

## RING JOINT GASKETS



Metallic ring joint gaskets are heavy duty, high-pressure gaskets largely used in offshore petrochemical and natural gas industry applications. They are precision-engineered components designed to be used in conjunction with precision-machined flanges.

All our ring joints are manufactured according to ASME B16.20 - API Std 6A BS; EN 12560-5.



## TYPE OF GASKETS



### Type R, Oval



Standard Ring Joint Gasket oval section, for flange with standard ring joint grooves.

### Type R, Octagonal



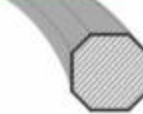
Standard Ring Joint Gasket octagonal section, for flanges with standard ring joint grooves.

### Type RX



Ring Joint Gaskets for pressure up to approx. 700 bar. With this type the outer sealing surface makes the first contact with the flanges. A higher system pressure produces a higher seating stress. Ring Joint Gaskets of RX type are interchangeable with the standard R type.

### Type BX



Ring Joint Gaskets for very high pressures (upto approx. 1500 bar). BX gaskets are self-energized by the internal system pressure which increases the gasket seating stress on the flange contact surface. This Ring Joint is only suited for API-type BX flanges and grooves.

## MATERIALS

The gasket material is selected on a number of grounds primarily; chemical compatibility with the media and the hardness of the flange. The gasket material ideally needs to be roughly 30 Brinell less than the flange material to ensure sufficient deformation of the gasket without damaging the flange facing.

The principal types of material are:

Metal	Maximum Hardness		Identification
	Rockwell B	Brinell	
Soft Iron	56	90	D
Low Carbon Steel	68	120	S
F5 (4/6% Cr. 1/2% Mo)	72	130	F5
410 Alloy Steel	86	170	S410
304 Stainless Steel	83	160	S304
316 Stainless Steel	83	160	S316
316L Stainless Steel	83	160	S316L
347 Stainless Steel	83	160	S347
321 Stainless Steel	83	160	S321
Alloy 600	93	200	600
Alloy 625	93	200	625
825 Inconel	93	200	825
Hastelloy C276	93	200	C276

## PROTECTIVE COATING

Soft iron and low carbon steel ring joint gaskets to API Standard 6A are supplied with zinc coating to 0.0002" - 0.0005" thick unless otherwise specified. Uncoated rings are treated with a rust preventative fluid.

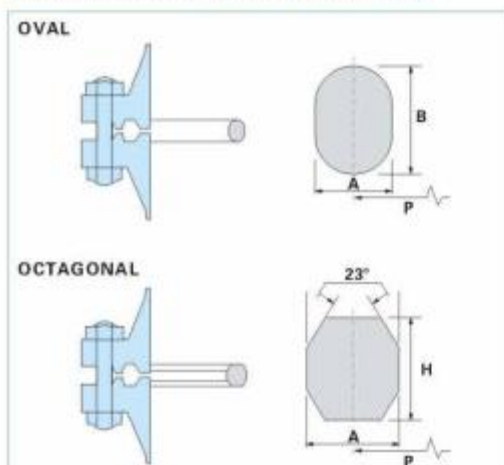
Other available protective coating include:

- ✓ Xylan/PTFE
- ✓ Cadmium
- ✓ Silver

## DIMENSIONAL DATA

Series 'R' manufactured to the standards ASME B 16.20 - API Std 6A BS EN 12560-5

### DIMENSIONAL DATA-STYLE R



#### TOLERANCES: (mm)

A (width of ring)	± 0.2mm
B, H (height of ring)	± 0.5mm
P (average pitch diameter of ring)	± 0.18mm
23° (angle)	± 1/2°

Style R Ring Joint Gaskets can be manufactured in according with all relevant standards suit the following flange designations:

