Hattersley Valves are certified under THE PRESSURE EQUIPMENT DIRECTIVE 2014/68/EU and are eligible to carry the "CE" marking in accordance with the directions below.

Registration scope: CE-0041-PED-H1-CRA 001-17-GBR / PED Module H1

The regulations apply to all valves with a maximum allowable pressure greater than 0.5 bar. Valves with a maximum allowable pressure not exceeding 0.5 bar are outside the scope of the Directive. Valves are categorized in accordance with the maximum working pressure, size and ascending level of hazard, which is dependent on the fluid being transported. Fluids are classified as either Group. 1, dangerous fluids or Group 2 which covers all other fluids including steam. The categories available are SEP; I II III & IV, SEP refers to sound engineering practice, categories I to IV refer to increasing levels of hazard.

All valves designated as SEP do not bear the CE mark nor require a Declaration of Conformity. Categories I, II, III or IV carry the CE mark and required a Declaration of Conformity (Note-all Valves up to and including 25mm (1") having a maximum allowable pressure greater than 0.5 bar are designated SEP regardless of fluid group.)

Hattersley valves are certified as being eligible to bear the CSA mark with adjacent indicators "C" and "US" for Canada and US --Certificate : 1625756 (228416)

C US

Applicable Requirements

CGA 3.11-M88 (2014) – Lever operated Pressure Lubricated Plug Type Gas Shut-off Valve
ASME B16.33-2012 –Manually operated Metallic Valves for use in Gas Piping Systems up to 175 psi (Sizes NPS ½ through NPS 2)
ASME B18.38-2012—Large Metallic Valves for Gas Distribution

PRODUCT LIFE CYCLE
The life of the valve is dependent on its application, frequency of use and freedom from misuse. Compatibility with the system into which it is installed must be considered. The properties of the fluid being transported such as pressure, temperature and the nature of the fluid must be taken into account to minimize or avoid premature failure or non-operability. A well-designed system will take into consideration all the factors considered in the valve design, but additionally electrolytic interaction between dissimilar metals in the valve and the system must be examined. Before commissioning a system, it should be flushed to eliminate debris and chemically cleaned as appropriate to eliminate contamination, all of which will prolong the life of the valve.

LIMITS OF USE
The valves to which these installation, operation and maintenance instructions apply have been categorized (as) :

a) In accordance with the Pressure Equipment Directive.
b) Products under Class C3371 91 Valves (Gas) –Lever operated Pressure Lubricated-shutoff –US Listing
c) Products under Class C3371 11 Valves (Gas) –Lever operated Pressure Lubricated Shutoff -Canadian Listing

These valves are permitted for use with Natural, Manufactured, Mixed, Liquefied Petroleum Group 1 gases (i.e. hazardous) and may also be used on Group 1 liquids, Group 2 gases and Group 2 liquids

The maximum surface temperature under normal use is given in the table. The auto-ignition temperature of a surrounding potentially explosive atmosphere must exceed the equipment surface temperature by at least 25% (BS EN 1127-1 clause 6.4.2).

CAUTION :
New valves that are stored for three months or more before installation MUST be re-lubricated and cycled after installation but before actual use.

Valves must be installed into a well-designed system and it is recommended that the system be inspected in accordance with the appropriate national and regional legislation.

Valves must be installed by trained personnel only.

Service temperature and pressure indicated on the identification plate or body marking should not be exceeded.

The installation should be designed to provide adequate means of draining and venting to avoid harmful effects such as water hammer, vacuum collapse, corrosion and uncontrolled chemical reactions and to permit cleaning, inspection and maintenance in the correct manner.

Valves are not designed to operate under high shock loadings. Where pressure increases occur due to shock loading (water hammer), they should be added to the working pressure to obtain the total pressure acting on the valve. The total must not exceed the pressure rating of the valve. A pressure surge, or shock, is usually caused by the rapid closure of a check valve or quarter turn valve resulting in a sudden reduction in flow rate.

It is the responsibility of the installer to ensure that the valves do not exceed the allowable limits of pressure. However, the equipment is designed to withstand a momentary pressure surge of up to 10% above the maximum working pressure.

