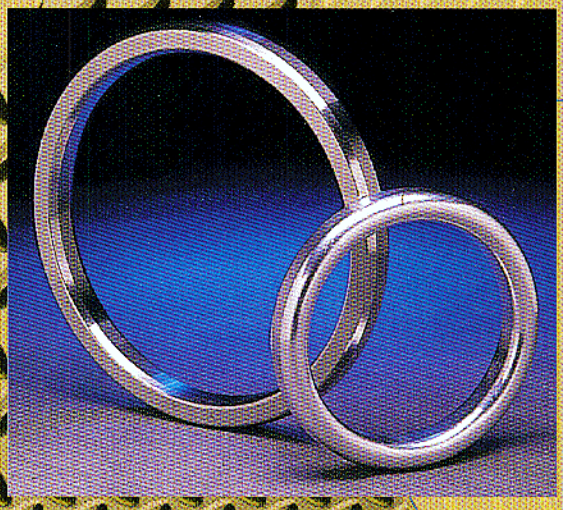
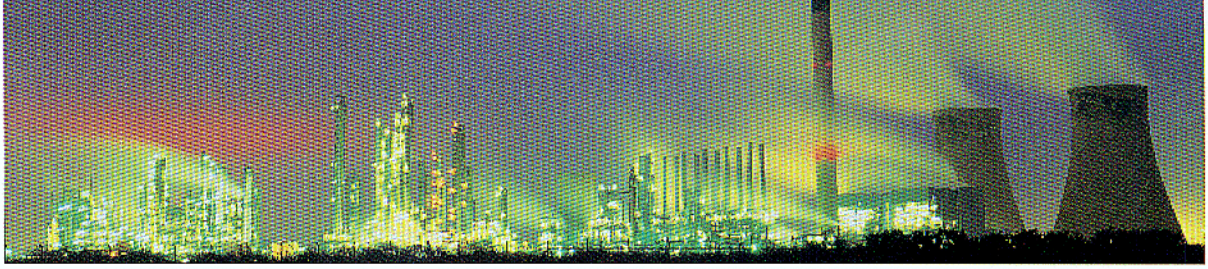
RING JOINT GASKETS

Flexitallic®





The Flexitallic Group is an international market leader committed to providing high quality, high value sealing products, backed by outstanding customer service and technical support.

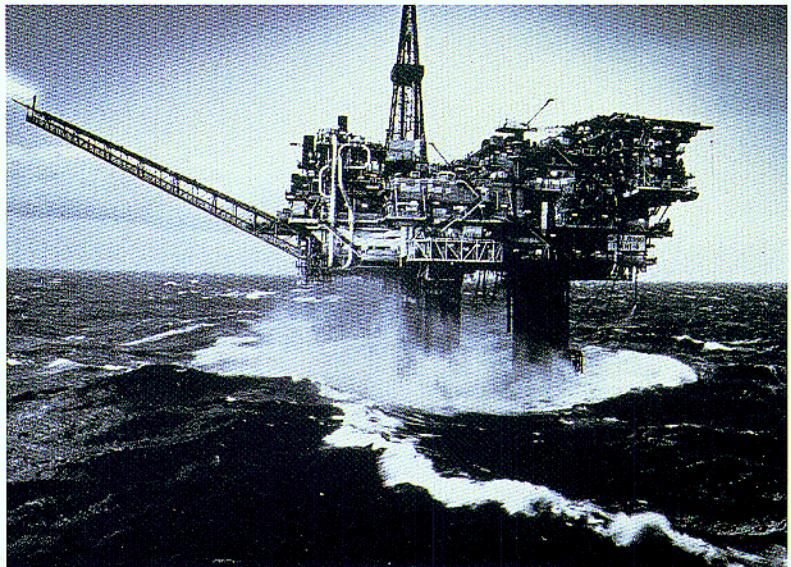
The Flexitallic Group has 25 manufacturing locations comprised of owned plants, joint ventures and manufacturing licensees in 15 countries producing vast amounts of products to meet the world's demands.

Additionally, through its own facilities and many stocking distributors, The Flexitallic Group has available stock in over 650 locations in 59 countries. In an age when industry is increasingly focused on international environmental standards and emission regulations, Flexitallic products make a significant contribution to achieving a clean, safe environment.

For the industrial buyer, the name Flexitallic is a guarantee of high standards, consistent quality and a comprehensive product portfolio. The Flexitallic product range can be single sourced from any of its sales operations and distributors around the world. Products include metallic, semi-metallic, sheet gasketing, packings, stud bolts and flanges.

Each location throughout the world is able to provide a highly professional level of technical expertise and customer support. Most importantly, every Flexitallic company is proud to proclaim its ability to supply both standard and specialty products, the result of local market knowledge and awareness of customer needs.

SEALING SOLUTIONS - THE ANSWER IS ALWAYS FLEXITALLIC



QUALITY WORLDWIDE

Dedication and commitment to innovative technology and quality control ensures that Flexitallic is the industry leader in machined seal technology. Quality is the emphasis from standard Ring Joint gaskets and Kammprofile gaskets to specialized seals.

Flexitallic products are approved by the American Petroleum Institute to API specification 6A, Product Specification Level 4, the highest grade obtainable. Strict quality assurance procedures are applied throughout production – from receipt of raw material, through manufacture to delivery and with full material traceability. The Flexitallic Group has a quality system that adheres to the stringent requirements of ISO 9000.

TECHNICAL SERVICES DEPARTMENT

Flexitallic's engineers are committed to product advancement through continuous product evaluation and reappraisal. This offers the customer unrivalled service. Flexitallic's technical department is able to offer advice and recommendations on the design and use of machined seals for specific applications on non-standard assemblies – particularly for severe operating conditions. Our in-house high integrity test equipment allows the constant development of a metallic gasket range to meet the ever-increasing demands for new sealing performance.

COMPREHENSIVE SELECTION AVAILABLE

Flexitallic's aim remains to meet the exacting demands of our customers. Speed of response is often crucial. To satisfy this need, a wide range of standard and non-standard Ring Joint gaskets are held in stock throughout the world.

Raw material stock levels are maintained to allow specials to be supplied on short lead times.

DEDICATION TO TECHNOLOGY

Flexitallic's extensive investment in production technology, with the use of the most up-to-date material handling and machining work centers, has ensured that we remain one step ahead of the competition.

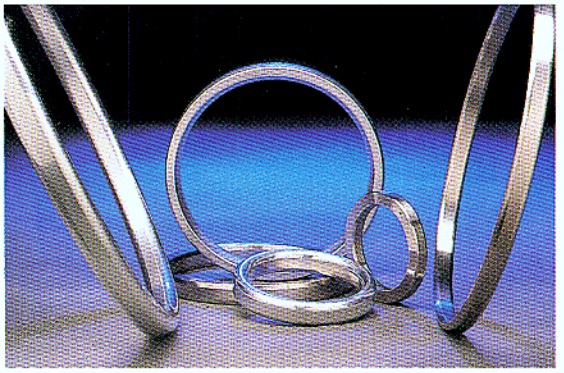
Improvement is a constant aim, with our experienced production engineers continually assessing and upgrading production techniques and equipment.

