

Engineering Data

Pressure/Temperature Ratings – ASA Flanges

Body Material	Connection	Pressure rating – PSIG							
		100°F 37.8°C	450°F 232°C	500°F 260°C	650°F 343°C	850°F 454°C	950°F 482°C	1000°F 538°C	1125°F 607°C
Carbon Steel	ASA 150	275	165	150	120	82			
	ASA 300	720	650	625	515	300			
	ASA 600	1440	1305	1250	1030	600			
	ASA 900	2160	1955	1875	1550	900			
	ASA 1500	3600	3255	3125	2980	1500			

American Standard Flanges – Temperature/Pressure Ratings

Maximum working Pressure in kPa by Classes (For approximate PSI divide by 7)						
Temp °C	150	300	600	900	1500	2500
-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

Carbon Steel Pipe Flanges to ANSI/
ASME B16.5 – 1988 (BS.1560)
Forgings to ASTM A105 & A350LF2
Forgings to ASTM A181 Grade FII for
Class 150 and 300 only

Flange Tables

Note: AS – Australian Standard; ANSI – American National Standard Institute; BS – British Standard

Nominal Size: 15mm (1/2 in.)

Flange Standard	Outside Diameter of Flange	Pitch Circle Diameter	Number of Bolts	Size of Bolts	Length of Bolts	Valve Flange Thickness		
						Copper Alloy	Cast Iron S.G. Iron	Forged/ Cast Steel
AS2129 Tables C/D	95	67	4	M12	45	13	13	10
AS2129 Table E	95	67	4	M12	45	6	13	10
AS2129 Table F	95	67	4	M12	45	8	13	10
AS2129 Table H	115	83	4	M16	60	10	16	13
ANSI Class 125/150	89	60	4	1/2 UNC	50	—	12	12
ANSI Class 300	95	67	4	1/2 UNC	55	—	—	15
ANSI Class 600	95	67	4	1/2 UNC	55	—	—	15
BS4504 PN6	80	55	4	M10	45	6	12	12
BS4504 PN10	95	65	4	M12	50	6	14	14
BS4504 PN16	95	65	4	M12	50	6	14	14
BS4504 PN25	95	65	4	M12	55	8	16	16

Nominal Size: 20mm (3/4 in.)

Flange Standard	Outside Diameter of Flange	Pitch Circle Diameter	Number of Bolts	Size of Bolts	Length of Bolts	Valve Flange Thickness		
						Copper Alloy	Cast Iron S.G. Iron	Forged/ Cast Steel
AS2129 Tables C/D	100	73	4	M12	45	13	13	10
AS2129 Table E	100	73	4	M12	45	6	13	10
AS2129 Table F	100	73	4	M12	45	8	13	10
AS2129 Table H	115	83	4	M16	60	10	16	13
ANSI Class 125/150	98	70	4	1/2 UNC	55	—	13	14
ANSI Class 300	117	83	4	5/8 UNC	60	—	—	16
ANSI Class 600	117	83	4	5/8 UNC	60	—	—	16
BS4504 PN6	90	65	4	M10	50	6	14	14
BS4504 PN10	105	75	4	M12	55	6	16	16
BS4504 PN16	105	75	4	M12	55	6	16	16
BS4504 PN25	105	75	4	M12	60	8	18	18

Nominal Size: 25mm (1 in.)

Flange Standard	Outside Diameter of Flange	Pitch Circle Diameter	Number of Bolts	Size of Bolts	Length of Bolts	Valve Flange Thickness		
						Copper Alloy	Cast Iron S.G. Iron	Forged/ Cast Steel
AS2129 Tables C/D	115	83	4	M12	45	13	13	10
AS2129 Table E	115	83	4	M12	45	8	13	10
AS2129 Table F	120	87	4	M16	50	10	13	10
AS2129 Table H	120	87	4	M16	60	11	19	14
ANSI Class 125/150	108	79	4	1/2 UNC	55	—	13	14
ANSI Class 300	124	89	4	3/8 UNC	65	—	—	18
ANSI Class 600	124	89	4	5/8 UNC	65	—	—	18
BS4504 PN6	100	75	4	M10	50	8	14	14
BS4504 PN10	115	85	4	M12	55	8	16	16
BS4504 PN16	115	85	4	M12	55	8	16	16
BS4504 PN25	115	85	4	M12	60	9	18	18

Nominal Size: 32mm (1-1/4 in.)

