


SIZES 2" - 12"

SIZES 14" - 24"


Figure 7012 Gruvlok Flange

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.

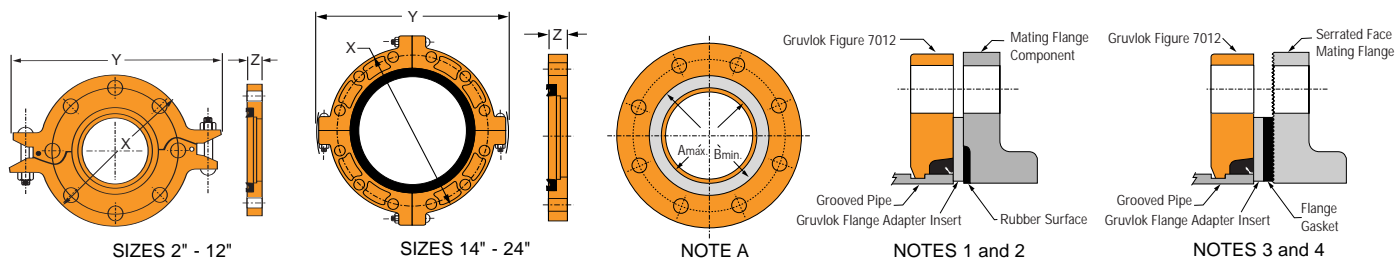
The 14" thru 24" sizes of the Gruvlok Fig. 7012 Flange are cast in four segments. A sleek profile gasket design allows quick and easy assembly of the Gruvlok Flange onto the pipe.

All Gruvlok Fig. 7012 Flanges have designed-in anti-rotation tangs which bite into and grip the sides of the pipe grooves to provide a secure, rigid connection.

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. In copper systems a phenolic adapter insert is required, in place of the steel adapter insert. (See Installation and Assembly Instructions Section or contact your Anvil Rep. for details.)

Material Specifications:

- **Housing:**
 Ductile Iron conforming to ASTM-A536, Grade 65-45-12.
- **Coatings:**
 Rust inhibiting lead-free paint
 Color: Orange (standard), Red (optional)
 Hot Dipped Zinc Galvanized (optional)
 For other coating requirements contact your Gruvlok Representative.
- **Latch Bolt/Nut (2"-12"):**
Segment Bolt/Nut (14"-24"):
 Heat treated, zinc electroplated, carbon steel oval-neck track bolts conforming to ASTM A-183 and zinc electroplated carbon steel heavy hex nuts conforming to ASTM A-563.
- **Gaskets: (Specify when ordering)**
 Properties as designated by ASTM D-2000.
Grade E EPDM (Green color code) NSF 61 Certified
 Service Temperature Range: -40°F to +230°F
 Recommended for water service, dilute acids, alkaline solutions, oil free air and many chemical services.
NOT FOR USE IN PETROLEUM APPLICATIONS.
Grade T Nitrile (Orange color code)
 Service Temperature Range: -20°F to +180°F
 Recommended for petroleum applications, air with oil vapors, vegetable, and mineral oils.
NOT FOR USE WITH HOT WATER.



