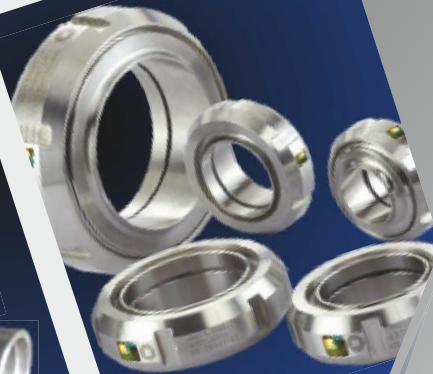
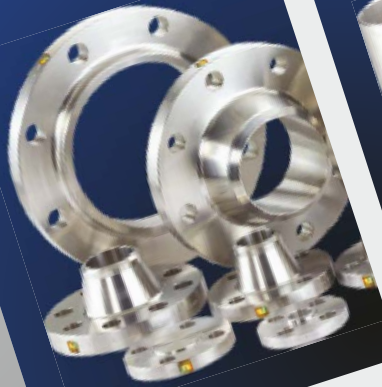


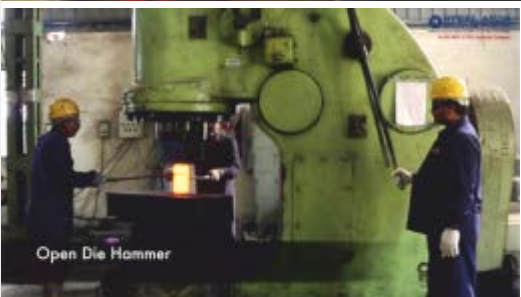
STEEL AIIDS **ENTERPRISE P LIMITED**

MANUFACTURER OF FORGED FLANGES & BUTT WELD PIPE FITTINGS

An ISO 9001 & PED Approved Company



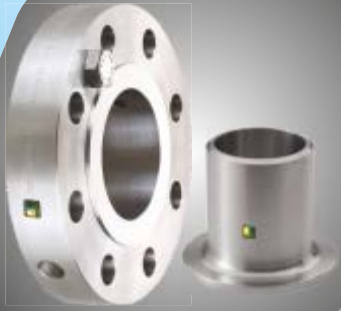
Factory Setup at Chakan (Pune)



STEEL AIIDS ENTERPRISE P LIMITED

MANUFACTURER OF FORGED FLANGES & BUTT WELD PIPE FITTINGS

An ISO 9001 & PED Approved Company

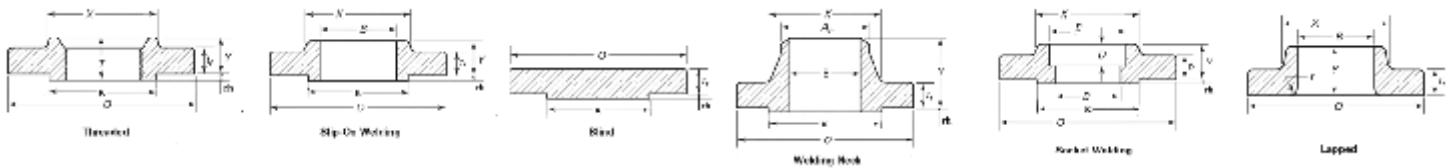


FORGED FLANGES



Size	: 1/2" NB to 24" ASME B16.5 SORF : 1/2" NB to 6" ASME B16.5 WNRF
Standard	: LBS : 150#, 300#, 600#, 900#, 1500# & 2500# Table: ASA 150 & ASA 300 = D, E, F, H, DIN; ND-6,10, 16, 25, 40, etc.
Type	: Weld Neck (WNRF), Socket Weld (SWRF), Slip on (SORF), Blind (BLRF), Screwed (Threaded) Long Weld Neck (LWNRF), Lapped Joint, Reducing, Spectacle Blind, UNS, JIS, Orifice, DIN, GOST, MSS, SP & BS
Dimension	: ASME B16.9, B16.47:2009, DIN EN1092-1
Stainless Steel Flanges	: ASTM A 240 / 182 F – 304/304H/304L, 316/316H/316Ti, 309, 310, 317L, 321, 347, 904L etc., 1.4301, 1.4307, 1.4841, 1.4842, 1.4401, 1.4404, 1.4571, 1.4541
Duplex Steel Flanges	: ASTM A815-F51, F53, F55, F60
Alloy Steel Flanges	: ASTM A 182-F5, F9 F, F11, F12, F21, F22 & F91
Carbon Steel Flanges	: ASTM A-105, ASTM A 694-F42,F46, F52, F60, F65, F70
LTCS Flanges	: ASTM A-420 WPL6
Cu-Ni Flanges	: C70600 (90:10), C7 1500 (70:30), C71640
Monel & Nickel Flanges	: UNS N04400, N05500, UNS N02200, N02201
Inconel Flanges	: UNS N06600, N06601, N06625, N08800, N08810, N08825
Hastelloy Flanges	: UNS N10276, N06022, N10665, N06455, Alloy20
Titanium Flanges	: Gr. 1,2,3 DIN3.7025, DIN3.7035, DIN3.7055
Copper Alloy & Ai Flanges	: C2800, C36500, C46400, ASTM 6061, 6063, 6351
Other Services	: Hot Dipped Galvanizing, ElectroPolish, Stand Blasting, etc.
Test Certificate	: Manufacturer Certificates as per EN 10204 / 3.1/3.2 & NACE MR 01 75
Specialize	: IBR Flanges, Long Neck Weld Flanges, Spectacle etc.

ASME B16.5



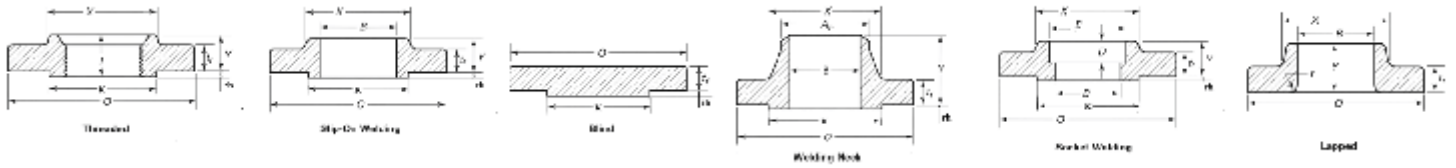
DIMENSION OF CLASS 150 FLANGES

Nominal Pipe Size, NPS	Outside Diameter of Flange, O	Minimum Thickness of Flange, tf	Minimum Thickness Lap Joint, lf	Diameter of Hub, X	Hub diameter Welding Neck, Ah	Length Through Hub			Minimum Thread Length Threaded, T	Minimum Slip-on Socket Welding, B	Bore	Welding Neck/ Socket Welding, B	Corner Bore Radius of Lapped Flange, r	Depth of Socket, D	Minimum Outside Diameter of Raised face, K	Raised face height, rh
						Threaded/ Slip-on Socket Welding, Y	Lapped, Y	Welding Neck, Y								
1/2	90	9.6	11.2	30	21.3	14	16	46	16	22.2	22.9	15.8	3	10	44	2
3/4	100	11.2	12.7	38	26.7	14	16	51	16	27.7	28.2	20.9	3	11	52	2
1	110	12.7	14.3	49	33.4	16	17	54	17	34.5	34.9	26.6	3	13	57	2
1 1/4	115	14.3	15.9	59	42.2	18	21	58	21	43.2	43.7	35.1	5	14	87	2
1 1/2	125	15.9	17.5	65	48.3	21	22	60	22	49.5	50	40.9	6	16	73	2
2	150	17.5	19.1	78	60.3	24	25	62	25	61.9	62.5	52.5	8	17	92	2
2 1/2	180	20.7	22.3	90	73	27	29	68	29	74.6	75.4	62.7	8	19	105	2
3	190	22.3	23.9	109	85.9	29	30	69	30	90.7	91.4	77.9	10	21	127	2
3 1/2	215	22.3	23.9	122	101.6	30	32	70	32	103.4	104.1	90.1	10	...	140	2
4	230	22.3	23.9	135	114.3	32	33	75	33	118.1	118.8	102.3	11	...	157	2
5	255	22.3	23.9	164	141.3	35	36	87	36	143.8	144.4	128.2	11	...	186	2
6	280	23.9	25.4	192	168.3	38	40	87	40	170.7	171.4	154.1	13	...	216	2
8	345	27	28.6	246	219.1	43	44	100	44	221.5	222.2	202.7	13	...	270	2
10	405	28.6	30.2	305	273	48	48	100	49	278.2	277.4	254.8	13	...	324	2
12	485	30.2	31.8	365	323.8	54	56	113	56	327	328.2	304.8	13	...	381	2
14	535	33.4	35	400	355.6	56	70	125	57	359.2	360.2	...	13	...	413	2
16	595	35	36.6	457	406.4	62	87	125	64	410.5	411.2	...	13	...	470	2
18	635	38.1	39.7	505	457	67	97	138	68	481.8	482.3	...	13	...	533	2
20	700	41.3	42.9	559	508	71	103	143	73	513.1	514.4	...	13	...	584	2
24	815	46.1	47.7	663	610	81	111	151	83	616	616	...	13	...	692	2

DIMENSION OF CLASS 300 FLANGES

Nominal Pipe Size, NPS	Outside Diameter of Flange, O	Minimum Thickness of Flange, tf	Minimum Thickness Lap Joint, lf	Diameter of Hub, X	Hub diameter Welding Neck, Ah	Length Through Hub			Minimum Thread Length Threaded, T	Minimum Slip-on Socket Welding, B	Bore	Welding Neck/ Socket Welding, B	Corner Bore Radius of Lapped Flange, r	Depth of Socket, D	Minimum Outside Diameter of Raised face, K	Minimum Counter-bore Threaded Flange, Q	Raised face height, rh
						Threaded/ Slip-on Socket Welding, Y	Lapped, Y	Welding Neck, Y									
1/2	95	12.7	14.3	38	21.3	21	22	51	16	22.2	22.9	15.8	3	10	44	23.6	2
3/4	115	14.3	15.9	48	26.7	24	25	56	16	27.7	28.2	20.9	3	11	52	29	2
1	125	15.9	17.5	54	33.4	25	27	60	18	34.5	34.9	26.6	3	13	57	35.8	2
1 1/4	135	17.5	19.1	64	42.2	25	27	64	21	43.2	43.7	35.1	5	14	87	44.4	2
1 1/2	155	19.1	20.7	70	48.3	29	30	67	23	49.5	50	40.9	6	16	73	50.3	2
2	165	20.7	22.3	84	60.3	32	33	68	29	61.9	62.5	52.5	8	17	92	63.5	2
2 1/2	190	23.9	25.4	100	73	37	39	75	32	74.6	75.4	62.7	8	19	105	76.2	2
3	210	27	28.6	117	85.9	41	43	78	32	90.7	91.4	77.9	10	21	127	92.2	2
3 1/2	230	28.6	30.2	133	101.6	43	44	79	37	103.4	104.1	90.1	10	...	140	104.9	2
4	255	30.2	31.8	146	114.3	46	48	84	37	116.1	116.8	102.3	11	...	157	117.6	2
5	280	33.4	35	178	141.3	49	51	97	43	143.8	144.4	128.2	11	...	186	144.4	2
6	320	35	36.6	206	168.3	51	52	97	47	170.7	171.4	154.1	13	...	216	171.4	2
8	300	39.7	41.3	280	219.1	60	62	110	51	221.5	222.2	202.7	13	...	270	222.2	2
10	445	46.1	47.7	321	273	65	95	116	58	278.2	277.4	254.8	13	...	324	278.2	2
12	520	48.3	50.8	375	323.8	71	102	128	61	327	328.2	304.8	13	...	381	328.6	2
14	585	52.4	54	425	355.6	75	111	141	64	359.2	360.2	...	13	...	413	360.4	2
16	650	55.6	57.2	483	406.4	81	121	144	69	410.5	411.2	...	13	...	470	411.2	2
18	710	58.8	60.4	533	457	87	130	157	70	481.8	482.3	...	13	...	533	482	2
20	775	62	63.5	587	508	94	140	180	74	513.1	514.4	...	13	...	584	512.8	2
24	915	68.3	69.9	702	610	105	152	167	83	616	616	...	13	...	692	614.4	2

ASME B16.5



DIMENSION OF CLASS 600 FLANGES

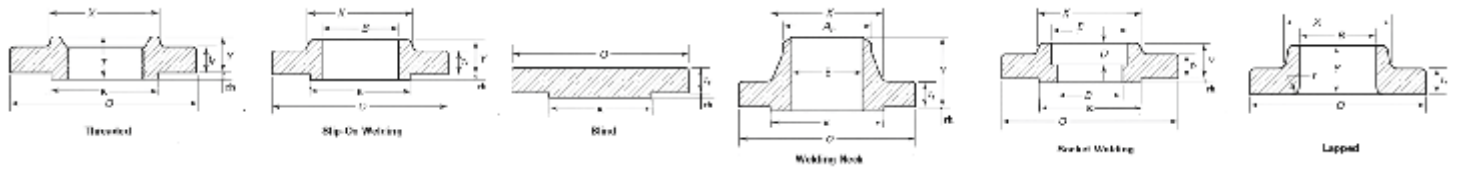
Nominal Pipe Size, NPS	Outside Diameter of Flange, D	Minimum Thickness of Flange, tf	Diameter of Hub, X	Hub diameter Welding Neck, Ah	Length Through Hub			Minimum Thread Length Threaded, T	Bore			Corner Bore Radius of Lapped Flange, r	Depth of Socket, D	Minimum Outside Diameter of Raised face, K	Minimum Counter-bore Threaded Flange, Q	Raised face height, rh
					Threaded Slip-on Socket Welding, Y	Lapped, Y	Welding Neck, Y		Minimum Slip-on Socket Welding, B	Minimum Lapped, B	Welding Neck Socket Welding, B					
1/2	95	14.3	38	21.3	22	22	52	16	22.2	22.9	...	3	10	44	23.6	7
3/4	115	15.9	48	26.7	25	25	57	16	27.7	28.2	...	3	11	52	29	7
1	125	17.5	54	33.4	27	27	62	18	34.5	34.9	...	3	13	57	35.8	7
1 1/4	135	20.7	64	42.2	29	29	67	21	43.2	43.7	...	5	14	67	44.4	7
1 1/2	155	22.3	70	48.3	32	32	70	23	49.5	50	...	6	16	73	50.8	7
2	165	25.4	84	60.3	37	37	73	29	61.8	62.5	...	8	17	92	63.5	7
2 1/2	190	28.6	100	73	41	41	79	32	74.6	75.4	...	8	19	105	76.2	7
3	210	31.8	117	88.9	46	46	83	35	90.7	91.4	...	10	21	127	92.2	7
3 1/2	230	35	133	101.6	49	49	86	40	103.4	104.1	...	10	...	140	104.9	7
4	275	39.1	152	114.3	54	54	102	42	116.1	116.8	...	11	...	157	117.6	7
5	330	44.5	189	141.3	60	60	114	48	143.0	144.4	...	11	...	186	144.4	7
6	355	47.7	222	168.3	67	67	117	51	170.7	171.4	...	13	...	216	171.4	7
8	420	55.6	273	218.1	76	76	133	58	221.5	222.2	...	13	...	270	222.2	7
10	510	63.5	343	273	86	111	152	66	276.2	277.4	...	13	...	324	276.2	7
12	560	66.7	400	323.8	92	117	156	70	327	328.2	...	13	...	381	328.6	7
14	605	69.9	432	355.6	94	127	165	74	339.2	360.2	...	13	...	413	360.4	7
16	685	76.2	495	406.4	106	140	178	78	410.5	411.2	...	13	...	470	411.2	7
18	745	82.6	548	457	117	152	184	80	461.0	462.3	...	13	...	533	462	7
20	815	88.9	610	508	127	165	190	83	513.1	514.4	...	13	...	584	512.8	7
24	940	101.6	718	610	140	184	203	93	616	616	...	13	...	692	614.4	7

DIMENSION OF CLASS 900 FLANGES

Nominal Pipe Size, NPS	Outside Diameter of Flange, D	Minimum Thickness of Flange, tf	Diameter of Hub, X	Hub diameter Welding Neck, Ah	Length Through Hub			Minimum Thread Length Threaded, T	Bore			Corner Bore Radius of Lapped Flange, r	Depth of Socket, D	Minimum Outside Diameter of Raised face, K	Minimum Counter-bore Threaded Flange, Q	Raised face height, rh
					Threaded Slip-on, Y	Lapped, Y	Welding Neck, Y		Minimum Slip-on, B	Minimum Lapped, B	Welding Neck, B					
1/2																
3/4																
1																
1 1/4																
1 1/2																
2																
2 1/2																
3	240	38.1	127	88.9	54	54	102	42	90.7	91.4	...	10	N.A	127	92.2	7
4	290	44.5	159	114.3	70	70	114	48	116.1	116.8	...	11	N.A	157	117.6	7
5	350	50.0	190	141.3	79	79	127	54	143.0	144.4	...	11	N.A	186	144.4	7
6	380	55.6	235	168.3	88	88	140	58	170.7	171.4	...	13	N.A	216	171.4	7
8	470	63.5	298	218.1	102	114	162	64	221.5	222.2	...	13	N.A	270	222.2	7
10	545	69.9	368	273	108	127	184	72	276.2	277.4	...	13	N.A	324	276.2	7
12	610	79.4	419	323.8	117	143	200	77	327	328.2	...	13	N.A	381	328.6	7
14	640	85.8	451	355.6	130	156	213	83	339.2	360.2	...	13	N.A	413	360.4	7
16	705	89.9	500	406.4	133	163	216	86	410.5	411.2	...	13	N.A	470	411.2	7
18	785	101.6	565	457	152	190	229	89	461.0	462.3	...	13	N.A	533	462	7
20	855	108	622	508	159	210	248	93	513.1	514.4	...	13	N.A	584	512.8	7
24	1040	139.7	749	610	203	267	292	102	616	616	...	13	N.A	692	614.4	7

Use Class 1500 dimensions in these sizes

ASME B16.5



DIMENSION OF CLASS 1500 FLANGES

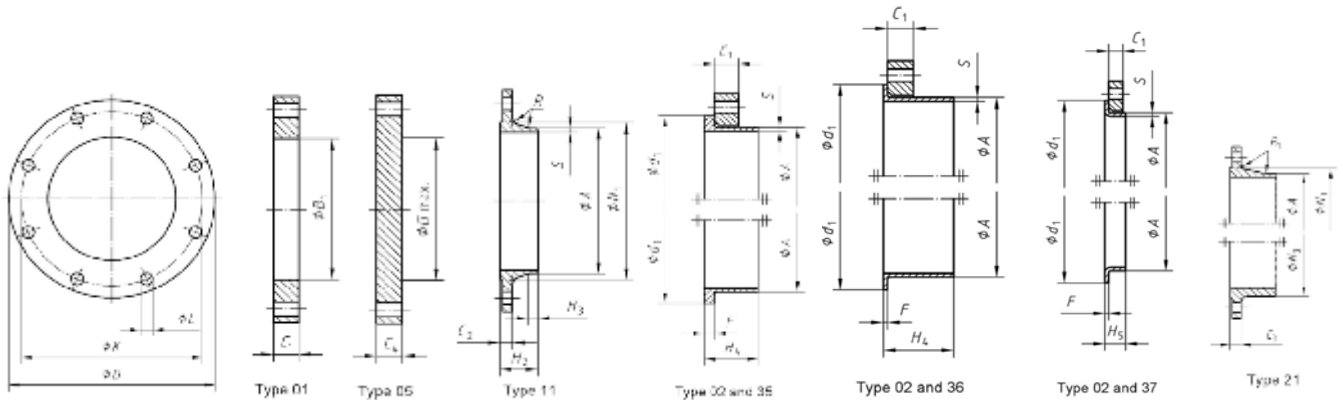
Nominal Pipe Size, NPS	Outside Diameter of Flange, O	Minimum Thickness of Flange, tf	Diameter of Hub, K	Hub diameter Welding Neck, Ah	Length Through Hub			Minimum Thread Length Threaded, T	Minimum Slip-on/Socket Welding, B	Bore Minimum Lapped, B	Welding Neck/Socket Welding, B	Corner Bore Radius of Lapped Flange, r	Depth of Socket, D	Minimum Outside Diameter of Raised face, K	Minimum Counter-bore Threaded Flange, Q	Raised face height, rh
					Threaded Slip-on/Socket Welding, Y	Lapped, Y	Welding Neck, Y									
1/2	120	22.3	38	21.3	32	32	60	23	22.2	22.9	...	3	10	44	23.6	7
3/4	130	25.4	44	26.7	35	35	70	26	27.7	28.2	...	3	11	52	29	7
1	150	28.6	52	33.4	41	41	73	29	34.5	34.9	...	3	13	57	35.0	7
1 1/4	160	28.6	64	42.2	41	41	73	31	43.2	43.7	...	5	14	67	44.4	7
1 1/2	180	31.8	70	48.3	44	44	83	32	49.5	50	...	6	16	73	50.6	7
2	215	38.1	105	60.3	57	57	102	39	61.9	62.5	...	8	17	92	63.5	7
2 1/2	245	41.3	124	73	64	64	105	48	74.6	75.4	...	8	19	105	76.2	7
3	265	47.7	133	80.9	...	73	117	...	...	91.4	...	10	...	127	...	7
4	310	54	162	114.3	...	90	124	...	...	116.8	...	11	...	157	...	7
5	375	73.1	197	141.3	...	105	156	...	...	144.4	...	11	...	186	...	7
6	395	82.6	229	168.3	...	119	171	...	...	171.4	...	13	...	216	...	7
8	485	92.1	292	219.1	...	143	213	...	...	222.2	...	13	...	270	...	7
10	585	108	368	273	...	178	254	...	...	277.4	...	13	...	324	...	7
12	675	123.0	451	323.8	...	219	283	...	...	328.2	...	13	...	381	...	7
14	750	133.4	495	355.6	...	241	298	...	...	360.2	...	13	...	413	...	7
16	825	146.1	552	405.4	...	260	311	...	...	411.2	...	13	...	470	...	7
18	915	162	597	457	...	276	327	...	...	462.3	...	13	...	530	...	7
20	985	177.8	641	508	...	292	356	...	...	514.4	...	13	...	584	...	7
24	1 170	203.2	762	610	...	330	406	...	...	616	...	13	...	682	...	7