Finite Element Analysis and CAD/CAM facilities are extensively utilized within our design departments, all proving to be of invaluable service.

Flexitallic utilizes a state-of-the-art coordinate measuring machine (CMM) in our quality control operations. The CMM is used to verify critical dimensions on machined parts and gives Flexitallic a competitive advantage in the marketplace.

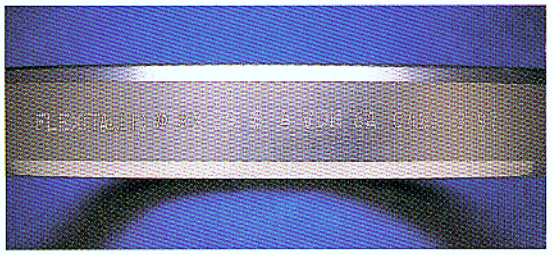
QUALITY ASSURED MANUFACTURING

All Flexitallic Ring Joint gaskets are manufactured from fully traceable materials and can be supplied to NACE specifications upon request. Each is low stress stamped with style, API license number, material reference and a unique Flexitallic material identification number. Such full and comprehensive traceability, from material source with mill certification to final supply, is an essential ingredient in the company's strict quality assurance procedures and exceeds those demanded by API 6A PSL 4.



MATERIALS

The gasket material should be selected to suit the service conditions. It is always recommended that the gasket material be softer than the mating flanges. The more popular ring joint materials, with the recommended maximum hardness and identification as specified in API 6A, are shown in the table below.



For more highly specialized applications, ring joints can be machined from DUPLEX steels and other exotic materials such as Monel®, Inconel®, Incoloy®, and Hastelloy®. The technical department is available to advise on other materials.

All gasket identification details are stamped using low stress dots.

Material	Werkstoff Number	Maximum Hardness		Identification
		Brinell*	Rockwell B†	
SOFT IRON		90	56	D
LOW CARBON STEEL		120	68	S
4–6% CHROME ½% MOLY		130	72	F5
TYPE 304 STAINLESS STEEL	1.4301	160	83	S304
TYPE 316 STAINLESS STEEL	1.4401	160	83	S316
TYPE 347 STAINLESS STEEL	1.4550	160	83	S347
TYPE 410 STAINLESS STEEL	1.4006	170	86	S410

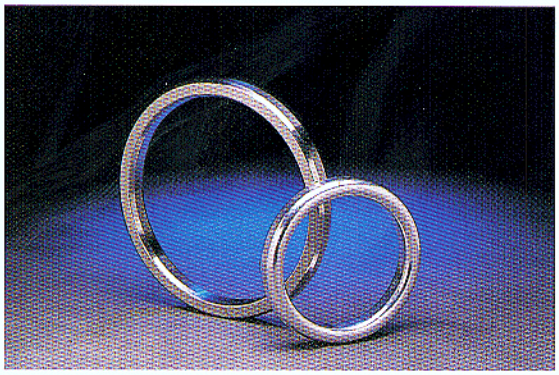
*Measured with 3000 Kg load except soft iron which is measured with 500 Kg load
†Measured with 100 Kg load and 1/16 inch diameter ball

As with all metallic joints, the re-use of Ring Joint gaskets is not recommended. Work hardening of the material occurs during assembly and use. With subsequent re-use, increased bolt loads are required to achieve similar sealing performance. Flange indentations also may result.

PROTECTIVE COATING

In accordance with API specifications, soft iron and low carbon steel Ring Joint gaskets are protected with electroplated cadmium to a maximum thickness of 0.0005". Alternative material coatings can be supplied upon request.

STYLE R

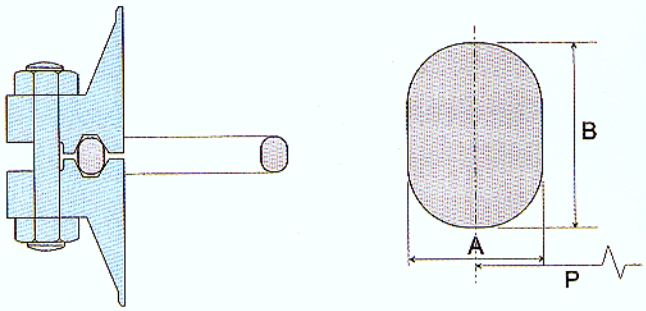


The Ring Joint gasket was initially developed for high pressure/temperature applications found in the petroleum industry and is primarily used in the oil field on drilling and completion equipment. However, today this product range can also be found on valves and pipework assemblies, along with some high integrity pressure vessel joints.

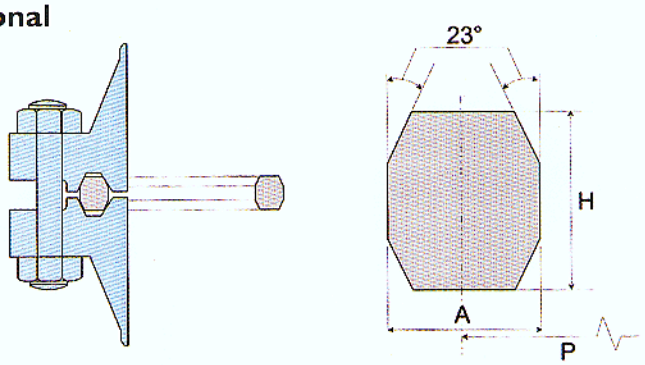
Standard Style R Ring Joint gaskets are manufactured in accordance with both API 6A and ASME B16.20 size/ratings. Available in both oval and octagonal configurations, both types are interchangeable on the modern octagonal type grooved flanges.

DIMENSIONAL DATA – Style R

Oval



Octagonal



Tolerances: (Inches)

A (WIDTH OF RING) . . . . . ±0.008
B, H (HEIGHT OF RING) . . . . . ±0.020
P (AVERAGE PITCH DIAMETER OF RING) . . . . . ±0.007
23° (ANGLE) . . . . . ±1/2°

Flexitallic Style R Ring Joint gaskets can be manufactured in accordance with all relevant standards to suit the following flange designations:

API 6A
ASME/ANSI B16.5
MSS SP44 (ASME B16.47 SERIES A)
BS 1560

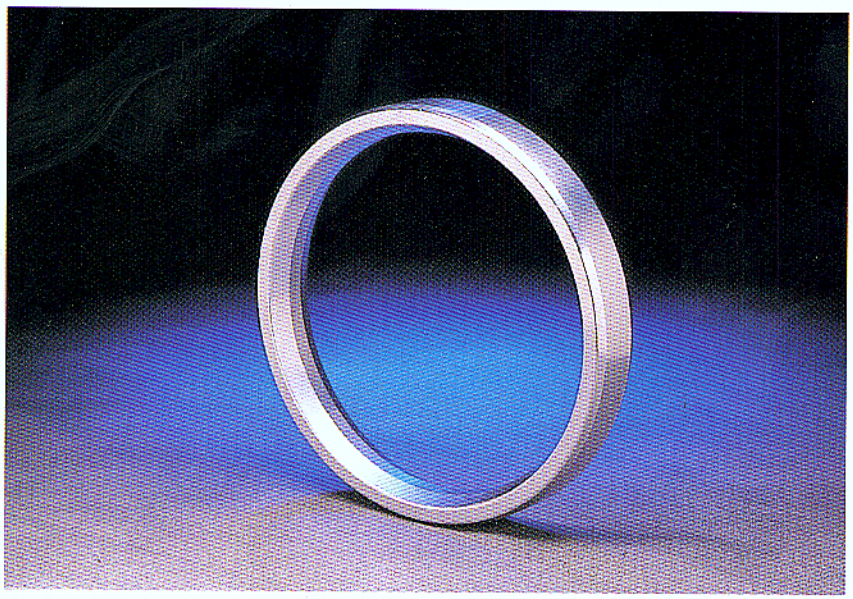
WHEN ORDERING SPECIFY

Ring No. (or Nominal Size/Pressure Class) and Material.

