



RHINO FITT^{UK}

A Quality Product of WEC (LEEDS) Co.

Forging Ahead!

Forged Steel Flanges Carbon Steel • Stainless Steel • Special Alloys





RHINOFITT^{UK}
A Quality Product of WEC (LEEDS) Co.



WEC (LEEDS) LTD. was established in UK in 1997 as a Manufacturer and Distributor of specialized Hoses for the Oil & Petrochemical Industry.

Since 2004, WEC (LEEDS) established the Piping Distribution and has now become a prominent supplier of piping materials for various projects in the UK.

With the launch of our brand RHINOFITT, our objective is to develop business both in the UK and internationally by maintaining the quality of the products and ensuring price competitiveness while maintaining service standards WEC is renowned for.

To all our company members and partner the highest standards of service are as important now as they were when the business was first founded.

Within the range of RHINOFITT we shall endeavour to supply all types of Pipe Fittings & Flanges in various grade of Carbon Steel, Stainless Steel manufactured to the highest standards.

Capabilities

Carbon Steel

- ASTM A105
- ASTM A350
- ASTM A694

Stainless Steel

- ASTM A182 F6 (a, b, NM)
- ASTM A182 F304/L
- ASTM A182 F304 N% Controlled
- ASTM A182 F316/L
- ASTM A182 F316 N% Controlled
- ASTM A182 F321/H, A182 F347/H

Duplex Steel / Super Duplex Steel

- ASTM A182 F51 UNS S31803
- ASTM A182 F53 UNS S32750
- ASTM A182 F60 UNS S32205

Inconel

- ASTM B564 UNS NO6625
UNS NO8825

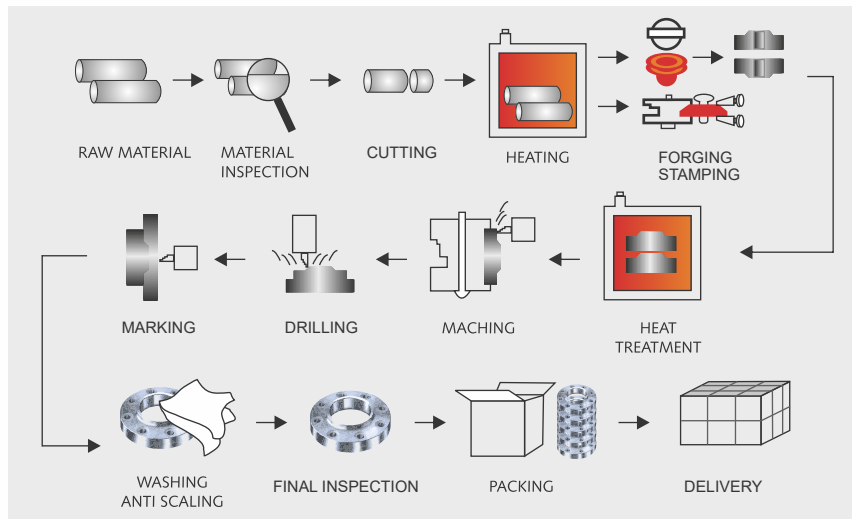


At RHINOFITT we ensure that all our products undergo the most stringent process of testing and analysis.

Testing

- Impact Testing
- Tensile Testing
- PMI Testing
- Chemical Analysis
- Hardness Test
- HIC as per NACE MR 0175 –TM 0284

Production and QC





Flanges - Product Range Contents

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Socket Weld Flange

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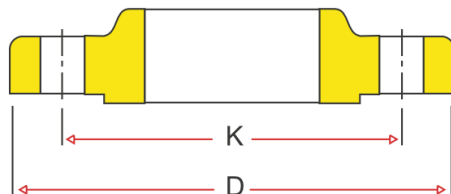
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ANSI STANDARD FLANGES

ANSI B 16.5 / BS 3293/ ANSI B 16.47A

SLIP ON FLANGES Class 150

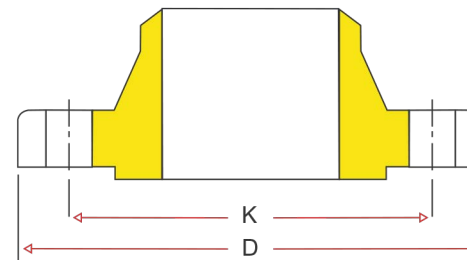


ANSI B 16.5 / BS 3293

Nominal Size		Outside Diameter	Pitch Circle Diameter	Diameter of Bolts	No. of Holes	Approximate Weight
NPS	DN	D	K			Kgs
1/2"	15	88.9	60.3	(1/2")	4	0.4
3/4"	20	98.4	69.8	(1/2")	4	0.7
1"	25	107.9	79.4	(1/2")	4	0.8
1-1/4"	32	117.5	88.9	(1/2")	4	1.1
1-1/2"	40	127	98.4	(1/2")	4	1.4
2"	50	152.4	120.6	(5/8")	4	2.2
2-1/2"	65	177.8	139.7	(5/8")	4	3.6
3"	80	190.5	152.4	(5/8")	8	4.1
4"	100	228.6	190.5	(5/8")	8	5.6
5"	125	254	215.9	(3/4")	8	6.3
6"	150	279.4	241.3	(3/4")	8	7.5
8"	200	342.9	298.4	(3/4")	12	12.6
10"	250	406.4	361.9	(7/8")	12	18.5
12"	300	482.6	431.8	(7/8")	12	28
14"	350	533.4	476.2	(1")	16	36
16"	400	596.9	539.7	(1")	16	46
18"	450	635	577.8	(1-1/8")	20	50
20"	500	698.5	635	(1-1/8")	20	64
24"	600	812.8	749.3	(1-1/4")	28	89
28"	700	927	863.6	(1-1/4")	28	134
30"	750	984.3	914.4	(1-1/4")	28	153
32"	800	1060.5	977.9	(1-1/2")	32	190
34"	850	1111.5	1028.7	(1-1/2")	32	212
36"	900	1168.4	1085.9	(1-1/2")	32	242
42"	1050	1346	1257.3	(1-1/2")	36	358

* All dimensions in mm.
* All weights indicated are approximate.
Other sizes available on request.
Up to 24" - ANSI B16.5
Above 24" - BS 3293

WELD NECK FLANGES Class 150



ANSI B 16.5 / B16.47 A

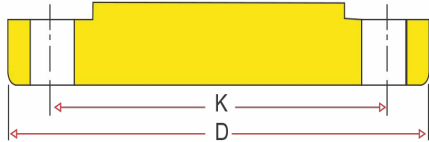
Nominal Size		Outside Diameter	Pitch Circle Diameter	Diameter of Bolts	No. of Holes	Approximate Weight
NPS	DN	D	K			Kgs
1/2"	15	88.9	60.3	(1/2")	4	0.50
3/4"	20	98.4	69.8	(1/2")	4	0.70
1"	25	107.9	79.4	(1/2")	4	1.10
1-1/4"	32	117.5	88.9	(1/2")	4	1.50
1-1/2"	40	127.0	98.4	(1/2")	4	1.80
2"	50	152.4	120.6	(5/8")	4	2.70
2-1/2"	65	177.8	139.7	(5/8")	4	4.40
3"	80	190.5	152.4	(5/8")	4	5.20
4"	100	228.6	190.5	(5/8")	8	7.50
5"	125	254.0	215.9	(3/4")	8	9.20
6"	150	279.4	241.3	(3/4")	8	11
8"	200	342.9	298.4	(3/4")	8	18.30
10"	250	406.4	361.9	(7/8")	12	25
12"	300	482.6	431.8	(7/8")	12	39
14"	350	533.4	476.2	(1")	12	51
16"	400	596.9	539.7	(1")	16	60
18"	450	635.0	577.8	(1-1/8")	16	71
20"	500	698.5	635.0	(1-1/8")	20	88
24"	600	812.8	749.3	(1-1/4")	20	119
28"	700	927.0	863.6	(1-3/8")	28	134
30"	750	984.3	914.4	(1-3/8")	28	153
32"	800	1060.5	977.9	(1-5/8")	28	190
34"	850	1111.5	1028.7	(1-5/8")	32	212
36"	900	1168.4	1085.9	(1-5/8")	32	242
42"	1050	1346.0	1257.3	(1-5/8")	36	358

* All dimensions in mm.
* All weights indicated are approximate.

