

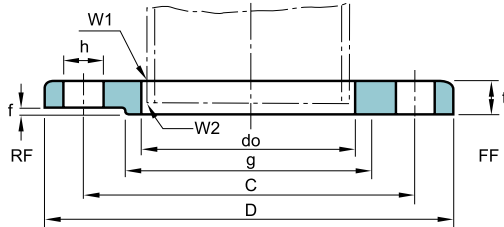


Hydraulic & Offshore Supplies

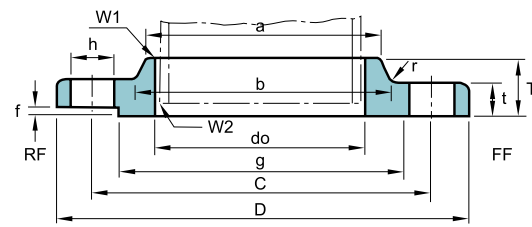
SUPERLOK®

5K KS B1503 / JIS B2220

NOMINAL SIZE 10 - 400mm



NOMINAL SIZE 450 - 1000mm



Unit : mm

Nominal Bore of Flange	Outside Dia. of Appli-Cable pipe	Inside Dia. of Flange	Outside Dia. of Flange	SECTIONAL DIMENSIONS OF FLANGE							DIA. OF BOLT				Welding		Weight (kg)
				t	T	Dia. of Hub		Radius	Raised Face	Dia. of Raised Face	Dia. of Bolt Circle	Number of Bolt Holes	Hole Dia.	Nominal Bolt Size	W1	W2	
						a	b										
(10)	17.3	17.8	75	9	-	-	-	-	1	39	55	4	12	M10	5.0	2.5	0.27
15	21.7	22.2	80	9	-	-	-	-	1	44	60	4	12	M10	5.0	3.0	0.30
(20)	27.2	27.7	85	10	-	-	-	-	1	49	65	4	12	M10	5.0	3.0	0.37
25	34.0	34.5	95	10	-	-	-	-	1	59	75	4	12	M10	5.0	3.0	0.45
(32)	42.7	43.2	115	12	-	-	-	-	2	70	90	4	15	M12	6.0	3.0	0.78
40	48.6	49.1	120	12	-	-	-	-	2	75	95	4	15	M12	6.0	3.0	0.83
50	60.5	61.1	130	14	-	-	-	-	2	85	105	4	15	M12	6.0	3.0	1.07
65	76.3	77.1	155	14	-	-	-	-	2	110	130	4	15	M12	6.0	4.0	1.49
80	89.1	90.0	180	14	-	-	-	-	2	121	145	4	19	M16	6.0	4.0	1.99
(90)	101.6	102.6	190	14	-	-	-	-	2	131	155	4	19	M16	6.0	4.0	2.09
100	114.3	115.4	200	16	-	-	-	-	2	141	165	8	19	M16	7.0	4.0	2.39
125	139.8	141.2	235	16	-	-	-	-	2	176	200	8	19	M16	7.0	4.0	3.23
150	165.2	166.6	265	18	-	-	-	-	2	206	230	8	19	M16	7.0	5.0	4.41
(175)	190.7	192.1	300	18	-	-	-	-	2	232	260	8	23	M20	7.5	5.0	5.51
200	216.3	218.0	320	20	-	-	-	-	2	252	280	8	23	M20	8.5	6.0	6.33
(225)	241.8	243.7	345	20	-	-	-	-	2	277	305	12	23	M20	9.0	6.0	6.64
250	267.4	269.5	385	22	-	-	-	-	2	317	345	12	23	M20	10.0	6.0	9.45
300	318.5	321.0	430	22	-	-	-	-	3	360	390	12	23	M20	10.0	6.0	10.30
350	355.6	358.1	480	24	-	-	-	-	3	403	435	12	25	M22	12.0	7.0	14.00
400	406.4	409.0	540	24	-	-	-	-	3	463	495	16	25	M22	12.0	7.0	16.90
450	457.2	460.0	605	24	40	495	500	5	3	523	555	16	25	M22	12.0	7.0	24.80
500	508.0	511.0	655	24	40	546	552	5	3	573	605	20	25	M22	12.0	7.0	26.90
550	558.8	562.0	720	26	42	597	603	5	3	630	665	20	27	M24	12.0	7.0	34.10
600	609.6	613.0	770	26	44	648	654	5	3	680	715	20	27	M24	12.0	7.0	37.50
650	660.4	664.0	825	26	48	702	708	5	3	735	770	24	27	M24	12.0	7.0	42.80
700	711.2	715.0	875	26	48	751	758	5	3	785	820	24	27	M24	12.0	7.0	45.40
750	762.0	766.0	945	28	52	802	810	5	3	840	880	24	33	M30	12.0	7.0	57.40
800	812.8	817.0	995	28	52	854	862	5	3	890	930	24	33	M30	13.0	8.0	60.80
850	863.6	868.0	1045	28	54	904	912	5	3	940	980	24	33	M30	13.0	8.0	63.50
900	914.4	919.0	1095	30	56	956	964	5	3	990	1030	24	33	M30	13.0	8.0	75.30
1000	1016.0	1021.0	1195	32	60	1058	1066	5	3	1090	1130	28	33	M30	14.0	9.0	88.50
*(1100)	1117.6	1123.0	1305	32	-	-	-	-	3	1200	1240	28	33	M30	-	-	-
*1200	1219.2	1225.0	1420	34	-	-	-	-	3	1305	1350	32	33	M30	-	-	-
*1350	1371.6	-	1575	34	-	-	-	-	3	1460	1505	32	33	M30	-	-	-
*1500	1524.0	-	1730	36	-	-	-	-	3	1615	1660	36	33	M30	-	-	-

