

## FIG. 7001 Flexible Coupling

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

#### ANSI BOLTS & HEAVY HEX NUTS:

Heat treated, oval neck track head bolts conforming to ASTM A 183 Grade 2 with a minimum tensile strength of 110,000 psi and heavy hex nuts of carbon steel conforming to ASTM A 563 Grade A or Grade B, or J995 Grade 2. Bolts and nuts are provided zinc electroplated as standard.

#### METRIC BOLTS & HEAVY HEX NUTS:

Heat treated, zinc electroplated oval-neck track head bolts made of carbon steel with mechanical properties per ISO 898-1 Class 8.8. Hex nuts are zinc electroplated followed by a yellow chromate dip.

#### STAINLESS STEEL BOLTS & NUTS:

304SS Stainless Steel 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, alkalis 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.

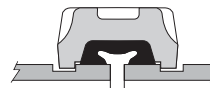


Fig. 7001 with Standard Gasket

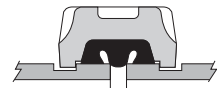
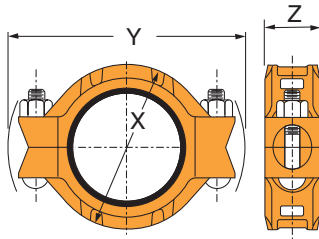


Fig. 7001 with Flush Gap Gasket

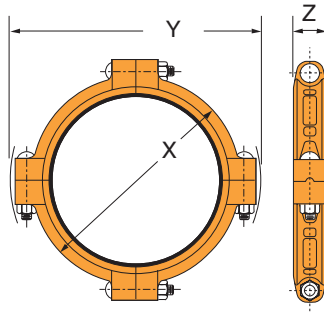
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Contractor:		<input type="checkbox"/> Not approved	
Engineer:		Remarks:	
Submittal Date:			
Notes 1:			
Notes 2:			

