

**Gruvlok Flange  
Fig. 7012\***



 - Available galvanized



The Gruvlok Fig. 7012 Flange allows direct connection of Class 125 or Class 150 flanged components to a grooved piping system. The two interlocking halves of the 2" thru 12" sizes of the Gruvlok Flange are hinged for ease of handling, and are drawn together by a latch bolt which eases assembly on the pipe. Precision machined bolt holes, key and mating surfaces assure concentricity and flatness to provide exact fit-up with flanged, lug, and wafer styles of pipe system equipment. A specially designed gasket provides a leak-tight seal on both the pipe and the mating flange face.

Working pressure ratings shown are for reference only and are based on Schedule 40 pipe. For the latest UL/ULC listed, LPCB, VdS and FM Approved pressure ratings versus pipe schedule, see [www.asc-es.com](http://www.asc-es.com) or contact your local ASC Engineered Solutions™ Representative.

The Gruvlok Fig. 7012 Flange requires the use of a steel adapter insert when used against rubber faced surfaces, wafer/lug design valves and serrated or irregular sealing surfaces. (See Installation and Assembly Instructions Section or contact your ASC Engineered Solutions™ Representative for details.)

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

### Housing

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

### Latch Bolt/Nut (2"-12")

Heat treated, zinc electroplated, carbon steel oval neck track bolts conforming to ASTM A183 and zinc electroplated heavy hex nuts of carbon steel conforming to ASTM A563 Grade A or Grade B, or J995 Grade 2.

### 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 and bolts are zinc electroplated followed by a yellow chromate dip.

### Coatings

- Rust inhibiting paint
- Color: Orange (Standard)
- Hot Dipped Zinc Galvanized (Optional)
- Other Available Options  
(Example: RAL3000 or RAL9000 Series)

For other coating requirements contact an ASC Engineered Solutions Representative.

### Lubrication

- Standard Gruvlok
- Gruvlok Xtreme required for dry pipe systems and freezer applications

### Gasket Materials

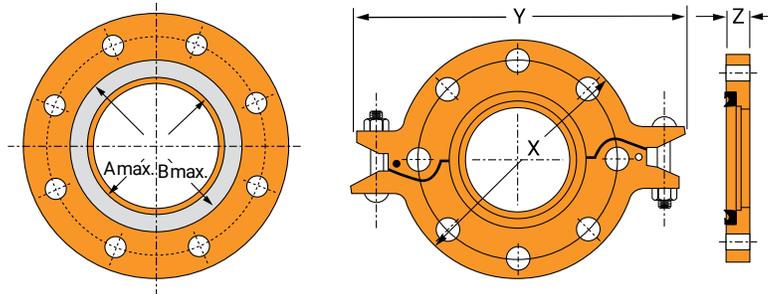
Properties as designated in accordance with ASTM D2000.

- Grade "E" EPDM** (Green color code)  
-40°F to 230°F (Service Temperature Range)  
(-40°C to 110°C)  
Recommended for water service, diluted acids, alkalis solutions, oil-free air and many chemical services.  
NOT FOR USE IN PETROLEUM APPLICATIONS.