Notes

1. Flanges of parenthesized nominal diameter had letter not be used.
2. The facing of flanges shall conform to KS B1519 (JIS B2202) 1987.
3. Nominal diameter over 1000 is manufacturer's standard (*)

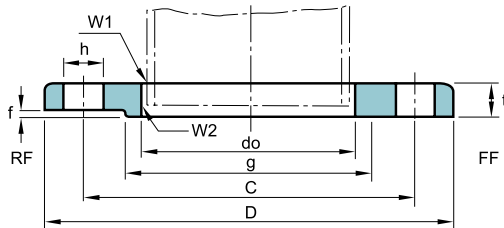


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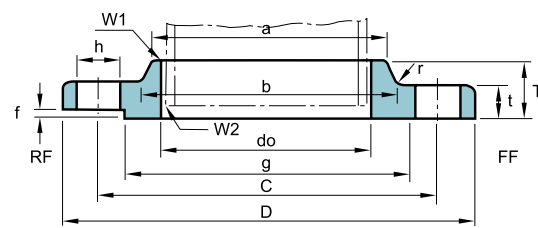
JIS & KS FLANGES

10K KS B1503 / JIS B2220

NOMINAL SIZE 10 - 225mm



NOMINAL SIZE 250 - 1000mm



Unit : mm

Nominal Bore of Flange	Outside Dia. of Appli-Cable pipe	Inside Dia. of Flange	Outside Dia. of Flange	SECTIONAL DIMENSIONS OF FLANGE							DIA. OF BOLT				Nominal Bolt Size	Welding		Weight (kg)
				t	T	Dia. of Hub		Radius	Raised Face	Dia. of Raised Face	Dia. of Bolt Circle	Number of Bolt Holes	Hole Dia.	W1		W2		
						a	b										r	
10	17.3	17.8	90	12	-	-	-	-	1	46	65	4	15	M12	5.0	2.5	0.52	
15	21.7	22.2	95	12	-	-	-	-	1	51	70	4	15	M12	5.0	3.0	0.57	
20	27.2	27.7	100	14	-	-	-	-	1	56	75	4	15	M12	5.0	3.0	0.73	
25	34.0	34.5	125	14	-	-	-	-	1	67	90	4	19	M16	5.0	3.0	1.13	
32	42.7	43.2	135	16	-	-	-	-	2	76	100	4	19	M16	6.0	3.0	1.48	
40	48.6	49.1	140	16	-	-	-	-	2	81	105	4	19	M16	6.0	3.0	1.56	
50	60.5	61.1	155	16	-	-	-	-	2	96	120	4	19	M16	6.0	3.0	1.88	
65	76.3	77.1	175	18	-	-	-	-	2	116	140	4	19	M16	6.5	4.0	2.60	
80	89.1	90.0	185	18	-	-	-	-	2	126	150	8	19	M16	6.5	4.0	2.61	
(90)	101.6	102.6	195	18	-	-	-	-	2	136	160	8	19	M16	6.5	4.0	2.76	
100	114.3	115.4	210	18	-	-	-	-	2	151	175	8	19	M16	7.0	4.0	3.14	
125	139.8	141.2	250	20	-	-	-	-	2	182	210	8	23	M20	7.5	4.0	4.77	
150	165.2	166.6	280	22	-	-	-	-	2	212	240	8	23	M20	8.0	5.0	6.34	
(175)	190.7	192.1	305	22	-	-	-	-	2	237	265	12	23	M20	9.0	5.0	6.82	
200	216.3	218.0	330	22	-	-	-	-	2	262	290	12	23	M20	9.0	6.0	7.53	
(225)	241.8	243.7	350	22	-	-	-	-	2	282	310	12	23	M20	9.0	6.0	7.74	
250	267.4	269.5	400	24	36	288	292	6	2	324	355	12	25	M22	10.0	6.0	12.70	
300	318.5	321.0	445	24	38	340	346	6	3	368	400	16	25	M22	10.0	6.0	13.80	
350	355.6	358.1	490	26	42	380	386	6	3	413	445	16	25	M22	12.0	7.0	18.20	
400	406.4	409.0	560	28	44	436	442	6	3	475	510	16	27	M24	12.0	7.0	25.20	
450	457.2	460.0	620	30	48	496	502	6	3	530	565	20	27	M24	14.0	8.0	33.00	
500	508.0	511.0	675	30	48	548	554	6	3	585	620	20	27	M24	14.0	8.0	37.60	
550	558.8	562.0	745	32	52	604	610	6	3	640	680	20	33	M30	15.0	9.0	49.70	
600	609.6	613.0	795	32	52	656	662	6	3	690	730	24	33	M30	16.0	10.0	52.60	
650	660.4	664.0	845	34	56	706	712	6	3	740	780	24	33	M30	16.0	10.0	60.60	
700	711.2	715.0	905	34	58	762	770	6	3	800	840	24	33	M30	17.0	10.0	70.60	
750	762.0	766.0	970	36	62	816	824	6	3	855	900	24	33	M30	18.0	11.0	85.80	
800	812.8	817.0	1020	36	64	868	876	6	3	905	950	28	33	M30	19.0	12.0	91.20	
(850)	863.6	868.0	1070	36	66	920	928	6	3	955	1000	28	33	M30	19.0	12.0	98.60	
900	914.4	919.0	1120	38	70	971	979	6	3	1005	1050	28	33	M30	22.0	14.0	109.00	
1000	1016.0	1021.0	1235	40	74	1073	1081	6	3	1110	1160	28	39	M36	22.0	14.0	133.00	
*(1100)	1117.6	1123.0	1345	42	76	-	-	-	3	1220	1270	28	39	M36	-	-	-	
*1200	1219.2	1225.0	1465	44	78	-	-	-	3	1325	1380	32	39	M36	-	-	-	
*1350	1371.6	-	1630	48	82	-	-	-	3	1480	1540	36	45	M42	-	-	-	
*1500	1524.0	-	1795	50	90	-	-	-	3	1635	1700	40	45	M42	-	-	-	

