

Stainless Steel Pipe and Flanges



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Pipe and Flanges

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Stainless steel pipe and fittings

A stainless steel pipe system is the product of choice for carrying corrosive or sanitary fluids, slurries and gases, particularly where high pressures, high temperatures or corrosive environments are involved. Due to stainless steel's aesthetic properties, stainless steel pipe is also used in architectural applications.

Stainless steel pipe can be generally defined as a heavy wall thickness tubing, with dimensions as specified by the American National Standards Institute (ANSI). Pipe dimensions are specified by outside diameter – indicated by the NPS (imperial) or DN (metric) designator and sometimes referred to as the 'nominal bore' – and wall thickness, reflected in the schedule number. ASME B36.19 covers these dimensions.

Stainless steel pipe and fittings are supplied in the annealed condition to facilitate fabrication and ensure best corrosion resistance. Atlas Steels can also supply stainless steel pipe with an abrasive polished finish suitable for architectural applications.

Welded pipe

Welded stainless steel pipe is manufactured from 2B or HRAP stainless steel strip – formed (to shape), longitudinally welded and annealed. All welds are made without the addition of filler metal, except for very large diameters.

Standard welded pipe is in nominal lengths of 6.0 or 6.1 metres.

Manufacturing specification: ASTM A312M – Austenitic.

ASTM A358M – Austenitic (large diameter).

ASTM A790M – Duplex.

Seamless pipe

Seamless stainless steel pipe is produced from hollow billets, which are pierced then drawn across dies until they reach the final desired pipe size, then annealed.

Standard seamless pipe is supplied in nominal lengths of 6.1 metres to 150mm (6") and above this in random lengths.

Manufacturing specification: ASTM A312M – Austenitic.

ASTM A790M – Duplex.

Stainless steel piping systems can be joined by butt welding and, in the heavier 40S and 80S schedules, by threaded connections.

The complete piping system is made possible using complementary fittings and flanges. These are specified by the same DN or NPS designator and schedule numbering system as for pipe.

Butt welding pipe fittings

A piping system using butt welding fittings has many inherent advantages over other forms.

- Welding a fitting to the pipe means that it is permanently leakproof.
- The continuous metal structure formed between pipe and fitting adds strength to the system.
- Smooth inner surface and gradual direction changes reduce pressure losses and turbulence and minimise the action of corrosion and erosion.
- A welded system utilises a minimum of space.

Atlas Steels supply butt welding fittings in the following forms.

- Elbows 45° and 90° – long radius and short radius.
- Return bends 180° – long radius and short radius.
- Reducers – concentric and eccentric.
- Tees – equal and reducing.
- Caps.
- Stub ends – Type B, to MSS SP-43.

Butt welding fittings can be supplied in either seamless or welded construction and are covered by specification ASTM A403M (or ASTM A815M for Duplex grades) and ASME B16.9.

Screwed and socket weld fittings

Piping systems can be connected using screwed fittings – BSP threaded (“150lb”) low pressure fittings and NPT threaded (class 3000) high pressure fittings in Grade 304 or 316.

Socket weld fittings are used in high pressure piping systems and are available in grade 316L to suit schedule 80S wall thickness piping.

Manufacturing specification: ASTM A182M (Class 3000 NPT and socket weld) and ASME B16.11.
ISO 4144 (BSP dimensions)

Pipe flanges

A flange is a ring of steel (forged, cut from plate, or rolled) designed to connect sections of pipe, or to join pipe to a pressure vessel, valve, pump or other integral flanged assembly.

Flanges are joined to each other by bolting, and are joined to the piping system by welding or threading (or loose when stub ends are used).

The basic types of flanges are:

- slip-on
- blind
- weld neck
- threaded
- socket weld
- lap joint
- orifice

Forged stainless steel flanges are designed to the following common pressure ratings: Classes 150, 300, 600, 900, 1500 and 2500. Standard sealing face is Raised Face (RF).

Manufacturing specification: ASTM A182M and ASME B16.5.

Plate stainless steel flanges are forged or cut and machined from plate – Table ‘D’, Table ‘E’, etc.

Manufacturing specification: AS2129.

Waterworks flanges to AS4087 are also available subject to enquiry.

Types and applications of flanges

Slip-on flanges. The flange is slipped over the pipe and then welded both inside and outside to provide sufficient strength and prevent leakage. Slip-on flanges are also used as loose back-up flanges when stub ends are used.

Blind flanges. This is a flange without a centre bore, used to shut off a piping system or vessel opening.

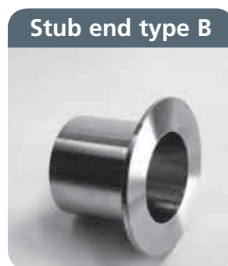
Weld neck flanges. Designed to be joined to a piping system by butt welding. They are relatively expensive due to the weld neck, but are preferred for high-stress applications.

Lap joint flanges. This is again similar to a slip-on flange, but has a radius at the intersection of the centre bore and the flange face to accommodate a lap stub end.

PRODUCT RANGE**Stainless steel pipe – welded and seamless – ASTM A312M**

Product range, dimensions and theoretical weights																	
Pipe size			Schedule 10S					Schedule 40S					Schedule 80S				
DN	NPS	OD (mm)	Wall thickness (mm)	Weight (kg/m)	Grade		Wall thickness (mm)	Weight (kg/m)	Grade		Wall thickness (mm)	Weight (kg/m)	Grade		Wall thickness (mm)	Weight (kg/m)	Grade
					304/304L	316/316L	2205			304/304L	316/316L	2205			304/304L	316/316L	2205
6	1/8	10.29	1.24	0.28				1.73	0.36				2.41	0.46			
8	1/4	13.72	1.65	0.49				2.24	0.63				3.02	0.80			
10	3/8	17.15	1.65	0.63				2.31	0.84				3.20	1.10			
15	1/2	21.34	2.11	1.00				2.77	1.27				3.73	1.60			
20	3/4	26.67	2.11	1.27				2.87	1.93				3.91	2.18			
25	1	33.41	2.77	2.08				3.38	2.50				4.55	3.29			
32	1 1/4	42.16	2.77	2.69				3.56	3.38				4.85	4.46			
40	1 1/2	48.26	2.77	3.11				3.68	4.05				5.08	5.40			
50	2	60.30	2.77	3.93				3.91	5.43				5.54	7.48			
65	2 1/2	73.03	3.05	5.25				5.16	8.61				7.01	11.39			
80	3	88.90	3.05	6.44				5.49	11.27				7.62	15.32			
90	3 1/2	101.60	3.05	7.39				5.74	13.55				8.08	18.59			
100	4	114.30	3.05	8.34				6.02	16.06				8.56	22.31			
125	5	141.30	3.40	11.56				6.55	21.70				9.53	30.94			
150	6	168.28	3.40	13.82				7.11	28.30				10.97	42.54			
200	8	219.18	3.76	19.93				8.18	42.50				12.70	64.60			
250	10	273.05	4.19	27.82				9.27	60.24				12.70	81.42			
300	12	323.85	4.57	36.00				9.53	73.78				12.70	97.31			
350	14	355.60	4.78	41.30				9.52	81.28				12.70	131.70			
400	16	406.40	4.78	47.30				9.52	93.21				12.70	123.18			
450	18	457.20	4.78	53.30				9.52	105.14				12.70	139.07			
500	20	508.00	5.54	68.60				9.52	117.07				12.70	154.97			
550	22	558.80	5.54	75.50				9.52	129.01				12.70	171.07			
600	24	609.60	6.35	94.50				9.52	140.94				12.70	186.75			

