealed with plugs. Each valve tagged covering certification of tests and put in a sealed bag.	Clean and test per ASCO AP-1-004 Procedure. Add Suffix "N" to catalog Number.
Sanitary distilled water and other clean systems	All valve parts inspected for oil, grease, metal dust, and other foreign matter and degreased, if necessary. Valves assembled in clean area and tested with clean, dry air or nitrogen. Pipe connections sealed with plugs.	Clean and test per ASCO AP-1-008 Procedure.



ASCO Engineering has always been a significant contributor to the growth and success of our company. Today, we are better equipped than ever before to meet the challenges of our customers. Whether your specific product needs are routine or exotic, we have the best tools, talent, and experience to design and produce the exact product you need to control, move, and monitor your fluid.

Our engineering teams have the most advanced computers and computer programs at their disposal to aid in new product design. These include the latest 2D and 3D computer modeling programs to assist in development of a design concept, specialized magnetic and flow analysis programs to help optimize the magnetic efficiency of our solenoids and fluid flow-through in our valves. Other computer programs assist us in structural analysis, motion analysis, and the design of molds for thermoplastic parts.

Our Engineering Department has the latest rapid prototyping and computer controlled machining equipment. This allows us to quickly turn our

computer designs into functional models. We also have a modern Valve Laboratory to development test and verify the performance of our new products and a Pilot Plant to simulate the production environment and to ensure a smooth transition from Engineering to Manufacturing.

However, the most important elements of our Engineering Department are the many highly educated, creative, experienced, and talented people who comprise it. They not only know how to make the best new products, but they also are there, whenever needed, to help make sure all of our products continue to perform to the standards that have made ASCO the world leader in fluid control.

This section provides additional information which may be necessary to determine the exact ASCO solenoid or air operated valve for your requirements.

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## Solenoid Valves

### Principles of Operation

A solenoid valve is a combination of two basic functional units:

- A solenoid (electromagnet) with its core.
- A valve body containing one or more orifices.

Flow through an orifice is shut off or allowed by the movement of the core when the solenoid is energized or de-energized. ASCO valves have a solenoid mounted directly on the valve body. The core is enclosed in a sealed tube, providing a compact, leaktight assembly.

#### Direct Acting Valves (Figures 1A, 1B)

When the solenoid is energized in a direct acting valve, the core directly opens the orifice of a Normally Closed valve or closes the orifice of a Normally Open valve. When de-energized, a spring returns the valve to its original position. The valve will operate at pressures from 0 psi to its rated maximum.

The force needed to open the valve is proportional to the orifice size and fluid pressure. As the orifice size increases, so does the force required. To open large orifices while keeping solenoid size small, a Pilot Operated construction is used.

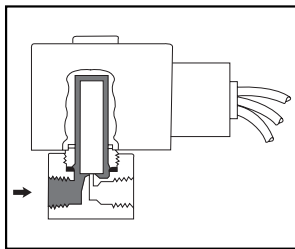


Figure 1A: Direct Acting, Normally Closed Valve, De-Energized

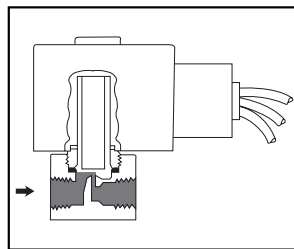


Figure 1B: Direct Acting, Normally Closed Valve, Energized

#### Internal Pilot Operated Valves (Figures 2A, 2B)

Normally, these valves have a pilot and bleed orifice which enable them to use line pressure for operation.

When the solenoid is de-energized, the pilot orifice is closed and full line pressure is applied to the top of the piston or diaphragm through the bleed orifice, providing seating force for tight closure.

When the solenoid is energized, the core opens the pilot orifice, relieving pressure from the top of the piston or diaphragm via the outlet side of the valve. The line pressure then opens the valve by lifting the diaphragm or piston off the main orifice.

Two constructions are available for 2 way valves:

- Floating diaphragm or piston which requires a minimum pressure drop across the valve to remain in the open position (Figures 2A, 2B).
- Hung-type diaphragm or piston held open mechanically by the solenoid core. The valve opens and remains open with zero pressure drop (Figures 3A, 3B).

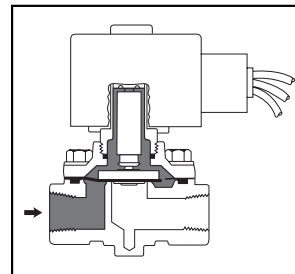


Figure 2A: Pilot Operated, Normally Closed Valve, De-Energized

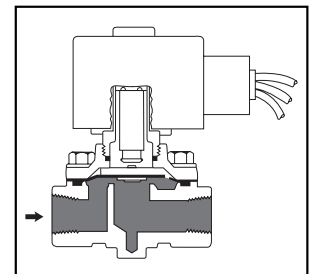


Figure 2B: Pilot Operated, Normally Closed Valve, Energized

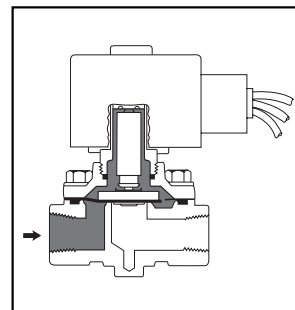


Figure 3A: Pilot Operated, Normally Closed Valve, De-Energized

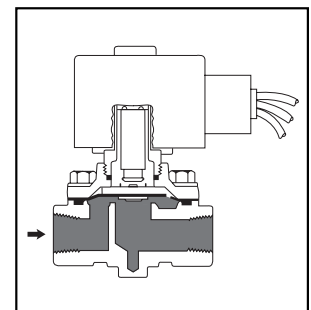


Figure 3B: Pilot Operated, Normally Closed Valve, Energized

#### Manual Reset Valves (Figures 4A, 4B)

Manual reset valves must be manually latched into position and will return to their original position only when the solenoid has been energized or de-energized, depending on construction.

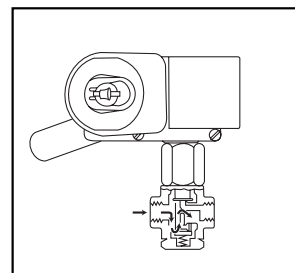


Figure 4A: No Voltage Release Manual Reset Valve, Un-Latched, De-Energized

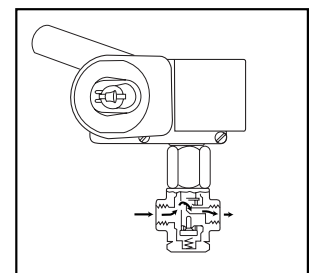


Figure 4B: No Voltage Release Manual Reset Valve, Latched, Energized

## Types of Solenoid Valves

### 2 Way Valves (Figures 1A, 1B, 2A, 2B, 3A, 3B)

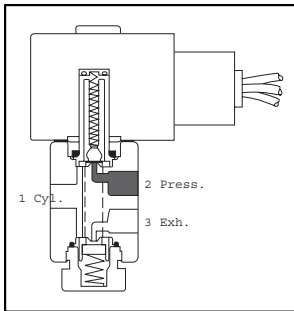
Two way valves have one inlet and one outlet pipe connection. They are used to allow or shut off fluid flow, and are available in either:

Normally Closed - closed when de-energized and open when energized.

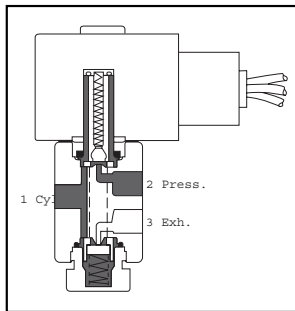
Normally Open - open when de-energized and closed when energized.

### 3 Way Valves (Figures 5A, 5B)

Three way valves have three pipe connections and two orifices (when one is open, the other is closed, and vice versa). They are commonly used to alternately apply pressure to and exhaust pressure from the diaphragm operator of a control valve, single-acting cylinder, or rotary actuator.



**Figure 5A: Three Way Normally Closed Valve, De-Energized**



**Figure 5B: Three Way Normally Closed Valve, Energized**

Three modes of operation are available:

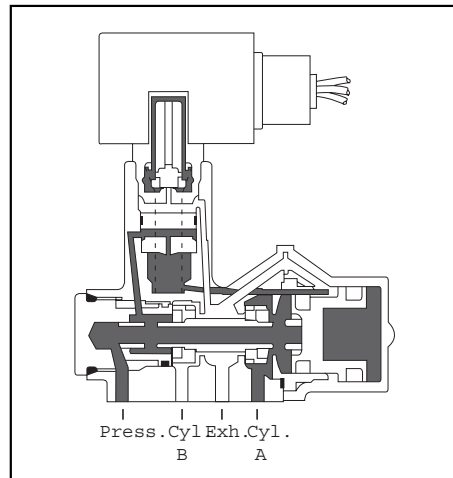
Normally Closed - when the valve is de-energized, the pressure port is closed and the cylinder port is connected to the exhaust port. When the valve is energized, the pressure port is connected to the cylinder port and the exhaust port is closed.

Normally Open - when the valve is de-energized, the pressure port is connected to the cylinder port and the exhaust port is closed. When the valve is energized, the pressure port is closed and the cylinder port is connected to the exhaust port.

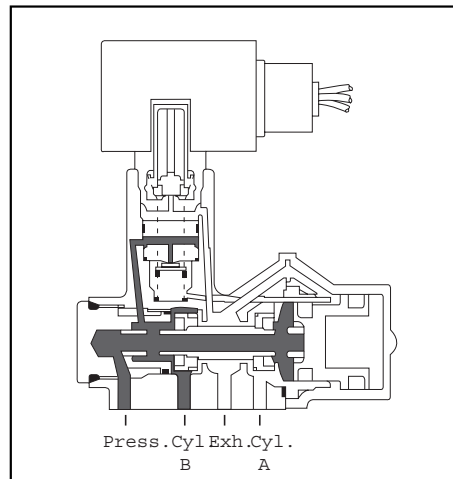
Universal - allows the valve to be connected in either the Normally Closed or Normally Open position to select one of two fluids or to divert flow from one port to another.

### 4 Way Valves (Figures 6A, 6B)

Four way valves are generally used to operate double-acting cylinders or actuators. They have four or five pipe connections: one pressure, two cylinder, and one or two exhausts. In Position A, pressure is connected to one cylinder port, the other is connected to exhaust. In Position B, pressure and exhaust are reversed at the cylinder ports.



**Figure 6A: Four Way Valve, De-Energized**



**Figure 6B: Four Way Valve, Energized**

## Solenoids

### Solenoid Coils

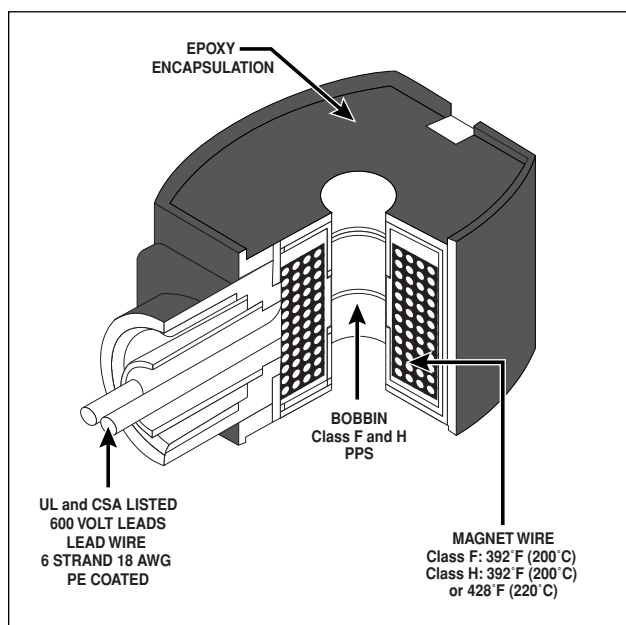
Except where noted, all ASCO valves are equipped with coils which can be energized continuously without danger of overheating or failure. Standard coils have 18" leads which can be connected to any controlling device. Spade, screw terminal, and DIN-type spade connector coils are also available. For three phase power systems, the two leads can be connected to any two of the three phases.

