British Standard BS 10 : 1962 – Specification for Flanges and Bolting for Pipes, Valves, and Fittings. This covers plain, boss, integrally cast or forged, and welding neck type flanges, in ten tables. Although BS 10 is obsolescent, it remains in use for the dimensions of light duty, economy stainless steel flanges in applications where corrosion resistance and/or hygiene, rather than high pressures and temperatures, are the primary considerations. The following tables detail the applicable standard dimensions from Tables D, E, F and H of BS 10.

Type: slip on flange, blind flange, welded neck flange, threaded flange, lapped joint flange(loose flange), socket welded flange, Orifice Flanges, long welded neck flange
Material: Carbon steel: A105,SS400,SF440 RST37.2,S235JRG2,P250GH,C22.8, Stainless Steel: F304 F304L F316 F316L 316Ti, Copper etc.
Standard: BS 10
Size: 1/2-78 inch (DN15-DN2000) / DN15 – DN2000 (1/2″ – 80″), Forged Flange.
Pressure: ANSI class 150,300,600,1500,2500, DIN PN6,PN10,PN16,PN25,PN40,PN64,PN100,PN160
Packing: No Fumigate or Fumigate Plywood/Wood Pallet or Case
Surface Treatment: Anti-rust Oil, Transparent/Yellow/Black Anti-rust Paint,Zinc,Hot dipped Galvanized.
E-catalogue: Available , please visit catalogue of flange
Usage: Oil Field, Offshore, Water System, Shipbuilding, Natural Gas, Electric Power, Pipe Projects etc

REGAL SALES CORPORATION

BS 10 : 1962

British Standard BS 10 : 1962 - Specification for Flanges and Bolting for Pipes, Valves, and Fittings. This covers plain, boss, integrally cast or forged, and welding neck type flanges, in ten tables. Although BS 10 is obsolescent, it remains in use for the dimensions of light duty, economy stainless steel flanges in applications where corrosion resistance and/or hygiene, rather than high pressures and temperatures, are the primary considerations. The following tables detail the applicable standard dimensions from Tables D, E, F and H of BS 10.

Flange Dimensions Based on Tables D and E of BS 10 : 1962

Common	BS 10 Table D Dimensions					BS 10 Table E Dimensions				
Flange Size Designation (Nominal Bore of Pipe)	Overall Diameter of Flange	Flange Thickness	Bolt Circle Diameter	Number of Bolts	Diameter of Bolts	Overall Diameter of Flange	Flange Thickness	Bolt Circle Diameter	Number of Bolts	Diameter of Bolts
in	in	in	in		in	in	in	in		in
1/2	3 3/4	3/16	2 5/8	4	1/2	3 3/4	1/4	2 5/8	4	1/2
3/4	4	3/16	2 7/8	4	1/2	4	1/4	2 7/8	4	1/2
1	4 1/2	3/16	3 1/4	4	1/2	4 1/2	9/32	3 1/4	4	1/2
1 1/4	4 3/4	1/4	3 7/16	4	1/2	4 3/4	5/16	3 7/16	4	1/2
1 1/2	5 1/4	1/4	3 7/8	4	1/2	5 1/4	11/32	3 7/8	4	1/2
2	6	5/16	4 1/2	4	5/8	6	3/8	4 1/2	4	5/8
2 1/2	6 1/2	5/16	5	4	5/8	6 1/2	13/32	5	4	5/8
3	7 1/4	3/8	5 3/4	4	5/8	7 1/4	7/16	5 3/4	4	5/8
3 1/2	8	3/8	6 1/2	4	5/8	8	15/32	6 1/2	8	5/8
4	8 1/2	3/8	7	4	5/8	8 1/2	1/2	7	8	5/8
5	10	1/2	8 1/4	8	5/8	10	9/16	8 1/4	8	5/8
6	11	1/2	9 1/4	8	5/8	11	11/16	9 1/4	8	3/4
7	12	1/2	10 1/4	8	5/8	12	3/4	10 1/4	8	3/4
8	13 1/4	1/2	11 1/2	8	5/8	13 1/4	3/4	11 1/2	8	3/4
9	14 1/2	5/8	12 3/4	8	5/8	14 1/2	1 3/16	12 3/4	12	3/4
10	16	5/8	14	8	3/4	16	7/8	14	12	3/4
12	18	3/4	16	12	3/4	18	1	16	12	7/8
13	19 1/4	3/4	17 1/4	12	3/4	19 1/4	1	17 1/4	12	7/8
14	20 3/4	7/8	18 1/2	12	7/8	20 3/4	1 1/8	18 1/2	12	7/8
15	21 3/4	7/8	19 1/2	12	7/8	21 3/4	1 1/4	19 1/2	12	7/8
16	22 3/4	7/8	20 1/2	12	7/8	22 3/4	1 1/4	20 1/2	12	7/8
17	24	1	21 3/4	12	7/8	24	1 3/8	21 3/4	12	7/8
18	25 1/4	1	23	12	7/8	25 1/4	1 3/8	23	16	7/8
19	26 1/2	1	24	12	7/8	26 1/2	1 1/2	24	16	7/8
20	27 3/4	1 1/8	25 1/4	16	7/8	27 3/4	1 1/2	25 1/4	16	7/8
21	29	1 1/8	26 1/2	16	7/8	29	1 5/8	26 1/2	16	1
22	30	1 1/8	27 1/2	16	1	30	1 3/4	27 1/2	16	1
23	31	1 1/8	28 1/2	16	1	31	1 3/4	28 1/2	16	1
24	32 1/2	1 1/4	29 3/4	16	1	32 1/2	1 7/8	29 3/4	16	1 1/8

