SEALRITE®

Spiral Wound Gaskets

PROPERTIES

Spiral wound gaskets are special semi metallic gaskets of great strength and resilience, therefore they are suitable for use under heavy operating conditions.

Spiral wound gaskets are manufactured by spirally winding V-shaped metal strip and strip of non-metallic filler material. Spiral wound gaskets can be reinforced with an outer centering ring and or inner retaining ring.

The outer centering rings is designed to serve as a centering aid and for installation, controlling compression of the spiral wound sealing elements, which contacts the inside of bolts. It also offers additional strength to the spiral wound to prevent possibility of gasket blow out. The inner retaining ring increases the axial stiffness and resilience of the gasket and will also fills up the crevice between flanges to minimize build-up of process materials and erosion of flange. It also reduces turbulence in process fluid flow and shields a spiral wound sealing from excessive heat.

Spiral wound gaskets should always be in contact with the flange and should not protrude into the pipe or project from the flange. Spiral wound gaskets should not be fitted between flanges with different surface finishes.

Spiral wound gaskets can be used for sealing flange joints, manhole and handholes covers, tube covers, boilers, heat exchangers, pressure vessel, pumps, compressors, and valves; in industries such as petrochemicals, shipbuilding, food processing and power stations. They are ideal for connecting high pressure piping used for steam, oil, liquids, gases, acids, alkalis, various organic and solvents.

MATERIALS

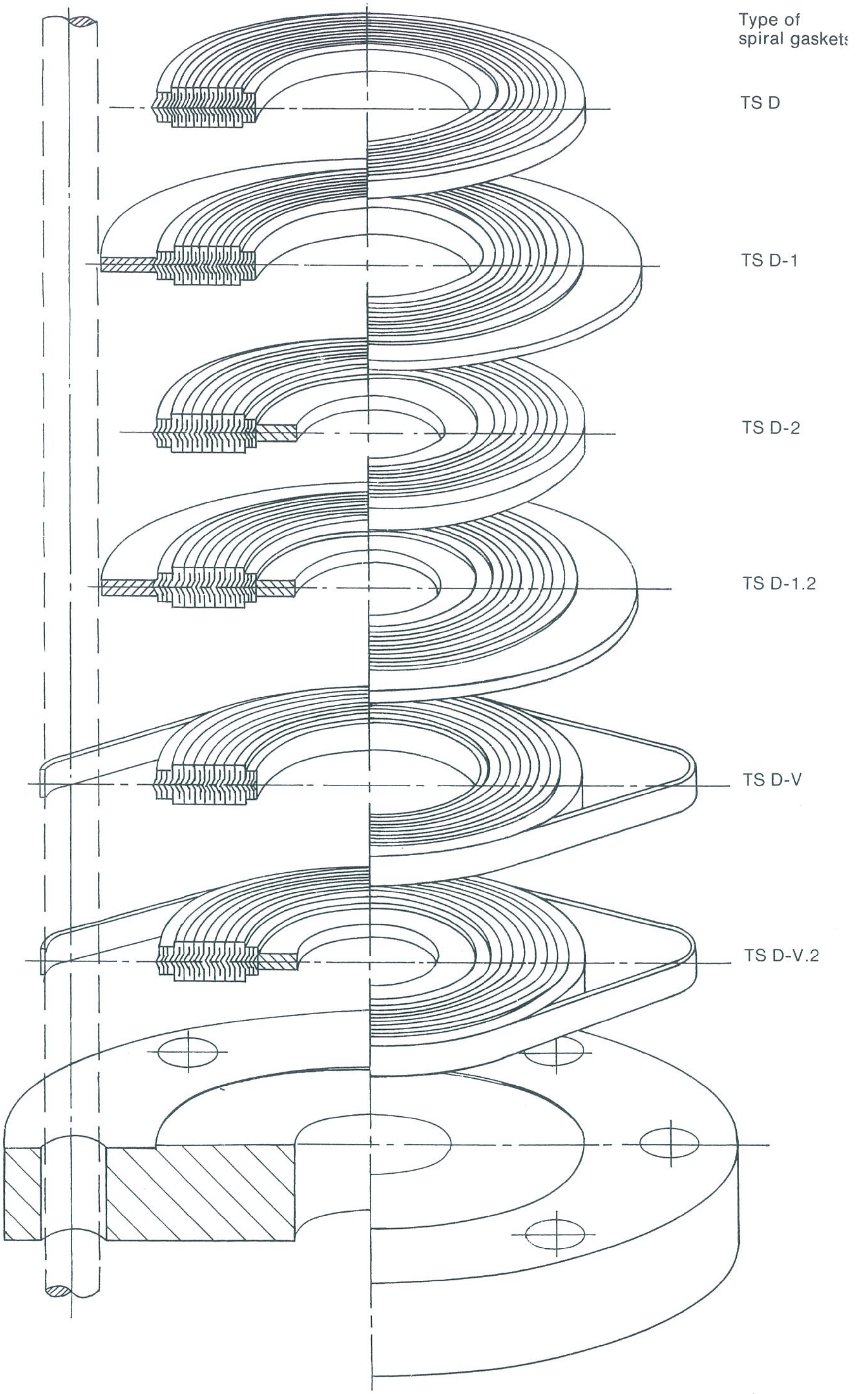
With the proper selection of materials and filler materials, spiral wound gaskets may be used under different operating conditions for different type of flanges.

	Type	Temperature Resistance °C
Metal strips	SUS304	450
	SUS304L	450
	SUS316	630
	SUS316L	630
	Monel	630
Filler	Compressed asbestos materials	500
	Non asbestos materials	400
	PTFE tape	300
	Expanded graphite tape	630
Outer ring	Carbon steel	
	SUS304	
	SUS304L	
	SUS316	
	SUS316L	
Inner ring	Carbon steel	
	SUS304	
	SUS304L	
	SUS316	
	SUS316L	
Nominal thickness -spiral wound	6.4mm	
	4.5mm	
	3.2mm	

SHAPE, DIMENSIONS AND CONSTRUCTION

Spiral wound gaskets commonly have a round form but it can be manufactured in other shapes such as oval, rectangular, with rounded edges.

The dimensions of our standard gaskets conform to API 601, BS 1560 and DIN 2699. Our standard production program comprises a range of spiral wound gaskets with inner diameters of 20-630mm and a nominal thickness of 4.5mm and 3.2mm. On special request, we can supply nominal thickness of 6.4mm.


