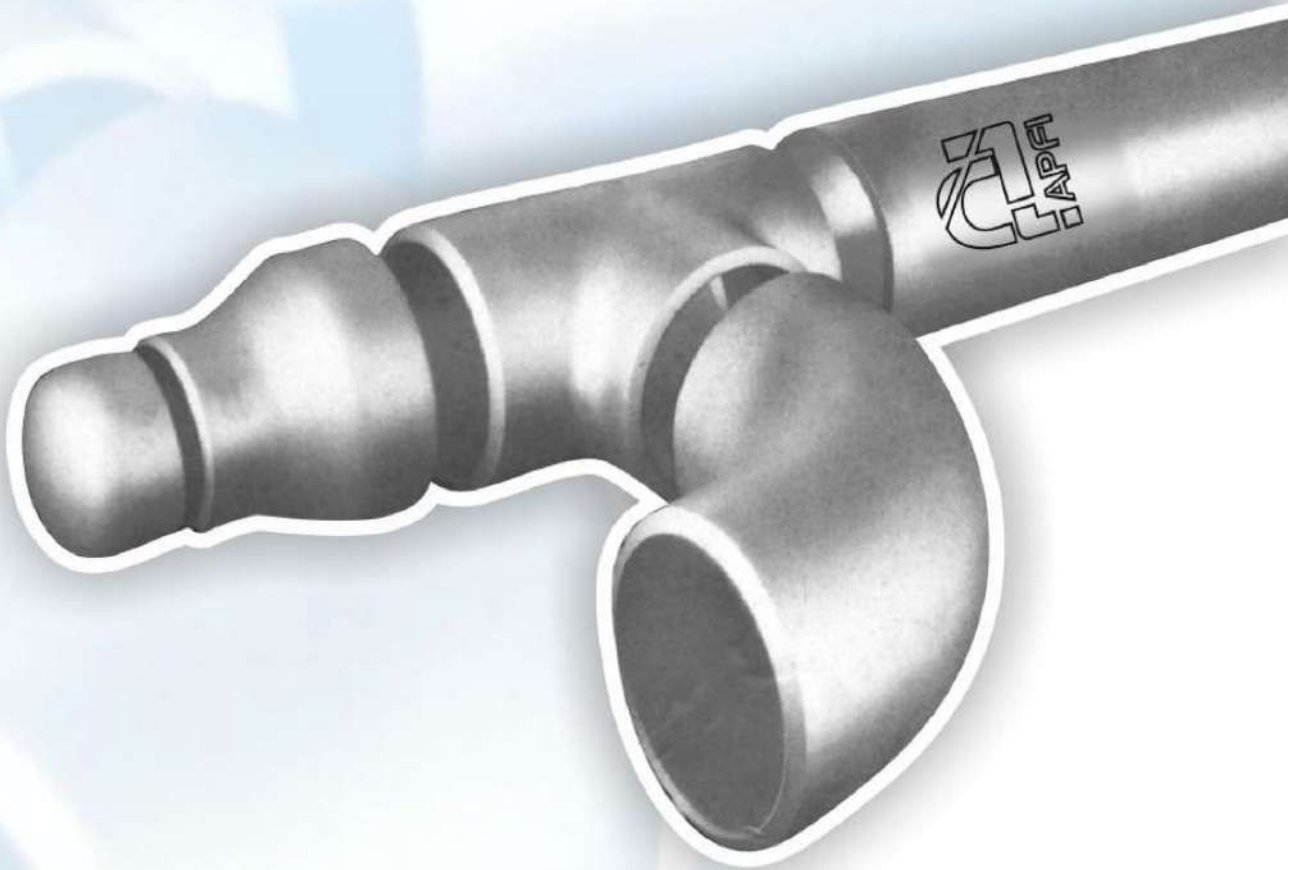




HAZEL PIPES & FITTINGS LLP



TÜVRheinland[®]
Precisely Right.



LFG is a member of Registrar of Standards (Holdings) Ltd.

A Continuous Improvement is in the heart of Hazel Pipes & Fittings LLP

Hazel Pipes & Fittings LLP was founded in 2023. It is one of the most vibrant ventures committed to adding to the industrial growth of India by aligning under the considerable Make in India venture. Expertising in premium stainless steel fittings and flanges, we are dedicated to bringing value through reliable and durable solutions that provide international standards. Our products are designed for efficiency, strength, and longevity, serving diverse sectors right from manufacturing to construction and beyond. At Hazel Pipes & Fittings LLP, innovation, quality, and sustainability form the tripod on which rests India's infrastructural development.

We will serve you for all your piping requirements under one roof such as high quality pipe Fittings, Butt-weld and Socket- weld Fittings, Flanges & End-Connection in Alloy steel, Carbon steel, Stainless Steel, Nickel alloys.

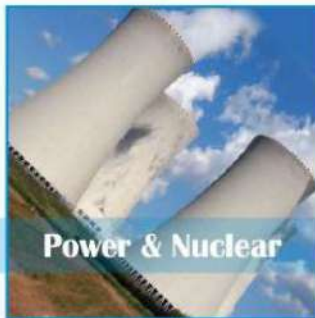
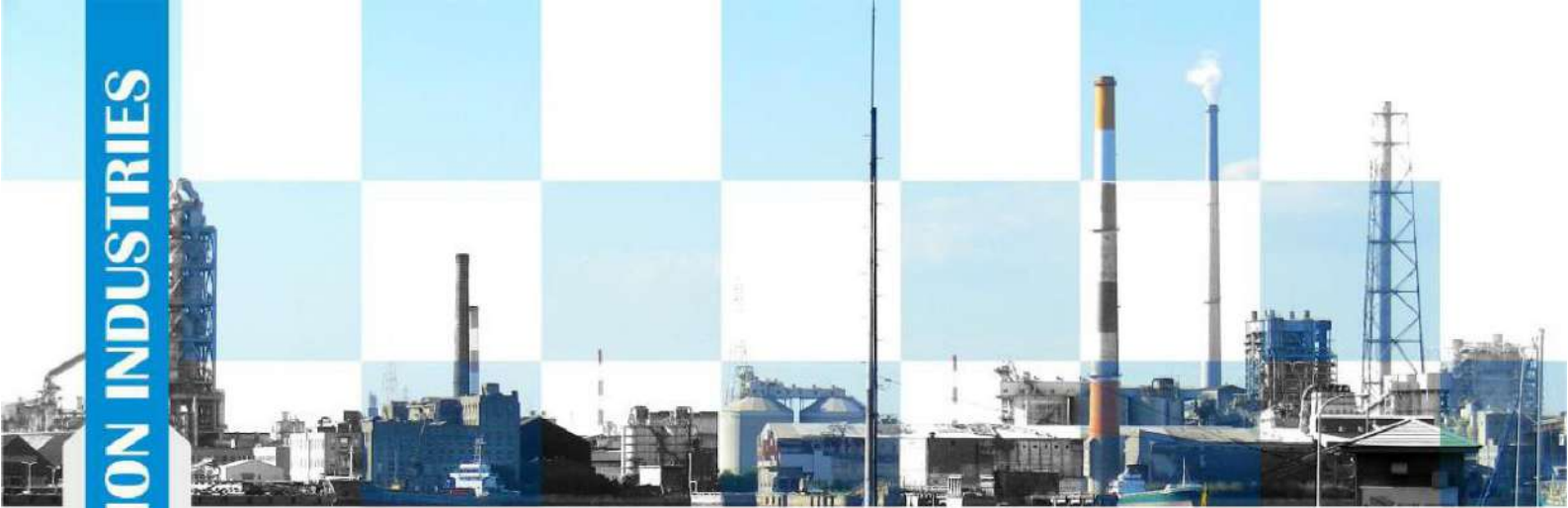
Our quality management system confirm to ISO 9001-2008. and PED certificated by TUV Rheinland.

Due to modern manufacturing process, equipments and inspection tools practised by us in producing the products and putting them through strict Quality Control Procedure, Our products meet the requirements of International and National standards.

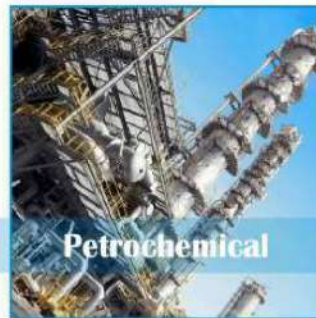
We are supported by some of the most qualified and technically sound professionals, who are well aware about different techniques required to manufacture products. Our team members hold vast industry experience, which help them in sourcing quality raw material from reputed vendors.

We are looking forward for a positive response from your side about your requirement, so that we can provide you with best quality products at the very competitive rate.

APPLICATION INDUSTRIES



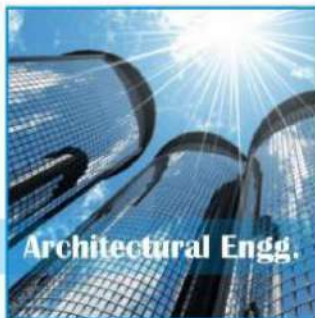
Power & Nuclear



Petrochemical



Automobiles



Architectural Engg.



Chemical



Dairy & Food Process



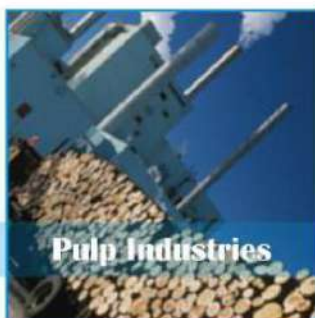
Textile Industries



Solvent & Oil Extraction



Paper Industries



Pulp Industries



Breweries



Distilleries

CERTIFICATES

CERTIFICATE NO:
DIPP176096



Government of India
Ministry of Commerce & Industry
Department for Promotion of Industry and Internal Trade

#startupindia

CERTIFICATE OF RECOGNITION

*This is to certify that **HAZEL PIPES AND FITTINGS LLP** incorporated as a **Limited Liability Partnership** on **12-08-2024**, is recognized as a startup by the Department for Promotion of Industry and Internal Trade. The startup is working in 'Construction' Industry and 'Construction Materials' sector as self-certified by them.*

This certificate shall only be valid for the Entity up to **Ten** years from the date of its incorporation only if its turnover for any of the financial years has not extended ₹ **100 Cr.**

02-09-2024

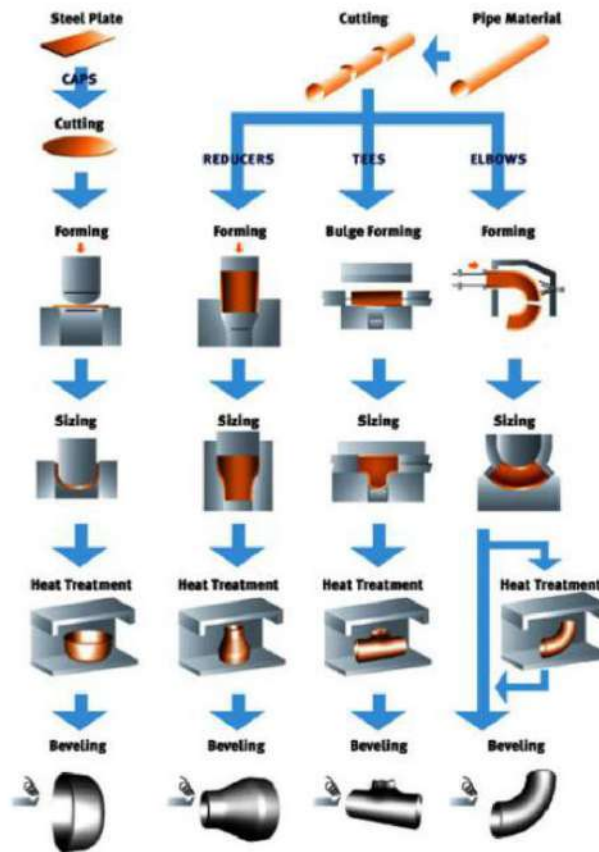
DATE OF ISSUE



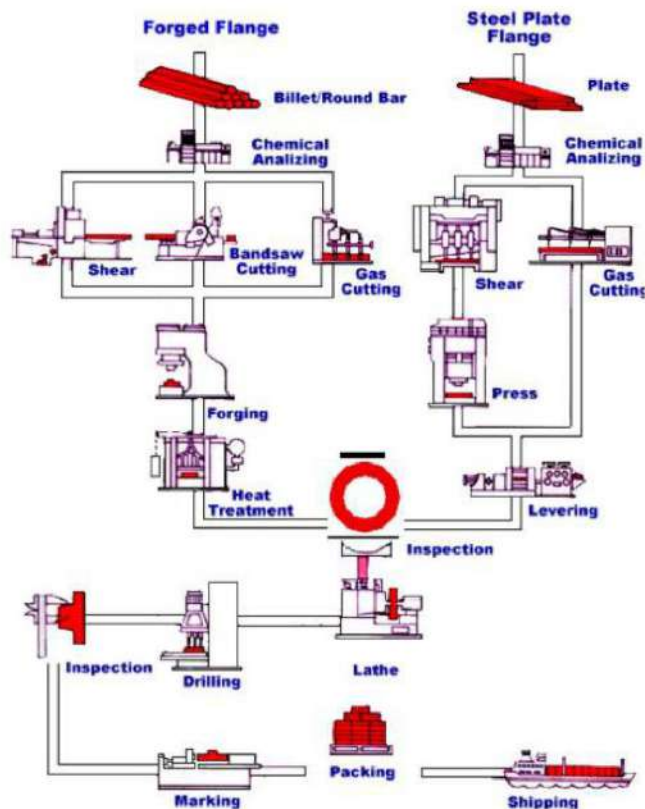
11-08-2034

VALID UPTO

Manufacturing Flow chart of Pipe Fittings

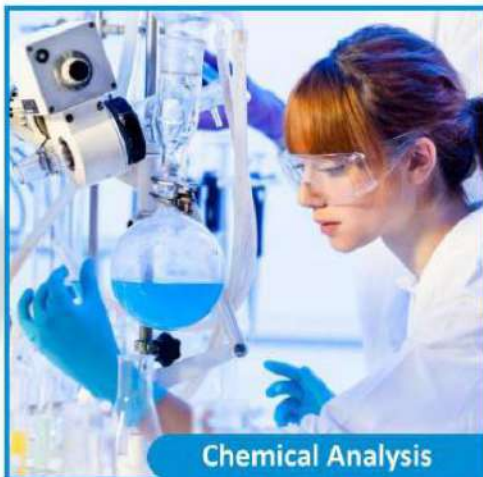


Manufacturing Flow chart of Forged & Steel Plate Flanges

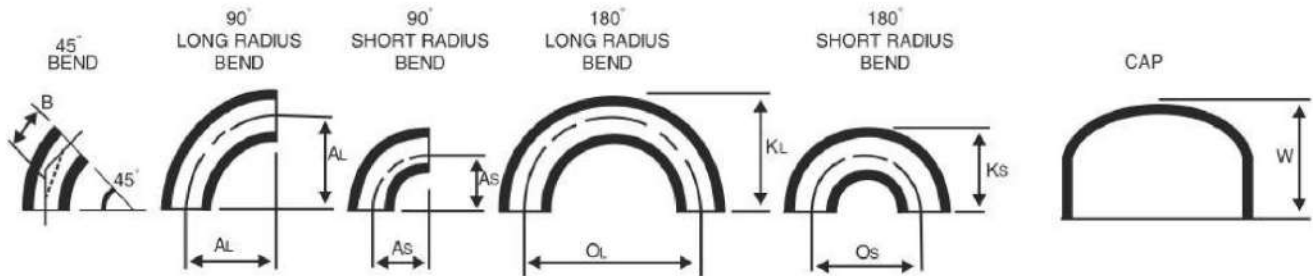


Quality is a fundamental corporate value for Hazel Pipes & Fittings LLP, Therefore we work hard to make it products and services meet or exceed customer expectations. To achieve this objective, we encourage the promotion of a quality culture throughout the company. We focus on eliminating non-equality to maintain our reputation as a top supplier and secure long-term sustainability.