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

## Gruvlok Flange Fig. 7012\*



Nominal Size	Pipe O.D.	Max. Working Pressure ▲	Max. End Load ▲	Latch Bolt			Dimensions			Sealing Surface		Mating Flange Bolts			Approx. Wt. Ea.	
				Latch Bolt Size*	Specified Torque § Min.	Specified Torque § Max.	X	Y	Z	A Max.	B Min.	Mating Flange Bolts Qty.	Flange Bolts Size (ANSI)	Specified Torque § Min.		Specified Torque § Max.
In./DN(mm)	In./mm	PSI/bar	Lbs./kN	In./mm	Ft.-Lbs/N-m	Ft.-Lbs/N-m	In./mm	In./mm	In./mm	In./mm	In./mm		In. (ISO) mm	Ft.-Lbs/N-m	Ft.-Lbs/N-m	Lbs./kg
2 50	2.375 60.3	300 20.7	1,329 5.91	3/8 x 2 3/4 M10 x 70	30 40	45 60	6 1/4 159	8 3/8 213	3/4 19	2 3/8 60	3 7/16 87	4 4	5/8 x 2 3/4 M16 x 70	110 149	140 190	4.2 1.9
2 1/2 65	2.875 73.0	300 20.7	1,948 8.66	3/8 x 2 3/4 M10 x 70	30 40	45 60	7 178	9 1/2 241	3/4 19	2 7/8 73	4 102	4 —	5/8 x 2 3/4 M16 x 70	110 149	140 190	4.6 2.1
3 O.D. 76.1	2.996 76.1	300 20.7	2,115 9.41	— M10 x 70	30 40	45 60	7 1/4 184	9 3/4 248	3/4 19	3 76	4 1/8 105	— 4	— M16 x 70	110 149	140 190	4.8 2.2
3 88.9	3.500 88.9	300 20.7	2,886 12.84	3/8 x 2 3/4 M10 x 70	30 40	45 60	7 7/8 200	10 1/2 267	3/4 19	3 1/2 89	4 9/16 116	4 8	5/8 x 2 3/4 M16 x 70	110 149	140 190	6.0 2.7
4 100	4.500 114.3	300 20.7	4,771 21.22	3/8 x 2 3/4 M10 x 70	30 40	45 60	9 229	11 1/2 292	3/4 19	4 1/2 114	5 9/16 141	8 8	5/8 x 2 3/4 M16 x 70	110 149	140 190	6.3 2.9
5 1/2 O.D. 139.7	5.500 139.7	300 20.7	7,127 31.70	— M10 x 70	30 40	45 60	9 7/8 251	12 7/8 327	7/8 22	5 9/16 141	6 3/4 171	— 8	— M16 x 75	220 298	250 339	15.6 7.1

### Note:

+ PN 16 uses M24 x 90 (PN) Dimensions for bolt circle PN 10 & 16 Flange.

\* Available in ANSI or metric bolt sizes only as indicated.

▲ – Working Pressure Ratings are for reference only and based on Sch. 40 pipe. For the latest UL/ULC, FM, VdS and LPCB pressure ratings versus pipe schedule, please visit [asc-es.com](http://asc-es.com) or contact your local ASC Engineered Solutions™ Representative.

§ – For additional Bolt Torque information, see Technical Data Section.

The Gruvlok Flange bolt hole pattern conforms to ANSI Class 150 and Class 125 flanges.

To avoid interference issues, flanges cannot be assembled directly to Series 7700 butterfly valve. Flange can be assembled to one side of series 7500 and 7600 valve only.

Mating flange bolts must be at least Intermediate Strength Bolting per ASME B16.5. Bolts with material properties equal or greater than SAE J429 Grade 5 are acceptable.

Refer to the Gruvlok Product Catalog or ASC Engineered Solutions' web site for more information on installing this flange.

300 Lb Flange is available, Fig. 7013, see Gruvlok Catalog or contact your ASC Engineered Solutions Rep. for more information.

Other sizes available, contact an ASC Engineered Solutions Representative.

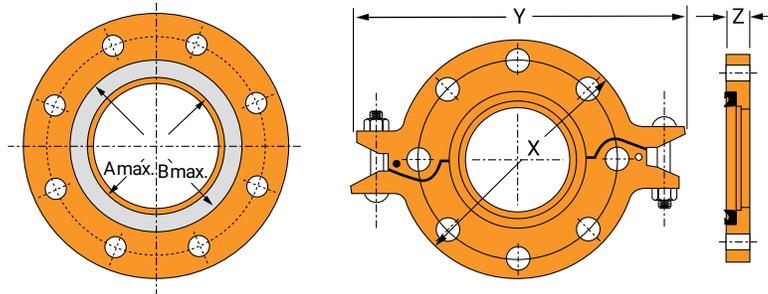
**Warning:** For dry pipe systems and freezer applications lubrication of the gasket is required. Gruvlok Xtreme lubricant is required.



