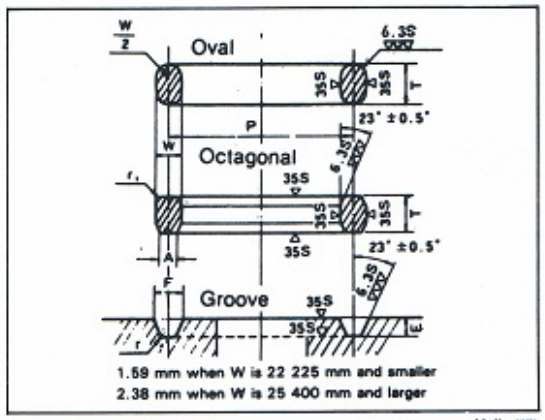
INGI - 0188

RING JOINT, SOLID METAL GASKET
OVAL & OCTAGONAL TYPE

Standard sizes

API type R oval and octagonal ring joints for JPI, ANSI, API, MSS ring type joint flange



Unit: mm

Ring No.	Applicable flanges and nominal diameter												Gasket					Groove		
	JPI-7S-15-70, ANSI B16.5					API Spec 6A					MSS SP-44				T (±0.39)					
	150 psi	300 400 600	900 psi	1500 psi	2500 psi	960 psi	2000 psi	3000 psi	5000 psi	10000 psi	300 400 600	900 psi	P (±0.177)	W (±0.203)	Oval	Octagonal	A (±0.203)	E (+0.3 0)	F (±0.203)	r (Max.)
R 11		1/2											34.131	6.350	11.11	9.52	4.318	5.6	7.144	0.7
R 12		3/4	1/2	1/2	1/2								39.688	7.938	14.29	12.70	5.232	6.4	8.731	0.7
R 13			3/4	3/4									42.862	7.938	14.29	12.70	5.232	6.4	8.731	0.7
R 14													44.450	7.938	14.29	12.70	5.232	6.4	8.731	0.7
R 15	1												47.625	7.938	14.29	12.70	5.232	6.4	8.731	0.7
R 16		1	1	1	3/4								50.800	7.938	14.29	12.70	5.232	6.4	8.731	0.7
R 17	1-1/4												57.150	7.938	14.29	12.70	5.232	6.4	8.731	0.7
R 18		1-1/4	1-1/4	1-1/4	1								60.325	7.938	14.29	12.70	5.232	6.4	8.731	0.7
R 19	1-1/2												65.088	7.938	14.29	12.70	5.232	6.4	8.731	0.7
R 20		1-1/2	1-1/2	1-1/2			1-1/2	1-1/2	1-1/2				68.262	7.938	14.29	12.70	5.232	6.4	8.731	0.7
R 21					1-1/4								72.231	11.112	17.46	15.88	7.747	8.0	11.906	0.7
R 22	2												82.550	7.938	14.29	12.70	5.232	6.4	8.731	0.7
R 23		2			1-1/2		2						82.550	11.112	17.46	15.88	7.747	8.0	11.906	0.7
R 24			2	2				2	2				95.250	11.112	17.46	15.88	7.747	8.0	11.906	0.7
R 25	2-1/2												101.600	7.938	14.29	12.70	5.232	6.4	8.731	0.7
R 26		2-1/2			2		2-1/2						101.600	11.112	17.46	15.88	7.747	8.0	11.906	0.7
R 27			2-1/2	2-1/2	2-1/2			2-1/2	2-1/2				107.950	11.112	17.46	15.88	7.747	8.0	11.906	0.7
R 28													111.125	12.700	19.05	17.46	8.661	9.6	13.494	1.5
R 29					2-1/2								114.300	7.938	14.29	12.70	5.232	6.4	8.731	0.7
**R 30	3	3											117.475	11.112	17.46	15.88	7.747	8.0	11.906	0.7
R 31		3	3				3	3					123.825	11.112	17.46	15.88	7.747	8.0	11.906	0.7
R 32					3								127.000	12.700	19.05	17.46	8.661	9.6	13.494	1.5
R 33	3-1/2												131.762	7.938	14.29	12.70	5.232	6.4	8.731	0.7
R 34		3-1/2											131.762	11.112	17.46	15.88	7.747	8.0	11.906	0.7
R 35				3					3				136.525	11.112	17.46	15.88	7.747	8.0	11.906	0.7
R 36	4												149.225	7.938	14.29	12.70	5.232	6.4	8.731	0.7
R 37		4	4		4		4	4					149.225	11.112	17.46	15.88	7.747	8.0	11.906	0.7
R 38													157.162	15.875	22.22	20.64	10.490	11.2	16.669	1.5