All coils are constructed in accordance with Underwriters Laboratories Inc., NEMA, IEEE, and other industrial standards. ASCO Class B, F, and H insulation systems are UL listed in the Recognized Component Index (yellow book) under Guide No. OBJ2.

For AC ambient capabilities, see chart to the right. DC ambient capabilities are 104°F (40°C) for Red-Hat II®. These ambients are based on a minimum available voltage of 85% of nominal. If minimum available voltage is greater, a higher ambient limitation may be possible. *Consult factory for details.*

### Coil Insulation Systems and Temperature Limitations

Red-Hat II® Solenoid Class F 314°F (155°C) and Class H 356°F (180°C)



### AC Ambient Capabilities

#### Industrial Temperature Limitations <sup>① ⑤</sup> and Thermal Characteristics of ASCO® Red-Hat II® Solenoids and Coils

The typical watt ratings given show the relationship between different classes of coil insulation and the watt ratings to achieve higher temperature capabilities. The information contained in these tables applies only to Non-Explosionproof, AC constructions.④

- ② Excess margin for higher fluid or ambient temperature
- Temperature rise due to power input
- Listed ambient

#### Notes:

- ① As measured by the "Resistance Method."
- ② Ambient temperatures are directly additive to coil rise — fluid temperature is not.
- ③ For M-6, 50 Hz wattage values, add 2 watts to the indicated values.
- ④ Because of explosionproof codes and surface temperature limitations, the maximum listed ambients for specific valves should not be exceeded. *Consult factory concerning explosionproof applications where higher-than-listed ambients are encountered.*
- ⑤ Maximum temperatures shown are industrial limits. For UL limits, subtract 59°F (15°C) for Class F coils and 68°F (20°C) for Class H coils.

#### Final Temperature °C (°F)

Coil Class	Final Temperature °C (°F)			
	FT	FB	HT	HB
Typical AC Wattage Rating	M6 ③	MXX	M12	
	6.1	10.1	16.1	
	9.1	17.1	20.1	
	6.1	10.1	16.1	
	9.1	17.1	20.1	

### Coil Operating Voltage Ranges

All coils are designed for industrial operating voltages and can be used on the following voltage ranges:

AC		DC	
Nominal Voltage Rating	Normal Operating Range	Nominal Voltage Rating	Normal Operating Range
24	20-24	6	5.1-6.3
120	102-120	12	10.2-12.6
—	—	24	20-25
240	204-240	120	102-126
480	408-480	240	204-252

**Note:** Special coils are required for battery charging circuits where wider voltage ranges are typically encountered. For these applications, special continuous duty Class H coils are available that will accommodate a voltage range equivalent to 12% over nominal, 28% under nominal, and a 140°F (60°C) ambient. Standard nominal voltages are 125 and 250 DC, which translate to a voltage range of 90-140 and 180-280, respectively. Add prefix "HC" to the catalog number. "HC" prefix is only applicable to valves with coil classes FT and HT. *Consult factory or other constructions.*

Most ASCO valves, depending on construction, will operate at 15% under nominal voltage and maximum operating pressure differential, and are capable of operating for short periods at 10% over nominal voltage. For coil classes other than FT and HT, over voltage is not recommended. *For wider voltage ranges than shown here or for operating voltage ranges for specific catalog numbers, please consult your local ASCO sales office.*

### Power Consumption

Power consumption can be determined from the ratings shown on individual Series pages. For AC valves, the watts, volt-ampere "inrush" (the high momentary surge occurring at coil energization), and volt-ampere "holding" (the continuous draw following inrush) are given.

The current rating for inrush and holding may be determined by dividing the voltage into the volt-amp rating:

$$\text{Inrush Amps} = \frac{\text{volt-amp inrush}}{\text{voltage}}$$

$$\text{Holding Amps} = \frac{\text{volt-amp holding}}{\text{voltage}}$$

DC valves have no inrush current. The amp rating can be determined by dividing the voltage into the DC watt rating:

$$\text{Amps} = \frac{\text{watts (DC)}}{\text{voltage}}$$

### Notes:

1. When a valve has been energized for a long period, the solenoid becomes hot and can be touched by hand for only an instant. This is a perfectly safe operating temperature. Any excessive heating will be indicated by smoke and the odor of burning coil insulation.
2. Valves for AC service can be converted to other AC voltages simply by changing the coil. Similarly, DC valves can be converted to other DC voltages. *When converting from AC to DC, or vice versa, consult your local ASCO sales office for instructions.*

### Solenoid Constructions

Internal parts in contact with fluids are of non-magnetic 300 and magnetic 400 series stainless steel. In AC constructions, the shading coil is normally copper, except that silver is mostly used in valves with stainless steel bodies. Other materials are available, when required. In DC constructions, no shading coil is required. Typically, the core tubes are of 300 series stainless steel and are formed by deep drawings, eliminating the need for silver brazed or welded joints.



### Solenoid Enclosures

ASCO offers two types of enclosures, each for a variety of applications: a one-piece molded epoxy construction called the Red-Hat II® solenoid and a conventional Red-Hat metallic construction. Both meet ICS-6 ANSI/NEMA, and UL Standards 429, 508, and/or 1002. These standards define enclosure protection levels and the tests passed to earn each Type designation.

#### Red-Hat II®

Red-Hat II® solenoid enclosures are of one-piece molded epoxy construction, with an integral 1/2" NPT conduit hub. This epoxy encapsulation serves as the enclosure. The magnetic frame is molded into the coil.

Red-Hat II® solenoids are offered as Type 1 General Purpose or Type 7 (A, B, C, and D) Explosionproof.

**Type 1** - Solenoids are green and come equipped with three 18" long leads (the green lead is a ground wire). Also available as options are 1/4" spade connectors, screw terminals, and DIN-type terminals meeting ISO 4400 and DIN Standard 43650. When ordered with optional electrical connection enclosure, it is defined as Open Frame.

An optional junction box/terminal coil construction is also available for use with spade and screw terminal constructions. See the "Optional Features" Section, page 10.06.

**Type 7** - Solenoids are black and are available only in the leaded construction.

All Red-Hat II® solenoids also meet the requirements for Types 2 Dripproof, 3 and 3S Raintight, and 4 and 4X Watertight-Corrosion Resistant.

The Following wattages carry Type 7 and Type 9 approvals as shown; for

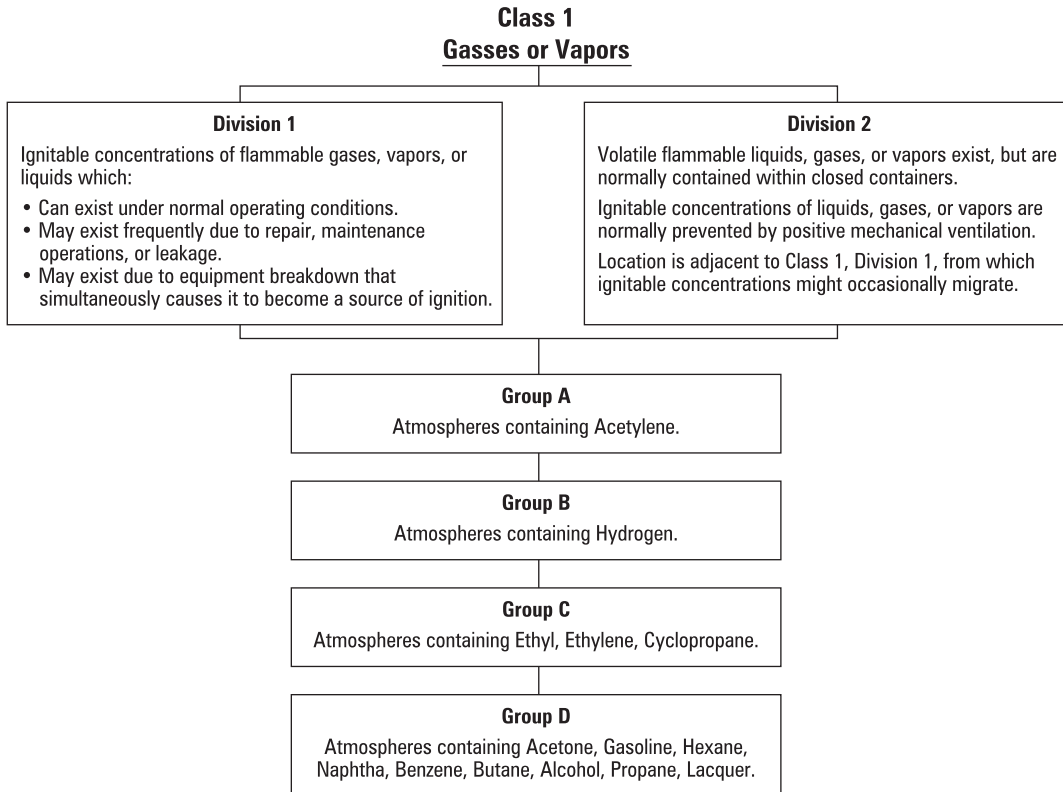
Wattage	Type 7 Class I, Div. 1 & 2 Gas Groups	Type 9 Class II, Div. 1 Dust Groups
6.1, 10.1, 17.1	A, B, C, D	E, F, G
16.1, 20.1	A, B, C, D	E, F
10.6, 11.6	A, B, C, D	E, F, G

### Enclosure Classifications and Types

<b>Type 1</b>	General Purpose	Intended for indoor use, primarily to provide protection for enclosed parts in locations without unusual service conditions.
<b>Type 2</b>	Dripproof	Intended for indoor use, primarily to provide protection against limited amounts of falling water or dirt.
<b>Type 3</b>	Raintight, Dusttight, and Sleet (Ice) Resistant	Intended for outdoor use, primarily to provide protection against wind-blown dust, rain, and sleet; undamaged by the formation of ice on the enclosure.
<b>Type 3S</b>	Raintight, Dusttight, and Sleet (Ice) Resistant	Intended for outdoor use, primarily to provide protection against wind-blown dust, rain, and sleet; external mechanism remains operable when ice laden.
<b>Type 3R</b>	Rainproof, Sleet (Ice) Resistant	Intended for outdoor use, primarily to provide protection against falling rain and sleet; undamaged by the formation of ice on the enclosure.
<b>Type 4</b>	Watertight and Dusttight	Intended for indoor or outdoor use to provide protection against splashing water, water seepage, falling or hose-directed water, and severe external condensation; undamaged by the formation of ice on the enclosure.
<b>Type 4X</b>	Watertight, Dusttight, and Corrosion Resistant	Same as Type 4, but provides additional protection to resist corrosion.
<b>Type 6</b>	Submersible	Intended for indoor or outdoor use to provide protection against entry of water during submersion at a limited depth. (Tested to 6' for 30 minutes.)
<b>Type 6P</b>	Submersible	Same as Type 6 Enclosure, but provides prolonged submersion protection at a limited depth. (Tested to 6' for 24 hours.)
<b>Type 7 and Type 9</b>	See charts on page 11.06	

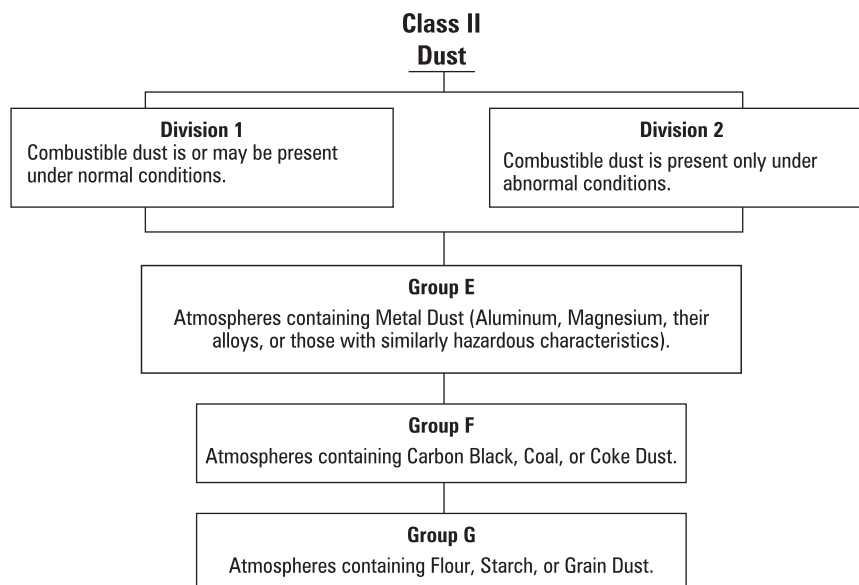
### Type 7 (A, B, C, and D)

Explosionproof enclosures are designed to contain an internal explosion, without causing an external hazard, when installed in the following atmospheres or locations:



### Type 9 (E, F, and G)

Dust-ignitionproof enclosures are designed to prevent the entrance of dust, and the enclosed devices do not produce sufficient heat to cause external surface temperatures capable of igniting dust on the enclosure or in the surrounding atmosphere.