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Nominal Size	Pipe O.D.	Max. Working Pressure ▲	Max. End Load ▲	Latch Bolt			Dimensions			Sealing Surface		Mating Flange Bolts			Approx. Wt. Ea.	
				Latch Bolt Size*	Specified Torque § Min.	Specified Torque § Max.	X	Y	Z	A Max.	B Min.	Mating Flange Bolts Qty.	Flange Bolts Size (ANSI)	Specified Torque § Min.		Specified Torque § Max.
In./DN(mm)	In./mm	PSI/bar	Lbs./kN	In./mm	Ft.-Lbs/N-m	Ft.-Lbs/N-m	In./mm	In./mm	In./mm	In./mm	In./mm		In. (ISO) mm	Ft.-Lbs/N-m	Ft.-Lbs/N-m	Lbs./kg
5 125	5.563 141.3	300 20.7	7,292 32.44	3/8 x 2 3/4 M10 x 70	30 40	45 60	10 254	12 1/2 318	7/8 22	5 9/16 141	6 3/4 171	8 —	3/4 x 2 7/8 —	220 298	250 339	8.8 4.0
6 1/2 O.D. 165.1	6.500 165.1	300 20.7	9,955 44.28	— M10 x 70	30 40	45 60	11 1/4 286	14 356	7/8 22	6 5/8 168	7 13/16 198	— 8	— M20 x 80	220 298	250 339	9.7 4.4
6 150	6.625 168.3	300 20.7	10,341 46.00	3/8 x 2 3/4 M10 x 70	30 40	45 60	11 279	14 356	7/8 22	6 5/8 168	7 13/16 198	8 8	3/4 x 2 7/8 M20 x 80	220 298	250 339	9.6 4.4
8 200	8.625 219.1	300 20.7	17,528 77.97	3/8 x 2 3/4 M10 x 70	30 40	45 60	13 1/2 343	16 1/2 419	1 25	8 5/8 219	10 254	8 8 (12)	3/4 x 2 7/8 M20 x 80	220 298	250 339	15.6 7.1
10 250	10.750 273.1	300 20.7	27,229 121.12	3/8 x 2 3/4 M10 x 70	30 40	45 60	16 406	19 483	1 25	10 3/4 273	12 1/8 308	12 12	7/8 x 3 1/2 M20 x 90	320 439	400 542	18.2 8.3
12 300	12.750 323.9	300 20.7	38,303 170.38	3/8 x 2 3/4 M10 x 70	30 40	45 60	19 483	21 3/4 552	1 1/4 32	12 3/4 324	14 1/8 359	12 12	7/8 x 3 3/4 —	320 439	400 542	29.9 13.6

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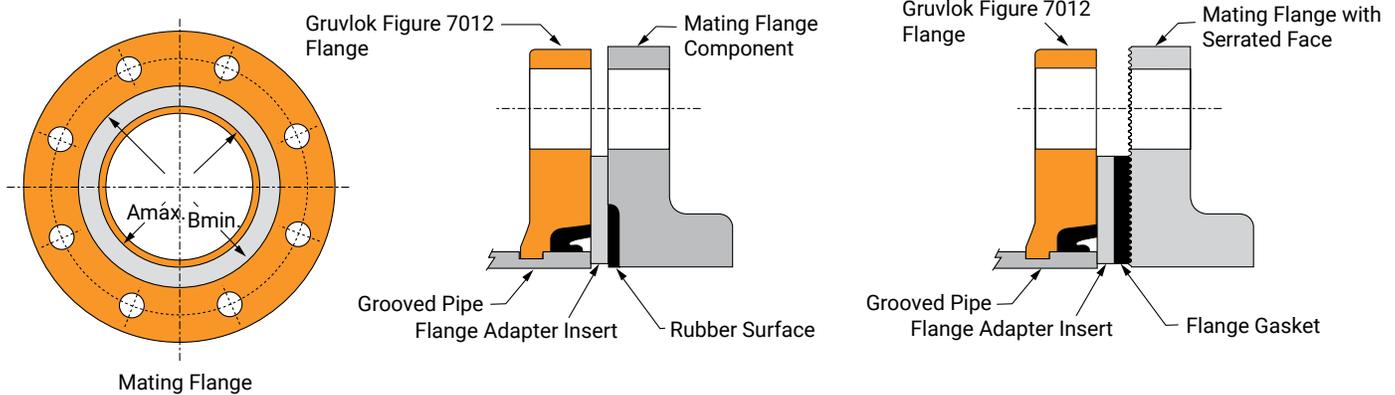
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## Gruvlok Flange Fig. 7012\*



