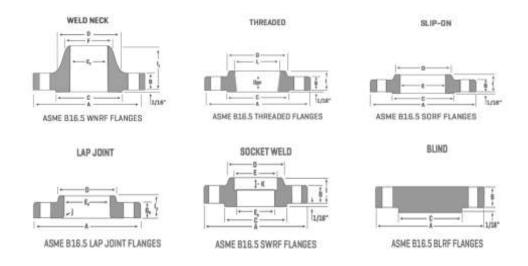


ASME B16.5 Class 150 Forged Flanges

- Dimensions (in inches)
- The diameter of hole is 1/8" larger than the diameter for bolt.
- The dimensions for standard bore are stated to bore chart.
- The dimensions is normally linked to 'true' jap joints.
- The industry standard as per ASME is to make slip on length through the hub

ASME B16.5 Class 150 Forged Flanges																	
NPS	Α	В	B_R	С	D	Diameter of Bolt Holes	Bolt Circle	E	E_2^3	E ₃	F	ı	l ₂	l ³ ₄	J	K	Opr
1/2	3.5	0.38	0.44	1.38	1.19	4-0.62	2.38	0.88	0.62	0.90	0.84	0.56	1.81	0.62	0.12	0.38	0.62
3/4	3.88	0.44	0.5	1.69	1.5	4-0.62	2.75	1.09	0.82	1.11	1.05	0.56	2.00	0.62	0.12	0.44	0.62
1	4.25	0.5	0.56	2	1.94	4-0.62	3.12	1.36	1.05	1.38	1.32	0.62	2.12	0.69	0.12	0.50	0.69
11/4	4.62	0.56	0.62	2.5	2.31	4-0.62	3.50	1.70	1.38	1.72	1.66	0.75	2.19	0.81	0.19	0.56	0.81
11/2	5	0.62	0.69	2.88	2.56	4-0.62	3.88	1.95	1.61	1.97	1.90	0.81	2.38	0.88	0.25	0.62	0.88
2	6	0.69	0.75	3.62	3.06	4-0.75	4.75	2.44	2.07	2.46	2.38	0.94	2.44	1.00	0.31	0.69	1.00
21/2	7	0.81	0.88	4.12	3.56	4-0.75	5.50	2.94	2.47	2.97	2.88	1.06	2.69	1.12	0.31	0.75	1.12
3	7.5	0.88	0.94	5	4.25	4-0.75	6.00	3.57	3.07	3.60	3.50	1.12	2.69	1.19	0.38	0.81	1.19
3½	8.5	0.88	0.94	5.5	4.81	8-0.75	7.00	4.07	3.55	4.10	4.00	1.19	2.75	1.25	0.38	0.88	1.25
4	9	0.88	0.94	6.19	5.31	8-0.75	7.50	4.57	4.03	4.60	4.50	1.25	2.94	1.31	0.44	0.94	1.31
5	10	0.88	0.94	7.31	6.44	8-0.88	8.50	5.66	5.05	5.69	5.56	1.38	3.44	1.44	0.44	0.94	1.44
6	11	0.94	1	8.5	7.56	8-0.88	9.50	6.72	6.07	6.75	6.63	1.50	3.44	1.56	0.50	1.06	1.56
8	13.5	1.06	1.12	10.62	9.69	8-0.88	11.75	8.72	7.98	8.75	8.63	1.69	3.94	1.75	0.50	1.25	1.75
10	16	1.12	1.19	12.75	12	12-1.00	14.25	10.88	10.02	10.92	10.75	1.88	3.94	1.94	0.50	1.31	1.94
12	19	1.19	1.25	15	14.38	12-1.00	17.00	12.88	12.00	12.92	12.75	2.12	4.44	2.19	0.50	1.56	2.19
14	21	1.31	1.38	16.25	15.75	12-1.12	18.75	14.14	13.25	14.18	14.00	2.19	4.94	3.12	0.50	1.63	2.25
16	23.5	1.38	1.44	18.5	18	16-1.12	21.25	16.16	15.25	16.19	16.00	2.44	4.94	3.44	0.50	1.75	2.50
18	25	1.5	1.56	21	19.88	16-1.25	22.75	18.18	17.25	18.20	18.00	2.62	5.44	3.81	0.50	1.94	2.69
20	27.5	1.62	1.69	23	22	20-1.25	25.00	20.20	19.25	20.25	20.00	2.81	5.62	4.06	0.50	2.13	2.88
22	29.5	1.75	1.81	25.25	24.25	20-1.38	27.25	22.22	21.25	22.25	22.00	3.07	5.82	4.25	0.50	2.38	3.13
24	32	1.81	1.88	27.25	26.12	20-1.38	29.50	24.25	23.25	24.25	24.00	3.19	5.94	4.38	0.50	2.50	3.25

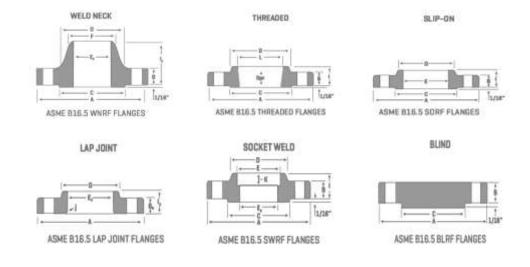




ASME B16.5 Class 300 Forged Flanges

- Dimensions (in inches)
- The diameter of hole is 1/8" larger than the diameter for bolt.
- The dimensions for standard bore are stated to bore chart.
- The dimensions is normally linked to 'true' jap joints.
- The industry standard as per ASME is to make slip on length through the hub