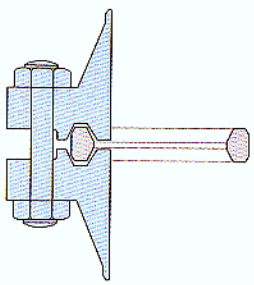
STYLE RX

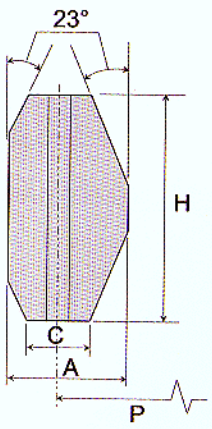
The Style RX is a pressure energized adaptation of the standard Style R Ring Joint gasket. The RX is designed to fit the same groove design as a standard Style R, making the joints interchangeable.

The modified design uses a pressure energized effect which improves the efficiency of the seal as the internal pressure of the system increases.



DIMENSIONAL DATA – Style RX





Tolerances: (Inches)

A* (WIDTH OF RING) . . . . . .+0.008,-0.000
H* (HEIGHT OF RING) . . . . . .+0.008,-0.000
OD (OD OF RING) . . . . . .+0.020,-0.000
23° (ANGLE) . . . . . .± 1/2°

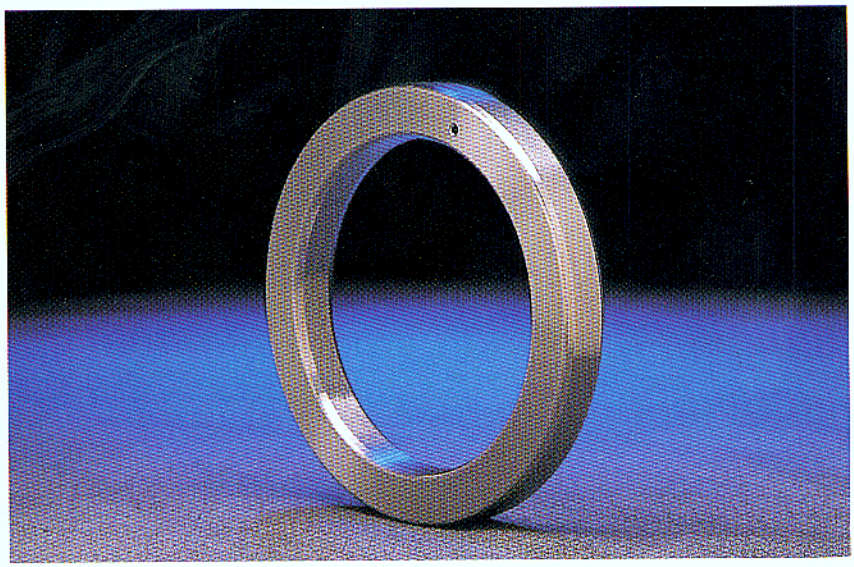
*A PLUS TOLERANCE OF 0.008 INCHES FOR WIDTH 'A' AND HEIGHT 'H' IS PERMITTED, PROVIDED THE VARIATION IN WIDTH OR HEIGHT DOES NOT EXCEED 0.004 INCHES THROUGHOUT IT'S ENTIRE CIRCUMFERENCE.

NOTE 1:
THE PRESSURE PASSAGE HOLE ILLUSTRATED IN THE RX RING CROSS SECTION IS IN RINGS RX82 THROUGH RX91 ONLY. CENTER LINE OF HOLE SHALL BE LOCATED AT MID POINT OF DIMENSION 'C' (WIDTH OF FLAT). HOLE DIAMETER SHALL BE AS FOLLOWS:
0.06 INCHES FOR RINGS RX82 THROUGH RX85; 0.09 INCHES FOR RINGS RX86 AND RX87;
0.12 INCHES FOR RINGS RX88 THROUGH RX91.

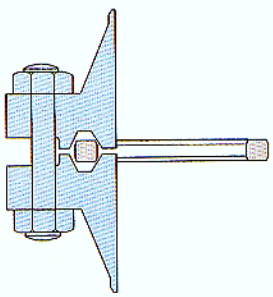
The Style BX pressure energized Ring Joint gaskets, manufactured in accordance with API 6A, are designed for use on pressurized systems up to 20,000 psi.

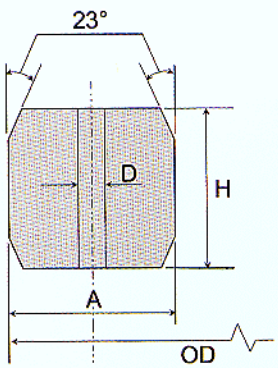
When correctly fitted, the style BX gasket allows virtual face to face contact of the flange faces which means that the gasket is fully trapped on both the inner and outer diameters.

All BX gaskets incorporate a pressure balance hole to ensure equalization of pressure which may be trapped in the grooves.



DIMENSIONAL DATA – Style BX





Tolerances: (Inches)

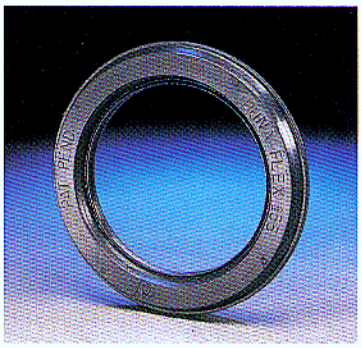
A* (WIDTH OF RING) . . . .+0.008,-0.000
D (HOLE SIZE) . . . . . .± 0.02
H* (HEIGHT OF RING) . . . .+0.008,-0.000
OD (OD OF RING) . . . . . .+0.000,-0.006
23° (ANGLE) . . . . . .± 1/4°

ONE PRESSURE PASSAGE HOLE REQUIRED PER RING ON CENTER LINE
*A PLUS TOLERANCE OF 0.008 INCHES FOR WIDTH 'A' AND HEIGHT 'H' IS PERMITTED, PROVIDED THE VARIATION IN WIDTH OR HEIGHT DOES NOT EXCEED 0.004 INCHES THROUGHOUT ITS ENTIRE CIRCUMFERENCE.

NOTE 1:
RADIUS OF THE RING SHALL BE 8% TO 12% OF THE RING HEIGHT 'H'.

