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What is Stress Corrosion Cracking (SCC)?

When subjected to the combined effects of stress and corrosion, many alloys can develop cracks over a period of time and specifically copper-zinc alloys such as brass can be sensitive to stress corrosion attack, particularly in the presence of moisture through condensation.

However, SCC occurs only in the presence of a sufficiently high tensile stress and a specific corrosive environment. For brasses, the environment involved is usually one containing ammonia or closely related substances such as amines. The presence of ammonia or related substances could typically arise from the insulation material or from various sources of chemicals used on an installation and may even be airborne.

Since all brasses are susceptible to stress corrosion cracking it is important to avoid the combination of high stress and unfavourable environment that may cause stress corrosion.

Stress corrosion cracking of joints can occur with quite low concentrations of ammonia and may be accompanied by black staining of the surrounding surface. SCC is usually localised with the cracks running roughly perpendicular to the direction of the tensile.

Condensation and Insulation

Condensation of water vapour will occur on a surface that is at a temperature below the atmospheric dew point temperature due to the water vapour being drawn towards the cold surface as a result of a difference in partial vapour pressure between the air at ambient temperature and that at the temperature of the cold surface. Without adequate vapour sealing, moisture can be deposited through condensation within the insulating material and on the insulated metal surface.

Precautions must be taken to exclude moisture (condensation) from the system, therefore an effective vapour barrier is required. The purpose of the vapour barrier is to reduce, and if possible to prevent, the ingress of water vapour into the insulating material and it must be applied before the water in the pipe is cooled. Any joints in the insulating material must be fully sealed to ensure vapour permeance maintained continuously. Particular care must be taken at termination points to ensure that the integrity of the insulation and vapour barrier is maintained.

Only dry insulation material should be used and it should be kept dry until after the vapour barrier has been applied. Unsealed joints, badly fitting insulation and inadequate vapour sealing of termination points such as valve headworks and stems and test points can provide an easy passage for water vapour and subsequent condensation. Pipe supports should not be attached directly to the pipe because it is difficult to seal the insulation surface where the support projects through, therefore the pipe support brackets should be clamped over the exterior of the insulation where possible.

Systems

Copper alloy valves and fittings are widely used throughout HVAC systems on hot water heating, chilled water and domestic hot and cold water. It is reasonable to assume that fitting practices are the same throughout all the systems but failure due to stress corrosion cracking (SCC) is almost invariably encountered with brass products in chilled water systems. Nickel plating of products does not provide protection against SCC.

Products manufactured in bronze are not susceptible to SCC and DZR brass products are also less susceptible.

Installation

Joints must be made in accordance with our installation instructions. Correctly fitting tools such as spanners must be used to avoid causing damage and localised stressing to the component. 'Stilson' type wrenches must not be used. Excessive use of jointing material combined with high tightening forces can generate high hoop stresses in female threaded components.

Where failure does occur as a result of SCC, the stresses involved will almost always have been generated during installation.

Reduce the Risk of SCC

- Preferably install products manufactured in bronze or DZR brass material. If DZR brass is installed, the use of compression ended components is not recommended.
- Ensure that ball valves are supplied with extensions.
- All insulation and vapour barriers must comply with BS5970:2001 and BS5422:2009.

Bronze - FIG 25SM BS 5154/B PN20



Screwed BSPT Female, Bronze body, bonnet and disc, Brass stem, gland and lock nut
 Maximum pressure 20 bar @ -10 to 100°C, 9 bar @ 180°C saturated steam
 Cast Iron handwheel, Steel handwheel nut

| Size | ½ | ¾ | 1 | 1¼ | 1½ | 2 | 2½ | 3 |
|--------|----------|----------|----------|----------|----------|----------|----------|----------|
| Code | 22065430 | 22065441 | 22065452 | 22065463 | 22065474 | 22065485 | 22065496 | 22065504 |
| F-F mm | 50 | 52 | 65 | 66 | 68 | 80 | 102 | 110 |
| kg | 0.30 | 0.43 | 0.66 | 0.98 | 1.12 | 1.93 | 3.75 | 4.95 |

Bronze - FIG 25SMLS Lockshield Pattern BS 5154/B PN20



Screwed BSPT Female, Bronze body, bonnet and disc, Brass stem, gland and lock nut
 Maximum pressure 20 bar @ -10 to 100°C, 9 bar @ 180°C saturated steam
 Brass lockshield

| Size | ½ | ¾ | 1 | 1¼ | 1½ | 2 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 22065515 | 22065526 | 22065537 | 22065548 | 22065559 | 22065570 |
| F-F mm | 50 | 54 | 62 | 68 | 72 | 87 |
| kg | 0.33 | 0.43 | 0.61 | 0.85 | 1.11 | 1.82 |

Brass - FIG R55 BS 5154/B PN16



Screwed BSPT Female, 2½" & 3" are BSPP Female, Brass body
 Maximum pressure 16 bar @ 23°C, 10 bar @ 95°C, 2½" & 3" are PN10
 Aluminium handwheel, Zinc Plated Steel handwheel nut

| Size | ½ | ¾ | 1 | 1¼ | 1½ | 2 | 2½ | 3 |
|--------|----------|----------|----------|----------|----------|----------|----------|----------|
| Code | 22072707 | 22072718 | 22072729 | 22072740 | 22072751 | 22072762 | 22072773 | 22072784 |
| F-F mm | 43 | 48 | 54 | 62 | 64 | 76 | 80 | 84 |
| kg | 0.21 | 0.32 | 0.44 | 0.77 | 0.93 | 1.45 | 2.81 | 3.56 |

Brass - 1068 Wheelhead PN20



Screwed BSPT Female, ¼" to 2" Forged Brass body and bonnet, 2½" to 3" Gravity Die Cast Brass Body and Forged Brass Bonnet, Brass stem and ring
 Maximum pressure 20 bar @ 100°C, 9 bar @ 180°C
 Aluminium handwheel, Brass handwheel nut

| Size | ¼ | ¾ | ½ | ¾ | 1 | 1¼ |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 22072987 | 22072998 | 22073004 | 22073015 | 22073026 | 22073037 |
| F-F mm | 43 | 43 | 52 | 56 | 65 | 73 |
| kg | 0.22 | 0.22 | 0.27 | 0.37 | 0.64 | 0.99 |

| Size | 1½ | 2 | 2½ | 3 |
|--------|----------|----------|----------|----------|
| Code | 22073048 | 22073059 | 22073070 | 22073081 |
| F-F mm | 76 | 90 | 102 | 114 |
| kg | 1.28 | 2.00 | 3.19 | 4.63 |

Bronze - FIG 80S Rapid Action - Self Closing Type PN16



Screwed BSPT Female, Bronze body, EPDM disc
 Maximum pressure 10 bar @ 149°C, Steam 4.7 bar.
 Bronze lever, Stainless Steel spring

| Size | ½ | ¾ | 1 | 1¼ | 1½ | 2 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 22015208 | 22015219 | 22015230 | 22015241 | 22015252 | 22015263 |
| F-F mm | 70 | 79 | 89 | 111 | 121 | 127 |
| kg | 1.00 | 1.25 | 1.75 | 2.16 | 3.25 | 3.75 |

Ductile Iron - FIG 7XS PN16



Flanged, Ductile Iron body and bonnet, Ductile Iron Bronze faced disc, Bronze disc nut and seat rings,
 Brass stem, Graphite bonnet gasket and packing
 Maximum pressure 16 bar @ -10 to 120°C, Maximum temperature 200°C @ 12 bar
 Non rising stem

| Size | 2 | 2½ | 3 | 4 | 5 | 6 | 8 |
|--------|----------|----------|----------|----------|----------|----------|----------|
| Code | 32020001 | 32020012 | 32020023 | 32020034 | 32020045 | 32020056 | 32020067 |
| F-F mm | 178 | 190 | 203 | 229 | 254 | 267 | 292 |
| kg | 20.00 | 26.00 | 30.00 | 47.00 | 65.00 | 81.00 | 141.00 |

Ductile Iron - FIG 7XS PN6



Flanged, Ductile Iron body and bonnet, Ductile Iron Bronze faced disc, Bronze disc nut and seat rings, Brass stem and Graphite bonnet gasket and packing
 Maximum pressure 6 bar @ -10 to 120°C, Maximum temperature 150°C @ 5.4 bar
 Non rising stem

| Size | 2 | 2½ | 3 | 4 | 5 | 6 | 8 |
|--------|----------|----------|----------|----------|----------|----------|----------|
| Code | 32020108 | 32020119 | 32020130 | 32020141 | 32020152 | 32020163 | 32020174 |
| F-F mm | 150 | 170 | 180 | 190 | 200 | 210 | 230 |
| kg | 15.00 | 19.00 | 27.00 | 36.00 | 50.00 | 66.00 | 102.00 |

Ductile Iron - FIG 7XSE BS 3464



Flanged, BST "E", 4" also available BST "D", Ductile Iron body and bonnet, Ductile Iron Bronze faced disc, Bronze disc nut and seat rings with Graphite bonnet gasket and packing
 Maximum pressure 6.9 bar @ -17.8 to 121°C, 3.5 bar Steam @ -17.8 to 221°C
 Non rising stem

| Size | 2 | 2½ | 3 | 4 | 4 D | 5 | 6 | 8 |
|--------|----------|----------|----------|----------|----------|----------|----------|----------|
| Code | 32020204 | 32020215 | 32020226 | 32020237 | 32020248 | 32020259 | 32020270 | 32020281 |
| F-F mm | 146 | 159 | 165 | 171 | 171 | 191 | 210 | 241 |
| kg | 15.00 | 19.00 | 26.00 | 38.00 | 38.00 | 50.00 | 71.00 | 110.00 |

Bronze - FIG 62S BS 5154B PN32



Screwed BSPT Female, Bronze body and bonnet, Brass stem and disc nut, PTFE packing
 Maximum pressure 14 bar @ 198°C, 32 bar @ -10 to 100°C
 Screwed bonnet

| Size | ½ | ¾ | 1 | 1¼ | 1½ | 2 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 22065600 | 22065611 | 22065622 | 22065633 | 22065644 | 22065655 |
| F-F mm | 59 | 73 | 82 | 96 | 109 | 130 |
| kg | 0.42 | 0.60 | 0.82 | 1.23 | 1.78 | 3.02 |

Ductile Iron - FIG 9XS PN16



Flanged, Ductile Iron body and bonnet, Ductile Iron Bronze faced disc, Bronze body seat rings, Brass stem with Graphite bonnet gasket and packing
 Maximum pressure 16 bar @ -10 to 120°C, 14.4 bar @ 200°C
 Outside screw and yoke

| Size | 2 | 2½ | 3 | 4 | 5 | 6 | 8 |
|--------|----------|----------|----------|----------|----------|----------|----------|
| Code | 32020407 | 32020418 | 32020429 | 32020440 | 32020451 | 32020462 | 32020473 |
| F-F mm | 203 | 216 | 241 | 292 | 330 | 356 | 495 |
| kg | 20.00 | 26.00 | 30.00 | 47.00 | 65.00 | 81.00 | 141.00 |

Bronze - FIG 113S BS 5154 PN25 - Swing Check Pattern



Screwed BSPT Female, Bronze body, cap, hinge & disc, Graphite packing
 Maximum pressure 25 bar @ -10 to 100°C, 10.5 bar @ 186°C

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 | 2 1/2 | 3 |
|--------|----------|----------|----------|----------|----------|----------|----------|----------|
| Code | 22066004 | 22066015 | 22066026 | 22066037 | 22066048 | 22066059 | 22066070 | 22066081 |
| F-F mm | 66 | 70 | 83 | 96 | 108 | 128 | 160 | 180 |
| kg | 0.33 | 0.37 | 0.63 | 0.96 | 1.16 | 2.12 | 3.42 | 4.61 |

Bronze - FIG 103S BS 5154 PN25 Vertical Valve Spring Loaded



Screwed BSPT Female, Bronze body, end fitting and disc for sizes 1 1/2" and 2" and Brass disc 1/2" to 1 1/4",
 Stainless Steel spring
 Maximum pressure 25 bar @ -10 to 66°C, 10.5 bar 186°C

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 22065910 | 22065921 | 22065932 | 22065943 | 22065954 | 22065965 |
| F-F mm | 53 | 59 | 68 | 79 | 88 | 98 |
| kg | 0.17 | 0.26 | 0.43 | 0.63 | 0.92 | 1.39 |

Bronze - FIG 99S BS 5154 PN32 Horizontal Lift Pattern Check Valves



Screwed BSPT Female, Bronze body, cap and disc
 Maximum pressure 32 bar @ -10 to 100°C, 14 bar @ 198°C
 Metal-to-metal seat

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 22065803 | 22065814 | 22065825 | 22065836 | 22065847 | 22065858 |
| F-F mm | 59 | 73 | 82 | 96 | 109 | 130 |
| kg | 0.20 | 0.36 | 0.57 | 0.83 | 1.16 | 1.93 |

Bronze - FIG 96S BS 5154 PN32 Horizontal Lift Pattern Spring Loaded Check Valves



Screwed BSPT Female, Bronze body, cap and disc holder, PTFE disc, Stainless Steel spring
 Maximum pressure 32 bar @ -10 to 100°C, 14 bar @ 198°C

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 22065707 | 22065718 | 22065729 | 22065740 | 22065751 | 22065762 |
| F-F mm | 59 | 73 | 82 | 96 | 109 | 130 |
| kg | 0.30 | 0.50 | 0.66 | 1.00 | 1.40 | 2.32 |

Ductile Iron - FIG 8XS PN16



Flanged, Ductile Iron body, Ductile Iron Bronze faced disc, Bronze body seat ring
 Maximum pressure 16 bar @ -10 to 120°C, 14.4 bar @ 200°C
 Swing pattern, metal faced disc

| Size | 2 | 2 1/2 | 3 | 4 | 5 | 6 | 8 |
|--------|----------|----------|----------|----------|----------|----------|----------|
| Code | 32020300 | 32020311 | 32020322 | 32020333 | 32020344 | 32020355 | 32020366 |
| F-F mm | 203 | 216 | 241 | 292 | 330 | 356 | 495 |
| kg | 18.00 | 21.00 | 28.00 | 40.00 | 51.00 | 68.00 | 128.00 |

101SC Single Check Valves



Compression Ends, DZR body, Brass compression nut & olive, Stainless Steel spring
 Maximum pressure 16 bar @ 100°C, Working pressure PN10
 WRAS approved

| Size | 15mm | 22mm | 28mm |
|--------|----------|----------|----------|
| Code | 32210006 | 32210017 | 32210028 |
| F-F mm | 40.7 | 44 | 47.5 |
| kg | 0.11 | 0.24 | 0.34 |

101S Single Check Valves



BSPF Female, DZR body, Stainless Steel spring
 Maximum pressure 16 bar @ 100°C, Working pressure PN10
 WRAS approved

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 32210209 | 32210220 | 32210231 | 32210242 | 32210253 | 32210264 |
| F-F mm | 45 | 54 | 63.5 | 70 | 76 | 88 |
| kg | 0.09 | 0.13 | 0.23 | 0.34 | 0.41 | 0.71 |

102SC Double Check Valves



Compression Ends, DZR or Chrome Plated body, Brass compression nut & olive, Stainless Steel spring
 Maximum pressure 16 bar @ 100°C, Working pressure PN10
 WRAS approved

| | DZR | DZR | DZR | CHROME | CHROME | CHROME |
|--------|----------|----------|----------|----------|----------|----------|
| Size | 15mm | 22mm | 28mm | 15mm | 22mm | 28mm |
| Code | 32210102 | 32210113 | 32210124 | 32210135 | 32210146 | 32210157 |
| F-F mm | 66 | 75 | 89 | 66 | 75 | 88 |
| kg | 0.18 | 0.23 | 0.49 | 0.18 | 0.23 | 0.49 |

102S Double Check Valves



BSPF Female, DZR body, Stainless Steel spring
 Maximum pressure 16 bar @ 100°C, Working pressure PN10
 WRAS approved



| Size | ½ | ¾ | 1 | 1¼ | 1½ | 2 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 32210305 | 32210316 | 32210327 | 32210338 | 32210349 | 32210360 |
| F-F mm | 70 | 87 | 106 | 122 | 135 | 173 |
| kg | 0.15 | 0.23 | 0.38 | 0.60 | 0.82 | 1.52 |

10XS Non-Return Valves



Wafer design, Ductile Iron body, Stainless Steel stem & spring, Cast Stainless Steel disc, EPDM seat
 Maximum pressure 16 bar @ -0 to 85°C
 WRAS approved



| Size | 2 | 2½ | 3 | 4 | 5 | 6 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 23210209 | 23210220 | 23210231 | 23210242 | 23210253 | 23210264 |
| F-F mm | 107 | 127 | 142 | 162 | 192 | 218 |
| kg | 1.50 | 2.40 | 3.60 | 5.70 | 7.30 | 9.00 |

| Size | 8 | 10 | 12 |
|--------|----------|----------|----------|
| Code | 23210275 | 23210286 | 23210297 |
| F-F mm | 273 | 328 | 378 |
| kg | 17.00 | 26.00 | 42.00 |

11XS Single Non- Return Valve



SG Iron body, EPDM seal, Stainless Steel spring
 Maximum pressure 16 bar @ 23°C
 WRAS approved



| Size | DN50 | DN65 | DN80 | DN100 | DN125 | DN150 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 36700011 | 36700022 | 36700033 | 36700044 | 36700055 | 36700066 |
| F-F mm | 100 | 120 | 130 | 155 | 200 | 230 |
| kg | 5.60 | 7.30 | 10.00 | 11.75 | 20.00 | 26.50 |

| Size | DN200 | DN250 |
|--------|----------|----------|
| Code | 36700077 | 36700088 |
| F-F mm | 280 | 344 |
| kg | 50.00 | 94.00 |

11XS Double Non-Return Valve



SG Iron body, EPDM seal and gasket, Acetal ring, Stainless Steel spring
 Maximum pressure 16 bar @ 23°C
 WRAS approved



| Size | DN50 | DN65 | DN80 | DN100 | DN125 | DN150 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 36700203 | 36700214 | 36700225 | 36700236 | 36700247 | 36700258 |
| F-F mm | 205 | 245 | 265 | 315 | 405 | 465 |
| kg | 12.00 | 15.00 | 20.50 | 24.00 | 40.50 | 51.00 |

| Size | DN200 | DN250 |
|--------|----------|----------|
| Code | 36700269 | 36700280 |
| F-F mm | 565 | 693 |
| kg | 100.00 | 188.00 |

Ball Valves - Manual and Actuated

Ball Valves

Ball Valves - Manual and Actuated

Ball Valves

Brass Full Bore - FIG 966SRL Red Lever WRAS



Screwed BSPT Female, Nickel Plated Brass body and end connector, Brass Chrome Plated ball, Brass anti blow out stem, PTFE seats
 Maximum pressure 1/4" to 1" 40 bar, 1 1/4" to 2" 32 bar, maximum temperature 10 bar @ 180°C
 Lockable Lever, WRAS approved

| Size | 1/4 | 3/8 | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|--------|----------|----------|----------|----------|----------|----------|----------|----------|
| Code | 37184204 | 37184215 | 37184226 | 37184237 | 37184248 | 37184259 | 37184270 | 37184281 |
| F-F mm | 44 | 45 | 57 | 65 | 80 | 90 | 98 | 121 |
| kg | 0.17 | 0.16 | 0.25 | 0.34 | 0.57 | 0.82 | 1.16 | 1.93 |

Brass Full Bore - FIG 966SBL Blue Lever WRAS



Screwed BSPT Female, Nickel Plated Brass body and end connector, Brass Chrome Plated ball, Brass anti blow out stem, PTFE seats
 Maximum pressure 1/4" to 1" 40 bar, 1 1/4" to 2" 32 bar, maximum temperature 10 bar @ 180°C
 Lockable Lever, WRAS approved

| Size | 1/4 | 3/8 | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|--------|----------|----------|----------|----------|----------|----------|----------|----------|
| Code | 37184108 | 37184119 | 37184130 | 37184141 | 37184152 | 37184163 | 37184174 | 37184185 |
| F-F mm | 43 | 45 | 57 | 65 | 80 | 90 | 98 | 121 |
| kg | 0.17 | 0.16 | 0.25 | 0.34 | 0.57 | 0.82 | 1.16 | 1.93 |

Brass Full Bore - FIG 966SYL (BS EN 331:1998 + A1:2010)



Screwed BSPP Female, Nickel Plated Brass body and end connector, Brass Chrome Plated ball, Brass anti blow out stem, PTFE seats
 Maximum pressure 25 bar, maximum temperature 120°C
 BSEN 331:1998 +A1:2010

| Size | 1/4 | 3/8 | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|--------|----------|----------|----------|----------|----------|----------|----------|----------|
| Code | 37182008 | 37182019 | 37182030 | 37182041 | 37182052 | 37182063 | 37182074 | 37182085 |
| F-F mm | 48 | 48 | 62 | 70 | 82 | 98 | 109 | 125 |
| kg | 0.19 | 0.17 | 0.24 | 0.38 | 0.60 | 1.05 | 1.38 | 2.13 |

Brass Full Bore - FIG 966EXT WRAS



Screwed BSPT Female, Nickel Plated Brass body and end connector, Brass Chrome Plated ball, Brass anti blow out stem, PTFE seats
 Maximum pressure 1/4" to 1" 40 bar @ -10 to 100°C 1 1/4" to 2" 32 bar @ -10 to 100°C, Maximum temperature @ 10 bar 180°C
 Extended Lever, WRAS approved

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 37184407 | 37184418 | 37184429 | 37184440 | 37184451 | 37184462 |
| F-F mm | 57 | 65 | 80 | 90 | 98 | 121 |
| kg | 0.39 | 0.48 | 0.75 | 1.01 | 1.46 | 2.23 |

Brass Full Bore - FIG 966T WRAS



Screwed BSPT Female, Nickel Plated Brass body and end connector, Brass Chrome Plated ball, Brass anti blow out stem, PTFE seats
 Maximum pressure 1/4" to 1" 40 bar @ -10 to 100°C, 1 1/4" to 2" 32 bar @ -10 to 100°C, Maximum temperature @ 10 bar 180°C
 Red T Handle, WRAS approved

| Size | 1/4 | 3/8 | 1/2 | 3/4 | 1 | 1 1/4 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 37184300 | 37184311 | 37184322 | 37184333 | 37184344 | 37184355 |
| F-F mm | 43 | 45 | 57 | 65 | 80 | 90 |
| kg | 0.14 | 0.13 | 0.22 | 0.30 | 0.51 | 0.76 |

Brass Full Bore - FIG 966SYT (BS EN 331:1998 + A1:2010)



Screwed BSPP Female, Nickel Plated Brass body and end connector, Brass Chrome Plated ball, Brass anti blow out stem, PTFE seats
 Maximum pressure 25 bar, maximum temperature 120°C
 Yellow T Handle, BSEN 331:1998 +A1:2010

| Size | 1/4 | 3/8 | 1/2 | 3/4 | 1 | 1 1/4 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 37881006 | 37181017 | 37181028 | 37181039 | 37181050 | 37181061 |
| F-F mm | 48 | 48 | 62 | 70 | 82 | 98 |
| kg | 0.16 | 0.14 | 0.21 | 0.34 | 0.57 | 1.01 |

Brass Full Bore - FIG 966LS Lockshield WRAS



Screwed BSPT Female, Nickel Plated Brass body and end connector, Brass Chrome Plated ball, Brass anti blow out stem, PTFE seats
 Maximum pressure 1/2" to 1" 40 bar @ -10 to 100°C, 1 1/4" to 2" 32 bar @ -10 to 100°C, Maximum temperature @ 10 bar 180°C
 Lockshield, WRAS approved

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 37184503 | 37184514 | 37184525 | 37184536 | 37184547 | 37184558 |
| F-F mm | 57 | 65 | 80 | 90 | 98 | 121 |
| kg | 0.25 | 0.32 | 0.56 | 0.80 | 1.15 | 1.95 |

Brass Full Bore - FIG 967SRL Red Lever WRAS



Screwed BSPT Female, Nickel Plated Brass body and end connector, Brass Chrome Plated ball, Brass anti blow out stem, PTFE seats
 Maximum pressure 2 1/2" to 3" 25 bar, 4" 20 bar, Maximum temperature 2 1/2" to 3" 180°C, 4" 170°C
 Lockable Lever, WRAS approved

| Size | 2 1/2 | 3 | 4 |
|--------|----------|----------|----------|
| Code | 37184706 | 37184717 | 37184728 |
| F-F mm | 149 | 173 | 204 |
| kg | 3.70 | 5.15 | 8.46 |

Brass Full Bore - FIG 967SBL Blue Lever WRAS



Screwed BSPT Female, Nickel Plated Brass body and end connector, Brass Chrome Plated ball, Brass anti blow out stem, PTFE seats
 Maximum pressure 2 1/2" to 3" 25 bar, 4" 20 bar, Maximum temperature 2 1/2" to 3" 180°C, 4" 170°C
 Lockable Lever, WRAS approved

| Size | 2 1/2 | 3 | 4 |
|--------|----------|----------|----------|
| Code | 37184643 | 37184654 | 37184665 |
| F-F mm | 149 | 173 | 204 |
| kg | 3.70 | 5.15 | 8.46 |

Brass Full Bore - FIG 968SRL Red Lever WRAS



Compression ends, Nickel Plated Brass body and end connector. Brass Chrome Plated ball, Brass anti blow out stem, PTFE seats
 Maximum pressure 16 bar, Maximum temperature @ 5 bar 120°C
 Lockable Lever, WRAS approved

| Size | 15mm | 22mm | 28mm | 35mm | 42mm | 54mm |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 37184942 | 37184953 | 37184964 | 37185003 | 37185014 | 37185025 |
| F-F mm | 70 | 84 | 93 | 110 | 121 | 146 |
| kg | 0.28 | 0.47 | 0.69 | 0.95 | 1.41 | 2.34 |

Brass Full Bore - FIG 968SBL Blue Lever WRAS



Compression ends, Nickel Plated Brass body and end connector. Brass Chrome Plated ball, Brass anti blow out stem, PTFE seats
 Maximum pressure 16 bar, Maximum temperature @ 5 bar 120°C
 Lockable Lever, WRAS approved

| Size | 15mm | 22mm | 28mm | 35mm | 42mm | 54mm |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 37184835 | 37184846 | 37184857 | 37184909 | 37184920 | 37184931 |
| F-F mm | 70 | 84 | 93 | 110 | 121 | 146 |
| kg | 0.28 | 0.47 | 0.69 | 0.95 | 1.41 | 2.34 |

Brass Full Bore - FIG 968SYL (BS EN 331:1998 + A1:2010)



Compression ends, Nickel Plated Brass body and end connector. Brass Chrome Plated ball, Brass anti blow out stem, PTFE seats
 Maximum operating pressure 5 bar, Maximum temperature @ 16 bar 30°C, 10 bar 65°C, 6 bar 110°C and 5 bar 120°C. BSEN 331:1998 +A1:2010

| Size | 15mm | 22mm | 28mm | 35mm | 42mm | 54mm |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 37182104 | 37182115 | 37182126 | 37182137 | 37182148 | 37182159 |
| F-F mm | 68 | 77 | 91 | 104 | 116 | 134 |
| kg | 0.22 | 0.33 | 0.58 | 0.93 | 1.29 | 2.17 |

Brass Full Bore - FIG 968LS WRAS



Compression ends, Nickel Plated Brass body and end connector. Brass Chrome Plated ball, Brass anti blow out stem, PTFE seats
 Maximum pressure 16 bar, Maximum temperature @ 5 bar 120°C. Lockshield, WRAS approved

| Size | 15mm | 22mm | 28mm | 35mm | 42mm | 54mm |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 37185036 | 37185047 | 37185058 | 37185110 | 37185121 | 37185132 |
| F-F mm | 70 | 84 | 93 | 110 | 121 | 146 |
| kg | 0.27 | 0.45 | 0.68 | 0.94 | 1.39 | 2.35 |

Brass Full Bore - FIG 2500 ISO 5211 Mount



Screwed BSPT ISO-7, Nickel plated brass body and stem, Chrome nickel plated brass ball, PTFE seat
Full port, Max pressure PN40 (1/4"-2") PN25 (2 1/2") PN16 (3"-4"), Temperature -20°C - +160°C
ISO 5211 Mount (no lever), Anti static, Anti-blowout stem

| Size | 1/4 | 3/8 | 1/2 | 3/4 | 1 | 1 1/4 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 29410006 | 29410017 | 29410028 | 29410039 | 29410050 | 29410061 |
| F-F mm | 67 | 67 | 67 | 76 | 90 | 102 |
| kg | 0.40 | 0.40 | 0.30 | 0.40 | 0.70 | 1.10 |

| Size | 1 1/2 | 2 | 2 1/2 | 3 |
|--------|----------|----------|----------|----------|
| Code | 29410072 | 29410083 | 29410094 | 29410102 |
| F-F mm | 114 | 138 | 165 | 188 |
| kg | 1.70 | 2.90 | 4.10 | 6.40 |

