FIG. 7001

Flexible Coupling

c UL us LISTED FM APPROVED

For Listings/Approval Details and Limitations, visit our website at www.anvilintl.com or contact an Anvil® Sales Representative.

The Gruvlok® Fig. 7001 Coupling forms a flexible grooved end pipe joint connection with the versatility for a wide range of applications. Services include mechanical and plumbing, process piping, mining and oil field piping, and many others. The coupling design supplies optimum strength for working pressures to 1000 PSI (69 bar) without excessive casting weight.

The flexible design eases pipe and equipment installation while providing the designed-in benefit of reducing pipeline noise and vibration transmission without the addition of special components. To ease coupling handling and assembly and to assure consistent quality, sizes 1" through 14" couplings have two 180° segment housings, 16" have three 120° segment housings, and 18" through 24" sizes have four 90° segment housings, while the 28" O.D. and 30" O.D. couplings have six 60° segment housings. The 28" O.D. and 30" O.D. are weld-ring couplings.

MATERIAL SPECIFICATIONS

BOLTS:
SAE J429, Grade 5, Zinc Electroplated
ISO 898-1, Class 8.8, Zinc Electroplated followed by a Yellow Chromate Dip

HEAVY HEX NUTS:
ASTM A563, Grade A, Zinc Electroplated
ISO 898-2, Class 8.8, Zinc Electroplated followed by a Yellow Chromate Dip

STAINLESS STEEL BOLTS & NUTS:
304SS bolts and nuts are available as a standard option.
(316SS are available for special order).

HOUSING:
Ductile Iron conforming to ASTM A 536, Grade 65-45-12

COATINGS:
- ☐ Rust inhibiting paint – Color: ORANGE (standard)
- ☐ Hot Dipped Zinc Galvanized (optional)
- ☐ Other Colors Available (IE: RAL3000 and RAL9000)

For other Coating requirements contact an Anvil Representative.

GASKETS: Materials
Properties as designated in accordance with ASTM D 2000

☐ **Grade "EP" EPDM** (Green and Red color code)
-40°F to 250°F (Service Temperature Range)(-40°C to 121°C)
Recommended for water service, diluted acids, alkalies solutions, oil-free air and many other chemical services.
NOT FOR USE IN PETROLEUM APPLICATIONS.

For hot water applications the use of Gruvlok Extreme Temperature lubricant is recommended. NSF-61 Certified for cold and hot water applications up through 12".

☐ **Grade "T" Nitrile** (Orange color code)
-20°F to 180°F (Service Temperature Range)(-29°C to 82°C)
Recommended for petroleum applications. Air with oil vapors and vegetable and mineral oils.
NOT FOR USE IN HOT WATER OR HOT AIR

☐ **Grade "O" Fluoro-Elastomer** (Blue color code)
Size Range: 1" - 12" (C style only)
20°F to 300°F (Service Temperature Range)(-29°C to 149°C)
Recommended for high temperature resistance to oxidizing acids, petroleum oils, hydraulic fluids, halogenated hydrocarbons and lubricants.

☐ **Grade "L" Silicone** (Red color code)
Size Range: 1" - 12" (C style only)
-40°F to 350°F (Service Temperature Range)(-40°C to 177°C)
Recommended for dry, hot air and some high temperature chemical services. Contact an Anvil Representative for availability.

GASKET TYPE:
- ☐ C Style (1" - 30")
- ☐ Flush Gap (1" - 24")

LUBRICATION:
- ☐ Standard
- ☐ Gruvlok Xtreme™ (Do Not use with Grade "L")

WORKING PRESSURE, END LOAD, PIPE END SEPARATION & DEFLECTION FROM CENTER LINE:
Based on standard wall steel pipe with cut or roll grooves in accordance with Gruvlok specifications. See technical data section for design factors.

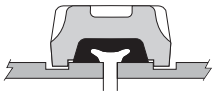


Fig. 7001 with Standard Gasket

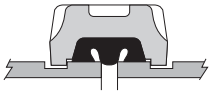
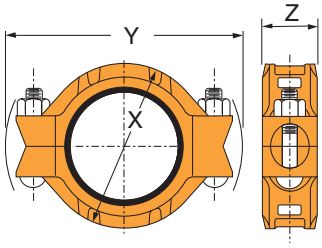


