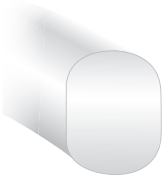
Lamons Ring Type Joint (RTJ) Gasket Product Family

Lamons manufactures and supplies a large variety of ring type joint gaskets. Lamons Ring Type Joint (RTJ) standard size gaskets are manufactured in accordance to API 6A, API 17D and ASME B16.20 specifications.

Oval (Style 377)



Octagonal (Style 388)

Ring joint gaskets come in two basic types, an oval cross section (Style 377) and an octagonal cross section (Style 388). These basic shapes are used in pressures up to 10,000 psi (64 MPa). The dimensions are standardized and require specially grooved flanges. The octagonal cross section has a higher sealing efficiency than the oval and would be the preferred gasket. However, only the oval cross section can be used in the old type round bottom groove. The newer flat bottom groove design will accept either the oval or the octagonal cross section. The sealing surfaces on the ring joint grooves must be smoothly finished to 63 micro inches and be free of objectionable ridges, tool or chatter marks. RTJ assemblies seal by an initial line contact or an edging action as the compressive forces are applied.

The hardness of the ring should always be less than the hardness of the flanges to prevent flange deformation. Dimensions for standard ring joint gaskets and grooves are covered in ASME B16.20 and API 6A, API 17D and ASME B16.5/B16.20.

Lamons stocks a wide range of sizes and materials ready for immediate shipment, from R11 to R105. Our extensive inventory of raw materials allows for best in class delivery of special sizes and shapes. Please consult with Lamons Engineering for design of non-standard items.

Typical Ring Joint Gasket Materials

Material	Designation	Maximum Hardness Rockwell B	Maximum Hardness Brinell
Soft Iron	D	56	90
Low Carbon Steel	S	68	120
4-6 Chrome	F-5*	72	130
304 Stainless Steel	S304	83	160
316 Stainless Steel	S316	83	160
321 Stainless Steel	S321	83	160
347 Stainless Steel	S347	83	160
410 Stainless Steel	S410	86	170
Alloy 625	INC 625	89	180
Alloy 825	INC 825	92	195
Other CRAs	Hardness shall meet Lamons material specifications		

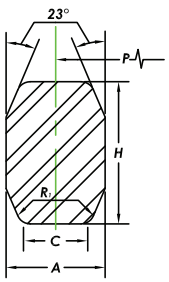
*F-5 identification designates ASTM Specification
A 182 chemical composition requirements only

Size Designations for Oval or Octagonal Rings

Nominal Pipe Size (NPS)	Flange Pressure Class							
	150	300-600	900	1500	2500	API 6A (psi)		
						2000	3000	5000
1/2	--	R-11	R-12	R-12	R-13	--	--	--
3/4	--	R-13	R-14	R-14	R-16	--	--	--
1	R-15	R-16	R-16	R-16	R-18	--	--	--
1 1/4	R-17	R-18	R-18	R-18	R-21	--	--	--
1 1/2	R-19	R-20	R-20	R-20	R-23	--	--	--
2	R-22	R-23	R-24	R-24	R-26	--	--	--
2 1/16	--	--	--	--	--	R-23	R-24	
2 1/2	R-25	R-26	R-27	R-27	R-28	--	--	--
2 9/16	--	--	--	--	--	R-26	R-27	
3	R-29	R-31	R-31	R-35	R-32	--	--	--
3 1/8	--	--	--	--	--	R-31		R-35
3 1/2	R-33	R-34	R-34	--	--	--	--	--
4	R-36	R-37	R-37	R-39	R-38	--	--	--
4 1/16	--	--	--	--	--	R-37		R-39
5	R-40	R-41	R-41	R-44	R-42	--	--	--
5 1/8	--	--	--	--	--	R-41		R-44
6	R-43	R-45	R-45	R-46	R-47	--	--	--
7 1/16	--	--	--	--	--	R-45		R-46
8	R-48	R-49	R-49	R-50	R-51	--	--	--
9	--	--	--	--	--	R-49		R-50
10	R-52	R-53	R-53	R-54	R-55	--	--	--
11	--	--	--	--	--	R-53		R-54
12	R-56	R-57	R-57	R-58	R-60	--	--	--
13 5/8	--	--	--	--	--	R-57		
14	R-59	R-61	R-62	R-63	--	--	--	--
16	R-64	R-65	R-66	R-67	--	--	--	--
16 3/4	--	--	--	--	--	R-65		
18	R-68	R-69	R-70	R-71	--	--	--	--
20	R-72	R-73	R-74	R-75	--	--	--	--
20 3/4	--	--	--	--	--		R74	
21 1/4	--	--	--	--	--	R-73	--	--
22	R-80	R-81	--	--	--	--	--	--
24	R-76	R-77	R-78	R-79	--	--	--	--
26	--	R-93	R-100	--	--	--	--	--
28	--	R-94	R-101	--	--	--	--	--
30	--	R-95	R-102	--	--	--	--	--
32	--	R-96	R-103	--	--	--	--	--
34	--	R-97	R-104	--	--	--	--	--
36	--	R-98	R-105	--	--	--	--	--

Dimensions for Type R Octagonal and Oval Ring Gaskets to Suit ASME B16.20 and API 6A