- The sealing surfaces A Max. to B Min. of the mating flange must be free from gouges, undulations and deformities of any type to ensure proper sealing of the gasket.
- Gruvlok Flanges are to be assembled on butterfly valves so as not to interfere with actuator or handle operation.
- Do not use Gruvlok Flanges within 90 degrees of one another on standard fittings because the outside dimensions may cause interference.
- Gruvlok Flanges should not be used as anchor points for tierods across non-restrained joints.
- Fig. 7012 Gruvlok Flange sealing gaskets require a hard flat surface for adequate sealing. The use of a Gruvlok Flange Adapter Insert is required for applications against rubber faced valves or other equipment. The Gruvlok Flange Adapter Insert is installed between the Gruvlok Flange sealing gasket and the mating flange or surface to provide a good sealing surface area.
- Gruvlok Flanges are not recommended for use against formed rubber flanges.
- Contact an ASC Engineered Solutions™ Representative for Di-Electric Flange connections.

### Applications which require Gruvlok Flange Adapter Insert

1. When mating to a wafer valve (lug valve), if the valve is rubber faced in the area designated by the sealing surface dimensions (A Max. to B Min.), place the Gruvlok Flange Adapter Insert between the valve and the Gruvlok flange.
2. When mating to a rubber-faced metal flange, the Gruvlok Flange Adapter Insert is placed between the Gruvlok Flange and the rubber-faced flange.
3. When mating to a serrated flange surface, a standard full-faced flange gasket is installed against the serrated flange face and the Gruvlok Flange Adapter Insert is placed between the Gruvlok Flange and the standard Flange gasket.
4. When mating to valves or other component equipment where the flange face has an insert, use procedure described in note 3.



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**Fig. 7012\* Gruvlok® Flange**

ALWAYS USE A GRUVLOK® SPF/ANVIL® LUBRICANT FOR PROPER COUPLING ASSEMBLY. Thorough lubrication of the external surface of the gasket is essential to prevent pinching and possible damage to the gasket. For temperatures above 150°F (65°C) and below 32°F (0°C) use Gruvlok SPF/Anvil Xtreme Lubricant and lubricate all gasket surfaces, internal and external. See Gruvlok SPF/Anvil Lubricants in the Technical Data section of the Anvil SPF catalog for additional important information. **Check pipe end for proper grooved dimensions and to assure that the pipe end is free of indentations and projections that would prevent proper sealing of the Gruvlok flange gasket.**

## 1 Install Housings

On the side without the hinge pin, loosen the latch bolt nut to the end of the bolt thread. (It is not necessary to remove the nut from the latch bolt.) Swing the latch bolt out of the slot. Open the Gruvlok Flange and place around the grooved pipe end with the key section fitting into the groove. The flange gasket cavity must face the pipe end.



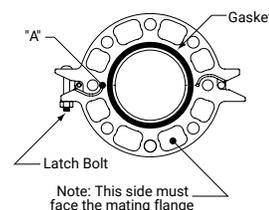
## 2 Latch Housings

Place the latch bolt back into the slotted hole. Tighten the nut until there is a 1/16" gap between the flange halves at location "A". (See Figure 2b)



## 3 Check & Lubricate Gasket

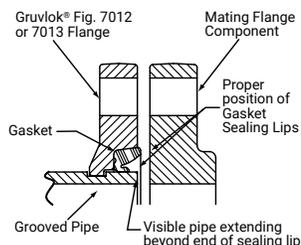
Check the gasket to assure that it is properly suited for the intended service. Lubricate the entire exterior surface of the gasket, including the sealing lips, using the proper Gruvlok lubricant.



## 4 Install Gasket

Stretch the Gruvlok gasket around the pipe end and then press the gasket into the cavity between the pipe O.D. and the flange. The gasket must be properly positioned as shown in the figure below.