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

Dimensions in mm

RING NO.	PRESSURE CLASS RATINGS							PITCH DIAMETER OF RING P	WIDTH OF RING A	HEIGHT OF RING		APPROX. DISTANCE BETWEEN MADE UP FLANGES	GASKET WEIGHT lbs.	
	ANSI, BS & MSS				API (PSI)					OVAL B	OCTA H		OVAL	OCTA
	150	300/600	900	1500	2500	2000/3000	5000							
	NOMINAL PIPE SIZE (INCHES)													
R11	-	1/2	-	-	-	-	-	34.13	6.35	11.1	9.5	-	0.111	0.104
R12	-	-	1/2	1/2	-	-	-	39.69	7.95	14.3	12.7	-	0.216	0.200
R13	-	3/4	-	-	1/2	-	-	42.86	7.95	14.3	12.7	-	0.234	0.216
R14	-	-	3/4	3/4	-	-	-	44.45	7.95	14.3	12.7	-	0.242	0.224
R15	1	-	-	-	-	-	-	47.63	7.95	14.3	12.7	-	0.260	0.240
R16	-	1	1	1	3/4	-	-	50.80	7.95	14.3	12.7	-	0.278	0.256
R17	1 1/4	-	-	-	-	-	-	57.15	7.95	14.3	12.7	-	0.311	0.288
R18	-	1 1/4	1 1/4	1 1/4	1	-	-	60.33	7.95	14.3	12.7	-	0.328	0.304
R19	1 1/2	-	-	-	-	-	-	65.09	7.95	14.3	12.7	-	0.354	0.328
R20*	-	1 1/2	1 1/2	1 1/2	-	-	-	68.28	7.95	14.3	12.7	4.1	0.372	0.344
R21	-	-	-	-	1 1/4	-	-	72.23	11.11	17.5	15.9	-	0.660	0.643
R22	2	-	-	-	-	-	-	82.55	7.95	14.3	12.7	-	0.450	0.415
R23*	-	2	-	-	1 1/2	2 1/16**	-	82.55	11.11	17.5	15.9	4.8	0.755	0.734
R24*	-	-	2	2	-	2 1/16	2	95.25	11.11	17.5	15.9	4.8	0.870	0.846
R25	2 1/2	-	-	-	-	-	-	101.60	7.95	14.3	12.7	-	0.553	0.510
R26*	-	2 1/2	-	-	2	2 9/16	-	101.60	11.11	17.5	15.9	4.8	0.930	0.904
R27*	-	-	2 1/2	2 1/2	-	(2 9/16)	2 9/16	107.95	11.11	17.5	15.9	-	1.050	0.960
R28	-	-	-	-	2 1/2	-	-	111.13	12.70	19.1	17.5	-	1.255	1.230
R29	3	-	-	-	-	-	-	114.30	7.95	14.3	12.7	-	0.622	0.575
R30+	-	3	-	-	-	-	-	117.48	11.11	17.5	15.9	-	1.075	1.047
R31*	-	3	3	-	-	3 1/16	-	123.83	11.11	17.5	15.9	4.8	1.130	1.100
R32	-	-	-	-	3	-	-	127.00	12.70	19.1	17.5	-	1.435	1.405
R33	3 1/2	-	-	-	-	-	-	131.76	7.95	14.3	12.7	-	0.718	0.664
R34	-	3 1/2	-	-	-	-	-	131.76	11.11	17.5	15.9	-	1.200	1.170
R35*	-	-	-	3	-	-	3 1/16	136.53	11.11	17.5	15.9	4.8	1.250	1.210
R36	4	-	-	-	-	-	-	149.23	7.95	14.3	12.7	-	0.813	0.735
R37*	-	4	4	-	-	4 1/16	-	149.23	11.11	17.5	15.9	4.8	1.360	1.330
R38	-	-	-	-	4	-	-	157.16	15.88	22.4	20.6	-	2.560	2.520
R39*	-	-	-	4	-	-	4 1/16	161.93	11.11	17.5	15.9	4.8	1.480	1.440
R40	5	-	-	-	-	-	-	171.45	7.95	14.3	12.7	-	0.935	0.865
R41*	-	5	5	-	-	-	-	180.98	11.11	17.5	15.9	4.8	1.660	1.610
R42	-	-	-	-	5	-	-	190.50	19.05	25.4	23.9	-	4.210	4.160
R43	6	-	-	-	-	-	-	193.68	7.95	14.3	12.7	-	1.055	0.975
R44*	-	-	-	5	-	-	-	193.68	11.11	17.5	15.9	4.8	1.770	1.730
R45*	-	6	6	-	-	7 1/16	-	211.14	11.11	17.5	15.9	4.8	1.930	1.880
R46*	-	-	-	6	-	-	7 1/16	211.14	12.70	19.1	17.5	4.8	2.390	2.330
R47*	-	-	-	-	6	-	-	228.60	19.05	25.4	23.9	4.1	5.060	4.990
R48	8	-	-	-	-	-	-	247.65	7.95	14.3	12.7	-	1.350	1.240
R49*	-	8	8	-	-	9	-	269.88	11.11	17.5	15.9	4.8	2.470	2.400
R50*	-	-	-	8	-	-	9	269.88	15.88	22.4	20.6	4.1	4.400	4.320
R51	-	-	-	-	8	-	-	279.40	22.23	28.6	27	-	8.050	8.170
R52	10	-	-	-	-	-	-	304.80	7.95	14.3	12.7	-	1.660	1.530
R53*	-	10	10	-	-	11	-	323.85	11.11	17.5	15.9	4.8	3.000	2.880
R54*	-	-	-	10	-	-	11	323.85	15.88	22.4	20.6	4.1	5.290	5.180