GRUVLOK FIGURE 7012 FLANGE: ANSI CLASS 150 OR ISO PN10 OR PN16 BOLT PATTERNS

Nominal Size	Pipe OD	Max. Working Pressure▼	Max. End Load▼	Latch Bolt		Range Dimensions			Sealing Surface		Mating Flange Bolts				Approx. Wt. Ea.	
				Latch* Bolt Size	Specified Torque §						Mating Flange Bolts		Specified Torque §			
						Min.	Max.	X	Y	Z	A Max.	B Min.	Qty. ANSI	Size (ANSI)		Min.
In./DN(mm)	In./mm	PSI/bar	Lbs./kN	In./mm	Ft.-Lbs/N-M	In./mm	In./mm	In./mm	In./mm	In./mm	PN10 (16)	in. (ISO) mm	Ft.-Lbs/N-M	Lbs./Kg		
2	2.375	300	1,329	¾ x 2¾	30	45	6¼	8¾	¾	2¾	3⅛	4	⅝ x 2¾	110	140	4.2
50	60.3	20.7	5.91	M10 x 70	40	60	159	213	19	60	87	4	M16 x 70	149	190	1.9
2½	2.875	300	1,948	¾ x 2¾	30	45	7	9½	¾	2⅞	4	4	⅝ x 2¾	110	140	4.6
65	73.0	20.7	8.66	M10 x 70	40	60	178	241	19	73	102	-	M16 x 70-	149	190	2.1
3 OD	2.996	300	2,115	-	30	45	7¼	9¼	¾	3	4⅛	-	-	110	140	4.8
65	76.1	20.7	9.41	M10 x 70	40	60	184	248	19	76	105	4	M16 x 70	149	190	2.2
3	3.500	300	2,886	¾ x 2¾	30	45	7⅞	10½	¾	3½	4⅞	4	⅝ x 2¾	110	140	6.0
80	88.9	20.7	12.84	M10 x 70	40	60	200	267	19	89	116	8	M16 x 70	149	190	2.7
4	4.500	300	4,771	¾ x 2¾	30	45	9	11½	¾	4½	5⅞	8	⅝ x 2¾	110	140	6.3
100	114.3	20.7	21.22	M10 x 70	40	60	229	292	19	114	141	8	M16 x 70	149	190	2.9
5	5.563	300	7,292	¾ x 2¾	30	45	10	12½	⅞	5⅞	6¾	8	¾ x 2¾	220	250	8.8
125	141.3	20.7	32.44	M10 x 70	40	60	254	318	22	141	171	-	-	298	339	4.0
5½ OD	5.500	300	7,127	-	30	45	9⅞	12⅞	⅞	5⅞	6¾	-	-	220	250	15.6
125	139.7	20.7	31.70	M10 x 70	40	60	251	327	22	141	171	8	M16 x 75	298	339	7.1
6	6.625	300	10,341	¾ x 2¾	30	45	11	14	⅞	6⅝	7⅞	8	¾ x 3⅞	220	250	9.6
150	168.3	20.7	46.00	M10 x 70	40	60	279	356	22	168	198	8	M20 x 80	298	339	4.4
6½ OD	6.500	300	9,955	-	30	45	11¼	14	⅞	6⅝	7⅞	-	-	220	250	9.7
150	165.1	20.7	44.28	M10 x 70	40	60	286	356	22	168	198	8	M20 x 80	298	339	4.4
8	8.625	300	17,528	¾ x 2¾	30	45	13½	16½	1	8⅞	10	8	¾ x 3¼	220	250	15.6
200	219.1	20.7	77.97	M10 x 70	40	60	343	419	25	219	254	8 (12)	M20 x 80	298	339	7.1
10	10.750	300	27,229	¾ x 2¾	30	45	16	19	1	10¾	12⅞	12	⅞ x 3½	320	400	18.2
250	273.1	20.7	121.12	M10 x 70	40	60	406	483	25	273	308	12	M20 x 90 ⇄	298	339	8.3
12	12.750	300	38,303	¾ x 2¾	30	45	19	21¾	1¼	12¾	14⅞	12	⅞ x 3¾	320	400	29.9
300	323.9	20.7	170.38	M10 x 70	40	60	483	552	32	324	359	12	-	298	339	13.6
12 (PN)	12.750	300	38,303	-	30	45	18⅞	21¼	1	12¾	14⅞	12	-	320	400	20.9
300	323.9	20.7	170.38	M10 x 70	40	60	460	540	25	324	359	12	M20 x 90 ⇄	298	339	9.5
14	14.000	300	46,181	⅝ x 4¼	100	130	21	24	1½	14	16	12	1 x 4¼	360	520	52.5
350	355.6	20.7	205.43	-	136	176	533	610	38	356	406	-	-	488	705	23.8
16	16.000	300	60,319	⅝ x 4¼	100	130	23½	26½	1½	16	18	16	1 x 4¼	360	520	67.0
400	406.4	20.7	268.31	-	136	176	597	673	38	406	457	-	-	488	705	30.4
18	18.000	300	76,341	¾ x 5	130	180	25	29	1⅝	18	20	16	1⅞ x 4¾	450	725	82.5
450	457.2	20.7	339.58	-	176	244	635	737	41	457	508	-	-	610	983	37.4
20	20.000	300	94,248	¾ x 5	130	180	27½	31½	1⅞	20	22	20	1⅞ x 4¾	450	725	106.5
500	508.0	20.7	419.23	-	176	244	699	800	44	508	559	-	-	610	983	48.3
24	24.000	250	113,097	⅞ x 5½	180	220	32	36½	1⅞	24	26	20	1¼ x 5½	620	1,000	138.5
600	609.6	17.2	503.08	-	244	298	813	927	48	610	660	-	-	841	1,356	62.8

→ PN 16 uses M24 x 90 (PN) dimensions for 10" and 12" sizes. The specified mating flange bolt torque for M24 bolts is 434 - 542 N-M.