Note

- Bolt hole diameters are as follows:
  For 1/2 in and 5/8 in bolts, the bolt hole shall be 1/16 in larger than the bolt diameter.
  For 3/4 in bolts and larger, the bolt hole shall be not more than 1/8 in larger than the bolt diameter.

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Flange Dimensions Based on Tables F and H of BS 10 : 1962

Common	BS 10 Table F Dimensions					BS 10 Table H Dimensions				
Flange Size Designation (Nominal Bore of Pipe)	Overall Diameter of Flange	Flange Thickness	Bolt Circle Diameter	Number of Bolts	Diameter of Bolts	Overall Diameter of Flange	Flange Thickness	Bolt Circle Diameter	Number of Bolts	Diameter of Bolts
1/2	3 3/4	3/8	2 5/8	4	1/2	4 1/2	1/2	3 1/4	4	5/8
3/4	4	3/8	2 7/8	4	1/2	4 1/2	1/2	3 1/4	4	5/8
1	4 3/4	3/8	3 7/16	4	5/8	4 3/4	9/16	3 7/16	4	5/8
1 1/4	5 1/4	1/2	3 7/8	4	5/8	5 1/4	11/16	3 7/8	4	5/8
1 1/2	5 1/2	1/2	4 1/8	4	5/8	5 1/2	11/16	4 1/8	4	5/8
2	6 1/2	5/8	5	4	5/8	6 1/2	3/4	5	4	5/8
2 1/2	7 1/4	5/8	5 3/4	8	5/8	7 1/4	3/4	5 3/4	8	5/8
3	8	5/8	6 1/2	8	5/8	8	7/8	6 1/2	8	5/8
3 1/2	8 1/2	3/4	7	8	5/8	8 1/2	7/8	7	8	5/8
4	9	3/4	7 1/2	8	5/8	9	1	7 1/2	8	5/8
5	11	7/8	9 1/4	8	3/4	11	1 1/8	9 1/4	8	3/4
6	12	7/8	10 1/4	12	3/4	12	1 1/8	10 1/4	12	3/4
7	13 1/4	7/8	11 1/2	12	3/4	13 1/4	1 1/4	11 1/2	12	3/4
8	14 1/2	1	12 3/4	12	3/4	14 1/2	1 1/4	12 3/4	12	3/4
9	16	1 1/8	14	12	7/8	16	1 3/8	14	12	7/8
10	17	1 1/8	15	12	7/8	17	1 3/8	15	12	7/8
12	19 1/4	1 1/4	17 1/4	16	7/8	19 1/4	1 5/8	17 1/4	16	7/8
13	20 3/4	1 3/8	18 1/2	16	1	20 3/4	1 3/4	18 1/2	16	1
14	21 3/4	1 3/8	19 1/2	16	1	21 3/4	1 7/8	19 1/2	16	1
15	22 3/4	1 1/2	20 1/2	16	1	22 3/4	2	20 1/2	16	1
16	24	1 5/8	21 3/4	20	1	24	2 1/8	21 3/4	20	1
17	25 1/4	1 3/4	23	20	1	25 1/4	2 1/4	23	20	1
18	26 1/2	1 3/4	24	20	1 1/8	26 1/2	2 3/8	24	20	1 1/8
19	27 3/4	1 3/4	25 1/4	20	1 1/8	27 3/4	2 1/2	25 1/4	20	1 1/8
20	29	2	26 1/2	24	1 1/8	29	2 5/8	26 1/2	24	1 1/8
21	30	2	27 1/2	24	1 1/8	30	2 3/4	27 1/2	24	1 1/8
22	31	2 1/8	28 1/2	24	1 1/8	31	2 3/4	28 1/2	24	1 1/8
23	32 1/2	2 1/4	29 3/4	24	1 1/4	32 1/2	3	29 3/4	24	1 1/4
24	33 1/2	2 1/4	30 3/4	24	1 1/4	33 1/2	3	30 3/4	24	1 1/4

