STEEL LINE BLANKS

TO API STANDARD 590

THIS STANDARD PROVIDES DIMENSIONS FOR OPERATING LINE BLANKS(OR"BLINDS") IN SIZES NPS 1/2 THROUGH NPS 24 FOR INSTALLATION BETWEEN ANSI B16.5 FLANGES IN THE 150,300, 600,900,1500,AND 2500 POUND PRESSURE CLASSES.THE DIMENSIONS ARE SUITABLE FOR BLANKS MADE OF TEN DIFFERENT STEEL PLATE MATERIALS.LINE BLANKS USED ONLY FOR PRESSURE TESTING ARE NOT PART OF THIS STANDARD.

A FIGURE 8 BLANK (ALSO CALLED A SPECTACLE BLANK) IS A PRESSURE RETAINING PLATE WITH ONE SOLID END AND ONE OPEN END CONNECTED WITH A WEB OR TIE BAR.

A PADDLE BLANK IS SIMILAR TO THE SOLID END OF A FIGURE 8 BLANK (WITH A HANDLE) AND IS GENERALLY USED IN CONJUCTION WITH A PADDLE SPACER IN LARGE SIZES.

A PADDLE SPACER IS SIMILAR TO THE OPEN END FIGURE 8 BLANK (WITH A HANDLE) AND IS GENERALLY USED IN CONJUCTION WITH A PADDLE BLANK.

PADDLE SPACER HANDLES SHALL HAVE ONE 1/2 INCH(13 MILLIMETER) MINIMUM DIAMETER HOLE LOCATED NEAR THE OUTER END.THIS HOLE SERVES AS A REMOTW VISUAL INDICATOR.

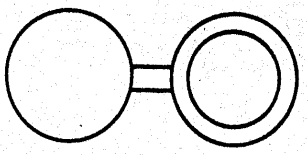
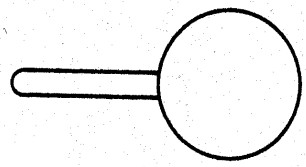
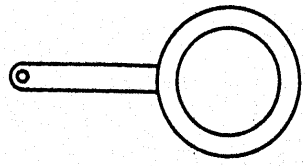


FIGURE 8 BLANK



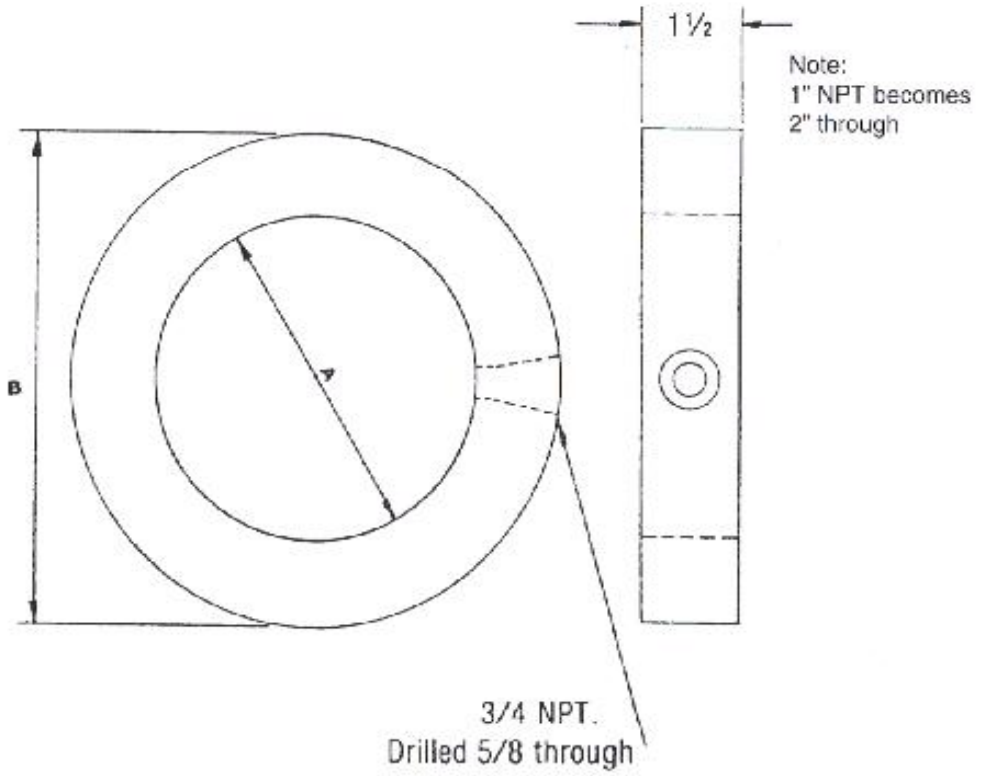
PADDLE BLANK



PADDLE SPACER

CAUTION: Paddle blanks shall not be supplied with indicator or bolt holes.

BLEED RINGS

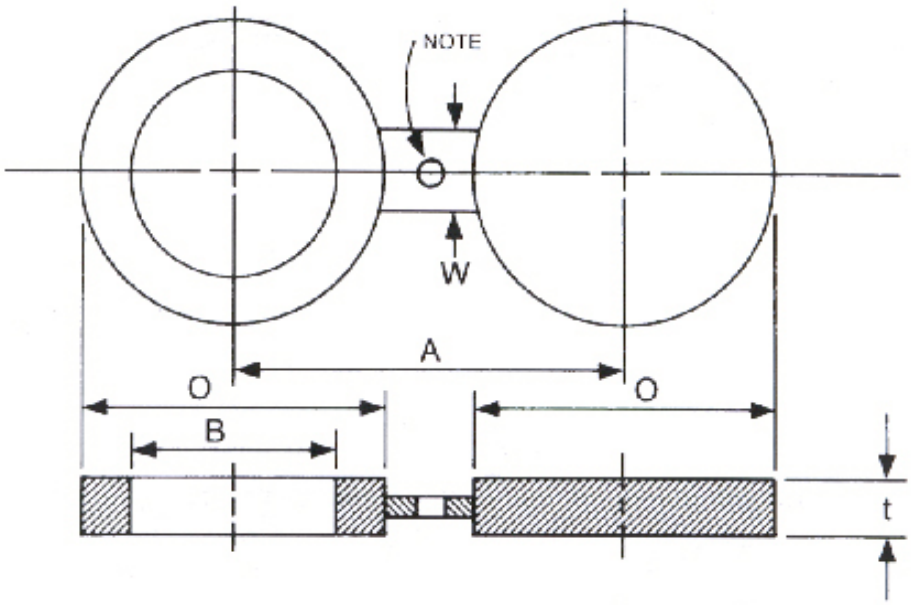


PIPE SIZE	DIMENSIONS IN INCHES											
	150		300		600		900		1500		2500	
	A	B	A	B	A	B	A	B	A	B	A	B
1	1	2.50	1	2.75	1	2.75	1	3.00	1.05	3.00	1.05	3.25
1 1/2	1.5	3.25	1.5	3.62	1.5	3.62	1.5	3.75	1.61	3.75	1.61	4.50
2	2.12	4.00	2.12	4.25	2.12	4.25	2.12	5.50	2.07	5.50	2.07	5.62
2 1/2	2.62	4.75	2.62	5.00	2.62	5.00	2.62	6.38	2.47	6.38	2.47	6.50
3	3.12	5.25	3.12	5.75	3.12	5.75	3.12	6.50	3.07	6.75	3.07	7.62
4	4.12	6.75	4.12	7.00	4.12	7.50	4.12	8.00	4.03	8.12	4.03	9.12
5	5.12	7.62	5.12	8.38	5.12	9.38	5.12	9.62	5.05	9.88	5.05	10.88
6	6.12	8.62	6.12	9.75	6.12	10.38	6.12	11.25	6.06	11.00	6.06	12.38
8	8.12	10.88	8.12	12.00	8.12	12.50	8.12	14.00	7.98	13.75	7.81	15.12
10	10.12	13.25	10.12	14.12	10.12	15.62	10.12	17.00	10.02	17.00	9.75	16.62
12	12.12	16.00	12.12	16.50	12.12	17.88	12.12	19.50	11.94	20.38	11.37	21.50
14	14.00	17.62	14.00	19.00	13.62	19.25	13.62	20.38	13.12	22.62	-	-
16	16.00	20.12	16.00	21.12	15.62	22.12	15.62	22.50	15.00	25.12	-	-
18	18.00	21.50	18.00	23.38	17.62	24.00	17.62	25.00	16.88	27.62	-	-
20	20.00	23.75	20.00	25.62	19.56	26.75	19.56	27.38	18.81	29.62	-	-
24	24.00	28.12	24.00	30.38	23.50	31.00	23.50	32.88	22.62	35.38	-	-

