

## Flexible Coupling Fig. 7001



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.

For Listings/Approval Details and Limitations, visit our website at [www.asc-es.com](http://www.asc-es.com) or contact an ASC Engineered Solutions™ Sales Representative.

## 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

### Hardware Kits

304 Stainless Steel (available in sizes up to 3/4")

Kit includes:

- (2) Bolts per ASTM A193, Grade B8
- (2) Heavy Hex Nuts per ASTM A194, Grade 8

EcoGuard (available in sizes up to 3/4")

Kit includes:

- (2) Bolts per SAE J429, Grade 5, with EcoGuard corrosion-resistant zinc flake coating
- (2) Heavy Hex Nuts per ASTM A563, Grade A, EcoGuard corrosion-resistant zinc flake coating

## Material Specifications (Continued)

### Housing

Ductile Iron conforming to ASTM A536, Grade 65-45-12

### Coatings

Rust inhibiting paint

Color: Orange (standard)

Hot Dipped Zinc Galvanized (optional)

### Gaskets

Properties as designated in accordance with ASTM D2000

**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)

(-7°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 ASC Engineered Solutions 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.

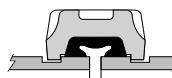


Fig. 7001 with Standard Gap Gasket

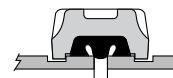


Fig. 7001 with Flush Gap Gasket



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An ASC Engineered Solution

## PROJECT INFORMATION

Project:

Address:

Contractor:

Engineer:

Submittal Date:

Notes 1:

Notes 2:

## APPROVAL STAMP

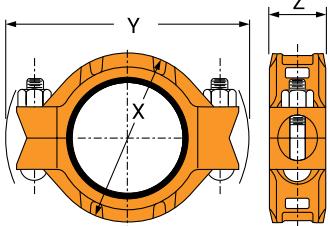
Approved

Approved as noted

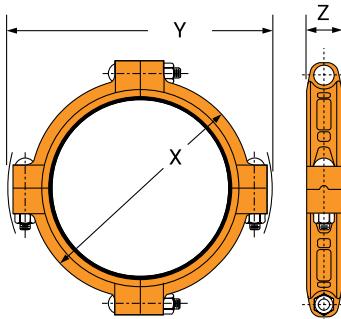
Not approved

Remarks:

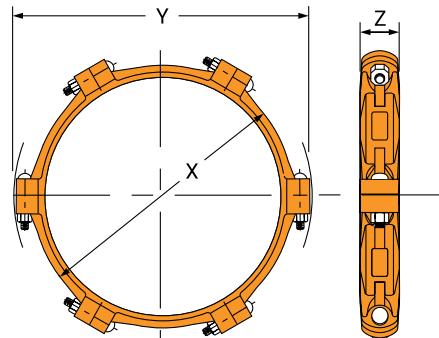
## Flexible Coupling Fig. 7001



Sizes 1" - 14"



Sizes 16" - 24"



Sizes 28" - 30"

Nominal Size	O.D.	Max. Working Pressure on Sched.40	Max. Working Pressure on Sched.10	Max. End Load	Nominal Range of Pipe End Separation	Deflection from C		Coupling Dimensions			Bolt Dimensions		Approx. Wt. Ea.	
						Angular	Linear	X	Y	Z	Qty.	Size		
In./DN(mm)	In./mm	PSI/bar	PSI/bar	Lbs./kN	In./mm	Degrees	In./Ft-mm/m	In./mm	In./mm	In./mm	Qty.	Size	In./mm	Lbs./kg
1 25	1.315 33.4	1000 68.9	750 51.7	1,358 6.04	0 - 0.13 0 - 3.18	2.73	0.57 47.6	2 1/2 64	4 1/2 114	1 7/8 48	2	3/8 x 2 1/4 M10 x 57	1.3 0.6	
1 1/4 32	1.660 42.2	1000 68.9	750 51.7	2,164 9.63	0 - 0.13 0 - 3.18	2.17	0.45 37.6	2 3/4 70	4 1/2 114	1 7/8 48	2	3/8 x 2 1/4 M10 x 57	1.4 0.6	
1 1/2 40	1.900 48.3	1000 68.9	750 51.7	2,835 12.61	0 - 0.13 0 - 3.18	1.90	0.40 33.0	3 76	4 5/8 117	1 7/8 48	2	3/8 x 2 1/4 M10 x 57	1.5 0.7	
2 50	2.375 60.3	1000 68.9	750 51.7	4,430 19.71	0 - 0.13 0 - 3.18	1.50	0.31 26.2	3 5/8 92	6 1/8 156	1 7/8 48	2	1/2 x 3 M12 x 76	3.1 1.4	
2 1/2 65	2.875 73.0	1000 68.9	750 51.7	6,492 28.88	0 - 0.13 0 - 3.18	1.23	0.26 21.8	4 1/4 108	6 1/2 165	1 7/8 48	2	1/2 x 3 M12 x 76	3.7 1.7	
3 80	3.500 88.9	1000 68.9	750 51.7	9,621 42.80	0 - 0.13 0 - 3.18	1.03	0.21 17.8	4 7/8 124	7 1/8 181	1 7/8 48	2	1/2 x 3 M12 x 76	4.3 2.0	
3 1/2 90	4.000 101.6	1000 68.9	750 51.7	12,566 55.90	0 - 0.13 0 - 3.18	0.90	0.19 15.6	5 1/4 133	8 1/4 210	1 7/8 48	2	5/8 x 3 1/2 M16 x 89	5.1 2.3	
4 100	4.500 114.3	1000 68.9	750 51.7	15,904 70.75	0 - 0.25 0 - 6.35	1.60	0.33 27.7	6 1/4 159	8 3/4 222	2	5/8 x 3 1/2 M16 x 89	6.8 3.1		
5 125	5.563 141.3	1000 68.9	500 34.5	24,306 108.12	0 - 0.25 0 - 6.35	1.29	0.27 22.4	7 1/4 184	11 1/4 286	2	3/4 x 4 1/2 M20 x 110	9.6 4.4		
6 1/2 O.D. 165.1	6.500 165.1	1000 68.9	- -	33,183 147.61	0 - 0.25 0 - 6.35	1.11	0.23 19.2	8 1/4 210	11 3/4 298	2	3/4 x 4 1/2 M20 x 110	11.8 5.4		