DIMENSION OF CLASS 2500 FLANGES

Nominal Pipe Size, NPS	Outside Diameter of Flange, O	Minimum Thickness of Flange, tf	Diameter of Hub, K	Hub diameter Welding Neck, Ah	Length Through Hub			Minimum Thread Length Threaded, T	Minimum Slip-on/Socket Welding, B	Bore Minimum Lapped, B	Welding Neck, B	Corner Bore Radius of Lapped Flange, r	Depth of Socket, D	Minimum Outside Diameter of Raised face, K	Minimum Counter-bore Threaded Flange, Q	Raised face height, rh
					Threaded Y	Lapped, Y	Welding Neck, Y									
1/2	135	30.2	43	21.3	40	40	73	29	N.A.	22.9	...	3	N.A.	44	23.6	7
3/4	140	31.8	51	26.7	43	43	79	32	N.A.	28.2	...	3	N.A.	52	29	7
1	160	35	57	33.4	48	48	89	35	N.A.	34.9	...	3	N.A.	57	35.0	7
1 1/4	185	38.1	73	42.2	52	52	95	38	N.A.	43.7	...	5	N.A.	67	44.4	7
1 1/2	205	44.5	79	48.3	60	60	111	45	N.A.	50	...	6	N.A.	73	50.6	7
2	235	50.9	95	60.3	70	70	127	51	N.A.	62.5	...	8	N.A.	92	63.5	7
2 1/2	265	57.2	114	73	79	79	143	58	N.A.	75.4	...	8	N.A.	105	76.2	7
3	305	66.7	133	80.9	...	92	168	...	N.A.	91.4	...	10	N.A.	127	...	7
4	355	76.2	165	114.3	...	108	190	...	N.A.	116.8	...	11	N.A.	157	...	7
5	420	92.1	203	141.3	...	130	229	...	N.A.	144.4	...	11	N.A.	186	...	7
6	485	108	235	168.3	...	152	273	...	N.A.	171.4	...	13	N.A.	216	...	7
8	590	127	305	219.1	...	178	318	...	N.A.	222.2	...	13	N.A.	270	...	7
10	675	146.1	375	273	...	229	419	...	N.A.	277.4	...	13	N.A.	324	...	7
12	760	162	441	323.8	...	254	464	...	N.A.	328.2	...	13	N.A.	381	...	7

DIN EN 1092-1

DIMENSION OF PN 2,5 FLANGES

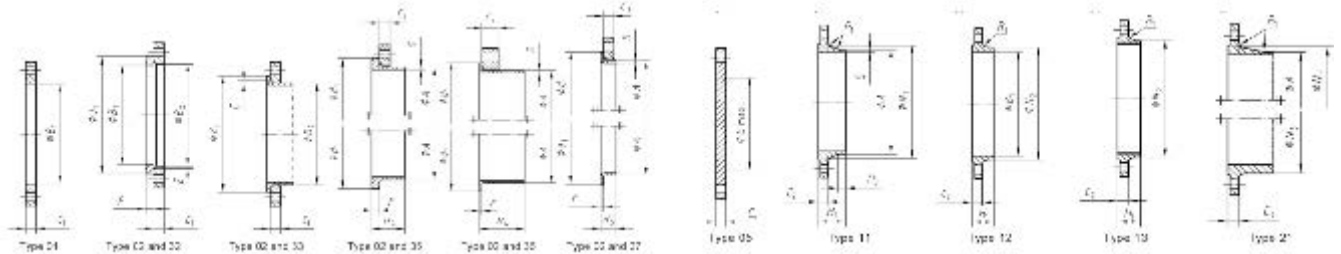
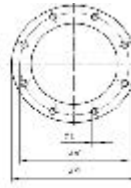


DN	Mating dimensions					Outside dia- meter of neck		Flange thickness				Collar thickness				Length					Neck diameters		Corner radii r ₁	Wall thickness (see 5.6.1) s	
	Outside diameter D	Diameter of bolt circle K	Diameter of bolt hole L	No.	Size	A	a ₁	a ₂	c ₁	c ₂	c ₃	c ₄	F	F _{max}	h ₂	h ₃	h ₄	h ₅	y ₁	y ₃	r ₁	r ₂			
	Flange type																								
	01, 02, 05, 11, 21					11 3/4 3/2	01 3/2	02	01 02	11 21	05	32	35	36	37	05	11	11	35	36	37	11	21	11 13	11, 35 to 37
10	75	50	11	4	M10	17.2	19.0	21	12	12	12	10	5	2	2.5	—	28	6	28	35	7	26	20	4	
15	80	55	11	4	M10	21.3	22.0	25	12	12	12	10	5	2	2.5	—	30	6	30	38	7	30	26	4	
20	90	65	11	4	M10	26.9	27.5	31	14	14	14	10	6	2.5	3	—	32	6	32	40	8	38	34	4	
25	100	75	11	4	M10	33.7	34.5	38	14	14	14	10	7	2.5	3	—	35	6	35	40	10	42	44	4	
32	120	90	14	4	M12	42.4	43.5	48	18	14	14	10	8	3	3	—	35	6	35	42	12	55	54	6	
40	130	100	14	4	M12	48.3	49.5	53	18	14	14	10	8	3	3	—	38	7	38	45	15	62	64	8	
50	140	110	14	4	M12	60.3	61.5	65	18	14	14	12	8	3	3	—	38	8	38	45	20	74	74	8	
65	160	130	14	4	M12	76.1	77.5	81	18	14	14	12	8	3	3	55	38	9	38	45	20	88	84	8	
80	190	150	18	4	M16	88.9	90.5	94	18	16	16	12	10	3	4	70	42	10	42	50	25	102	110	8	
100	210	170	18	4	M16	114.3	116.0	120	18	16	16	14	10	4	4	90	45	10	45	52	25	130	130	8	
125	240	200	18	8	M16	139.7	141.5	145	20	18	10	14	10	4	4	115	40	10	48	55	25	155	160	8	
150	265	225	18	8	M16	168.3	170.5	174	20	18	10	14	10	5	4	140	48	12	48	55	25	184	182	10	
200	320	280	18	8	M16	219.1	221.5	226	22	20	20	16	11	5	5	190	55	15	55	62	30	236	238	10	
250	375	335	18	12	M16	273.0	275.5	281	24	22	22	18	12	8	—	235	60	15	60	68	—	290	284	12	
300	440	395	22	12	M20	323.8	327.5	333	24	22	22	18	12	8	—	285	62	15	62	68	—	342	342	12	
350	490	445	22	12	M20	355.6	359.5	365	26	22	22	10	13	8	—	330	62	15	62	68	—	385	392	12	
400	540	495	22	16	M20	406.4	411.0	416	28	22	22	20	14	8	—	380	65	15	65	72	—	438	442	12	
450	595	550	22	16	M20	457.0	462.0	467	30	22	24	20	15	8	—	425	65	15	65	72	—	492	494	12	
500	645	600	22	20	M20	508.0	513.5	519	30	24	24	22	16	8	—	475	68	15	68	75	—	538	544	12	
600	755	705	26	20	M24	610.0	618.5	622	32	30	30	22	18	—	—	575	70	18	70	—	—	640	642	12	
700	860	810	26	24	M24	711.0		721	40	30	40	—	18	—	—	670	76	18	70	—	—	740	746	12	
800	975	920	30	24	M27	813.0		824	44	30	44	—	18	—	—	770	76	18	70	—	—	842	850	12	
900	1,075	1,020	30	24	M27	914.0		926	48	30	48	—	16	—	—	860	74	16	70	—	—	942	950	12	
1000	1,175	1,120	30	26	M27	1,016.0		1,028	52	30	52	—	18	—	—	960	74	16	70	—	—	1,045	1,050	16	
1200	1,375	1,320	30	32	M27	1,218		1,234	60	32	50	—	20	—	—	1,180	94	18	90	—	—	1,245	—	16	
1400	1,575	1,520	30	36	M27	1,422		—	—	38	—	—	—	—	—	—	96	18	—	—	—	1,445	—	16	
1600	1,790	1,730	30	40	M27	1,626		—	—	48	—	—	—	—	—	—	102	20	—	—	—	1,645	—	16	
1800	1,990	1,930	30	44	M27	1,829		—	—	48	—	—	—	—	—	—	110	20	—	—	—	1,845	—	16	
2000	2,190	2,130	30	48	M27	2,032		—	—	50	—	—	—	—	—	—	122	22	—	—	—	2,045	—	16	
2200	2,405	2,340	33	52	M30	2,235		—	—	56	—	—	—	—	—	—	128	25	—	—	—	2,248	—	18	
2400	2,605	2,540	33	56	M30	2,438		—	—	62	—	—	—	—	—	—	143	25	—	—	—	2,448	—	18	
2600	2,805	2,740	33	60	M30	2,620		—	—	64	—	—	—	—	—	—	140	25	—	—	—	2,648	—	18	
2800	3,030	2,960	36	64	M33	2,820		—	—	74	—	—	—	—	—	—	161	25	—	—	—	2,848	—	18	
3000	3,230	3,160	36	68	M33	3,020		—	—	80	—	—	—	—	—	—	170	25	—	—	—	3,050	—	18	
3200	3,430	3,360	36	72	M33	3,220		—	—	84	—	—	—	—	—	—	180	25	—	—	—	3,250	—	20	
3400	3,630	3,560	36	76	M33	3,420		—	—	90	—	—	—	—	—	—	194	28	—	—	—	3,450	—	20	
3600	3,840	3,770	36	80	M33	3,620		—	—	96	—	—	—	—	—	—	201	28	—	—	—	3,652	—	20	
3800	4,045	3,970	39	80	M36	3,820		—	—	102	—	—	—	—	—	—	212	28	—	—	—	3,852	—	20	
4000	4,245	4,170	39	84	M36	4,020		—	—	108	—	—	—	—	—	—	226	28	—	—	—	4,052	—	20	

See Annex A

DIN EN 1092-1

DIMENSION OF PN 6 FLANGES

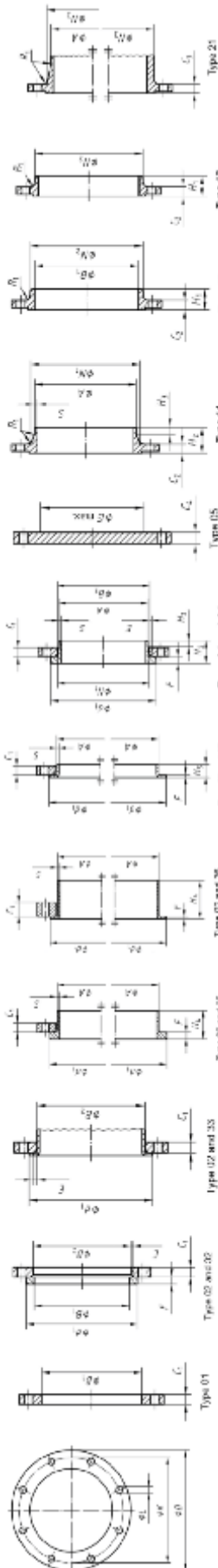


DN	Mating dimensions					Outside diameter of neck	Bore diameters		Flange thickness				Chamfer	Camber thickness		Face diameter*	Length					Neck diameter				Corner radii	Wall thickness (see 5.8.11)			
	D	K	L	Bolt			D ₁	D ₂	C ₁	C ₂	C ₃	E		F	n _{max}		n ₁	n ₂	n ₃	n ₄	n ₅	m ₁	m ₂	m ₃	m ₄			S		
				Number	Size																								A	B
Flange type																														
10	75	50	11	4	M10	17.2	18.0	21	12	12	12	3	10	5	2	2.5	—	20	28	8	28	35	7	28	25	20	21	11, 35 to 37		
15	80	55	11	4	M10	21.3	22.0	25	12	12	12	3	10	5	2	2.5	—	20	30	8	30	38	7	30	30	26	4			
20	80	55	11	4	M10	25.9	27.5	31	14	14	14	4	10	5	2.5	3	—	24	32	8	32	40	5	38	40	34	4			
25	100	75	11	4	M10	33.7	34.5	38	14	14	14	4	10	7	2.5	3	—	24	35	6	35	40	10	42	50	44	4			
32	120	90	14	4	M12	42.4	43.5	46	16	14	14	5	10	8	3	3	—	28	35	6	33	42	12	55	60	54	6			
40	150	100	14	4	M12	48.3	48.5	53	18	14	14	5	10	8	3	3	—	28	38	7	38	45	15	62	70	64	6			
50	140	110	14	4	M12	60.3	61.5	65	16	14	14	5	12	8	3	3	—	28	38	8	38	45	20	74	80	74	6			
65	160	130	14	4	M12	70.1	77.5	81	16	14	14	6	12	8	3	3	35	32	8	38	45	20	88	100	94	6				
80	190	150	18	4	M16	58.0	90.5	94	18	16	16	6	12	10	3	4	70	54	42	10	42	50	25	102	110	110	6			
100	210	170	18	4	M16	114.3	115.0	120	18	16	16	6	14	10	4	4	90	40	45	10	43	52	25	130	130	130	6			
125	240	200	18	8	M18	138.7	141.5	145	20	18	18	6	14	10	4	4	115	44	48	10	48	55	25	155	160	160	6			
150	265	225	18	8	M18	169.3	170.5	174	20	18	18	6	14	10	5	4	140	44	48	12	48	55	25	184	185	182	10			
200	320	280	18	8	M18	219.1	221.5	226	22	20	20	6	16	11	5	5	180	44	55	15	55	62	30	236	240	230	10			
250	375	335	18	12	M18	273.0	276.5	281	24	22	22	8	18	12	8	—	235	44	60	15	60	68	—	290	295	284	12			
300	440	395	22	12	M20	323.9	327.5	330	24	22	22	8	18	12	8	—	265	44	62	15	62	60	—	342	350	342	12			
350	490	445	22	12	M20	355.8	359.5	365	28	22	22	8	18	13	8	—	330	—	62	15	62	68	—	385	—	382	12			
400	540	495	22	16	M20	406.4	411.0	416	28	22	22	8	20	14	8	—	380	—	66	15	66	72	—	438	—	442	12			
450	585	540	22	16	M20	457.0	462.0	467	30	22	24	8	20	15	8	—	425	—	65	15	72	72	—	492	—	494	12			
500	645	600	22	20	M20	508.0	513.5	519	30	24	24	8	22	16	8	—	475	—	68	15	75	75	—	538	—	544	12			
600	755	703	26	20	M24	610.0	616.5	622	32	30	30	8	22	16	—	—	575	—	70	16	70	—	—	640	—	642	12			
700	880	810	28	24	M24	711.0	721	721	40	30	40	4	16	—	—	—	870	—	78	18	70	—	—	740	—	748	12			
800	975	920	30	24	M27	813.0	824	824	44	30	44	4	16	—	—	—	770	—	76	16	70	—	—	842	—	860	12			
900	1075	1020	30	24	M27	914.0	926	926	48	34	48	4	—	16	—	—	860	—	78	16	70	—	—	942	—	960	12			
1000	1175	1120	30	28	M27	1016.0	1025	1025	52	38	52	4	18	—	—	—	960	—	82	16	70	—	—	1045	—	1050	16			
1200	1405	1340	33	32	M30	1219.0	1234	1234	60	42	60	5	—	20	—	—	1190	—	104	20	90	—	—	1248	—	1264	16			
1400	1830	1580	38	36	M33	1422.0	72	58	66	—	—	—	—	—	—	—	1348	—	114	20	—	—	—	1452	—	1480	16			
1600	1830	1760	36	40	M33	1626.0	—	63	76	—	—	—	—	—	—	—	1546	—	119	20	—	—	—	1655	—	1680	16			
1500	2045	1970	38	44	M36	1829.0	—	68	84	—	—	—	—	—	—	—	1746	—	133	20	—	—	—	1855	—	1878	16			
2000	2265	2180	42	48	M39	2032.0	—	96	74	92	—	—	—	—	—	—	1950	—	146	25	—	—	—	2058	—	2082	16			
2200	2475	2380	42	52	M38	2235.0	—	—	—	—	—	—	—	—	—	—	—	—	154	25	—	—	—	—	2260	—	—	15		
2400	2685	2600	42	56	M39	2438.0	—	—	—	—	—	—	—	—	—	—	—	—	188	25	—	—	—	—	2482	—	—	15		
2600	2905	2810	48	60	M45	2620.0	—	—	—	—	—	—	—	—	—	—	—	—	—	175	25	—	—	—	2665	—	—	15		
2800	3115	3020	46	64	M45	2820.0	—	—	—	—	—	—	—	—	—	—	—	—	—	188	30	—	—	—	—	2865	—	—	16	
3000	3315	3220	48	68	M45	3020.0	—	—	—	—	—	—	—	—	—	—	—	—	—	192	30	—	—	—	—	3068	—	—	15	
3200	3525	3430	40	72	M45	3220.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3272	—	—	20	
3400	3755	3640	48	76	M45	3420.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3475	—	—	20	
3600	3970	3860	50	80	M52	3620.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3678	—	—	20	

See Annex A

DIN EN 1092-1

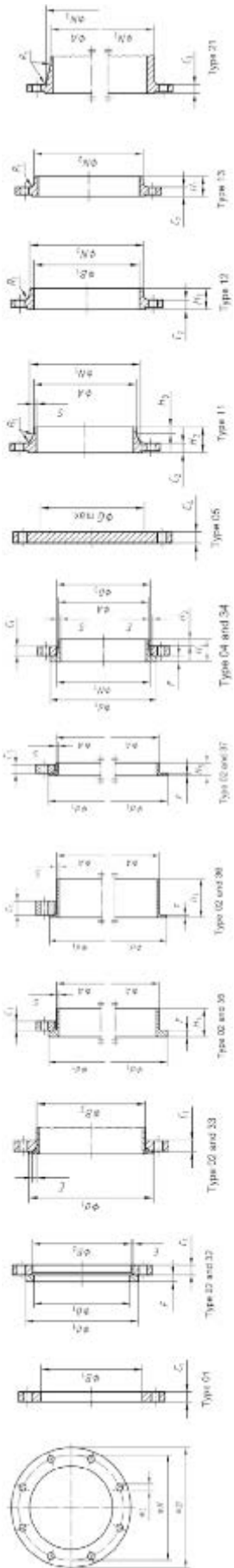
DIMENSION OF PN 10 FLANGES



DN	Metric dimensions				Flange type										Corner radii (mm)	Wall thickness (mm)															
	Outside diameter (mm)	Inside diameter (mm)	Bore diameter (mm)	Bore chamfer	Flange thickness					Length							Neck diameter														
					C ₁	C ₂	C ₃	C ₄	E	F	G	H	I	J			K	L	M	N	O	P	Q	R							
12	90	60	14	4	M12	17.2	18.0	2	31	14	16	16	16	3	17	3	2	2.5	5	2	22	35	6	35	35	7	28	30	28	4	1.8
15	95	65	14	4	M15	18.0	19.0	2	35	14	16	16	16	3	17	3	2	2.5	5	2	22	36	6	36	36	7	29	36	27	4	2.0
20	105	75	14	4	M20	20.0	21.0	2	42	18	18	18	18	3	14	6	2.5	3	—	—	28	30	8	40	40	8	60	44	40	4	2.3
25	115	85	14	4	M25	22.0	23.0	2	50	18	18	18	18	4	14	7	2.5	3	—	—	28	40	6	40	40	10	60	52	50	4	2.6
32	140	100	18	4	M32	26.0	27.0	2	60	18	18	18	18	5	14	8	3	3	—	—	30	42	6	42	42	12	60	60	60	6	2.6
40	160	110	18	4	M40	28.0	29.0	2	70	18	18	18	18	5	14	8	3	3	—	—	32	45	7	45	45	15	64	70	70	6	2.6
50	185	125	18	4	M50	30.0	31.0	2	80	18	18	18	18	5	16	8	3	3	—	—	38	48	8	48	48	20	74	81	81	8	2.8
65	215	145	18	4	M65	32.0	33.0	2	90	18	18	18	18	8	16	8	3	3	—	—	42	52	10	52	52	25	92	104	104	8	2.9
80	240	160	18	4	M80	34.0	35.0	2	100	20	20	20	20	6	16	10	3	4	70	34	50	50	50	50	25	110	120	120	6	3.2	
100	270	180	18	4	M100	36.0	37.0	2	120	20	20	20	20	6	16	10	4	4	90	40	62	62	62	62	26	131	140	140	8	3.6	
125	300	210	18	4	M125	38.0	39.0	2	140	22	22	22	22	8	18	10	4	6	115	60	65	65	65	65	28	150	160	160	8	4.0	
150	330	240	22	4	M150	40.0	41.0	2	160	24	24	24	24	8	20	10	4	6	140	60	68	68	68	68	30	170	180	180	10	4.5	
200	360	270	22	4	M200	42.0	43.0	2	180	24	24	24	24	8	20	10	4	6	140	60	70	70	70	70	32	190	200	200	12	5.0	
250	390	300	22	4	M250	44.0	45.0	2	200	24	24	24	24	8	20	10	4	6	140	60	72	72	72	72	32	210	220	220	12	5.5	
300	420	330	22	4	M300	46.0	47.0	2	220	24	24	24	24	8	20	10	4	6	140	60	74	74	74	74	32	230	240	240	12	6.0	
350	450	360	22	4	M350	48.0	49.0	2	240	24	24	24	24	8	20	10	4	6	140	60	76	76	76	76	32	250	260	260	12	6.5	
400	480	390	22	4	M400	50.0	51.0	2	260	24	24	24	24	8	20	10	4	6	140	60	78	78	78	78	32	270	280	280	12	7.0	
450	510	420	22	4	M450	52.0	53.0	2	280	24	24	24	24	8	20	10	4	6	140	60	80	80	80	80	32	290	300	300	12	7.5	
500	540	450	22	4	M500	54.0	55.0	2	300	24	24	24	24	8	20	10	4	6	140	60	82	82	82	82	32	310	320	320	12	8.0	

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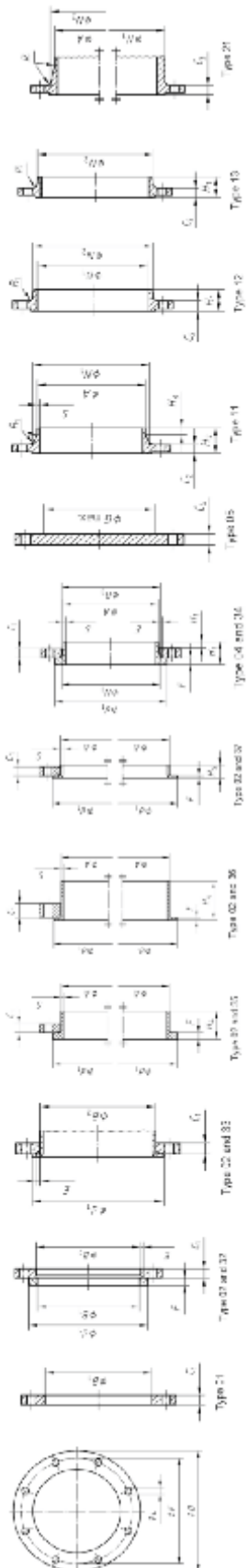
DIMENSION OF PN 16 FLANGES