NOTE: FEMALE RING JOINT FACING AVAILABLE THICKNESS WILL BE AS PER A.P.I. 6FT.
FIGURE 8 BLINDS FILLS THE FOLLOWING (1/2" NPT + 7/8") - (3/4" NPT + 1") - (1" NPT + 1-3/8")

FIGURE 8 BLINDS

Dimensions of Class 150 Raised Face Figure 8 Blanks

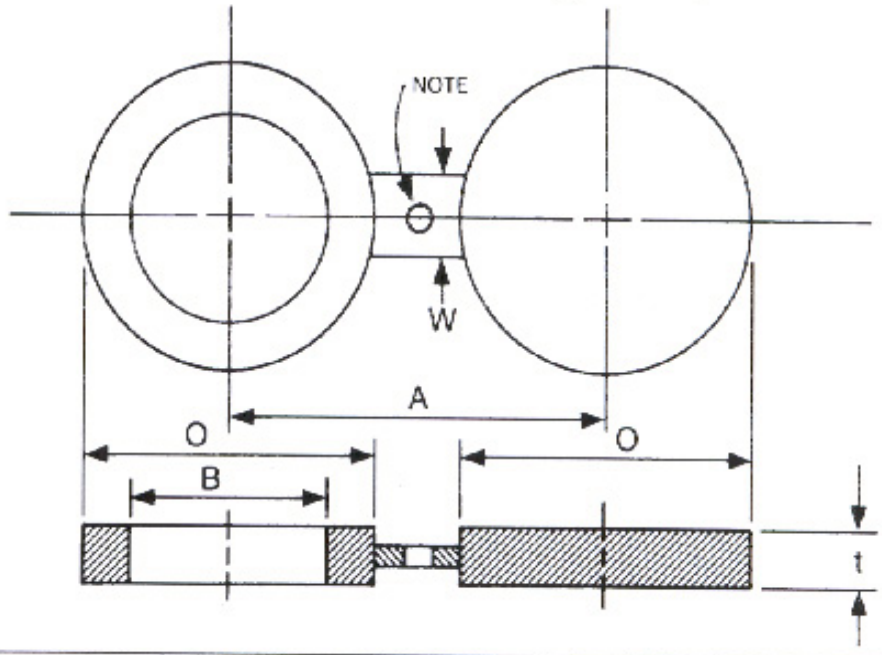


NPS	Inside Diameter *B*		Outside Diameter *O*		Centerline Dimension *A*		Thickness *t*		Web Width *W*	
	inches	millimeters	inches	millimeters	inches	millimeters	inches	millimeters	inches	millimeters
1/2	.5	13	1.75	44	2.38	60	0.12	3	.5	13
3/4	.75	19	2.12	54	2.75	70	0.12	3	.5	13
1	1.0	25	2.50	64	3.12	79	0.12	3	.5	13
1 1/4	1.25	32	2.88	73	3.50	89	0.25	6	1.0	25
1 1/2	1.5	38	3.25	83	3.88	99	0.25	6	1.0	25
2	2.12	54	4.00	102	4.75	121	0.25	6	1.0	25
2 1/2	2.62	67	4.75	121	5.50	140	0.25	6	1.0	25
3	3.12	79	5.25	133	6.00	152	0.25	6	1.5	38
3 1/2	3.62	92	6.25	159	7.00	178	0.38	10	1.5	38
4	4.12	105	6.75	171	7.50	190	0.38	10	1.5	38
5	5.12	130	7.62	194	8.50	216	0.38	10	1.5	38
6	6.12	156	8.62	219	9.50	241	0.50	13	1.5	38
8	8.12	206	10.88	276	11.75	298	0.50	13	3.00	76
10	10.12	257	13.25	337	14.25	362	0.62	16	4.00	102
12	12.12	308	16.00	406	17.00	432	0.75	19	4.00	102
14	14.00	356	17.62	448	18.75	476	0.75	19	4.25	108
16	16.00	406	20.12	511	21.25	540	0.88	22	4.25	108
18	18.00	457	21.50	546	22.75	578	1.00	25	4.50	114
20	20.00	508	23.75	603	25.00	635	1.12	28	4.75	121
24	24.00	610	28.12	714	29.50	749	1.25	32	5.50	140

NOTE: Hole size (where required due to bolt spacing) shall be the same as the flange bolt hole.

FIGURE 8 BLINDS

Dimensions of Class 300 Raised Face Figure 8 Blanks

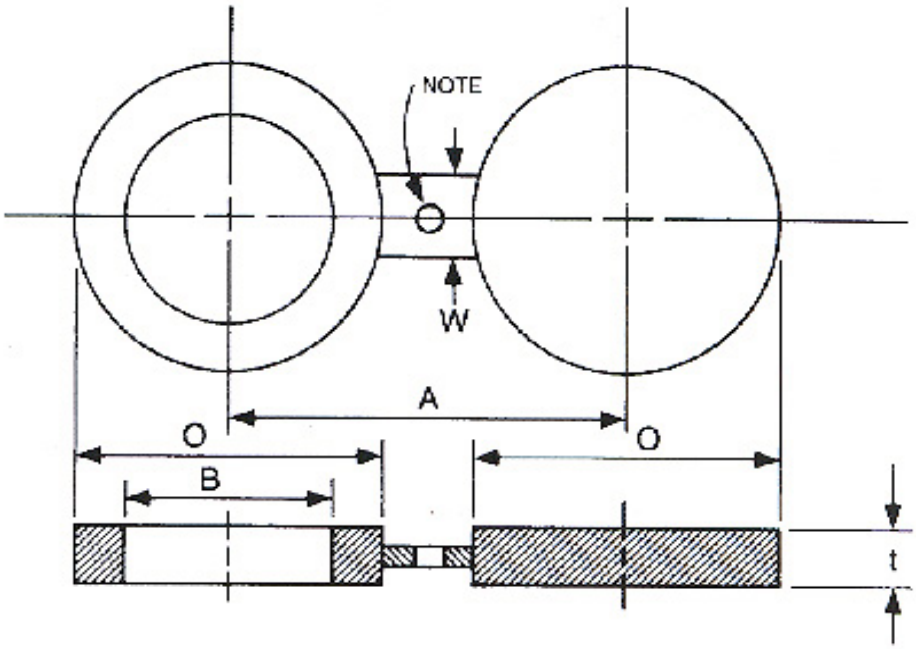


NPS	Inside Diameter *B*		Outside Diameter *O*		Centerline Dimension *A*		Thickness *t*		Web Width *W*	
	inches	millimeters	inches	millimeters	inches	millimeters	inches	millimeters	inches	millimeters
1/2	0.5	13	2.00	51	2.62	67	0.25	6	.5	13
3/4	0.75	19	2.50	64	3.25	83	0.25	6	.5	13
1	1.0	25	2.75	70	3.50	89	0.25	6	.5	13
1 1/4	1.25	32	3.12	79	3.88	99	0.25	6	1.0	25
1 1/2	1.5	38	3.62	92	4.50	114	0.25	6	1.0	25
2	2.12	54	4.25	108	5.00	127	0.38	10	1.0	25
2 1/2	2.62	67	5.00	127	5.88	149	0.38	10	1.5	38
3	3.12	79	5.75	146	6.62	168	0.38	10	1.5	38
3 1/2	3.62	92	6.38	162	7.25	184	0.50	13	1.5	38
4	4.12	105	7.00	178	7.88	200	0.50	13	1.5	38
5	5.12	130	8.38	213	9.25	235	0.62	16	1.5	38
6	6.12	156	9.75	248	10.62	270	0.62	16	1.5	38
8	8.12	206	12.00	305	13.00	330	0.88	22	3.50	89
10	10.12	257	14.12	359	15.25	387	1.00	25	4.00	102
12	12.12	308	16.50	419	17.75	451	1.12	28	4.00	102
14	14.00	356	19.00	483	20.25	514	1.25	32	4.75	121
16	16.00	406	21.12	537	22.50	572	1.50	38	4.88	124
18	18.00	457	23.38	594	24.75	629	1.62	41	4.50	114
20	20.00	508	15.62	651	27.00	686	1.75	44	4.75	121
24	24.00	610	30.38	772	32.00	813	2.00	51	5.50	140

NOTE: Hole size (where required due to bolt spacing) shall be the same as the flange bolt hole.

