



QUALITY RELIABILITY & SERVICE ASSURED

## SECTION 13a

# Flange Tables

**Tel: +44 (0)1695 712800 Fax: +44 (0)1695 712820**

Email: [sales@hattersley.com](mailto:sales@hattersley.com)

[export@hattersley.com](mailto:export@hattersley.com)

[www.hattersley.com](http://www.hattersley.com)

This information is extracted from the following European, British and American standards:-

BS EN 1092 Circular flanges for pipes, valves, fittings and accessories, PN designated Part 1 Steel flanges

Part 2 Cast iron flanges

BS 4504 Flanges and bolting for pipes, valves, and fittings metric series (for copper alloy flanges only)

ANSI B16.1 Cast Iron pipe flanges and flanged fittings.

ANSI B16.5 Steel pipe flanges and flanged fittings.

ANSI B16.24 Bronze flanges and flanged fittings.

BS10 Flanges and bolting for pipes, valves and fittings.

Notes.

1. Raised joint faces are applicable to BS EN 1092-1, BS EN 1092-2, BS10 ANSI table H steel, and classes 150 to 1500 inclusive.

2. ANSI Class 125 refers to cast iron only.

3. ANSI 600, 900, 1500 flange thickness does not include raised face.

4. Dimensions for flanges to BS EN 1092 are given in millimetres only. Dimensions for ANSI and BS 10 flanges are shown in inches with the metric equivalent (to nearest whole millimetre) in brackets.

In this catalogue we have endeavoured to make the information as accurate as possible, and we cannot accept any responsibility should it be found that in any respect the information is inaccurate or incomplete or becomes so as a result of further developments.

## Flange Tables

### Nominal Size 15mm (1/2 in)

BS EN 1092	Diameter of flange	Bolt circle diameter	Number of bolts	Diameter of bolts	Diameter of holes	Diameter of raised face(3) iron	Diameter of raised face(3) steel	Height of raised face(3)	Thickness of flange			
									Grey cast iron	Copper alloy	Cast and forged steel	Ductile cast iron
PN 6	80	55	4	M10	11	38	40	2	12 (1)	-	12	-
PN 10	95	65	4	M12	14	46	45	2	14 (1)	-	16	14
PN 16	95	65	4	M12	14	46	45	2	14 (1)	6 (2)	16	14
PN 25	95	65	4	M12	14	46	45	2	16 (1)	8 (2)	16	14
PN 40	95	65	4	M12	14	46	45	2	-	9 (2)	16	16
PN 64	105	75	4	M12	14	-	45	2	-	-	20	-
<b>ANSI</b>												
Class 125/150	3 1/2 (89)	2 3/8 (60)	4	1/2 (13)	5/8 (16)	-	1 3/8 (35)	1/16 (2)	-	5/16 (8)	7/16 (11)	-
Class 300	3 3/4 (95)	2 5/8 (67)	4	1/2 (13)	5/8 (16)	-	1 3/8 (35)	1/16 (2)	-	1/2 (13)	1/2 (13)	-
Class 600	3 3/4 (95)	2 5/8 (67)	4	1/2 (13)	5/8 (16)	-	1 3/8 (35)	1/4 (6)	-	-	9/16 (14)	-
Class 900	4 3/4 (121)	3 1/4 (83)	4	3/4 (19)	7/8 (22)	-	1 3/8 (35)	1/4 (6)	-	-	7/8 (22)	-
Class 1500	4 3/4 (121)	3 1/4 (83)	4	3/4 (19)	7/8 (22)	-	1 3/8 (35)	1/4 (6)	-	-	7/8 (22)	-
<b>BS 10</b>												
Table A	3 3/4 (95)	2 5/8 (67)	4	1/2 (13)	9/16 (14)	-	-	-	1/2 (13)	1/4 (6)	-	-
Table D	3 3/4 (95)	2 5/8 (67)	4	1/2 (13)	9/16 (14)	-	-	-	1/2 (13)	1/4 (6)	3/8 (10)	-
Table E	3 3/4 (95)	2 5/8 (67)	4	1/2 (13)	9/16 (14)	-	-	-	1/2 (13)	1/4 (6)	3/8 (10)	-
Table F	3 3/4 (95)	2 5/8 (67)	4	1/2 (13)	9/16 (14)	-	-	-	1/2 (13)	5/16 (8)	3/8 (10)	-
Table H	4 1/2 (114)	3 1/4 (83)	4	5/8 (16)	1 1/16 (17)	-	2 1/4 (57)	1/16 (2)	5/8 (16)	3/8 (10)	1/2 (13)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) Flange thicknesses for copper alloy are from BS4504

(3) Copper alloy flanges are always flat-faced

## Flange Tables

### Nominal Size 20mm (3/4in)

BS EN 1092	Diameter of flange	Bolt circle diameter	Number of bolts	Diameter of bolts	Diameter of holes	Diameter of raised face(3) iron	Diameter of raised face(3) steel	Height of raised face(3)	Thickness of flange			
									Grey cast iron	Copper alloy	Cast and forged steel	Ductile cast iron
PN 6	90	65	4	M10	11	48	50	2	14 (1)	-	14	-
PN 10	105	75	4	M12	14	56	58	2	16 (1)	-	18	16
PN 16	105	75	4	M12	14	56	58	2	16 (1)	6 (2)	18	16
PN 25	105	75	4	M12	14	56	58	2	18 (1)	8 (2)	18	16
PN 40	105	75	4	M12	14	56	58	2	-	9 (2)	18	18
PN 64	130	90	4	M16	18	-	58	2	-	-	22	-
PN 100	130	90	4	M16	18	-	58	2	-	-	22	-
<b>ANSI</b>												
Class 125/150	37/8 (98)	23/4 (70)	4	1/2 (13)	5/8 (16)	-	111/16 (43)	1/16 (2)	-	11/32 (9)	9/16 (14)	-
Class 300	45/8 (117)	31/4 (83)	4	5/8 (16)	3/4 (19)	-	111/16 (43)	1/16 (2)	-	17/32 (13)	5/8 (16)	-
Class 600	45/8 (117)	31/4 (83)	4	5/8 (16)	3/4 (19)	-	111/16 (43)	1/4 (6)	-	-	5/8 (16)	-
Class 900	51/8 (130)	31/2 (89)	4	3/4 (19)	7/8 (22)	-	111/16 (43)	1/4 (6)	-	-	1 (25)	-
Class 1500	51/8 (130)	31/2 (89)	4	3/4 (19)	7/8 (22)	-	111/16 (43)	1/4 (6)	-	-	1 (25)	-
<b>BS 10</b>												
Table A	4 (102)	27/8 (73)	4	1/2 (13)	9/16 (14)	-	-	-	1/2 (13)	1/4 (6)	-	-
Table D	4 (102)	27/8 (73)	4	1/2 (13)	9/16 (14)	-	-	-	1/2 (13)	1/4 (6)	3/8 (10)	-
Table E	4 (102)	27/8 (73)	4	1/2 (13)	9/16 (14)	-	-	-	1/2 (13)	1/4 (6)	3/8 (10)	-
Table F	4 (102)	27/8 (73)	4	1/2 (13)	9/16 (14)	-	-	-	1/2 (13)	5/16 (8)	3/8 (10)	-
Table H	4 1/2 (114)	3 1/4 (83)	4	5/8 (16)	1 1/16 (17)	-	2 1/4 (57)	1/16 (2)	5/8 (16)	3/8 (10)	1/2 (13)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) Flange thicknesses for copper alloy are from BS4504