SPECIALIZED RING JOINT GASKETS

RUBBER COATED RING JOINT GASKETS

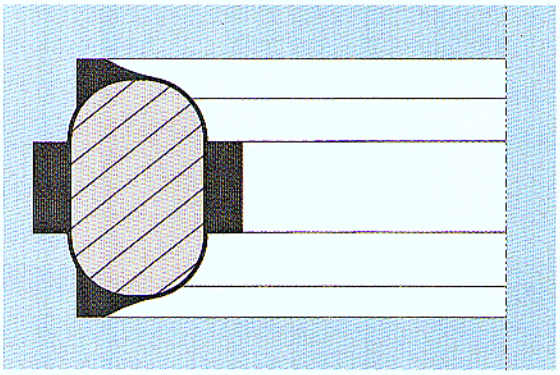


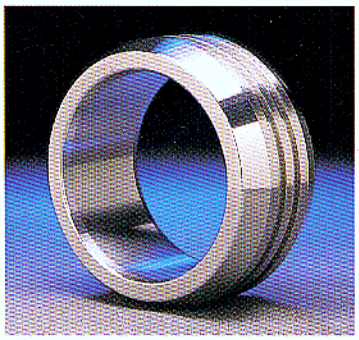
This is an oval Ring Joint gasket totally enclosed in a nitrile rubber coating. The Ring Joint gasket material is usually soft iron or low carbon steel.

This type of gasket has three main functions:

- It is used in pressure testing to minimize damage to flanges.
- The rubber contact points provide additional seals while protecting the flange surfaces.
- It provides increased assurance against corrosion, which can occur between conventional Ring Joint gaskets and the engaged surfaces of the groove.

A wide range of standard sizes are available, with special sizes available upon request.

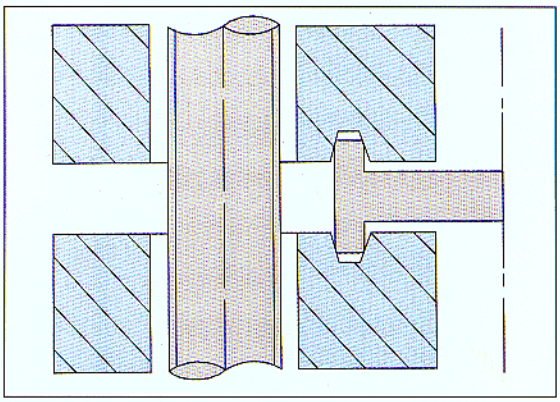




CUSTOM MANUFACTURED SEALS

Flexitallic supplies gaskets, with or without inserts, and other specialized machined metallic components to suit subsea and wellhead equipment.

BLIND RING JOINT GASKETS



Special Ring Joint gaskets can be manufactured to blank off flanges and pipework. They consist of standard Ring Joint gaskets with integral solid metallic centers.

Blind Ring Joint gaskets can be supplied in all standard materials and exotic alloys.

For further information on the specialized Ring Joint gasket products, please contact Flexitallic's technical department.

For problematic ring type flange applications, the specialized Flexitallic "CG-RJ" Spiral Wound gasket design may also be considered.

SPECIALIZED RING JOINT GASKETS

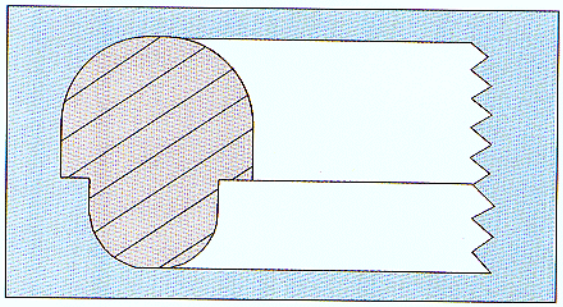
For critical and non-standard applications, Flexitallic offers a range of specialized Ring Joint gaskets to suit the needs of the petrochemical industry.

TRANSITION RING JOINT GASKETS

These are combination rings which consist of two different sizes having the same pitch circle diameter. They are used for sealing Ring Joint flanges where the mating flanges have different ring groove diameters.

Transition Ring Joint gaskets can be manufactured from standard materials, as well as exotic alloys. Transition Ring Joint gaskets are available with either oval or octagonal facings.

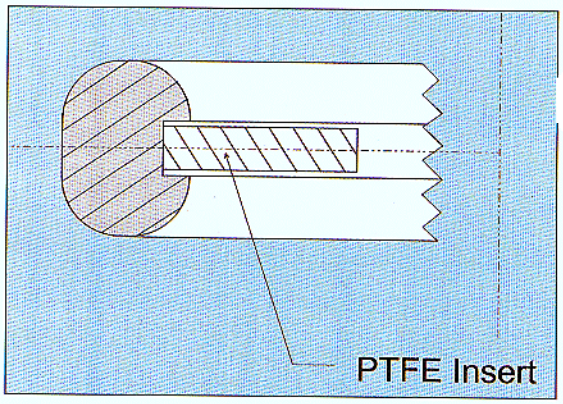
Transition Ring Joint gaskets are not in accordance with API specification.



STYLE R RING JOINT GASKETS WITH PTFE INSERTS

Oval and octagonal Ring Joint gaskets can be supplied with a PTFE insert which is located in a machined recess in the bore of the gasket. The insert is specially sized to suit the flange bore and pipe schedule. On assembly, the insert is completely trapped between the make up of the flanges, filling the annular space between the inside diameter of the gasket and the bore of the flange.

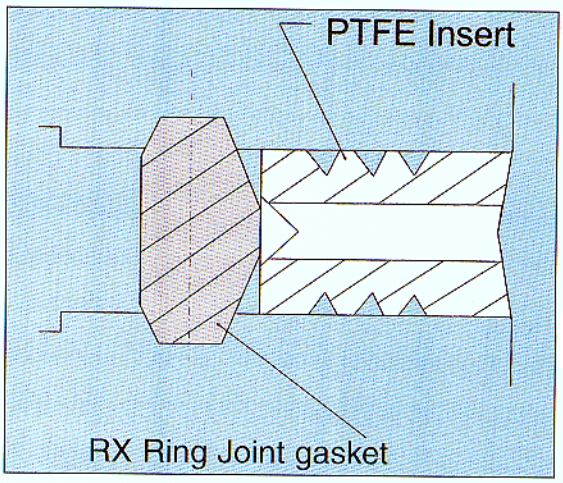
The above arrangement reduces turbulent flow across adjoining flanges and also eliminates flange/gasket erosion which can occur with high velocity fluids.



STYLE RX RING JOINT GASKETS WITH PTFE INSERTS

Style RX Ring Joint gaskets can also be supplied with PTFE inserts, in order to reduce turbulent flow and eliminate gasket/flange erosion. The insert is specially designed with radially drilled pressure passage holes so that the self energizing performance of the RX Ring Joint gasket is not impaired.

The insert is located between the inside diameter of the Ring Joint gasket and the bore of the flange, as shown on the right. On assembly, the insert is completely trapped between the make up of the flanges, filling the annular space between the flange bore and gasket.