FIGURE 8 BLINDS

Dimensions of Class 600 Raised Face Figure 8 Blanks

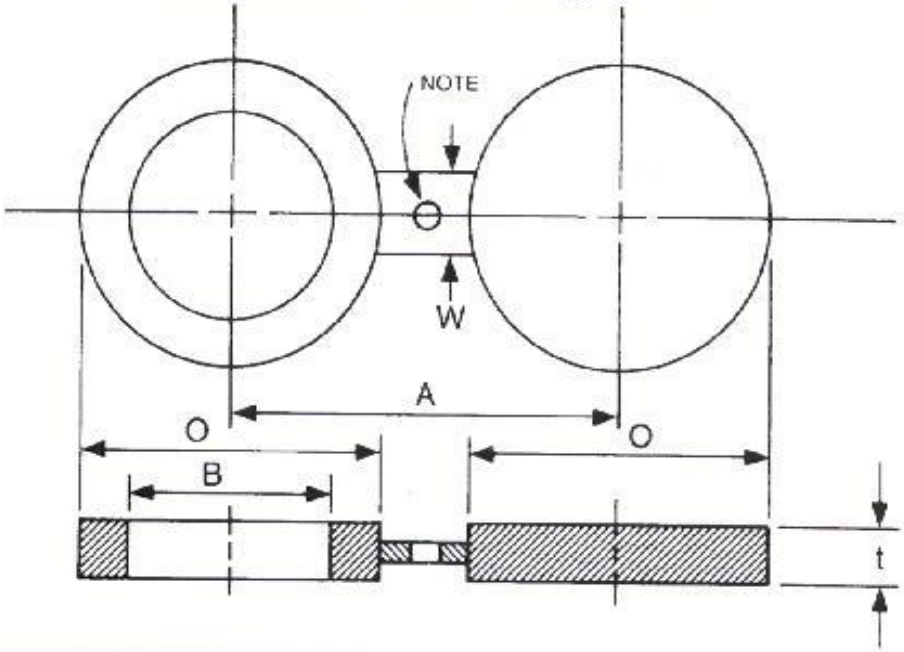


NPS	Inside Diameter *B*		Outside Diameter *O*		Centerline Dimension *A*		Thickness *t*		Web Width *W*	
	inches	millimeters	inches	millimeters	inches	millimeters	inches	millimeters	inches	millimeters
1/2	.5	13	2.00	51	2.62	67	0.25	6	.5	13
3/4	.75	19	2.50	64	3.25	83	0.25	6	.5	13
1	1.0	25	2.75	70	3.50	89	0.25	6	.5	13
1 1/4	1.25	32	3.12	79	3.88	99	0.38	10	1	25
1 1/2	1.5	38	3.62	92	4.50	114	0.38	10	1	25
2	2.12	54	4.25	108	5.00	127	0.38	10	1	25
2 1/2	2.62	67	5.00	127	5.88	149	0.50	13	1	25
3	3.12	79	5.75	146	6.62	168	0.50	13	1.5	38
3 1/2	3.62	92	6.25	159	7.25	184	0.62	16	1.5	38
4	4.12	105	7.50	191	8.50	216	0.62	16	1.5	38
5	5.12	130	9.38	238	10.50	267	0.75	19	1.5	38
6	6.12	156	10.38	264	11.50	292	0.88	22	1.5	38
8	8.12	206	12.50	318	13.75	349	1.12	28	3.75	95
10	10.12	257	15.62	397	17.00	432	1.38	35	4.12	105
12	12.12	308	17.88	454	19.25	489	1.62	41	4.12	105
14	13.62	346	19.25	489	20.75	527	1.75	44	4.50	114
16	15.62	397	22.12	562	23.75	603	2.00	51	4.88	124
18	17.62	448	24.00	610	25.75	654	2.12	54	5.25	133
20	19.56	497	26.75	679	28.50	724	2.50	64	5.25	133
24	23.50	597	31.00	787	33.00	838	2.88	73	6.00	152

NOTE: Hole size (where required due to bolt spacing) shall be the same as the flange bolt hole.

FIGURE 8 BLINDS

Dimensions of Class 900 Raised Face Figure 8 Blanks

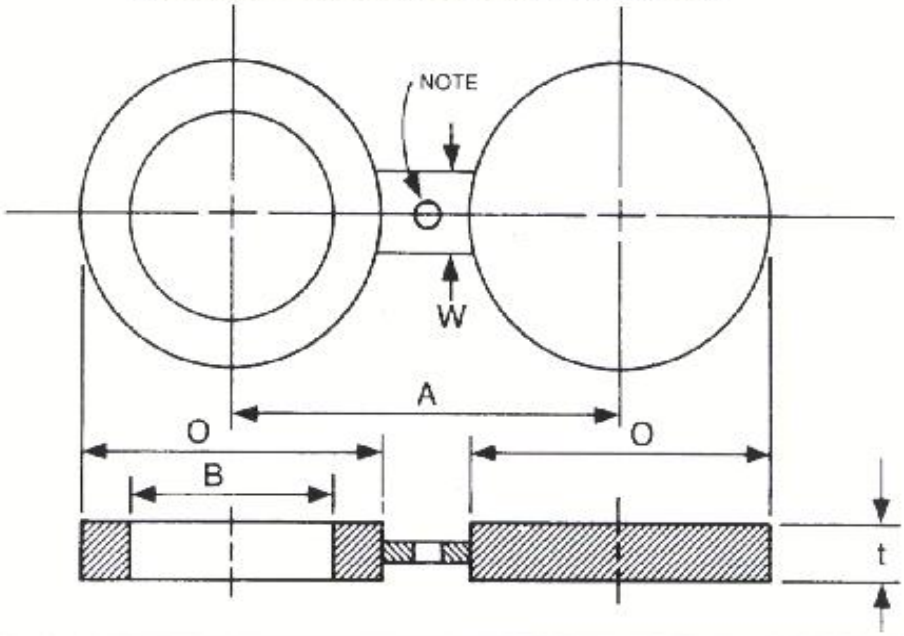


NPS	Inside Diameter *B*		Outside Diameter *O*		Centerline Dimension *A*		Thickness *t*		Web Width *W*	
	inches	millimeters	inches	millimeters	inches	millimeters	inches	millimeters	inches	millimeters
1/2	.5	13	2.38	60	3.25	83	0.25	6	.5	13
3/4	.75	19	2.62	67	3.50	89	0.25	6	.5	13
1	1.00	25	3.00	76	4.00	102	0.25	6	.5	13
1 1/4	1.25	32	3.38	86	4.38	111	0.38	10	1	25
1 1/2	1.5	38	3.75	95	4.88	124	0.38	10	1	25
2	2.12	54	5.50	140	6.50	165	0.50	13	1	25
2 1/2	2.62	67	6.38	162	7.50	190	0.50	13	1	25
3	3.12	79	6.50	165	7.50	190	0.62	16	1.5	38
4	4.12	105	8.00	203	9.25	235	0.75	19	1.5	38
5	5.12	130	9.62	244	11.00	279	0.88	22	1.5	38
6	6	152	11.25	286	12.50	318	1.00	25	1.5	38
8	8	203	14.00	356	15.50	394	1.38	35	3.75	95
10	10	254	17.00	432	18.50	470	1.62	41	4.12	105
12	12	305	19.50	495	21.00	533	1.88	48	4.12	105
14	13.62	346	20.38	518	22.00	559	2.12	54	4.50	114
16	15.62	397	22.50	572	24.25	616	2.38	60	4.88	124
18	17.62	448	25.00	635	27.00	686	2.62	67	5.25	133
20	19.56	497	27.38	695	29.50	749	2.88	73	5.25	133
24	23.50	597	32.88	835	35.50	902	3.50	89	6.00	152

NOTE: Hole size (where required due to bolt spacing) shall be the same as the flange bolt hole.