Notes

1. Flanges of parenthesized nominal diameter had letter not be used.
2. The facing of flanges shall conform to KS B1519 (JIS B2202) 1987.
3. Nominal diameter over 1000 is manufacturer's standard (*)

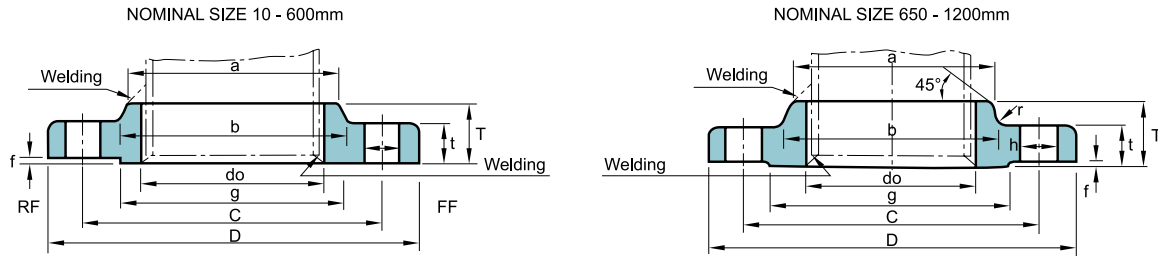
BMT Co., Ltd. FLANGE / 50



Hydraulic & Offshore Supplies

SUPERLOK®

16K KS B1503 / JIS B2220



Unit : mm

Nominal Bore of Flange	Outside Dia. of Steel pipe	Inside Dia. of Flange	Outside Dia. of Flange	SECTIONAL DIMENSIONS OF FLANGE							DIA. OF BOLT			Nominal Bolt Size	Weight (kg)
				t	T	Dia. of Hub		Radius	f	g	Bolt Circle Dia.	Number of Bolt Holes	Hole Dia.		
						a	b								
10	17.3	17.8	90	12	16	26	28	4	1	46	65	4	15	M12	0.52
15	21.7	22.2	95	12	16	30	32	4	1	51	70	4	15	M12	0.58
20	27.2	27.7	100	14	20	38	42	4	1	56	75	4	15	M12	0.75
25	34.0	34.5	125	14	20	46	50	4	1	67	90	4	19	M16	1.16
32	42.7	43.2	135	16	22	56	60	5	2	76	100	4	19	M16	1.53
40	48.6	49.1	140	16	24	62	66	5	2	81	105	4	19	M16	1.64
50	60.5	61.1	155	16	24	76	80	5	2	96	120	8	19	M16	1.83
65	76.3	77.1	175	18	26	94	98	5	2	116	140	8	19	M16	2.58
80	89.1	90.0	200	20	28	108	112	6	2	132	160	8	23	M20	3.66
(90)	101.6	102.6	210	20	30	120	124	6	2	145	170	8	23	M20	3.95
100	114.3	115.4	225	22	34	134	138	6	2	160	185	8	23	M20	4.94
125	139.8	141.2	270	22	34	164	170	6	2	195	225	8	25	M22	7.00
150	165.2	166.6	305	24	38	196	202	6	2	230	260	12	25	M22	9.62
200	216.3	218.0	350	26	40	244	252	6	2	275	305	12	25	M22	12.10
250	267.4	269.5	430	28	44	304	312	6	2	345	380	12	27	M24	20.00