Grades: 304/304L, 316/316L (Standard Stock), 2205 (Mill Sourced)

Welded butt welding fittings – ASTM A403M & ASME B16.9**Product range and theoretical weights (kg)**

DN	Schedule 10S					Schedule 40S				
	90° Elbow	45° Elbow	Equal tee	Stub end type B	End cap	90° Elbow	45° Elbow	Equal tee	Stub end type B	End cap
15	0.06	0.03	0.09	0.07	0.03	0.08	0.04	0.10	0.08	0.04
20	0.07	0.03	0.13	0.09	0.05	0.08	0.04	0.17	0.11	0.07
25	0.14	0.08	0.28	0.16	0.08	0.15	0.11	0.29	0.17	0.10
32	0.23	0.11	0.49	0.22	0.10	0.26	0.17	0.59	0.25	0.18
40	0.30	0.17	0.68	0.25	0.11	0.40	0.23	0.86	0.31	0.20
50	0.50	0.25	0.85	0.43	0.13	0.70	0.40	1.28	0.61	0.23
65	0.85	0.48	1.41	0.57	0.19	1.40	0.77	2.19	0.80	0.27
80	1.25	0.63	1.77	0.72	0.25	2.20	1.08	3.31	1.13	0.42
100	2.10	1.08	3.46	1.09	0.68	4.47	1.47	5.27	1.87	1.14
125	3.65	1.82	5.44	1.47	1.11	6.80	2.84	9.63	2.79	2.13
150	5.45	2.72	8.03	2.15	1.42	10.89	5.44	10.99	3.57	3.23
200	10.20	5.33	15.65	3.22	2.38	21.54	10.77	20.91	6.07	5.19
250	18.15	9.75	26.76	5.13	4.45	38.56	19.27	35.38	10.07	9.00
300	25.80	13.62	39.46	8.16	7.50	59.42	29.71	62.14	14.29	15.00
350	36.29	18.34	48.53	10.88	8.17	79.38	35.15	79.31	17.14	16.00
400	47.63	23.81	58.97	12.70	10.67	99.79	45.81	99.79	20.41	21.00
450	59.87	29.94	79.65	17.23	13.00	129.73	59.40	129.73	27.21	26.00
500	99.80	49.90	103.42	21.77	17.00	162.38	74.84	162.39	29.94	34.00
600	140.61	70.31	155.58	27.21	26.00	225.89	105.23	225.90	38.55	52.00

Grades: 304L, 316L

Welded butt welding fittings – ASTM A403M & ASME B16.9

Con reducer



Ecc reducer



Reducing tee



Product range and theoretical weights (kg)

DN	Schedule 10S			Schedule 40S		
	Con reducer	Ecc reducer	Reducing tee	Con reducer	Ecc reducer	Reducing tee
20x15	0.10	0.10	0.11	0.14	0.14	0.15
25x15	0.12	0.12	0.25	0.15	0.15	0.26
25x20	0.13	0.13	0.25	0.16	0.16	0.27
32x20	0.18	0.18	0.44	0.22	0.22	0.52
32x25	0.18	0.18	0.45	0.22	0.22	0.53
40x20	0.18	0.18	0.58	0.24	0.24	0.74
40x25	0.19	0.19	0.60	0.26	0.26	0.76
40x32	0.21	0.24	0.61	0.28	0.28	0.77
50x25	0.28	0.28	0.73	0.40	0.40	1.10
50x32	0.30	0.30	0.74	0.44	0.44	1.13
50x40	0.31	0.31	0.76	0.45	0.45	1.15
65x40	0.44	0.44	1.24	0.76	0.76	1.94
65x50	0.47	0.47	1.25	0.80	0.80	1.98
80x40	0.51	0.51	1.52	0.94	0.94	2.85
80x50	0.55	0.55	1.56	1.00	1.00	2.91
80x65	0.59	0.59	1.59	1.08	1.08	2.98
100x40	0.68	0.68	2.90	1.36	1.36	4.53
100x50	0.78	0.78	2.94	1.57	1.57	4.48
100x65	0.83	0.83	2.97	1.66	1.66	4.54
100x80	0.87	0.87	3.04	1.74	1.74	4.64
125x100	1.49	1.49	5.49	2.98	2.98	8.47
150x80	1.82	1.82	6.86	3.98	3.98	11.94
150x100	1.96	1.96	7.10	4.07	4.07	9.68
150x125	2.00	2.00	7.27	4.07	4.07	9.99
200x100	3.01	3.01	13.46	6.55	6.55	17.98
200x150	3.19	3.19	14.08	6.94	6.94	18.82
250x100	4.73	4.73	22.75	10.52	10.52	30.07
250x150	5.00	5.00	23.55	11.12	11.12	31.13
250x200	5.20	5.20	24.08	11.56	11.56	31.84
300x200	7.67	7.67	34.73	15.98	15.98	54.43
300x250	7.98	7.98	35.52	16.63	16.63	55.79
350x300	15.29	15.29	43.96	30.58	30.58	71.21
400x200	16.70	16.70	49.90	33.40	33.40	84.82
400x250	17.22	17.22	50.80	35.43	35.43	85.73
400x300	18.35	18.35	51.71	36.70	36.70	87.54

Grades: 304L, 316L

Seamless butt welding fittings – ASTM A403M* & ASME B16.9

Product range and theoretical weights (kg)									
DN	Schedule 10S			Schedule 40S			Schedule 80S		
	90° Elbow	45° Elbow	Equal tee	90° Elbow	45° Elbow	Equal tee	90° Elbow	45° Elbow	Equal tee
8	0.02	0.01	0.03	0.03	0.02	0.06	0.04	0.03	0.07
10	0.03	0.02	0.05	0.03	0.02	0.03	0.06	0.04	0.09
15	0.06	0.03	0.09	0.08	0.04	0.10	0.10	0.05	0.14
20	0.07	0.03	0.13	0.08	0.04	0.17	0.11	0.05	0.20
25	0.14	0.08	0.28	0.15	0.11	0.29	0.22	0.14	0.38
32	0.23	0.11	0.49	0.26	0.17	0.59	0.40	0.23	0.68
40	0.30	0.17	0.68	0.40	0.23	0.86	0.51	0.29	1.02
50	0.50	0.25	0.85	0.70	0.40	1.28	0.91	0.59	1.59
65	0.85	0.48	1.41	1.40	0.77	2.19	1.81	0.99	3.13
80	1.25	0.63	1.77	2.20	1.08	3.31	2.97	1.50	4.45
90	1.70	0.75	2.67	2.83	1.42	4.08	4.00	2.00	5.44
100	2.10	1.08	3.46	4.47	2.09	5.27	6.18	2.81	7.71
150	5.45	2.72	8.07	10.89	5.44	10.99	16.32	8.16	13.61
200	10.20	5.33	15.65	21.54	10.77	20.91	33.11	16.56	28.12
250	18.15	9.75	26.46	38.56	19.27	35.38	51.71	25.86	49.90
300	25.80	13.62	39.46	59.42	29.71	62.14	79.38	39.69	83.91

