

FULL FACE FLANGE-TYTE

The FULL FACE FLANGE-TYTE Gasket is a high performance gasket for flanged joint piping systems.

The most vulnerable element of a piping system is the joint. Many times, the weakest part of the joint is the gasket that is used. Lots of time and money are spent in the design and specification of the pipe, fittings, valves, and various components of the project to insure the piping system is able to withstand the requirements of your application, only to have all that time and expense undermined by the lowest cost item in the piping system; a flat sheet of thin rubber between the flanges. U.S. Pipe offers a solution that will provide peace of mind through superior performance, the FULL FACE FLANGE-TYTE Gasket. Below we list some of the high performance features this product provides.

Pressure:

By combining the effectiveness of "o-ring" technology into a molded flat gasket, the FULL FACE FLANGE-TYTE Gasket can operate safely at high internal pressures, high velocities, and still handle the common occurrence of surges in pressure without fear of joint leaks. The gasket may also help to resolve installation issues that arise such as imperfections in the flange face, flange alignment, and pipe or equipment alignment.

The FULL FACE FLANGE-TYTE Gasket is rated for a water working pressure of 350 psi for 4"-24" sizes, 250 psi for 30"-48" sizes and 150 psi for 54"-64" sizes. If your application requires higher working pressures, please contact your U.S. Pipe Sales Representative. The gasket is listed by Underwriters Laboratories and flanged joints with FLANGE-TYTE® gaskets are approved by Factory Mutual.

Torque:

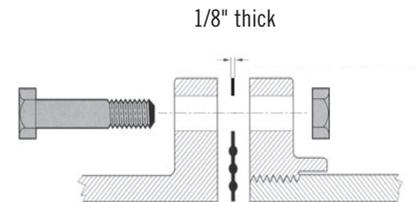
The FULL FACE FLANGE-TYTE Gasket employs (3) - "bulb type" rings on the faces of both sides of the gasket (see drawing page 5). This provides 3 times the sealing peace of mind than gaskets that provide only (1) bulb, or none at all. By using (3) - "bulb type" rings on the face of the gasket, the bolt torque required to effectively complete the seal is greatly reduced. This results in reducing stresses on flanges, bolts, and nuts in addition to providing a much safer and dependable assembly for the installer. Please refer to the bolt torque ratings in Table 1 on page 6.

Compatibility:

The FULL FACE FLANGE-TYTE Gasket is compatible with flanges conforming to **ANSI/AWWA C115/A21.15**, **ANSI/AWWA C110/A21.10**, **ASME B16.1** class 125, and **ANSI/AWWA C207** class B, D, and E flanges.



Full Faced Style Gasket



NOTE: U.S. Pipe recommends the use of **FULL FACE FLANGE-TYTE®** Gaskets or **RING FLANGE-TYTE®** Gaskets with all ductile iron flanged joint products supplied by U.S. Pipe. Failure to use a Flange-TYTE® gasket on any fabricated pipe product 14" or larger could result in voiding the manufacturer's warranty. Flange-TYTE® gaskets were designed for superior sealing performance on ductile iron flanges of all types and to aid in alignment issues that may arise on projects. Flat rubber gaskets are NOT considered equal in performance and may not provide the sealing capability requirements of a project. In addition, their use could result in unintended damage to the flanges and threads of the fabricated pipe by applying excess torque to the bolts/flanges in order to seal the joint. **FULL FACE FLANGE-TYTE®** and **RING FLANGE-TYTE®** are Registered Trademarks of United States Pipe and Foundry Company, LLC.



Special Elastomers & Applications

U.S. Pipe offers FULL FACE FLANGE-TYTE® Gaskets made of special elastomers which may be necessary for special applications. High temperature water and air applications and piping systems transmitting fluids with elevated contact with certain oils or chemicals may require elastomers with enhanced performance criteria. The table below can be used to assist in gasket selection. If special elastomers are required for your project, it is necessary to include the requirement in the project specifications and on the purchase order to U.S. Pipe.

Description	Maximum Service Temperature ^{1,2}		Uses ³
	Water & Sewer °F	Air ⁴ °F	
SBR (Styrene Butadiene)	150	125	Common: Drinking Water, Sea Water, Sanitary Sewage, Reclaimed Water, Raw Water, Storm Water
Nitrile (NBR) (Acrylonitrile Butadiene)	150	125	Common: Hydrocarbons, Fats, Oils, Greases, Chemicals, Oils & Fluids, Refined Petroleum Other Acceptable Services: Drinking Water, Sanitary Sewage, Reclaimed Water, Raw Water, Storm Water
Neoprene® (Polychloroprene)	200	150	Common: Greasy Waste. Other Acceptable Services: Sea Water, Sanitary Sewage, Reclaimed Water, Raw Water, Storm Water
EPDM (Ethylene Propylene Diene Monomer)	212	150	Common: Alcohols, Dilute Acids, Dilute Alkalis, Ketones (MEK, Acetone), Vegetable Oil. Other Acceptable Services: Drinking Water, Sea Water, Sanitary Sewage, Reclaimed Water, Raw Water, Storm Water
FKM⁵	212	300	Common: Aromatic Hydrocarbons and Fuels, Acids, Vegetable Oils, Petroleum Products, Chlorinated Hydrocarbons, Most Chemicals and Solvents Other Acceptable Services: Drinking Water, Reclaimed Water, Raw Water, Storm Water

