2020

# FLANGE TABLES
## & Technical Data

DKL Mechanical

**DKL Mechanical Limited, Company Registration No. 10924819, VAT Registration No. 279 4901 59**
Registered Office: PO Box B30, 35 Westgate, Huddersfield. HD1 1PA
Document Reference: Flange Tables
Version 1.0 Date: 01/01/2020

## CONTENTS

This page has been left

intentionally blank.

## 1.0 FLANGE TABLES

### 1.1 NOMINAL SIZE – 25MM (1")

| | | | | | | | | | | | Thickness of flange | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BS EN 1092 | Dia. of flange | Bolt circle dia. | No of bolts | Dia. of bolts | Dia. of holes iron | Dia. of holes steel | Dia. of raised face[3] iron | Dia. of raised face[3] steel | Height of face[3] iron | Height of face[3] steel | Grey cast iron | Copper alloy | Cast & forged steel | Ductile cast iron |
| **PN6** | 100 | 75 | 4 | M10 | 11 | 11 | 58 | 60 | 3 | 2 | 14 [1] | - | 14 | - |
| **PN10** | 115 | 85 | 4 | M12 | 14 | 14 | 65 | 68 | 3 | 2 | 16 [1] | - | 18 | 16 |
| **PN16** | 115 | 85 | 4 | M12 | 14 | 14 | 65 | 68 | 3 | 2 | 16 [1] | 8 [2] | 18 | 16 |
| **PN25** | 115 | 85 | 4 | M12 | 14 | 14 | 65 | 68 | 3 | 2 | 18 [1] | 9 [2] | 18 | 16 |
| **PN40** | 115 | 85 | 4 | M12 | 14 | 14 | 65 | 68 | 3 | 2 | - | 11 [2] | 18 | 18 |
| **PN64** | 140 | 100 | 4 | M16 | 18 | 18 | - | 68 | - | 2 | - | - | 24 | - |
| **PN100** | 140 | 100 | 4 | M16 | 18 | 18 | - | 68 | - | 2 | - | - | 24 | - |
| ANSI | | | | | | | | | | | | | | |
| **Class 125/150** | 108 | 79 | 4 | 13 | 16 | 16 | - | 51 | - | 2 | 11 | 10 | 11 | 14 |
| **Class 300** | 124 | 89 | 4 | 16 | 19 | 19 | - | 51 | - | 2 | - | 15 | 17 | - |
| **Class 600** | 124 | 89 | 4 | 16 | 19 | 19 | - | 51 | - | 6 | - | - | 17 | - |
| **Class 900** | 149 | 102 | 4 | 22 | 25 | 25 | - | 51 | - | 6 | - | - | 29 | - |
| **Class 1500** | 149 | 102 | 4 | 22 | 25 | 25 | - | 51 | - | 6 | - | - | 29 | - |
| BS 10 | | | | | | | | | | | | | | |
| **Table A** | 114 | 83 | 4 | 13 | 14 | 14 | - | - | - | - | 13 | 8 | - | - |
| **Table D** | 114 | 83 | 4 | 13 | 14 | 14 | - | - | - | - | 13 | 8 | 10 | - |
| **Table E** | 114 | 83 | 4 | 13 | 14 | 14 | - | - | - | - | 13 | 8 | 10 | - |
| **Table F** | 121 | 87 | 4 | 16 | 17 | 17 | - | - | - | - | 13 | 10 | 10 | - |
| **Table H** | 121 | 87 | 4 | 16 | 17 | 17 | - | 64 | - | - | 19 | 11 | 14 | - |

### 1.2 NOMINAL SIZE – 32MM (1.1/4")

| | | | | | | | | | | | Thickness of flange | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BS EN 1092 | Dia. of flange | Bolt circle dia. | No of bolts | Dia. of bolts | Dia. of holes iron | Dia. of holes steel | Dia. of raised face[3] iron | Dia. of raised face[3] steel | Height of face[3] iron | Height of face[3] steel | Grey cast iron | Copper alloy | Cast & forged steel | Ductile cast iron |
| **PN6** | 120 | 90 | 4 | M12 | 14 | 14 | 69 | 70 | 3 | 2 | 16 [1] | - | 14 | - |
| **PN10** | 140 | 100 | 4 | M16 | 19 | 18 | 76 | 78 | 3 | 2 | 18 [1] | - | 18 | 18 |
| **PN16** | 140 | 100 | 4 | M16 | 19 | 18 | 76 | 78 | 3 | 2 | 18 [1] | 8 [2] | 18 | 18 |
| **PN25** | 140 | 100 | 4 | M16 | 19 | 18 | 76 | 78 | 3 | 2 | 20 [1] | 9 [2] | 18 | 18 |
| **PN40** | 140 | 100 | 4 | M16 | 19 | 18 | 76 | 78 | 3 | 2 | - | 11 [2] | 18 | 20 |
| **PN64** | 155 | 110 | 4 | M20 | - | 22 | - | 78 | - | 2 | - | - | 26 | - |
| **PN100** | 155 | 110 | 4 | M20 | - | 22 | - | 78 | - | 2 | - | - | 26 | - |
| ANSI | | | | | | | | | | | | | | |
| **Class 125/150** | 117 | 117 | 4 | 13 | 16 | 16 | - | 64 | - | 2 | 13 | 10 | 13 | 16 |
| **Class 300** | 133 | 133 | 4 | 16 | - | 19 | - | 64 | - | 2 | - | 16 | 19 | - |
| **Class 600** | 133 | 133 | 4 | 16 | - | 19 | - | 64 | - | 6 | - | - | 21 | - |
| **Class 900** | 159 | 159 | 4 | 22 | - | 25 | - | 64 | - | 6 | - | - | 29 | - |
| **Class 1500** | 159 | 159 | 4 | 22 | - | 25 | - | 64 | - | 6 | - | - | 29 | - |
| BS 10 | | | | | | | | | | | | | | |
| **Table A** | 121 | 121 | 4 | 13 | 14 | 14 | - | - | - | - | 16 | 8 | - | - |
| **Table D** | 121 | 121 | 4 | 13 | 14 | 14 | - | - | - | - | 16 | 8 | 13 | - |
| **Table E** | 121 | 121 | 4 | 13 | 14 | 14 | - | - | - | - | 16 | 8 | 13 | - |
| **Table F** | 133 | 133 | 4 | 16 | 17 | 17 | - | - | - | - | 16 | 10 | 13 | - |
| **Table H** | 133 | 133 | 4 | 16 | 17 | 17 | - | 76 | - | 2 | 22 | 11 | 17 | - |

[1]These flanges are also valid for ductile iron flanges type 21-2
[2]Flange thicknesses for copper alloy are from BS 450
[3]Copper alloy flanges are always flat-faced
**Please Note** – All dimensions have been given in millimetres. Where imperial flanges are detailed, the dimensions have been converted to the nearest mm. For measurements in inches, please refer to the Hattersley Flange Tables

### 1.3 NOMINAL SIZE – 40MM (1.1/2")

| | | | | | | | | | | | Thickness of flange | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BS EN 1092 | Dia. of flange | Bolt circle dia. | No of bolts | Dia. of bolts | Dia. of holes iron | Dia. of holes steel | Dia. of raised face[3] iron | Dia. of raised face[3] steel | Height of face[3] iron | Height of face[3] steel | Grey cast iron | Copper alloy | Cast & forged steel | Ductile cast iron |
| **PN6** | 130 | 100 | 4 | M12 | 14 | 14 | 78 | 80 | 3 | 2 | 16 [1] | - | 14 | - |
| **PN10** | 150 | 110 | 4 | M16 | 19 | 18 | 84 | 88 | 3 | 2 | 18 [1] | - | 18 | 19 |
| **PN16** | 150 | 110 | 4 | M16 | 19 | 18 | 84 | 88 | 3 | 2 | 18 [1] | 9 [2] | 18 | 19 |
| **PN25** | 150 | 110 | 4 | M16 | 19 | 18 | 84 | 88 | 3 | 2 | 20 [1] | 11 [2] | 18 | 19 |
| **PN40** | 150 | 110 | 4 | M16 | 19 | 18 | 84 | 88 | 3 | 2 | - | 13 [2] | 18 | 19 |
| **PN64** | 170 | 125 | 4 | M20 | - | 22 | - | 88 | - | 2 | - | - | 28 | - |
| **PN100** | 170 | 125 | 4 | M20 | - | 22 | - | 88 | - | 2 | - | - | 28 | - |
| ANSI | | | | | | | | | | | | | | |
| **Class 125/150** | 127 | 98 | 4 | 13 | 16 | 16 | - | 73 | - | 2 | 14 | 11 | 14 | 17 |
| **Class 300** | 156 | 114 | 4 | 19 | - | 22 | - | 73 | - | 2 | - | 17 | 21 | - |
| **Class 600** | 156 | 114 | 4 | 19 | - | 22 | - | 73 | - | 6 | - | - | 22 | - |
| **Class 900** | 178 | 124 | 4 | 25 | - | 29 | - | 73 | - | 6 | - | - | 32 | - |
| **Class 1500** | 178 | 124 | 4 | 25 | - | 29 | - | 73 | - | 6 | - | - | 32 | - |
| BS 10 | | | | | | | | | | | | | | |
| **Table A** | 133 | 98 | 4 | 13 | 14 | 14 | - | - | - | - | 16 | 10 | - | - |
| **Table D** | 133 | 98 | 4 | 13 | 14 | 14 | - | - | - | - | 16 | 10 | 13 | - |
| **Table E** | 133 | 98 | 4 | 13 | 14 | 14 | - | - | - | - | 16 | 10 | 13 | - |
| **Table F** | 140 | 105 | 4 | 16 | 17 | 17 | - | - | - | - | 16 | 11 | 13 | - |
| **Table H** | 140 | 105 | 4 | 16 | 17 | 17 | - | 83 | - | 2 | 22 | 13 | 17 | - |