	ASME B16.5 Class 300 Forged Flanges																
NPS	Α	В	B_R	С	D	Diameter of Bolt Holes	Bolt Circle	E	E_2^3	E ₃	F	I	l ₂	l ³ ₄	J	K	Opr
1/2	3.75	0.5	0.56	1.38	1.5	4-0.63	2.62	0.88	0.62	0.9	0.84	0.81	2	0.88	0.12	0.93	0.38
3/4	4.62	0.56	0.62	1.69	1.88	4-0.75	3.25	1.09	0.82	1.11	1.05	0.94	2.19	1	0.12	1.14	0.44
1	4.88	0.62	0.69	2	2.12	4-0.75	3.5	1.36	1.05	1.38	1.32	1	2.38	1.06	0.12	1.41	0.5
11/4	5.25	0.69	0.75	2.5	2.5	4-0.75	3.88	1.7	1.38	1.72	1.66	1	2.5	1.06	0.19	1.75	0.56
1½	6.12	0.75	0.81	2.88	2.75	4-0.88	4.5	1.95	1.61	1.97	1.9	1.13	2.63	1.19	0.25	1.98	0.62
2	6.5	0.81	0.88	3.62	3.31	8-0.75	5	2.44	2.07	2.46	2.38	1.25	2.69	1.31	0.31	2.5	0.69
2½	7.5	0.94	1	4.12	3.94	8-0.88	5.88	2.94	2.47	2.97	2.88	1.44	2.94	1.5	0.31	3	0.75
3	8.25	1.06	1.12	5	4.62	8-0.88	6.62	3.57	3.07	3.6	3.5	1.63	3.06	1.69	0.38	3.63	0.81
3½	9	1.12	1.19	5.5	5.25	8-1.00	7.25	4.07	3.55	4.1	4	1.69	3.13	1.75	0.38	4.13	
4	10	1.19	1.25	6.19	5.75	8-1.00	7.88	4.57	4.03	4.6	4.5	1.82	3.32	1.88	0.44	4.63	
5	11	1.31	1.38	7.31	7	8-1.00	9.25	5.66	5.05	5.69	5.56	1.94	3.82	2	0.44	5.69	
6	12.5	1.38	1.44	8.5	8.12	12-1.00	10.62	6.72	6.07	6.75	6.63	2	3.82	2.06	0.5	6.75	
8	15	1.56	1.62	10.62	10.25	12-1.12	13	8.72	7.98	8.75	8.63	2.38	4.32	2.44	0.5	8.75	
10	17.5	1.81	1.88	12.75	12.62	16-1.25	15.25	10.88	10.02	10.92	10.75	2.56	4.56	3.75	0.5	10.88	
12	20.5	1.94	2	15	14.75	16-1.38	17.75	12.88	12	12.92	12.75	2.82	5.06	4	0.5	12.94	
14	23	2.06	2.12	16.25	16.75	20-1.38	20.25	14.14	13.25	14.18	14	2.94	5.56	4.38	0.5	14.19	
16	25.5	2.19	2.25	18.5	19	20-1.50	22.5	16.16	15.25	16.19	16	3.19	5.69	4.75	0.5	16.19	
18	28	2.31	2.38	21	21	24-1.50	24.75	18.18	17.25	18.2	18	3.44	6.19	5.12	0.5	18.19	
20	30.5	2.44	2.5	23	23.12	24-1.62	27	20.2	19.25	20.25	20	3.69	6.32	5.5	0.5	20.19	
22	33	2.57	2.63	25.25	25.25	24-1.75	29.25	22.22	21.25	22.25	22	3.93	6.43	5.75	0.5	22.19	
24	36	2.69	2.75	27.25	27.62	24-1.88	32	24.25	23.25	24.25	24	4.13	6.56	6	0.5	24.19	

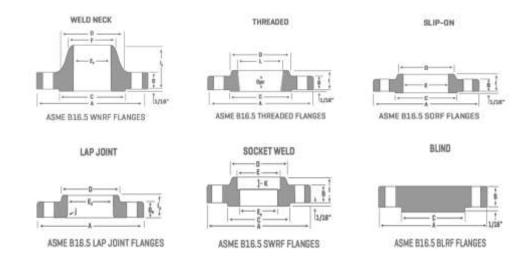




ASME B16.5 Class 400 Forged Flanges

- Dimensions (in inches)
- The diameter of hole is 1/8" larger than the diameter for bolt.
- The dimensions for standard bore are stated to bore chart.
- The dimensions is normally linked to 'true' jap joints.
- The industry standard as per ASME is to make slip on length through the hub

	ASME B16.5 Class 400 Forged Flanges															
NPS	Α	В	С	D	Diameter of Bolt Holes	Bolt Circle	E	E_2^3	E ₃	F	ı	l ₂	l ³ ₄	J	К	Opr
1/2	3.75	0.56	1.38	1.5	4-0.63	2.62	0.88		0.84	0.88	2.06	0.88	0.12	0.93	0.38	0.62
3/4	4.62	0.62	1.69	1.88	4-0.75	3.25	1.09		1.05	1	2.25	1	0.12	1.14	0.44	0.62
1	4.88	0.69	2	2.12	4-0.75	3.5	1.36		1.32	1.06	2.44	1.06	0.12	1.41	0.5	0.69
11/4	5.25	0.81	2.5	2.5	4-0.75	3.88	1.7		1.66	1.12	2.62	1.12	0.19	1.75	0.56	0.81
1½	6.12	0.88	2.88	2.75	4-0.88	4.5	1.95		1.9	1.25	2.75	1.25	0.25	1.99	0.62	0.88
2	6.5	1	3.62	3.31	8-0.75	5	2.44	eq	2.38	1.44	2.88	1.44	0.31	2.5	0.69	1.12
21/2	7.5	1.12	4.12	3.94	8-0.88	5.88	2.94	required	2.88	1.62	3.12	1.62	0.31	3	0.75	1.25
3	8.25	1.25	5	4.62	8-0.88	6.62	3.57	req	3.5	1.81	3.25	1.81	0.38	3.63	0.81	1.38
31/2	9	1.38	5.5	5.25	8-1.00	7.25	4.07		4	1.94	3.38	1.94	0.38	4.13		1.56
4	10	1.38	6.19	5.75	8-1.00	7.88	4.57	cati	4.5	2	3.5	2	0.44	4.63		1.44
5	11	1.5	7.31	7	8-1.00	9.25	5.66	iji	5.56	2.12	4	2.12	0.44	5.69		1.69
6	12.5	1.62	8.5	8.12	12-1.00	10.62	6.72	Specification	6.63	2.25	4.06	2.25	0.5	7.5		1.81
8	15	1.88	10.62	10.25	12-1.12	13	8.72		8.63	2.69	4.62	2.69	0.5	7.5		2
10	17.5	2.12	12.75	12.62	16-1.25	15.25	10.88	urchaser	10.75	2.88	4.88	4	0.5	8.8		2.19
12	20.5	2.25	15	14.75	16-1.38	17.75	12.88	r d	12.75	3.12	5.38	4.25	0.5	12.94		2.38
14	23	2.38	16.25	16.75	20-1.38	20.25	14.14	P	14	3.31	5.88	4.62	0.5	14.19		2.5
16	25.5	2.5	18.5	19	20-1.50	22.5	16.16		16	3.69	6	5	0.5	16.19		2.69
18	28	2.62	21	21	24-1.50	24.75	18.18		18	3.88	6.5	5.38	0.5	18.19		2.75
20	30.5	2.75	23	23.12	24-1.62	27	20.2		20	4	6.62	5.75	0.5	20.19		2.88
22	33	2.88	25.25	25.25	24-1.75	29.25	22.22		22	4.25	6.75	6	0.5			
24	36	3	27.25	27.62	24-1.88	32	24.25		24	4.5	6.88	6.25	0.5	24.19		3.25