Flange Standard	Outside Diameter of Flange	Pitch Circle Diameter	Number of Bolts	Size of Bolts	Length of Bolts	Valve Flange Thickness		
						Copper Alloy	Cast Iron S.G. Iron	Forged/ Cast Steel
AS2129 Tables C/D	120	87	4	M12	50	16	16	13
AS2129 Table E	120	87	4	M12	50	8	16	13
AS2129 Table F	135	98	4	M16	55	10	16	13
AS2129 Table H	135	98	4	M16	65	11	22	17
ANSI Class 125/150	117	89	4	1/2 UNC	55	—	13	16
ANSI Class 300	133	98	4	5/8 UNC	75	—	—	22
ANSI Class 600	133	98	4	5/8 UNC	75	—	—	22
BS4504 PN6	120	90	4	M12	55	8	16	14
BS4504 PN10	140	100	4	M16	60	8	18	16
BS4504 PN16	140	100	4	M16	60	8	18	16
BS4504 PN25	140	100	4	M16	65	9	20	18

Nominal Size: 40mm (1-1/2 in.)

Flange Standard	Outside Diameter of Flange	Pitch Circle Diameter	Number of Bolts	Size of Bolts	Length of Bolts	Valve Flange Thickness		
						Copper Alloy	Cast Iron S.G. Iron	Forged/ Cast Steel
AS2129 Tables C/D	135	98	4	M12	50	16	16	13
AS2129 Table E	135	98	4	M12	50	10	16	13
AS2129 Table F	140	105	4	M16	55	11	16	13
AS2129 Table H	140	105	4	M16	65	13	22	17
ANSI Class 125/150	127	98	4	1/2 UNC	60	—	14	18
ANSI Class 300	156	114	4	3/4 UNC	80	—	—	22
ANSI Class 600	156	114	4	3/4 UNC	80	—	—	22
BS4504 PN6	130	100	4	M12	55	9	16	14
BS4504 PN10	150	110	4	M16	60	9	18	16
BS4504 PN16	150	110	4	M16	60	9	18	16
BS4504 PN25	150	110	4	M16	65	11	20	18

Nominal Size: 50mm (2 in.)

Flange Standard	Outside Diameter of Flange	Pitch Circle Diameter	Number of Bolts	Size of Bolts	Length of Bolts	Valve Flange Thickness		
						Copper Alloy	Cast Iron S.G. Iron	Forged/ Cast Steel
AS2129 Tables C/D	150	114	4	M16	60	19	19	14
AS2129 Table E	150	114	4	M16	60	10	19	14
AS2129 Table F	165	127	4	M16	60	11	19	16
AS2129 Table H	165	127	4	M16	75	13	25	19
ANSI Class 125/150	152	121	4	5/8 UNC	70	—	18	20
ANSI Class 300	165	127	8	5/8 UNC	75	—	—	22
ANSI Class 600	165	127	8	5/8 UNC	80	—	—	26
BS4504 PN6	140	110	4	M12	55	11	16	14
BS4504 PN10	165	125	4	M16	65	11	20	18
BS4504 PN16	165	125	4	M16	65	11	20	18
BS4504 PN25	165	125	4	M16	70	11	22	20

Nominal Size: 65mm (2-1/2 in.)

Flange Standard	Outside Diameter of Flange	Pitch Circle Diameter	Number of Bolts	Size of Bolts	Length of Bolts	Valve Flange Thickness		
						Copper Alloy	Cast Iron S.G. Iron	Forged/ Cast Steel
AS2129 Tables C/D	165	127	4	M16	60	19	19	14
AS2129 Table E	165	127	4	M16	60	11	19	14
AS2129 Table F	185	146	8	M16	60	13	19	16
AS2129 Table H	185	146	8	M16	75	14	25	19
ANSI Class 125/150	178	140	4	5/8 UNC	80	—	18	23
ANSI Class 300	191	149	8	3/4 UNC	90	—	—	26
ANSI Class 600	191	149	8	3/4 UNC	100	—	—	30
BS4504 PN6	160	130	4	M12	55	13	16	14
BS4504 PN10	185	145	4	M16	65	13	20	18
BS4504 PN16	185	145	4	M16	65	13	20	18
BS4504 PN25	185	145	8	M16	75	13	24	22

Nominal Size: 80mm (3 in.)