FIGURE 8 BLINDS

Dimensions of Class 1500 Raised Face Figure 8 Blanks

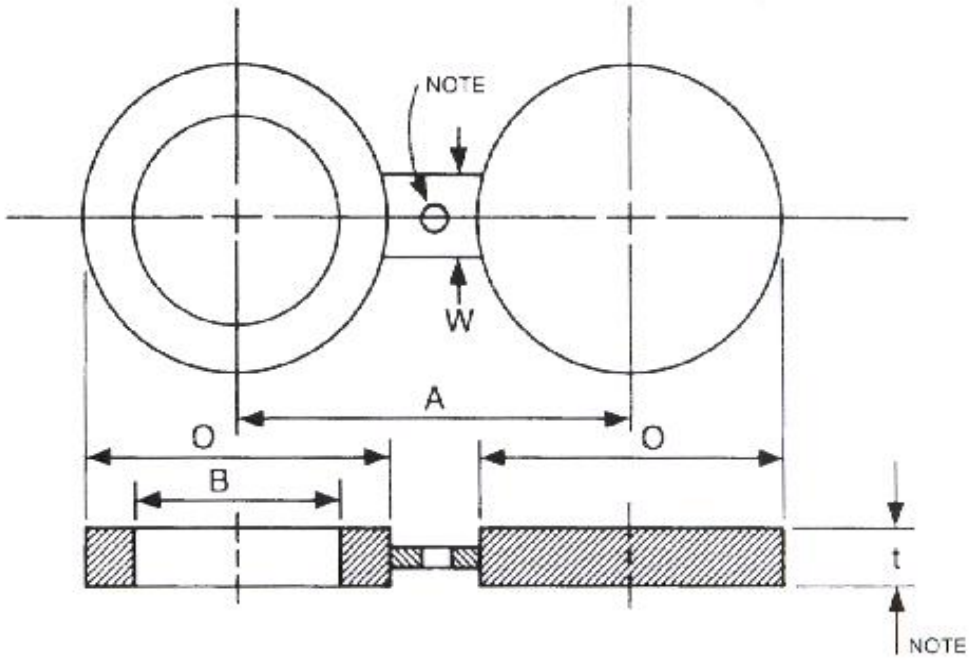


NPS	Inside Diameter *B*		Outside Diameter *O*		Centerline Dimension *A*		Thickness *t*		Web Width *W*	
	inches	millimeters	inches	millimeters	inches	millimeters	inches	millimeters	inches	millimeters
1/2	0.62	16	2.38	60	3.25	83	0.25	6	.5	13
3/4	0.82	21	2.62	67	3.50	89	0.38	10	.5	13
1	1.05	27	3.00	76	4.00	102	0.38	10	.5	13
1 1/4	1.38	35	3.38	86	4.38	111	0.38	10	1	25
1 1/2	1.61	41	3.75	95	4.88	124	0.50	13	1	25
2	2.07	53	5.50	140	6.50	165	0.50	13	1	25
2 1/2	2.47	63	6.38	162	7.50	190	0.62	16	1	25
3	3.07	78	6.75	171	8.00	203	0.75	19	1.5	1.5
4	4.03	102	8.12	206	9.50	241	0.88	22	1.5	1.5
5	5.05	128	9.88	251	11.50	292	1.12	28	1.5	1.5
6	6.06	154	11.00	279	12.50	318	1.38	35	1.5	1.5
8	7.98	203	13.75	349	15.50	394	1.62	41	4.00	102
10	10.02	255	17.00	432	19.00	483	2.00	51	4.50	114
12	11.94	303	20.38	518	22.50	572	2.38	60	4.50	114
14	13.12	333	22.62	575	25.00	635	2.62	67	5.00	127
16	15.00	381	25.12	638	27.75	705	3.00	76	5.25	133
18	16.88	429	27.62	702	30.50	775	3.38	86	5.75	146
20	18.81	478	29.62	752	32.75	832	3.75	95	6.00	152
24	22.62	575	35.38	899	39.00	991	4.38	111	7.00	178

NOTE: Hole size (where required due to bolt spacing) shall be the same as the flange bolt hole.

FIGURE 8 BLINDS

Dimensions of Class 2500 Raised Face Figure 8 Blanks

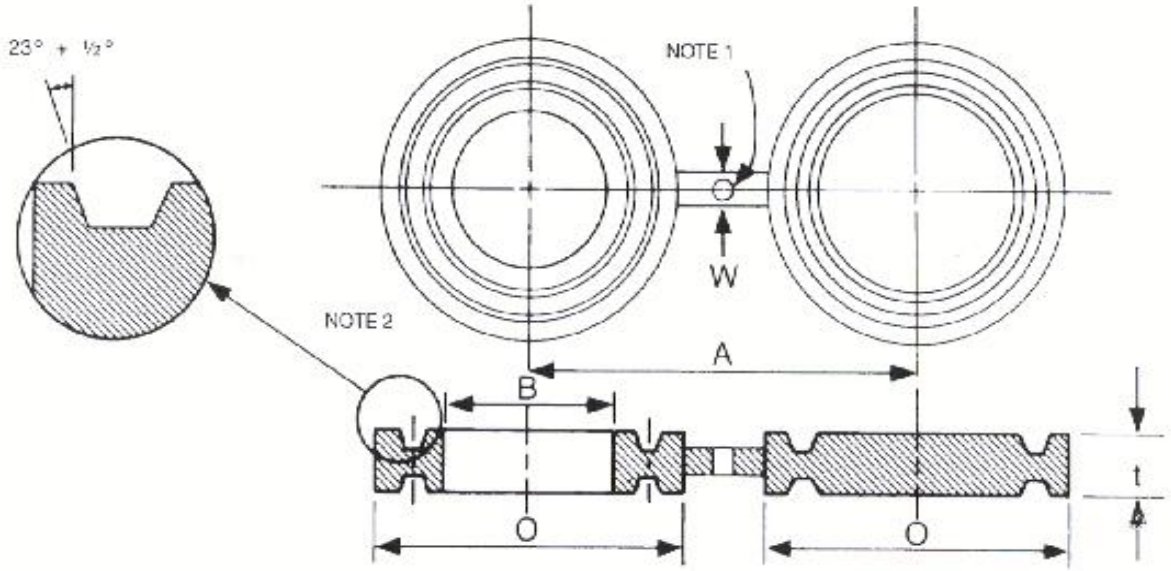


NPS	Inside Diameter *B*		Outside Diameter *O*		Centerline Dimension *A*		Thickness *t*		Web Width *W*	
	inches	millimeters	inches	millimeters	inches	millimeters	inches	millimeters	inches	millimeters
1/2	0.62	16	2.62	67	3.50	89	0.38	10	.5	13
3/4	0.82	21	2.88	73	3.75	95	0.38	10	.5	13
1	1.05	27	3.25	83	4.25	108	0.38	10	.5	13
1 1/4	1.38	35	4.00	102	5.12	130	0.50	13	1	25
1 1/2	1.61	41	4.50	114	5.75	146	0.62	16	1	25
2	2.07	53	5.62	143	6.75	171	0.62	16	1	25
2 1/2	2.47	63	6.50	165	7.75	197	0.75	19	1	25
3	3.07	78	7.62	194	9.00	229	0.88	22	1.5	38
4	4.03	102	9.12	232	10.75	273	1.12	28	1.5	38
5	5.05	128	10.88	276	12.75	324	1.38	35	1.5	38
6	6.06	154	12.38	314	14.50	368	1.62	41	1.5	38
8	7.81	198	15.12	384	17.25	438	2.12	54	4.00	102
10	9.75	248	18.62	473	21.25	540	2.62	67	4.50	114
12	11.37	289	21.50	546	24.38	619	3.12	79	4.50	114

NOTE: Hole size (where required due to bolt spacing) shall be the same as the flange bolt hole.