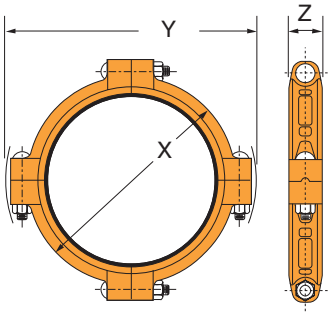
Fig. 7001 with Flush Gap Gasket

PROJECT INFORMATION	APPROVAL STAMP
Project:	☐ **Approved**
Address:	☐ **Approved as noted**
Contractor:	☐ **Not approved**
Engineer:	**Remarks:**
Submittal Date:	
Notes 1:	
Notes 2:	

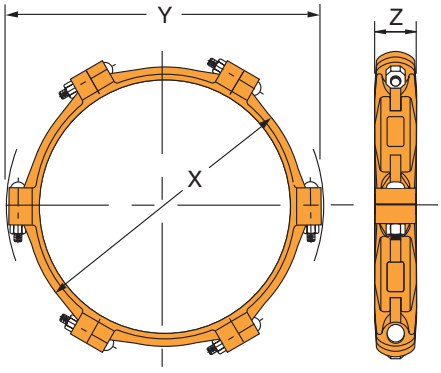
FIG. 7001
Flexible Coupling



SIZES 1" - 14"



SIZES 16" - 24"



SIZES 28" - 30"