Type of
spiral gasket
TS D
TS D-1
TS D-2
TS D-1.2
TS D-V
TS D-V.2

TS D spiral wound gaskets

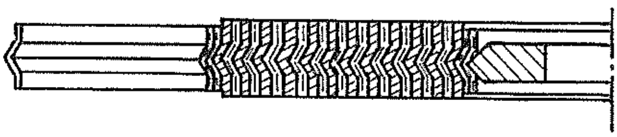
TS D — Simple spiral gasket

TS D-1 — Spiral wound·gasket with outer centering ring

TS D-2 — Spiral wound gasket with inner retaining ring

TS D-1.2 — Spiral wound gasket with outer and inner rings

TS D-V — Spiral wound gasket with loop centering ring



TS D-V2 — Spiral wound gasket with loop centering ring and inner ring

TS DV spiral wound gaskets

- combining two different types of filler material for improved sealing

TS DV — Simple spiral wound gasket with insert

TS DV-1 — Spiral wound gasket with insert and outer centering ring

TS DV-2 — Spiral wound gasket with insert and inner retaining ring

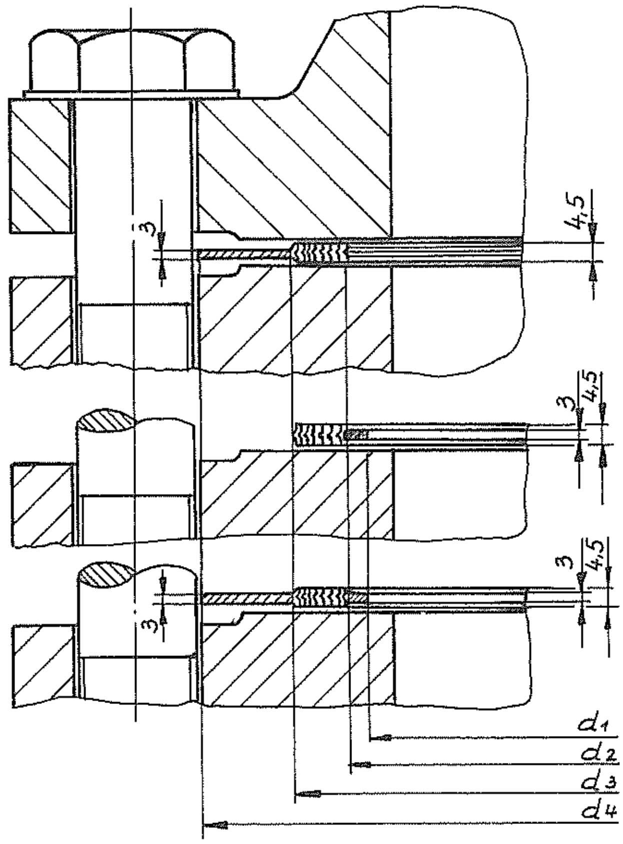
TS DV-1.2 — Spiral wound gasket with insert and outer and inner rings

TS DV-V — Spiral wound gasket with insert and loop centering ring

TS DV-V.2 — Spiral wound gasket with insert, loop centering ring and inner ring

SPIRAL WOUND GASKETS

TS D-1, TS D-2, TS D-1.2
conform to API 601 for ANSI B 16.5 flanges

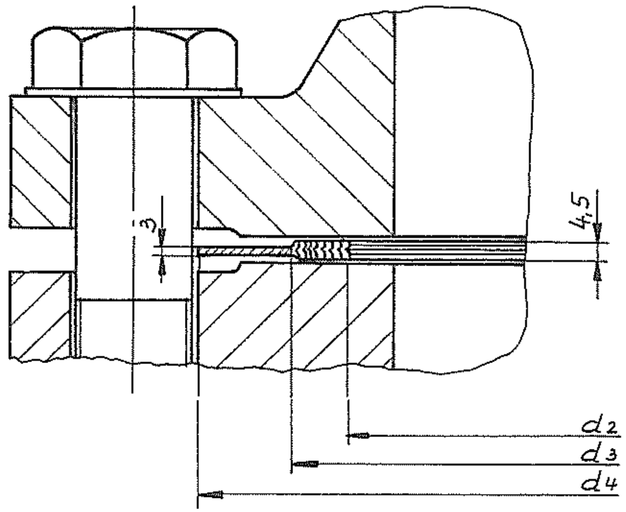


DN inch	d1			d2					d3	d4						
	150 600	900 1500	2500	150-300	400-600	900	1500	2500	150-2500	150	300	400	600	900	1500	2500
1/2	14.3	14.3	14.3	19.1	19.1	19.1	19.1	19.1	31.8	47.8	54.1	54.1	54.1	63.5	63.5	69.9
3/4	20.7	20.7	20.7	25.4	25.4	25.4	25.4	25.4	39.6	57.2	66.8	66.8	66.8	69.9	69.9	76.2
1	27.0	27.0	27.0	31.8	31.8	31.8	31.8	31.8	47.8	66.8	73.2	73.2	73.2	79.5	79.5	85.9
1 1/4	38.1	33.3	33.4	47.8	47.8	39.6	39.6	39.6	60.5	76.2	82.6	82.6	82.6	88.9	88.9	104.9
1 1/2	44.5	41.4	41.4	54.1	54.1	47.8	47.8	47.8	69.9	85.9	95.3	95.3	95.3	98.6	98.6	117.6
2	55.4	52.3	52.3	69.9	69.9	58.7	58.7	58.7	85.9	104.9	111.3	111.3	111.3	143.0	143.0	146.1
2 1/2	66.8	63.5	63.5	82.6	82.6	69.9	69.9	69.9	98.6	124.0	130.3	130.3	130.3	165.1	165.1	168.4
3	81.0	81.0	81.0	101.6	101.6	95.3	92.2	92.2	120.7	136.7	149.4	149.4	149.4	168.4	174.8	196.9
4	106.4	106.4	106.4	127.0	120.7	120.7	117.6	117.6	149.4	174.8	181.1	177.8	193.8	206.5	209.6	235.0
5	131.8	131.8	131.8	155.7	147.6	147.6	143.0	143.0	177.8	196.9	215.9	212.9	241.3	247.7	254.0	279.4
6	157.2	157.2	157.2	182.6	174.8	174.8	171.5	171.5	209.6	222.3	251.0	247.7	266.7	289.1	282.7	317.5
8	215.9	209.6	200.0	233.4	225.6	222.3	215.9	215.9	263.7	279.4	308.1	304.8	320.8	358.9	352.6	387.4
10	268.3	260.4	247.7	287.3	274.6	276.4	266.7	270.0	317.5	339.9	362.0	358.9	400.1	435.1	435.1	476.3
12	317.5	314.3	292.1	339.9	327.2	323.9	323.9	317.5	374.7	409.7	422.4	419.1	457.2	498.6	520.7	549.4
14	349.3	342.9		371.6	362.0	355.6	362.0		406.4	450.9	485.9	482.6	492.3	520.7	577.9	
16	400.0	393.7		422.4	412.8	412.8	406.4		463.6	514.4	539.8	536.7	565.2	574.8	641.4	
18	449.3	444.5		474.7	469.9	463.6	463.6		527.1	549.4	596.9	593.9	612.9	638.3	704.9	
20	500.0	495.3		525.5	520.7	520.7	514.4		577.9	606.5	654.1	647.7	882.8	698.5	755.7	
24	603.3	603.3		628.7	628.7	628.7	616.0		685.8	717.6	774.7	768.4	790.7	838.2	901.7	

Order specifications example:
TS D-1, API 601, DN 2", PN 2500 lb
Specify also material combinations and designs required