Dimensions in mm

RING NO.	PRESSURE CLASS RATINGS							PITCH DIAMETER OF RING P	WIDTH OF RING A	HEIGHT OF RING		APPROX. DISTANCE BETWEEN MADE UP FLANGES	GASKET WEIGHT lbs.	
	ANSI, BS & MSS					API (PSI)				OVAL B	OCTA H		OVAL	OCTA
	150	300/600	900	1500	2500	2000/3000	5000							
	NOMINAL PIPE SIZE (INCHES)													
R55	-	-	-	-	10	-	-	342.90	28.58	36.5	34.9	-	16.230	17.040
R56	12	-	-	-	-	-	-	381.00	7.95	14.3	12.7	-	2.070	1.920
R57*	-	12	12	-	-	13 5/8	-	381.00	11.11	17.5	15.9	4.8	3.480	3.380
R58	-	-	-	12	-	-	-	381.00	22.23	28.6	27	-	11.000	11.130
R59	14	-	-	-	-	-	-	396.88	7.95	14.3	12.7	-	2.160	2.000
R60	-	-	-	-	12	-	-	406.40	31.75	39.7	38.1	-	23.100	23.500
R61	-	14	-	-	-	-	-	419.10	11.11	17.5	15.9	-	3.830	3.730
R62	-	-	14	-	-	-	-	419.10	15.88	22.2	20.6	-	6.840	6.710
R63*	-	-	-	14	-	-	-	419.10	25.40	33.3	31.8	5.6	16.200	16.670
R64	16	-	-	-	-	-	-	454.03	7.95	14.3	12.7	-	2.470	2.290
R65*	-	16	-	-	-	16 3/4**	-	469.90	11.11	17.5	15.9	4.8	4.300	4.180
R66*	-	-	16	-	-	(16)	-	469.90	15.88	22.2	20.6	4.1	7.670	7.530
R67	-	-	-	16	-	-	-	469.90	28.58	36.5	34.9	-	22.300	23.400
R68	18	-	-	-	-	-	-	517.53	7.95	14.3	12.7	-	2.820	2.600
R69*	-	18	-	-	-	-	-	533.40	11.11	17.5	15.9	4.8	4.870	4.740
R70*	-	-	18	-	-	(18)	-	533.40	19.05	25.4	23.9	4.8	11.800	11.640
R71	-	-	-	18	-	-	-	533.40	28.58	36.5	34.9	-	25.200	26.500
R72	20	-	-	-	-	-	-	558.80	7.95	14.3	12.7	-	3.040	2.810
R73*	-	20	-	-	-	21 1/4**	-	584.20	12.70	19.1	17.5	3.3	6.600	6.470
R74*	-	-	20	-	-	(20 3/4)	-	584.20	19.05	25.4	23.9	4.8	12.950	12.750
R75	-	-	-	20	-	-	-	584.20	31.75	39.7	38.1	-	33.300	35.300
R76	24	-	-	-	-	-	-	673.10	7.95	14.3	12.7	-	3.660	3.380
R77	-	24	-	-	-	-	-	692.15	15.88	22.4	20.6	-	11.300	11.100
R78	-	-	24	-	-	-	-	692.15	25.40	33.3	31.8	-	27.100	27.580
R79	-	-	-	24	-	-	-	692.15	34.93	44.5	41.3	-	48.700	49.750
R80	22	-	-	-	-	-	-	615.95	7.95	-	12.7	-	-	3.110
R81	-	22	-	-	-	-	-	635.80	14.29	-	19.1	-	-	8.550
R82*	-	-	-	-	-	-	-	57.14	11.11	-	15.9	4.8	-	0.508
R84*	-	-	-	-	-	-	-	63.50	11.11	-	15.9	4.8	-	0.564
R85*	-	-	-	-	-	-	-	79.38	12.70	-	17.5	3.3	-	0.978
R86*	-	-	-	-	-	-	-	90.50	15.88	-	20.6	4.1	-	1.447
R87*	-	-	-	-	-	-	-	100.83	15.88	-	20.6	4.1	-	1.597
R88*	-	-	-	-	-	-	-	122.83	19.05	-	23.9	4.8	-	2.735
R89*	-	-	-	-	-	-	-	114.30	19.05	-	23.9	4.8	-	2.528
R90*	-	-	-	-	-	-	-	155.58	22.23	-	26.9	4.8	-	4.550
R91*	-	-	-	-	-	-	-	260.25	31.75	-	38.1	4.1	-	15.050
R92	-	-	-	-	-	-	-	228.60	11.11	17.5	15.9	-	2.070	2.020
R93	-	26	-	-	-	-	-	749.30	19.05	-	23.9	-	-	16.330
R94	-	28	-	-	-	-	-	800.10	19.05	-	23.9	-	-	17.440
R95	-	30	-	-	-	-	-	857.25	19.05	-	23.9	-	-	18.690
R96	-	32	-	-	-	-	-	914.40	22.23	-	27	-	-	26.650
R97	-	34	-	-	-	-	-	965.20	22.23	-	27	-	-	28.130
R98	-	36	-	-	-	-	-	1022.35	22.23	-	27	-	-	29.790
R99*	-	-	-	-	-	-	-	234.95	11.11	-	15.9	4.8	-	2.080