### Notes:

Maximum end load is defined as the max allowable force from the combination of internal pressure thrust at the pipe joint and external loads based on the use of standard ASME B36.10 pipe that is grooved in accordance with ASC's groove specification.

Pressure ratings and end loads may differ for other pipe materials and/or wall thicknesses.

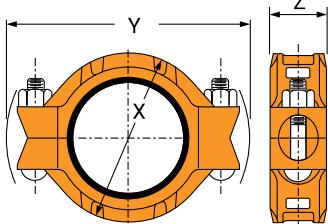
See Gruvlok Coupling Working Pressure Ratings document published in the resources section of the website for pressure ratings on alternate pipe materials.



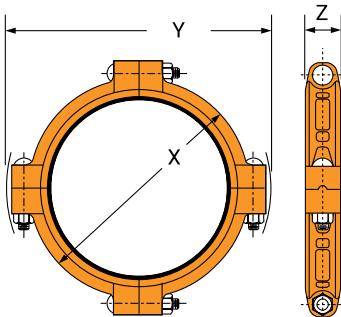
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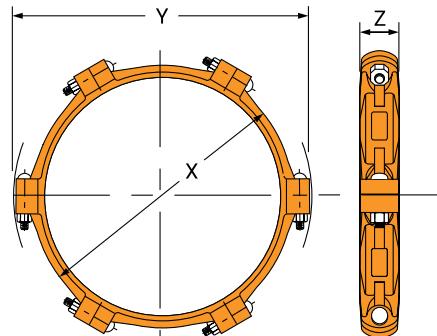
## Flexible Coupling Fig. 7001



Sizes 1" – 14"



Sizes 16" – 24"



Sizes 28" – 30"