Ring Number	Pitch Diameter of Ring (P)		Width of Ring (A)		Height of Ring				Width of Flat on Octagonal Ring (C)		Radius in Octagonal Ring (R1)	
					Oval (B)		Octagonal (H)					
	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
R-11	1.344	34.14	0.250	6.35	0.440	11.2	0.380	9.7	0.170	4.32	0.060	1.5
R-12	1.563	39.70	0.313	7.95	0.560	14.2	0.500	12.7	0.206	5.23	0.060	1.5
R-13	1.688	42.88	0.313	7.95	0.560	14.2	0.500	12.7	0.206	5.23	0.060	1.5
R-14	1.750	44.45	0.313	7.95	0.560	14.2	0.500	12.7	0.206	5.23	0.060	1.5
R-15	1.875	47.63	0.313	7.95	0.560	14.2	0.500	12.7	0.206	5.23	0.060	1.5
R-16	2.000	50.80	0.313	7.95	0.560	14.2	0.500	12.7	0.206	5.23	0.060	1.5
R-17	2.250	57.15	0.313	7.95	0.560	14.2	0.500	12.7	0.206	5.23	0.060	1.5
R-18	2.375	60.33	0.313	7.95	0.560	14.2	0.500	12.7	0.206	5.23	0.060	1.5
R-19	2.563	65.10	0.313	7.95	0.560	14.2	0.500	12.7	0.206	5.23	0.060	1.5
R-20	2.688	68.28	0.313	7.95	0.560	14.2	0.500	12.7	0.206	5.23	0.060	1.5
R-21	2.844	72.24	0.438	11.13	0.690	17.5	0.630	16.0	0.305	7.75	0.060	1.5
R-22	3.250	82.55	0.313	7.95	0.560	14.2	0.500	12.7	0.206	5.23	0.060	1.5
R-23	3.250	82.55	0.438	11.13	0.690	17.5	0.630	16.0	0.305	7.75	0.060	1.5
R-24	3.750	95.25	0.438	11.13	0.690	17.5	0.630	16.0	0.305	7.75	0.060	1.5
R-25	4.000	101.60	0.313	7.95	0.560	14.2	0.500	12.7	0.206	5.23	0.060	1.5
R-26	4.000	101.60	0.438	11.13	0.690	17.5	0.630	16.0	0.305	7.75	0.060	1.5
R-27	4.250	107.95	0.438	11.13	0.690	17.5	0.630	16.0	0.305	7.75	0.060	1.5
R-28	4.375	111.13	0.500	12.70	0.750	19.1	0.690	17.5	0.341	8.66	0.060	1.5
R-29	4.500	114.30	0.313	7.95	0.560	14.2	0.500	12.7	0.206	5.23	0.060	1.5
R-30	4.625	117.48	0.438	11.13	0.690	17.5	0.630	16.0	0.305	7.75	0.060	1.5
R-31	4.875	123.83	0.438	11.13	0.690	17.5	0.630	16.0	0.305	7.75	0.060	1.5
R-32	5.000	127.00	0.500	12.70	0.750	19.1	0.690	17.5	0.341	8.66	0.060	1.5
R-33	5.188	131.78	0.313	7.95	0.560	14.2	0.500	12.7	0.206	5.23	0.060	1.5
R-34	5.188	131.78	0.438	11.13	0.690	17.5	0.630	16.0	0.305	7.75	0.060	1.5
R-35	5.375	136.53	0.438	11.13	0.690	17.5	0.630	16.0	0.305	7.75	0.060	1.5
R-36	5.875	149.23	0.313	7.95	0.560	14.2	0.500	12.7	0.206	5.23	0.060	1.5
R-37	5.875	149.23	0.438	11.13	0.690	17.5	0.630	16.0	0.305	7.75	0.060	1.5
R-38	6.188	157.18	0.625	15.88	0.880	22.4	0.810	20.6	0.413	10.49	0.060	1.5
R-39	6.375	161.93	0.438	11.13	0.690	17.5	0.630	16.0	0.305	7.75	0.060	1.5
R-40	6.750	171.45	0.313	7.95	0.560	14.2	0.500	12.7	0.206	5.23	0.060	1.5
R-41	7.125	180.98	0.438	11.13	0.690	17.5	0.630	16.0	0.305	7.75	0.060	1.5
R-42	7.500	190.50	0.750	19.05	1.000	25.4	0.940	23.9	0.485	12.32	0.060	1.5
R-43	7.625	193.68	0.313	7.95	0.560	14.2	0.500	12.7	0.206	5.23	0.060	1.5
R-44	7.625	193.68	0.438	11.13	0.690	17.5	0.630	16.0	0.305	7.75	0.060	1.5
R-45	8.313	211.15	0.438	11.13	0.690	17.5	0.630	16.0	0.305	7.75	0.060	1.5
R-46	8.313	211.15	0.500	12.70	0.750	19.1	0.690	17.5	0.341	8.66	0.060	1.5
R-47	9.000	228.60	0.750	19.05	1.000	25.4	0.940	23.9	0.485	12.32	0.060	1.5
R-48	9.750	247.65	0.313	7.95	0.560	14.2	0.500	12.7	0.206	5.23	0.060	1.5
R-49	10.625	269.88	0.438	11.13	0.690	17.5	0.630	16.0	0.305	7.75	0.060	1.5
R-50	10.625	269.88	0.625	15.88	0.880	22.4	0.810	20.6	0.413	10.49	0.060	1.5
R-51	11.000	279.40	0.875	22.23	1.130	28.7	1.060	26.9	0.583	14.81	0.060	1.5
R-52	12.000	304.80	0.313	7.95	0.560	14.2	0.500	12.7	0.206	5.23	0.060	1.5
R-53	12.750	323.85	0.438	11.13	0.690	17.5	0.630	16.0	0.305	7.75	0.060	1.5
R-54	12.750	323.85	0.625	15.88	0.880	22.4	0.810	20.6	0.413	10.49	0.060	1.5
R-55	13.500	342.90	1.125	28.58	1.440	36.6	1.380	35.1	0.750	19.05	0.090	2.3
R-56	15.000	381.00	0.313	7.95	0.560	14.2	0.500	12.7	0.206	5.23	0.060	1.5
R-57	15.000	381.00	0.438	11.13	0.690	17.5	0.630	16.0	0.305	7.75	0.060	1.5