Other sizes available on request.

Up to 24" - ANSI B16.5
Above 24" - ANSI B16.47 A (MSS-SP44).

BLIND FLANGES Class 150



ANSI B 16.5 / B16.47 A

Nominal Size		Outside Diameter	Pitch Circle Diameter	Diameter of Bolts	No. of Holes	Approximate Weight
NPS	DN	D	K			Kgs
1/2"	15	88.9	60.3	(1/2")	4	0.40
3/4"	20	98.4	69.8	(1/2")	4	0.70
1"	25	107.9	79.4	(1/2")	4	0.90
1-1/4"	32	117.5	88.9	(1/2")	4	1.30
1-1/2"	40	127.0	98.4	(1/2")	4	1.60
2"	50	152.4	120.6	(5/8")	4	2.60
2-1/2"	65	177.8	139.7	(5/8")	4	4.10
3"	80	190.5	152.4	(5/8")	4	5.00
4"	100	228.6	190.5	(5/8")	8	7.10
5"	125	254.0	215.9	(3/4")	8	9.00
6"	150	279.4	241.3	(3/4")	8	11.80
8"	200	342.9	298.4	(3/4")	8	21
10"	250	406.4	361.9	(7/8")	12	30
12"	300	482.6	431.8	(7/8")	12	45
14"	350	533.4	476.2	(1")	12	59
16"	400	596.9	539.7	(1")	16	79
18"	450	635.0	577.8	(1-1/8")	16	97
20"	500	698.5	635.0	(1-1/8")	20	124
24"	600	812.8	749.3	(1-1/4")	20	188
28"	700	927.0	863.6	(1-3/8")	28	380
30"	750	984.3	914.4	(1-3/8")	28	450
32"	800	1060.5	977.9	(1-5/8")	28	560
34"	850	1111.5	1028.7	(1-5/8")	32	625
36"	900	1168.4	1085.9	(1-5/8")	32	760
42"	1050	1346.0	1257.3	(1-5/8")	36	1080

* All dimensions in mm.

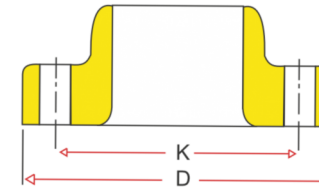
* All weights indicated are approximate.

Other sizes available on request.

Up to 24" - ANSI B16.5

Above 24" - ANSI B16.47 A (MSS-SP44).

LAP JOINT FLANGES Class 150



ANSI B 16.5

Nominal Size		Outside Diameter	Pitch Circle Diameter	Diameter of Bolts	No. of Holes	Approximate Weight
NPS	DN	D	K			Kgs
1/2"	15	88.9	60.3	(1/2")	4	0.40
3/4"	20	98.4	69.8	(1/2")	4	0.70
1"	25	107.9	79.4	(1/2")	4	0.80
1-1/4"	32	117.5	88.9	(1/2")	4	1.10
1-1/2"	40	127.0	98.4	(1/2")	4	1.40
2"	50	152.4	120.6	(5/8")	4	2.20
2-1/2"	65	177.8	139.7	(5/8")	4	3.60
3"	80	190.5	152.4	(5/8")	4	4.10
4"	100	228.6	190.5	(5/8")	8	5.60
5"	125	254.0	215.9	(3/4")	8	6.30
6"	150	279.4	241.3	(3/4")	8	7.50
8"	200	342.9	298.4	(3/4")	8	12.60
10"	250	406.4	361.9	(7/8")	12	18.50
12"	300	482.6	431.8	(7/8")	12	28
14"	350	533.4	476.2	(1")	12	42
16"	400	596.9	539.7	(1")	16	52
18"	450	635.0	577.8	(1-1/8")	16	58
20"	500	698.5	635.0	(1-1/8")	20	74
24"	600	812.8	749.3	(1-1/4")	20	101

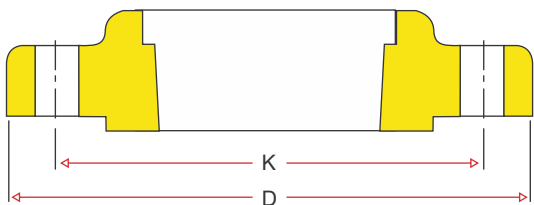
* All dimensions in mm.

* All weights indicated are approximate.

Other sizes available on request.



THREADED FLANGES Class 150

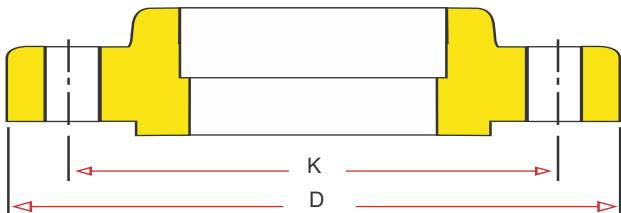


ANSI B 16.5

Nominal Size		Outside Diameter	Pitch Circle Diameter	Diameter of Bolts	Min. Thread Length	No. of Holes	Approximate Weight
NPS	DN	D	K				Kgs
1/2"	15	88.9	60.3	(1/2")	35.1	4	0.40
3/4"	20	98.4	69.8	(1/2")	42.9	4	0.70
1"	25	107.9	79.4	(1/2")	47.8	4	0.80
1-1/4"	32	117.5	88.9	(1/2")	57.2	4	1.10
1-1/2"	40	127	98.4	(1/2")	63.5	4	1.40
2"	50	152.4	120.6	(5/8")	82.6	4	2.20
2-1/2"	65	177.8	139.7	(5/8")	95.3	4	3.60
3"	80	190.5	152.4	(5/8")	117	4	4.10
4"	100	228.5	190.5	(7/8")	144	8	5.70
5"	125	254	215.9	(7/8")	173	8	6.50
6"	150	279.5	241.3	(7/8")	203	8	7.90
8"	200	343	298.5	(7/8")	254	8	12.80

* All dimensions in mm.
* All weights indicated are approximate.
Other sizes available on request.

SOCKET WELD FLANGES Class 150

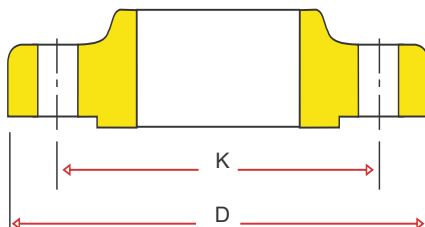


ANSI B 16.5

Nominal Size		Outside Diameter	Pitch Circle Diameter	Diameter of Bolts	No. of Holes	Approximate Weight
NPS	DN	D	K			Kgs
1/2"	15	88.9	60.3	(1/2")	4	0.40
3/4"	20	98.4	69.8	(1/2")	4	0.70
1"	25	107.9	79.4	(1/2")	4	0.90
1-1/4"	32	117.5	88.9	(1/2")	4	1.20
1-1/2"	40	127.0	98.4	(1/2")	4	1.50
2"	50	152.4	120.6	(5/8")	4	2.30
2-1/2"	65	177.8	139.7	(5/8")	4	3.70
3"	80	190.5	152.4	(5/8")	4	4.20

* All dimensions in mm.
* All weights indicated are approximate.
Other sizes available on request.