Dimensions in mm

RING NO.	PRESSURE CLASS RATINGS							PITCH DIAMETER OF RING P	WIDTH OF RING A	HEIGHT OF RING		APPROX. DISTANCE BETWEEN MADE UP FLANGES	GASKET WEIGHT lbs.	
	ANSI, BS & MSS				API (PSI)					OVAL B	OCTA H		OVAL	OCTA
	150	300/600	900	1500	2500	2000/3000	5000							
	NOMINAL PIPE SIZE (INCHES)													
R100	-	-	26	-	-	-	-	749.30	28.58	-	34.9	-		
R101	-	-	28	-	-	-	-	800.10	31.75	-	38.1	-		
R102	-	-	30	-	-	-	-	857.25	31.75	-	38.1	-		
R103	-	-	32	-	-	-	-	914.40	31.75	-	38.1	-		
R104	-	-	34	-	-	-	-	965.20	34.93	-	41.3	-		
R105	-	-	36	-	-	-	-	1022.35	34.93	-	41.3	-		

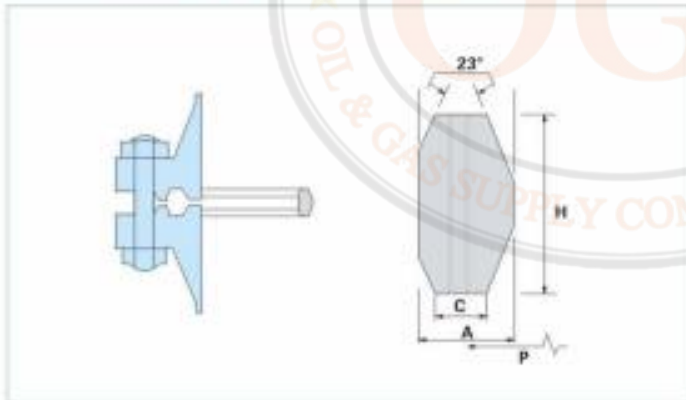
\*Denotes ring number specified in API 6A

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.

#### DIMENSIONAL DATA—STYLE RX



#### TOLERANCES: (mm)

A*(width of ring)	+0.2, -0.00
H*(height of ring)	+0.2, -0.00
OD(od of ring)	+0.51, -0.00
23° (angle)	± 1/2°

\*A plus tolerance of 0.2mm for width 'A' and height 'H' is permitted, provided the variation in width or height does not exceed 0.10mm throughout its entire circumference.