300	318.5	321.0	480	30	48	354	364	8	3	395	430	16	27	M24	24.40
350	355.6	358.1	540	34	52	398	408	8	3	440	480	16	33	M30X3	35.00
400	406.4	409.0	605	38	60	446	456	10	3	495	540	16	33	M30X3	46.20
450	457.2	460.0	675	40	64	504	514	10	3	560	605	20	33	M30X3	61.90
500	508.0	511.0	730	42	68	558	568	10	3	615	660	20	33	M30X3	73.25
(550)	558.8	562.0	795	44	70	612	622	10	3	670	720	20	39	M36X3	88.10
600	609.6	613.0	845	46	74	666	676	10	3	720	770	24	39	M36X3	98.80
(650)	660.4	664.0	895	48	77	704	726	10	5	770	820	24	39	M36X3	101.00
700	711.2	715.0	960	50	80	754	776	10	5	820	875	24	42	M39X3	120.00
(750)	762.0	766.0	1020	52	83	806	832	10	5	880	935	24	42	M39X3	141.00
800	812.8	817.0	1085	54	86	865	885	10	5	930	990	24	48	M45X3	161.00
(850)	863.6	868.0	1135	56	89	916	936	10	5	980	1040	24	48	M45X3	177.00
900	914.4	919.0	1185	58	93	968	986	10	5	1030	1090	28	48	M45X3	191.00
1000	1016.0	1021.0	1320	62	99	1070	1098	12	5	1140	1210	28	56	M52X3	230.00
(1100)	1117.6	1123.0	1420	66	105	1180	1200	12	5	1240	1310	32	56	M52X3	289.00
1200	1219.2	1225.0	1530	70	112	1282	1302	12	5	1350	1420	32	56	M52X3	348.00

Notes

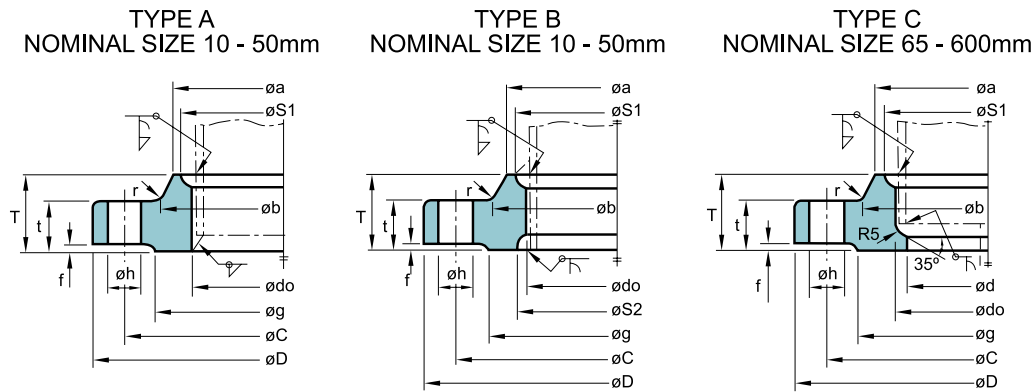
1. Flanges of parenthesized nominal diameter had letter not be used.
2. The facing of flanges shall conform to KS B1519 (JIS B2202) 1987.
3. The dimension of flange of 650A and larger in nominal sizes excluding 850A, are in accordance with the nominal pressure 25 BAR specified in ISO2084-1974