SLIP-ON FLANGES Class 300



ANSI B 16.5 / BS 3293

Nominal Size		Outside Diameter	Pitch Circle Diameter	Diameter of	No. of	Approximate Weight
NPS	DN	D	K	Bolts	Holes	Kgs
1/2"	15	95.2	66.7	(1/2")	4	0.70
3/4"	20	117.5	82.5	(5/8")	4	1.10
1"	25	123.8	88.9	(5/8")	4	1.40
1-1/4"	32	133.3	98.4	(5/8")	4	1.80
1-1/2"	40	155.6	114.3	(3/4")	4	2.60
2"	50	165.1	127.0	(5/8")	8	3.40
2-1/2"	65	190.5	149.2	(3/4")	8	4.40
3"	80	209.5	168.3	(3/4")	8	6.10
4"	100	254.0	200.0	(3/4")	8	10.10
5"	125	279.4	234.9	(3/4")	8	12.50
6"	150	317.5	269.9	(3/4")	12	14.10
8"	200	381.0	330.2	(7/8")	12	24.80
10"	250	444.5	387.3	(1")	16	37.10
12"	300	520.7	450.8	(1-1/8")	16	50
14"	350	584.2	514.3	(1-1/8")	20	70
16"	400	647.7	571.5	(1-1/4")	20	90
18"	450	711.2	628.6	(1-1/4")	24	112
20"	500	774.7	685.8	(1-1/4")	24	133
24"	600	914.4	812.8	(1-1/2")	24	208
28"	700	1035.0	939.8	(1-1/4")	28	316
30"	750	1092.0	997.0	(1-3/8")	28	365
32"	800	1149.5	1054.1	(1-1/2")	28	420
34"	850	1206.5	1104.9	(1-1/2")	28	475
36"	900	1270.0	1168.4	(1-5/8")	32	530

* All dimensions in mm.

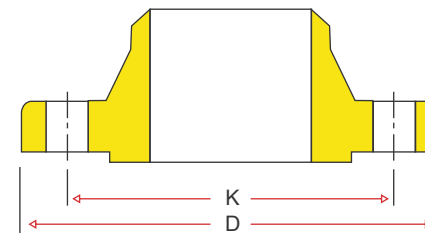
* All weights indicated are approximate.

Other sizes available on request.

Up to 24" - ANSI B16.5

Above 24" - BS 3293

WELD NECK FLANGES Class 300



ANSI B 16.5 / B16.47 A

Nominal Size		Outside Diameter	Pitch Circle Diameter	Diameter of	No. of	Approximate Weight
NPS	DN	D	K	Bolts	Holes	Kgs
1/2"	15	95.2	66.7	(1/2")	4	0.90
3/4"	20	117.5	82.5	(5/8")	4	1.50
1"	25	123.8	88.9	(5/8")	4	1.90
1-1/4"	32	133.3	98.4	(5/8")	4	2.60
1-1/2"	40	155.6	114.3	(3/4")	4	3.30
2"	50	165.1	127.0	(5/8")	8	3.60
2-1/2"	65	190.5	149.2	(3/4")	8	5.40
3"	80	209.5	168.3	(3/4")	8	7.40
4"	100	254.0	200.0	(3/4")	8	11.90
5"	125	279.4	234.9	(3/4")	8	16.00
6"	150	317.5	269.9	(3/4")	12	20.20
8"	200	381.0	330.2	(7/8")	12	31.00
10"	250	444.5	387.3	(1")	16	44.30
12"	300	520.7	450.8	(1-1/8")	16	64
14"	350	584.2	514.3	(1-1/8")	20	88
16"	400	647.7	571.5	(1-1/4")	20	113
18"	450	711.2	628.6	(1-1/4")	24	134
20"	500	774.7	685.8	(1-1/4")	24	171
24"	600	914.4	812.8	(1-1/2")	24	238
28"	700	1035.0	939.8	(1-1/4")	28	339
30"	750	1092.0	997.0	(1-3/8")	28	390
32"	800	1149.5	1054.1	(1-1/2")	28	448
34"	850	1206.5	1104.9	(1-1/2")	28	504
36"	900	1270.0	1168.4	(1-5/8")	32	559
42"	1050	1289.0	1206.5	(1-3/4")	32	409

* All dimensions in mm.

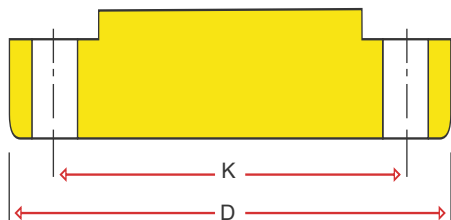
* All weights indicated are approximate.

Other sizes available on request

Up to 24" - ANSI B16.5

Above 24" - ANSI B16.47 A (MSS-SP44).

BLIND FLANGES Class 300



ANSI B 16.5 / B16.47 A

Nominal Size		Outside Diameter	Pitch Circle Diameter	Diameter of Bolts	No. of Holes	Approximate Weight
NPS	DN	D	K			Kgs
1/2"	15	95.2	66.7	(1/2")	4	0.70
3/4"	20	117.5	82.5	(5/8")	4	1.20
1"	25	123.8	88.9	(5/8")	4	1.50
1-1/4"	32	133.3	98.4	(5/8")	4	2.00
1-1/2"	40	155.6	114.3	(3/4")	4	2.90
2"	50	165.1	127.0	(5/8")	8	3.40
2-1/2"	65	190.5	149.2	(3/4")	8	5.10
3"	80	209.5	168.3	(3/4")	8	7.00
4"	100	254.0	200.0	(3/4")	8	11.80
5"	125	279.4	234.9	(3/4")	8	15.50
6"	150	317.5	269.9	(3/4")	12	21.30
8"	200	381.0	330.2	(7/8")	12	35.20
10"	250	444.5	387.3	(1")	16	57
12"	300	520.7	450.8	(1-1/8")	16	82
14"	350	584.2	514.3	(1-1/8")	20	106
16"	400	647.7	571.5	(1-1/4")	20	140
18"	450	711.2	628.6	(1-1/4")	24	178
20"	500	774.7	685.8	(1-1/4")	24	223
24"	600	914.4	812.8	(1-1/2")	24	345
28"	700	1035.0	939.8	(1-1/4")	28	585
30"	750	1092.0	997.0	(1-3/8")	28	684
32"	800	1149.5	1054.1	(1-1/2")	28	794
34"	850	1206.5	1104.9	(1-1/2")	28	918
36"	900	1270.0	1168.4	(1-5/8")	32	1072
42"	1050	1289.0	1206.5	(1-3/4")	32	1206

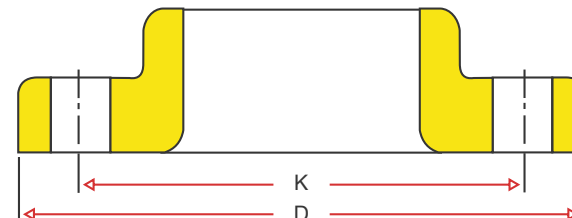
* All dimensions in mm.

* All weights indicated are approximate.
Other sizes available on request.

Up to 24" - ANSI B16.5

Above 24" - ANSI B16.47 A (MSS-SP44).

LAP JOINT FLANGES Class 300



ANSI B 16.5

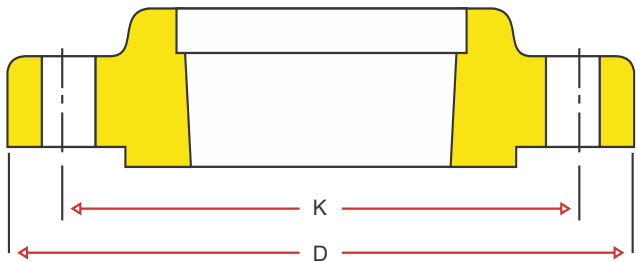
Nominal Size		Outside Diameter	Pitch Circle Diameter	Diameter of Bolts	No. of Holes	Approximate Weight
NPS	DN	D	K			Kgs
1/2"	15	95.2	66.7	(1/2")	4	0.70
3/4"	20	117.5	82.5	(5/8")	4	1.10
1"	25	123.8	88.9	(5/8")	4	1.40
1-1/4"	32	133.3	98.4	(5/8")	4	1.80
1-1/2"	40	155.6	114.3	(3/4")	4	2.60
2"	50	165.1	127.0	(5/8")	8	3.40
2-1/2"	65	190.5	149.2	(3/4")	8	4.40
3"	80	209.5	168.3	(3/4")	8	6.10
4"	100	254.0	200.0	(3/4")	8	10.10
5"	125	279.4	234.9	(3/4")	8	12.50
6"	150	317.5	269.9	(3/4")	12	14.10
8"	200	381.0	330.2	(7/8")	12	24.80
10"	250	444.5	387.3	(1")	16	42
12"	300	520.7	450.8	(1-1/8")	16	64
14"	350	584.2	514.3	(1-1/8")	20	87
16"	400	647.7	571.5	(1-1/4")	20	114
18"	450	711.2	628.6	(1-1/4")	24	134
20"	500	774.7	685.8	(1-1/4")	24	168
24"	600	914.4	812.8	(1-1/2")	24	250

* All dimensions in mm.