#### NOTE

The pressure passage hole illustrated in the Ring Type Joint cross section ensures equalisation of pressure which may be trapped in the grooves, it is in rings RX82 through RX91 only. Centre line of hole shall be located at mid point of dimension 'C' (width of flat). Hole diameter shall be as follows:

- 1.52mm for rings RX82 through RX85
- 2.29mm for rings RX86 and RX87
- 3.05mm for rings RX88 through RX 91

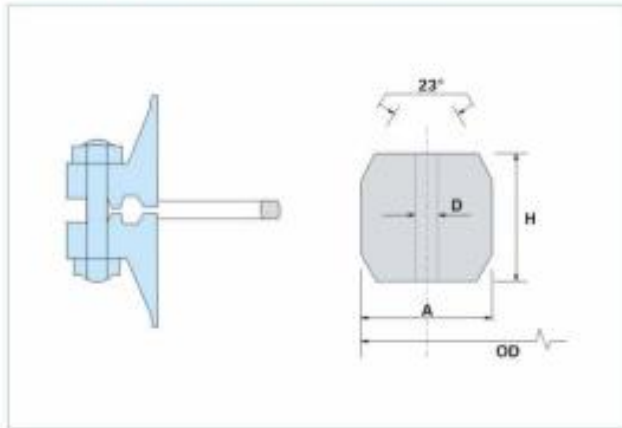
Dimensions in mm

RING NO.	PRESSURE CLASS RATING(PSI)			PITCH DIAMETER OF RING P	OUTSIDE DIMETER OF RING OD	WIDTH OF RING A	HEIGHT OF RING H	WEIGHT lbs.
	2000	3000	5000					
	NOMINAL PIPE SIZE (INCHES)							
RX20	-	-	-	68.26	76.20	8.73	19.05	0.53
RX20+	-	-	2 1/16	68.26	76.20	8.73	19.05	0.53
RX23	2 1/16	-	-	82.55	93.27	11.91	25.40	1.15
RX24	-	2 1/16	2 1/16	95.25	105.97	11.91	25.40	1.33
RX25+	-	-	3/8	101.60	109.54	8.73	19.05	1.42
RX26	2 9/16	-	-	101.60	111.92	11.91	25.40	1.50
RX27	-	2 9/16	2 9/16	107.95	118.27	11.91	25.40	1.73
RX31	3 1/8	3 1/8	-	123.83	134.54	11.91	25.40	1.91
RX35	-	-	3 1/8	136.53	147.24	11.91	25.40	2.09
RX37	4 1/16	4 1/16	-	149.23	159.94	11.91	25.40	2.27
RX39	-	-	4 1/16	161.93	172.64	11.91	25.40	2.54
RX41	-	-	-	180.98	191.69	11.91	25.40	2.27
RX44	-	-	-	193.68	204.39	11.91	25.40	2.96
RX45	7 1/16	7 1/16	-	211.14	211.93	11.91	25.40	3.66
RX46	-	-	7 1/16	211.14	222.25	13.49	28.58	8.56
RX47	-	-	-	228.60	245.27	19.84	41.28	3.79
RX49	9	9	-	269.88	280.59	11.91	25.40	5.36
RX50	-	-	9	269.88	283.37	16.67	31.75	4.56
RX53	11	11	-	323.85	334.57	11.91	25.40	6.45
RX54	-	-	11	323.85	337.34	16.67	31.75	5.36
RX57	13 5/8	13 5/8	-	381.00	391.72	11.91	25.40	26.40
RX63	-	-	-	419.10	441.72	26.99	50.80	6.63
RX65	16 3/4	-	-	469.90	480.62	11.91	25.40	9.39
RX66	-	16 3/4	-	469.90	483.39	16.67	31.75	7.52
RX69	-	-	-	533.40	544.12	11.91	25.40	20.14
RX70	-	-	-	533.40	550.07	19.84	41.28	11.63
RX73	21 1/4	-	-	584.20	596.11	13.49	31.75	22.10
RX74	-	20 3/4	-	584.20	600.87	19.84	41.28	0.79
RX82	-	-	-	57.15	67.87	11.91	25.40	0.88
RX84	-	-	-	63.50	74.22	11.91	25.40	0.88
RX85	-	-	-	79.38	90.09	13.49	25.40	1.79
RX86	-	-	-	90.49	103.58	15.08	28.58	1.98
RX87	-	-	-	100.01	113.11	15.08	28.58	3.22
RX88	-	-	-	123.83	139.30	17.46	31.75	2.98
RX89	-	-	-	114.30	129.78	18.26	31.75	6.82
RX90	-	-	-	155.58	174.63	19.84	44.45	17.10
RX91	-	-	-	260.35	286.94	30.16	45.24	3.31
*RX99	-	-	-	234.95	245.67	11.91	25.40	-
RX201+	-	-	1 3/8	46.04	46.04	5.74	11.30	-
*RX205+	-	-	1 13/16	57.15	62.31	5.56	11.10	-
*RX210+	-	-	2 9/16	88.90	97.63	9.53	19.05	-
*RX215	-	-	4 1/16	130.18	140.89	11.91	25.40	-
*RX215+	-	-	4 1/16*4 1/4	130.18	140.89	11.91	25.40	-