### Red-Hat® Metallic Enclosures

Conventional metallic enclosures are offered to meet Type I General Purpose enclosure applications and Type 7 (C and D) Explosionproof enclosure applications.

**Type 1** — General Purpose metallic enclosures are epoxy-painted, zinc-coated steel with a 7/8" diameter hole to accept standard conduit hubs or connectors.

**Type 7 (C and D)** — Explosionproof metallic enclosures are epoxy-painted, zinc-plated steel or die-cast aluminum with a 1/2" threaded conduit hub.

Type 7 enclosures also meet Type 3 (Raintight) requirements as well as Type 7 (C and D) Explosionproof and Type 9 (E, F, and G) Dust-Ignitionproof requirements for Class I, Division 1, Groups C and D; Class I, Division 2, Groups A and B; and Class II, Division 1, Groups E, F, and G.

**Also available as options are:** Type 3R (Rainproof), Type 4 and 4X (Watertight), Type 6 (Submersible), Type 7B (Explosionproof for Hydrogen Atmospheres, Class I, Division 1, Group B), as well as Splice Box enclosures. *Please contact your local ASCO sales office for details on these options.*

**Note:** Metallic solenoid enclosures provide part of the magnetic circuit for the solenoid. Removal will affect valve operation.

### Hazardous Location Solenoid Temperature Range Codes

Hazardous location solenoids are marked to indicate the maximum exposed surface temperature or temperature indicating code. This temperature is based on the maximum obtained in the temperature or burnout (blocked core) tests, whichever is higher, at a minimum ambient of 104°F (40°C) or at the rated maximum ambient temperature.

To prevent ignition of hazardous atmospheres, do not install in areas where vapors or gases having ignition temperatures lower than the marked temperatures are present.

The operating temperatures for each indicating code are shown in the following chart:

### Operating Temperature Range Indicating Code Numbers

Maximum Temperature		Code Number
Degrees in C	Degrees in F	
450	842	T1
300	572	T2
280	536	T2A
260	500	T2B
230	446	T2C
215	419	T2D
200	392	T3
180	356	T3A
165	329	T3B
160	320	T3C
135	275	T4
120	248	T4A
100	212	T5
85	185	T6

**Note:** Except where otherwise noted in specific Series, all Red-Hat® metallic enclosure solenoids have temperature range Code T3C.

Most Red-Hat II® solenoids and/or solenoid valves are marked:

"To prevent fire or explosion, do not install where ignition temperature of hazardous atmosphere is less than 329°F (165°C). Open circuit before disassembly." This corresponds to code number T3B.

Valves with Class H solenoids and valves used on steam service are marked:

"To prevent fire or explosion, do not install where ignition temperature of hazardous atmosphere is less than 356°F (180°C). Open circuit before disassembly." This corresponds to code number T3A.

The Class II, Group F, Dust Location designation is not applicable for solenoids and/or solenoid valves used for steam service, or when a Class H solenoid is used.

Red-Hat II® Explosionproof solenoids include an internal, non-resettable thermal fuse to limit solenoid temperature in the event that extraordinary conditions occur which could cause excessive temperatures. These conditions include high input voltage, a jammed valve, excessive ambient temperature, shorted coil, etc. This unique feature is standard only in Red-Hat II® solenoids.

*When used on valves having fluid temperature ratings exceeding 248°F (120°C), consult ASCO for applicable enclosure class, groups and temperature range codes. For temperature range codes of optional solenoids and features, or if a better temperature range code is desired, consult your local ASCO sales office.*

### Operating Pressures

#### Maximum Operating Pressure Differential (M.O.P.D.)

The maximum operating pressure differential refers to the maximum difference in pressure between the inlet and outlet, against which the solenoid can safely operate the valve. If the pressure at the valve outlet is not known, it is safest to regard supply pressure as the M.O.P.D.

#### Minimum Operating Pressure Differential

The minimum operating pressure differential is that which is required to open the valve and keep it open. For 2 way valves with a floating piston or diaphragm, the valve will start to close below the minimum operating differential pressure. For 3 and 4 way pilot valves, the minimum operating pressure is measured

between the pressure and exhaust ports, and must be maintained throughout the operating cycle to ensure complete transfer from one position to the other.

**Note:** Directing acting, hung diaphragm or hung piston valves do not require a minimum pressure, but may not yield maximum flow on low pressure differentials.

#### Safe Working Pressure

Safe working pressure is the line or system pressure to which the valve may be subjected without being damaged.

#### Proof Pressure

Proof pressure is five times the safe working pressure. *Contact the factory or your local ASCO sales office if you require this value.*

### Ambient Temperatures

#### Minimum Ambient Temperature

The nominal limitation of 32°F (0°C) is advisable for any valve that might contain moisture (water vapor). Where freezing water is not a factor, minimum ambience as low as 0°F (-18°C) can be tolerated. In addition, special constructions are available for ambient temperatures down to -40°F (-40°C). *Consult your local sales office with your specific needs.*

#### Maximum Ambient Temperature

The nominal maximum ambient temperatures listed are based primarily on test conditions used by Underwriters

Laboratories, Inc. for setting safe limits for coil insulation. They are determined under continuously energized conditions and with maximum fluid temperatures in the valves. Actual conditions, in many applications, will permit use at considerably higher ambient temperatures. In addition, modifications to standard constructions are available to extend maximum ambient temperature limitations. *Consult your local ASCO sales office with your specific needs.*

### Response Times

Response time from fully closed to fully open or vice versa depends on the valve size and operating mode, electrical service, fluids, temperature, inlet pressure, and pressure drop. The response time for AC valves on air service, under average conditions, can be generalized as follows:

- Small direct acting valves: 5 to 10 milliseconds.
- Large direct acting valves: 20 to 40 milliseconds.
- Internal pilot operated valves:
  1. Small diaphragm types: 15 to 50 milliseconds.
  2. Large diaphragm types: 50 to 75 milliseconds.
  3. Small piston types: 75 to 100 milliseconds.
  4. Large piston types: 100 to 150 milliseconds.

Generally speaking, operation on liquids has relatively little effect on small direct acting valves; however, response time of large direct acting and internally piloted valves will slow by 50% to 100%.

Response time of DC valves will be 50% slower than equivalent AC valves. For specific response time on any critical-timing applications, response time can be reduced to meet specific requirements.

## Air Operated Valves

### Principles of Operation

An air operated valve has two basic functional units:

- An operator with a diaphragm or piston assembly which, when pressurized, develops a force to operate.
- A valve containing an orifice in which a disc or plug is positioned via air pressure to stop or allow flow.

#### Operators

Two operators are offered in this catalog, each having a pressure range to suit various industrial requirements: instrument air range 3 to 30 psi (0.2 to 2.1 bar) and pneumatic range 30 to 125 psi (2.1 to 8.6 bar).

Control air for the operator is completely isolated from the main line fluid by a unique seal arrangement (see Figure 7). This permits a wide range of main line fluids to be handled.

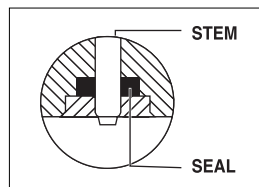


Figure 7

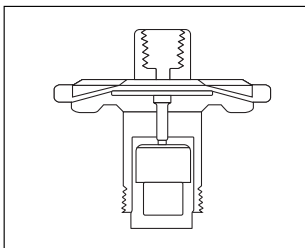


Figure 8A: Instrument Air Pressure Range Operator

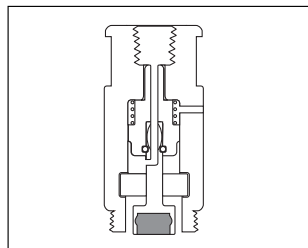


Figure 8B: Pneumatic Range Operator

When a particular valve is selected, any pressure within its pressure range will operate the valve, regardless of variations in the main line pressure.

The instrument air pressure range operator utilizes a diaphragm (see Figure 8A) for operation, while the pneumatic range operator has a piston (see Figure 8B). By applying pressure to and exhausting pressure from the operator, the main valve will open or close.

#### Direct Acting Valves (Figures 9A, 9B)

In a direct acting valve, the operator stem is moved by the diaphragm or piston and directly opens or closes the orifice, depending on whether the operator is pressurized or exhausted. The valve will operate from zero psi to its maximum rated pressure.

#### Internal Pilot Operated Valves (Figure 10A, 10B)

This valve is equipped with a pilot and bleed orifice and uses the line pressure for operation. When the operator is pressurized, it opens the pilot orifice and releases pressure from the top of the valve piston or diaphragm to the outlet side of the valve. This results in unbalanced pressure, which causes the line pressure to lift the piston or diaphragm off the main orifice, thereby opening the valve. When the operator is exhausted, the pilot orifice is closed and full line pressure is applied to the top of the valve piston or diaphragm through the bleed orifice, providing a seating force for tight closure.

Two types of construction are available:

- Floating diaphragm or piston, which requires a minimum pressure drop to hold it in the open position.
- Hung type diaphragm or piston, which is mechanically held open and operates from zero to the maximum pressure rating.

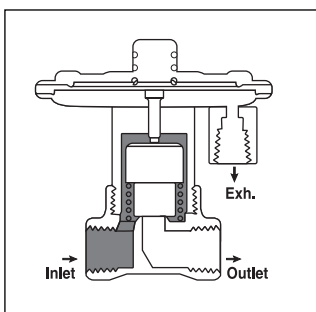


Figure 9A: Normally Closed, Direct Acting, Air Operated Valve with Operator Exhausted

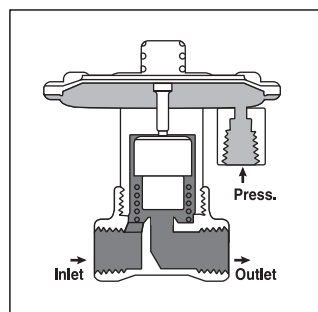


Figure 9B: Normally Closed, Direct Acting, Air Operated Valve with Operator Pressurized

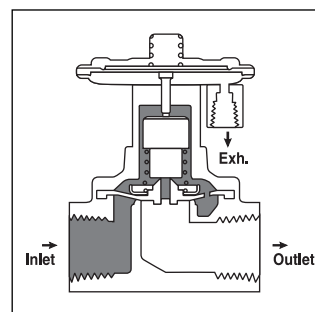


Figure 10A: Normally Closed, Internal, Pilot Operated Valve with Operator Exhausted

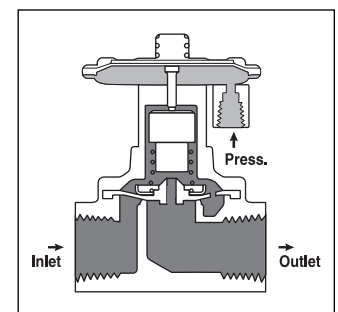


Figure 10B: Normally Closed, Internal, Pilot Operated Valve with Operator Pressurized

## Types of Air Operated Valves

### 2 Way Valves:

Normally closed and normally open operation.  
Figures 9A, 9B, 10A, 10B, 11A, 11B.