TS D-1 SPRIAL WOUND GASKETS

for ANSI B 16.5 and BS 1560 flanges



Flange Size (NPS)	DIMENSIONS FOR SPIRAL WOUND GASKETS USED WITH ASME B16.47 SERIES A FLANGES														
	Class 150			Class 300			Class 400			Class 600			Class 900 (1)		
	Gasket		Centering Ring	Gasket		Centering Ring	Gasket		Centering Ring	Gasket		Centering Ring	Gasket		Centering Ring
	Inside Diameter (2)	Outside Diameter (3)	Outside Diameter (4)	Inside Diameter (2)	Outside Diameter (3)	Outside Diameter (4)	Inside Diameter (2)	Outside Diameter (3)	Outside Diameter (4)	Inside Diameter (2)	Outside Diameter (3)	Outside Diameter (4)	Inside Diameter (2)	Outside Diameter (3)	Outside Diameter (4)
26	26.50	27.75	30.50	27.00	29.00	32.88	27.00	29.00	32.75	27.00	29.00	34.13	27.00	29.00	34.75
28	28.50	29.75	32.75	29.00	31.00	35.38	29.00	31.00	35.13	29.00	31.00	36.00	29.00	31.00	37.25
30	30.50	31.75	34.75	31.25	33.25	37.50	31.25	33.25	37.25	31.25	33.25	38.25	31.25	33.25	39.75
32	32.50	33.88	37.00	33.50	35.50	39.63	33.50	35.50	39.50	33.50	35.50	40.25	33.50	35.50	42.25
34	34.50	35.88	39.00	35.50	37.50	41.63	35.50	37.50	41.50	35.50	37.50	42.25	35.50	37.50	44.75
36	36.50	38.13	41.25	37.63	39.63	44.00	37.63	39.63	44.00	37.63	39.63	44.50	37.75	39.75	47.25
38	38.50	40.13	43.75	38.50	40.00	41.50	38.25	40.25	42.25	39.00	41.00	43.50	40.75	42.75	47.25
40	40.50	42.13	45.75	40.25	42.13	43.88	40.38	42.38	44.38	41.25	43.25	45.50	43.25	45.25	49.25
42	42.50	44.25	48.00	42.25	44.13	45.88	42.38	44.38	46.38	43.50	45.50	48.00	45.25	47.25	51.25
44	44.50	46.38	50.25	44.50	46.50	48.00	44.50	46.50	48.50	45.75	47.75	50.00	47.50	49.50	53.88
46	46.50	48.38	52.25	46.38	48.38	50.13	47.00	49.00	50.75	47.75	49.75	52.25	50.00	52.00	56.50
48	48.50	50.38	54.50	48.63	50.63	52.13	49.00	51.00	53.00	50.00	52.00	54.75	52.00	54.00	58.50
50	50.50	52.50	56.50	51.00	53.00	54.25	51.00	53.00	55.25	52.00	54.00	57.00	(5)	(5)	(5)
52	52.50	54.50	58.75	53.00	55.00	56.25	53.00	55.00	57.25	54.00	56.00	59.00	(5)	(5)	(5)
54	54.50	56.50	61.00	55.25	57.25	58.75	55.25	57.25	59.75	56.25	58.25	61.25	(5)	(5)	(5)
56	56.50	58.50	63.25	57.25	59.25	60.75	57.25	59.25	61.75	58.25	60.25	63.50	(5)	(5)	(5)
58	58.50	60.50	65.50	59.50	61.50	62.75	59.25	61.25	63.75	60.50	62.50	65.50	(5)	(5)	(5)
60	60.50	62.50	67.50	61.50	63.50	64.75	61.75	63.75	66.25	62.75	64.75	68.25	(5)	(5)	(5)

INNER RING INSIDE DIAMETERS FOR SPIRAL WOUND GASKETS USED BETWEEN ASME B16.47 SERIES A FLANGES

Flange Size (NPS)	Pressure Class				
	150	300	400	600	900
26	25.75	25.75	26.00	25.50	26.25 (1)
28	27.75	27.75	28.00	27.50	28.00 (1)
30	29.75	29.75	29.75	29.75	30.50 (1)
32	31.75	31.75	32.00	32.00	32.00 (1)
34	33.75	33.75	34.00	34.00	34.00 (1)
36	35.75	35.75	36.13	36.13	36.25 (1)
38	37.75	37.50	37.50	37.50	39.75 (1)
40	39.75	39.50	39.38	39.75	41.75 (1)
42	41.75	41.50	41.38	42.00	43.75 (1)
44	43.75	43.50	43.50	43.75	45.50 (1)
46	45.75	45.38	46.00	45.75	48.00 (1)
48	47.75	47.63	47.50	48.00	50.00 (1)
50	49.75	49.00	49.50	50.00	(2)
52	51.75	52.00	51.50	52.00	(2)
54	53.50	53.25	53.25	54.25	(2)
56	55.50	55.25	55.25	56.25	(2)
58	57.50	57.00	57.25	58.00	(2)
60	59.50	60.00	59.75	60.25	(2)

GENERAL NOTES:

(A) The inner ring thickness shall be 0.112 - 0.131 in.

(B) The inside diameter tolerance is ± 0.12 in.

(C) These inner rings are suitable for use with pipe walls 0.38 in. or thicker.

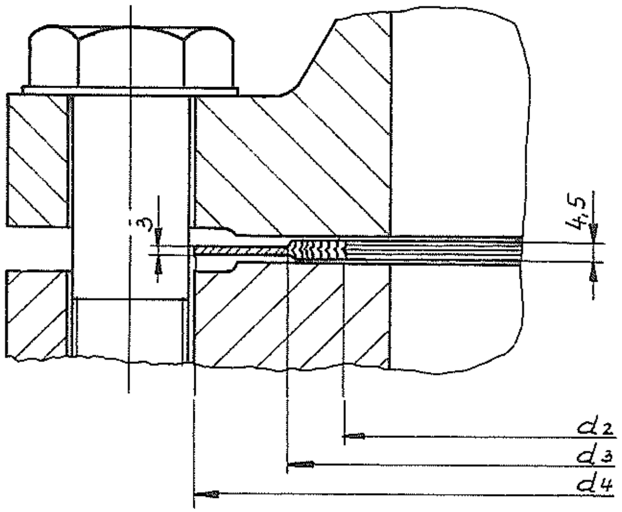
NOTES:

(1) Inner rings are required for Class 900 gaskets.

(2) There are no Class 900 flanges NPS 50 and larger.

TS D-1 SPRIAL WOUND GASKETS

for ANSI B 16.5 and BS 1560 flanges



Flange Size (NPS)	DIMENSIONS FOR SPIRAL WOUND GASKETS USED WITH ASME B16.47 SERIES B FLANGES														
	Class 150			Class 300			Class 400			Class 600			Class 900 (1)		
	Gasket		Centering Ring Outside Diameter (4)	Gasket		Centering Ring Outside Diameter (4)	Gasket		Centering Ring Outside Diameter (4)	Gasket		Centering Ring Outside Diameter (4)	Gasket		Centering Ring Outside Diameter (4)
	Inside Diameter (2)	Outside Diameter (3)		Inside Diameter (2)	Outside Diameter (3)		Inside Diameter (2)	Outside Diameter (3)		Inside Diameter (2)	Outside Diameter (3)		Inside Diameter (2)	Outside Diameter (3)	
26	26.50	27.50	28.56	26.50	28.00	30.38	26.25	27.50	29.38	26.13	28.13	30.13	27.25	29.50	33.00
28	28.50	29.50	30.56	28.50	30.00	32.50	28.13	29.50	31.50	27.75	29.75	32.25	29.25	31.50	35.50
30	30.50	31.50	32.56	30.50	32.00	34.88	30.13	31.75	33.75	30.63	32.63	34.63	31.75	33.75	37.75
32	32.50	33.50	34.69	32.50	34.00	37.00	32.00	33.88	35.88	32.75	34.75	36.75	34.00	36.00	40.00
34	34.50	35.75	36.81	34.50	36.00	39.13	34.13	35.88	37.88	35.00	37.00	39.25	36.25	38.25	42.25
36	36.50	37.75	38.88	36.50	38.00	41.25	36.13	38.00	40.25	37.00	39.00	41.25	37.25	39.25	44.25
38	38.37	39.75	41.13	39.75	41.25	43.25	38.25	40.25	42.25	39.00	41.00	43.50	40.75	42.75	47.25
40	40.25	41.88	43.13	41.75	43.25	45.25	40.38	42.38	44.38	41.25	43.25	45.50	43.25	45.25	49.25
42	42.50	43.88	45.13	43.75	45.25	47.25	42.38	44.38	46.38	43.50	45.50	48.00	45.25	47.25	51.25
44	44.25	45.88	47.13	45.75	47.25	49.25	44.50	46.50	48.50	45.75	47.75	50.00	47.50	49.50	53.88
46	46.50	48.19	49.44	47.88	49.38	51.88	47.00	49.00	50.75	47.75	49.75	52.25	50.00	52.00	56.50
48	48.50	50.00	51.44	49.75	51.63	53.88	49.00	51.00	53.00	50.00	52.00	54.75	52.00	54.00	58.50
50	50.50	52.19	53.44	51.88	53.38	55.88	51.00	53.00	55.25	52.00	54.00	57.00	(5)	(5)	(5)
52	52.50	54.19	55.44	53.88	55.38	57.88	53.00	55.00	57.25	54.00	56.00	59.00	(5)	(5)	(5)
54	54.50	56.00	57.63	55.25	57.25	60.25	55.25	57.25	59.75	56.25	58.25	61.25	(5)	(5)	(5)
56	56.88	58.18	59.63	58.25	60.00	62.75	57.25	59.25	61.75	58.25	60.25	63.50	(5)	(5)	(5)
58	59.07	60.19	62.19	60.44	61.94	65.19	59.25	61.25	63.75	60.50	62.50	65.50	(5)	(5)	(5)
60	61.31	62.44	64.19	62.56	64.19	67.19	61.75	63.75	66.25	62.75	64.75	68.25	(5)	(5)	(5)

(5) There are no Class 900 flanges NPS 50 and larger.