Bronze Full Bore - FIG 965S



Threaded Female x Female, Bronze body, Brass stem, Brass Chrome Plated ball, PTFE seats
Maximum pressure 3/8" to 2" 40 bar @ 95°C & 10 bar @ 185°C, 2 1/2" to 3" 25 bar @ 95°C & 10 bar @ 185°C
Red Lever

| Size | 3/8 | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 37171000 | 37171011 | 37171022 | 37171033 | 37171044 | 37171055 |
| F-F mm | 46 | 57 | 67 | 77 | 91 | 103 |
| kg | 0.14 | 0.25 | 0.35 | 0.58 | 0.91 | 1.42 |

| Size | 2 | 2 1/2 | 3 |
|--------|----------|----------|----------|
| Code | 37171066 | 37171077 | 37171088 |
| F-F mm | 122 | 53 | 179 |
| kg | 2.15 | 4.53 | 6.49 |

Brass Full Bore - FIG 3500T 3 way ISO 5211 Mount



3 way T port, Female threaded, Nickel plated brass body and stem, Chrome nickel plated brass ball, PTFE seat
Full port, Max pressure PN30 (1/2"-3/4") PN16 (1") PN10 (1 1/4"-2"), Temperature -20°C - +160°C
ISO 5211 Mount, Lever operated, Anti static, Anti-blowout stem

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 29410242 | 29410253 | 29410264 | 29410275 | 29410286 | 29410297 |
| F-F mm | 77 | 87 | 105 | 122 | 138 | 166 |
| kg | 0.70 | 1.10 | 1.90 | 2.90 | 4.90 | 8.70 |

Bronze Full Bore - FIG 965NREXT



Screwed BSPP Female, Bronze body, Brass stem, Brass Chrome Plated ball, PTFE seats
Maximum pressure 25 bar <95°C, 16 bar >95°C
Non Rotating Extension Stem

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 37171107 | 37171118 | 37171129 | 37171140 | 37171151 | 37171162 |
| F-F mm | 57 | 69 | 77 | 90 | 103 | 123 |
| kg | 0.35 | 0.45 | 0.71 | 1.07 | 1.69 | 2.49 |

Brass Full Bore - FIG 3600L 3 way ISO 5211 Mount



3 way L port, Female threaded, Nickel plated brass body and stem, Chrome nickel plated brass ball, PTFE seat
Full port, Max pressure PN30 (1/2"-3/4") PN16 (1") PN10 (1 1/4"-2"), Temperature -20°C - +160°C
ISO 5211 Mount, Lever operated, Anti static, Anti-blowout stem

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 29410146 | 29410157 | 29410168 | 29410179 | 29410190 | 29410209 |
| F-F mm | 77 | 87 | 105 | 122 | 138 | 166 |
| kg | 0.70 | 1.20 | 1.90 | 3.00 | 5.00 | 8.90 |

Ball Valves - Manual and Actuated

Mini Ball Valves

Ball Valves - Manual and Actuated

Mini Ball Valves, Mini Ball Radiator Valves

Reduced Bore - Mini Ball Valves - Compression Chrome Plated



Compression ends Copper x Copper, DZR Brass body, Chrome Plated finish. EPDM seal & stem "O" rings
Maximum pressure 10 bar, Maximum temperature 100°C
WRAS approved

| Size | 15mm | 22mm | 28mm |
|--------|----------|----------|----------|
| Code | 86310102 | 86310113 | 86310124 |
| F-F mm | 41 | 57 | 65 |
| kg | 0.14 | 0.22 | 0.54 |

Reduced Bore - Mini Ball Valves - Compression Raw



Compression ends Copper x Copper, DZR Brass body, Raw finish. EPDM seal & stem "O" rings
Maximum pressure 10 bar, Maximum temperature 100°C
WRAS approved

| Size | 15mm | 22mm | 28mm |
|--------|----------|----------|----------|
| Code | 86314527 | 86314538 | 86314549 |
| F-F mm | 41 | 57 | 65 |
| kg | 0.14 | 0.22 | 0.54 |

Reduced Bore - Mini Ball Valves - Female x Female Screwed Chrome Plated



Screwed Female x Female, DZR Brass body, Chrome Plated finish, EPDM stem "O" rings
Maximum pressure 10 bar, Maximum temperature 100°C
WRAS approved

| Size | 1/2 | 3/4 | 1 |
|--------|----------|----------|----------|
| Code | 86310039 | 86310050 | 86310681 |
| F-F mm | 47 | 56 | 75 |
| kg | 0.11 | 0.23 | 0.42 |

Reduced Bore - Mini Ball Valves - Female x Female Screwed Raw



Screwed Female x Female, DZR Brass body, Raw finish, EPDM stem "O" rings
Maximum pressure 10 bar, Maximum temperature 100°C
WRAS approved

| Size | 1/2 | 3/4 |
|--------|----------|----------|
| Code | 86314228 | 86314239 |
| F-F mm | 47 | 56 |
| kg | 0.11 | 0.23 |

Reduced Bore - Mini Ball Valves - Male x Female Screwed Chrome Plated



Screwed Male x Female, DZR Brass body, Chrome Plated finish, EPDM stem "O" rings
Maximum pressure 10 bar, Maximum temperature 100°C
WRAS approved

| Size | 1/2 | 3/4 |
|--------|----------|----------|
| Code | 86310829 | 86310840 |
| F-F mm | 44 | 44 |
| kg | 0.10 | 0.10 |

Reduced Bore - Mini Ball Valves - Screwed Female x Copper Connections



Screwed Female x Copper connection, DZR/Enkotal body, Chrome Plated finish, EPDM stem "O" rings
Maximum pressure 10 bar, Maximum temperature 100°C
WRAS approved

| Size | 1/2 x 15mm | 3/4 x 22mm |
|--------|------------|------------|
| Code | 86310168 | 86310179 |
| F-F mm | 51 | 51 |
| kg | 0.13 | 0.13 |

Reduced Bore - Mini Ball Valves - Straight Swivel Female Union x Copper Compression Connection



Straight swivel Female union x Copper compression connections, Enkotal Alloy body, Chrome Plated finish, EPDM stem "O" rings
Maximum pressure 10 bar, Maximum temperature 100°C
WRAS approved

| Size | 15mm x 1/2 |
|--------|------------|
| Code | 86316103 |
| F-F mm | 41 |
| kg | 0.15 |

Mini Ball Valves - Plastic Handles



Black Plastic handle

| Size | 10-15mm |
|------|----------|
| Code | 86310574 |

Ball Valves - Manual and Actuated

Mini Ball Radiator Valves

Ball Valves - Manual and Actuated

Mini Ball Radiator Valves, Filter Ball Valves

Mini Ball Valves - Plastic Handles



Red Plastic handle

| | |
|-------------|----------------|
| Size | 10-15mm |
| Code | 86310585 |

Mini Ball Valves - Plastic Handles



Blue Plastic handle

| | |
|-------------|----------------|
| Size | 10-15mm |
| Code | 86310596 |

Mini Ball Valves - Plastic Handles



Black Plastic handle

| | |
|-------------|----------------|
| Size | 20-28mm |
| Code | 86310604 |

Reduced Bore - Mini Ball Valves - Angle Swivel Female Union x Copper Compression Connections



Angle swivel Female union x Copper compression connections, Enkotal Alloy body, Chrome Plated finish, EPDM seal & stem "O" rings
Maximum pressure 10 bar, Maximum temperature 100°C
WRAS approved

| | |
|---------------|--------------------|
| Size | 15mm x 1/2" |
| Code | 86316114 |
| F-F mm | 23 |
| kg | 0.12 |

Mini Ball Valve - Straight Radiator Valve



Brass, Nickel Plated finish, Straight Radiator valve

| | | |
|---------------|-------------|-------------|
| Size | 1/2" | 3/4" |
| Code | 86315839 | 86315850 |
| F-F mm | 82 | 82 |
| kg | 0.21 | 0.37 |

Mini Ball Valve - Angled Drain Valve



Brass, Nickel Plated finish, Angled Drain valve

| | |
|---------------|-------------|
| Size | 1/2" |
| Code | 86310209 |
| F-F mm | 31 |
| kg | 0.08 |

Mini Ball Filter Ball Valves



DZR Body, Chrome Plated finish, Stainless Steel screen
WRAS approved

| | | |
|---------------|-------------|-------------|
| Size | 15mm | 22mm |
| Code | 86310925 | 86310936 |
| F-F mm | 45 | 50 |
| kg | 0.15 | 0.27 |

Filter Ball Valve



Screwed BSPP Female, DZR Brass, PTFE seat, 28 Mesh Stainless Steel screen
Maximum pressure 16 bar 1/2" to 1", 20 bar 1 1/4" to 2" @ -10 to 120°C
Viton seal, Lever handle

| | | | | | | |
|---------------|-------------|-------------|-----------|---------------|---------------|-----------|
| Size | 1/2" | 3/4" | 1" | 1 1/4" | 1 1/2" | 2" |
| Code | 37130073 | 37130084 | 37130029 | 37130040 | 37130051 | 37130062 |
| F-F mm | 69 | 69 | 95 | 111 | 127 | 154 |
| kg | 0.40 | 0.50 | 1.20 | 1.90 | 3.00 | 5.00 |

Carbon Steel Reduced Bore - FIG LN190 1 pce 1000WOG



Screwed BSPT Female, Carbon Steel Body, 304 Stainless Steel ball, PTFE seats
 Maximum pressure 10.5 bar @ 180°C, Maximum temperature 70 bar @ -10 to +40°C
 1 Piece Valve, Blue Lever

| Size | 1/4 | 3/8 | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|
| Code | 36420204 | 36420215 | 36420226 | 36420237 | 36420248 | 36420259 | 36420270 | 36420281 |
| F-F mm | 39 | 44 | 57 | 59 | 71 | 78 | 83 | 101 |
| kg | 0.07 | 0.09 | 0.19 | 0.27 | 0.44 | 0.68 | 0.86 | 1.49 |

Stainless Steel Reduced Bore - FIG LN190 1 pce 1000WOG



Screwed BSPT Female, Stainless Steel Body, 316 Stainless Steel ball, PTFE seats
 Maximum pressure 10.5 bar @ 180°C, Maximum temperature 70 bar @ -10 to +40°C
 1 Piece Valve, Blue Lever

| Size | 1/4 | 3/8 | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|
| Code | 36420300 | 36420311 | 36420322 | 36420333 | 36420344 | 36420355 | 36420366 | 36420377 |
| F-F mm | 40 | 44 | 57 | 58 | 71 | 78 | 83 | 101 |
| kg | 0.07 | 0.09 | 0.19 | 0.27 | 0.44 | 0.66 | 0.86 | 1.49 |

Carbon Steel Full Bore - FIG LN240 2 pce 1000WOG



Screwed BSPT Female, Carbon Steel Body, 304 Stainless Steel ball, PTFE seats
 Maximum pressure 10.5 bar @ 180°C, Maximum temperature 70 bar @ -10 to +40°C
 2 Piece Valve, Blue Lever

| Size | 1/4 | 3/8 | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|
| Code | 36420108 | 36420119 | 36420130 | 36420141 | 36420152 | 36420163 | 36420174 | 36420185 |
| F-F mm | 51 | 51 | 63 | 76 | 79 | 101 | 109 | 122 |
| kg | 0.26 | 0.25 | 0.38 | 0.53 | 0.87 | 1.38 | 2.21 | 3.35 |

Stainless Steel Full Bore - FIG B380DD 3 pce ISO 5211 Mount



Screwed BSPT ISO-7, Stainless steel body, ball and stem, RTFE seat
 Full port, Max pressure 1000 WOG, Temperature 10 bar at -10°C - +160°C
 ISO 5211 Mount, Anti static, Anti-blowout stem

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|---------------|----------|----------|----------|----------|----------|----------|
| Code | 30910102 | 30910113 | 30910124 | 30910135 | 30910146 | 30910157 |
| F-F mm | 70 | 76 | 92 | 105 | 120 | 138 |
| kg | 0.90 | 1.00 | 1.70 | 2.40 | 3.90 | 5.20 |

Stainless Steel Full Bore - FIG B380DX 3 pce ISO 5211 Mount



Socket weld, Stainless steel body, ball and stem, RTFE seat
 Full port, Max pressure 1000 WOG, Temperature 10 bar at -10°C - +160°C
 ISO 5211 Mount, Anti static, Anti-blowout stem

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|---------------|----------|----------|----------|----------|----------|----------|
| Code | 30910209 | 30910220 | 30910231 | 30910242 | 30910253 | 30910264 |
| F-F mm | 70 | 76 | 92 | 105 | 120 | 138 |
| kg | 0.90 | 1.00 | 1.70 | 2.40 | 3.90 | 5.20 |

Stainless Steel Full Bore - FIG 203B ANSI 150 2 pce ISO 5211 Mount



Flanged ANSI 150, Stainless steel body, ball and stem, RTFE seat
 Full port, Max Pressure at Temp 19.0 bar at -29°C, 13.7 bar at 200°C
 ISO 5211 Mount, Firesafe by Design (Firesafe Approved 1/2" - 1")

| Size | 1/2 | 3/4 | 1 | 1 1/2 | 2 | 2 1/2 |
|---------------|----------|----------|----------|----------|----------|----------|
| Code | 30910305 | 30910316 | 30910327 | 30910338 | 30910349 | 30910360 |
| F-F mm | 108 | 117 | 127 | 165 | 178 | 190 |
| kg | 1.70 | 2.30 | 3.30 | 7.00 | 10.00 | 16.70 |

| Size | 3 | 4 | 6 | 8 |
|---------------|----------|----------|----------|----------|
| Code | 30910371 | 30910382 | 30910393 | 30910401 |
| F-F mm | 203 | 229 | 394 | 457 |
| kg | 21.80 | 38.00 | 85.50 | 194.00 |

Stainless Steel Full Bore - FIG 203H PN16 2 pce ISO 5211 Mount



Flanged PN16, Stainless steel body, ball and stem, RTFE seat
 Full port, Max Pressure at Temp 16.0 bar at -10°C, 12.1 bar at 200°C
 ISO 5211 Mount, Firesafe Approved

| Size | 1/2 | 3/4 | 1 | 1 1/2 | 2 | 2 1/2 |
|---------------|----------|----------|----------|----------|----------|----------|
| Code | 30910456 | 30910467 | 30910478 | 30910489 | 30910508 | 30910519 |
| F-F mm | 115 | 120 | 125 | 140 | 150 | 170 |
| kg | 2.10 | 3.00 | 3.90 | 7.20 | 10.00 | 15.20 |

| Size | 3 | 4 | 6 | 8 |
|---------------|----------|----------|----------|----------|
| Code | 30910530 | 30910541 | 30910552 | 30910563 |
| F-F mm | 180 | 190 | 350 | 400 |
| kg | 20.00 | 30.00 | 67.40 | 185.00 |

Stainless Steel Reduced Bore - FIG B230T 3 way ISO 5211 Mount



3 way T port, Screwed BSPT, Stainless steel body, ball and stem, RTFE seat, 2 seats design (diverter valve)
 Reduced port, Max pressure 2000 WOG, Temperature 10 bar at -10°C - +160°C
 ISO 5211 Mount, Anti static, Anti blowout stem

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|---------------|----------|----------|----------|----------|----------|----------|
| Code | 30910604 | 30910615 | 30910626 | 30910637 | 30910648 | 30910659 |
| F-F mm | 67 | 78 | 90 | 102 | 109 | 135 |
| kg | 0.50 | 0.90 | 1.30 | 2.20 | 2.70 | 4.60 |

Stainless Steel Reduced Bore - FIG B230L 3 way ISO 5211 Mount



3 way L port, Screwed BSPT, Stainless steel body, ball and stem, RTFE seat, 2 seats design (diverter valve)
 Reduced port, Max pressure 2000 WOG, Temperature 10 bar at -10°C - +160°C
 ISO 5211 Mount, Anti static, Anti blowout stem

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|---------------|----------|----------|----------|----------|----------|----------|
| Code | 30910700 | 30910711 | 30910722 | 30910733 | 30910744 | 30910755 |
| F-F mm | 67 | 78 | 90 | 101 | 108 | 135 |
| kg | 0.50 | 0.90 | 1.30 | 2.20 | 2.70 | 4.60 |

Stainless Steel Full Bore - FIG LN240 2 pce 1000 WOG



Screwed BSPT Female, Stainless steel body, ball and stem, RTFE seat
 Full port, max pressure 1000 WOG, Temperature 10.5 bar at 180°C, 70 bar at -10°C - +40°C
 2 hole mounting pad for actuation

| Size | 1/4 | 3/8 | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|
| Code | 36420001 | 36420012 | 36420023 | 36420034 | 36420045 | 36420056 | 36420067 | 36420078 |
| F-F mm | 52 | 52 | 64 | 75 | 79 | 101 | 109 | 123 |
| kg | 0.30 | 0.30 | 0.40 | 0.50 | 0.90 | 1.40 | 2.20 | 3.40 |

Ball Valves - Manual and Actuated

Pneumatically Actuated with Spring Actuator / Double Acting Actuator

Brass Full Bore - FIG 250-SR / 250-DA 2 pce



Screwed BSPT ISO-7, Nickel plated brass body and stem, Chrome nickel plated brass ball, PTFE seat
Full port, Max pressure PN40 (1/4"-2") PN25 (2 1/2") PN16 (3"-4"), Temperature -20°C - +160°C
ISO 5211 Mount, Anti static, Anti-blowout stem
Fitted with Pneumatic Actuator, sized for 5.5 bar (80 psi) air supply, fully assembled and tested

| Size | 1/4 | 3/8 | 1/2 | 3/4 | 1 | 1 1/4 |
|--------|------|------|------|------|------|-------|
| F-F mm | 67 | 67 | 67 | 76 | 90 | 102 |
| SR kg | 1.70 | 1.70 | 1.70 | 1.70 | 2.10 | 2.40 |
| DA kg | 0.90 | 0.80 | 0.80 | 0.90 | 1.20 | 1.60 |

| Size | 1 1/2 | 2 | 2 1/2 | 3 |
|--------|-------|------|-------|-------|
| F-F mm | 114 | 138 | 165 | 188 |
| SR kg | 5.20 | 6.40 | 11.20 | 13.60 |
| DA kg | 2.90 | 4.10 | 5.70 | 8.10 |

Brass Full Bore - FIG 350T-SR / 350T-DA 3 way



3 way T port, Female threaded, Nickel plated brass body and stem, Chrome nickel plated brass ball, PTFE seat
Full port, Max pressure PN30 (1/2"-3/4") PN16 (1") PN10 (1 1/4"-2"), Temperature -20°C - +160°C
ISO 5211 Mount, Anti static, Anti-blowout stem
Fitted with Pneumatic Actuator, sized for 5.5 bar (80 psi) air supply, fully assembled and tested

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|--------|------|------|------|-------|-------|-------|
| F-F mm | 77 | 87 | 105 | 122 | 138 | 166 |
| SR kg | 2.00 | 4.60 | 5.30 | 6.40 | 12.10 | 15.90 |
| DA kg | 1.20 | 2.30 | 3.00 | 4.00 | 6.60 | 11.50 |

Brass Full Bore - FIG 360L-SR / 360L-DA 3 way



3 way L port, Female threaded, Nickel plated brass body and stem, Chrome nickel plated brass ball, PTFE seat
Full port, Max pressure PN30 (1/2"-3/4") PN16 (1") PN10 (1 1/4"-2"), Temperature -20°C - +160°C
ISO 5211 Mount, Anti static, Anti-blowout stem
Fitted with Pneumatic Actuator, sized for 5.5 bar (80 psi) air supply, fully assembled and tested

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|--------|------|------|------|-------|-------|-------|
| F-F mm | 77 | 87 | 105 | 122 | 138 | 166 |
| SR kg | 2.00 | 4.60 | 5.40 | 6.50 | 12.10 | 16.10 |
| DA kg | 1.20 | 2.30 | 3.00 | 4.10 | 6.60 | 11.70 |

Ball Valves - Manual and Actuated

Electrically Actuated with High Voltage / Low Voltage Electric Actuator

Brass Full Bore - FIG 250-EA 2 pce



Screwed BSPT ISO-7, Nickel plated brass body and stem, Chrome nickel plated brass ball, PTFE seat
Full port, Max pressure PN40 (1/4"-2") PN25 (2 1/2") PN16 (3"-4"), Temperature -20°C - +160°C
ISO 5211 Mount, Anti static, Anti-blowout stem
110-240V AC/DC / 12-24V AC/DC multi voltage On/Off Actuator, IP67 rated, set at 90°, Fully assembled and tested

| Size | 1/4 | 3/8 | 1/2 | 3/4 | 1 | 1 1/4 |
|--------|------|------|------|------|------|-------|
| F-F mm | 67 | 67 | 67 | 76 | 90 | 102 |
| kg | 2.20 | 2.20 | 2.10 | 2.20 | 2.50 | 2.90 |

| Size | 1 1/2 | 2 | 2 1/2 | 3 |
|--------|-------|------|-------|------|
| F-F mm | 114 | 138 | 165 | 188 |
| kg | 3.50 | 4.70 | 6.00 | 8.30 |

Brass Full Bore - FIG 350T-EA 3 way



3 way T port, Female threaded, Nickel plated brass body and stem, Chrome nickel plated brass ball, PTFE seat
Full port, Max pressure PN30 (1/2"-3/4") PN16 (1") PN10 (1 1/4"-2"), Temperature -20°C - +160°C
ISO 5211 Mount, Anti static, Anti-blowout stem
110-240V AC/DC / 12-24V AC/DC multi voltage On/Off Actuator, IP67 rated, set at 90°, Fully assembled and tested

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|--------|------|------|------|-------|-------|-------|
| F-F mm | 77 | 87 | 105 | 138 | 138 | 166 |
| kg | 2.50 | 2.90 | 3.70 | 4.70 | 6.80 | 11.10 |

Brass Full Bore - FIG 360L-EA 3 way



3 way L port, Female threaded, Nickel plated brass body and stem, Chrome nickel plated brass ball, PTFE seat
Full port, Max pressure PN30 (1/2"-3/4") PN16 (1") PN10 (1 1/4"-2"), Temperature -20°C - +160°C
ISO 5211 Mount, Anti static, Anti-blowout stem
110-240V AC/DC / 12-24V AC/DC multi voltage On/Off Actuator, IP67 rated, set at 90°, Fully assembled and tested

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|--------|------|------|------|-------|-------|-------|
| F-F mm | 77 | 87 | 105 | 122 | 138 | 166 |
| kg | 2.50 | 3.00 | 3.70 | 4.80 | 6.90 | 11.30 |

Ball Valves - Manual and Actuated

Pneumatically Actuated with Spring Return / Double Acting Actuator

Stainless Steel Full Bore - FIG B381-SR / B381-DA 3 pce



Screwed BSPT ISO-7, Stainless steel body, ball and stem, RTFE seat
 Full port, Max pressure 1000 WOG, Temperature 10 bar at -10°C - +160°C
 ISO 5211 Mount, Anti static, Anti-blowout stem
 Fitted with Pneumatic Actuator, sized for 5.5 bar (80 psi) air supply, fully assembled and tested

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|---------------|------|------|------|-------|-------|-------|
| F-F mm | 70 | 76 | 92 | 105 | 120 | 138 |
| SR kg | 2.90 | 4.40 | 5.10 | 7.20 | 8.70 | 10.70 |
| DA kg | 2.00 | 2.10 | 2.80 | 4.10 | 5.60 | 8.00 |

Stainless Steel Full Bore - FIG B382-SR / B382-DA 3 pce



Socket weld, Stainless steel body, ball and stem, RTFE seat
 Full port, Max pressure 1000 WOG, Temperature 10 bar at -10°C - +160°C
 ISO 5211 Mount, Anti static, Anti-blowout stem
 Fitted with Pneumatic Actuator, sized for 5.5 bar (80 psi) air supply, fully assembled and tested

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|---------------|------|------|------|-------|-------|-------|
| F-F mm | 70 | 76 | 92 | 105 | 120 | 138 |
| SR kg | 2.90 | 4.40 | 5.10 | 7.20 | 8.70 | 10.70 |
| DA kg | 2.00 | 2.10 | 2.80 | 4.10 | 5.60 | 8.00 |

Stainless Steel Full Bore - FIG 204-SR / 204-DA ANSI 150 2 pce



Flanged ANSI 150, Stainless steel body, ball and stem, RTFE seat
 Full port, Max Pressure at Temp 19.0 bar at -29°C, 13.7 bar at 200°C
 ISO 5211 Mount, Firesafe by Design (Firesafe Approved 1/2" - 1")
 Fitted with Pneumatic Actuator, sized for 5.5 bar (80 psi) air supply, fully assembled and tested

| Size | 1/2 | 3/4 | 1 | 1 1/2 | 2 | 2 1/2 |
|---------------|------|------|------|-------|-------|-------|
| F-F mm | 108 | 117 | 127 | 165 | 178 | 190 |
| SR kg | 3.80 | 6.70 | 8.20 | 14.20 | 21.70 | 31.10 |
| DA kg | 2.90 | 3.40 | 4.90 | 8.70 | 12.80 | 20.60 |

| Size | 3 | 4 | 6 | 8 |
|---------------|-------|-------|--------|--------|
| F-F mm | 203 | 229 | 394 | 457 |
| SR kg | 44.00 | 68.10 | 126.10 | 264.00 |
| DA kg | 27.30 | 46.90 | 94.40 | 216.00 |

Ball Valves - Manual and Actuated

Pneumatically Actuated with Spring Return / Double Acting Actuator

Stainless Steel Full Bore - FIG 205-SR / 205-DA PN16 2 pce



Flanged PN16, Stainless steel body, ball and stem, RTFE seat
 Full port, Max Pressure at Temp 16.0 bar at -10°C, 12.1 bar at 200°C
 ISO 5211 Mount, Firesafe Approved
 Fitted with Pneumatic Actuator, sized for 5.5 bar (80 psi) air supply, fully assembled and tested

| Size | 1/2 | 3/4 | 1 | 1 1/2 | 2 | 2 1/2 |
|---------------|------|------|------|-------|-------|-------|
| F-F mm | 115 | 120 | 125 | 140 | 150 | 170 |
| SR kg | 4.10 | 6.40 | 8.80 | 14.40 | 21.70 | 29.50 |
| DA kg | 3.20 | 4.10 | 5.50 | 8.90 | 12.80 | 19.10 |

| Size | 3 | 4 | 6 | 8 |
|---------------|-------|-------|--------|--------|
| F-F mm | 180 | 190 | 350 | 400 |
| SR kg | 42.20 | 60.10 | 108.00 | 256.00 |
| DA kg | 25.50 | 38.90 | 76.30 | 207.00 |

Stainless Steel Reduced Bore - FIG B232T-SR / B232T-DA 3 Way



3 way T port, Screwed BSPT, Stainless steel body, ball and stem, RTFE seat, 2 seats design (diverter valve)
 Reduced port, Max pressure 2000 WOG, Temperature 10 bar at -10°C - +160°C
 ISO 5211 Mount, Anti static, Anti blowout stem
 Fitted with Pneumatic Actuator, sized for 5.5 bar (80 psi) air supply, fully assembled and tested

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|---------------|------|------|------|-------|-------|-------|
| F-F mm | 67 | 78 | 90 | 102 | 109 | 135 |
| SR kg | 2.50 | 5.80 | 6.20 | 9.40 | 9.90 | 16.20 |
| DA kg | 1.60 | 2.10 | 3.00 | 3.90 | 5.50 | 7.30 |

Stainless Steel Reduced Bore - FIG B231L-SR / B231L-DA 3 Way



3 way L port, Screwed BSPT, Stainless steel body, ball and stem, RTFE seat, 2 seats design (diverter valve)
 Reduced port, Max pressure 2000 WOG, Temperature 10 bar at -10°C - +160°C
 ISO 5211 Mount, Anti static, Anti blowout stem
 Fitted with Pneumatic Actuator, sized for 5.5 bar (80 psi) air supply, fully assembled and tested

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|---------------|------|------|------|-------|-------|-------|
| F-F mm | 67 | 78 | 90 | 102 | 109 | 135 |
| SR kg | 2.50 | 5.80 | 6.20 | 9.40 | 9.90 | 16.20 |
| DA kg | 1.60 | 2.10 | 3.00 | 3.90 | 5.50 | 7.30 |

Ball Valves - Manual and Actuated

Pneumatically Actuated with Spring Return / Double Acting Actuator

Stainless Steel Full Bore - FIG 241-SR / 241-DA 2 pce



Screwed BSPT Female, Stainless steel body, ball and stem, RTFE seat
 Full port, Max pressure 1000 WOG, Temperature 10.5 bar at 180°C, 70 bar at -10°C to +40°C
 Fitted with Pneumatic Actuator, sized for 5.5 bar (80 psi) air supply, fully assembled and tested

| Size | 1/4 | 3/8 | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|--------|------|------|------|------|------|-------|-------|------|
| F-F mm | 52 | 52 | 64 | 75 | 79 | 101 | 109 | 123 |
| SR kg | 1.60 | 1.60 | 1.70 | 1.90 | 2.20 | 4.90 | 5.70 | 8.30 |
| DA kg | 0.80 | 0.70 | 0.90 | 1.00 | 1.40 | 2.50 | 3.30 | 5.00 |