Octagonal

Tolerances:

P = average pitch diameter of ring, ± 0.007” (±0.18 mm)

A = width of ring, ± 0.008” (± 0.20 mm)

B, H = height of ring, (+ 0.05”, -0.02”) (+1.3 mm, -0.5 mm) Variation in height throughout the entire circumference of any given ring shall not exceed 0.02” within these tolerances

C = width of flat on octagonal ring ± 0.008” (±0.20 mm)

B1 = radius in ring, ± 0.02” (± 0.5 mm)

23 deg = angle, ± 1/2 deg (± 0 deg 30min)

LAMONS®
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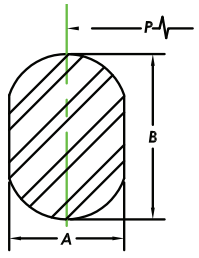
Dimensions for Type R Octagonal and Oval Ring Gaskets per ASME B16.20 and API 6A

Ring Number	Pitch Diameter of Ring (P)		Width of Ring (A)		Height of Ring				Width of Flat on Octagonal Ring (C)		Radius in Octagonal Ring (R1)	
					Oval (B)		Octagonal (H)					
	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
R-58	15.000	381.00	0.875	22.23	1.130	28.7	1.060	26.9	0.583	14.81	0.060	1.5
R-59	15.625	396.88	0.313	7.95	0.560	14.2	0.500	12.7	0.206	5.23	0.060	1.5
R-60	16.000	406.40	1.250	31.75	1.560	39.6	1.500	38.1	0.879	22.33	0.090	2.3
R-61	16.500	419.10	0.438	11.13	0.690	17.5	0.630	16.0	0.305	7.75	0.060	1.5
R-62	16.500	419.10	0.625	15.88	0.880	22.4	0.810	20.6	0.413	10.49	0.060	1.5
R-63	16.500	419.10	1.000	25.40	1.310	33.3	1.250	31.8	0.681	17.30	0.090	2.3
R-64	17.875	454.03	0.313	7.95	0.560	14.2	0.500	12.7	0.206	5.23	0.060	1.5
R-65	18.500	469.90	0.438	11.13	0.690	17.5	0.630	16.0	0.305	7.75	0.060	1.5
R-66	18.500	469.90	0.625	15.88	0.880	22.4	0.810	20.6	0.413	10.49	0.060	1.5
R-67	18.500	469.90	1.125	28.58	1.440	36.6	1.380	35.1	0.780	19.81	0.090	2.3
R-68	20.375	517.53	0.313	7.95	0.560	14.2	0.500	12.7	0.206	5.23	0.060	1.5
R-69	21.000	533.40	0.438	11.13	0.690	17.5	0.630	16.0	0.305	7.75	0.060	1.5
R-70	21.000	533.40	0.750	19.05	1.000	25.4	0.940	23.9	0.485	12.32	0.060	1.5
R-71	21.000	533.40	1.125	28.58	1.440	36.6	1.380	35.1	0.780	19.81	0.090	2.3
R-72	22.000	558.80	0.313	7.95	0.560	14.2	0.500	12.7	0.206	5.23	0.060	1.5
R-73	23.000	584.20	0.500	12.70	0.750	19.1	0.690	17.5	0.341	8.66	0.060	1.5
R-74	23.000	584.20	0.750	19.05	1.000	25.4	0.940	23.9	0.485	12.32	0.060	1.5
R-75	23.000	584.20	1.250	31.75	1.560	39.6	1.500	38.1	0.879	22.33	0.090	2.3
R-76	26.500	673.10	0.313	7.95	0.560	14.2	0.500	12.7	0.206	5.23	0.060	1.5
R-77	27.250	692.15	0.625	15.88	0.880	22.4	0.810	20.6	0.413	10.49	0.060	1.5
R-78	27.250	692.15	1.000	25.40	1.310	33.3	1.250	31.8	0.681	17.30	0.090	2.3
R-79	27.250	692.15	1.375	34.93	1.750	44.5	1.630	41.4	0.977	24.82	0.090	2.3
R-80	24.250	615.95	0.313	7.95	--	--	0.500	12.7	0.206	5.23	0.060	1.5
R-81	25.000	635.00	0.563	14.30	--	--	0.750	19.1	0.377	9.58	0.060	1.5
R-82	2.250	57.15	0.438	11.13	--	--	0.630	16.0	0.305	7.75	0.060	1.5
R-84	2.500	63.50	0.438	11.13	--	--	0.630	16.0	0.305	7.75	0.060	1.5
R-85	3.125	79.38	0.500	12.70	--	--	0.690	17.5	0.341	8.66	0.060	1.5
R-86	3.563	90.50	0.625	15.88	--	--	0.810	20.6	0.413	10.49	0.060	1.5
R-87	3.938	100.03	0.625	15.88	--	--	0.810	20.6	0.413	10.49	0.060	1.5
R-88	4.875	123.83	0.750	19.05	--	--	0.940	23.9	0.485	12.32	0.060	1.5
R-89	4.500	114.30	0.750	19.05	--	--	0.940	23.9	0.485	12.32	0.060	1.5
R-90	6.125	155.58	0.875	22.23	--	--	1.060	26.9	0.583	14.81	0.060	1.5
R-91	10.250	260.35	1.250	31.75	--	--	1.500	38.1	0.879	22.33	0.090	2.3
R-92	9.000	228.60	0.438	11.13	0.690	--	0.630	16.0	0.305	7.75	0.060	1.5
R-93	29.500	749.30	0.750	19.05	--	--	0.940	23.9	0.485	12.32	0.060	1.5
R-94	31.500	800.10	0.750	19.05	--	--	0.940	23.9	0.485	12.32	0.060	1.5
R-95	33.750	857.25	0.750	19.05	--	--	0.940	23.9	0.485	12.32	0.060	1.5
R-96	36.000	914.40	0.875	22.23	--	--	1.060	26.9	0.583	14.81	0.060	1.5
R-97	38.000	965.20	0.875	22.23	--	--	1.060	26.9	0.583	14.81	0.060	1.5
R-98	40.250	1022.35	0.875	22.23	--	--	1.060	26.9	0.583	14.81	0.060	1.5
R-99	9.250	234.95	0.438	11.13	--	--	0.630	16.0	0.305	7.75	0.060	1.5
R-100	29.500	749.30	1.125	28.58	--	--	1.380	35.1	0.780	19.81	0.090	2.3
R-101	31.500	800.10	1.250	31.75	--	--	1.500	38.1	0.879	22.33	0.090	2.3
R-102	33.750	857.25	1.250	31.75	--	--	1.500	38.1	0.879	22.33	0.090	2.3
R-103	36.000	914.40	1.250	31.75	--	--	1.500	38.1	0.879	22.33	0.090	2.3
R-104	38.000	965.20	1.375	34.93	--	--	1.630	41.4	0.977	24.82	0.090	2.3
R-105	40.250	1022.35	1.375	34.93	--	--	1.630	41.4	0.977	24.82	0.090	2.3