Seamless butt welding fittings – ASTM A403M* & ASME B16.9

Product range and theoretical weights (kg)									
DN	Schedule 10S			Schedule 40S			Schedule 80S		
	Con reducer	Ecc reducer	Reducing tee	Con reducer	Ecc reducer	Reducing tee	Con reducer	Ecc reducer	Reducing tee
40x25	0.19	0.19	0.60	0.26	0.26	0.76	0.34	0.34	0.90
50x25	0.28	0.28	0.73	0.40	0.40	1.10	0.54	0.54	1.37
50x40	0.31	0.31	0.76	0.45	0.45	1.15	0.59	0.59	1.43
80x50	0.55	0.55	1.56	1.00	1.00	2.91	1.79	1.79	3.91
100x50	0.78	0.78	2.94	1.50	1.50	4.48	1.95	1.95	6.55
100x80	0.87	0.87	3.04	1.74	1.74	4.64	2.33	2.33	6.79
150x80	1.82	1.82	6.86	3.95	3.95	9.68	5.51	5.51	11.57
150x100	1.96	1.96	7.10	4.07	4.07	11.94	5.96	5.96	11.97
200x100	3.01	3.01	13.46	6.55	6.55	17.98	9.23	9.23	24.18
200x150	3.19	3.19	14.08	6.74	6.74	18.82	10.12	10.12	25.31

Grades: 304L, 316L, 2205

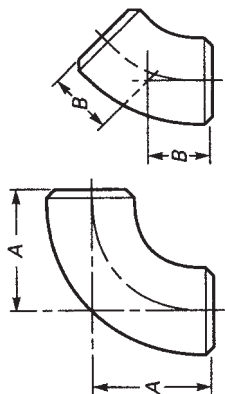
*Austenitic grades specified to ASTM A403M

Duplex grades specified to ASTM A815M

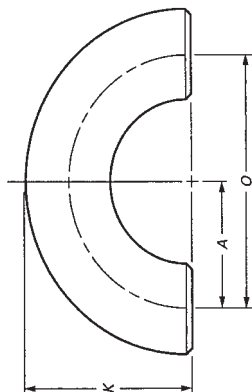
Stainless Steel Butt welding Fittings • Dimensions

Butt welding Fittings to ASME B16.9															
Nominal size		OD	Elbows			Returns				Caps	Reducers Note 1	Stub Ends			
			Long		Short	Long		Short				Long	Short	Radius of Fillet	Diam of Lap
			90 deg	45 deg		A	B	O	K						
DN	NPS	D	A	B	A	O	K	O	K	E	H	F	F	R	G
15	1/2	21.3	38	16		76	48			25		76	51	3	35
20	3/4	26.7	38	19		76	51			25	38	76	51	3	43
25	1	33.4	38	22	25		56	51	41	38	51	102	51	3	51
32	1 1/4	42.2	48	25	32	95	70	64	52	38	51	102	51	5	64
40	1 1/2	48.3	57	29	38	114	83	76	62	38	64	102	51	6	73
50	2	60.3	76	35	51	152	106	102	81	38	76	152	64	8	92
65	2 1/2	73.0	95	44	64	190	132	127	100	38	89	152	64	8	106
80	3	88.9	114	51	76	229	159	152	121	51	89	152	64	10	127
90	3 1/2	101.6	133	57	89	267	184	178	140	64	102	152	76	10	140
100	4	114.3	152	64	102	305	210	203	159	64	102	152	76	11	157
125	5	141.3	190	79	127	381	262	254	197	76	127	203	76	11	185
150	6	168.3	229	95	152	457	313	305	237	89	140	203	89	13	218
200	8	219.1	305	127	203	610	414	406	313	102	152	203	102	13	270
250	10	273.0	381	159	254	762	518	508	391	127	178	254	127	13	324
300	12	323.8	457	190	305	914	619	610	467	152	203	254	152	13	381
350	14	355.6	533	222	356	1067	711	711	533	165	330	305	152	13	413
400	16	406.4	610	254	406	1219	813	813	610	178	356	305	152	13	470
450	18	457	686	286	457	1372	914	914	686	203	381	305	152	13	533
500	20	508	762	318	508	1524	1016	1016	762	229	508	305	152	13	584
550	22	559	838	343	559	1676	1118	1118	838	254	508	305	152	13	641
600	24	610	914	381	610	1829	1219	1219	914	267	508	305	152	13	692
650	26	660	991	405						267	610				
700	28	711	1067	438						267	610				
750	30	762	1143	470						267	610				
800	32	813	1219	502						267	610				
850	34	864	1295	533						267	610				
900	36	914	1372	565						267	610				
950	38	965	1448	600						305	610				
1000	40	1016	1524	632						305	610				
1050	42	1067	1600	660						305	610				
1100	44	1118	1676	695						343	610				
1150	46	1168	1753	727						343	711				
1200	48	1219	1829	759						343	711				

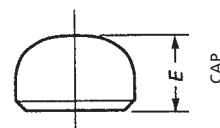
Note 1: Reducer dimension "H" is based on large end nominal size



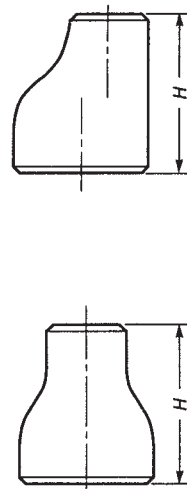
ELBOW



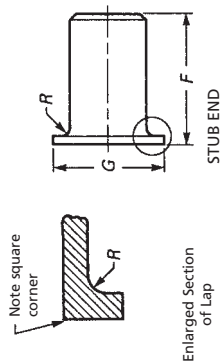
RETURN



CAP



REDUCER



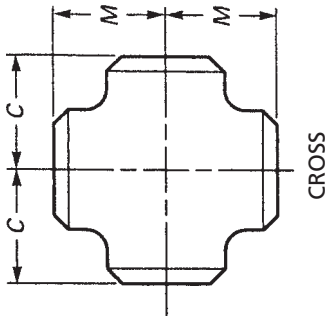
Enlarged Section of Lap

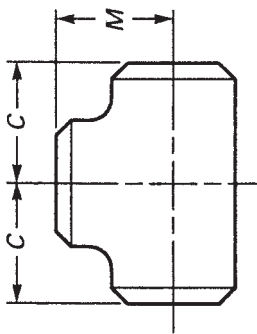
Stainless Steel Butt welding Fittings • Dimensions

Butt welding Tees and Crosses to ASME B16.9

Centre-to-End Outlet
M

Size DN NPS	Diam. D	to-end Run C	8	10	15	20	25	32	40	50	65	80	90	100	125	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200		
8	3/8	13.7																																					
10	1/4	17.3																																					
15	1/2	21.3		25	25																																		
20	3/4	26.7		29	29	29																																	
25	1	33.4			38	38	38																																
32	1 1/4	42.2			49	48	48	48																															
40	1 1/2	48.3			57	57	57	57	57																														
50	2	60.3			64	51	57	60	64																														
65	2 1/2	73.0				57	64	67	70	76																													
80	3	88.9					70	73	76	83	86																												
90	3 1/2	101.6							79	83	89	92	95																										
100	4	114.3							86	89	95	98	102	105																									
125	5	141.3							105	108	111	114	117	124																									
150	6	168.3							121	124	127	130	137	143																									
200	8	219.1											152	156	162	168	178																						
250	10	273.0												184	191	194	203	216																					
300	12	323.8													216	219	229	241	254																				
350	14	355.6														238	248	257	270	279																			
400	16	406.4														264	273	283	295	305	305																		
450	18	457															298	308	321	330	330	343																	
500	20	508															324	333	346	356	356	368	381																
550	22	559																359	371	381	381	394	406	419															
600	24	610																384	397	406	406	419	432	432	432														
650	26	660																	422	432	432	444	457	470	483	495													
700	28	711																	448	457	457	470	483	495	508	521	521												
750	30	762																460	473	483	483	495	508	521	533	546	546	559											
800	32	813																		508	508	521	533	546	559	572	572	584	597										
850	34	864																			533	546	559	572	584	597	610	622	635										
900	36	914																			559	572	584	597	610	622	635	648	660	673									
950	38	965																				597	610	622	635	648	673	686	698	711									
1000	40	1016																					622	635	648	660	673	673	698	711	724	737	749	749					
1050	42	1067																																					
1100	44	1118																																					
1150	46	1168																																					
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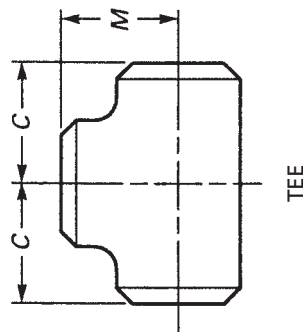
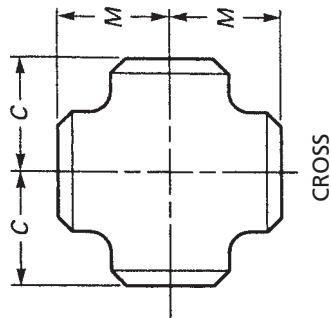