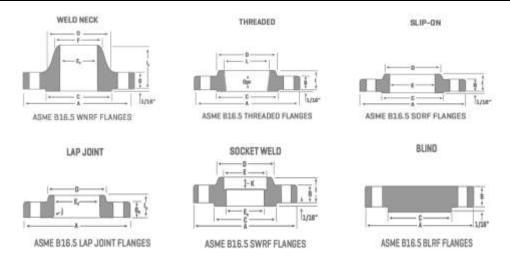




ASME B16.5 Class 600 Forged Flanges

- Dimensions (in inches)
- The diameter of hole is 1/8" larger than the diameter for bolt.
- The dimensions for standard bore are stated to bore chart.
- The dimensions is normally linked to 'true' jap joints.
- The industry standard as per ASME is to make slip on length through the hub

	ASME B16.5 Class 600 Forged Flanges																
NPS	А	В	С	D	Diameter of Bolt Holes	Bolt Circle	E	E_2^3	E ₃	F	I	l ₂	1 ³ 4	J	L	К	Opr
1/2	3.75	0.56	1.38	1.50	4-0.63	2.62	0.88		0.90	0.84	0.88	2.06	0.88	0.12	0.93	0.38	0.62
3/4	4.62	0.62	1.69	1.88	4-0.75	3.25	1.09		1.11	1.05	1.00	2.25	1.00	0.12	1.14	0.44	0.62
1	4.88	0.69	2.00	2.12	4-0.75	3.50	1.36		1.38	1.32	1.06	2.44	1.06	0.12	1.41	0.50	0.69
11/4	5.25	0.81	2.50	2.50	4-0.75	3.88	1.70		1.72	1.66	1.12	2.62	1.12	0.19	1.75	0.56	0.81
1½	6.12	0.88	2.88	2.75	4-0.88	4.50	1.95		1.97	1.90	1.25	2.75	1.25	0.25	1.99	0.62	0.88
2	6.50	1.00	3.62	3.31	8-0.75	5.00	2.44	b	2.46	2.38	1.44	2.88	1.44	0.31	2.50	0.69	1.12
2½	7.50	1.12	4.12	3.94	8-0.88	5.88	2.94	required	2.97	2.88	1.62	3.12	1.62	0.31	3.00	0.75	1.25
3	8.25	1.25	5.00	4.62	8-0.88	6.62	3.57	req	3.60	3.50	1.81	3.25	1.81	0.38	3.63	0.81	1.38
31/2	9.00	1.38	5.50	5.25	8-1.00	7.25	4.07		4.10	4.00	1.94	3.38	1.94	0.38	4.13		1.56
4	10.75	1.50	6.19	6.00	8-1.00	8.50	4.57	atio	4.60	4.50	2.12	4.00	2.12	0.44	4.63		1.62
5	13.00	1.75	7.31	7.44	8-1.12	10.50	5.66	ific	5.69	5.56	2.38	4.50	2.38	0.44	5.69		1.88
6	14.00	1.88	8.50	8.75	12-1.12	11.50	6.72	Specification	6.75	6.63	2.62	4.62	2.62	0.50	6.75		2.00
8	16.50	2.19	10.62	10.75	12-1.25	13.75	8.72		8.75	8.63	3.00	5.25	3.00	0.50	8.75		2.25
10	20.00	2.50	12.75	13.50	16-1.38	17.00	10.88	Purchaser	10.92	10.75	3.38	6.00	4.38	0.50	10.88		2.56
12	22.00	2.62	15.00	15.75	20-1.38	19.25	12.88	rc	12.92	12.75	3.62	6.12	4.62	0.50	12.94		2.75
14	23.75	2.75	16.25	17.00	20-1.50	20.75	14.14	P	14.18	14.00	3.69	6.50	5.00	0.50	14.19		2.88
16	27.00	3.00	18.50	19.50	20-1.63	23.75	16.16		16.19	16.00	4.19	7.00	5.50	0.50	16.19		3.06
18	29.25	3.25	21.00	21.50	20-1.75	25.75	18.18		18.20	18.00	4.62	7.25	6.00	0.50	18.19		3.12
20	32.00	3.50	23.00	24.00	24-1.75	28.50	20.20		20.25	20.00	5.00	7.50	6.50	0.50	20.19		3.25
22	34.25	3.75	25.25	26.25	24-1.75	30.63	22.22		22.25	22.00	5.25	7.75	6.88	0.50			
24	37.00	4.00	27.25	28.25	24-2.00	33.00	24.25		24.25	24.00	5.50	8.00	7.25	0.50	24.19		3.62

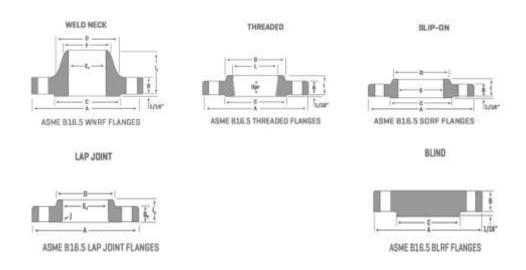




ASME B16.5 Class 900 Forged Flanges

- Dimensions (in inches)
- The diameter of hole is 1/8" larger than the diameter for bolt.
- The dimensions for standard bore are stated to bore chart.
- The dimensions is normally linked to 'true' jap joints.
- The industry standard as per ASME is to make slip on length through the hub