Note

- Bolt hole diameters are as follows:
  For 1/2 in and 5/8 in bolts, the bolt hole shall be 1/16 in larger than the bolt diameter.
  For 3/4 in bolts and larger, the bolt hole shall be not more than 1/8 in larger than the bolt diameter.

Pressure/Temperature Ratings

The following tables (based on ANSI B16.5-1996 and B16.47-1996) provide pressure/ temperature ratings for stainless steel materials used for flanges. Refer to Section 4 for further details regarding ASTM A 182. Also, the chemical analyses of ASTM A 240 grades are included in Section 1.

Materials: 304, 304H

Nominal Designation	Forgings	Plates
18Cr-8Ni	A 182 Gr. F304[1] A 182 Gr. F304H	A 240 Gr. 304[1] A 240 Gr. 304H

Note
1 At temperatures over 1000°F, use only when the carbon content is 0.04% or higher.

Pressure/temperature ratings

Temperature		Working Pressures by Classes, psig						
°F	°C	150 lb	300 lb	400 lb	600 lb	900 lb	1500 lb	2500 lb
-20 to 100	-29 to 37.8	275	720	960	1440	2160	3600	6000
300	149	205	540	720	1080	1620	2700	4500
500	260	170	465	620	930	1395	2330	3880
700	371	110	425	565	850	1275	2125	3540
850	454	65	395	530	790	1190	1980	3300
1000	538	20	320	430	640	965	1605	2675
1150	566	-	200	265	400	595	995	1655
1300	704	-	85	115	170	255	430	715
1400	760	-	50	65	95	145	240	400
1500	816	-	25	35	55	80	135	230

Note
- psig = pounds per square inch gauge (0 psig = 14.7 psi absolute)

Materials: 316, 316H, 317

Nominal Designation	Forgings	Plates
16Cr-12Ni-2Mo	A 182 Gr. F316[1] A 182 Gr. F316H	A 240 Gr. 316[1] A 240 Gr. 316H
18Cr-13Ni-3Mo	-	A 240 Gr. 317[1]

Note
1 At temperatures over 1000°F, use only when the carbon content is 0.04% or higher.