Oval

Tolerances:
P = average pitch diameter of ring, ±0.007" (±0.18 mm)
A = width of ring, ±0.008" (±0.20 mm)
B, H = height of ring, (+0.05", -0.02") (+1.3 mm, -0.5 mm) Variation in height throughout the entire circumference of any given ring shall not exceed 0.02" within these tolerances
C = width of flat on octagonal ring ±0.008" (±0.20 mm)
B1 = radius in ring, ±0.02" (±0.5 mm)
23 deg= angle, ±1/2 deg (±0 deg 30min)

RX Ring Designations for API 6B Flanges

RX ring gaskets are similar in shape to the standard octagonal ring joint gasket but their cross section is designed to take advantage of the contained fluid pressure in effecting a seal. They are made to API 6A and interchangeable with standard octagonal rings for oil field drilling and production applications in API 6B flanges. RX is used at pressures up to 5,000 psi (34.37 MPa). Standard sizes are stocked in low carbon steel, 304 and 316.

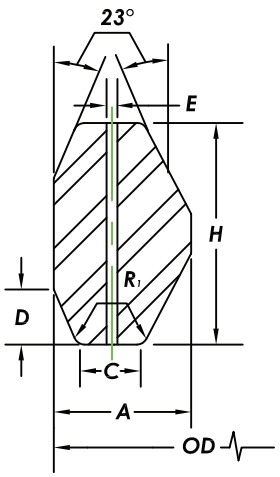
RX Ring Designations for API 6B Flanges

API Ring Number	Sizes of Flange (Inches)				Weight	
	2000 psi	2900 psi	3000 psi	5000 psi	lbs	Kg
RX 20	1 1/2	--	1 1/2	1 1/2	0.527	0.240
RX 23	2 1/16	--	--	--	1.150	0.523
RX 24	--	--	2 1/16	2 1/16	1.330	0.605
RX 26	2 9/16	--	--	--	1.420	0.645
RX 27	--	--	2 9/16	2 9/16	1.500	0.682
RX 31	3 1/8	--	3 1/8	--	1.730	0.786
RX 35	--	--	--	3 1/8	1.910	0.868
RX 37	4 1/16	--	4 1/16	--	2.090	0.950
RX 39	--	--	--	4 1/16	2.270	1.032
RX 41	5 1/8	--	5 1/8	--	2.540	1.155
RX 44	--	--	--	5 1/8	2.720	1.236
RX 45	7 1/16	--	7 1/16	--	2.960	1.345
RX 46	--	--	--	7 1/16	3.660	1.664
RX 47	--	--	--	8*	8.560	3.891
RX 49	9	--	9	--	3.790	1.723
RX 50	--	--	--	9	5.360	2.436
RX 53	11	--	11	--	4.560	2.073
RX 54	--	--	--	11	6.450	2.932
RX 57	13 5/8	--	13 5/8	--	5.360	2.436
RX 63	--	--	--	14	26.400	12.000
RX 65	16 3/4	--	--	--	6.630	3.014
RX 66	--	--	16 3/4	--	9.390	4.268
RX 69	18	--	--	--	7.520	3.418
RX 70	--	--	18	--	20.140	9.155
RX 73	21 1/4	--	--	--	11.630	5.286
RX 74	--	--	20 3/4	--	22.100	10.045
RX 82	--	1	--	--	0.790	0.359
RX 84	--	1 1/2	--	--	0.880	0.400
RX 85	--	2	--	--	0.880	0.400
RX 86	--	2 1/2	--	--	1.790	0.814
RX 87	--	3	--	--	1.980	0.900
RX 88	--	4	--	--	3.220	1.464
RX 89	--	3 1/2	--	--	2.980	1.355
RX 90	--	5	--	--	6.820	3.100
RX 91	--	10	--	--	17.100	7.773
RX 99	8*	--	8*	--	3.310	1.505
RX 201	--	--	--	--	0.250	0.114
RX 205	--	--	--	--	0.300	0.136
RX 210	--	--	--	--	0.750	0.341
RX 215	--	--	--	--	1.500	0.682