The Stainless Steel Fittings produced by Hazel Pipes & Fittings LLP is udes in many applications (road construction, automobile, etc.) where safety is esstential. Therefore, our goals is to deliver Best Products that satisfies end-user requirments.



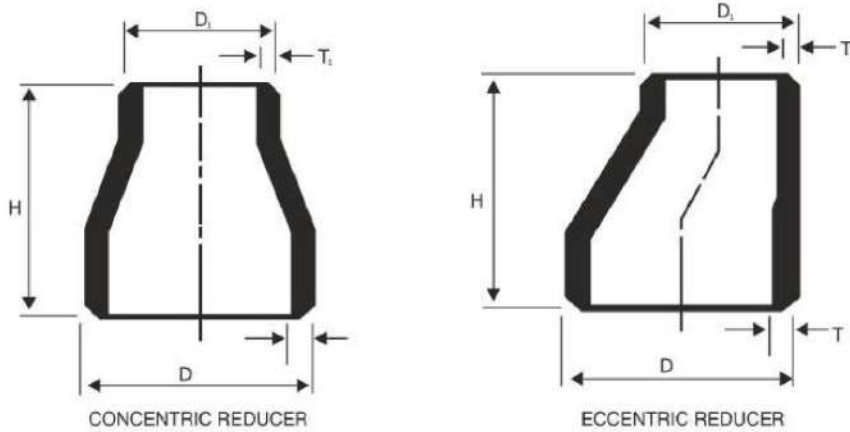
BUTT WELDING ELBOWS



DIMENSIONS

NOM. PIPE SIZE		O.D. D	45° BEND B	90° BEND LONG RAD AL	90° BEND SHORT RAD AS	180° BEND LONG RAD		180° BEND SHORT RAD		THICKNESS t			
IN	MM					OL	KL	OS	KS	SCH 10	SCH 40	SCH 80	CAPS E
1/2	15	21.30	16	38		76	49			2.11	2.77	3.73	25.0
3/4	20	26.67	11	29		57	43			2.11	2.87	3.91	25.0
1	25	33.40	22	38	25	76	56	51	41	2.77	3.38	4.55	38.0
1 1/4	32	42.20	25	48	32	95	70	64	52	2.77	3.56	4.85	38.0
1 1/2	40	48.30	29	57	38	114	83	76	62	2.77	3.68	5.08	38.0
2	50	60.30	35	76	51	152	106	102	81	2.77	3.9	5.55	38.0
2 1/2	65	73.00	44	95	64	191	132	127	100	3.05	5.16	7.01	38.0
3	80	88.90	51	114	76	229	159	152	121	3.05	5.49	7.62	51.0
4	100	114.30	64	152	102	305	210	203	159	3.05	6.02	8.55	64.0
5	125	141.30	79	190	127	381	262	254	197	3.40	6.55	9.53	76.0
6	150	168.30	95	229	152	457	313	305	237	3.40	7.11	10.97	89.0
8	200	219.10	127	305	203	610	414	406	313	3.76	8.18	12.7	102.0
10	250	273.00	159	381	254	762	518	508	391	4.19	9.27	15.09	127.0
12	300	323.90	190	457	305	914	619	610	467	4.57	10.31	17.48	152.0
14	350	355.60	222	533	356	1067	711	711	533	4.78	11.13	19.05	165.0
16	400	406.40	254	610	406	1219	813	813	610	4.78	12.70	21.44	178.0
18	450	457.20	286	686	457	1372	914	914	686	4.78	14.27	23.83	203.0
20	500	508.00	318	762	508	1524	1016	1016	762	5.54	15.09	26.19	229.0
24	600	609.60	381	914	610	1829	1219	1219	914	6.35	17.48	30.96	267.0

BUTT WELDING REDUCERS



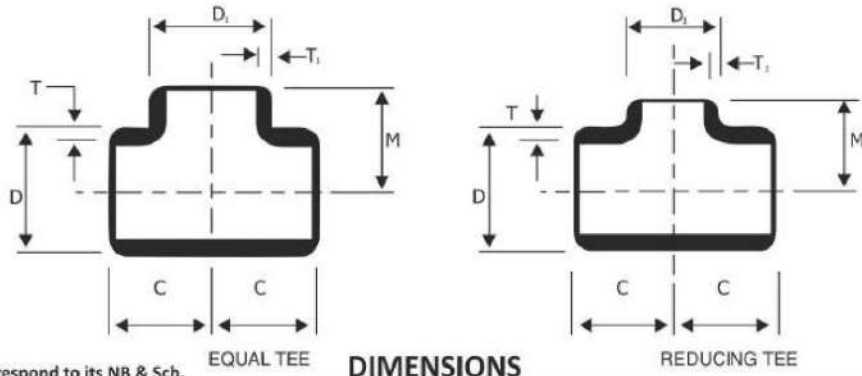
DIMENSIONS

NOMINAL PIPE SIZE		D X D1	THICKNESS			
IN	MM		T X T1 Sch. 10	T X T1 Sch. 40	T X T1 Sch. 80	H
3/4 x 1/2	20 x 15	26.7 x 21.3	2.11 x 2.11	2.87 x 2.77	3.91 x 3.73	39
1 x 3/4	25 x 20	33.4 x 26.7	2.77 x 2.11	3.38 x 2.87	4.55 x 3.91	51
1 x 1/2	25 x 15	33.4 x 21.3	2.77 x 2.11	3.38 x 2.77	4.55 x 3.73	51
1.1/4 x 01	32 x 25	42.2 x 33.4	2.77 x 2.77	3.56 x 3.38	4.85 x 4.55	51
1.1/4 x 3/4	32 x 20	42.2 x 26.7	2.77 x 2.11	3.56 x 2.87	4.85 x 3.91	51
1.1/4 x 1/2	32 x 15	42.2 x 21.3	2.77 x 2.11	3.56 x 2.77	4.85 x 3.73	51
1.1/2 x 1.1/4	40 x 32	48.3 x 42.2	2.77 x 2.77	3.68 x 3.56	5.08 x 4.85	64
1.1/2 x 01	40 x 25	48.3 x 33.4	2.77 x 2.77	3.68 x 3.38	5.08 x 4.55	64
1.1/2 x 3/4	40 x 20	48.3 x 26.7	2.77 x 2.11	3.68 x 2.87	5.08 x 3.91	64
1.1/2 x 1/2	40 x 15	48.3 x 21.3	2.77 x 2.11	3.68 x 2.77	5.08 x 3.73	64
2.0 x 1.1/2	50 x 40	60.3 x 48.3	2.77 x 2.77	3.90 x 3.68	5.55 x 5.08	76
2.0 x 1.1/4	50 x 35	60.3 x 42.2	2.77 x 2.77	3.90 x 3.56	5.55 x 4.85	76
2.0 x 1.0	50 x 25	60.3 x 33.4	2.77 x 2.77	3.90 x 3.38	5.55 x 4.55	76
2.0 x 3/4	50 x 20	60.3 x 26.7	2.77 x 2.11	3.90 x 2.87	5.55 x 3.91	76
2.1/2 x 2.0	65 x 50	73.0 x 60.3	3.05 x 2.77	5.16 x 3.90	7.01 x 5.55	89
2.1/2 x 1.1/2	65 x 40	73.0 x 48.3	3.05 x 2.77	5.16 x 3.68	7.01 x 5.08	89
2.1/2 x 1.0	65 x 25	73.0 x 33.4	3.05 x 2.77	5.16 x 3.38	7.01 x 4.55	89
3.0 x 2.1/2	80 x 65	88.9 x 73.0	3.05 x 3.05	5.5 x 5.16	7.62 x 7.01	89
3.0 x 0.2	80 x 50	88.9 x 60.3	3.05 x 2.77	5.5 x 3.09	7.62 x 5.55	89
3.0 x 1.1/2	80 x 40	88.9 x 48.3	3.05 x 2.77	5.5 x 3.68	7.62 x 5.08	89
3.0 x 1.1/4	80 x 32	88.9 x 42.2	3.05 x 2.77	5.5 x 3.56	7.62 x 4.85	89
4.0 x 3.0	100 x 80	114.3 x 88.9	3.05 x 3.05	6.0 x 5.05	8.55 x 7.62	102
4.0 x 2.1/2	100 x 65	114.3 x 73.0	3.05 x 3.05	6.0 x 5.16	8.55 x 7.01	102
4.0 x 2.0	100 x 50	114.3 x 60.3	3.05 x 2.77	6.0 x 3.09	8.55 x 5.55	102
4.0 x 1.1/2	100 x 40	114.3 x 48.3	3.05 x 2.77	6.0 x 3.68	8.55 x 5.08	102
5.0 x 4.0	125 x 100	141.3 x 114.3	3.40 x 3.05	6.55 x 6.0		127

BUTT WELDING REDUCERS

NOMINAL PIPE SIZE		D X D1	THICKNESS			
IN	MM		TXT1 Sch. 10	TXT1 Sch. 40	TXT1 Sch. 80	H
5.0 x 3.0	125 x 80	141.3 x 88.9	3.40 x 3.05	6.55 x 05.05	09.53 x 07.06	127
5.0 x 2.1/2	125 x 65	141.3 x 73.0	3.40 x 3.05	6.55 x 05.16	09.53 x 07.01	127
5.0 x 2.0	125 x 50	141.3 x 60.3	3.40 x 2.77	6.55 x 03.09	09.53 x 05.55	127
6.0 x 5.0	150 x 125	168.3 x 141.3	3.40 x 3.40	7.11 x 06.55	10.97 x 09.53	140
6.0 x 4.0	150 x 100	168.3 x 114.3	3.40 x 3.05	7.11 x 06.00	10.97 x 08.55	140
6.0 x 3.0	150 x 80	168.3 x 88.9	3.40 x 3.05	7.11 x 05.05	10.97 x 07.06	140
6.0 x 2.1/2	150 x 65	168.3 x 73.0	3.40 x 2.77	7.11 x 05.16	10.97 x 07.01	140
8.0 x 6.0	200 x 150	219.1 x 168.3	3.76 x 3.40	8.02 x 07.11	12.07 x 10.97	152
8.0 x 5.0	200 x 125	219.1 x 141.3	3.76 x 3.40	8.02 x 06.55	12.07 x 09.53	152
8.0 x 4.0	200 x 100	219.1 x 114.3	3.76 x 3.05	8.02 x 06.02	12.07 x 08.55	152
10.0 x 8.0	250 x 200	273.0 x 219.1	4.19 x 3.76	9.27 x 06.00	15.09 x 12.70	178
10.0 x 6.0	250 x 150	273.0 x 168.3	4.19 x 3.40	9.27 x 07.11	15.09 x 10.97	178
10.0 x 5.0	250 x 125	273.0 x 141.3	4.19 x 3.40	9.27 x 06.55	15.09 x 09.53	178
10.0 x 4.0	250 x 100	273.0 x 114.3	4.19 x 3.05	9.27 x 06.02	15.09 x 08.56	178
12.0 x 10.0	300 x 250	323.9 x 273.0	4.57 x 4.19	10.31 x 09.27	17.48 x 15.09	203
12.0 x 8.0	300 x 200	323.9 x 219.1	4.57 x 3.76	10.31 x 08.20	17.48 x 12.07	203
12.0 x 6.0	300 x 150	323.9 x 168.3	4.57 x 3.40	10.31 x 07.11	17.48 x 10.97	203
12.0 x 5.0	300 x 125	323.9 x 141.3	4.57 x 3.40	10.31 x 06.55	17.48 x 09.53	203
14.0 x 12.0	350 x 300	355.6 x 323.9	4.78 x 4.57	11.13 x 10.31	19.05 x 17.48	330
14.0 x 10.0	350 x 250	355.6 x 273.0	4.78 x 4.19	11.13 x 09.27	19.05 x 15.09	330
14.0 x 8.0	350 x 200	355.6 x 219.1	4.78 x 3.76	11.13 x 08.20	19.05 x 12.07	330
14.0 x 6.0	350 x 150	355.6 x 168.3	4.78 x 3.40	11.13 x 07.11	19.05 x 10.97	330
16.0 x 14.0	400 x 350	406.4 x 355.6	4.78 x 4.78	12.70 x 11.13	21.44 x 19.05	356
16.0 x 12.0	400 x 300	406.4 x 323.9	4.78 x 4.57	12.70 x 10.31	21.44 x 17.48	356
16.0 x 10.0	400 x 250	406.4 x 273.0	4.78 x 4.19	12.70 x 09.27	21.44 x 15.09	356
16.0 x 8.0	400 x 200	406.4 x 219.1	4.78 x 3.76	12.70 x 08.20	21.44 x 12.07	356
16.0 x 6.0	400 x 150	406.4 x 168.3	4.78 x 3.40	12.70 x 07.11	21.44 x 12.07	356
18.0 x 16.0	450 x 400	457.2 x 406.4	4.78 x 4.78	14.27 x 12.70	23.83 x 21.44	381
18.0 x 14.0	450 x 350	457.2 x 355.6	4.78 x 4.78	14.27 x 11.13	23.83 x 19.05	381
18.0 x 12.0	450 x 300	457.2 x 323.9	4.78 x 4.78	14.27 x 10.31	23.83 x 17.48	381
18.0 x 10.0	450 x 250	457.2 x 273.0	4.78 x 4.19	14.27 x 09.27	23.83 x 15.09	381
18.0 x 8.0	450 x 150	457.2 x 219.1	4.78 x 3.76	14.27 x 08.20	23.83 x 12.07	381
20.0 x 18.0	500 x 450	508.0 x 457.2	5.54 x 4.78	15.09 x 14.27	26.19 x 23.83	508
20.0 x 16.0	500 x 400	508.0 x 406.4	5.54 x 4.78	15.09 x 12.70	26.19 x 21.44	508
20.0 x 14.0	500 x 350	508.0 x 355.6	5.54 x 4.78	15.09 x 11.13	26.19 x 19.05	508
20.0 x 12.0	500 x 300	508.0 x 323.9	5.54 x 4.78	15.09 x 10.31	26.19 x 17.48	508
20.0 x 10.0	500 x 250	508.0 x 273.0	5.54 x 4.19	15.09 x 09.27	26.19 x 15.09	508
20.0 x 8.0	500 x 200	508.0 x 219.1	5.54 x 3.76	15.09 x 08.20	26.19 x 12.07	508
24.0 x 20.0	600 x 500	610.0 x 508.0	6.35 x 5.54	17.48 x 15.09	30.96 x 26.19	508
24.0 x 18.0	600 x 450	610.0 x 457.2	6.35 x 4.78	17.18 x 14.27	30.96 x 23.83	508
24.0 x 16.0	600 x 400	610.0 x 406.4	6.35 x 4.78	17.48 x 12.70	30.96 x 21.44	508
24.0 x 14.0	600 x 350	610.0 x 355.6	6.35 x 4.78	17.48 x 11.13	30.96 x 19.05	508
24.0 x 12.0	600 x 300	610.0 x 323.9	6.35 x 4.78	17.48 x 10.13	30.96 x 17.48	508
24.0 x 10.0	600 x 250	610.0 x 273.0	6.35 x 4.19	17.48 x 09.27	13.96 x 15.09	508