(3) Copper alloy flanges are always flat-faced

## Flange Tables

### Nominal Size 25mm (1in)

BS EN 1092	Diameter of flange	Bolt circle diameter	Number of bolts	Diameter of bolts	Diameter of holes	Diameter of raised face(3) iron	Diameter of raised face(3) steel	Height of raised face(3) iron	Height of raised face(3) steel	Thickness of flange			
										Grey cast iron	Copper alloy	Cast and forged steel	Ductile cast iron
PN 6	100	75	4	M10	11	58	60	3	2	14 (1)	-	14	-
PN 10	115	85	4	M12	14	65	68	3	2	16 (1)	-	18	16
PN 16	115	85	4	M12	14	65	68	3	2	16 (1)	8 (2)	18	16
PN 25	115	85	4	M12	14	65	68	3	2	18 (1)	9 (2)	18	16
PN 40	115	85	4	M12	14	65	68	3	2	-	11 (2)	18	18
PN 64	140	100	4	M16	18	-	68	-	2	-	-	24	-
PN 100	140	100	4	M16	18	-	68	-	2	-	-	24	-
<b>ANSI</b>													
Class 125/150	4 1/4 (114)	3 1/8 (79)	4	1/2 (13)	5/8 (16)	-	2 (51)	-	1/16 (2)	7/16 (11)	3/8 (10)	7/16 (11)	9/10 (14)
Class 300	4 7/8 (124)	3 1/2 (89)	4	5/8 (16)	3/4 (19)	-	2 (51)	-	1/16 (2)	-	19/32 (15)	1 1/16 (17)	-
Class 600	4 7/8 (124)	3 1/2 (89)	4	5/8 (16)	3/4 (19)	-	2 (51)	-	1/4 (6)	-	-	1 1/16 (17)	-
Class 900	5 7/8 (149)	4 (102)	4	7/8 (22)	1 (25)	-	2 (51)	-	1/4 (6)	-	-	1 1/8 (29)	-
Class 1500	5 7/8 (149)	4 (102)	4	7/8 (22)	1 (25)	-	2 (51)	-	1/4 (6)	-	-	1 1/8 (29)	-
<b>BS 10</b>													
Table A	4 1/2 (114)	3 1/4 (83)	4	1/2 (13)	9/16 (14)	-	-	-	-	1/2 (13)	5/16 (8)	-	-
Table D	4 1/2 (114)	3 1/4 (83)	4	1/2 (13)	9/16 (14)	-	-	-	-	1/2 (13)	5/16 (8)	3/8 (10)	-
Table E	4 1/2 (114)	3 1/4 (83)	4	1/2 (13)	9/16 (14)	-	-	-	-	1/2 (13)	5/16 (8)	3/8 (10)	-
Table F	4 3/4 (121)	3 7/16 (87)	4	5/8 (16)	1 1/16 (17)	-	-	-	-	1/2 (13)	3/8 (10)	3/8 (10)	-
Table H	4 3/4 (121)	3 7/16 (87)	4	5/8 (16)	1 1/16 (17)	-	2 1/2 (64)	-	1/16 (2)	3/4 (19)	7/16 (11)	9/16 (14)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) Flange thicknesses for copper alloy are from BS4504

(3) Copper alloy flanges are always flat-faced

## Flange Tables

### Nominal Size 32mm (1 1/4in)

BS EN 1092	Diameter of flange	Bolt circle diameter	Number of bolts	Diameter of bolts	Diameter of holes iron	Diameter of holes steel	Diameter of raised face(3) iron	Diameter of raised face(3) steel	Height of raised face(3) iron	Height of raised face(3) steel	Thickness of flange			
											Grey cast iron	Copper alloy	Cast and forged steel	Ductile cast iron
PN 6	120	90	4	M12	14	14	69	70	3	2	16 (1)	-	14	-
PN 10	140	100	4	M16	19	18	76	78	3	2	18 (1)	-	18	18
PN 16	140	100	4	M16	19	18	76	78	3	2	18 (1)	8 (2)	18	18
PN 25	140	100	4	M16	19	18	76	78	3	2	20 (1)	9 (2)	18	18
PN 40	140	100	4	M16	19	18	76	78	3	2	-	11 (2)	18	20
PN 64	155	110	4	M20	-	22	-	78	-	2	-	-	26	-
PN 100	155	110	4	M20	-	22	-	78	-	2	-	-	26	-
<b>ANSI</b>														
Class 125/150	45/8 (117)	31/2 (89)	4	1/2 (13)	5/8 (16)	5/8 (16)	-	21/2 (64)	-	1/16 (2)	1/2 (13)	13/32 (10)	1/2 (13)	5/8 (16)
Class 300	51/4 (133)	37/8 (98)	4	5/8 (16)	-	3/4 (19)	-	21/2 (64)	-	1/16 (2)	-	5/8 (16)	3/4 (19)	-
Class 600	51/4 (133)	37/8 (98)	4	5/8 (16)	-	3/4 (19)	-	21/2 (64)	-	1/4 (6)	-	-	13/16 (21)	-
Class 900	61/4 (159)	43/8 (111)	4	7/8 (22)	-	1 (25)	-	21/2 (64)	-	1/4 (6)	-	-	11/8 (29)	-
Class 1500	61/4 (159)	43/8 (111)	4	7/8 (22)	-	1 (25)	-	21/2 (64)	-	1/4 (6)	-	-	11/8 (29)	-
<b>BS 10</b>														
Table A	43/4 (121)	37/16 (87)	4	1/2 (13)	9/16 (14)	9/16 (14)	-	-	-	-	5/8 (16)	5/16 (8)	-	-
Table D	43/4 (121)	37/16 (87)	4	1/2 (13)	9/16 (14)	9/16 (14)	-	-	-	-	5/8 (16)	5/16 (8)	1/2 (13)	-
Table E	43/4 (121)	37/16 (87)	4	1/2 (13)	9/16 (14)	9/16 (14)	-	-	-	-	5/8 (16)	5/16 (8)	1/2 (13)	-
Table F	51/4 (133)	37/8 (98)	4	5/8 (16)	11/16 (17)	11/16 (17)	-	-	-	-	5/8 (16)	3/8 (10)	1/2 (13)	-
Table H	51/4 (133)	37/8 (98)	4	5/8 (16)	11/16 (17)	11/16 (17)	-	3 (76)	-	1/16 (2)	7/8 (22)	7/16 (11)	11/16 (17)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) Flange thicknesses for copper alloy are from BS4504

(3) Copper alloy flanges are always flat-faced

## Flange Tables

### Nominal Size 40mm (1½in)

BS EN 1092	Diameter of flange	Bolt circle diameter	Number of bolts	Diameter of bolts	Diameter of holes iron	Diameter of holes steel	Diameter of raised face(3) iron	Diameter of raised face(3) steel	Height of raised face(3) iron	Height of raised face(3) steel	Thickness of flange			
											Grey cast iron	Copper alloy	Cast and forged steel	Ductile cast iron
PN 6	130	100	4	M12	14	14	78	80	3	2	16 (1)	-	14	-
PN 10	150	110	4	M16	19	18	84	88	3	2	18 (1)	-	18	19
PN 16	150	110	4	M16	19	18	84	88	3	2	18 (1)	9 (2)	18	19
PN 25	150	110	4	M16	19	18	84	88	3	2	20 (1)	11 (2)	18	19
PN 40	150	110	4	M16	19	18	84	88	3	2	-	13 (2)	18	19
PN 64	170	125	4	M20	-	22	-	88	-	2	-	-	28	-
PN 100	170	125	4	M20	-	22	-	88	-	2	-	-	28	-
<b>ANSI</b>														
Class 125/150	5 (127)	37/8 (98)	4	½ (13)	5/8 (16)	5/8 (16)	-	27/8 (73)	-	1/16 (2)	9/16 (14)	7/16 (11)	9/16 (14)	11/16 (17)
Class 300	6 1/8 (156)	4 1/2 (114)	4	¾ (19)	-	7/8 (22)	-	27/8 (73)	-	1/16 (2)	-	11/16 (17)	13/16 (21)	-
Class 600	6 1/8 (156)	4 1/2 (114)	4	¾ (19)	-	7/8 (22)	-	27/8 (73)	-	1/4 (6)	-	-	7/8 (22)	-
Class 900	7 (178)	4 7/8 (124)	4	1 (25)	-	1 1/8 (29)	-	27/8 (73)	-	1/4 (6)	-	-	1 1/4 (32)	-
Class 1500	7 (178)	4 7/8 (124)	4	1 (25)	-	1 1/8 (29)	-	27/8 (73)	-	1/4 (6)	-	-	1 1/4 (32)	-
<b>BS 10</b>														
Table A	5 1/4 (133)	3 7/8 (98)	4	½ (13)	9/16 (14)	9/16 (14)	-	-	-	-	5/8 (16)	3/8 (10)	-	-
Table D	5 1/4 (133)	3 7/8 (98)	4	½ (13)	9/16 (14)	9/16 (14)	-	-	-	-	5/8 (16)	3/8 (10) 1/2 (13)	-	-
Table E	5 1/4 (133)	3 7/8 (98)	4	½ (13)	9/16 (14)	9/16 (14)	-	-	-	-	5/8 (16)	3/8 (10)	½ (13)	-
Table F	5 1/2 (140)	4 1/8 (105)	4	5/8 (16)	1 1/16 (17)	1 1/16 (17)	-	-	-	-	5/8 (16)	7/16 (11)	½ (13)	-
Table H	5 1/2 (140)	4 1/8 (105)	4	5/8 (16)	1 1/16 (17)	1 1/16 (17)	-	3 1/4 (83)	-	1/16 (2)	7/8 (22)	½ (13)	1 1/16 (17)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) Flange thicknesses for copper alloy are from BS4504