Flange Standard	Outside Diameter of Flange	Pitch Circle Diameter	Number of Bolts	Size of Bolts	Length of Bolts	Valve Flange Thickness		
						Copper Alloy	Cast Iron S.G. Iron	Forged/ Cast Steel
AS2129 Tables C/D	185	146	4	M16	60	19	19	14
AS2129 Table E	185	146	4	M16	60	13	19	14
AS2129 Table F	205	165	8	M16	60	14	19	16
AS2129 Table H	205	165	8	M16	75	16	29	22
ANSI Class 125/150	191	152	4	5/8 UNC	80	—	20	24
ANSI Class 300	210	168	8	3/4 UNC	100	—	—	32
ANSI Class 600	210	168	8	3/4 UNC	100	—	—	32
BS4504 PN6	190	150	4	M16	60	13	18	16
BS4504 PN10	200	160	8	M16	70	13	22	20
BS4504 PN16	200	160	8	M16	70	13	22	20
BS4504 PN25	200	160	8	M16	80	14	26	24

Nominal Size: 100mm (4 in.)

Flange Standard	Outside Diameter of Flange	Pitch Circle Diameter	Number of Bolts	Size of Bolts	Length of Bolts	Valve Flange Thickness		
						Copper Alloy	Cast Iron S.G. Iron	Forged/ Cast Steel
AS2129 Tables C/D	215	178	4	M16	65	22	22	17
AS2129 Table E	215	178	8	M16	65	16	22	17
AS2129 Table F	230	191	8	M16	65	17	22	19
AS2129 Table H	230	191	8	M16	85	19	32	25
ANSI Class 125/150	229	191	8	5/8 UNC	80	—	24	24
ANSI Class 300	254	200	8	3/4 UNC	100	—	—	32
ANSI Class 600	273	216	8	7/8 UNC	120	—	—	38
BS4504 PN6	210	170	4	M16	60	16	18	16
BS4504 PN10	220	180	8	M16	75	16	24	20
BS4504 PN16	220	180	8	M16	75	16	24	20
BS4504 PN25	235	190	8	M20	90	17	28	24

Nominal Size: 125mm (5 in.)

Flange Standard	Outside Diameter of Flange	Pitch Circle Diameter	Number of Bolts	Size of Bolts	Length of Bolts	Valve Flange Thickness		
						Copper Alloy	Cast Iron S.G. Iron	Forged/ Cast Steel
AS2129 Tables C/D	255	210	8	M16	65	22	22	17
AS2129 Table E	255	210	8	M16	65	17	22	17
AS2129 Table F	280	235	8	M20	75	19	25	22
AS2129 Table H	280	235	8	M20	100	22	35	29
ANSI Class 125/150	254	216	8	3/4 UNC	85	—	24	24
ANSI Class 300	279	235	8	3/4 UNC	110	—	—	35
ANSI Class 600	330	267	8	1 UNC	140	—	—	45
BS4504 PN6	240	200	8	M16	70	20	20	18
BS4504 PN10	250	210	8	M16	80	22	26	22
BS4504 PN16	250	210	8	M16	80	22	26	22
BS4504 PN25	270	220	8	M24	100	26	30	26

Nominal Size: 150mm (6 in.)