Hydraulic & Offshore Supplies

JIS & KS FLANGES

20K KS B1503 / JIS B2220



Unit : mm

Nominal Bore of Flange	Outside Dia. of Steel pipe	Inside Dia. of Flange	Outside Dia. of Flange	SECTIONAL DIMENSIONS OF FLANGE								BOLT HOLE			REFERENCE					Weight (kg)	
				t	T	Dia. of Hub		R-radius	f	g	d	Bolt Circle Dia.	Number of Bolt Holes	Hole Dia.	Nominal Bolt Size	S1	m	S2	n		l
						a	b														
10	17.3	17.8	90	14	20	30	32	4	1	46	-	65	4	15	M12	27	4	27	4	-	0.59
15	21.7	22.2	95	14	20	34	36	4	1	51	-	70	4	15	M12	31	4	31	4	-	0.65
20	27.2	27.7	100	16	22	40	42	4	1	56	-	75	4	15	M12	37	4	37	4	-	0.81
25	34.0	34.5	125	16	24	48	50	4	1	67	-	90	4	19	M16	44	4	44	4.5	-	1.29
32	42.7	43.2	135	18	26	56	60	5	2	76	-	100	4	19	M16	52	4	53	5	-	1.60
40	48.6	49.1	140	18	26	62	66	5	2	81	-	105	4	19	M16	58	4	59	5.5	-	1.69
50	60.5	61.1	155	18	26	76	80	5	2	96	-	120	8	19	M16	70	4	72	5.5	-	1.89
65	76.3	77.7	175	20	30	100	104	5	2	116	65.9	140	8	19	M16	94	6	-	-	6	2.60
80	89.1	90.0	200	22	34	113	117	6	2	132	78.1	160	8	23	M20	107	6	-	-	6	3.93
(90)	101.6	102.6	210	24	36	126	130	6	2	145	90.2	170	8	23	M20	120	6	-	-	6	4.56
100	114.3	115.4	225	24	36	138	142	6	2	160	102.3	185	8	23	M20	132	6	-	-	6	5.13
125	139.8	141.2	270	26	40	166	172	6	2	195	126.6	225	8	25	M22	160	7	-	-	6	8.30
150	165.2	166.6	305	28	42	196	202	6	2	230	151.0	260	12	25	M22	186	8	-	-	6	10.60
200	216.3	218.0	350	30	46	244	252	6	2	275	199.9	305	12	25	M22	237	9	-	-	6	13.30
250	267.4	269.5	430	34	52	304	312	6	2	345	248.8	380	12	27	M24	290	10	-	-	6	23.40
300	318.5	321.0	480	36	56	354	364	8	3	395	297.9	430	16	27	M24	345	11	-	-	6	27.70
350	355.6	358.1	540	40	62	398	408	8	3	440	333.4	480	16	33	M30X3	384	12	-	-	6	39.20
400	406.4	409.0	605	46	70	446	456	10	3	495	381.0	540	16	33	M30X3	437	13	-	-	7	54.20
450	457.2	460.0	675	48	78	504	514	10	3	560	431.8	605	20	33	M30X3	490	15	-	-	7	71.70
500	508.0	511.0	730	50	84	558	568	10	3	615	482.6	660	20	33	M30X3	544	16	-	-	7	86.20
(550)	558.8	562.0	795	52	90	612	622	10	3	670	533.4	720	20	39	M36X3	595	16	-	-	7	105.00
600	609.6	613.0	845	54	96	666	676	10	3	720	584.2	770	24	39	M36X3	646	18	-	-	7	119.00
*650	660.4	664.0	945	60	-	-	-	-	5	790	-	850	24	48	M45X3	-	-	-	-	-	-
*700	711.2	715.0	995	64	-	-	-	-	5	840	-	900	24	48	M45X3	-	-	-	-	-	-
*750	762.0	766.0	1080	68	-	-	-	-	5	900	-	970	24	56	M52X3	-	-	-	-	-	-
*800	812.8	817.0	1140	72	-	-	-	-	5	960	-	1030	24	56	M52X3	-	-	-	-	-	-
*850	863.6	868.0	1200	74	-	-	-	-	5	1020	-	1090	24	56	M52X3	-	-	-	-	-	-
*900	914.4	919.0	1250	76	-	-	-	-	5	1070	-	1140	28	56	M52X3	-	-	-	-	-	-

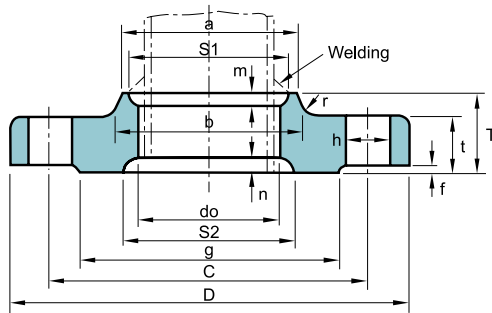
Notes

- Flanges of parenthesized nominal diameter had letter not be used.
- "d" is an example of pipe thickness for schedule 40 for nominal diameter 400 and under, and for schedule 12.7 mm for 450 through 600 of KS D3562 and KS D3507 (JIS G3454, JIS G3456)
- The dimension of the notch (m, n, S1, S2) for welding can decided between conerned parties.
- Nominal diameter over 600 is manufacturer's standard (*)