### 3 Way Valves:

Normally closed, normally open and universal operation. Figures 12A-D, 13A-D.

### 4 Way Valves:

Figures 14A-D

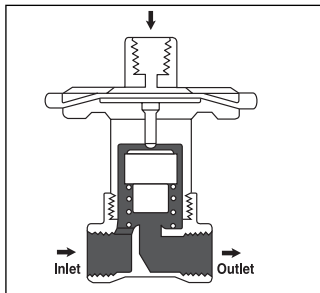


Figure 11A: Normally Open, Operator Exhausted

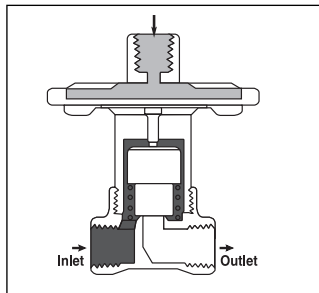


Figure 11B: Normally Open, Operator Pressurized

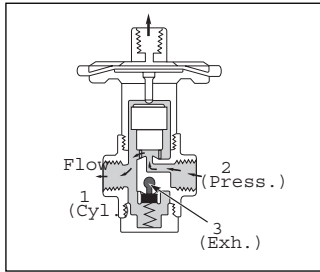


Figure 12A: Normally Open, Operator Exhausted

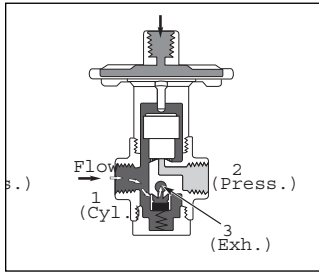


Figure 12B: Normally Open, Operator Pressurized

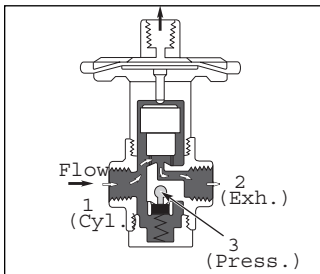


Figure 12C: Normally Closed, Operator Exhausted

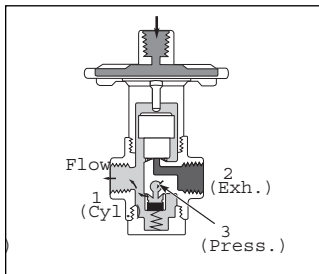


Figure 12D: Normally Closed, Operator Pressurized

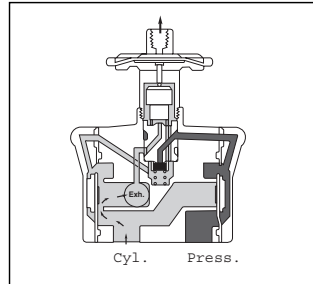


Figure 13A: Normally Closed, Operator Exhausted

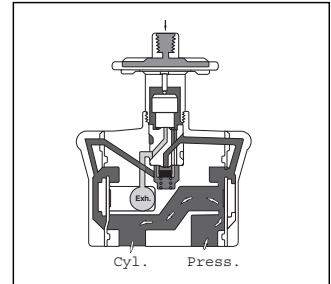


Figure 13B: Normally Closed, Operator Pressurized

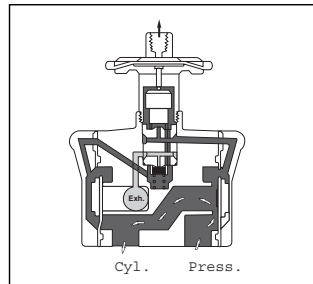


Figure 13C: Normally Open, Operator Exhausted

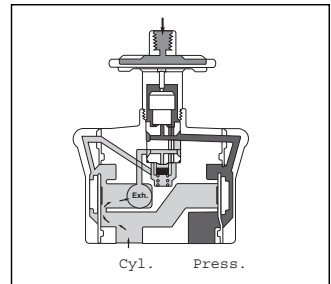


Figure 13D: Normally Open, Operator Pressurized

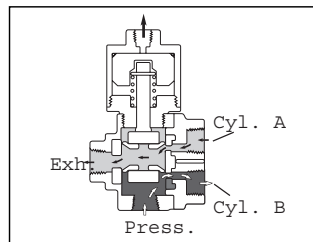


Figure 14A: Operator Exhausted

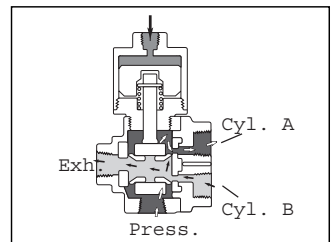


Figure 14B: Operator Pressurized

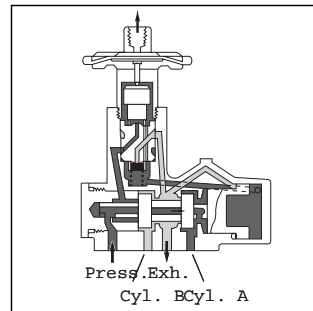


Figure 14C: Operator Exhausted

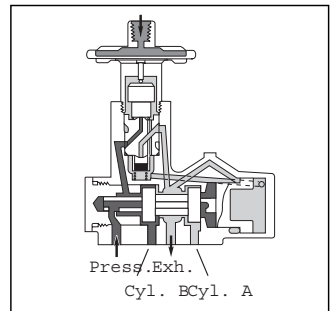


Figure 14D: Operator Pressurized

## Operating Pressures

### Minimum Operating Pressure Differential

The minimum operating pressure differential is that which is required to open the valve and to keep it open. Two way valves with floating piston or diaphragm will start to close below the minimum differential pressure. Three and four way pilot valves must maintain the minimum operating pressure throughout the operating cycle to ensure complete transfer from one position to the other.

### Maximum Operating Pressure

Maximum operating pressure is the highest pressure at the inlet side of the valve, against which the operator can operate the valve. This pressure may be much less than the maximum safety rating of the valve body.

**Note:** Direct acting valves do not require a minimum pressure.



## Approvals

### Approval Listing Code and Information

UL, FM, CSA listings and compliance to applicable CE directives have been indicated for each Series in this catalog. Listing codes and other information follow in this section.

In addition to approvals with the standard features and for the standard voltages listed in each Series, many valves with optional features and other voltages have also been approved. *Consult your local ASCO sales office for details.*

### Agency Valve Classifications and Code Reference

**General Purpose Valve** - a Normally Open or Normally Closed valve intended to control the fluid flow, but not to be depended upon to act as a safety valve. This is a UL and CSA classification, and is not intended to indicate valve service or application.

**Safety Shutoff Valve** - a Normally Closed valve of the "on" and "off" type, intended to be actuated by a safety control or emergency device, to prevent unsafe fluid delivery. It may also be used as a General Purpose valve. A multiple port valve may be designated as a Safety Shutoff valve only with respect to its Normally Closed port. This is a UL, FM, and CSA valve classification.

**Process Control Valve** - an FM approved valve to control flammable gases, not to be relied upon as a Safety Shutoff valve. Refer to note under individual valve listing. Unless otherwise stated under the individual Series numbers, valves are listed as General Purpose valves.

### Underwriters Laboratories, Inc.

UL standards governing solenoid valves are:  
UL 429, "Electrically Operated Valves," and  
UL 1002, "Electrically Operated Valves for Use in Hazardous Locations."



UL provides two "Listing" categories for solenoid valves:

**General Use.** Valves authorized for general use are complete in their requirements; therefore, they may be installed in the field. They are identified by the UL symbol, followed by the word "Listed" and the valve classification. UL Listings for ASCO "General Use" valves and solenoids can be found in the "UL Gas and Oil

Equipment Directory" (gray book) under Electrically Operated Valves, Guide No. YIOZ (File MP-618), and in the "UL Hazardous Location Equipment List" (red book) under Electric Valves, Guide No. YTSX (File E25549) or under Solenoids, Guide No. VAPT (File E12264).

**Component.** Valves in this category are intended for use as factory-installed components of equipment where final acceptability must be determined by UL. They are not intended for installation in the field.

Component valves are termed "UL Recognized" and may, at the manufacturer's option, use UL's special Recognized Component mark. UL Listings of ASCO Component Valves can be found in the "UL Recognized Component Index" (yellow book) under Electrically Operated Valves, Guide No. YIOZ2 (File MP-618).

### Canadian Standards Association

Standard C22.2 No. 139, "Electrically Operated Valves," covers the standards governing solenoid valves.



CSA certified valves and solenoids are listed in the "CSA Certified Electrical Equipment Book" under Valves, Guide No. 440-A-0 (File 10381) and Guide No. 440-A-0.8 (File 13976).

CSA valves require special handling, testing, and marking. They are supplied only when specified on an order.

### Factory Mutual Research Corporation

FM "approves" and lists in the "Factory Mutual Approval Guide" fuel oil and fuel gas safety shutoff valves, process control valves, explosionproof/dust-ignitionproof, and intrinsically safe valves for hazardous locations. Valves designated for other fluids and operational characteristics, although not subject to FM approval, are usually "accepted" by FM on specific equipment installations.



### Industrial Risk Insurers (Formerly FIA)

Industrial Risk Insurers does not approve equipment. It established "recommended good practices" in such areas as combustion safeguards on single-burner boiler-furnaces, and safeguarding Class B and Class C furnaces and ovens. Conforming to these practices results in either insurability for fire protection or in more advantageous rates for their protection.

To meet the standards of good practice, safety controls must be either listed by Underwriters Laboratories, accepted by Industrial Risk Insurers or other nationally recognized testing laboratories (NRTL). The National Fire Protection Association (NFPA) maintains similar requirements and recommendations for safety shutoff and vent valves in oil and gas burner boiler systems.

### European Directives - CE

The Council of the European Communities, under the treaty establishing the European Economic Community (EEC), adopted into law a series of directives to harmonize technical standards. Solenoid valves are controlled by:



Machinery	89/392/EEC	Annex II B
EMC (electromagnetic compatibility)	89/336/EEC	Art 10.2
Low Voltage	72/23/EEC	

ASCO valves complying to these directives, through third-party or self-certification, display the CE mark on the nameplate or coil and on the Instruction and Maintenance sheet packaged with each valve. On request, ASCO will issue a Declaration of Incorporation and/or Declaration of Conformity for the valve supplied.

### Agency Approvals – Worldwide

ASCO's Quality Assurance Program meets all the requirements of ISO-9001-94. We are also certified to IQ Net, providing customers with the products from 17 ISO-certified facilities around the world. The US, Canada, UK, France, the Netherlands, Germany, and Japan are included.

When desired, ASCO solenoid valves can be supplied to meet the additional requirements of a variety of approval agencies around the world. The following can be requested. *Consult your local ASCO sales office for details.*

### United States of America

AGA	American Gas Association
ANSI	American National Standards Institute, Inc.
EIA	Electronic Industries Association
ETL	Electronic Testing Laboratory
FM	Factory Mutual Research Corporation
IEEE	Institute of Electrical and Electronics Engineers, Inc.
IRI	Industrial Risk Insurers (formerly Factory Insurance Association)
JIC	Joint Industrial Council
MIL	Military Standards
MSHA	Mine Safety and Health Administration
NACE	National Association of Corrosion Engineers
NAVSEA	Naval Sea Systems Command
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NFPA	National Fluid Power Association, Inc.
NSF	National Sanitation Foundation
UL	Underwriters Laboratories, Inc.
USCG	United States Coast Guard



### European Economic Community

CE	European Directives
CEE	International Commission on Rules for the Approval of Electrical Equipment
CENELEC	European Committee for Electrotechnical Standardization
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization

### Austria

TÜV-A	Technischer Überwachungs-Verein Österreich
BVFA	Bunderversuchs-und Forschungsanstalt Arsenal
ETI	Elektrotechnisches Institut

### Australia

AGA	Australian Gas Association
SAA	Standards Association of Australia

### Belgium

CEB	Comite Electrotechnique Belge
IBN	Institut Belge de Normalisation
ISSEP	Institut Scientifique de Service Public (anciennement INIEX)
K.V.B.G.	Koninklijke Vereniging der Belgische Gasvakklieden
VERGAS	Technische Vereniging van de Gasindustrie in België V.Z.W.D.