FIGURE 7001 FLEXIBLE COUPLING

Nominal Size	O.D.	Max. Work. Pressure†	Max. End Load	Range of Pipe End Separation	Deflection from ℄		Coupling Dimensions			Bolt Dimensions*		Specified Torque §		Approx. Wt. Ea.
					Per Coupling	of Pipe	X	Y	Z	Qty.	Size	Min.	Max.	
In./DN(mm)	*In./mm*	*PSI/bar*	*Lbs./kN*	*In./mm*	*Degrees(°)-Minutes(')*	*In./ft-mm/m*	*In./mm*	*In./mm*	*In./mm*		*In./mm*	*Ft.-Lbs/N-m*		*Lbs./kg*
1 *25*	1.315 *33.4*	1000 *68.9*	1,358 *6.04*	0-1/32 *0-0.79*	1° 22'	0.29 *23.8*	2 1/2 *64*	4 1/2 *114*	1 7/8 *48*	2	3/8 x 2 1/4 *M10 x 57*	30 *40*	45 *60*	1.3 *0.6*
1 1/4 *32*	1.660 *42.2*	1000 *68.9*	2,164 *9.63*	0-1/32 *0-0.79*	1° 5'	0.23 *18.8*	2 3/4 *70*	4 1/2 *114*	1 7/8 *48*	2	3/8 x 2 1/4 *M10 x 57*	30 *40*	45 *60*	1.4 *0.6*
1 1/2 *40*	1.900 *48.3*	1000 *68.9*	2,835 *12.61*	0-1/32 *0-0.79*	0° 57'	0.20 *16.5*	3 *76*	4 5/8 *117*	1 7/8 *48*	2	3/8 x 2 1/4 *M10 x 57*	30 *40*	45 *60*	1.5 *0.7*
2 *50*	2.375 *60.3*	1000 *68.9*	4,430 *19.71*	0-1/32 *0-0.79*	0° 45'	0.16 *13.1*	3 5/8 *92*	6 1/8 *156*	1 7/8 *48*	2	1/2 x 3 *M12 x 76*	80 *110*	100 *150*	3.1 *1.4*
2 1/2 *65*	2.875 *73.0*	1000 *68.9*	6,492 *28.88*	0-1/32 *0-0.79*	0° 37'	0.13 *10.9*	4 1/4 *108*	6 1/2 *165*	1 7/8 *48*	2	1/2 x 3 *M12 x 76*	80 *110*	100 *150*	3.7 *1.7*
3 O.D. 76.1	*2.996* 76.1	*1000* 68.9	*7,050* 31.36	*0-1/32* *0-0.79*	*0° 36'*	*0.13* 10.4	*4 1/4* 108	*6 3/4* 171	*1 7/8* 48	*2*	*1/2 x 3* M12 x 76	*80* 110	*100* 150	*4.3* 2.0
3 *80*	3.500 *88.9*	1000 *68.9*	9,621 *42.80*	0-1/32 *0-0.79*	0° 31'	0.11 *8.9*	4 7/8 *124*	7 1/8 *181*	1 7/8 *48*	2	1/2 x 3 *M12 x 76*	80 *110*	100 *150*	4.3 *2.0*
3 1/2 *90*	4.000 *101.6*	1000 *68.9*	12,566 *55.90*	0-1/32 *0-0.79*	0° 27'	0.09 *7.8*	5 1/4 *133*	8 1/4 *210*	1 7/8 *48*	2	5/8 x 3 1/2 *M16 x 89*	100 *135*	130 *175*	5.1 *2.3*
4 *100*	4.500 *114.3*	1000 *68.9*	15,904 *70.75*	0-3/32 *0-2.38*	1° 12'	0.25 *20.8*	6 1/4 *159*	8 3/4 *222*	2 *51*	2	5/8 x 3 1/2 *M16 x 89*	100 *135*	130 *175*	6.8 *3.1*
5 *125*	5.563 *141.3*	1000 *68.9*	24,306 *108.12*	0-3/32 *0-2.38*	0° 58'	0.20 *16.8*	7 1/4 *184*	11 1/4 *286*	2 *51*	2	3/4 x 4 1/2 *M20 x 110*	130 *175*	180 *245*	9.6 *4.4*
6 1/2 O.D. 165.1	*6.500* 165.1	*1000* 68.9	*33,183* 147.61	*0-3/32* *0-2.38*	*0° 50'*	*0.17* 14.4	*8 1/4* 210	*11 3/4* 298	*2* 51	*2*	*3/4 x 4 1/2* M20 x 110	*130* 175	*180* 245	*11.8* 5.4
6 *150*	6.625 *168.3*	1000 *68.9*	34,472 *153.34*	0-3/32 *0-2.38*	0° 49'	0.17 *14.1*	8 5/8 *219*	11 3/4 *298*	2 *51*	2	3/4 x 4 1/2 *M20 x 110*	130 *175*	180 *245*	11.8 *5.4*
8 *200*	8.625 *219.1*	800 *55.2*	46,741 *207.91*	0-3/32 *0-2.38*	0° 37'	0.13 *10.9*	11 *279*	14 3/8 *365*	2 3/8 *60*	2	7/8 x 5 1/2 *M22 x 140*	180 *245*	220 *300*	21.7 *9.8*
10 *250*	10.750 *273.0*	800 *55.2*	72,610 *322.99*	0-3/32 *0-2.38*	0° 30'	0.11 *8.7*	13 1/8 *333*	16 5/8 *422*	2 5/8 *67*	2	7/8 x 5 1/2 *M22 x 140*	180 *245*	220 *300*	27.0 *12.2*
12 *300*	12.750 *323.9*	800 *55.2*	102,141 *454.35*	0-3/32 *0-2.38*	0° 25'	0.09 *7.3*	15 1/2 *394*	18 5/8 *473*	2 5/8 *67*	2	7/8 x 6 *M22 x 150*	180 *245*	220 *300*	35.0 *15.9*
14 *350*	14.000 *355.6*	300 *20.7*	46,181 *205.43*	0-3/32 *0-2.38*	0° 23'	0.08 *6.7*	16 1/8 *410*	20 1/2 *521*	3 *76*	2	7/8 x 5 1/2 *M22 x 140*	180 *245*	220 *300*	37.0 *16.8*
16 *400*	16.000 *406.4*	300 *20.7*	60,319 *268.31*	0-3/32 *0-2.38*	0° 20'	0.07 *5.9*	18 1/8 *460*	22 7/8 *581*	3 *76*	4	1 x 4 *	200 -	250 -	50.0 *22.7*
18 *450*	18.000 *457.2*	300 *20.7*	76,341 *339.58*	0-3/32 *0-2.38*	0° 18'	0.06 *5.2*	21 1/8 *537*	25 3/8 *645*	3 1/8 *79*	4	1 x 4 *	200 -	250 -	72.0 *32.7*
20 *500*	20.000 *508.0*	300 *20.7*	94,248 *419.23*	0-3/32 *0-2.38*	0° 16'	0.06 *4.7*	23 *584*	28 1/4 *718*	3 1/8 *79*	4	1 1/8 x 4 1/2 *	225 -	275 -	82.0 *37.2*
24 *600*	24.000 *609.6*	300 *20.7*	135,717 *603.70*	0-3/32 *0-2.38*	0° 13'	0.05 *3.9*	27 *686*	32 3/8 *822*	3 1/8 *79*	4	1 1/8 x 4 1/2 *	225 -	275 -	90.0 *40.8*
28" I.D. *733.4*	28.875 *733.4*	150 *10.3*	98,226 *436.93*	0-3/32 *0-2.38*	0° 11'	0.04 *3.2*	33 1/2 *851*	35 1/2 *902*	3 1/8 *79*	6	1 x 5 1/2 *	200 -	250 -	105.0 *47.6*
30" I.D. *787.4*	31.00 *787.4*	150 *10.3*	113,215 *503.61*	0-3/32 *0-2.38*	0° 10'	0.04 *3.0*	33 3/4 *857*	38 1/4 *972*	3 5/8 *92*	6	1 x 5 1/2 *	200 -	250 -	137.0 *62.1*

