ASC Engineered Solutions

Rigidlok® Coupling
Fig. 7401

The Fig. 7401 Rigidlok Coupling is an ideal connector for service and applications that require a rigid connection.

The Fig. 7401 Rigidlok coupling utilizes a technologically advanced housing design that conforms to and grips the pipe.

Coupling installation is fast and easy, remove only one nut and swing the housing over the gasket and into the grooves. The exclusive Guidelok feature automatically separates the grooved pipe ends and guides the coupling into position as the bolts are tightened. Precisely sized and oriented tines in the housing key section firmly grip the pipe. The combination of these designed in features produce a secure, rigid pipe joint connection.

The Fig. 7401 Rigidlok Coupling is designed for use with roll grooved or cut grooved standard weight and roll grooved lightweight pipe, as well as with grooved-end fittings and valves. The Rigidlok Coupling provides a rigid pipe connection allowing pipe hanging practices per ASME B31 pipe codes.

The Fig. 7401 Rigidlok Coupling allows for a maximum working pressure of 750 psi (51.7 bar) when used on standard wall roll or cut grooved pipe.

Material Specifications

Bolts
SAE J429, Grade 5, Zinc Electroplated (standard)

Heavy Hex Nuts
SAE A563, Grade A, Zinc Electroplated (standard)

Hardware Kits
☐ 304 Stainless Steel (available in sizes up to ¾")
Kit includes:
- (2) Bolts per ASTM A193, Grade B8 and
- (2) Heavy Hex Nuts per ASTM A194, Grade 8.

Material Specifications (continued)

Hardware Kits (continued)
☐ EcoGuard (available in sizes up to ¾")
Kit includes:
- Bolts per SAE J429, Grade 5, with EcoGuard corrosion-resistant zinc flake coating and
- (2) Heavy Hex Nuts per ASTM A563, Grade A, EcoGuard corrosion-resistant zinc flake coating.

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 Xtreme Temperature lubricant is recommended. NSF-61.
☐ **Grade "T" Nitrile** (Orange color code)
NOT FOR USE IN DRINKING WATER
-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)
NOT FOR USE IN DRINKING WATER
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)
NOT FOR USE IN DRINKING WATER
Size Range: 1" - 8" (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.

Gasket Type
☐ C Style (1" - 24")
☐ Flush Gap (1" - 24")

Lubrication
☐ Standard
☐ Gruvlok Xtreme (Do Not use for Grade "L")

GRUVLOK
An ASC Engineered Solution

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

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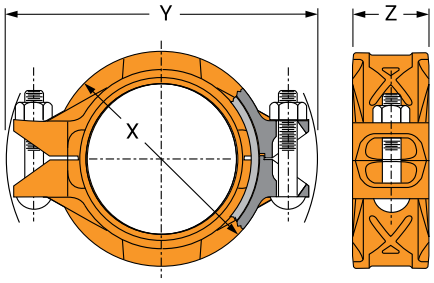
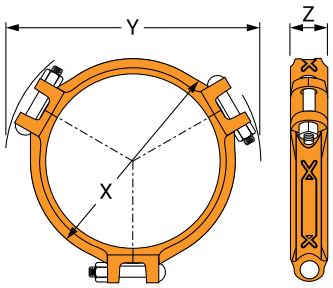
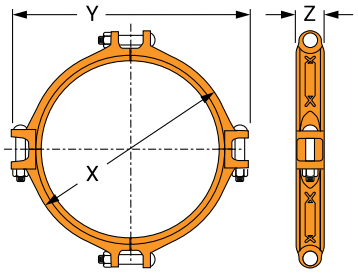


Sizes 1½" – 14"



Size 16"



Sizes 18" – 24"