BUTT WELDING TEES



*T1= Thickness of Branch will correspond to its NB & Sch.

DIMENSIONS

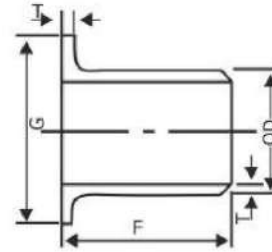
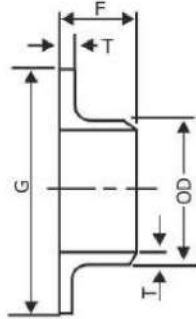
Q= ± 1 upto 4" nb
= ± 2 for 5" to 8" nb

RUN NB		BRANCH NB		D		T/T1*			C ±2	M ±2
IN	MM	IN	MM	RUN	BRANCH	SCH. 10S	SCH. 40S	SCH. 80S		
1/2	15	1/2	15	21.3	21.3		2.77	3.73	25	25
3/4	20	3/4	20	26.7	26.7	2.11	2.87	3.91	28	28
3/4	20	1/2	15	26.7	21.3					
1	25	1	25	33.4	33.4	2.77	3.38	4.55	38	38
1	25	3/4	20	33.4	26.7				38	38
1	25	1/2	15	33.4	21.3				38	38
1.1/4	32	1.1/4	32	42.2	42.2	2.77	3.56	4.85	48	48
1.1/4	32	1	25	42.2	33.4				48	48
1.1/4	32	3/4	20	42.2	26.7				48	48
1.1/4	32	1/2	15	42.2	21.3				48	48
1.1/2	40	1.1/2	40	48.3	48.3	2.77	3.68	5.08	57	57
1.1/2	40	1	25	48.3	33.4				57	57
1.1/2	40	3/4	20	48.3	26.7				57	57
1.1/2	40	1/2	15	48.3	21.3				57	57
2	50	2	50	60.3	60.3	2.77	3.91	5.55	64	64
2	50	1.1/2	40	60.3	48.3				64	60
2	50	1.1/4	32	60.3	42.2				64	57
2	50	1	25	60.3	33.4				64	51
2	50	3/4	20	60.3	26.7				64	44
2.1/2	65	2.1/2	65	73.0	73.0	3.05	5.16	7.01	76	76
2.1/2	65	2	50	73.0	60.3				76	70
2.1/2	65	1.1/2	40	73.0	48.3				76	67
2.1/2	65	1	25	73.0	33.4				76	57
3	80	3	80	88.9	88.9	3.05	5.5	7.6	86	86
3	80	2.1/2	65	88.9	73.0				86	83
3	80	2	50	88.9	60.3				86	76
3	80	1.1/2	40	88.9	48.3				86	73
4	100	4	100	114.3	114.3	3.05	6.02	8.55	105	105
4	100	3	80	114.3	89.9				105	98
4	100	2.1/2	65	114.3	73.0				105	95
4	100	2	50	114.3	60.3				105	89
4	100	1.1/2	40	114.3	48.3				105	86
5	125	5	125	141.3	141.3	3.40	6.55	9.53	124	124
5	125	4	100	141.3	114.3				124	117

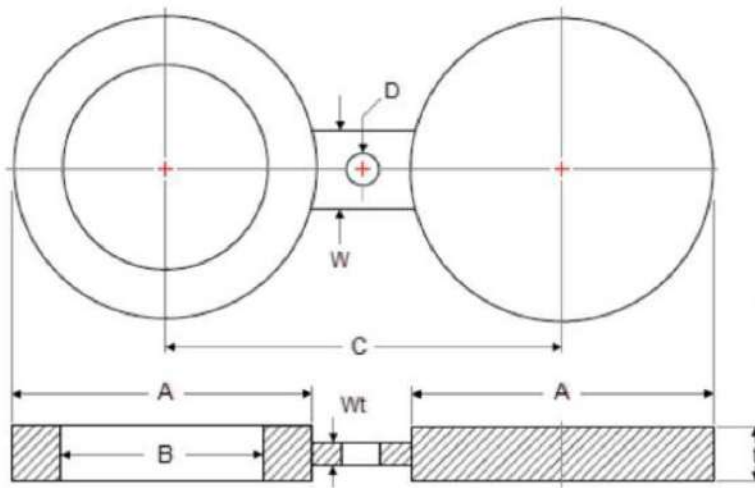
BUTT WELDING TEES

RUN NB		BRANCH NB		D		T/T1*			C +2	M +2
IN	MM	IN	MM	RUN	BRANCH	SCH. 10S	SCH. 40S	SCH. 80S		
05	125	03	080	141.3	88.09				124	111
05	125	02	050	141.3	60.03				124	105
06	150	06	150	168.3	168.03		7.11	10.97	143	143
06	150	05	125	168.3	141.03	3.04			143	137
06	150	04	100	168.3	114.03				143	130
06	150	03	080	168.3	88.09				143	124
06	150	2 1/2	065	168.3	73.00				143	121
08	200	08	200	219.1	219.01		8.18	12.70	178	178
08	200	06	150	219.1	168.03	3.76			178	168
08	200	05	125	219.1	141.03				178	132
08	200	04	100	219.1	114.03				178	156
10	250	10	250	273.0	273.00		9.27	15.09	216	216
10	250	08	200	273.0	219.01	4.19			216	203
10	250	06	150	273.0	168.03				216	194
10	250	05	125	273.0	141.03				216	191
10	250	04	100	273.0	114.03				216	184
12	300	12	300	323.9	323.09		10.31	17.48	254	254
12	300	10	250	323.9	273.00	4.57			254	241
12	300	08	200	323.9	219.01				254	229
12	300	06	150	323.9	168.03				254	219
12	300	05	125	323.9	141.03				254	216
14	350	14	350	355.6	355.06		11.13	19.05	279	279
14	350	12	300	355.6	323.09	4.78			279	270
14	350	10	250	355.6	273.00				279	257
14	350	08	200	355.6	219.01				279	248
14	350	06	150	355.6	168.03				279	238
16	400	16	400	406.4	406.04		12.70	21.40	305	305
16	400	14	350	406.4	355.06	4.78			305	305
16	400	12	300	406.4	323.09				305	295
16	400	10	250	406.4	273.00				305	283
16	400	08	200	406.4	219.01				305	273
16	400	06	150	406.4	168.03				305	264
18	450	18	450	457.2	457.02		14.27	23.80	343	343
18	450	16	400	457.2	406.04	4.78			343	330
18	450	14	350	457.2	355.06				343	330
18	450	12	300	457.2	323.09				343	321
18	450	10	250	457.2	273.00				343	308
18	450	08	200	457.2	219.01				343	298
20	500	20	500	508.0	508.00		15.09	26.20	381	381
20	500	18	450	508.0	457.02	5.54			381	343
20	500	16	400	508.0	406.04				381	330
20	500	14	350	508.0	355.06				381	330
20	500	12	300	508.0	323.09				381	321
20	500	10	250	508.0	273.00				381	308
20	500	08	200	508.0	219.01				381	298
24	600	24	600	610.0	610.00		17.48	31.00	432	432
24	600	20	500	610.0	508.00	6.35			432	381
24	600	18	450	610.0	457.02				432	343
24	600	16	400	610.0	406.04				432	330
24	600	14	350	610.0	355.06				432	330
24	600	12	300	610.0	323.09				432	321
24	600	10	250	610.0	273.00				432	308

LAP JOINT STUBENDS

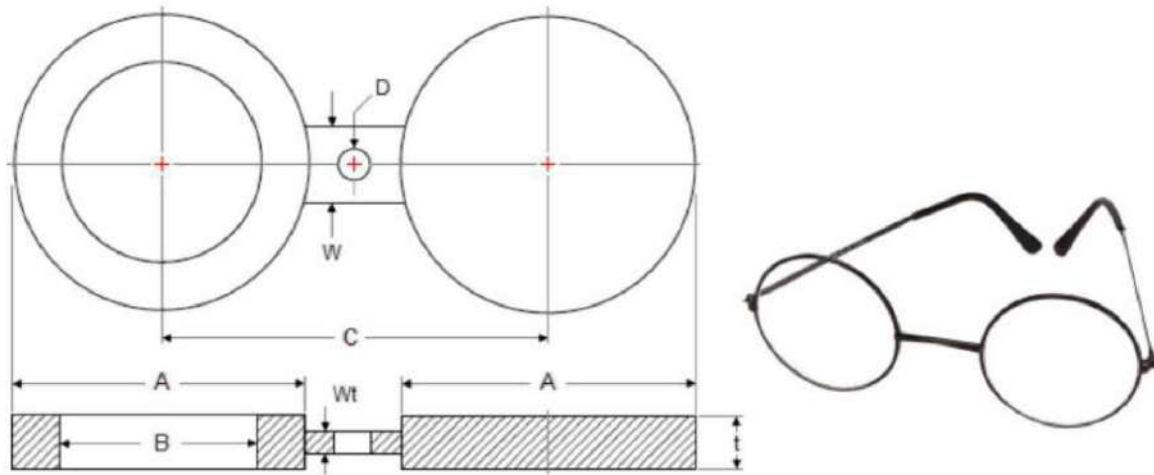


Nominal Pipe Size		Outside Diameter OD	Length F		Dia of lap-G Nominal & Maximum	Radius of Fillet		Thickness			
								SCH 5S	SCH 10S	SCH 40S	SCH 80 S
DIN	INCH		Mss	ANSI		A Max	B Max				
15	1/2	21.3	50.8	76.2	34.92	3	0.75	01.65	02.11	02.77	03.73
20	3/4	26.7	50.8	76.2	42.84	3	0.75	01.65	02.11	02.87	03.91
25	1	33.4	50.8	101.6	50.8	3	0.75	01.65	02.77	03.38	04.55
32	1.1/4	42.2	50.8	101.6	62.50	5	0.75	01.65	02.77	03.56	04.86
40	1.1/2	48.2	50.8	101.6	73.02	6	0.75	01.65	02.77	03.68	05.08
50	2	60.3	63.5	152.4	92.07	8	0.75	01.65	02.77	03.91	05.54
65	2.1/2	73.03	63.5	152.4	104.7	8	0.75	02.11	03.05	05.16	07.01
80	3	88.9	63.5	152.4	127	10	0.75	02.11	03.05	05.49	07.62
90	3.1/2	101.6	76.2	152.4	139.7	10	0.75	02.77	03.05	05.74	08.07
100	4	114.3	76.2	152.4	157.1	11	0.75	02.77	03.05	05.02	08.56
125	5	141.3	76.2	203.2	185.7	11	1.5	02.77	03.40	06.55	09.52
150	6	168.3	88.9	203.2	215.9	13	1.5	02.77	03.40	07.11	10.91
200	8	219.1	101.6	203.2	269.8	13	1.5	02.77	03.46	08.18	12.70
250	10	273.1	127	254	323.8	13	1.5	03.40	04.19	09.27	12.70
300	12	323.9	152.4	254	381	13	1.5	03.96	04.57	09.52	12.70
350	14	355.6	152.4	304.8	412.8	13	1.5	-	4.78	9.53	12.70
400	16	406.4	152.4	304.8	469.9	13	1.5	-	4.78	9.53	12.70
450	18	457.2	152.4	304.8	533.4	13	1.5	-	4.78	9.53	12.70
500	20	508	152.4	304.8	584.2	13	1.5	-	5.54	9.53	12.70
550	22	559	152.4	304.8	641.4	13	1.5	-	6.35	9.53	12.70
600	24	610	152.4	304.8	692.2	13	1.5	-	6.35	9.53	12.70



Class **150**

NPS	Outside Ø A	Inside Ø B	Centerline C	Thickness t	Web Width W
1/2	45	16	60	3	38
3/4	54	21	70	3	38
1	64	27	80	3	38
1.1/4	73	42	90	6.4	38
1.1/2	83	48	100	6.4	38
2	102	61	120	6.4	51
2.1/2	107	73	140	6.4	51
3	133	89	150	6.4	64
3.1/2	159	102	175	9.7	64
4	172	114	190	9.7	64
5	194	141	215	9.7	76
6	219	168	240	12.7	76
8	276	219	300	12.7	76
10	337	273	360	15.7	102
12	406	324	430	19.1	102
14	448	356	475	19.1	108
16	511	406	460	22.4	108
18	546	457	580	25.4	114
20	603	508	635	28.4	121
24	714	610	750	31.8	140



Class **300**

NPS	Outside Ø A	Inside Ø B	Centerline C	Thickness t	Web Width W
1/2	51	16	65	6.4	38
3/4	64	21	80	6.4	38
1	70	27	90	6.4	38
1.1/4	79	42	100	6.4	38
1.1/2	92	48	115	6.4	38
2	108	61	125	9.7	51
2.1/2	127	73	150	9.7	51
3	146	89	170	9.7	64
3.1/2	162	102	185	12.7	64
4	178	114	200	12.7	64
5	213	141	235	15.7	76
6	248	168	270	15.7	76
8	305	219	330	22.4	76
10	359	273	385	25.4	102
12	419	324	450	28.4	102
14	483	356	517	31.8	108
16	536	406	570	38.1	108
18	594	457	630	41.4	114
20	651	508	685	44.5	121
24	772	610	810	50.8	140

TOLERANCES AS PER B 16.5

The tolerances tabulated below, apply to all ANSI Flanges, APF large Diameter flanges, and the flanged ends of Welding Necks, Certain othe tolerances apply to Orifice Flanges and those are as covered by American Gas Association recommendations.