STYLE R DIMENSIONS IN INCHES

RING NO.	PRESSURE CLASS RATINGS							PITCH DIAMETER OF RING	WIDTH OF RING	HEIGHT OF RING		APPROX. DISTANCE BETWEEN MADE UP FLANGES	GASKET WEIGHTS, lbs.	
	ANSI, BS & MSS					API (psi)				OVAL	OCTAGONAL		OVAL RINGS	OCTAGONAL RINGS
	150	300/600	900	1500	2500	2000/3000	5000							
	NOMINAL PIPE SIZE							P	A	B	H			
R11	–	1/2	–	–	–	–	–	1.344	0.250	0.44	0.38	–	.111	.104
R12	–	–	1/2	1/2	–	–	–	1.563	0.313	0.56	0.50	–	.216	.200
R13	–	3/4	–	–	1/2	–	–	1.688	0.313	0.56	0.50	–	.234	.216
R14	–	–	3/4	3/4	–	–	–	1.750	0.313	0.56	0.50	–	.242	.224
R15	1	–	–	–	–	–	–	1.875	0.313	0.56	0.50	–	.260	.240
R16	–	1	1	1	3/4	–	–	2.000	0.313	0.56	0.50	–	.278	.256
R17	1 1/4	–	–	–	–	–	–	2.250	0.313	0.56	0.50	–	.311	.288
R18	–	1 1/4	1 1/4	1 1/4	1	–	–	2.375	0.313	0.56	0.50	–	.328	.304
R19	1 1/2	–	–	–	–	–	–	2.563	0.313	0.56	0.50	–	.354	.328
R20*	–	1 1/2	1 1/2	1 1/2	–	–	–	2.688	0.313	0.56	0.50	0.16	.372	.344
R21	–	–	–	–	1 1/4	–	–	2.844	0.438	0.69	0.63	–	.660	.643
R22	2	–	–	–	–	–	–	3.250	0.313	0.56	0.50	–	.450	.415
R23*	–	2	–	–	1 1/2	2 1/16**	–	3.250	0.438	0.69	0.63	0.19	.755	.734
R24*	–	–	2	2	–	2 1/16	2	3.750	0.438	0.69	0.63	0.19	.870	.846
R25	2 1/2	–	–	–	–	–	–	4.000	0.313	0.56	0.50	–	.553	.510
R26*	–	2 1/2	–	–	2	2 9/16	–	4.000	0.438	0.69	0.63	0.19	.930	.904
R27*	–	–	2 1/2	2 1/2	–	(2 9/16)	2 9/16	4.250	0.438	0.69	0.63	0.19	1.050	.960
R28	–	–	–	–	2 1/2	–	–	4.375	0.500	0.75	0.69	–	1.255	1.230
R29	3	–	–	–	–	–	–	4.500	0.313	0.56	0.50	–	.622	.575
R30†	–	3	–	–	–	–	–	4.625	0.438	0.69	0.63	–	1.075	1.047
R31*	–	3	3	–	–	3 1/8	–	4.875	0.438	0.69	0.63	0.19	1.130	1.100
R32	–	–	–	–	3	–	–	5.000	0.500	0.75	0.69	–	1.435	1.405
R33	3 1/2	–	–	–	–	–	–	5.188	0.313	0.56	0.50	–	.718	.664
R34	–	3 1/2	–	–	–	–	–	5.188	0.438	0.69	0.63	–	1.200	1.170
R35*	–	–	–	3	–	–	3 1/8	5.375	0.438	0.69	0.63	0.19	1.250	1.210
R36	4	–	–	–	–	–	–	5.875	0.313	0.56	0.50	–	.813	.735
R37*	–	4	4	–	–	4 1/16	–	5.875	0.438	0.69	0.63	0.19	1.360	1.330
R38	–	–	–	–	4	–	–	6.188	0.625	0.88	0.81	–	2.56	2.52
R39*	–	–	–	4	–	–	4 1/16	6.375	0.438	0.69	0.63	0.19	1.480	1.440
R40	5	–	–	–	–	–	–	6.750	0.313	0.56	0.50	–	.935	.865
R41*	–	5	5	–	–	–	–	7.125	0.438	0.69	0.63	0.19	1.66	1.61
R42	–	–	–	–	5	–	–	7.500	0.750	1.00	0.94	–	4.21	4.16
R43	6	–	–	–	–	–	–	7.625	0.313	0.56	0.50	–	1.055	.975
R44*	–	–	–	5	–	–	–	7.625	0.438	0.69	0.63	0.19	1.77	1.73
R45*	–	6	6	–	–	7 1/16	–	8.313	0.438	0.69	0.63	0.19	1.93	1.88
R46*	–	–	–	6	–	–	7 1/16	8.313	0.500	0.75	0.69	0.13	2.39	2.33
R47*	–	–	–	–	6	–	–	9.000	0.750	1.00	0.94	0.16	5.06	4.99
R48	8	–	–	–	–	–	–	9.750	0.313	0.56	0.50	–	1.350	1.240
R49*	–	8	8	–	–	9	–	10.625	0.438	0.69	0.63	0.19	2.47	2.40
R50*	–	–	–	8	–	–	9	10.625	0.625	0.88	0.81	0.16	4.40	4.32
R51	–	–	–	–	8	–	–	11.000	0.875	1.13	1.06	–	8.05	8.17
R52	10	–	–	–	–	–	–	12.000	0.313	0.56	0.50	–	1.66	1.53
R53*	–	10	10	–	–	11	–	12.750	0.438	0.69	0.63	0.19	3.00	2.88
R54*	–	–	–	10	–	–	11	12.750	0.625	0.88	0.81	0.16	5.29	5.18
R55	–	–	–	–	10	–	–	13.500	1.125	1.44	1.38	–	16.23	17.04
R56	12	–	–	–	–	–	–	15.000	0.313	0.56	0.69	–	2.07	1.92
R57*	–	12	12	–	–	13 5/8	–	15.000	0.438	0.69	0.63	0.19	3.48	3.38

* Denotes ring number specified in API 6A. Nominal Pipe Sizes marked** apply to class rating 2000 only.
Nominal Pipe Sizes in brackets apply to class rating 3000 only. †Ring no. R30 is suitable for lapped flanges only.