The product has not been designed to include corrosion, erosion or abrasion allowances. Any queries regarding service applications should be addressed to the Crane Fluid Systems - Technical Sales Department.

The valves have been designed for loadings, appropriate to its intended use and other reasonably foreseeable operating conditions. Loadings caused by traffic, wind and earthquake have not been taken into account.

The piping system shall be designed to reduce the risk of fatigue due to vibration of pipes.

Maximum operating pressure reduces as service temperature increases. Pressure and temperature limitations are shown by the valve body marking or on the identification plate.

Threaded End

Fluid: Group 1 Gas					
Connection	Fig. No.	Rating	PS	DN	Category
API Threads	170M	Class 125	13.8 bar	1”	SEP
				1¼” to 2½”	I*
				3” and 4”	II*
API Threads	400M	Class 250	34.5 bar	½” to 1”	SEP
				1¼” to 2”	II*
BSP Threads	200L/T	PN16	16 bar	½” to 1”	SEP
				1¼” to 2”	II*
API Threads		Class 125	13.8 bar	½” to 1”	SEP
				1¼” to 2”	II*
API Threads	200M / 200M Fire Valve	Class 125	13.8 bar	½” to 1”	SEP
				1¼” to 2½”	I*
				3”	II*
BSP Threads		PN16	16 bar	½” to 1”	SEP
				1¼” to 2”	I*
				2½” to 3”	II*
API Threads	200R	Class 125	13.8 bar	1”	SEP
				1½” & 2”	I*
BSP Threads		PN16	16 bar	1”	SEP
				1½” & 2”	I*

Flanged End

Fluid: Group 1 Gas					
Connection	Fig. No.	Rating	PS	DN	Category
ANSI Drilled Class 125	171M	Class 125	13.8 bar	1”	SEP
				1¼” to 2½”	I*
				3” to 8”	II*
PN16 Drilled	201K Fire Valve	PN16	16 bar	125 & 150 mm	II*
Table D Drilled		Class 50	6.9 bar	4”	I*
				6”	II*

Table E Drilled	201M / 201M Fire Valve	Class 100	13.8 bar	2" & 2½"	I*
				3" to 8"	II*
ANSI Drilled Class 125		Class 125	13.8 bar	1"	SEP
				1½" to 2½"	I*
				3" to 8"	II*
PN16 Drilled		PN16	16 bar	25 mm	SEP
				32 to 50 mm	I*
				65 to 200 mm	II*
ANSI Drilled Class 125	201R	Class 125	13.8 bar	1¼" to 2½"	I*
				3" and 4"	II*
PN16 Drilled	201L/T	PN16	16 bar	2"	I*
				2½" to 6"	II*
Table E Drilled		Class 100	13.8 bar	2" & 2½"	I*
				3"	II*
PN16 Drilled	221T	PN16	16 bar	80 mm	II*
ANSI Drilled Class 125	401M	Class 250	34.5 bar	2" to 4"	II*

* Category I requires CE mark and Category II requires CE mark plus the Notified Body Number 0041

Operating Pressure and Temperatures

Rating	Lubricant	Non-shock pressure (bar) at =>	Temperature (º C) Range		Non-shock pressure (bar) at =>	Max. Temperature (º C)
			Min	Max		
Screwed End Valves: 170M, 200L, 200M, 200T, 200R & 400M						
PN 16	Renolit - VLS-LT	16	-10	120	10.8	190
	# 204-S	16	-10	120	10.8	204
	# 950 (44)	16	-10	120	10.8	204
	# 400A (74)	16	-10	120	10.8	232
	18C	16	0	120	10.8	230
Class 125	Renolit - VLS-LT	13.8	-10	65	8.6	190
	# 204-S	13.8	-10	65	8.6	204
	# 950 (44)	13.8	-10	65	8.6	204
	# 400A (74)	13.8	-10	65	8.6	232
	18C	13.8	0	65	8.6	230
Class 250	Renolit - VLS-LT	34.5	-10	65	17.2	190
	# 204-S	34.5	-10	65	17.2	204
	# 950 (44)	34.5	-10	65	17.2	204
	# 400A (74)	34.5	-10	65	17.2	232
	18C	34.5	0	65	17.2	230
Flanged End Valves: 171M, 201K, 201L, 201M, 201T, 221T, 301L, 301T & 401M						
PN 16	Renolit - VLS-LT	16	-10	120	11.2	190
	# 204-S	16	-10	120	11.2	204
	# 950 (44)	16	-10	120	11.2	204
	# 400A (74)	16	-10	120	11.2	232
	18C	16	0	120	11.2	230
PN25	Renolit - VLS-LT	25	-10	120	17.5	190
	# 204-S	25	-10	120	17.5	204
	# 950 (44)	25	-10	120	17.5	204
	# 400A (74)	25	-10	120	17.5	232
	18C	25	0	120	17.5	230