## FIG. 7001

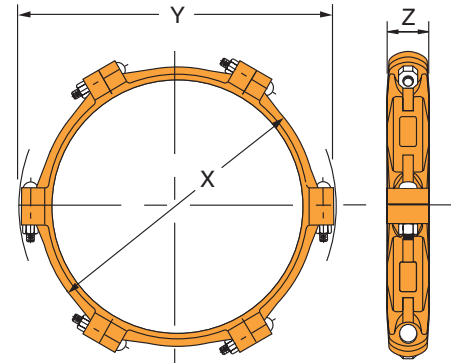
### Flexible Coupling



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 C		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	1.315	1000	1,358	0-1/32	1° 22'	0.29	2 1/2	4 1/2	1 7/8	2	3/8 x 2 1/4	30	45	1.3
25	33.4	68.9	6.04	0-0.79		23.8	64	114	48		M10 x 57	40	60	0.6
1 1/4	1.660	1000	2,164	0-1/32	1° 5'	0.23	2 3/4	4 1/2	1 7/8	2	3/8 x 2 1/4	30	45	1.4
32	42.2	68.9	9.63	0-0.79		18.8	70	114	48		M10 x 57	40	60	0.6
1 1/2	1.900	1000	2,835	0-1/32	0° 57'	0.20	3	4 5/8	1 7/8	2	3/8 x 2 1/4	30	45	1.5
40	48.3	68.9	12.61	0-0.79		16.5	76	117	48		M10 x 57	40	60	0.7
2	2.375	1000	4,430	0-1/32	0° 45'	0.16	3 5/8	6 1/8	1 7/8	2	1/2 x 3	80	100	3.1
50	60.3	68.9	19.71	0-0.79		13.1	92	156	48		M12 x 76	110	150	1.4
2 1/2	2.875	1000	6,492	0-1/32	0° 37'	0.13	4 1/4	6 1/2	1 7/8	2	1/2 x 3	80	100	3.7
65	73.0	68.9	28.88	0-0.79		10.9	108	165	48		M12 x 76	110	150	1.7
3 O.D.	2.996	1000	7,050	0-1/32	0° 36'	0.13	4 1/4	6 3/4	1 7/8	2	1/2 x 3	80	100	4.3
76.1	76.1	68.9	31.36	0-0.79		10.4	108	171	48		M12 x 76	110	150	2.0
3	3.500	1000	9,621	0-1/32	0° 31'	0.11	4 7/8	7 1/8	1 7/8	2	1/2 x 3	80	100	4.3
80	88.9	68.9	42.80	0-0.79		8.9	124	181	48		M12 x 76	110	150	2.0
3 1/2	4.000	1000	12,566	0-1/32	0° 27'	0.09	5 1/4	8 1/4	1 7/8	2	3/8 x 3 1/2	100	130	5.1
90	101.6	68.9	55.90	0-0.79		7.8	133	210	48		M16 x 89	135	175	2.3
4	4.500	1000	15,904	0-3/32	1° 12'	0.25	6 1/4	8 3/4	2	2	3/8 x 3 1/2	100	130	6.8
100	114.3	68.9	70.75	0-2.38		20.8	159	222	51		M16 x 89	135	175	3.1
5	5.563	1000	24,306	0-3/32	0° 58'	0.20	7 1/4	11 1/4	2	2	3/4 x 4 1/2	130	180	9.6
125	141.3	68.9	108.12	0-2.38		16.8	184	286	51		M20 x 110	175	245	4.4
6 1/2 O.D.	6.500	1000	33,183	0-3/32	0° 50'	0.17	8 1/4	11 3/4	2	2	3/4 x 4 1/2	130	180	11.8
165.1	165.1	68.9	147.61	0-2.38		14.4	210	298	51		M20 x 110	175	245	5.4
6	6.625	1000	34,472	0-3/32	0° 49'	0.17	8 5/8	11 3/4	2	2	3/4 x 4 1/2	130	180	11.8
150	168.3	68.9	153.34	0-2.38		14.1	219	298	51		M20 x 110	175	245	5.4
8	8.625	800	46,741	0-3/32	0° 37'	0.13	11	14 3/8	2 3/8	2	7/8 x 5 1/2	180	220	21.7
200	219.1	55.2	207.91	0-2.38		10.9	279	365	60		M22 x 140	245	300	9.8
10	10.750	800	72,610	0-3/32	0° 30'	0.11	13 1/8	16 5/8	2 5/8	2	7/8 x 5 1/2	180	220	27.0
250	273.0	55.2	322.99	0-2.38		8.7	333	422	67		M22 x 140	245	300	12.2
12	12.750	800	102,141	0-3/32	0° 25'	0.09	15 1/2	18 5/8	2 5/8	2	7/8 x 6	180	220	35.0
300	323.9	55.2	454.35	0-2.38		7.3	394	473	67		M22 x 150	245	300	15.9
14	14.000	300	46,181	0-3/32	0° 23'	0.08	16 1/8	20 1/2	3	2	7/8 x 5 1/2	180	220	37.0
350	355.6	20.7	205.43	0-2.38		6.7	410	521	76		M22 x 140	245	300	16.8
16	16.000	300	60,319	0-3/32	0° 20'	0.07	18 1/8	22 7/8	3	4	1 x 4	200	250	50.0
400	406.4	20.7	268.31	0-2.38		5.9	460	581	76		*	-	-	22.7
18	18.000	300	76,341	0-3/32	0° 18'	0.06	21 1/8	25 3/8	3 1/8	4	1 x 4	200	250	72.0
450	457.2	20.7	339.58	0-2.38		5.2	537	645	79		*	-	-	32.7
20	20.000	300	94,248	0-3/32	0° 16'	0.06	23	28 1/4	3 1/8	4	1 1/8 x 4 1/2	225	275	82.0
500	508.0	20.7	419.23	0-2.38		4.7	584	718	79		*	-	-	37.2
24	24.000	300	135,717	0-3/32	0° 13'	0.05	27	32 3/8	3 1/8	4	1 1/8 x 4 1/2	225	275	90.0
600	609.6	20.7	603.70	0-2.38		3.9	686	822	79		*	-	-	40.8
28" O.D.	28.875	150	98,226	0-3/32	0° 11'	0.04	33 1/2	35 1/2	3 1/8	6	1 x 5 1/2	200	250	105.0
733.4	733.4	10.3	436.93	0-2.38		3.2	851	902	79		*	-	-	47.6
30" I.D.	31.00	150	113,215	0-3/32	0° 10'	0.04	33 3/4	38 1/4	3 5/8	6	1 x 5 1/2	200	250	137.0
787.4	787.4	10.3	503.61	0-2.38		3.0	857	972	92		*	-	-	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 page 204 for details. Refer to page 210 for Misalignment & Deflection Calculations and page 211 for Curve Layout Calculations.

\* Available in ANSI or metric bolt sizes only as indicated.  
For additional details see "Coupling Data Chart Notes" on page 17.  
§ - For additional Bolt Torque information, see page 204.  
See Installation & Assembly directions on page 166.  
Not for use in copper systems.

# FIG. 7001

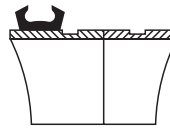
## Flexible Coupling



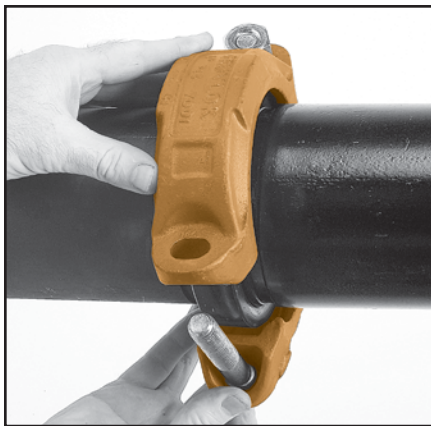
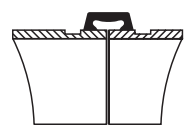
**1 CHECK & LUBRICATE GASKET—** Check gasket to be sure it is compatible for the intended service. Apply a thin coating of Gruzlok lubricant to the exterior surface and sealing lips of the gasket. Be careful that foreign particles do not adhere to lubricated surfaces.



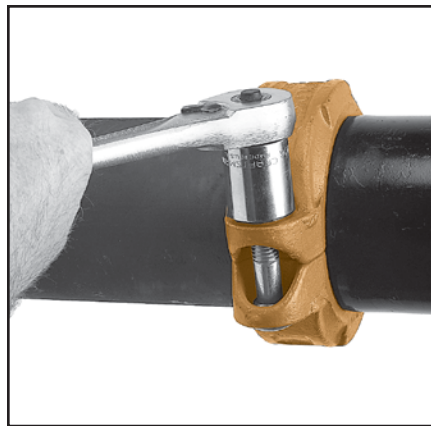
**2 GASKET INSTALLATION—** Slip the gasket over the pipe end making sure the gasket lip does not overhang the pipe end. On couplings 10" and larger it may be easier to turn the gasket inside out then lubricate and slide the gasket over the pipe end as shown.



**3 ALIGNMENT—** After aligning the two pipe ends, pull the gasket into position centering it between the grooves on each 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.