* Available in ANSI or Metric bolt sizes only as indicated.

• Flange cannot be assembled directly to Series 7700 butterfly valve. Flange can be assembled to one side of series 7500 and 7600 valve.

▼ Based on use with standard wall pipe.

§ For additional Specified Bolt Torque information refer to the Specified Bolt Torque Section.

For Data Chart Notes refer to the Gruklok catalog.

- 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 gasket.
- Gruklok Flanges are to be assembled on butterfly valves so as not to interfere with actuator or handle operation.
- Do not use Gruklok Flanges within 90 degrees of one another on standard fittings because the outside dimensions may cause interference.
- Gruklok Flanges should not be used as anchor points for tie-rods across non-restrained joints.
- Fig. 7012 Gruklok Flange sealing gaskets require a hard flat surface for adequate sealing. The use of a Gruklok Flange Adapter Insert is required for applications against rubber faced valves or other equipment. The Gruklok Flange Adapter Insert is installed between the Gruklok Flange sealing gasket and the mating flange or surface to provide a good sealing surface area.
- Gruklok Flanges are not recommended for use against formed rubber flanges.
- Contact Anvil for Di-Electric Flange connections.

Applications which require a 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.

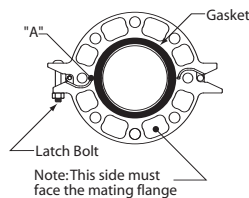
Installation & Assembly Fig. 7012 Gruvlok Flange (2"-12")

ALWAYS USE A GRUVLOK 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 and when used in copper systems use Gruvlok Xtreme Lubricant™ and lubricate all gasket surfaces, internal and external. See Gruvlok Lubricants in the Technical Data section of the Gruvlok 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 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.



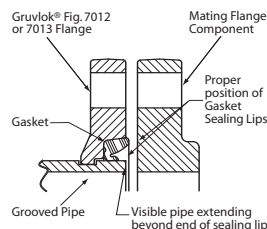
2 Place the latch bolt back into the slotted hole. Tighten the nut until there is a 1/16" gap between the flange halves at location "A". (See Figure below)



3 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 Stretch the Gruvlok gasket around the pipe end and then press the gasket into the cavity between the pipe OD 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.

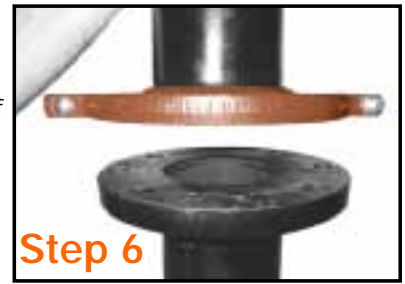
Installation & Assembly

Fig. 7012 Gruvlok® Flange (2"-12") Continued

5 With the gasket in place apply lubricant to the exposed gasket tip, 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 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.

7 Insert a flange bolt or stud with material properties of SAE J429 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.



Note: The Gruvlok Fig. 7012 Flange requires the use of an 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.

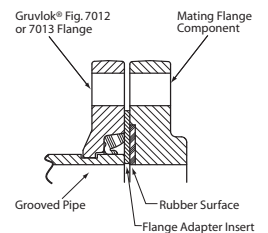


Figure C1

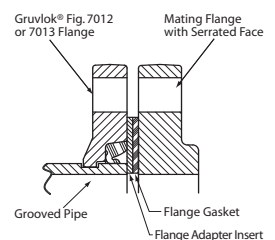


Figure C2

⚠ WARNING

Do not use a steel Flange Adapter Insert in copper systems or 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.

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
—	—	—

* Non-lubricated bolt torques

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
—	—	—

* Non-lubricated bolt torques



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