Nominal Size	Pipe O.D.	Max. Working Pressure on Sched. 40	Max. Working Pressure on Sched. 10	Max. End Load	Allowable Pipe End Separation	Coupling Dimensions			Coupling Bolts		Approx. Wt. Ea.
						X	Y	Z	Qty.	Size	
In./DN(mm)	In./mm	PSI/bar	PSI/bar	Lbs./kN	In./mm	In./mm	In./mm	In./mm		In./mm	Lbs./kg
1½ 40	1.900 48.3	750 51.7	750 51.7	2,126 9.46	0.13 3.18	3 76	5⅛ 130	1⅞ 48	2	⅜ x 2¼ M10 x 57	1.8 0.8
2 50	2.375 60.3	750 51.7	750 51.7	3,323 14.78	0.13 3.18	3½ 89	5⅝ 143	1⅞ 48	2	⅜ x 2½ M10 x 63	2.4 1.1
2½ 65	2.875 73.0	750 51.7	750 51.7	4,869 21.66	0.13 3.18	4 102	6⅛ 156	1⅞ 48	2	⅜ x 2½ M10 x 63	2.9 1.3
3 O.D. 76.1	2.996 76.1	750 51.7	- -	5,207 23.52	0.13 3.18	4⅛ 105	6⅛ 156	1⅞ 48	2	⅜ x 2½ M10 x 63	3.4 1.5
3 80	3.500 88.9	750 51.7	750 51.7	7,216 32.10	0.13 3.18	4¾ 121	7¼ 184	1⅞ 48	2	½ x 3 M12 x 76	3.6 1.6
4 100	4.500 114.3	750 51.7	750 51.7	11,928 53.06	0.20 5.08	5⅞ 149	8⅜ 213	2⅛ 54	2	½ x 3 M12 x 76	5.0 2.3
5 125	5.563 141.3	750 51.7	500 34.5	18,229 81.09	0.20 5.08	7 178	10 254	2⅛ 54	2	⅝ x 3½ M16 x 85	6.9 3.1
6½ O.D. 165.1	6.500 165.1	750 51.7	- -	24,887 110.70	0.20 5.08	8 203	11 279	2⅛ 54	2	⅝ x 3½ M16 x 85	7.6 3.4
6 150	6.625 168.3	750 51.7	500 34.5	25,854 115.00	0.20 5.08	8⅛ 206	11⅛ 283	2⅛ 54	2	⅝ x 3½ M16 x 85	7.9 3.6

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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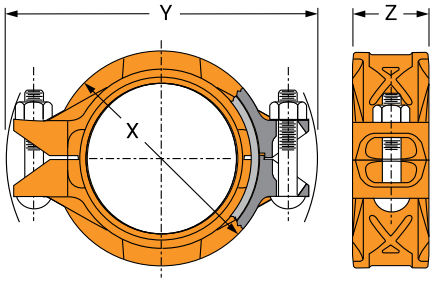
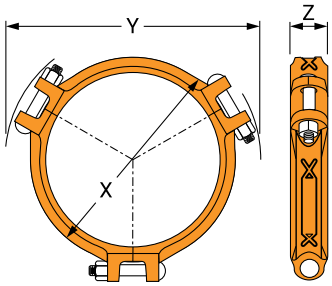
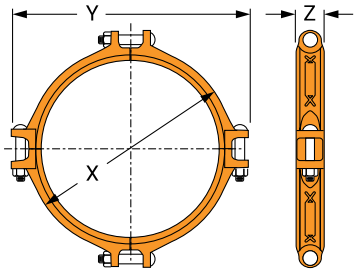


Sizes 1½" – 14"



Size 16"



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						X	Y	Z	Qty.	Size	
In./DN(mm)	In./mm	PSI/bar	PSI/bar	Lbs./kN	In./mm	In./mm	In./mm	In./mm		In./mm	Lbs./kg
8 200	8.625 219.1	600 41.4	400 27.6	35,056 155.94	0.20 5.08	10½ 267	14⅛ 359	2⅝ 67	2	¾ x 4½ M20 x 110	15.9 7.2
10 250	10.750 273.1	500 34.5	350 24.1	45,381 201.87	0.20 5.08	12⅞ 327	17½ 445	2⅝ 67	2	1 x 6 M24 x 150	25.6 11.6
12 300	12.750 323.9	400 27.6	350 24.1	51,070 227.17	0.20 5.08	15 381	19½ 495	2⅝ 67	2	⅞ x 6 M22 x 150	30.5 13.8
14 350	14.000 355.6	350 20.7	250 17.2	46,181 205.43	0.20 5.08	16¼ 413	19¾ 502	3 76	2	⅞ x 5½ M22 x 140	36.1 16.4
16 400	16.000 406.4	300 20.7	175 12.1	60,319 268.31	0.20 5.08	18⅛ 460	22¼ 565	3 76	3	⅞ x 5½ M22 x 140	42.0 19.1
18 450	18.000 457.2	300 20.7	100 6.9	76,341 339.58	0.20 5.08	20½ 521	24⅜ 619	3⅛ 79	4	1 x 4 M24 x 100	51.6 23.4
20 500	20.000 508.0	300 20.7	100 6.9	94,248 419.23	0.20 5.08	23 581	26⅞ 683	3⅛ 79	4	1 x 4 M24 x 100	68.3 31.0
24 600	24.000 609.6	250 17.2	75 5.2	113,097 503.08	0.20 5.08	27⅛ 689	30⅞ 784	3⅛ 79	4	1 x 4 M24 x 100	89.3 40.5