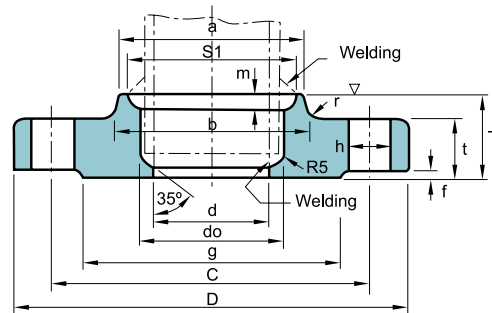


30K KS B1503 / JIS B2220

NOMINAL SIZE 10 - 50mm (TYPE B)



NOMINAL SIZE 65 - 400mm (TYPE C)



Unit : mm

Nominal Bore of Flange	Outside Dia. of Steel pipe	Inside Dia. of Flange	Outside Dia. of Flange	SECTIONAL DIMENSIONS OF FLANGE								BOLT HOLE			Nominal Bolt Size	REFERENCE					Weight (kg)
				t	T	Dia. of Hub		R-radius	f	g	d	Bolt Circle Dia. C	Number of Bolt Holes	Hole Dia. h		S1	m	S2	n	l	
						a	b														
10	17.3	17.8	110	16	24	30	34	4	1	52	-	75	4	19	M16	-	-	-	-	-	0.99
15	21.7	22.2	115	18	26	36	40	5	1	55	-	80	4	19	M16	31	4.0	40	5	-	1.23
20	27.2	27.7	120	18	28	42	46	5	1	60	-	85	4	19	M16	37	5.0	44	5	-	1.34
25	34.0	34.5	130	20	30	50	54	5	1	70	-	95	4	19	M16	55	6.0	52	5	-	1.76
32	42.7	43.2	140	22	32	60	64	6	2	80	-	105	4	19	M16	52	6.0	60	5	-	2.15
40	48.6	49.1	160	22	34	66	70	6	2	90	-	120	4	23	M20	58	6.0	66	5	-	2.82
50	60.5	61.1	165	22	36	82	86	6	2	105	-	130	8	19	M16	70	6.5	78	5	-	2.89
65	76.3	77.1	200	26	40	102	106	8	2	130	65.9	160	8	23	M20	96	9.5	94	5	6	4.70
80	89.1	90.0	210	28	44	115	121	8	2	140	78.1	170	8	23	M20	109	9.5	-	-	6	5.36
(90)	101.6	102.6	230	30	46	128	134	8	2	150	90.2	185	8	25	M22	122	9.5	-	-	6	6.85
100	114.3	115.4	240	32	48	141	147	8	2	160	102.3	195	8	25	M22	135	9.5	-	-	6	7.89
125	139.8	141.2	275	36	54	166	172	8	2	195	126.6	230	8	25	M22	160	9.5	-	-	6	11.40
150	165.2	166.6	325	38	58	196	204	8	2	235	151.0	275	12	27	M24	186	9.5	-	-	6	16.70
200	216.3	218.0	370	42	64	248	256	8	2	280	199.9	320	12	27	M24	237	9.5	-	-	6	20.60
250	267.4	269.5	450	48	72	306	314	10	2	345	248.8	390	12	22	M30	290	10.0	-	-	6	36.10
300	318.5	321.0	515	52	78	360	370	10	3	405	297.9	450	16	33	M30	345	12.0	-	-	6	49.90
350	355.6	358.1	560	54	84	402	412	12	3	450	333.4	495	16	33	M30	383	13.0	-	-	6	61.20
400	406.4	409.0	630	60	92	456	468	15	3	510	381.0	560	16	39	M36	435	14.0	-	-	7	85.20

Notes

- Flanges of parenthesized nominal diameter had letter not be used.
- "d" is an example of pipe thickness for schedule 40 of KS D3562 and KS D3507 (JIS G3454, JIS G3456). if required, purchaser can specify for other pipe wall thickness.
- This dimension of bolt holes (h) shall be in accordance with Class 3 of KS B1007 (Grade 3 of JIS B1001) where the nominal designation of screw thread of bolt is not more than M16, and in accordance with Class 2 of KS B1007 (Grade 2 of JIS B1001) where the nominal designation of screw thread of bolt is not less than M30 x 3.
- The dimension of the notch (m, n, S1, S2) for welding can be decided between concerned parties agreement between parties concerned.