Pressure/temperature ratings

Temperature		Working Pressures by Classes, psig						
°F	°C	150 lb	300 lb	400 lb	600 lb	900 lb	1500 lb	2500 lb
-20 to 100	-29 to 37.8	275	720	960	1440	2160	3600	6000
300	149	215	560	745	1120	1680	2795	4660
500	260	170	480	635	955	1435	2390	3980
700	371	110	430	580	870	1305	2170	3620
850	454	65	420	555	835	1255	2090	3480
1000	538	20	350	465	700	1050	1750	2915
1150	566	-	235	315	475	710	1185	1970
1300	704	-	115	155	235	350	585	970
1400	760	-	75	100	150	225	380	630
1500	816	-	40	55	85	125	205	345

Note
- psig = pounds per square inch gauge (0 psig = 14.7 psi absolute)

Pressure/Temperature Ratings

Materials: 316L, 304L

Nominal Designation	Forgings	Plates
16Cr-12Ni-2Mo 18Cr-8Ni	A 182 Gr. F316L A 182 Gr. F304L[1]	A 240 Gr. 316L A 240 Gr. 304L[1]

Note
1 Not to be used over 800°F.

Pressure/temperature ratings

Temperature		Working Pressures by Classes, psig						
°F	°C	150 lb	300 lb	400 lb	600 lb	900 lb	1500 lb	2500 lb
-20 to 100	-29 to 37.8	230	600	800	1200	1800	3000	5000
300	149	175	455	605	910	1360	2270	3780
500	260	145	380	510	765	1145	1910	3180
700	371	110	345	460	685	1030	1715	2860
850	454	65	320	430	645	965	1610	2680

Note
- psig = pounds per square inch gauge (0 psig = 14.7 psi absolute)

Materials: 321, 321H

Nominal Designation	Forgings	Plates
18Cr-10Ni-Ti	A 182 Gr. F321[2] A 182 Gr. F321H[1]	A 240 Gr. 321[2] A 240 Gr. 321H[1]

Notes
1 At temperatures over 1000°F, use only if the material is heat treated by heating to a minimum temperature of 2000°F.
2 Not to be used over 1000°F.

Pressure/temperature ratings

Temperature		Working Pressures by Classes, psig						
°F	°C	150 lb	300 lb	400 lb	600 lb	900 lb	1500 lb	2500 lb
-20 to 100	-29 to 37.8	275	720	960	1440	2160	3600	6000
300	149	230	595	795	1190	1785	2975	4960
500	260	170	515	685	1030	1545	2570	4285
700	371	110	465	620	930	1395	2330	3880
850	454	65	445	595	895	1340	2230	3720
1000	538	20	355	475	715	1070	1785	2970
1150	566	-	235	315	465	710	1185	1970
1300	704	-	110	145	220	330	550	915
1400	760	-	65	85	130	195	325	545
1500	816	-	40	50	75	115	190	315

Note
- psig = pounds per square inch gauge (0 psig = 14.7 psi absolute)

Pressure/Temperature Ratings

Materials: 347, 347H, 348, 348H

Nominal Designation	Forgings	Plates
18Cr-10Ni-Cb	A 182 Gr. F347[2] A 182 Gr. F347H[1] A 182 Gr. F348[2] A 182 Gr. F348H[1]	A 240 Gr. 347[2] A 240 Gr. 347H[1] A 240 Gr. 348[2] A 240 Gr. 348H[1]

Notes
1 At temperatures over 1000°F, use only if the material is heat treated by heating to a minimum temperature of 2000°F.
2 Not to be used over 1000°F.

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Pressure/temperature ratings

Temperature		Working Pressures by Classes, psig						
°F	°C	150 lb	300 lb	400 lb	600 lb	900 lb	1500 lb	2500 lb
-20 to 100	-29 to 37.8	275	720	960	1440	2160	3600	6000
300	149	230	615	820	1230	1845	3070	5120
500	260	170	540	720	1080	1620	2700	4500
700	371	110	495	660	990	1485	2470	4120
850	454	65	485	645	970	1455	2425	4040
1000	538	20	365	485	725	1090	1820	3030
1150	566	-	275	365	550	825	1370	2285
1300	704	-	95	125	185	280	465	770
1400	760	-	55	75	110	165	275	455
1500	816	-	35	45	70	105	170	285