### 1.4 NOMINAL SIZE – 50MM (2")

| | | | | | | | | | | | Thickness of flange | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BS EN 1092 | Dia. of flange | Bolt circle dia. | No of bolts | Dia. of bolts | Dia. of holes iron | Dia. of holes steel | Dia. of raised face[3] iron | Dia. of raised face[3] steel | Height of face[3] iron | Height of face[3] steel | Grey cast iron | Copper alloy | Cast & forged steel | Ductile cast iron |
| **PN6** | 140 | 110 | 4 | M12 | 14 | 14 | 88 | 90 | 3 | 2 | 16 [1] | - | 14 | - |
| **PN10** | 165 | 125 | 4 | M16 | 19 | 18 | 99 | 102 | 3 | 2 | 20 [1] | - | 18 | 19 |
| **PN16** | 165 | 125 | 4 | M16 | 19 | 18 | 99 | 102 | 3 | 2 | 20 [1] | 11 [2] | 18 | 19 |
| **PN25** | 165 | 125 | 4 | M16 | 19 | 18 | 99 | 102 | 3 | 2 | 22 [1] | 11 [2] | 20 | 19 |
| **PN40** | 165 | 125 | 4 | M16 | 19 | 18 | 99 | 102 | 3 | 2 | - | 13 [2] | 20 | 19 |
| **PN64** | 180 | 135 | 4 | M20 | - | 22 | - | 102 | - | 2 | - | - | 26 | - |
| **PN100** | 195 | 145 | 4 | M24 | - | 26 | - | 102 | - | 2 | - | - | 30 | - |
| ANSI | | | | | | | | | | | | | | |
| **Class 125/150** | 152 | 121 | 4 | 16 | 19 | 19 | - | 92 | - | 2 | 16 | 139 | 16 | - |
| **Class 300** | 165 | 127 | 8 | 16 | - | 19 | - | 92 | - | 2 | - | 19 | 22 | - |
| **Class 600** | 165 | 127 | 8 | 16 | - | 19 | - | 92 | - | 6 | - | - | 25 | - |
| **Class 900** | 216 | 165 | 8 | 22 | - | 25 | - | 92 | - | 6 | - | - | 38 | - |
| **Class 1500** | 216 | 165 | 8 | 22 | - | 25 | - | 92 | - | 6 | - | - | 38 | - |
| BS 10 | | | | | | | | | | | | | | |
| **Table A** | 152 | 114 | 4 | 16 | 17 | 17 | - | - | - | - | 16 | 10 | - | - |
| **Table D** | 152 | 114 | 4 | 16 | 17 | 17 | - | - | - | - | 17 | 10 | 14 | - |
| **Table E** | 152 | 114 | 4 | 16 | 17 | 17 | - | - | - | - | 19 | 10 | 14 | - |
| **Table F** | 165 | 127 | 4 | 16 | 17 | 17 | - | - | - | - | 19 | 11 | 16 | - |
| **Table H** | 165 | 127 | 4 | 16 | 17 | 17 | - | 102 | - | 2 | 25 | 13 | 19 | - |

[1]These flanges are also valid for ductile iron flanges type 21-2
[2]Flange thicknesses for copper alloy are from BS 450
[3]Copper alloy flanges are always flat-faced
**Please Note** – All dimensions have been given in millimetres. Where imperial flanges are detailed, the dimensions have been converted to the nearest mm. For measurements in inches, please refer to the Hattersley Flange Tables

## 1.5 NOMINAL SIZE – 65MM (2.1/2")

| | | | | | | | | | | | Thickness of flange | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BS EN 1092 | Dia. of flange | Bolt circle dia. | No of bolts | Dia. of bolts | Dia. of holes iron | Dia. of holes steel | Dia. of raised face[3] iron | Dia. of raised face[3] steel | Height of face[3] iron | Height of face[3] steel | Grey cast iron | Copper alloy | Cast & forged steel | Ductile cast iron |
| **PN6** | 160 | 130 | 4 | M12 | 14 | 14 | 108 | 110 | 3 | 2 | 16 [1] | - | 14 | - |
| **PN10** | 185 | 145 | 4 [4] | M16 | 19 | 18 | 118 | 122 | 3 | 2 | 20 [1] | - | 18 | 19 |
| **PN16** | 185 | 145 | 4 [4] | M16 | 19 | 18 | 118 | 122 | 3 | 2 | 20 [1] | 13 [2] | 18 | 19 |
| **PN25** | 185 | 145 | 8 | M16 | 19 | 18 | 118 | 122 | 3 | 2 | 24 [1] | 13 [2] | 22 | 19 |
| **PN40** | 185 | 145 | 8 | M16 | 19 | 18 | 118 | 122 | 3 | 2 | - | 14 [2] | 22 | 19 |
| **PN64** | 205 | 160 | 8 | M20 | - | 22 | - | 122 | - | 2 | - | - | 26 | - |
| **PN100** | 220 | 170 | 8 | M24 | - | 26 | - | 122 | - | 2 | - | - | 34 | - |
| ANSI | | | | | | | | | | | | | | |
| **Class 125/150** | 178 | 140 | 4 | 16 | 19 | 19 | - | 105 | - | 2 | 17 | 14 | 17 | - |
| **Class 300** | 191 | 149 | 8 | 19 | - | 22 | - | 105 | - | 2 | - | 21 | 25 | - |
| **Class 600** | 191 | 149 | 8 | 19 | - | 22 | - | 105 | - | 6 | - | - | 29 | - |
| **Class 900** | 244 | 191 | 8 | 25 | - | 29 | - | 105 | - | 6 | - | - | 41 | - |
| **Class 1500** | 244 | 191 | 8 | 25 | - | 29 | - | 105 | - | 6 | - | - | 41 | - |
| BS 10 | | | | | | | | | | | | | | |
| **Table A** | 165 | 127 | 4 | 16 | 17 | 17 | - | - | - | - | 17 | 11 | - | - |
| **Table D** | 165 | 127 | 4 | 16 | 17 | 17 | - | - | - | - | 17 | 11 | 14 | - |
| **Table E** | 165 | 127 | 4 | 16 | 17 | 17 | - | - | - | - | 19 | 11 | 14 | - |
| **Table F** | 184 | 146 | 8 | 16 | 17 | 17 | - | - | - | - | 19 | 13 | 16 | - |
| **Table H** | 184 | 146 | 8 | 16 | 17 | 17 | - | 114 | - | 2 | 25 | 14 | 19 | - |