Ball Valves - Manual and Actuated

Electrically Actuated with High Voltage / Low Voltage Electric Actuator

Stainless Steel Full Bore - FIG B381-EA 3 pce



Screwed BSPT ISO-7, Stainless steel body, ball and stem, RTFE seat
 Full port, Max pressure 1000 WOG, Temperature 10 bar at -10°C - +160°C
 ISO 5211 Mount, Anti static, Anti-blowout stem
 110-240V AC/DC / 12-24V AC/DC multi voltage On/Off Actuator, IP67 rated, set at 90°, Fully assembled and tested

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|--------|------|------|------|-------|-------|------|
| F-F mm | 70 | 77 | 92 | 105 | 120 | 138 |
| kg | 2.70 | 2.80 | 3.50 | 4.20 | 5.80 | 7.10 |

Stainless Steel Full Bore - FIG B382-EA 3 pce



Socket weld, Stainless steel body, ball and stem, RTFE seat
 Full port, Max pressure 1000 WOG, Temperature 10 bar at -10°C - +160°C
 ISO 5211 Mount, Anti static, Anti-blowout stem
 110-240V AC/DC / 12-24V AC/DC multi voltage On/Off Actuator, IP67 rated, set at 90°, Fully assembled and tested

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|--------|------|------|------|-------|-------|------|
| F-F mm | 70 | 77 | 92 | 105 | 120 | 138 |
| kg | 2.70 | 2.80 | 3.50 | 4.20 | 5.80 | 7.10 |

Stainless Steel Full Bore - FIG 204-EA ANSI 150 2 pce



Flanged ANSI 150, Stainless steel body, ball and stem, RTFE seat
 Full port, Max Pressure at Temp 19.0 bar at -29°C, 13.7 bar at 200°C
 ISO 5211 Mount, Firesafe by Design (Firesafe Approved 1/2" - 1")
 110-240V AC/DC / 12-24V AC/DC / 24V AC/DC multi voltage On/Off Actuator, IP67 rated, set at 90°, Fully assembled and tested

| Size | 1/2 | 3/4 | 1 | 1 1/2 | 2 | 2 1/2 |
|--------|------|------|------|-------|-------|-------|
| F-F mm | 108 | 117 | 127 | 165 | 178 | 190 |
| kg | 3.50 | 4.10 | 5.10 | 8.90 | 12.40 | 19.70 |

| Size | 3 | 4 | 6 |
|--------|-------|-------|-------|
| F-F mm | 203 | 229 | 394 |
| kg | 27.00 | 43.20 | 90.70 |

Ball Valves - Manual and Actuated

Electrically Actuated with High Voltage / Low Voltage Electric Actuator

Stainless Steel Full Bore - FIG 205-EA PN16 2 pce



Flanged PN16, Stainless steel body, ball and stem, RTFE seat
 Full port, Max Pressure at Temp 16.0 bar at -10°C, 12.1 bar at 200°C
 ISO 5211 Mount, Firesafe Approved
 110-240V AC/DC / 12-24V AC/DC / 24V AC/DC multi voltage On/Off Actuator, IP67 rated, set at 90°, Fully assembled and tested

| Size | 1/2 | 3/4 | 1 | 1 1/2 | 2 | 2 1/2 |
|--------|------|------|------|-------|-------|-------|
| F-F mm | 115 | 120 | 125 | 140 | 150 | 170 |
| kg | 3.90 | 4.80 | 5.70 | 9.10 | 12.40 | 18.20 |

| Size | 3 | 4 | 6 |
|--------|-------|-------|-------|
| F-F mm | 180 | 190 | 350 |
| kg | 25.20 | 35.20 | 72.60 |

Stainless Steel Reduced Bore - FIG B232T-EA 3 way



3 way T port, Screwed BSPT, Stainless steel body, ball and stem, RTFE seat, 2 seats design (diverter valve)
 Reduced port, Max pressure 2000 WOG, Temperature 10 bar at -10°C - +160°C
 ISO 5211 Mount, Anti static, Anti blowout stem
 110-240V AC/DC / 12-24V AC/DC multi voltage On/Off Actuator, IP67 rated, set at 90°, Fully assembled and tested

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|--------|------|------|------|-------|-------|------|
| F-F mm | 67 | 78 | 90 | 102 | 109 | 135 |
| kg | 2.30 | 2.70 | 3.10 | 4.10 | 5.10 | 7.00 |

Stainless Steel Reduced Bore - FIG B231L-EA 3 way



3 way L port, Screwed BSPT, Stainless steel body, ball and stem, RTFE seat, 2 seats design (diverter valve)
 Reduced port, Max pressure 2000 WOG, Temperature 10 bar at -10°C - +160°C
 ISO 5211 Mount, Anti static, Anti blowout stem
 110-240V AC/DC / 12-24V AC/DC multi voltage On/Off Actuator, IP67 rated, set at 90°, Fully assembled and tested

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|--------|------|------|------|-------|-------|------|
| F-F mm | 67 | 78 | 90 | 102 | 109 | 135 |
| kg | 2.30 | 2.70 | 3.10 | 4.10 | 5.10 | 7.00 |

Ball Valves - Manual and Actuated

Electrically Actuated with High Voltage / Low Voltage Electric Actuator

Stainless Steel Full Bore - FIG 241-EA 2 pce



Screwed BSPT Female, Stainless steel body, ball and stem, RTFE seat
 Full port, Max pressure 1000 WOG, Temperature 10.5 bar at 180°C, 70 bar at -10°C to +40°C
 110-240V AC/DC / 12-24V AC/DC multi voltage On/Off Actuator, IP67 rated, set at 90°, Fully assembled and tested

| Size | 1/4 | 3/8 | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|--------|------|------|------|------|------|-------|-------|------|
| F-F mm | 52 | 52 | 64 | 75 | 79 | 101 | 109 | 123 |
| kg | 2.10 | 2.10 | 2.20 | 2.30 | 2.70 | 3.20 | 4.00 | 5.10 |

Ductile Iron - 16LNB Lugged



Flanged, Lugged, Ductile Iron body, Nickel Plated disc, BUNA liner
 Maximum pressure 16 bar @ 0 to 70°C
 Lever operated

| Size | 50mm | 65mm | 80mm | 100mm | 125mm | 150mm | 200mm |
|--------|----------|----------|----------|----------|----------|----------|----------|
| Code | 36530509 | 36530520 | 36530531 | 36530542 | 36530553 | 36530564 | 36530575 |
| F-F mm | 43 | 46 | 46 | 52 | 56 | 56 | 60 |
| kg | 4.60 | 5.90 | 6.10 | 10.00 | 12.60 | 16.10 | 25.00 |

Ductile Iron - 16SNB Semi-Lugged



Flanged, Semi-Lugged, Ductile Iron body, Nickel Plated disc, BUNA liner
 Maximum pressure 16 bar @ 0 to 70°C
 Lever operated

| Size | 50mm | 65mm | 80mm | 100mm | 125mm | 150mm | 200mm |
|--------|----------|----------|----------|----------|----------|----------|----------|
| Code | 36530103 | 36530114 | 36530125 | 36530136 | 36530147 | 36530158 | 36530169 |
| F-F mm | 43 | 46 | 46 | 52 | 56 | 56 | 60 |
| kg | 3.90 | 4.70 | 5.10 | 6.90 | 9.70 | 11.00 | 19.50 |

Ductile Iron - G16LNB Lugged



Flanged, Lugged, Ductile Iron body, Nickel Plated disc, BUNA liner
 Maximum pressure 16 bar @ 0 to 70°C
 Gear operated

| Size | 200mm | 250mm | 300mm |
|--------|----------|----------|----------|
| Code | 36532107 | 36530586 | 36530597 |
| F-F mm | 60 | 68 | 78 |
| kg | 25.00 | 44.90 | 61.50 |

Ductile Iron - G16SNB Semi-Lugged



Flanged, Semi-Lugged, Ductile Iron body, Nickel Plated disc, BUNA liner
 Maximum pressure 16 bar @ 0 to 70°C
 Gear operated

| Size | 200mm | 250mm | 300mm |
|--------|----------|----------|----------|
| Code | 36532118 | 36532129 | 36532140 |
| F-F mm | 60 | 68 | 78 |
| kg | 37.60 | 37.60 | 50.07 |

Ductile Iron - 16LNBY Lugged



Flanged, Lugged, Ductile Iron body, Nickel Plated disc, BUNA liner
 Maximum pressure 16 bar @ 0 to 70°C
 Lever operated, Yellow lever

| Size | 50mm | 65mm | 80mm | 100mm | 125mm | 150mm | 200mm |
|--------|----------|----------|----------|----------|----------|----------|----------|
| Code | 36531201 | 36531212 | 36531223 | 36531234 | 36531245 | 36531256 | 36531267 |
| F-F mm | 43 | 46 | 46 | 52 | 56 | 56 | 60 |
| kg | 4.60 | 5.90 | 6.10 | 10.00 | 12.60 | 16.10 | 25.00 |

Ductile Iron - 16LSB Lugged



Flanged, Lugged, Ductile Iron body, Stainless Steel disc, BUNA liner
 Maximum pressure 16 bar @ 0 to 70°C
 Lever operated

| Size | 50mm | 65mm | 80mm | 100mm | 125mm | 150mm | 200mm |
|--------|----------|----------|----------|----------|----------|----------|----------|
| Code | 36530701 | 36530712 | 36530723 | 36530734 | 36530745 | 36530756 | 36530767 |
| F-F mm | 43 | 46 | 46 | 52 | 56 | 56 | 60 |
| kg | 4.60 | 5.90 | 6.10 | 10.00 | 12.60 | 16.10 | 25.00 |

Ductile Iron - G16LNBY Lugged



Flanged, Lugged, Ductile Iron body, Nickel Plated disc, BUNA liner
 Maximum pressure 16 bar @ 0 to 70°C
 Gear operated, Yellow lever

| Size | 200mm | 250mm | 300mm |
|--------|----------|----------|----------|
| Code | 36532151 | 36532162 | 36532173 |
| F-F mm | 60 | 68 | 78 |
| kg | 25.00 | 44.90 | 61.50 |

Ductile Iron - G16LSB Lugged



Flanged, Lugged, Ductile Iron body, Stainless Steel disc, BUNA liner
 Maximum pressure 16 bar @ 0 to 70°C
 Gear operated

| Size | 200mm | 250mm | 300mm |
|--------|----------|----------|----------|
| Code | 36532214 | 36530778 | 36530789 |
| F-F mm | 60 | 68 | 78 |
| kg | 25.00 | 44.90 | 61.50 |

Ductile Iron - 16SSB Semi-Lugged



Flanged, Semi-Lugged, Ductile Iron body, Stainless Steel disc, BUNA liner
Lever operated

| Size | 50mm | 65mm | 80mm | 100mm | 125mm | 150mm | 200mm |
|--------|----------|----------|----------|----------|----------|----------|----------|
| Code | 36530306 | 36530317 | 36530328 | 36530339 | 36530350 | 36530361 | 36530372 |
| F-F mm | 43 | 46 | 46 | 52 | 56 | 56 | 60 |
| kg | 3.90 | 4.70 | 5.10 | 6.90 | 9.70 | 11.00 | 19.50 |

Ductile Iron - G16SSB Semi-Lugged



Flanged, Semi-Lugged, Ductile Iron body, Nickel Plated disc, BUNA liner
Maximum pressure 16 bar @ 0 to 70°C
Gear operated

| Size | 200mm | 250mm | 300mm |
|--------|----------|----------|----------|
| Code | 36532184 | 36532195 | 36532203 |
| F-F mm | 60 | 68 | 78 |
| kg | 37.60 | 37.60 | 50.07 |

Ductile Iron - 16LSE Lugged



Flanged, Lugged, Ductile Iron body, Stainless Steel disc, EPDM liner
Maximum pressure 16 bar @ -20 to 120°C
Lever operated
WRAS approved

| Size | 50mm | 65mm | 80mm | 100mm | 125mm | 150mm | 200mm |
|--------|----------|----------|----------|----------|----------|----------|----------|
| Code | 36530605 | 36530616 | 36530627 | 36530638 | 36530649 | 36530660 | 36530671 |
| F-F mm | 43 | 46 | 46 | 52 | 56 | 56 | 60 |
| kg | 4.60 | 5.90 | 6.10 | 10.00 | 12.60 | 16.10 | 25.00 |

Ductile Iron - G16LSE Lugged



Flanged, Lugged, Ductile Iron body, Stainless Steel disc, EPDM liner
Maximum pressure 16 bar @ -20 to 120°C
Gear operated
WRAS approved

| Size | 200mm | 250mm | 300mm |
|--------|----------|----------|----------|
| Code | 36532258 | 36530682 | 36530693 |
| F-F mm | 60 | 68 | 78 |
| kg | 25.00 | 44.90 | 61.50 |

Ductile Iron - 16SSE Semi-Lugged



Flanged, Semi-Lugged, Ductile Iron body, Stainless Steel disc, EPDM liner
Maximum pressure 16 bar @ -20 to 120°C
Lever operated
WRAS approved

| Size | 50mm | 65mm | 80mm | 100mm | 125mm | 150mm | 200mm |
|--------|----------|----------|----------|----------|----------|----------|----------|
| Code | 36530210 | 36530221 | 36530232 | 36530243 | 36530254 | 36530265 | 36530276 |
| F-F mm | 43 | 46 | 46 | 52 | 56 | 56 | 60 |
| kg | 3.90 | 4.70 | 5.10 | 6.90 | 9.70 | 11.00 | 19.50 |

Ductile Iron - G16SSE Semi-Lugged



Flanged, Semi-Lugged, Ductile Iron body, Stainless Steel disc, EPDM liner
Maximum pressure 16 bar @ -20 to 120°C
Gear operated
WRAS approved

| Size | 200mm | 250mm | 300mm |
|--------|----------|----------|----------|
| Code | 36532225 | 36532236 | 36532247 |
| F-F mm | 60 | 68 | 78 |
| kg | 37.60 | 37.60 | 50.07 |

Balancing Valves, Differential Pressure Control Valves and Pressure Independent Control Valves

Balancing Valves

900SC Venturi FODRV Compression



Compression ends, DZR Brass body and spindle, DZR Brass Chrome Plated ball, PTFE gasket, EPDM "O" rings
Maximum pressure 5 bar @ 120°C
2 test points

| Size | 15/15mm L | 15/15mm S | 15/15mm H | 20/22mm L | 20/22mm S | 20/22mm H |
|--------|-----------|-----------|-----------|-----------|-----------|-----------|
| Code | 22073295 | 22073303 | 22073443 | 22073369 | 22073314 | 22073454 |
| F-F mm | 99 | 99 | 99 | 105 | 105 | 105 |
| kg | 0.54 | 0.54 | 0.54 | 0.72 | 0.72 | 0.72 |

| Size | 25/28mm S | 25/28mm H | 32/35mm H | 40/42mm H | 50/54mm H |
|--------|-----------|-----------|-----------|-----------|-----------|
| Code | 22073325 | 22073465 | 22073336 | 22073347 | 22073358 |
| F-F mm | 118 | 118 | 135 | 149 | 167 |
| kg | 1.00 | 1.00 | 1.81 | 2.51 | 3.82 |

901SC Venturi DRV Compression



Compression ends, DZR Brass body and spindle, DZR Brass Chrome Plated ball, PTFE gasket, EPDM "O" rings
Maximum pressure 5 bar @ 135°C

| Size | 15/15mm L | 15/15mm S | 20/22mm L | 20/22mm S | 25/28mm S | 32/35mm S |
|--------|-----------|-----------|-----------|-----------|-----------|-----------|
| Code | 22074168 | 22074209 | 22074190 | 22074220 | 22074231 | 22074242 |
| F-F mm | 62 | 62 | 67 | 67 | 81 | 93 |
| kg | 0.37 | 0.37 | 0.51 | 0.51 | 0.80 | 1.55 |

| Size | 40/42mm S | 50/54mm S |
|--------|-----------|-----------|
| Code | 22074253 | 22074264 |
| F-F mm | 107 | 126 |
| kg | 2.12 | 3.25 |

L=Low Flow, S=Standard Flow, H=High Flow

Balancing Valves, Differential Pressure Control Valves and Pressure Independent Control Valves

Balancing Valves

900S Venturi FODRV Female x Female



Screwed BSPP Female x Female, DZR Brass body and spindle, DZR Brass Chrome Plated ball, PTFE gasket, EPDM "O" rings
Maximum pressure 25 bar @ 120°C
2 test points

| Size | 1/2 UL | 1/2 L | 1/2 S | 1/2 H | 3/4 L | 3/4 S |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 22073188 | 22073199 | 22073207 | 22073410 | 22073273 | 22073218 |
| F-F mm | 94 | 94 | 94 | 94 | 100 | 100 |
| kg | 0.41 | 0.41 | 0.49 | 0.49 | 0.41 | 0.49 |

| Size | 3/4 H | 1 S | 1 H | 1 1/4 H | 1 1/2 H | 2 H |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 22073421 | 22073229 | 22073432 | 22073240 | 22073251 | 22073262 |
| F-F mm | 100 | 112 | 112 | 130 | 140 | 156 |
| kg | 0.49 | 0.67 | 0.67 | 1.27 | 1.66 | 2.37 |

901S Venturi DRV Female x Female



Screwed BSPP Female x Female, DZR Brass body and spindle, DZR Brass Chrome Plated ball, PTFE gasket, EPDM "O" rings
Maximum pressure 25 bar @ 135°C

| Size | 1/2 L | 1/2 S | 3/4 L | 3/4 S | 1 S | 1 1/4 S | 1 1/2 S | 2 S |
|--------|----------|----------|----------|----------|----------|----------|----------|----------|
| Code | 22073967 | 22074006 | 22073989 | 22074017 | 22074028 | 22074039 | 22074050 | 22074061 |
| F-F mm | 57 | 57 | 62 | 62 | 75 | 88 | 122 | 115 |
| kg | 0.23 | 0.23 | 0.29 | 0.29 | 0.47 | 1.01 | 1.24 | 1.80 |

UL=Ultra Low Flow, L=Low Flow, S=Standard Flow, H=High Flow

Balancing Valves, Differential Pressure Control Valves and Pressure Independent Control Valves

Balancing Valves

Balancing Valves, Differential Pressure Control Valves and Pressure Independent Control Valves

Balancing Valves

PS900S Venturi FODRV Pressfit Connections



Pressfit connections, DZR Brass body and spindle, DZR Brass Chrome Plated ball, PTFE gasket, EPDM "O" rings
Maximum pressure 16 bar @ 110°C
2 test points

| Size | 15/15mm UL | 15/15mm L | 15/15mm S | 15/15mm H | 15/18mm UL | 15/18mm L |
|--------|------------|-----------|-----------|-----------|------------|-----------|
| Code | 22073731 | 22073506 | 22073517 | 22073528 | 22073742 | 22073539 |
| F-F mm | 138 | 138 | 138 | 138 | 138 | 138 |
| kg | 0.49 | 0.49 | 0.49 | 0.49 | 0.49 | 0.49 |

| Size | 15/18mm S | 15/18mm H | 20/15mm L | 20/15mm S | 20/15mm H | 20/18mm L |
|--------|-----------|-----------|-----------|-----------|-----------|-----------|
| Code | 22073550 | 22073561 | 22073572 | 22073583 | 22073594 | 22073602 |
| F-F mm | 138 | 138 | 143 | 143 | 143 | 143 |
| kg | 0.49 | 0.49 | 0.51 | 0.51 | 0.51 | 0.51 |

| Size | 20/18mm S | 20/18mm H | 20/22mm L | 20/22mm S | 20/22mm H | 25/28mm S |
|--------|-----------|-----------|-----------|-----------|-----------|-----------|
| Code | 22073613 | 22073624 | 22073635 | 22073646 | 22073657 | 22073668 |
| F-F mm | 143 | 143 | 147 | 147 | 147 | 165 |
| kg | 0.51 | 0.51 | 0.52 | 0.52 | 0.52 | 0.88 |

| Size | 25/28mm H | 32/35mm H | 40/42mm H | 50/54mm H |
|--------|-----------|-----------|-----------|-----------|
| Code | 22073679 | 22073690 | 22073709 | 22073720 |
| F-F mm | 165 | 188 | 194 | 233 |
| kg | 0.88 | 1.62 | 2.18 | 3.38 |

PS901S Venturi DRV Pressfit Connections



Pressfit connections, DZR Brass body and spindle, DZR Brass Chrome Plated ball, PTFE gasket, EPDM "O" rings
Maximum pressure 16 bar @ 110°C

| Size | 15/15mm L | 15/15mm S | 15/18mm L | 15/18mm S | 20/15mm L | 20/15mm S | 20/18mm L |
|--------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Code | 22074305 | 22074316 | 22074327 | 22074338 | 22074349 | 22074360 | 22074371 |
| F-F mm | 101 | 101 | 101 | 101 | 105 | 105 | 105 |
| kg | 0.31 | 0.31 | 0.31 | 0.32 | 0.39 | 0.39 | 0.39 |

| Size | 20/18mm S | 20/22mm L | 20/22mm S | 25/28mm S | 32/35mm H | 40/42mm H | 50/54mm H |
|--------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Code | 22074382 | 22074393 | 22074401 | 22074412 | 22074423 | 22074434 | 22074445 |
| F-F mm | 105 | 109 | 109 | 128 | 146 | 172 | 202 |
| kg | 0.39 | 0.40 | 0.40 | 0.68 | 1.35 | 1.77 | 2.81 |

UL=Ultra Low Flow, L=Low Flow, S=Standard Flow, H=High Flow

903 Venturi Commissioning Valve with Drain Female x Female



Screwed BSPP Female x Female, DZR Brass body, DZR Brass Chrome Plated ball, PTFE gasket, EPDM "O" rings
Maximum pressure 25 bar @ 120°C
2 test points

| Size | 15UL UL | 15 L | 15 S | 15 H | 20 L | 20 S |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 22074508 | 22074519 | 22074530 | 22074541 | 22074552 | 22074563 |
| F-F mm | 94 | 94 | 94 | 94 | 100 | 100 |
| kg | 0.55 | 0.55 | 0.55 | 0.55 | 0.65 | 0.65 |

| Size | 20 H | 25 S | 25 H | 32 H | 40 H | 50 H |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 22074574 | 22074585 | 22074596 | 22074604 | 22074615 | 22074626 |
| F-F mm | 100 | 112 | 112 | 130 | 14 | 156 |
| kg | 0.65 | 0.80 | 0.80 | 1.50 | 1.70 | 2.40 |

903 Venturi Commissioning Valve with Drain Pressfit Connections



Pressfit connection, DZR Brass body, DZR Brass Chrome Plated ball, PTFE gasket, EPDM "O" rings
Maximum pressure 16 bar @ 120°C
2 test points

| Size | 15 UL x 15mm | 15 L x 15mm | 15 S x 15mm | 15 H x 15mm |
|--------|--------------|-------------|-------------|-------------|
| Code | 22074637 | 22074648 | 22074659 | 22074670 |
| F-F mm | 145 | 145 | 145 | 145 |
| kg | 0.63 | 0.63 | 0.63 | 0.63 |

| Size | 15 UL x 18mm | 15 L x 18mm | 15 S x 18mm | 15 H x 18mm | 20 L x 15mm | 20 S x 15mm |
|--------|--------------|-------------|-------------|-------------|-------------|-------------|
| Code | 22074681 | 22074692 | 22074700 | 22074711 | 22074722 | 22074733 |
| F-F mm | 147 | 147 | 147 | 147 | 154 | 154 |
| kg | 0.64 | 0.64 | 0.64 | 0.64 | 0.76 | 0.76 |

| Size | 20 H x 15mm | 20 L x 18mm | 20 S x 18mm | 20 H x 18mm | 20 L x 22mm | 20 S x 22mm |
|--------|-------------|-------------|-------------|-------------|-------------|-------------|
| Code | 22074744 | 22074755 | 22074766 | 22074777 | 22074788 | 22074799 |
| F-F mm | 154 | 151 | 151 | 151 | 161 | 161 |
| kg | 0.76 | 0.76 | 0.76 | 0.76 | 0.77 | 0.77 |

| Size | 20 H x 22mm | 25 S x 28mm | 25 S x 28mm | 32 H x 35mm | 40 H x 42mm | 50 H x 54mm |
|--------|-------------|-------------|-------------|-------------|-------------|-------------|
| Code | 22074807 | 22074818 | 22074829 | 22074840 | 22074851 | 22074862 |
| F-F mm | 161 | 187 | 187 | 251 | 277 | 313 |
| kg | 0.77 | 1.00 | 1.00 | 1.78 | 2.08 | 3.07 |

UL=Ultra Low Flow, L=Low Flow, S=Standard Flow, H=High Flow

Balancing Valves, Differential Pressure Control Valves and Pressure Independent Control Valves

Balancing Valves

Manometer



Compact, handheld instrument for effective system commissioning, quick coupling pressure ports
Pressure nominal range 1000kPa, maximum over pressure 120% of nominal range, operating temperature -5 to 90°C.