Except where indicated, the tolerances are those established by ANSI B16.5 and the variations are maximum In actual practice manufacturing and Inspection procedures control dimensions so closely that variations are normally much less than those listed as permitted.

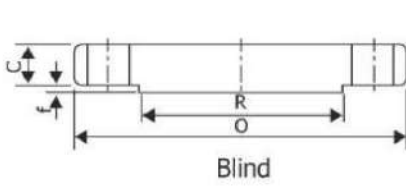
THREAD, SLIP-ON LAP JOINT AND BLIND FLANGES

Inside Diameter	Threaded	Within Limits of boring gauge
	10" and smaller	+076-0
	12" and larger	+1.52-0
Outside Diameter	24" or less over 24"	± 0.0625 ± 0.125
Diameter of Counterbore	Same as for Inside Diameter	
Diameter of contact Face	1.58mm Raised Face 150# & 300#	± 0.76
	6.35mm Raised Face above 300# Tongue & Groove or Male & Female	± 0.50
Outside Dia. of Hub	5" and Smaller	+2.28-0.76
	6" and larger	+4.06-0.76
Drilling	Bolt circle	± 1.52
	Bolt Hole spacing	± 0.76
Eccentricity Bolt circle & Facing (with respect to bore)	2 1/2" and smaller	± 0.76
	3" and larger	± 1.52
Thickness	18" and Smaller	+3.04-0
	20" and larger	+4.82-0

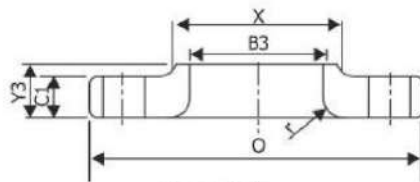
Welding Neck Flanges

Inside Diameter	10" and smaller	0.76
	12" to 18"	1.52
	20" and larger	+3.04-1.52
Outside Diameter	24" or less	0.0625
	over 24"	0.125
Diameter of contact Face	1.58mm Raised Face 150# & 300#	0.76
	6.35mm Raised Face above 300# Tongue & Groove or Male & Female	+0.50
Diameter of Hub at point of Welding	5" and Smaller	+2.28-0.76
	6" and larger	+4.06-0.76
Drilling	bolt circle	1.52
	Bolt Hole spacing	0.76
Eccentricity Bolt circle & Facing (with respect to bore)	2 1/2" and smaller	0.76
	3" and larger	1.52
Length thru. Hub	4" and smaller	1.52
	5" to 10"	+1.52-3.04
	12" and larger	+3.04-4.57
Thickness	18" and smaller	+3.04-0
	20" and larger	+4.82-0

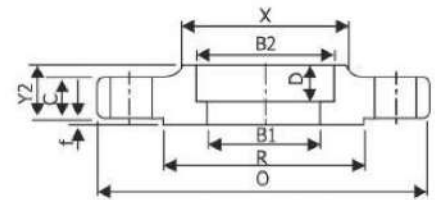
FORGED FLANGES



Blind



Lap Joint



Socket Weld

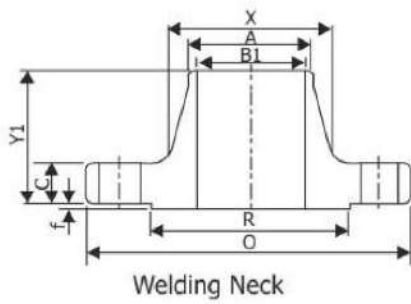


ASME B16.5 CLASS 150 PIPE FLANGES

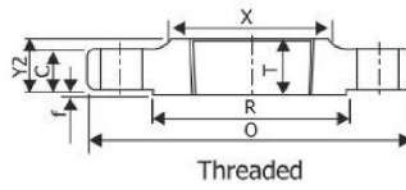
Nominal Pipe Size	Outside Diameter	Thickness	Thickness of Lap Joint	Raised Face Diameter	Corner Radius of Bore of Lap Joint	Bore			Length thru hub			Thread Length Threaded Flange (Min)	Depth of Socket	Diameter Hub at Bevel
						Welding Neck Socket Welding	Slip-On Socket Welding	Lap Joint	Welding Neck	Slip-On Threaded Socket Welding	Lap Joint			
	O	C	C1	R	r	B1	B2	B3	Y1	Y2	Y3	T	D	A
1/2	90	9.6	11.2	34.9	3.0	15.8	22.2	22.9	46.0	14.0	16.0	16.0	10.0	21.3
3/4	100	11.2	12.7	42.9	3.0	20.9	27.2	28.2	51.0	14.0	16.0	16.0	11.0	26.7
1	110	12.7	14.3	50.8	3.0	26.6	34.5	34.9	54.0	16.0	17.0	17.0	13.0	33.4
1 1/4	115	14.3	15.9	63.5	5.0	35.1	43.2	43.7	56.0	19.0	21.0	21.0	14.0	42.2
1 1/2	125	15.9	17.5	73.0	6.0	40.9	49.5	50.0	60.0	21.0	22.0	22.0	16.0	48.3
2	150	17.5	19.1	92.1	8.0	52.5	61.9	62.5	62.0	24.0	25.0	25.0	17.0	60.3
2 1/2	180	20.7	22.3	104.8	8.0	62.7	74.6	75.4	68.0	27.0	29.0	29.0	19.0	73.0
3	190	22.3	23.9	127.0	10.0	77.9	90.7	91.4	68.0	29.0	30.0	30.0	21.0	88.9
3 1/2	215	22.3	23.9	139.7	10.0	90.1	103.4	104.1	70.0	30.0	32.0	32.0	22.4	101.6
4	230	22.3	23.9	157.2	11.0	102.3	116.1	116.8	75.0	32.0	33.0	33.0	24.0	114.3
5	255	22.3	23.9	185.7	11.0	128.2	143.8	144.4	87.0	35.0	36.0	36.0	24.0	141.3
6	280	23.9	25.4	215.9	13.0	154.1	170.7	171.4	87.0	38.0	40.0	40.0	27.0	168.3
8	345	27.0	28.6	269.9	13.0	202.7	221.5	222.2	100.0	43.0	44.0	44.0	32.0	219.1
10	405	28.6	30.2	323.8	13.0	254.6	276.2	277.4	100.0	48.0	49.0	49.0	33.0	273.0
12	485	30.2	31.8	381.0	13.0	304.8	327.0	328.2	113.0	54.0	56.0	56.0	40.0	323.8
14	535	33.4	35.0	412.8	13.0	To be specified by purchaser	359.2	360.2	125.0	56.0	57.0	57.0	41.4	355.6
16	595	35.0	36.6	469.9	13.0		410.5	411.2	125.0	62.0	64.0	64.0	44.5	406.4
18	635	38.1	39.7	533.4	13.0		461.8	462.3	138.0	67.0	68.0	68.0	49.0	457.0
20	700	41.3	42.9	584.2	13.0		513.1	514.4	143.0	71.0	73.0	73.0	54.0	508.0
24	815	46.1	47.7	692.2	13.0		616.0	616.0	151.0	81.0	83.0	83.0	60.5	610.0

NOTES

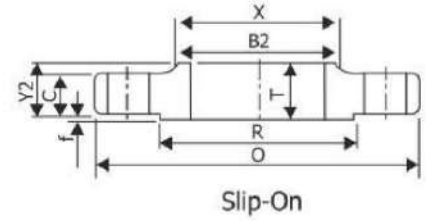
- 1) Raised face height (f=2.00) not included in thickness (C) and length through hub (Y1, Y2)
- 2) For Slip-On Threaded, Socket-Welding, lap joint flanges, the hub shall be tapered 7 max. or vertical from base to top.
- 3) Blind Flanges may be made with the same hub as that used for Slip-On flanges or without hub



Welding Neck



Threaded

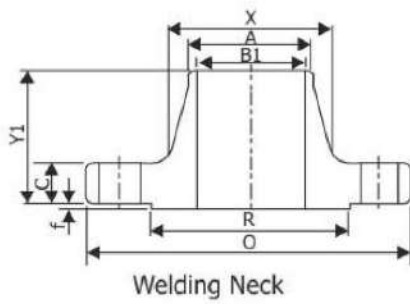


Slip-On

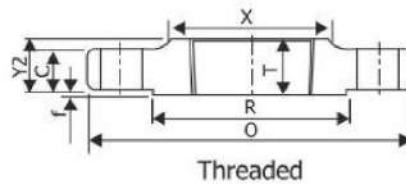


Dimensions in mm

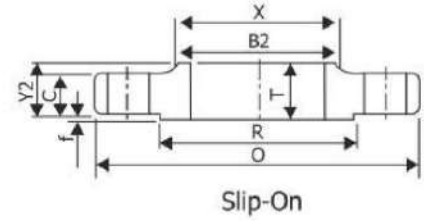
Hub Diameter	Drilling			Approximate Weight										Nominal Pipe Size
	Bolt Circle Diameter Holes	Diameter of Bolt Holes	Number of Bolt	Welding Neck		Slip On Threaded		Lap Joint		Blind		Socket Welding		
				Kg	lb	Kg	lb	Kg	lb	Kg	lb	Kg	lb	
X														
30	60.3	15.9	4	0.51	1.10	0.47	1.00	0.51	1.00	0.47	1.00	0.47	1.00	1/2
38	69.9	15.9	4	0.73	1.60	0.58	1.30	0.64	1.40	0.63	1.40	0.59	1.30	3/4
49	79.4	15.9	4	1.07	2.40	0.86	1.90	0.93	1.80	0.94	2.10	0.87	1.90	1
59	88.9	15.9	4	1.40	3.10	1.08	2.40	1.16	2.00	1.23	2.70	1.11	2.40	1 1/4
65	98.4	15.9	4	1.81	4.00	1.41	3.10	1.51	3.30	1.62	3.60	1.45	3.20	1 1/2
78	120.7	19.1	4	2.59	5.70	2.26	5.00	2.38	5.20	2.64	5.80	2.33	5.00	2
90	139.7	19.1	4	4.28	9.40	3.43	7.60	3.60	7.90	4.06	9.00	3.55	7.80	2 1/2
108	152.4	19.1	4	5.18	11.40	3.87	8.50	4.04	8.90	4.90	10.80	4.02	8.90	3
122	177.8	19.1	8	5.45	12.00	4.99	11.00	4.99	11.00	5.90	13.00	4.99	11.00	3 1/2
135	190.5	19.1	8	7.32	16.10	5.75	12.70	5.96	13.00	7.41	16.30	5.99	13.20	4
164	215.9	22.2	8	8.91	19.60	6.22	13.70	6.44	14.00	8.76	19.30	6.68	14.70	5
192	241.3	22.2	8	11.26	24.80	7.38	16.30	7.59	16.70	11.31	24.90	7.99	17.60	6
246	298.5	22.2	8	17.68	39.00	12.36	27.30	12.66	27.90	19.92	43.90	13.29	29.30	8
305	362.0	25.4	12	24.79	54.0	17.10	37.70	16.78	37.00	29.39	64.80	19.50	43.00	10
365	431.8	25.4	12	38.98	85.90	27.68	61.00	28.30	36.40	43.70	96.30	29.03	64.00	12
400	476.3	28.6	12	51.71	114.00	35.20	77.60	41.50	91.50	59.42	140.00	38.56	85.00	14
457	539.8	28.6	16	64.41	142.00	42.18	93.00	52.98	116.80	77.11	170.00	44.49	98.00	16
505	577.9	31.8	16	74.84	165.00	49.71	109.60	59.00	130.00	94.80	209.00	54.43	120.00	18
559	635.0	31.8	20	89.36	197.00	65.50	140.00	72.12	159.00	123.38	272.00	70.31	155.00	20
663	749.3	34.9	20	119.66	263.80	90.50	199.50	99.02	218.30	188.24	415.00	95.25	210.00	24