DN	Metric dimensions		Outside diameter of neck		Flange thickness			Chamfer		Collar thickness		Facing diameter		Length					Neck diameter		Corner radii		Wall thickness																																																																																																																																																																																																																																																																																																								
	D	K	No	Size	A	Flange thickness			F	F	F	F	C max	r	r	r	r	r	r	r	r	r	r	r	r	r	r	r	r																																																																																																																																																																																																																																																																																																		
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10	90	60	4	M12	17.2	18.0	21	31	14	15	16	16	3	12	5	2	2.5	—	22	35	6	35	35	7	28	30	28	4	1.2	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300

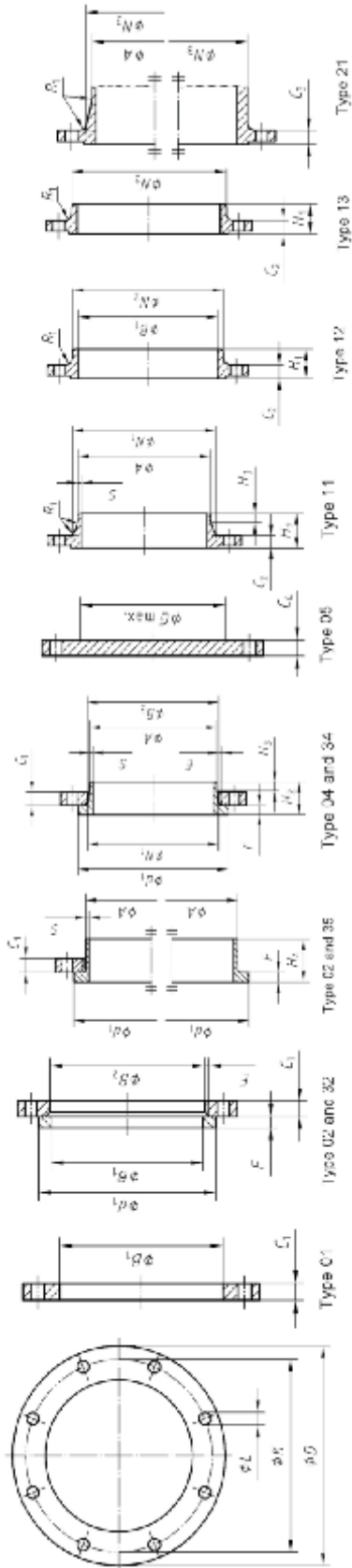
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DIMENSION OF PN 16 FLANGES



DN	Mating dimensions				Outside diameter of bolt circle	Bore diameter	Flange thickness				Chamfer	Cutter thickness				Facing diameter	Length				Mach diameter	Corker radii	Wall thickness (see 3.0.11)					
	No.	Size	No.	Size			F	E	D ₁	D ₂		D ₃	D ₄	D ₅	D ₆		D ₇	D ₈	D ₉	D ₁₀				D ₁₁	D ₁₂	D ₁₃	D ₁₄	D ₁₅
300	400	16	M24	355.8	400	35	30	30	30	30	8	28	18	30	—	530	57	82	78	82	88	—	384	430	430	12	8.0	
400	500	20	M27	406.4	470	40	32	32	32	32	8	28	20	10	—	380	63	80	76	80	86	72	—	443	458	458	12	8.0
450	565	20	M27	457.0	500	42	34	40	40	40	8	30	22	—	—	425	68	83	78	82	87	—	—	430	502	518	12	8.0
500	630	20	M30	508.0	570	46	36	40	40	40	8	32	22	—	—	475	73	84	76	80	85	—	—	543	558	576	12	8.0
600	770	20	M33	610.0	680	55	40	54	54	54	8	32	24	—	—	575	83	88	78	85	95	—	—	670	688	690	12	8.8
700	910	24	M36	711.0	—	63	40	—	—	—	8	—	28	—	—	630	83	90	78	100	—	—	—	735	750	750	12	—
800	1025	24	M36	813.0	—	74	41	—	—	—	8	—	28	—	—	770	90	108	20	105	—	—	—	875	884	882	12	—
900	1125	26	M36	914.0	—	82	48	—	—	—	8	—	30	—	—	860	94	115	20	110	—	—	—	955	968	962	12	—
1000	1265	28	M39	1016.0	—	90	48	—	—	—	8	—	35	—	—	900	100	137	22	120	—	—	—	1030	1072	1076	16	—
1200	1485	32	M45	1216.0	—	—	—	—	—	—	—	—	—	—	—	1165	—	180	30	—	—	—	—	1252	—	1282	16	—
1400	1705	36	M48	1422.0	—	—	—	—	—	—	—	—	—	—	—	1306	—	177	30	—	—	—	—	—	—	1482	16	—
1600	1930	40	M52	1626.0	—	—	—	—	—	—	—	—	—	—	—	1546	—	204	35	—	—	—	—	—	—	1658	16	—
1800	2130	44	M56	1828.0	—	—	—	—	—	—	—	—	—	—	—	1716	—	218	38	—	—	—	—	—	—	1808	16	—
2000	2345	48	M56	2032.0	—	—	—	—	—	—	—	—	—	—	—	1900	—	238	40	—	—	—	—	—	—	2070	16	—

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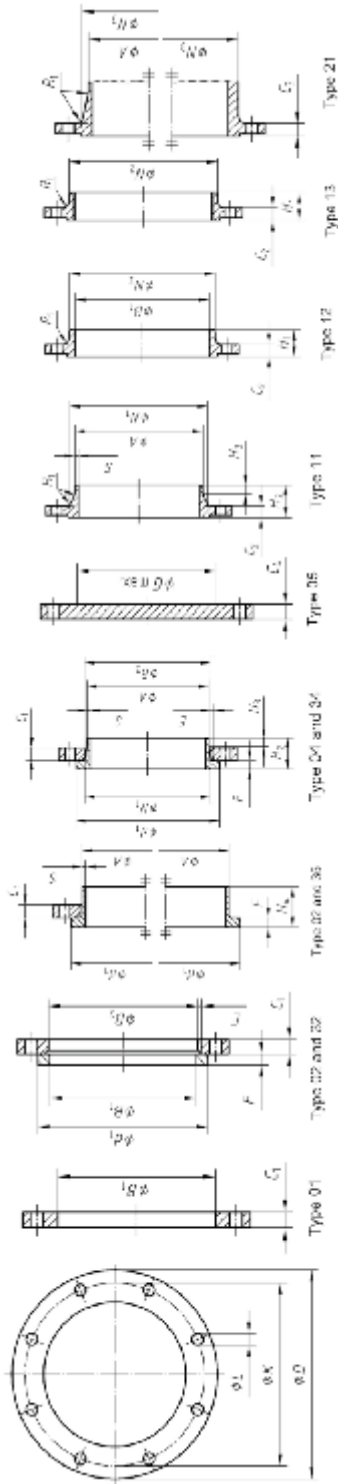
DN	Mating dimensions				Outside diameter of neck		Bore diameters			Flange thickness				Chamfer		Collar thickness	Length				Neck diameters			Corner radii	Wall thickness (see S.B.1)							
	D	K	L	No.	A	ε1	ε2	ε3	v1	v2	v3	v4	E	F	ε max	n1	n2	n3	n4	n1	n2	n3	r1	r2	r3	S						
																											Size	ε1	ε2	ε3	ε max	n1
350	555	490	33	16	M30	355.6	365	408	42	38	38	38	8	32	22	332	72	100	20	388	418	418	12	8.0								
400	620	550	36	16	M33	406.4	416	462	48	40	40	40	8	34	24	380	78	110	20	452	472	472	12	8.8								
450	670	600	36	20	M33	457.0	467	510	54	46	46	50	8	36	26	425	84	110	20	500	520	520	12	8.8								
500	730	680	36	20	M33	508.0	519	568	58	48	48	51	8	38	28	475	90	125	20	558	580	580	12	10.0								
600	845	770	38	20	M36	610.0	622	670	68	48	58	66	8	40	30	575	100	125	20	660	684	684	12	11.0								
700	960	875	42	24	M39	711.0	721	—	85	50	—	—	8	—	30	—	—	129	20	760	—	760	12	—								
800	1085	990	48	24	M45	813.0	824	—	95	53	b	b	8	—	35	—	—	138	22	864	—	864	12	—								
900	1185	1090	48	28	M45	914.0	—	—	—	57	—	—	—	—	—	—	—	148	24	968	—	968	12	—								
1000	1320	1210	58	28	M52	1016.0	b	—	b	63	—	—	—	—	—	—	—	180	24	1070	—	1088	16	—								
1200																																
1400																																
1600																																
1800																																
2000																																

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See Annex A

DIN EN 1092-1

DIMENSION OF PN 40 FLANGES

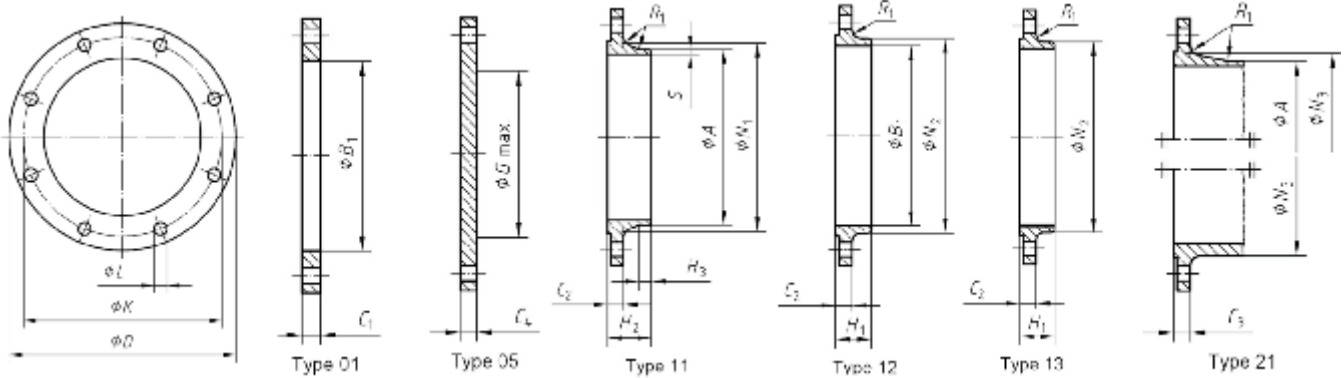


DN	Mating dimensions				Outsid e diamet er of neck	Bore diameters			Flange thickness				Chamf er		Collar thickness F	IFascin g diamet er ¹⁾	Length				Neck diameters			Corner radii r ₁	Neck thickness (see 5.8.1) S			
	D	K	L	No.		Size	e ₁	e ₂	e ₃	c ₁	c ₂	c ₃	c ₄	E			F	ø max	h ₁	h ₂	h ₃	h ₄	h ₁			h ₂	h ₃	h ₁
10	60	14	4	M12	17.2	18.0	21	31	14	16	16	16	3	12	5	—	22	35	6	35	28	30	28	4	1.8			
15	65	14	4	M12	21.3	22.0	25	35	14	16	16	16	3	12	5	—	22	38	6	38	32	35	32	4	2.0			
20	75	14	4	M12	26.9	27.5	31	42	16	18	18	18	4	14	6	—	26	40	6	40	40	45	40	4	2.3			
25	85	14	4	M12	33.7	34.5	38	49	16	18	18	18	4	14	7	—	28	40	6	40	46	52	50	4	2.5			
32	100	18	4	M15	42.4	43.5	47	59	18	18	18	18	5	14	8	—	30	42	6	42	56	60	60	6	2.5			
40	110	18	4	M15	48.3	49.5	53	67	18	18	18	18	5	14	8	—	32	45	7	45	64	70	70	6	2.5			
50	125	18	4	M15	60.3	61.5	65	77	20	20	20	20	5	16	10	—	34	48	8	48	75	84	84	6	2.9			
65	145	18	8	M15	76.1	77.5	81	96	22	22	22	22	6	16	11	55	38	10	52	90	104	104	6	2.9				
80	160	18	8	M15	86.9	88.5	94	114	24	24	24	24	6	18	12	70	40	12	58	105	118	120	8	3.2				
100	180	22	8	M20	114.3	116.0	120	138	26	24	24	24	6	20	14	80	44	12	65	134	145	142	8	3.6				
125	200	26	8	M24	139.7	141.5	145	166	28	26	26	26	6	22	15	115	48	12	68	162	170	162	8	4.0				
150	230	26	8	M24	168.3	170.5	174	194	30	28	28	28	6	24	18	140	52	12	75	192	200	192	10	4.5				
200	320	30	12	M27	219.1	221.5	226	250	36	34	34	34	6	28	20	190	52	15	88	244	260	254	10	6.3				
250	450	33	12	M30	273.0	276.5	281	312	42	38	38	38	8	30	22	235	60	18	105	305	312	312	12	7.1				

See Annex A

DIN EN 1092-1

DIMENSION OF PN 63 FLANGES

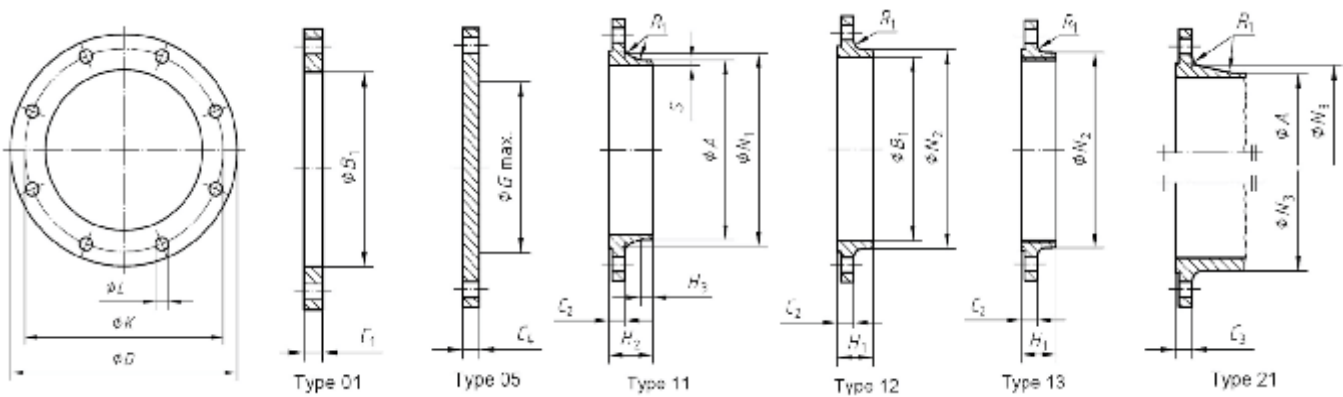


DN	Mating dimensions					Outside diameter of neck A	Bore diameter r	Flange thickness					Fac-ing diameter* G max	Length			Neck diameters			Corner radii R_1	Wall thickness (sec 5.6.1) S		
	Outside diameter ϕ	Diameter of bolt circle K	Diameter of bolt hole L	Bolting				c_1	c_2	c_3	c_4	H_1		H_2	H_3	N_1	N_2	N_3	N_1			N_2	N_3
				No.	Size																		
	Flange type																						
	01, 05, 11, 12, 13, 21					11 21*	01 12	01	11 12 13	21	05	05	12 13	11	11	11	12 13	21	11 12 13 21	11			
10	100	70	14	4	M12	17.2	18.0	20	20	20	20	—	28	45	6	32	40	40	4				
15	105	75	14	4	M12	21.3	22.0	20	20	20	20	—	28	45	6	34	43	45	4				
20	130	90	18	4	M16	26.9	27.5	22	22	22	22	—	30	48	8	42	52	50	4				
25	140	100	18	4	M16	33.7	34.5	24	24	24	24	—	32	58	8	52	60	61	4				
32	155	110	22	4	M20	42.4	43.5	24	24	25	24	—	32	60	8	62	68	68	6				
40	170	125	22	4	M20	48.3	49.5	26	26	26	26	—	34	62	10	70	80	82	6				
50	180	135	22	4	M20	60.3	61.5	26	26	26	26	—	36	62	10	82	90	90	6				
85	205	160	22	8	M20	76.1	77.5	26	26	26	26	45	40	88	12	98	112	105	6				
80	215	170	22	8	M20	88.9	90.5	30	28	28	28	60	44	72	12	112	125	122	8				
100	250	200	26	8	M24	114.3	116.0	32	30	30	30	80	52	78	12	138	152	146	8				
125	295	240	30	8	M27	139.7	141.5	34	34	34	34	105	58	88	12	168	185	177	8				
150	345	280	33	8	M30	168.3	170.5	36	36	36	36	130	60	95	12	202	215	204	10				
200	415	345	36	12	M33	219.1	221.5	48	42	42	42	180	—	110	16	256	—	264	10				
250	470	400	36	12	M33	273.0	276.5	55	46	46	46	220	—	125	18	316	—	320	12				
300	530	460	36	18	M33	323.9	327.5	65	52	52	52	270	—	140	18	372	—	378	12				
350	600	525	39	16	M36	355.6	359.5	72	56	56	56	310	—	150	20	420	—	434	12				
400	670	585	42	18	M39	406.4	411.0	80	60	60	60	360	—	160	20	475	—	490	12				
500																							
600																							
700																							
800																							
900																							
1000																							
1200																							

See Annex A

DIN EN 1092-1

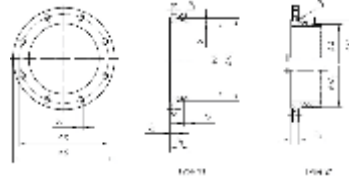
DIMENSION OF PN 100 FLANGES



DN	Mating dimensions						Outside diameter of neck A	Bore diameter r ₁	Flange thickness					"Facing diameter" r _{max}	Length			Neck diameters			Corner radii r ₄	Wall thickness (see 5.8.1) S
	Outside diameter D	Diameter of bolt circle K	Diameter of bolt hole L	Bolting		c ₁			c ₂	c ₃	c ₄	n ₁	n ₂		n ₃	N ₁	N ₂	N ₃				
				No.	Size																	
Flange type																						
01, 05, 11, 12, 13, 21						11 21 ^a	01 12	01	11 12 13	21	05	05	12 13	11	11	11	12 13	21	11 12 13 21	11		
10	100	70	14	4	M12	17.2	18.0	20	20	20	20	—	28	45	6	32	40	40	4	See Annex A		
15	105	75	14	4	M12	21.3	22.0	20	20	20	20	—	28	45	6	34	43	45	4			
20	130	90	18	4	M16	26.9	27.5	22	22	22	22	—	30	48	8	42	52	50	4			
25	140	100	18	4	M16	33.7	34.5	24	24	24	24	—	32	58	8	52	60	61	4			
32	155	110	22	4	M20	42.4	43.5	24	24	26	24	—	32	60	8	62	68	68	5			
40	170	125	22	4	M20	48.3	48.5	26	26	28	26	—	34	62	10	70	80	82	5			
50	195	145	26	4	M24	60.3	61.5	28	28	30	28	—	36	68	10	90	95	96	5			
65	220	170	26	8	M24	76.1	77.5	30	30	34	30	45	40	76	12	108	118	118	5			
80	230	180	26	8	M24	88.9	90.5	34	32	36	32	60	44	78	12	120	130	128	8			
100	265	210	30	8	M27	114.3	116.0	36	36	40	36	80	52	90	12	150	158	150	8			
125	315	250	33	8	M30	139.7	141.5	42	40	40	40	105	56	105	12	180	188	185	8			
150	355	290	33	12	M30	168.3	170.5	48	44	44	44	130	60	115	12	210	225	216	10			
200	430	360	36	12	M33	219.1	221.5	60	52	52	52	180	—	130	16	278	—	278	10			
250	505	430	39	12	M36	273.0	276.5	72	60	60	60	210	—	157	18	340	—	340	12			
300	585	500	42	16	M39	323.9	327.5	84	68	68	68	260	—	170	18	400	—	407	12			
350	655	560	48	16	M45	355.6	359.5	95	74	74	74	300	—	189	20	460	—	460	12			
400	b																					
500	b																					

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DIMENSION OF PN 160 FLANGES



DN	Mating dimensions					Outside diameter of neck A	Flange thickness		Length		Neck diameters		Corner radii		Wall thickness (see 5.6.1) S
	Outside diameter D	Diameter of bolt circle K	Diameter of bolt hole L	Bolting			C ₂	C ₃	H ₂	H ₃	N ₁	N ₃	R ₁		
				No.	Size	R ₁							R ₂		
Flange type															
11, 21						11 21 ^a	11	21	11	11	11	21	11	21	11
10	100	70	14	4	M12	17.2	20	20	45	6	32	40	4	4	2.0
15	105	75	14	4	M12	21.3	20	20	45	6	34	45	4	4	2.0
25	140	100	18	4	M16	33.7	24	24	58	8	52	61	4	4	2.9
40	170	125	22	4	M20	48.3	28	28	64	10	70	82	6	4	3.6
50	195	145	26	4	M24	60.3	30	30	75	10	90	96	6	4	4.0
65	220	170	26	8	M24	76.1	34	34	82	12	108	118	6	5	5.0
80	230	180	26	8	M24	88.9	36	36	86	12	120	128	8	5	6.3
100	265	210	30	8	M27	114.3	40	40	100	12	150	150	8	5	8.0
125	315	250	33	8	M30	139.7	44	44	115	14	180	184	8	6	10.0
150	355	290	33	12	M30	168.3	50	50	128	14	210	224	10	6	12.5
200	430	360	36	12	M33	219.1	60	60	140	16	278	288	10	8	16.0
250	515	430	42	12	M39	273.0	68	68	155	18	340	346	12	8	20.0
300	585	500	42	16	M39	323.9	78	78	175	18	400	414	12	10	22.2