* All weights indicated are approximate.
Other sizes available on request.



THREADED FLANGES Class 300

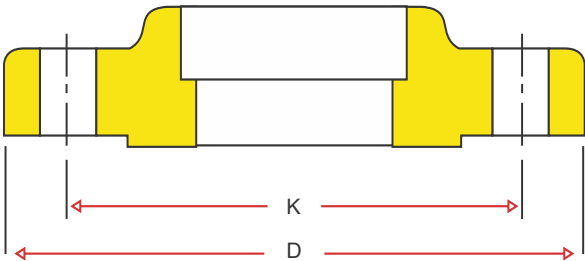


ANSI B 16.5

Nominal Size		Outside Diameter	Pitch Circle Diameter	Diameter of Bolts	Min. Thread Length	No. of Holes	Approximate Weight
NPS	DN	D	K				Kgs
1/2"	15	95.2	66.7	(1/2")	35.1	4	0.64
3/4"	20	117.5	82.5	(5/8")	42.9	4	1.12
1"	25	123.8	88.9	(5/8")	47.8	4	1.36
1-1/4"	32	133.3	98.4	(5/8")	57.2	4	1.68
1-1/2"	40	155.5	114.3	(3/4")	63.5	4	2.49
2"	50	165.0	127.0	(3/4")	82.6	8	2.87
2-1/2"	65	190.5	149.2	(3/4")	95.3	8	4.32
3"	80	209.5	168.3	(3/4")	117.3	8	5.85
4"	100	254.0	200.0	(3/4")	144.5	8	9.61

* All dimensions in mm.
* All weights indicated are approximate.
Other sizes available on request.

SOCKET WELD FLANGES Class 300



ANSI B 16.5

Nominal Size		Outside Diameter	Pitch Circle Diameter	Diameter of Bolts	No. of Holes	Approximate Weight
NPS	DN	D	K			Kgs
1/2"	15	95.2	66.7	(1/2")	4	0.70
3/4"	20	117.5	82.5	(5/8")	4	1.20
1"	25	123.8	88.9	(5/8")	4	1.40
1-1/4"	32	133.3	98.4	(5/8")	4	1.90
1-1/2"	40	155.6	114.3	(3/4")	4	2.80
2"	50	165.1	127.0	(5/8")	8	3.30
2-1/2"	65	190.5	149.2	(3/4")	8	4.60
3"	80	209.5	168.3	(3/4")	8	6.30

* All dimensions in mm.
* All weights indicated are approximate.
Other sizes available on request.

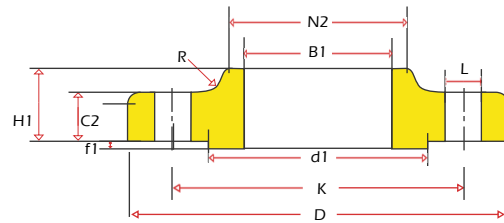


EUROPEAN STANDARD FLANGES EN 1092 - 1

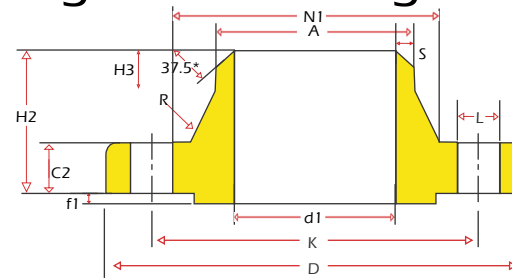
BS 4504 is obsolete now & replaced by EN 1092-1 Edition 09-2008 for Steel Flanges

Forged Steel Flanges

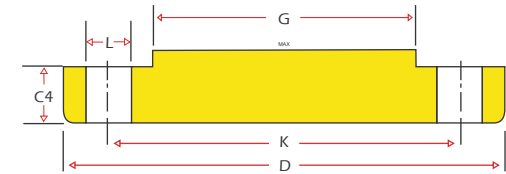
Carbon Steel • Stainless Steel • Special Alloys



TYPE 12
SLIP-ON FLANGES



TYPE 11
WELD NECK FLANGES



TYPE 05
BLIND FLANGES

10 BAR Acc. to EN 1092-1

Nominal Pipe Size	Outside Diameter	Pitch Circle Diameter	Size of Bolts	No. of Holes	Flange Thickness		Length of Flanges			Corner Radius	Outside Diameter of Neck	Neck Diameter		Diameter of Shoulder		Raised Face Thickness	Neck Thickness
					Flange Type												
					11 & 12	05	11 & 12	11 & 12	11 & 12	11, 12 & 05	11	11 & 12	11 & 12	11	05	11, 12 & 05	11
NPS	D	K			C2	C4	H1	H2	H3	R	A	N1	N2	d1	G	f1	S
15	95	65	M12	4	16	16	22	38	6	4	21.3	32	35	40	-	2	2.0
20	105	75	M12	4	18	18	26	40	6	4	26.9	40	45	50	-	2	2.3
25	115	85	M12	4	18	18	28	40	6	4	33.7	46	52	60	-	2	2.6
32	140	100	M16	4	18	18	30	42	6	6	42.4	56	60	70	-	2	2.6
40	150	110	M16	4	18	18	32	45	7	6	48.3	64	70	80	-	2	2.6
50	165	125	M16	4	20	20	28	45	8	6	60.3	75	84	90	-	2	2.9
65	185	145	M16	8**	18	18	32	45	10	6	*76.1	92	104	110	55	2	2.9
80	200	160	M16	8	20	20	34	50	10	8	88.9	105	118	128	70	2	3.2
100	220	180	M16	8	20	20	40	52	12	8	114.3	131	140	148	90	2	3.6
125	250	210	M16	8	22	22	44	55	12	8	*139.7	156	168	178	115	2	4.0
150	285	240	M20	8	22	22	44	55	12	10	*168.3	184	195	202	140	2	4.5
200	340	295	M20	8	24	24	44	62	16	10	219.1	235	246	258	190	2	6.3
250	395	350	M20	12	26	26	46	68	16	12	273.0	292	298	312	235	2	6.3
300	445	400	M20	12	26	26	46	68	16	12	323.9	342	350	365	285	2	7.1
350	505	460	M20	16	26	26	53	68	16	12	335.6	385	400	415	330	2	7.1
400	565	515	M24	16	26	26	57	72	16	12	406.4	440	456	465	380	2	7.1
450	615	565	M24	20	28	28	63	72	16	12	457.0	488	502	520	425	2	7.1
500	670	620	M24	20	28	28	67	75	16	12	508.0	542	559	570	475	2	7.1
600	780	725	M27	20	28	34	75	80	18	12	610.0	642	658	670	575	2	7.1
700	895	840	M27	24	30	38	-	80	18	12	711.0	746	-	775	670	2	8.0
800	1015	950	M30	24	32	42	-	90	18	12	813.0	850	-	880	770	2	8.0
900	1115	1050	M30	28	34	46	-	95	20	12	914.0	950	-	980	860	2	10.0
1000	1230	1160	M33	28	34	52	-	95	20	16	1016.0	1052	-	1080	960	2	10.0

*All dimensions in mm.

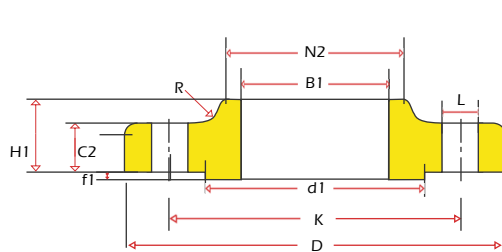
*All weights indicated are approximate.