### Brazil

INMETRO	Instituto Nacional de Metrologia
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### Canada

CGA	Canadian Gas Association
CSA	Canadian Standards Association
EEMAC	Electrical and Electronic Manufacturers Association of Canada
ULC	Underwriters Laboratories of Canada

### China

NEPSI	National Supervision and Inspection Center for Explosion Protection and Safety of Instrumentation
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### Denmark

DEMKO	Danmarks Elektriske Materielkontrol
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### Finland

SL	Sähkötarkastuslaitos Laboratoria
VTT	Technical Research Centre of Finland

### France

AFNOR	Association Française de Normalisation
INERIS	Institut National de l'Environnement Industriel et des Risques (anciennement CERCHAR)
Bureau Veritas	
LCIE	Laboratoire Central des Industries Electriques
MDIS	Ministère du Développement Industriel et Scientifique

### Germany

BVS	Bergbau-Versuchsstrecke
DIN	Deutsches Institut für Normung
DVGW	Deutscher Verein des Gas - Und Wasserfaches e.V.
Germanischer Lloyd	
PTB	Physikalisch - Technische Bundesanstalt
VDE	Verband Deutscher Electrotechniker

### Italy

CEI	Comitato Elettrotecnico Italiano
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### Japan

JEM	Japan Electrical Manufacturers Association
JIS	Japanese Industrial Standards
MIL	Ministry of Labor
NK	Japan Maritime Association
RIIS	Research Institute of Industrial Safety, Department of Labor

### Korea

KISCO	Korea Industrial Safety Corp.
KGSG	Korea Gas Safety Corp.

### Luxembourg

Service de l'énergie de l'état	
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### Northern Ireland

Industrial Science Centre, Department of Economic Development	
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### Norway

Det Norske Veritas	
NEMKO	Norges Elektriske Materielkontroll

### Russia

USSR Register of Shipping	
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### South Africa

SABS	South African Bureau of Standards
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### Spain

CESI	Centro Elettrotecnico Sperimentale Italiano
LOM	Laboratorio Oficial José Maria Madariaga

### Sweden

SEMKO	Svenska Elektriska Material Kontrollanstalen
SP	Swedish National Testing and Research Institute

### Switzerland

ASE	Association Suisse des Electriciens
SEV	Schweizerischer Electrotechnischer Verein

### The Netherlands

DGA	Direktoraat - Generaal van de Arbeid
KEMA	Koninklijk Instituut voor het Testen van Elektrische Materialen N.V.
NEC	Nederlands Elektrotechnisch Comité
NNI	Nederlands Normalisatie - Instituut
REGO	Richtlijnen Voor de Samenstelling van Elektrisch Material In Verband Met Gasontploffingsgevaar
VEG	VEG-Gasinstituut N.V.
VGN	Vereniging van Gasfabrikanten In Nederland

### United Kingdom

BASEEFA	British Approvals Service for Electrical Equipment in Flammable Atmospheres
BGC	British Gas Corporation
BSI	British Standard Institution
EECS	Electrical Equipment Certification Service (BASEEFA)
Lloyds Register of Shipping	
MRS	Midlands Research Station
NWC	National Water Council
SCS	Sira Certification Service
SFA	Special Flammable Atmospheres
WH	Watson House

## Flow Data

### Importance of Valve Sizing

Improper sizing of a solenoid valve results in below-standard performance and can involve unnecessary cost.

The basic factors in valve sizing include:

- Maximum and minimum flows to be controlled.
- Maximum and minimum pressure differential across the valve.
- Specific gravity, temperature, and viscosity of fluids being controlled.

The Cv method of valve sizing reduces all variables to a common denominator called the Flow Coefficient. After existing or projected conditions have been converted to this coefficient (the Cv), the proper valve size can be found in the catalog pages.

This section provides the complete procedure and reference data for accurate sizing of ASCO solenoid valves in liquid, gas services, and steam. The graphs provide the simplest means of finding the required Cv factor, and are based on the formula:

$$Cv = \frac{\text{Flow Required}}{\text{Graph Factor}}$$

The graph factor can be determined by aligning known pressure conditions on the graphs.

### Estimating Cv or Orifice Size:

The table below can be used to estimate a Cv if the orifice size is known or, conversely, to relate the approximate orifice size if the Cv is known. The chart is based on the ASCO designs of inline globe type valves.

The flow charts must be used for precise sizing and converting Cv factors to actual flow terms, and the catalog must be consulted for the actual Cv of a particular valve.

Approximate Orifice Size (ins.)	Approximate Cv	Approximate Orifice Size (ins.)	Approximate Cv
1/32	.02	1/2	3.5
3/64	.06	5/8	4.5
1/16	.09	11/16	5
3/32	.20	3/4	7.5
1/8	.30	1	13
9/64	.36	1 1/4	17
3/16	.53	1 1/2	25
1/4	.70	2	48
5/16	1.7	2 1/2	60
3/8	2	3	100

## Sample Problems

### Liquids:<sup>①</sup>

To find Cv: What Cv is required to pass 20 GPM of oil, with a specific gravity of 0.9 and a pressure drop of 25 psi? The viscosity is less than 300 SSUs.<sup>②</sup>

Solution: Formula is:

$$Cv = \frac{GPM}{Fg \times Fsg}$$

To find Fg (Graph Factor), use Liquid Flow Graph on page 11.16. The Fg factor is that corresponding to 25 psi pressure drop and equals 5. The Fsg factor (Specific Gravity Factor) can be obtained from the Fsg Chart, and is that corresponding to .9 specific gravity and equals 1.05.

Therefore:

$$Cv = \frac{20}{5 \times 1.05} = 3.81$$

### Air and Gases:

To find Cv: A valve is required to pass 500 SCFH at an inlet pressure of 60 psig and a  $\Delta p$ <sup>③</sup> of 10 psi. Find Cv if the fluid is carbon dioxide at room temperature.

Solution: Refer to 10-100 psig graph on page 11.17. The formula to be used is:

$$Cv = \frac{SCFH}{Fg \times Fsg \times Ft}$$

Locate Fg at the intersection of 60 psig inlet pressure and 10 psi  $\Delta p$ <sup>③</sup> (curved lines). Read down to Fg. Fg=1560.

Locate Fsg corresponding to specific gravity of carbon dioxide (S.G.=1.5). Fsg=0.81. (Refer to next page.) Since the gas is at room temperature, the Ft factor can be ignored.

Insert values into formula:

### Steam:

To find Cv: A valve is required to pass 25 lb/hr of saturated steam at an inlet pressure of 7 psig and a  $\Delta p$ <sup>③</sup> of 3 psi. What is the Cv?

Solution: Refer to the Steam Graph on page 11.18. Use formula:

$$Cv = \frac{lb/hr}{Fg}$$

Locate Fg on graph corresponding to 7 psig inlet pressure and 3 psi  $\Delta p$ <sup>③</sup> (curved lines). Fg = 23.5.

Insert values into formula:

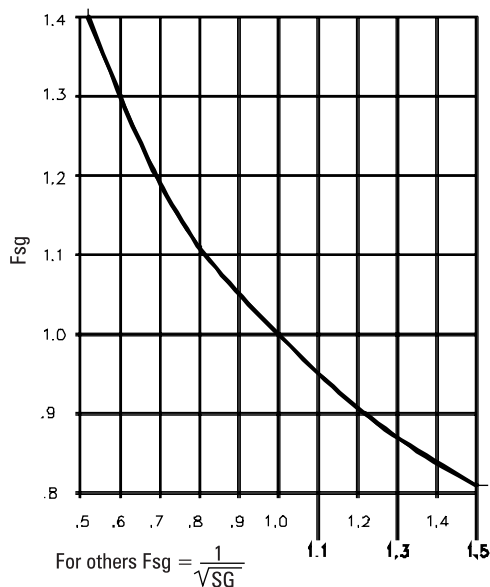
$$Cv = \frac{25}{23.5} = 1.06$$

*For further information, consult your local ASCO sales office.*

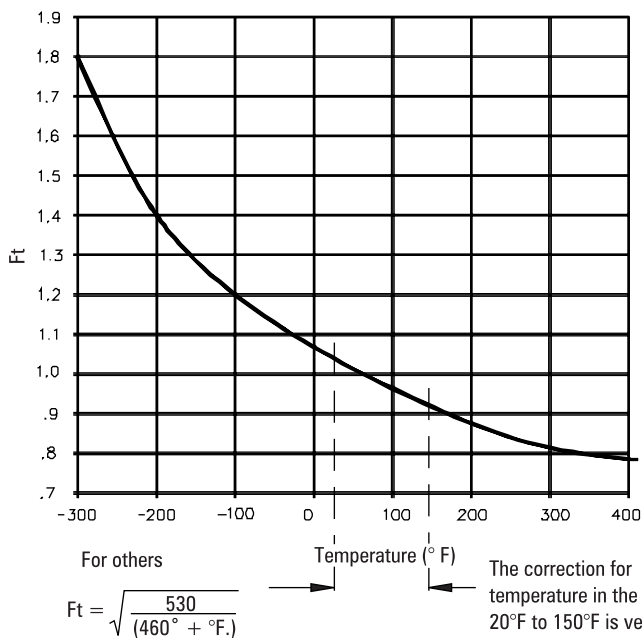
#### Notes:

- ① Liquid formulas and flow graphs are based on US gallons.
- ② If viscosity is less than 300 SSU, correction factors are not necessary.
- ③  $\Delta p$  stands for pressure drop.