DIMENSION OF PN 250 FLANGES

DN	Mating dimensions					Outside diameter of neck A	Flange thickness		Length		Neck diameters		Corner radii		Wall thickness (see 5.6.1) S
	Outside diameter D	Diameter of bolt circle K	Diameter of bolt hole L	Bolting			C ₂	C ₃	H ₂	H ₃	N ₁	N ₃	R ₁		
				No.	Size	R ₁							R ₂		
Flange type															
11, 21						11 21 ^a	11	21	11	11	11	21	11	21	11
¹⁰ b, c	125	85	18	4	M16	—	—	24	—	—	—	46	—	4	—
15	130	90	18	4	M16	21.3	26	26	60	6	48	52	4	4	2.6
25	150	105	22	4	M20	33.7	28	28	65	8	60	63	4	4	3.6
40	185	135	26	4	M24	48.3	34	34	80	10	84	90	6	4	5.0
50	200	150	26	8	M24	60.3	38	38	85	10	95	102	6	5	6.3
65	230	180	26	8	M24	76.1	42	42	95	12	124	125	6	5	8.0
80	255	200	30	8	M27	101.6	46	46	102	12	136	142	8	6	11.0
100	300	235	33	8	M30	127.0	54	54	120	14	164	168	8	6	14.2
125	340	275	33	12	M30	152.4	60	60	140	16	200	207	8	6	16.0
150	390	320	36	12	M33	177.8	68	68	160	18	240	246	10	8	17.5
200	485	400	42	12	M39	244.5	82	82	190	25	305	314	10	8	25.0
250	585	490	48	16	M45	298.5	100	100	215	30	385	394	12	10	32.0
300 ^b	690	590	52	16	M48	—	—	120	—	—	—	480	—	10	—

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DIMENSION OF PN 320 FLANGES

DN	Mating dimensions					Outside diameter of neck A	Flange thickness		Length		Neck diameters		Corner radii		Wall thickness (see 5.6.1) S
	Outside diameter D	Diameter of bolt circle K	Diameter of bolt hole L	Bolting			C ₂	C ₃	H ₂	H ₃	N ₁	N ₃	R ₁		
				No.	Size										
Flange type															
11, 21						11 21 ^a	11	21	11	11	11	21	11	21	11
10	125	85	18	4	M16	17.2	24	24	58	6	44	46	4	4	2.6
15	130	90	18	4	M16	21.3	26	26	60	6	48	52	4	4	3.2
25	160	115	22	4	M20	33.7	34	34	78	8	68	72	4	4	5.0
40	195	145	26	4	M24	48.3	38	38	88	10	92	96	6	5	6.3
50	210	160	26	8	M24	63.5	42	42	100	10	106	110	6	5	8.0
65	255	200	30	8	M27	88.9	51	51	120	12	138	137	6	6	11.0
80	275	220	30	8	M27	101.6	55	55	130	14	156	160	8	6	12.5
100	335	265	36	8	M33	133.0	65	65	145	16	186	190	8	8	16.0
125	380	310	36	12	M33	168.3	75	75	175	20	230	235	8	8	20.0
150	425	350	39	12	M36	193.7	84	84	195	25	265	266	10	10	25.0
200	525	440	42	16	M39	244.5	103	103	235	30	345	350	10	10	30.0
250	640	540	52	16	M48	323.9	125	125	300	40	428	432	12	10	40.0

DN	Mating dimensions					Outside diameter of neck A	Flange thickness		Length		Neck diameters		Corner radii		Wall thickness (see 5.6.1) S
	Outside diameter D	Diameter of bolt circle K	Diameter of bolt hole L	Bolting			C ₂	C ₃	H ₂	H ₃	N ₁	N ₃	R ₁		
				No.	Size										
Flange type															
11, 21						11 21 ^a	11	21	11	11	11	21	11	21	11
10	125	85	18	4	M16	17.2	28	28	65	8	48	48	4	4	3.6
15	145	100	22	4	M20	25.9	30	30	68	8	56	57	4	4	5.0
25	180	130	26	4	M24	42.4	38	38	90	10	62	61	4	5	7.1
40	220	165	30	4	M27	60.3	48	48	110	12	106	105	6	5	10.0
50	235	180	30	8	M27	76.1	52	52	120	15	120	120	6	6	12.5
65	290	225	33	8	M30	101.6	64	64	135	18	158	158	6	6	16.0
80	305	240	33	8	M30	114.3	68	68	150	20	174	174	8	8	17.5
100	370	295	39	8	M36	139.7	80	80	175	25	216	216	8	8	22.2
125	415	340	39	12	M36	193.7	92	92	200	30	258	259	8	10	30.0
150	475	390	42	12	M39	219.1	105	105	225	35	302	302	10	10	35.0
200	585	490	48	16	M45	273.0	130	130	280	40	388	388	10	10	40.0

TOLERANCES

Tolerances (1 of 5)

Dimension	Flange Type	Size	Tolerance mm		
Outside diameter of neck d_1	11, 21, 34	DN 125	| 3,0 0		
		> DN 125 _ DN 1200	| 4,5 0		
		> DN 1200	| 6,0 0		
	35, 36, 37	_ DN 150	| 0,75 % ^a , min. 0,3 mm		
		> DN 150	1 % ^a , max. | 3,0 mm		
Bore diameter B_1, B_2, B_3	01, 02, 04, 12, 32	DN 100	| 0,5 0		
		> DN 100 _ DN 400	| 1,0 0		
		> DN 400 _ DN 600	| 1,5 0		
		> DN 600	| 3,0 0		
Wall thickness s^c	11, 34 ^b		machined neck (both faces)	neck one face machined	
		_ DN 100	| 1,0 0	or 2,0 0	
		> DN 100 _ DN 400	| 1,5 0	_ 2,5 0	
	35	S ≤ 8	| 15 % | 10 %		
			| 15 % | 5 %		
		DN 600	12,5 % _a 15 %		
			> DN 600	0,5 mm _a 15 %	
	36, 37				
	Bevelled wall thickness s_p	35, 36, 37	S ≤ 6	| 1,0 0	
S > 6			| 2,0 0		
Outside diameter D	21	_ DN 250	| 4,0		
		> DN 250 _ DN 500	| 5,0		
		> DN 500 _ DN 800	| 6,0		
		> DN 800 _ DN 1200	| 7,0		
		> DN 1200 _ DN 1600	| 8,0		
		> DN 1600 _ DN 2000	| 10,0		
	All other types	DN 150	| 2,0		
		> DN 150 _ DN 500	| 3,0		
		> DN 500 _ DN 1200	| 5,0		
		> DN 1200 _ DN 1800	| 7,0		
		> DN 1800	| 10,0		

TOLERANCES

Tolerances (2 of 5)

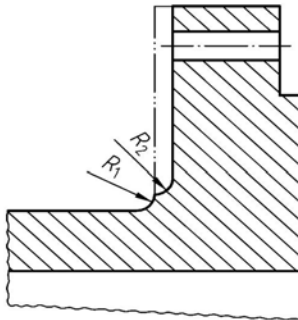
Dimension	Flange Type	Size	Tolerance mm
Length through hub H_1, H_2, H_3, H_4, H_5	11, 12, 13, 34, 35, 36, 37	DN 80	1,5
		> DN 80	-2,0
Neck diameter N_1	11 (machined bearing surface)	> DN 250	3,0
		N1 -120	0
		N1 > 120	1,0
		N1 > 120	-1,2
		N1 > 400	-1,6
		N1 > 400	0
		N1 > 1000	2,5
		N1 > 1000	0
		N1 > 2000	-4,0
		N1 > 2000	0
Neck diameter N_2, N_3	21, 34 (un-machined bearing surface)	DN 50	0
		> DN 50	2,0
		> DN 50	0
		> DN 50	4,0
		> DN 150	0
		> DN 150	-6,0
		> DN 300	0
		> DN 300	8,0
		> DN 600	0
		> DN 600	-10,0
Flange thickness C_1, C_2, C_3, C_4	21, 34 (machined bearing surface)	DN 50	-1,0
		DN 50	0
		> DN 50	1,5
		> DN 50	0
		> DN 150	-2,0
		> DN 150	0
> DN 300	-2,5		
> DN 300	0		
> DN 600	-3,0		
> DN 600	0		

Tolerances (3 of 5)

Dimension	Flange Type	Size	Tolerance mm
Neck diameter N_2, N_3	12, 13	DN 50	1,0
		DN 50	0
		> DN 50	2,0
		> DN 50	0
		> DN 150	4,0
		> DN 150	0
		> DN 300	8,0
		> DN 300	0
		> DN 600	12,0
		> DN 600	0
Collar thickness, F'	35 (machined on front face, only or un-machined)	> DN 1200	16,0
		> DN 1200	0
		> DN 1800	20,0
		> DN 1800	0
		> DN 1800	1,0
		> DN 1800	4,5
		> DN 1800	2,0
		> DN 1800	1,3
		> DN 1800	4,0
		> DN 1800	1,5
Flange thickness C_1, C_2, C_3, C_4	36 (machined on front face, only or un-machined)	5 mm thickness	0,20
		5 mm thickness	0,30
		> 5 mm thickness	-1,0
		> 5 mm thickness	1,3
		> 18 mm	-1,5
		> 18 mm	2,0
		> 18 mm	3,0
		> 18 mm	1,5
		> 18 mm	4,0
		> 18 mm	1,5
Flange thickness C_1, C_2, C_3, C_4	37 (un-machined)	18 mm thickness	-2,0
		18 mm thickness	1,3
		> 18 mm	-3,0
		> 18 mm	1,5
		> 30 mm	-4,0
		> 30 mm	1,5
		> 30 mm	-1,0
		> 30 mm	-1,3
		> 18 mm	1,5
		> 18 mm	2,0
Flange thickness C_1, C_2, C_3, C_4	32, 34 (machined on both faces)	18 mm thickness	-2,0
		18 mm thickness	1,3
		> 18 mm	-4,0
		> 18 mm	1,5
		> 18 mm	-7,0
		> 18 mm	1,5
		> 18 mm	-7,0
		> 18 mm	2,0
		> 18 mm	-2,0
		> 18 mm	1,3
Flange thickness C_1, C_2, C_3, C_4	All types (machined on front side only)	18 mm thickness	-2,0
		18 mm thickness	1,3
		> 18 mm	-4,0
		> 18 mm	1,5
		> 18 mm	-7,0
		> 18 mm	1,5
		> 18 mm	-7,0
		> 18 mm	2,0
		> 18 mm	-2,0
		> 18 mm	1,3
Flange thickness C_1, C_2, C_3, C_4	All types (machined on both faces)	18 mm thickness	-2,0
		18 mm thickness	1,3
		> 18 mm	-4,0
		> 18 mm	1,5
		> 18 mm	-7,0
		> 18 mm	1,5
		> 18 mm	-7,0
		> 18 mm	2,0
		> 18 mm	-2,0
		> 18 mm	1,3
Flange thickness C_1, C_2, C_3, C_4	All types (machined on front side only) Type 02 and 04 (un-machined)	18 mm thickness	-2,0
		18 mm thickness	1,3
		> 18 mm	-4,0
		> 18 mm	1,5
		> 18 mm	-7,0
		> 18 mm	1,5
		> 18 mm	-7,0
		> 18 mm	2,0
		> 18 mm	-2,0
		> 18 mm	1,3

TOLERANCES

Tolerances (5 of 5)



Dimension	Flange Type	Size	Tolerance mm
Parallelism between bolting bearing surface and flange jointing faces	All types (machined bearing surface)	All DN	1°
	All types (un-machined bearing surface)		2°

a Tolerance in % from the outside diameter or respectively from the wall thickness.
b Bore tolerance not applicable.
c Preparation of ends see Annex A.
d Between bolt circle and facing also as between bore diameter and facing.

Corner radii R1 and hub radius R2 after back facing

Flange size	R ₁ min. ^a mm	R ₁ max. ^a mm	R ₂ min. mm
Up to and including DN 50	3	5	1.6
Over DN 50 and up to including DN 350	3	6	2.4
Over DN 350	5	8	3.2

Dimensions R₁ are valid for types 33 and 35 to 37.
Dimensions R₁ for other types 11, 12, 13, 21 and 34

Tolerances (4 of 5)

Dimension	Flange Type	Size	Tolerance mm	
Facing diameter f_1	All Types	DN 250	$\pm 2,0$	
		> DN 250	$\pm 1,0$	
Facing height f_1	All Types (Facing type B, D, F and G)	DN 32	0	
		2 mm	$\pm 1,0$	
		> DN 32 to DN 250	3 min	$\pm 2,0$
		> DN 250 to DN 500	4 min	$\pm 3,0$
Facing height f_2	All types (Facing type C, E and G)	> DN 500	5 min	
		> DN 500	$\pm 4,0$	
Facing height f_3	All types (Facing type F, D and F)	All DN	10,5	
		All DN	0	
Facing height f_4	All types (Facing type H)	All DN	10,2	
		All DN	0	
Facing	All types (Facing type H)	All DN	$\pm 0,5$	
		All DN	0	
		All DN	0	
		All DN	0	
Diameter of bolt circle d'	All types	Bolt size M10 to M24	$\pm 1,0$	
		Bolt size M27 to M45	11,5	
Diameter of bolt holes f	All types	Bolt size > M45	12,0	
		Bolt size M10 to M24	$\pm 1,0$	
		Bolt size M27 to M45	0	
		Bolt size > M45	4,0	
Centre-to-centre of adjacent bolt holes	All types	Bolt size M10 to M24	11,0	
		Bolt size M27 to M45	11,5	
Eccentricity of machined facing diameters ^c	All types	DN 65	1,0	
		> DN 65	2,0	

SA 182

Standard	Grade	Carbon	Manganese	Phosphorus	Sulfur	Silicon	Nickel	Chromium	Molybdenum	Columbium	Titanium	Oiler Elements	Tensile Strength, min. ksi [MPa]	Yield Strength, min. [ksi] [MPa]	Elongation in 2 in. [50 mm] or 4D, %	Reduction of Area, min. %	Brinell Hardness Number
Low Alloy Steels																	
F 5 ^c	0.15	0.30-0.60	0.03	0.03	0.03	0.5	4.0-5.0	0.44-0.65	...	...	...	...	70 [483]	40 [273]	20	30	143-217
F 1 ^f	0.05-0.15	0.30-0.60	0.03	0.03	0.30-1.00	...	1.00-1.50	0.44-0.65	...	...	...	...	60 [413]	30 [203]	20	45	121-174
F 1 ^g	0.10-0.20	0.30-0.80	0.04	0.04	0.50-1.00	...	1.00-1.50	0.44-0.65	...	...	...	...	70 [483]	40 [273]	20	30	143-207
F 1 ^h	0.15-0.20	0.30-0.80	0.04	0.04	0.50-1.00	...	1.00-1.50	0.44-0.65	...	...	...	...	75 [515]	45 [310]	20	30	156-207
F 2 ^g	0.05-0.15	0.30-0.60	0.04	0.04	0.5	...	2.00-2.50	0.67-1.13	...	...	...	...	80 [545]	50 [355]	20	35	170 max
F 2 ^h	0.05-0.15	0.30-0.60	0.04	0.04	0.5	...	2.00-2.50	0.67-1.13	...	...	...	...	73 [513]	45 [310]	20	30	150-207
F 20V	0.11-0.15	0.50-0.80	0.015	0.01	0.1	0.25	2.00-2.50	0.30-1.10	0.07	0.03	...	Cu 0.20 V 0.25-0.35 B 0.002 Ca 0.015E	65-110 [45-760]	60 [415]	18	45	174-237
Martensitic Stainless Steels																	
F 6 ^f	0.15	1	0.04	0.03	1	0.5	11.5-13.5	...	...	...	...	...	...	...	...	...	...
F 6 ^g	0.15	1	0.02	0.02	1	1.00-2.00	11.0-13.5	0.40-0.60	...	...	...	Cu 0.30	110-135 [760-930]	90 [620]	18	45	235-205
Austenitic Stainless Steels																	
F 304	0.08	2	0.045	0.03	1	8.0-11.0	18.0-20.0	...	...	...	...	...	75 [520]	30 [205]	30	50	...
F 304L	0.04-0.10	2	0.065	0.03	1	0.0-11.0	18.0-20.0	...	...	...	...	...	75 [520]	30 [205]	30	50	...
F 304L	0.03	2	0.045	0.03	1	8.0-13.0	18.0-20.0	...	...	...	...	...	70 [480]	25 [170]	30	50	...
F 310H	0.04-0.10	2	0.045	0.03	1	10.0-22.0	24.0-28.0	...	...	...	...	...	75 [520]	30 [205]	30	50	...
F 316	0.10	2	0.045	0.03	1	10.0-14.0	18.0-20.0	2.00-3.00	...	...	...	...	75 [520]	30 [205]	30	50	...
F 316H	0.04-0.10	2	0.045	0.03	1	10.0-14.0	18.0-20.0	2.00-3.00	...	...	...	...	75 [520]	30 [205]	30	50	...
F 316L	0.03	2	0.045	0.03	1	10.0-15.0	18.0-20.0	2.00-3.00	...	...	...	...	70 [485]	25 [170]	30	50	...
F 316L	0.06	2	0.065	0.03	1	10.0-14.0	18.0-20.0	2.00-3.00	...	...	...	...	75 [515]	30 [205]	30	40	...
F 321	0.08	2	0.045	0.03	1	9.0-12.0	17.0-19.0	...	...	...	...	...	70 [490]	30 [205]	30	60	...
F 321H	0.04-0.10	2	0.045	0.03	1	9.0-12.0	17.0-19.0	...	...	...	...	...	75 [520]	30 [205]	30	50	...
F 304L	0.02	2	0.04	0.03	1	23.0-28.0	19.0-23.0	4.0-5.0	...	...	...	...	71 [490]	31 [215]	35	...	...
Ferritic/Austenitic Stainless Steels																	
F 50	0.03	2	0.045	0.03	1	5.5-6.5	24.0-26.0	1.20-2.00	...	...	...	...	150-130 [100-900]	55 [450]	25	50	...
F 51	0.03	2	0.03	0.02	1	6.5-8.5	21.0-23.0	2.5-3.5	...	...	...	...	90 [620]	65 [450]	25	45	...
F 52	0.03	2	0.030	0.01	0.6	3.0-5.2	26.0-29.0	1.00-2.00	...	...	...	...	100 [690]	70 [485]	15	...	...
F 53	0.03	1.2	0.030	0.02	0.6	6.0-8.0	24.0-26.0	3.0-3.0	...	...	...	...	110 [760]	80 [550]	15	...	310 max
F 54	0.03	1	0.03	0.02	0.6	6.0-8.0	24.0-26.0	2.5-3.5	...	...	...	...	118 [810]	80 [550]	15	50	510 max
F 55	0.03	1	0.03	0.01	1	6.0-8.0	24.0-26.0	3.0-4.0	...	...	...	...	150-130 [100-900]	80 [550]	25	45	...
F 57	0.025	0.8	0.025	0.002	0.8	6.5-8.0	24.0-26.0	3.0-4.0	...	...	...	...	118 [810]	85 [585]	25	50	...
F 59	0.03	1.5	0.035	0.02	0.8	6.0-8.0	24.0-26.0	3.0-3.0	...	...	...	...	112 [770]	80 [550]	25	40	...
F 60	0.03	2	0.03	0.02	1	6.5-8.5	22.0-23.0	3.0-3.5	...	...	...	...	95 [655]	65 [450]	25	45	...

SA 403

Standard	Grade	C*	mm ²	Y ^A	S ^B	S ^C	NI	Cr	Mo	TI	N2C ^D	Cu	Others	Tensile Strength, min. ksi (MPa)	Yield Strength, min. ksi (MPa)	Elongation	
SA-403/ISA-403M SPECIFICATION FOR WROUGHT AUSTENITIC STAINLESS STEEL PIPING FITTINGS	WP 304	0.08	2.00	0.045	0.030	1.00	8.0-11.0	18.0-20.0	..	...	...	...	...	75 (515)	30 (205)	30
	WP 304L	0.020 ^F	2.00	0.045	0.030	1.00	8.0-12.0	18.0-20.0	..	...	...	...	...	70 (485)	25 (170)	40
	WP 304H	0.04-0.10	2.00	0.045	0.030	1.00	8.0-11.0	18.0-20.0	..	...	...	...	...	75 (515)	30 (205)	30
	WP 316	0.08	2.00	0.045	0.030	1.00	10.0-14.0	16.0-18.0	2.00-3.00	...	...	...	...	75 (515)	30 (205)	30
	WP 316L	0.020 ^F	2.00	0.045	0.030	1.00	10.0-14.0 ^G	16.0-18.0	2.00-3.00	...	...	...	...	70 (485)	25 (170)	40
	WP 316H	0.04-0.10	2.00	0.045	0.030	1.00	10.0-14.0	16.0-18.0	2.00-3.00	...	...	...	...	75 (515)	30 (205)	30
	WP 321	0.08	2.00	0.045	0.030	1.00	9.0-12.0	17.0-19.0	..	...	...	...	...	75 (515)	30 (205)	30
	WP 321H	0.04-0.10	2.00	0.045	0.030	1.00	9.0-12.0	17.0-19.0	..	...	...	...	...	75 (515)	30 (205)	30
	WP 347	0.08	2.00	0.045	0.030	1.00	9.0-12.0	17.0-19.0	J	75 (515)	30 (205)	30
	WP 347H	0.04-0.10	2.00	0.045	0.030	1.00	9.0-12.0	17.0-19.0	J	75 (515)	30 (205)	30
	WP 348RTS	0.032	2.00	0.040	0.020	3.5-6.5	15.0-17.0	13.0-15.0	0.25-1.00	Gu 0.26 Cu 0.35-4.30 Al 0.30	78 (540)	37 (255)	30
	SA-240/ISA-240M SPECIFICATION FOR CHROMIUM-NICKEL STAINLESS STEEL PLATE, SHEET AND STRIP FOR PRESSURE VESSELS AND FOR GENERAL APPLICATIONS	304	0.07	2.00	0.045	0.030	0.75	8.0-10.5	17.5-19.5	0.10	75 (515)	30 (205)	40
304L		0.032	2.00	0.045	0.030	0.75	8.0-12.0	17.5-19.5	..	...	0.10	...	...	70 (485)	25 (170)	40
304H		0.04-0.10	2.00	0.045	0.030	0.75	8.0-10.5	18.0-20.0	..	...	...	...	...	75 (515)	30 (205)	40
316		0.08	2.00	0.045	0.030	0.75	10.0-14.0	16.0-18.0	2.00-3.00	...	0.10	...	...	75 (515)	30 (205)	40
316L		0.03	2.00	0.045	0.030	0.75	10.0-14.0	16.0-18.0	2.00-3.00	...	0.10	...	...	70 (485)	25 (170)	40
316H		0.04-0.10	2.00	0.045	0.030	0.75	10.0-14.0	16.0-18.0	2.00-3.00	...	...	...	...	75 (515)	30 (205)	40
316TI		0.08	2.00	0.045	0.030	0.75	10.0-14.0	16.0-18.0	2.00-3.00	...	0.1	Ti 5 x (C + N) min. 0.70 max	75 (515)	30 (205)	40
321		0.08	2.00	0.045	0.030	0.75	9.0-12.0	17.0-19.0	0.1	Ti 6 x (C + N) min. 0.70 max Ti 4 x (C + N) min. 0.70 max	75 (515)	30 (205)	40
321H		0.04-0.10	2.00	0.045	0.030	0.75	9.0-12.0	17.0-19.0	..	...	...	...	...	75 (515)	30 (205)	40
317		0.08	2.00	0.045	0.030	0.75	10-13.0	17.0-19.0	Cb 0.1 x C min. 1.20 % max	75 (515)	30 (205)	40
327H		0.04-0.10	2.00	0.046	0.030	0.75	8.0-13.0	17.0-19.0	Cb 3 x C min. 1.20 % max	75 (515)	30 (205)	40
SA-312/ISA-312M SPECIFICATION FOR SEAMLESS AND WELDED AUSTENITIC STAINLESS STEEL PIPING		304L	0.025	2.00	0.045	0.030	1.00	23.0-26.0	18.0-23.0	4.00-5.00	...	0.10	1.00-2.00	...	71 (490)	31 (220)	35
	S31603	0.032	2.00	0.030	0.030	1.00	4.5-6.3	21.0-23.0	2.5-3.5	...	0.00-0.20	...	...	80 (550)	65 (450)	25
	S32905	0.032	2.00	0.030	0.030	1.00	4.5-6.3	22.0-23.0	3.0-3.5	...	0.10-0.20	...	...	85 (590)	65 (450)	25
	TP 304	0.035	2.00	0.045	0.030	1.00	10-11.0	11.0-20.0	..	...	...	...	...	75 (515)	30 (205)	30
	TP 304H	0.035	2.00	0.045	0.030	1.00	10-13.0	11.0-20.0	..	...	...	...	...	75 (515)	30 (205)	30
	TP 304H1	0.04-0.10	2.00	0.045	0.030	1.00	10-11.0	11.0-20.0	..	...	...	...	...	75 (515)	30 (205)	30
	TP 316	0.035	2.00	0.045	0.030	1.00	11.0-14.0	11.0-20.0	2.00-3.00	...	...	...	...	75 (515)	30 (205)	30
	TP 316H	0.035	2.00	0.045	0.030	1.00	11.0-14.0	11.0-20.0	2.00-3.00	...	...	...	...	75 (515)	30 (205)	30
	TP 316H1	0.04-0.10	2.00	0.045	0.030	1.00	11.0-14.0	11.0-20.0	2.00-3.00	...	...	...	...	70 (485)	25 (170)	40
	TP 316H1	0.04-0.10	2.00	0.045	0.030	1.00	11.0-14.0	11.0-20.0	2.00-3.00	...	...	...	...	75 (515)	30 (205)	30