(3) Copper alloy flanges are always flat-faced

## Flange Tables

### Nominal Size 50mm (2in)

BS EN 1092	Diameter of flange	Bolt circle diameter	Number of bolts	Diameter of bolts	Diameter of holes iron	Diameter of holes steel	Diameter of raised face(3) iron	Diameter of raised face(3) steel	Height of raised face(3) iron	Height of raised face(3) steel	Thickness of flange			
											Grey cast iron	Copper alloy	Cast and forged steel	Ductile cast iron
PN 6	140	110	4	M12	14	14	88	90	3	2	16 (1)	-	14	-
PN 10	165	125	4	M16	19	18	99	102	3	2	20 (1)	-	18	19
PN 16	165	125	4	M16	19	18	99	102	3	2	20 (1)	11 (2)	18	19
PN 25	165	125	4	M16	19	18	99	102	3	2	22 (1)	11 (2)	20	19
PN 40	165	125	4	M16	19	18	99	102	3	2	-	13 (2)	20	19
PN 64	180	135	4	M20	-	22	-	102	-	2	-	-	26	-
PN 100	195	145	4	M24	-	26	-	102	-	2	-	-	30	-
<b>ANSI</b>														
Class 125/150	6 (152)	4 3/4 (121)	4	5/8 (16)	3/4 (19)	3/4 (19)	-	35/8 (92)	-	1/16 (2)	5/8 (16)	1/2 (13)	5/8 (16)	-
Class 300	6 1/2 (165)	5 (127)	8	5/8 (16)	-	3/4 (19)	-	35/8 (92)	-	1/16 (2)	-	3/4 (19)	7/8 (22)	-
Class 600	6 1/2 (165)	5 (127)	8	5/8 (16)	-	3/4 (19)	-	35/8 (92)	-	1/4 (6)	-	-	1 (25)	-
Class 900	8 1/2 (216)	6 1/2 (165)	8	7/8 (22)	-	1 (25)	-	35/8 (92)	-	1/4 (6)	-	-	1 1/2 (38)	-
Class 1500	8 1/2 (216)	6 1/2 (165)	8	7/8 (22)	-	1 (25)	-	35/8 (92)	-	1/4 (6)	-	-	1 1/2 (38)	-
<b>BS 10</b>														
Table A	6 (152)	4 1/2 (114)	4	5/8 (16)	1 1/16 (17)	1 1/16 (17)	-	-	-	-	5/8 (16)	3/8 (10)	-	-
Table D	6 (152)	4 1/2 (114)	4	5/8 (16)	1 1/16 (17)	1 1/16 (17)	-	-	-	-	1 1/16 (17)	3/8 (10)	9/16 (14)	-
Table E	6 (152)	4 1/2 (114)	4	5/8 (16)	1 1/16 (17)	1 1/16 (17)	-	-	-	-	3/4 (19)	3/8 (10)	9/16 (14)	-
Table F	6 1/2 (165)	5 (127)	4	5/8 (16)	1 1/16 (17)	1 1/16 (17)	-	-	-	-	3/4 (19)	7/16 (11)	5/8 (16)	-
Table H	6 1/2 (165)	5 (127)	4	5/8 (16)	1 1/16 (17)	1 1/16 (17)	-	4 (102)	-	1/16 (2)	1 (25)	1/2 (13)	3/4 (19)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) Flange thicknesses for copper alloy are from BS4504

(3) Copper alloy flanges are always flat-faced



## Flange Tables

### Nominal Size 65mm (2½in)

BS EN 1092	Diameter of flange	Bolt circle diameter	Number of bolts	Diameter of bolts	Diameter of holes iron	Diameter of holes steel	Diameter of raised face(4) iron	Diameter of raised face(4) steel	Height of raised face(4) iron	Height of raised face(4) steel	Thickness of flange			
											Grey cast iron	Copper alloy(3)	Cast and forged steel	Ductile cast iron
PN 6	160	130	4	M12	14	14	108	110	2	3	16 (1)	-	14	-
PN 10	185	145	4 (2)	M16	19	18	118	122	2	3	20 (1)	-	18	19
PN 16	185	145	4 (2)	M16	19	18	118	122	2	3	20 (1)	13	18	19
PN 25	185	145	8	M16	19	18	118	122	2	3	24 (1)	13	22	19
PN 40	185	145	8	M16	19	18	118	122	2	3	-	14	22	19
PN 64	205	160	8	M20	-	22	-	122	2	-	-	-	26	-
PN 100	220	170	8	M24	-	26	-	122	2	-	-	-	34	-
<b>ANSI</b>														
Class 125/150	7 (178)	5½ (140)	4	5/8 (16)	¾ (19)	¾ (19)	-	4½ (105)	-	1/16 (2)	11/16 (17)	9/16 (14)	11/16 (17)	-
Class 300	7½ (191)	57/8 (149)	8	¾ (19)	-	7/8 (22)	-	4½ (105)	-	1/16 (2)	-	13/16 (21)	1 (25)	-
Class 600	7½ (191)	57/8 (149)	8	¾ (19)	-	7/8 (22)	-	4½ (105)	-	¼ (6)	-	-	11/8 (29)	-
Class 900	95/8 (244)	71/2 (191)	8	1 (25)	-	11/8 (29)	-	4½ (105)	-	¼ (6)	-	-	15/8 (41)	-
Class 1500	95/8 (244)	71/2 (191)	8	1 (25)	-	11/8 (29)	-	4½ (105)	-	¼ (6)	-	-	15/8 (41)	-
<b>BS 10</b>														
Table A	6½ (165)	5 (127)	4	5/8 (16)	11/16 (17)	11/16 (17)	-	-	-	-	11/16 (17)	7/16 (11)	-	-
Table D	6½ (165)	5 (127)	4	5/8 (16)	11/16 (17)	11/16 (17)	-	-	-	-	11/16 (17)	7/16 (11)	9/16 (14)	-
Table E	6½ (165)	5 (127)	4	5/8 (16)	11/16 (17)	11/16 (17)	-	-	-	-	¾ (19)	7/16 (11)	9/16 (14)	-
Table F	7¼ (184)	5¾ (146)	8	5/8 (16)	11/16 (17)	11/16 (17)	-	-	-	-	¾ (19)	½ (13)	5/8 (16)	-
Table H	7¼ (184)	5¾ (146)	8	5/8 (16)	11/16 (17)	11/16 (17)	-	4½ (114)	-	1/16 (2)	1 (25)	9/16 (14)	¾ (19)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) Steel flanges in this DN and PN may be supplied with 8 holes. For compliance with these, equivalent cast iron flanges may be supplied with 8 holes as special order and after agreement between manufacturer and customer

(2) Flange thicknesses for copper alloy are from BS4504

(3) Copper alloy flanges are always flat-faced

## Flange Tables

### Nominal Size 80mm (3in)

BS EN 1092	Diameter of flange	Bolt circle diameter	Number of bolts	Diameter of bolts	Diameter of holes iron	Diameter of holes steel	Diameter of raised face(3) iron	Diameter of raised face(3) steel	Height of raised face(3) iron	Height of raised face(3) steel	Thickness of flange			
											Grey cast iron	Copper alloy	Cast and forged steel	Ductile cast iron
PN 6	190	150	4	M16	19	18	124	128	3	2	18 (1)	-	16	-
PN 10	200	160	8	M16	19	18	132	138	3	2	22 (1)	-	20	19
PN 16	200	160	8	M16	19	18	132	138	3	2	22 (1)	13 (2)	20	19
PN 25	200	160	8	M16	19	18	132	138	3	2	26 (1)	14 (2)	24	19
PN 40	200	160	8	M16	19	18	132	138	3	2	-	16 (2)	24	19
PN 64	215	170	8	M20	-	22	-	138	-	2	-	-	28	-
PN100	230	180	8	M24	-	26	-	138	-	2	-	-	36	-
<b>ANSI</b>														
Class 125/150	7 1/2 (191)	6 (152)	4	5/8 (16)	3/4 (19)	3/4 (19)	-	5 (127)	-	1/16 (2)	3/4 (19)	5/8 (16)	3/4 (19)	-
Class 300	8 1/4 (210)	6 5/8 (168)	8	3/4 (19)	-	7/8 (22)	-	5 (127)	-	1/16 (2)	-	29/32 (23)	1 1/8 (29)	-
Class 600	8 1/4 (210)	6 5/8 (168)	8	3/4 (19)	-	7/8 (22)	-	5 (127)	-	1/4 (6)	-	-	1 1/4 (32)	-
Class 900	9 1/2 (241)	7 1/2 (192)	8	7/8 (22)	-	1 (25)	-	5 (127)	-	1/4 (6)	-	-	1 1/2 (38)	-
Class 1500	10 1/2 (267)	8 (203)	8	1 1/8 (29)	-	1 1/4 (32)	-	5 (127)	-	1/4 (6)	-	-	1 7/8 (48)	-
<b>BS 10</b>														
Table A	7 1/4 (184)	5 3/4 (146)	4	5/8 (16)	1 1/16 (17)	1 1/16 (17)	-	-	-	-	1 1/16 (17)	1/2 (13)	-	-
Table D	7 1/4 (184)	5 3/4 (146)	4	5/8 (16)	1 1/16 (17)	1 1/16 (17)	-	-	-	-	3/4 (19)	1/2 (13)	9/16 (14)	-
Table E	7 1/4 (184)	5 3/4 (146)	4	5/8 (16)	1 1/16 (17)	1 1/16 (17)	-	-	-	-	3/4 (19)	1/2 (13)	9/16 (14)	-
Table F	8 (203)	6 1/2 (165)	8	5/8 (16)	1 1/16 (17)	1 1/16 (17)	-	-	-	-	3/4 (19)	9/16 (14)	5/8 (16)	-
Table H	8 (203)	6 1/2 (165)	8	5/8 (16)	1 1/16 (17)	1 1/16 (17)	-	5 (127)	-	1/16 (2)	1 1/8 (29)	5/8 (16)	7/8 (22)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) Flange thicknesses for copper alloy are from BS4504