Class 50 BS 10 Table D	Renolit - VLS-LT	6.9	-10	40	3.5	155
	# 204-S	6.9	-10	40	3.5	155
	# 950 (44)	6.9	-10	40	3.5	155
	# 400A (74)	6.9	-10	40	3.5	155
	18C	6.9	0	40	3.5	155
Class 100 BS 10 Table E	Renolit - VLS-LT	13.8	-10	40	6.9	170
	# 204-S	13.8	-10	40	6.9	170
	# 950 (44)	13.8	-10	40	6.9	170
	# 400A (74)	13.8	-10	40	6.9	170
	18C	13.8	0	40	6.9	170
ANSI 125	Renolit - VLS-LT	13.8	-10	65	8.6	190
	# 204-S	13.8	-10	65	8.6	204
	# 950 (44)	13.8	-10	65	8.6	204
	# 400A (74)	13.8	-10	65	8.6	230
	18C	13.8	0	65	8.6	230
ANSI 250	Renolit - VLS-LT	34.5	-10	65	17.2	190
	# 204-S	34.5	-10	65	17.2	204
	# 950 (44)	34.5	-10	65	17.2	204
	# 400A (74)	34.5	-10	65	17.2	230
	18C	34.5	0	65	17.2	230

All valves (screwed and flanged end) bearing the CSA mark are certified for operation at ambient temperatures between -40º C (-40º F) to 65º C (149º F) and up to 125 psig

For recommended sealing compounds depending on service requirements, refer your query to Hattersley http://www.hattersley.com/

This Valve is lubricated with Sealing Compound as indicated on the label affixed to the injection fitting.

DO NOT LUBRICATE WITH ANY OTHER SEALING COMPOUND AS THIS MAY LEAD TO A HAZARD IN SERVICE!

LAYOUT AND SITING

It should be considered at the design stage as to where valves will be located to give access for operation, maintenance or repair (i.e. removal of plug through bottom cover).

Straight through pattern (2 way) Milliken plug valves can be installed with the flow in either direction while careful consideration should be given during installation for 3 way and 4 way ('L' and 'T' ported) valves with respect to flow direction.

Heavy valves may need independent support or anchorage.

In the interests of safety, valves installed on end-of-line service in the closed position with infrequent opening should be fitted with a locking device on the operating mechanism. Alternatively it should be fitted with a blanking flange on the downstream flange of the valve.

INSTALLATION

Prior to installation, a check of the identification plate or body marking must be made to ensure that the correct valve is being installed. Any electrical component e.g. actuators, limit switches must be explosion proof and comply with Directive and Standards as listed in BSEN 1127-1 clause 6.4.5.

Valves are precision manufactured items and as such, should not be subjected to misuse such as careless handling, allowing dirt to enter the valve through the end ports, lack of cleaning both valve and system before operation and excessive force during bolting and hand-wheel operation.

All special packaging material must be removed.

Valves must be provided with adequate support. Adjoining pipework must be supported to avoid the imposition of pipeline strains on the valve body, which would impair its performance.

When large valves are provided with lifting lugs or eye nuts, these should be used to lift the valve.