\*API allows more liberal tolerances on RX 201-215

+Denotes API Ring Type Joint gaskets for segmented flanges for dual completions to API Standard 6A

## DIMENSIONAL DATA-STYLE BX



### TOLERANCES: (mm)

A*(width of ring)	+0.20, -0.00
D(hole size)	± 0.51
H*(height of ring)	+0.20, -0.00
OD(od of ring)	+0.00, -0.13
23° (angle)	± 1/4°

One pressure passage hole required per ring on centre line \*A plus tolerance of 0.2mm for width 'A' and height 'H' is permitted. provided the variation in width or height does not exceed 0.10mm throughout its entire circumference.

### NOTE

Radius of the ring shall be 8% to 12% of the ring height 'H'.

Dimensions in mm

RING NO.	PRESSURE CLASS RATING (PSI)				OUTSIDE DIMETER OF RING OD	HEIGHT OF RING H	WIDTH OF RING A	HOLE SIZE D	WEIGHT lbs.
	5000	10000	15000	20000					
	NOMINAL PIPE SIZE (INCHES)								
BX150	-	-	-	-	72.19	9.30	9.30	1.59	0.30
BX151	-	1 13/16	1 13/16	1 13/16	76.40	9.63	9.63	1.59	0.34
BX152	-	2 1/16	2 1/16	2 1/16	84.68	10.24	10.24	1.59	0.43
BX153	-	2 9/16	2 9/16	2 9/16	100.94	11.38	11.38	1.59	0.63
BX154	-	3 1/16	3 1/16	3 1/16	116.84	12.40	12.40	1.59	0.88
BX155	-	4 1/16	4 1/16	4 1/16	147.96	14.22	14.22	1.59	1.22
BX156	-	7 1/16	7 1/16	7 1/16	237.92	18.62	18.62	3.18	4.14
BX157	-	9	9	9	294.46	20.98	20.98	3.18	6.55
BX158	-	11	11	11	352.04	23.14	23.14	3.18	9.60
BX159	-	13 5/8	13 5/8	13 5/8	426.72	25.70	25.70	3.18	14.41
BX160	13 5/8	-	-	-	402.59	23.83	13.74	3.18	6.75
BX161	16 3/4	-	-	-	491.41	28.07	16.21	3.18	-
BX162	16 3/4	16 3/4	16 3/4	-	475.49	14.22	14.22	1.59	-
BX163	18 3/4	-	-	-	556.16	30.10	17.37	3.18	-
BX164	-	18 3/4	18 3/4	-	570.56	30.10	24.59	3.18	-
BX165	21 1/4	-	-	-	624.71	32.03	18.49	3.18	-
BX166	-	21 1/4	-	-	640.03	32.03	26.14	3.18	-
BX167*	-	-	-	-	759.36	35.87	13.11	1.59	-
BX168*	-	-	-	-	765.25	35.87	16.05	1.59	-
BX169**	-	-	-	-	173.51	15.85	12.93	1.59	-
BX170	-	-	-	-	218.03	14.22	14.22	1.59	-
BX171	-	-	-	-	267.44	14.22	14.22	1.59	-
BX172	-	-	-	-	333.07	14.22	14.22	1.59	-
BX303++	-	-	-	-	852.75	37.95	16.97	1.59	-

\*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.