(3) Copper alloy flanges are always flat-faced

## Flange Tables

### Nominal Size 100mm (4in)

BS EN 1092	Diameter of flange	Bolt circle diameter	Number of bolts	Diameter of bolts	Diameter of holes iron	Diameter of holes steel	Diameter of raised face(3) iron	Diameter of raised face(3) steel	Height of raised face(3) iron	Height of raised face(3) steel	Thickness of flange			
											Grey cast iron	Copper alloy	Cast and forged steel	Ductile cast iron
PN 6	210	170	4	M16	19	18	144	148	3	2	18 (1)	-	16	-
PN 10	220	180	8	M16	19	18	156	158	3	2	24 (1)	-	20	19
PN16	220	180	8	M16	19	18	156	158	3	2	24 (1)	16 (2)	20	19
PN 25	235	190	8	M20	23	22	156	162	3	2	28 (1)	17 (2)	24	19
PN 40	235	190	8	M20	23	22	156	162	3	2	-	19 (2)	24	19
PN 64	250	200	8	M24	-	26	-	162	-	2	-	-	30	-
PN 100	265	210	8	M27	-	30	-	162	-	2	-	-	40	-
<b>ANSI</b>														
Class 125/150	9 (229)	7 1/2 (191)	8	5/8 (16)	3/4 (19)	3/4 (19)	-	63/16 (157)	-	1/16 (2)	15/16 (24)	11/16 (17)	15/16 (24)	-
Class 300	10 (254)	7 7/8 (200)	8	3/4 (19)	-	7/8 (22)	-	63/16 (157)	-	1/16 (2)	-	11/16 (27)	11/4 (32)	-
Class 600	10 3/4 (273)	8 1/2 (216)	8	7/8 (22)	-	1 (25)	-	63/16 (157)	-	1/4 (6)	-	-	11/2 (38)	-
Class 900	11 1/2 (292)	9 1/4 (235)	8	1 1/8 (29)	-	1 1/4 (32)	-	63/16 (157)	-	1/4 (6)	-	-	13/4 (44)	-
Class 1500	12 1/4 (311)	9 1/2 (241)	8	1 1/4 (32)	-	1 3/8 (35)	-	63/16 (157)	-	1/4 (6)	-	-	2 1/8 (54)	-
<b>BS 10</b>														
Table A	8 1/2 (216)	7 (178)	4	5/8 (16)	11/16 (17)	11/16 (17)	-	-	-	-	3/4 (19)	5/8 (16)	-	-
Table D	8 1/2 (216)	7 (178)	4	5/8 (16)	11/16 (17)	11/16 (17)	-	-	-	-	3/4 (19)	5/8 (16)	11/16 (17)	-
Table E	8 1/2 (216)	7 (178)	8	5/8 (16)	11/16 (17)	11/16 (17)	-	-	-	-	7/8 (22)	5/8 (16)	11/16 (17)	-
Table F	9 (229)	7 1/2 (191)	8	5/8 (16)	11/16 (17)	11/16 (17)	-	-	-	-	7/8 (22)	11/16 (17)	3/4 (19)	-
Table H	9 (229)	7 1/2 (191)	8	5/8 (16)	11/16 (17)	11/16 (17)	-	6 (152)	-	1/16 (2)	11/4 (32)	3/4 (19)	1 (25)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) Flange thicknesses for copper alloy are from BS4504

(3) Copper alloy flanges are always flat-faced

## Flange Tables

### Nominal Size 125mm (5in)

BS EN 1092	Diameter of flange	Bolt circle diameter	Number of bolts	Diameter of bolts	Diameter of holes iron	Diameter of holes steel	Diameter of raised face(2) iron	Diameter of raised face(2) steel	Height of raised face(2) iron	Height of raised face(2) steel	Thickness of flange			
											Grey cast iron	Copper alloy	Cast and forged steel	Ductile cast iron
PN 6	240	200	8	M16	19	18	174	178	3	2	20 (1)	-	18	-
PN 10	250	210	8	M16	19	18	184	188	3	2	26 (1)	-	22	19
PN 16	250	210	8	M16	19	18	184	188	3	2	26 (1)	-	22	19
PN 25	270	220	8	M24	28	26	184	188	3	2	30 (1)	-	26	19
PN 40	270	220	8	M24	28	26	184	188	3	2	-	-	26	23.5
PN 64	295	240	8	M27	-	30	-	188	-	2	-	-	34	-
PN 100	315	250	8	M30	-	33	-	188	-	2	-	-	40	-
<b>ANSI</b>														
Class 125/150	10 (254)	8 1/2 (216)	8	3/4 (19)	7/8 (22)	7/8 (22)	-	7 5/16 (186)	-	1/16 (2)	15 1/16 (24)	3/4 (19)	15 1/16 (24)	-
Class 300	11 (279)	9 1/4 (235)	8	3/4 (19)	-	7/8(22)	-	7 5/16 (186)	-	1/16 (2)	-	1 1/8 (29)	1 3/8 (35)	-
Class 600	13 (330)	10 1/2 (267)	8	1 (25)	-	1 1/8 (29)	-	7 5/16 (186)	-	1/4 (6)	-	-	1 3/4 (44)	-
Class 900	13 3/4 (349)	11 (279)	8	1 1/4 (32)	-	1 3/8 (35)	-	7 5/16 (186)	-	1/4 (6)	-	-	2 (51)	-
Class 1500	14 3/4 (375)	11 1/2 (292)	8	1 1/2 (38)	-	1 5/8 (41)	-	7 5/16 (186)	-	1/4 (6)	-	-	2 7/8 (73)	-
<b>BS 10</b>														
Table A	10 (254)	8 1/4 (210)	4	5/8 (16)	1 1/16 (17)	1 1/16 (17)	-	-	-	-	3/4 (19)	1 1/16 (17)	-	-
Table D	10 (254)	8 1/4 (210)	8	5/8 (16)	1 1/16 (17)	1 1/16 (17)	-	-	-	-	13/16 (21)	1 1/16 (17)	1 1/16 (17)	-
Table E	10 (254)	8 1/4 (210)	8	5/8 (16)	1 1/16 (17)	1 1/16 (17)	-	-	-	-	7/8 (22)	1 1/16 (17)	1 1/16 (17)	-
Table F	11 (279)	9 1/4 (235)	8	3/4 (19)	7/8 (22)	7/8 (22)	-	-	-	-	1 (25)	3/4 (19)	7/8 (22)	-
Table H	11 (279)	9 1/4 (235)	8	3/4 (19)	7/8 (22)	7/8 (22)	-	7 (178)	-	1/16 (2)	13/8 (35)	7/8 (22)	1 1/8 (29)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) Copper alloy flanges are always flat-faced

## Flange Tables

### Nominal Size 150mm (6in)

BS EN 1092	Diameter of flange	Bolt circle diameter	Number of bolts	Diameter of bolts	Diameter of holes iron	Diameter of holes steel	Diameter of raised face(2) iron	Diameter of raised face(2) steel	Height of raised face(2) iron	Height of raised face(2) face	Thickness of flange			
											Grey cast iron	Copper alloy	Cast and forged steel	Ductile cast iron
PN 6	265	225	8	M16	19	18	199	202	3	2	20 (1)	-	18	-
PN 10	285	240	8	M20	23	22	211	212	3	2	26 (1)	-	22	19
PN 16	285	240	8	M20	23	22	211	212	3	2	26 (1)	-	22	19
PN 25	300	250	8	M24	28	26	211	218	3	2	34 (1)	-	28	20
PN 40	300	250	8	M24	28	26	211	218	3	2	-	-	28	26
PN 64	345	280	8	M30	-	33	-	218	-	2	-	-	36	-
PN 100	355	290	12	M30	-	33	-	218	-	2	-	-	44	-
<b>ANSI</b>														
Class 125/150	11 (279)	9 1/2 (241)	8	3/4 (19)	7/8 (22)	7/8 (22)	-	8 1/2 (216)	-	1/16 (2)	1 (25)	13/16 (21)	1 (25)	-
Class 300	12 1/2 (318)	10 5/8 (270)	12	3/4 (19)	-	7/8 (22)	-	8 1/2 (216)	-	1/16 (2)	-	13/16 (30)	17/16 (37)	-
Class 600	14 (356)	11 1/2 (292)	12	1 (25)	-	1 1/8 (29)	-	8 1/2 (216)	-	1/4 (6)	-	-	17/8 (48)	-
Class 900	15 (381)	12 1/2 (318)	12	1 1/8 (29)	-	1 1/4 (32)	-	8 1/2 (216)	-	1/4 (6)	-	-	23/16 (56)	-
Class 1500	15 1/2 (394)	12 1/2 (318)	12	1 3/8 (35)	-	1 1/2 (38)	-	8 1/2 (216)	-	1/4 (6)	-	-	31/4 (83)	-
<b>BS 10</b>														
Table A	11 (279)	9 1/4 (235)	4	5/8 (16)	1 1/16 (17)	1 1/16 (17)	-	-	-	-	13/16 (21)	1 1/16 (17)	-	-
Table D	11 (279)	9 1/4 (235)	8	5/8 (16)	1 1/16 (17)	1 1/16 (17)	-	-	-	-	13/16 (21)	1 1/16 (17)	1 1/16 (17)	-
Table E	11 (279)	9 1/4 (235)	8	3/4 (19)	7/8 (22)	7/8 (22)	-	-	-	-	7/8 (22)	1 1/16 (17)	1 1/16 (17)	-
Table F	12 (305)	10 1/4 (260)	12	3/4 (19)	7/8 (22)	7/8 (22)	-	-	-	-	1 (25)	7/8 (22)	7/8 (22)	-
Table H	12 (305)	10 1/4 (260)	12	3/4 (19)	7/8 (22)	7/8 (22)	-	8 1/4 (210)	-	1/16 (2)	13/8 (35)	1 (25)	1 1/8 (29)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) Copper alloy flanges are always flat-faced