STYLE R DIMENSIONS IN INCHES

RING NO.	PRESSURE CLASS RATINGS							PITCH DIAMETER OF RING	WIDTH OF RING	HEIGHT OF RING		APPROX. DISTANCE BETWEEN MADE UP FLANGES	GASKET WEIGHTS, lbs.	
	ANSI, BS & MSS					API (psi)				OVAL	OCTAGONAL		OVAL	OCTAGONAL
	150	300/600	900	1500	2500	2000/3000	5000							
	NOMINAL PIPE SIZE							P	A	B	H		RINGS	RINGS
R58	-	-	-	12	-	-	-	15.000	0.875	1.13	1.06	-	11.00	11.13
R59	14	-	-	-	-	-	-	15.625	0.313	0.56	0.50	-	2.16	2.00
R60	-	-	-	-	12	-	-	16.000	1.250	1.56	1.50	-	23.10	23.50
R61	-	14	-	-	-	-	-	16.500	0.438	0.69	0.63	-	3.83	3.73
R62	-	-	14	-	-	-	-	16.500	0.625	0.88	0.81	-	6.84	6.71
R63*	-	-	-	14	-	-	-	16.500	1.000	1.31	1.25	0.22	16.20	16.67
R64	16	-	-	-	-	-	-	17.875	0.313	0.56	0.50	-	2.47	2.29
R65*	-	16	-	-	-	16 3/4**	-	18.500	0.438	0.69	0.63	0.19	4.30	4.18
R66*	-	-	16	-	-	(16)	-	18.500	0.625	0.88	0.81	0.16	7.67	7.53
R67	-	-	-	16	-	-	-	18.500	1.125	1.44	1.38	-	22.30	23.40
R68	18	-	-	-	-	-	-	20.375	0.313	0.56	0.50	-	2.82	2.60
R69*	-	18	-	-	-	-	-	21.000	0.438	0.69	0.63	0.19	4.87	4.74
R70*	-	-	18	-	-	(18)	-	21.000	0.750	1.00	0.94	0.19	11.80	11.64
R71	-	-	-	18	-	-	-	21.000	1.125	1.44	1.38	-	25.20	26.50
R72	20	-	-	-	-	-	-	22.000	0.313	0.56	0.50	-	3.04	2.81
R73*	-	20	-	-	-	21 1/4**	-	23.000	0.500	0.75	0.69	0.13	6.60	6.47
R74*	-	-	20	-	-	(20 3/4)	-	23.000	0.750	1.00	0.94	0.19	12.95	12.75
R75	-	-	-	20	-	-	-	23.000	1.250	1.56	1.50	-	33.30	35.30
R76	24	-	-	-	-	-	-	26.500	0.313	0.56	0.50	-	3.66	3.38
R77	-	24	-	-	-	-	-	27.250	0.625	0.88	0.81	-	11.30	11.10
R78	-	-	24	-	-	-	-	27.250	1.000	1.31	1.25	-	27.10	27.58
R79	-	-	-	24	-	-	-	27.250	1.375	1.75	1.63	0.19	48.70	49.75
R80	22	-	-	-	-	-	-	24.250	0.313	-	0.50	-	-	3.11
R81	-	22	-	-	-	-	-	25.000	0.563	-	0.75	-	-	8.55
R82*	-	-	-	-	-	-	-	2.250	0.438	-	0.63	0.19	-	.508
R84*	-	-	-	-	-	-	-	2.500	0.438	-	0.63	0.19	-	.564
R85*	-	-	-	-	-	-	-	3.125	0.500	-	0.69	0.13	-	.978
R86*	-	-	-	-	-	-	-	3.563	0.625	-	0.81	0.16	-	1.447
R87*	-	-	-	-	-	-	-	3.938	0.625	-	0.81	0.16	-	1.597
R88*	-	-	-	-	-	-	-	4.875	0.750	-	0.94	0.19	-	2.735
R89*	-	-	-	-	-	-	-	4.500	0.750	-	0.94	0.19	-	2.528
R90*	-	-	-	-	-	-	-	6.125	0.875	-	1.06	0.19	-	4.55
R91*	-	-	-	-	-	-	-	10.250	1.250	-	1.50	0.16	-	15.05
R92	-	-	-	-	-	-	-	9.000	0.438	0.69	0.63	-	2.07	2.02
R93	-	26	-	-	-	-	-	29.500	0.750	-	0.94	-	-	16.33
R94	-	28	-	-	-	-	-	31.500	0.750	-	0.94	-	-	17.44
R95	-	30	-	-	-	-	-	33.750	0.750	-	0.94	-	-	18.69
R96	-	32	-	-	-	-	-	36.000	0.875	-	1.06	-	-	26.65
R97	-	34	-	-	-	-	-	38.000	0.875	-	1.06	-	-	28.13
R98	-	36	-	-	-	-	-	40.125	0.875	-	1.06	-	-	29.79
R99*	-	-	-	-	-	-	-	9.250	0.438	-	0.63	0.19	-	2.08
R100	-	-	26	-	-	-	-	29.500	1.125	-	1.38	-	R100 through R105 information available on request.	
R101	-	-	28	-	-	-	-	31.500	1.250	-	1.50	-		
R102	-	-	30	-	-	-	-	33.750	1.250	-	1.50	-		
R103	-	-	32	-	-	-	-	36.000	1.250	-	1.50	-		
R104	-	-	34	-	-	-	-	38.000	1.375	-	1.63	-		
R105	-	-	36	-	-	-	-	40.250	1.375	-	1.63	-		

* Denotes ring number specified in API 6A. Nominal Pipe Sizes marked** apply to class rating 2000 only.
Nominal Pipe Sizes in brackets apply to class rating 3000 only. †Ring no. R30 is suitable for lapped flanges only.

STYLE RX DIMENSIONS IN INCHES

RING NO.	PRESSURE CLASS RATINGS (psi)			PITCH DIAMETER OF RING	OUTSIDE DIAMETER OF RING	WIDTH OF RING	HEIGHT OF RING	GASKET WEIGHT, lbs.
	2000	3000	5000					
	NOMINAL PIPE SIZE			P	OD	A	H	
RX20	-	-	-	2.688	3.000	0.344	0.750	0.527
RX20†	-	-	2 1/16	2.688	3.000	0.344	0.750	0.527
RX23	2 1/16	-	-	3.250	3.672	0.469	1.000	1.15
RX24	-	2 1/16	2 1/16	3.750	4.172	0.469	1.000	1.33
RX25†	-	-	3 1/8	4.000	4.313	0.344	0.750	1.42
RX26	2 9/16	-	-	4.000	4.406	0.469	1.000	1.50
RX27	-	2 9/16	2 9/16	4.250	4.656	0.469	1.000	1.73
RX31	3 1/8	3 1/8	-	4.875	5.297	0.469	1.000	1.91
RX35	-	-	3 1/8	5.375	5.797	0.469	1.000	2.09
RX37	4 1/16	4 1/16	-	5.875	6.297	0.469	1.000	2.27
RX39	-	-	4 1/16	6.375	6.797	0.469	1.000	2.54
RX41	-	-	-	7.125	7.547	0.469	1.000	2.72
RX44	-	-	-	7.625	8.047	0.469	1.000	2.96
RX45	7 1/16	7 1/16	-	8.313	8.734	0.469	1.000	3.66
RX46	-	-	7 1/16	8.313	8.750	0.531	1.125	8.56
RX47	-	-	-	9.000	9.656	0.781	1.625	3.79
RX49	9	9	-	10.625	11.047	0.469	1.000	5.36
RX50	-	-	9	10.625	11.156	0.656	1.250	4.56
RX53	11	11	-	12.750	13.172	0.469	1.000	6.45
RX54	-	-	11	12.750	13.281	0.656	1.250	5.36
RX57	13 5/8	13 5/8	-	15.000	15.422	0.469	1.000	26.40
RX63	-	-	-	16.500	17.391	1.063	2.000	6.63
RX65	16 3/4	-	-	18.500	18.922	0.469	1.000	9.39
RX66	-	16 3/4	-	18.500	19.031	0.656	1.250	7.52
RX69	-	-	-	21.000	21.422	0.469	1.000	20.14
RX70	-	-	-	21.000	21.656	0.781	1.625	11.63
RX73	21 1/4	-	-	23.000	23.469	0.531	1.250	22.10
RX74	-	20 3/4	-	23.000	23.656	0.781	1.625	0.790
RX82	-	-	-	2.250	2.672	0.469	1.000	0.880
RX84	-	-	-	2.500	2.922	0.469	1.000	0.880
RX85	-	-	-	3.125	3.547	0.531	1.000	1.79
RX86	-	-	-	3.563	4.078	0.594	1.125	1.98
RX87	-	-	-	3.938	4.453	0.594	1.125	3.22
RX88	-	-	-	4.875	5.484	0.688	1.250	2.98
RX89	-	-	-	4.500	5.109	0.719	1.250	6.82
RX90	-	-	-	6.125	6.875	0.781	1.750	17.10
RX91	-	-	-	10.250	11.297	1.188	1.781	3.31
* RX99	-	-	-	9.250	9.672	0.469	1.000	-
RX201†	-	-	1 3/8	1.813	2.026	0.226	0.445	-
* RX205†	-	-	1 13/16	2.250	2.453	0.219	0.437	-
* RX210†	-	-	2 9/16	3.500	3.844	0.375	0.750	-
* RX215	-	-	4 1/16	5.125	5.547	0.469	1.000	-
* RX215†	-	-	4 1/16 X 4 1/4	5.125	5.547	0.469	1.000-	