					ASM	1E B16.	5 Class	900 F	orged	Flanges	5					
NPS	Α	В	С	D	Diameter of Bolt Holes	Bolt Circle	Е	E_2^3	E ₃	F	ı	l ₂	l ³ ₄	J	L	Opr
	(Similar	to clas	ss 1500	are size	es ½" throu	ugh 2 ½	")		(Sir	nilar to	class :	1500 ar	e sizes	½" thro	ough 2 1	·/2")
3	9.50	1.50	5.00	5.00	8-1.00	7.50	3.57		3.60	3.50	2.12	4.00	2.12	0.38	3.63	1.62
4	11.50	1.75	6.19	6.25	8-1.25	9.25	4.57	þ	4.60	4.50	2.75	4.50	2.75	0.44	4.63	1.88
5	13.75	2.00	7.31	7.50	8-1.38	11.00	5.66	required	5.69	5.56	3.12	5.00	3.12	0.44	5.69	2.12
6	15.00	2.19	8.50	9.25	12-1.25	12.50	6.72		6.75	6.63	3.38	5.50	3.38	0.50	6.75	2.25
8	18.50	2.50	10.63	11.75	12-1.50	15.50	8.72	ijon	8.75	8.63	4.00	6.38	4.50	0.50	8.75	2.50
10	21.50	2.75	12.75	14.50	16-1.50	18.50	10.88	ica	10.92	10.75	4.25	7.25	5.00	0.50	10.88	2.81
12	24.00	3.12	15.00	16.50	20-1.50	21.00	12.88	Specification	12.92	12.75	4.63	7.88	5.62	0.50	12.94	3.00
14	25.25	3.38	16.25	17.75	20-1.63	22.00	14.14		14.18	14.00	5.12	8.38	6.12	0.50	14.19	3.25
16	27.75	3.50	18.50	20.00	20-1.75	24.25	16.16	rchaser	16.19	16.00	5.25	8.50	6.50	0.50	16.19	3.38
18	31.00	4.00	21.00	22.25	20-2.00	27.00	18.18	rch	18.20	18.00	6.00	9.00	7.50	0.50	18.19	3.50
20	33.75	4.25	23.00	24.50	20-2.13	29.50	20.20	Pu	20.25	20.00	6.25	9.75	8.25	0.50	20.19	3.62
24	41.00	5.50	27.25	29.50	20-2.63	35.50	24.25		24.25	24.00	8.00	11.50	10.50	0.50	24.19	4.00



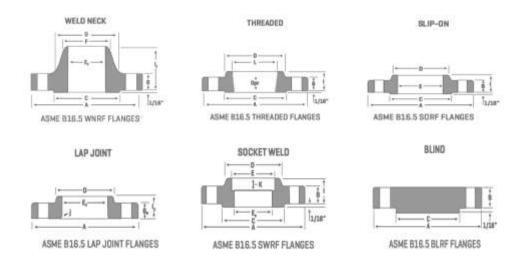




ASME B16.5 Class 1500 Forged Flanges

- Dimensions (in inches)
- The diameter of hole is 1/8" larger than the diameter for bolt.
- The dimensions for standard bore are stated to bore chart.
- The dimensions is normally linked to 'true' jap joints.
- The industry standard as per ASME is to make slip on length through the hub

					ASME	B16.5	Class	1500) Forg	ed Fla	nges						
NPS	А	В	С	D	Diameter of Bolt Holes	Bolt Circle	E	E_2^3	E ₃	F	I	l ₂	I ³ ₄	J	L	K	Opr
1/2	4.75	0.88	1.38	1.50	4-0.88	3.25	0.88		0.90	0.84	1.25	2.38	1.25	0.12	0.93	0.38	0.88
3/4	5.12	1.00	1.69	1.75	4-0.88	3.50	1.09		1.11	1.05	1.38	2.75	1.38	0.12	1.14	0.44	1.00
1	5.88	1.12	2.00	2.06	4-1.00	4.00	1.36		1.38	1.32	1.62	2.88	1.62	0.12	1.41	0.50	1.12
11/4	6.25	1.12	2.50	2.50	4-1.00	4.38	1.70		1.72	1.66	1.62	2.88	1.62	0.19	1.75	0.56	1.19
1½	7.00	1.25	2.88	2.75	4-1.12	4.88	1.95	þe	1.97	1.90	1.75	3.25	1.75	0.25	1.99	0.62	1.25
2	8.50	1.50	3.63	4.12	8-1.00	6.50	2.44	Specification required	2.46	2.38	2.25	4.00	2.25	0.31	2.50	0.69	1.50
21/2	9.62	1.62	4.13	4.88	8-1.12	7.50	2.94	req	2.97	2.88	2.50	4.12	2.50	0.31	3.00	0.75	1.88
3	10.50	1.88	5.00	5.25	8-1.25	8.00		uo	3.60	3.50		4.62	2.88	0.38			
4	12.25	2.12	6.19	6.38	8-1.38	9.50		ati	4.60	4.50		4.88	3.56	0.44			
5	14.75	2.88	7.31	7.75	8-1.63	11.50		ij	5.69	5.56		6.12	4.12	0.44			
6	15.50	3.25	8.50	9.00	12-1.50	12.50		bec	6.75	6.63		6.75	4.69	0.50			
8	19.00	3.62	10.63	11.50	12-1.75	15.50			8.75	8.63		8.38	5.62	0.50			
10	23.00	4.25	12.75	14.50	12-2.00	19.00		Purchaser	10.92	10.75		10.00	7.00	0.50			
12	26.50	4.88	15.00	17.75	16-2.12	22.50		rch	12.92	12.75		11.12	8.62	0.50			
14	29.50	5.25	16.25	19.50	16-2.38	25.00		Pu	14.18	14.00		11.75	9.50	0.50			
16	32.50	5.75	18.50	21.75	16-2.63	27.75			16.19	16.00		12.25	10.25	0.50			
18	36.00	6.38	21.00	23.50	16-2.88	30.50			18.20	18.00		12.88	10.88	0.50			
20	38.75	7.00	23.00	25.25	16-3.12	32.75			20.25	20.00		14.00	11.50	0.50			
24	46.00	8.00	27.25	30.00	16-3.63	39.00			24.25	24.00		16.00	13.00	0.50			





ASME B16.5 Class 2500 Forged Flanges

- Dimensions (in inches)
- The diameter of hole is 1/8" larger than the diameter for bolt.
- The dimensions for standard bore are stated to bore chart.
- The dimensions is normally linked to 'true' jap joints.
- The industry standard as per ASME is to make slip on length through the hub