Other sizes available on request.

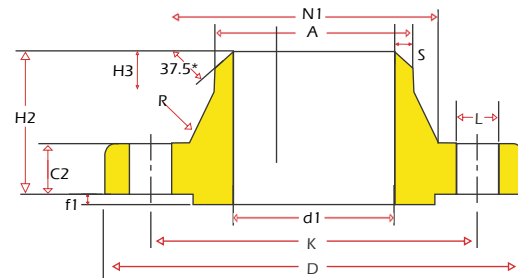
*The OD of the neck is suitable for ASTM A106 Piping

*For BS Standards Piping dimensions shall be 65mm = 76.1mm, 125mm = 139.7mm, 150mm = 168.3mm

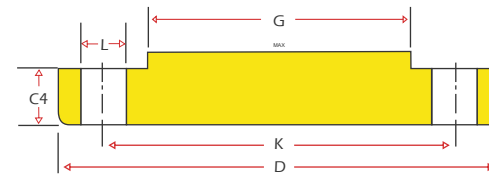
** Subject to agreement between the Manufacturer and the Purchaser 4 holes can be used for PN10, DN65 Steel Flanges



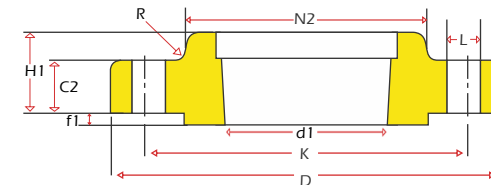
TYPE 12
SLIP-ON FLANGES



TYPE 11
WELD NECK FLANGES



TYPE 05
BLIND FLANGES



TYPE 13
THREADED FLANGES

16 BAR Acc. to EN 1092-1

Nominal Pipe Size	Outside Diameter	Pitch Circle Diameter	Size of Bolts	No. of Holes	Flange Thickness			Length of Flanges				Corner Radius		Outside Diameter of Neck	Neck Diameter			Diameter of Shoulder		Raised Face Thickness	Neck Thickness
					Flange Type																
					11 & 12	13	05	11, 12 & 05	13	11 & 12	11 & 12	11, 12 & 05	13	11	11 & 12	11 & 12	13	11	05	11, 12 & 05	11
NPS	D	K			C2		C4	H1		H2	H3	R		A	N1	N2		d1	G	f1	S
15	95	65	M12	4	16	16	16	22	22	38	6	4	4	21.3	32	35	35	45	-	2	2.0
20	105	75	M12	4	18	18	18	26	26	40	6	4	4	26.9	40	45	45	58	-	2	2.3
25	115	85	M12	4	18	18	18	28	28	40	6	4	4	33.7	46	52	52	68	-	2	2.6
32	140	100	M16	4	18	18	18	30	30	42	6	6	6	42.4	56	60	60	78	-	2	2.6
40	150	110	M16	4	18	18	18	32	32	45	7	6	6	48.3	64	70	70	88	-	2	2.6
50	165	125	M16	4	18	18	18	28	28	45	8	6	5	60.3	74	84	84	102	-	2	2.9
65	185	145	M16	8**	18	18	18	32	32	45	10	6	6	*76.1	92	104	104	122	55	2	2.9
80	200	160	M16	8	20	20	20	34	34	50	10	8	6	88.9	105	118	118	138	70	2	3.2
100	220	180	M16	8	20	20	20	40	40	52	12	8	6	114.3	131	140	140	158	90	2	3.6
125	250	210	M16	8	22	22	22	44	44	55	12	8	8	*139.7	156	168	168	188	115	2	4.0
150	285	240	M20	8	22	22	22	44	44	55	12	10	8	*168.3	184	195	195	212	140	2	4.5
200	340	295	M20	12	24	-	24	44	-	62	16	10	10	219.1	235	246	-	268	190	2	5.6
250	405	355	M24	12	26	-	26	46	-	70	16	12	-	273.0	292	298	-	320	235	2	6.3
300	460	410	M24	12	28	-	28	46	-	78	16	12	-	323.9	344	350	-	378	285	2	7.1
350	520	470	M24	16	30	-	30	57	-	82	16	12	-	355.6	390	400	-	438	330	5	8.0
400	580	525	M27	16	32	-	32	63	-	85	16	12	-	406.4	445	456	-	490	380	5	8.0
450	640	585	M27	20	40	-	40	68	-	87	16	12	-	457.0	490	502	-	550	425	5	8.0
500	715	650	M30	20	44	-	44	73	-	90	16	12	-	508.0	548	559	-	610	475	2	8.0
600	840	770	M33	20	54	-	54	83	-	95	18	12	-	610.0	652	658	-	725	575	2	8.8
700	910	840	M33	24	36	-	48	83	-	100	18	12	-	711.0	755	760	-	795	670	2	8.8
800	1025	950	M36	24	38	-	52	90	-	105	20	12	-	813.0	855	864	-	900	770	2	10.0
900	1125	1050	M36	28	40	-	58	94	-	110	20	12	-	914.0	955	968	-	1000	880	2	10.0
1000	1255	1170	M39	28	42	-	64	100	-	120	22	16	-	1016.0	1058	1072	-	1115	960	2	10.0

* All Dimensions in mm.

Other sizes available on request.

* The OD of the neck is suitable for ASTM A106 Piping

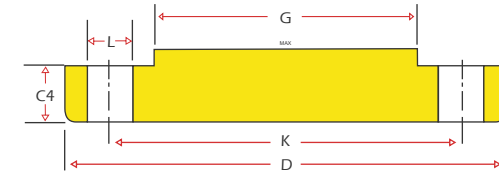
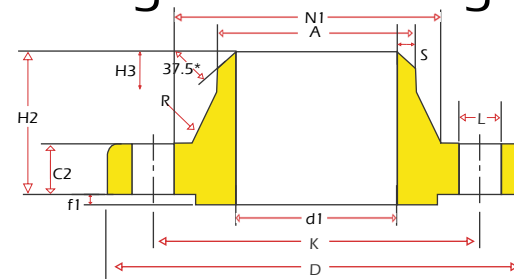
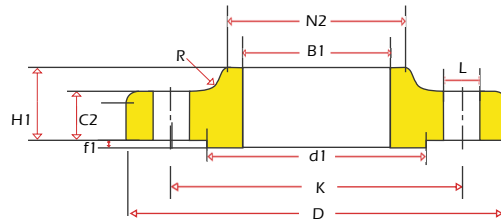
* For BS Standards Piping dimensions shall be 65mm = 76.1mm, 125mm = 139.7mm, 150mm = 168.3mm