R 39				4					4				161.925	11.112	17.46	15.88	7.747	8.0	11.906	0.7
R 40	5												171.450	7.938	14.29	12.70	5.232	6.4	8.731	0.7
R 41		5	5		5		5	5					180.975	11.112	17.46	15.88	7.747	8.0	11.906	0.7
R 42													190.500	19.050	25.40	23.81	12.319	12.7	19.844	1.5
R 43	6												193.675	7.938	14.29	12.70	5.232	6.4	8.731	0.7
R 44				5					5				193.675	11.112	17.46	15.88	7.747	8.0	11.906	0.7
R 45		6	6			6	6	6					211.138	11.112	17.46	15.88	7.747	8.0	11.906	0.7
R 46				6	6				6				211.138	12.700	19.05	17.46	8.661	9.6	13.494	1.5
R 47													228.600	19.050	25.40	23.81	12.319	12.7	19.844	1.5
R 48	8												247.650	7.938	14.29	12.70	5.232	6.4	8.731	0.7
R 49		8	8			8	8	8	8				269.875	11.112	17.46	15.88	7.747	8.0	11.906	0.7
R 50				8					8				269.875	15.875	22.22	20.64	10.490	11.2	16.669	1.5
R 51					8								279.400	22.225	28.58	26.99	14.808	14.3	23.019	1.5
R 52	10	10	10			10	10	10					304.800	7.938	14.29	12.70	5.232	6.4	8.731	0.7
R 53													323.850	11.112	17.46	15.88	7.747	8.0	11.906	0.7
R 54				10					10				323.850	15.875	22.22	20.64	10.490	11.2	16.669	1.5
R 55					10								342.900	28.575	36.51	34.92	19.812	17.5	30.162	2.3
R 56	12												381.000	7.938	14.29	12.70	5.232	6.4	8.731	0.7
R 57		12	12			12	12	12			12	12	381.000	11.112	17.46	15.88	7.747	8.0	11.906	0.7
R 58				12									381.000	22.225	28.58	26.99	14.808	14.3	23.019	1.5
R 59	14												396.875	7.938	14.29	12.70	5.232	6.4	8.731	0.7
R 60					12								406.400	31.750	39.69	38.10	22.327	17.5	33.338	2.3
R 61		14									14		419.100	11.112	17.46	15.88	7.747	8.0	11.906	0.7
R 62			14									14	419.100	15.875	22.22	20.64	10.490	11.2	16.669	1.5
R 63				14									419.100	25.400	33.34	31.75	17.297	15.9	26.988	2.3
R 64	16												454.025	7.938	14.29	12.70	5.232	6.4	8.731	0.7
R 65		16				16	16				16		469.900	11.112	17.46	15.88	7.747	8.0	11.906	0.7
R 66			16					16				16	469.900	15.875	22.22	20.64	10.490	11.2	16.669	1.5
R 67				16									469.900	28.575	36.51	34.92	19.812	17.5	30.162	2.3
R 68	18												517.525	7.938	14.29	12.70	5.232	6.4	8.731	0.7
R 69		18				18	18				18		533.400	11.112	17.46	15.88	7.747	8.0	11.906	0.7
R 70			18					18				18	533.400	19.050	25.40	23.81	12.319	12.7	19.844	1.5
R 71				18									533.400	28.575	36.51	34.92	19.812	17.5	30.162	2.3
R 72	20	20									20		558.800	7.938	14.29	12.70	5.232	6.4	8.731	0.7
R 73			20			20	20					20	584.200	12.700	19.05	17.46	8.661	9.6	13.494	1.5
R 74				20				20					584.200	19.050	25.40	23.81	12.319	12.7	19.844	1.5
R 75													584.200	31.750	39.69	38.10	22.327	17.5	33.338	2.3