1200 maximum valves in library, 20000 maximum records

| | |
|-------------|----------|
| Code | 22074467 |
| kg | 2.27 |

900XSS Venturi FODRV Butterfly Short Pattern PN16



Flanged, Carbon Steel Venturi pipe, Cast Iron body, Stainless Steel disc and shaft, EPDM backing ring
Maximum pressure 16 bar @ 105°C
Gear operated, 2 test points

| Size | 2½ | 3 | 4 | 5 | 6 | 8 | 10 | 12 |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|
| Code | 32014110 | 32014121 | 32014132 | 32014143 | 32014154 | 32014165 | 32014176 | 32014187 |
| F-F mm | 182 | 249 | 325 | 341 | 354 | 378 | 411 | 465 |
| kg | 13.30 | 16.20 | 23.00 | 30.00 | 36.00 | 55.00 | 70.00 | 105.00 |

900XSL Venturi FODRV Butterfly Long Pattern PN16



Flanged, Carbon Steel Venturi pipe, Cast Iron body, Stainless Steel disc and shaft, EPDM backing ring
Maximum pressure 16 bar @ 105°C
Gear operated, 2 test points

| Size | 2½ | 3 | 4 | 5 | 6 |
|---------------|----------|----------|----------|----------|----------|
| Code | 32014003 | 32014014 | 32014025 | 32014036 | 32014047 |
| F-F mm | 455 | 570 | 735 | 865 | 1010 |
| kg | 17.30 | 22.00 | 34.00 | 47.00 | 63.00 |

901XS Venturi DRV Butterfly PN16



Flanged, Carbon Steel Venturi pipe, Cast Iron body, Stainless Steel disc and shaft, EPDM backing ring
Maximum pressure 16 bar @ 105°C
Gear operated

| Size | 2½ | 3 | 4 | 5 | 6 | 8 | 10 | 12 |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|
| Code | 32014601 | 32014612 | 32014623 | 32014634 | 32014645 | 32014656 | 32014667 | 32014678 |
| F-F mm | 285 | 295 | 310 | 325 | 340 | 430 | 465 | 535 |
| kg | 6.10 | 6.30 | 10.60 | 12.60 | 14.10 | 14.10 | 33.70 | 48.70 |

Balancing Valves, Differential Pressure Control Valves and Pressure Independent Control Valves

Balancing Valves

MVS Modular Valve System - Red Handles For Heating Applications - Ball Valve Version



Screwed BSPP Female and terminal connections via flat face male, Bronze/DZR Brass body
Maximum pressure 16 bar, 6 bar @ 110°C
Can be manufactured to include BOSS™ PICV

| Size | DN15UL | DN15L | DN15S | DN20L | DN20S | DN20H |
|-------------|----------|----------|----------|----------|----------|----------|
| Code | 22910179 | 22910006 | 22910017 | 22910028 | 22910039 | 22910201 |
| kg | 2.13 | 2.13 | 2.13 | 2.69 | 2.38 | 2.38 |

MVS Modular Valve System - Red Handles For Heating Applications - Strainer Version



Screwed BSPP Female and terminal connections via flat face male, Bronze/DZR Brass body
Maximum pressure 16 bar, 6 bar @ 110°C
Can be manufactured to include BOSS™ PICV

| Size | DN15UL | DN15L | DN15S | DN20L | DN20S | DN20H |
|-------------|----------|----------|----------|----------|----------|----------|
| Code | 22910190 | 22910094 | 22910102 | 22910113 | 22910124 | 22910223 |
| kg | 2.79 | 2.79 | 2.79 | 3.04 | 3.04 | 2.80 |

MVS Modular Valve System - Blue Handles For Chilled Water Applications - Ball Valve Version



Screwed BSPP Female and terminal connections via flat face male, Bronze/DZR Brass body
Maximum pressure 16 bar, 6 bar @ 110°C
Can be manufactured to include BOSS™ PICV

| Size | DN15L | DN15S | DN20L | DN20S | DN20H |
|-------------|----------|----------|----------|----------|----------|
| Code | 22910050 | 22910061 | 22910072 | 22910083 | 22910212 |
| kg | 2.19 | 2.18 | 2.43 | 2.43 | 2.40 |

MVS Modular Valve System - Blue Handles For Chilled Water Applications - Strainer version



Screwed BSPP Female and terminal connections via flat face male, Bronze/DZR Brass body
Maximum pressure 16 bar, 6 bar @ 110°C
Can be manufactured to include BOSS™ PICV

| Size | DN15L | DN15S | DN20L | DN20S | DN20H |
|-------------|----------|----------|----------|----------|----------|
| Code | 22910135 | 22910146 | 22910157 | 22910168 | 22910234 |
| kg | 2.80 | 2.80 | 3.13 | 3.13 | 2.80 |

Balancing Valves, Differential Pressure Control Valves and Pressure Independent Control Valves

Balancing Valves

Balancing Valves, Differential Pressure Control Valves and Pressure Independent Control Valves

9400, 9510, 9515 Series

Dynamic PICV 902 Pressure Independent Control Valve



Screwed BSPP Female, DZR Brass body, EPDM seals
Maximum pressure 25 bar @ 120°C, Operating pressure 0.3 to 4 bar
Actuators available separately

| Size | DN15 L | DN15 S | DN15 H | DN20 S | DN20 H | DN25 S |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 21910006 | 21910017 | 21910028 | 21910039 | 21910050 | 21910061 |
| F-F mm | 95 | 95 | 95 | 120 | 120 | 127 |
| kg | 0.55 | 0.55 | 0.55 | 0.88 | 0.88 | 1.30 |

| Size | DN25 H | DN32 H | DN40 S | DN50 H |
|--------|----------|----------|----------|----------|
| Code | 21910072 | 21910083 | 21910094 | 21910102 |
| F-F mm | 127 | 127 | 190 | 195 |
| kg | 1.30 | 1.77 | 3.65 | 4.15 |

Dynamic Thermotecnic Actuator



24VAC/DC On/Off, Normally Closed, Protection class IP54, Grey 1 metre cable
Operating power 1.8W, Ambient Temperature 0- 60°C

| | |
|--------|----------------|
| Size | BOSS902 |
| Code | 21910135 |
| F-F mm | 58 |
| kg | 0.14 |

Dynamic Thermotecnic Actuator



230VAC/DC On/Off, Normally Closed, Protection class IP54, Grey 1 metre cable
Operating power 1.8W, Ambient Temperature 0-60°C

| | |
|--------|-------------|
| Size | AT01 |
| Code | 21910146 |
| F-F mm | 58 |
| kg | 0.12 |

L=Low Flow, S=Standard Flow, H=High Flow

Dynamic Thermotecnic Actuator



24VAC/DC Modulating, Normally Closed, Protection class IP54, White 1 metre cable
Operating power 2W, Control Voltage 0-10VDC, Ambient Temperature 0-60°C

| | |
|--------|-------------|
| Size | AE01 |
| Code | 21910157 |
| F-F mm | 60 |
| kg | 0.14 |

Dynamic Electromechanical Actuator



24VAC Modulating, Protection class IP40, Colour coded fly lead 1.5m long
Operating power 3.1 VA, Ambient Temperature 0-50°C

| | |
|--------|-------------|
| Size | AVUE |
| Code | 21910231 |
| F-F mm | 101 |
| kg | 0.41 |

Dynamic Electromechanical Actuator



24VAC On/Off, Protection class IP40, Colour coded fly lead 1.5m long
Operating power 2.3 VA, Ambient Temperature 0-50°C

| | |
|--------|-------------|
| Size | AVUX |
| Code | 21910253 |
| F-F mm | 101 |
| kg | 0.41 |

Dynamic Electromechanical Actuator



230VAC On/Off, Protection class IP40, Colour coded fly lead 1.5m long
Operating power 3.6 VA, Ambient Temperature 0-50°C

| | |
|--------|-------------|
| Size | AVUM |
| Code | 21910242 |
| F-F mm | 101 |
| kg | 0.41 |

Balancing Valves, Differential Pressure Control Valves and Pressure Independent Control Valves

9400, 9510, 9515 Series

DZR Brass 9400 Metering Station



Screwed BSPT Male x BSPP Female, DZR Brass body, Venturi insert test points, EPDM gaskets and polypropylene ties
Maximum pressure 25 bar @ 100°C, 20 bar at 130°C

| Size | DN15 UL | DN15 L | DN15 | DN20 | DN25 | DN32 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 37000184 | 37000195 | 37000203 | 37000214 | 37000225 | 37000236 |
| F-F mm | 60 | 60 | 60 | 62 | 68 | 72 |
| kg | 0.22 | 0.22 | 0.21 | 0.25 | 0.35 | 0.46 |

| Size | DN40 | DN50 |
|--------|----------|----------|
| Code | 37000247 | 37000258 |
| F-F mm | 72 | 82 |
| kg | 0.53 | 0.76 |

DZR Brass 9510 Double Regulating Valve



Screwed BSPP Female x Female, DN25-DN50 BSPT, DZR Brass body, disc, union and balancing cone Brass stem, ABS blue hand wheel. PTFE gasket disc. Threaded F/F Brass stem, ABS blue hand wheel. PTFE gasket disc. Threaded F/F
Maximum pressure 25 bar @ 100°C, 20 bar at 130°C

| Size | DN15 L | DN15 | DN20 | DN25 | DN32 | DN40 | DN50 |
|--------|----------|----------|----------|----------|----------|----------|----------|
| Code | 37000107 | 37000118 | 37000129 | 37000140 | 37000151 | 37000162 | 37000173 |
| F-F mm | 88 | 88 | 96 | 100 | 118 | 127 | 145 |
| kg | 0.53 | 0.53 | 0.58 | 0.70 | 1.15 | 1.45 | 2.03 |

DZR Brass 9515 Fixed Orifice Commissioning Set



Screwed BSPP Female x Female, DN25-DN50 BSPT, DZR Brass body, disc, union and balancing cone. brass stem, ABS blue hand wheel. PTFE gasket disc. Threaded F/F
Maximum pressure 25 bar @ 100°C, 20 bar at 130°C
Blue ABS plastic handwheel

| Size | DN15 UL | DN15 L | DN15 | DN20 | DN25 | DN32 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 37000011 | 37000022 | 37000033 | 37000044 | 37000055 | 37000066 |
| F-F mm | 88 | 88 | 88 | 96 | 100 | 118 |
| kg | 0.56 | 0.56 | 0.55 | 0.62 | 0.75 | 1.19 |

| Size | DN40 | DN50 |
|--------|----------|----------|
| Code | 37000077 | 37000088 |
| F-F mm | 127 | 145 |
| kg | 1.45 | 2.06 |

UL=Ultra Low Flow, L=Low Flow, S=Standard Flow, H=High Flow

Balancing Valves, Differential Pressure Control Valves and Pressure Independent Control Valves

Differential Pressure Controls Valves

DZR Brass 904 DPCV



Screwed BSPP Female, DZR Brass body and seat, Stainless Steel spring, EPDM seals and diaphragm
Maximum pressure 25 bar @ 120°C
For Partner Valve - use BOSS 903

| Size | DN15 20-65kPa | DN20 20-65kPa | DN25 20-65kPa | DN32 20-65kPa |
|--------|---------------|---------------|---------------|---------------|
| Code | 89720001 | 89720012 | 89720023 | 89720034 |
| F-F mm | 61 | 71 | 84 | 96 |
| kg | 1.00 | 1.00 | 2.00 | 2.00 |

| Size | DN40 20-40kPa | DN40 35-75kPa | DN50 20-40kPa | DN50 35-75kPa | DN50 60-100kPa |
|--------|---------------|---------------|---------------|---------------|----------------|
| Code | 89720045 | 89720056 | 89720067 | 89720078 | 89720089 |
| F-F mm | 100 | 100 | 135 | 135 | 135 |
| kg | 3.00 | 3.00 | 4.00 | 4.00 | 4.00 |

Differential Pressure Control Valves 2" to 4" (DN65 to DNP100)



Flanged, Cast Iron body, Stainless Steel cone and springs, EPDM membrane and "O" rings
Maximum pressure 16 bar @ 120°C
DPCV is mounted on the Return

| Size | DN65 20-40kPa | DN80 20-40kPa | DN100 20-40kPa | DN65 35-75kPa |
|--------|---------------|---------------|----------------|---------------|
| Code | 89710305 | 89710316 | 89710327 | 89710338 |
| F-F mm | 290 | 310 | 347 | 290 |
| kg | 42.00 | 48.00 | 64.44 | 42.00 |

| Size | DN80 35-75kPa | DN100 35-75kPa | DN65 60-100kPa | DN80 60-100kPa | DN100 60-100kPa |
|--------|---------------|----------------|----------------|----------------|-----------------|
| Code | 89710349 | 89710360 | 89710371 | 89710382 | 89710393 |
| F-F mm | 310 | 347 | 290 | 310 | 347 |
| kg | 48.25 | 63.00 | 41.50 | 48.00 | 65.00 |

Differential Pressure Control Valves 2" to 4" (DN65 to DNP100) Adjustment /Partner Valve



Flanged, Cast Iron body, Stainless Steel cone and springs, EPDM membrane and "O" rings
Used to connect the impulse tubes from DPCV to provide isolation, measuring and regulation
Partner valve is mounted on the Flow

| Size | DN65 | DN80 | DN100 |
|--------|----------|----------|----------|
| Code | 89710401 | 89710412 | 89710423 |
| F-F mm | 290 | 310 | 350 |
| kg | 17.11 | 21.06 | 32.50 |

Strainers & Drain Cocks

Strainers, Screwed "Y" Type Strainers

Bronze - FIG 47N



Screwed BSPT Female, 65-80mm are BSPP Female, Bronze body, DZR brass plug
 Maximum Pressure - Steam 13.8bar at 200°C, Cold non shock pressure 32 bar
 20 mesh Stainless Steel screen, Other screens available on request
 Strainers 25mm and above may be tapped and drilled

| Size | 15 | 20 | 25 | 32 | 40 | 50 | 65 | 80 |
|--------|----------|----------|----------|----------|----------|----------|----------|----------|
| Code | 23010604 | 23010615 | 23010626 | 23010637 | 23010648 | 23010659 | 23010670 | 23010681 |
| F-F mm | 67 | 74 | 92 | 106 | 114 | 147 | 226 | 226 |
| kg | 0.30 | 0.40 | 0.60 | 1.20 | 1.40 | 2.00 | 9.50 | 9.50 |

Bronze - FIG 47XN



Flanged, Bronze body, DZR Brass plug 15-65mm, Gunmetal 80-150mm. Flanges 15 & 20mm BS4504 PN16, 25 to 50mm BS4504 PN16/40, 65 to 100mm BS4504 PN16
 Maximum Pressure - Steam 10.3bar at 260°C, Cold non shock pressure 24 bar
 Screen 1/8 Stainless Steel, Other screens available on request

| Size | 15 | 20 | 25 | 32 | 40 | 50 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 23013108 | 23013119 | 23013130 | 23013141 | 23013152 | 23013163 |
| F-F mm | 115 | 115 | 150 | 200 | 200 | 230 |
| kg | 3.50 | 4.00 | 5.50 | 9.00 | 9.00 | 12.00 |

| Size | 65 | 80 | 100 |
|--------|----------|----------|----------|
| Code | 23012973 | 23012984 | 23012995 |
| F-F mm | 230 | 310 | 350 |
| kg | 13.00 | 20.00 | 28.00 |

Cast Iron - FIG 52XN PN16



Flanged, Cast Iron body and cap, Soft Steel and Graphite gasket. Malleable Iron drain plugs
 Maximum pressure 16 bar @ -10 to 120°C, Maximum temperature 200°C @ 12.8 bar
 Stainless Steel perforated screen 1.5mm holes 50 to -150mm, 2.0mm holes 200 to 450mm, 3.2mm holes 500mm
 Other screens available on request

| Size | 50 | 65 | 80 | 100 | 125 | 150 | 200 |
|--------|----------|----------|----------|----------|----------|----------|----------|
| Code | 33045108 | 33045119 | 33045130 | 33045141 | 33045152 | 33045163 | 33045174 |
| F-F mm | 220 | 270 | 290 | 350 | 390 | 440 | 540 |
| kg | 11.50 | 14.00 | 20.00 | 30.00 | 43.00 | 58.00 | 106.00 |

| Size | 250 | 300 | 350 | 400 | 450 | 500 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 33045185 | 33045196 | 33045204 | 33045215 | 33045226 | 33045237 |
| F-F mm | 660 | 720 | 949 | 1079 | 1150 | 1275 |
| kg | 174.00 | 276.00 | 421.00 | 605.00 | 740.00 | 770.00 |

Strainers & Drain Cocks

Screwed "Y" Type Strainers, Type Strainers for Natural Gas

Brass - FIG 46W



Screwed BSPT Female, DZR Brass body & plug, EPDM washer
 Maximum pressure 20 bar @ -10 to 85°C
 20 mesh Stainless Steel screen
 WRAS approved

| Size | 15 | 20 | 25 | 32 | 40 | 50 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 10460003 | 10460014 | 10460025 | 10460036 | 10460047 | 10460058 |
| F-F mm | 58 | 70 | 87 | 96 | 106 | 126 |
| kg | 0.14 | 0.20 | 0.38 | 0.55 | 0.80 | 1.09 |

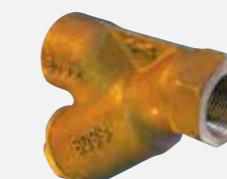
Brass - FIG 46CW



Compression ends, DZR Brass body & plug, Copper olive, Brass nut, EPDM washer
 Maximum pressure 16 bar @ -10 to 85°C
 20 mesh Stainless Steel screen
 WRAS approved

| Size | 15 | 22 |
|--------|----------|----------|
| Code | 10460110 | 10460121 |
| F-F mm | 75 | 84 |
| kg | 0.15 | 0.24 |

Bronze "Y" Type - FIG 87NG



Screwed BSPT Female, Bronze body, Brass Plug, Nitrile "O" ring seal
 Maximum pressure 25bar non shock
 300 mesh screen

| Size | 1/2 | 3/4 |
|--------|----------|----------|
| Code | 23014003 | 23014014 |
| F-F mm | 60 | 89 |
| kg | 0.33 | 0.43 |

Bronze Drain Tap 370 BS 2879-2



Screwed BSPT Male, Bronze body, Brass cap stem and disc holder
 Maximum pressure 10 bar @ 110°C
 Rubber disc and "O" rings

| Size | 1/2 | 3/4 | 1 |
|--------|----------|----------|----------|
| Code | 22066100 | 22066111 | 22066122 |
| F-F mm | 54 | 74.2 | 82 |
| kg | 0.22 | 0.33 | 0.44 |

Bronze Drain Tap 371LS Lockshield BS 2879-2



Screwed BSPT Male, Bronze body, Brass cap, stem and disc holder
 Maximum pressure 10 bar @ 110°C
 Rubber disc and "O" rings

| Size | 1/2 | 3/4 | 1 |
|--------|----------|----------|----------|
| Code | 22066133 | 22066144 | 22066155 |
| F-F mm | 54 | 75 | 82 |
| kg | 0.22 | 0.33 | 0.44 |

DZR Brass Drain Tap 372 Extended



Extended Capillary Male End, DZR Brass body, Brass spindle & gland nut, Rubber NBR washer & "O" ring
 Maximum pressure 16 bar @ 30°C, 10 bar @ 65°C, 6 bar @ 85°C
 WRAS approved

| | |
|--------|----------|
| Size | 15 |
| Code | 27200107 |
| F-F mm | 77 |
| kg | 0.12 |

Brass Draw Off Ball Valve - FIG 22S



Screwed BSPT Male, Brass body, Brass Chrome Plated ball, Buna-N Seat
 Maximum pressure 7 bar @ 100°C
 Cap can be used to operate valve

| | |
|--------|----------|
| Size | 1/2 |
| Code | 22083501 |
| F-F mm | 76 |
| kg | 0.19 |

Bronze Gland Cock 81HU



Screwed BSPT Male, Bronze body, Brass gland & cap
 Maximum pressure 10 bar @ 120°C
 Suitable for water or oil

| Size | 1/2 | 3/4 | 1 |
|--------|----------|----------|----------|
| Code | 20016649 | 20016660 | 20016671 |
| F-F mm | 96 | 129 | 157 |
| kg | 0.38 | 0.67 | 1.20 |

Thermostatic and Regulating Valves

Thermostatic and Regulating Valves

Bossmix™ TMV2/3 - Standard Connection and Check Valve Kit



Compression ends, DZR Chrome Plated body, Stainless Steel springs, EPDM seals
 Maximum pressure 10 bar @ 85°C (D08 65°C)
 WRAS approved, Buildcert Approved, NHS D08 compliant
 Bossmix™ Technical Helpline: 0870 112 1597

| Size | 15 | 22 |
|--------|----------|----------|
| Code | 86345001 | 86345012 |
| F-F mm | 135 | 150 |
| kg | 0.50 | 0.60 |

For TMV2/3 Standard Connection
 2 Check Valves

Check Valve Kit

| Size | 15 | 22 |
|------|----------|----------|
| Code | 86330007 | 86330018 |

Bossmix™ TMV2/3 - Angled Connection and Check Valve Kit



Compression ends, DZR Chrome Plated body, Stainless Steel springs, EPDM seals
 Maximum pressure 10 bar @ 85°C (D08 65°C)
 WRAS approved, Buildcert Approved, NHS D08 compliant
 Bossmix™ Technical Helpline: 0870 112 1597

| Size | 15 | 22 |
|--------|----------|----------|
| Code | 86345023 | 86345034 |
| F-F mm | 128 | 132 |
| kg | 0.65 | 0.75 |

For TMV2/3 Angled Connection
 2 Check Valves & Strainers

Check Valve Kit

| Size | 15 | 22 |
|------|----------|----------|
| Code | 86330062 | 86330073 |

Thermostatic and Regulating Valves

Thermostatic and Regulating Valves

205 TBV



Screwed BSPT Female, Red Brass body, bonnet & cone, EPDM "O" ring
 PN16, Maximum temperature 90°C, Thermal disinfection starts at 90°C
 Regulating range 50-65°C, Factory setting 58°C

| Size | 15 | 20 |
|--------|----------|----------|
| Code | 20510102 | 20510113 |
| F-F mm | 65 | 75 |
| kg | 0.36 | 0.52 |

282CF Calflow Plus



Compression ends, Brass body, Hard Chrome Plated Brass ball, 40 mesh Stainless Steel strainer
 Maximum static pressure 15 bar, maximum inlet pressure 2 bar, maximum tempature @ 85°C
 Differential pressure range 15-200 kPa
 WRAS approved

| Size | 15 4LTR | 15 6LTR | 15 8LTR | 15 10LTR | 15 12LTR | 15 15LTR | 15 18LTR |
|--------|----------|----------|----------|----------|----------|----------|----------|
| Code | 28200011 | 28200022 | 28200033 | 28200044 | 28200055 | 28200066 | 28200077 |
| F-F mm | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| kg | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 |

Radiator Valves & TRVS

Radiator Valves & TRVS

Radiator Valves & TRVS

Radiator Valves & TRVS

Manual Radiator Valves - Chrome Plated Wheel Head Angle Valve



Dual 15mm x 1/2" connection. Chrome Plated finish. Matching lock shield. TRV design
 Maximum pressure 10 bar @ 65°C. Maximum temperature 5 bar @ 120°C
 Approved BS2767-10, Lock shield cap required and allen key to adjust flow
 Valves suited for both open vented and sealed systems

| | |
|---------------|-----------|
| Size | 15 |
| Code | 49341004 |
| F-F mm | 53 |
| kg | 0.50 |

Manual Radiator Valves - Chrome Plated Lock Shield Angle Valve



Dual 15mm x 1/2" connection. Chrome Plated finish. Matching lock shield. TRV design
 Maximum pressure 10 bar @ 65°C. Maximum temperature 5 bar @ 120°C

| | |
|---------------|-----------|
| Size | 15 |
| Code | 49341015 |
| F-F mm | 52 |
| kg | 0.28 |

Manual Radiator Valves - Chrome Plated Angled Lock Shield Valve Concealed Adjustment



Dual 15mm x 1/2" connection. Chrome Plated finish. Matching lock shield. TRV design
 Maximum pressure 10 bar @ 65°C. Maximum temperature 5 bar @ 120°C

| | |
|---------------|-----------|
| Size | 15 |
| Code | 49341026 |
| F-F mm | 52 |
| kg | 0.28 |

Manual Radiator Valves - Chrome Plated Straight Lock Shield Valve Concealed Adjustment



Dual 15mm x 1/2" connection. Chrome Plated finish. Matching lock shield. TRV design
 Maximum pressure 10 bar @ 65°C. Maximum temperature 5 bar @ 120°C

| | |
|---------------|-----------|
| Size | 15 |
| Code | 49341037 |
| F-F mm | 105 |
| kg | 0.28 |

Thermostatic Radiator Valve - Horizontal TRV



TRV has a liquid filled head which can be mounted on the flow or return. Built-in tamper proof key
 Control range of 11°C to 29°C. Frost setting to open automatically around 7°C to prevent system freezing
 Positive shut off allows the heat emitter to be isolated for maintenance
 Built in tamper proof key operated setting

| | |
|---------------|-----------|
| Size | 15 |
| Code | 49341048 |
| F-F mm | 53 |
| kg | 0.40 |

Thermostatic Radiator Valve - Vertical TRV



TRV has a liquid filled head which can be mounted on the flow or return. Built-in tamper proof key
 Control range of 11°C to 29°C. Frost setting to open automatically around 7°C to prevent system freezing

| | |
|---------------|-----------|
| Size | 15 |
| Code | 49341059 |
| F-F mm | 53 |
| kg | 0.40 |

Thermal Head Options - 0 Position



Tamper proof key, lift and lock operation prevents accidental adjustment
 Control range of 11°C to 29°C. Frost setting to open automatically around 7°C to prevent system freezing
 Positive shut off allows the heat emitter to be isolated for maintenance

| | |
|---------------|----------|
| Code | 49341070 |
| F-F mm | 84 |
| kg | 0.15 |

Thermal Head Options - 2M or 8M Remote Sensor



2metre or 8metre remote sensor.
 Remote sensing prevents curtains or office equipment interfering with a thermal head. Suitable for LST radiators

| | | |
|---------------|-----------|-----------|
| Size | 2m | 8m |
| Code | 49341081 | 49341229 |
| F-F mm | 84 | 87 |
| kg | 0.22 | 0.24 |

Thermal Head Options - 2M or 8M Remote Adjuster



2metre or 8metre remote adjuster
Remote adjuster provides temperature control

| Size | 2m | 8m |
|--------|----------|----------|
| Code | 49341092 | 49341100 |
| F-F mm | 72 | 90 |
| kg | 0.27 | 0.3 |

Thermal Body Options - Chrome Plated TRV Body Angle vertical



Dual 15mm x 1/2" connection. Chrome Plated finish
Maximum pressure 10 bar @ 65°C. Maximum temperature 120°C @ 5 bar
Approved to EN215. Two way operation provides reverse flow operation capability
Double "O" ring seal

| | |
|--------|----------|
| Size | 15 |
| Code | 49341122 |
| F-F mm | 52 |
| kg | 0.24 |

Thermal Body Options - Chrome Plated TRV Body angle horizontal



Dual 15mm x 1/2" connection. Chrome Plated finish
Maximum pressure 10 bar @ 65°C. Maximum temperature 120°C @ 5 bar

| | |
|--------|----------|
| Size | 15 |
| Code | 49341111 |
| F-F mm | 34 |
| kg | 0.24 |

Thermal Body Options - Chrome Plated TRV Body straight



Dual 15mm x 1/2" connection. Chrome Plated finish
Maximum pressure 10 bar @ 65°C. Maximum temperature 120°C @ 5 bar

| | |
|--------|----------|
| Size | 15 |
| Code | 49341133 |
| F-F mm | 41 |
| kg | 0.24 |

Thermal Body Options - TRV Pre-set Body Angle vertical



Dual 15mm x 1/2" connection. Chrome Plated finish
Maximum pressure 10 bar @ 65°C. Maximum temperature 120°C @ 5 bar

| | |
|--------|----------|
| Size | 15 |
| Code | 49341144 |
| F-F mm | 52 |
| kg | 0.24 |

Thermal Body Options - TRV Pre-set Body straight



Dual 15mm x 1/2" connection. Chrome Plated finish
Maximum pressure 10 bar @ 65°C. Maximum temperature 120°C @ 5 bar

| | |
|--------|----------|
| Size | 15 |
| Code | 49341155 |
| F-F mm | 43 |
| kg | 0.24 |

Miniball Radiator Valves - Straight Radiator Valve



Brass, Nickel Plated finish, Straight Radiator valve

| | | |
|--------|----------|----------|
| Size | 1/2 | 3/4 |
| Code | 86315839 | 86315850 |
| F-F mm | 82 | 82 |
| kg | 0.21 | 0.37 |

Miniball Radiator Valves - Angled Drain Valve



Brass, Nickel Plated finish, Angled Drain valve

| | |
|--------|----------|
| Size | 1/2 |
| Code | 86310209 |
| F-F mm | 31 |
| kg | 0.08 |

Safety Relief Valve WRAS Listed - 960 Set Pressure Range



Screwed BSPT Female, Gunmetal body, seat adaptor and seat seal holder, PTFE seat seal, EPDM "O" ring seal
Maximum temperature 200°C

10PSIG / 0.7 Bar

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 27620089 | 27620344 | 27620621 | 27620868 | 27621080 | 27621313 |
| F-F mm | 100 | 115 | 136 | 130 | 203 | 230 |
| kg | 0.48 | 0.66 | 0.94 | 1.44 | 2.64 | 4.66 |

15PSIG / 1.1 Bar

| Size | 1/2 | 3/4 | 1 | 1 1/2 | 2 |
|--------|----------|----------|----------|----------|----------|
| Code | 27620108 | 27620355 | 27620632 | 27621091 | 27621324 |
| F-F mm | 100 | 115 | 136 | 203 | 230 |
| kg | 0.48 | 0.66 | 0.94 | 2.64 | 4.66 |

19PSIG / 1.4 Bar

| Size | 1 1/4 | 1 1/2 | 2 |
|--------|----------|----------|----------|
| Code | 27620879 | 27621110 | 27621335 |
| F-F mm | 130 | 203 | 230 |
| kg | 1.44 | 2.64 | 4.66 |

20PSIG / 1.4 Bar

| Size | 1/2 | 3/4 | 1 |
|--------|----------|----------|----------|
| Code | 27620130 | 27620377 | 27620643 |
| F-F mm | 100 | 115 | 136 |
| kg | 0.48 | 0.66 | 0.94 |

23PSIG / 1.6 Bar

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 27620141 | 27620388 | 27620654 | 27620909 | 27621132 | 27621357 |
| F-F mm | 100 | 115 | 136 | 130 | 203 | 230 |
| kg | 0.48 | 0.66 | 0.94 | 1.44 | 2.64 | 4.66 |

25PSIG / 1.8 Bar

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 27620152 | 27620399 | 27620665 | 27620920 | 27621143 | 27621368 |
| F-F mm | 100 | 115 | 136 | 130 | 203 | 230 |
| kg | 0.48 | 0.66 | 0.94 | 1.44 | 2.64 | 4.66 |

28PSIG / 2.0 Bar

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 27620163 | 27620407 | 27620676 | 27620931 | 27621154 | 27621379 |
| F-F mm | 100 | 115 | 136 | 130 | 203 | 230 |
| kg | 0.48 | 0.66 | 0.94 | 1.44 | 2.64 | 4.66 |

30PSIG / 2.1 Bar

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 27620174 | 27620418 | 27620687 | 27620942 | 27621165 | 27621390 |
| F-F mm | 100 | 115 | 136 | 130 | 203 | 230 |
| kg | 0.48 | 0.66 | 0.94 | 1.44 | 2.64 | 4.66 |

32PSIG / 2.3 Bar

| Size | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|--------|----------|----------|----------|----------|----------|
| Code | 27620429 | 27620698 | 27620953 | 27621176 | 27621409 |
| F-F mm | 115 | 136 | 130 | 203 | 230 |
| kg | 0.66 | 0.94 | 1.44 | 2.64 | 4.66 |

35PSIG / 2.5 Bar

| Size | 1/2 | 1 |
|--------|----------|----------|
| Code | 27620185 | 27620706 |
| F-F mm | 100 | 136 |
| kg | 0.48 | 0.94 |

36PSIG / 2.5 Bar

| Size | ¾ | 1½ | 2 |
|---------------|----------|----------|----------|
| Code | 27620451 | 27621187 | 27621420 |
| F-F mm | 115 | 203 | 230 |
| kg | 0.66 | 2.64 | 4.66 |

40PSIG / 2.8 Bar

| Size | ½ | ¾ | 1 |
|---------------|----------|----------|----------|
| Code | 27620204 | 27620462 | 27620728 |
| F-F mm | 100 | 115 | 136 |
| kg | 0.48 | 0.66 | 0.94 |