Welding Neck



Threaded



Slip-On

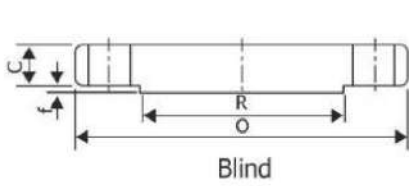


ASME B16.5 CLASS 300 FLANGES

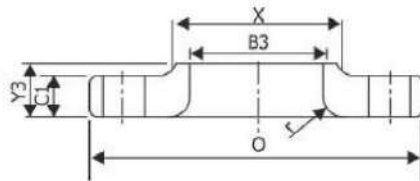
Nominal Pipe Size	Outside Diameter	Thickness	Thickness of Lap Joint	Raised Face Diameter	Corner Radius of Bore of Lap Joint	Bore			Length thru hub			Thread Length Threaded Flange (Min)	Depth of Socket	Diameter Hub at Bevel
						Welding Neck Socket Welding	Slip-On Socket Welding	Lap Joint	Welding Neck	Slip-On Threaded Socket Welding	Lap Joint			
	O	C	C1	R	r	B1	B2	B3	Y1	Y2	Y3			
1/2	95.0	12.7	14.3	34.9	3.0	15.8	22.2	22.9	51.0	21.0	22.0	16	10.0	21.3
3/4	115.0	14.3	15.9	42.9	3.0	20.9	27.7	28.2	56.0	24.0	25.0	16	11.0	26.7
1	125.0	15.9	17.5	50.8	3.0	26.6	34.5	34.9	60.0	25.0	27.0	18	13.0	33.4
1 1/4	135.0	17.5	19.1	63.5	5.0	35.1	43.2	43.7	64.0	25.0	27.0	21	14.0	42.2
1 1/2	155.0	19.1	20.7	73.0	6.0	40.9	49.5	50.0	67.0	29.0	30.0	23	16.0	48.3
2	165.0	20.7	22.3	92.1	8.0	52.5	61.9	62.5	68.0	32.0	33.0	29	17.0	60.3
2 1/2	190.0	23.9	25.4	104.8	8.0	62.7	74.6	75.4	75.0	37.0	38.0	32	19.0	736.0
3	210.0	27.0	28.6	127.0	10.0	77.9	90.7	91.4	78.0	41.0	43.0	32	21.0	88.9
3 1/2	230.0	28.6	30.2	139.7	10.0	90.1	103.4	104.1	79.0	43.0	44.0	37	—	101.6
4	255.0	30.2	31.8	157.2	11.0	102.3	116.1	116.8	84.0	46.0	48.0	37	—	114.3
5	280.0	33.4	35.0	185.7	11.0	128.2	143.8	144.4	97.0	49.0	51.0	43	—	141.3
6	320.0	35.0	36.6	215.9	13.0	154.1	170.7	171.4	97.0	51.0	52.0	47	—	168.3
8	380.0	39.7	41.3	269.9	13.0	202.7	221.5	222.2	110.0	60.0	62.0	51	—	219.1
10	445.0	46.1	47.7	323.8	13.0	254.6	276.2	277.4	116.0	65.0	95.0	56	—	273.0
12	520.0	49.3	50.8	381.0	13.0	304.8	327.0	328.2	129.0	71.0	102.0	61	—	323.8
14	585.0	52.4	54.0	412.8	13.0	To be specified by purchaser	359.2	360.2	141.0	75.0	111.0	64	—	355.6
16	650.0	55.6	57.2	469.9	13.0		410.5	411.2	144.0	81.0	121.0	69	—	406.4
18	710.0	58.8	60.4	533.7	13.0		461.8	462.3	157.0	87.0	130.0	70	—	457.0
20	775.0	62.0	63.5	584.2	13.0		513.1	514.4	160.0	94.0	140.0	74	—	508.0
24	915.0	68.3	63.9	692.2	13.0		616.0	616.0	167.0	105.0	152.0	83	—	610.0

NOTES

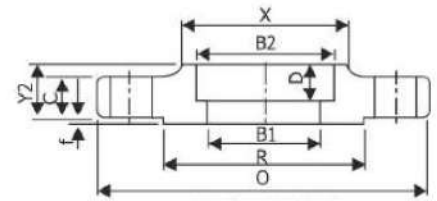
- 1) Raised face height (f=2.00) not included in thickness (C) and length through hub (Y1, Y2)
- 2) For Slip-On Threaded, Socket-Welding, lap joint flanges, the hub shall be tapered 7 max. or vertical from base to top.
- 3) Blind Flanges may be made with the same hub as that used for Slip-On flanges or without hub



Blind



Lap Joint



Socket Weld

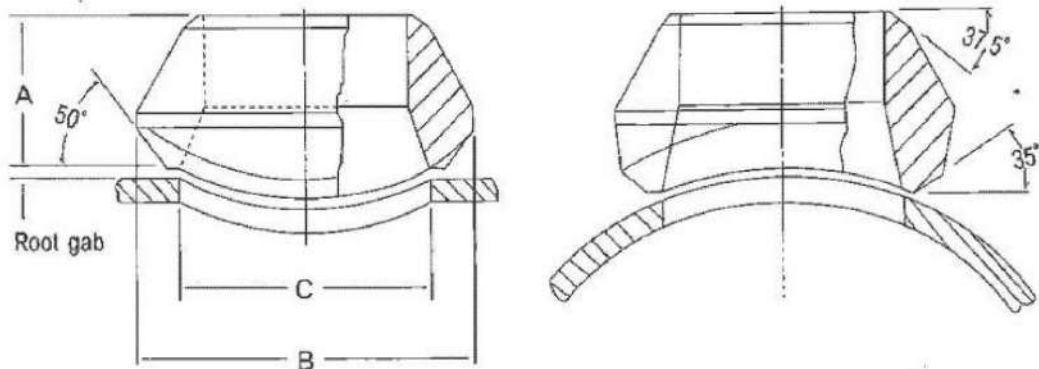


Hub Diameter	Drilling			Approximate Weight										Nominal Pipe Size
	Bolt Circle Diameter Holes	Diameter of Bolt Holes	Number of Bolt	Welding Neck		Slip On Threaded		Lap Joint		Blind		Socket Welding		
				Kg	lb	Kg	lb	Kg	lb	Kg	lb	Kg	lb	
38.0	66.7	15.9	4	0.78	1.70	0.62	1.40	0.61	1.30	0.62	1.40	0.62	1.40	1/2
48.0	82.6	19.1	4	1.34	3.00	1.15	2.50	1.15	2.50	1.16	2.50	1.19	2.60	3/4
54.0	88.9	19.1	4	1.64	3.60	1.39	3.10	1.38	3.00	1.42	3.00	1.44	3.20	1
64.0	98.4	19.1	4	2.06	4.50	1.67	3.70	1.66	3.70	1.79	3.90	1.73	3.80	1 1/4
70.0	114.3	22.2	4	3.06	6.70	2.53	5.60	2.52	5.60	2.68	5.90	2.62	5.80	1 1/2
84.0	127.0	19.1	8	3.40	7.50	2.80	6.20	2.79	6.20	3.09	6.80	2.94	6.50	2
100.0	149.2	22.2	8	5.31	11.70	4.25	9.40	4.22	9.30	4.75	10.50	4.49	9.90	2 1/2
117.0	168.3	22.2	8	7.32	16.10	5.81	12.80	5.78	12.70	6.79	14.90	6.20	13.70	3
133.0	184.2	22.2	8	8.17	18.00	7.72	17.00	7.72	17.00	9.53	21.00			3 1/2
146.0	200.0	22.2	8	11.30	24.90	10.13	22.30	10.07	22.20	12.00	26.50			4
178.0	235.0	22.2	8	15.12	33.30	12.58	27.70	12.52	27.60	15.96	35.20			5
206.0	269.9	22.2	12	19.68	43.40	16.04	35.40	15.95	35.20	21.20	46.70			6
260.0	330.2	25.4	12	30.48	67.20	24.50	54.00	24.37	53.70	34.60	76.30			8
321.0	387.4	28.6	16	43.74	96.40	34.16	75.30	39.92	88.00	55.34	122.00			10
375.0	450.8	31.8	16	64.41	142.00	51.26	113.00	58.70	129.40	78.90	174.00			12
425.0	514.4	31.8	20	88.30	194.70	72.12	159.00	83.46	184.00	107.05	236.00			14
483.0	571.5	34.9	20	112.94	249.00	90.40	199.30	106.14	234.00	139.25	307.00			16
533.0	628.6	34.9	24	138.34	305.00	109.00	240.30	133.95	295.30	176.94	396.00			18
587.0	685.8	34.9	24	167.37	369.00	136.00	300.00	157.65	347.60	223.17	492.00			20
702.0	812.8	41.3	24	235.41	519.00	204.00	449.70	240.40	530.00	342.00	754.00			24

FORGED OUTLET FITTINGS

Weldolet

STD (Sch 40),
X-S (Sch80)
Sch160, XX-s



STD, X-S

Ordering Number	Outlet Size	A		B		C		APP ' Weight (kg)	
		STD	X-S	STD	X-S	STD	X-S	STD	X-S
WCL-04	1/2	19.1	19.1	34.9	34.9	23.8	23.8	0.08	0.19
WCL-06	3/4	22.2	22.2	44.5	44.5	30.2	30.2	0.11	0.14
WCL-08	1	27.0	27.0	54.0	54.0	36.5	36.5	0.23	0.21
WCL-10	1 1/4	31.8	31.8	65.1	65.1	44.5	44.5	0.36	0.41
WCL-12	1 1/2	33.3	33.3	73.0	73.0	50.8	50.8	0.45	0.50
WCL-16	2	38.1	38.1	88.9	88.9	65.1	65.1	0.80	0.80
WCL-20	2 1/2	41.3	41.3	103.2	103.2	76.2	76.2	1.14	1.20
WCL-24	3	44.5	44.5	122.2	122.2	93.7	93.7	1.82	1.90
WCL-32	4	50.8	50.8	152.4	152.4	120.7	120.7	2.86	2.90
WCL-40	5	57.2	57.2	179.4	179.4	141.3	141.3	4.66	4.70
WCL-48	6	60.3	77.8	215.9	225.4	169.9	169.9	6.45	10.50
WCL-64	8	69.9	98.5	263.5	292.1	220.7	220.7	10.68	16.80
WCL-80	10	77.8	93.7	322.3	323.9	274.7	265.1	17.73	20.90
WCL-96	12	85.7	103.2	377.8	397.4	325.4	317.5	26.82	27.70
WCL-112	14	88.9	100.0	409.6	431.8	357.2	350.8	30.00	31.80
WCL-128	16	93.7	106.4	463.6	466.7	408.	403.2	34.10	46.40
WCL-144	18	96.8	111.1	520.7	523.9	458.8	455.6	44.10	59.10
WCL-160	20	101.6	119.1	571.5	582.6	508.0	509.6	53.60	71.80
WCL-184	24	115.9	139.7	689.0	708.0	614.4	638.2	100.00	131.80

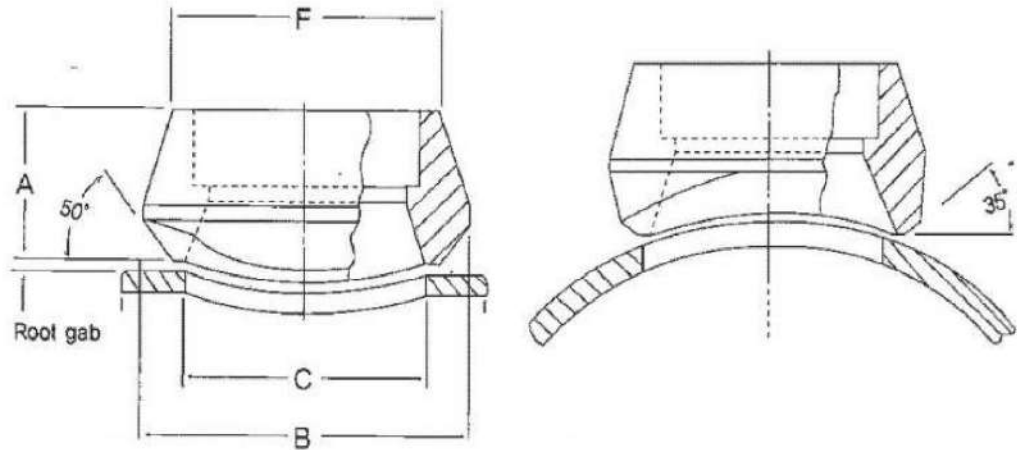
Sch 160, XX-S

Ordering Number	Outlet Size	A		B		C		APP ' Weight (kg)	
		Sch 160	XX-S	Sch 160	XX-s	Sch 160	XX-s	Sch 160	XX-s
WL-04	1/2	28.6	28.6	34.9	34.9	14.3	14.3	0.11	-
WL-06	3/4	31.8	31.8	44.5	44.5	19.1	19.1	0.32	-
WL-08	1	38.1	38.1	50.8	50.8	25.4	25.4	0.38	0.38
WL-10	1 1/4	44.5	44.5	61.9	61.9	33.3	33.3	0.57	0.57
WL-12	1 1/2	50.8	50.8	69.9	69.9	38.1	38.1	0.80	0.80
WL-16	2	55.6	55.6	81.0	81.0	42.9	42.9	1.00	1.00
WL-20	2 1/2	61.8	61.8	96.8	96.8	54.0	54.0	1.54	1.54
WL-24	3	73.0	73.0	120.7	120.7	73.0	73.0	2.90	2.90
WL-32	4	84.1	84.1	152.4	152.4	98.4	98.4	4.80	4.80
WL-40	5	93.7	93.7	187.3	187.3	122.2	122.2	6.50	6.50
WL-48	6	104.8	104.8	220.7	220.7	146.1	146.1	12.70	12.70
WL-64	8	111.1	111.1	284.2	284.2	173.0	173.0	20.50	20.50
WL-80	10	125.4	125.4	312.7	312.7	215.9	215.9	38.60	38.60