## Flange Tables

### Nominal Size 200 mm (8 in)

BS EN 1092	Diameter of flange	Bolt circle diameter	Number of bolts	Diameter of bolts	Diameter of holes iron	Diameter of holes steel	Diameter of raised face(2) iron	Diameter of raised face(2) steel	Height of raised face(2) iron	Height of raised face(2) steel	Thickness of flange			
											Grey cast iron	Copper alloy	Cast and forged steel	Ductile cast iron
PN 6	320	280	8	M16	19	18	254	258	3	2	22 (1)	-	20	-
PN 10	340	295	8	M20	23	22	266	268	3	2	26 (1)	-	24	20
PN 16	340	295	12	M20	23	22	266	268	3	2	30 (1)	-	24	20
PN 25	360	310	12	M24	28	26	274	278	3	2	34 (1)	-	30	22
PN 40	375	320	12	M27	31	30	284	285	3	2	-	-	34	30
PN 64	415	345	12	M33	-	36	-	285	-	2	-	-	42	-
PN 100	430	360	12	M33	-	36	-	285	-	2	-	-	52	-
<b>ANSI</b>														
Class 125/150	13 1/2 (343)	11 3/4 (298)	8	3/4 (19)	7/8 (22)	7/8 (22)	-	10 5/8 (270)	-	1/16 (2)	1 1/8 (29)	1 5/16 (24)	1 1/8 (29)	-
Class 300	15 (381)	13 (330)	12	7/8 (22)	-	1 (25)	-	10 5/8 (270)	-	1/16 (2)	-	1 3/8 (35)	1 5/8 (41)	-
Class 600	16 1/2 (419)	13 3/4 (349)	12	1 1/8 (29)	-	1 1/4 (32)	-	10 5/8 (270)	-	1/4 (6)	-	-	2 3/16 (56)	-
Class 900	18 1/2 (470)	15 1/2 (394)	12	1 3/8 (35)	-	1 1/2 (38)	-	10 5/8 (270)	-	1/4 (6)	-	-	2 1/2 (64)	-
Class 1500	19 (438)	15 1/2 (394)	12	1 5/8 (41)	-	1 3/4 (44)	-	10 5/8 (270)	-	1/4 (6)	-	-	3 5/8 (92)	-
<b>BS 10</b>														
Table A	13 1/4 (337)	11 1/2 (292)	8	5/8 (16)	1 1/16 (17)	1 1/16 (17)	-	-	-	-	7/8 (22)	3/4 (19)	1/2 (13)	-
Table D	13 1/4 (337)	11 1/2 (292)	8	5/8 (16)	1 1/16 (17)	1 1/16 (17)	-	-	-	-	7/8 (22)	3/4 (19)	3/4 (19)	-
Table E	13 1/4 (337)	11 1/2 (292)	8	3/4 (19)	7/8 (22)	7/8 (22)	-	-	-	-	1 (25)	3/4 (19)	3/4 (19)	-
Table F	14 1/2 (368)	12 3/4 (324)	12	3/4 (19)	7/8 (22)	7/8 (22)	-	-	-	-	1 1/8 (29)	1 (25)	1 (25)	-
Table H	14 1/2 (368)	12 3/4 (324)	12	3/4 (19)	7/8 (22)	7/8 (22)	-	10 1/4 (260)	-	1/16 (2)	1 1/2 (38)	1 1/4 (32)	1 1/4 (32)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) Copper alloy flanges are always flat-faced

## Flange Tables

### Nominal Size 250 mm (10 in)

BS EN 1092	Diameter of flange	Bolt circle diameter	Number of bolts	Diameter of bolts	Diameter of holes iron	Diameter of holes steel	Diameter of raised face(3) iron	Diameter of raised face(3) steel	Height of raised face(3) iron	Height of raised face(3) steel	Thickness of flange				
											Grey cast iron	Copper alloy	Cast and forged steel	Ductile cast iron	
PN 6	375	335	12	M16	19	18	309	312	3	2	24 (1)	-	22	-	
PN 10	395 (2)	350	12	M20	23	22	319	320	3	2	28 (1)	-	26	22	
PN 16	405 (2)	355	12	M24	28	26	319	320	3	2	32 (1)	-	26	22	
PN 25	425	370	12	M27	31	30	330	335	3	2	-	-	32	24.5	
PN 40	450	385	12	M30	34	33	345	345	3	2	-	-	38	34.5	
PN 64	470	400	12	M33	-	36	-	345	-	2	-	-	46	-	
PN 100	505	430	12	M36	-	39	-	345	-	2	-	-	60	-	
<b>ANSI</b>															
Class 125/150	16 (406)	14 1/4 (362)	12	7/8 (22)	1 (25)	1 (25)	-	12 3/4 (324)	-	1/16 (2)	1 3/16 (30)	1 (25)	1 3/16 (30)	-	
Class 300	17 1/2 (445)	15 1/4 (387)	16	1 (25)	-	1 1/8 (29)	-	12 3/4 (324)	-	1/16 (2)	-	-	1 7/8 (41)	-	
Class 600	20 (508)	17 (432)	16	1 1/4 (32)	-	1 3/8 (35)	-	12 3/4 (324)	-	1/4 (6)	-	-	2 1/2 (64)	-	
Class 900	21 1/2 (546)	18 1/2 (470)	16	1 3/8 (35)	-	1 1/2 (38)	-	12 3/4 (324)	-	1/4 (6)	-	-	2 3/4 (70)	-	
Class 1500	23 (584)	19 (483)	12	1 7/8 (41)	-	2 (51)	-	12 3/4 (324)	-	1/4 (6)	-	-	4 1/4 (108)	-	
<b>BS 10</b>															
Table A	16 (406)	14 (356)	8	3/4 (19)	7/8 (22)	7/8 (22)	-	-	-	-	15/16 (24)	3/4 (19)	-	-	
Table D	16 (406)	14 (356)	8	3/4 (19)	7/8 (22)	7/8 (22)	-	-	-	-	1 (25)	3/4 (19)	3/4 (19)	-	
Table E	16 (406)	14 (356)	12	3/4 (19)	7/8 (22)	7/8 (22)	-	-	-	-	1 (25)	7/8 (22)	7/8 (22)	-	
Table F	17 (432)	15 (381)	12	7/8 (22)	1 (25)	1 (25)	-	-	-	-	1 1/8 (29)	1 (25)	1 (25)	-	
Table H	17 (432)	15 (381)	12	7/8 (22)	1 (25)	1 (25)	-	12 1/4 (311)	-	1/16 (2)	1 5/8 (41)	1 3/8 (35)	1 3/8 (35)	-	

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) For ductile iron pipes and fittings the outside diameters shall be:

- for PN 10, D = 400 mm

- for PN 16, D = 400mm

(3) Copper alloy flanges are always flat-faced

## Flange Tables

### Nominal Size 300 mm (12 in)

BS EN 1092	Diameter of flange	Bolt circle diameter	Number of bolts	Diameter of bolts	Diameter of holes iron	Diameter of holes steel	Diameter of raised face(3) iron	Diameter of raised face(3) steel	Height of raised face(3) iron	Height of raised face(3) steel	Thickness of flange			
											Grey cast iron	Copper alloy	Cast and forged steel	Ductile cast iron
PN 6	440	395	12	M20	23	22	363	365	4	2	24 (1)	-	22	-
PN 10	445 (2)	400	12	M20	23	22	370	370	4	2	28 (1)	-	26	24.5
PN 16	460 (2)	410	12	M24	28	26	370	378	4	2	32 (1)	-	28	24.5
PN 25	485	430	16	M27	31	30	389	395	4	2	40 (1)	-	34	27.5
PN 40	515	450	16	M30	34	33	409	410	4	2	-	-	42	39.5
PN 64	530	460	16	M33	-	36	-	410	-	2	-	-	52	-
PN 100	585	500	16	M39	-	42	-	410	-	2	-	-	68	-
<b>ANSI</b>														
Class 125/150	19 (483)	17 (432)	12	7/8 (22)	1 (25)	1 (25)	-	15 (381)	-	1/16 (2)	1 1/4 (32)	1 1/16 (27)	1 1/4 (32)	-
Class 300	20 1/2 (521)	17 3/4 (451)	16	1 1/8 (29)	-	1 1/4 (32)	-	15 (381)	-	1/16 (2)	-	-	2 (51)	-
Class 600	22 (559)	19 1/4 (489)	20	1 1/4 (32)	-	1 3/8 (35)	-	15 (381)	-	1/4 (6)	-	-	2 5/8 (67)	-
Class 900	24 (610)	21 (533)	20	1 3/8 (35)	-	1 1/2 (38)	-	15 (381)	-	1/4 (6)	-	-	3 1/8 (80)	-
Class 1500	26 1/2 (673)	22 1/2 (571)	16	2 (51)	-	2 1/8 (54)	-	15 (381)	-	1/4 (6)	-	-	4 7/8 (124)	-
<b>BS 10</b>														
Table A	18 (457)	16 (406)	8	3/4 (19)	7/8 (22)	7/8 (22)	-	-	-	-	1 5/16 (24)	7/8 (22)	-	-
Table D	18 (457)	16 (406)	12	3/4 (19)	7/8 (22)	7/8 (22)	-	-	-	-	1 (25)	7/8 (22)	7/8 (22)	-
Table E	18 (457)	16 (406)	12	7/8 (22)	1 (25)	1 (25)	-	-	-	-	1 1/8 (29)	1 (25)	1 (25)	-
Table F	19 1/4 (489)	17 1/4 (438)	16	7/8 (22)	1 (25)	1 (25)	-	-	-	-	1 1/4 (32)	1 1/8 (29)	1 1/8 (29)	-
Table H	19 1/4 (489)	17 1/4 (438)	16	7/8 (22)	1 (25)	1 (25)	-	1 1/4 (362)	-	1/16 (2)	1 3/4 (44)	1 1/2 (38)	1 1/2 (38)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) For ductile iron pipes and fittings the outside diameter shall be:

- for PN 10, D = 455 mm

- for PN 16, D = 455 mm

(3) Copper alloy flanges are always flat-faced



## Flange Tables

### Nominal Size 350 mm (14 in)

BS EN 1092	Diameter of flange	Bolt circle diameter	Number of bolts	Diameter of bolts	Diameter of holes iron	Diameter of holes steel	Diameter of raised face(2) iron	Diameter of raised face(2) steel	Height of raised face(2) iron	Height of raised face(2) steel	Thickness of flange			
											Grey cast iron	Copper alloy	Cast and forged steel	Ductile cast iron
PN 6	490	445	12	M20	23	22	413	415	4	2	26 (1)	-	22	-
PN 10	505	460	16	M20	23	22	429	430	4	2	30 (1)	-	26	24.5
PN 16	520	470	16	M24	28	26	429	438	4	2	36 (1)	-	30	26.5
PN 25	555	490	16	M30	34	33	448	450	4	2	44 (1)	-	38	30
PN 40	580	510	16	M33	37	36	465	465	4	2	-	-	46	44
PN 64	600	525	16	M36	-	39	-	465	-	2	-	-	56	-
PN 100	655	560	16	M45	-	48	-	465	-	2	-	-	74	-
<b>ANSI</b>														
Class 125/150	21 (533)	18 <sup>3</sup> / <sub>4</sub> (476)	12	1 (25)	1 <sup>1</sup> / <sub>8</sub> (29)	1 <sup>1</sup> / <sub>8</sub> (29)	-	16 <sup>1</sup> / <sub>4</sub> (413)	-	1 <sup>1</sup> / <sub>16</sub> (2)	1 <sup>3</sup> / <sub>8</sub> (35)	-	1 <sup>3</sup> / <sub>8</sub> (35)	-
Class 300	23 (584)	20 <sup>1</sup> / <sub>4</sub> (514)	20	1 <sup>1</sup> / <sub>8</sub> (29)	-	1 <sup>1</sup> / <sub>4</sub> (32)	-	16 <sup>1</sup> / <sub>4</sub> (413)	-	1 <sup>1</sup> / <sub>16</sub> (2)	-	-	2 <sup>1</sup> / <sub>8</sub> (54)	-
Class 600	23 <sup>3</sup> / <sub>4</sub> (603)	20 <sup>3</sup> / <sub>4</sub> (527)	20	1 <sup>3</sup> / <sub>8</sub> (35)	-	1 <sup>1</sup> / <sub>2</sub> (38)	-	16 <sup>1</sup> / <sub>4</sub> (413)	-	1 <sup>1</sup> / <sub>4</sub> (6)	-	-	2 <sup>3</sup> / <sub>4</sub> (70)	-
Class 900	25 <sup>1</sup> / <sub>4</sub> (641)	22 (559)	20	1 <sup>1</sup> / <sub>2</sub> (38)	-	1 <sup>5</sup> / <sub>8</sub> (41)	-	16 <sup>1</sup> / <sub>4</sub> (413)	-	1 <sup>1</sup> / <sub>4</sub> (6)	-	-	3 <sup>3</sup> / <sub>8</sub> (86)	-
Class 1500	29 <sup>1</sup> / <sub>2</sub> (749)	25 (635)	16	2 <sup>1</sup> / <sub>4</sub> (57)	-	2 <sup>3</sup> / <sub>8</sub> (60)	-	16 <sup>1</sup> / <sub>4</sub> (413)	-	1 <sup>1</sup> / <sub>4</sub> (6)	-	-	5 <sup>1</sup> / <sub>4</sub> (133)	-
<b>BS 10</b>														
Table A	20 <sup>3</sup> / <sub>4</sub> (527)	18 <sup>1</sup> / <sub>2</sub> (470)	8	7 <sup>7</sup> / <sub>8</sub> (22)	1 (25)	1 (25)	-	-	-	-	1 (25)	1 (25)	-	-
Table D	20 <sup>3</sup> / <sub>4</sub> (527)	18 <sup>1</sup> / <sub>2</sub> (470)	12	7 <sup>7</sup> / <sub>8</sub> (22)	1 (25)	1 (25)	-	-	-	-	1 <sup>1</sup> / <sub>8</sub> (29)	1 (25)	1 (25)	-
Table E	20 <sup>3</sup> / <sub>4</sub> (527)	18 <sup>1</sup> / <sub>2</sub> (470)	12	7 <sup>7</sup> / <sub>8</sub> (22)	1 (25)	1 (25)	-	-	-	-	1 <sup>1</sup> / <sub>4</sub> (32)	1 (25)	1 (25)	-
Table F	21 <sup>3</sup> / <sub>4</sub> (552)	19 <sup>1</sup> / <sub>2</sub> (495)	16	1 (25)	1 <sup>1</sup> / <sub>8</sub> (29)	1 <sup>1</sup> / <sub>8</sub> (29)	-	-	-	-	1 <sup>3</sup> / <sub>8</sub> (35)	1 <sup>1</sup> / <sub>4</sub> (32)	1 <sup>1</sup> / <sub>4</sub> (32)	-
Table H	21 <sup>3</sup> / <sub>4</sub> (552)	19 <sup>1</sup> / <sub>2</sub> (495)	16	1 (25)	1 <sup>1</sup> / <sub>8</sub> (29)	1 <sup>1</sup> / <sub>8</sub> (29)	-	16 <sup>1</sup> / <sub>2</sub> (419)	-	1 <sup>1</sup> / <sub>16</sub> (2)	1 <sup>7</sup> / <sub>8</sub> (48)	1 <sup>5</sup> / <sub>8</sub> (41)	1 <sup>5</sup> / <sub>8</sub> (41)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) Copper alloy flanges are always flat-faced