INNER RING INSIDE DIAMETERS FOR SPIRAL WOUND GASKETS USED BETWEEN ASME B16.47 SERIES B FLANGES

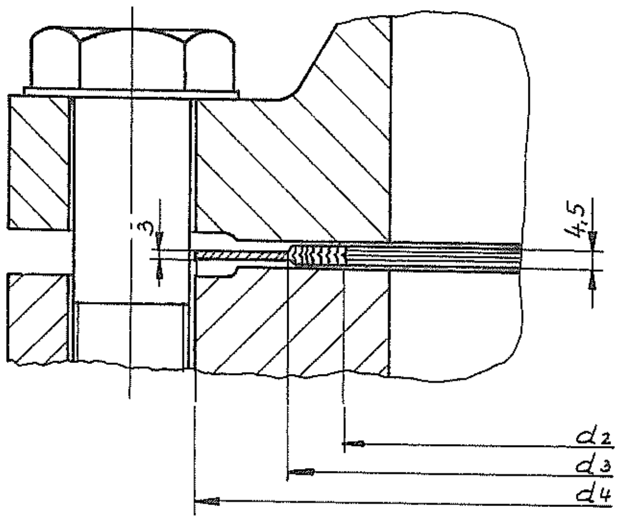
Flange Size (NPS)	Pressure Class				
	150	300	400	600	900
26	25.75	25.75	25.75	25.38	26.50 (1)
28	27.75	27.75	27.63	27.25	28.50 (1)
30	29.75	29.75	29.63	29.63	31.00 (1)
32	31.75	31.75	31.50	31.25	33.00 (1)
34	33.75	33.75	33.50	33.50	35.25 (1)
36	35.75	35.75	35.38	35.50	36.50 (1)
38	37.75	38.25	37.50	37.50	39.75 (1)
40	39.75	42.75	39.38	39.75	41.75 (1)
42	41.75	41.50	41.38	42.00	43.75 (1)
44	43.75	44.25	43.50	43.75	45.50 (1)
46	45.75	46.38	46.00	45.75	48.00 (1)
48	47.75	48.50	47.50	48.00	50.00 (1)
50	49.75	49.88	49.50	50.00	(2)
52	51.75	51.88	51.50	52.00	(2)
54	53.75	53.75	53.25	54.25	(2)
56	56.00	56.25	55.25	56.25	(2)
58	58.19	58.44	57.25	58.00	(2)
60	60.44	61.31	59.75	60.25	(2)

GENERAL NOTES:
(A) The inner ring thickness shall be 0.112 - 0.131 in.
(B) The inside diameter tolerance is ± 0.12 in.
(C) These inner rings are suitable for use with pipe walls 0.38 in. or thicker.

NOTES:
(1) Inner rings are required for Class 900 gaskets.
(2) There are no Class 900 flanges NPS 50 and larger.

TS D-1 SPIRAL WOUND GASKETS

for ANSI B 16.5 and BS 1560 flanges



All dimensions in millimetres

DN inch	d2 150	d2 300–1500	d3 150-1500	d4 150	d4 300	d4 400	d4 600	d4 900	d4 1500
1/2	19.1*	19.1*	31.8	47.6	54.0	54.0	54.0	63.5	63.5
3/4	27.0*	25.4*	39.7	57.2	66.7	66.7	66.7	69.9	69.9
1	33.3*	31.8*	47.6	66.7	73.0	73.0	73.0	79.4	79.4
1 1/4**	46.0*	44.5*	60.3	76.2	82.6	82.6	82.6	88.9	88.9
1 1/2	54.0	50.8	69.9	85.7	95.3	95.3	95.3	98.4	98.4
2	69.9	66.7	85.7	104.8	111.1	111.1	111.1	142.9	142.9
2 1/2**	82.6	79.4	98.4	123.8	130.2	130.2	130.2	165.1	165.1
3	101.6	95.3	120.7	136.5	149.2	149.2	149.2	168.3	174.6
4	127.0	120.7	149.2	174.6	181.0	177.8	193.7	206.4	209.6
5**	154.0	147.6	177.8	196.9	215.9	212.7	241.3	247.7	254.0
6	181.0	174.6	209.6	222.3	250.8	247.7	266.7	288.9	282.6
8	231.8	225.4	263.5	279.4	308.0	304.8	320.7	358.8	352.4
10	287.3	281.0	317.5	339.7	362.0	358.8	400.1	435.0	435.0
12	339.7	333.4	374.7	409.6	422.3	419.1	457.2	498.5	520.7
14	371.5	365.1	406.4	450.9	485.8	482.6	492.1	520.7	577.9
16	422.3	415.9	463.6	514.4	539.8	636.6	565.2	574.7	641.4
18	476.3	469.9	527.1	549.3	596.9	593.7	612.8	638.2	704.9
20	527.1	520.7	577.9	606.4	654.1	647.7	682.6	695.8	755.5
24	631.8	625.5	685.8	717.6	774.7	768.4	790.6	838.2	901.7

** The use of these sizes should be avoided for new construction

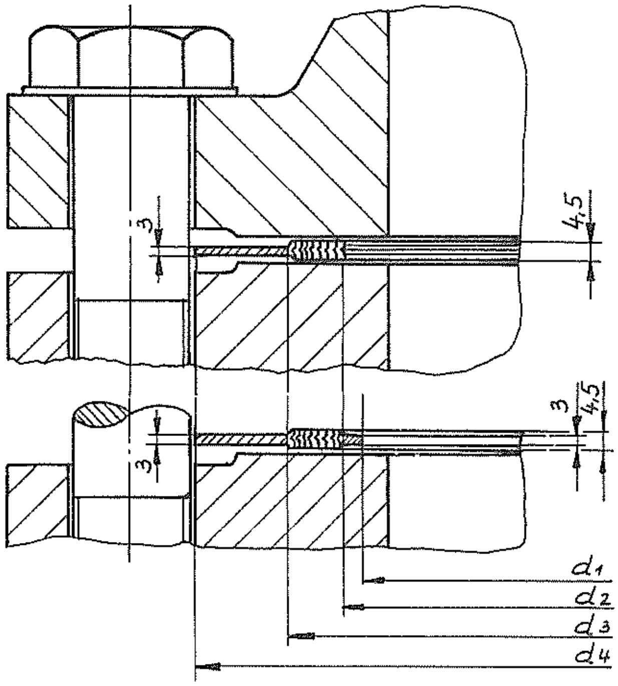
Order specifications example:
TS D-1, ANSI B 16.5, DN 2", PN 600 lb
Specify also material combinations and designs required