RING TYPE JOINTS

Dimensions of Class 150 Female Ring-Joint Facing Figure 8 Blanks



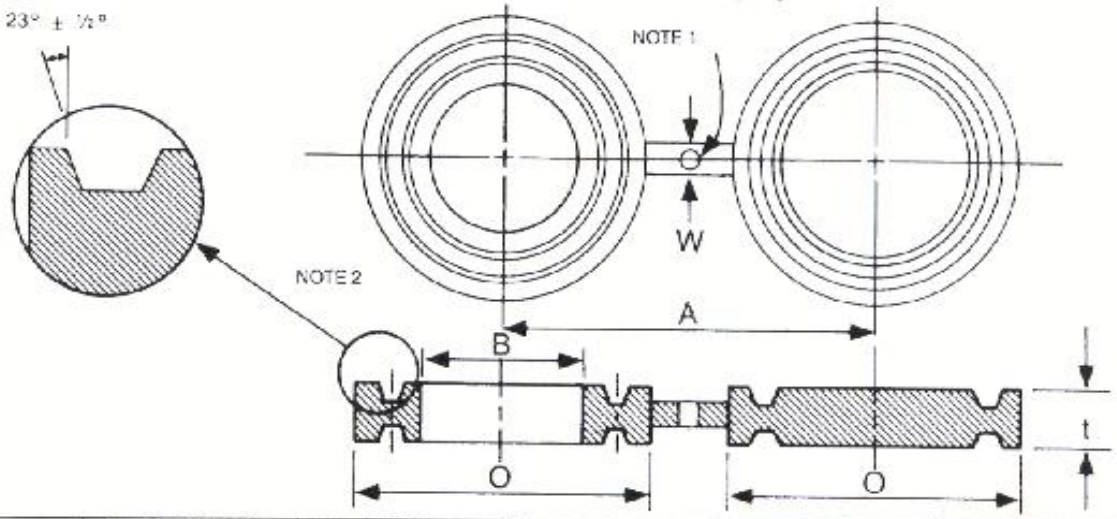
NPS	Inside Diameter *B*		Outside Diameter *O*		Centerline Dimension *A*		Thickness *t*		Web Width *W*	
	inches	millimeters	inches	millimeters	inches	millimeters	inches	millimeters	inches	millimeters
1	1	25	2.50	64	3.12	79	0.75	19	.5	13
1 1/4	1.25	32	2.88	73	3.50	89	0.75	19	1	25
1 1/2	1.5	38	3.25	83	3.88	99	0.75	19	1	25
2	2.12	54	4.00	102	4.75	121	0.75	19	1	25
2 1/2	2.62	67	4.75	121	5.50	140	0.88	22	1	25
3	3.12	79	5.25	133	6.00	152	0.88	22	1.5	38
3 1/2	3.62	92	6.06	154	7.00	178	0.88	22	1.5	38
4	4.12	105	6.75	171	7.50	190	0.88	22	1.5	38
5	5.12	130	7.62	194	8.50	216	1.00	25	1.5	38
6	6.12	156	8.62	219	9.50	241	1.00	25	1.5	38
8	8.12	206	10.75	273	11.75	298	1.12	28	3.75	95
10	10.12	257	13.00	330	14.25	362	1.25	32	4.00	102
12	12.12	308	16.00	406	17.00	432	1.38	35	4.75	121
14	14.00	356	16.75	425	18.75	476	1.38	35	5.00	127
16	16.00	406	19.00	483	21.25	540	1.50	38	5.00	127
18	18.00	457	21.50	546	22.75	578	1.62	41	5.00	127
20	20.00	508	23.50	597	25.00	635	1.62	41	5.00	127
24	24.00	610	28.00	711	29.50	749	1.88	48	6.00	152

NOTE: 1. Hole size (where required due to bolt spacing) shall be the same as the flange bolt hole.

NOTE: 2. Female ring joint groove dimensions shall be designed for octagonal rings in accordance with ANSI B16.5.

RING TYPE JOINTS

Dimensions of Class 300 Female Ring-Joint Facing Figure 8 Blanks



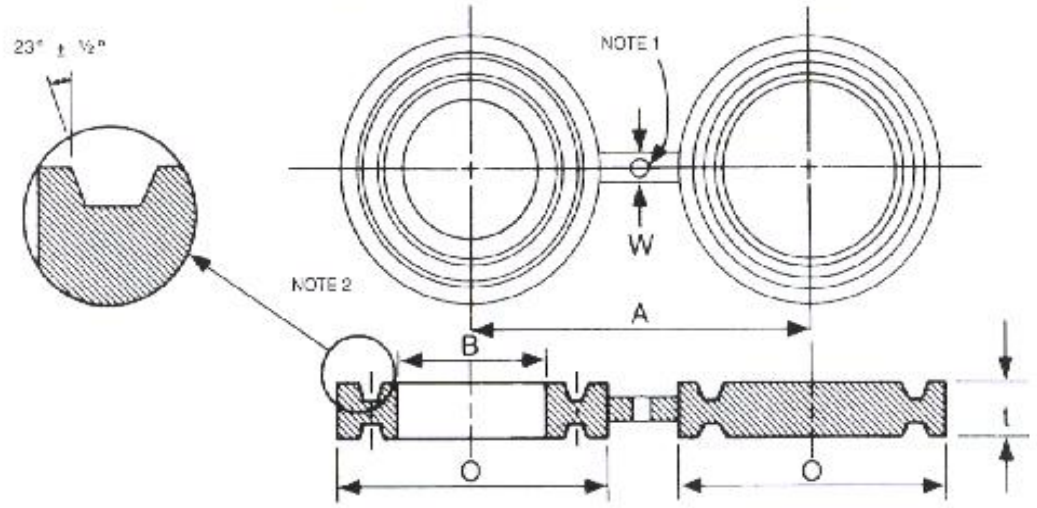
NPS	Inside Diameter B		Outside Diameter O		Centerline Dimension A		Thickness t		Web Width W	
	inches	millimeters	inches	millimeters	inches	millimeters	inches	millimeters	inches	millimeters
1/2	.5	13	2.00	51	2.62	67	0.62	16	.5	13
3/4	.75	19	2.50	64	3.25	83	0.75	19	.5	13
1	1	25	2.75	70	3.50	89	0.75	19	.5	13
1 1/4	1.25	32	3.12	79	3.88	99	0.88	22	1.0	25
1 1/2	1.5	38	3.56	90	4.50	114	0.88	22	1.0	25
2	2.12	54	4.25	108	5.00	127	1.00	25	1.0	25
2 1/2	2.62	67	5.00	127	5.88	149	1.12	28	1.5	38
3	3.12	79	5.75	146	6.62	168	1.12	28	1.5	38
3 1/2	3.62	92	6.25	159	7.25	184	1.12	28	1.5	38
4	4.12	105	6.88	175	7.88	200	1.25	32	1.5	38
5	5.12	130	8.25	210	9.25	235	1.38	35	1.5	38
6	6.12	156	9.50	241	10.62	270	1.38	35	1.5	38
8	8.12	206	11.88	302	13.00	330	1.62	41	3.75	95
10	10.12	257	14.00	356	15.25	387	1.75	44	4.00	102
12	12.12	308	16.25	413	17.75	451	2.00	51	4.75	121
14	14.00	356	18.00	457	20.25	514	2.12	54	5.00	127
16	16.00	406	20.00	508	22.50	572	2.25	57	5.00	127
18	18.00	457	22.62	575	24.75	629	2.38	60	5.00	127
20	20.00	508	25.00	635	27.00	686	2.75	70	5.00	127
24	24.00	610	29.50	749	32.00	813	3.12	79	6.00	152

NOTE: 1. Hole size (where required due to bolt spacing) shall be the same as the flange bolt hole.

NOTE: 2. Female ring joint groove dimensions shall be designed for octagonal rings in accordance with ANSI B16.5.

RING TYPE JOINTS

Dimensions of Class 600 Female Ring-Joint Facing Figure 8 Blanks



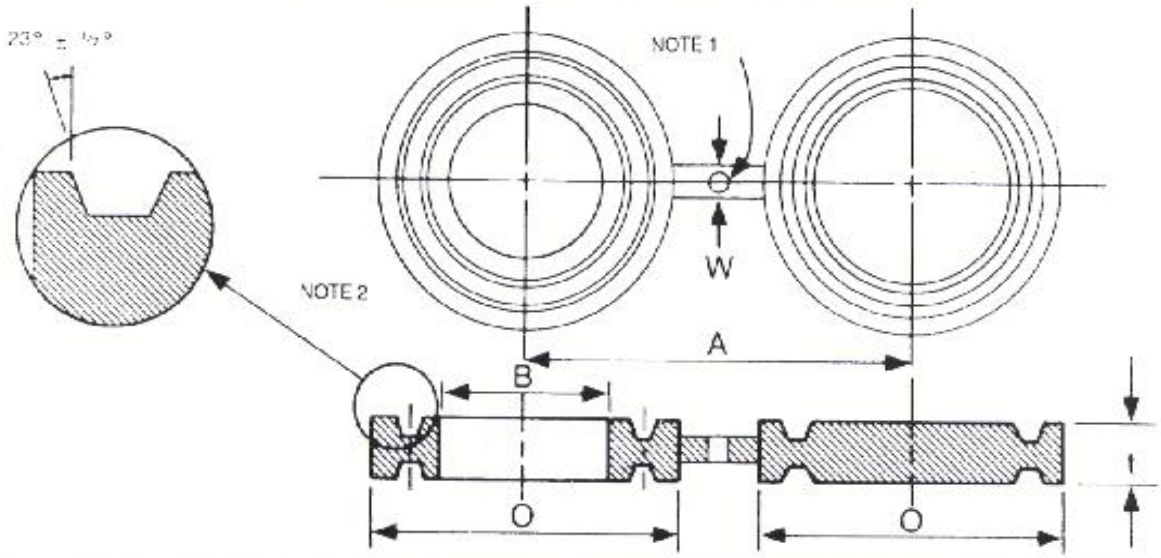
NPS	Inside Diameter *B*		Outside Diameter *O*		Centerline Dimension *A*		Thickness *t*		Web Width *W*	
	inches	millimeters	inches	millimeters	inches	millimeters	inches	millimeters	inches	millimeters
1/2	.5	13	2.00	51	2.62	67	0.75	19	.5	13
3/4	.75	19	2.50	64	3.25	83	0.88	22	.5	13
1	1.0	25	2.75	70	3.50	89	0.88	22	.5	13
1 1/4	1.25	32	3.12	79	3.88	99	0.88	22	1.0	25
1 1/2	1.5	38	3.56	90	4.50	114	0.88	22	1.0	25
2	2.12	54	4.25	108	5.00	127	1.12	28	1.0	25
2 1/2	2.62	67	5.00	127	5.88	149	1.25	32	1.5	38
3	3.12	79	5.75	146	6.62	168	1.25	32	1.5	38
3 1/2	3.62	92	6.25	159	7.25	184	1.38	35	1.5	38
4	4.12	105	6.88	175	8.50	216	1.38	35	1.5	38
5	5.12	130	8.25	210	10.50	267	1.50	38	1.5	38
6	6.12	156	9.50	241	11.50	292	1.75	44	1.5	38
8	8.12	206	11.88	302	13.75	349	2.00	51	3.75	95
10	10.12	257	14.00	356	17.00	432	2.25	57	4.00	102
12	12.12	308	16.25	413	19.25	489	2.50	64	4.75	121
14	14.00	356	18.00	457	20.75	527	2.62	67	5.00	127
16	16.00	406	20.00	508	23.75	603	2.88	73	5.00	127
18	18.00	457	22.62	575	25.75	654	3.12	79	5.00	127
20	20.00	508	25.00	635	28.50	724	3.50	89	5.00	127
24	24.00	610	29.50	749	33.00	838	4.12	105	6.00	152