## Fsg Chart

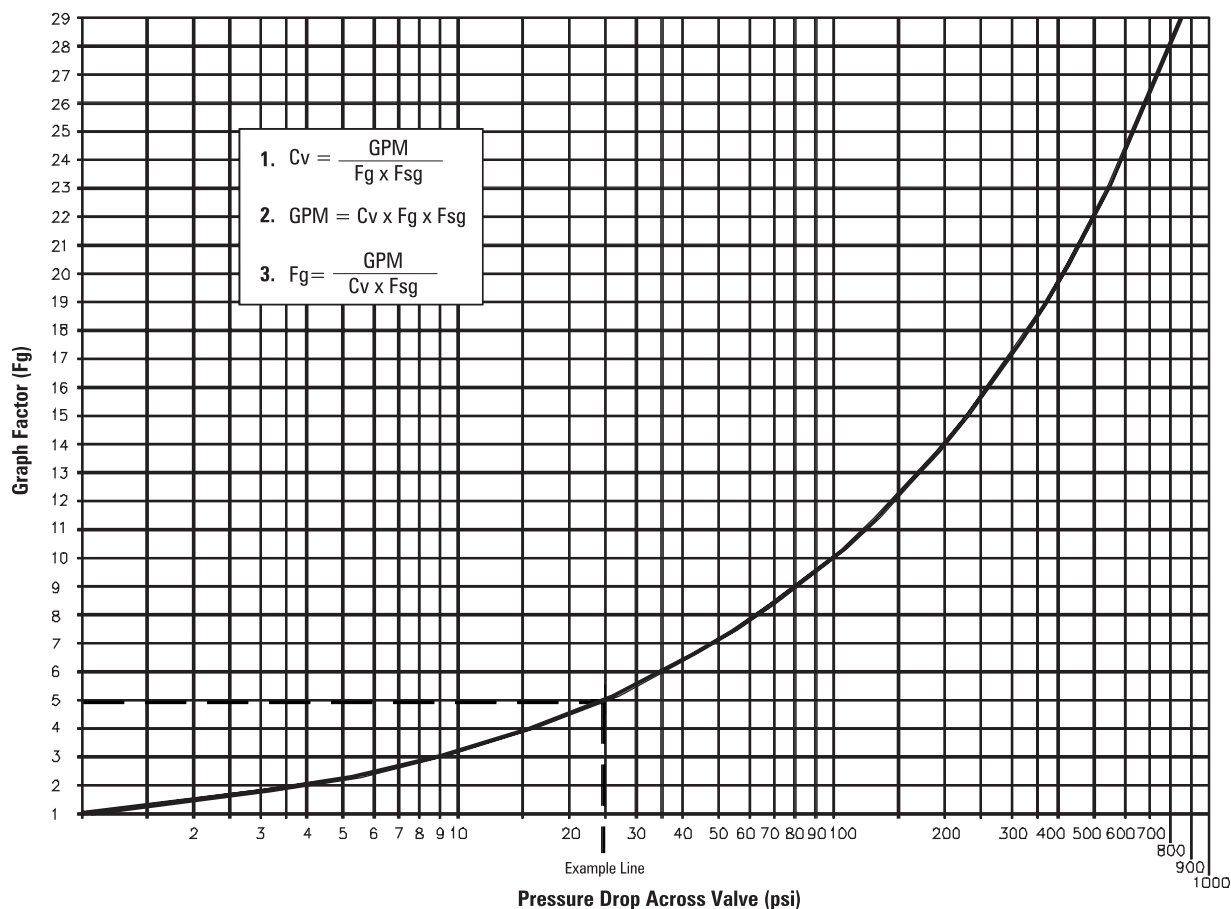


## Ft Chart



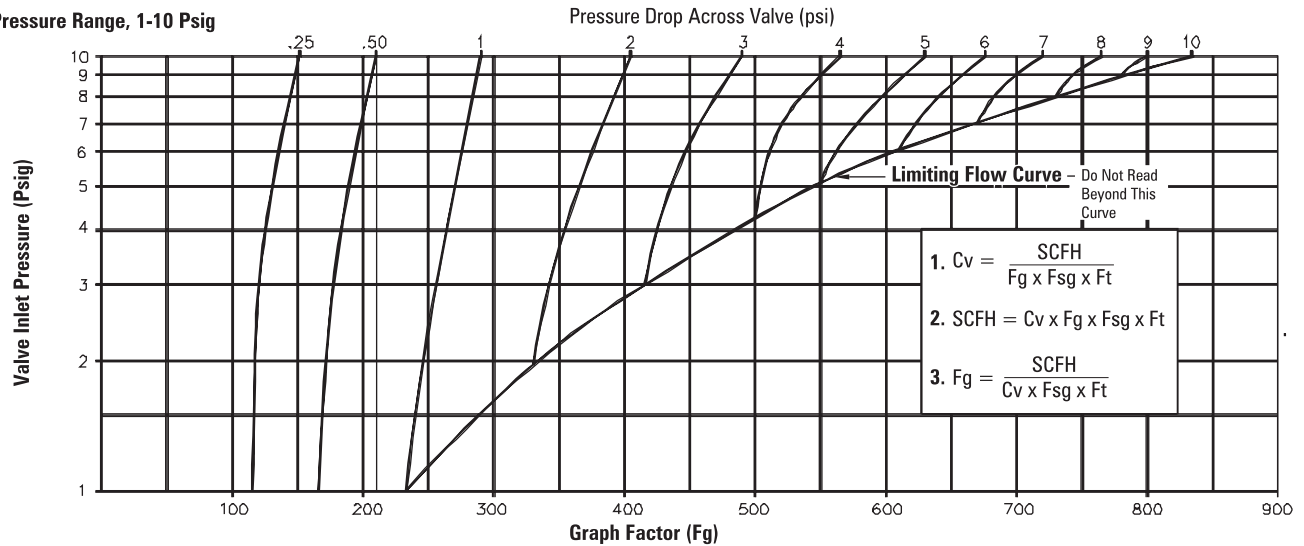
The correction for temperature in the range of 20°F to 150°F is very small and, therefore, can be ignored in ordinary applications.

## Liquid Flow Graph

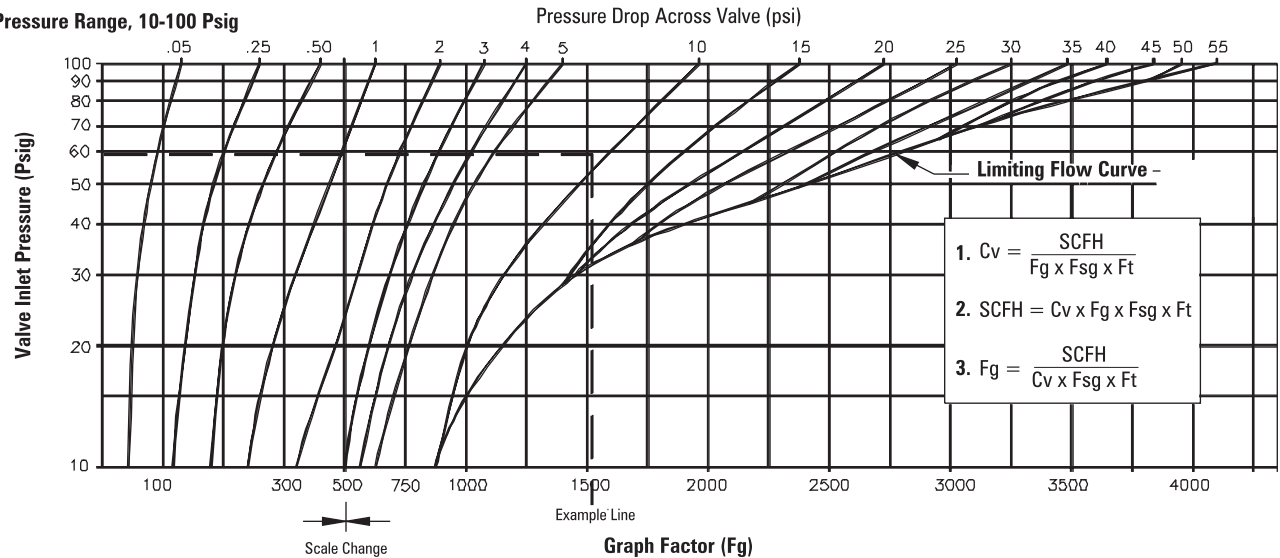


### Air and Gas Flow Graphs

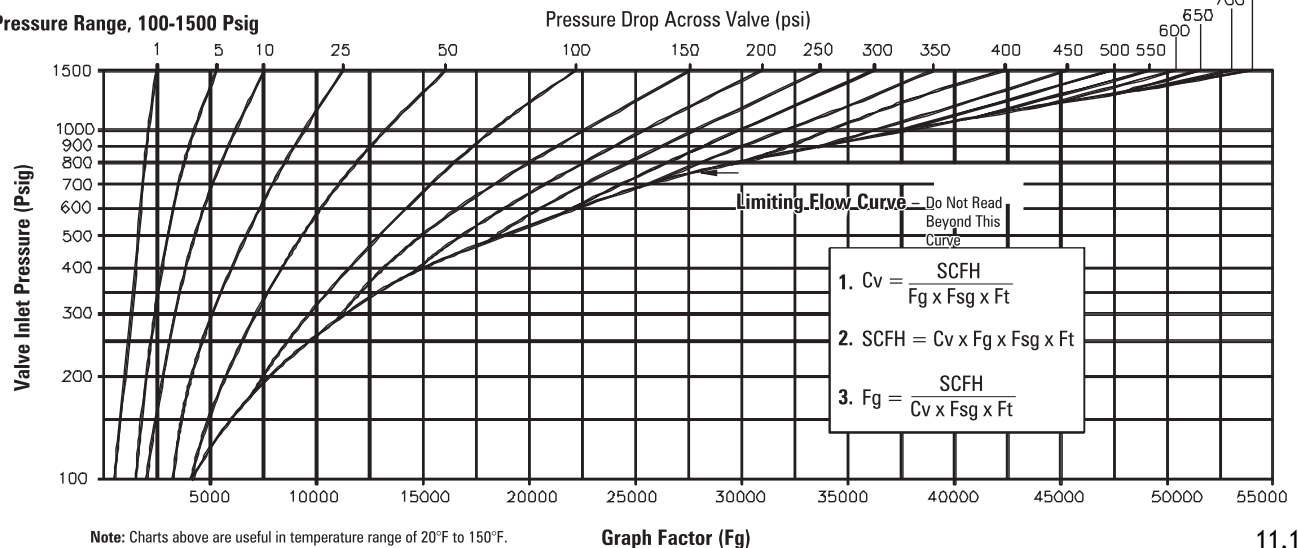
Pressure Range, 1-10 Psig



Pressure Range, 10-100 Psig

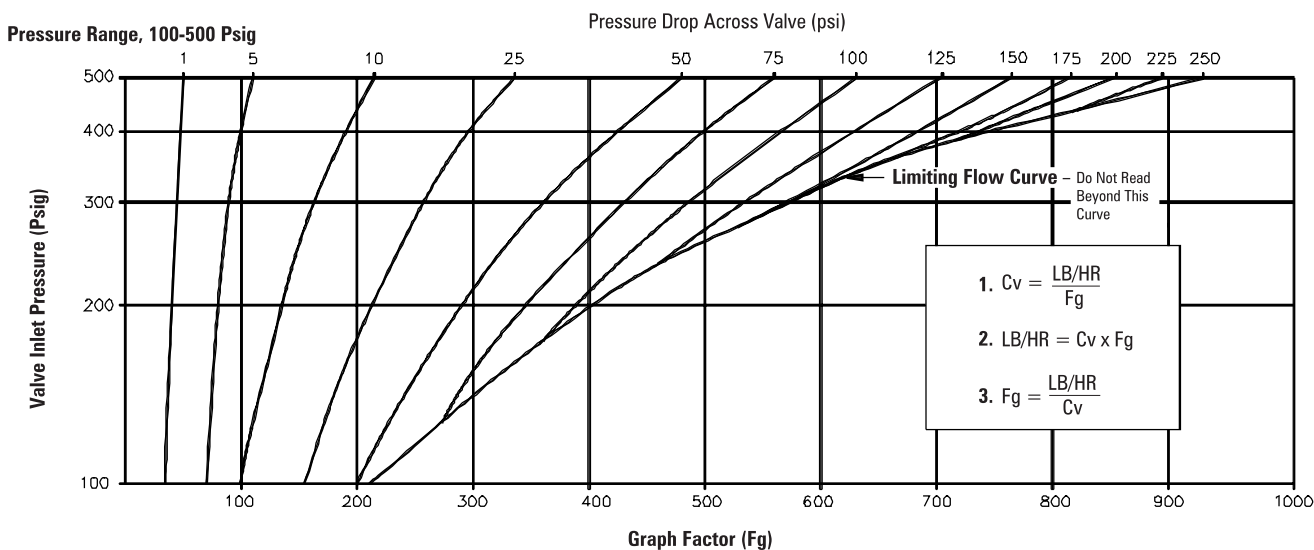
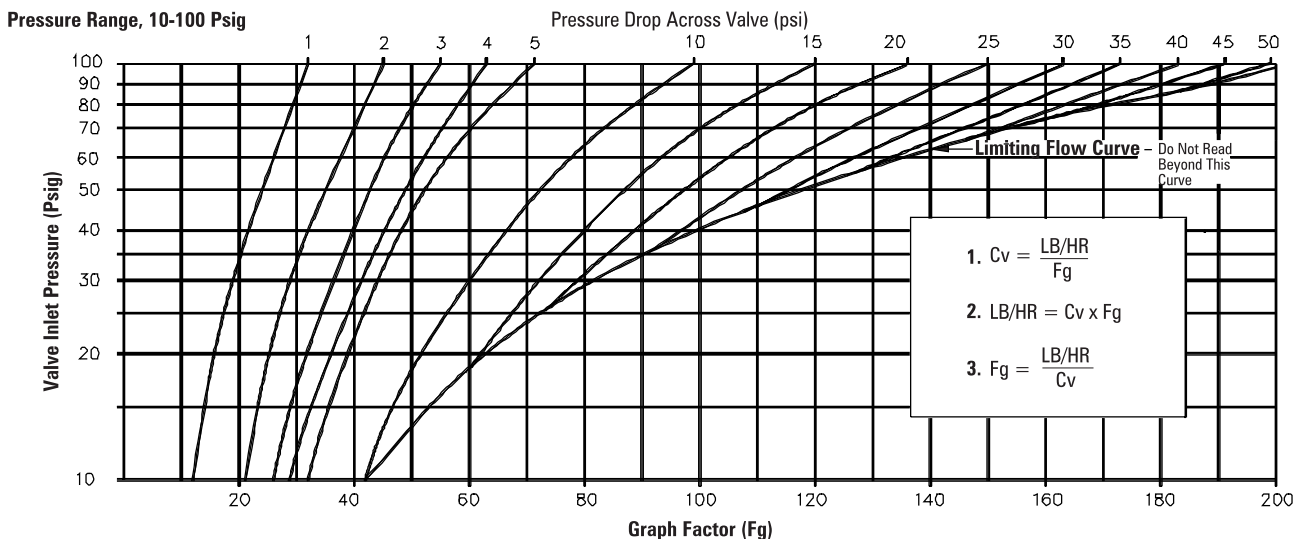
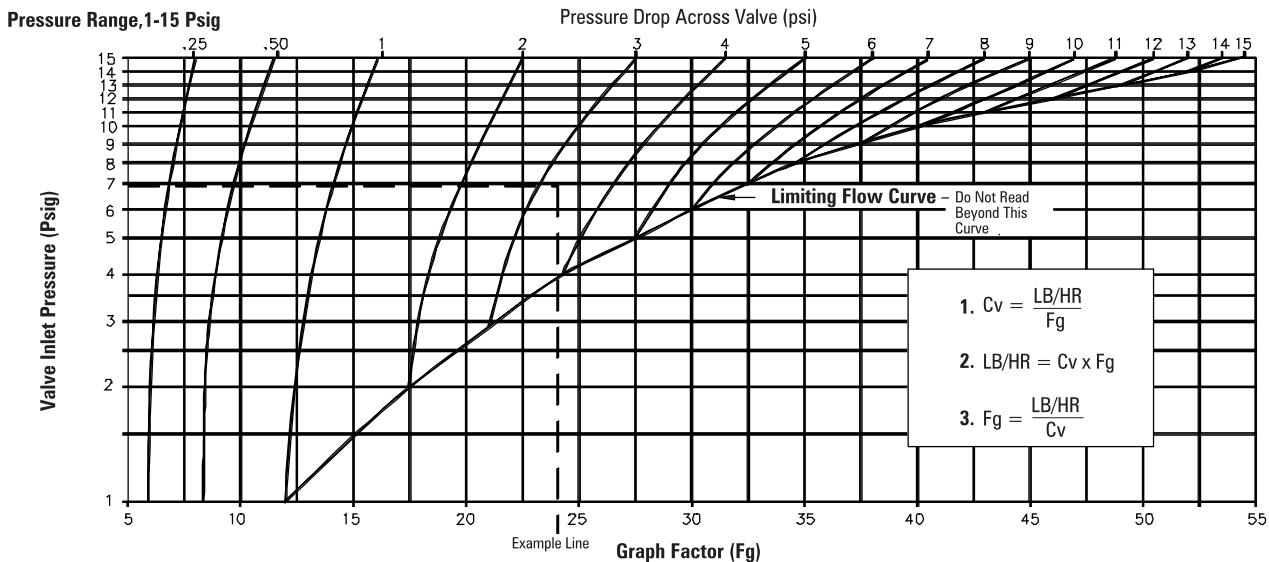