TS D-1 SPIRAL WOUND GASKETS

conform to DIN 2699
at a nominal pressure of 10-100 bar

TS D-1.2 SPIRAL WOUND GASKETS

conform to DIN 2699
at a nominal pressure of 10-250 bar

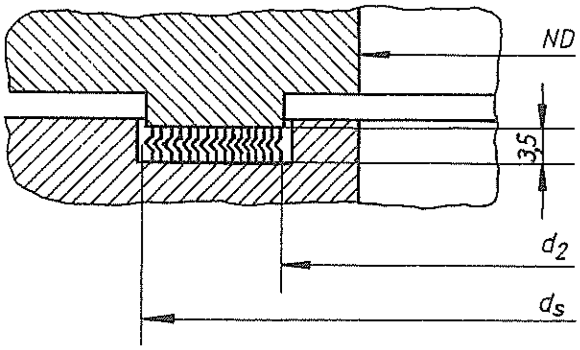


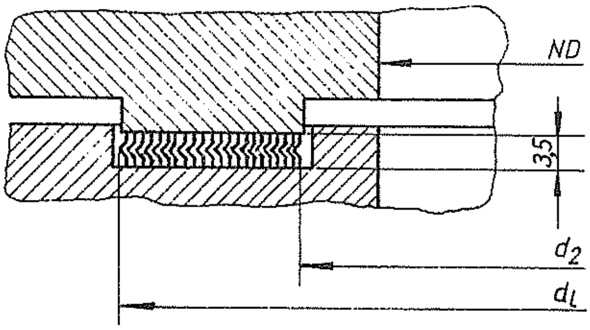
Nominal Pipe Size (DN)	d1	d2	d3		d4							
			PN10-PN40	PN64-PN250	PN10	PN16	PN25	PN40	PN64	PN100	PN160	PN250
10	18	24	36	36	46	46	46	46	56	56	56	67
15	24	30	42	42	51	51	51	51	61	61	61	72
20	27	33	47	47	61	61	61	61	72	72	-	-
25	34	40	54	54	71	71	71	71	82	82	82	83
32	44	50	66	66	82	82	82	82	87	87	-	-
40	51	57	73	73	92	92	92	92	103	103	103	109
50	59	69	87	87	107	107	107	107	113	119	119	124
65	73	83	103	105	127	127	127	127	138	144	144	154
80	87	97	117	121	142	142	142	142	148	154	154	170
100	114	124	144	148	162	162	168	168	174	180	180	202
125	140	150	172	176	192	192	194	194	210	217	217	242
150	168	178	200	204	217	217	224	224	247	257	257	284
175	189	199	225	231	247	247	254	265	277	287	284	316
200	220	230	256	262	272	272	284	290	309	324	324	358
250	269	279	307	315	327	328	340	352	364	391	388	442
300	319	329	357	365	377	383	400	417	424	458	458	538
350	365	375	405	413	437	443	457	474	486	512	-	-
400	416	426	458	466	488	495	514	546	543	572	-	-
500	520	530	566	574	593	617	624	628	657	704	-	-
600	615	630	666	674	695	734	731	747	764	813	-	-
700	715	730	770	778	810	804	833	852	879	-	-	-
800	815	830	874	882	917	911	942	974	988	-	-	-
900	915	830	974	982	1017	1011	1042	1084	1108	-	-	-
1000	1015	1030	1078	1086	1124	1128	1154	1194	1220	-	-	-

DIMENSIONS IN MM

The use of an inner ring is recommended for gaskets for use with PN 100 Flanges and above.
Gasket dimensions are available to suit PN 320 Flanges, consult the technical department.

SPIRAL WOUND GASKETS FOR ANSI B 16.5 FLANGES WITH TONGUE AND GROOVE FOR PN= 150–2500 lb



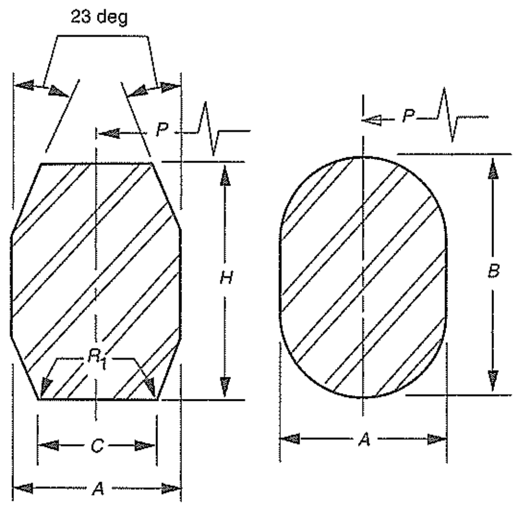


DN	d_2		Large tongue and groove dl		Small tongue and groove ds	
inch	inch	mm	inch	mm	inch	mm
1/2	1.00	25.4	1.38	35.0	1.38	35.0
3/4	1.31	33.3	1.69	42.9	1.69	42.9
1	1.50	38.1	2.00	50.8	1.88	47.7
1 1/4	1.88	47.7	2.50	63.5	2.25	57.1
1 1/2	2.12	53.8	2.88	73.1	2.50	63.5
2	2.88	73.1	3.62	91.9	3.25	82.5
2 1/2	3.38	85.8	4.12	104.6	3.75	95.2
3	4.25	107.9	5.00	127	4.62	117.3
3 1/2	4.75	120.6	5.50	139.7	5.12	130
4	5.19	131.8	6.19	157.2	5.69	144.5
5	6.31	160.3	7.31	185.7	6.81	172.9
6	7.50	190.5	8.50	215.9	8.00	203.2
8	9.38	238.2	10.62	269.7	10.00	254
10	11.25	285.7	12.75	323.8	12.00	303.8
12	13.50	342.9	15.00	381	14.25	361.9
14	14.75	374.6	16.25	412.7	15.50	393.7
16	16.75	425.4	18.50	469.9	17.62	447.5
18	19.25	488.9	21.00	533.4	20.12	511.0
20	21.00	533.4	23.00	584.2	22.00	558.8
24	22.25	565.1	27.25	692.1	26.25	666.7

Order specifications example:
TS D, ANSI B 16.5, DN 5", small tongue and groove
Specify also material combinations and design required

RING JOINT GASKET

Material Code	Material
S	Soft Steel
D	Soft Iron
E	SUS 304
L	SUS 304L
G	SUS 316
H	SUS 316L