Table flanges – AS 2129**Blind table****Table pipe/tube**

Product range and theoretical weights (kg)						
DN	Table D blind	Table E blind	Table D pipe	Table E pipe	Table D tube*	Table E tube*
15	0.30	0.34	0.30	0.30	0.30	0.30
20	0.35	0.35	0.30	0.30	0.30	0.30
25	0.45	0.65	0.40	0.60	0.40	0.60
32	0.50	0.73	0.40	0.65	0.45	0.65
40	0.65	1.05	0.55	1.00	0.60	1.00
50	1.10	1.35	0.90	1.10	1.00	1.20
65	1.30	1.65	1.05	1.30	1.10	1.35
80	2.00	2.50	1.60	1.95	1.70	2.00
100	2.75	3.55	1.95	2.60	2.10	2.50
125	5.20	5.84	3.45	4.35	3.80	4.75
150	6.10	9.55	3.80	6.10	4.20	7.00
200	9.10	13.70	5.00	7.25	5.45	8.10
250	16.90	23.20	9.20	12.60	10.20	14.10
300	25.30	33.20	12.50	16.40	13.90	18.30
400	44.90	66.00	22.30	31.30	24.10	32.40

*Bored to suit nearest standard tube size.

Forged flanges – ASTM A182M & ASME B16.5**Blind****Slip on****Weld neck****Product range and theoretical weights (kg)**

DN	Blind RF150#	Blind RF300#	Blind RF600#	Slip on RF150#	Slip on RF300#	Slip on RF600#	Weld neck RF150#		Weld neck RF300#		Weld neck RF600# 80S
							Sch 10S	Sch 40S	Sch 40S	Sch 80S	
15	0.40	0.60	0.80	0.40	0.60	0.70	0.50	0.50	0.80	0.80	0.90
20	0.60	1.10	1.30	0.60	1.10	1.30	0.70	0.70	1.30	1.30	1.50
25	0.90	1.40	1.60	0.80	1.40	1.50	1.00	1.00	1.50	1.50	1.80
32	1.20	1.80	2.20	1.50	1.70	2.00	1.30	1.30	2.00	2.00	2.50
40	1.50	2.70	3.30	1.30	2.50	3.00	1.70	1.70	2.90	2.90	3.50
50	2.40	3.20	4.20	2.10	2.90	3.60	2.60	2.60	3.40	3.40	4.40
65	3.90	4.90	6.10	3.30	4.30	5.30	4.10	4.10	5.20	5.20	6.40
80	4.90	6.80	8.40	3.90	5.90	7.00	4.90	4.90	6.90	6.90	8.50
100	7.00	11.50	17.30	5.30	9.60	14.50	6.80	6.80	11.20	11.20	17.40
125	8.60	15.60	29.40	6.10	12.50	24.40	8.60	8.60	15.10	15.10	29.20
150	11.30	20.90	36.10	7.50	15.60	28.70	10.60	10.60	19.10	19.10	34.90
200	19.60	34.30	58.90	12.10	24.20	43.40	17.60	17.60	29.90	29.90	53.90
250	28.80	53.30	97.50	16.50	34.10	70.30	24.00	24.00	42.70	42.70	86.50
300	43.20	78.80	124.00	26.20	49.80	84.20	36.50	36.50	61.80	61.80	103.00
350	58.10	105.00	151.00	26.20	69.90	98.70	48.40	48.40	85.80	85.80	122.00
400	76.10	137.00	214.00	44.80	88.10	142.00	60.60	60.60	106.00	106.00	170.00
450	93.70	175.00	272.00	48.90	109.00	173.00	68.30	68.30	131.00	131.00	204.00
500	122.00	221.00	349.00	61.90	134.00	220.00	84.50	84.50	158.00	158.00	254.00
600	188.00	339.00	533.00	86.90	201.00	312.00	119.00	119.00	230.00	230.00	358.00

Grades: 304L, 316L

2205 forged flanges – ASTM A182M & ASME B16.5**Product range and theoretical weights (kg)**

DN	Slip on RF150#	Weld neck RF150#	Bossed blind RF150#
15	0.40	0.50	0.40
20	0.60	0.70	0.40
25	0.80	1.00	0.90
40	1.30	73.20	1.50
50	2.10	2.60	2.40
80	3.00	4.90	4.90
100	5.30	157.20	7.00
150	7.50	10.60	11.30

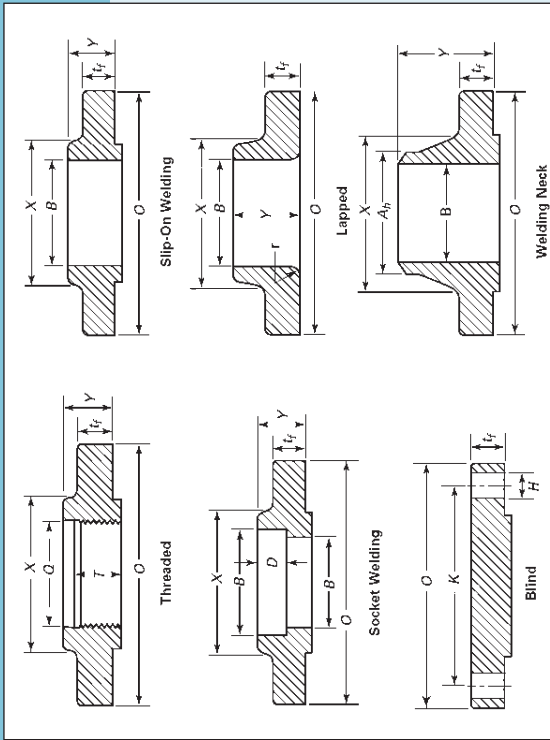
Stainless Steel Flanges • Dimensions & Weights