*Crossover Flange Connections

Dimensions for Type RX Ring Gaskets per ASME B16.20 and API 6A

Ring Number	Pitch Diameter of Ring (P)		Width of Ring (A)		Width of Flat (C)		Height of Outside Bevel (D)		Height of Ring (H)		Radius of Ring (R1)		Hole Size (E)(1)	
	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
RX-20	3.000	76.20	0.344	8.74	0.182	4.62	0.125	3.18	0.750	19.05	0.060	1.5	--	--
RX-23	3.672	93.27	0.469	11.91	0.254	6.45	0.167	4.24	1.000	25.40	0.060	1.5	--	--
RX-24	4.172	105.97	0.469	11.91	0.254	6.45	0.167	4.24	1.000	25.40	0.060	1.5	--	--
RX-25	4.313	109.55	0.344	8.74	0.182	4.62	0.125	3.18	0.750	19.05	0.060	1.5	--	--
RX-26	4.406	111.91	0.469	11.91	0.254	6.45	0.167	4.24	1.000	25.40	0.060	1.5	--	--
RX-27	4.656	118.26	0.469	11.91	0.254	6.45	0.167	4.24	1.000	25.40	0.060	1.5	--	--
RX-31	5.297	134.54	0.469	11.91	0.254	6.45	0.167	4.24	1.000	25.40	0.060	1.5	--	--
RX-35	5.797	147.24	0.469	11.91	0.254	6.45	0.167	4.24	1.000	25.40	0.060	1.5	--	--
RX-37	6.297	159.94	0.469	11.91	0.254	6.45	0.167	4.24	1.000	25.40	0.060	1.5	--	--
RX-39	6.797	172.64	0.469	11.91	0.254	6.45	0.167	4.24	1.000	25.40	0.060	1.5	--	--
RX-41	7.547	191.69	0.469	11.91	0.254	6.45	0.167	4.24	1.000	25.40	0.060	1.5	--	--
RX-44	8.047	204.39	0.469	11.91	0.254	6.45	0.167	4.24	1.000	25.40	0.060	1.5	--	--
RX-45	8.734	221.84	0.469	11.91	0.254	6.45	0.167	4.24	1.000	25.40	0.060	1.5	--	--
RX-46	8.750	222.25	0.531	13.49	0.263	6.68	0.188	4.78	1.125	28.58	0.060	1.5	--	--
RX-47	9.656	245.26	0.781	19.84	0.407	10.34	0.271	6.88	1.625	41.28	0.090	2.3	--	--
RX-49	11.047	280.59	0.469	11.91	0.254	6.45	0.167	4.24	1.000	25.40	0.060	1.5	--	--
RX-50	11.156	283.36	0.656	16.66	0.335	8.51	0.208	5.28	1.250	31.75	0.060	1.5	--	--
RX-53	13.172	334.57	0.469	11.91	0.254	6.45	0.167	4.24	1.000	25.40	0.060	1.5	--	--
RX-54	13.281	337.34	0.656	16.66	0.335	8.51	0.208	5.28	1.250	31.75	0.060	1.5	--	--
RX-57	15.422	391.72	0.469	11.91	0.254	6.45	0.167	4.24	1.000	25.40	0.060	1.5	--	--
RX-63	17.391	441.73	1.063	27.00	0.582	14.78	0.333	8.46	2.000	50.80	0.090	2.3	--	--
RX-65	18.922	480.62	0.469	11.91	0.254	6.45	0.167	4.24	1.000	25.40	0.060	1.5	--	--
RX-66	18.031	457.99	0.656	16.66	0.335	8.51	0.208	5.28	1.250	31.75	0.060	1.5	--	--
RX-69	21.422	544.12	0.469	11.91	0.254	6.45	0.167	4.24	1.000	25.40	0.060	1.5	--	--
RX-70	21.656	550.06	0.781	19.84	0.407	10.34	0.271	6.88	1.625	41.28	0.090	2.3	--	--
RX-73	23.469	596.11	0.531	13.49	0.263	6.68	0.208	5.28	1.250	31.75	0.060	1.5	--	--
RX-74	23.656	600.86	0.781	19.84	0.407	10.34	0.271	6.88	1.625	41.28	0.090	2.3	--	--
RX-82	2.672	67.87	0.469	11.91	0.254	6.45	0.167	4.24	1.000	25.40	0.060	1.5	0.060	1.5
RX-84	2.922	74.22	0.469	11.91	0.254	6.45	0.167	4.24	1.000	25.40	0.060	1.5	0.060	1.5
RX-85	3.547	90.09	0.531	13.49	0.263	6.68	0.167	4.24	1.000	25.40	0.060	1.5	0.060	1.5
RX-86	4.078	103.58	0.594	15.09	0.335	8.51	0.188	4.78	1.125	28.58	0.060	1.5	0.090	2.3
RX-87	4.453	113.11	0.594	15.09	0.335	8.51	0.188	4.78	1.125	28.58	0.060	1.5	0.090	2.3
RX-88	5.484	139.29	0.688	17.48	0.407	10.34	0.208	5.28	1.250	31.75	0.060	1.5	0.120	3.0
RX-89	5.109	129.77	0.719	18.26	0.407	10.34	0.208	5.28	1.250	31.75	0.060	1.5	0.120	3.0
RX-90	6.875	174.63	0.781	19.84	0.479	12.17	0.292	7.42	1.750	44.45	0.090	2.3	0.120	3.0
RX-91	11.297	286.94	1.188	30.18	0.780	19.81	0.297	7.54	1.781	45.24	0.090	2.3	0.120	3.0
RX-99	9.672	245.67	0.469	11.91	0.254	6.45	0.167	4.24	1.000	25.40	0.060	1.5	--	--
RX-201	2.026	51.46	0.226	5.74	0.126	3.20	0.057	1.45	0.445	11.30	0.02 (3)	0.5 (3)	--	--
RX-205	2.453	62.31	0.219	5.56	0.12	3.05	0.072 (2)	1.83 (2)	0.437	11.10	0.02 (3)	0.5 (3)	--	--
RX-210	3.844	97.64	0.375	9.53	0.231	5.87	0.125 (2)	3.18 (2)	0.750	19.05	0.03 (3)	0.8 (3)	--	--
RX-215	5.547	140.89	0.469	11.91	0.21	5.33	0.167 (2)	4.24 (2)	1.000	25.40	0.06 (3)	1.5 (3)	--	--