## 1.6 NOMINAL SIZE – 80MM (3")

| | | | | | | | | | | | Thickness of flange | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BS EN 1092 | Dia. of flange | Bolt circle dia. | No of bolts | Dia. of bolts | Dia. of holes iron | Dia. of holes steel | Dia. of raised face[3] iron | Dia. of raised face[3] steel | Height of face[3] iron | Height of face[3] steel | Grey cast iron | Copper alloy | Cast & forged steel | Ductile cast iron |
| **PN6** | 190 | 150 | 4 | M16 | 19 | 18 | 124 | 128 | 3 | 2 | 18 [1] | - | 16 | - |
| **PN10** | 200 | 160 | 8 | M16 | 19 | 18 | 132 | 138 | 3 | 2 | 22 [1] | - | 20 | 19 |
| **PN16** | 200 | 160 | 8 | M16 | 19 | 18 | 132 | 138 | 3 | 2 | 22 [1] | 13 [2] | 20 | 19 |
| **PN25** | 200 | 160 | 8 | M16 | 19 | 18 | 132 | 138 | 3 | 2 | 26 [1] | 14 [2] | 24 | 19 |
| **PN40** | 200 | 160 | 8 | M16 | 19 | 18 | 132 | 138 | 3 | 2 | - | 16 [2] | 24 | 19 |
| **PN64** | 215 | 170 | 8 | M20 | - | 22 | - | 138 | - | 2 | - | - | 28 | - |
| **PN100** | 230 | 180 | 8 | M24 | - | 26 | - | 138 | - | 2 | - | - | 36 | - |
| ANSI | | | | | | | | | | | | | | |
| **Class 125/150** | 191 | 152 | 4 | 16 | 19 | 19 | - | 127 | - | 2 | 19 | 16 | 19 | - |
| **Class 300** | 210 | 168 | 8 | 19 | - | 22 | - | 127 | - | 2 | - | 23 | 29 | - |
| **Class 600** | 210 | 168 | 8 | 19 | - | 22 | - | 127 | - | 6 | - | - | 32 | - |
| **Class 900** | 241 | 191 | 8 | 22 | - | 25 | - | 127 | - | 6 | - | - | 38 | - |
| **Class 1500** | 267 | 203 | 8 | 29 | - | 32 | - | 127 | - | 6 | - | - | 48 | - |
| BS 10 | | | | | | | | | | | | | | |
| **Table A** | 184 | 146 | 4 | 16 | 17 | 17 | - | - | - | - | 17 | 13 | - | - |
| **Table D** | 184 | 146 | 4 | 16 | 17 | 17 | - | - | - | - | 19 | 13 | 14 | - |
| **Table E** | 184 | 146 | 4 | 16 | 17 | 17 | - | - | - | - | 19 | 13 | 14 | - |
| **Table F** | 203 | 165 | 8 | 16 | 17 | 17 | - | - | - | - | 19 | 14 | 16 | - |
| **Table H** | 203 | 165 | 8 | 16 | 17 | 17 | - | 127 | - | 2 | 29 | 16 | 22 | - |

[1]These flanges are also valid for ductile iron flanges type 21-2
[2]Flange thicknesses for copper alloy are from BS 450
[3]Copper alloy flanges are always flat-faced
**Please Note** – All dimensions have been given in millimetres. Where imperial flanges are detailed, the dimensions have been converted to the nearest mm. For measurements in inches, please refer to the Hattersley Flange Tables

## 1.7 NOMINAL SIZE – 100MM (4")

| | | | | | | | | | | | Thickness of flange | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BS EN 1092 | Dia. of flange | Bolt circle dia. | No of bolts | Dia. of bolts | Dia. of holes iron | Dia. of holes steel | Dia. of raised face[3] iron | Dia. of raised face[3] steel | Height of face[3] iron | Height of face[3] steel | Grey cast iron | Copper alloy | Cast & forged steel | Ductile cast iron |
| **PN6** | 210 | 170 | 4 | M16 | 19 | 18 | 144 | 148 | 3 | 2 | 18 [1] | - | 16 | - |
| **PN10** | 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 |
| **PN25** | 235 | 190 | 8 | M20 | 23 | 22 | 156 | 162 | 3 | 2 | 28 [1] | 17 [2] | 24 | 19 |
| **PN40** | 235 | 190 | 8 | M20 | 23 | 22 | 156 | 162 | 3 | 2 | - | 19 [2] | 24 | 19 |
| **PN64** | 250 | 200 | 8 | M24 | - | 26 | - | 162 | - | 2 | - | - | 30 | - |
| **PN100** | 265 | 210 | 8 | M27 | - | 30 | - | 162 | - | 2 | - | - | 40 | - |
| ANSI | | | | | | | | | | | | | | |
| **Class 125/150** | 229 | 191 | 8 | 16 | 19 | 19 | - | 157 | - | 2 | 24 | 17 | 24 | - |
| **Class 300** | 254 | 200 | 8 | 19 | - | 22 | - | 157 | - | 2 | - | 27 | 32 | - |
| **Class 600** | 273 | 216 | 8 | 22 | - | 25 | - | 157 | - | 6 | - | - | 38 | - |
| **Class 900** | 292 | 235 | 8 | 29 | - | 32 | - | 157 | - | 6 | - | - | 44 | - |
| **Class 1500** | 311 | 241 | 8 | 32 | - | 35 | - | 157 | - | 6 | - | - | 54 | - |
| BS 10 | | | | | | | | | | | | | | |
| **Table A** | 216 | 178 | 4 | 16 | 17 | 17 | - | - | - | - | 19 | 16 | - | - |
| **Table D** | 216 | 178 | 4 | 16 | 17 | 17 | - | - | - | - | 19 | 16 | 17 | - |
| **Table E** | 216 | 178 | 8 | 16 | 17 | 17 | - | - | - | - | 22 | 16 | 17 | - |
| **Table F** | 229 | 191 | 8 | 16 | 17 | 17 | - | - | - | - | 22 | 17 | 19 | - |
| **Table H** | 229 | 191 | 8 | 16 | 17 | 17 | - | 152 | - | 2 | 32 | 19 | 25 | - |

## 1.8 NOMINAL SIZE – 125MM (5")

| | | | | | | | | | | | Thickness of flange | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BS EN 1092 | Dia. of flange | Bolt circle dia. | No of bolts | Dia. of bolts | Dia. of holes iron | Dia. of holes steel | Dia. of raised face[3] iron | Dia. of raised face[3] steel | Height of face[3] iron | Height of face[3] steel | Grey cast iron | Copper alloy | Cast & forged steel | Ductile cast iron |
| **PN6** | 240 | 200 | 8 | M16 | 19 | 18 | 174 | 178 | 3 | 2 | 20 [1] | - | 18 | - |
| **PN10** | 250 | 210 | 8 | M16 | 19 | 18 | 184 | 188 | 3 | 2 | 26 [1] | - | 22 | 19 |
| **PN16** | 250 | 210 | 8 | M16 | 19 | 18 | 184 | 188 | 3 | 2 | 26 [1] | - | 22 | 19 |
| **PN25** | 270 | 220 | 8 | M24 | 28 | 26 | 184 | 188 | 3 | 2 | 30 [1] | - | 26 | 19 |
| **PN40** | 270 | 220 | 8 | M24 | 28 | 26 | 184 | 188 | 3 | 2 | - | - | 26 | 23.5 |
| **PN64** | 295 | 240 | 8 | M27 | - | 30 | - | 188 | - | 2 | - | - | 34 | - |
| **PN100** | 315 | 250 | 8 | M30 | - | 33 | - | 188 | - | 2 | - | - | 40 | - |
| ANSI | | | | | | | | | | | | | | |
| **Class 125/150** | 254 | 216 | 8 | 19 | 22 | 22 | - | 186 | - | 2 | 24 | 19 | 24 | - |
| **Class 300** | 279 | 235 | 8 | 19 | - | 22 | - | 186 | - | 2 | - | 29 | 35 | - |
| **Class 600** | 330 | 267 | 8 | 25 | - | 29 | - | 186 | - | 6 | - | - | 44 | - |
| **Class 900** | 349 | 279 | 8 | 32 | - | 35 | - | 186 | - | 6 | - | - | 51 | - |
| **Class 1500** | 375 | 292 | 8 | 38 | - | 41 | - | 186 | - | 6 | - | - | 73 | - |
| BS 10 | | | | | | | | | | | | | | |
| **Table A** | 254 | 210 | 4 | 16 | 17 | 17 | - | - | - | - | 19 | 17 | - | - |
| **Table D** | 254 | 210 | 8 | 16 | 17 | 17 | - | - | - | - | 21 | 17 | 17 | - |
| **Table E** | 254 | 210 | 8 | 16 | 17 | 17 | - | - | - | - | 22 | 17 | 17 | - |
| **Table F** | 279 | 235 | 8 | 19 | 22 | 22 | - | - | - | - | 25 | 19 | 22 | - |
| **Table H** | 279 | 235 | 8 | 19 | 22 | 22 | - | 178 | - | 2 | 35 | 22 | 29 | - |

[1]These flanges are also valid for ductile iron flanges type 21-2
[2]Flange thicknesses for copper alloy are from BS 450
[3]Copper alloy flanges are always flat-faced
**Please Note** – All dimensions have been given in millimetres. Where imperial flanges are detailed, the dimensions have been converted to the nearest mm. For measurements in inches, please refer to the Hattersley Flange Tables