** Subject to agreement between the Manufacturer and the Purchaser 4 holes can be used for PN16, DN65 Steel Flanges



Forged Steel Flanges

Carbon Steel • Stainless Steel • Special Alloys



25 BAR Acc. to EN 1092-1

TYPE 12 SLIP-ON FLANGES

TYPE 11 WELD NECK FLANGES

TYPE 05 BLIND FLANGES

Nominal Pipe Size	Outside Diameter	Pitch Circle Diameter	Size of Bolts	No. of Holes	Flange Thickness		Length of Flanges			Corner Radius	Outside Diameter of Neck	Neck Diameter		Diameter of Shoulder		Raised Face Thickness	Neck Thickness
					Flange Type												
					11 & 12	05	11, 12 & 05	11 & 12	11 & 12	11, 12 & 05	11	11 & 12	11 & 12	11	05	11, 12 & 05	11
NPS	D	K			C2	C4	H1	H2	H3	R	A	N1	N2	d1	G	f1	S
15	95	65	M12	4	16	16	22	38	6	4	21.3	32	35	45	-	2	2.0
20	105	75	M12	4	18	18	24	40	6	4	26.9	40	45	58	-	2	2.3
25	115	85	M12	4	18	18	26	40	6	4	33.7	46	52	68	-	2	2.6
32	140	100	M16	4	18	18	30	42	6	6	42.4	56	60	78	-	2	2.6
40	150	110	M16	4	18	18	32	45	7	6	48.3	64	70	88	-	2	2.6
50	165	125	M16	4	20	20	34	48	8	6	60.3	75	84	102	-	2	2.9
65	185	145	M16	8	22	22	38	52	10	6	*76.1	90	104	122	55	2	2.9
80	200	160	M16	8	24	24	40	58	12	8	88.9	105	118	138	70	2	3.2
100	235	190	M20	8	24	24	44	65	12	8	114.3	134	145	162	90	2	3.6
125	270	220	M24	8	26	26	48	68	12	10	*139.7	162	170	188	115	2	4.2
150	300	250	M24	8	28	28	52	75	12	10	*168.3	192	200	218	140	2	4.5
200	360	310	M24	8	30	30	52	80	16	10	219.1	244	256	278	190	2	6.3
250	425	370	M27	12	32	32	60	88	18	12	273.0	298	310	335	235	2	7.1
300	485	430	M27	16	34	34	67	92	18	12	323.9	352	364	395	285	2	8.0
350	555	490	M30	16	38	38	72	100	20	12	355.6	398	418	450	332	2	8.0
400	620	550	M33	16	40	40	78	110	20	12	406.4	452	472	505	380	2	8.8
450	670	600	M33	20	46	46	84	110	20	12	457.0	500	520	555	425	2	8.8
500	730	660	M33	20	48	48	90	125	20	12	508.0	558	580	615	475	2	10.0
600	845	770	M36	20	58	-	100	125	20	12	610.0	660	684	720	575	2	11.0
700	960	875	M39	24	46	-	-	125	20	12	711.0	760	-	820	-	2	12.5
800	1085	990	M45	24	50	-	-	135	22	12	813.0	864	-	930	-	2	14.2
900	1185	1090	M45	28	54	-	-	145	24	12	914.0	968	-	1030	-	2	16.0
1000	1320	1210	M52	28	58	-	-	155	24	16	1016.0	1070	-	1140	-	2	17.5

*All dimensions in mm.

* All weights indicated are approximate.

Other sizes available on request.

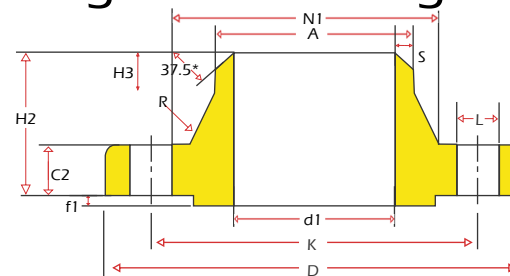
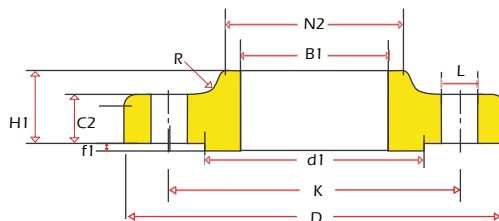
* The OD of the neck is suitable for ASTM A106 Piping

* For BS Standards Piping dimensions shall be 65mm = 76.1mm, 125mm = 139.7mm, 150mm = 168.3mm

While every care has been taken in the preparation of the information in this catalogue, the Company accepts no liability for any loss or damage either direct or consequential arising out of this catalogue. The compilation is for reference only, for further details please refer to the relevant standards.

Forged Steel Flanges

Carbon Steel • Stainless Steel • Special Alloys



40 BAR Acc. to EN 1092-1

TYPE 12
SLIP-ON FLANGES

TYPE 11
WELD NECK FLANGES

TYPE 05
BLIND FLANGES

Nominal Pipe Size	Outside Diameter	Pitch Circle Diameter	Size of Bolts	No. of Holes	Flange Thickness		Length of Flanges			Corner Radius	Outside Diameter of Neck	Neck Diameter		Diameter of Shoulder		Raised Face Thickness	Neck Thickness
					Flange Type												
					11 & 12	05	11, 12 & 05	11 & 12	11 & 12	11, 12 & 05	11	11 & 12	11 & 12	11	05	11, 12 & 05	11
NPS	D	K			C2	C4	H1	H2	H3	R	A	N1	N2	d1	G	f1	S
15	95	65	M12	4	16	16	22	38	6	4	21.3	32	35	45	-	2	2.0
20	105	75	M12	4	16	18	26	40	6	4	26.9	40	45	58	-	2	2.3
25	115	85	M12	4	18	18	28	40	6	4	33.7	46	52	68	-	2	2.6
32	140	100	M16	4	18	18	30	42	6	6	42.4	56	60	78	-	2	2.6
40	150	110	M16	4	18	18	32	45	7	6	48.3	64	70	88	-	2	2.6
50	165	125	M16	4	20	20	34	48	8	6	60.3	75	84	102	-	2	2.9
65	185	145	M16	8	22	22	38	52	10	6	*76.1	90	104	122	55	2	2.9
80	200	160	M16	8	24	24	40	58	12	8	88.9	105	118	138	70	2	3.2
100	235	190	M20	8	24	24	44	65	12	8	114.3	134	145	162	90	2	3.6
125	270	220	M24	8	26	26	48	68	12	8	*139.7	162	170	188	115	2	4.2
150	300	250	M24	8	28	28	52	75	12	10	*168.3	192	200	218	140	2	4.5
200	375	320	M27	12	34	36	52	88	16	10	219.1	244	260	285	190	2	6.3
250	450	385	M30	12	38	38	60	105	18	12	273.0	306	312	345	235	2	7.1
300	515	450	M30	16	42	42	67	115	18	12	323.9	362	380	410	285	2	8.0
350	580	510	M33	16	46	46	72	125	20	12	355.6	408	424	465	330	2	8.8
400	660	585	M36	16	50	50	78	135	20	12	406.4	462	478	535	380	2	11.0
450	685	610	M36	20	57	57	84	135	20	12	457.0	500	522	560	425	2	12.5
500	755	670	M39	20	57	57	90	140	20	12	508.0	562	576	615	475	2	14.2
600	890	795	M45	20	72	72	100	150	20	12	610.0	666	686	735	575	2	16.0

* All dimensions in mm.

* All weights indicated are approximate

Other sizes available on request.

* The OD of the neck is suitable for ASTM A106 Piping

* For BS Standards Piping dimensions shall be 65mm = 76.1mm, 125mm = 139.7mm, 150mm = 168.3mm

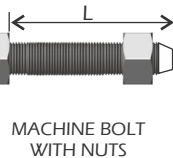
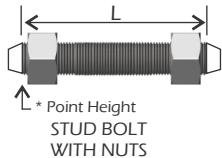


MATERIAL GRADES

- Carbon Steel (including High Yield & Low Temp)
- Stainless Steel
- Duplex Steel
- Nickel Alloys

BOLT & STUD DIMENSIONS FOR ANSI FLANGES

To suit R.F. Flange sizes DN15 to 600 to ANSI B16.5 (BS 1560) and DN 750 & 900 to BS 3293



Diameter of Bolts is shown in inches. For nominal diameters 1" and smaller, threads are U.N.C.; nominal diameters 1-1/8" and larger threads are 8 U.N. (8 T.P.I.).

Length of Bolts (L) is shown in millimetres rounded to the nearest 5mm. Stud Bolt lengths (L*) do not include the height of points. Machine Bolt lengths (L) include the height of point. The length shown includes the height of the Raised Face in all cases.