Nominal Size	O.D.	Max. Working Pressure on Sched.40	Max. Working Pressure on Sched.10	Max. End Load	Nominal Range of Pipe End Separation	Deflection from C		Coupling Dimensions			Bolt Dimensions		Approx. Wt. Ea.	
						Angular	Linear	X	Y	Z	Qty.	Size		
In./DN(mm)	In./mm	PSI/bar	PSI/bar	Lbs./kN	In./mm	Degrees	In./Ft-mm/m	In./mm	In./mm	In./mm	Qty.	Size	In./mm	Lbs./kg
6 150	6.625 168.3	1000 68.9	500 34.5	34,472 153.34	0 - 0.25 0 - 6.35	1.09	0.23 18.8	8 <sup>5</sup> / <sub>8</sub> 219	11 <sup>3</sup> / <sub>4</sub> 298	2 51	2	3/4 x 4 1/2 M20 x 110	11.8 5.4	
8 200	8.625 219.1	800 55.2	400 27.6	46,741 207.91	0 - 0.25 0 - 6.35	0.82	0.17 14.5	11 279	14 <sup>3</sup> / <sub>8</sub> 365	2 <sup>3</sup> / <sub>8</sub> 60	2	7/8 x 5 1/2 M22 x 140	21.7 9.8	
10 250	10.750 273.0	800 55.2	350 24.1	72,610 322.99	0 - 0.25 0 - 6.35	0.67	0.14 11.6	13 <sup>1</sup> / <sub>8</sub> 333	16 <sup>5</sup> / <sub>8</sub> 422	2 <sup>5</sup> / <sub>8</sub> 67	2	7/8 x 5 1/2 M22 x 140	27.0 12.2	
12 300	12.750 323.9	800 55.2	350 24.1	102,141 454.35	0 - 0.25 0 - 6.35	0.56	0.12 9.7	15 <sup>1</sup> / <sub>2</sub> 394	18 <sup>5</sup> / <sub>8</sub> 473	2 <sup>5</sup> / <sub>8</sub> 67	2	7/8 x 6 M22 x 150	35.0 15.9	
14 350	14.000 355.6	350 20.7	250 17.2	46,181 205.43	0 - 0.25 0 - 6.35	0.51	0.11 8.9	16 <sup>1</sup> / <sub>8</sub> 410	20 <sup>1</sup> / <sub>2</sub> 521	3 76	2	7/8 x 5 1/2 M22 x 140	37.0 16.8	
16 400	16.000 406.4	300 20.7	175 12.1	60,319 268.31	0 - 0.25 0 - 6.35	0.44	0.09 7.9	18 <sup>1</sup> / <sub>8</sub> 460	22 <sup>7</sup> / <sub>8</sub> 581	3 76	4	1 x 4	50.0	
18 450	18.000 457.2	300 20.7	100 6.9	76,341 339.58	0 - 0.25 0 - 6.35	0.40	0.08 6.9	21 <sup>1</sup> / <sub>8</sub> 537	25 <sup>3</sup> / <sub>8</sub> 645	3 <sup>1</sup> / <sub>8</sub> 79	4	1 x 4	72.0	
20 500	20.000 508.0	300 20.7	100 6.9	94,248 419.23	0 - 0.25 0 - 6.35	0.36	0.08 6.3	23 584	28 <sup>1</sup> / <sub>4</sub> 718	3 <sup>1</sup> / <sub>8</sub> 79	4	1 1/8 x 4 1/2 *	82.0 37.2	
24 600	24.000 609.6	300 20.7	75 5.2	135,717 603.70	0 - 0.25 0 - 6.35	0.29	0.06 5.2	27 686	32 <sup>3</sup> / <sub>8</sub> 822	3 <sup>1</sup> / <sub>8</sub> 79	4	1 1/8 x 4 1/2 *	90.0 40.8	
28" I.D. 733.4	28.875 733.4	150 10.3	-	98,226 436.93	0 - 0.25 0 - 6.35	0.24	0.05 4.3	33 <sup>1</sup> / <sub>2</sub> 851	35 <sup>1</sup> / <sub>2</sub> 902	3 <sup>1</sup> / <sub>8</sub> 79	6	1 x 5 1/2 *	105.0 47.6	
30" I.D. 787.4	31.00 787.4	150 10.3	-	113,215 503.61	0 - 0.25 0 - 6.35	0.22	0.05 4.0	33 <sup>3</sup> / <sub>4</sub> 857	38 <sup>1</sup> / <sub>4</sub> 972	3 <sup>5</sup> / <sub>8</sub> 92	6	1 x 5 1/2 *	137.0 62.1	

**Notes:**

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## Fig. 7001 Flexible Coupling

### 1 Check & Lubricate Gasket

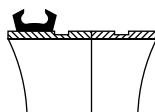
Check gasket to be sure it is compatible for the intended service. Apply a thin coating of Gruvllok® lubricant to the exterior surface and sealing lips of the gasket. Be careful that foreign particles do not adhere to lubricated surfaces.



1

### 2 Gasket Installation

Slip the gasket over the pipe end making sure the gasket lip does not overhang the pipe end.



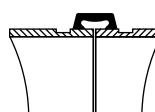
On couplings 10" and larger it may be easier to turn the gasket inside out then lubricate and slide the gasket over the pipe end as shown.



2

### 3 Alignment

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



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



3

### 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.



4

### 5 Tighten Nuts

Securely tighten nuts alternately and equally, keeping the gaps at the bolt pads evenly spaced until there is metal-to-metal contact at the bolt pads. The housing bolt pads must make metal-to-metal contact.



5

#### Maximum Bolt Torque

Bolt Size (In.)	Wrench Size (In.)	Ft-Lbs
3/8	11/16	50
1/2	7/8	120
5/8	1 1/16	235
3/4	1 1/2	425
7/8	1 7/16	675
1	1 5/8	900
1 1/8	1 3/4	900

**CAUTION:** Uneven tightening may cause the gasket to pinch. Gasket should not be visible between segments after bolts are tightened.

#### WARNING:

Proper tightening of coupling bolts is required to obtain specified performance. Over tightening the bolts may result in joint damage. Pipe joint separation may result in significant property damage and serious injury.

### 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.



6