NOTE: 1. Hole size (where required due to bolt spacing) shall be the same as the flange bolt hole.

NOTE: 2. Female ring joint groove dimensions shall be designed for octegonal rings in accordance with ANSI B16.5.

RING TYPE JOINTS

Dimensions of Class 900 Female Ring-Joint Facing Figure 8 Blanks



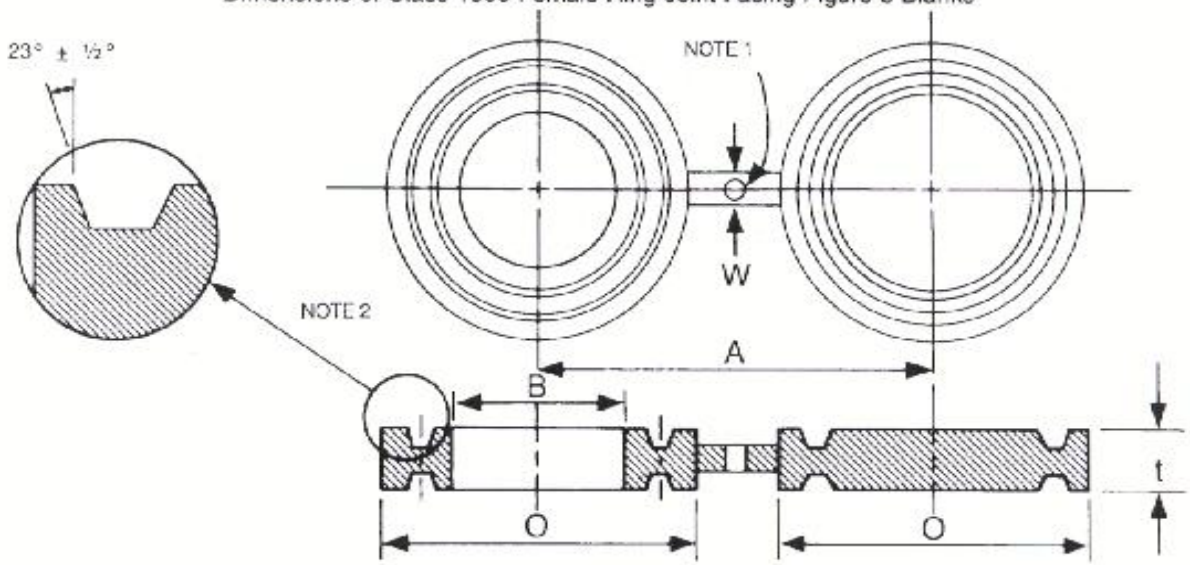
NPS	Inside Diameter *B*		Outside Diameter *O*		Centerline Dimension *A*		Thickness *t*		Web Width *W*	
	inches	millimeters	inches	millimeters	inches	millimeters	inches	millimeters	inches	millimeters
1/2	.5	13	2.38	60	3.25	83	0.88	22	.5	13
3/4	.75	19	2.62	67	3.50	89	0.88	22	.5	13
1	1.00	25	2.81	71	4.00	102	0.88	22	.5	13
1 1/4	1.25	32	3.19	81	4.38	111	1.00	25	1	25
1 1/2	1.5	38	3.62	92	4.88	124	1.00	25	1	25
2	2.12	54	4.88	124	6.50	165	1.25	32	1	25
2 1/2	2.62	67	5.38	137	7.50	190	1.38	35	1	25
3	3.12	79	6.12	156	7.50	190	1.38	35	1.5	38
4	4.12	105	7.12	181	9.25	235	1.62	41	1.5	38
5	5.12	130	8.50	216	11.00	279	1.75	44	1.5	38
6	6	152	9.50	241	12.50	318	1.88	48	1.5	38
8	8	203	12.12	308	15.50	394	2.25	57	3.12	79
10	10	254	14.25	362	18.50	470	2.50	64	4.75	121
12	12	305	16.50	419	21.00	533	2.88	73	4.75	121
14	14.00	356	18.38	467	22.00	559	3.25	83	4.75	121
16	16.00	406	20.62	524	24.25	616	3.62	92	5.00	127
18	18.00	457	23.38	594	27.00	686	4.00	102	5.25	133
20	20.00	508	25.50	648	29.50	749	4.38	111	5.00	127
24	24.00	610	30.38	772	35.50	902	5.25	133	5.50	140

NOTE: 1. Hole size (where required due to bolt spacing) shall be the same as the flange bolt hole.

NOTE: 2. Female ring joint groove dimensions shall be designed for octagonal rings in accordance with ANSI B16.5.