Note:
(1) Rings RX-82 through RX-91 only require one pressure passage hole as illustrated. The Center line of the hole shall be located at the midpoint of dimension C.
(2) Tolerance on these dimensions is (+0, -0.015") (+0 mm,-0.38 mm).
(3) Tolerance on these dimensions is (+0.02", -0) (+0.5 mm, -0 mm)

Tolerances:
OD = outside diameter of ring, +0.020", -0 (+0.51 mm, -0 mm)
A = width of ring, +0.008", -0 (+0.20 mm, -0 mm) variation in width throughout the entire circumference of any ring shall not exceed 0.004" (0.10 mm) within these tolerances.
C = width of flat, +0.006", -0 (+0.15 mm, -0 mm)
D = height of outside bevel, +0, -0.03" (+0 mm, -0.76 mm)
H = height of ring, +0.008", -0 (+0.20 mm, -0 mm) variation in height througout the entire circumference of any ring shall not exceed 0.004" (0.10 mm) within these tolerances.
R1 = radius of ring, ±0.02" (±0.5 mm)
E = hole size, ±0.02" (±0.5 mm)
23 deg = angle, ±1/2 deg (±0 deg 30 min)

BX Ring Designations for API 6BX Flanges

The BX ring gasket differs from the standard oval or octagonal shape since it is square in cross section and tapers in each corner. They can only be used in API 6BX flanges. BX is used at pressures up to 20,000 psi (137.90 MPa). Standard sizes are stocked in low carbon steel, 304 and 316.

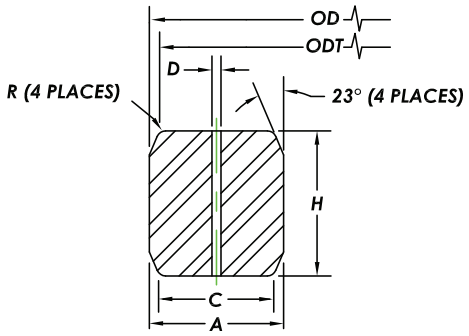
BX Ring Designations for API 6BX Flanges

API Ring Number	Nominal Flange Bore (Inches)						Weight	
	2000 psi	3000 psi	5000 psi	10000 psi	15000 psi	20000 psi	lbs	Kg
BX 150	--	--	--	1 11/16	1 11/16		0.295	0.134
BX 151	--	--	--	1 13/16	1 13/16	1 13/16	0.337	0.153
BX 152	--	--	--	2 1/16	2 1/16	2 1/16	0.425	0.193
BX 153	--	--	--	2 9/16	2 9/16	2 9/16	0.632	0.287
BX 154	--	--	--	3 1/16	3 1/16	3 1/16	0.875	0.398
BX 155	--	--	--	4 1/16	4 1/16	4 1/16	1.220	0.555
BX 156	--	--	--	7 1/16	7 1/16	7 1/16	4.140	1.882
BX 157	--	--	--	9	9	9	6.550	2.977
BX 158	--	--	--	11	11	11	9.600	4.364
BX 159	--	--	--	13 5/8	13 5/8	13 5/8	14.410	6.550
BX 160	--	--	13 5/8	--	--	--	6.750	3.068
BX 161	--	--	--	--	--	--	10.437	4.744
BX 162	--	--	16 3/4	16 3/4	--	--	4.375	1.989
BX 163	--	--	18 3/4	--	--	--	14.375	6.534
BX 164	--	--	--	18 3/4	18 3/4	--	21.000	9.545
BX 165	--	--	21 1/4	--	--	--	18.375	8.352
BX 166	--	--	--	21 1/4	--	--	27.500	12.500
BX 167	26 3/4	--	--	--	--	--	18.000	8.182
BX 168	--	26 3/4	--	--	--	--	24.500	11.136
BX 169	--	--	--	5 1/8	5 1/8	--	--	--
BX 303	30	30	--	--	--	--	--	--

Additional Sizes	
Ring Number	Nominal Size
BX 170	6 5/8
BX 171	8 9/16
BX 172	11 5/32