*API allows more liberal tolerances on RX 201-215

†Denotes API Ring Joint gaskets for segmented flanges for dual completions to API Standard 6A.

STYLE BX DIMENSIONS IN INCHES

RING NO.	PRESSURE CLASS RATINGS (psi)				OUTSIDE DIAMETER OF RING OD	HEIGHT OF RING H	WIDTH OF RING A	HOLE SIZE D	GASKET WEIGHT, lbs. for API 6BX flanges
	5000	10000	15000	20000					
	NOMINAL PIPE SIZE								
BX150	-	-	-	-	2.842	0.366	0.366	0.06	0.295
BX151	-	1 13/16	1 13/16	1 13/16	3.008	0.379	0.379	0.06	0.337
BX152	-	2 1/16	2 1/16	2 1/16	3.334	0.403	0.403	0.06	0.425
BX153	-	2 9/16	2 9/16	2 9/16	3.974	0.448	0.448	0.06	0.632
BX154	-	3 1/16	3 1/16	3 1/16	4.600	0.488	0.488	0.06	0.875
BX155	-	4 1/16	4 1/16	4 1/16	5.825	0.560	0.560	0.06	1.22
BX156	-	7 1/16	7 1/16	7 1/16	9.367	0.733	0.733	0.12	4.14
BX157	-	9	9	9	11.593	0.826	0.826	0.12	6.55
BX158	-	11	11	11	13.860	0.911	0.911	0.12	9.60
BX159	-	13 5/8	13 5/8	13 5/8	16.800	1.012	1.012	0.12	14.41
BX160	13 5/8	-	-	-	15.850	0.938	0.541	0.12	6.75
BX161	-	-	-	-	19.347	1.105	0.638	0.12	-
BX162	16 3/4	16 3/4	-	-	18.720	0.560	0.560	0.06	-
BX163	18 3/4	-	-	-	21.896	1.185	0.684	0.12	-
BX164	-	18 3/4	18 3/4	-	22.463	1.185	0.968	0.12	-
BX165	21 1/4	-	-	-	24.595	1.261	0.728	0.12	-
BX166	-	21 1/4	-	-	25.198	1.261	1.029	0.12	-
BX167*	-	-	-	-	29.896	1.412	0.516	0.06	-
BX168†	-	-	-	-	30.128	1.412	0.632	0.06	-
BX169**	-	-	-	-	6.831	0.624	0.509	0.06	-
BX170	-	-	-	-	8.584	0.560	0.560	0.06	-
BX171	-	-	-	-	10.529	0.560	0.560	0.06	-
BX172	-	-	-	-	13.113	0.560	0.560	0.06	-
BX303††	-	-	-	-	33.573	1.494	0.668	0.06	-

*BX167 is suitable for 26 3/4 Nominal Pipe Size 2,000 psi rating.
**BX169 is suitable for 5 3/4 Nominal Pipe Size 10,000 psi rating.
†BX168 is suitable for 26 3/4 Nominal Pipe Size 3,000 psi rating.
††BX303 is suitable for 30 Nominal Pipe Size 2,000 and 3,000 psi ratings.