Flange Standard	Outside Diameter of Flange	Pitch Circle Diameter	Number of Bolts	Size of Bolts	Length of Bolts	Valve Flange Thickness		
						Copper Alloy	Cast Iron S.G. Iron	Forged/ Cast Steel
AS2129 Tables C/D	280	235	8	M16	65	22	22	17
AS2129 Table E	280	235	8	M20	70	17	22	17
AS2129 Table F	305	260	12	M20	80	22	25	22
AS2129 Table H	305	260	12	M20	100	25	35	29
ANSI Class 125/150	279	241	8	3/4 UNC	90	—	25	26
ANSI Class 300	318	270	12	3/4 UNC	110	—	—	37
ANSI Class 600	356	292	12	1 UNC	150	—	—	48
BS4504 PN6	265	225	8	M16	70	20	20	18
BS4504 PN10	285	240	8	M20	90	22	26	22
BS4504 PN16	285	240	8	M20	90	22	26	22
BS4504 PN25	300	250	8	M24	110	26	34	28

Nominal Size: 200mm (8 in.)

Flange Standard	Outside Diameter of Flange	Pitch Circle Diameter	Number of Bolts	Size of Bolts	Length of Bolts	Valve Flange Thickness		
						Copper Alloy	Cast Iron S.G. Iron	Forged/ Cast Steel
AS2129 Tables C/D	335	292	8	M16	70	25	25	19
AS2129 Table E	335	292	8	M20	75	19	25	19
AS2129 Table F	370	324	12	M20	90	25	29	25
AS2129 Table H	370	324	12	M20	100	32	38	32
ANSI Class 125/150	343	299	8	3/4 UNC	100	—	29	29
ANSI Class 300	381	330	12	7/8 UNC	120	—	—	41
ANSI Class 600	419	349	12	1-1/8 UNC	160	—	—	56
BS4504 PN6	320	280	8	M16	70	22	22	20
BS4504 PN10	340	295	8	M20	90	26	26	24
BS4504 PN16	340	295	12	M20	90	26	30	24
BS4504 PN25	360	310	12	M24	110	30	34	30

Nominal Size: 250mm (10 in.)

Flange Standard	Outside Diameter of Flange	Pitch Circle Diameter	Number of Bolts	Size of Bolts	Length of Bolts	Valve Flange Thickness		
						Copper Alloy	Cast Iron S.G. Iron	Forged/ Cast Steel
AS2129 Tables C/D	405	356	8	M20	75	25	25	19
AS2129 Table E	405	356	12	M20	75	22	25	22
AS2129 Table F	430	381	12	M24	90	25	29	25
AS2129 Table H	430	381	12	M24	120	35	41	35
ANSI Class 125/150	406	362	12	7/8 UNC	100	—	30	30
ANSI Class 300	445	387	16	1 UNC	140	—	—	48
ANSI Class 600	508	432	16	1-1/4 UNC	180	—	—	64
BS4504 PN6	375	335	12	M16	75	24	24	22
BS4504 PN10	395	350	12	M20	90	28	28	26
BS4504 PN16	405	355	12	M24	100	28	32	26
BS4504 PN25	425	370	12	M27	110	32	36	32

Nominal Size: 300mm (12 in.)

Flange Standard	Outside Diameter of Flange	Pitch Circle Diameter	Number of Bolts	Size of Bolts	Length of Bolts	Valve Flange Thickness		
						Copper Alloy	Cast Iron S.G. Iron	Forged/ Cast Steel
AS2129 Tables C/D	455	406	12	M20	85	29	29	22
AS2129 Table E	455	406	12	M24	90	25	29	25
AS2129 Table F	490	438	16	M24	100	29	32	29
AS2129 Table H	490	438	16	M24	120	38	44	38
ANSI Class 125/150	483	432	12	7/8 UNC	100	—	32	32
ANSI Class 300	521	451	16	1-1/8 UNC	150	—	—	51
ANSI Class 600	559	489	20	1-1/4 UNC	200	—	—	67
BS4504 PN6	440	395	12	M20	80	24	24	22
BS4504 PN10	445	400	12	M20	90	—	28	28
BS4504 PN16	460	410	12	M24	100	—	32	28
BS4504 PN25	485	430	16	M27	120	—	40	34

Nominal Size: 350mm (14 in.)