FORGED OUTLET FITTINGS

Socket

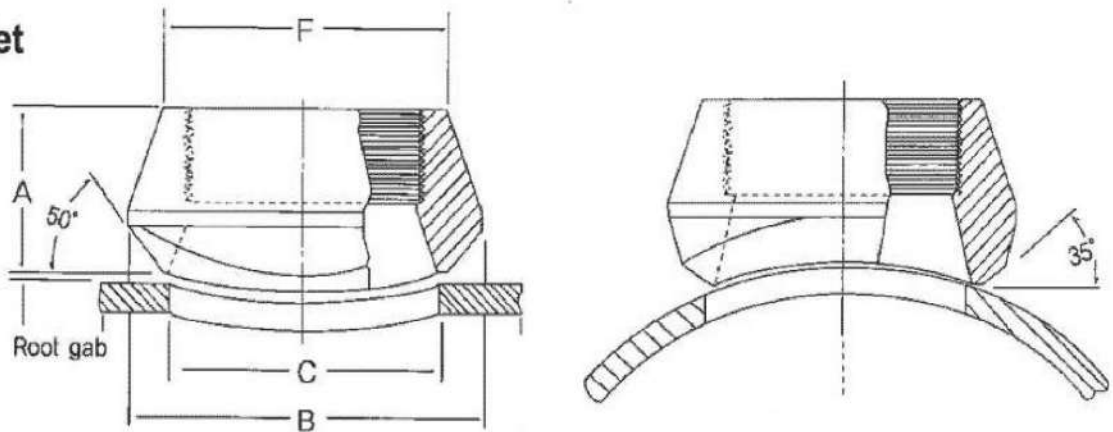
3000#, 6000#



Ordering Number	Outlet Size	A		B		C		F		APP ' Weight (kg)	
		3000#	6000#	3000#	6000#	3000#	6000#	3000#	6000#	3000#	6000#
SOL-04	1/2	25.4	31.8	34.9	44.5	23.8	19.1	31.8	39.7	0.14	0.23
SOL-06	3/4	27.0	36.5	44.5	50.8	30.2	25.4	36.5	45.2	0.15	0.36
SOL-08	1	33.3	39.7	54.0	61.9	36.5	33.3	46.0	57.2	0.27	0.59
SOL-10	1 1/4	33.3	41.3	65.1	69.9	44.5	38.1	55.6	65.1	0.39	0.73
SOL-12	1 1/2	34.9	42.9	73.0	82.6	50.8	49.2	61.9	76.2	0.47	0.91
SOL-16	2	38.1	58.7	88.9	103.2	65.1	58.7	74.6	92.1	0.73	2.33
SOL-20	2 1/2	46.0	-	103.2	-	76.2	-	87.3	-	1.25	-
SOL-24	3	50.8	-	122.2	-	93.7	-	104.8	-	1.73	-
SOL-32	4	57.2	-	152.4	-	120.7	-	130.2	-	3.30	-

Threadolet

3000#, 6000#



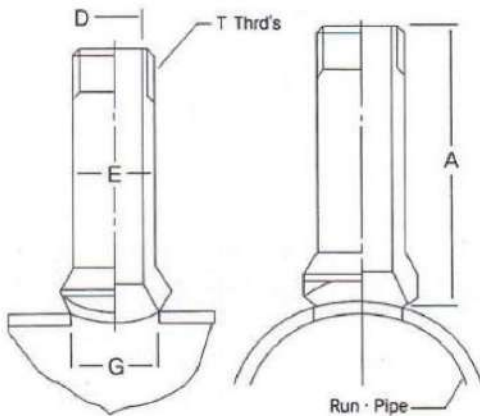
Ordering Number	Outlet Size	A		B		C		F		APP ' Weight (kg)	
		3000#	6000#	3000#	6000#	3000#	6000#	3000#	6000#	3000#	6000#
TOL-04	1/2	25.4	31.8	34.9	44.5	23.8	19.1	31.8	39.7	0.11	0.20
TOL-06	3/4	27.0	36.5	44.5	50.8	30.2	25.4	36.5	45.2	0.16	0.34
TOL-08	1	33.3	39.7	54.0	61.9	36.5	33.3	46.0	57.2	0.28	0.56
TOL-10	1 1/4	33.3	41.3	65.1	69.9	44.5	38.1	55.6	65.1	0.41	0.71
TOL-12	1 1/2	34.9	42.9	73.0	82.6	50.8	49.2	61.9	76.2	0.45	0.89
TOL-16	2	38.1	52.4	88.9	103.2	65.1	69.9	74.6	92.1	0.80	2.31
TOL-20	2 1/2	46.0	-	103.2	-	76.2	-	87.3	-	1.36	-
TOL-24	3	50.8	-	122.2	-	93.7	-	104.8	-	1.98	-
TOL-32	4	57.2	-	152.4	-	120.7	-	130.2	-	3.23	-

- Dimension are in millimeters.
- Applicable Run Pipe Sizes are from Out-Let size to 36inch
- For the 3000# and 6000# Sockolets and Threadolets, Inside Bore, Thread Socked bore and Socket Depth
- Dimension are According to ANSI B16 11.

FORGED OUTLET FITTINGS

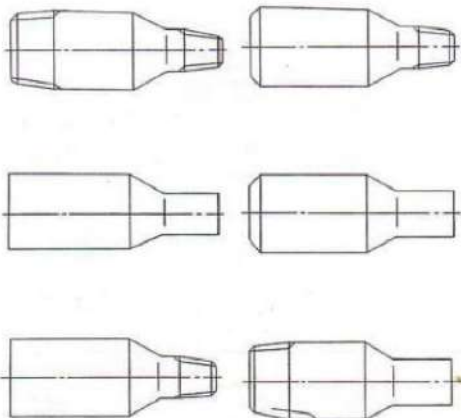
Nippolet

3000#



Ordering Number	Run Pipe Size	Outlet Size T	A	G	D	E	Unit Weight (kg)
NOL-04	36- 3/4	1/2	88.9	23.9	14.0	21.3	0.36
NOL-06	36-1	3/4	88.9	30.2	18.8	26.7	0.56
NOL-08	36-1 1/4	1	88.9	36.6	24.4	33.3	0.84
NOL-10	36-1 1/2	1 1/4	88.9	44.5	32.5	42.2	1.22
NOL-12	36-2	1 1/2	88.9	50.8	38.1	48.3	2.00
NOL-16	36-2 1/2	2	88.9	65.0	49.3	60.5	3.12

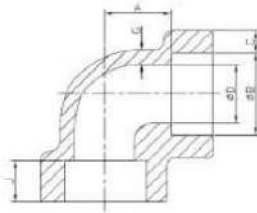
SWAGE NIPPLE (MSS -SP-95)



Large end Size	Small end Size	Length (mm)
1/2	3/8 - 1/8	70
3/4	1/2 - 1/8	76
1	3/4 - 1/8	89
1 1/4	1 - 1/8	102
1 1/2	1 1/4 - 1/8	114
2	1 1/2 - 1/8	165
2 1/2	2 - 1/8	178
3	2 1/2 - 1/8	203
3 1/2	3 - 1/8	203
4	3 1/2 - 1/8	229

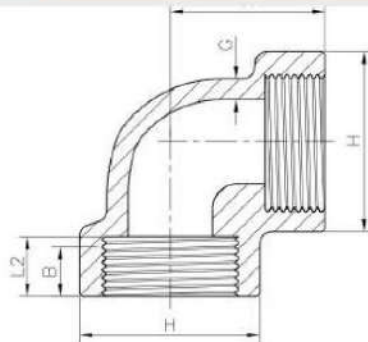
TBE : Threaded both end
 PBE : Plain both end
 PLE/ TSE : Plain Large end- Threadolet small end
 BLE/TSE: Beveled large end Threaded small end
 BLE/PSE : Beveled large end Plain small end
 TLE/PSE : Threaded large end- Plain small end

SOCKET WELD 90 ELBOW



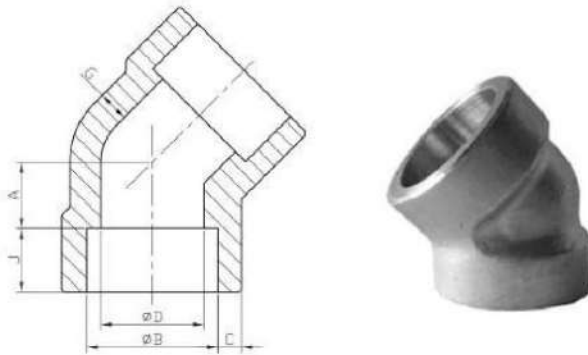
3000 Lb									6000 Lb						
SIZE		D	B	C		A	G (Min)	J (Min)	D	B	C		A	G (Min)	J (Min)
DN	NPS			(Avg)	(Min)						(Avg)	(Min)			
6	1/8"	6.9	10.8	3.18	3.18	11	2.41	9.5	4	10.8	3.96	3.43	11	3.15	9.5
8	1/4"	9.3	14.2	3.78	3.3	11	3.02	9.5	6.4	14.2	4.6	4.01	13.5	3.68	9.5
10	3/8"	12.6	17.6	4.01	3.5	13.5	3.2	9.5	9.2	17.6	5.03	4.37	15.5	4.01	9.5
15	1/2"	15.8	21.8	4.67	4.09	15.5	3.73	9.5	11.8	21.8	5.97	5.18	19	4.78	9.5
20	3/4"	21	27.2	4.9	4.27	19	3.91	12.5	15.6	27.2	6.96	6.04	22.5	5.56	12.5
25	1"	26.7	33.9	5.69	4.98	22.5	4.55	12.5	20.7	33.9	7.92	6.93	27	6.35	12.5
32	1-1/4"	35.1	42.7	6.07	5.28	27	4.85	12.5	29.5	42.7	7.92	6.93	32	6.35	12.5
40	1-1/2"	40.9	46.8	6.35	5.54	32	5.08	12.5	34	48.8	8.92	7.8	38	7.14	12.5
50	2"	52.5	61.2	6.93	6.04	38	5.54	16	42.9	61.2	10.92	9.5	41	8.74	16
65	2-1/2"	62.7	73.9	3.76	7.67	41	7.01	16							
80	3"	78	89.8	9.52	8.3	57	7.62	16							
100	4"	102.3	115.2	10.69	9.35	66.5	8.56	19							

THREADED 90 ELBOW



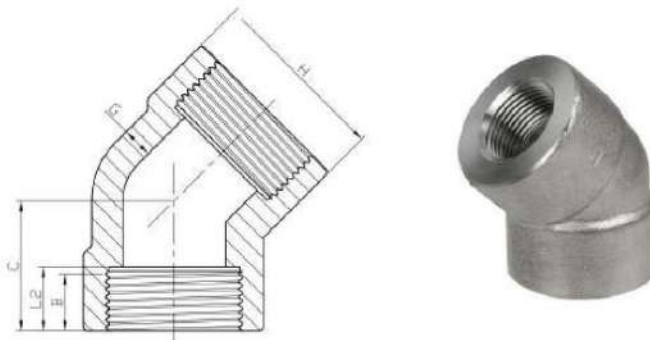
3000 Lb							6000 Lb				
SIZE		A	H	G (Min)	B	L2	A	H	G (Min)	B	L2
DN	NPS	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
6	1/8"	21	22	3.18	6.4	6.7	25	25	6.35	6.4	6.7
8	1/4"	25	25	3.3	8.1	10.2	28	33	6.6	8.1	10.2
10	3/8"	28	33	3.51	9.1	10.4	33	38	6.98	9.1	10.4
15	1/2"	33	38	4.09	10.9	13.6	38	46	8.15	10.9	13.6
20	3/4"	38	46	4.32	12.7	13.9	44	56	8.53	12.7	13.9
25	1"	44	56	4.98	14.7	17.3	51	62	9.93	14.7	17.3
32	1-1/4"	51	62	5.28	17	18	60	75	10.59	17	18
40	1-1/2"	60	75	5.56	17.8	18.4	64	84	11.07	17.8	18.4
50	2"	64	84	7.14	19	19.2	83	102	12.09	19	19.2
65	2-1/2"	83	102	7.65	23.6	28.9	95	121	15.29	23.6	28.9
80	3"	95	121	8.84	25.9	30.5	106	146	16.64	25.9	30.5
100	4"	114	152	11.18	27.7	33	114	152	18.67	27.7	33

SOCKET WELD 45 ELBOW



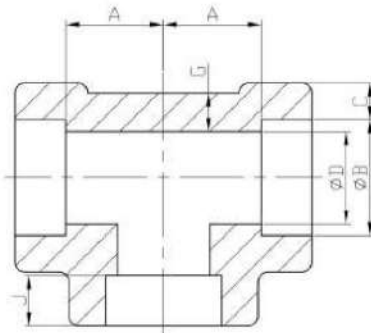
3000 Lb									6000 Lb						
SIZE		D	B	C		A	G (Min)	J (Min)	D	B	C		A	G (Min)	J (Min)
DN	NPS	mm	mm	(Avg)	(Min)	mm	mm	mm	mm	mm	(Avg)	(Min)	mm	mm	mm
6	1/8"	6.9	10.8	3.18	3.18	8	2.41	9.5	4	10.8	3.96	3.43	8	3.15	9.5
8	1/4"	9.3	14.2	3.78	3.3	8	3.02	9.5	6.4	14.2	4.6	4.01	8	3.68	9.5
10	3/8"	12.6	17.6	4.01	3.5	8	3.2	9.5	9.2	17.6	5.03	4.37	11	4.01	9.5
15	1/2"	15.8	21.8	4.67	4.09	11	3.73	9.5	11.8	21.8	5.97	5.18	12.5	4.78	9.5
20	3/4"	21	27.2	4.9	4.27	13	3.91	12.5	15.6	27.2	6.96	6.04	14	5.56	12.5
25	1"	26.7	33.9	5.69	4.98	14	4.55	12.5	20.7	33.9	7.92	6.93	17.5	6.35	12.5
32	1-1/4"	35.1	42.7	6.07	5.28	17.5	4.85	12.5	29.5	42.7	7.92	6.93	20.5	6.35	12.5
40	1-1/2"	40.9	48.8	6.35	5.54	20.5	5.08	12.5	34	48.8	8.92	7.8	25.5	7.14	12.5
50	2"	52.5	61.2	6.93	6.04	25.5	5.54	16	42.9	61.2	10.92	9.5	28.5	8.74	16
65	2-1/2"	62.7	73.9	8.76	7.67	28.5	7.01	16							
80	3"	78	89.8	9.52	8.3	32	7.62	16							
100	4"	102.3	115.2	10.69	9.35	41	8.56	19							