SA 815

Standard	Grade	C ₁ max	Mn ^o	P _s max	S max	S ₁ max	N ^o	C ₁	Ni ^o	Cr	Mo	C ₁ ^o	M ^o	T	Other	Tensile Strength, min., ksi (MPa)	Yield Strength, min., ksi (MPa)	Elongation in 2 in. (50 mm) or 4D, min. %	Hardness HBW max	
SA-815 SA-815M Standard Specification for Wrought Ferritic, Ferritic/Austenitic, and Martensitic Stainless Steel Piping Fittings	WP 27	0.07	0.75	0.020	0.022	0.42	0.53	85.0-27.5	0.53	0.75-1.10	0.20	0.20	0.25	...	CS 0.05-0.20	55 (450)-90 (620)	40 (275)	20.0	190	
	WP 33	0.16	0.75	0.040	0.022	0.75	0.51	21.0-27.0	0.51	0.75-1.10	0.7	0.02	0.20-4.00 [7+1(C-Ni)] min	...	...	30 (470)-35 (540)	45 (310)	30.0	241
	WP 423	0.12	1.20	0.040	0.032	0.75	0.53	14.0-16.0	0.53	...	...	...	...	...	...	50 (413)-85 (585)	35 (240)	20.0	190
	WP 430	0.12	1.20	0.040	0.032	1.02	0.52	14.0-18.0	0.52	...	...	...	...	...	...	35 (290)-50 (320)	35 (240)	30.0	190
	WP 430TI	0.1	1.20	0.040	0.032	1.02	0.72	16.0-19.0	0.72	...	...	...	...	10(C) min 0.75 max	...	50 (413)-82 (570)	36 (240)	20.0	190
	WP 442	0.10	1.30	0.040	0.032	0.75	0.5	29.0-37.0	0.5	...	...	...	0.25	...	...	30 (413)-45 (310)	40 (275)	18.0	207
	WP 532102	0.03	2.20	0.010	0.022	1.02	4.5-6.5	21.0-23.0	4.5-6.5	2.2-3.5	0.04-0.20	30 (210)	65 (450)	30.0	290
	WP 532101	0.14	4.0-6.0	0.040	0.032	1.02	1.35-1.70	21.0-23.0	1.35-1.70	0.10-0.20	5.10-0.20	0.20-0.25	0.20-0.25	65 (450)	65 (450)	30.0	290
	WP 532103	0.03	2.20	0.040	0.024	1.02	1.00-2.00	21.0-23.0	1.00-2.00	0.15	0.10-0.25	84 (570)	65 (450)	30.0	290
	WP 532151	0.03	1.20	0.035	0.022	0.82	2.0-3.0	24.0-26.0	2.0-3.0	3.0-5.2	0.50	0.24-0.32	0.24-0.32	112 (820)-142 (995)	80 (550)	15.0	310
	WP 532152	0.03	2.20	0.035	0.024	0.62	3.5-5.2	26.0-28.0	3.5-5.2	1.00-2.10	0.15-0.35	103 (680)	70 (470)	15.0	290
	WP 532161	0.03	1.20	0.030	0.024	1.02	2.0-3.0	24.0-26.0	2.0-3.0	3.0-4.2	5.50-1.00	0.20-0.30	0.20-0.30	...	W 0.50-1.00	100 (750)-132 (925)	80 (550)	25.0	270	
	WP 532171	0.03	1.20	0.030	0.022	0.82	2.0-4.0	24.0-26.0	2.0-4.0	2.00-3.10	2.20-0.20	0.24-0.32	0.24-0.32	...	W 1.20-2.30	116 (800)	80 (550)	15.0	310	
	WP 532181	0.04	1.50	0.040	0.032	1.02	4.5-6.5	24.0-27.0	4.5-6.5	2.0-3.0	1.50-2.30	0.10-0.25	0.10-0.25	...	...	110 (760)	80 (550)	15.0	302
WP 532205	0.03	2.20	0.030	0.022	1.02	4.5-6.5	22.0-23.0	4.5-6.5	3.0-3.2	...	...	0.14-0.20	...	...	90 (620)	66 (450)	20.0	290	

Standard	Grade	C	Mn	P	S	Si	Ni	Cu	Mo	Nb	Al	Y	Ca	Cu	Mu	Ni	Si	S	P	Min	C	Grade	Tensile Strength, min. N/mm ²	Yield Strength, min. MPa	Elongation in 2 m (50 mm) at 0.01 mm, %	Reduction of Area, min. %	Hardness HB, max.
SA-400/SA-420M SPECIFICATION FOR PIPING FITTINGS OF WROUGHT CARBON STEEL AND ALLOY STEEL FOR LOW TEMPERATURE SERVICE	WFLG	0.3	1.00-1.35	0.035	0.040	0.15-0.40	0.40	0.40	0.12	0.03	0.02	0.02	0.02	0.40	0.12	0.3	0.15-0.40	0.040	0.035	1.00-1.35	WFLG	415-685	243	22.0	...	...
	WFLH	0.2	2.00-1.06	0.030	0.030	...	1.00-2.24	...	...	...	...	...	...	...	...	...	...	0.030	0.030	2.00-1.06	WFLH	415-685	315	22.0	...	...
	WFLS	2.00	2.5-0.64	0.050	0.050	0.12-0.37	3.2-3.8	...	...	...	...	...	...	...	...	...	...	0.12-0.37	0.050	2.5-0.64	WFLS	415-685	243	22.0	...	...
	WFLB	2.19	0.30	0.030	0.030	0.13-0.37	5.2-9.6	...	...	...	...	...	...	...	...	...	...	0.13-0.37	0.030	0.30	WFLB	690-955	515	16.0	...	...
	Grade A	2.25	2.27-0.51	0.035	0.035	0.10	0.4	0.4	0.15	0.12	0.01	...	...	...	...	...	...	0.10	0.035	2.27-0.51	Grade A	310	205	35.0	...	...
	Grade B	2.30	2.00-1.06	0.035	0.035	0.10	0.4	0.4	0.15	0.12	0.02	...	...	...	...	...	...	0.10	0.035	2.00-1.06	Grade B	415	243	22.0	...	...
	Grade C	2.35	2.29-1.00	0.035	0.035	0.10	0.4	0.4	0.15	0.12	0.03	...	...	...	...	...	...	0.10	0.035	2.29-1.00	Grade C	435	275	22.0	...	...
	Grade 1 ¹	2.30	2.00-1.06	0.025	0.025	0.025	0.025	2.00-1.06	Grade 1 ¹	390	205	35.0
	Grade 2	2.19	2.5-0.64	0.025	0.025	0.12-0.37	3.12-3.82	...	...	...	...	...	...	...	...	...	...	0.12-0.37	0.025	2.5-0.64	Grade 2	450	243	22.0	...	...
	Grade 4	2.12	2.50-1.05	0.025	0.025	0.12-0.37	0.27-0.98	0.44-1.01	0.46-0.75	0.12	0.02	0.04-0.30	...	...	...	...	...	0.12-0.37	0.025	2.50-1.05	Grade 4	415	243	22.0	...	...
SA-333/SA-333M SPECIFICATION FOR SEAMLESS AND WELDED STEEL PIPE FOR LOW TEMPERATURE SERVICE	Grade 6 ¹	2.20	2.28-1.00	0.025	0.025	0.10-0.35	...	...	...	...	...	...	...	...	...	...	0.10-0.35	0.025	2.28-1.00	Grade 6 ¹	415	243	22.0	...	...
	Grade 7	2.18	0.30 max	0.025	0.025	0.12-0.32	2.03-2.57	...	...	...	...	...	...	...	...	...	0.12-0.32	0.025	0.30 max	Grade 7	430	243	22.0	...	...
	Grade 8	2.15	0.30 max	0.025	0.025	0.12-0.32	2.40-2.80	...	...	...	...	...	...	...	...	...	0.12-0.32	0.025	0.30 max	Grade 8	470	243	22.0	...	...
	Grade 9	2.20	2.40-1.00	0.025	0.025	...	1.20-2.24	...	...	...	...	...	...	...	...	...	...	...	2.40-1.00	Grade 9	435	243	22.0	...	...
	Grade 10	2.20	1.45-1.50	0.035	0.035	0.10-0.35	0.25 max	0.41 max	0.05	0.12	0.05 max	0.05 max	0.13	0.05 max	0.12	0.05	0.10-0.35	0.035	1.45-1.50	Grade 10	570	495	23.0	...	...
	Grade 11	2.10	0.30 max	0.025	0.025	0.12-0.32	35.0-37.0	...	...	...	...	...	...	...	...	...	...	0.12-0.32	0.025	0.30 max	Grade 11	430	243	14.0	...	...
	LFI	2.30	2.60-1.35	0.035	0.040	0.15-0.30	0.46 max	0.32 max	0.12 max	0.12 max	0.02 max	0.02 max	0.02 max	0.02 max	0.40 max	0.12 max	0.32 max	0.15-0.30	0.040	2.60-1.35	LFI	415-685	205	25.0	38	...	
	LFE - Class 1, 2	2.30	2.60-1.35	0.035	0.040	0.15-0.30	0.46 max	0.32 max	0.12 max	0.12 max	0.02 max	0.02 max	0.02 max	0.02 max	0.40 max	0.12 max	0.32 max	0.15-0.30	0.040	2.60-1.35	LFE - Class 1, 2	435-655	251	22.0	30	...	
	LFS - Class 1, 2	2.20	0.30 max	0.035	0.040	0.20-0.35	3.7-9.7	0.32 max	0.12 max	0.12 max	0.02 max	0.02 max	0.02 max	0.02 max	0.40 max	0.12 max	0.32 max	0.20-0.35	0.040	0.30 max	LFS - Class 1, 2	415-635	261	22.0	35	...	
	LFS - Class 1 or LFS - Class 2	2.30	2.60-1.35	0.14	0.14	0.20-0.35	1.0-2.0	0.32 max	0.12 max	0.12 max	0.02 max	0.02 max	0.02 max	0.02 max	0.40 max	0.12 max	0.32 max	0.20-0.35	0.14	2.60-1.35	LFS - Class 1 or LFS - Class 2	415-635	205	25.0	38	...	
SA-350/SA-350M SPECIFICATION FOR CARBON AND ALLOY STEEL FORGING, RESURFING NOTCH TOUGHNESS TESTING FOR FIPING COMPONENTS	LFE - Class 1	2.23	1.45-1.50	0.03	0.03	0.15-0.30	0.40 max	0.32 max	0.12 max	0.12 max	0.02 max	0.02 max	0.02 max	0.40 max	0.12 max	0.32 max	0.15-0.30	0.03	1.45-1.50	LFE - Class 1	435-630	301	22.0	40	...		
	LFE - Class 2,3	2.20	2.40-1.06	0.035	0.040	...	1.00-2.24	...	...	...	...	...	...	...	...	...	...	...	2.40-1.06	LFE - Class 2,3	515-680	415	22.0	40	...	
	LFB	2.20	2.40-1.06	0.035	0.040	...	...	...	...	...	...	...	...	...	...	...	...	...	2.40-1.06	LFB	415-635	215	25.0	38	...	
	LF787 - Class 2	2.07	2.40-0.70	0.025	0.025	0.40 max	0.70-1.00	0.20-0.90	0.15-0.25	0.15-0.25	0.02 min	0.02 max	0.02 max	0.02 max	1.00-1.50	0.02 min	0.02 max	0.40 max	0.025	2.40-0.70	LF787 - Class 2	450-655	380	24.0	45	...	
	LF787 - Class 3	2.07	2.40-0.70	0.025	0.025	0.10-0.35	0.40 max	0.30 max	0.12 max	0.12 max	0.02 max	0.02 max	0.02 max	0.02 max	0.40 max	0.12 max	0.30 max	0.10-0.35	0.025	2.40-0.70	LF787 - Class 3	515-655	401	24.0	45	...	
SA-105/SA-105M	0.35 max	2.00-1.05	0.035 max	0.040 max	0.10-0.35	0.40 max	0.30 max	0.12 max	0.12 max	0.02 max	0.02 max	0.02 max	0.02 max	0.40 max	0.12 max	0.30 max	0.10-0.35	0.040 max	2.00-1.05	SA-105	435	250	30.0	30	107		

SB 564

Standard	Element	UNS N04400	UNS N06600	UNS N06690	UNS N06120	UNS N06600	UNS N06810	UNS N06603	UNS N06025	UNS N06045	UNS N06210	UNS N06611	UNS N06625
SB-564 SPECIFICATION FOR NICKEL ALLOY FORGINGS	Nickel	63.0 min (A)	72.0 min (A)	58.0 min (A)	35.0–39.0	30.0–35.0	30.0–35.0	balance (A)	balance (A)	45 min	remainder (A)	30.0–35.0	58.0 min (A)
	Copper	28.0–34.0	0.5 max	0.5 max	0.50 max	0.75 max	0.75 max	0.5 max	0.10 max	0.3 max	...	0.75 max	...
	Iron	2.5 max	6.0–10.0	7.0–11.0	remainder	39.5 min (A)	38.5 min (A)	3.0–11.0	8.0–11.0	21.0–25.0	1.0 max	39.5 min (A)	5.0 max
	Manganese	2.0 max	1.0 max	0.5 max	1.50	1.5 max	1.5 max	0.15 max	0.15	1	0.5 max	1.5 max	0.5 max
	Carbon	0.3 max	0.15 max	0.05 max	0.02–0.10	0.10 max	0.05–0.10	0.20–0.40	0.15–0.25	0.05–0.12	0.015 max	0.05–0.10	0.10 max
	Silicon	0.5 max	0.5 max	0.5 max	1.00	1.0 max	1.0 max	0.5 max	0.5	2.5–3.0	0.06 max	1.0 max	0.5 max
	Sulfur, max	0.024	0.015	0.015	0.030	0.02	0.02	0.010	0.01	0.01	0.02	0.015	0.015
	Chromium	...	14.0–17.0	27.0–31.0	23.0–27.0	19.0–23.0	19.0–23.0	24.0–26.0	24.0–26.0	26.0–29.0	18.0–20.0	19.0–23.0	26.0–29.0
	Aluminum	...	...	...	0.40 max	0.15–0.60	0.15–0.60	2.4–3.0	1.8–2.4	...	...	0.15–0.60	0.4 max
	Titanium	...	...	...	0.20 max	0.15–0.60	0.15–0.60	0.01–0.25	0.1–0.2	...	...	0.15–0.60	0.4 max
	Columbium (Nb) + Tantalum	...	...	...	0.4–0.9	...	...	...	...	...	...	...	3.15–4.15
	Molybdenum	...	...	...	2.50 max	...	...	...	...	...	18.0–20.0	...	8.0–10.0
	Phosphorus	...	...	...	0.040 max	...	...	0.02 max	0.02 max	0.02 max	0.02 max	...	0.015 max
	Tungsten	...	...	...	2.50 max	...	...	...	...	...	...	...	...
	Cobalt, max	...	...	...	3.00	...	...	...	...	...	1.0	...	...
	Vanadium, max	...	...	...	...	...	...	...	...	...	0.35	...	...
	Nitrogen	...	...	...	0.15–0.30	...	...	...	...	...	...	...	...
	Boron	...	...	...	0.010 max	...	...	...	...	...	...	...	...
	Lanthanum	...	...	...	...	...	...	...	...	...	...	...	...
	Aluminum + Titanium	...	...	...	...	...	...	...	...	...	...	0.85–1.20	...
	Nickel + Molybdenum	...	...	...	...	...	...	...	...	...	...	...	...
	Columbium (Nb) max	...	...	...	...	...	...	...	...	...	...	...	...
	Tantalum	...	...	...	...	...	...	...	...	...	1.5–2.2	...	...
	Zirconium, max	...	...	...	...	...	...	0.01–0.10	0.01–0.10	...	...	...	...
	Carbon	...	...	...	...	...	...	...	...	0.03–0.09	...	...	...
	Yttrium	...	...	...	...	...	...	0.01–0.15	0.05–0.12	...	...	...	...
Tensile Strength, min, ksi (MPa)	70 (483)	80 (552)	85 (586)	90 (621)	75 (517)	65 (448)	94 (650)	98 (680)	90 (620)	100 (690)	65 (448)	120 (827)	
Yield Strength, 0.2% Offset, min, ksi (MPa)	25 (172)	35 (241)	35 (241)	40 (276)	30 (207)	25 (172)	45 (300)	39 (270)	35 (240)	45 (310)	25 (172)	60 (414)	
Elongation in 2 in. or 50 mm or 4D, min, %	35	30.00	30.00	30.000	30.00	30.00	25.00	30	35	45	30	30	

Standard	Element	UNS N06110	UNS N08325	UNS N10276	UNS N06022	UNS N08367	UNS N06059	UNS N06058	UNS N06035	UNS N06200	UNS N06219	UNS N08031	UNS N06230	
SB-564 SPECIFICATION FOR NICKEL ALLOY FORGINGS	Nickel	51.0 min (A)	38.0-46.0	remainder (A)	remainder (A)	23.50-25.50 remainder (A)	balance (A)	balance (A)	remainder (A)	remainder (A)	balance (A)	30.0-32.0	remainder (A)	
	Copper	0.50 max	1.5-3.0	...	...	0.75 max	0.50 max	0.50 max	0.30 max	1.3-1.9	0.50 max	1.0-1.4	...
	Iron	1.0 max	22.0 min (A)	4.0-7.0	2.0-6.0	remainder (A)	0.75 max	1.5 max	1.5 max	3.0 max	2.0-4.0	balance (A)	3.0 max	
	Manganese	1.0 max	1.0 max	1.0 max	0.50 max	2.00 max	0.5 max	0.5 max	0.50 max	0.50 max	0.50 max	2.0 max	0.30-1.00	
	Carbon	0.15 max	0.05 max	0.010 max	0.015 max	0.030 max	0.030 max	0.010 max	0.050 max	0.010 max	0.010 max	0.015 max	0.05-0.15	
	Silicon	1.0 max	0.5 max	0.08 max	0.08 max	1.00 max	0.10 max	0.10 max	0.50 max	0.08 max	0.08 max	0.70-1.10	0.25-0.75	
	Sulfur, max	0.015	0.03	0.03	0.020	0.030	0.030	0.010	0.01	0.02	0.010	0.01	0.01	
	Chromium	28.0-33.0	19.5-23.5	14.5-16.5	20.0-22.5	20.0-22.0	20.0-22.0	22.0-24.0	20.0-23.0	32.25-34.25	22.0-24.0	18.0-22.0	26.0-28.0	20.0-24.0
	Aluminum	1.0 max	0.2 max	0.1-0.4	0.40 max	0.40 max	0.50 max	0.50 max	...	0.50 max
	Titanium	1.0 max	0.5-1.2	0.50 max
	Columbium (Nb) + Tantalum	1.0 max
	Molybdenum	9.0-12.0	2.5-3.5	15.0-17.0	12.5-14.5	6.00-7.00	6.00-7.00	15.0-16.5	19.0-21.0	7.50-9.00	15.0-17.0	7.0-8.0	6.0-7.0	1.0-3.0
	Phosphorus	0.50 max	...	0.04 max	0.02 max	0.040 max	0.040 max	0.015 max	0.015 max	0.030 max	0.025 max	0.020 max	0.020 max	0.030 max
	Tungsten	1.0-4.0	...	3.0-4.5	2.5-3.5	0.3 max	0.50 max	13.0-15.0
	Cobalt, max	2.5 max	2.5 max	0.3 max	0.3 max	1.00 max	2.0 max	1.0 max	...	5.0 max
	Vanadium, max	0.35	0.35	0.20
	Nitrogen	0.18-0.25	0.18-0.25	...	0.02-0.15	0.15-0.25	...
	Boron	0.015 max
	Lanthanum	0.005-0.050
Aluminum + Titanium	...	...	...	...	...	...	...	...	...	...	...	...	...
Nickel + Molybdenum	...	...	...	...	...	...	...	...	...	...	...	...	...
Columbium (Nb) max	...	...	...	...	...	...	...	...	...	...	...	...	...
Tantalum	...	...	...	...	...	...	...	...	...	...	...	...	...
Zirconium, max	...	...	...	...	...	...	...	...	...	...	...	...	...
Cerium	...	...	...	...	...	...	...	...	...	...	...	...	...
Yttrium	...	...	...	...	...	...	...	...	...	...	...	...	...
Tensile Strength, min, ksi (MPa)	85 (655)	85 (586)	100 (690)	100 (690)	95 (655)	95 (655)	100 (690)	110 (760)	85 (586)	100 (690)	95 (660)	84 (650)	110 (758)	
Yield Strength, 0.2% Offset, min, ksi (MPa)	45 (310)	35 (241)	41 (283)	45 (310)	45 (310)	45 (310)	45 (310)	52 (360)	35 (241)	45 (310)	39 (270)	40 (276)	45 (310)	
Elongation in 2 in. or 50 mm or 4D, min, %	50	30	40	45.00	30.00	30.00	45.000	40.00	30.00	45.00	50	40	40	