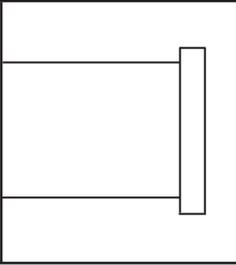
¹Maximum service temperatures listed are intended as general guidelines for ductile iron pipe gaskets. For service temperatures greater than those listed, consult pipe manufacturer for specific recommendations.

²Maximum service temperature is not usually a meaningful parameter for piping gaskets; however, low temperatures during pipeline installation may necessitate precautions. Consult your U.S. Pipe Sales Representative for pertinent recommendations.

³Water, including sewage, with low levels of the listed contaminants.

⁴Lubricating oil in the air will adversely affect SBR and EPDM performance.

⁵Consult your U.S. Pipe Sales Representative for availability of FKM gaskets.



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Gasket Thickness and Material:

The FULL FACE FLANGE-TYTE Gasket is only offered in 1/8" thickness per the recommendation of **ANSI/AWWA C115/A21.15 Appendix A, Sec. A.2**. The FULL FACE FLANGE-TYTE Gasket is commonly provided in SBR elastomer which is adequate for most conditions of service for potable or domestic wastewater contact. SBR elastomer carries a maximum service temperature of 150°F for water and 125°F for air applications.

Suggested Specification:

Ductile Iron pipe flanged joints shall conform to **ANSI/AWWA C115/A21.15**. Gaskets for Ductile Iron flanged joints shall be full face type SBR elastomer per **ANSI/AWWA C111/A21.11** and shall be 1/8" thickness. Flanged gaskets shall be the high performance type satisfying the special requirements of **ANSI/AWWA C111/A21.11 Appendix C, Sec. C.2** and have at least (3) bulb type rings molded into both faces of the gasket. Flanged gaskets shall be U.S. Pipe FULL FACE FLANGE-TYTE Gasket or pre-approved equal.

Assembly Procedures:

The FULL FACE FLANGE-TYTE Gasket should be assembled using the same general procedures and practices for installing flanged joints. **ANSI/AWWA C115/A21.15 Appendix C, Sec. C.3** can be used for general guidance.

The use of flanged joints underground is NOT recommended because of the rigidity of the joint.

The faces of the flanges must be free of sand, grit, grease, or other foreign matter.

Flanged bolts should be tightened in a progressively crisscross pattern, such as tightening the bottom bolt; then, the top bolt; next, the bolts at either side; and finally, the remaining bolts. This process should be repeated until all bolts are sufficiently tightened.

See Table 1 on page 6 for bolt torque requirements.

Storage Recommendation:

Gaskets should be stored in a cool location, out of direct sunlight and shall not come in contact with petroleum products. Gaskets should be inaccessible to vermin and should be stored away from any electrical equipment such as switchgear unless adequate precautions are taken to avoid the concentration of ozone in the storage area. Gaskets should be used on a first-in, first-out basis and should be inspected annually and prior to installation. Evidence of surface cracking, dry rot, or vermin attack is cause for discarding the gaskets and replacement with new gaskets.

ANSI/AWWA Standards

ANSI/AWWA C115/A21.15

Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges.

ANSI/AWWA C110/A21.10

Ductile-Iron and Gray-Iron Fittings for Water

ANSI/AWWA C153/A21.53

Ductile-Iron Compact Fittings for Water Service

ANSI/AWWA C111/A21.11

Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings

ASME/ANSI B16.1

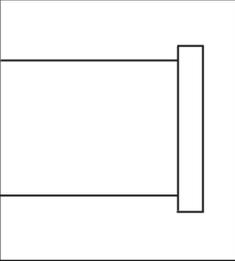
Cast Iron Pipe Flanges and Flanged Fittings

ASME/ANSI B16.5

Pipe Flanges and Flanged Fittings

AWWA C207

Steel Pipe Flanges for Waterworks Service - Sizes 4 in. through 144 in.