Pressure Range, 100-1500 Psig



Note: Charts above are useful in temperature range of 20°F to 150°F.  
Refer to Ft chart on previous page.

## Steam Flow Graphs



### Material Selection Guide for Commonly Used Fluids

All orders entered using this guide must state actual fluid, fluid pressure, fluid concentration, and fluid temperature of the application. Actual fluid is extremely important when elastomer options are specified because other substitutions may be required.

ASCO valves are available to control many acids, alcohols, bases, solvents, and corrosive gases and liquids. Modified or special designs are sometimes required, depending upon the application.

Corrosion occurs either as a chemical or electrochemical reaction. Therefore, consideration must be given to both the galvanic and electromotive force series, as well as to pressure, temperature, and other factors that might be involved in the application.

This guide provides information on types of valves that are available for most common corrosive and non-corrosive gases and liquids. *For applications in which abnormal conditions exist and for other fluids, consult your local ASCO office, giving full details on operating conditions.*

This guide is not intended as a specific recommendation; factors beyond our control could affect valve operation or materials.

### General Information on Elastomer Materials Frequently Used in ASCO Valves

#### NBR (Buna 'N', Nitrile)

NBR is commonly referred to as a nitrile rubber and is the standard synthetic elastomer for accomplishing resilient-type seating or sealing in ASCO valves. It has excellent compatibility for most air, water, and light oil applications. It has a useful temperature range of 0°F to 180°F (-18°C to 82°C)

#### CR (Neoprene)

CR is principally used as an external seal in refrigeration applications. It is also utilized for oxygen service. It has a useful temperature range of 0°F to 180°F (-18°C to 82°C)

#### EPDM (Ethylene Propylene)

EPDM is selected for applications above the NBR temperature range, such as handling hot water and steam. Ethylene propylene has an extremely wide range of fluid compatibility, but has the distinct disadvantage that it cannot be used with petroleum-based fluids or contaminated fluids (such as lubricated air). It has a useful temperature range of -10°F to 300°F (-23°C to 149°C).

#### FKM (Viton\*/Fluorel\*\*, etc.)

FKM is a fluorocarbon elastomer primarily developed for handling such hydrocarbons as jet fuels, gasolines, solvents, etc., which normally cause detrimental swelling to NBR. FKM has a high temperature range similar to EPDM, but with the advantage of being

somewhat more resistant to "dry heat." FKM has a wide range of chemical compatibility. It has a useful temperature range of 0°F to 350°F (-18°C to 177°C).

#### PTFE (Teflon\*, Rulon)

PTFE and PTFE with fillers are considered more a plastic than a resilient-type material. They are virtually unattacked by any fluid. Their temperature usage has ranged from discs for cryogenic valves to discs for steam valves. They are not easily fabricated and are known to have "cold flow" characteristics which may contribute to objectionable leakage, particularly on gases.

#### Other materials referred to in this catalog

CA	(Acetal, Celcon, Delrin)
FFKM	(Methyl tertiary-butyl)
FMQ	(Fluorosilicone)
HYT	(Hytrel)
MTBE	(Methyl tertiary-butyl ether)
PA	(Nylon, Zytel)
PA + FV	(Polyamide)
PE	(Polyethylene)
PP	(Polypropylene)
PPS	(Polyphenylene Sulfide, Ryton)
PUR	(Polyurethane)
UR	(Urethane)
VMQ	(Silicone)

\* DuPont Co. trademark  
\*\* 3m trademark

### Material Selection Guide for Commonly Used Fluids

Fluids	Qualifying Service Information	Materials of Construction and Ordering Information (Refer to List Price Schedule for availability and prices of Special Features)
<b>Acetic Acid</b>	Standard strengths of water solution are: 28, 56, 70, 80, 85, 98%.	For solutions of 40% or less, use stainless steel Type 316 Normally Closed valve with EPDM elastomers. Add suffix "E" to catalog number.
<b>Acetic Acid, Glacial</b>	99.9% solid.	Use appropriate ball valve with ASCO 3 or 4 way auxiliary air pilot valve.
<b>Acetone</b>	Colorless, flammable liquid with mint-like odor. Soluble in water and ether.	Standard catalog valves with EPDM elastomers. Add suffix "E" to catalog number. PTFE or metal seated valves also used.
<b>Acetylene</b>	A colorless, highly flammable gas used for welding and flame cutting of metals, and for producing other chemicals. If moisture is present, copper, silver, and alloys containing more than 66% copper are not suitable.	Standard catalog aluminum, brass, or stainless steel valves. Specify aluminum shading coil. Do not use bar stock brass valves.
<b>Air, Lubricated (Shop Air)</b>	Most sources of air carry lubrication from pumps and other equipment. Others are directly lubricated in lines.	Standard resilient seated catalog valves. For synthetic diester lubricating oils, FKM seals may be required. <i>Consult local ASCO office.</i>
<b>Air (or Gas), Dry, Unlubricated</b>	Used in instrument air applications and telephone lines where moisture and oil cannot be tolerated.	Special constructions required. Refer to Long-Life Solenoid Valve Constructions.
<b>Alcohol, Ethyl (Denatured Alcohol)</b>	A grain alcohol commonly used as solvent. Also used as a radiator antifreeze and rocket fuel.	Standard resilient seated catalog valves.
<b>Alcohol, Methyl (Methanol)</b>	A flammable wood alcohol used in automotive antifreeze, general solvent, aviation, and rocket fuel.	Standard catalog constructions; however, where high purity of liquid is essential, use Stainless Steel designs.
<b>Ammonia (Anhydrous or Dissociated)</b>	Used in refrigeration. Other uses include: for cleaning and bleaching, for etching aluminum, and in chemical processing. Presence of slight trace of water moisture can be harmful to brass.	Stainless Steel construction with aluminum shading coil and CR elastomers are required. Specify aluminum shading coil. Add prefix "X" and suffix "J" to catalog number.
<b>Argon</b>	The valves must be free of contaminants when filling incandescent lamps, luminescent tubes, gas thermometers, etc. Also used as an inert shielding gas in welding equipment.	Standard catalog aluminum and brass valves used in connection with welding equipment. Most other applications require stainless steel valves, especially cleaned to avoid contamination. Specify AP-1-005.
<b>Benzene, (Benzol)</b>	Solvent used for waxes, resins, rubber, and other organic materials. Also employed as a fuel or for blending with gasoline or other fuels.	Standard catalog valves with FKM, or PTFE disc and gasket.
<b>Butane</b>	One of the principal LP gases. Used as fuel for household and other industrial purposes. Also a refrigerant and a propellant in aerosol cans.	Special construction required. Refer to Combustion Section.

Fluids	Qualifying Service Information	Materials of Construction and Ordering Information (Refer to List Price Schedule for availability and prices of Special Features)
<b>Carbon Dioxide (Gas or Liquid) (CO<sub>2</sub>)</b>	Also known as carbonic anhydride. Used in industrial refrigeration and refrigeration of foods and carbonated beverages. Also, as a fire extinguisher and inert atmosphere in welding equipment.	For gas pressures below 100 psi, use standard valves with NBR discs. Above 100 psi, use Series 8264, especially designed for this service.
<b>Carbon Tetrachloride ("Carbena")</b>	Also known as tetrachloromethane. Mainly used as a metal degreasing agent. Also used in fire extinguishers. It is a general solvent and dry-cleaning medium. Its fumes are highly toxic and should be handled in well-ventilated areas.	Standard catalog brass valves with PTFE or FKM discs. Add suffix "T" or "V" to catalog number. Diaphragm valves must be equipped with FKM parts. Add suffix "V" to catalog number. Metal seated valves also used.
<b>Caustic Soda</b>	See "Sodium Hydroxide."	
<b>Cellulube</b>	One of the phosphate ester lubricating fluids which are fire resistant.	Standard catalog designs with EPDM elastomers. Add suffix "E" to catalog number. PTFE or metal seated valves also used.
<b>Chlorine</b>	Chlorine has a powerful suffocating odor and is strongly corrosive to organic tissues and to metals. Uses include: for bleaching textiles and paper pulp, but it is also used for the manufacture of many chemicals.	Use appropriate ball valve with ASCO 3 or 4 way auxiliary air pilot valve.
<b>City Gas</b>	See "Natural" and "Manufactured Gas."	
<b>Coffee</b>	Automatic or semiautomatic dispensing equipment.	Stainless steel or plastic valves. <i>For FDA approved elastomers, consult your local ASCO office.</i>
<b>Coke Oven Gas (Bench Gas; Coal Gas)</b>	Flammable gas used in domestic and industrial heating.	Standard steel or stainless steel valves with FKM elastomers.
<b>Coolant Oil</b>	Oil used in automatic screw machines and related equipment as cutting oils or coolants. Usually contain suspended solids.	<i>Consult your local ASCO office.</i>
<b>Diesel Fuel</b>	Petroleum oil used as fuel for diesel engines.	Standard resilient seated catalog valves with FKM seating.
<b>Ethylene Glycol (Ethylene Alcohol) "Prestone"</b>	Also known as glycol. Used in permanent antifreeze solutions, brake fluids, and as a dye solvent.	Standard resilient seated catalog valves.
<b>"Freon" Solvents "MF," "TF," and "BF"</b>	Trademark for a solvent which is commonly used in ultrasonic degreasers for removing oil, common grease, and dirt on metal or plastic parts.	Standard catalog items with metal-to-metal seating, or NBR elastomers only.