to be continued

Unit: mm

Ring No.	Applicable flanges and nominal diameter												Gasket				Groove		
	JPI-7S-15-70, ANSI B16.5					API Spec 6A					MSS SP-44				T (±0.39)				
	150 psi	300 400 600	900 psi	1500 psi	2500 psi	960 psi	2000 psi	3000 psi	5000 psi	10000 psi	300 400 600	900 psi	P (±0.177)	W (±0.203)	Oval	Octagonal	A (±0.203)	E (+0.3 0)	F (±0.203)	r (Max.)
R 76	24												673.100	7.938	14.29	12.70	5.232	6.4	8.731	0.7
R 77		24									24		692.150	15.875	22.22	20.64	10.490	11.2	16.669	1.5
R 78			24									24	692.150	25.400	33.34	31.75	17.297	15.9	26.988	2.3
R 79				24									692.150	34.925	44.45	41.28	24.816	20.7	36.512	2.3
R 80													615.950	7.938	—	12.70	5.232	6.4	8.731	0.7
R 81											22		635.000	14.288	—	19.05	9.576	11.2	15.081	1.5
R 82										1			57.150	11.112	—	15.88	7.747	8.0	11.906	0.7
—													—	—	—	—	—	—	—	—
R 84										1-1/2			63.500	11.112	—	15.88	7.747	8.0	11.906	0.7
R 85										2			79.375	12.700	—	17.46	8.661	9.6	13.494	1.5
R 86										2-1/2			90.488	15.875	—	20.64	10.490	11.2	16.669	1.5
R 87										3			100.012	15.875	—	20.64	10.490	11.2	16.669	1.5
R 88										4			123.825	19.050	—	23.81	12.319	12.7	19.844	1.5
R 89										3-1/2			114.300	19.050	—	23.81	12.319	12.7	19.844	1.5
R 90										5			155.575	22.225	—	26.99	14.080	14.3	23.019	1.5
R 91										10			260.350	31.750	—	38.10	22.327	17.5	33.338	2.3
R 92													228.600	11.112	17.46	15.88	7.747	8.0	11.906	0.7
R 93											26		749.300	19.050	—	23.81	12.319	12.7	19.844	1.5
R 94											28		800.100	19.050	—	23.81	12.319	12.7	19.844	1.5
R 95											30		857.250	19.050	—	23.81	12.319	12.7	19.844	1.5
R 96											32		914.400	22.225	—	26.99	14.808	14.3	23.019	1.5
R 97											34		965.200	22.225	—	26.99	14.808	14.3	23.019	1.5
R 98											36		1022.350	22.225	—	26.99	14.808	14.3	23.019	1.5
R 99							8	8					234.950	11.112	—	15.88	7.747	8.0	11.906	0.7
R 100												26	749.300	28.575	—	34.92	19.812	17.5	30.162	2.3
R 101												28	800.100	31.750	—	38.10	22.327	17.5	33.338	2.3
R 102												30	857.250	31.750	—	38.10	22.327	17.5	33.338	2.3
R 103												32	914.400	31.750	—	38.10	22.327	17.5	33.338	2.3
R 104												34	965.200	34.925	—	41.28	24.816	20.7	36.512	2.3
R 105												36	1022.350	34.925	—	41.28	24.816	20.7	36.512	2.3

NOTES:

1. THESE DIMENSIONS ARE DESIGNED TO FIT RING TYPE JOINT FLANGES SPECIFIED IN ANSI B165-1977, API SPEC 6A (1977), JPI - 7S - 15 - 70.
2. R-30 IS USED ONLY FOR LAPPED JOINT OF PRESSURE RATING 400 PSI AND 600 PSI

MATERIAL OF METAL USED FOR RING - JOINT

Metal Materials	Specification	Symbol Mark
Soft Iron	JPI-7S-23-72 or equivalent	D
Soft Steel	JIS G 4051 - 1965 S100 or equivalent	S
18Cr8Ni Steel	JIS G 4303 - 1977 SUS 304 or equivalent	304
18Cr8Ni low carbon steel	JIS G 4303 - 1977 SUS 304L or equivalent	304L
25Cr20Ni steel	JIS G 4303 - 1977 SUS 310S or equivalent	310S
18Cr12Ni2.5Mo steel	JIS G 4303 - 1977 SUS 316 or equivalent	316
18Cr12Ni2.5Mo low carbon steel	JIS G 4303 - 1977 SUS 316L or equivalent	316L
18Cr9NiTi steel	JIS G 4303 - 1977 SUS 321 or equivalent	321
18Cr9NiNb steel	JIS G 4303 - 1977 SUS 347 or equivalent	347
13Cr steel	JIS G 4303 - 1977 SUS 410 or equivalent	410
18Cr steel	JIS G 4303 - 1977 SUS 430 or equivalent	430
5Cr0.5Mo steel	ASIM A182 - 75 F5 or equivalent	F5
Copper	JIS H 3250 - 1977 C1100BD or equivalent	C1100
Aluminium	JIS H 4040 - 1976 A1050BD or equivalent	A1050
Monel	ASTM B164 - 75 Class A or equivalent	M
Titanium	JIS H 4650 - 1975 T828 or equivalent	Ti
Nickel	ASTM B160 - 75 Ni or equivalent	Ni

NOTES:

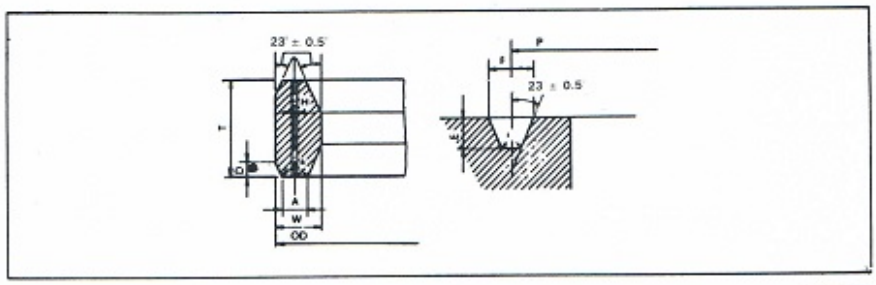
1. Hardness of Unfinished material shall be measured by Brinell (Hb).
2. Hardness of finished products shall be measured by Rockwell (B scale) (HRB).

INGI - 0188

RING JOINT, SOLID METAL GASKET
RX TYPE

API type RX pressure energized ring-joint for API 6B flanges and segmented flanges

API Spec 6A (1977), ANSI B 16.20 (1970)