Standard	Element	UNS N06617	UNS N10629	UNS N10665	UNS N10675	UNS N10242	UNS N06686	UNS N12160	UNS N02200	UNS N10624	UNS R20033	
SB-564 SPECIFICATION FOR NICKEL ALLOY FORGINGS	Nickel	44.5 min	balance (A)	remainder (A)	65.0 min	remainder (A)	remainder (A)	remainder (A)	99.0 min (A)	remainder (A)	30.0-33.0	
	Copper	0.5 max	0.5 max	...	0.20 max	...	...	...	0.25 max	0.5 max	0.30-1.20	
	Iron	3.0 max	1.0-6.0	2.0 max	1.0-3.0	2.0 max	5.0 max	3.5 max	0.40 max	5.0-8.0	balance (A)	
	Manganese	1.0 max	1.5	1.0 max	3.0 max	0.80 max	0.75 max	1.5 max	0.35 max	1.0 max	2.0	
	Carbon	0.05-0.15	0.010 max	0.02 max	0.01 max	0.03	0.04 max	0.04 max	0.15 max	0.15 max	0.015 max	
	Silicon	1.0 max	0.05	0.10 max	0.10 max	0.80 max	0.08 max	0.08 max	2.4-3.0	0.35 max	0.10 max	0.50
	Sulfur, max	0.015	0.01	0.03	0.01	0.015	0.020	0.020	0.015	0.010	0.04 max	0.01
	Chromium	20.0-24.0	0.5-1.5	1.0 max	1.0-3.0	7.0-9.0	19.0-23.0	...	26.0-30.0	...	6.0-10.0	31.0-35.0
	Aluminum	0.8-1.5	0.1-0.5	...	0.50 max	0.50 max	...	...	...	...	0.5 max	...
	Titanium	0.6 max	...	...	0.20 max	...	0.02-0.25	...	0.20-0.80	...	...	...
	Columbium (Nb) + Tantalum	...	...	...	...	...	...	...	...	...	...	...
	Molybdenum	8.0-10.0	28.0-30.0	26.0-30.0	27.0-32.0	24.0-26.0	15.0-17.0	1.0 max	1.0 max	...	21.0-25.0	0.50-2.0
	Phosphorus	...	0.04 max	0.04 max	0.030 max	0.030 max	0.04 max	0.030 max	0.030 max	...	0.025 max	0.02 max
	Tungsten	...	...	...	3.0 max	...	...	3.0-4.4	1.0 max	...	...	...
	Cobalt, max	10.0-15.0	2.5	1.00 max	3.0 max	1.00 max	...	...	27.0-33.0	...	1.0 max	...
	Vanadium, max	...	...	...	0.2	...	...	...	...	...	...	...
	Nitrogen	...	...	...	...	...	...	...	...	...	...	0.35-0.60
	Boron	0.006 max	...	...	...	0.006 max	...	...	...	...	...	...
	Lanthanum	...	...	...	...	...	...	...	...	...	...	...
	Aluminum + Titanium	...	...	...	...	...	...	...	...	...	...	...
Nickel + Molybdenum	...	...	...	94.0-96.0	...	...	...	...	...	...	...
Columbium (Nb) max	...	...	...	0.2	...	...	...	1.0	...	...	...
Tantalum	...	...	...	0.20 max	...	...	...	...	...	...	...
Zirconium, max	...	...	...	0.1	...	...	...	...	...	...	...
Cerium	...	...	...	...	...	...	...	...	...	...	...
Yttrium	...	...	...	...	...	...	...	...	...	...	...
Tensile Strength, min, ksi (MPa)	95 (655)	110 (760)	110 (760)	110 (760)	105 (725)	100 (690)	90 (620)	55 (380)	104 (720)	109 (750)		
Yield Strength, 0.2% Offset, min, ksi (MPa)	35 (241)	51 (350)	51 (350)	51 (350)	45 (310)	45 (310)	35 (240)	15 (105)	46 (320)	55 (380)		
Elongation in 2 in. or 50 mm or 4D, min, %	35	40	40	40	40	45.00	40.00	40.0	40.00	40.00	40.00	

STEEL AIIDS ENTERPRISE P LIMITED

MANUFACTURER OF FORGED FLANGES & BUTT WELD PIPE FITTINGS

An ISO 9001 & PED Approved Company

BUTTWELD PIPE FITTINGS

Sizes available:
1/2" to 24"



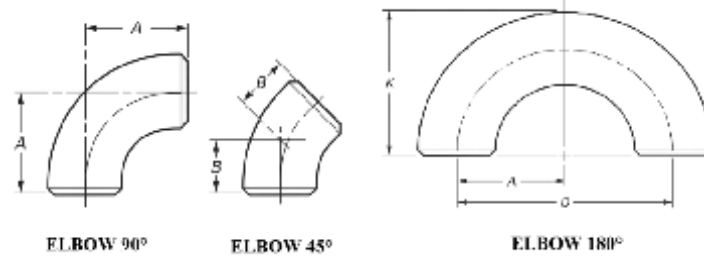
Size	: 1/2" NB to 24" NB WELDED : 1/2" NB to 12" NB SEAMLESS
Thickness	: Sch 5S, 10S, 20S, 30S, 40S, 60S, 80S, 100S, 120S, 140S, 160S, STD, XS, XXS
Dimension	: ASME B16.9, MSS-SP 43, MSS-SP 75
Type	: Elbow LR & SR-45°, 90° & 180°. Tee- Barred, Equal, Reducing, Reducer - Concentric & Eccentric, Nipple-Swing & Barrel, Stubend - Long & Short, U Bend, End Cap, Laterals.

Stainless Steel Fittings	: ASTM A 403 WP-TP 304/304H/304L, 316/316H/316Ti, 309, 310, 317L, 321, 347, 904L etc., 1.4301, 1.4307, 1.4841, 1.4842, 1.4401, 1.4404, 1.4571, 1.4541
Duplex Fittings	: ASTM A815-UNS S31803, S32750, S32760, S32205
Cu-Ni Fittings	: C70600 (90:10), C71500 (70:30), C71640
Nickel Fittings	: UNS N022000, N02201
Alloy Steel Fitting	: ASTM A 234 WP5, WP9, WP11, WP12, WP22 & WP91
Carbon Steel Fitting	: ASTM A 234 WPB

LTCS Fitting	: ASTM A-420 WPL6
MS & GI Fitting	: ISI Mark
Monel Fitting	: UNS N04400, N05500, Alloy 20
Inconel Fitting	: UNS N06600, N06601, N06625, N08800, N08810, N08825
Hastelloy Fitting	: UNS N10276, N06022, N10665, N06455
Non Ferrous Fitting	: Copper, Brass, Aluminum

Other Services	: Hot Dipped Galvanizing, ElectroPolish, Stand Blasting, etc.
Test Certificate	: Manufacturer Certificates as per EN 10204 / 3.1/3.2 & NACE MR 01 75
Specialize	: IBR Fitting, Customized Fittings etc.,

ASME B16.9 BUTT WELD FITTINGS

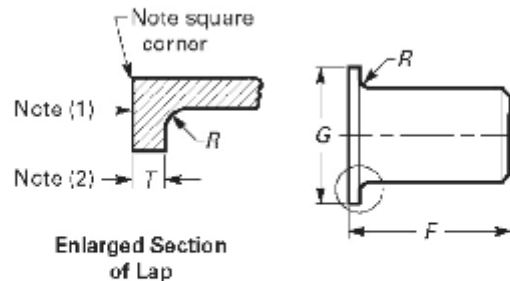


Nominal Pipe Size (NPS)	DIMENSION OF ELBOW							
	Outside Diameter at Bevel	LONG RADIUS ELBOW				SHORT RADIUS ELBOW		
		90-deg Elbows, A	45-deg Elbows, B	180-deg Center-to-Center, O	180-deg Back-to-Face, K	90-deg Center-to-End, A	180-deg Center-to-Center, O	180-deg Back-to-Face, K
1/2	21.3	38	16	76	48	-	-	-
3/4	26.7	38	19	76	51	-	-	-
1	33.4	38	22	76	58	25	51	41
1 1/4	42.2	48	25	95	70	32	64	52
1 1/2	48.3	57	29	114	83	38	76	62
2	60.3	76	35	152	106	51	102	81
2 1/2	73	95	44	190	132	64	127	100
3	88.9	114	51	229	159	76	152	121
3 1/2	101.6	133	57	267	184	89	178	140
4	114.3	152	64	305	210	102	203	159
5	141.3	190	79	381	262	127	254	197
6	168.3	229	95	457	313	152	305	237
8	219.1	305	127	610	414	203	406	313
10	273	381	159	762	518	254	508	391
12	323.8	457	190	914	619	305	610	467
14	355.6	533	222	1 067	711	356	711	533
16	406.4	610	254	1 219	813	406	813	610
18	457	686	286	1 372	914	457	914	686
20	508	762	318	1 524	1 016	508	1 016	762
22	559	838	343	1 676	1 118	559	1 118	838
24	610	914	381	1 829	1 219	610	1 219	914
26	660	991	406	-	-	-	-	-
28	711	1 067	438	-	-	-	-	-
30	762	1 143	470	-	-	-	-	-
32	813	1 219	502	-	-	-	-	-
34	864	1 295	533	-	-	-	-	-
36	914	1 372	565	-	-	-	-	-
38	965	1 448	600	-	-	-	-	-
40	1 016	1 524	632	-	-	-	-	-
42	1 067	1 600	660	-	-	-	-	-
44	1 118	1 676	695	-	-	-	-	-
46	1 168	1 753	727	-	-	-	-	-
48	1 219	1 829	759	-	-	-	-	-

ASME B16.9

BUTT WELD FITTINGS

Table 9 Dimensions of Lap Joint Stub Ends



Nominal Pipe Size (NPS)	Outside Diameter of Barrel		Long Pattern Length, F [Notes (3), (4)]	Short Pattern Length, F [Notes (3), (4)]	Radius of Fillet, R [Note (5)]	Diameter of Lap, G [Note (6)]
	Max.	Min.				
1/2	22.8	20.5	76	51	3	35
3/4	28.1	25.9	76	51	3	43
1	35.0	32.6	102	51	3	51
1 1/4	43.6	41.4	102	51	5	64
1 1/2	49.9	47.5	102	51	6	73
2	62.4	59.5	152	64	8	92
2 1/2	75.3	72.2	152	64	8	105
3	91.3	88.1	152	64	10	127
3 1/2	104.0	100.8	152	76	10	140
4	116.7	113.5	152	76	11	157
5	144.3	140.5	203	76	11	186
6	171.3	167.5	203	89	13	216
8	222.1	218.3	203	102	13	270
10	277.2	272.3	254	127	13	324
12	328.0	323.1	254	152	13	381
14	359.9	354.8	305	152	13	413
16	411.0	405.6	305	152	13	470
18	462.0	456.0	305	152	13	533
20	514.0	507.0	305	152	13	584
22	565.0	558.0	305	152	13	641
24	616.0	609.0	305	152	13	692

GENERAL NOTES:

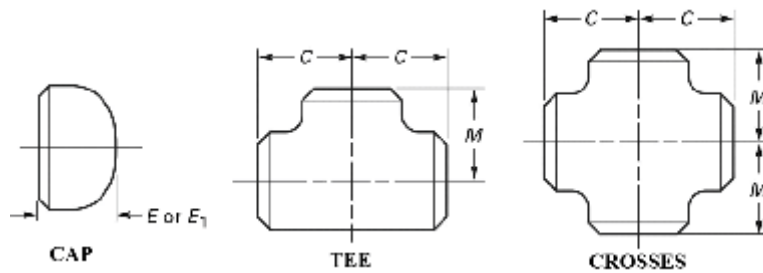
- (a) All dimensions are in millimeters.
- (b) See Table 13 for tolerances.
- (c) Service conditions and joint construction often dictate stub end length requirements. Therefore, the purchaser must specify long or short pattern fitting when ordering.

NOTES:

- (1) Gasket face finish shall be in accordance with ASME B16.5 for raised face flanges.
- (2) The lap thickness, T , shall not be less than nominal pipe wall thickness. See Table 13 for maximum tolerance.
- (3) When short pattern stub ends are used with larger flanges in Classes 300 and 600, with most sizes in Classes 900 and higher, and when long pattern stub ends are used with larger flanges in Classes 1500 and 2500, it may be necessary to increase the length of the stub ends in order to avoid covering the weld with the flange. Such increases in length shall be a matter of agreement between the manufacturer and purchaser.
- (4) When special facings such as tongue and groove, male and female, etc., are employed, additional lap thickness must be provided and such additional thickness shall be in addition to (not included in) the basic length, F .
- (5) These dimensions conform to the radius established for lap joint flanges in ASME B16.5.
- (6) This dimension conforms to standard machined facings shown in ASME B16.5. The back face of the lap shall be machined to conform to the surface on which it sits. Where ring joint facings are to be applied, use dimension K as given in ASME B16.5.

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BUTT WELD FITTINGS

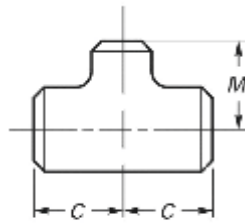


DIMENSION OF CAP				
Nominal Pipe Size (NPS)	Outside Diameter at Bevel	Length, E	Limiting Wall Thickness for Length, E	Length, E1 [Note (2)]
1/2	21.3	25	4.57	25
3/4	28.7	25	3.81	25
1	33.4	38	4.57	38
1 1/4	42.2	38	4.83	38
1 1/2	48.3	38	5.08	38
2	60.3	38	5.59	44
2 1/2	73	38	7.11	51
3	88.9	51	7.62	64
3 1/2	101.6	64	8.13	76
4	114.3	64	8.64	76
5	141.3	76	9.65	89
6	168.3	89	10.92	102
8	219.1	102	12.7	127
10	273	127	12.7	152
12	323.8	152	12.7	178
14	355.6	165	12.7	191
16	406.4	178	12.7	203
18	457	203	12.7	229
20	508	229	12.7	254
22	559	254	12.7	254
24	610	267	12.7	305
26	660	267	-	-
28	711	267	-	-
30	762	267	-	-
32	813	267	-	-
34	864	267	-	-
36	914	267	-	-
38	965	305	-	-
40	1016	305	-	-
42	1067	305	-	-
44	1118	343	-	-
46	1168	343	-	-
48	1219	343	-	-

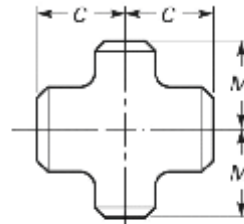
DIMENSION OF EQUAL TEE & CROSSES			
Nominal Pipe Size (NPS)	Outside Diameter at Bevel	Center-to-End	
		Run, C	Outlet, M
1/2	21.3	25	25
3/4	26.7	29	29
1	33.4	38	38
1 1/4	42.2	48	48
1 1/2	48.3	57	57
2	60.3	64	64
2 1/2	73	76	76
3	88.9	86	86
3 1/2	101.6	95	95
4	114.3	105	105
5	141.3	124	124
6	168.3	143	143
8	219.1	178	178
10	273	216	216
12	323.8	254	254
14	355.6	279	279
16	406.4	305	305
18	457	343	343
20	508	381	381
22	559	419	419
24	610	432	432
26	660	495	495
28	711	521	521
30	762	559	559
32	813	597	597
34	864	635	635
36	914	673	673
38	965	711	711
40	1016	749	749
42	1067	762	711
44	1118	813	762
46	1168	851	800
48	1219	889	838

ASME B16.9

BUTT WELD FITTINGS



REDUCING TEE



REDUCING CROSSES

DIMENSION OF REDUCING TEE & CROSSES

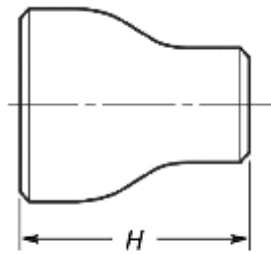
Nominal Pipe Size (NPS)	Outside Diameter at Bevel		Center-to-End	
	Run	Outlet	Run, C	Outlet, M
1/2 x 1/2 x 3/8	21.3	17.3	25	25
1/2 x 1/2 x 1/4	21.3	13.7	25	25
3/4 x 3/4 x 1/2	26.7	21.3	29	29
3/4 x 3/4 x 3/8	26.7	17.3	29	29
1 x 1 x 3/4	33.4	26.7	38	38
1 x 1 x 1/2	33.4	21.3	38	38
1 1/4 x 1 1/4 x 1	42.2	33.4	48	48
1 1/4 x 1 1/4 x 3/4	42.2	26.7	48	48
1 1/4 x 1 1/4 x 1/2	42.2	21.3	48	48
1 1/2 x 1 1/2 x 1 1/4	48.3	42.2	57	57
1 1/2 x 1 1/2 x 1	48.3	33.4	57	57
1 1/2 x 1 1/2 x 3/4	48.3	26.7	57	57
1 1/2 x 1 1/2 x 1/2	48.3	21.3	57	57
2 x 2 x 1 1/2	60.3	48.3	64	60
2 x 2 x 1 1/4	60.3	42.2	64	57
2 x 2 x 1	60.3	33.4	64	51
2 x 2 x 3/4	60.3	26.7	64	44
2 1/2 x 2 1/2 x 2	73	60.3	76	70
2 1/2 x 2 1/2 x 1 1/2	73	48.3	76	67
2 1/2 x 2 1/2 x 1 1/4	73	42.2	76	64
2 1/2 x 2 1/2 x 1	73	33.4	76	57
3 x 3 x 2 1/2	88.9	73	86	83
3 x 3 x 2	88.9	60.3	86	76
3 x 3 x 1 1/2	88.9	48.3	86	73
3 x 3 x 1 1/4	88.9	42.2	86	70
3 1/2 x 3 1/2 x 3	101.6	88.9	95	92
3 1/2 x 3 1/2 x 2 1/2	101.6	73	95	89
3 1/2 x 3 1/2 x 2	101.6	60.3	95	83
3 1/2 x 3 1/2 x 1 1/2	101.6	48.3	95	79
4 x 4 x 3 1/2	114.3	101.6	105	102
4 x 4 x 3	114.3	88.9	105	98
4 x 4 x 2 1/2	114.3	73	105	95
4 x 4 x 2	114.3	60.3	105	89

DIMENSION OF REDUCING TEE & CROSSES

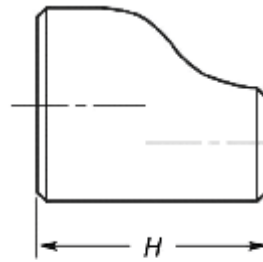
Nominal Pipe Size (NPS)	Outside Diameter at Bevel		Center-to-End	
	Run	Outlet	Run, C	Outlet, M
4 x 4 x 1 1/2	114.3	48.3	105	86
5 x 5 x 4	141.3	114.3	124	117
5 x 5 x 3 1/2	141.3	101.6	124	114
5 x 5 x 3	141.3	88.9	124	111
5 x 5 x 2 1/2	141.3	73	124	108
5 x 5 x 2	141.3	60.3	124	105
6 x 6 x 5	168.3	141.3	143	137
6 x 6 x 4	168.3	114.3	143	130
6 x 6 x 3 1/2	168.3	101.6	143	127
6 x 6 x 3	168.3	88.9	143	124
6 x 6 x 2 1/2	168.3	73	143	121
8 x 8 x 6	219.1	168.3	178	168
8 x 8 x 5	219.1	141.3	178	162
8 x 8 x 4	219.1	114.3	178	156
8 x 8 x 3 1/2	219.1	101.6	178	152
10 x 10 x 8	273	219.1	216	203
10 x 10 x 6	273	168.3	216	194
10 x 10 x 5	273	141.3	216	191
10 x 10 x 4	273	114.3	216	184
12 x 12 x 10	323.8	273	254	241
12 x 12 x 8	323.8	219.1	254	229
12 x 12 x 6	323.8	168.3	254	219
12 x 12 x 5	323.8	141.3	254	216
14 x 14 x 12	355.6	323.8	279	270
14 x 14 x 10	355.6	273	279	257
14 x 14 x 8	355.6	219.1	279	248
14 x 14 x 6	355.6	168.3	279	238
16 x 16 x 14	406.4	355.6	305	305
16 x 16 x 12	406.4	323.8	305	295
16 x 16 x 10	406.4	273	305	283
16 x 16 x 8	406.4	219.1	305	273
16 x 16 x 6	406.4	168.3	305	264
18 x 18 x 16	457	406.4	343	330