Flange Standard	Outside Diameter of Flange	Pitch Circle Diameter	Number of Bolts	Size of Bolts	Length of Bolts	Valve Flange Thickness		
						Copper Alloy	Cast Iron S.G. Iron	Forged/ Cast Steel
AS2129 Tables C/D	525	470	12	M24	100	32	32	25
AS2129 Table E	525	470	12	M24	100	25	32	25
AS2129 Table F	550	495	16	M27	110	32	35	32
AS2129 Table H	550	495	16	M27	130	41	48	41
ANSI Class 125/150	533	476	12	1 UNC	110	—	35	35
ANSI Class 300	584	514	20	1-1/8 UNC	160	—	—	54
ANSI Class 600	603	527	20	1-3/8 UNC	200	—	—	70
BS4504 PN6	490	445	12	M20	80	26	26	22
BS4504 PN10	505	460	16	M20	90	—	30	30
BS4504 PN16	520	470	16	M24	120	—	36	30
BS4504 PN25	555	490	16	M30	130	—	44	38

Nominal Size: 375mm (15 in.)

Flange Standard	Outside Diameter of Flange	Pitch Circle Diameter	Number of Bolts	Size of Bolts	Length of Bolts	Valve Flange Thickness		
						Copper Alloy	Cast Iron S.G. Iron	Forged/ Cast Steel
AS2129 Tables C/D	550	495	12	M24	95	32	32	25
AS2129 Table E	550	495	12	M24	95	25	32	32
AS2129 Table F	580	521	16	M27	110	32	35	38
AS2129 Table H	580	521	16	M27	140	44	50	51

Nominal Size: 400mm (16 in.)

Flange Standard	Outside Diameter of Flange	Pitch Circle Diameter	Number of Bolts	Size of Bolts	Length of Bolts	Valve Flange Thickness		
						Copper Alloy	Cast Iron S.G. Iron	Forged/ Cast Steel
AS2129 Tables C/D	580	521	12	M24	95	32	32	25
AS2129 Table E	580	521	12	M24	95	25	32	25
AS2129 Table F	610	552	20	M27	110	32	35	32
AS2129 Table H	610	552	20	M27	140	44	51	44
ANSI Class 125/150	597	540	16	1 UNC	120	—	37	37
ANSI Class 300	650	572	20	1-1/4 UNC	170	—	—	57
ANSI Class 600	686	603	20	1-1/2 UNC	210	—	—	76
BS4504 PN6	540	495	16	M20	90	28	28	22
BS4504 PN10	565	515	16	M24	100	—	32	32
BS4504 PN16	580	525	16	M27	120	—	38	32
BS4504 PN25	620	550	16	M33	140	—	48	40

Nominal Size: 450mm (18 in.)

Flange Standard	Outside Diameter of Flange	Pitch Circle Diameter	Number of Bolts	Size of Bolts	Length of Bolts	Valve Flange Thickness		
						Copper Alloy	Cast Iron S.G. Iron	Forged/ Cast Steel
AS2129 Tables C/D	640	584	12	M24	100	35	35	29
AS2129 Table E	640	584	16	M24	100	29	35	29
AS2129 Table F	675	610	20	M30	120	35	38	35
AS2129 Table H	675	610	20	M30	160	48	54	48
ANSI Class 125/150	635	578	16	1-1/8 UNC	130	—	40	40
ANSI Class 300	711	629	24	1-1/4 UNC	180	—	—	60
ANSI Class 600	743	654	20	1-5/8 UNC	230	—	—	83
BS4504 PN6	595	550	16	M20	90	30	30	24
BS4504 PN10	615	565	20	M24	100	—	32	34
BS4504 PN16	640	585	20	M27	120	—	40	34
BS4504 PN25	670	600	20	M33	150	—	50	42

Nominal Size: 500mm (20 in.)

Flange Standard	Outside Diameter of Flange	Pitch Circle Diameter	Number of Bolts	Size of Bolts	Length of Bolts	Valve Flange Thickness		
						Copper Alloy	Cast Iron S.G. Iron	Forged/ Cast Steel
AS2129 Tables C/D	705	641	16	M24	110	38	38	35
AS2129 Table E	705	641	16	M24	110	35	38	32
AS2129 Table F	735	673	24	M30	120	38	41	38
AS2129 Table H	735	673	24	M30	150	51	57	51
ANSI Class 125/150	700	635	20	1-1/8 UNC	140	—	43	43
ANSI Class 300	775	686	24	1-1/4 UNC	190	—	—	64
ANSI Class 600	813	724	24	1-5/8 UNC	240	—	—	89
BS4504 PN6	645	600	20	M20	90	30	30	24
BS4504 PN10	670	620	20	M24	110	—	34	36
BS4504 PN16	715	650	20	M30	130	—	42	36
BS4504 PN25	730	660	20	M33	150	—	52	44

Nominal Size: 600mm (24 in.)