Note
- psig = pounds per square inch gauge (0 psig = 14.7 psi absolute)

Materials: 309S, 309H

Nominal Designation	Forgings	Plates
23Cr-12Ni	-	A 240 Gr. 309S[1,2,3] A 240 Gr. 309H

Notes
1 At temperatures over 1000°F, use only when the carbon content is 0.04% or higher.
2 For temperatures above 1000°F, use only if the material solution is heat treated to the minimum temperature specified in the specification but not lower than 1900°F, and quenching in water or rapidly cooling by other means.
3 This material should be used for service temperatures 1050°F and above only when assurance is provided that grain size is not finer than ASTM 6.

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Pressure/temperature ratings

Temperature		Working Pressures by Classes, psig						
°F	°C	150 lb	300 lb	400 lb	600 lb	900 lb	1500 lb	2500 lb
-20 to 100	-29 to 37.8	260	670	895	1345	2015	3360	5600
300	149	220	570	760	1140	1705	2875	4740
500	260	170	505	670	1010	1510	2520	4200
700	371	110	455	610	910	1370	2280	3800
850	454	65	425	565	850	1275	2125	3540
1000	538	20	335	450	670	1010	1680	2800
1150	566	-	170	230	345	515	860	1430
1300	704	-	80	105	160	235	395	660
1400	760	-	45	60	90	135	225	370
1500	816	-	25	30	50	70	120	200

Note
- psig = pounds per square inch gauge (0 psig = 14.7 psi absolute)

Pressure/Temperature Ratings

Materials: 310, 310S, 310H

Nominal Designation	Forgings	Plates
25Cr-20Ni	A 182 Gr. F310[1,3]	A 240 Gr. 310S[1,2,3] A 240 Gr. 310H

Notes
1 At temperatures over 1000°F, use only when the carbon content is 0.04% or higher.
2 For temperatures above 1000°F, use only if the material is heat treated by heating it to a temperature of at least 1900°F and quenching in water or rapidly cooling by other means.
3 Service temperatures of 1050°F and above should only be used when assurance is provided that grain size is not finer than ASTM 6.

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Pressure/temperature ratings

Temperature		Working Pressures by Classes, psig						
°F	°C	150 lb	300 lb	400 lb	600 lb	900 lb	1500 lb	2500 lb
-20 to 100	-29 to 37.8	260	670	895	1345	2015	3360	5600
300	149	220	570	760	1140	1705	2845	4740
500	260	170	505	675	1015	1520	2530	4220
700	371	110	455	610	910	1370	2280	3800
850	454	65	425	575	855	1280	2135	3560
1000	538	20	345	460	685	1030	1720	2865
1150	566	-	190	250	375	565	945	1570
1300	704	-	75	100	150	225	375	630
1400	760	-	45	60	90	135	225	370
1500	816	-	25	35	50	75	130	215

Note
- psig = pounds per square inch gauge (0 psig = 14.7 psi absolute)

Materials: F44, F51, F53

Nominal Designation	Forgings	Plates
20Cr-18Ni-6Mo 22Cr-5Ni-3Mo-N 25Cr-7Ni-4Mo-N	A 182 Gr. F44 A 182 Gr. F51[1] A 182 Gr. F53[1]	A 240 Gr. S31254 A 240 Gr. S31803[1] A 240 Gr. S32750[1]

Note
1 This steel may become brittle after service at moderately elevated temperatures. Not to be used over 600°F.

Pressure/temperature ratings

Temperature		Working Pressures by Classes, psig						
°F	°C	150 lb	300 lb	400 lb	600 lb	900 lb	1500 lb	2500 lb
-20 to 100	-29 to 37.8	290	750	1000	1500	2250	3750	6250
300	149	230	665	885	1330	1995	3325	5540
500	260	170	575	770	1150	1730	2880	4800
700	371	110	540	725	1085	1625	2710	4520
750	399	95	530	710	1065	1595	2660	4430

Note
- psig = pounds per square inch gauge (0 psig = 14.7 psi absolute)