Immediately prior to valve installation, the pipework to which the valve is to be fastened should be checked for cleanliness and freedom from debris.

CAUTION :

New valves that are stored for three months or more before installation MUST be re-lubricated and cycled after installation but before actual use.

Threaded Valves

Confirm that the pipe threading length is correct to avoid excessive penetration of the pipe into the valve, which would otherwise cause damage.

Thread sealing compounds appropriate to the application must be used but excessive use should be avoided, since this increases thread interference and may cause overstressing of the body ends.

Ensure the threads are properly engaged and proceed to tighten the valve into the pipe. The wrench must only be located on the valve end into which the pipe is being threaded to avoid distortion of the valve.

Flanged Valves

Valve end protectors should only be permanently removed immediately before installation. The valve interior should be inspected through the end ports to determine whether it is clean and free from foreign matter.

The mating flange (both valve and pipework flanges) should be checked for correct gasket contact face, surface finish and condition. If a condition is found which might cause leakage, no attempt to assemble should be made until the condition has been corrected.

The gasket should be suitable for the operating conditions or maximum pressure/temperature ratings.
The gaskets should be checked to ensure freedom from defects or damage.

Care should be taken to provide correct alignment of the flanges being assembled. Suitable lubricant on bolt threads should be used. In assembly, bolts are tightened sequentially to make to make the initial contact of flanges and gaskets flat and parallel followed by gradual and uniform tightening in an opposite bolting sequence to avoid bending one flange relative to the other, particularly on flanges with raised faces.

Parallel alignment of flanges is especially important in the case of the assembly of a valve into an existing system.

Flanged joints depend on compressive deformation of the gasket material between the flange surfaces.

The bolting must be checked for correct size, length, material and that all connection flange bolt holes are utilized.

SEALING

In service, appropriate sealing compound should be used for each individual medium to effect good isolation.

OPERATION

Milliken lubricated plug valves are normally wrench or gear operated. (These valves may also be operated using Actuators.)

Note:- The valve should only be used in the open or closed position. Regulating or throttling service should be avoided.

Wrench Operated

Valve closing is by clockwise motion of the wrench through 90º

Valve opening is by anti-clockwise motion of the wrench through 90º.

The drive square on the plug has a cast diamond shaped indicator to show plug position.

Gear Operated

A worm gear reduction operator (gearbox) is mounted on the valve body with the gear quadrant intimately connected with the valve stem.

Valve closing is by clockwise rotation of the hand-wheel. Valve opening is by anti-clockwise rotation of the hand-wheel.

Care must be taken particularly with geared valves that the plug is eased off the body stop after operation. Plug position is indicated by a moving pointer on the gearbox cover.

At the conclusion of installation and before operating, all dust deposits shall be removed from the equipment.

MAINTENANCE

The valve should be at zero pressure and ambient temperature prior to any maintenance.

Maintenance Engineers & Operators are reminded to use correct fitting tools and equipment, as follows:

-no hazardous explosive atmosphere is present.
-dust deposits have been removed and no dust cloud is present.

A full risk assessment and methodology statement must be compiled prior to any maintenance. This must include the removal of dust deposits by good housekeeping.

The risk assessment must take into account the possibility of the limits of use being exceeded whereby a potential hazard could result.

A maintenance program should therefore include checks on the development of unforeseen conditions, which could lead to failure.

In systems where corrosion could be a potential hazard, wall thickness checks on the body should be made. This requires either the removal of the valve from the pipeline or removal of the bottom cover with the system at zero pressure. If the wall thickness has reduced by 25% the valve must be replaced.

Milliken lubricated plug valves require routine maintenance and frequent operation to maintain the valve in a good operable condition.

Routine Maintenance

Valves are dispatched by Hattersley charged with sealing compound. A compound identification tag states clearly that the valve has been assembled and tested with a universal compound. The user is advised to follow the chart for specific applications. When injecting additional sealing compound care should be taken to ensure that it is of the correct type. Where the service permits, the valve should be partially or fully operated once to ensure free operation and to determine the effort required.