Dimensions for Type BX Ring Gaskets to Suit ASME B16.20 and API 6A

Ring Number	Nominal Size		Outerside Diameter of Ring (OD)		Height of Ring, H		Width of Ring, A		Outside Diameter of Flat ODT		Width of Flat, C		Hole Size, D (1)	
	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
BX-150	1 11/16	43	2.842	72.19	0.366	9.30	0.366	9.30	2.790	70.87	0.314	7.98	0.060	1.5
BX-151	1 13/16	46	3.008	76.40	0.379	9.63	0.379	9.63	2.954	75.03	0.325	8.26	0.060	1.5
BX-152	2 1/16	52	3.334	84.68	0.403	10.24	0.403	10.24	3.277	83.24	0.346	8.79	0.060	1.5
BX-153	2 9/16	65	3.974	100.94	0.448	11.38	0.448	11.38	3.910	99.31	0.385	9.78	0.060	1.5
BX-154	3 1/16	78	4.600	116.84	0.488	12.40	0.488	12.40	4.531	115.09	0.419	10.64	0.060	1.5
BX-155	4 1/16	103	5.825	147.96	0.560	14.22	0.560	14.22	5.746	145.95	0.481	12.22	0.060	1.5
BX-156	7 1/16	179	9.367	237.92	0.733	18.62	0.733	18.62	9.263	235.28	0.629	15.98	0.120	3.0
BX-157	9	229	11.593	294.46	0.826	20.98	0.826	20.98	11.476	291.49	0.709	18.01	0.120	3.0
BX-158	11	279	13.860	352.04	0.911	23.14	0.911	23.14	13.731	348.77	0.782	19.86	0.120	3.0
BX-159	13 5/8	346	16.800	426.72	1.012	25.70	1.012	25.70	16.657	423.09	0.869	22.07	0.120	3.0
BX-160	13 5/8	346	15.850	402.59	0.938	23.83	0.541	13.74	15.717	399.21	0.408	10.36	0.120	3.0
BX-161	16 5/8	422	19.347	491.41	1.105	28.07	0.638	16.21	19.191	487.45	0.482	12.24	0.120	3.0
BX-162	16 5/8	422	18.720	475.49	0.560	14.22	0.560	14.22	18.641	473.48	0.481	12.22	0.060	1.5
BX-163	18 3/4	476	21.896	556.16	1.185	30.10	0.684	17.37	21.728	551.89	0.516	13.11	0.120	3.0
BX-164	18 3/4	476	22.463	570.56	1.185	30.10	0.968	24.59	22.295	566.29	0.800	20.32	0.120	3.0
BX-165	21 1/4	540	24.595	624.71	1.261	32.03	0.728	18.49	24.417	620.19	0.550	13.97	0.120	3.0
BX-166	21 1/4	540	25.198	640.03	1.261	32.03	1.029	26.14	25.020	635.51	0.851	21.62	0.120	3.0
BX-167	26 3/4	679	29.896	759.36	1.412	35.86	0.516	13.11	29.696	754.28	0.316	8.03	0.060	1.5
BX-168	26 3/4	679	30.128	765.25	1.412	35.86	0.632	16.05	29.928	760.17	0.432	10.97	0.060	1.5
BX-169	5 1/8	130	6.831	173.51	0.624	15.85	0.509	12.93	6.743	171.27	0.421	10.69	0.060	1.5
BX-170	6 5/8	168	8.584	218.03	0.560	14.22	0.560	14.22	8.505	216.03	0.481	12.22	0.060	1.5
BX-171	8 9/16	217	10.529	267.44	0.560	14.22	0.560	14.22	10.450	265.43	0.481	12.22	0.060	1.5
BX-172	11 5/32	283	13.113	333.07	0.560	14.22	0.560	14.22	13.034	331.06	0.481	12.22	0.060	1.5
BX-303	30	762	33.573	852.75	1.494	37.95	0.668	16.97	33.361	847.37	0.457	11.61	0.060	1.5



General Notes:
(a) Radius R shall be 8% to 12% of the gasket height H

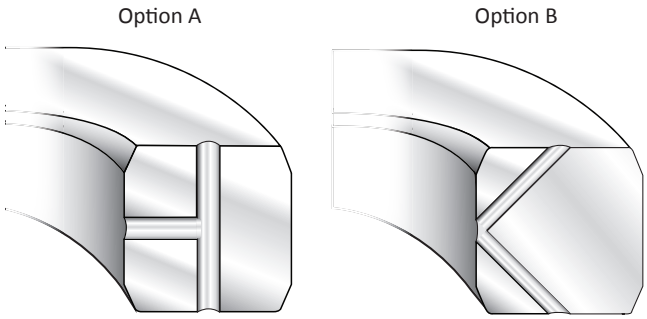
Note:
(1) One pressure passage hole is required per gasket as illustrated. The center line of the hole shall be located at the midpoint of dimension C.

Tolerances:
OD = outside diameter of ring (+0, -0.005") (+0.00, -0.15 mm)
H = height of ring (+0.008", -0) (+0.20 mm, -0.00) Variation in height throughout the entire circumference of any ring shall not exceed (0.004") (0.10 mm) within these tolerances.
A = width of ring (+0.008", -0) (+0.20 mm, -0) Variation in width throughout the entire circumference of any ring shall not exceed (0.004") (0.10 mm)within these tolerances.
ODT = outside diameter of flat (±0.002") (±0.05 mm)
C = width of flat (+0.006", -0) (+0.15 mm, -0.00)
D = hole size (±0.02") (±0.5 mm)
R = radius of ring, see general note (b)
23 deg = angle, ±1/4 deg (±0 deg 150 min)