Flange Standard	Outside Diameter of Flange	Pitch Circle Diameter	Number of Bolts	Size of Bolts	Length of Bolts	Valve Flange Thickness		
						Copper Alloy	Cast Iron S.G. Iron	Forged/ Cast Steel
AS2129 Tables C/D	825	756	16	M27	120	41	41	38
AS2129 Table E	825	756	16	M30	140	38	41	35
AS2129 Table F	850	781	24	M33	160	41	44	41
AS2129 Table H	850	781	24	M33	180	57	64	57
ANSI Class 125/150	815	749	20	1-1/4 UNC	150	—	48	48
ANSI Class 300	915	813	24	1-1/2 UNC	200	—	—	70
ANSI Class 600	940	838	24	1-7/8 UNC	280	—	—	102
BS4504 PN6	755	705	20	M24	100	30	30	24
BS4504 PN10	780	725	20	M27	120	—	36	40
BS4504 PN16	840	770	20	M33	140	—	48	40
BS4504 PN25	845	770	20	M36	150	—	—	46

Nominal Size: 700mm (28 in.)

Flange Standard	Outside Diameter of Flange	Pitch Circle Diameter	Number of Bolts	Size of Bolts	Length of Bolts	Valve Flange Thickness		
						Copper Alloy	Cast Iron S.G. Iron	Forged/ Cast Steel
AS2129 Tables C/D	910	845	20	M27	130	44	44	38
AS2129 Table E	910	845	20	M30	140	—	44	44
AS2129 Table F	935	857	24	M33	160	—	48	48
BS4504 PN6	860	810	24	M24	110	—	32	—
BS4504 PN10	895	840	24	M27	130	—	40	—
BS4504 PN16	910	840	24	M33	160	—	54	—

Nominal Size: 750mm (30 in.)

Flange Standard	Outside Diameter of Flange	Pitch Circle Diameter	Number of Bolts	Size of Bolts	Length of Bolts	Valve Flange Thickness		
						Copper Alloy	Cast Iron S.G. Iron	Forged/ Cast Steel
AS2129 Tables C/D	995	927	20	M30	140	—	48	41
AS2129 Table E	995	927	20	M33	160	—	48	48
AS2129 Table F	1015	940	28	M33	170	—	51	51

Nominal Size: 800mm (32 in.)

Flange Standard	Outside Diameter of Flange	Pitch Circle Diameter	Number of Bolts	Size of Bolts	Length of Bolts	Valve Flange Thickness		
						Copper Alloy	Cast Iron S.G. Iron	Forged/ Cast Steel
AS2129 Tables C/D	1060	984	20	M33	150	48	48	41
AS2129 Table E	1060	984	20	M33	160	—	48	48
AS2129 Table F	1060	984	28	M33	180	—	52	52
BS4504 PN6	975	920	24	M27	110	—	34	—
BS4504 PN10	1015	950	24	M30	140	—	44	—
BS4504 PN16	1025	950	24	M36	170	—	58	—

Nominal Size: 900mm (36 in.)

Flange Standard	Outside Diameter of Flange	Pitch Circle Diameter	Number of Bolts	Size of Bolts	Length of Bolts	Valve Flange Thickness		
						Copper Alloy	Cast Iron S.G. Iron	Forged/ Cast Steel
AS2129 Tables C/D	1175	1092	24	M33	160	51	51	44
AS2129 Table E	1175	1092	24	M33	170	—	51	51
AS2129 Table F	1185	1105	32	M36	200	—	57	57
BS4504 PN6	1075	1020	24	M27	120	—	36	—
BS4504 PN10	1115	1050	28	M30	140	—	46	—
BS4504 PN16	1125	1050	28	M36	180	—	62	—