41PSIG / 2.9 Bar

| Size | ½ | ¾ | 1 | 1¼ | 1½ | 2 |
|---------------|----------|----------|----------|----------|----------|----------|
| Code | 27620215 | 27620473 | 27620739 | 27620964 | 27621198 | 27621431 |
| F-F mm | 100 | 115 | 136 | 130 | 203 | 230 |
| kg | 0.48 | 0.66 | 0.94 | 1.44 | 2.64 | 4.66 |

45PSIG / 3.1 Bar

| Size | ½ | ¾ | 1 | 1¼ | 1½ | 2 |
|---------------|----------|----------|----------|----------|----------|----------|
| Code | 27620226 | 27620484 | 27620750 | 27620975 | 27621206 | 27621442 |
| F-F mm | 100 | 115 | 136 | 130 | 203 | 230 |
| kg | 0.48 | 0.66 | 0.94 | 1.44 | 2.64 | 4.66 |

49PSIG / 3.4 Bar

| Size | ½ | ¾ | 1 | 1¼ | 1½ | 2 |
|---------------|----------|----------|----------|----------|----------|----------|
| Code | 27620237 | 27620495 | 27620761 | 27620986 | 27621217 | 27621453 |
| F-F mm | 100 | 115 | 136 | 130 | 203 | 230 |
| kg | 0.48 | 0.66 | 0.94 | 1.44 | 2.64 | 4.66 |

50PSIG / 3.5 Bar

| Size | ½ | ¾ | 1 |
|---------------|----------|----------|----------|
| Code | 27620248 | 27620503 | 27620772 |
| F-F mm | 100 | 115 | 136 |
| kg | 0.48 | 0.66 | 0.94 |

60PSIG / 4.2 Bar

| Size | ¾ |
|---------------|----------|
| Code | 27620514 |
| F-F mm | 115 |
| kg | 0.66 |

Safety Relief Valve WRAS Listed - 960 Unset Pressure Range


Screwed BSPT Female, Gunmetal body, seat adaptor and seat seal holder, PTFE seat seal, EPDM "O" ring seal
Maximum temperature 200°C

4-7PSIG / 0.3-0.5 Bar

| Size | ½ | ¾ | 1 | 1¼ | 1½ | 2 |
|---------------|----------|----------|----------|----------|----------|----------|
| Code | 27620001 | 27620259 | 27620525 | 27620783 | 27620997 | 27621228 |
| F-F mm | 100 | 115 | 136 | 130 | 203 | 230 |
| kg | 0.48 | 0.66 | 0.94 | 1.44 | 2.64 | 4.66 |

8-15PSIG / 0.6-1.1 Bar

| Size | ½ | ¾ | 1 | 1¼ | 1½ | 2 |
|---------------|----------|----------|----------|----------|----------|----------|
| Code | 27620012 | 27620270 | 27620536 | 27620794 | 27621003 | 27621239 |
| F-F mm | 100 | 115 | 136 | 130 | 203 | 230 |
| kg | 0.48 | 0.66 | 0.94 | 1.44 | 2.64 | 4.66 |

16-31PSIG / 1.2-2.2 Bar

| Size | ½ | ¾ | 1 | 1¼ | 1½ | 2 |
|---------------|----------|----------|----------|----------|----------|----------|
| Code | 27620023 | 27620281 | 27620547 | 27620802 | 27621014 | 27621250 |
| F-F mm | 100 | 115 | 136 | 130 | 203 | 230 |
| kg | 0.48 | 0.66 | 0.94 | 1.44 | 2.64 | 4.66 |

32-47PSIG / 2.3-3.3 Bar

| Size | ½ | ¾ | 1 | 1¼ | 1½ | 2 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 27620034 | 27620292 | 27620558 | 27620813 | 27621025 | 27621261 |
| F-F mm | 100 | 115 | 136 | 130 | 203 | 230 |
| kg | 0.48 | 0.66 | 0.94 | 1.44 | 2.64 | 4.66 |

48-71PSIG / 3.4-4.9 Bar

| Size | ½ | ¾ | 1 | 1¼ | 1½ | 2 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 27620045 | 27620300 | 27620569 | 27620824 | 27621036 | 27621272 |
| F-F mm | 100 | 115 | 136 | 130 | 203 | 230 |
| kg | 0.48 | 0.66 | 0.94 | 1.44 | 2.64 | 4.66 |

72-95PSIG / 5.0-6.6 Bar

| Size | ½ | ¾ | 1 | 1¼ | 1½ | 2 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 27620056 | 27620311 | 27620580 | 27620835 | 27621047 | 27621283 |
| F-F mm | 100 | 115 | 136 | 130 | 203 | 230 |
| kg | 0.48 | 0.66 | 0.94 | 1.44 | 2.64 | 4.66 |

96-119PSIG / 6.7-8.2 Bar

| Size | ½ | ¾ | 1 | 1¼ | 1½ | 2 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 27620067 | 27620322 | 27620591 | 27620846 | 27621058 | 27621294 |
| F-F mm | 100 | 115 | 136 | 130 | 203 | 230 |
| kg | 0.48 | 0.66 | 0.94 | 1.44 | 2.64 | 4.66 |

120-148PSIG / 8.3-10.5 Bar

| Size | ½ | ¾ | 1 | 1¼ | 1½ | 2 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 27620078 | 27620333 | 27620610 | 27620857 | 27621069 | 27621302 |
| F-F mm | 100 | 115 | 136 | 130 | 203 | 230 |
| kg | 0.48 | 0.66 | 0.94 | 1.44 | 2.64 | 4.66 |

Springs for BOSS™ 960
White 4-7PSI / 0.3-0.5 Bar

| Size | ½ | ¾ | 1 | 1¼ | 1½ | 2 |
|------|----------|----------|----------|----------|----------|----------|
| Code | 22071107 | 22071118 | 22071129 | 22071140 | 22071151 | 22071162 |
| kg | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |

Red 8-15PSI / 0.6-1.1 Bar

| Size | ½ | ¾ | 1 | 1¼ | 1½ | 2 |
|------|----------|----------|----------|----------|----------|----------|
| Code | 22071173 | 22071184 | 22071195 | 22071203 | 22071214 | 22071225 |
| kg | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |

Yellow 16-31PSI / 1.2-2.2 Bar

| Size | ½ | ¾ | 1 | 1¼ | 1½ | 2 |
|------|----------|----------|----------|----------|----------|----------|
| Code | 22071236 | 22071247 | 22071258 | 22071269 | 22071280 | 22071291 |
| kg | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |

Green 32-47PSI / 2.3-3.3 Bar

| Size | ½ | ¾ | 1 | 1¼ | 1½ | 2 |
|------|----------|----------|----------|----------|----------|----------|
| Code | 22071310 | 22071321 | 22071332 | 22071343 | 22071354 | 22071365 |
| kg | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |

Safety Relief & Pressure Reducing Valves

Relief Valves

Brown 48-71PSI / 3.4-4.9 Bar

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|------|----------|----------|----------|----------|----------|----------|
| Code | 22071376 | 22071387 | 22071398 | 22071406 | 22071417 | 22071428 |
| kg | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |

Blue 72-95PSI / 5.0-6.6 Bar

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|------|----------|----------|----------|----------|----------|----------|
| Code | 22071439 | 22071450 | 22071461 | 22071472 | 22071483 | 22071494 |
| kg | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |

Purple 96-119PSI / 6.7-8.2 Bar

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|------|----------|----------|----------|----------|----------|----------|
| Code | 22071502 | 22071513 | 22071524 | 22071535 | 22071546 | 22071557 |
| kg | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |

Black 120-152PSI / 8.3-10.5 Bar

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|------|----------|----------|----------|----------|----------|----------|
| Code | 22071568 | 22071579 | 22071590 | 22071609 | 22071620 | 22071631 |
| kg | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |

Safety Relief & Pressure Reducing Valves

Pressure Reducing Valves

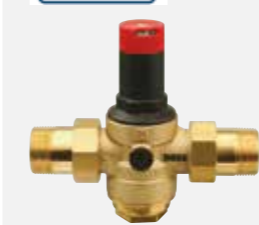
Pressure Reducing Valves



Compression end, DZR Brass body, Stainless Steel filter mesh
Maximum pressure 1 1/2 to 6 Bar (adjustable) @ 70°C

| Size | 15 | 22 |
|--------|----------|----------|
| Code | 28110006 | 28110017 |
| F-F mm | 150 | 168 |
| kg | 0.65 | 0.82 |

Pressure Reducing Valves



Screwed BSP Male, DZR Brass body, Stainless Steel filter mesh
Maximum pressure 1 1/2 to 6 Bar (adjustable) @ 70°C

| Size | 1 | 1 1/4 | 1 1/2 | 2 |
|--------|----------|----------|----------|----------|
| Code | 28110028 | 28110039 | 28110050 | 28110061 |
| F-F mm | 186 | 200 | 225 | 255 |
| kg | 1.35 | 2.00 | 3.30 | 4.50 |

Actuators and Ancillaries

Pneumatic Actuators, Electric Actuators, Test Points, Solenoid Valves, Sight Flow Indicators and Switchboxes

Spring Return Actuators - BOSS™ 82



0-90° Twin rack and pinion design, Aluminium body, Limit stops +/- 5%, constant torque output
 Max pressure 8 bar, Temperature range -20°C - +85°C
 ISO 5211 connection - Star Drive, Namur configuration, Position indicators

| Size | SR52 | SR63 | SR75 | SR85 | SR100 | SR115 | SR125 | SR140 |
|--------|----------|----------|----------|----------|----------|----------|----------|----------|
| Code | 61502004 | 61502015 | 61502026 | 61502037 | 61502048 | 61502059 | 61502070 | 61502081 |
| Length | 141 | 164 | 210 | 241 | 275 | 333 | 372 | 435 |
| kg | 1.30 | 2.00 | 3.40 | 4.80 | 7.00 | 11.50 | 14.10 | 21.80 |

| Size | SR160 | SR180 | SR200 | SR230 | SR270 | SR330 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 61502092 | 61502100 | 61502111 | 61502122 | 61502133 | 61502144 |
| Length | 500 | 493 | 579 | 690 | 672 | 881 |
| kg | 30.00 | 39.90 | 55.00 | 71.00 | 100.30 | 209.00 |

Double Acting Actuators - BOSS™ 82



0-90° Twin rack and pinion design, Aluminium body, Limit stops +/- 5%, constant torque output
 Max pressure 8 bar, Temperature range -20°C - +85°C
 ISO 5211 connection - Star Drive, Namur configuration, Position indicators

| Size | DA32 | DA52 | DA63 | DA75 | DA85 | DA100 | DA115 | DA125 |
|--------|----------|----------|----------|----------|----------|----------|----------|----------|
| Code | 61502155 | 61502166 | 61502177 | 61502188 | 61502199 | 61502207 | 61502218 | 61502229 |
| Length | 110 | 141 | 164 | 210 | 241 | 275 | 333 | 372 |
| kg | 0.50 | 1.10 | 1.70 | 2.80 | 3.90 | 5.50 | 8.90 | 10.80 |

| Size | DA140 | DA160 | DA180 | DA200 | DA230 | DA270 | DA330 |
|--------|----------|----------|----------|----------|----------|----------|----------|
| Code | 61502240 | 61502251 | 61502262 | 61502273 | 61502284 | 61502295 | 61502303 |
| Length | 435 | 500 | 493 | 579 | 690 | 672 | 881 |
| kg | 16.30 | 21.80 | 29.00 | 37.00 | 58.50 | 82.70 | 168.00 |

Actuators and Ancillaries

Pneumatic Actuators, Electric Actuators, Test Points, Solenoid Valves, Sight Flow Indicators and Switchboxes

Accessories - Switchbox



Namur Switchbox complete with 2 x SPDT Silver Plated Switches
 To suit 20, 30, 40 & 50 namur pinion

Code 68520407

Accessories - Solenoids



Solenoid valve for ¼ turn pneumatic actuators
 Namur standard fixing dimensions, Aluminium body, 1/4" BSP port connection
 Max ambient temperature +80°C, Min working temperature -20°C, 3 to 10 bar working pressure

| Size | 24V | 110V | 240V |
|------|----------|----------|----------|
| Code | 69631097 | 69631116 | 69631127 |

Accessories - Silencer



¼" sintered Bronze silencer with BSP thread

| Size | ¼" |
|------|----------|
| Code | 69631193 |

Actuators and Ancillaries

Pneumatic Actuators, Electric Actuators, Test Points, Solenoid Valves, Sight Flow Indicators and Switchboxes

High Voltage - BOSS™ EA218



110-240V AC/DC multi voltage On/Off Actuator, IP67 rated, set at 90°
 LED status feedback, Manual override, Over torque and anti-condensation protection, all external electrical connection, ISO 5211 mounting
 Temperature range -20°C to +70°C
 6 models offering a range of break away torques from 25 to 350Nm
 Conversion kits available for: Failsafe (close or open), Modulating (0-10V or 4-20mA) or Failsafe Modulating

| Size | Model 20 | Model 35 | Model 55 | Model 85 | Model 140 | Model 300 |
|---------------|----------|----------|----------|----------|-----------|-----------|
| Code | 21800077 | 21800088 | 21800099 | 21800107 | 21800118 | 21800129 |
| Length | 181 | 181 | 181 | 181 | 235 | 235 |
| kg | 1.80 | 1.90 | 2.40 | 3.00 | 5.20 | 5.20 |

Low Voltage - BOSS™ EA218



12-24V AC/DC (Models 140 & 300 24V AC/DC only) multi voltage On/Off Actuator, IP67 rated, set at 90°
 LED status feedback, Manual override, Over torque and anti-condensation protection, all external electrical connection, ISO 5211 mounting
 Temperature range -20°C to +70°C
 6 models offering a range of break away torques from 25 to 350Nm
 Conversion kits available for: Failsafe (close or open), Modulating (0-10V or 4-20mA) or Failsafe Modulating

| Size | Model 20 | Model 35 | Model 55 | Model 85 | Model 140 | Model 300 |
|---------------|----------|----------|----------|----------|-----------|-----------|
| Code | 21800011 | 21800022 | 21800033 | 21800044 | 21800055 | 21800066 |
| Length | 181 | 181 | 181 | 181 | 235 | 235 |
| kg | 1.80 | 1.90 | 2.40 | 3.00 | 5.20 | 5.20 |

Failsafe System - For BOSS™ EA218



Drives the actuator to a pre-determined position in the event of external power loss
 Complete, simple to install plug and play failsafe kit with on site retro fit capability
 Suits high and low voltage EA218 actuators

| Size | BSR 20-85 | BSR 140-300 |
|-------------|-----------|-------------|
| Code | 21800140 | 21800162 |
| kg | 0.20 | 0.40 |

Actuators and Ancillaries

Pneumatic Actuators, Electric Actuators, Test Points, Solenoid Valves, Sight Flow Indicators and Switchboxes

Modulating System - For BOSS™ EA218



Digital Positioning System to convert on/off to modulating function (0-10V or 4-20mA input and output)
 Complete, simple to install plug and play, self calibrating modulating kit with on site retro fit capability
 Suits high and low voltage EA218 actuators

| Size | DPS 20-85 | DPS 140-300 |
|-------------|-----------|-------------|
| Code | 21800151 | 21800173 |
| kg | 0.50 | 0.90 |

Failsafe Modulating System - For BOSS™ EA218



Failsafe modulating function achieved by the installation of both the BOSS Failsafe and Modulating System
 Actuator fails to pre-determined position on loss of external power
 Complete, simple to install plug and play kits with on site retro fit capability
 Suits high and low voltage EA218 actuators

| Size | BSR & DPS 20-85 | BSR & DPS 140-300 |
|-------------|---------------------|---------------------|
| Code | 21800140 & 21800151 | 21800162 & 21800173 |
| kg | 0.70 | 1.30 |

Actuators and Ancillaries

Pneumatic Actuators, Electric Actuators, Test Points, Solenoid Valves, Sight Flow Indicators and Switchboxes

Test Plugs - Extended



Screwed BSPT Male, Brass body, cap and retaining ring, Ethylene Propylene Retaining strap and core
 Maximum pressure 35 bar @ -8 to 135°C
 Suitable for low temperature hot water, chilled water and low temperature steam
 Extended plugs give approximately an extra 38mm for insulation

| Size | 8mm | 15mm |
|--------|----------|----------|
| Code | 25028626 | 25028637 |
| F-F mm | 75 | 77 |
| kg | 0.06 | 0.17 |

Test Plugs - Extended



Screwed BSPT Male, Stainless Steel body, Brass cap and retaining ring, Ethylene Propylene Retaining strap and core
 Maximum pressure 35 bar @ -8 to 135°C
 Suitable for low temperature hot water, chilled water and low temperature steam
 Extended plugs give approximately an extra 38mm for insulation

| Size | 8mm | 15mm |
|--------|----------|----------|
| Code | 25028530 | 25028541 |
| F-F mm | 75 | 77 |
| kg | 0.06 | 0.17 |

Test Plugs



Screwed BSPT Male, Brass body, cap and retaining ring, Ethylene Propylene Retaining strap and core
 Maximum pressure 35 bar @ -8 to 135°C
 Suitable for low temperature hot water, chilled water and low temperature steam

| Size | 8mm | 15mm |
|--------|----------|----------|
| Code | 25028604 | 25028615 |
| F-F mm | 38 | 41 |
| kg | 0.03 | 0.07 |

Actuators and Ancillaries

Pneumatic Actuators, Electric Actuators, Test Points, Solenoid Valves, Sight Flow Indicators and Switchboxes

Test Plugs



Screwed BSPT Male, Stainless Steel body, Brass cap and retaining ring, Ethylene Propylene Retaining strap and core
 Maximum pressure 35 bar @ -8 to 135°C

| Size | 8mm | 15mm |
|--------|----------|----------|
| Code | 25028508 | 25028519 |
| F-F mm | 38 | 41 |
| kg | 0.03 | 0.07 |

Pilot Operated Solenoid Valves - FIG DCA Air, Light Oil, Water, 230Vac



BS21 BSPP Female, Brass/bronze body, Stainless Steel internals. Nitrile seals
 Maximum static pressure 20 bar, Maximum media temperature 180°C. 230Vac, Protection class IP65 with Plug
 Coil insulation Class H

| Size | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
|--------|----------|----------|----------|----------|----------|----------|
| Code | 20812106 | 20812117 | 20812128 | 20812139 | 20812150 | 20812161 |
| F-F mm | 70 | 70 | 85 | 137 | 137 | 137 |
| kg | 0.90 | 0.90 | 1.20 | 3.00 | 3.00 | 3.20 |

Pilot Operated Solenoid Valves - FIG PCAX Steam, 230Vac



BS21 BSPP Female, Brass/bronze body, Stainless Steel/Copper alloy internals. PTFE seals
 Maximum static pressure 20 bar, Maximum media temperature 180°C. 230Vac, Protection class IP65 with Plug

| Size | 1/2 | 3/4 | 1 | 1 1/2 | 2 |
|--------|----------|----------|----------|----------|----------|
| Code | 20812172 | 20812183 | 20812194 | 20812770 | 20812781 |
| F-F mm | 69 | 69 | 85 | 117 | 146 |
| kg | 1.20 | 1.50 | 1.50 | 3.10 | 5.20 |

Pressure Gauges and Thermometers

Pressure Gauges

FIG408 DM - Black Steel Case



1/4" BSP, 2" dial, Black Plastic case, Acrylic window, Direct Mounting, Dual Scale reading
 Maximum media temperature 60°C
 Suitable for internal use

| | | | | | | | |
|----------------|----------|----------|----------|----------|----------|----------|----------|
| Size | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Code | 80010017 | 80010050 | 80010072 | 80010094 | 80010113 | 80010124 | 80010146 |
| Reading | 0-1 Bar | 0-2 Bar | 0-4 Bar | 0-7 Bar | 0-10 Bar | 0-14 Bar | 0-21 Bar |
| kg | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 |

1/4" BSP, 2 1/2" dial, Black Plastic case, Acrylic window, Direct Mounting, Dual Scale reading
 Maximum media temperature 60°C
 Suitable for internal use

| | | | | | |
|----------------|--------------|--------------|--------------|--------------|--------------|
| Size | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 |
| Code | 80010275 | 80010297 | 80010316 | 80010327 | 80010349 |
| Reading | 0-4 Bar | 0-7 Bar | 0-10 Bar | 0-14 Bar | 0-21 Bar |
| kg | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 |

3/8" BSP, 4" dial, Black Steel case, Glass window, Direct Mounting, Dual Scale reading
 Maximum media temperature 60°C
 Suitable for internal use

| | | | | | | | | | |
|----------------|----------|-----------|----------|----------|----------|----------|----------|----------|----------|
| Size | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| Code | 80011820 | 80011831 | 80011842 | 80011875 | 80011897 | 80011916 | 80011949 | 80011971 | 80012010 |
| Reading | 0-1 Bar | 0-1.6 Bar | 0-2 Bar | 0-4 Bar | 0-7 Bar | 0-10 Bar | 0-14 Bar | 0-21 Bar | 0-42 Bar |
| kg | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 |

| | |
|----------------|----------|
| Size | 4 |
| Code | 80012032 |
| Reading | 0-70 Bar |
| kg | 0.70 |

3/8" BSP, 4" dial, Black Steel case, Glass window, Perspex dial, Direct Mounting, Dual Scale reading
 Maximum media temperature 60°C
 Suitable for internal use

| | | | | |
|----------------|----------|----------|----------|----------|
| Size | 4 | 4 | 4 | 4 |
| Code | 80011757 | 80011768 | 80011779 | 80011790 |
| Reading | 0-4 Bar | 0-7 Bar | 0-10 Bar | 0-14 Bar |
| kg | 0.50 | 0.50 | 0.50 | 0.50 |

3/8" BSP, 6" dial, Black Steel case, Glass window, Direct Mounting, Dual Scale reading
 Maximum media temperature 60°C
 Suitable for internal use

| | | | | | |
|----------------|----------|----------|----------|----------|----------|
| Size | 6 | 6 | 6 | 6 | 6 |
| Code | 80012224 | 80012257 | 80012268 | 80012279 | 80012290 |
| Reading | 0-1 Bar | 0-4 Bar | 0-7 Bar | 0-10 Bar | 0-14 Bar |
| kg | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |

Pressure Gauges and Thermometers

Pressure Gauges

FIG 410 DM - All Stainless Steel Gauge



1/2" BSP, 4" dial, Stainless Steel, Acrylic window, Glycerine fillable, Direct Mounting, Dual Scale reading
 Maximum media temperature 60°C
 Suitable for external use

| | | | | | |
|----------------|----------|----------|----------|----------|----------|
| Size | 4 | 4 | 4 | 4 | 4 |
| Code | 80110006 | 80110017 | 80110028 | 80110039 | 80110050 |
| Reading | 0-2 Bar | 0-4 Bar | 0-7 Bar | 0-10 Bar | 0-14 Bar |
| kg | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 |

FIG 407 DM - Brass Case



1/4" BSP, 3" dial, Brass case & bezel, Direct Mounting, Dual Scale reading
 Maximum media temperature 60°C
 Suitable for internal use

| | | | | |
|----------------|----------|----------|----------|----------|
| Size | 3 | 3 | 3 | 3 |
| Code | 80010508 | 80010530 | 80010541 | 80010563 |
| Reading | 0-7 Bar | 0-10 Bar | 0-14 Bar | 0-21 Bar |
| kg | 0.80 | 0.80 | 0.80 | 0.80 |

3/8" BSP, 4" dial, Brass case & bezel, Direct Mounting, Dual Scale reading, Blow out device
 Maximum media temperature 60°C
 Suitable for internal use

| | | | | | | | | |
|----------------|----------|----------|----------|----------|----------|----------|----------|----------|
| Size | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| Code | 80010851 | 80010895 | 80010903 | 80010925 | 80010958 | 80010980 | 80011019 | 80011041 |
| Reading | 0-2 Bar | 0-4 Bar | 0-7 Bar | 0-10 Bar | 0-14 Bar | 0-21 Bar | 0-42 Bar | 0-70 Bar |
| kg | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |

3/8" BSP, 6" dial, Brass case & bezel, Direct Mounting, Dual Scale reading, Blow out device
 Maximum media temperature 60°C
 Suitable for internal use

| | | |
|----------------|----------|----------|
| Size | 6 | 6 |
| Code | 80011222 | 80011299 |
| Reading | 0-10 Bar | 0-42 Bar |
| kg | 1.00 | 1.00 |

Pressure Gauges and Thermometers

Pressure Gauges

FIG 409S - Sprinkler Gauge



3/8" BSP, Stainless Steel bezel, Direct Mounting
 Maximum media temperature 60°C
 Suitable for internal or external use

| | |
|----------------|----------|
| Size | 4 |
| Code | 80046505 |
| Reading | 0-16 Bar |
| kg | 0.80 |

FIG 223 DM - Low Pressure Capsule Gauge Polished Brass Case



3/8" BSP, Brass bezel, Direct Mounting
 Suitable for internal use

| | | | |
|----------------|----------|-----------|-----------|
| Size | 4 | 4 | 4 |
| Code | 80046003 | 80046014 | 80046036 |
| Reading | 0-60 Bar | 0-100 Bar | 0-250 Bar |
| kg | 0.50 | 0.50 | 0.50 |

FIG 342 DM - Liquid Filled Stainless Steel Case



1/4" BSP, 2 1/2" dial, Stainless Steel bezel, Direct Mounting, Dual Scale reading, Glycerine filled
 Maximum media temperature 60°C
 Suitable for internal use

| | | | | |
|----------------|--------------|--------------|--------------|--------------|
| Size | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 |
| Code | 80046110 | 80046121 | 80046132 | 80046143 |
| Reading | 0-4 Bar | 0-7 Bar | 0-10 Bar | 0-14 Bar |
| kg | 0.50 | 0.50 | 0.50 | 0.50 |

3/8" BSP, 4" dial, Stainless Steel bezel, Direct Mounting, Dual Scale reading, Silicone Oil filled
 Maximum media temperature 60°C
 Suitable for internal use

| | | | | | |
|----------------|----------|----------|----------|----------|----------|
| Size | 4 | 4 | 4 | 4 | 4 |
| Code | 80046206 | 80046198 | 80046217 | 80046228 | 80046239 |
| Reading | 0-4 Bar | 0-7 Bar | 0-10 Bar | 0-16 Bar | 0-21 Bar |
| kg | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 |

Pressure Gauges and Thermometers

Vacuum Gauges, Compound Gauges

FIG 412 DM - Black Steel Case



3/8" BSP, Chrome Plated bezel, Direct Mounting, Dual Scale reading
 Maximum media temperature 60°C
 Suitable for internal use

| | |
|----------------|-------------|
| Size | 4 |
| Code | 80013023 |
| Reading | 0 to -1 Bar |
| kg | 0.50 |

FIG 411 DM - Brass Case



1/4" BSP for 3" dial, 3/8" BSP for 4" dial, Brass bezel, Direct Mounting, Dual Scale reading
 Maximum media temperature 60°C
 Suitable for internal use

| | | |
|----------------|-------------|-------------|
| Size | 3 | 4 |
| Code | 80012918 | 80012929 |
| Reading | 0 to -1 Bar | 0 to -1 Bar |
| kg | 0.80 | 0.80 |

FIG 420DM - Brass Case



3/8" BSP Brass bezel, Direct Mounting, Dual Scale reading
 Maximum media temperature 60°C
 Suitable for internal use

| | | | |
|----------------|--------------|--------------|--------------|
| Size | 4 | 4 | 4 |
| Code | 80014217 | 80014228 | 80014239 |
| Reading | -1 to +2 Bar | -1 to +4 Bar | -1 to +7 Bar |
| kg | 0.50 | 0.50 | 0.50 |

FIG 421DM - Black Steel Case



3/8" BSP, Chrome Plated bezel, Direct Mounting, Dual Scale reading
 Maximum media temperature 60°C
 Suitable for internal use

| | |
|----------------|--------------|
| Size | 4 |
| Code | 80014390 |
| Reading | -1 to +2 Bar |
| kg | 0.50 |

Pressure Gauges and Thermometers

Altitude Gauges

FIG 416 DM - Black Steel Case



3/8" BSP, Chrome Plated bezel, Direct Mounting, Dual Scale reading
 Maximum media temperature 60°C
 Suitable for internal use

| | | | |
|----------------|------------------------|------------------------|-----------------------|
| Size | 4 | 4 | 4 |
| Code | 80013366 | 80013377 | 80013388 |
| Reading | 0-30 Feet 0-10 Metres | 0-50 Feet 0-16 Metres | 0-80 Feet 0-25 Metres |
| kg | 0.60 | 0.60 | 0.60 |
| Size | 4 | 4 | |
| Code | 80013399 | 80013407 | |
| Reading | 0-130 Feet 0-40 Metres | 0-200 Feet 0-60 Metres | |
| kg | 0.60 | 0.60 | |