NOMINAL SIZE		CLASS 150				CLASS 300				CLASS 600			CLASS 900			CLASS 1500			CLASS 2500		
		No. Bolts	Dia. Bolts	L		No. Bolts	Dia. Bolts	L		No. Bolts	Dia. Bolts	L	No. Bolts	Dia. Bolts	L	No. Bolts	Dia. Bolts	L	No. Bolts	Dia. Bolts	L
				Stud Bolts	Mach. Bolts			Stud Bolts	Mach. Bolts												
DN	NPS		inch	mm	mm		inch	mm	mm		inch	mm		inch	mm		inch	mm		inch	mm
15	½	4	1/2	60	45	4	1/2	65	55	4	1/2	80	4	3/4	105	4	3/4	105	4	3/4	125
20	¾	4	1/2	65	50	4	5/8	75	60	4	5/8	90	4	3/4	115	4	3/4	115	4	3/4	125
25	1	4	1/2	65	55	4	5/8	80	65	4	5/8	90	4	7/8	125	4	7/8	125	4	7/8	140
32	1¼	4	1/2	70	55	4	5/8	80	65	4	5/8	100	4	7/8	125	4	7/8	125	4	1	150
40	1½	4	1/2	70	60	4	3/4	90	75	4	3/4	105	4	1	140	4	1	140	4	1-1/8	170
50	2	4	5/8	80	65	8	5/8	90	75	8	5/8	105	8	7/8	145	8	7/8	145	8	1	175
65	2½	4	5/8	90	75	8	3/4	100	85	8	3/4	120	8	1	160	8	1	160	8	1-1/8	195
80	3	4	5/8	90	75	8	3/4	110	90	8	3/4	125	8	7/8	145	8	1-1/8	180	8	1-1/4	220
90	3½	8	5/8	90	75	8	3/4	110	95	8	7/8	140	-	-	-	-	-	-	-	-	-
100	4	8	5/8	90	75	8	3/4	110	95	8	7/8	145	8	1-1/8	170	8	1-1/4	195	8	1-1/2	255
125	5	8	3/4	90	80	8	3/4	120	100	8	1	165	8	1-1/4	190	8	1-1/2	250	8	1-3/4	300
150	6	8	3/4	100	85	12	3/4	125	105	12	1	170	12	1-1/8	195	12	1-3/8	260	8	2	345
200	8	8	3/4	110	90	12	7/8	140	110	12	1-1/8	195	12	1-3/8	220	12	1-5/8	290	12	2	380
250	10	12	7/8	115	95	16	1	155	130	16	1-1/4	215	16	1-3/8	235	12	1-7/8	335	12	2-1/2	485
300	12	12	7/8	120	100	16	1-1/8	170	145	20	1-1/4	220	20	1-3/8	255	16	2	375	12	2-3/4	540
350	14	12	1	130	110	20	1-1/8	175	150	20	1-3/8	235	20	1-1/2	275	16	2-1/4	405			
400	16	16	1	135	115	20	1-1/4	190	160	20	1-1/2	255	20	1-5/8	285	16	2-1/2	445			
450	18	16	1-1/8	150	125	24	1-1/4	195	170	20	1-5/8	275	20	1-7/8	325	16	2-3/4	495			
500	20	20	1-1/8	160	135	24	1-1/4	205	180	24	1-5/8	290	20	2	345	16	3	540			
600	24	20	1-1/4	175	145	24	1-1/2	230	195	24	1-7/8	330	20	2-1/2	435	16	3-1/2	615			
750	30	28	1-1/4	190	160	28	1-3/4	290	250	28	2	355	Class 900, 1500 & 2500 - Not listed in BS 3293								
900	36	32	1-1/2	215	180	32	2	325	280	28	2-1/2	400									

TEMPERATURE / PRESSURE RATINGS						
CARBON STEEL PIPE FLANGES TO ANSI B16.5 (BS 1560) FORGINGS TO ASTM A105 - Not recommended for prolonged use above 427°C FORGINGS TO ASTM A350 - LF2 - Not to be used above 343°C						
TABLE G						
TEMPERATURE IN °C	MAXIMUM WORKING PRESSURE IN kPa BY PN (Pressure Numbers) (FOR APPROXIMATE PSI DIVIDE BY 7)					
	PN20	PN50	PN100	PN150	PN250	PN420
-29 to 38	1960	5110	10210	15320	25530	42550
50	1920	5010	10020	15020	25040	41730
100	1770	4640	9280	13910	23190	38650
150	1580	4520	9050	13570	22610	37690
200	1400	4380	8760	13150	21910	36520
250	1210	4170	8340	12520	20860	34770
300	1020	3870	7750	11620	19370	32280
350	840	3700	7390	11090	18480	30800
375	740	3650	7290	10940	18230	30390
400	650	3450	6900	10350	17250	28750
425	560	2880	5750	8630	14380	23960
450	470	2000	4010	6010	10020	16690
475	370	1350	2710	4060	6770	11290
500	280	880	1760	2640	4400	7330
525	190	520	1040	1550	2590	4320
540	130	330	650	980	1630	2720

Inch/Metric Bolting
interchangeable for
ANSI B16.5 flanges
as below

FOR ↓	USE ↓
½"	M14
5/8"	M18
¾"	M20
7/8"	M24
1"	M27
1-1/8"	M30
1-1/4"	M33
1-3/8"	M36
1-½"	M39
1-5/8"	M42
1-3/4"	M45
1-7/8"	M48
2"	M52
2-¼"	M56
2-½"	M64
2-¾"	M72

FLANGE ABOVE DN 600 ARE NOT INCLUDED IN ANSI B16.5 AND THE CLASS DESIGNATIONS IN THESE LARGE DIAMETERS DO NOT IMPLY SPECIFIC TEMPERATURE/PRESSURE RATINGS

Raised Face height of 2mm for Class 150 & 300 and 7mm for Class 600, 900, 1500 & 2500 are included in dimension L (Bolt Length).

COMPARISON FOR PIPES TO BS 1387 & ASTM A106

NOMINAL SIZE	BS 1387 HEAVY O.D. x W.T.	KG/ Mtr.	BS 1387 MEDIUM O.D. x W.T.	KG/ Mtr.	ASTM A106 SCH40 O.D. x W.T.	KG/ Mtr.
15	21.3 x 3.25	1.45	21.3 x 2.65	1.22	21.3 x 2.77	1.27
20	26.9 x 3.25	1.90	26.9 x 2.65	1.58	26.7 x 2.87	1.69
25	33.7 x 4.05	2.97	33.7 x 3.25	2.44	33.4 x 3.38	2.50
32	42.4 x 4.05	3.84	42.4 x 3.25	3.14	42.2 x 3.56	3.39
40	48.3 x 4.05	4.43	48.3 x 3.25	3.61	48.3 x 3.68	4.05
50	60.3 x 4.50	6.17	60.3 x 3.65	5.10	60.3 x 3.91	5.44
65	76.1 x 4.50	7.90	76.1 x 3.65	6.51	73.0 x 5.16	8.63
80	88.9 x 4.85	10.10	88.9 x 4.05	8.67	88.9 x 5.49	11.29
100	114.3 x 5.40	14.40	114.3 x 4.50	12.10	114.3 x 6.02	16.07
125	139.7 x 5.40	17.80	139.7 x 4.85	16.20	141.3 x 6.55	21.77
150	165.1 x 5.40	21.20	165.1 x 4.85	19.20	168.3 x 7.11	28.26