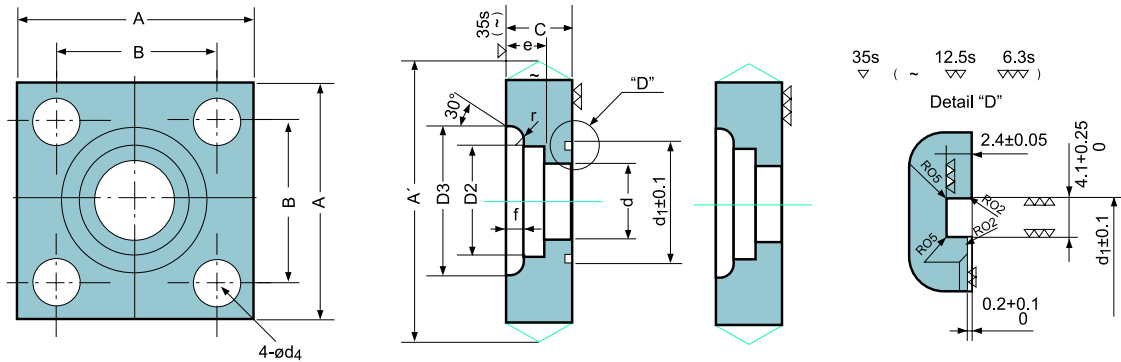


Hydraulic & Offshore Supplies

JIS & KS FLANGES

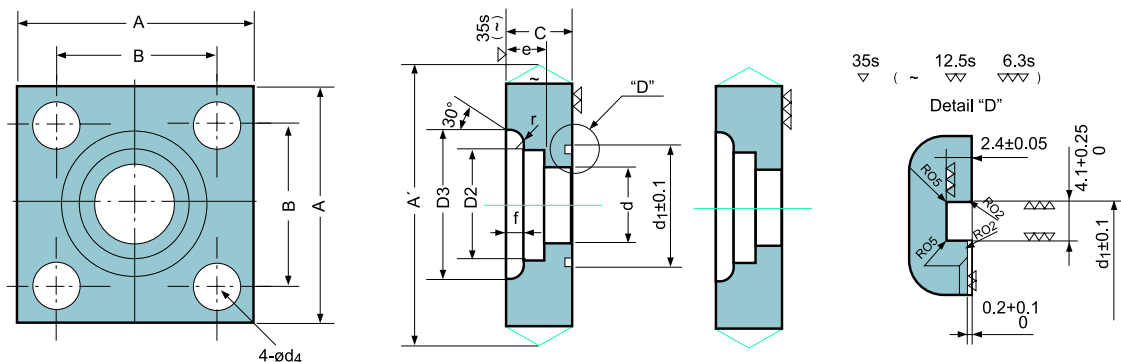
210Kgf/cm² (JIS B2291 SQUARE FLANGES)

Flange for Oil Pressure



Unit : mm

Nominal Bore	A	A' (Max)	B	C	d	d1	d2	e	d3	d4	f	r	Weight (kg)	G 계열 O 링			
15	63	±1.0	67	40	22	0	16.0	30	22.2	+0.2	11	32	11	3.5	5	0.6	G25
20	68		72	45		-1	20.0	35			12	38	11	4.0	5	0.7	G30
25	80	±1.2	85	53	28	0	25.0	40	34.5	+0.3	14	45	13	4.0	5	1.2	G35
32	90		95	63		-1.5	31.5	45			16	56	13	6.0	5	1.5	G40
40	100	±1.5	106	70	36	0	37.5	55	49.1	0	18	63	18	7.0	5	2.4	G50
50	112		118	80			47.5	65			20	75	18	7.0	5	2.8	G60
65	140	±2.0	148	100	45	-2	60.0	80	77.1	+0.4	22	95	22	9.5	6	5.3	G75
80	155		163	112			45	71.0			90	25	108	24	11.0	6	6.2