THREADED 45 ELBOW



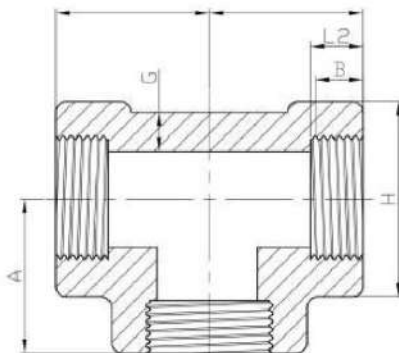
3000 Lb							6000 Lb				
SIZE		C	H	G (Min)	B	L2	C	H	G (Min)	Length Of Thread (Min)	
DN	NPS	mm	mm	mm	mm	mm	mm	mm	mm	B	L2
6	1/8"	17	22	3.18	6.4	6.7	19	25	6.35	6.4	6.7
8	1/4"	19	25	3.3	8.1	10.2	22	33	6.6	8.1	10.2
10	3/8"	22	33	3.51	9.1	10.4	25	38	6.98	9.1	10.4
15	1/2"	25	38	4.09	10.9	13.6	28	46	8.15	10.9	13.6
20	3/4"	28	46	4.32	12.7	13.9	33	56	8.53	12.7	13.9
25	1"	33	56	4.98	14.7	17.3	35	62	9.93	14.7	17.3
32	1-1/4"	35	62	5.28	17	18	43	75	10.59	17	18
40	1-1/2"	43	75	5.56	17.8	18.4	44	84	11.07	17.8	18.4
50	2"	44	84	7.14	19	19.2	52	102	12.09	19	19.2
65	2-1/2"	52	102	7.65	23.6	28.9	64	121	15.29	23.6	28.9
80	3"	64	121	8.84	25.9	30.5	79	146	16.64	25.9	30.5
100	4"	79	152	11.18	27.7	33	79	152	18.67	27.7	33

SOCKET WELD TEE



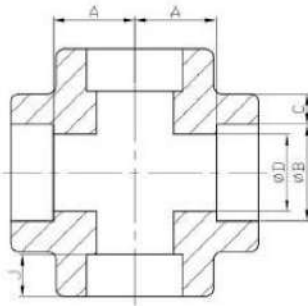
3000 Lb									6000 Lb						
SIZE		D	B	C		A	G (Min)	J (Min)	D	B	C		A	G (Min)	J (Min)
DN	NPS	mm	mm	(Avg)	(Min)	mm	mm	mm	mm	mm	(Avg)	(Min)	mm	mm	mm
6	1/8"	6.9	10.8	3.18	3.18	11	2.41	9.5	4	10.8	3.96	3.43	11	3.15	9.5
8	1/4"	9.3	14.2	3.78	3.3	11	3.02	9.5	6.4	14.2	4.6	4.01	13.5	3.68	9.5
10	3/8"	12.6	17.6	4.01	3.5	13.5	3.2	9.5	9.2	17.6	5.03	4.37	15.5	4.01	9.5
15	1/2"	15.8	21.8	4.67	4.09	15.5	3.73	9.5	11.8	21.8	5.97	5.18	19	4.78	9.5
20	3/4"	21	27.2	4.9	4.27	19	3.91	12.5	15.6	27.2	6.96	6.04	22.5	5.56	12.5
25	1"	26.7	33.9	5.69	4.98	22.5	4.55	12.5	20.7	33.9	7.92	6.93	27	6.35	12.5
32	1-1/4"	35.1	42.7	6.07	5.28	27	4.85	12.5	29.5	42.7	7.92	6.93	32	6.35	12.5
40	1-1/2"	40.9	48.8	6.35	5.54	32	5.08	12.5	34	48.8	8.92	7.8	38	7.14	12.5
50	2"	52.5	61.2	6.93	6.04	38	5.54	16	42.9	61.2	10.92	9.5	41	8.74	16
65	2-1/2"	62.7	73.9	8.76	7.67	41	7.01	16							
80	3"	78	89.8	9.52	8.3	57	7.62	16							
100	4"	102.3	115.2	10.69	9.35	66.5	8.56	19							

THREADED TEE



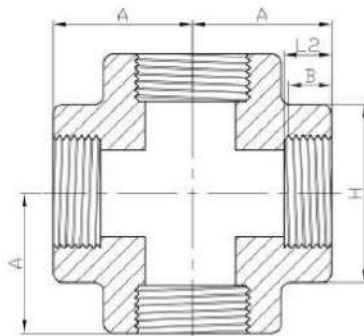
3000 Lb							6000 Lb					
SIZE		A	H	G (Min)	B	L2	A	H	G (Min)	B	L2	
DN	NPS	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	
6	1/8"	21	22	3.18	6.4	6.7	25	25	6.35	6.4	6.7	
8	1/4"	25	25	3.3	8.1	10.2	28	33	6.6	8.1	10.2	
10	3/8"	28	33	3.51	9.1	10.4	33	38	6.98	9.1	10.4	
15	1/2"	33	38	4.09	10.9	13.6	38	46	8.15	10.9	13.6	
20	3/4"	38	46	4.32	12.7	13.9	44	56	8.53	12.7	13.9	
25	1"	44	56	4.98	14.7	17.3	51	62	9.93	14.7	17.3	
32	1-1/4"	51	62	5.28	17	18	60	75	10.59	17	18	
40	1-1/2"	60	75	5.56	17.8	18.4	64	84	11.07	17.8	18.4	
50	2"	64	84	7.14	19	19.2	83	102	12.09	19	19.2	
65	2-1/2"	83	102	7.65	23.6	28.9	95	121	15.29	23.6	28.9	
80	3"	95	121	8.84	25.9	30.5	106	146	16.64	25.9	30.5	
100	4"	114	152	11.18	27.7	33	114	152	18.67	27.7	33	

SOCKET WELD CROSS



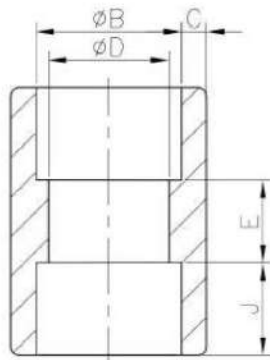
3000 Lb								6000 Lb					
SIZE		D	B	C		A	J (Min)	D	B	C		A	J (Min)
DN	NPS	mm	mm	(Avg) mm	(Min) mm	mm	mm	mm	mm	(Avg) mm	(Min) mm	mm	mm
6	1/8"	6.9	10.8	3.18	3.18	11	9.5	4	10.8	3.96	3.43	11	9.5
8	1/4"	9.3	14.2	3.78	3.3	11	9.5	6.4	14.2	4.6	4.01	13.5	9.5
10	3/8"	12.6	17.6	4.01	3.5	13.5	9.5	9.2	17.6	5.03	4.37	15.5	9.5
15	1/2"	15.8	21.8	4.67	4.09	15.5	9.5	11.8	21.8	5.97	5.18	19	9.5
20	3/4"	21	27.2	4.9	4.27	19	12.5	15.6	27.2	6.96	6.04	22.5	12.5
25	1"	26.7	33.9	5.69	4.98	22.5	12.5	20.7	33.9	7.92	6.93	27	12.5
32	1-1/4"	35.1	42.7	6.07	5.28	27	12.5	29.5	42.7	7.92	6.93	32	12.5
40	1-1/2"	40.9	48.8	6.35	5.54	32	12.5	34	48.8	8.92	7.8	38	12.5
50	2"	52.5	61.2	6.93	6.04	38	16	42.9	61.2	10.92	9.5	41	16
65	2-1/2"	62.7	73.9	8.76	7.67	41	16						
80	3"	78	89.8	9.52	8.3	57	16						
100	4"	102.3	115.2	10.69	9.35	66.5	19						

THREADED CROSS



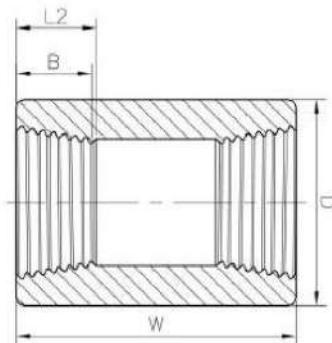
3000 Lb						6000 Lb			
SIZE		A	H	Length Of Thread (Min)		A	H	Length Of Thread (Min)	
DN	NPS	mm	mm	B mm	L2 mm	mm	mm	B mm	L2 mm
6	1/8"	21	22	6.4	6.7	25	25	6.4	6.7
8	1/4"	25	25	8.1	10.2	28	33	8.1	10.2
10	3/8"	28	33	9.1	10.4	33	38	9.1	10.4
15	1/2"	33	38	10.9	13.6	38	46	10.9	13.6
20	3/4"	38	46	12.7	13.9	44	56	12.7	13.9
25	1"	44	56	14.7	17.3	51	62	14.7	17.3
32	1-1/4"	51	62	17	18	60	75	17	18
40	1-1/2"	60	75	17.8	18.4	64	84	17.8	18.4
50	2"	64	84	19	19.2	83	102	19	19.2
65	2-1/2"	83	102	23.6	28.9	95	121	23.6	28.9
80	3"	95	121	25.9	30.5	106	146	25.9	30.5
100	4"	114	152	27.7	33	114	152	27.7	33

SOCKET WELD FULL COUPLING



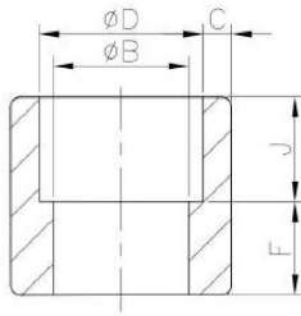
3000 Lb								6000 Lb					
SIZE		D	B	C		E	J (Min)	D	B	C		E	J (Min)
DN	NPS	mm	mm	(Avg)	(Min)	mm	mm	mm	mm	(Avg)	(Min)	mm	mm
6	1/8"	6.9	10.8	3.18	3.18	6.5	9.5	4	10.8	3.96	3.43	6.5	9.5
8	1/4"	9.3	14.2	3.78	3.3	6.5	9.5	6.4	14.2	4.6	4.01	6.5	9.5
10	3/8"	12.6	17.6	4.01	3.5	6.5	9.5	9.2	17.6	5.03	4.37	6.5	9.5
15	1/2"	15.8	21.8	4.67	4.09	9.5	9.5	11.8	21.8	5.97	5.18	9.5	9.5
20	3/4"	21	27.2	4.9	4.27	9.5	12.5	15.6	27.2	6.96	6.04	9.5	12.5
25	1"	26.7	33.9	5.69	4.98	12.5	12.5	20.7	33.9	7.92	6.93	12.5	12.5
32	1-1/4"	35.1	42.7	6.07	5.28	12.5	12.5	29.5	42.7	7.92	6.93	12.5	12.5
40	1-1/2"	40.9	48.8	6.35	5.54	12.5	12.5	34	48.8	8.92	7.8	12.5	12.5
50	2"	52.5	61.2	6.93	6.04	19	16	42.9	61.2	10.92	9.5	19	16
65	2-1/2"	62.7	73.9	8.76	7.67	19	16						
80	3"	78	89.8	9.52	8.3	19	16						
100	4"	102.3	115.2	10.69	9.35	19	19						

THREADED FULL COUPLING



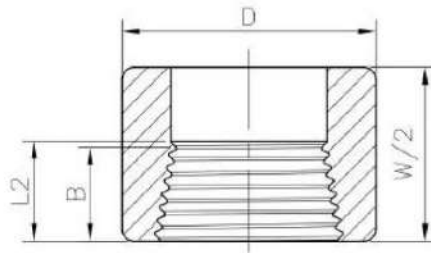
3000 Lb						6000 Lb			
SIZE		W	D	Length of Thread (Min)		W	D	Length of Thread (Min)	
DN	NPS	mm	mm	B	L2	mm	mm	B	L2
6	1/8"	32	16	6.4	6.7	32	22	6.4	6.7
8	1/4"	35	19	8.1	10.2	35	25	8.1	10.2
10	3/8"	38	22	9.1	10.4	38	32	9.1	10.4
15	1/2"	48	28	10.9	13.6	48	38	10.9	13.6
20	3/4"	51	35	12.7	13.9	51	44	12.7	13.9
25	1"	60	44	14.7	17.3	60	57	14.7	17.3
32	1-1/4"	67	57	17	18	67	64	17	18
40	1-1/2"	79	64	17.8	18.4	79	76	17.8	18.4
50	2"	86	76	19	19.2	86	92	19	19.2
65	2-1/2"	92	92	23.6	28.9	92	108	23.6	28.9
80	3"	108	108	25.9	30.5	108	127	25.9	30.5
100	4"	121	140	27.7	33	121	159	27.7	33

SOCKET WELD HALF COUPLING



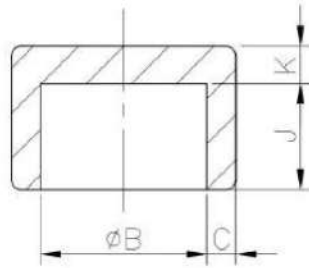
3000 Lb								6000 Lb					
SIZE		D	B	C		F	J (Min)	D	B	C		F	J (Min)
DN	NPS	mm	mm	(Avg)	(Min)	mm	mm	mm	mm	(Avg)	(Min)	mm	mm
6	1/8"	6.9	10.8	3.18	3.18	16	9.5	4	10.8	3.96	3.43	16	9.5
8	1/4"	9.3	14.2	3.78	3.3	16	9.5	6.4	14.2	4.6	4.01	16	9.5
10	3/8"	12.6	17.6	4.01	3.5	17.5	9.5	9.2	17.6	5.03	4.37	17.5	9.5
15	1/2"	15.8	21.8	4.67	4.09	22.5	9.5	11.8	21.8	5.97	5.18	22.5	9.5
20	3/4"	21	27.2	4.9	4.27	24	12.5	15.6	27.2	6.96	6.04	24	12.5
25	1"	26.7	33.9	5.69	4.98	28.5	12.5	20.7	33.9	7.92	6.93	28.5	12.5
32	1-1/4"	35.1	42.7	6.07	5.28	30	12.5	29.5	42.7	7.92	6.93	30	12.5
40	1-1/2"	40.9	48.8	6.35	5.54	32	12.5	34	48.8	8.92	7.8	32	12.5
50	2"	52.5	61.2	6.93	6.04	41	16	42.9	61.2	10.92	9.5	41	16
65	2-1/2"	62.7	73.9	8.76	7.67	43	16						
80	3"	78	89.8	9.52	8.3	44.5	16						
100	4"	102.3	115.2	10.69	9.35	48	19						