Unit: mm

Ring No.	Applicable flange and nominal diameter			Gasket						Groove			
	2000 psi	3000 psi	5000 psi	OD $(^{+0.50}_{-0})$	W $(^{+0.20}_{-0})$	A $(^{+0.15}_{-0})$	D $(^{+0}_{-0.79})$	T $^{+0.20}_{-0}$	r, (±0.39)	E $(^{+0.39}_{-0})$	F (±0.20)	P (±0.12).	r, (Max.)
RX-20	1-1/2	1-1/2	1-1/2	76.200	8.731	4.623	3.175	19.05	1.59	6.350	8.731	68.262	0.79
RX-23	2			93.266	11.906	6.452	4.242	25.40	1.59	7.938	11.906	82.550	0.79
RX-24		2	2	105.966	11.906	6.452	4.242	25.40	1.59	7.938	11.906	95.250	0.79
RX-25				109.538	8.731	4.623	3.175	19.05	1.59	6.350	8.731	—	0.79
RX-26	2-1/2			111.919	11.906	6.452	4.242	25.40	1.59	7.938	11.906	101.600	0.79
RX-27		2-1/2	2-1/2	118.269	11.906	6.452	4.242	25.40	1.59	7.938	11.906	107.950	0.79
RX-31	3	3		134.541	11.906	6.452	4.242	25.40	1.59	7.938	11.906	123.825	0.79
RX-35			3	147.241	11.906	6.452	4.242	25.40	1.59	7.938	11.906	136.525	0.79
RX-37	4	4		159.941	11.906	6.452	4.242	25.40	1.59	7.938	11.906	149.225	0.79
RX-39			4	172.641	11.906	6.452	4.242	25.40	1.59	7.938	11.906	161.925	0.79
RX-41	5	5		191.691	11.906	6.452	4.242	25.40	1.59	7.938	11.906	180.975	0.79
RX-44			5	204.391	11.906	6.452	4.242	25.40	1.59	7.938	11.906	193.675	0.79
RX-45	6	6		221.853	11.906	6.452	4.242	25.40	1.59	7.938	11.906	211.138	0.79
RX-46			6	222.250	13.494	6.680	4.775	28.58	1.59	9.525	13.494	211.138	1.59
RX-47				245.269	19.844	10.338	6.883	41.28	2.38	12.700	19.844	228.600	1.59
RX-49	8	8		280.591	11.906	6.452	4.242	25.40	1.59	7.938	11.906	269.875	0.79
RX-50			8	283.369	16.669	8.509	5.283	31.75	1.59	11.112	16.669	269.875	1.59
RX-53	10	10		334.566	11.906	6.452	4.242	25.40	1.59	7.938	11.906	323.850	0.79
RX-54			10	337.344	16.669	8.509	5.283	31.75	1.59	11.112	16.669	323.850	1.59
RX-57	12	12		391.716	11.906	6.452	4.242	25.40	1.59	7.938	11.906	381.000	0.79
RX-63				441.722	26.988	14.783	8.458	50.80	2.38	15.875	26.988	419.100	2.38
RX-65	16			480.616	11.906	6.452	4.242	25.40	1.59	7.938	11.906	469.900	0.79
RX-66		16		483.394	16.669	8.509	5.283	31.75	1.59	11.112	16.669	469.900	1.59
RX-69	18			544.116	11.906	6.452	4.242	25.40	1.59	7.938	11.906	533.400	0.79
RX-70		18		550.069	19.844	10.338	6.883	41.28	2.38	12.700	19.844	533.400	1.59
RX-73	20			596.106	13.494	6.680	5.283	31.75	1.59	9.525	13.494	584.200	1.59
RX-74		20		600.869	19.844	10.338	6.883	41.28	2.38	12.700	19.844	584.200	1.59
RX-82				67.866	11.906	6.452	4.242	25.40	1.59	7.938	11.906	57.150	0.79
RX-84				74.216	11.906	6.452	4.242	25.40	1.59	7.938	11.906	63.500	0.79
RX-85				90.091	13.494	6.680	4.242	25.40	1.59	9.525	13.494	79.375	1.59
RX-86				103.584	15.081	8.509	4.775	28.58	1.59	11.112	16.669	90.488	1.59
RX-87				113.109	15.081	8.509	4.775	28.58	1.59	11.112	16.669	100.012	1.59
RX-88				139.303	17.462	10.338	5.283	31.75	1.59	12.700	19.844	123.825	1.59
RX-89				129.778	18.256	10.338	5.283	31.75	1.59	12.700	19.844	114.300	1.59
RX-90				174.625	19.844	12.167	7.417	44.45	2.38	14.288	23.019	155.575	1.59
RX-91				286.941	30.162	19.812	7.544	45.24	2.38	17.462	33.338	260.350	2.38
RX-99				245.666	11.906	6.452	4.242	25.40	1.59	7.938	11.906	234.950	0.79
RX-201				51.460	5.740	3.200	1.448	11.30	0.40	3.969	5.556	—	0.79
RX-205				62.309	5.556	3.048	1.829	11.10	0.40	3.969	5.556	—	0.40
RX-210				97.631	9.525	5.410	3.175	19.05	0.79	6.350	9.525	—	0.40
RX-215				140.891	11.906	5.334	4.242	25.40	1.59	7.938	11.906	—	0.79