For infrequently operated valves maintenance is recommended at three monthly intervals and merely consists of two or three turns of the combination screw or, if gun injection, several strokes of the lever, and opening and closing the valve a minimum of three times to distribute the compound evenly around the plug. It is difficult to specify how often the valve should be recharged with sealing compound, since this is determined by the frequency of operation, type of service, pressure and temperature.

Injection of compound

When the combination screw has reaches its limit (screw fully down) this indicates that the valve needs recharging with sealing compound. When using sticks or the lightweight compound gun, remove the combination screw, insert a stick or partially fill the compound reservoir in the plug, replace the combination screw, and screw down. This operation may need repeating several times. When using the NMG 40 high-pressure gun, attach the nozzle to the injection nipple and give several steady strokes of the lever.

GUIDELINE: Valves should be (ideally) re-lubricated after 10 cycles in use with any flow medium.

VALVES MUST BE EITHER FULLY OPEN OR FULLY CLOSED WHILST THEY ARE BEING CHARGED.

INDICATION OF FULL CHARGING
The first indication of the valve becoming fully charged is an increase in the effort required to rotate the combination screw, or with the high-pressure gun injection an increase in the effort required on the lever. The effort required to operate the valve should have increased from the initial operation prior to injection of sealing compound.

Method of injection

Where the number of valves to be charged is small i.e. 12-15 valves, especially if they are in the smaller sizes, stick or lightweight gun injection can be satisfactorily used. For large quantities use of the NMG 40 high pressure gun is recommended.

Valve Leakage

Leakage through the valve indicates that the valve requires injection of sealing compound or that it needs opening and closing minimum of three times to distribute the compound evenly.

Operating Torque

Should a valve become jammed or unusually stiff to operate, this can be generally cured by the injection a sealing compound. If this is effective, it will be necessary to dismantle the valve, clean the components and recharge with sealing compound.

SERVICING

Advice is available from the Hattersley Service Department in connection with all aspects of operation, lubrication and maintenance.

VALVE REFURBISHMENT

Depending upon the age of the valve and the service conditions, it may not be possible to refurbish the valve on site. (The valve would therefore require returning to Hattersley for a full inspection and refurbishment quotation).

Full refurbishment would require the following components:- PTFE thrust washer, ball check assembly and compound.

The following procedure should be followed:

1. Isolate the system pressure and drain.
2. Operate the valve to the open position
3. Remove bottom cover, hexagon capped in an anti-clockwise direction using a correct fitting spanner. (This may require shocking with suitable shock spanner). Bolted type, (slacken & remove the nuts in a diagonal sequence:)

Note:

Care should be taken during bottom cover removal, as a spring is located within the bottom cover.

4. Remove plug using a copper rawhide mallet. Large valves may require hydraulic rams and chain equipment.
5. Clean inside the valve body, ensuring that the top plug face is free from dirt or damaged.
6. Remove the combination screw and remove compound if present.
7. A ball check valve assembly is situated at the bottom of the combination screw thread, which requires removal in an anti-clockwise direction. (A broad flat bladed screwdriver is required).
8. Clean the plug including all grooves and compound cross holes (and ball check assembly if required).
9. Re-fit or replace the ball check assembly.
10. Clean the body face where the PTFE washer sits. Fit the new PTFE washer onto the plug sealing face and re-fit the plug into valve body. (Rotating the plug may assist this operation).
11. Ensure the cover and body joint faces are clean and smooth.
12. Fit plug spring and bottom cover. Hexagon capped (in a clockwise direction using a correct fitting spanner). Bolted type (nuts to be tightened in a diagonal sequence).
13. Fit the compound combination screw and charge the valve with compound as per the maintenance instructions 'Injection of compound'.

Operate the valve, fill and pressurize the system checking for leaks at the bottom cover and further tighten if required.

For the supply of genuine Hattersley spares, technical assistance or Hattersley Valve Serve contact:

Hattersley, Epsilon Terrace West Road, Ipswich Suffolk IP3 9FJ
Email:uksales@hattersley.com
:export@hattersley.com
Tel: :+44 (0)1473 277450