THREADED HALF COUPLING



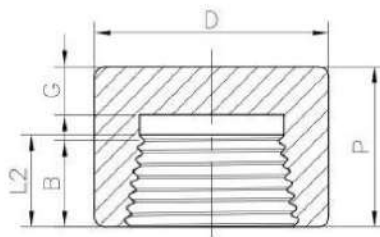
3000 Lb						6000 Lb			
SIZE		W	D	Length of Thread (Min)		W	D	Length of Thread (Min)	
DN	NPS	mm	mm	B	L2	mm	mm	B	L2
6	1/8"	32	16	6.4	6.7	32	22	6.4	6.7
8	1/4"	35	19	8.1	10.2	35	25	8.1	10.2
10	3/8"	38	22	9.1	10.4	38	32	9.1	10.4
15	1/2"	48	28	10.9	13.6	48	38	10.9	13.6
20	3/4"	51	35	12.7	13.9	51	44	12.7	13.9
25	1"	60	44	14.7	17.3	60	57	14.7	17.3
32	1-1/4"	67	57	17	18	67	64	17	18
40	1-1/2"	79	64	17.8	18.4	79	76	17.8	18.4
50	2"	86	76	19	19.2	86	92	19	19.2
65	2-1/2"	92	92	23.6	28.9	92	108	23.6	28.9
80	3"	108	108	25.9	30.5	108	127	25.9	30.5
100	4"	121	140	27.7	33	121	159	27.7	33

SOCKET WELD CAP



3000 Lb							6000 Lb				
SIZE		B	C		K	J (Min)	B	C		K	J (Min)
DN	NPS		(Avg)	(Min)				(Avg)	(Min)		
6	1/8"	10.8	3.18	3.18	4.8	9.5	10.8	3.96	3.43	6.4	9.5
8	1/4"	14.2	3.78	3.3	4.8	9.5	14.2	4.6	4.01	6.4	9.5
10	3/8"	17.6	4.01	3.5	4.8	9.5	17.6	5.03	4.37	6.4	9.5
15	1/2"	21.8	4.67	4.09	6.4	9.5	21.8	5.97	5.18	7.9	9.5
20	3/4"	27.2	4.9	4.27	6.4	12.5	27.2	6.96	6.04	7.9	12.5
25	1"	33.9	5.69	4.98	9.6	12.5	33.9	7.92	6.93	11.2	12.5
32	1-1/4"	42.7	6.07	5.28	9.6	12.5	42.7	7.92	6.93	11.2	12.5
40	1-1/2"	48.8	6.35	5.54	11.2	12.5	48.8	8.92	7.8	12.7	12.5
50	2"	61.2	6.93	6.04	12.7	16	61.2	10.92	9.5	15.7	16
65	2-1/2"	73.9	8.76	7.67	15.7	16					
80	3"	89.8	9.52	8.3	19	16					
100	4"	115.2	10.69	9.35	22.4	19					

THREADED CAP



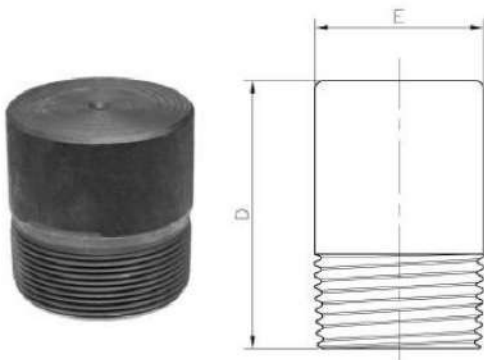
3000 Lb							6000 Lb				
SIZE		P	D	Length of Thread (Min)		G (Min)	P	D	Length of Thread (Min)		G (Min)
DN	NPS			B	L2				B	L2	
6	1/8"	19	16	6.4	6.7	4.8	27	25	8.1	10.2	6.4
8	1/4"	25	19	8.1	10.2	4.8	27	32	9.1	10.4	6.4
10	3/8"	25	22	9.1	10.4	4.8	33	38	10.9	13.6	7.9
15	1/2"	32	28	10.9	13.6	6.4	38	44	12.7	13.9	7.9
20	3/4"	37	35	12.7	13.9	6.4	43	57	14.7	17.3	11.2
25	1"	41	44	14.7	17.3	9.7	46	64	17	18	11.2
32	1-1/4"	44	57	17	18	9.7	48	76	17.8	18.4	12.7
40	1-1/2"	44	64	17.8	18.4	11.2	51	92	19	19.2	15.7
50	2"	48	76	19	19.2	12.7	64	108	23.6	28.9	19
65	2-1/2"	60	92	23.6	28.9	15.7	68	127	25.9	30.5	22.4
80	3"	65	108	25.9	30.5	19	75	159	27.7	33	28.4
100	4"	68	140	27.7	33	22.4					

SQUARE HEAD PLUG



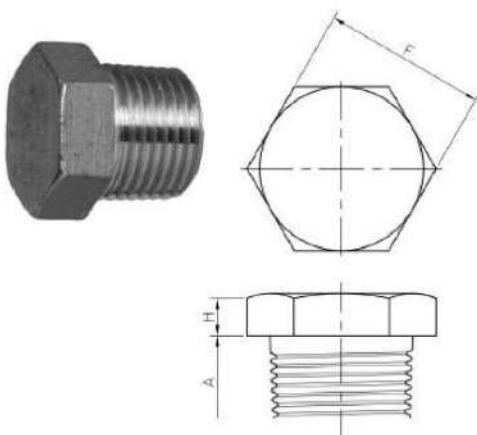
SIZE		A(Min)		B(Min)		C(Min)	
DN	NPS	mm	in	mm	in	mm	in
6	1/8"	10	0.39	6	0.24	7	0.28
8	1/4"	11	0.43	6	0.24	10	0.39
10	3/8"	13	0.51	8	0.31	11	0.43
15	1/2"	14	0.55	10	0.39	14	0.55
20	3/4"	16	0.63	11	0.43	16	0.63
25	1"	19	0.75	13	0.51	21	0.83
32	1-1/4"	21	0.83	14	0.55	24	0.94
40	1-1/2"	21	0.83	16	0.63	28	1.1
50	2"	22	0.87	18	0.71	32	1.26
65	2-1/2"	27	1.06	19	0.75	36	1.42
80	3"	28	1.1	21	0.83	41	1.61
100	4"	32	1.26	25	0.98	65	2.56

ROUND HEAD PLUG



SIZE		D(Min)		E	
DN	NPS	mm	in	mm	in
6	1/8"	35	1.38	10	0.39
8	1/4"	41	1.61	14	0.55
10	3/8"	41	1.61	18	0.71
15	1/2"	44	1.73	21	0.83
20	3/4"	44	1.73	27	1.06
25	1"	51	2.01	33	1.3
32	1-1/4"	51	2.01	43	1.69
40	1-1/2"	51	2.01	48	1.89
50	2"	64	2.52	60	2.36
65	2-1/2"	70	2.76	73	2.87
80	3"	70	2.76	89	3.5
100	4"	76	2.99	114	4.49

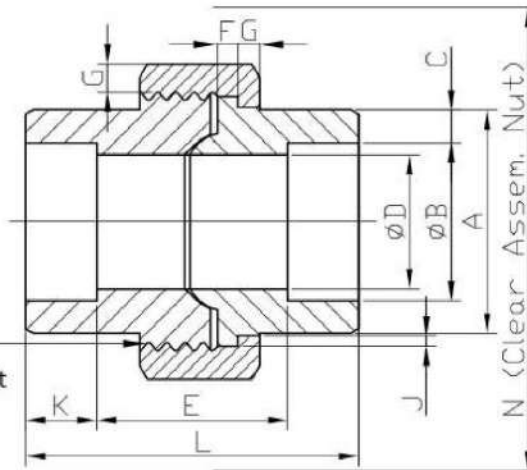
HEX HEAD PLUG



SIZE		A(Min)		F		H(Min)	
DN	NPS	mm	in	mm	in	mm	in
6	1/8"	10	0.39	11	0.43	6	0.24
8	1/4"	11	0.43	16	0.63	6	0.24
10	3/8"	13	0.51	18	0.71	8	0.31
15	1/2"	14	0.55	22	0.87	8	0.31
20	3/4"	16	0.63	27	1.06	10	0.39
25	1"	19	0.75	36	1.42	10	0.39
32	1-1/4"	21	0.83	46	1.81	14	0.55
40	1-1/2"	21	0.83	50	1.97	16	0.63
50	2"	22	0.87	65	2.56	18	0.71
65	2-1/2"	27	1.06	75	2.95	19	0.75
80	3"	28	1.1	90	3.54	21	0.83
100	4"	32	1.26	115	4.53	25	0.98

SOCKET WELD UNION

H-Threads
Minimum 4 Full Threads
Engagement Class 2A/2B Fit
ANSI B1.1



3000 Lb

DN	NPS	A (Min)		B		C (Min)		D		E		F (Min)		G (Min)		H	J (Min)		K (Min)		L		N	
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in		Threads Per 25.4mm	mm	in	mm	in	mm	in	mm
6	1/8"	21.8	0.86	11.18 10.67	0.44 0.42	3.18	0.13	7.59 6.07	0.3 0.24	22.4 19.1	0.88 0.75	3.18	0.13	3.18	0.13	16	1.24	0.05	9.7	0.38	41.4	1.63	50.8	2
8	1/4"	21.8	0.86	14.61 14.1	0.58 0.56	3.3	0.13	10.01 8.48	0.39 0.33	22.4 19.1	0.88 0.75	3.18	0.13	3.18	0.13	16	1.24	0.05	9.7	0.38	41.4	1.63	50.8	2
10	3/8"	25.9	1.02	18.03 17.53	0.71 0.69	3.51	0.14	13.28 11.76	0.52 0.46	26.9 20.6	1.06 0.81	3.43	0.14	3.43	0.14	14	1.37	0.05	9.7	0.38	46	1.81	55.9	2.2
15	1/2"	31.2	1.23	22.23 21.72	0.88 0.86	4.09	0.16	16.56 15.04	0.65 0.59	26.9 20.6	1.06 0.81	3.68	0.14	3.68	0.14	14	1.5	0.06	9.7	0.38	49	1.93	58.4	2.3
20	3/4"	37.1	1.46	27.56 27.05	1.09 1.06	4.27	0.17	21.69 20.17	0.85 0.79	31.8 25.4	1.25 1	4.06	0.16	4.06	0.16	11	1.68	0.07	12.7	0.5	56.9	2.24	66	2.6
25	1"	45.5	1.79	34.29 33.78	1.35 1.33	4.98	0.2	27.41 25.88	1.08 1.02	34.3 26.2	1.35 1.03	4.57	0.18	4.45	0.18	11	1.85	0.07	12.7	0.5	62	2.44	78.7	3.1
32	1-1/4"	54.9	2.16	43.05 42.55	1.69 1.68	5.28	0.21	35.81 34.29	1.41 1.35	40.6 32.5	1.6 1.28	5.33	0.21	5.21	0.21	10	2.13	0.08	12.7	0.5	71.1	2.8	94	3.7
40	1-1/2"	61.5	2.42	49.15 48.64	1.94 1.91	5.54	0.22	41.66 40.13	1.64 1.58	42.2 34	1.66 1.34	5.84	0.23	5.59	0.22	10	2.31	0.09	12.7	0.5	76.5	3.01	111.8	4.4
50	2"	75.2	2.96	61.62 61.11	2.43 2.41	6.05	0.24	53.26 51.74	2.1 2.04	45.5 37.3	1.79 1.47	6.6	0.26	6.35	0.25	10	2.69	0.11	15.7	0.62	86.1	3.39	132.1	5.2
65	2-1/2"	91.7	3.61	74.45 73.81	2.93 2.91	7.67	0.3	64.24 61.19	2.53 2.41	61.7 52.1	2.43 2.05	7.49	0.29	7.11	0.28	8	3.07	0.12	15.7	0.62	102.4	4.03	149.9	5.9
80	3"	109.2	4.3	90.42 89.79	3.56 3.54	8.31	0.33	79.45 76.4	3.13 3.01	63.8 53.6	2.51 2.11	8.26	0.33	8	0.31	8	3.53	0.14	15.7	0.62	109	4.29	175.3	6.9

TOLERANCES AS PER B 16.9

Nominal Pipe Size	ALL FITTINGS			90 Deg. and 45 Deg. Elbows and Tees	Reducers and Lap Joint Stub Ends	Caps	180 Deg. Returns			Lap. Joint Ends			
	Outside (1) Diameter at Bevel	Inside (2) Diameter at End	Wall (2) Thickness				Centre To End Dimension A, B, C, M	Over all Length F, H	Over all Dimension E	Centre all Dimension O	Back to Face Ends K	Alignments of Ends U	outside Diameter of Lap G
1/2" to 2 1/2"	±1	±8		±2	±2	±4	±7	±7	±1	±0-1		±0-1	
3" to 3 1/2"	±1	±1.6		±2	±2	±4	±7	±7	±1	±0-1		±0-1	
4"	±2-1	±1.6	Not	±2	±2	±4	±7	±7	±1	±0-1	Not Less than nominal pipe wall thickness	±0-2	Refer Table Below
5" to 6"	±3-1	±1.6	Less	±2	±2	±7	±7	±7	±1	±0-1		±0-2	
8"	±2	±1.6	than	±2	±2	±7	±7	±7	±1	±0-1		±0-2	
10"	±4-3	±3.2	87.5% of	±2	±2	±7	±10	±7	±2	±0-2		±0-2	
12" to 18"	±4-3	±3.2	Nominal	±3	±3	±7	±10	±7	±2	±0-2		±0-2	
20" to 24"	±4-3	±4.8		±3	±3	±7	±10	±7	±2	±0-2		±0-2	
26" to 30"	±7-5	±4.8		±3	±3	±10	-	-	-	-		-	
32" to 48"	±7-5	±4.8		±5	±5	±10	-	-	-	-		-	



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