COMPARISON FOR DIMENSIONS OF FLANGES TO EN 1092-1 & ANSI B16.5

INCH SIZE	EN 1092-1 PN10 O.D.	EN 1092-1 PN10 P.C.D.	EN 1092-1 PN16 O.D.	EN 1092-1 PN16 P.C.D.	EN 1092-1 PN25 O.D.	EN 1092-1 PN25 P.C.D.	ANSI 150LB O.D.	ANSI 150LB P.C.D.	ANSI 300LB O.D.	ANSI 300LB P.C.D.
1/2"	95 mm	65 mm	95 mm	65 mm	95 mm	65 mm	88.9 mm	60.3 mm	95.2 mm	66.7 mm
3/4"	105 mm	75 mm	105 mm	75 mm	105 mm	75 mm	98.4 mm	69.8 mm	117.5 mm	82.5 mm
1"	115 mm	85 mm	115 mm	85 mm	115 mm	85 mm	107.9 mm	79.4 mm	123.8 mm	88.9 mm
1-1/4"	140 mm	100 mm	140 mm	100 mm	140 mm	100 mm	117.5 mm	88.9 mm	133.3 mm	98.4 mm
1-1/2"	150 mm	110 mm	150 mm	110 mm	150 mm	110 mm	127.0 mm	98.4 mm	155.6 mm	114.3 mm
2"	165 mm	125 mm	165 mm	125 mm	165 mm	125 mm	152.4 mm	120.6 mm	165.1 mm	127.0 mm
2-1/2"	185 mm	145 mm	185 mm	145 mm	185 mm	145 mm	177.8 mm	139.7 mm	190.5 mm	149.2 mm
3"	200 mm	160 mm	200 mm	160 mm	200 mm	160 mm	190.5 mm	152.4 mm	209.5 mm	168.3 mm
4"	220 mm	180 mm	220 mm	180 mm	235 mm	190 mm	228.6 mm	190.5 mm	254.0 mm	200.0 mm
5"	250 mm	210 mm	250 mm	210 mm	270 mm	220 mm	254.0 mm	215.9 mm	279.4 mm	234.9 mm
6"	285 mm	240 mm	285 mm	240 mm	300 mm	250 mm	279.4 mm	241.3 mm	317.5 mm	269.9 mm
8"	340 mm	295 mm	340 mm	295 mm	360 mm	310 mm	342.9 mm	298.5 mm	381.0 mm	330.2 mm
10"	395 mm	350 mm	405 mm	355 mm	425 mm	370 mm	406.4 mm	361.9 mm	444.5 mm	387.3 mm
12"	445 mm	400 mm	460 mm	410 mm	485 mm	430 mm	482.6 mm	431.8 mm	520.7 mm	450.8 mm

COMPARISON FOR VARIOUS RELATED PIPING PRODUCTS

	PLATES	PIPES	FITTINGS	FORGING	CASTING
Carbon Steel	A36	API 5L Gr. B A106 Gr. B	A234 Gr. WPB	A105	A216 WCB
Carbon Steel Low Temp	A516 Gr. 60/70	A333 Gr. 6	A420 WPL 6	A350 LF 2	A352 LCB
Alloy Steel High Temp	A240 Gr. A/B	A335 Gr. P 1	A234 WP 1	A182 Gr. F 1	A217 Gr. WC1
	A357	A335 Gr. P 5	A234 WP 5	A182 Gr. F 5	A217 Gr. WC5
	A387 Gr. C	A335 Gr. P 11	A234 WP 11	A182 Gr. F 11	A217 Gr. WC6
	A387 Gr. D	A335 Gr. P 22	A234 WP 22	A182 Gr. F 22	A217 Gr. WC9
Stainless Steel	A240 - 304	A312 TP304	A403 WP304	A182 F 304	A351 Gr. CF8
	A240 - 304L	A312 TP304L	A403 WP304L	A182 F 304L	A351 Gr. CF3
	A240 - 316	A312 TP316	A403 WP316	A182 F 316	A351 Gr. CF8
	A240 - 316L	A312 TP316L	A403 WP316L	A182 F 316L	A351 Gr. CF3





Pipe Schedules

Nominal Pipe Size inches	OD mm	10	20	30	STD	40	60	XS	80	100	120	140	160	XXS	VOL.
1/8"	10.30				1.73 0.37			2.41 0.47							0.0001
1/4"	13.70				2.24 0.63			3.02 0.80							0.0002
3/8"	17.10				2.31 0.84			3.20 1.10							0.0003
1/2"	21.30				2.77 1.27			3.73 1.62					4.78 1.95	7.47 2.55	0.0004
3/4"	26.70				2.87 1.69			3.91 2.20					5.56 2.90	7.82 3.64	0.0007
1"	33.40				3.38 2.50			4.55 3.24					6.35 4.24	9.09 5.45	0.0011
1-1/4"	42.20				3.56 3.39			4.85 4.47					6.35 5.61	9.70 7.77	0.0018
1-1/2"	48.30				3.68 4.05			5.08 5.41					7.14 7.25	10.15 9.56	0.0023
2"	60.30				3.91 5.44			5.54 7.48					8.74 11.11	11.07 13.44	0.0036
2-1/2"	73.00				5.16 8.63			7.01 11.41					9.53 14.92	14.02 20.39	0.0053
3"	88.90				5.49 11.29			7.62 15.27					11.13 21.35	15.24 27.68	0.0079
3-1/2"	101.60				5.74 13.57			8.08 18.63							0.0103
4"	114.30				6.02 16.07			8.56 22.32			11.13 28.32		13.49 33.54	17.12 41.03	0.0130
5"	141.30				6.55 21.77			9.53 30.97			12.70 40.28		15.88 49.11	19.05 57.43	0.0199
6"	168.30				7.11 28.26			10.97 42.56			14.27 54.20		18.26 67.56	21.95 79.22	0.028
8"	219.10		6.35 33.31	7.04 36.81	8.18 42.55		10.31 14.27	12.70 84.64	15.09 96.01	18.26 75.92	21.44 90.44	25.40 100.92	28.58 111.27	22.23 107.92	0.048
10"	273.10		6.35 41.77	7.80 51.03	9.27 60.31		12.70 81.55	12.70 103.1	15.09 108.96	18.26 114.75	21.44 133.06	25.40 155.15	28.58 172.33	25.40 155.15	0.074
12"	323.90		6.35 49.73	8.38 65.20	9.53 73.88		10.31 108.96	12.70 103.1	15.09 108.96	18.26 114.75	21.44 133.06	25.40 155.15	28.58 172.33	25.40 155.15	0.104
14"	355.60	6.35 54.69	7.92 67.90	9.53 81.33	9.53 81.33		10.31 108.96	12.70 103.1	15.09 108.96	18.26 114.75	21.44 133.06	25.40 155.15	28.58 172.33	25.40 155.15	0.126
16"	406.40	6.35 62.64	7.92 77.83	9.53 93.27	9.53 93.27		10.31 108.96	12.70 103.1	15.09 108.96	18.26 114.75	21.44 133.06	25.40 155.15	28.58 172.33	25.40 155.15	0.165
18"	457.00	6.35 70.57	7.92 87.71	11.13 122.38	9.53 105.16		10.31 108.96	12.70 103.1	15.09 108.96	18.26 114.75	21.44 133.06	25.40 155.15	28.58 172.33	25.40 155.15	0.208
20"	508.00	6.35 78.55	9.53 117.15	12.70 155.12	9.53 117.15		10.31 108.96	12.70 103.1	15.09 108.96	18.26 114.75	21.44 133.06	25.40 155.15	28.58 172.33	25.40 155.15	0.258
22"	559.00	6.35 86.54	9.53 129.13	12.70 171.09	9.53 129.13		10.31 108.96	12.70 103.1	15.09 108.96	18.26 114.75	21.44 133.06	25.40 155.15	28.58 172.33	25.40 155.15	0.312
24"	610.00	6.35 94.53	9.53 141.12	14.27 209.64	9.53 141.12		10.31 108.96	12.70 103.1	15.09 108.96	18.26 114.75	21.44 133.06	25.40 155.15	28.58 172.33	25.40 155.15	0.372
26"	660.00	7.92 127.36			9.53 152.87			12.70 202.72							0.435
28"	711.00	7.92 137.32		15.88 271.21	9.53 164.85			12.70 218.69							0.505
30"	762.00	7.92 147.28		15.88 292.18	9.53 176.84			12.70 234.67							0.580
32"	813.00	7.92 157.24		15.88 312.15	9.53 188.82			12.70 250.64							0.660
34"	864.00	7.92 167.20		15.88 332.12	9.53 200.31			12.70 266.61							0.746
36"	914.00	7.92 176.96		15.88 351.70	9.53 212.56			12.70 282.27							0.835
38"	965.00				9.53 224.54			12.70 298.24							0.931
40"	1016.00				9.53 236.53			12.70 314.22							1.032
42"	1067.00				9.53 248.52			12.70 330.19							1.138
44"	1118.00				9.53 260.50			12.70 346.16							1.249
46"	1168.00				9.53 272.25			12.70 351.82							1.364
					9.53 284.24			12.70 377.79							1.485

Wall Thickness = MM Weight = Kg/Meter Volume = m3 / m



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