ASME B16.9

BUTT WELD FITTINGS



CONCENTRIC REDUCER

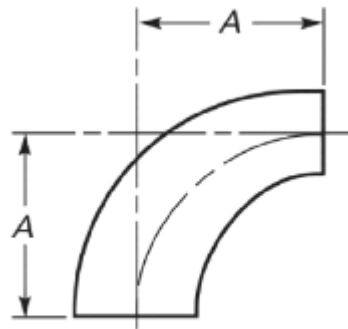


ECCENTRIC REDUCER

DIMENSION OF REDUCERS				DIMENSION OF REDUCERS				DIMENSION OF REDUCERS				DIMENSION OF REDUCERS			
Nominal Pipe Size (NPS)	Outside Diameter at Bevel		End-to-End, H	Nominal Pipe Size (NPS)	Outside Diameter at Bevel		End-to-End, H	Nominal Pipe Size (NPS)	Outside Diameter at Bevel		End-to-End, H	Nominal Pipe Size (NPS)	Outside Diameter at Bevel		End-to-End, H
	Large End	Small End			Large End	Small End			Large End	Small End			Large End	Small End	
3/4 x 1/2	25.7	21.3	38	5 x 4	141.3	114.3	127	18 x 10	457	273	381	36 x 32	914	813	610
3/4 x 3/8	25.7	17.3	38	5 x 3 1/2	141.3	101.6	127	20 x 18	508	457	508	36 x 30	914	762	610
1 x 3/4	33.4	25.7	51	5 x 3	141.3	88.9	127	20 x 16	508	406.4	508	36 x 26	914	660	610
1 x 1/2	33.4	21.3	51	5 x 2 1/2	141.3	73	127	20 x 14	508	355.6	508	36 x 24	914	610	610
1 1/4 x 1	42.2	33.4	51	5 x 2	141.3	60.3	127	20 x 12	508	323.8	508	38 x 36	965	914	610
1 1/4 x 3/4	42.2	26.7	51	6 x 5	168.3	141.3	140	22 x 20	559	508	508	38 x 34	965	864	610
1 1/4 x 1/2	42.2	21.3	51	6 x 4	168.3	114.3	140	22 x 18	559	457	508	38 x 32	965	813	610
1 1/2 x 1 1/4	48.3	42.2	64	6 x 3 1/2	168.3	101.6	140	22 x 16	559	406.4	508	38 x 30	965	762	610
1 1/2 x 1	48.3	33.4	64	6 x 3	168.3	88.9	140	22 x 14	559	355.4	508	38 x 28	965	711	610
1 1/2 x 3/4	48.3	26.7	64	6 x 2 1/2	168.3	73	140	24 x 22	610	559	508	38 x 26	965	660	610
1 1/2 x 1/2	48.3	21.3	64	8 x 6	219.1	168.3	152	24 x 20	610	508	508	48 x 38	1016	965	610
2 x 1 1/2	60.3	48.3	76	8 x 5	219.1	141.3	152	24 x 18	610	457	508	40 x 36	1016	914	610
2 x 1 1/4	60.3	42.2	76	8 x 4	219.1	114.3	152	24 x 16	610	406.4	508	40 x 34	1016	864	610
2 x 1	60.3	33.4	76	8 x 3 1/2	219.1	101.6	152	26 x 24	660	610	610	40 x 32	1016	813	610
2 x 3/4	60.3	26.7	76	10 x 8	273	219.1	178	26 x 22	660	559	610	40 x 30	1016	762	610
2 1/2 x 2	73	60.3	89	10 x 6	273	168.3	178	26 x 20	660	508	610	42 x 40	1067	1016	610
2 1/2 x 1 1/2	73	48.3	89	10 x 5	273	141.3	178	26 x 18	660	457	610	42 x 38	1067	965	610
2 1/2 x 1 1/4	73	42.2	89	10 x 4	273	114.3	178	28 x 26	711	660	610	42 x 36	1067	914	610
2 1/2 x 1	73	33.4	89	12 x 10	323.8	273	203	28 x 24	711	610	610	42 x 34	1067	864	610
3 x 2 1/2	88.9	73	89	12 x 8	323.8	219.1	203	28 x 20	711	508	610	42 x 32	1067	813	610
3 x 2	88.9	60.3	89	12 x 6	323.8	168.3	203	28 x 18	711	457	610	42 x 30	1067	762	610
3 x 1 1/2	88.9	48.3	89	12 x 5	323.8	141.3	203	30 x 28	762	711	610	44 x 42	1118	1067	610
3 x 1 1/4	88.9	42.2	89	14 x 12	355.6	323.8	330	30 x 26	762	660	610	44 x 40	1118	1016	610
3 1/2 x 3	101.6	88.9	102	14 x 10	355.6	273	330	30 x 24	762	610	610	44 x 38	1118	965	610
3 1/2 x 2 1/2	101.6	73	102	14 x 8	355.6	219.1	330	30 x 20	762	508	610	44 x 36	1118	914	610
3 1/2 x 2	101.6	60.3	102	14 x 6	355.6	168.3	330	32 x 30	813	762	610	46 x 44	1168	1118	711
3 1/2 x 1 1/2	101.6	48.3	102	16 x 14	406.4	355.6	356	32 x 28	813	711	610	46 x 42	1168	1067	711
3 1/2 x 1 1/4	101.6	42.2	102	16 x 12	406.4	323.8	356	32 x 26	813	660	610	48 x 40	1168	1016	711
4 x 3 1/2	114.3	101.6	102	16 x 10	406.4	273	356	32 x 24	813	610	610	48 x 38	1168	965	711
4 x 3	114.3	88.9	102	16 x 8	406.4	219.1	356	34 x 32	864	813	610	48 x 46	1219	1168	711
4 x 2 1/2	114.3	73	102	18 x 16	457	406.4	381	34 x 30	864	762	610	48 x 44	1219	1118	711
4 x 2	114.3	60.3	102	18 x 14	457	355.6	381	34 x 26	864	660	610	48 x 42	1219	1067	711
4 x 1 1/2	114.3	48.3	102	18 x 12	457	323.8	381	34 x 24	864	610	610	48 x 40	1219	1016	711
								36 x 34	914	864	610

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BUTT WELD FITTINGS



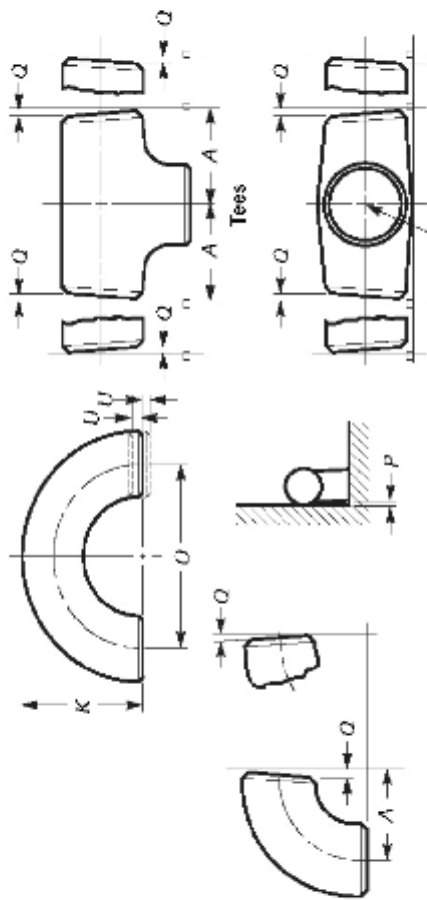
REDUCING ELBOW

Nominal Pipe Size (NPS)	DIMENSION OF REDUCING ELBOW		
	Outside Diameter at Bevel		Center-to-End, A
	Large End	Small End	
2 × 1 1/2	60.3	48.3	76
2 × 1 1/4	60.3	42.2	76
2 × 1	60.3	33.4	76
2 1/2 × 2	73	60.3	95
2 1/2 × 1 1/2	73	48.3	95
2 1/2 × 1 1/4	73	42.2	95
3 × 2 1/2	88.9	73	114
3 × 2	88.9	60.3	114
3 × 1 1/2	88.9	48.3	114
3 1/2 × 3	101.6	88.9	133
3 1/2 × 2 1/2	101.6	73	133
3 1/2 × 2	101.6	60.3	133
4 × 3 1/2	114.3	101.6	152
4 × 3	114.3	88.9	152
4 × 2 1/2	114.3	73	152
4 × 2	114.3	60.3	152
5 × 4	141.3	114.3	190
5 × 3 1/2	141.3	101.6	190
5 × 3	141.3	88.9	190
5 × 2 1/2	141.3	73	190
6 × 5	168.3	141.3	229
6 × 4	168.3	114.3	229
6 × 3 1/2	168.3	101.6	229
6 × 3	168.3	88.9	229
8 × 6	219.1	168.3	305
8 × 5	219.1	141.3	305
8 × 4	219.1	114.3	305

Nominal Pipe Size (NPS)	DIMENSION OF REDUCING ELBOW		
	Outside Diameter at Bevel		Center-to-End, A
	Large End	Small End	
10 × 8	273	219.1	381
10 × 6	273	168.3	381
10 × 5	273	141.3	381
12 × 10	323.8	273	457
12 × 8	323.8	219.1	457
12 × 6	323.8	168.3	457
14 × 12	355.6	323.8	533
14 × 10	355.6	273	533
14 × 8	355.6	219.1	533
16 × 14	406.4	355.6	610
16 × 12	406.4	323.8	610
16 × 10	406.4	273	610
18 × 16	457	406.4	686
18 × 14	457	355.6	686
18 × 12	457	323.8	686
18 × 10	457	273	686
20 × 18	508	457	762
20 × 16	508	406.4	762
20 × 14	508	355.6	762
20 × 12	508	323.8	762
20 × 10	508	273	762
24 × 22	610	559	914
24 × 20	610	508	914
24 × 18	610	457	914
24 × 16	610	406.4	914
24 × 14	610	355.6	914
24 × 12	610	323.8	914

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Table 13 Tolerances



Nominal Pipe Size (NPS)	DN	All Fittings [Notes (1) and (2)]		Center-to-End Dimensions		Overall Length of Reducers and Lap Joint Stub Ends, E, H	Overall Length of Caps, F	180-deg Returns		
		Outside Diameter at Bevel, D [Notes (3) and (4)]	Inside Diameter at End [Notes (3) and (5)]	90-deg and 45-deg Long and Short Radius Elbows and Tees, A, B, C, M	3D Radius Elbows, A, B			Center-to-Center Dimension, O	Back-to-Face Dimension, K	Alignment of Ends, U
1/2 to 3 1/2 3 to 3 1/2 4	15-65	+1.6, -0.8	0.8	2	3	2	3	6	6	1
	80-90	1.6	1.6	2	3	2	3	6	6	1
	100	1.6	1.6	2	3	2	3	6	6	1
5 to 8	125-200	+2.4, -1.6	1.6	2	3	2	6	6	6	1
	250-450	+4.0, -3.2	3.2	2	3	2	6	10	6	2
20 to 24	500-600	+6.4, -4.8	4.8	2	3	2	6	10	6	2
	26 to 30	+6.4, -4.8	4.8	3	6	5	10
32 to 48	800-1200	+6.4, -4.8	4.8	5	6	5	10

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BUTT WELD FITTINGS

Table 13 Tolerances (Cont'd)

Nominal Pipe Size (NPS)	Lap Joint Stub Ends [Note (6)]			Nominal Pipe Size (NPS)	DN	Angularity Tolerances	
	Outside Diameter of Lap, G	Fillet Radius of Lap, R	Lap Thickness			Off Angle, Q	Off Plane, P
1/2 to 2 1/2	+0, -1	+0, -1	+1.6, -0	1/2 to 4	15-100	1	2
3 to 3 1/2	+0, -1	+0, -1	+1.6, -0	5 to 8	125-200	2	4
4	+0, -1	+0, -2	+1.6, -0	10 to 12	250-300	3	5
5 to 8	+0, 1	+0, 2	+1.6, 0	14 to 16	350-400	3	6
10 to 18	+0, -2	+0, -2	+3.2, -0	18 to 24	450-600	4	10
20 to 24	+0, -2	+0, -2	+3.2, -0	26 to 30	650-750	5	10
26 to 30	...	...	...	32 to 42	800-1 050	5	13
32 to 48	...	...	...	44 to 48	1 100-1 200	5	19

GENERAL NOTES:

(a) All dimensions are in millimeters.

(b) Tolerances are equal plus and minus except as noted.

NOTES:

(1) The inside diameter and the nominal wall thicknesses at ends are to be specified by the purchaser.

(2) A minimum wall thickness of 87.5% applies unless the purchaser specifies a different wall thickness tolerance. See Fig. 1, Note (1)(a).

(3) Out-of-round is the sum of absolute values of plus and minus tolerances.

(4) This tolerance may not apply in localized areas of formed fittings where increased wall thickness is required to meet design requirements of para. 2.2.

(5) Unless otherwise specified by the purchaser, these tolerances apply to the nominal inside diameter, which equals the difference between the nominal outside diameter and twice the nominal wall thickness.

(6) See Table 9 for limiting dimensions of outside diameter of barrel.

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BORE CHART

Size/Outside Pipe Diameter	Schedule	Wall Thickness		Inside Diameter	
		mm	Inch	mm	Inch
1 1/2" 21.34	5S	1.05	0.065	10.03	0.710
	10S	2.11	0.083	17.17	0.674
	40/40S/STD	2.77	0.109	15.00	0.622
	80/80S/XS	3.73	0.147	13.87	0.546
	160	4.78	0.189	11.79	0.464
	XXS	7.47	0.294	6.40	0.252
3/4" 20.07	5S	1.05	0.065	23.37	0.920
	10S	2.11	0.083	22.45	0.884
	40/40S/STD	2.87	0.113	20.93	0.824
	80/80S/XS	3.91	0.154	18.85	0.742
	160	5.56	0.219	15.54	0.612
	XXS	7.62	0.300	11.02	0.434
1" 33.4	5S	1.65	0.065	30.10	1.185
	10S	2.77	0.109	27.88	1.097
	40/40S/STD	3.38	0.133	26.64	1.049
	80/80S/XS	4.55	0.179	24.31	0.957
	160	6.35	0.250	20.70	0.815
	XXS	9.09	0.358	15.21	0.599
1 1/4" 42.10	5S	1.65	0.065	38.86	1.530
	10S	2.77	0.109	36.63	1.442
	40/40S/STD	3.56	0.140	35.05	1.380
	80/80S/XS	4.85	0.191	32.46	1.278
	160	6.35	0.250	28.46	1.100
	XXS	9.70	0.382	22.76	0.896
1 1/2" 48.26	5S	1.65	0.065	44.96	1.770
	10S	2.77	0.109	42.72	1.682
	40/40S/STD	3.68	0.145	40.89	1.610
	80/80S/XS	5.08	0.200	38.10	1.500
	160	7.14	0.281	33.89	1.330
	XXS	10.15	0.400	27.94	1.100

Size/Outside Pipe Diameter	Schedule	Wall Thickness		Inside Diameter	
		mm	Inch	mm	Inch
2" 50.32	5S	1.65	0.065	57.02	2.245
	10S	2.77	0.109	54.79	2.157
	40/40S/STD	3.91	0.154	52.50	2.067
	80/80S/XS	5.54	0.218	49.25	1.939
	160	8.74	0.344	42.85	1.687
	XXS	11.07	0.438	38.18	1.503
2 1/2" 73.02	5S	2.11	0.083	68.81	2.709
	10S	3.05	0.120	66.33	2.635
	40/40S/STD	5.16	0.203	62.71	2.469
	80/80S/XS	7.01	0.276	59.00	2.323
	160	9.53	0.375	53.90	2.125
	XXS	14.02	0.552	44.90	1.771
3" 88.9	5S	2.41	0.093	84.88	3.334
	10S	3.05	0.120	82.80	3.260
	40/40S/STD	5.49	0.216	77.93	3.068
	80/80S/XS	7.62	0.300	73.66	2.900
	160	11.13	0.438	66.65	2.624
	XXS	15.24	0.600	58.42	2.300
3 1/2" 101.6	5S	2.41	0.093	97.30	3.834
	10S	3.05	0.120	95.50	3.760
	40/40S/STD	5.74	0.226	90.12	3.548
	80/80S/XS	8.08	0.318	85.45	3.364
	5S	2.41	0.093	110.08	4.334
	10S	3.05	0.120	109.20	4.280
4" 114.3	40/40S/STD	6.02	0.237	102.26	4.026
	80/80S/XS	8.58	0.337	97.18	3.828
	120	11.13	0.438	92.05	3.624
	160	13.49	0.531	87.33	3.438
	XXS	17.12	0.674	80.06	3.152

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BORE CHART

Size/Outside Pipe Diameter	Schedule	Wall Thickness		Inside Diameter	
		mm	inch	mm	inch
5" 141.3	5S	2.77	0.109	135.76	5.345
	10S	3.40	0.134	134.49	5.295
	40/40S/STD	6.55	0.258	128.19	5.047
	80/80S/XS	9.53	0.375	122.25	4.813
	120	12.70	0.500	115.90	4.563
	160	15.88	0.625	109.55	4.313
	XXS	19.05	0.750	103.20	4.063
6" 160.3	5S	2.77	0.109	162.74	6.407
	10S	3.40	0.134	161.47	6.357
	40/40S/STD	7.11	0.280	154.05	6.065
	80/80S/XS	10.97	0.432	146.33	5.761
	120	14.27	0.562	139.73	5.501
	160	18.26	0.719	131.75	5.187
	XXS	21.95	0.864	124.39	4.897
8" 219.1	5S	2.77	0.109	213.54	8.407
	10S	3.76	0.148	211.56	8.329
	20	6.35	0.250	206.38	8.125
	30	7.04	0.277	205.00	8.071
	40/40S/STD	8.18	0.322	202.72	7.991
	60	10.31	0.406	198.45	7.813
	80/80S/XS	12.70	0.500	193.68	7.625
	100	15.09	0.594	188.90	7.437
	120	18.26	0.719	182.55	7.187
	140	20.62	0.812	177.83	7.001
	XXS	22.23	0.875	174.63	6.875
	160	23.01	0.906	173.05	6.813
10" 273	5S	3.40	0.134	266.24	10.482
	10S	4.19	0.165	264.67	10.420
	20	6.35	0.250	260.35	10.250
	30	7.80	0.307	257.45	10.138
	40/40S/STD	9.27	0.365	254.51	10.020
	60/60S/XS	12.70	0.500	247.65	9.750
	80	15.09	0.594	242.87	9.562
	100	18.26	0.719	236.52	9.312
	120	21.44	0.844	230.17	9.062
	140/XXS	25.40	1.000	222.25	8.750
	160	28.58	1.125	215.90	8.500
12" 323.8	5S	3.96	0.156	315.93	12.438
	10S	4.57	0.180	314.71	12.380
	20	6.35	0.250	311.15	12.250
	30	8.36	0.330	307.09	12.090
	40S/STD	9.53	0.375	304.80	12.000
	40	10.31	0.406	303.23	11.938
	60S/XS	12.70	0.500	298.45	11.750
	60	14.27	0.562	295.30	11.626
	80	17.48	0.688	288.90	11.374
	100	21.44	0.844	280.97	11.062
	120/XXS	25.40	1.000	273.05	10.750
	140	28.58	1.125	266.70	10.500
	160	33.32	1.312	257.20	10.128
		5S	3.96	0.156	347.69	13.688
14" 355.6	10S	4.76	0.188	346.05	13.624
	10	6.35	0.250	342.90	13.500
	20	7.92	0.312	339.75	13.376
	30/STD	9.53	0.375	336.55	13.250
	40	11.13	0.438	333.35	13.124
	XS	12.70	0.500	330.20	13.000
	60	15.09	0.594	325.42	12.812
	80	19.05	0.750	317.50	12.500
	100	23.83	0.938	307.95	12.124
	120	27.79	1.094	300.02	11.812
	140	31.75	1.250	292.10	11.500
	160	35.71	1.406	284.18	11.188

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BORE CHART

Size/Outside Pipe Diameter	Schedule	Wall Thickness		Inside Diameter	
		mm	inch	mm	inch
16" 406.4	5S	4.19	0.165	398.02	15.670
	10S	4.78	0.188	396.85	15.624
	10	6.35	0.250	393.70	15.500
	20	7.92	0.312	390.55	15.376
	30/STD	9.53	0.375	387.35	15.250
	40/XS	12.70	0.500	381.00	15.000
	60	16.86	0.658	373.08	14.886
	80	21.44	0.844	363.52	14.312
	100	26.19	1.031	354.03	13.938
	120	30.96	1.219	344.47	13.562
18" 457.2	140	36.53	1.438	333.35	13.124
	160	40.40	1.594	325.42	12.812
	5S	4.19	0.165	448.82	17.670
	10S	4.78	0.188	447.85	17.624
	10	6.35	0.250	444.50	17.500
	20	7.92	0.312	441.35	17.376
	STD	9.53	0.375	438.15	17.250
	30	11.13	0.438	434.95	17.124
	XS	12.70	0.500	431.80	17.000
	40	14.27	0.562	428.65	16.876
20" 508	60	19.05	0.750	419.10	16.500
	80	23.83	0.938	409.55	16.124
	100	29.36	1.156	398.48	15.688
	120	34.93	1.375	387.35	15.250
	140	39.67	1.562	377.85	14.876
	160	45.24	1.781	366.73	14.438

Size/Outside Pipe Diameter	Schedule	Wall Thickness		Inside Diameter	
		mm	inch	mm	inch
20" 508	5s	4.78	0.188	498.45	19.624
	10s	5.54	0.218	495.87	19.562
	10	6.35	0.250	495.30	19.500
	20/STD	9.53	0.375	488.95	19.250
	30/XS	12.70	0.500	482.60	19.000
	40	15.09	0.594	477.82	18.812
	60	20.82	0.812	468.75	18.376
	80	28.19	1.031	455.63	17.938
	100	32.54	1.281	442.93	17.438
	120	38.10	1.500	431.80	17.000
24" 609.6	140	44.45	1.750	419.10	16.500
	160	50.01	1.968	407.87	16.062
	5S	5.54	0.218	598.53	23.564
	10S/10	6.35	0.250	596.90	23.500
	20/STD	9.53	0.375	590.55	23.250
	XS	12.70	0.500	584.20	23.000
	30	14.27	0.562	581.05	22.876
	40	17.48	0.688	574.85	22.624
	60	24.61	0.969	560.37	22.062
	80	30.96	1.219	547.67	21.562
24" 609.6	100	38.89	1.531	534.83	20.938
	120	48.02	1.812	517.55	20.376
	140	52.37	2.062	504.85	19.876
	160	59.54	2.344	490.52	19.312



STEEL AIIDS ENTERPRISE P LIMITED

MANUFACTURER OF FORGED FLANGES & BUTT WELD PIPE FITTINGS

An ISO 9001 & PED Approved Company



FORGED FITTINGS

SA 182 F
304, 304L, 316, 316L



Size : 1/2" to 4" in LBS: 2000#, 3000#, 6000#, 9000#, ASME B 16.11
 End : Socket Weld (S/W) & Threaded (SCRD)
 Type : Elbow, Tee, Union, Cross, Swage Nipples, Coupling, CAP, Plug, Bushing, Boss, Insert
 Dimension : ASME B16.11:2009, MSS-SP-83