Fluids	Qualifying Service Information	Materials of Construction and Ordering Information (Refer to List Price Schedule for availability and prices of Special Features)
<b>Fuel Oil (Light) Nos. 1, 2, 3</b>	"Distillate" petroleum oil used in combustion applications without preheating.	Refer to Combustion Section.
<b>Fuel Oil (Heavy) Nos. 4, 5, 6</b>	Heavy "Bunker" fuel oil. Usually preheated to 135°F or more for combustion.	Refer to Combustion Section.
<b>Gasoline</b>	Special or high-test gasolines have additives or aromatics that affect synthetic rubber by excessive swell, or extraction of plasticizers.	Standard catalog valve constructions with FKM elastomers. Add suffix "V" to catalog number. If MTBE additive is present in gasoline, then use FFKM elastomers. Metal seated valves also used.
<b>Helium</b>	An inert gas used in heat treating, purging, and welding.	Standard resilient seated catalog valves.
<b>Hydraulic Oil</b>	Petroleum base only — viscosity usually 50 SSU or 300 SSU. For fire-resistant hydraulic oils, see "Cellulube," "Pydraul," and "Skydrol."	Standard resilient seated catalog valves.
<b>Hydrochloric Acid</b>	Also known as muriatic acid. Corrosive chemical.	Use an appropriate ball valve with ASCO 3 or 4 way auxiliary air pilot valve. For low pressure, small flow, and a maximum concentration of 20%, refer to Shielded Core valves.
<b>Hydrogen</b>	A highly flammable gas when exposed to air.	Standard resilient seated catalog valves with soft seats.
<b>Jet Fuels (JP1 through 8). For others, consult your local ASCO® office.</b>	These fuels are used in jet engines and are petroleum products, similar to kerosene. Some jet fuels contain substantial quantities of aromatics which affect most synthetic rubbers.	Standard catalog valves with FKM elastomers. Add suffix "V" to catalog number. PTFE and metal seated valves also used.
<b>Kerosene</b>	Generally used as a solvent for cleaning purpose and as a heating fuel.	Standard catalog valve with FKM elastomers. Add suffix "V" to catalog number.
<b>LP Gas</b>	See "Propane."	Refer to Combustion Section.
<b>Liquid Natural Gas, Nitrogen, and Oxygen</b>		Refer to Cryogenic Valves.
<b>Manufactured Gas</b>	Refine coke oven gas used in city applications.	Refer to Combustion Section.
<b>Mercury</b>	Uses: mercury cells and other electrical apparatus; mercury vapor boilers, lamps, barometers, thermometers, etc.	Use stainless steel body. Valve must be mounted upside down. Special construction required. <i>Consult your local ASCO office with application details.</i>
<b>Methyl Ethyl Ketone (MEK)</b>	Used in lacquers, paint removers, cements and adhesives. It is a flammable liquid.	Standard catalog valves with EPDM elastomers. Add suffix "E" to catalog number. PTFE or metal seated valves also used.
<b>Naphtha</b>	A coal-tar solvent.	Use NBR or FKM elastomers. For FKM elastomer, add suffix "V" to catalog number.
<b>Natural Gas</b>	Common heating fuel.	Refer to Combustion Section.

Fluids	Qualifying Service Information	Materials of Construction and Ordering Information (Refer to List Price Schedule for availability and prices of Special Features)
<b>Nitric Acid (aqua fortis or azotic acid)</b>	Normally, concentrations are 60% nitric and 40% water.	Stainless steel valves with aluminum shading coil and PTFE disc. Add suffix "T" to catalog number. Metal seated valves also used. Maximum temperature at which we can offer valve is 100°F.
<b>Nitric Acid-Red Fuming</b>	Red fuming is more than 86% nitric acid. These can be handled with all stainless steel valves.	
<b>Nitric Acid-White Fuming</b>	White fuming, which is pure to 97.5% acid, and nitric acid vapors are very difficult to handle.	For white fuming acid, use appropriate ball valve with ASCO pilot.
<b>Nitrogen</b>	An inert gas used in heat treating, purging, and welding.	Standard resilient seated catalog valves.
<b>Oils, Lubricating or Motor</b>	Common motor oils known as SAE oils and synthetic lube oils, etc.	Standard catalog valves for 300 SSU maximum. For higher SSU, consult your local ASCO office. <i>For compressor service involving refrigerants, consult your local ASCO office for elastomer selection.</i>
<b>Oxygen, Gas</b>	Used in conjunction with various fuels in furnaces, ovens, cutting torches, welding, and heat treating. A nonflammable gas. Contact with hydrocarbons will result in spontaneous combustion.	Metal body valves with FKM or CR elastomers, specially cleaned to avoid contamination with hydrocarbons. Add suffix "N" to catalog number.
<b>Perchloroethylene (Tetrachloroethylene) "Perk"</b>	Used as a dry-cleaning solvent and in vapor degreasing equipment.	Standard catalog items with FKM elastomers. Add suffix "V" to catalog number. Special piston valves available. Do not use diaphragm valves. <i>Consult your local ASCO office.</i>
<b>Phosphoric Acid</b>	Also known as orthophosphoric acid. Used in pickling and rust-proofing metals, soft drinks and flavoring syrups, as well as pharmaceuticals.	For concentration of up to 20% and temperatures of 100°F, use 300 series stainless steel with ethylene propylene, FKM, or NBR elastomers.
<b>Photographic Solutions</b>	Also known as sodium thiosulfate or hypo. Most metals corrode sufficiently to cause solution contamination.	For low pressure, small flow, and low concentrations (20% max.), refer to Shielded Core Valves.
<b>Potassium Sulfate</b>	Used in fertilizers. Also in aluminum and glass manufacturing.	Standard stainless steel catalog valves.
<b>Propane Gas</b>	One of the principal LP gases commonly used in grain dryer applications, and a bottled gas for heating and cooking.	Special construction required. Refer to Combustion Section.
<b>"Pydraul" (Monsanto)</b>	A trademark for a series of fire-resistant hydraulic fluids. Used in automatic welding machines, hydraulic presses, and air compressors. Also used in die-casting machines, forging, and extrusion presses.	Standard catalog items with FKM elastomers. Add suffix "V" to catalog number. PTFE or metal seated valves also used.
<b>Refrigerants, CFC (chlorofluorocarbon) "Freon"</b>	CFCs are used as refrigerants; as blowing agents in the manufacture of insulation, packaging, and cushioning foams; as cleaning agents for metal and electronic components; and in many other applications. CFCs contain chlorine and have been targeted by the EPA to be phased out.	<i>Refrigerants require special selection of elastomers. Consult your local ASCO office.</i>

Fluids	Qualifying Service Information	Materials of Construction and Ordering Information (Refer to List Price Schedule for availability and prices of Special Features)
<b>Refrigerants, HFC (hydrofluorocarbon) "Suva"®</b>	Environmentally acceptable alternative to CFC. Contains no chlorine.	<i>Refrigerants require special selection of elastomers. Consult your local ASCO office.</i>
<b>"Skydrol"</b>	Trademark for fire-resistant jet aircraft hydraulic fluid.	Standard catalog items with EPDM elastomer. Add suffix "E" to catalog number. PTFE or metal seated valves also used.
<b>Sodium Hydroxide (Caustic Soda)</b>	Used in pulp and paper industry. Included in detergents and soap, also in textile processing. Solutions range between 50% and 73% commercial.	Stainless steel valves with EPDM elastomers. Add suffix "E" to catalog number. Stainless steel or PTFE seated valves also used.
<b>Sour Gas</b>	See "Coke Oven Gas."	
<b>Steam Condensate</b>	This is return condensate from steam boilers, which has various degrees of dissolved carbon dioxide or oxygen. Temperature is normally high to boiling point.	Brass valves suitable with EPDM elastomers. See Series 8210 and 8222 Hot Water Service Listings. Use suffix "E" on all others.
<b>Stoddard Solvent</b>	This is a dry-cleaning solvent of usually high-purity naphtha, clear and free of undissolved water. A coal-tar solvent.	Standard catalog items.
<b>Sulfuric Acid</b>	An oily, highly corrosive liquid oxidizing organic materials and most metals. It is used for pickling and cleaning metals in electric batteries and in plating baths, for making explosives and fertilizers.	Use an appropriate ball valves with ASCO 3 or 4 way auxiliary air pilot valve. For low pressure, small flow, and a concentration of up to 60%, refer to Shielded Core Valves.
<b>Toluene (Toluol)</b>	Also called methyl benzene or methyl benzol. One of the coal-tar solvents. Used in aviation and high octane gasolines. Also a solvent for paints, coatings, resins, etc. It is a flammable liquid.	Standard catalog valves with FKM disc and gasket. Add suffix "V" to catalog number.
<b>Trichloroethylene ("Carbona" or "TRIAD")</b>	Common degreasing solvent, noncombustible, but very toxic. Adequate ventilation required.	Standard brass catalog valves, if dry, use FKM elastomers (add suffix "V" to catalog number). If moisture is present, use stainless steel. Metal and PTFE seated valves also used.
<b>Turpentine</b>	Solvent or thinner for paints, varnishes, and lacquers. Also, a rubber solvent and reclaiming agent. The liquid is volatile.	Standard catalog valves with FKM elastomers. Add suffix "V" to catalog number.
<b>Vacuum</b>		Refer to Vacuum Valves.
<b>Vegetable Oils</b>	Edible oils extracted from seeds, fruits, or plants, such as peanut oils, cottonseed oils, etc.	Standard resilient seated catalog valves. <i>For FDA approved elastomers, consult your local ASCO office.</i>
<b>Vinegar</b>	A diluted impure solution of acetic acid.	Stainless steel valves with EPDM elastomers (FKM elastomers may also be used). Add suffix "E" to catalog number. <i>For FDA approved elastomers, consult your local ASCO office.</i>

Fluids	Qualifying Service Information	Materials of Construction and Ordering Information (Refer to List Price Schedule for availability and prices of Special Features)
<b>Water, Boiler Feed</b>	Commonly treated water with inhibitors to avoid corrosion of boiler tubes.	Standard stainless steel catalog valves with FKM elastomers. Add suffix "V" to catalog number.
<b>Water, Distilled or Deionized</b>	A purified water, sometimes called deionized water, neutral and free from contaminants.	Stainless steel valves with EPDM elastomers. Add suffix "E" to catalog number. Stainless steel or PTFE seated valves also used.
<b>Water, Fresh</b>		Standard resilient seated catalog valves. Aerated water, which is slightly acidic, will cause seat erosion by process known as dezincification. Stainless steel or plastic valves should then be selected.
<b>Water, High Pressure</b>	When handling water above 500 psi, erosion and water hammer must be considered.	<i>Special designs for car wash applications, etc. Consult your local ASCO office.</i>
<b>Water, Hot</b>	Water above 200°F: Often flashes to steam due to regulators or other line restrictions. Below 200°F, this change of state is unlikely.	Standard catalog designs suitable to temperatures listed in catalog. Also see Series 8210 and 8222 Hot Water Service listings. <i>For temperatures exceeding those listed, consult your local ASCO office.</i>
<b>Water, Sea, Brine, Brackish</b>	Difficult to handle due to galvanic corrosion.	Use appropriate ball valve with ASCO air pilot valve.