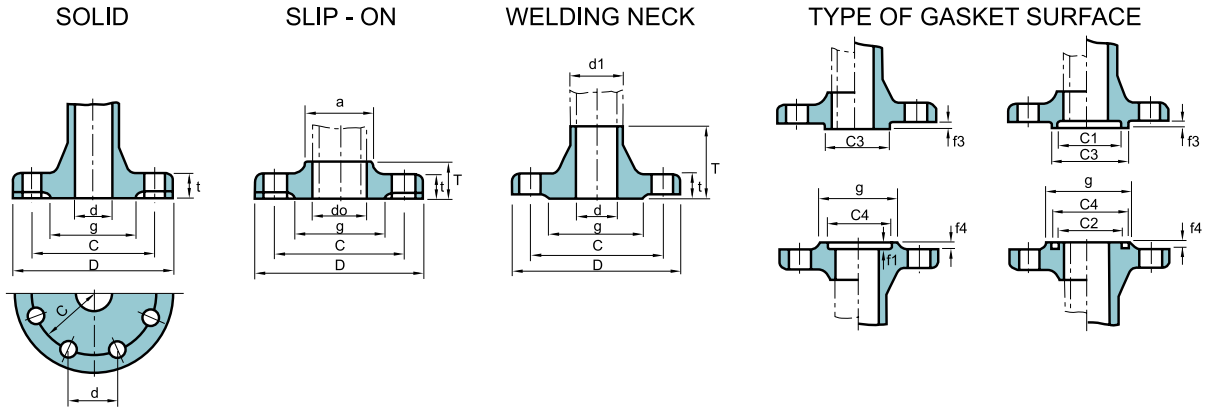
Unit : mm

Nominal Bore	A	A' (Max)	B	C	d	d1	d2	e	d3	d4	f	r	Weight (kg)			
15	54	±1.0	58	36	22	0	16.0	30	22.2	+0.2	11	32	11	3.5	5	0.5
20	58		62	40		-1	20.0	35			12	38	11	4.0	5	0.6
25	68	±1.2	73	48	28	0	25.0	40	34.5	+0.3	14	45	13	4.0	5	0.8
32	76		81	56		-1.5	31.5	45			16	56	13	6.0	5	1.0
40	92	±1.5	98	65	36	0	37.5	55	49.1	0	18	63	18	7.0	5	1.9
50	100		106	73			47.5	65			20	75	18	7.0	5	2.0
65	128	±2.0	136	92	45	-2	60.0	80	77.1	+0.4	22	95	22	9.5	6	4.1
80	140		148	103			45	71.0			90	25	108	24	11.0	6



TOLERANCE FOR PIPE FLANGES

KS B1502 / JIS B2203



Flange Section		Surface Condition	Basic Size	Dimensional Tolerance
Outside Dia. D	As Forged (1)		300 & below	+not specified
			over 300 thru 600	-2.0
			over 600 thru 1000	+not specified
			over 1000 thru 1500	-3.0
	Finish		300 & below	±1
			over 300 thru 600	±1.5
over 600 thru 1000			±2	
Inside Dia.	Solid Flange d(2)	As Forged (1)	16 & below	±1
			over 16 thru 63	±1.5
			over 63 thru 125	±2
			over 125 thru 150	±2.5
			over 150 thru 500	±3
	Slip-on Flange do	Finish	100 & below	+0.5, 0
			over 100 thru 400	+1, 0
			over 400 thru 600	+1.5, 0
			over 600 thru 800	+2.0, 0
			over 800 thru 1000	+2.5, 0
Welding Neck Flange d	Finish	100 & below	0, -0.5	
		over 100 thru 400	0, -1	
		over 400 thru 600	0, -1.5	
		over 600 thru 800	0, -2	
		over 800 thru 1000	0, -2.5	
Bolt Hole	Bolt Circle Dia. c		250 & below	±0.5
			over 250 thru 550	±0.6
			over 550 thru 950	±0.8
			over 950 thru 1350	±1
			over 1350	±1.5

Flange Section		Surface Condition	Basic Size	Dimensional Tolerance
Bolt Hole	Pitch of Hole P	Drilling Hole		±0.5
Dia. of Hub	Slip-on Flange (a) and Welding Neck Flange (d1)	As Forged (1)	220 & below	+2, 0
			over 220 thru 450	+3, 0
			over 450 thru 650	+4, 0
			over 650 thru 850	+6, 0
			over 850 thru 1000	+7, 0
	Finish		220 & below	+1, 0
			over 220 thru 450	+1.5, 0
			over 450 thru 650	+2, 0
			over 650 thru 850	+2.5, 0
			over 850 thru 1000	+3, 0
Gasket Seat	C1, C2, C3, C4	Finish	500 & below	±0.3
			over 500 thru 1000	±0.35
			over 1000 thru 1500	±0.4
	f3, f4	Finish	over 1500	±0.5
			8 & below	±0.2
			over 8	±0.25
	g	Finish	200 & below	±0.8
			over 200 thru 650	±0.9
			over 650 thru 1000	±1
			over 1000	±1.2
Thickness			One-side Finish	
	over 20 thru 50	+2, 0		
	over 50 thru 100	+3, 0		
	20 & below	+1, 0		
	over 20 thru 50	+1.5, 0		
	Bolt-side Finish		over 50 thru 100	+2, 0
			50 & below	±1
			over 50 thru 100	±1.5
			over 100 thru 200	±2
			over 200 & below	+2, 0
Hub Height T	Flange with pipe Inserted	Finish	over 200 thru 300	+3, 0
			50 & below	±1
	Flange with Butt-Welded Pipe	Finish	over 50 thru 100	±1.5
over 100 thru 200			±2	

Notes

1. This dimensional tolerance applies to the machined surface, as required.
2. This dimension d has been specified only for the flange, of which the bore part is cylindrical in shape.

Remarks

1. The dimensions d of bore part of the solid flanges with surface, as forged of valves, pumps, etc. are allowed up to plus 100% of the above dimensional tolerance. Provided that the required thickness shall be free from its influence.
2. The thickness of flange of valve and the like, of which the dimension between flange faces is limited to a fixed value, are allowed up to plus 100% of the above dimensional tolerance in the column of thickness.
3. In the case of spot facing of the single surface finishing, the thickness of spot facing is allowed up to 70% of the dimensional tolerance in the above column of thickness in negative side.
4. The chain double-lines in the figures of solid flange and socket welding type flange illustrate the cases of large raised face flange.