NOTES:

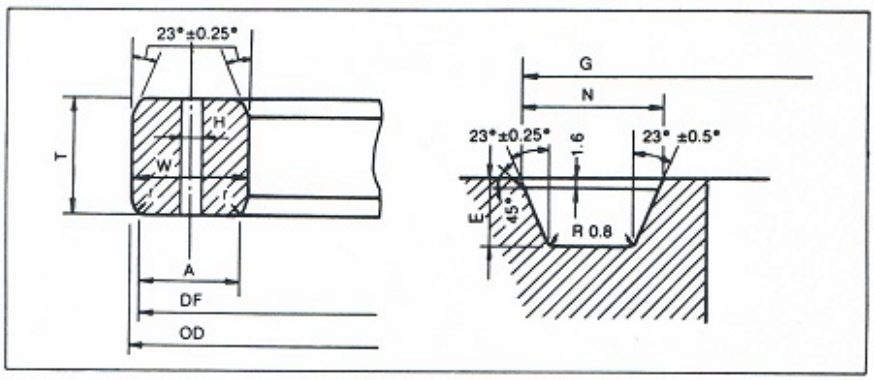
1. The pressure passage hole illustrated in the RX ring cross-section is required in rings RX-82 through RX-91 only Center line of hole shall be located at midpoint of dimension A. Hole diameter shall be 1.6 mm for rings RX-82 through RX-85, 2.4 mm for rings RX-86 and RX-87, and 3.2 mm for rings RX-88 through RX-91
2. The 23° surface on both rings and grooves shall have a surface finish no rougher than 63 RMS.
3. These dimensions are designed to fit flanges specified in API Spec 6A (1977)

INGI - 0188

RING JOINT, SOLID METAL GASKET
BX TYPE

API type BX pressure energized ring-joint for API 6BX flanges

API Spec 6A (1977)