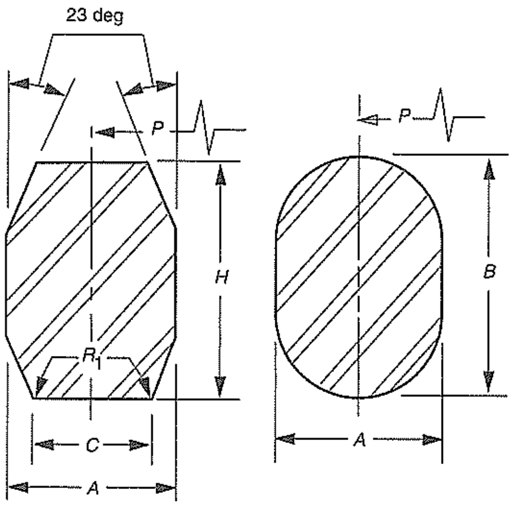
Octagonal **Oval**

Dimension Table

Ring No.	Nominal Flange Class/Rating: JPI-7S-15, ANSI B16.5 Class 3000	JPI-7S-15, ANSI B16.5 300 400 600	JPI-7S-15, ANSI B16.5 900	JPI-7S-15, ANSI B16.5 1500	JPI-7S-15, ANSI B16.5 2000	MSS SP-44 300 400 600	MSS SP-44 900	API 6B 720-960	API 6B 2000	API 6B 3000	API 6B Class 5000	Gasket Dimension: P ± 0.18	A ± 0.20	B Oval	H Octa-gonal	Octagonal C ± 0.20
R 11		1/2										34.13	6.35	11.11	9.53	4.32
R 12			1/2	1/2								39.69	7.94	14.29	12.70	5.23
R 13		3/4			1/2							42.86	7.94	14.29	12.70	5.23
R 14			3/4	3/4								44.45	7.94	14.29	12.70	5.23
R 15	1											47.63	7.94	14.29	12.70	5.23
R 16		1	1	1	3/4				1	1	1	50.80	7.94	14.29	12.70	5.23
R 17												57.15	7.94	14.29	12.70	5.23
R 18	1 1/4	1 1/4	1 1/4	1 1/4	1			1 1/4	1 1/4	1 1/4	1 1/4	60.33	7.94	14.29	12.70	5.23
R 19	1 1/2											65.09	7.94	14.29	12.70	5.23
R 20		1 1/2	1 1/2	1 1/2				1 1/2	1 1/2	1 1/2	1 1/2	68.26	7.94	14.29	12.70	5.23
R 21					1 1/4							72.23	11.11	17.46	15.88	7.75
R 22	2											82.55	7.94	14.29	12.70	5.23
R 23		2			1 1/2			2	2			82.55	11.11	17.46	15.88	7.75
R 24			2	2						2	2	95.25	11.11	17.46	15.88	7.75
R 25	2 1/2											101.60	7.94	14.29	12.70	5.23
R 26		2 1/2			2			2 1/2	2 1/2			101.60	11.11	17.46	15.88	7.75
R 27			2 1/2	2 1/2						2 1/2	2 1/2	107.95	11.11	17.46	15.88	7.75
R 28					2 1/2							111.13	12.70	19.05	17.46	8.66
R 29	3											114.30	7.94	14.29	12.70	5.23
R 30		[3](1)										117.48	11.11	17.46	15.88	7.75
R 31		3	3					3	3	3		123.83	11.11	17.46	15.88	7.75
R 32					3							127.00	12.70	19.05	17.46	8.66
R 33	3 1/2											131.76	7.94	14.29	12.70	5.23
R 34		3 1/2										131.76	11.11	17.46	15.88	7.75
R 35				3								136.53	11.11	17.46	15.88	7.75
R 36	4											149.23	7.94	14.29	12.70	5.23
R 37		4	4					4	4	4	3 1/2	149.23	11.11	17.46	15.88	7.75
R 38					4							157.16	15.88	22.23	20.64	10.49
R 39				4							4	161.93	11.11	17.46	15.88	7.75
R 40	5											171.45	7.94	14.29	12.70	5.23
R 41		5	5					5	5	5		180.98	11.11	17.46	15.88	7.75
R 42					5							190.50	19.05	25.40	23.81	12.32
R 43	6											193.68	7.94	14.29	12.70	5.23
R 44				5							5	193.68	11.11	17.46	15.88	7.75
R 45		6	6					6	6	6		211.14	11.11	17.46	15.88	7.75
R 46				6							6	211.14	12.70	19.05	17.46	8.66
R 47					6							228.60	19.05	25.40	23.81	12.32
R 48	8											247.65	7.94	14.29	12.70	5.23
R 49		8	8					8	8	8		269.88	11.11	17.46	15.88	7.75
R 50				8							8	269.88	15.88	22.23	20.64	10.49
R 51					8							279.40	22.23	28.58	26.99	14.81
R 52	10											304.80	7.94	14.29	12.70	5.23
R 53		10	10					10	10	10		323.85	11.11	17.46	15.88	7.75
R 54				10							10	323.85	15.88	22.23	20.64	10.49
R 55					10							342.90	28.58	36.51	34.93	19.81
R 56	12											381.00	7.94	14.29	12.70	5.23
R 57		12	12			12	12	12	12	12		381.00	11.11	17.46	15.88	7.75
R 58				12								381.00	22.23	28.58	26.99	14.81
R 59	14											396.88	7.94	14.29	12.70	5.23
R 60					12							406.40	31.75	39.69	38.10	22.23

RING JOINT GASKET

Material Code	Material
S	Soft Steel
D	Soft Iron
E	SUS 304
L	SUS 304L
G	SUS 316
H	SUS 316L

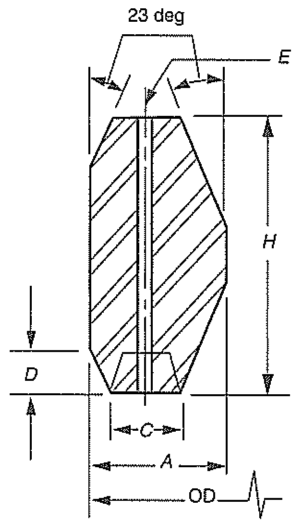


Octagonal Oval

Dimension Table

Ring No.	Nominal Flange Class/Rating											Gasket Dimension				
	JPI-7S-15, ANSI B16.5					MSS SP-44			API SPEC 64			P	A	B	H	Octagonal C
	Class 3000	300 400 600	900	1500	2500	300 400 600	900	720-960	2000	3000	Class 5000	± 0.18	± 0.20	Oval	Octa-gonal	± 0.20
R 61		14				14		14	14	14		419.10	11.11	17.46	15.88	7.75
R 62			14				14					419.10	15.88	22.23	20.64	10.49
R 63				14								419.10	25.40	33.34	31.75	17.30
R 64	16											454.03	7.94	14.29	12.70	5.23
R 65		16				16		16	16			469.90	11.11	17.46	15.88	7.75
R 66			16				16			16		469.90	15.88	22.23	20.64	10.49
R 67				16								469.90	28.58	36.51	34.93	19.81
R 68	18											517.53	7.94	14.29	12.70	5.23
R 69		18				18		18	18			533.40	11.11	17.46	15.88	7.75
R 70			18				18		18			533.40	19.05	25.40	23.81	12.32
R 71				18								533.40	28.58	36.51	34.93	19.81
R 72	20											558.80	7.94	14.29	12.70	5.23
R 73		20				20		20	20			584.20	12.70	19.05	17.46	8.66
R 74			20				20			20		584.20	19.05	25.40	23.81	12.32
R 75				20								584.20	31.75	36.69	38.10	22.33
R 76	24											673.10	7.94	14.29	12.70	5.23
R 77		24				24						692.15	15.88	22.23	20.64	10.49
R 78			24				24					692.15	25.40	33.34	31.75	17.30
R 79				24								692.15	34.93	44.45	41.28	24.82
R 80	22											615.95	7.94	-	12.70	5.23
R 81		22				22						635.00	14.29	-	19.05	9.58
R 82											1	57.15	11.11	-	15.88	7.75
R 84											1 1/2	63.50	11.11	-	15.88	7.75
R 85											2	79.38	12.70	-	17.46	8.66
R 86											2 1/2	90.49	15.88	-	20.64	10.49
R 87											3	100.01	15.88	-	20.64	10.49
R 88											4	123.83	19.05	-	23.81	12.32
R 89											3 1/2	114.30	19.05	-	23.81	12.32
R 90											5	155.58	22.23	-	26.69	14.81
R 91											10	260.35	31.75	-	38.10	22.33
R 92												228.60	11.11	17.46	15.88	7.75
R 93						26						749.30	19.05	-	23.81	12.32
R 94						28						800.10	19.05	-	23.81	12.32
R 95						30						857.25	19.05	-	23.81	12.32
R 96						32						914.40	22.23	-	26.99	14.81
R 97						34						965.20	22.23	-	26.99	14.81
R 98						36						1022.35	22.23	-	26.99	14.81
R 99										8	8	234.95	11.11	-	15.88	7.75
R 100							26					749.30	28.58	-	34.93	19.81
R 101							28					800.10	31.75	-	38.10	22.33
R 102							30					857.25	31.75	-	38.10	22.33
R 103							32					914.40	31.75	-	38.10	22.33
R 104							34					965.20	34.93	-	41.28	24.82
R 105							36					1022.35	34.93	-	41.28	24.82