## Flange Tables

### Nominal Size 400 mm (16in)

BS EN 1092	Diameter of flange	Bolt circle diameter	Number of bolts	Diameter of bolts	Diameter of holes iron	Diameter of holes steel	Diameter of raised face(2) iron	Diameter of raised face(2) steel	Height of raised face(2) iron	Height of raised face(2) steel	Thickness of flange			
											Grey cast iron	Copper alloy	Cast and forged steel	Ductile cast iron
PN 6	540	495	16	M20	23	22	463	465	4	2	28 (1)	-	22	-
PN 10	565	515	16	M24	28	26	480	482	4	2	32 (1)	-	26	24.5
PN 16	580	525	16	M27	31	30	480	490	4	2	38 (1)	-	32	28
PN25	620	550	16	M33	37	36	503	505	4	2	48 (1)	-	40	32
PN 40	660	585	16	M36	41	39	535	535	4	2	-	-	50	48
PN 64	670	585	16	M39	-	42	-	535	-	2	-	-	60	-
PN 100	715	620	16	M45	-	48	-	535	-	2	-	-	78	-
<b>ANSI</b>														
Class 125/150	23 <sup>1</sup> / <sub>2</sub> (597)	21 <sup>1</sup> / <sub>4</sub> (540)	16	1 (25)	1 <sup>1</sup> / <sub>8</sub> (29)	1 <sup>1</sup> / <sub>8</sub> (29)	-	18 <sup>1</sup> / <sub>2</sub> (470)	-	1 <sup>1</sup> / <sub>16</sub> (2)	1 <sup>7</sup> / <sub>16</sub> (37)	-	1 <sup>7</sup> / <sub>16</sub> (37)	-
Class 300	25 <sup>1</sup> / <sub>2</sub> (648)	22 <sup>1</sup> / <sub>2</sub> (572)	20	1 <sup>1</sup> / <sub>4</sub> (32)	-	1 <sup>3</sup> / <sub>8</sub> (35)	-	18 <sup>1</sup> / <sub>2</sub> (470)	-	1 <sup>1</sup> / <sub>16</sub> (2)	-	-	2 <sup>1</sup> / <sub>4</sub> (57)	-
Class 600	27 (686)	23 <sup>3</sup> / <sub>4</sub> (603)	20	1 <sup>1</sup> / <sub>2</sub> (38)	-	1 <sup>5</sup> / <sub>8</sub> (41)	-	18 <sup>1</sup> / <sub>2</sub> (470)	-	1 <sup>1</sup> / <sub>4</sub> (6)	-	-	3 (76)	-
Class 900	27 <sup>3</sup> / <sub>4</sub> (705)	24 <sup>1</sup> / <sub>4</sub> (616)	20	1 <sup>5</sup> / <sub>8</sub> (41)	-	1 <sup>3</sup> / <sub>4</sub> (44)	-	18 <sup>1</sup> / <sub>2</sub> (470)	-	1 <sup>1</sup> / <sub>4</sub> (6)	-	-	3 <sup>1</sup> / <sub>2</sub> (89)	-
Class 1500	32 <sup>1</sup> / <sub>2</sub> (826)	27 <sup>3</sup> / <sub>4</sub> (705)	16	2 <sup>1</sup> / <sub>2</sub> (64)	-	2 <sup>5</sup> / <sub>8</sub> (67)	-	18 <sup>1</sup> / <sub>2</sub> (470)	-	1 <sup>1</sup> / <sub>4</sub> (6)	-	-	5 <sup>3</sup> / <sub>4</sub> (146)	-
<b>BS 10</b>														
Table A	22 <sup>3</sup> / <sub>4</sub> (578)	20 <sup>1</sup> / <sub>2</sub> (521)	12	7 <sup>1</sup> / <sub>8</sub> (22)	1 (25)	1 (25)	-	-	-	-	1 <sup>1</sup> / <sub>16</sub> (27)	1 (25)	-	-
Table D	22 <sup>3</sup> / <sub>4</sub> (578)	20 <sup>1</sup> / <sub>2</sub> (521)	12	7 <sup>1</sup> / <sub>8</sub> (22)	1 (25)	1 (25)	-	-	-	-	1 <sup>1</sup> / <sub>8</sub> (29)	1 (25)	1 (25)	-
Table E	22 <sup>3</sup> / <sub>4</sub> (578)	20 <sup>1</sup> / <sub>2</sub> (521)	12	7 <sup>1</sup> / <sub>8</sub> (22)	1 (25)	1 (25)	-	-	-	-	1 <sup>1</sup> / <sub>4</sub> (32)	1 (25)	1 (25)	-
Table F	24 (610)	21 <sup>3</sup> / <sub>4</sub> (552)	20	1 (25)	1 <sup>1</sup> / <sub>8</sub> (29)	1 <sup>1</sup> / <sub>8</sub> (29)	-	-	-	-	1 <sup>3</sup> / <sub>8</sub> (35)	1 <sup>1</sup> / <sub>4</sub> (32)	1 <sup>1</sup> / <sub>4</sub> (32)	-
Table H	24 (610)	21 <sup>3</sup> / <sub>4</sub> (552)	20	1 (25)	1 <sup>1</sup> / <sub>8</sub> (29)	1 <sup>1</sup> / <sub>8</sub> (29)	-	19 (483)	-	1 <sup>1</sup> / <sub>16</sub> (2)	2 (51)	1 <sup>3</sup> / <sub>4</sub> (44)	1 <sup>3</sup> / <sub>4</sub> (44)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) Copper alloy flanges are always flat-faced

## Flange Tables

### Nominal Size 450 mm (18 in)

BS EN 1092	Diameter of flange	Bolt circle diameter	Number of bolts	Diameter of bolts	Diameter of holes iron	Diameter of holes steel	Diameter of raised face(2) iron	Diameter of raised face(2) steel	Height of raised face(2) iron	Height of raised face(2) steel	Thickness of flange			
											Grey cast iron	Copper alloy	Cast and forged steel	Ductile cast iron
PN 6	595	550	16	M20	23	22	518	520	4	2	28 (1)	-	22	-
PN 10	615	565	20	M24	28	26	530	532	4	2	32 (1)	-	28	25.5
PN 16	640	585	20	M27	31	30	548	550	4	2	40 (1)	-	40	30
PN 25	670	600	20	M33	37	36	548	555	4	2	50 (1)	-	46	34.5
PN 40	685	610	20	M36	41	39	560	560	4	2	-	-	57	49
PN 64	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PN 100	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>ANSI</b>														
Class 125/150	25 (635)	22 <sup>3</sup> / <sub>4</sub> (578)	16	1 <sup>1</sup> / <sub>8</sub> (29)	1 <sup>1</sup> / <sub>4</sub> (32)	1 <sup>1</sup> / <sub>4</sub> (32)	-	21 (533)	-	1 <sup>1</sup> / <sub>16</sub> (2)	1 <sup>9</sup> / <sub>16</sub> (40)	-	1 <sup>9</sup> / <sub>16</sub> (40)	-
Class 300	28 (711)	24 <sup>3</sup> / <sub>4</sub> (629)	24	1 <sup>1</sup> / <sub>4</sub> (32)	-	1 <sup>3</sup> / <sub>8</sub> (35)	-	21 (533)	-	1 <sup>1</sup> / <sub>16</sub> (2)	-	-	2 <sup>3</sup> / <sub>8</sub> (60)	-
Class 60	29 <sup>1</sup> / <sub>4</sub> (743)	25 <sup>3</sup> / <sub>4</sub> (654)	20	1 <sup>5</sup> / <sub>8</sub> (41)	-	1 <sup>3</sup> / <sub>4</sub> (44)	-	21 (533)	-	1 <sup>1</sup> / <sub>4</sub> (6)	-	-	3 <sup>1</sup> / <sub>4</sub> (83)	-
Class 900	31 (787)	27 (686)	20	1 <sup>7</sup> / <sub>8</sub> (48)	-	2 (51)	-	21 (533)	-	1 <sup>1</sup> / <sub>4</sub> (6)	-	-	4 (102)	-
Class 1500	36 (914)	30 <sup>1</sup> / <sub>2</sub> (775)	16	2 <sup>3</sup> / <sub>4</sub> (70)	-	2 <sup>7</sup> / <sub>8</sub> (73)	-	21 (533)	-	1 <sup>1</sup> / <sub>4</sub> (6)	-	-	6 <sup>3</sup> / <sub>8</sub> (162)	-
<b>BS 10</b>														
Table A	25 <sup>1</sup> / <sub>4</sub> (641)	23 (584)	12	7 <sup>1</sup> / <sub>8</sub> (22)	-	1 (25)	-	-	-	-	1 <sup>1</sup> / <sub>16</sub> (27)	1 <sup>1</sup> / <sub>16</sub> (27)	-	-
Table D	25 <sup>1</sup> / <sub>4</sub> (641)	23 (584)	12	7 <sup>1</sup> / <sub>8</sub> (22)	-	1 (25)	-	-	-	-	1 <sup>1</sup> / <sub>4</sub> (32)	1 <sup>1</sup> / <sub>8</sub> (29)	1 <sup>1</sup> / <sub>8</sub> (29)	-
Table E	25 <sup>1</sup> / <sub>4</sub> (641)	23 (584)	16	7 <sup>1</sup> / <sub>8</sub> (22)	-	1 (25)	-	-	-	-	1 <sup>3</sup> / <sub>8</sub> (35)	1 <sup>1</sup> / <sub>8</sub> (29)	1 <sup>1</sup> / <sub>8</sub> (29)	-
Table F	26 <sup>1</sup> / <sub>2</sub> (673)	24 (610)	20	1 <sup>1</sup> / <sub>8</sub> (29)	-	1 <sup>1</sup> / <sub>4</sub> (32)	-	-	-	-	1 <sup>1</sup> / <sub>2</sub> (38)	1 <sup>3</sup> / <sub>8</sub> (35)	1 <sup>3</sup> / <sub>8</sub> (35)	-
Table H	26 <sup>1</sup> / <sub>2</sub> (673)	24 (610)	20	1 <sup>1</sup> / <sub>8</sub> (29)	-	1 <sup>1</sup> / <sub>4</sub> (32)	-	21 (533)	-	1 <sup>1</sup> / <sub>16</sub> (2)	2 <sup>1</sup> / <sub>8</sub> (54)	1 <sup>7</sup> / <sub>8</sub> (48)	1 <sup>7</sup> / <sub>8</sub> (48)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) Copper alloy flanges are always flat-faced