	ASME B16.5 Class 2500 Forged Flanges														
NPS IN	Α	В	С	D	Diameter of Bolt Holes	Bolt Circle	E_2^3	E ₃	F	I	l ₂	I ³ ₄	J	L	Opr
1/2	5.25	1.19	1.38	1.69	4-0.88	3.5		0.9	0.84	1.56	2.88	1.56	0.12	0.93	1.12
3/4	5.5	1.25	1.69	2	4-0.88	3.75	red	1.11	1.05	1.69	3.12	1.69	0.12	1.14	1.25
1	6.25	1.38	2	2.25	4-1.00	4.25	qui	1.38	1.32	1.88	3.5	1.88	0.12	1.41	1.38
11/4	7.25	1.5	2.5	2.88	4-1.12	5.13	e L	1.72	1.66	2.06	3.75	2.06	0.19	1.75	1.5
1½	8	1.75	2.88	3.12	4-1.25	5.75	tio	1.97	1.9	2.38	4.38	2.38	0.25	1.99	1.75
2	9.25	2	3.63	3.75	8-1.12	6.75	ig Eg	2.46	2.38	2.75	5	2.75	0.31	2.5	2
2½	10.5	2.25	4.13	4.5	8-1.25	7.75	Specification required	2.97	2.88	3.12	5.62	3.12	0.31	3	2.25
3	12	2.62	5	5.25	8-1.38	9		3.6	3.5		6.62	3.62	0.38		
4	14	3	6.19	6.5	8-1.63	10.75	Isel	4.6	4.5		7.5	4.25	0.44		
5	16.5	3.62	7.31	8	8-1.88	12.75	Purchaser	5.69	5.56		9	5.12	0.44		
6	19	4.25	8.5	9.25	8-2.12	14.5	'n	6.75	6.63		10.75	6	0.5		
8	21.75	5	10.63	12	12-2.12	17.25	_	8.75	8.63		12.5	7	0.5		