Notes:

For Misalignment, Deflection and Curve Layout Calculations, refer to the Technical Data Section of the Gruvlok Catalog.

Maximum Pressure and End Load are total from all loads based on standard weight steel pipe. Pressure ratings and end loads may differ for other pipe materials and/or wall thicknesses. Contact an ASC Engineered Solutions™ Sales Representative for details.

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Fig. 7401 Rigidlok® Coupling

WARNING

Read and understand all instructions before use.

Ensure system is drained and depressurized before installation or service.

Use appropriate personal protective equipment.

Failure to follow these instructions could result in serious personal injury and/or property damage.

Check pipe ends for proper grooved dimensions and to ensure that the pipe is free of indentations, projections, or other imperfections that would prevent proper sealing of the gasket.

1 Check & Lubricate Gasket

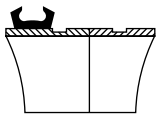
Check gasket to be sure it is compatible for the intended service. Apply a thin coating of Gruvlok lubricant to the exterior surface and sealing lips of the gasket. Some applications require lubrication of the entire gasket surface. Be careful that foreign particles do not adhere to lubricated surfaces.

Notice: Gruvlok Xtreme Lubricant must be applied when used in dry pipe systems or freezer applications separation. Pipe joint separation may result in significant property damage and serious injury.

2 Gasket Installation

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

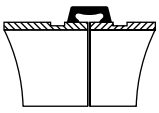
On couplings 10" and larger it may be easier to turn the gasket inside out then lubricate and slide the gasket over the pipe end as shown.



3 Alignment

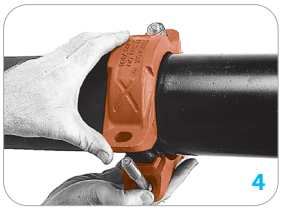
After aligning the two pipe ends, pull the gasket into position centering it between the grooves on each pipe. Gasket should not extend into the groove on either pipe.

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



4 Housings

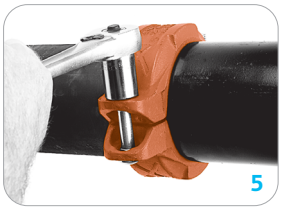
Remove one nut and bolt and loosen the other nut. Place one housing over the gasket, making sure the housing keys fit into the pipe grooves. Swing the other housing over the gasket and into the grooves on both pipes, making sure the tongue and recess of each housing is properly mated. Reinsert the bolt and run-up both nuts finger tight.



5 Tighten Nuts

Securely tighten nuts alternately and equally, keeping the gaps at the bolt pads evenly spaced.

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



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 1/4	425
1	1 5/8	900

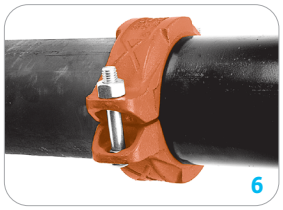
WARNING:
Proper tightening of coupling bolts is required to obtain specified performance. Over tightening the bolts may result in joint damage. Pipe joint separation may result in significant property damage and serious injury.

6 Assembly is Complete

Visually inspect the pipe joint to assure the coupling keys are fully engaged in the pipe grooves. The bolt pads are to have equal gaps on each side of the coupling.

Notice: Visually inspect both sides of the coupling to ensure gaps between bolt pads are evenly spaced and are parallel. Any deviations must be corrected before placing coupling into service.

Notice: Sizes 16" and larger are cast in multiple segments. To install the larger sizes align the tongue and pocket of the couplings appropriately and tighten the nuts alternately to the specified bolt torque. When properly assembled there will be a small equal gap between the adjacent bolt pads.



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