## Flange Tables

### Nominal Size 500 mm (20 in)

BS EN 1092	Diameter of flange	Bolt circle diameter	Number of bolts	Diameter of bolts	Diameter of holes iron	Diameter of holes steel	Diameter of raised face(3) iron	Diameter of raised face(3) steel	Height of raised face(3) iron	Height of raised face(3) steel	Thickness of flange			
											Grey cast iron	Copper alloy	Cast and forged steel	Ductile cast iron
PN 6	645	600	20	M20	23	22	568	570	4	2	30 (1)	-	24 (2)	-
PN 10	670	620	20	M24	28	26	582	585	4	2	34 (1)	-	28 (2)	26.5
PN 16	715	650	20	M30	34	33	609	610	4	2	42 (1)	-	44 (2)	31.5
PN 25	730	660	20	M33	37	36	609	615	4	2	52 (1)	-	48 (2)	36.5
PN 40	755	670	20	M39	44	42	615	615	4	2	-	-	57 (2)	52
PN 64	800	705	20	M45	-	48	-	615	-	2	-	-	68 (2)	-
PN 100	870	760	20	M52	-	56	-	615	-	2	-	-	94 (2)	-
<b>ANSI</b>														
Class 125/150	27 <sup>1</sup> / <sub>2</sub> (699)	25 (635)	20	1 <sup>1</sup> / <sub>8</sub> (29)	1 <sup>1</sup> / <sub>4</sub> (32)	1 <sup>1</sup> / <sub>4</sub> (32)	-	23 (584)	-	1 <sup>1</sup> / <sub>16</sub> (2)	1 <sup>1</sup> / <sub>16</sub> (43)	-	1 <sup>1</sup> / <sub>16</sub> (43)	-
Class 300	30 <sup>1</sup> / <sub>2</sub> (775)	27 (686)	24	1 <sup>1</sup> / <sub>4</sub> (32)	-	1 <sup>3</sup> / <sub>8</sub> (35)	-	23 (584)	-	1 <sup>1</sup> / <sub>16</sub> (2)	-	-	2 <sup>1</sup> / <sub>2</sub> (64)	-
Class 600	32 (813)	28 <sup>1</sup> / <sub>2</sub> (724)	24	1 <sup>5</sup> / <sub>8</sub> (41)	-	1 <sup>3</sup> / <sub>4</sub> (44)	-	23 (584)	-	1 <sup>1</sup> / <sub>4</sub> (6)	-	-	3 <sup>1</sup> / <sub>2</sub> (89)	-
Class 900	33 <sup>3</sup> / <sub>4</sub> (857)	29 <sup>1</sup> / <sub>2</sub> (749)	20	2 (51)	-	2 <sup>1</sup> / <sub>8</sub> (54)	-	23 (584)	-	1 <sup>1</sup> / <sub>4</sub> (6)	-	-	4 <sup>1</sup> / <sub>4</sub> (108)	-
Class 1500	38 <sup>3</sup> / <sub>4</sub> (984)	32 <sup>3</sup> / <sub>4</sub> (832)	16	3 (76)	-	3 <sup>1</sup> / <sub>8</sub> (79)	-	23 (584)	-	1 <sup>1</sup> / <sub>4</sub> (6)	-	-	7 (178)	-
<b>BS 10</b>														
Table A	27 <sup>3</sup> / <sub>4</sub> (705)	25 <sup>1</sup> / <sub>4</sub> (641)	12	7 <sup>1</sup> / <sub>8</sub> (22)	1 (25)	1 (25)	-	-	-	-	1 <sup>1</sup> / <sub>8</sub> (29)	1 <sup>1</sup> / <sub>8</sub> (29)	-	-
Table D	27 <sup>3</sup> / <sub>4</sub> (705)	25 <sup>1</sup> / <sub>4</sub> (641)	16	7 <sup>1</sup> / <sub>8</sub> (22)	1 (25)	1 (25)	-	-	-	-	1 <sup>1</sup> / <sub>4</sub> (32)	1 <sup>1</sup> / <sub>4</sub> (32)	-	-
Table E	27 <sup>3</sup> / <sub>4</sub> (705)	25 <sup>1</sup> / <sub>4</sub> (641)	16	7 <sup>1</sup> / <sub>8</sub> (22)	1 (25)	1 (25)	-	-	-	-	1 <sup>1</sup> / <sub>2</sub> (38)	1 <sup>1</sup> / <sub>4</sub> (32)	1 <sup>1</sup> / <sub>4</sub> (32)	-
Table F	29 (737)	26 <sup>1</sup> / <sub>2</sub> (673)	24	1 <sup>1</sup> / <sub>8</sub> (29)	1 <sup>1</sup> / <sub>4</sub> (32)	1 <sup>1</sup> / <sub>4</sub> (32)	-	-	-	-	1 <sup>5</sup> / <sub>8</sub> (41)	1 <sup>1</sup> / <sub>2</sub> (38)	1 <sup>1</sup> / <sub>2</sub> (38)	-
Table H	29 (737)	26 <sup>1</sup> / <sub>2</sub> (673)	24	1 <sup>1</sup> / <sub>8</sub> (29)	1 <sup>1</sup> / <sub>4</sub> (32)	1 <sup>1</sup> / <sub>4</sub> (32)	-	23 <sup>1</sup> / <sub>2</sub> (597)	-	1 <sup>1</sup> / <sub>16</sub> (2)	2 <sup>1</sup> / <sub>4</sub> (57)	2 (51)	2 (51)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) These flange thicknesses are changed substantially as a result of the flange calculation method used in BS EN 1092-1

(3) Copper alloy flanges are always flat-faced

## Flange Tables

### Nominal Size 600 mm (24 in)

BS EN 1092	Diameter of flange	Bolt circle diameter	Number of bolts	Diameter of bolts	Diameter of holes iron	Diameter of holes steel	Diameter of raised face(3) iron	Diameter of raised face(3) steel	Height of raised face(3) iron	Height of raised face(3) steel	Thickness of flange				
											Grey cast iron	Copper alloy	Cast and forged steel	Ductile cast iron	
PN 6	755	705	20	M24	28	26	667	670	5	2	30 (1)	-	30	-	
PN 10	780	725	20	M27	31	30	682	685	5	2	36 (1)	-	34	30	
PN 16	840	770	20	M33	37	36	720	725	5	2	48 (1)	-	54	36	
PN 25	845	770	20	M36	41	39	720	720	5	2	-	-	58	42	
PN 40	890	795	20	M45	50	48	735	735	5	2	-	-	72	58	
PN 64	930	820	20	M52	-	56	-	735	-	2	-	-	76	-	
<b>ANSI</b>															
Class 125/150	32 (813)	29 1/2 (749)	20	1 1/4 (32)	1 3/8 (35)	1 3/8 (35)	-	27 1/4 (692)	-	1/16 (2)	1 7/8 (48)	-	1 7/8 (48)	-	
Class 300	36 (914)	32 (813)	24	1 1/2 (38)	-	1 5/8 (41)	-	27 1/4 (692)	-	1/16 (2)	-	-	2 3/4 (70)	-	
Class 600	37 (940)	33 (838)	24	1 7/8 (48)	-	2 (51)	-	27 1/4 (692)	-	1/4 (6)	-	-	4 (102)	-	
Class 900	41 (1041)	35 1/2 (902)	20	2 1/2 (64)	-	2 5/8 (67)	-	27 1/4 (692)	-	1/4 (6)	-	-	5 1/2 (140)	-	
Class 1500	46 (1168)	39 (991)	16	3 1/2 (89)	-	3 5/8 (92)	-	27 1/4 (692)	-	1/4 (6)	-	-	8 (203)	-	
<b>BS 10</b>															
Table A	32 1/2 (826)	29 3/4 (756)	12	1 (25)	1 1/8 (29)	1 1/8 (29)	-	-	-	-	1 3/16 (30)	1 3/16 (30)	-	-	
Table D	32 1/2 (826)	29 3/4 (756)	16	1 (25)	1 1/8 (29)	1 1/8 (29)	-	-	-	-	1 3/8 (35)	1 3/8 (35)	1 3/8 (35)	-	
Table E	32 1/2 (826)	29 3/4 (756)	16	1 1/8 (29)	1 1/4 (32)	1 1/4 (32)	-	-	-	-	1 5/8 (41)	1 1/2 (38)	1 1/2 (38)	-	
Table F	33 1/2 (851)	30 3/4 (781)	24	1 1/4 (32)	1 1/4 (32)	1 3/8 (35)	-	-	-	-	1 3/4 (44)	1 5/8 (41)	1 5/8 (41)	-	
Table H	33 1/2 (851)	30 3/4 (781)	24	1 1/4 (32)	1 3/8 (35)	1 3/8 (35)	-	27 1/2 (699)	-	1/16 (2)	2 1/2 (64)	2 1/4 (57)	2 1/4 (57)	-	

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) These flange thicknesses are changed substantially as a result of the flange calculation method used in BS EN 1092-1

(3) Copper alloy flanges are always flat-faced