Number And Size Of Bolts For Flanged Joints – ASME B16.5

PRIMARY SERVICE PRESSURE RATING	BOLTING	FLANGE FACING	NOMINAL PIPE SIZE																			
			1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	8	10	12	14	16	18	20	24
Class 150	Number		4	4	4	4	4	4	4	4	8	8	8	8	8	12	12	12	16	16	20	20
	Diameter		1/2	1/2	1/2	1/2	1/2	5/8	5/8	5/8	5/8	5/8	3/4	3/4	3/4	7/8	7/8	1	1	1 1/8	1 1/8	1 1/4
	Length of Stud Bolts	1/16" RF	2 1/4	2 1/2	2 1/2	2 3/4	2 3/4	3 1/4	3 1/2	3 1/2	3 1/2	3 1/2	3 3/4	4	4 1/4	4 1/2	4 3/4	5 1/4	5 1/4	5 3/4	6 1/4	6 3/4
		RTJ			3	3 1/4	3 1/4	3 3/4	4	4	4	4	4 1/4	4 1/2	4 3/4	5	5 1/4	5 3/4	5 3/4	6 1/4	6 3/4	7 1/4
	Length of Mach. Bolts	1/16" RF	2	2	2 1/4	2 1/4	2 1/2	2 3/4	3	3	3	3	3 1/4	3 1/4	3 1/2	4	4	4 1/2	4 1/2	5	5 1/2	6
	Ring No.				R15	R17	R19	R22	R25	R29	R33	R36	R40	R43	R48	R52	R56	R59	R64	R68	R72	R76
Class 300	Number		4	4	4	4	4	8	8	8	8	8	8	12	12	16	16	20	20	24	24	24
	Diameter		1/2	5/8	5/8	5/8	3/4	5/8	3/4	3/4	3/4	3/4	3/4	3/4	7/8	1	1 1/8	1 1/8	1 1/4	1 1/4	1 1/4	1 1/2
	Length of Stud Bolts	1/16" RF	2 1/2	3	3	3 1/4	3 1/2	3 1/2	4	4 1/4	4 1/4	4 1/2	4 3/4	4 3/4	5 1/2	6 1/4	6 3/4	7	7 1/2	7 3/4	8	9
		RTJ	3	3 1/2	3 1/2	3 3/4	4	4	4 1/2	4 3/4	5	5	5 1/4	5 1/2	6	6 3/4	7 1/4	7 1/2	8	8 1/4	8 3/4	10
	Length of Mach. Bolts	1/16" RF	2 1/4	2 1/2	2 1/2	2 3/4	3	3	3 1/4	3 1/2	3 3/4	3 3/4	4 1/4	4 1/4	4 3/4	5 1/2	5 3/4	6 1/4	6 1/2	6 3/4	7 1/4	8
	Ring No.		R11	R13	R16	R18	R20	R23	R26	R31	R34	R37	R41	R45	R49	R53	R57	R61	R65	R69	R73	R77
Class 400	Number		4	4	4	4	4	8	8	8	8	8	8	12	12	16	16	20	20	24	24	24
	Diameter		1/2	5/8	5/8	5/8	3/4	5/8	3/4	3/4	7/8	7/8	7/8	7/8	1	1 1/8	1 1/4	1 1/4	1 3/8	1 3/8	1 1/2	1 3/4
	Length of Stud Bolts	1/4" RF	3	3 1/2	3 1/2	3 3/4	4 1/4	4 1/4	4 3/4	5	5 1/2	5 1/2	5 3/4	6	6 3/4	7 1/2	8	8 1/4	8 3/4	9	9 1/2	10 1/2
		M & F T & G	2 3/4	3 1/4	3 1/4	3 1/2	4	4	4 1/2	4 3/4	5 1/4	5 1/4	5 1/4	5 3/4	6 1/2	7 1/4	7 3/4	8	8 1/2	8 3/4	9 1/4	10 1/4
		RTJ	3	3 1/2	3 1/2	3 3/4	4 1/4	4 1/4	4 3/4	5	5 1/2	5 1/2	5 3/4	6	6 3/4	7 1/2	8	8 1/4	8 3/4	9	9 3/4	11
	Ring No.		R11	R13	R16	R18	R20	R23	R26	R31	R34	R37	R41	R45	R49	R53	R57	R61	R65	R69	R73	R77
Class 600	Number		4	4	4	4	4	8	8	8	8	8	8	12	12	16	20	20	20	20	24	24
	Diameter		1/2	5/8	5/8	5/8	3/4	5/8	3/4	3/4	7/8	7/8	1	1	1 1/8	1 1/4	1 1/4	1 3/8	1 1/2	1 5/8	1 5/8	1 7/8
	Length of Stud Bolts	1/4" RF	3	3 1/2	3 1/2	3 3/4	4 1/4	4 1/4	4 3/4	5	5 1/2	5 3/4	6 1/2	6 3/4	7 1/2	8 1/2	8 3/4	9 1/4	10	10 3/4	11 1/4	13
		M & F T & G	2 3/4	3 1/4	3 1/4	3 1/2	4	4	4 1/2	4 3/4	5 1/4	5 1/2	6 1/4	6 1/2	7 1/4	8 1/4	8 1/2	9	9 3/4	10 1/2	11	12 3/4
		RTJ	3	3 1/2	3 1/2	3 3/4	4 1/4	4 1/4	4 3/4	5	5 1/2	5 3/4	6 1/2	6 3/4	7 3/4	8 1/2	8 3/4	9 1/4	10	10 3/4	11 1/2	13 1/4
	Ring No.		R11	R13	R16	R18	R20	R23	R26	R31	R34	R37	R41	R45	R49	R53	R57	R61	R65	R69	R73	R77
Class 900	Number		4	4	4	4	4	8	8	8		8	8	12	12	16	20	20	20	20	20	20
	Diameter		3/4	3/4	7/8	7/8	1	7/8	1	7/8		1 1/8	1 1/4	1 1/8	1 3/8	1 3/8	1 3/8	1 1/2	1 5/8	1 7/8	2	2 1/2
	Length of Stud Bolts	1/4" RF	4 1/4	4 1/2	5	5	5 1/2	5 3/4	6 1/4	5 3/4		6 3/4	7 1/2	7 1/2	8 3/4	9 1/4	10	10 3/4	11 1/4	12 3/4	13 3/4	17 1/4
		M & F T & G	4	4 1/4	4 3/4	4 3/4	5 1/4	5 1/2	6	5 1/2		6 1/2	7 1/4	7 1/4	8 1/2	9	9 3/4	10 1/2	11	12 1/2	13 1/2	17
		RTJ	4 1/4	4 1/2	5	5	5 1/2	5 3/4	6 1/4	5 3/4		6 3/4	7 1/2	7 3/4	8 3/4	9 1/4	10	11	11 1/2	13 1/4	14 1/4	18
	Ring No.		R12	R14	R16	R18	R20	R24	R27	R31		R37	R41	R45	R49	R53	R57	R62	R66	R70	R74	R78
Class 1500	Number		4	4	4	4	4	8	8	8		8	8	12	12	12	16	16	16	16	16	16
	Diameter		3/4	3/4	7/8	7/8	1	7/8	1	1 1/8		1 1/4	1 1/2	1 3/8	1 5/8	1 7/8	2	2 1/4	2 1/2	2 3/4	3	3 1/2
	Length of Stud Bolts	1/4" RF	4 1/4	4 1/2	5	5	5 1/2	5 3/4	6 1/4	7		7 3/4	9 3/4	10 1/4	11 1/2	13 1/4	14 3/4	16	17 1/2	19 1/2	21 1/4	24 1/4
		M & F T & G	4	4 1/4	4 3/4	4 3/4	5 1/4	5 1/2	6	6 3/4		7 1/2	9 1/2	10	11 1/4	13	14 1/2	15 3/4	17 1/4	19 1/4	21	24
		RTJ	4 1/4	4 1/2	5	5	5 1/2	5 3/4	6 1/4	7		7 3/4	9 3/4	10 1/2	12 3/4	13 1/2	15 1/4	16 3/4	18 1/2	20 3/4	22 1/4	25 1/2
	Ring No.		R12	R14	R16	R18	R20	R24	R27	R35		R39	R44	R46	R50	R54	R58	R63	R67	R71	R75	R79
Class 2500	Number		4	4	4	4	4	8	8	8		8	8	8	12	12	12					
	Diameter		3/4	3/4	7/8	1	1 1/8	1	1 1/8	1 1/4		1 1/2	1 3/4	2	2	2 1/2	2 3/4					
	Length of Stud Bolts	1/4" RF	4 3/4	5	5 1/2	6	6 3/4	7	7 3/4	8 3/4		10	11 3/4	13 1/2	15	19 1/4	21 1/4					
		M & F T & G	4 1/2	4 3/4	5 1/4	5 3/4	6 1/2	6 3/4	7 1/2	8 1/2		9 3/4	11 1/2	13 1/4	14 3/4	19	21					
		RTJ	4 3/4	5	5 1/2	6	6 3/4	7	8	9		10 1/4	12 1/4	14	15 1/2	20	22					
	Ring No.		R13	R16	R18	R21	R23	R26	R28	R32		R38	R42	R47	R51	R55	R60					

Stud-Bolt lengths do not include the height of the points.
Lengths of studs and bolts, when used with lap joint flanges, are dependent upon the thickness of the lap of the stud end.

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