SRX and SBX Ring Gaskets

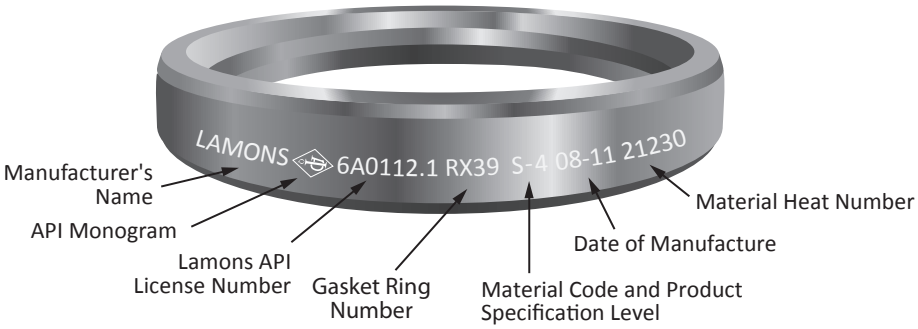
Type SRX and SBX gaskets per API 17D for Subsea Wellhead and Tree Equipment are vented to prevent pressure lock when connections are made up underwater. They have identical measurements to RX and BX ring gaskets with the same number designation, and they will fit the same corresponding connectors. The “S” indicates these gaskets have cross-drilled holes, as fluid entrapment in the ring groove can interfere with proper make up underwater (subsea). With the vent hole, any water trapped between a ring groove bottom and the sealing area of the gasket can escape to the equipment I.D. bore. Material per spec is defined as a corrosion resistant alloy.

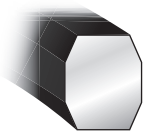
SBX ring gaskets can be manufactured in two options for drilling the pressure passage holes as shown below.



The purpose of these two pressure passage holes is to prevent pressure lock when connections are made up underwater.

Markings for Standard Ring Type Joint Gaskets





Style 377R (Rubber Coated Rings)

Style 377R is a rubber coated oval ring gasket (usually steel) used in pressure testing to minimize damage to flanges. The rubber contact points provide additional seals while protecting the flange surfaces.

Style 377T (Transition Rings)

Style 377T, combination rings combine two different sizes having the same pitch diameter permitting bolt up of differing size flanges.

Bridgeman (Style 393)

The Bridgeman gasket is a pressure activated gasket for use on pressure vessel heads and valve bonnets for pressures of 1500 psi (10 MPa) and above. The cross section of the gasket is such that internal pressure acting against the ring forces it against the containing surface making a self-energized seal. Bridgeman gaskets are frequently silver plated or lead plated to provide a softer surface and minimize the force required to flow the gasket metal into the flange surface.

Delta (Style 392)

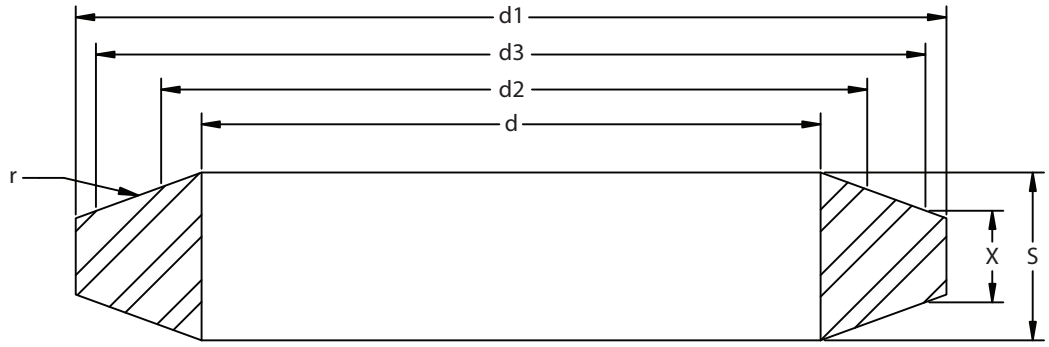
A delta gasket is a pressure actuated gasket used primarily on pressure vessels and valve bonnets at very high pressures in excess of 5000 psi (34 MPa). As with the lens gasket, complete drawings and material specifications must be supplied. Internal pressure forces the gasket material to expand when the pressure forces tend to separate the flanges. Extremely smooth surface finishes of 63 micro inches or smoother are required when using this type of gasket.

Lens (Style 394)

A lens type gasket is a line contact seal for use in high pressure piping systems and in pressure vessel heads. The lens cross section is a spherical gasket surface and requires special machining on the flanges. These gaskets will seat with a small bolt load since the contact area is very small and gasket seating pressures are very high. Normally the gasket materials should be softer than the flange. In ordering lens gaskets, complete drawings and material specifications must be supplied.

Dimensions for Lens Rings per DIN 2696

(Millimeters)



Nominal Pipe Size (DN)	d		d1	S for d Max	d2 Middle Contact Diameter	r	d3	X
	min.	max.						
Nominal Pressure PN64-400								
10	10	14	21	7	17.1	25	18	5.7
15	14	18	28	805	22	32	27	6
25	20	29	43	11	34	50	39	6
40	34	43	62	14	48	70	55	8
50	46	55	78	16	60	88	68	9
65	62	70	102	20	76.6	112	85	13
80	72	82	116	22	88.2	129	97	13
100	94	108	143	26	116	170	127	15
125	116	135	180	29	149	218	157	22
150	139	158	210	33	171	250	183	26
Nominal Pressure PN64-100								
*175	176	183	243	31	202.5	296	218	28
200	198	206	276	35	225	329	243	27
250	246	257	332	37	277.7	406	298	25
300	295	305	385	40	323.5	473	345	26
350	330	348	425	41	368	538	394	23
400	385	395	475	42	417.2	610	445	24
Nominal Pressure PN160-400								
*175	162	177	243	37	202.5	296	218	21
200	183	200	276	40	225	329	243	25
250	230	246	332	46	277.7	406	298	25
300	278	285	385	50	323.5	473	345	30

*Avoid using these Nominal Pipe Sizes