RING TYPE JOINTS

Dimensions of Class 1500 Female Ring-Joint Facing Figure 8 Blanks



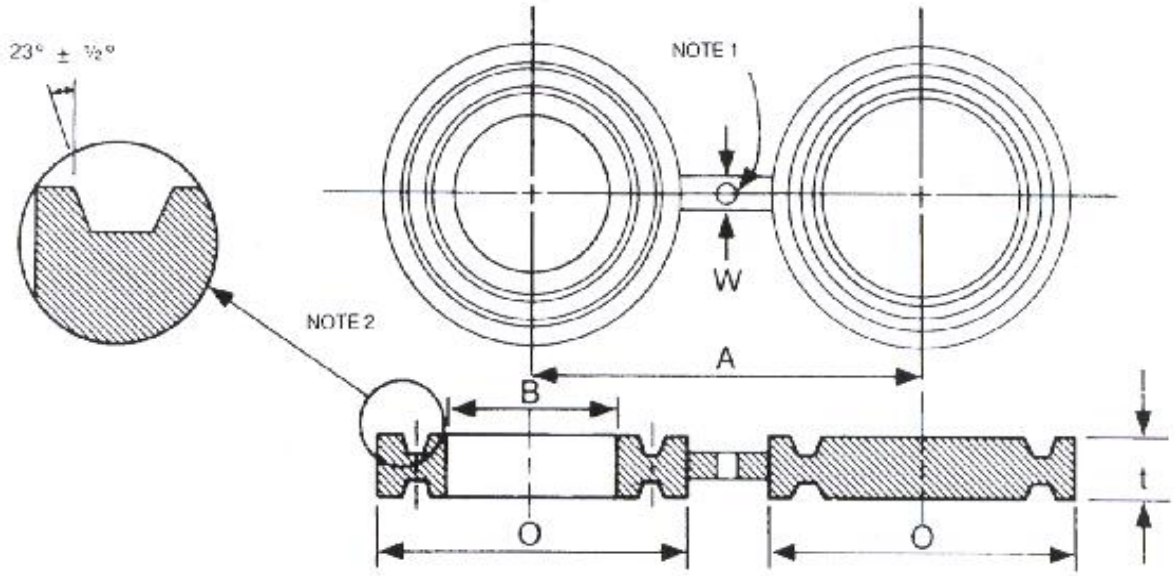
NPS	Inside Diameter *B*		Outside Diameter *O*		Centerline Dimension *A*		Thickness *t*		Web Width *W*	
	inches	millimeters	inches	millimeters	inches	millimeters	inches	millimeters	inches	millimeters
1/2	.5	13	2.38	60	3.25	83	0.88	22	.5	13
3/4	.75	19	2.62	67	3.50	89	1.00	25	.5	13
1	1.0	25	2.81	71	4.00	102	1.00	25	.5	13
1 1/4	1.25	32	3.19	81	4.38	111	1.00	25	1.0	25
1 1/2	1.5	38	3.62	92	4.88	124	1.12	28	1.0	25
2	2.12	54	4.88	124	6.50	165	1.38	35	1.0	25
2 1/2	2.62	67	5.38	137	7.50	190	1.50	38	1.5	38
3	3.12	79	6.62	168	8.00	203	1.75	44	1.5	38
3 1/2	3.62	92	7.62	194	9.50	241	1.88	48	1.5	38
4	4.12	105	9.00	229	11.50	292	2.12	54	1.5	38
5	5.12	130	9.75	248	12.50	318	2.38	60	1.5	38
6	6.12	156	12.50	318	15.50	394	2.88	73	1.5	38
8	8.12	206	14.62	371	19.00	483	3.25	83	5.25	133
10	10.12	257	17.25	438	22.50	572	4.00	102	5.25	133
12	12.12	308	19.25	489	25.00	635	4.38	111	5.50	140
16	16.00	406	21.50	546	27.75	705	4.88	124	5.75	146
18	18.00	457	24.12	613	30.50	775	5.25	133	6.00	152
20	20.00	508	26.50	673	32.75	832	5.62	143	6.50	165
24	24.00	610	31.25	794	39.00	991	6.62	168	7.00	178

NOTE: 1. Hole size (where required due to bolt spacing) shall be the same as the flange bolt hole.

NOTE: 2. Female ring joint groove dimensions shall be designed for octagonal rings in accordance with ANSI B16.5.

RING TYPE JOINTS

Dimensions of Class 2500 Female Ring-Joint Facing Figure 8 Blanks



NPS	Inside Diameter *B*		Outside Diameter *O*		Centerline Dimension *A*		Thickness *t*		Web Width *W*	
	inches	millimeters	inches	millimeters	inches	millimeters	inches	millimeters	inches	millimeters
1/2	0.62	16	2.56	65	3.50	89	1.00	25	.5	13
3/4	0.82	21	2.88	73	3.75	95	1.12	28	.5	13
1	1.05	27	3.25	83	4.25	108	1.12	28	.5	13
1 1/4	1.38	35	4.00	102	5.12	130	1.38	35	1	25
1 1/2	1.61	41	4.50	114	5.75	146	1.50	38	1	25
2	2.07	53	5.25	133	6.75	171	1.62	41	1	25
2 1/2	2.47	63	5.88	149	7.75	197	1.88	48	1	25
3	3.07	78	6.62	168	9.00	229	2.00	51	1.5	38
4	4.03	102	8.00	203	10.75	273	2.50	64	1.5	38
5	5.05	128	9.50	241	12.75	324	2.88	73	1.5	38
6	6.06	154	11.00	279	14.50	368	3.25	83	1.5	38
8	7.81	198	13.38	340	17.25	438	3.88	99	4.00	102
10	9.75	248	16.75	425	21.25	540	4.62	117	4.50	114
12	11.37	289	19.50	495	24.38	619	5.25	133	4.50	114

NOTE: 1. Hole size (where required due to bolt spacing) shall be the same as the flange bolt hole.

NOTE: 2. Female ring joint groove dimensions shall be designed for octagonal rings in accordance with ANSI B16.5.

PADDLE TYPE ORIFICE PLATES (SERIES 520)

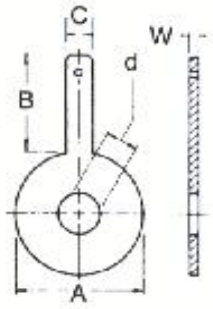
(Series 520)

The Paddle type orifice plate (Series 520) is designed for use between orfice flange unions. The line size, flange rating, orfice bore, and plate material is stamped on the handle.

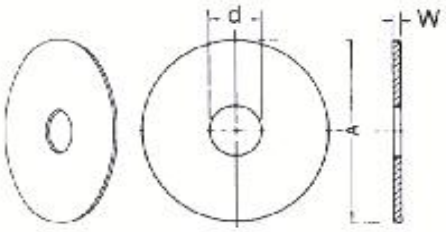
	125 Lbs. and 150 Lbs. A.N.S.I.	300 Lbs. A.N.S.I.	400 Lbs. A.N.S.I.	600 Lbs. A.N.S.I.	900 Lbs. A.N.S.I.	1500 Lbs. A.N.S.I.	2500 Lbs. A.N.S.I.	For All Pressure Ratings 125-1500 Lbs. A.N.S.I.		
SIZE	A	A	A	A	A	A	A	B	C	W
1/2"	1 7/8"	2 1/8"	2 1/8"	2 1/8"	2 1/2"	2 1/2"		3"	1"	1/8"
3/4"	2 1/4"	2 5/8"	2 5/8"	2 5/8"	2 3/4"	2 3/4"		3"	1"	1/8"
1"	2 5/8"	2 7/8"	2 7/8"	3 7/8"	3 1/8"	3 1/8"		4"	1"	1/8"
1 1/4"	3"	3 1/4"	3 1/4"	3 1/4"	3 1/2"	3 1/2"		4"	1"	1/8"
1 1/2"	3 3/8"	3 3/4"	3 3/4"	3 3/4"	3 7/8"	3 7/8"	4 5/8"	4"	1"	1/8"
2"	4 1/8"	4 3/8"	4 3/8"	4 3/8"	5 5/8"	5 5/8"	5 3/4"	4"	1"	1/8"
2 1/2"	4 7/8"	5 1/8"	5 1/8"	5 1/8"	6 1/2"	6 1/2"	6 5/8"	4"	1"	1/8"
3"	5 3/8"	5 7/8"	5 7/8"	5 7/8"	6 5/8"	6 7/8"	7 3/4"	4"	1"	1/8"
4"	6 7/8"	7 1/8"	7"	7 5/8"	8 1/8"	8 1/4"	9 1/4"	4"	1"	1/8"
5"	7 3/4"	8 1/2"	8 3/8"	9 1/2"	9 3/4"	10"	11"	5"	1 1/2"	1/8"
6"	8 3/4"	9 7/8"	9 3/4"	10 1/2"	11 3/8"	11 1/8"	12 1/2"	5"	1 1/2"	1/8"
8"	11"	12 1/8"	12"	12 5/8"	14 1/8"	13 7/8"	15 1/4"	5"	1 1/2"	1/8"
10"	13 3/8"	14 1/4"	14 1/8"	15 3/4"	17 1/8"	17 1/8"	18 3/4"	5"	1 1/2"	1/4"
12"	16 1/8"	16 5/8"	16 1/2"	18"	19 5/8"	20 1/2"	21 5/8"	5"	1 1/2"	1/4"
14"	17 3/4"	19 1/8"	19"	19 3/8"	20 1/2"	22 3/4"	....	5"	1 1/2"	1/4"
16"	20 1/4"	21 1/4"	21 1/8"	22 1/4"	22 5/8"	25 1/4"	....	6"	1 1/2"	1/4"
18"	21 1/2"	23 3/8"	23 1/4"	24"	25"	27 5/8"	....	6"	1 1/2"	1/4"
20"	23 3/4"	26 5/8"	25 3/8"	25 3/4"	27 3/8"	29 5/8"	....	6"	1 1/2"	3/8"
22"	25"	27 3/4"	27 1/2"	28 7/8"	....	....	....	6"	1 1/2"	3/8"
24"	28 1/8"	30 3/8"	30 1/8"	31"	32 7/8"	35 1/2"	....	6"	1 1/2"	3/8"

When ordering please specify:

1. Size, Flange series
2. Material
3. Required bore size
4. Plate Thickness



ORIFICE PLATES (SERIES 500)