## 1.9 NOMINAL SIZE – 150MM (6")

| | | | | | | | | | | | Thickness of flange | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BS EN 1092 | Dia. of flange | Bolt circle dia. | No of bolts | Dia. of bolts | Dia. of holes iron | Dia. of holes steel | Dia. of raised face[3] iron | Dia. of raised face[3] steel | Height of face[3] iron | Height of face[3] steel | Grey cast iron | Copper alloy | Cast & forged steel | Ductile cast iron |
| **PN6** | 265 | 225 | 8 | M16 | 19 | 18 | 199 | 202 | 3 | 2 | 20 [1] | - | 18 | - |
| **PN10** | 285 | 240 | 8 | M20 | 23 | 22 | 211 | 212 | 3 | 2 | 26 [1] | - | 22 | 19 |
| **PN16** | 285 | 240 | 8 | M20 | 23 | 22 | 211 | 212 | 3 | 2 | 26 [1] | - | 22 | 19 |
| **PN25** | 300 | 250 | 8 | M24 | 28 | 26 | 211 | 218 | 3 | 2 | 34 [1] | - | 28 | 20 |
| **PN40** | 300 | 250 | 8 | M24 | 28 | 26 | 211 | 218 | 3 | 2 | - | - | 28 | 26 |
| **PN64** | 345 | 280 | 8 | M30 | - | 33 | - | 218 | - | 2 | - | - | 36 | - |
| **PN100** | 355 | 290 | 12 | M30 | - | 33 | - | 218 | - | 2 | - | - | 44 | - |
| ANSI | | | | | | | | | | | | | | |
| **Class 125/150** | 279 | 241 | 8 | 19 | 22 | 22 | - | 216 | - | 2 | 25 | 21 | 25 | - |
| **Class 300** | 318 | 270 | 12 | 19 | - | 22 | - | 216 | - | 2 | - | 30 | 37 | - |
| **Class 600** | 356 | 292 | 12 | 25 | - | 29 | - | 216 | - | 6 | - | - | 48 | - |
| **Class 900** | 381 | 318 | 12 | 29 | - | 32 | - | 216 | - | 6 | - | - | 56 | - |
| **Class 1500** | 394 | 318 | 12 | 35 | - | 38 | - | 216 | - | 6 | - | - | 83 | - |
| BS 10 | | | | | | | | | | | | | | |
| **Table A** | 279 | 235 | 4 | 16 | 17 | 17 | - | - | - | - | 21 | 17 | - | - |
| **Table D** | 279 | 235 | 8 | 16 | 17 | 17 | - | - | - | - | 21 | 17 | 17 | - |
| **Table E** | 279 | 235 | 8 | 19 | 22 | 22 | - | - | - | - | 22 | 17 | 17 | - |
| **Table F** | 305 | 260 | 12 | 19 | 22 | 22 | - | - | - | - | 25 | 22 | 22 | - |
| **Table H** | 305 | 260 | 12 | 19 | 22 | 22 | - | 210 | - | 2 | 35 | 25 | 29 | - |

## 1.10 NOMINAL SIZE – 200MM (8")

| | | | | | | | | | | | Thickness of flange | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BS EN 1092 | Dia. of flange | Bolt circle dia. | No of bolts | Dia. of bolts | Dia. of holes iron | Dia. of holes steel | Dia. of raised face[3] iron | Dia. of raised face[3] steel | Height of face[3] iron | Height of face[3] steel | Grey cast iron | Copper alloy | Cast & forged steel | Ductile cast iron |
| **PN6** | 320 | 280 | 8 | M16 | 19 | 18 | 254 | 258 | 3 | 2 | 20 [1] | - | 20 | - |
| **PN10** | 340 | 295 | 8 | M20 | 23 | 22 | 266 | 268 | 3 | 2 | 26 [1] | - | 24 | 20 |
| **PN16** | 340 | 295 | 12 | M20 | 23 | 22 | 266 | 268 | 3 | 2 | 30 [1] | - | 24 | 20 |
| **PN25** | 360 | 310 | 12 | M24 | 28 | 26 | 274 | 278 | 3 | 2 | 34 [1] | - | 30 | 22 |
| **PN40** | 375 | 320 | 12 | M27 | 31 | 30 | 284 | 285 | 3 | 2 | - | - | 34 | 30 |
| **PN64** | 415 | 345 | 12 | M33 | - | 36 | - | 285 | - | 2 | - | - | 42 | - |
| **PN100** | 430 | 360 | 12 | M33 | - | 36 | - | 285 | - | 2 | - | - | 52 | - |
| ANSI | | | | | | | | | | | | | | |
| **Class 125/150** | 343 | 298 | 8 | 19 | 22 | 22 | - | 270 | - | 2 | 29 | 24 | 29 | - |
| **Class 300** | 381 | 330 | 12 | 22 | - | 25 | - | 270 | - | 2 | - | 35 | 41 | - |
| **Class 600** | 419 | 349 | 12 | 29 | - | 32 | - | 270 | - | 6 | - | - | 56 | - |
| **Class 900** | 470 | 394 | 12 | 35 | - | 38 | - | 270 | - | 6 | - | - | 64 | - |
| **Class 1500** | 483 | 394 | 12 | 41 | - | 44 | - | 270 | - | 6 | - | - | 92 | - |
| BS 10 | | | | | | | | | | | | | | |
| **Table A** | 337 | 292 | 8 | 16 | 17 | 17 | - | - | - | - | 22 | 19 | 13 | - |
| **Table D** | 337 | 292 | 8 | 16 | 17 | 17 | - | - | - | - | 22 | 19 | 19 | - |
| **Table E** | 337 | 292 | 8 | 19 | 22 | 22 | - | - | - | - | 25 | 19 | 19 | - |
| **Table F** | 368 | 324 | 12 | 19 | 22 | 22 | - | - | - | - | 29 | 25 | 25 | - |
| **Table H** | 368 | 324 | 12 | 19 | 22 | 22 | - | 260 | - | 2 | 38 | 32 | 32 | - |

[1]These flanges are also valid for ductile iron flanges type 21-2
[2]Flange thicknesses for copper alloy are from BS 450
[3]Copper alloy flanges are always flat-faced
**Please Note** – All dimensions have been given in millimetres. Where imperial flanges are detailed, the dimensions have been converted to the nearest mm. For measurements in inches, please refer to the Hattersley Flange Tables

## 1.11 NOMINAL SIZE – 250MM (10")

| | | | | | | | | | | | Thickness of flange | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BS EN 1092 | Dia. of flange | Bolt circle dia. | No of bolts | Dia. of bolts | Dia. of holes iron | Dia. of holes steel | Dia. of raised face[3] iron | Dia. of raised face[3] steel | Height of face[3] iron | Height of face[3] steel | Grey cast iron | Copper alloy | Cast & forged steel | Ductile cast iron |
| **PN6** | 375 | 335 | 12 | M16 | 19 | 18 | 309 | 312 | 3 | 2 | 24 [1] | - | 22 | - |
| **PN10** | 395 [2] | 350 | 12 | M20 | 23 | 22 | 319 | 320 | 3 | 2 | 28 [1] | - | 26 | 22 |
| **PN16** | 405 [2] | 355 | 12 | M24 | 28 | 26 | 319 | 320 | 3 | 2 | 32 [1] | - | 26 | 22 |
| **PN25** | 425 | 370 | 12 | M27 | 31 | 30 | 330 | 335 | 3 | 2 | - | - | 32 | 24.5 |
| **PN40** | 450 | 385 | 12 | M30 | 34 | 33 | 345 | 345 | 3 | 2 | - | - | 38 | 34.5 |
| **PN64** | 470 | 400 | 12 | M33 | - | 36 | - | 345 | - | 2 | - | - | 46 | - |
| **PN100** | 505 | 430 | 12 | M36 | - | 39 | - | 345 | - | 2 | - | - | 60 | - |
| ANSI | | | | | | | | | | | | | | |
| **Class 125/150** | 406 | 362 | 12 | 22 | 25 | 25 | - | 324 | - | 2 | 30 | 25 | 30 | - |
| **Class 300** | 445 | 387 | 16 | 25 | - | 29 | - | 324 | - | 2 | - | - | 41 | - |
| **Class 600** | 508 | 432 | 16 | 32 | - | 35 | - | 324 | - | 6 | - | - | 64 | - |
| **Class 900** | 546 | 470 | 16 | 35 | - | 38 | - | 324 | - | 6 | - | - | 70 | - |
| **Class 1500** | 584 | 483 | 12 | 41 | - | 51 | - | 324 | - | 6 | - | - | 108 | - |
| BS 10 | | | | | | | | | | | | | | |
| **Table A** | 406 | 356 | 8 | 19 | 22 | 22 | - | - | - | - | 24 | 19 | - | - |
| **Table D** | 406 | 356 | 8 | 19 | 22 | 22 | - | - | - | - | 25 | 19 | 19 | - |
| **Table E** | 406 | 356 | 12 | 19 | 22 | 22 | - | - | - | - | 25 | 22 | 22 | - |
| **Table F** | 432 | 381 | 12 | 22 | 25 | 25 | - | - | - | - | 29 | 25 | 25 | - |
| **Table H** | 432 | 381 | 12 | 22 | 25 | 25 | - | 311 | - | 2 | 41 | 35 | 35 | - |