FIG 415 DM - Brass Case



3/8" BSP, Brass bezel, Direct Mounting, Dual Scale reading
 Maximum media temperature 60°C
 Suitable for internal use

| | | |
|----------------|-----------------------|------------------------|
| Size | 4 | 4 |
| Code | 80013204 | 80013270 |
| Reading | 0-30 Feet 0-10 Metres | 0-130 Feet 0-40 Metres |
| kg | 0.50 | 0.50 |

FIG 416 DM - Black Steel Case



3/8" BSP, Chrome Plated bezel, Direct Mounting, Dual Scale reading
 Maximum media temperature 60°C
 Suitable for internal use

| | | | |
|----------------|---------------------|---------------------|---------------------|
| Size | 4 | 4 | 4 |
| Code | 80013879 | 80013920 | 80013931 |
| Reading | 0-1 Bar 0-10 Metres | 0-4 Bar 0-40 Meters | 0-6 Bar 0-60 Meters |
| kg | 0.60 | 0.60 | 0.60 |
| Size | 6 | 6 | |
| Code | 80013942 | 80013975 | |
| Reading | 0-1 Bar 0-10 Metres | 0-4 Bar 0-40 Meters | |
| kg | 0.60 | 0.60 | |

Pressure Gauges and Thermometers

Altitude Gauges, Ancillary Equipment for Gauges

FIG 417 DM - Brass Case



3/8" BSP, Brass bezel, Direct Mounting, Dual Scale reading
 Maximum media temperature 60°C
 Suitable for internal use

| | | |
|----------------|---------------------|-----------------------|
| Size | 4 | 6 |
| Code | 80014069 | 80014121 |
| Reading | 0-6 Bar 0-60 Meters | 0-1.6 Bar 0-16 Metres |
| kg | 0.60 | 0.60 |

Flanged back plates - Steel



For use with Class 1 gauges only

| | |
|-------------|----------|
| Size | 4 |
| Code | 80014505 |
| kg | 0.20 |

Flanged back plates - Brass



For use with Class 1 gauges only

| | | |
|-------------|----------|----------|
| Size | 4 | 6 |
| Code | 80014612 | 80014623 |
| kg | 0.20 | 0.20 |

Gauge Cocks - FIG 393S



3/4" BSP Female connection. Three way gauge cock to allow inspectors gauge cock to be fitted when checking existing gauge
 150lb/in.sq water working pressure

| | |
|-------------|------------|
| Size | 3/8 |
| Code | 22030317 |
| kg | 2.00 |

Pressure Gauges and Thermometers

Ancillary Equipment for Gauges

Gauge Cocks - FIG 394S - Brass



1/4", 3/8" and 1/2" BSP Female connection, brass gauge cock with polypropylene handle
150lb/in.sq water working pressure

| Size | 1/4 | 3/8 | 1/2 |
|------|----------|----------|----------|
| Code | 22030402 | 22030413 | 22030424 |
| kg | 0.14 | 0.22 | 0.28 |

Gauge Cocks - FIG 395S - Chrome Plated



3/8" BSP Female connections, brass gauge cock with brass handle
150lb/in.sq water working pressure

| Size | 3/8 |
|------|----------|
| Code | 22030457 |
| kg | 0.26 |

Gauge Cocks - FIG 395S - Brass



3/8" BSP Female connections, brass gauge cock with brass handle
150lb/in.sq water. working pressure

| Size | 3/8 |
|------|----------|
| Code | 22030520 |
| kg | 0.26 |

Gauge Cocks - FIG 396S - Brass with Polypropylene Handle



3/8" BSP connections. Brass gauge cock with polypropylene handle. Union and tail pipe screwed
150lb/in.sq water working pressure

| Size | 3/8 |
|------|----------|
| Code | 22030616 |
| kg | 0.26 |

Pressure Gauges and Thermometers

Ancillary Equipment for Gauges

"U" Pattern Syphons - FIG 398S - Polished Brass



1/4", 3/8" and 1/2" BSP
Maximum working pressure 100lb/in.sq

| Size | 1/4 | 3/8 | 1/2 |
|------|----------|----------|----------|
| Code | 80018203 | 80018214 | 80018225 |
| kg | 0.50 | 0.50 | 0.50 |

Ring Pattern Syphons - FIG 400S - Polished Brass



3/8" and 1/2" BSP
Maximum working pressure 100lb/in.sq

| Size | 3/8 | 1/2 |
|------|----------|----------|
| Code | 80018321 | 80018332 |
| kg | 0.50 | 0.50 |

"U" Pattern Syphons - FIG 401S - Mild Steel



1/4", 3/8" and 1/2" BSP
Max working pressure: Water 42 bar, Steam 21 bar - 260°C.

| Size | 1/4 | 3/8 | 1/2 |
|------|----------|----------|----------|
| Code | 80018406 | 80018417 | 80018428 |
| kg | 0.50 | 0.50 | 0.50 |

Pressure Gauges and Thermometers

Ancillary Equipment for Gauges

Ring Pattern Syphons - FIG 403S - Mild Steel



1/4", 3/8" and 1/2" BSP

Maximum working pressure: water 42 bar, steam 21 bar - 260°C

| Size | 1/4 | 3/8 | 1/2 |
|------|----------|----------|----------|
| Code | 80018450 | 80018461 | 80018472 |
| kg | 0.50 | 0.50 | 0.50 |

"U" Pattern Syphons - FIG 399S - Stainless Steel



1/2" BSP

Maximum working pressure: water 42 bar, steam 21 bar -260°C

| Size | 1/2 |
|------|----------|
| Code | 80120001 |
| kg | |

Ring Pattern Syphons - FIG 402S - Stainless Steel



1/2" BSP

Maximum working pressure: water 42 bar, steam 21 bar -260°C

| Size | 1/2 |
|------|----------|
| Code | 80120130 |
| kg | |

Snubbers FIG 432S - Brass (also available in Stainless Steel)



Adjustable snubbers to eliminate surge and pressure pulsation to pressure gauges

Maximum working pressure: 250 bar @ 120°C

| Size | 1/4 | 3/8 |
|------|----------|----------|
| Code | 80017319 | 80017330 |
| kg | 0.50 | 0.50 |

Pressure Gauges and Thermometers

Thermometers

Vapour Pressure Thermometers - FIG 438S Black Steel Case - Straight Stem



1/2" BSP. 4" dial, Chrome Plated bezel, straight stem, Dual Scale reading, complete with pocket, 100mm immersion length. Maximum working temperature 60°C

Suitable for internal use

| Size | 4 | 4 |
|---------|----------|--------------|
| Code | 80014708 | 80014763 |
| Reading | 20-120°C | -20 to +40°C |
| kg | 0.50 | 0.50 |

FIG 439S Black Steel Case - Angle Stem



1/2" BSP. 4" dial, Chrome Plated bezel, Angle stem, Dual Scale reading, Complete with pocket, 100mm Immersion length. Maximum working temperature 60°C

Suitable for internal use

| Size | 4 |
|---------|----------|
| Code | 80015005 |
| Reading | 20-120°C |
| kg | 0.50 |

FIG 439S Bottom Back Entry



1/2" BSP. 4" dial, Chrome Plated bezel, straight stem, Dual Scale reading, complete with pocket, 100mm immersion length. Maximum working temperature 60°C

Suitable for internal use

| Size | 4 |
|---------|--------------|
| Code | 80014774 |
| Reading | -20 to +40°C |
| kg | 0.50 |

FIG 448S Brass Case - Straight Stem



1/2" BSP. 4" dial, Chrome Plated bezel, Straight stem, Dual Scale reading, complete with pocket

Maximum working temperature 60°C

Suitable for internal use

| Size | 4 |
|---------|----------|
| Code | 80014634 |
| Reading | 20-120°C |
| kg | 0.50 |

Pressure Gauges and Thermometers

Thermometers

FIG449S - Brass Case - Angle Stem



1/2" BSP. 4" dial, Chrome Plated bezel, Angle stem, Dual Scale reading, Complete with pocket, 100mm Immersion length Maximum working temperature 60°C
Suitable for internal use

| | |
|----------------|----------|
| Size | 4 |
| Code | 80014656 |
| Reading | 20-120°C |
| kg | 0.50 |

Vapour Pressure Thermometers - FIG450S Surface Mounting



1/2" BSP. Chrome Plated bezel, Surface Mounted, Dual Scale reading, Complete with pocket, 100mm Immersion length. Maximum working temperature 60°C
Suitable for internal use

| | | |
|----------------|----------|----------|
| Size | 4 | 6 |
| Code | 80014678 | 80014689 |
| Reading | 20-120°C | 20-120°C |
| kg | 0.50 | 0.50 |

Altiterm Combined Altitude and Thermometer - FIG EG100 Black Steel Case



1/2" BSP, 3" dial size, Chrome bezel. Dual Scale reading
Maximum working temperature 60°C
Suitable for internal use

| | | |
|----------------|-----------------------|------------------------|
| Size | 0-120 | 0-120 |
| Code | 80015101 | 80015112 |
| Reading | 0-80 Feet 0-25 Metres | 0-130 Feet 0-40 Metres |
| kg | 0.50 | 0.50 |

BI-Metal Thermometers - Dial Thermometers FIG 428S



1/2" BSP, 4" dial size, Chrome Plated bezel. Dual Scale reading, 63mm Vertical Immersion length
Maximum working temperature 60°C
Suitable for internal use

| | | | |
|----------------|--------------|----------|----------|
| Size | 4 | 4 | 4 |
| Code | 80015400 | 80015411 | 80015422 |
| Reading | -30 to +50°C | 0-120°C | 0-250°C |
| kg | 0.50 | 0.50 | 0.50 |

Pressure Gauges and Thermometers

Thermometers

BI-Metal Thermometers - Dial Thermometers FIG 429S



1/2" BSP, 4" dial size, Chrome Plated bezel. Dual Scale reading, 100mm Vertical Immersion length
Maximum working temperature 60°C
Suitable for internal use

| | | | |
|----------------|--------------|----------|----------|
| Size | 4 | 4 | 4 |
| Code | 80015529 | 80015540 | 80015551 |
| Reading | -30 to +50°C | 0-120°C | 0-250°C |
| kg | 0.50 | 0.50 | 0.50 |

Bi-Metal Thermometers - Dial Thermometers FIG 429S



1/2" BSP, 4" dial size, Chrome Plated bezel. Dual Scale reading, 63mm Back Immersion length
Maximum working temperature 60°C
Suitable for internal use

| | | | |
|----------------|--------------|----------|----------|
| Size | 4 | 4 | 4 |
| Code | 80015444 | 80015455 | 80015466 |
| Reading | -30 to +50°C | 0-120°C | 0-250°C |
| kg | 0.50 | 0.50 | 0.50 |

BI-Metal Thermometers - Dial Thermometers FIG 429S



1/2" BSP, 4" dial size, Chrome Plated bezel. Dual Scale reading, 100mm Back Immersion length
Maximum working temperature 60°C
Suitable for internal use

| | | | |
|----------------|--------------|----------|----------|
| Size | 4 | 4 | 4 |
| Code | 80015562 | 80015573 | 80015584 |
| Reading | -30 to +50°C | 0-120°C | 0-250°C |
| kg | 0.50 | 0.50 | 0.50 |

Thermometer Pockets - FIG 465S

Brass,
100mm long

| | |
|-------------|------------|
| Size | 1/2 |
| Code | 80017020 |
| kg | 0.50 |

Stainless Steel,
100mm long

| | |
|-------------|------------|
| Size | 1/2 |
| Code | 80017064 |

Brass,
63mm long

| | |
|-------------|------------|
| Size | 1/2 |
| Code | 80017009 |
| kg | 0.01 |

Bi-Metal Thermometers FIG 461S Black Steel Case



Surface contact, 2 1/2" dial, Chrome Plated bezel, Dual Scale reading
 These thermometers show only the surface temperature of the pipe and are not recommended where a good degree of accuracy is required.

| | |
|----------------|--------------|
| Size | 2 1/2 |
| Code | 80016605 |
| Reading | 0-120°C |
| kg | 0.50 |

Bi-Metal Thermometers FIG 463S Black Steel Case



1/2" BSP, 2 1/2" dial, Chrome Plated bezel, Dual Scale reading, Centre back immersion
 45mm stem immersion length

| | | |
|----------------|--------------|--------------|
| Size | 2 1/2 | 2 1/2 |
| Code | 80016701 | 80016712 |
| Reading | 0-120°C | -30 to +50°C |
| kg | 0.50 | |

Bi-Metal Thermometers FIG 464S Black Steel Case



1/2" BSP, 2 1/2" dial, Chrome Plated bezel, Dual Scale reading, Vertical immersion
 45mm stem immersion length

| | | |
|----------------|--------------|--------------|
| Size | 2 1/2 | 2 1/2 |
| Code | 80016819 | 80016830 |
| Reading | 0-120°C | -30 to +50°C |

Gas Expansion Thermometers FIG 434S



1/2" BSP, Chrome Plated bezel, Straight Stem, 100mm immersion, Dual Scale reading
 Complete with 2m capillary & pocket

| | | |
|----------------|----------|----------|
| Size | 4 | 4 |
| Code | 80015219 | 80015208 |
| Reading | 0-120°C | 0-200°C |

Gas Expansion Thermometers FIG 434S



1/2" BSP, Chrome Plated bezel, Angle Stem, 100mm immersion, Dual Scale reading
 Complete with 2m capillary & pocket

| | | |
|----------------|----------|----------|
| Size | 4 | 4 |
| Code | 80015241 | 80015230 |
| Reading | 0-120°C | 0-200°C |

Gas Expansion Thermometers FIG 434S



1/2" BSP, Chrome Plated bezel, Surface Mounting, 100mm immersion, Dual Scale reading
 Complete with 2m capillary & pocket

| | | |
|----------------|----------|----------|
| Size | 4 | 4 |
| Code | 80015263 | 80015252 |
| Reading | 0-120°C | 0-200°C |

Pressure Gauges and Thermometers

Thermometers

Ancillary Equipment for Thermometers



EPDM as standard.

| Description | kg | Code |
|---|------|----------|
| Pressure Test Points Mechseal Pressure Adaptor | 0.25 | 25028124 |
| Pressure Test Points Machseal Manometer Adaptor | 0.03 | 25028113 |
| Mechseal Pressure Test Point | 0.03 | 25028102 |
| Mechseal MK11 Test Point | 0.13 | 25028135 |

Imperial to Metric

| Length | |
|--|--|
| ft x 0.305 = m | |
| in x 25.4 = mm | |
| Volume | |
| ft ³ x 0.028 = m ³ | |
| UK Gal x 4.546 = litres | |
| Weight | |
| lb x 0.45 = kg | |
| Pressure | |
| psi x 0.069 = Bar | |
| psi x 6.89 = kPa (kN/m ²) | |
| Bar x 100 = kPa (kN/m ²) | |
| ft.hd. x 2.98 = kPa (kN/m ²) | |
| in.w.g. x 0.249 = kPa (kN/m ²) | |
| Heat and Energy | |
| BTU/hr x 0.00029 = kW | |
| BTU/hr x 0.252 = kCal/hr | |
| BTU/hr/ft ² °F x 5.68 = w/m ² °C | |
| H.P. x 746 = W | |
| BTU/lb x 2.326 = kJ/kg | |
| Temperature | |
| (°F - 32) x 0.555 = °C | |
| Velocity/Flow Rate | |
| GMP x 0.076 = l/s | |
| lbs/hr x 0.000126 = kg/s | |
| ft ³ /min x 0.000472 = m ³ /s | |
| ft ³ /min x 1.7 = m ³ /hr | |
| ft/min x 0.0051 = m/s | |
| ft/s x 0.305 = m/s | |

Metric to Imperial

| Length | |
|---|--|
| m x 3.28 = ft | |
| mm x 0.039 = in | |
| Volume | |
| m ³ x 35.31 = ft ³ | |
| litres x 0.22 = UK Gall | |
| Weight | |
| kg x 2.2 = lb | |
| Pressure | |
| Bar x 14.5 = psi | |
| kPa (kN/m ²) x 0.145 = psi | |
| kPa (kN/m ²) x 0.01 = Bar | |
| kPa (kN/m ²) x 0.33 = ft.hd. | |
| kPa (kN/m ²) x 4 = In.w.g. | |
| Heat and Energy | |
| kW x 3412 = BTU/hr | |
| kCal/hr x 3.97 = BTU/hr | |
| w/m ² °C x 0.176 = BTU/hr/ft ² °F | |
| W x 0.0013 = H.P. | |
| kJ/kg x 0.43 = BTU/lb | |
| Temperature | |
| (°C x 1.8) + 32 = °F | |
| Velocity/Flow Rate | |
| l/s x 13.2 = GPM | |
| kg/s x 7937 = lbs/hr | |
| m ³ /s x 2119 = ft ³ /min | |
| m ³ /hr x 0.588 = ft ³ /min | |
| m/s x 197 = ft/min | |
| m/s x 3.28 = ft/s | |

Decimal Multiples and Sub-Multiples

Although the SI units are preferred it will not be practical for everyday use to limit usage to these and therefore their decimal multiples and sub-multiples will also be used. These are formed by using the following prefixes:

| Factor by which the unit is multiplied | Prefix | Symbol |
|--|--------|--------|
| 10 ¹² | ter | T |
| 10 ⁹ | giga | G |
| 10 ⁶ | mega | M |
| 10 ³ | kilo | k |
| 10 ² | hecto | h |
| 10 | deca | da |
| 10 ⁻¹ | deci | d |
| 10 ⁻² | centi | c |
| 10 ⁻³ | milli | m |
| 10 ⁻⁶ | micro | μ |
| 10 ⁻⁹ | nano | n |
| 10 ⁻¹² | pico | p |
| 10 ⁻¹⁵ | femto | f |
| 10 ⁻¹⁸ | atto | a |

Conversions to SI Units

| Pressure Standards | | | |
|---|---------|---|--|
| International standard atmosphere | (1 atm) | = 1.0133 bar = 1.0332 kgf/cm ² = 14.6959 lbf/in ² | |
| Metric atmosphere | (1 at) | = 0.9807 bar = 1 kgf/cm ² = 14.2233 lbf/in ² | |
| | ata | = at absolutew | |
| | atu | = at gauge | |
| Standard conditions – s.t.p. or NTP = 1.0133 bar 0°C = 14.6959 lbf/in ² at 0°C | | | |

| Density | | | |
|--------------------------|--|---|---|
| Gram per millilitre g/ml | Kilogram per cubic metre kg/m ³ | Pound per cubic foot lb/ft ³ | Pound per cubic inch lb/in ³ |
| 1 | 1000 | 62.428 | 0.0361 |
| 0.001 | 1 | 0.0624 | 0.000036 |
| 0.016 | 16.02 | 1 | 0.00058 |
| 27.6807 | 27679.9 | 1728 | 1 |

| Heat Flow Rate | | | |
|----------------|--------------------------|-----------------------------|-------------------------------------|
| Watts W | Calorie per second cal/s | Kilocalorie per hour Kcal/h | British Thermal unit per hour Btu/h |
| 1 | 0.2388 | 0.8598 | 3.4121 |
| 4.1868 | 1 | 3.6 | 14.286 |
| 1.163 | 0.2778 | 1 | 3.9683 |
| 0.231 | 0.07 | 0.252 | 1 |

| Force | | | |
|---------------|--------------------|-----------------|-------------|
| Kilonewton kN | Kilogram force kgf | Pound force kgf | Poundal pdl |
| 1 | 101.972 | 224.809 | 7233.01 |
| 0.00981 | 1 | 2.2046 | 70.9316 |
| 0.0044 | 0.4536 | 1 | 32.1740 |
| 0.000138 | 0.0141 | 0.0311 | 1 |

| Power | | | | |
|---------|---|--------------------|--------------------------------------|----------------|
| Watt W | Kilogram force metre per second kgf m/s | Metric horse power | Foot pound force per second Ft lbf/s | Horse power hp |
| 1 | 0.102 | 0.00136 | 0.7376 | 0.00134 |
| 9.8067 | 1 | 0.01333 | 7.2330 | 0.01315 |
| 735.499 | 75 | 1 | 542.476 | 0.98632 |
| 1.3558 | 0.1383 | 0.00184 | 1 | 0.00182 |
| 745.70 | 76.0402 | 0.0139 | 550.0 | 1 |

Conversions to SI Units

| Standard Gas Conditions and Modular Volumes | | |
|--|--------------------------|--|
| Normal (eg nft ³) – European and scientific work | = 0°C and 1.0133 bar | Molar Volume 22.412 m ³ /kg mol |
| Standard (eg std ft ³) – British Gas Industry | = 15.55°C and 1.016 bar | Molar Volume 24.112 m ³ /kg mol |
| Standard (scf) – USA | = 15.55°C and 1.0133 bar | Molar Volume 23.681 m ³ /kg mol |

| Pressure and Liquid Head | | | | | | | | | |
|--------------------------|--|---|--------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------|-----------------------|-----------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Bar | Kilogram Force per square centimetre kgf/cm ² | Pound Force per square inch lbf/in ² | atm | Foot of water ft H ₂ O | Inch of water in H ₂ O | Metre of water m H ₂ O | Centimetre of mercury cm Hg | Inch of mercury in Hg | Millimetre of mercury mm Hg |
| 1 | 1.0197 | 14.5038 | 0.9869 | 33.4553 | 401.463 | 10.1972 | 75.0062 | 29.530 | 750.062 |
| 0.9807 | 1 | 14.2233 | 0.9878 | 32.8084 | 393.701 | 10 | 73.556 | 28.959 | 735.559 |
| 0.0689 | 0.0703 | 1 | 0.0609 | 2.3067 | 27.68 | 0.7031 | 5.1715 | 2.036 | 51.715 |
| 1.0133 | 1.0332 | 14.6959 | 1 | 33.889 | 406.782 | 10.3323 | 76.0 | 29.9213 | 760 |
| 0.0299 | 0.0305 | 0.4335 | 0.0295 | 1 | 12 | 0.3048 | 2.242 | 0.8827 | 22.4198 |
| 0.0025 | 0.0025 | 0.0361 | 0.0025 | 0.0833 | 1 | 0.0254 | 0.1868 | 0.0734 | 1.8683 |
| 0.0981 | 0.10000 | 1.422 | 0.0968 | 3.2808 | 39.3701 | 1 | 7.3556 | 2.896 | 73.356 |
| 0.0133 | 0.0136 | 0.1934 | 0.0132 | 0.4461 | 5.3524 | 0.136 | 1 | 0.3937 | 10 |
| 0.0339 | 0.0345 | 0.4911 | 0.0334 | 1.133 | 13.5951 | 0.3453 | 2.54 | 1 | 25.4 |
| 0.0013 | 0.0014 | 0.0193 | 0.0013 | 0.446 | 0.5352 | 0.0136 | 0.1 | 0.0394 | 1 |

- ① 1 bar = 10⁵N/m² ③ At density 1g/cm³ ⑤ International standard atmosphere
 ② Often denoted non-technically as psi ④ Technical (metric) atmosphere (at) ⑥ Also known as torr

| Mass/Volumetric Rate of Flow Formulae | |
|--|--|
| Gases | |
| ft ³ /h (std) = lb/h x 379 M | m ³ /h (norm) = kg/h x 22.40 M |
| ft ³ /h (std) = lb/h p1 | m ³ /h (norm) = kg/h p2 |
| ft ³ /h (std) = lb/h x 13.1 G1 | m ³ /h (norm) = kg/h x 0.82 G2 |
| Liquids | |
| US gal/min = lb/h 50 x SG | m ³ /h = .001 kg/h SG2 |

| Torque | | | |
|-----------------|----------------------------|-------------------------|-------------------------|
| Newton metre Nm | Kilogram force metre kgf m | Pound force metre kgf m | Pound force inch lbf in |
| 1 | 0.102 | .7376 | 8.8508 |
| 9.8067 | 1 | 7.2330 | 86.7962 |
| 1.3558 | 0.1383 | 1 | 12 |
| 0.113 | 0.0115 | 0.0833 | 1 |

Where: (std) is at 14.7 lbf/in² (abs) and 60°F (norm) is at 760 mm Hg and 0°C
 SG 1 Water = 1 at 60°F SG2 Water = 1 at 4°C
 M = Molecular Weight p1 = Density lb/ft³ (std) p2 = Density kg/cm³ (norm)
 G1 = sp.gr. Air = 1 (std) G2 = sp.gr. Air = 1 (norm)

Conversions to SI Units

| Specific Gravity and Molecular Weight of Gases | | | |
|--|--------|------------------|-------------------|
| | Symbol | Specific Gravity | Molecular weights |
| Air | | 1.000 | 28.97 |
| Ammonia | NH3 | 0.5963 | 17.03 |
| Carbon Dioxide | CO2 | 1.5290 | 44.00 |
| Carbon Monoxide | CO | 0.9670 | 28.00 |
| Chlorine | Cl2 | 2.486 | 70.91 |
| Ethylene | C2H4 | 0.9749 | 28.03 |
| Helium | He | 0.1380 | 4.00 |
| Hydrogen | H2 | 0.0695 | 2.016 |
| Hydrogen Sulphide | H2S | 1.1900 | 34.08 |
| Methane | CH4 | 0.5544 | 16.03 |
| Methyl Chloride | CH3Cl | 1.7848 | 50.48 |
| Nitrogen | N2 | 0.9672 | 28.02 |
| Nitrous Oxide | N2O | 1.530 | 44.02 |
| Oxygen | O2 | 1.105 | 32.00 |
| Sulphur Dioxide | SO2 | 2.264 | 64.06 |
| Natural Gas (typical) | | 0.60 | |

| Specific Gravity of Liquids | |
|-----------------------------|-----------|
| Water | 1.0 |
| Sea water | 1.025 |
| Kerosene | 0.80 |
| Sulphuric Acid 100% | 1.83 |
| Hydrochloric Acid 45% | 1.48 |
| Sodium Hydroxide 25% | 1.27 |
| Carbon Tetrachloride | 1.60 |
| Petrol (Gasoline) | 0.65-0.80 |
| Benzene | 0.88 |
| Turpentine | 1.1-1.2 |

| Conversion Table for Specific Enthalpy | | | | | | |
|--|--------------------|-------------------|-------------------|----------------|----------------|--------------------|
| | kJ/kg = J/g | kJ/kg = cal/g | Btu/lb | kgf m/kg | ft lbf/lb | kWh/kg = Wh/g |
| 1 kJ/kg | *1 | 0.238 846 | 0.429 923 | 101.972 | 334.553 | 2.777 78 x 10 - 4 |
| 1 kcal/kg | *4.186 8 | *1 | *1.8 | 426.935 | 1400.70 | *1.163 x 10 - 3 |
| 1 Btu/lb | *2.326 | 0.555 556 | *1 | 237.186 | 778.169 | 6.461 11 x 10 - 4 |
| 1 kgf m/kg | *9.806 65 x 10 - 3 | 2.342 28 x 10 - 3 | 4.216 10 x 10 - 3 | *1 | 3.280 84 | 2.724 07 x 10 - 6 |
| 1 ft lbf/lb | 2.989 07 x 10 - 3 | 7.139 26 x 10 - 4 | 1.285 07 x 10 - 3 | *0.304 8 | *1 | 0.830 296 x 10 - 6 |
| 1 kWh/kg | *3600 | 859.845 | 1547.72 | 3.670 98 x 105 | 1.204 39 x 106 | *1 |