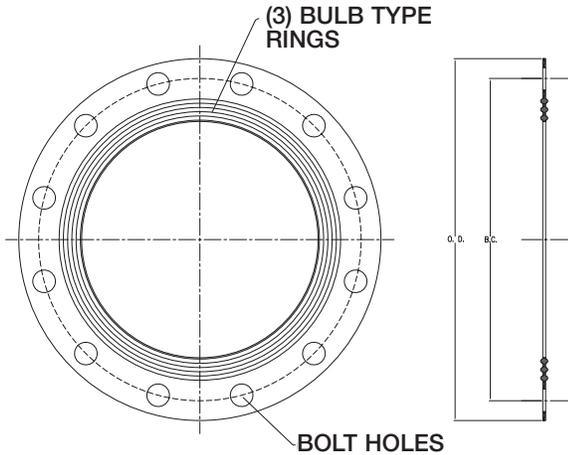


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NOTE: U.S. Pipe recommends the use of **FULL FACE FLANGE-TYTE®** Gaskets or **RING FLANGE-TYTE®** Gaskets with all ductile iron flanged joint products supplied by U.S. Pipe. Failure to use a Flange- TYTE® gasket on any fabricated pipe product 14" or larger could result in voiding the manufacturer's warranty. Flange- TYTE® gaskets were designed for superior sealing performance on ductile iron flanges of all types and to aid in alignment issues that may arise on projects. Flat rubber gaskets are NOT considered equal in performance and may not provide the sealing capability requirements of a project. In addition, their use could result in unintended damage to the flanges and threads of the fabricated pipe by applying excess torque to the bolts/flanges in order to seal the joint.

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Table 1. FULL FACE FLANGE-TYTE® Technical Data

Size Inches	BC Inches	OD Inches	Bulb-type rings each side	No. of Bolt Holes	Working Pressure psi		
					150	250	350
					Bolt Torque ft-lb		
4	7.50	9.00	3	8	-	90	110
6	9.50	11.00	3	8	-	90	110
8	11.75	13.50	3	8	-	90	110
10	14.25	16.00	3	12	-	90	130
12	17.00	19.00	3	12	-	90	130
14	18.75	21.00	3	12	-	110	150
16	21.25	23.50	3	16	-	110	160
18	22.75	25.00	3	16	-	120	180
20	25.00	27.50	3	20	-	120	200
24	29.50	32.00	3	20	-	130	220
30	36.00	38.75	3	28	-	140	-
36	42.75	46.00	3	32	-	160	-
42	49.50	53.00	3	36	-	585	-
48	56.00	59.50	3	44	-	625	-
54	62.75	66.25	3	44	550	-	-
60	69.25	73.00	3	52	600	-	-
64	76.00	80.00	3	52	600	-	-

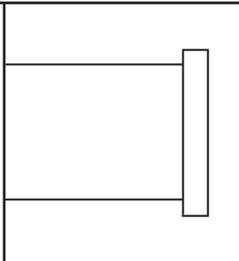
NOTE:

Gasket Thickness: All FULL FACE FLANGE-TYTE Gaskets are 1/8" thickness. Thinner gaskets are NOT recommended for use with Ductile Iron flanges.

Material: Unless otherwise specified by the purchaser, gaskets will be furnished as SBR. Special elastomers such as neoprene, nitrile, EPDM, and fluorocarbon are available upon request. Gaskets made with special elastomers are marked with color dots. Neoprene is yellow, EPDM is orange, Nitrile is green, Fluorocarbon is red.

Assembly: See Page 4 of the FULL FACE FLANGE-TYTE Brochure for guidance.

Compatibility: The FULL FACE FLANGE-TYTE Gasket is compatible with flanges conforming to ANSI/AWWA C115/A21.15, ANSI/AWWA C110/A21.10, ASME B16.1 class 125, and ANSI/AWWA C207 class B, D, and E flanges.



Products for Water, Wastewater and Fire Protection

Ductile Iron Pipe	SIZE RANGE
TYTON JOINT® Pipe	4"-64"
Mechanical Joint Pipe	4"-12"
TR FLEX® Pipe	4"-36"
HP LOK™ Restrained Joint Pipe	30"-64"
Flanged Pipe	3"-64"
USIFLEX® Boltless Flexible Ball Joint Pipe	4"-48"
Restrained Joints	
TR FLEX® Pipe	4"-36"
HP LOK™ Restrained Joint Pipe	30"-64"
MJ FIELD LOK® Gaskets	4"-24"
FIELD LOK 350® Gaskets	4"-24"
FIELD LOK® Gasket	30" & 36"
TR FLEX GRIPPER® Rings	4"-36"
TR TELE FLEX® Assemblies	4"-24"
Fittings	
TRIM TYTON® Fittings	4"-12"
TYTON® Fittings	14"-64"
TR FLEX® Fittings and TR FLEX® Telescoping Sleeves	4"-64"
Mechanical Joint Fittings CIO	30"-48"
Flanged Fittings	30"-64"
XTRA FLEX® Couplings	4"-24"
Miscellaneous Products	
PROTECTO 401™ Lined Ductile Iron Pipe for Domestic Sewage and Industrial Wastes	4"-64" Ductile Iron
RING FLANGE-TYTE® Gaskets	4"-36"
FULL FACE FLANGE-TYTE® Gaskets	4"-64"
Polymeric Linings	For all pipe sizes
Saddle Outlets	Various Ductile Iron
Welded Outlets	Various Ductile Iron
Polyethylene Encasement	4"-64"

Our products are manufactured in conformance with National Standards so that our customers may be assured of getting the performance and longevity they expect. Use of accessories or other appurtenances that do not comply with recognized standards may jeopardize the performance and longevity of the project.