## 1.12 NOMINAL SIZE – 300MM (12")

| | | | | | | | | | | | Thickness of flange | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BS EN 1092 | Dia. of flange | Bolt circle dia. | No of bolts | Dia. of bolts | Dia. of holes iron | Dia. of holes steel | Dia. of raised face[3] iron | Dia. of raised face[3] steel | Height of face[3] iron | Height of face[3] steel | Grey cast iron | Copper alloy | Cast & forged steel | Ductile cast iron |
| **PN6** | 440 | 395 | 12 | M20 | 23 | 22 | 363 | 365 | 4 | 2 | 24 [1] | - | 22 | - |
| **PN10** | 445 [2] | 400 | 12 | M20 | 23 | 22 | 370 | 370 | 4 | 2 | 28 [1] | - | 26 | 24.5 |
| **PN16** | 460 [2] | 410 | 12 | M24 | 28 | 26 | 370 | 378 | 4 | 2 | 32 [1] | - | 28 | 24.5 |
| **PN25** | 485 | 430 | 16 | M27 | 31 | 30 | 389 | 395 | 4 | 2 | 40 [1] | - | 34 | 27.5 |
| **PN40** | 515 | 450 | 16 | M30 | 34 | 33 | 409 | 410 | 4 | 2 | - | - | 42 | 39.5 |
| **PN64** | 530 | 460 | 16 | M33 | - | 36 | - | 410 | - | 2 | - | - | 52 | - |
| **PN100** | 585 | 500 | 16 | M39 | - | 42 | - | 410 | - | 2 | - | - | 68 | - |
| ANSI | | | | | | | | | | | | | | |
| **Class 125/150** | 483 | 432 | 12 | 22 | 25 | 25 | - | 381 | - | 2 | 32 | 27 | 32 | - |
| **Class 300** | 521 | 451 | 16 | 29 | - | 32 | - | 381 | - | 2 | - | - | 51 | - |
| **Class 600** | 559 | 489 | 20 | 32 | - | 35 | - | 381 | - | 6 | - | - | 67 | - |
| **Class 900** | 610 | 533 | 20 | 35 | - | 38 | - | 381 | - | 6 | - | - | 79 | - |
| **Class 1500** | 673 | 571 | 16 | 51 | - | 54 | - | 381 | - | 6 | - | - | 124 | - |
| BS 10 | | | | | | | | | | | | | | |
| **Table A** | 457 | 406 | 8 | 19 | 22 | 22 | - | - | - | - | 24 | 22 | - | - |
| **Table D** | 457 | 406 | 12 | 19 | 22 | 22 | - | - | - | - | 25 | 22 | 22 | - |
| **Table E** | 457 | 406 | 12 | 22 | 25 | 25 | - | - | - | - | 29 | 25 | 25 | - |
| **Table F** | 489 | 438 | 16 | 22 | 25 | 25 | - | - | - | - | 32 | 29 | 29 | - |
| **Table H** | 489 | 438 | 16 | 22 | 25 | 25 | - | 362 | - | 2 | 44 | 38 | 38 | - |

[1]These flanges are also valid for ductile iron flanges type 21-2
[2]Flange thicknesses for copper alloy are from BS 450
[3]Copper alloy flanges are always flat-faced
**Please Note** – All dimensions have been given in millimetres. Where imperial flanges are detailed, the dimensions have been converted to the nearest mm. For measurements in inches, please refer to the Hattersley Flange Tables

## 1.13 NOMINAL SIZE – 350MM (14")

| | | | | | | | | | | | Thickness of flange | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BS EN 1092 | Dia. of flange | Bolt circle dia. | No of bolts | Dia. of bolts | Dia. of holes iron | Dia. of holes steel | Dia. of raised face[3] iron | Dia. of raised face[3] steel | Height of face[3] iron | Height of face[3] steel | Grey cast iron | Copper alloy | Cast & forged steel | Ductile cast iron |
| **PN6** | 490 | 445 | 12 | M20 | 23 | 22 | 413 | 415 | 4 | 2 | 26 [1] | - | 22 | - |
| **PN10** | 505 | 460 | 16 | M20 | 23 | 22 | 429 | 430 | 4 | 2 | 30 [1] | - | 26 | 24.5 |
| **PN16** | 520 | 470 | 16 | M24 | 28 | 26 | 429 | 438 | 4 | 2 | 36 [1] | - | 30 | 26.5 |
| **PN25** | 555 | 490 | 16 | M30 | 34 | 33 | 448 | 450 | 4 | 2 | 44 [1] | - | 38 | 30 |
| **PN40** | 580 | 510 | 16 | M33 | 37 | 36 | 465 | 465 | 4 | 2 | - | - | 46 | 44 |
| **PN64** | 600 | 525 | 16 | M36 | - | 39 | - | 465 | - | 2 | - | - | 56 | - |
| **PN100** | 655 | 560 | 16 | M45 | - | 48 | - | 465 | - | 2 | - | - | 74 | - |
| ANSI | | | | | | | | | | | | | | |
| **Class 125/150** | 533 | 476 | 12 | 25 | 29 | 29 | - | 413 | - | 2 | 35 | - | 35 | - |
| **Class 300** | 584 | 514 | 20 | 29 | - | 32 | - | 413 | - | 2 | - | - | 54 | - |
| **Class 600** | 603 | 527 | 20 | 35 | - | 38 | - | 413 | - | 6 | - | - | 70 | - |
| **Class 900** | 641 | 559 | 20 | 38 | - | 41 | - | 413 | - | 6 | - | - | 86 | - |
| **Class 1500** | 749 | 635 | 16 | 57 | - | 60 | - | 413 | - | 6 | - | - | 133 | - |
| BS 10 | | | | | | | | | | | | | | |
| **Table A** | 527 | 470 | 8 | 22 | 25 | 25 | - | - | - | - | 25 | 25 | - | - |
| **Table D** | 527 | 470 | 12 | 22 | 25 | 25 | - | - | - | - | 29 | 25 | 25 | - |
| **Table E** | 527 | 470 | 12 | 22 | 25 | 25 | - | - | - | - | 32 | 25 | 25 | - |
| **Table F** | 552 | 495 | 16 | 25 | 29 | 29 | - | - | - | - | 35 | 32 | 32 | - |
| **Table H** | 552 | 495 | 16 | 25 | 29 | 29 | - | 419 | - | 2 | 48 | 41 | 41 | - |

## 1.14 NOMINAL SIZE – 400MM (16")

| | | | | | | | | | | | Thickness of flange | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BS EN 1092 | Dia. of flange | Bolt circle dia. | No of bolts | Dia. of bolts | Dia. of holes iron | Dia. of holes steel | Dia. of raised face[3] iron | Dia. of raised face[3] steel | Height of face[3] iron | Height of face[3] steel | Grey cast iron | Copper alloy | Cast & forged steel | Ductile cast iron |
| **PN6** | 540 | 495 | 16 | M20 | 23 | 22 | 463 | 465 | 4 | 2 | 28 [1] | - | 22 | - |
| **PN10** | 565 | 515 | 16 | M24 | 28 | 26 | 480 | 482 | 4 | 2 | 32 [1] | - | 26 | 24.5 |
| **PN16** | 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 |
| **PN40** | 660 | 585 | 16 | M36 | 41 | 39 | 535 | 535 | 4 | 2 | - | - | 50 | 48 |
| **PN64** | 670 | 585 | 16 | M39 | - | 42 | - | 535 | - | 2 | - | - | 60 | - |
| **PN100** | 715 | 620 | 16 | M45 | - | 48 | - | 535 | - | 2 | - | - | 78 | - |
| ANSI | | | | | | | | | | | | | | |
| **Class 125/150** | 597 | 540 | 16 | 25 | 29 | 29 | - | 470 | - | 2 | 37 | - | 37 | - |
| **Class 300** | 648 | 571 | 20 | 32 | - | 35 | - | 470 | - | 2 | - | - | 57 | - |
| **Class 600** | 686 | 603 | 20 | 38 | - | 41 | - | 470 | - | 6 | - | - | 76 | - |
| **Class 900** | 705 | 616 | 20 | 41 | - | 44 | - | 470 | - | 6 | - | - | 89 | - |
| **Class 1500** | 826 | 705 | 16 | 64 | - | 67 | - | 470 | - | 6 | - | - | 146 | - |
| BS 10 | | | | | | | | | | | | | | |
| **Table A** | 578 | 521 | 12 | 22 | 25 | 25 | - | - | - | - | 27 | 25 | - | - |
| **Table D** | 578 | 521 | 12 | 22 | 25 | 25 | - | - | - | - | 29 | 25 | 25 | - |
| **Table E** | 578 | 521 | 12 | 22 | 25 | 25 | - | - | - | - | 32 | 25 | 25 | - |
| **Table F** | 610 | 552 | 20 | 25 | 29 | 29 | - | - | - | - | 35 | 32 | 32 | - |
| **Table H** | 610 | 552 | 20 | 25 | 29 | 29 | - | 483 | - | 2 | 51 | 44 | 44 | - |