*Factors are exact

Combined Imperial and SI Steam Tables

| Gauge Pressure | | Absolute Pressure | | Saturation Temperature ts | | Specific Enthalpy | | | | Specific Volume Steam vg | |
|----------------|----------|-------------------|---------|---------------------------|-----|--------------------------------|-------------------------------------|---------------------------------|--------------------------------------|--------------------------|--------|
| bar g | lbf/in²g | bar a | lb/in²a | °C | °F | Water Sensible heat (hf) kJ/kg | Evaporation Latent heat (hfg) kJ/kg | Water Sensible heat (hf) Btu/lb | Evaporation Latent heat (hfg) Btu/lb | m³/kg | ft³/lb |
| -0.96 | 28.4 | 0.05 | 0.725 | 32.9 | 91 | 138 | 2423 | 59 | 1042 | 28.2 | 452 |
| -0.91 | 27.0 | 0.1 | 1.45 | 45.8 | 114 | 192 | 2392 | 82 | 1029 | 14.7 | 236 |
| -0.86 | 25.5 | 0.15 | 2.18 | 54.0 | 129 | 226 | 2373 | 97 | 1020 | 10.0 | 160 |
| -0.81 | 24.0 | 0.2 | 2.90 | 60.1 | 140 | 251 | 2358 | 108 | 1014 | 7.65 | 123 |
| -0.76 | 22.5 | 0.25 | 3.63 | 65.0 | 149 | 272 | 2346 | 117 | 1009 | 6.20 | 99.3 |
| -0.71 | 21.1 | 0.3 | 4.35 | 69.1 | 156 | 289 | 2336 | 124 | 1004 | 5.23 | 83.8 |
| -0.66 | 19.6 | 0.35 | 5.08 | 72.7 | 163 | 304 | 2327 | 131 | 1000 | 4.53 | 72.6 |
| -0.61 | 18.1 | 0.4 | 5.80 | 75.9 | 169 | 318 | 2319 | 137 | 997 | 3.99 | 63.9 |
| -0.56 | 16.6 | 0.45 | 6.53 | 78.7 | 174 | 330 | 2312 | 142 | 994 | 3.58 | 57.3 |
| -0.51 | 15.1 | 0.5 | 7.25 | 81.3 | 178 | 341 | 2305 | 147 | 991 | 3.24 | 51.9 |
| -0.46 | 13.7 | 0.55 | 7.98 | 83.7 | 183 | 351 | 2299 | 151 | 988 | 2.96 | 47.4 |
| -0.41 | 12.2 | 0.6 | 8.70 | 85.9 | 187 | 360 | 2294 | 155 | 986 | 2.73 | 43.7 |
| -0.36 | 10.7 | 0.65 | 9.43 | 88.0 | 190 | 369 | 2288 | 159 | 984 | 2.54 | 40.7 |
| -0.31 | 9.24 | 0.7 | 10.2 | 90.0 | 194 | 377 | 2283 | 162 | 982 | 2.37 | 38.0 |
| -0.26 | 7.77 | 0.75 | 10.9 | 91.8 | 197 | 384 | 2279 | 165 | 980 | 2.22 | 35.6 |
| -0.21 | 6.29 | 0.8 | 11.6 | 93.5 | 200 | 392 | 2274 | 169 | 978 | 2.09 | 33.5 |
| -0.16 | 4.81 | 0.85 | 12.3 | 95.1 | 203 | 399 | 2270 | 172 | 976 | 1.97 | 31.6 |
| -0.11 | 3.34 | 0.9 | 13.1 | 96.7 | 206 | 405 | 2266 | 174 | 974 | 1.87 | 30.1 |
| -0.06 | 1.86 | 0.95 | 13.8 | 98.2 | 209 | 411 | 2262 | 177 | 972 | 1.78 | 28.5 |
| -0.01 | 0.38 | 1.0 | 14.5 | 99.6 | 211 | 418 | 2258 | 179 | 971 | 1.69 | 27.1 |

Continued >>

Combined Imperial and SI Steam Tables (Continued)

| Gauge Pressure | | Absolute Pressure | | Saturation Temperature ts | | Specific Enthalpy | | | | Specific Volume Steam vg | |
|----------------|----------|-------------------|---------|---------------------------|-----|--------------------------------|-------------------------------------|---------------------------------|--------------------------------------|--------------------------|--------|
| bar g | lbf/in²g | bar a | lb/in²a | °C | °F | Water Sensible heat (hf) kJ/kg | Evaporation Latent heat (hfg) kJ/kg | Water Sensible heat (hf) Btu/lb | Evaporation Latent heat (hfg) Btu/lb | m³/kg | ft³/lb |
| 0 | 0 | 1.013 | 14.696 | 100 | 212 | 419 | 2257 | 180 | 970 | 1.67 | 26.8 |
| .1 | 1.45 | 1.11 | 16.1 | 103 | 217 | 430 | 2250 | 185 | 967 | 1.53 | 24.5 |
| .2 | 2.90 | 1.21 | 17.5 | 105 | 221 | 441 | 2243 | 190 | 964 | 1.41 | 22.6 |
| .3 | 4.35 | 1.31 | 19.0 | 107 | 225 | 450 | 2237 | 194 | 962 | 1.31 | 21.0 |
| .4 | 5.80 | 1.41 | 20.5 | 110 | 229 | 460 | 2231 | 198 | 959 | 1.23 | 19.7 |
| .5 | 7.25 | 1.51 | 21.9 | 112 | 234 | 468 | 2226 | 201 | 957 | 1.15 | 18.4 |
| .6 | 8.70 | 1.61 | 23.4 | 114 | 237 | 476 | 2220 | 205 | 954 | 1.08 | 17.3 |
| .7 | 10.2 | 1.71 | 24.8 | 115 | 239 | 484 | 2215 | 208 | 952 | 1.02 | 16.3 |
| .8 | 11.6 | 1.81 | 26.3 | 117 | 243 | 492 | 2211 | 212 | 951 | 0.971 | 15.6 |
| .9 | 13.1 | 1.91 | 27.7 | 119 | 246 | 499 | 2206 | 215 | 948 | 0.923 | 14.8 |
| 1.0 | 14.5 | 2.01 | 29.2 | 120 | 248 | 506 | 2201 | 218 | 946 | 0.881 | 14.1 |
| 1.1 | 16.0 | 2.11 | 30.6 | 122 | 252 | 512 | 2197 | 220 | 945 | 0.841 | 13.5 |
| 1.2 | 17.4 | 2.21 | 32.1 | 123 | 253 | 519 | 2193 | 223 | 943 | 0.806 | 12.9 |
| 1.3 | 18.9 | 2.31 | 33.5 | 125 | 257 | 525 | 2189 | 226 | 941 | 0.773 | 12.4 |
| 1.4 | 20.3 | 2.41 | 35.0 | 126 | 259 | 531 | 2185 | 228 | 939 | 0.743 | 11.9 |
| 1.5 | 21.8 | 2.51 | 36.4 | 128 | 262 | 536 | 2181 | 230 | 938 | 0.714 | 11.4 |
| 1.6 | 23.2 | 2.61 | 37.9 | 129 | 264 | 542 | 2177 | 233 | 936 | 0.689 | 11.0 |
| 1.7 | 24.7 | 2.71 | 39.3 | 130 | 266 | 547 | 2174 | 235 | 935 | 0.665 | 10.7 |
| 1.8 | 26.1 | 2.81 | 40.8 | 131 | 268 | 552 | 2170 | 237 | 933 | 0.643 | 10.3 |
| 1.9 | 27.6 | 2.91 | 42.2 | 133 | 271 | 557 | 2167 | 240 | 932 | 0.622 | 9.96 |
| 2.0 | 29.0 | 3.01 | 43.7 | 134 | 273 | 562 | 2163 | 242 | 930 | 0.603 | 9.66 |
| 2.2 | 31.9 | 3.21 | 46.6 | 136 | 277 | 572 | 2157 | 246 | 927 | 0.568 | 9.10 |
| 2.4 | 34.8 | 3.41 | 49.5 | 138 | 280 | 581 | 2151 | 250 | 925 | 0.536 | 8.59 |
| 2.6 | 37.7 | 3.61 | 52.4 | 140 | 284 | 589 | 2145 | 253 | 922 | 0.509 | 8.15 |
| 2.8 | 40.6 | 3.81 | 55.3 | 142 | 288 | 597 | 2139 | 257 | 920 | 0.483 | 7.74 |
| 3.0 | 43.5 | 4.01 | 58.2 | 144 | 289 | 605 | 2133 | 260 | 917 | 0.461 | 7.38 |
| 3.2 | 46.4 | 4.21 | 61.1 | 146 | 293 | 613 | 2128 | 264 | 915 | 0.440 | 7.05 |
| 3.4 | 49.3 | 4.41 | 64.0 | 147 | 297 | 620 | 2123 | 267 | 913 | 0.422 | 6.76 |
| 3.6 | 52.2 | 4.61 | 66.9 | 149 | 298 | 627 | 2118 | 270 | 911 | 0.405 | 6.49 |
| 3.8 | 55.1 | 4.81 | 69.8 | 150 | 302 | 634 | 2113 | 273 | 908 | 0.389 | 6.23 |
| 4.0 | 58.0 | 5.01 | 72.7 | 152 | 304 | 641 | 2108 | 276 | 906 | 0.374 | 5.99 |
| 4.2 | 60.9 | 5.21 | 75.6 | 153 | 307 | 647 | 2104 | 278 | 905 | 0.361 | 5.78 |
| 4.4 | 63.8 | 5.41 | 78.5 | 155 | 309 | 653 | 2099 | 281 | 902 | 0.348 | 5.57 |
| 4.6 | 66.7 | 5.61 | 81.4 | 156 | 313 | 659 | 2095 | 283 | 901 | 0.336 | 5.38 |
| 4.8 | 69.6 | 5.81 | 84.3 | 158 | 315 | 665 | 2090 | 286 | 899 | 0.325 | 5.21 |
| 5.0 | 72.5 | 6.01 | 87.2 | 159 | 316 | 671 | 2086 | 289 | 897 | 0.315 | 5.01 |
| 5.5 | 79.8 | 6.51 | 94.4 | 162 | 324 | 685 | 2076 | 295 | 893 | 0.292 | 4.68 |
| 6.0 | 87.0 | 7.01 | 102 | 165 | 329 | 698 | 2066 | 300 | 888 | 0.272 | 4.36 |
| 6.5 | 94.3 | 7.51 | 109 | 168 | 333 | 710 | 2057 | 305 | 884 | 0.255 | 4.09 |
| 7.0 | 102 | 8.01 | 116 | 171 | 338 | 721 | 2048 | 310 | 880 | 0.240 | 3.84 |
| 7.5 | 109 | 8.51 | 123 | 173 | 343 | 733 | 2039 | 315 | 877 | 0.227 | 3.64 |
| 8.0 | 116 | 9.01 | 131 | 175 | 347 | 743 | 2031 | 319 | 873 | 0.215 | 3.44 |
| 8.5 | 123 | 9.51 | 138 | 178 | 351 | 753 | 2023 | 324 | 870 | 0.204 | 3.27 |
| 9.0 | 131 | 10.0 | 145 | 180 | 354 | 763 | 2015 | 328 | 866 | 0.194 | 3.11 |
| 9.5 | 138 | 10.5 | 152 | 182 | 360 | 773 | 2008 | 332 | 863 | 0.185 | 2.96 |
| 10.0 | 145 | 11.0 | 160 | 184 | 363 | 782 | 2000 | 336 | 860 | 0.177 | 2.84 |
| 10.5 | 152 | 11.5 | 167 | 186 | 367 | 790 | 1993 | 340 | 857 | 0.171 | 2.74 |
| 11.0 | 160 | 12.0 | 174 | 188 | 370 | 798 | 1986 | 344 | 854 | 0.163 | 2.61 |
| 11.5 | 167 | 12.5 | 181 | 190 | 374 | 807 | 1979 | 347 | 851 | 0.157 | 2.51 |
| 12.0 | 174 | 13.0 | 189 | 192 | 376 | 815 | 1973 | 350 | 848 | 0.151 | 2.42 |
| 12.5 | 181 | 13.5 | 196 | 193 | 379 | 823 | 1966 | 354 | 845 | 0.146 | 2.34 |
| 13.0 | 189 | 14.0 | 203 | 195 | 383 | 830 | 1960 | 357 | 843 | 0.141 | 2.26 |
| 13.5 | 196 | 14.5 | 210 | 197 | 385 | 838 | 1953 | 360 | 840 | 0.136 | 2.18 |
| 14.0 | 203 | 15.0 | 218 | 198 | 388 | 845 | 1947 | 363 | 837 | 0.132 | 2.11 |
| 14.5 | 210 | 15.5 | 225 | 200 | 392 | 852 | 1941 | 366 | 834 | 0.128 | 2.05 |
| 15.0 | 218 | 16.0 | 232 | 202 | 394 | 859 | 1935 | 369 | 832 | 0.124 | 1.99 |

Technical Information

Materials Selection Chart

Technical Information

Materials Selection Chart

| Section | Material | Typical Applications | Size Range | Pressure Rating | Temperature Rating | Joining Technique | Key Product Features |
|-------------------|---------------|---|--|---|--------------------|---|---|
| Industrial | PVC-U | Acids and Alkalis; Effluents; Potable Water; Chemical Processing | 12 to 315mm (Metric) ½" to 12" (Imperial) | Metric: PN16 20 to 63mm pipe; PN16 12 to 160mm; PN10 20 to 315mm; Imperial: ½" to 6" pipe Class E; ¾" to 12" fittings Class E | 5°C to 60°C | Solvent weld | Lightweight; Easy to install; Corrosion resistant |
| | ABS | Chilled Water; Air Conditioning; Boosted Cold Water; Vacuum Systems; Waste Water; De-Mineralised Water | 16 to 315mm (Metric) ¾" to 12" (Imperial) | Metric: PN10 16 to 250mm; PN8 315mm Imperial: Up to 4" Class E; Up to 8" Class C; 10" and 12" Class B | -40°C to 70°C | Two step solvent weld | Lightweight; Easy to install; Wide temperature range; Tough and durable; Corrosion resistant |
| | PVC-C | Acids and Alkalis; Demineralised Water; Industrial Waste Treatments; Chemical Processing; Soaps Paper & Pulp; Effluents | 16 to 160mm | PN16 16mm to 110mm PN10 160mm | 5°C to 95°C | Solvent weld | Excellent chemical resistance; Lightweight; Wide temperature range; Easy to install; High temperature acids and alkalis |
| | Polypropylene | Acids and Alkalis; Chemical Processing; Industrial Waste Treatments; Pharmaceuticals; Effluents | 20 to 100mm ¾" to 4" | Metric: PN10; Imperial: ¾" to ¾" Class E; 1" to 2" Class D; 3" to 4" Class C | 0°C to 100°C | Fusion welded using socket butt | Lightweight; Excellent chemical resistance; Multiple joining options |
| | PVDF | Pharmaceutical grade purified water (PW) and DI water, using hot water, steam chemical or ozone sanitisation. Chemical process industry microelectronics life science | 16 to 315mm | 16 to 225mm PN16. 90 to 315mm PN10 | -20°C to +140°C | Fusion welded using socket &/or butt | Outstanding mechanical properties, even at high temperatures. Long service life, even under intensely corrosive conditions. Very pure material. Secure jointing. Smooth inner surface |
| Building Services | BOSS PVC-C | Domestic Hot & Cold Water | 16 to 225mm | PN10 75 to 225mm; PN16 16 to 160mm | 0°C to 80°C | Solvent Weld | Excellent chemical resistance; Lightweight; Wide temperature range; Easy to install; High temperature acids and alkalis |
| | Aquasystem | Hot and cold water supply, Heating systems, Chilled, Compressed air lines. | 20 to 125mm | | 0°C to 80°C | Electrofusion, socket fusion | Lightweight; Limescale and corrosion free; Fully WRAS approved |
| | Friatherm | Hospitals; Schools; Commercial Buildings; Hotels; Sports Stadiums; Residential Buildings | 16 to 160mm | PN25 Up to 63mm; PN16 75mm and 160mm | 0°C to 95°C | One step solvent weld | Lightweight; Limescale and corrosion free; Minimum 50 years service life; No power or hot works required; Fully WRAS approved |
| | Geberit Mepla | Hot and cold water supply (mains and risers) Industrial applications Fire sprinkler systems Air supply | 16 to 63mm | 10 Bar operating pressure. 16 Bar test pressure | 0°C to 95°C | Crimp compression | Lightweight High stability High temperature resistance Expansion resistance Hygienic Corrosion resistant |
| | Polypress | Potable water, Hot and cold plumbing and heating systems | 16 to 63mm | 10 bar | 0°C to 95°C | Crimp compression | Lightweight Optimum Flow characteristics High temperature resistance Expansion resistance Corrosion resistant |
| | John Guest | Potable water, Hot and cold plumbing and heating systems | 10 to 28mm | 12 Bar | 0°C to 105°C | Twist & lock fittings, Pushfit connection | Demountable, lightweight, flexible, corrosion free. |

| Section | Material | Typical Applications | Size Range | Pressure Rating | Temperature Rating | Joining Technique | Key Product Features |
|-----------|----------------------------------|---|--------------|--|---|---|---|
| Drainage | Soil & Waste | Above and below ground: residential (Apartments), industrial, commercial drainage | 32 to 160mm | N/A | N/A | Solvent weld range and ring seal push fit | Integrated soil, waste and trap system. |
| | HDPE - Geberit | Above and below ground: residential (Apartments), industrial, commercial drainage | 32 to 315mm | N/A | N/A | Butt weld or Electro weld fittings | Lightweight, chemical, abrasion and impact resistant. |
| | HDPE - Terrain | Above and below ground: residential (Apartments), industrial, commercial drainage | 40 to 315mm | N/A | N/A | Electrofusion, mechanical coupling and butt welding | Lightweight, chemical, abrasion and impact resistant. |
| | Acoustic Drainage - Geberit db20 | Acoustic drainage requirements for Multiple dwellings, Libraries, Public buildings, Restaurants, Cinemas, Hospitals, Hotels and Offices | 56 to 160mm | N/A | N/A | Butt weld or Electro weld fittings | Acoustic drainage |
| | Acoustic Drainage - Terrain db12 | Acoustic drainage requirements for Multiple dwellings, Libraries, Public buildings, Restaurants, Cinemas, Hospitals, Hotels and Offices | 40 to 160mm | N/A | N/A | Push Fit | Acoustic drainage |
| | Acoustic Drainage - Friaphon | Acoustic drainage requirements for Multiple dwellings, Libraries, Public buildings, Restaurants, Cinemas, Hospitals, Hotels and Offices | 110 to 160mm | N/A | N/A | Push Fit | Superb sound insulation; Lower cost alternative to cast iron; No lagging required; Lower cost alternative to lagged plastic; Push fit assembly; High impact and temperature resistant |
| | Vulcathene | Laboratories in: Schools; Universities and Colleges; Hospitals and Clinics; Pharmaceutical Companies; Research Organisations | 38 to 152mm | N/A | -20°C to 100°C (only intermittent at 100°C) | Mechanical compression & endfusion techniques | Purpose designed for chemical drainage. Two easy jointing methods. Fully BBA approved |
| Utilities | Polyethylene | Gas and water utilities industrial water applications, cooling, irrigation, industrial effluents | 20 to 1000mm | 20 to 63mm 12.5 Bar 90 to 710mm 16 Bar 90 to 1000mm 10 Bar | 0°C to 60°C | Butt fusion and Electro fusion fittings | Lightweight, chemical, abrasion and impact resistant. |

When considering applications, pressure and temperature please refer to the manufacturers data for precise detail of operating details and product suitability as manufacturers material blends will differ and may affect the suitability.

Nominal Size 25mm (1")

| BS EN 1092 | Diameter of flange | Bolt circle diameter | No of bolts | Diameter of bolts | Diameter of holes | Thickness of flange | | | | | | | |
|--------------|--------------------|----------------------|-------------|-------------------|-------------------|---|--|---|--|-----------------|-----------------|---------------------|-------------------|
| | | | | | | Diameter of raised face ³ iron | Diameter of raised face ³ steel | Height of raised face ³ iron | Height of raised face ³ steel | Grey cast iron | Copper alloy | Cast & forged steel | Ductile cast iron |
| PN6 | 100 | 75 | 4 | M10 | 11 | 58 | 60 | 3 | 2 | 14 ¹ | - | 14 | - |
| PN10 | 115 | 85 | 4 | M12 | 14 | 65 | 68 | 3 | 2 | 16 ¹ | - | 18 | 16 |
| PN16 | 115 | 85 | 4 | M12 | 14 | 65 | 68 | 3 | 2 | 16 ¹ | 8 ² | 18 | 16 |
| PN25 | 115 | 85 | 4 | M12 | 14 | 65 | 68 | 3 | 2 | 18 ¹ | 9 ² | 18 | 16 |
| PN40 | 115 | 85 | 4 | M12 | 14 | 65 | 68 | 3 | 2 | - | 11 ² | 18 | 18 |
| PN64 | 140 | 100 | 4 | M16 | 18 | - | 68 | - | 2 | - | - | 24 | - |
| PN100 | 140 | 100 | 4 | M16 | 18 | - | 68 | - | 2 | - | - | 24 | - |
| ANSI | | | | | | | | | | | | | |
| Class125/150 | 4 1/4 (108) | 318 (79) | 4 | 1/2 (13) | 3/8 (16) | - | 2 (51) | - | 1/16 (2) | 1/16 (11) | 3/16 (10) | 1/4 (11) | 3/16 (14) |
| Class 300 | 4 1/2 (124) | 3 1/2 (89) | 4 | 5/8 (16) | 3/4 (19) | - | 2 (51) | - | 1/16 (2) | - | 19/20 (15) | 1/16 (17) | - |
| Class 600 | 4 1/2 (124) | 3 1/2 (89) | 4 | 5/8 (16) | 3/4 (19) | - | 2 (51) | - | 1/4 (6) | - | - | 1/16 (17) | - |
| Class 900 | 5 1/4 (149) | 4 (102) | 4 | 3/4 (22) | 1 (25) | - | 2 (51) | - | 1/4 (6) | - | - | 1 1/4 (29) | - |
| Class 1500 | 5 1/2 (149) | 4 (102) | 4 | 3/4 (22) | 1 (25) | - | 2 (51) | - | 1/4 (6) | - | - | 1 1/4 (29) | - |
| BS 10 | | | | | | | | | | | | | |
| Table A | 4 1/2 (114) | 3 1/4 (83) | 4 | 1/2 (13) | 5/16 (14) | - | - | - | - | 1/2 (13) | 5/16 (8) | - | - |
| Table D | 4 1/2 (114) | 3 1/4 (83) | 4 | 1/2 (13) | 5/16 (14) | - | - | - | - | 1/2 (13) | 5/16 (8) | 3/8 (10) | - |
| Table E | 4 1/2 (114) | 3 1/4 (83) | 4 | 1/2 (13) | 5/16 (14) | - | - | - | - | 1/2 (13) | 5/16 (8) | 3/8 (10) | - |
| Table F | 4 3/4 (121) | 3 3/8 (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 3/8 (87) | 4 | 5/8 (16) | 1 1/16 (17) | - | 2 1/2 (64) | - | 1/16 (2) | 3/4 (19) | 1/16 (11) | 5/16 (14) | - |

¹ These flange thicknesses 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

Nominal Size 32mm (1 1/4")

| BS EN 1092 | Diameter of flange | Bolt circle diameter | No of bolts | Diameter of bolts | Diameter of holes | Thickness of flange | | | | | | | | |
|---------------|--------------------|----------------------|-------------|-------------------|-------------------|---|--|---|--|----------------|-----------------|---------------------|-------------------|-----------|
| | | | | | | Diameter of raised face ³ iron | Diameter of raised face ³ steel | Height of raised face ³ iron | Height of raised 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 | 4 3/4 (117) | 3 1/2 (89) | 4 | 1/2 (13) | 3/8 (16) | 3/8 (16) | - | 2 1/2 (64) | - | 1/16 (2) | 1/2 (13) | 3/16 (10) | 1/2 (13) | 3/16 (16) |
| Class 300 | 5 1/4 (133) | 3 3/8 (98) | 4 | 5/8 (16) | - | 3/4 (19) | - | 2 1/2 (64) | - | 1/16 (2) | - | 3/8 (16) | 3/4 (19) | - |
| Class 600 | 5 1/4 (133) | 3 3/8 (98) | 4 | 5/8 (16) | - | 3/4 (19) | - | 2 1/2 (64) | - | 1/4 (6) | - | - | 1 3/8 (21) | - |
| Class 900 | 6 1/4 (159) | 4 1/8 (111) | 4 | 3/4 (22) | - | 1 (25) | - | 2 1/2 (64) | - | 1/4 (6) | - | - | 1 1/2 (29) | - |
| Class 1500 | 6 1/2 (159) | 4 1/8 (111) | 4 | 3/4 (22) | - | 1 (25) | - | 2 1/2 (64) | - | 1/4 (6) | - | - | 1 1/2 (29) | - |
| BS 10 | | | | | | | | | | | | | | |
| Table A | 4 3/4 (121) | 3 3/8 (87) | 4 | 1/2 (13) | 5/16 (14) | 3/8 (14) | - | - | - | - | 3/8 (16) | 5/16 (8) | - | - |
| Table D | 4 3/4 (121) | 3 3/8 (87) | 4 | 1/2 (13) | 5/16 (14) | 3/8 (14) | - | - | - | - | 3/8 (16) | 5/16 (8) | 1/2 (13) | - |
| Table E | 4 3/4 (121) | 3 3/8 (87) | 4 | 1/2 (13) | 5/16 (14) | 3/8 (14) | - | - | - | - | 3/8 (16) | 5/16 (8) | 1/2 (13) | - |
| Table F | 5 1/4 (133) | 3 3/8 (98) | 4 | 5/8 (16) | 1 1/16 (17) | 1 1/16 (17) | - | - | - | - | 3/8 (16) | 3/8 (10) | 1/2 (13) | - |
| Table H | 5 1/4 (133) | 3 3/8 (98) | 4 | 5/8 (16) | 1 1/16 (17) | 1 1/16 (17) | - | 3 (76) | - | 1/16 (2) | 3/4 (22) | 1/16 (11) | 1 1/8 (17) | - |

¹ These flange thicknesses 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

Nominal Size 40mm (1 1/2")

| BS EN 1092 | Diameter of flange | Bolt circle diameter | No of bolts | Diameter of bolts | Diameter of holes | Thickness of flange | | | | | | | | |
|---------------|--------------------|----------------------|-------------|-------------------|-------------------|---|--|---|--|----------------|-----------------|---------------------|-------------------|------------|
| | | | | | | Diameter of raised face ³ iron | Diameter of raised face ³ steel | Height of raised face ³ iron | Height of raised 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 | 5 (127) | 3 3/8 (98) | 4 | 1/2 (13) | 3/8 (16) | 3/8 (16) | - | 2 1/2 (73) | - | 1/16 (2) | 3/8 (14) | 1/2 (11) | 3/8 (14) | 1 1/8 (17) |
| Class 300 | 6 1/8 (156) | 4 1/2 (114) | 4 | 5/8 (19) | - | 3/4 (22) | - | 2 1/2 (73) | - | 1/16 (2) | - | 1 1/8 (17) | 1 3/8 (21) | - |
| Class 600 | 6 1/8 (156) | 4 1/2 (114) | 4 | 5/8 (19) | - | 3/4 (22) | - | 2 1/2 (73) | - | 1/4 (6) | - | - | 1 3/8 (22) | - |
| Class 900 | 7 (178) | 4 3/4 (124) | 4 | 1 (25) | - | 1 1/4 (29) | - | 2 1/2 (73) | - | 1/4 (6) | - | - | 1 1/2 (32) | - |
| Class 1500 | 7 (178) | 4 3/4 (124) | 4 | 1 (25) | - | 1 1/4 (29) | - | 2 1/2 (73) | - | 1/4 (6) | - | - | 1 1/2 (32) | - |
| BS 10 | | | | | | | | | | | | | | |
| Table A | 5 1/4 (133) | 3 3/8 (98) | 4 | 1/2 (13) | 5/16 (14) | 3/8 (14) | - | - | - | - | 3/8 (16) | 3/8 (10) | - | - |
| Table D | 5 1/4 (133) | 3 3/8 (98) | 4 | 1/2 (13) | 5/16 (14) | 3/8 (14) | - | - | - | - | 3/8 (16) | 3/8 (10) | 1/2 (13) | - |
| Table E | 5 1/4 (133) | 3 3/8 (98) | 4 | 1/2 (13) | 5/16 (14) | 3/8 (14) | - | - | - | - | 3/8 (16) | 3/8 (10) | 1/2 (13) | - |
| Table F | 5 1/2 (140) | 4 1/8 (105) | 4 | 5/8 (16) | 1 1/16 (17) | 1 1/16 (17) | - | - | - | - | 3/8 (16) | 3/8 (11) | 1/2 (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) | 3/4 (22) | 1/2 (13) | 1 1/8 (17) | - |

¹ These flange thicknesses 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

Nominal Size 50mm (2")

| BS EN 1092 | Diameter of flange | Bolt circle diameter | No of bolts | Diameter of bolts | Diameter of holes | Thickness of flange | | | | | | | | |
|---------------|--------------------|----------------------|-------------|-------------------|-------------------|---|--|---|--|----------------|-----------------|---------------------|-------------------|----|
| | | | | | | Diameter of raised face ³ iron | Diameter of raised face ³ steel | Height of raised face ³ iron | Height of raised 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 | 6 (152) | 4 3/4 (121) | 4 | 1/2 (13) | 3/8 (16) | 3/8 (16) | - | 3 3/8 (92) | - | 1/16 (2) | 3/8 (16) | 1/2 (13) | 3/8 (16) | - |
| Class 300 | 6 1/2 (165) | 5 (127) | 8 | 5/8 (16) | - | 3/4 (19) | - | 3 3/8 (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) | - | 3 3/8 (92) | - | 1/4 (6) | - | - | 1 (25) | - |
| Class 900 | 8 1/2 (216) | 6 1/2 (165) | 8 | 3/4 (22) | - | 1 (25) | - | 3 3/8 (92) | - | 1/4 (6) | - | - | 1 1/2 (38) | - |
| Class 1500 | 8 1/2 (216) | 6 1/2 (165) | 8 | 3/4 (22) | - | 1 (25) | - | 3 3/8 (92) | - | 1/4 (6) | - | - | 1 1/2 (38) | - |
| BS 10 | | | | | | | | | | | | | | |
| Table A | 6 (152) | 4 1/2 (114) | 4 | 1/2 (13) | 5/16 (17) | 3/8 (17) | - | - | - | - | 3/8 (16) | 3/8 (10) | - | - |
| Table D | 6 (152) | 4 1/2 (114) | 4 | 1/2 (13) | 5/16 (17) | 3/8 (17) | - | - | - | - | 3/8 (16) | 3/8 (10) | 5/16 (14) | - |
| Table E | 6 (152) | 4 1/2 (114) | 4 | 1/2 (13) | 5/16 (17) | 3/8 (17) | - | - | - | - | 3/8 (16) | 3/8 (10) | 5/16 (14) | - |
| Table F | 6 1/2 (165) | 5 (127) | 4 | 5/8 (16) | 1 1/16 (17) | 1 1/16 (17) | - | - | - | - | 3/8 (16) | 3/8 (11) | 5/16 (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 BS 450