NOTES:
Range of Pipe End Separation and Angular Deflection values are for roll grooved pipe and may be doubled for cut groove pipe. See the Technical Data Section of the Gruvlok Catalog.
For Misalignment, Deflection and Curve Layout Calculations, refer to the Technical Data Section of the Gruvlok Catalog.
† Maximum Working Pressure Rating is for schedule 40 steel pipe. For light wall, stainless steel, aluminum and ISO pipe pressure ratings, please refer to the technical data section.

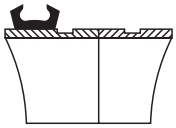
For additional details see "Coupling Data Chart Notes" in the Introduction Section of the Gruvlok Catalog.
* Available in ANSI or metric bolt sizes only as indicated.
§ – For additional Bolt Torque information, see the Technical Data Section of the Gruvlok Catalog.
See Installation & Assembly directions on next page.
Not for use in copper systems.

FIG. 7001
Flexible Coupling

1 CHECK & LUBRICATE GASKET— Check gasket to be sure it is compatible for the intended service. Apply a thin coating of Gruvlok lubricant to the exterior surface and sealing lips of the gasket. Be careful that foreign particles do not adhere to lubricated surfaces.

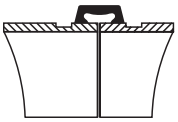
2 GASKET INSTALLATION— Slip the gasket over the pipe end making sure the gasket lip does not overhang the pipe end.

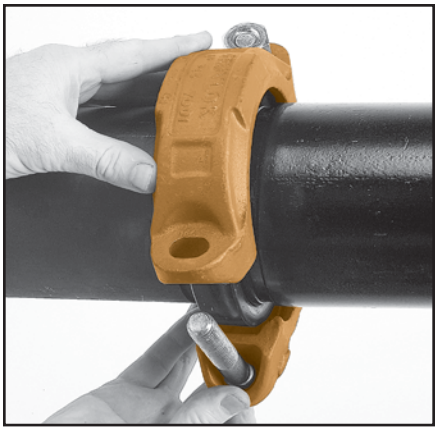
On couplings 10" and larger it may be easier to turn the gasket inside out then lubricate and slide the gasket over the pipe end as shown.



3 ALIGNMENT— After aligning the two pipe ends, pull the gasket into position centering it between the grooves on each should not extend into the groove on either pipe.

On couplings 10" and larger, flip or roll the gasket into centered position.

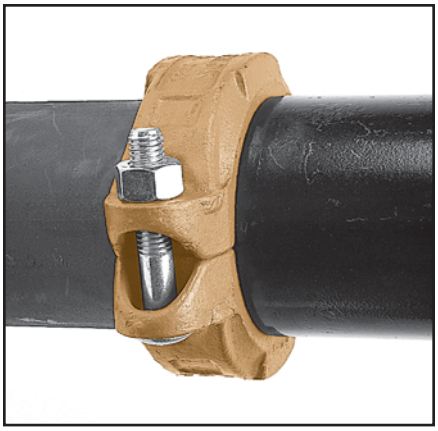




4 HOUSINGS— Place the coupling housing halves over the gasket making sure the housing keys engage the grooves. Insert bolts and turn nuts finger tight.

5 TIGHTEN NUTS— Tighten the nuts alternately and equally to the specified bolt torque. The housing bolt pads must make metal-to-metal contact.

CAUTION: Uneven tightening may cause the gasket to pinch.



6 ASSEMBLY IS COMPLETE— Visually inspect the pipe joint to assure the coupling keys are fully engaged in the pipe grooves and the bolt pads are in firm even metal-to-metal contact on both sides of the coupling.

NOTE: The housings for sizes 16" and larger are cast in four or more segments.

TO INSTALL: Loosely pre-assemble the segments into two "Housing Halves" making sure that the alignment tang(s) and slot(s) on the bolt pad(s) are properly mated. Install the "Housing Halves" as shown in steps 4 & 5. The coupling is properly installed when all bolt pads are firmly together - Metal-to-Metal.

CAUTION: Proper torquing of coupling bolts is required to obtain specified performance. Over torquing the bolts may result in damage to the bolt and/or casting which could result in pipe joint separation. Under torquing the bolts may result in lower pressure retention capabilities, lower bend load capabilities, joint leakage and pipe joint separation. Pipe joint separation may result in significant property damage and serious injury.