[1]These flanges are also valid for ductile iron flanges type 21-2
[2]Flange thicknesses for copper alloy are from BS 450
[3]Copper alloy flanges are always flat-faced
**Please Note** – All dimensions have been given in millimetres. Where imperial flanges are detailed, the dimensions have been converted to the nearest mm. For measurements in inches, please refer to the Hattersley Flange Tables

### 1.15 NOMINAL SIZE – 450MM (18")

| | | | | | | | | | | | Thickness of flange | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BS EN 1092 | Dia. of flange | Bolt circle dia. | No of bolts | Dia. of bolts | Dia. of holes iron | Dia. of holes steel | Dia. of raised face[3] iron | Dia. of raised face[3] steel | Height of face[3] iron | Height of face[3] steel | Grey cast iron | Copper alloy | Cast & forged steel | Ductile cast iron |
| **PN6** | 595 | 550 | 16 | M20 | 23 | 22 | 518 | 520 | 4 | 2 | 28 [1] | - | 22 | - |
| **PN10** | 615 | 565 | 20 | M24 | 28 | 26 | 530 | 532 | 4 | 2 | 32 [1] | - | 28 | 25.5 |
| **PN16** | 640 | 585 | 20 | M27 | 31 | 30 | 548 | 550 | 4 | 2 | 40 [1] | - | 40 | 30 |
| **PN25** | 670 | 600 | 20 | M33 | 37 | 36 | 548 | 555 | 4 | 2 | 50 [1] | - | 46 | 34.5 |
| **PN40** | 685 | 610 | 20 | M36 | 41 | 39 | 560 | 560 | 4 | 2 | - | - | 57 | 49 |
| **PN64** | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **PN100** | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ANSI | | | | | | | | | | | | | | |
| **Class 125/150** | 635 | 578 | 16 | 29 | 32 | 32 | - | 533 | - | 2 | 40 | - | 40 | - |
| **Class 300** | 711 | 629 | 24 | 32 | - | 35 | - | 533 | - | 2 | - | - | 60 | - |
| **Class 600** | 743 | 654 | 20 | 41 | - | 44 | - | 533 | - | 6 | - | - | 83 | - |
| **Class 900** | 787 | 686 | 20 | 48 | - | 51 | - | 533 | - | 6 | - | - | 102 | - |
| **Class 1500** | 914 | 775 | 16 | 70 | - | 73 | - | 533 | - | 6 | - | - | 162 | - |
| BS 10 | | | | | | | | | | | | | | |
| **Table A** | 641 | 584 | 12 | 22 | - | 25 | - | - | - | - | 27 | 27 | - | - |
| **Table D** | 641 | 584 | 12 | 22 | - | 25 | - | - | - | - | 32 | 29 | 29 | - |
| **Table E** | 641 | 584 | 16 | 22 | - | 25 | - | - | - | - | 35 | 29 | 29 | - |
| **Table F** | 673 | 610 | 20 | 29 | - | 32 | - | - | - | - | 38 | 35 | 35 | - |
| **Table H** | 673 | 610 | 20 | 29 | - | 32 | - | 533 | - | 2 | 54 | 48 | 48 | - |

### 1.16 NOMINAL SIZE – 500MM (20")

| | | | | | | | | | | | Thickness of flange | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BS EN 1092 | Dia. of flange | Bolt circle dia. | No of bolts | Dia. of bolts | Dia. of holes iron | Dia. of holes steel | Dia. of raised face[3] iron | Dia. of raised face[3] steel | Height of face[3] iron | Height of face[3] steel | Grey cast iron | Copper alloy | Cast & forged steel | Ductile cast iron |
| **PN6** | 645 | 600 | 20 | M20 | 23 | 22 | 568 | 570 | 4 | 2 | 30 [1] | - | 24 [2] | - |
| **PN10** | 670 | 620 | 20 | | 28 | 26 | 582 | 585 | 4 | 2 | 34 [1] | - | 28 [2] | 26.5 |
| **PN16** | 715 | 650 | 20 | | 34 | 33 | 609 | 610 | 4 | 2 | 42 [1] | - | 44 [2] | 31.5 |
| **PN25** | 730 | 660 | 20 | | 37 | 36 | 609 | 615 | 4 | 2 | 52 [1] | - | 48 [2] | 36.5 |
| **PN40** | 755 | 670 | 20 | | 44 | 42 | 615 | 615 | 4 | 2 | - | - | 57 [2] | 52 |
| **PN64** | 800 | 705 | 20 | | - | 48 | - | 615 | - | 2 | - | - | 68 [2] | - |
| **PN100** | 870 | 760 | 20 | | - | 56 | - | 615 | - | 2 | - | - | 94 [2] | - |
| ANSI | | | | | | | | | | | | | | |
| **Class 125/150** | 699 | 635 | 20 | 29 | 32 | 32 | - | 584 | - | 2 | 43 | - | 43 | - |
| **Class 300** | 775 | 686 | 24 | 32 | - | 35 | - | 584 | - | 2 | - | - | 64 | - |
| **Class 600** | 813 | 724 | 24 | 41 | - | 44 | - | 584 | - | 6 | - | - | 89 | - |
| **Class 900** | 857 | 749 | 20 | 51 | - | 54 | - | 584 | - | 6 | - | - | 108 | - |
| **Class 1500** | 984 | 832 | 16 | 76 | - | 79 | - | 584 | - | 6 | - | - | 178 | - |
| BS 10 | | | | | | | | | | | | | | |
| **Table A** | 705 | 641 | 12 | 22 | 25 | 25 | - | - | - | - | 29 | 29 | - | - |
| **Table D** | 705 | 641 | 16 | 22 | 25 | 25 | - | - | - | - | 32 | 32 | - | - |
| **Table E** | 705 | 641 | 16 | 22 | 25 | 25 | - | - | - | - | 38 | 32 | 32 | - |
| **Table F** | 737 | 673 | 24 | 29 | 32 | 32 | - | - | - | - | 41 | 38 | 38 | - |
| **Table H** | 737 | 673 | 24 | 29 | 32 | 32 | - | 597 | - | 2 | 57 | 51 | 51 | - |

[1]These flanges are also valid for ductile iron flanges type 21-2
[2]Flange thicknesses for copper alloy are from BS 450
[3]Copper alloy flanges are always flat-faced
**Please Note** – All dimensions have been given in millimetres. Where imperial flanges are detailed, the dimensions have been converted to the nearest mm. For measurements in inches, please refer to the Hattersley Flange Tables

## 1.17 NOMINAL SIZE – 600MM (24")

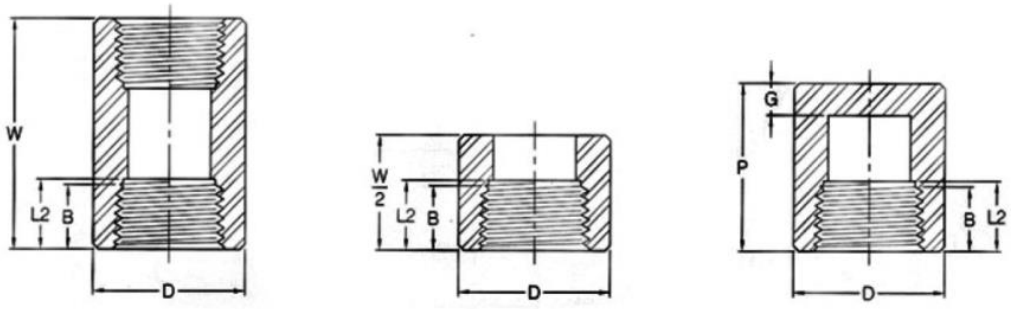
| | | | | | | | | | | | Thickness of flange | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BS EN 1092 | Dia. of flange | Bolt circle dia. | No of bolts | Dia. of bolts | Dia. of holes iron | Dia. of holes steel | Dia. of raised face[3] iron | Dia. of raised face[3] steel | Height of face[3] iron | Height of face[3] steel | Grey cast iron | Copper alloy | Cast & forged steel | Ductile cast iron |
| **PN6** | 755 | 705 | 20 | M24 | 28 | 26 | 667 | 670 | 5 | 2 | 30 [1] | - | 30 | - |
| **PN10** | 780 | 725 | 20 | M27 | 31 | 30 | 682 | 685 | 5 | 2 | 36 [1] | - | 34 | 30 |
| **PN16** | 840 | 770 | 20 | M33 | 37 | 36 | 720 | 720 | 5 | 2 | 48 [1] | - | 54 | 36 |
| **PN25** | 845 | 770 | 20 | M36 | 41 | 39 | 720 | 725 | 5 | 2 | - | - | 58 | 42 |
| **PN40** | 890 | 795 | 20 | M45 | 50 | 48 | 735 | 735 | 5 | 2 | - | - | 72 | 58 |
| **PN64** | 930 | 820 | 20 | M52 | - | 56 | - | 735 | - | 2 | - | - | 76 | - |
| ANSI | | | | | | | | | | | | | | |
| **Class 125/150** | 813 | 749 | 20 | 32 | 35 | 35 | - | 692 | - | 2 | 48 | - | 48 | - |
| **Class 300** | 914 | 813 | 24 | 38 | - | 41 | - | 692 | - | 2 | - | - | 70 | - |
| **Class 600** | 940 | 838 | 24 | 48 | - | 51 | - | 692 | - | 6 | - | - | 102 | - |
| **Class 900** | 1041 | 902 | 20 | 64 | - | 67 | - | 692 | - | 6 | - | - | 140 | - |
| **Class 1500** | 1168 | 991 | 16 | 89 | - | 92 | - | 692 | - | 6 | - | - | 203 | - |
| BS 10 | | | | | | | | | | | | | | |
| **Table A** | 826 | 756 | 12 | 25 | 29 | 29 | - | - | - | 30 | 30 | 30 | - | - |
| **Table D** | 826 | 756 | 16 | 25 | 29 | 29 | - | - | - | 35 | 35 | 35 | 35 | - |
| **Table E** | 826 | 756 | 16 | 29 | 32 | 32 | - | - | - | 41 | 41 | 38 | 38 | - |
| **Table F** | 851 | 781 | 24 | 32 | 32 | 35 | - | - | - | 44 | 44 | 41 | 41 | - |
| **Table H** | 851 | 781 | 24 | 32 | 35 | 35 | - | 699 | - | 64 | 64 | 57 | 57 | - |