Class 150 Flanges to ASME B16.5

Nominal Size		Dimensions											Bolt Drilling					Flange Weight (kg)		
		Flange OD (mm)	Thickness min (mm)	Hub Diameter (mm)	Hub Diameter (mm)	Length Thru Hub	Bore					RF Stud Bolt Length (mm)	RF Machine Bolt Length (mm)	Slip-on	Welding Neck	Blind				
DN	NPS	O	t _f	X	A _h	Slip-on/Socket Welding (mm) Y	Welding Neck (mm) Y	Slip-on/Socket Welding (mm) B	Welding Neck/Socket Welding (mm) B	Circle Diameter (mm) K	Hole Diameter (mm) H	Bolts (No.)								
15	½	90	9.6	30	21.3	14	46	22.2	15.8	60.3	15.9	4	55	50	0.4	0.5	0.4			
20	¾	100	11.2	38	26.7	14	51	27.7	20.9	69.9	15.9	4	65	50	0.6	0.7	0.6			
25	1	110	12.7	49	33.4	16	54	34.5	26.6	79.4	15.9	4	65	55	0.8	1.0	0.9			
32	1 ¼	115	14.3	59	42.2	19	56	43.2	35.1	88.9	15.9	4	70	55	1.0	1.3	1.2			
40	1 ½	125	15.9	65	48.3	21	60	49.5	40.9	98.4	15.9	4	70	65	1.3	1.7	1.5			
50	2	150	17.5	78	60.3	24	62	61.9	52.5	120.7	19.1	4	85	70	2.1	2.6	2.4			
65	2 ½	180	20.7	90	73.0	27	68	76.6	62.7	139.7	19.1	4	90	75	3.3	4.1	3.9			
80	3	190	22.3	108	88.9	29	68	90.7	77.9	152.4	19.1	4	90	75	3.9	4.9	4.9			
90	3 ½	215	22.3	122	101.6	30	70	103.4	90.1	177.8	19.1	8	90	75	4.8	6.1	6.2			
100	4	230	22.3	135	114.3	32	75	116.1	102.3	190.5	19.1	8	90	75	5.3	6.8	7.0			
125	5	255	22.3	164	141.3	35	87	143.8	128.2	215.9	22.2	8	95	85	6.1	8.6	8.6			
150	6	280	23.9	192	168.3	38	87	170.7	154.1	241.3	22.2	8	100	85	7.5	11	11			
200	8	345	27.0	246	219.1	43	100	221.5	202.7	298.5	22.2	8	110	90	12	18	20			
250	10	405	28.6	305	273.0	48	100	276.2	254.6	362.0	25.4	12	115	100	17	24	29			
300	12	485	30.2	365	323.8	54	113	327.0	304.8	431.8	25.4	12	120	100	26	37	43			
350	14	535	33.4	400	355.6	56	125	359.2	Note (1)	476.3	28.6	12	135	115	35	48	58			
400	16	595	35.0	457	406.4	62	125	410.5	Note (1)	539.8	28.6	16	135	115	45	61	76			
450	18	635	38.1	505	457.0	67	138	461.8	Note (1)	577.9	31.8	16	145	125	49	68	94			
500	20	700	41.3	559	508.0	71	143	513.1	Note (1)	635.0	31.8	20	160	140	62	85	122			
600	24	815	46.1	663	610.0	81	151	616.0	Note (1)	749.3	34.9	20	170	150	87	115	186			

Class 300 Flanges to ASME B16.5

Nominal Size		Dimensions														Flange Weight (kg)			
		Flange OD (mm)	Thickness min (mm)	Hub Diameter (mm)	Hub Diameter (mm)	Hub Diameter (mm)	Slip-on Neck (mm) Y	Slip-on Neck (mm) Y	Welding Neck (mm) Y	Slip-on Socket Welding (mm) B	Welding Neck/Socket Welding (mm) B	Circle Diameter (mm) K	Hole Diameter (mm) H	Bolts (No.)	RF Stud Bolt Length (mm)				RF Machine Bolt Length (mm)
DN	NPS	O	t _f	X	A _h														
15	½	95	12.7	38	21.3	21	51	22.2	15.8	66.7	15.9	4	65	55	55	0.6	0.8	0.6	
20	¾	115	14.3	48	26.7	24	56	27.7	20.9	82.6	19.1	4	75	65	65	1.2	1.3	1.2	
25	1	125	15.9	54	33.4	25	60	34.5	26.6	88.9	19.1	4	75	65	65	1.4	1.6	1.4	
32	1 ¼	135	17.5	64	42.2	25	64	43.2	35.1	98.4	19.1	4	85	70	70	1.7	2.1	1.8	
40	1 ½	155	19.1	70	48.3	29	67	49.5	40.9	114.3	22.2	4	90	75	75	2.6	3.1	2.7	
50	2	165	20.7	84	60.3	32	68	61.9	52.5	127.0	19.1	8	90	75	90	2.9	3.4	3.1	
65	2 ½	190	23.9	100	73.0	37	75	74.6	62.7	149.2	22.2	8	100	85	100	4.5	5.3	4.8	
80	3	210	27.0	117	88.9	41	78	90.7	77.9	168.3	22.2	8	110	90	110	6.2	7.3	6.8	
90	3 ½	230	28.6	133	101.6	43	79	103.4	90.1	184.2	22.2	8	110	95	95	8.2	9.5	8.2	
100	4	255	30.2	146	114.3	46	84	116.1	102.3	200.0	22.2	8	115	95	115	11	12	11	
125	5	280	33.4	178	141.3	49	97	143.8	128.2	235.0	22.2	8	120	110	120	15	16	15	
150	6	320	35.0	206	168.3	51	97	170.7	154.1	269.9	22.2	12	120	110	120	20	21	20	
200	8	380	39.7	260	219.1	60	110	221.5	202.7	330.2	25.4	12	140	120	140	30	35	30	
250	10	445	46.1	321	273.0	65	116	276.2	254.6	387.4	28.6	16	160	140	160	44	55	44	
300	12	520	49.3	375	323.8	71	129	327.0	304.8	450.8	31.8	16	170	145	170	64	79	64	
350	14	585	52.4	425	355.6	75	141	359.2	Note (1)	514.4	31.8	20	180	160	180	88	107	88	
400	16	650	55.6	483	406.4	81	144	410.5	Note (1)	571.5	34.9	20	190	165	190	113	139	113	
450	18	710	58.8	533	457.0	87	157	461.8	Note (1)	628.6	34.9	24	195	170	195	138	177	138	
500	20	775	62.0	587	508.0	94	160	513.1	Note (1)	685.8	34.9	24	205	185	205	167	223	167	
600	24	915	68.3	702	610.0	105	167	616.0	Note (1)	812.8	41.3	24	230	205	230	235	342	235	



Note 1: To be specified by purchaser.
Note 2: Flange weights are approximate.
Note 3: Welding neck flange bore sizes listed are for sch 40S / Standard Wall pipe.