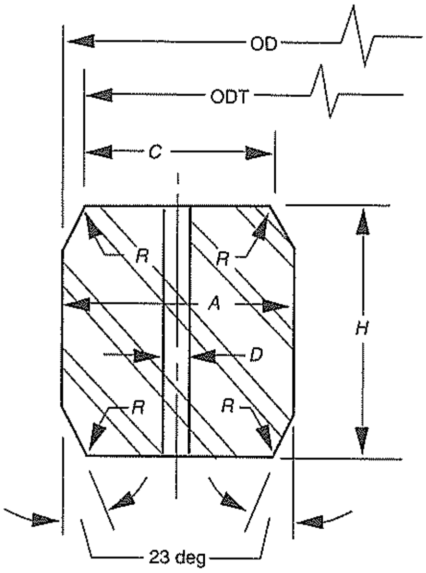
RING JOINT GASKET



Nominal Flange Class/Rating					Ring No.	Gasket Dimensions					
6B Flange				Segment Flange		OD	A	C	D	H	R1
Class 720-960 2000	Class 2900	Class 3000	Class 5000	Class 5000		+ 0.51 − 0	+ 0.20 − 0	+ 0.51 − 0	+ 0 − 0.76	+ 0.20 − 0	± 0.51
$1^{1/2}$		$1^{1/2}$	$1^{1/2}$	$2^{1/16}$	RX 20	76.20	8.74	4.62	3.18	19.05	1.52
2					RX 23	93.27	11.91	6.45	4.24	25.40	1.52
		2	2		RX 24	105.97	11.91	6.45	4.24	25.40	1.52
			$3^{1/8}$	$3^{1/8}$	RX 25	109.55	8.74	4.62	3.18	19.05	1.52
$2^{1/2}$					RX 26	111.91	11.91	6.45	4.24	25.40	1.52
		$2^{1/2}$	$2^{1/2}$		RX 27	118.26	11.91	6.45	4.24	25.40	1.52
3		3			RX 31	134.54	11.91	6.45	4.24	25.40	1.52
			3		RX 35	147.24	11.91	6.45	4.24	25.40	1.52
4		4			RX 37	159.94	11.91	6.45	4.24	25.40	1.52
			4		RX 39	172.64	11.91	6.45	4.24	25.40	1.52
5		5			RX 41	191.69	11.91	6.45	4.24	25.40	1.52
			5		RX 44	204.39	11.91	6.45	4.24	25.40	1.52
6		6			RX 45	221.84	11.91	6.45	4.24	25.40	1.52
			6		RX 46	222.25	13.49	6.68	4.78	28.58	1.52
			8		RX 47	245.26	19.84	10.34	6.88	41.28	2.29
8		8			RX 49	280.59	11.91	6.45	4.24	25.40	1.52
			8		RX 50	283.56	16.66	8.51	5.28	31.75	1.52
10		10			RX 53	334.57	11.91	6.45	4.24	25.40	1.52
			10		RX 54	337.34	16.66	8.51	5.28	31.75	1.52
12		12			RX 57	391.72	11.91	6.45	4.24	25.40	1.52
			14		RX 63	441.73	27.00	14.78	8.46	50.80	2.29
16					RX 65	480.62	11.91	6.45	4.24	25.40	1.52
		16			RX 66	483.39	19.84	8.51	5.28	31.75	1.52
18					RX 69	544.12	11.91	6.45	4.24	25.40	1.52
		18			RX 70	550.06	19.84	10.34	6.88	41.28	2.29
20					RX 73	596.11	13.49	6.68	5.28	31.75	1.52
		20			RX 74	600.86	19.84	10.34	6.88	41.28	2.29
	1				RX 82	67.87	11.91	6.45	4.24	25.40	1.52
	$1^{1/2}$				RX 84	74.22	11.91	6.45	4.24	25.40	1.52
	2				RX 85	90.09	13.49	6.68	4.24	25.40	1.52
	$2^{1/2}$				RX 86	103.58	15.09	8.51	4.78	28.58	1.52
	3				RX 87	113.11	15.09	8.51	4.78	28.58	1.52
	4				RX 88	139.29	17.48	10.34	5.28	31.75	1.52
	$3^{1/2}$				RX 89	129.77	18.26	10.34	5.28	31.75	1.52
	5				RX 90	174.62	19.84	12.17	7.42	44.45	2.29
	10				RX 91	286.94	30.18	19.81	7.54	45.24	2.29
8		8			RX 99	245.67	11.91	6.45	4.24	25.40	1.52
				$1^{3/8}$	RX 201	51.46	5.74	3.20	1.45	11.30	0.51
				$1^{13/16}$	RX 205	62.31	5.56	3.05	1.83	11.10	0.51
				$2^{9/16}$	RX 210	97.64	9.52	5.41	3.18	19.05	0.76
				$4^{1/16}$	RX 215	140.89	11.91	5.33	4.24	25.40	1.52

These dimensions are in accordance with API Spec. 6A 16th Edition 1989

RING JOINT GASKET



Nominal Flange Class/Rating								Ring No.	Gasket Dimensions					
6BX Integral Flange						6BX W.N.Flange			OD	H	A	ODT	C	D(1)
Class 2000	Class 3000	Class 5000	Class 10000	Class 15000	Class 20000	Class 10000	Class 15000 20000		+ 0 − 0.51	+ 0.20 − 0	+ 0.20 − 0	± 0.51	+ 0.51 − 0	± 0.51
			$1^{11/16}$	$1^{11/16}$				BX 150	72.19	9.30	9.30	70.87	7.98	1.5
			$1^{13/16}$	$1^{13/16}$	$1^{13/16}$	$1^{13/16}$	$1^{13/16}$	BX 151	76.40	9.63	9.63	75.03	8.26	1.5
			$2^{1/16}$	$2^{1/16}$	$2^{1/16}$	$2^{1/16}$	$2^{1/16}$	BX 152	84.68	10.24	10.24	83.24	8.79	1.5
			$2^{9/16}$	$2^{9/16}$	$2^{9/16}$	$2^{9/16}$	$2^{9/16}$	BX 153	100.94	11.38	11.38	99.31	9.78	1.5
			$3^{1/16}$	$3^{1/16}$	$3^{1/16}$	$3^{1/16}$	$3^{1/16}$	BX 154	116.84	12.40	12.40	115.09	10.64	1.5
			$4^{1/16}$	$4^{1/16}$	$4^{1/16}$	$4^{1/16}$	$4^{1/16}$	BX 155	147.96	14.22	14.22	145.95	12.22	1.5
			$7^{1/16}$	$7^{1/16}$	$7^{1/16}$	$7^{1/16}$	$7^{1/16}$	BX 156	237.92	18.62	18.62	235.28	15.98	3.0
			9	9	9	9		BX 157	294.46	20.98	20.98	291.49	18.01	3.0
			11	11	11	11		BX 158	352.04	23.14	23.14	348.77	19.86	3.0
			$13^{5/8}$	$13^{5/8}$	$13^{5/8}$	$13^{5/8}$		BX 159	426.72	25.70	25.70	423.09	22.07	3.0
		$13^{5/8}$						BX 160	402.59	23.82	13.74	399.21	10.36	3.0
		$16^{3/4}$						BX 161	491.41	28.07	16.20	487.45	12.24	3.0
		$16^{3/4}$	$16^{3/4}$	$16^{3/4}$		$16^{3/4}$		BX 162	475.49	14.22	14.22	473.48	12.22	1.5
		$18^{3/4}$						BX 163	556.16	30.10	17.37	551.89	13.11	3.0
			$18^{3/4}$	$18^{3/4}$				BX 164	570.56	30.10	24.59	566.29	20.32	3.0
		$21^{1/4}$						BX 165	624.71	32.03	18.49	620.19	13.97	3.0
			$21^{1/4}$					BX 166	640.03	32.03	26.14	635.51	21.62	3.0
$26^{3/4}$								BX 167	759.36	35.86	13.11	754.28	8.03	1.5
	$26^{3/4}$							BX 168	765.25	35.86	16.05	760.17	10.97	1.5
			$5^{1/8}$			$5^{1/8}$		BX 169	173.51	15.85	12.93	171.27	10.69	1.5
			$6^{5/8}$	$6^{5/9}$				BX 170	218.03	14.22	14.22	216.03	12.22	1.5
			$8^{9/16}$	$8^{9/16}$				BX 171	267.44	14.22	14.22	265.43	12.22	1.5
			$11^{5/32}$	$11^{5/32}$				BX 172	333.07	14.22	14.22	331.06	12.22	1.5
30	30							BX 303	852.75	37.95	16.97	847.37	11.61	1.5

These dimensions are in accordance with API Spec. 6A 16th Edition 1989

Flange Insulation Gasket

Application :-

Insulation joints at flange points in a pipeline have a very critical and important part to play as it will reduce the costs of the cathodic protection systems, whereby enhancing the effective and efficient protective measures against external corrosion. It is often indispensable in dangerous hazardous areas when safety demands that they be incorporated.