[1]These flanges are also valid for ductile iron flanges type 21-2
[2]Flange thicknesses for copper alloy are from BS 450
[3]Copper alloy flanges are always flat-faced
**Please Note** – All dimensions have been given in millimetres. Where imperial flanges are detailed, the dimensions have been converted to the nearest mm. For measurements in inches, please refer to the Hattersley Flange Tables

## 2.0 SOCKET TABLES

### 2.1 3000LB SOCKETS

ASME B16.11-2009 (Revision of ASME B16.11-2005)




COUPLING HALF COUPLING CAP

| DN | Nom. Pipe Size | Centre to End Coupling W | Centre to End Cap P | | Outside Diameter D | | End Wall Thickness G Min. | | Length of Thread Min. (2) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 3000 & 6000 | 3000 | 6000 | 3000 | 6000 | 3000 | 6000 | B | L2 |
| 6 | 1/8" | 32 | 19 | - | 16 | - | 4.8 | - | 6.4 | 6.7 |
| 8 | ¼" | 35 | 25 | 27 | 19 | 25 | 4.8 | 6.4 | 8.1 | 10.2 |
| 10 | 3/8" | 38 | 25 | 27 | 22 | 32 | 4.8 | 6.4 | 9.1 | 10.4 |
| 15 | ½" | 48 | 32 | 33 | 28 | 38 | 6.4 | 7.9 | 10.9 | 13.6 |
| 20 | ¾" | 51 | 37 | 38 | 35 | 44 | 6.4 | 7.9 | 12.7 | 13.9 |
| 25 | 1" | 60 | 41 | 43 | 44 | 57 | 9.7 | 11.2 | 14.7 | 17.3 |
| 32 | 1-1/4" | 67 | 44 | 46 | 57 | 64 | 9.7 | 11.2 | 17.0 | 18.0 |
| 40 | 1-1/2" | 79 | 44 | 48 | 64 | 76 | 11.2 | 12.7 | 17.8 | 18.4 |
| 50 | 2" | 86 | 48 | 51 | 76 | 92 | 12.7 | 15.7 | 19.0 | 19.2 |
| 65 | 2-1/2" | 92 | 60 | 64 | 92 | 108 | 15.7 | 19.0 | 23.6 | 28.9 |
| 80 | 3" | 108 | 65 | 68 | 108 | 127 | 19.0 | 22.4 | 25.9 | 30.5 |
| 100 | 4" | 121 | 68 | 75 | 140 | 159 | 22.4 | 28.4 | 27.7 | 33.0 |

(1) Dimensions in Millimetres.

(2) Dimension B is minimum length of perfect thread. The length of useful thread (B plus threads with fully formed roots and flat crests) shall not be less than L2 (effective length of external thread) required by American National Standard for Pipe Threads (ANSI/ASME B1.20.1).

## 2.2 STANDARD BSP FITTINGS

| DN | Nominal Pipe Size | Threads per inch | Pitch | Outside Diameter | Inside Diameter |
|---|---|---|---|---|---|
| 6 | 1/8” | 28 | 0.907 | 9.728 | 8.565 |
| 8 | ¼” | 19 | 1.337 | 13.157 | 11.445 |
| 10 | 3/8” | 19 | 1.337 | 16.662 | 14.950 |
| 15 | ½” | 14 | 1.814 | 20.995 | 18.633 |
| 20 | ¾” | 14 | 1.814 | 26.441 | 24.120 |
| 25 | 1” | 11 | 2.309 | 33.489 | 30.292 |
| 32 | 1-1/4” | 11 | 2.309 | 41.910 | 38.953 |
| 40 | 1-1/2” | 11 | 2.309 | 47.803 | 44.846 |
| 50 | 2” | 11 | 2.309 | 59.614 | 56.657 |
| 65 | 2-1/2” | 11 | 2.309 | 75.184 | 72.227 |
| 80 | 3” | 11 | 2.309 | 87.884 | 84.927 |
| 100 | 4” | 11 | 2.309 | 113.030 | 110.073 |

(1) Dimensions in Millimetres.

## 3.0 PIPE TABLES

### 3.1 ASTM ANSI/ASME B36.19M STAINLESS STEEL PIPE DIMENSIONS

| Nominal Pipe Size | | Outside Diameter | Thickness | | | |
|---|---|---|---|---|---|---|
| | | | Sched 5S | Sched 10S | Sched 40S | Sched 80S |
| mm | inches | mm | mm | mm | mm | mm |
| 6 | 1/8 | 10.3 | | 1.24 | 1.73 | 2.41 |
| 8 | 1/4 | 13.7 | | 1.65 | 2.24 | 3.02 |
| 10 | 3/8 | 17.1 | | 1.65 | 2.31 | 3.20 |
| 15 | 1/2 | 21.3 | 1.65 | 2.11 | 2.77 | 3.73 |
| 20 | 3/4 | 26.7 | 1.65 | 2.11 | 2.87 | 3.91 |
| 25 | 1 | 33.4 | 1.65 | 2.77 | 3.38 | 4.55 |
| 32 | 1.1/4 | 42.2 | 1.65 | 2.77 | 3.56 | 4.85 |
| 40 | 1.1/2 | 48.3 | 1.65 | 2.77 | 3.68 | 5.08 |
| 50 | 2 | 60.3 | 1.65 | 2.77 | 3.91 | 5.54 |
| 65 | 2.1/2 | 73.0 | 2.11 | 3.05 | 5.16 | 7.01 |
| 80 | 3 | 88.9 | 2.11 | 3.05 | 5.49 | 7.62 |
| 90 | 3.1/2 | 101.6 | 2.11 | 3.05 | 5.74 | 8.08 |
| 100 | 4 | 114.3 | 2.11 | 3.05 | 6.02 | 8.56 |
| 125 | 5 | 141.3 | 2.77 | 3.40 | 6.55 | 9.53 |
| 150 | 6 | 168.3 | 2.77 | 3.40 | 7.11 | 10.97 |
| 200 | 8 | 219.1 | 2.77 | 3.76 | 8.18 | 12.70 |
| 250 | 10 | 273.1 | 3.40 | 4.19 | 9.27 | 12.70 |
| 300 | 12 | 323.9 | 3.96 | 4.57 | 9.53 | 12.70 |
| 350 | 14 | 355.6 | 3.96 | 4.78 | | |
| 400 | 16 | 406.4 | 4.19 | 4.78 | | |
| 450 | 18 | 457.0 | 4.19 | 4.78 | | |
| 500 | 20 | 508.0 | 4.78 | 5.54 | | |
| 550 | 22 | 559.00 | 4.78 | 5.54 | | |
| 600 | 24 | 610.0 | 5.54 | 6.35 | | |
| 750 | 30 | 762.0 | 6.35 | 7.92 | | |