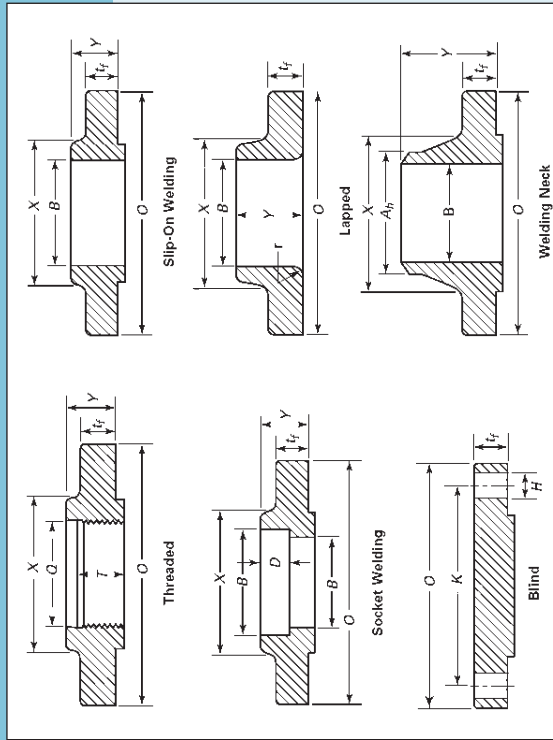
Stainless Steel Flanges • Dimensions & Weights

Class 900 Flanges to ASME B16.5

Nominal Size		Dimensions										Flange Weight (kg)				
		Flange OD (mm) O	Thickness min (mm) t _f	Hub Diameter (mm) X	Hub Diameter Welding Neck (mm) A _h	Slip-on Socket Welding (mm) Y	Length Thru Hub Slip-on Socket Welding (mm) B	Welding Neck / Socket Welding (mm) B	Circle Diameter (mm) K	Hole Diameter (mm) H	Bolts (No.)				RF Stud Bolt Length (mm)	Slip-on
15	½	120	22.3	38	21.3	32	60	22.2	Note (1)	82.6	22.2	4	110	1.8	2.1	1.9
20	¾	130	25.4	44	26.7	35	70	27.7	Note (1)	88.9	22.2	4	115	2.3	2.7	2.7
25	1	150	28.6	52	33.4	41	73	34.5	Note (1)	101.6	25.4	4	125	3.4	3.9	4.1
32	1 ¼	160	28.6	64	42.2	41	73	43.2	Note (1)	111.1	25.4	4	125	4.1	4.5	4.3
40	1 ½	180	31.8	70	48.3	44	83	49.5	Note (1)	123.8	28.6	4	140	5.5	5.9	5.9
50	2	215	38.1	105	60.3	57	102	61.9	Note (1)	165.1	25.4	8	145	11	11	11
65	2 ½	245	41.3	124	73.0	64	105	74.6	Note (1)	190.5	28.6	8	160	16	16	16
80	3	240	38.1	127	88.9	54	102	90.7	Note (1)	190.5	25.4	8	145	12	15	13
100	4	290	44.5	159	114.3	70	114	116.1	Note (1)	235.0	31.8	8	170	23	23	25
125	5	350	50.8	190	141.3	79	127	143.8	Note (1)	279.4	34.9	8	190	38	39	39
150	6	380	55.6	235	168.3	86	140	170.7	Note (1)	317.5	31.8	12	190	48	50	52
200	8	470	63.5	298	219.1	102	162	221.5	Note (1)	393.7	38.1	12	220	75	79	59
250	10	545	39.9	368	273.0	108	184	276.2	Note (1)	469.9	38.1	16	235	111	118	132
300	12	610	79.4	419	323.8	117	200	327.0	Note (1)	533.4	38.1	20	255	146	157	187
350	14	640	85.8	451	355.6	130	213	359.2	Note (1)	558.8	41.3	20	275	172	182	224
400	16	705	88.9	508	406.4	133	216	410.5	Note (1)	616.0	44.5	20	285	193	225	272
450	18	785	101.6	565	457.0	152	229	461.8	Note (1)	685.8	50.8	20	325	272	309	386
500	20	855	108.0	622	508.0	159	248	513.1	Note (1)	749.3	54.0	20	350	331	377	488
600	24	1040	139.7	749	610.0	203	292	616.0	Note (1)	901.7	66.7	20	440	632	685	905

Class 1500 Flanges to ASME B16.5

Nominal Size		Dimensions												Flange Weight (kg)		
		Flange OD (mm) O	Thickness min (mm) t _f	Hub Diameter (mm) X	Hub Diameter (mm) A _h	Slip-on Socket Welding (mm) Y	Length Thru Hub	Bore		Bolt Drilling						
DN	NPS							Slip-on Socket Welding (mm) B	Welding Neck / Socket Welding (mm) B	Circle Diameter (mm) K	Hole Diameter (mm) H	Bolts (No.)	RF Stud Bolt Length (mm)	Slip-on	Welding Neck	Blind
15	½	120	22.3	38	21.3	32	60	22.2	Note (1)	82.6	22.2	4	110	1.8	2.1	1.9
20	¾	130	25.4	44	26.7	35	70	27.7	Note (1)	88.9	22.2	4	115	2.8	2.7	2.7
25	1	150	28.6	52	33.4	41	73	34.5	Note (1)	101.6	25.4	4	125	3.6	3.9	4.1
32	1 ¼	160	28.6	64	42.2	41	73	43.2	Note (1)	111.1	25.4	4	125	5.0	4.5	4.3
40	1 ½	180	31.8	70	48.3	44	83	49.5	Note (1)	123.8	28.6	4	140	6.8	5.9	5.9
50	2	215	38.1	105	60.3	57	102	61.9	Note (1)	165.1	25.4	8	145	11	11	11
65	2 ½	245	41.3	124	73.0	64	105	74.6	Note (1)	190.5	28.6	8	160	16	16	16
80	3	265	47.7	133	88.9	117	117	Note (1)	203.2	31.8	8	180	22	22	22	22
100	4	310	54.0	162	114.3	124	124	Note (1)	241.3	34.9	8	195	31	31	33	33
125	5	375	73.1	197	141.3	156	156	Note (1)	292.1	41.3	8	250	59	60	59	60
150	6	395	82.6	229	168.3	171	171	Note (1)	317.5	38.1	12	260	75	75	75	75
200	8	485	92.1	292	219.1	213	213	Note (1)	393.7	44.5	12	290	124	124	137	137
250	10	585	108.0	368	273.0	254	254	Note (1)	482.6	50.8	12	335	206	230	206	230
300	12	675	123.9	451	323.8	283	283	Note (1)	571.5	54.0	16	375	306	316	306	316
350	14	750	133.4	495	355.6	298	298	Note (1)	635.0	60.3	16	405	416	421	416	421
400	16	825	146.1	552	406.4	311	311	Note (1)	704.8	66.7	16	445	568	559	568	559
450	18	915	162.0	597	457.0	327	327	Note (1)	774.7	73.0	16	495	736	761	736	761
500	20	985	177.8	641	508.0	356	356	Note (1)	831.8	79.4	16	540	929	967	929	967
600	24	1170	203.2	762	610.0	406	406	Note (1)	990.6	92.1	16	615	1504	1504	1504	1568



Note 1: To be specified by purchaser.
Note 2: Flange weights are approximate.
Note 3: Welding neck flange bore sizes listed are for sch 40S / Standard Wall pipe.