**Warning:** The Gruvlok Flange gasket must be inserted so that the sealing lips face toward the pipe end and the mating flange. The lip of the gasket, sealing on the pipe, should not extend beyond the pipe end. The pipe should extend out beyond the end of the sealing lip by approximately 1/8" on the 2"-6" sizes and 3/16" on the 8"-12" sizes.



## 5 Lubricate Gasket Lip

With the gasket in place apply lubricant to the exposed gasket lip, which will seal on the mating flange. **Tighten the nuts on the latch bolts alternately to the specified latch bolt torque. The flange housings must be in firm metal-to-metal contact.**



## 6 Inspect Mating Flange

Verify that the mating flange face is hard, flat and smooth, free of indentations, which would prevent proper sealing of the Gruvlok Flange gasket. Assure the gasket is still in the proper position and align Gruvlok Flange bolt holes with the mating flange, pump, tank, etc., bolt holes.



**Warning:** It is important to line up the bolt holes before bringing the two flanges together. Sliding the flanges into place will dislodge the gasket and cause leakage to occur. When using a flange insert, it is important that the insert is properly aligned with the gasket prior to tightening the bolts.



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## Fig. 7012\* Gruvlok® Flange

### 7 Install Bolting

Insert a flange bolt or stud with material properties of SAE J 429 Grade 5 or higher through the bolt holes and thread a nut on hand tight. Continue this procedure until all bolt holes have been fitted. Tighten the nuts alternately and evenly so the flange faces remain parallel. All the bolts or studs must be torqued to the mating flange bolts specified torque. The flange faces should have metal-to-metal contact.



#### ANSI/Metric Specified Latch Bolt Torque

Bolt Size	Wrench Size	Specified Bolt Torque*
In./mm	In./mm	Ft.-Lbs/N-m
3/8	11/16	30-45
M10	16	40-60
1/2	7/8	80-100
—	—	—
5/8	1 1/16	100-130
—	—	—
3/4	1 1/4	130-180
—	—	—
7/8	1 7/16	180-220
—	—	—

**Note:**  
\*Non-lubricated bolt torques.

### Fig. C1 & C2

**Note:** The Gruvlok® Fig. 7012 Flange requires the use of a Flange Adapter Insert when used against rubber surfaces (Figure C1), serrated flange surfaces or mating flanges with inserts (Figure C2). The Flange Adapter Insert will be exposed to the fluids in the system. Ensure that the Insert is compatible with the fluids in the systems and with adjacent piping components.

**Warning:** Do not use a steel Flange Adapter Insert in systems where galvanic corrosion is possible.

### Specified Bolt Torque for Latch and Mating Flange Bolts

Specified bolt torque is for the latch and mating flange bolts used on Gruvlok flanges. The nuts must be tightened alternately and evenly until fully tightened.

**Caution:** Use of an impact wrench is not recommended because the torque output can vary significantly due to many variables including air pressure supply, battery strength and operational variations.

**Caution:** Proper torquing of latch and mating flange 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.

**Note:** For VDS approved applications, please refer to data sheet VDSGruv: "VDS - Roll Grooving Approval Specifications" in the Technical Data/Installation Instruction Section at [www.asc-es.com](http://www.asc-es.com).

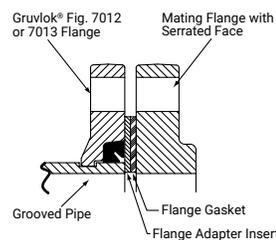


Fig. C1

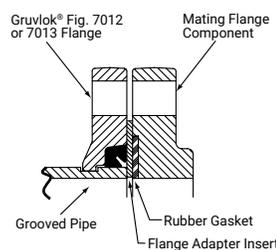


Fig. C2

#### ANSI/Metric Specified Mating Flange Bolt Torque

Bolt Size	Wrench Size	Specified Bolt Torque*
In./mm	In./mm	Ft.-Lbs/N-m
5/8	1 1/16	110-140
M16	24	149-190
3/4	1 1/4	220-250
M20	30	298-339
7/8	1 7/16	320-400
M24	36	434-542
1	1 5/8	360-520
—	—	—
1 1/8	1 13/16	450-725
—	—	—
1 1/4	2	620-1000
—	—	—

**Note:**  
\*Non-lubricated bolt torques.



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