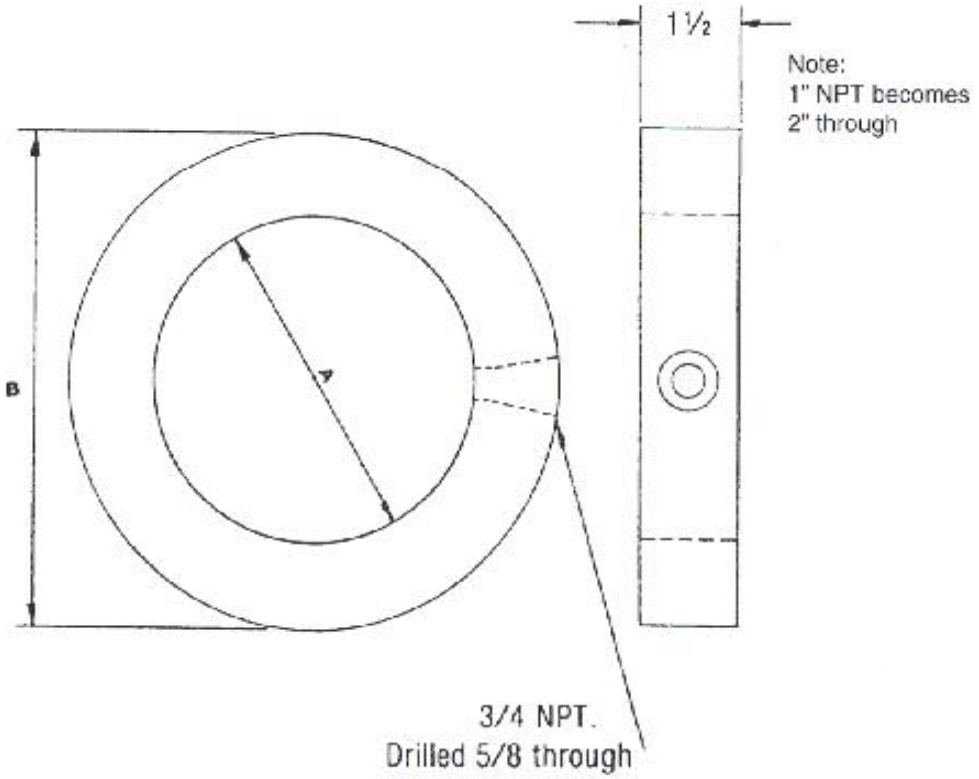
The Universal Series 500 Orifice Plate fits all orfice fittings and is interchangeable with other universal type plates.

MATERIALS:
Available in 304 and 316 Stainless Steel, Monel or Hastelloy "B" or "C" are available upon special request. All materials meet AGA or ASME specifications, and recommendations for inspection, manufacturing tolerance and finish. Bored to specification, or furnished blank if requested.

SIZE	A	W	WEIGHT
1	1.312	1/8	.05
1 1/2	2.000	1/8	.11
2	2.437	1/8	.17
2 1/2	2.844	1/8	.26
3	3.347	1/8	.34
4	4.406	1/8	.55
5	6.000	1/8	.95
6	6.437	1/8	1.18
8	8.437	1/8	2.03
10	10.687	1/4	3.25
12	12.593	1/4	4.61
14	13.750	1/4	5.58
16	16.000	1/4	7.29
18	17.9375	1/4	18.45
20	20.000	3/8	22.78
24	24.250	3/8	32.80
26	26.000	3/8	38.50
30	30.000	1/2	51.25

d-BORE TO BE SPECIFIED

BLEED RINGS



PIPE SIZE	DIMENSIONS IN INCHES											
	150		300		600		900		1500		2500	
	A	B	A	B	A	B	A	B	A	B	A	B
1	1	2.50	1	2.75	1	2.75	1	3.00	1.05	3.00	1.05	3.25
1 1/2	1.5	3.25	1.5	3.62	1.5	3.62	1.5	3.75	1.61	3.75	1.61	4.50
2	2.12	4.00	2.12	4.25	2.12	4.25	2.12	5.50	2.07	5.50	2.07	5.62
2 1/2	2.62	4.75	2.62	5.00	2.62	5.00	2.62	6.38	2.47	6.38	2.47	6.50
3	3.12	5.25	3.12	5.75	3.12	5.75	3.12	6.50	3.07	6.75	3.07	7.62
4	4.12	6.75	4.12	7.00	4.12	7.50	4.12	8.00	4.03	8.12	4.03	9.12
5	5.12	7.62	5.12	8.38	5.12	9.38	5.12	9.62	5.05	9.88	5.05	10.88
6	6.12	8.62	6.12	9.75	6.12	10.38	6.12	11.25	6.06	11.00	6.06	12.38
8	8.12	10.88	8.12	12.00	8.12	12.50	8.12	14.00	7.98	13.75	7.81	15.12
10	10.12	13.25	10.12	14.12	10.12	15.62	10.12	17.00	10.02	17.00	9.75	18.62
12	12.12	16.00	12.12	16.50	12.12	17.88	12.12	19.50	11.94	20.38	11.37	21.50
14	14.00	17.62	14.00	19.00	13.62	19.25	13.62	20.38	13.12	22.62	-	-
16	16.00	20.12	16.00	21.12	15.62	22.12	15.62	22.50	15.00	25.12	-	-
18	18.00	21.50	18.00	23.38	17.62	24.00	17.62	25.00	16.88	27.62	-	-
20	20.00	23.75	20.00	25.62	19.56	26.75	19.56	27.38	18.81	29.62	-	-
24	24.00	28.12	24.00	30.38	23.50	31.00	23.50	32.88	22.62	35.38	-	-

NOTE: FEMALE RING JOINT FACING AVAILABLE THICKNESS WILL BE AS PER A.P.I. RT.
FIGURE 8 BLINDS PLUS THE FOLLOWING (1/2" NPT + 7/8") - (3/4" NPT + 1") - (1" NPT + 1-3/8")

GASKETS

Capex supplies gaskets for A.S.M.E. B 16.5, B 16.20, API 605 and MSS SP44 flanges as well as flanges meeting the Imperial and Metric requirements.

Gaskets are used to create and maintain a seal between two surfaces under operating pressurized conditions. The seal is created by compressing the gasket which then flows into the surface imperfections of contact faces and making a leakproof seal.

Factors Affecting Gasket Performance

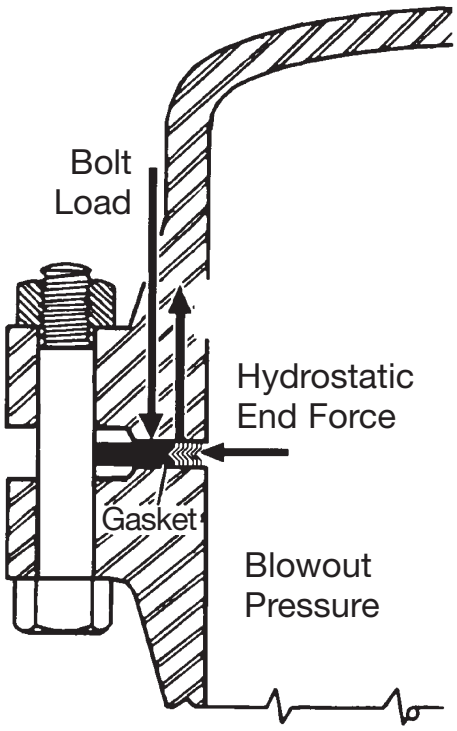
A gasket is any deformable material which, when clamped between essentially stationary faces, prevents the passage of media across the gasketed connection.

Compressing the gasket material causes the material to flow into the imperfections of the sealing areas and effect a seal. This bond prevents the escape of contained media. In order to maintain this seal, sufficient load must be applied to the connection to oppose the hydrostatic end force created by the internal pressure of the system.

Gasket performance depends on a number of factors, including:

1. **Gasket Metal and Filler Material:** The materials must withstand the effects of:
   a. **Temperature:** Temperature can adversely affect mechanical and chemical properties of the gasket, as well as physical characteristics such as oxidation and resilience.
   b. **Pressure:** The media or internal piping pressure can blow out the gasket across the flange face.
   c. **Media:** The gasket materials must be resistant to corrosive attack from the media.
2. **Joint Design:** The force holding the two flanges together must be sufficient to prevent flange separation caused by hydrostatic end force, resulting from the pressure in the entire system.
3. **Proper Bolt Load:** If the bolt load is insufficient to deform the gasket, a leak will occur.
4. **Surface Finish:** If the surface finish is not suitable for the gasket, a seal will not be effected.

Forces acting on a Gasket



Internal pressures are exerted against both flange and gasket