Unit: mm

Ring No.	Applicable flange and nominal diameter						Gasket						Groove		
	2000 psi	3000 psi	5000 psi	10000 psi	15000 psi	20000 psi	OD (+0 -0.15)	T (+0.20 -0)	W (+0.20 -0)	DF (±0.05)	A (+0.15 -0)	H	E (+0.39 -0)	G (+0.10 -0)	N (+0.10 -0)
BX-150				1-11/16	1-11/16		72.187	9.30	9.296	70.866	7.976	1.6	5.556	73.482	11.430
BX-151				1-13/16	1-13/16	1-11/16	76.403	9.63	9.627	75.032	8.255	1.6	5.556	77.775	11.836
BX-152				2-1/16	2-1/16	2-1/16	84.684	10.24	10.236	83.236	8.788	1.6	5.953	86.233	12.649
BX-153				2-9/16	2-9/16	2-9/16	100.940	11.38	11.379	99.314	9.779	1.6	6.747	102.768	14.072
BX-154				3-1/16	3-1/16	3-1/16	116.840	12.40	12.395	115.087	10.643	1.6	7.541	118.999	15.392
BX-155				4-1/16	4-1/16	4-1/16	147.955	14.22	14.224	145.948	12.217	1.6	8.334	150.622	17.729
BX-156				7-1/16	7-1/16	7-1/16	237.922	18.62	18.618	235.280	15.977	3.2	11.112	241.833	23.393
BX-157				9	9		294.462	20.98	20.980	291.490	18.009	3.2	12.700	299.060	26.391
BX-158				11	11		352.044	23.14	23.139	348.767	19.863	3.2	14.288	357.226	29.185
BX-159				13-5/8			425.720	25.70	25.705	423.068	22.073	3.2	15.875	432.638	32.487
BX-160			13-5/8				402.590	23.82	13.741	399.212	10.363	3.2	14.288	408.000	19.964
BX-161			16-3/4				491.414	28.07	16.205	487.451	12.243	3.2	17.056	497.942	23.622
BX-162			16-3/4	16-3/4			475.488	14.22	14.224	473.481	12.217	1.6	8.334	478.333	17.907
BX-163			18-3/4				556.158	30.10	17.374	551.891	13.106	3.2	18.256	563.499	25.552
BX-164				18-3/4			570.560	30.10	24.587	566.293	20.320	3.2	18.256	577.901	32.766
BX-165			21-1/4				624.713	32.03	18.491	620.192	13.970	3.2	19.050	632.562	27.203
BX-166				21-1/4			640.029	32.03	26.137	635.508	21.615	3.2	19.050	647.878	34.874
BX-167	26-3/4						759.358	35.86	13.106	754.278	8.026	1.6	21.431	768.325	22.911
BX-168		26-3/4					765.251	35.86	16.053	760.171	10.973	1.6	21.431	774.217	25.857

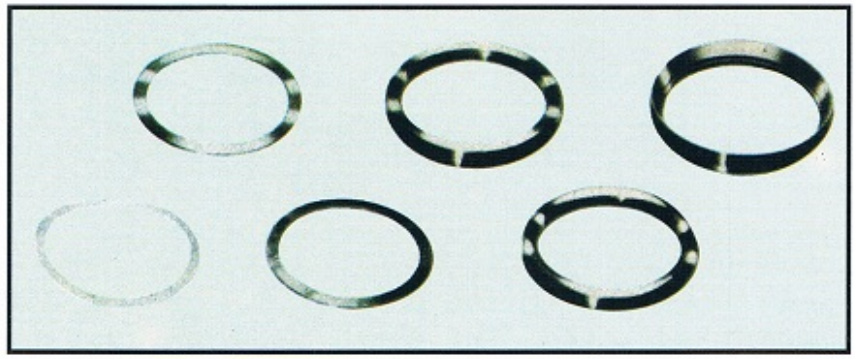
NOTES:

1. All 23° surfaces on both rings and grooves shall have a surface finish no rougher than 32 RMS.
2. Radius "r" shall be 8 to 12 per cent of the gasket height "T"
3. One pressure passage hole required per gasket on centerline.
4. BX-161 gasket is used only with the obsolete 5000 psi WP, 7500 psi TP flange in Appendix 1 of API Spec 6A (1977).
5. These dimensions are designed to fit the flanges specified in API Spec 6A (1977).

INGI - 0188

RING JOINT, SOLID METAL GASKET
FLAT TYPE

Machined from solid metals in a variety of shapes and are design for high pressure, high temperature or high corrosive applications by selecting the most suitable material and shape.



MATERIAL	CODE	MAXIMUM HARDNESS	MAXIMUM SERVICE TEMPERATURE	THICKNESS
Soft Iron	D	90	530°C	Minimum 1 mm
Low Carbon Steel	S	120	530°C	
Stainless Steel 304	SUS 304	160	750°C	
Copper	CU	50	400°C	
Aluminium	AL	30	300°C	
Stainless Steel 347	SUS 347	160	750°C	
Stainless Steel 316	SUS 316	160	750°C	

Jenis plat logam, siku tulang-tulang, bentuk dan ukuran dapat dipesan sesuai kebutuhan.