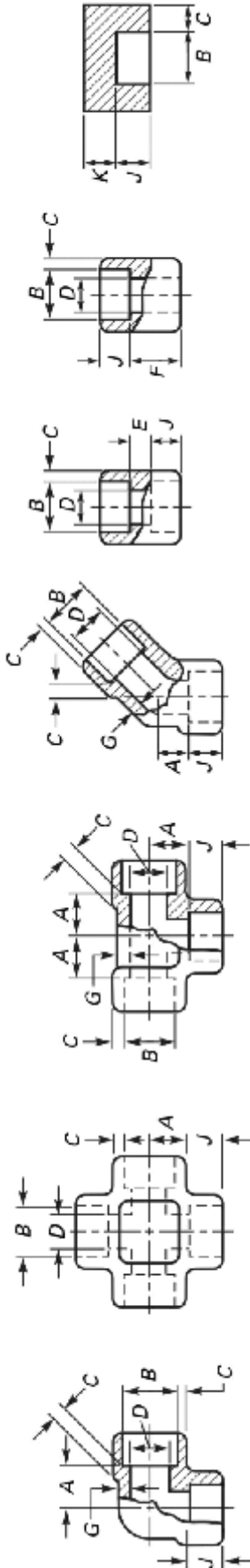
Stainless Steel Fittings : ASTM A 182 F - 304/304H/304L/, 316/316H/316L/316Ti, 309, 310, 317L, 321, 347, 904L etc.
 1.4301, 1.4307, 1.4841, 1.4842, 1.4401, 1.4404, 1.4571, 1.4541

Duplex Steel Fittings : ASTM A815-F51, F53, F55, F60
 Alloy Steel Fittings : ASTM A 182-F5, F9 F, F11, F12, F21, F22 & F91
 Carbon Steel Fittings : ASTM A-105, IS1239, Part II
 LTCS Fittings : A-350 LF-2
 Cu-Ni Fittings : C70600 (90:10), C7 1500 (70:30), C71640
 Nickel Fitting : UNS N02200, N02201

Monel Fittings : UNS N04400, N05500
 Inconel Fittings : UNS N06600, N06601, N06625, N08800, N08810, N08825
 Hastelloy Fittings : UNS N10276, N06022, N10665, N06455
 Alloy Fitting : Alloy 20
 Titanium Fittings : Gr. 1,2,3 DIN3.7025, DIN3.7035, DIN3.7055
 Aluminum Fitting : UNS N06061, 6063, 6351

Other Form of Fittings : Compression / Instrumentation / Hydraulic & Customized Requirement
 Other Services : Hot Dipped Galvanizing, ElectroPolish, Stand Blasting, etc.
 Test Certificate : Manufacturer Certificates as per EN 10204 / 3.1/3.2 & NACE MR 01 75
 Specialize : IBR Fittings, Swage Nipple, Customized Fittings

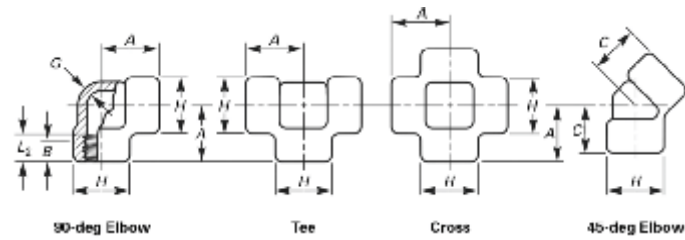
SOCKET WELDING & FITTINGS



90-deg Elbow Tee Coupling Half-Coupling Cap

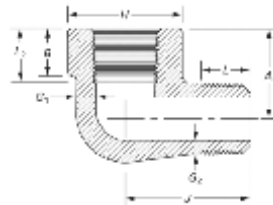
Nominal Pipe Size	Socket Bore Diameter, B (Note 1)	Bore Diameter of Fittings, D			Socket Wall Thickness, C			Body Wall, G			Min. Depth of Socket, J	Center to Bottom of Socket, A				Laying Lengths	Tolerances, ±			End Wall Thickness, K min.							
		Class Designation			Class Designation			Class Designation				90-deg Elbows, Tees, and Crosses					Coupling ngs., E	Half Coupling ngs., F	A	E	F	Class Designation					
		3000	6000	9000	3000	6000	9000	3000	6000	9000		3000	6000	9000	3000							6000	9000	3000	6000	9000	
1/8	11.2	7.6	4.8	...	3.18	3.18	3.43	...	2.41	3.15	...	9.5	3000	6000	9000	8.0	8.0	...	8.5	10.0	1.0	1.5	1.0	4.8	6.4	...	
1/4	14.6	10.0	7.1	...	3.78	3.30	4.60	...	3.02	3.68	...	9.5	3000	6000	9000	8.0	8.0	...	8.5	16.0	1.0	1.5	1.0	4.8	6.4	...	
3/8	18.0	13.3	9.9	...	4.01	3.50	5.00	4.37	3.20	4.01	...	9.5	3000	6000	9000	8.0	11.0	15.5	...	8.5	17.5	1.5	3	1.5	4.0	6.4	...
1/2	23.2	16.6	12.5	7.2	4.67	4.09	5.97	5.18	3.73	4.78	7.47	9.5	3000	6000	9000	11.0	13.5	19.0	25.5	11.0	22.5	1.5	3	1.5	6.4	7.9	11.2
3/4	27.6	21.7	16.3	11.8	4.90	4.27	6.96	6.04	3.91	5.58	7.82	12.5	3000	6000	9000	13.0	16.0	22.5	28.5	13.0	24.0	1.5	3	1.5	6.4	7.9	12.7
1	34.3	27.4	21.5	16	5.69	4.98	7.92	6.93	4.55	6.35	8.09	12.5	3000	6000	9000	14.0	17.5	27.0	32.0	14.0	27.0	2.0	4	2.0	8.6	11.2	14.2
1 1/4	43.1	35.8	30.2	23.5	6.07	5.28	7.92	6.93	4.85	6.35	9.70	12.5	3000	6000	9000	17.5	20.5	27.0	35.0	17.5	30.0	2.0	4	2.0	9.6	11.2	14.2
1 1/2	49.2	41.6	34.7	28.7	6.35	5.54	8.92	7.80	5.08	7.14	10.15	12.5	3000	6000	9000	20.5	25.5	32.0	38.0	20.5	32.0	2.0	4	2.0	11.2	12.7	15.7
2	61.7	53.3	43.6	38.9	6.93	6.04	10.92	9.50	5.54	8.74	11.07	16	3000	6000	9000	25.5	28.5	38.0	41	25.5	38.0	2.0	4	2.0	12.7	15.7	19.0
2 1/2	74.4	64.2	...	...	...	...	...	...	7.01	...	...	16	3000	6000	9000	28.5	...	...	...	28.5	...	2.5	5	2.5	15.7	19.0	...
3	90.3	79.4	...	...	...	...	...	...	7.62	...	...	16	3000	6000	9000	32	...	...	...	32	...	2.5	5	2.5	19.0	22.4	...
4	115.7	103.8	...	...	...	...	...	...	8.58	...	...	19	3000	6000	9000	41	...	...	...	41	...	2.5	5	2.5	22.4	28.4	...

FORGED THREADED FITTINGS



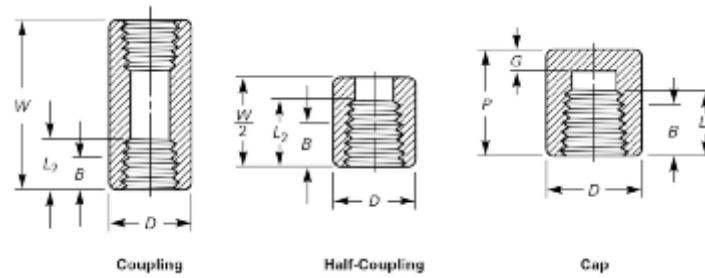
Nominal Pipe Size	Center-to-End Elbows, Tees, Crosses, A			Center-to-End 45-deg Elbow, C			Outside Diameter of Band, H			Min. Wall Thickness, G			Min. Length of Thread [Note (1)]	
	2000	3000	6000	2000	3000	6000	2000	3000	6000	2000	3000	6000	B	L2
1/8	21	21	25	17	17	19	22	22	25	3.18	3.18	6.35	6.4	6.7
1/4	21	25	28	17	19	22	22	25	33	3.18	3.30	6.60	8.1	10.2
3/8	25	28	33	19	22	25	25	33	38	3.18	3.51	6.98	9.1	10.4
1/2	28	33	38	22	25	28	33	38	46	3.18	4.09	8.15	10.9	13.6
3/4	33	38	44	25	28	33	38	46	56	3.18	4.32	8.53	12.7	13.9
1	38	44	51	28	33	35	46	56	62	3.68	4.98	9.93	14.7	17.3
1 1/4	44	51	60	33	35	43	56	62	75	3.89	5.28	10.59	17.0	18.0
1 1/2	51	60	64	35	43	44	62	75	84	4.01	5.56	11.07	17.8	18.4
2	60	64	83	43	44	52	75	84	102	4.27	7.14	12.09	19.0	19.2
2 1/2	76	83	95	52	52	64	92	102	121	5.61	7.65	15.29	23.6	28.9
3	86	95	106	64	64	79	109	121	146	5.99	8.84	16.64	25.9	30.5
4	106	114	114	79	79	79	146	152	152	6.55	11.18	18.67	27.7	33.0

STREET ELBOWS



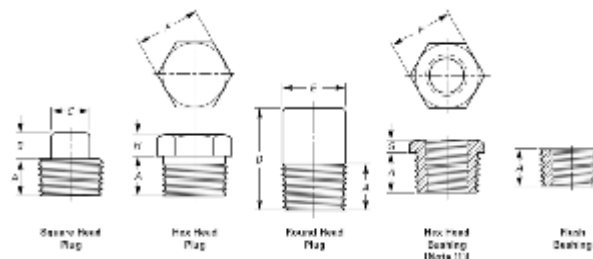
Nominal Pipe Size, NPS	Center-to-Female End Street Ells, A [Note (1)]		Center-to-Male End Street Ells, J		Outside Diameter of Band, H [Note (2)]		Min. Wall Thickness, G1		Min. Wall Thickness, G2 [Note (3)]		Min. Length Internal Thread [Note (4)]		Min. Length Male Thread, L
	Class Designation		Class Designation		Class Designation		Class Designation		Class Designation		B	L2	
	3000	6000	3000	6000	3000	6000	3000	6000	3000	6000			
1/8	19	22	25	32	19	25	3.18	5.08	2.74	4.22	6.4	6.7	10
1/4	22	25	32	38	25	32	3.30	5.66	3.22	5.28	8.1	10.2	11
3/8	25	28	38	41	32	38	3.51	6.98	3.50	5.59	9.1	10.4	13
1/2	28	35	41	48	38	44	4.09	8.15	4.16	6.53	10.9	13.6	14
3/4	35	44	48	57	44	51	4.32	8.53	4.88	6.86	12.7	13.9	16
1	44	51	57	66	51	62	4.98	9.93	5.56	7.95	14.7	17.3	19
1 1/4	51	54	66	71	62	70	5.28	10.59	5.56	8.48	17.0	18.0	21
1 1/2	54	64	71	84	70	84	5.56	11.07	6.25	8.89	17.8	18.4	21
2	64	83	84	105	84	102	7.14	12.09	7.64	9.70	19.0	19.2	22

HALF COUPLING



Nominal Pipe Size	End-to-End Couplings, W	End-to-End Caps, P		Outside Diameter, D		Min. End Wall Thickness, G		Min. Length of Thread [Note (1)]	
	3000 and 6000	3000	6000	3000	6000	3000	6000	B	L2
1/8	32	19	...	16	22	4.8	...	6.4	6.7
1/4	35	25	27	19	25	4.8	6.4	8.1	10.2
3/8	38	25	27	22	32	4.8	6.4	9.1	10.4
1/2	48	32	33	26	38	6.4	7.9	10.9	13.6
3/4	51	37	38	35	44	6.4	7.9	12.7	13.9
1	50	41	43	44	57	9.7	11.2	14.7	17.3
1 1/4	67	44	46	57	64	9.7	11.2	17.0	18.0
1 1/2	79	44	48	54	76	11.2	12.7	17.6	18.4
2	86	48	51	76	92	12.7	15.7	19.0	19.2
2 1/2	92	60	64	92	108	15.7	19.0	23.5	28.9
3	108	65	68	108	127	19.0	22.4	25.9	30.5
4	121	68	75	140	159	22.4	28.4	27.7	33.0

PLUGS AND BUSHING



Nominal Pipe Size	Min. Length, A	Square Head Plugs		Round Head Plugs		Hex Plugs and Bushings		
		Min. Square Height, B	Min. Width Flats, C	Nominal Head Diameter, E	Min. Length, D	Nominal Width Flats, E	Min. Hex Height	
							Bushing, G	Plug, H
1/8	10	6	7	10	35	11	...	6
1/4	11	6	10	14	41	16	3	6
3/8	13	8	11	18	41	18	4	8
1/2	14	10	14	21	44	22	5	8
3/4	16	11	16	27	44	27	6	10
1	19	13	21	33	51	36	8	10
1 1/4	21	14	24	43	51	46	7	14
1 1/2	21	16	28	48	51	50	8	16
2	22	18	32	60	64	65	9	18
2 1/2	27	19	36	73	70	75	10	19
3	28	21	41	89	70	90	10	21
4	32	25	65	114	76	115	13	25



STEEL AIIDS **ENTERPRISE P LIMITED**

MANUFACTURER OF FORGED FLANGES & BUTT WELD PIPE FITTINGS

An ISO 9001 & PED Approved Company

DIN / SMS UNIONS

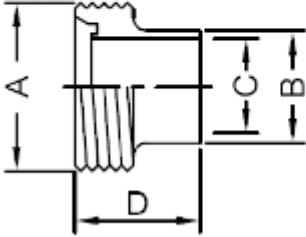
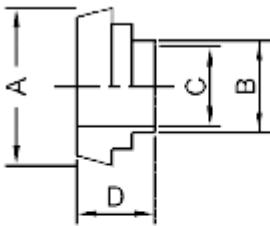
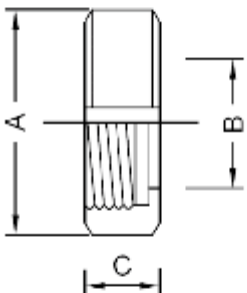
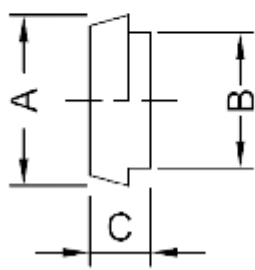


Size available: 25.4mm to 101.6mm

Standard SMS, DIN, DF
Material part Stainless Steel
304, 304L, 316, 316L
1.4301, 1.4307, 1.4401, 1.4404

DIN / SMS UNIONS

DIN 11851 Hygienic Union – Imperial

DIN 11851 Male Part – Welding, 316		Size	A	B	C	D
	1"	52	25.4	22.2	29	
	1.1/4"	58	32.0	29.2	32	
	1.1/2"	65	38.1	34.9	33	
	2"	78	50.8	47.6	35	
	2.1/2"	95	63.5	60.3	40	
	3"/ DN 75	104	76.2	73.0	40	
	3"/DN 80	110	76.2	73.0	45	
	4"	130	101.6	97.6	54	
DIN 11851 Liner – Welding, 316		Size	A	B	C	D
	1"	44	25.4	22.2	22	
	1.1/4"	50	32.0	29.2	25	
	1.1/2"	56	38.1	34.9	26	
	2"	69	50.8	47.6	28	
	2.1/2"	86	63.5	60.3	32	
	3"/ DN 75	93	76.2	73.0	32	
	3"/DN 80	100	76.2	73.0	37	
	4"	121	101.6	97.6	44	
DIN 11851 Nut – Slotted, 304		Size	A	B	C	D
	1"	63	36	21		
	1.1/4"	70	42	21		
	1.1/2"	78	49	21		
	2"	92	62	22		
	2.1/2"	112	80	25		
	3"/ DN 75	120	86.5	26		
	3"/ DN 80	127	94	29		
	4"	148	115	31		
DIN 11851 Blank Liner, 316		Size	A	B	C	D
	1"	44	35	13.5		
	1.1/4"	50	41	13.5		
	1.1/2"	56	48	13.5		
	2"	69	61	14.5		
	2.1/2"	86	79	16.5		
	3"/ DN 75	93	75	16.5		
	3"/ DN 80	100	93	16.5		
	4"	121	114	20.5		

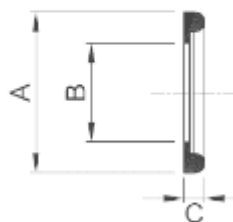
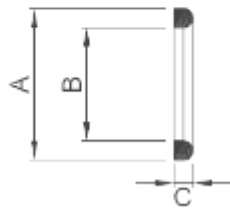
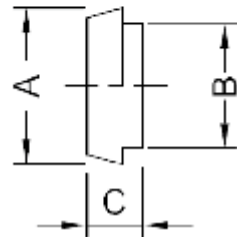
DIN 11851 Hygienic Union – Metric

DIN 11851 Male Part - Welding, 316 Long		Size	A	B	C	D
		10	28	13	10	21
		15	32	19	16	21
		20	44	23	20	24
		25	52	29	26	29
		32	58	35	32	32
		40	65	41	38	33
		50	78	53	50	35
		65	95	70	66	40
		75	104	76	72	40
		80	110	85	81	45
		100	130	104	100	54
		125	160	129	125	46
		150	190	154	150	50
DIN 11851 Liner - Welding, 316, Long		Size	A	B	C	D
		10	22	13	10	17
		15	28	19	16	17
		20	36	23	20	16
		25	44	29	26	22
		32	50	35	32	25
		40	56	41	38	26
		50	68	53	50	26
		65	86	70	66	32
		3"	93	76	72	32
		80	100	85	81	37
		100	121	104	100	44
		125	150	129	125	34
		150	175	154	150	37
DIN 11851 Nut - Slotted, 304		Size	A	B	C	D
		10	38	19	18	
		15	44	25	18	
		20	54	31	20	
		25	63	36	21	
		32	70	42	21	
		40	78	49	21	
		50	92	62	22	
		65	112	80	25	
		3"	120	87	26	
		80	127	94	30	
		100	148	115	31	
		125	179	138	35	
		150	210	164	40	

DIN / SMS UNIONS

DIN 11851 Hygienic Union – Metric

DIN Blank Liner, 316	Size	A	B	C	D
	10	22	19	9	
	15	28	25	9	
	20	36	31	11	
	25	44	36	13	
	32	50	42	13	
	40	56	49	13	
	50	58	62	14	
	65	86	80	16	
	3"	93	86	16	
	80	100	94	16	
	100	121	115	20	
	125	150	138	22	
	150	176	184	24	
DIN 11851 Sea, Nitrile	Size	A	B	C	D
	10	20	12	4.5	
	15	26	18	4.5	
	20	33	23	4.5	
	25	40	30	5	
	32	46	36	5	
	40	52	42	5	
	50	54	54	5	
	65	81	71	5	
	3"	88	78	5	
	80	95	85	5	
	100	114	104	6	
	125	142	130	7	
	150	167	155	7	
DIN 11851 Seal with Lip	Size	A	B	C	D
	10	20	10.5	5	
	15	26	16.5	5	
	20	33	20.5	5	
	25	40	26.5	6	
	32	46	32.5	6	
	40	52	38.5	6	
	50	54	50.5	6	
	65	81	66.5	6	
	80	95	81.5	6	
	100	114	100.5	6	
	125	142	125	7	
	150	167	150	7	



DIN 11851 Hygienic Union – Metric

DIN 11851 Seal Thick Section	Size	A	B	C	D
	20	33	23	8	
	25	40	30	8	
	32	46	36	8	
	40	52	42	8	
	50	64	54	8	
	65	81	71	8	
	75	88	78		
	80	95	85	8	
	100	114	104	8	
	125	142	130		
	150	167	155		
DIN 11851 Blank Nut – Slotted, 304	Size	A	B	C	D
	10	38	18		
	15	44	18		
	20	54	20		
	25	63	21		
	32	70	21		
	40	78	21		
	50	92	22		
	65	112	25		
	3"	120	26		
	80	127	29		
	100	148	31		
	125	178	35		
	150	210	40		

About Us

STEEL AIIDS ENTERPRISE P LIMITED

is a privately owned organization established since 2012. We are Manufacturer of Forged Flanges, Forged Fittings, Butt Weld Pipes Fittings & SMS Unions all manufacturing under one roof at Talegaon-Pune-Chakan (India). Our factory is fully integrated with latest machinery & technology system.

We at Steel Aiids believe that the best is never enough...

Committed :

We are committed to delivering reliable, cost effective, environment friendly solutions for maximizing prosperity of our customers while expanding our shpere of operations, globally.

Creative :

We endeavor to be alert to situations and pursue creative courses of action to deliver innovative, future perfect technologies that can withstand the test of time.

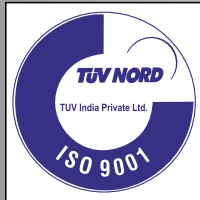
We have large experience in manufacturing and have achieved substantial business from reputed concern group like WIKA, GAUGES BOURDON, ALFA LAVAL, PRAJ, THERMAX, UB Group, etc. and even from government sector on repeat order basis. We would very much wish to associate ourselves with your organisation and are in a position to offer high quality materials from our ready stock at the most convenient terms for which you receive better services, best facilities and prompt attention at all the times.

We are having a team of qualified technical people for inspection and we are associated with third party inspection agencies like 'TOYO', UHDE, BAX COUNCEL, BV, Quest Associates and also associated with testing laboratories like 'TCR, METALLURGICAL to ensure that whatever materials is supplied by us is as per the quality standards and also having PMI facilities inhouse.

List of Machinery

- 5 Bandsaws
- 2 Oil Fired Furnaces
- Close Die Hammer
- Open Die Hammer
- Power Press
- Water quencing at 1050° with strip recorder
- Heat Treatment with water quencing
- 2 Computer Numarated Controll -CNC
- Vertical Machining Center - VMC
- 14 Leth Machine
- 5 Drilling Machines with JIG
- Elbow Forming Machine
- 3 Hydraulic Press
- Milling Machine
- 2 Pipe Cutting Machines
- Ring Rolling Macine
- Company Hollogram marking machine
- Compreser Air
- Argon Welding Machine
- Genset Generator 500 kv
- Inspection Area
- Company Hologram Marking Machine
- Pickling & Scruber
- Chimni
- ETP & STP plant
- Electric Transformer
- Dieshop
- CNC Machine
- Hardness Tester
- Packaging

TUV Nord & TUV Rheinland Certificates



Certificate No.
44 100 100 084140-E3



ISO 9001 : 2008 CO.
QM-03-00941



PED Approved



Green Level III
Audit Under Process



MANUFACTURER OF FORGED FLANGES & BUTT WELD PIPE FITTINGS

An ISO 9001 & PED Approved Company

Factory:

Plot No.7, Gut No. 150. Mhalunge, Village Ambethan, Taluka Khed,
Talegaon-Chakan Road, Dist: Pune - 410 501 (Mah), India • Mobile: +91 98200 11724 / 92233 91728 / 92233 91731
E-mail: sales@steelaiidsindia.com | steelaiidschakan@gmail.com



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