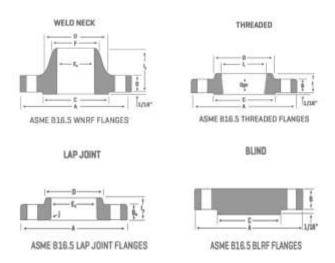






TABLE OF WEIGHT (Approx) (LBS) ASME B16.5 Size ½" - 24" Forged Flanges





CATECORY	Nominal pipe size	Slip on	Threaded	SORF	Lap Join	BLRF	WNRF Neck
CATEGORY	NPS (Inches)	Flange	Flange	Flange	Flange	Flange	Flange
	1/2	1	1	2	1	2	2
	3/4	2	2	2	2	2	2
	1	2	2	2	2	2	3
	1¼	3	3	3	3	3	3
	1½	3	3	3	3	4	4
	2	5	5	5	5	5	6
	2½	8	8	8	8	7	10
	9	9	9	9	9	9	11.5
	3½	11	12	11	11	13	12
	4	13	13	13	13	17	16.5
150 IB	5	15	15	15	15	20	21
	6	19	19	19	19	27	26
	8	30	30	30	30	47	42
	10	43	43	43	43	70	54
	12	64	64	64	64	123	88
	14	90	90	90	105	140	114
	16	106	98	98	140	180	140
	18	130	130	130	160	220	165
	20	165	165	165	195	285	197
	22	185	185	185	245	355	225
	24	220	220	220	275	430	268
CATEGORY	Nominal pipe size	Slip on	Threaded	SORF	Lap Join	BLRF	WNRF Neck
CATEGORY	NPS (Inches)	Flange	Flange	Flange	Flange	Flange	Flange
CATEGORY	1/2	Flange 2	Flange 2	Flange 3	Flange 2	Flange 2	Flange 2
CATEGORY		1		1			1
CATEGORY	1/2	2	2	3	2	2	2
CAIEGONY	½ ¾ 1 1¼	2 3 3 4.5	2 3 3 4.5	3 3 3 4	2 3 3 4.5	2 3 4 6	2 3 4 5
CAIEGONY	½ ¾ 1 1¼ 1½	2 3 3 4.5 6.5	2 3 3 4.5 6.5	3 3 3 4 6	2 3 3 4.5 6.5	2 3 4 6 7	2 3 4 5 7
CATEGORY	1/4 1 1/4 1 1/2 2	2 3 3 4.5 6.5 7	2 3 3 4.5 6.5 7	3 3 3 4 6 7	2 3 3 4.5	2 3 4 6 7 8	2 3 4 5 7 9
CATEGORY	½ 3/4 1 11/4 11/2 2 21/2	2 3 3 4.5 6.5 7	2 3 3 4.5 6.5 7	3 3 3 4 6 7	2 3 3 4.5 6.5 7	2 3 4 6 7 8	2 3 4 5 7 9
CATEGORY	½ 3/4 1 11/4 11/2 2 22/2 9	2 3 3 4.5 6.5 7 10	2 3 3 4.5 6.5 7 10 14	3 3 4 6 7 10	2 3 3 4.5 6.5 7 10 14.5	2 3 4 6 7 8 12	2 3 4 5 7 9 12
CATEGORY	½ 3/4 1 11/4 11/2 2 21/2 9 31/2	2 3 3 4.5 6.5 7 10 13	2 3 3 4.5 6.5 7 10 14	3 3 4 6 7 10 13	2 3 3 4.5 6.5 7	2 3 4 6 7 8	2 3 4 5 7 9 12 18 20
	½ ¾ 1 1¼ 1½ 2 2½ 9 3½ 4	2 3 4.5 6.5 7 10 13 17 23.5	2 3 3 4.5 6.5 7 10 14 17 24	3 3 4 6 7 10 13 17	2 3 4.5 6.5 7 10 14.5 17	2 3 4 6 7 8 12 16 21 28	2 3 4 5 7 9 12 18 20 26.5
300 IB	½ ½ 1 1½ 1½ 2 2½ 9 3½ 4 5	2 3 4.5 6.5 7 10 13 17 23.5	2 3 3 4.5 6.5 7 10 14 17 24 31	3 3 4 6 7 10 13 17 22 28	2 3 4.5 6.5 7 10 14.5 17 24 28	2 3 4 6 7 8 12 16 21 28 37	2 3 4 5 7 9 12 18 20 26.5 36
	½ ¾ 1 1¼ 1½ 2 2½ 9 3½ 4 5 6	2 3 3 4.5 6.5 7 10 13 17 23.5 29	2 3 3 4.5 6.5 7 10 14 17 24 31	3 3 4 6 7 10 13 17 22 28 39	2 3 4.5 6.5 7 10 14.5 17 24 28 39	2 3 4 6 7 8 12 16 21 28 37 50	2 3 4 5 7 9 12 18 20 26.5 36 45
	½ ¾ 1 1¼ 1½ 2 2½ 9 3½ 4 5 6 8	2 3 3 4.5 6.5 7 10 13 17 23.5 29 39 58	2 3 3 4.5 6.5 7 10 14 17 24 31 39 58	3 3 4 6 7 10 13 17 22 28 39 58	2 3 3 4.5 6.5 7 10 14.5 17 24 28 39 58	2 3 4 6 7 8 12 16 21 28 37 50 81	2 3 4 5 7 9 12 18 20 26.5 36 45
	½ ¾ 1 1¼ 1½ 2 2½ 9 3½ 4 5 6 8 10	2 3 3 4.5 6.5 7 10 13 17 23.5 29 39 58 81	2 3 3 4.5 6.5 7 10 14 17 24 31 39 58 81	3 3 4 6 7 10 13 17 22 28 39 58	2 3 3 4.5 6.5 7 10 14.5 17 24 28 39 58 91	2 3 4 6 7 8 12 16 21 28 37 50 81 124	2 3 4 5 7 9 12 18 20 26.5 36 45 69 100
	½ ¾ 1 1¼ 1½ 2 2½ 9 3½ 4 5 6 8 10 12	2 3 4.5 6.5 7 10 13 17 23.5 29 39 58 81 115	2 3 3 4.5 6.5 7 10 14 17 24 31 39 58 81 115	3 3 4 6 7 10 13 17 22 28 39 58 81	2 3 3 4.5 6.5 7 10 14.5 17 24 28 39 58 91 140	2 3 4 6 7 8 12 16 21 28 37 50 81 124 185	2 3 4 5 7 9 12 18 20 26.5 36 45 69 100 142
	½ ¾ 1 1¼ 1½ 2 2½ 9 3½ 4 5 6 8 10 12 14	2 3 3 4.5 6.5 7 10 13 17 23.5 29 39 58 81 115 165	2 3 3 4.5 6.5 7 10 14 17 24 31 39 58 81 115 165	3 3 4 6 7 10 13 17 22 28 39 58 81 115 165	2 3 3 4.5 6.5 7 10 14.5 17 24 28 39 58 91 140 190	2 3 4 6 7 8 12 16 21 28 37 50 81 124 185 250	2 3 4 5 7 9 12 18 20 26.5 36 45 69 100 142 206
	½ ¾ 1 1¼ 1½ 2 2½ 9 3½ 4 5 6 8 10 12 14 16	2 3 3 4.5 6.5 7 10 13 17 23.5 29 39 58 81 115 165 210	2 3 3 4.5 6.5 7 10 14 17 24 31 39 58 81 115 165 220	3 3 3 4 6 7 10 13 17 22 28 39 58 81 115 165	2 3 3 4.5 6.5 7 10 14.5 17 24 28 39 58 91 140 190 234	2 3 4 6 7 8 12 16 21 28 37 50 81 124 185 250 315	2 3 4 5 7 9 12 18 20 26.5 36 45 69 100 142 206 250
	½ ¾ 1 1¼ 1½ 2 2½ 9 3½ 4 5 6 8 10 12 14 16 18	2 3 3 4.5 6.5 7 10 13 17 23.5 29 39 58 81 115 165 210 253	2 3 3 4.5 6.5 7 10 14 17 24 31 39 58 81 115 165 220 280	3 3 3 4 6 7 10 13 17 22 28 39 58 81 115 165 190 250	2 3 3 4.5 6.5 7 10 14.5 17 24 28 39 58 91 140 190 234 305	2 3 4 6 7 8 12 16 21 28 37 50 81 124 185 250 315 414	2 3 4 5 7 9 12 18 20 26.5 36 45 69 100 142 206 250 320
	½ ¾ 1 1¼ 1½ 2 2½ 9 3½ 4 5 6 8 10 12 14 16 18 20	2 3 3 4.5 6.5 7 10 13 17 23.5 29 39 58 81 115 165 210 253 315	2 3 3 4.5 6.5 7 10 14 17 24 31 39 58 81 115 165 220 280 325	3 3 3 4 6 7 10 13 17 22 28 39 58 81 115 165 190 250 315	2 3 3 4.5 6.5 7 10 14.5 17 24 28 39 58 91 140 190 234 305 375	2 3 4 6 7 8 12 16 21 28 37 50 81 124 185 250 315 414 515	2 3 4 5 7 9 12 18 20 26.5 36 45 69 100 142 206 250 320 400
	½ ¾ 1 1¼ 1½ 2 2½ 9 3½ 4 5 6 8 10 12 14 16 18	2 3 3 4.5 6.5 7 10 13 17 23.5 29 39 58 81 115 165 210 253	2 3 3 4.5 6.5 7 10 14 17 24 31 39 58 81 115 165 220 280	3 3 3 4 6 7 10 13 17 22 28 39 58 81 115 165 190 250	2 3 3 4.5 6.5 7 10 14.5 17 24 28 39 58 91 140 190 234 305	2 3 4 6 7 8 12 16 21 28 37 50 81 124 185 250 315 414	2 3 4 5 7 9 12 18 20 26.5 36 45 69 100 142 206 250 320