Stainless Steel Flanges • Dimensions & Weights

Table D Flanges to AS 2129

Nominal Size DN	Dimensions(mm)					Weight (kg)	
	OD A	Thickness D	Raised Face Diam G	Drilling		Bolt Size & Thread	Blind
				Bolt Circle Diam K	Bolt Hole Diam H		
15	95	*5	47	67	14	M12	0.6
20	100	*5	53	73	14	M12	0.7
25	115	*6	65	83	14	M12	0.9
32	120	*6	67	87	14	M12	1.1
40	135	*6	78	98	14	M12	1.2
50	150	*8	90	114	18	M16	1.4
65	165	*8	103	127	18	M16	1.6
80	185	*10	122	146	18	M16	2.1
90	205	*10	141	165	18	M16	2.7
100	215	*10	154	178	18	M16	3.2
125	255	*13	186	210	18	M16	3.6
150	280	*13	211	235	18	M16	4.9
200	335	*16	268	292	18	M16	6.1
250	405	*19	328	356	22	M20	8.8
300	455	*22	378	406	22	M20	15.8
350	525	*22	438	470	26	M24	23.6
400	580	*22	489	521	26	M24	38.6
450	640	*25	532	584	26	M24	44.9
500	705	*29	609	641	30	M27	63.0
550	760	*29	637	699	30	M27	86.0
600	825	*32	720	756	30	M27	107.0
700	910	*35	809	845	33	M27	125.0
750	995	*41	888	927	33	M30	
800	1060	*41	942	984	36	M33	
850	1090	*44	974	1016	36	M33	
900	1175	*48	1050	1092	36	M36	
1000	1255	*51	1133	1175	36	M36	
1200	1490	*60	1368	1410	36	M36	

Table E Flanges to AS 2129

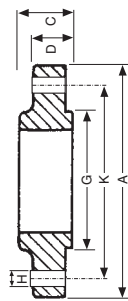
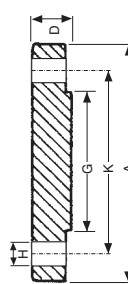
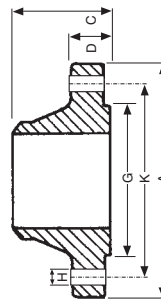
Nominal Size DN	Dimensions(mm)					Weight (kg)	
	OD A	Thickness D	Raised Face Diam G	Drilling		Bolt Size & Thread	Blind
				Bolt Circle Diam K	Bolt Hole Diam H		
15	95	*6	47	67	14	M12	0.7
20	100	*7	53	73	14	M12	0.8
25	115	*8	63	83	14	M12	1.0
32	120	*8	67	87	14	M12	1.1
40	135	*9	78	98	14	M12	1.4
50	150	*10	90	114	18	M16	1.7
65	165	*10	103	127	18	M16	2.1
80	185	*11	122	146	18	M16	2.7
90	205	*12	141	165	18	M16	
100	215	*13	154	178	18	M16	2.5
125	255	*14	186	210	18	M16	3.7
150	280	*17	207	235	22	M20	5.5
200	335	*19	264	292	22	M20	8.3
250	405	*22	328	356	22	M20	12.9
300	455	*25	374	406	26	M24	11.4
350	525	*29	438	470	26	M24	15.1
400	580	*32	489	521	26	M24	25.3
450	640	*35	552	584	26	M24	31.3
500	705	*38	609	641	30	M27	40.8
550	760	*44	663	699	30	M27	53.0
600	825	*48	717	756	33	M30	
700	910	*51	806	845	33	M30	85.0
750	995	*54	885	927	36	M33	
800	1060	*54	942	984	36	M33	
850	1090	*57	974	1016	36	M33	
900	1175	*64	1050	1092	36	M36	
1000	1255	*67	1130	1175	39	M36	
1200	1490	*79	1365	1410	39	M36	

Table F Flanges to AS 2129

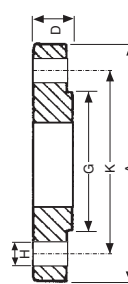
Nominal Size DN	Dimensions(mm)					Weight (kg)	
	Flange OD A	Flange Thickness D	Raised Face Diam G	Drilling		Bolt Size & Thread	Blind
				Bolt Circle Diam K	Bolt Hole Diam H		
15	95	10	47	67	14	M12	0.6
20	100	10	53	73	14	M12	0.7
25	115	10	63	83	14	M12	0.9
32	120	10	67	87	14	M12	1.1
40	135	13	74	98	18	M16	1.3
50	150	13	81	105	18	M16	1.4
65	165	16	103	127	18	M16	2.2
80	205	16	122	146	18	M16	2.5
90	215	19	141	165	18	M16	3.0
100	230	19	154	178	18	M16	3.8
125	280	22	167	191	18	M16	4.3
150	305	22	232	235	22	M20	7.4
200	370	22	296	324	22	M20	8.1
250	430	29	349	381	26	M24	12.7
300	490	32	406	438	26	M24	18.1
350	550	35	459	495	30	M27	23.9
400	610	41	516	552	30	M27	35.3
450	675	44	571	610	33	M30	47.6
500	735	51	634	673	33	M30	62.0
550	785	54	685	724	33	M30	80.0
600	850	57	739	781	36	M33	
700	935	60	815	857	36	M33	112.0
750	1015	67	898	940	36	M33	
800	1060	68	942	984	36	M33	
850	1090	70	974	1016	36	M33	
900	1185	76	1060	1105	39	M36	
1000	1275	83	1149	1194	39	M36	
1200	1530	95	1385	1441	42	M39	

Table H Flanges to AS 2129

Nominal Size DN	Dimensions(mm)					Weight (kg)	
	Flange OD A	Flange Thickness D	Raised Face Diam G	Drilling		Bolt Size & Thread	Blind
				Bolt Circle Diam K	Bolt Hole Diam H		
15	115	13	57	83	18	M16	1.0
20	115	13	57	83	18	M16	1.0
25	120	14	64	87	18	M16	1.2
32	135	17	76	98	18	M16	1.5
40	140	17	83	105	18	M16	1.7
50	165	19	102	127	18	M16	2.6
65	185	19	114	146	18	M16	3.1
80	205	22	127	165	18	M16	3.8
90	215	22	140	178	18	M16	5.4
100	230	25	152	191	18	M16	7.9
125	280	29	178	235	22	M20	12.6
150	305	29	210	260	22	M20	15.4
200	370	32	260	324	22	M20	10.8
250	430	35	311	381	26	M24	18.3
300	490	41	362	438	26	M24	22.1
350	550	48	419	495	30	M27	38.0
400	610	54	483	552	30	M27	58.0
450	675	60	533	610	33	M30	47.7
500	735	67	597	673	33	M30	62.0
550	785	70	648	724	33	M30	105.0
600	850	76	699	781	36	M33	

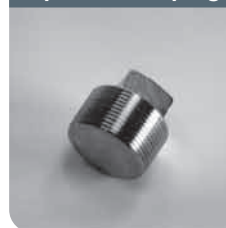
SLIP-ON WELDING (SOW)
("BOSS")BLIND
("BLANK")

WELDING NECK (WN)



PLATE

Note 1: All weights are approximate
Note 2: A diametrical clearance of 4mm maximum applies to pipe or tube OD for plate flanges
Note 3: The flange thickness "D" dimension included the raised face height
Note 4: Welding Neck bore is derived from the pipe schedule

Screwed Low Pressure BSP 316 fittings**Round socket****Pipe nipple TBE****Pipe nipple TOE****Hex/round cap****Hex nipple****3 pce union****Female 90° elbow****M/F 90° elbow****Female tee****Hex head plug****Hex locknut****Square head plug****Product range and theoretical weights (kg)**

DN	Round socket	Pipe nipple TBE	Pipe nipple TOE	Hex/round cap	Hex nipple	3 pce union	Female 90° elbow	Male/fem 90° elbow	Female tee	Hex head plug	Hex locknut	Square head plug
6	0.02	0.02	0.01	0.02	0.02	0.13	0.03	0.02	0.05	0.02	0.02	0.01
8	0.04	0.03	0.02	0.03	0.03	0.11	0.04	0.04	0.05	0.03	0.02	0.02
10	0.05	0.04	0.03	0.03	0.05	0.18	0.06	0.06	0.09	0.03	0.03	0.03
15	0.09	0.08	0.05	0.07	0.08	0.22	0.10	0.11	0.14	0.05	0.04	0.03
20	0.13	0.11	0.08	0.10	0.11	0.33	0.14	0.16	0.21	0.09	0.05	0.07
25	0.20	0.16	0.11	0.17	0.17	0.50	0.27	0.26	0.36	0.12	0.10	0.10
32	0.29	0.29	0.19	0.24	0.25	0.70	0.38	0.40	0.50	0.19	0.14	0.15
40	0.34	0.35	0.23	0.38	0.37	0.87	0.51	0.50	0.70	0.27	0.15	0.21
50	0.52	0.58	0.30	0.47	0.53	1.39	0.75	0.82	1.01	0.40	0.25	0.31
65	0.78	0.92	0.57	0.85	1.14	2.07	1.69	1.68	2.41	0.76	0.51	0.59
80	1.05	1.45	0.86	1.24	1.37	2.98	2.33	2.06	3.32	1.03	0.55	0.71
100	1.90	2.07	1.38	2.09	1.90	4.82	3.43	3.45	4.81	1.66	0.92	1.10

TBE = Threaded Both Ends.