Common Uses Are :-

1 To limit the spread and hence cost of cathodic protection current to those pipes that need to be effectively and economically protected from the main cathodic protection system.

2 To electrically "split up" long pipelines into distinctive cathodic protection systems to prevent "long line" currents and to make the individual systems more effective and hence economical.

3 To isolate a pipeline to ensure that cathodic protection or stray electricity currents do not cause increased corrosion, cause damage or constitute a hazard.

4 To ensure effective electrical isolation at strategic points within designated hazardous areas.

Materials

Flange insulation is made from the following high grade materials :-

Gasket	:	Reinforced Phenolic with neoprene facing
Ring Type Gasket	:	Reinforced Phenolic
Insulating Sleeve	:	Reinforced Phenolic
Insulating Washers	:	Reinforced Phenolic
Steel Washers	:	Plated Mild Steel

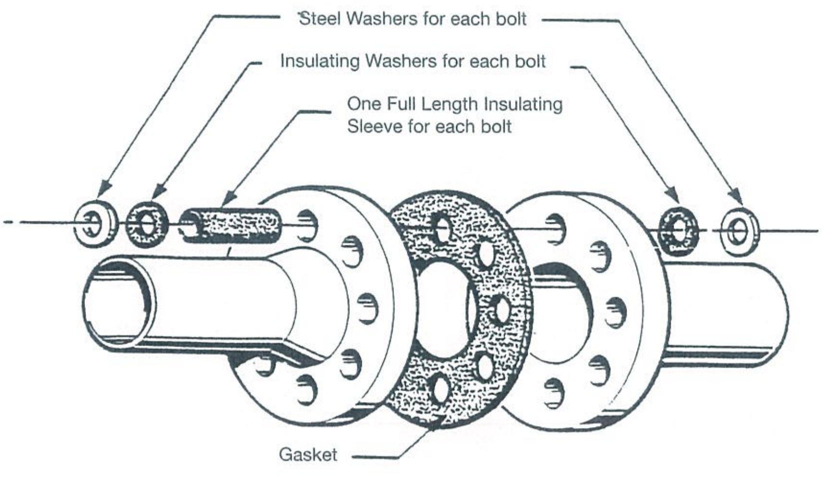
The flange insulation is supplied in Standard sets for flanges joints to ANSI, BS, DIN standards.
Each set consists of :-

a. One 3mm flat gasket or one RTJ style gasket with oval section.

b. One full length (0.8mm wall thickness) insulating sleeve for each flange bolt. This wall thickness ensure that the sleeve will fit over standard size studs in flange holes of standard diameter.

c. Two insulating washers 3mm thick are provided for each flange bolt. The inside diameters of these washers are designed so that they will slip over the insulating sleeves. The outside diameters will fit within the facings of standard flanges.

d. Two steel back up washers 3mm thick, are supplied for each flange bolt. The inside diameters of these washers are designed so that they will slip over the insulating sleeves. The outside diameters will fit within the facings of standard flanges.

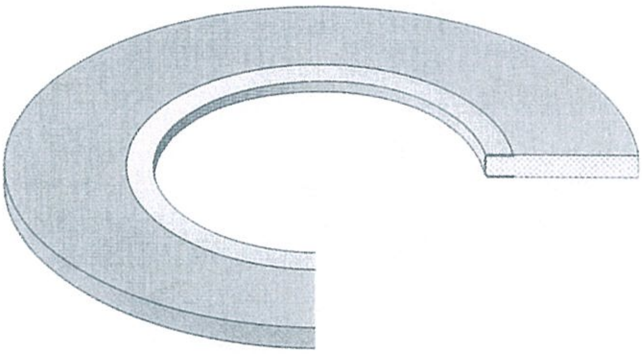


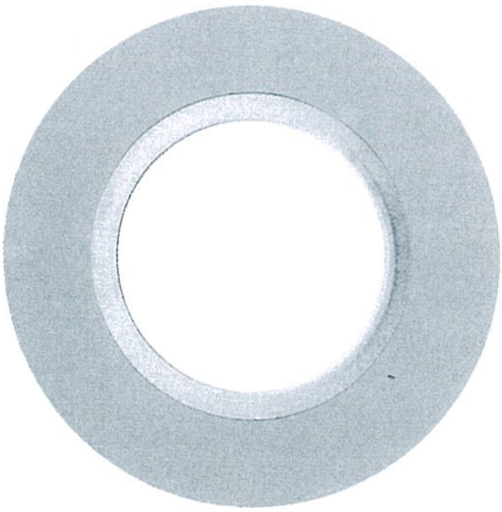
Flat Gaskets With Metallic Inner Eyelet For Greater Safety In industrial Operation

Conventional flat seals type RF are normally used for flange sealing on valves, pumps and tubes. In general, pressures, temperatures and aggressive fluids can reduce the working life of these flat seals, thus causing greater maintenance and servicing expenses. To eliminate these drawbacks, flat gaskets with metallic inner eyelet are introduced to give a complete protection of the surface directly in contact with fluids. The standard metal eyelet is formed with stainless steel leaf with thickness 0.15 - 0.20mm U bent and pressed in the way to become a sole body with base seal.

The distinct advantage of flat gaskets with metallic eyelet over non eyeletted gaskets are as follows;

- Resistant against blowout, rupture and extrusion
- Protect high purity media from contamination
- Protect against cross sectional diffusion of dry gases or media
- Protect from corrosive action of aggressive chemicals
- Provide higher maximum unit load and stress resistance over non eyeletted gaskets
- Assure better fire protection of the soft materials and help to maintain the sealing function in case of fire.





Diameter nominale Nominal size	Diameter interno inside diameter	RF RAISED FACE FLANGES ANSI B16.5					
DN	d	150lb	300 lb	400 lb	600 lb	900 lb	1500 lb
in		D					
1/2	21.4	47.6	54.0	54.0	54.0	63.5	63.5
3/4	27.0	57.2	66.7	66.7	69.8	69.8	69.8
1	33.3	66.7	73.0	73.0	73.0	79.4	79.4
1 1/4	42.0	76.2	82.5	82.5	82.5	88.9	88.9
1 1/2	48.4	85.7	95.2	95.2	95.2	98.4	98.4
2	60.3	104.8	111.1	111.1	111.1	142.9	142.9
2 1/2	73.0	123.8	130.2	130.2	130.2	165.1	15.1
3	88.9	136.5	149.2	149.2	149.2	168.3	174.6
3 1/2	101.6	161.9	165.1	161.0	161.0		
4	114.3	174.6	181.0	177.8	193.7	206.4	209.5
5	141.3	196.8	215.9	212.7	241.3	247.6	254.0
6	168.3	222.2	250.8	247.6	266.7	288.9	282.6
8	219.1	279.4	308.0	304.8	320.7	358.8	352.4
10	273.0	339.7	362.0	358.8	400.0	435.0	435.0
12	323.8	409.6	422.3	419.1	457.2	498.5	520.7
14	355.6	450.9	485.8	482.6	492.1	520.7	577.8
16	406.4	514.4	539.7	536.6	565.1	574.7	641.3
18	457.2	549.3	596.9	593.7	612.8	638.2	704.8
20	508.0	606.4	654.0	647.7	682.6	698.5	755.7
22	558.8	660.4	704.9	701.7	733.4		
24	609.6	717.5	774.7	768.3	790.6	838.2	901.7