CATECORY	Nominal pipe size	Slip on	Threaded	SORF	Lap Join	BLRF	WNRF Neck
CATEGORY	NPS (Inches)	Flange	Flange	Flange	Flange	Flange	Flange
	1/2	2	2	2	2	2	3
	3/4	3	3	3	3	3	3.5
	1	3.5	3.5	3.5	3.5	4	4
	11/4	4.5	4.5	4.5	4.5	6	4.5
	1½	6.5	6.5	6.5	6.5	8	8
	2	8	8	8	8	10	10
	2½	12	12	12	11	15	14
	3	15	15	15	14	20	18
	3½	21	21	21	20	29	26
	4	26	26	26	25	33	35
400 IB	5	31	31	31	29	44	43
	6	44	44	44	42	61	57
	8	67	67	67	64	100	89
	10	91	91	91	110	155	125
	12	130	130	130	152	226	175
	14	191	191	191	210	310	233
	16	253	253	253	280	398	295
	18	310	310	310	345	502	360
	20	378	378	378	420	621	445
	22	405	405	405	455	720	505
	24	539	539	539	615	936	640
CATEGORY	Nominal pipe size	Slip on	Threaded	SORF	Lap Join	BLRF	WNRF Neck
CATEGORY	Nominal pipe size NPS (Inches)	Slip on Flange	Threaded Flange	SORF Flange	Lap Join Flange	BLRF Flange	WNRF Neck Flange
CATEGORY	NPS (Inches) ½						
CATEGORY	NPS (Inches)	Flange	Flange	Flange 2 3	Flange	Flange	Flange
CATEGORY	NPS (Inches) ½ ¾ 1	Flange 2 3 4	Flange 2 3 4	Flange 2 3 4	Flange 2 3 4	Flange 3 4 4	Flange 3 4 4
CATEGORY	NPS (Inches) ½ ¾ 1 1¼	Flange 2 3 4 5	Flange 2 3 4 5	Flange 2 3 4 5	Flange 2 3 4 5	3 4 4 6	Flange
CATEGORY	NPS (Inches) ½ ¾ 1 1¼ 1½	Flange 2 3 4 5 7	Flange 2 3 4 5 7	Flange 2 3 4 5 7	Flange 2 3 4 5 7	3 4 4 6 8	Flange 3 4 4 6 8
CATEGORY	NPS (Inches) ½ ¾ 1 1¼ 1½ 2	Flange 2 3 4 5 7 9	Flange 2 3 4 5 7 9	Flange 2 3 4 5 7 9	Flange 2 3 4 5 7 9	Flange 3 4 4 6 8 10	Flange 3 4 4 6 8 12
CATEGORY	NPS (Inches) ½ ¾ 1 1½ 1½ 2 2½	Flange 2 3 4 5 7 9 13	Flange 2 3 4 5 7 9 13	Flange 2 3 4 5 7 9 13	Flange 2 3 4 5 7 9 12	Flange 3 4 4 6 8 10 15	Flange 3 4 4 6 8 12 18
CATEGORY	NPS (Inches) ½ ¾ 1 1½ 2 2½ 3 3	Flange 2 3 4 5 7 9 13 16	Flange 2 3 4 5 7 9 13	Flange 2 3 4 5 7 9 13 16	Flange 2 3 4 5 7 9 12 15	Flange 3 4 4 6 8 10 15 20	Flange 3 4 4 6 8 12 18 23
CATEGORY	NPS (Inches) ½ ¾ 1 1¼ 1½ 2 2½ 3 3½	Flange 2 3 4 5 7 9 13 16 21	Flange 2 3 4 5 7 9 13 16 21	Flange 2 3 4 5 7 9 13 16 21	Flange 2 3 4 5 7 9 12 15 20	Flange 3 4 4 6 8 10 15 20 29	Flange 3 4 4 6 8 12 18 23 26
	NPS (Inches) ½ ¾ 1 1¼ 1½ 2 2½ 3 3½ 4	Flange 2 3 4 5 7 9 13 16 21 37	Flange 2 3 4 5 7 9 13 16 21 37	Flange 2 3 4 5 7 9 13 16 21 37	Flange 2 3 4 5 7 9 12 15 20 36	Flange 3 4 4 6 8 10 15 20 29 41	Flange 3 4 4 6 8 12 18 23 26 42
CATEGORY 600 IB	NPS (Inches) ½ ¾ 1 1½ 2 2½ 3 3½ 4 5	Flange 2 3 4 5 7 9 13 16 21 37 63	Flange 2 3 4 5 7 9 13 16 21 37 63	Flange 2 3 4 5 7 9 13 16 21 37 63	Flange 2 3 4 5 7 9 12 15 20 36 63	Flange 3 4 4 6 8 10 15 20 29 41 68	Flange 3 4 4 6 8 12 18 23 26 42 68
	NPS (Inches) ½ ¾ 1 1¼ 1½ 2 2½ 3 3½ 4 5 6	Flange 2 3 4 5 7 9 13 16 21 37 63 80	Flange 2 3 4 5 7 9 13 16 21 37 63 80	Flange 2 3 4 5 7 9 13 16 21 37 63 80	Flange 2 3 4 5 7 9 12 15 20 36 63 78	Flange 3 4 4 6 8 10 15 20 29 41 68 86	Flange 3 4 4 6 8 12 18 23 26 42 68 81
	NPS (Inches) ½ ¾ 1 1¼ 1½ 2 2½ 3 3½ 4 5 6 8	Flange 2 3 4 5 7 9 13 16 21 37 63 80 115	Flange 2 3 4 5 7 9 13 16 21 37 63 80 15	Flange 2 3 4 5 7 9 13 16 21 37 63 80 15	Flange 2 3 4 5 7 9 12 15 20 36 63 78 112	Flange 3 4 4 6 8 10 15 20 29 41 68 86 140	Flange 3 4 4 6 8 12 18 23 26 42 68 81 120
	NPS (Inches) ½ ¾ 1 1¼ 1½ 2 2½ 3 3½ 4 5 6 8 10	Flange 2 3 4 5 7 9 13 16 21 37 63 80 115 177	Flange 2 3 4 5 7 9 13 16 21 37 63 80 15 177	Flange 2 3 4 5 7 9 13 16 21 37 63 80 15 177	Flange 2 3 4 5 7 9 12 15 20 36 63 78 112 195	Flange 3 4 4 6 8 10 15 20 29 41 68 86 140 231	Flange 3 4 4 6 8 12 18 23 26 42 68 81 120 190
	NPS (Inches) ½ ¾ 1 1¼ 1½ 2 2½ 3 3½ 4 5 6 8 10 12	Flange 2 3 4 5 7 9 13 16 21 37 63 80 115 177 215	Flange 2 3 4 5 7 9 13 16 21 37 63 80 15 177 215	Flange 2 3 4 5 7 9 13 16 21 37 63 80 15 177 215	Flange 2 3 4 5 7 9 12 15 20 36 63 78 112 195 240	Flange 3 4 4 6 8 10 15 20 29 41 68 86 140 231 295	Flange 3 4 4 6 8 12 18 23 26 42 68 81 120 190 226
	NPS (Inches) ½ ¾ 1 1¼ 1½ 2 2½ 3 3½ 4 5 6 8 10 12 14	Flange 2 3 4 5 7 9 13 16 21 37 63 80 115 177 215 259	Flange 2 3 4 5 7 9 13 16 21 37 63 80 15 177 215 259	Flange 2 3 4 5 7 9 13 16 21 37 63 80 15 177 215 259	Flange 2 3 4 5 7 9 12 15 20 36 63 78 112 195 240 290	Flange 3 4 4 6 8 10 15 20 29 41 68 86 140 231 295 378	Flange 3 4 4 6 8 12 18 23 26 42 68 81 120 190 226 347
	NPS (Inches) ½ ¾ 1 1¼ 1½ 2 2½ 3 3½ 4 5 6 8 10 12 14 16	Flange 2 3 4 5 7 9 13 16 21 37 63 80 115 177 215 259 366	Flange 2 3 4 5 7 9 13 16 21 37 63 80 15 177 215 259 366	Flange 2 3 4 5 7 9 13 16 21 37 63 80 15 177 215 259 366	Flange 2 3 4 5 7 9 12 15 20 36 63 78 112 195 240 290 400	Flange 3 4 4 6 8 10 15 20 29 41 68 86 140 231 295 378 527	Flange 3 4 4 6 8 12 18 23 26 42 68 81 120 190 226 347 481
	NPS (Inches) ½ ¾ 1 1½ 2 2½ 3 3½ 4 5 6 8 10 12 14 16 18	Flange 2 3 4 5 7 9 13 16 21 37 63 80 115 177 215 259 366 476	Flange 2 3 4 5 7 9 13 16 21 37 63 80 15 177 215 259 366 476	Flange 2 3 4 5 7 9 13 16 21 37 63 80 15 177 215 259 366 476	Flange 2 3 4 5 7 9 12 15 20 36 63 78 112 195 240 290 400 469	Flange 3 4 4 6 8 10 15 20 29 41 68 86 140 231 295 378 527 665	Flange 3 4 4 6 8 12 18 23 26 42 68 81 120 190 226 347 481 555
	NPS (Inches) ½ ¾ 1 1¼ 1½ 2 2½ 3 3½ 4 5 6 8 10 12 14 16 18 20	Flange 2 3 4 5 7 9 13 16 21 37 63 80 115 177 215 259 366 476 612	Flange 2 3 4 5 7 9 13 16 21 37 63 80 15 177 215 259 366 476 612	Flange 2 3 4 5 7 9 13 16 21 37 63 80 15 177 215 259 366 476 612	Flange 2 3 4 5 7 9 12 15 20 36 63 78 112 195 240 290 400 469 604	Flange 3 4 4 6 8 10 15 20 29 41 68 86 140 231 295 378 527 665 855	Flange 3 4 4 6 8 12 18 23 26 42 68 81 120 190 226 347 481 555 690
	NPS (Inches) ½ ¾ 1 1½ 2 2½ 3 3½ 4 5 6 8 10 12 14 16 18	Flange 2 3 4 5 7 9 13 16 21 37 63 80 115 177 215 259 366 476	Flange 2 3 4 5 7 9 13 16 21 37 63 80 15 177 215 259 366 476	Flange 2 3 4 5 7 9 13 16 21 37 63 80 15 177 215 259 366 476	Flange 2 3 4 5 7 9 12 15 20 36 63 78 112 195 240 290 400 469	Flange 3 4 4 6 8 10 15 20 29 41 68 86 140 231 295 378 527 665	Flange 3 4 4 6 8 12 18 23 26 42 68 81 120 190 226 347 481 555