TOE = Threaded One End.

Screwed Low Pressure BSP 316 fittings

Hex reducing bush



Hex reducing nipple



BSP Fittings

Dimensions: generally to ISO4144.

Threading: BS21 (ISO 7-1). Feed materials – sockets, TOE nipples, TBE nipples manufactured from stainless steel pipe to ASTM A312M.

- Hex plugs made from stainless steel bar to ASTM A276.
- Other fittings made from investment castings.

Product range and theoretical weights (kg)

DN	Hex reducing bush	Hex reducing nipple
8x6	0.01	0.03
10x6	0.02	0.05
10x8	0.03	0.05
15x6	0.04	0.08
15x8	0.06	0.08
15x10	0.06	0.08
20x8	0.08	0.12
20x10	0.07	0.12
20x15	0.05	0.12
25x10	0.14	0.17
25x15	0.12	0.17
25x20	0.08	0.17
32x25	0.15	0.26
40x20	0.33	0.36
40x25	0.26	0.36
40x32	0.17	0.36
50x25	0.56	0.50
50x32	0.45	0.50
50x40	0.37	0.50
65x50	0.51	0.85
80x50	0.94	1.28
80x65	1.23	1.28

Screwed Class 3000 NPT fittings – ASTM A182M and ASME B16.11**Grade 316**

Product range and theoretical weights (kg)												
DN	Hex cap	Coupling	45° Elbow	90° Elbow	Hex nipple	Hex plug	Union	Female tee	Schedule 40S		Schedule 80S	
									Nipple TBE 100	Nipple TOE 75	Nipple TBE 100	Nipple TOE 75
8	0.05	0.06	0.13	0.14	0.03	0.03	0.21	0.20	0.06	0.05	0.08	0.06
10	0.06	0.07	0.25	0.27	0.06	0.05	0.27	0.31	0.08	0.06	0.11	0.09
15	0.13	0.14	0.36	0.37	0.08	0.07	0.46	0.49	0.13	0.09	0.16	0.10
20	0.21	0.20	0.53	0.60	0.15	0.13	0.61	0.80	0.17	0.12	0.22	0.16
25	0.37	0.30	0.78	1.08	0.24	0.22	0.99	1.31	0.24	0.18	0.31	0.23
32	0.60	0.73	1.02	1.22	0.37	0.41	1.55	1.61	0.33	0.24	0.44	0.35
40	0.73	1.03	1.70	2.45	0.45	0.49	1.90	3.20	0.40	0.30	0.53	0.40
50	1.10	1.35	2.35	2.50	0.76	0.77	2.86	3.55	0.53	0.40	0.74	0.56

Grade 304

Product range and theoretical weights (kg)					
DN	Coupling	90° Elbow	Hex nipple	Hex plug	Union
15	0.11	0.41	0.08	0.07	0.30
20	0.20	0.68	0.17	0.13	0.58
25	0.29	1.02	0.38	0.20	0.76
32	0.73	1.22	0.37	0.41	1.55
40	1.00	2.44	0.63	0.60	1.60
50	1.42	2.52	1.10	1.10	2.42

Screwed Class 3000 NPT 316 fittings – ASTM A182M and ASME B16.11**Hex reducing bush****Hex reducing nipple****Swage nipple****Product range and theoretical weights (kg)**

DN	Hex reducing bush	Hex reducing nipple	Swage nipple TBE 80S	Reducing insert
8x6	0.02	0.05	0.04	0.04
10x6	0.02	0.06	0.06	0.05
10x8	0.03	0.06	0.06	0.05
15x6	0.04	0.08	0.14	0.10
15x8	0.06	0.08	0.14	0.10
15x10	0.06	0.08	0.18	0.10
20x8	0.08	1.15	0.18	0.12
20x10	0.07	0.17	0.18	0.12
20x15	0.05	0.17	0.18	0.12
25x8	0.12	0.38	0.25	0.16
25x10	0.14	0.38	0.25	0.16
25x15	0.12	0.38	0.25	0.16
25x20	0.12	0.38	0.25	0.16
40x15	0.21	0.63	0.60	0.45
40x20	0.21	0.63	0.60	0.45
40x25	0.21	0.63	0.60	0.45
40x32	0.21	0.64	0.60	0.45
50x25	0.45	0.68	1.14	0.70
50x40	0.50	0.70	1.14	0.70

Socket weld Class 3000 fittings – ASTM A182M and ASME B16.11**Grade 316L**

Product range and theoretical weights (kg)						
DN	Cap	Coupling	45° Elbow	90° Elbow	Equal tee	Union
8	0.06	0.07	0.25	0.26	0.30	0.21
15	0.12	0.14	0.36	0.36	0.50	0.30
20	0.21	0.20	0.53	0.60	0.80	0.50
25	0.40	0.40	0.80	1.10	1.31	0.80
32	0.60	0.70	1.00	1.20	1.61	1.20
40	0.70	1.00	1.70	2.40	3.20	1.50
50	1.10	1.30	2.30	2.50	3.50	2.30

Grade 316L reducing fittings

Product range and theoretical weights (kg)			
DN	Reducer inserts	DN	Reducer inserts
20x15	0.12	40x25	0.45
25x15	0.16	50x25	0.7
25x20	0.16	50x40	0.7
40x20	0.45		

Socket weld Class 3000 fittings – ASTM A182M and ASME B16.11**Grade 304L**

Product range and theoretical weights (kg)						
DN	Cap	Coupling	45° Elbow	90° Elbow	Equal tee	Union
8	0.06	0.07	0.25	0.26	0.30	0.21
15	0.12	0.14	0.36	0.36	0.50	0.30
20	0.21	0.20	0.53	0.60	0.80	0.50
25	0.40	0.40	0.80	1.10	1.31	0.80
32	0.60	0.70	1.00	1.20	1.61	1.20
40	0.70	1.00	1.70	2.40	3.20	1.50
50	1.10	1.30	2.30	2.50	3.50	2.30

Branch outlet Class 3000 304L and 316L – ASTM A182M and ASME B16.11

Product range and theoretical weights (kg)						
DN	Socket outlet 304L	Threaded outlet 304L	Welding outlet 304L	Socket outlet 316L	Threaded outlet 316L	Welding outlet 316L
15	0.15	0.12	0.13	0.15	0.12	0.13
20	0.17	0.24	0.24	0.17	0.24	0.24
25	0.27	0.38	0.38	0.27	0.38	0.38
40	0.48	0.66	0.66	0.48	0.66	0.66
50	0.07	1.02	1.02	0.75	1.02	1.02