### 3.2 BS 1387 STEEL TUBE DIMENSIONS

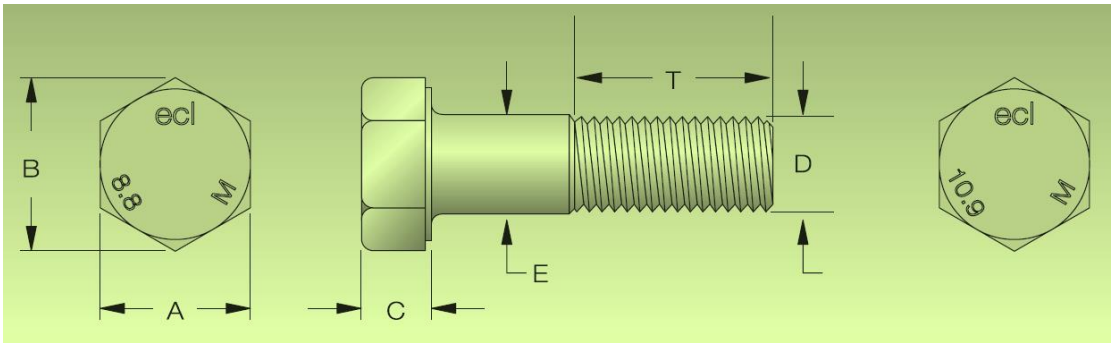
| Nominal Pipe Size | | Outside Diameter | Thickness | | |
|---|---|---|---|---|---|
| | | | Light Wall | Medium Wall | Heavy Wall |
| mm | inches | mm | mm | mm | mm |
| 8 | 1/4 | 13.5 | 1.8 | 2.3 | 2.9 |
| 10 | 3/8 | 17.2 | 1.8 | 2.3 | 2.9 |
| 15 | 1/2 | 21.3 | 2 | 2.6 | 3.2 |
| 20 | 3/4 | 26.9 | 2.3 | 2.6 | 3.2 |
| 25 | 1 | 33.7 | 2.6 | 3.2 | 4 |
| 32 | 1.1/4 | 42.4 | 2.6 | 3.2 | 4 |
| 40 | 1.1/2 | 48.3 | 2.9 | 3.2 | 4 |
| 50 | 2 | 60.3 | 2.9 | 3.6 | 4.5 |
| 65 | 2.1/2 | 76.1 | 3.2 | 3.6 | 4.5 |
| 80 | 3 | 88.9 | 3.2 | 4 | 5 |
| 100 | 4 | 114.3 | 3.6 | 4.5 | 5.4 |
| 125 | 5 | 139.7 | - | 5 | 5.4 |
| 150 | 6 | 165.1 | - | 5 | 5.4 |

### 3.3 API 5L, ASTM A106 GR.B & A333 GR.6 CARBON STEEL PIPE DIMENSIONS

| Nominal Pipe Size | | Outside Diameter | Thickness | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sched 10 | Sched 20 | Sched 30 | Shed 40 | Sched 60 | Sched 80 | Sched 100 | Sched 120 | Sched 140 | Sched 160 | Double Ex Strong |
| mm | inches | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm |
| 8 | 1/4 | 13.7 | - | - | - | 2.2 | - | 3 | - | - | - | - | - |
| 10 | 3/8 | 17.1 | - | - | - | 2.3 | - | 3.2 | - | - | - | - | - |
| 15 | 1/2 | 21.3 | - | - | - | 2.8 | - | 3.7 | - | - | - | - | 7.5 |
| 20 | 3/4 | 26.7 | - | - | - | 2.9 | - | 3.9 | - | - | - | 5.6 | 7.8 |
| 25 | 1 | 33.4 | - | - | - | 3.4 | - | 4.5 | - | - | - | 6.4 | 9.1 |
| 32 | 1.1/4 | 42.2 | - | - | - | 3.6 | - | 4.9 | - | - | - | 6.4 | 9.7 |
| 40 | 1.1/2 | 48.3 | - | - | - | 3.7 | - | 5.1 | - | - | - | 7.1 | 10.2 |
| 50 | 2 | 60.3 | - | - | - | 3.9 | - | 5.5 | - | - | - | 8.7 | 11.1 |
| 65 | 2.1/2 | 73.0 | - | - | - | 5.2 | - | 7 | - | - | - | 9.5 | 14.0 |
| 80 | 3 | 88.9 | - | - | - | 5.5 | - | 7.6 | - | - | - | 11.1 | 15.2 |
| 100 | 4 | 114.3 | - | - | - | 6 | - | 8.6 | - | 11.1 | - | 13.5 | 17.1 |
| 125 | 5 | 141.3 | - | - | - | 6.6 | - | 9.5 | - | 12.7 | - | 15.9 | 19.1 |
| 150 | 6 | 168.3 | - | - | - | 7.1 | - | 11 | - | 14.3 | - | 18.3 | 22 |
| 200 | 8 | 219.1 | - | 6.4 | 7 | 8.2 | 10.3 | 12.7 | 15.1 | 18.3 | 20.6 | 23 | 22.2 |
| 250 | 10 | 273.1 | - | 6.4 | 7.8 | 9.3 | 12.7 | 15.1 | 18.3 | 21.4 | 25.4 | 28.6 | 25.4 |
| 300 | 12 | 323.9 | - | 6.4 | 8.4 | 10.3 | 14.3 | 17.5 | 21.4 | 25.4 | 28.6 | 33.3 | 25.4 |
| 350 | 14 | 355.6 | 6.4 | 7.9 | 9.5 | 11.1 | 15.1 | 19.1 | 23.8 | 27.8 | 31.8 | 35.7 | - |
| 400 | 16 | 406.4 | 6.4 | 7.9 | 9.5 | 12.7 | 16.7 | 21.4 | 26.2 | 31.0 | 36.5 | 40.5 | - |
| 450 | 18 | 457 | 6.4 | 7.9 | 11.1 | 14.3 | 19.1 | 23.8 | 29.4 | 34.9 | 39.7 | 45.2 | - |
| 500 | 20 | 508 | 6.4 | 9.5 | 12.7 | 15.1 | 20.6 | - | - | - | - | - | - |
| 550 | 22 | 559 | 6.4 | 9.5 | 12.7 | - | 22.2 | - | - | - | - | - | - |
| 600 | 24 | 610 | 6.4 | 9.5 | 14.3 | 17.5 | 24.6 | - | - | - | - | - | - |

## 4.0 BOLT TABLES

### 4.1 METRIC BOLTS SIZES




| Metric Course D Diameter | Pitch | | A Across Flats Max | Up to 150mm | Over 150mm | B Across Corners | C Head Height | E Shank Diameter | |
|---|---|---|---|---|---|---|---|---|---|
| | Mm | Tap Drill | | Min | Min | Max | Nom | Max | Min |
| M5 | 0.80 | 4.20 | 8.0 | 7.78 | 7.64 | 9.2 | 3.5 | 5.0 | 4.82 |
| M6 | 1.00 | 5.00 | 10.0 | 9.78 | 9.64 | 11.5 | 4.0 | 6.0 | 5.82 |
| M8 | 1.25 | 6.80 | 13.0 | 12.73 | 12.57 | 15.0 | 5.3 | 8.0 | 7.78 |
| M10 | 1.50 | 8.50 | 16.0 | 15.75 | 15.27 | 18.4 | 6.4 | 10.0 | 9.78 |
| M12 | 1.75 | 10.20 | 18.0 | 17.73 | 17.57 | 20.7 | 7.5 | 12.0 | 11.73 |
| M14 | 2.00 | 12.00 | 21.0 | 20.67 | 20.16 | 24.2 | 8.8 | 14.0 | 13.73 |
| M16 | 2.00 | 14.00 | 24.0 | 23.67 | 23.16 | 27.7 | 10.0 | 16.0 | 15.73 |
| M18 | 2.50 | 15.50 | 27.0 | 26.67 | 26.16 | 31.2 | 11.5 | 18.0 | 17.73 |
| M20 | 2.50 | 17.50 | 30.0 | 29.67 | 29.16 | 34.6 | 12.5 | 20.0 | 19.67 |
| M22 | 2.50 | 14.50 | 34.0 | 33.38 | 33.00 | 39.3 | 14.0 | 22.0 | 21.67 |
| M24 | 3.00 | 21.00 | 36.0 | 35.38 | 35.00 | 41.6 | 15.0 | 24.0 | 23.67 |
| M27 | 3.00 | 24.00 | 41.0 | 40.38 | 40.00 | 47.3 | 16.7 | 27.0 | 26.67 |
| M30 | 3.50 | 26.50 | 46.0 | 45.00 | 45.00 | 53.1 | 18.7 | 30.0 | 29.67 |
| M33 | 3.50 | 24.50 | 50.0 | 49.00 | 49.00 | 57.7 | 20.5 | 33.0 | 32.61 |
| M36 | 4.00 | 32.00 | 55.0 | 53.80 | 53.80 | 63.5 | 22.5 | 36.0 | 35.61 |