CATEGORY	Nominal pipe size	Slip on	Threaded	SORF	Lap Join	BLRF	WNRF Neck
	NPS (Inches)	Flange	Flange	Flange	Flange	Flange	Flange
	1/2	6	6	6	6	4	7
	3/4	6	6	6	6	6	7
	1	7.5	7.5	7.5	7.5	9	8.5
	1¼	10	10	10	10	10	10
	1½	14	14	14	14	14	14
	2	22	22	22	21	25	24
	2½	31	31	31	25	32	31
	3	36	36	36	29	35	36
	4	53	53	53	51	54	53
	5	83	83	83	81	87	86
900 IB	6	110	110	110	105	115	110
	8	172	172	172	190	200	187
	10	245	245	245	277	290	268
	12	326	326	326	371	415	372
	14	400	400	400	415	520	562
	16	459	459	459	488	619	685
	18	647	647	647	670	880	924
	20	792	792	792	868	1107	1164
	24	1480	1480	1480	1659	2099	2107
	1/2	6	6	6	6	4	7
	3/4	6	6	6	6	6	7
CATEGORY	Nominal pipe size	Slip on	Threaded	SORF	Lap Join	BLRF	WNRF Neck
CATEGORY	NPS (Inches)	Flange	Flange	Flange	Flange	Flange	Flange
	1	8	8	8	8	9	9
	1¼	10	10	10	10	10	10
	1½	14	14	14	14	14	14
	2	25	25	25	25	25	25
	2½	36	36	36	35	35	36
	3	48	48	48	47	48	48
	4	73	73	73	75	73	73
	5	132	132	132	140	140	132
1500 IB	6	165	165	165	170	160	165
	8	260	260	260	286	302	275
	10	436	436	436	485	510	455
	12	667	667	667	749	775	690
	14	940	940	940	890	975	940
	16	1250	1250	1250	1250	1300	1250
	18	1625	1625	1625	1475	1750	1625
	20	2050	2050	2050	1775	2225	2050
1	24			2825	2825	3625	



CATEGORY	Nominal pipe size NPS (Inches)	Slip on Flange	Threaded Flange	SORF Flange	Lap Join Flange	BLRF Flange	WNRF Neck Flange
	1/2		7		7	7	8
	3/4		9		8	10	9
	1	••••	12		12	12	13
	1¼		18		17	18	20
	1½		25		24	25	28
	2		38		37	39	42
2550 IB	21/2		55		53	56	52
255U IB	3		83		80	86	94
	4		127		122	133	146
	5		210		204	223	244
	6		323		314	345	378
	8		485		471	533	576
	10		925		897	1025	1068
	12		1300		1262	1464	1608