³ Copper alloy flanges are always flat-faced

Nominal Size 65mm (2½")

| BS EN 1092 | Diameter of flange | Bolt circle diameter | No 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 & forged steel | Ductile cast iron |
| PN6 | 160 | 130 | 4 | M12 | 14 | 14 | 108 | 110 | 3 | 2 | 16 ¹ | - | 14 | - |
| PN10 | 185 | 145 | 4 ² | M16 | 19 | 18 | 118 | 122 | 3 | 2 | 20 ¹ | - | 18 | 19 |
| PN16 | 185 | 145 | 4 ² | M16 | 19 | 18 | 118 | 122 | 3 | 2 | 20 ¹ | 13 | 18 | 19 |
| PN25 | 185 | 145 | 8 | M16 | 19 | 18 | 118 | 122 | 3 | 2 | 24 ¹ | 13 | 22 | 19 |
| PN40 | 185 | 145 | 8 | M16 | 19 | 18 | 118 | 122 | 3 | 2 | - | 14 | 22 | 19 |
| PN64 | 205 | 160 | 8 | M20 | - | 22 | - | 122 | - | 2 | - | - | 26 | - |
| PN100 | 220 | 170 | 8 | M24 | - | 26 | - | 122 | - | 2 | - | - | 34 | - |
| ANSI | | | | | | | | | | | | | | |
| Class 125/150 | 7 (178) | 5½ (140) | 4 | ¾ (16) | ¾ (19) | ¾ (19) | - | 4½ (105) | - | ½ (2) | 1½ (17) | ¾ (14) | 1½ (17) | - |
| Class 300 | 7½ (191) | 5½ (149) | 8 | ¾ (19) | - | ¾ (22) | - | 4½ (105) | - | ½ (2) | - | 1½ (21) | 1 (25) | - |
| Class 600 | 7½ (191) | 5½ (149) | 8 | ¾ (19) | - | ¾ (22) | - | 4½ (105) | - | ½ (6) | - | - | 1½ (29) | - |
| Class 900 | 9½ (244) | 7½ (191) | 8 | 1 (25) | - | 1½ (29) | - | 4½ (105) | - | ½ (6) | - | - | 1½ (41) | - |
| Class 1500 | 9½ (244) | 7½ (191) | 8 | 1 (25) | - | 1½ (29) | - | 4½ (105) | - | ½ (6) | - | - | 1½ (41) | - |
| BS 10 | | | | | | | | | | | | | | |
| Table A | 6½ (165) | 5 (127) | 4 | ¾ (16) | 1½ (17) | 1½ (17) | - | - | - | - | 1½ (17) | ½ (11) | - | - |
| Table D | 6½ (165) | 5 (127) | 4 | ¾ (16) | 1½ (17) | 1½ (17) | - | - | - | - | 1½ (17) | ½ (11) | ¾ (14) | - |
| Table E | 6½ (165) | 5 (127) | 4 | ¾ (16) | 1½ (17) | 1½ (17) | - | - | - | - | ¾ (19) | ½ (11) | ¾ (14) | - |
| Table F | 7¼ (184) | 5¼ (146) | 8 | ¾ (16) | 1½ (17) | 1½ (17) | - | - | - | - | ¾ (19) | ½ (13) | ¾ (16) | - |
| Table H | 7¼ (184) | 5¼ (146) | 8 | ¾ (16) | 1½ (17) | 1½ (17) | - | 4½ (114) | - | ½ (2) | 1 (25) | ¾ (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. Flange thicknesses for copper alloy are from BS 4504

³ Copper alloy flanges are always flat-faced

Nominal Size 80mm (3")

| BS EN 1092 | Diameter of flange | Bolt circle diameter | No 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 & 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 | 7½ (191) | 6 (152) | 4 | ¾ (16) | ¾ (19) | ¾ (19) | - | 5 (127) | - | ½ (2) | ¾ (19) | ¾ (16) | ¾ (19) | - |
| Class 300 | 8¼ (210) | 6½ (168) | 8 | ¾ (19) | - | ¾ (22) | - | 5 (127) | - | ½ (2) | - | 29/32 (23) | 1½ (29) | - |
| Class 600 | 8¼ (210) | 6½ (168) | 8 | ¾ (19) | - | ¾ (22) | - | 5 (127) | - | ½ (6) | - | - | 1½ (32) | - |
| Class 900 | 9½ (241) | 7½ (191) | 8 | ¾ (22) | - | 1 (25) | - | 5 (127) | - | ½ (6) | - | - | 1½ (38) | - |
| Class 1500 | 10½ (267) | 8 (203) | 8 | 1½ (29) | - | 1½ (32) | - | 5 (127) | - | ½ (6) | - | - | 1½ (48) | - |
| BS 10 | | | | | | | | | | | | | | |
| Table A | 7¼ (184) | 5¼ (146) | 4 | ¾ (16) | 1½ (17) | 1½ (17) | - | - | - | - | 1½ (17) | ½ (13) | - | - |
| Table D | 7¼ (184) | 5¼ (146) | 4 | ¾ (16) | 1½ (17) | 1½ (17) | - | - | - | - | ¾ (19) | ½ (13) | ¾ (14) | - |
| Table E | 7¼ (184) | 5¼ (146) | 4 | ¾ (16) | 1½ (17) | 1½ (17) | - | - | - | - | ¾ (19) | ½ (13) | ¾ (14) | - |
| Table F | 8 (203) | 6½ (165) | 8 | ¾ (16) | 1½ (17) | 1½ (17) | - | - | - | - | ¾ (19) | ¾ (14) | ¾ (16) | - |
| Table H | 8 (203) | 6½ (165) | 8 | ¾ (16) | 1½ (17) | 1½ (17) | - | 5 (127) | - | ½ (2) | 1½ (29) | ¾ (16) | ¾ (22) | - |

¹ These flange thicknesses 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

Nominal Size 100mm (4")

| BS EN 1092 | Diameter of flange | Bolt circle diameter | No 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 & 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 | 9 (229) | 7½ (191) | 8 | ¾ (16) | ¾ (19) | ¾ (19) | - | 6½ (157) | - | ½ (2) | 1½ (24) | 1½ (17) | 1½ (24) | - |
| Class 300 | 10 (254) | 7½ (200) | 8 | ¾ (19) | - | ¾ (22) | - | 6½ (157) | - | ½ (2) | - | 1½ (27) | 1½ (32) | - |
| Class 600 | 10¼ (273) | 8½ (216) | 8 | ¾ (22) | - | 1 (25) | - | 6½ (157) | - | ½ (6) | - | - | 1½ (38) | - |
| Class 900 | 11½ (292) | 9¼ (235) | 8 | 1½ (29) | - | 1½ (32) | - | 6½ (157) | - | ½ (6) | - | - | 1½ (44) | - |
| Class 1500 | 12¼ (311) | 9½ (241) | 8 | 1½ (32) | - | 1½ (35) | - | 6½ (157) | - | ½ (6) | - | - | 2½ (54) | - |
| BS 10 | | | | | | | | | | | | | | |
| Table A | 8½ (216) | 7 (178) | 4 | ¾ (16) | 1½ (17) | 1½ (17) | - | - | - | - | ¾ (19) | ¾ (16) | - | - |
| Table D | 8½ (216) | 7 (178) | 4 | ¾ (16) | 1½ (17) | 1½ (17) | - | - | - | - | ¾ (19) | ¾ (16) | 1½ (17) | - |
| Table E | 8½ (216) | 7 (178) | 8 | ¾ (16) | 1½ (17) | 1½ (17) | - | - | - | - | ¾ (22) | ¾ (16) | 1½ (17) | - |
| Table F | 9 (229) | 7½ (191) | 8 | ¾ (16) | 1½ (17) | 1½ (17) | - | - | - | - | ¾ (22) | 1½ (17) | ¾ (19) | - |
| Table H | 9 (229) | 7½ (191) | 8 | ¾ (16) | 1½ (17) | 1½ (17) | - | 6 (152) | - | ½ (2) | 1½ (32) | ¾ (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 BS 450

³ Copper alloy flanges are always flat-faced

Nominal Size 125mm (5")

| BS EN 1092 | Diameter of flange | Bolt circle diameter | No 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 & 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 | 10 (254) | 8½ (216) | 8 | ¾ (19) | ¾ (22) | ¾ (22) | - | 7½ (186) | - | ½ (2) | 1½ (24) | ¾ (19) | 1½ (24) | - |
| Class 300 | 11 (279) | 9¼ (235) | 8 | ¾ (19) | - | ¾ (22) | - | 7½ (186) | - | ½ (2) | - | 1½ (29) | 1½ (35) | - |
| Class 600 | 13 (330) | 10½ (267) | 8 | 1 (25) | - | 1½ (29) | - | 7½ (186) | - | ½ (6) | - | - | 1½ (44) | - |
| Class 900 | 13¼ (349) | 11 (279) | 8 | 1½ (32) | - | 1½ (35) | - | 7½ (186) | - | ½ (6) | - | - | 2 (51) | - |
| Class 1500 | 14¼ (375) | 11½ (292) | 8 | 1½ (38) | - | 1½ (41) | - | 7½ (186) | - | ½ (6) | - | - | 2½ (73) | - |
| BS 10 | | | | | | | | | | | | | | |
| Table A | 10 (254) | 8¼ (210) | 4 | ¾ (16) | 1½ (17) | 1½ (17) | - | - | - | - | ¾ (19) | 1½ (17) | - | - |
| Table D | 10 (254) | 8¼ (210) | 8 | ¾ (16) | 1½ (17) | 1½ (17) | - | - | - | - | 1½ (21) | 1½ (17) | 1½ (17) | - |
| Table E | 10 (254) | 8¼ (210) | 8 | ¾ (16) | 1½ (17) | 1½ (17) | - | - | - | - | ¾ (22) | 1½ (17) | 1½ (17) | - |
| Table F | 11 (279) | 9¼ (235) | 8 | ¾ (19) | ¾ (22) | ¾ (22) | - | - | - | - | 1 (25) | ¾ (19) | ¾ (22) | - |
| Table H | 11 (279) | 9¼ (235) | 8 | ¾ (19) | ¾ (22) | ¾ (22) | - | 7 (178) | - | ½ (2) | 1½ (35) | ¾ (22) | 1½ (29) | - |

¹ These flange thicknesses 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

Nominal Size 150mm (6")

| BS EN 1092 | Diameter of flange | Bolt circle diameter | No 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 & 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 | 11 (279) | 9½ (241) | 8 | ¾ (19) | ⅝ (22) | ⅞ (22) | - | 8½ (216) | - | ⅜ (2) | 1 (25) | 1⅜ (21) | 1 (25) | - |
| Class 300 | 12½ (318) | 10½ (270) | 12 | ¾ (19) | - | ⅞ (22) | - | 8½ (216) | - | ⅜ (2) | - | 1⅜ (30) | 1⅜ (37) | - |
| Class 600 | 14 (356) | 11½ (292) | 12 | 1 (25) | - | 1⅜ (29) | - | 8½ (216) | - | ¼ (6) | - | - | 1⅜ (48) | - |
| Class 900 | 15 (381) | 12½ (318) | 12 | 1⅜ (29) | - | 1⅜ (32) | - | 8½ (216) | - | ¼ (6) | - | - | 2⅜ (56) | - |
| Class 1500 | 15½ (394) | 12½ (318) | 12 | 1⅜ (35) | - | 1⅜ (38) | - | 8½ (216) | - | ¼ (6) | - | - | 3¼ (83) | - |
| BS 10 | | | | | | | | | | | | | | |
| Table A | 11 (279) | 9¼ (235) | 4 | ⅝ (16) | 1⅜ (17) | 1⅜ (17) | - | - | - | - | 1⅜ (21) | 1⅜ (17) | - | - |
| Table D | 11 (279) | 9¼ (235) | 8 | ⅝ (16) | 1⅜ (17) | 1⅜ (17) | - | - | - | - | 1⅜ (21) | 1⅜ (17) | 1⅜ (17) | - |
| Table E | 11 (279) | 9¼ (235) | 8 | ¾ (19) | ⅞ (22) | ⅞ (22) | - | - | - | - | ⅞ (22) | 1⅜ (17) | 1⅜ (17) | - |
| Table F | 12 (305) | 10¼ (260) | 12 | ¾ (19) | ⅞ (22) | ⅞ (22) | - | - | - | - | 1 (25) | ⅞ (22) | ⅞ (22) | - |
| Table H | 12 (305) | 10¼ (260) | 12 | ¾ (19) | ⅞ (22) | ⅞ (22) | - | 8¼ (210) | - | ⅜ (2) | 1⅜ (35) | 1 (25) | 1⅜ (29) | - |

¹ These flange thicknesses 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

Nominal Size 200mm (8")

| BS EN 1092 | Diameter of flange | Bolt circle diameter | No 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 & 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 | 240 | 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 | 13½ (343) | 11¼ (298) | 8 | ¾ (19) | ⅝ (22) | ⅞ (22) | - | 10½ (270) | - | ⅜ (2) | 1⅜ (29) | 1⅜ (24) | 1⅜ (29) | - |
| Class 300 | 15 (381) | 13 (330) | 12 | ¾ (22) | - | 1 (25) | - | 10½ (270) | - | ⅜ (2) | - | 1⅜ (35) | 1⅜ (41) | - |
| Class 600 | 16½ (419) | 13¼ (349) | 12 | 1⅜ (29) | - | 1⅜ (32) | - | 10½ (270) | - | ¼ (6) | - | - | 2⅜ (56) | - |
| Class 900 | 18½ (470) | 15½ (394) | 12 | 1⅜ (35) | - | 1⅜ (38) | - | 10½ (270) | - | ¼ (6) | - | - | 2⅜ (64) | - |
| Class 1500 | 19 (483) | 15½ (394) | 12 | 1⅜ (41) | - | 1⅜ (44) | - | 10½ (270) | - | ¼ (6) | - | - | 3⅜ (92) | - |
| BS 10 | | | | | | | | | | | | | | |
| Table A | 13¼ (337) | 11½ (292) | 8 | ⅝ (16) | 1⅜ (17) | 1⅜ (17) | - | - | - | - | ⅞ (22) | ¾ (19) | ½ (13) | - |
| Table D | 13¼ (337) | 11½ (292) | 8 | ⅝ (16) | 1⅜ (17) | 1⅜ (17) | - | - | - | - | ⅞ (22) | ¾ (19) | ¾ (19) | - |
| Table E | 13¼ (337) | 11½ (292) | 8 | ¾ (19) | ⅞ (22) | ⅞ (22) | - | - | - | - | 1 (25) | ¾ (19) | ¾ (19) | - |
| Table F | 14¼ (368) | 12¼ (324) | 12 | ¾ (19) | ⅞ (22) | ⅞ (22) | - | - | - | - | 1 (25) | 1 (25) | 1 (25) | - |
| Table H | 14¼ (368) | 12¼ (324) | 12 | ¾ (19) | ⅞ (22) | ⅞ (22) | - | 10¼ (260) | - | ⅜ (2) | 1⅜ (38) | 1¼ (32) | 1¼ (32) | - |

¹ These flange thicknesses 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

Nominal Size 250mm (10")

| BS EN 1092 | Diameter of flange | Bolt circle diameter | No 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 & 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 | 16 (406) | 14¼ (362) | 12 | ¾ (22) | ⅝ (22) | ⅞ (22) | - | 12¼ (324) | - | ⅜ (2) | 1⅜ (30) | 1 (25) | 1⅜ (30) | - |
| Class 300 | 17½ (445) | 15¼ (387) | 16 | 1 (25) | - | 1⅜ (29) | - | 12¼ (324) | - | ⅜ (2) | - | - | 1⅜ (41) | - |
| Class 600 | 20 (508) | 17 (432) | 16 | 1¼ (32) | - | 1⅜ (35) | - | 12¼ (324) | - | ¼ (6) | - | - | 2½ (64) | - |
| Class 900 | 21¼ (546) | 18½ (470) | 16 | 1⅜ (35) | - | 1⅜ (38) | - | 12¼ (324) | - | ¼ (6) | - | - | 2½ (70) | - |
| Class 1500 | 23 (584) | 19 (483) | 12 | 1⅜ (41) | - | 2 (51) | - | 12¼ (324) | - | ¼ (6) | - | - | 4¼ (108) | - |
| BS 10 | | | | | | | | | | | | | | |
| Table A | 16 (406) | 14 (356) | 8 | ¾ (19) | ⅞ (22) | ⅞ (22) | - | - | - | - | 1⅜ (24) | ¾ (19) | - | - |
| Table D | 16 (406) | 14 (356) | 8 | ¾ (19) | ⅞ (22) | ⅞ (22) | - | - | - | - | 1 (25) | ¾ (19) | ¾ (19) | - |
| Table E | 16 (406) | 14 (356) | 12 | ¾ (19) | ⅞ (22) | ⅞ (22) | - | - | - | - | 1 (25) | ¾ (22) | ¾ (22) | - |
| Table F | 17 (432) | 15 (381) | 12 | ¾ (22) | 1 (25) | 1 (25) | - | - | - | - | 1⅜ (29) | 1 (25) | 1 (25) | - |
| Table H | 17 (432) | 15 (381) | 12 | ¾ (22) | 1 (25) | 1 (25) | - | 12¼ (311) | - | ⅜ (2) | 1⅜ (41) | 1⅜ (35) | 1⅜ (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 PN10, D = 400mm, for PN16, D = 400mm

³ Copper alloy flanges are always flat-faced

Nominal Size 300mm (12")

| BS EN 1092 | Diameter of flange | Bolt circle diameter | No 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 & 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 | 19 (483) | 17 (432) | 12 | ¾ (22) | ⅝ (22) | ⅞ (22) | - | 15 (381) | - | ⅜ (2) | 1⅜ (32) | 1⅜ (27) | 1⅜ (32) | - |
| Class 300 | 20½ (521) | 17¼ (451) | 16 | 1⅜ (29) | - | 1⅜ (32) | - | 15 (381) | - | ⅜ (2) | - | - | 2 (51) | - |
| Class 600 | 22 (559) | 19¼ (489) | 20 | 1¼ (32) | - | 1⅜ (35) | - | 15 (381) | - | ¼ (6) | - | - | 2½ (67) | - |
| Class 900 | 24 (610) | 21 (533) | 20 | 1⅜ (35) | - | 1⅜ (38) | - | 15 (381) | - | ¼ (6) | - | - | 3½ (79) | - |
| Class 1500 | 26¼ (673) | 22½ (571) | 16 | 2 (51) | - | 2½ (54) | - | 15 (381) | - | ¼ (6) | - | - | 4½ (124) | - |
| BS 10 | | | | | | | | | | | | | | |
| Table A | 18 (457) | 16 (406) | 8 | ¾ (19) | ⅞ (22) | ⅞ (22) | - | - | - | - | 1⅜ (24) | ¾ (22) | - | - |
| Table D | 18 (457) | 16 (406) | 12 | ¾ (19) | ⅞ (22) | ⅞ (22) | - | - | - | - | 1 (25) | ¾ (22) | ¾ (22) | - |
| Table E | 18 (457) | 16 (406) | 12 | ¾ (22) | 1 (25) | 1 (25) | - | - | - | - | 1⅜ (29) | 1 (25) | 1 (25) | - |
| Table F | 19¼ (489) | 17¼ (438) | 16 | ¾ (22) | 1 (25) | 1 (25) | - | - | - | - | 1⅜ (32) | 1⅜ (29) | 1⅜ (29) | - |
| Table H | 19¼ (489) | 17¼ (438) | 16 | ¾ (22) | 1 (25) | 1 (25) | - | 14¼ (362) | - | ⅜ (2) | 1⅜ (44) | 1⅜ (38) | 1⅜ (38) | - |

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 PN10, D = 400mm, for PN16, D = 400mm

³ Copper alloy flanges are always flat-faced

Nominal Size 350mm (14")

| BS EN 1092 | Diameter of flange | Bolt circle diameter | No 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 & 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 | 21 (533) | 18½ (476) | 12 | 1 (25) | 1½ (29) | 1½ (29) | - | 16¼ (413) | - | ½ (2) | 1½ (35) | - | 1½ (35) | - |
| Class 300 | 23 (584) | 20¼ (514) | 20 | 1½ (32) | - | 1½ (32) | - | 16¼ (413) | - | ½ (2) | - | - | 2½ (54) | - |
| Class 600 | 23¼ (603) | 20¼ (527) | 20 | 1½ (35) | - | 1½ (38) | - | 16¼ (413) | - | ¼ (6) | - | - | 2½ (70) | - |
| Class 900 | 25¼ (641) | 22 (559) | 20 | 1½ (38) | - | 1½ (41) | - | 16¼ (413) | - | ¼ (6) | - | - | 3½ (86) | - |
| Class 1500 | 29¼ (749) | 25 (635) | 16 | 2¼ (57) | - | 2½ (60) | - | 16¼ (413) | - | ¼ (6) | - | - | 5¼ (133) | - |
| BS 10 | | | | | | | | | | | | | | |
| Table A | 20¼ (527) | 18½ (470) | 8 | ¾ (22) | 1 (25) | 1 (25) | - | - | - | - | 1 (25) | 1 (25) | - | - |
| Table D | 20¼ (527) | 18½ (470) | 12 | ¾ (22) | 1 (25) | 1 (25) | - | - | - | - | 1½ (29) | 1 (25) | 1 (25) | - |
| Table E | 20¼ (527) | 18½ (470) | 12 | ¾ (22) | 1 (25) | 1 (25) | - | - | - | - | 1½ (32) | 1 (25) | 1 (25) | - |
| Table F | 21¼ (552) | 19½ (495) | 16 | 1 (25) | 1½ (29) | 1½ (29) | - | - | - | - | 1½ (35) | 1½ (32) | 1½ (32) | - |
| Table H | 21¼ (552) | 19½ (495) | 16 | 1 (25) | 1½ (29) | 1½ (29) | - | 16½ (419) | - | ½ (2) | 1½ (48) | 1½ (41) | 1½ (41) | - |

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

² Flange thicknesses for copper alloy are from BS 4504

³ Copper alloy flanges are always flat-faced

Nominal Size 400mm (16")

| BS EN 1092 | Diameter of flange | Bolt circle diameter | No 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 & 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 | 23¼ (597) | 21¼ (540) | 16 | 1 (25) | 1½ (29) | 1½ (29) | - | 18½ (470) | - | ½ (2) | 1½ (37) | - | 1½ (37) | - |
| Class 300 | 25¼ (648) | 22½ (571) | 20 | 1½ (32) | - | 1½ (35) | - | 18½ (470) | - | ½ (2) | - | - | 2½ (57) | - |
| Class 600 | 27 (686) | 23¼ (603) | 20 | 1½ (38) | - | 1½ (41) | - | 18½ (470) | - | ¼ (6) | - | - | 3 (76) | - |
| Class 900 | 27¼ (705) | 24¼ (616) | 20 | 1½ (41) | - | 1½ (44) | - | 18½ (470) | - | ¼ (6) | - | - | 3½ (89) | - |
| Class 1500 | 32¼ (826) | 27¼ (705) | 16 | 2¼ (64) | - | 2½ (67) | - | 18½ (470) | - | ¼ (6) | - | - | 5¼ (146) | - |
| BS 10 | | | | | | | | | | | | | | |
| Table A | 22¼ (578) | 20½ (521) | 12 | ¾ (22) | 1 (25) | 1 (25) | - | - | - | - | 1½ (27) | 1 (25) | - | - |
| Table D | 22¼ (578) | 20½ (521) | 12 | ¾ (22) | 1 (25) | 1 (25) | - | - | - | - | 1½ (29) | 1 (25) | 1 (25) | - |
| Table E | 22¼ (578) | 20½ (521) | 12 | ¾ (22) | 1 (25) | 1 (25) | - | - | - | - | 1½ (32) | 1 (25) | 1 (25) | - |
| Table F | 24 (610) | 21¼ (552) | 20 | 1 (25) | 1½ (29) | 1½ (29) | - | - | - | - | 1½ (35) | 1½ (32) | 1½ (32) | - |
| Table H | 24 (610) | 21¼ (552) | 20 | 1 (25) | 1½ (29) | 1½ (29) | - | 19 (483) | - | ½ (2) | 2 (51) | 1½ (44) | 1½ (44) | - |

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 PN10, D = 455mm, for PN16, D = 455mm

³ Copper alloy flanges are always flat-faced

Nominal Size 450mm (18")

| BS EN 1092 | Diameter of flange | Bolt circle diameter | No 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 & 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 | 25 (635) | 22¼ (578) | 16 | 1½ (29) | 1¼ (32) | 1¼ (32) | - | 21 (533) | - | ½ (2) | 1½ (40) | - | 1½ (40) | - |
| Class 300 | 28 (711) | 24¼ (629) | 24 | 1½ (32) | - | 1½ (35) | - | 21 (533) | - | ½ (2) | - | - | 2½ (60) | - |
| Class 600 | 29¼ (743) | 25¼ (654) | 20 | 1½ (41) | - | 1½ (44) | - | 21 (533) | - | ¼ (6) | - | - | 3¼ (83) | - |
| Class 900 | 31 (787) | 27 (686) | 20 | 1½ (48) | - | 2 (51) | - | 21 (533) | - | ¼ (6) | - | - | 4 (102) | - |
| Class 1500 | 36 (914) | 30½ (775) | 16 | 2¼ (70) | - | 2½ (73) | - | 21 (533) | - | ¼ (6) | - | - | 6½ (162) | - |
| BS 10 | | | | | | | | | | | | | | |
| Table A | 25¼ (641) | 23 (584) | 12 | ¾ (22) | - | 1 (25) | - | - | - | - | 1½ (27) | 1½ (27) | - | - |
| Table D | 25¼ (641) | 23 (584) | 12 | ¾ (22) | - | 1 (25) | - | - | - | - | 1½ (32) | 1½ (29) | 1½ (29) | - |
| Table E | 25¼ (641) | 23 (584) | 16 | ¾ (22) | - | 1 (25) | - | - | - | - | 1½ (35) | 1½ (29) | 1½ (29) | - |
| Table F | 26¼ (673) | 24 (610) | 20 | 1½ (29) | - | 1½ (32) | - | - | - | - | 1½ (38) | 1½ (35) | 1½ (35) | - |
| Table H | 26¼ (673) | 24 (610) | 20 | 1½ (29) | - | 1½ (32) | - | 21 (533) | - | ½ (2) | 2½ (54) | 1½ (48) | 1½ (48) | - |

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

² Flange thicknesses for copper alloy are from BS 4504

³ Copper alloy flanges are always flat-faced

Nominal Size 500mm (20")

| BS EN 1092 | Diameter of flange | Bolt circle diameter | No 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 & forged steel | Ductile cast iron |
| PN6 | 645 | 600 | 20 | M20 | 23 | 22 | 568 | 570 | 4 | 2 | 30 ¹ | - | 24 ² | - |
| PN10 | 670 | 620 | 20 | M24 | 28 | 26 | 582 | 585 | 4 | 2 | 34 ¹ | - | 28 ² | 26.5 |
| PN16 | 715 | 650 | 20 | M30 | 34 | 33 | 609 | 610 | 4 | 2 | 42 ¹ | - | 44 ² | 31.5 |
| PN25 | 730 | 660 | 20 | M33 | 37 | 36 | 609 | 615 | 4 | 2 | 52 ¹ | - | 48 ² | 36.5 |
| PN40 | 755 | 670 | 20 | M39 | 44 | 42 | 615 | 615 | 4 | 2 | - | - | 57 ² | 52 |
| PN64 | 800 | 705 | 20 | M45 | - | 48 | - | 615 | - | 2 | - | - | 68 ² | - |
| PN100 | 870 | 760 | 20 | M52 | - | 56 | - | 615 | - | 2 | - | - | 94 ² | - |
| ANSI | | | | | | | | | | | | | | |
| Class 125/150 | 27¼ (699) | 25 (635) | 20 | 1½ (29) | 1¼ (32) | 1¼ (32) | - | 23 (584) | - | ½ (2) | 11½ (43) | - | 11½ (43) | - |
| Class 300 | 30¼ (775) | 27 (686) | 24 | 1½ (32) | - | 1½ (35) | - | 23 (584) | - | ½ (2) | - | - | 2½ (64) | - |
| Class 600 | 32 (813) | 28½ (724) | 24 | 1½ (41) | - | 1½ (44) | - | 23 (584) | - | ¼ (6) | - | - | 3½ (89) | - |
| Class 900 | 33¼ (857) | 29¼ (749) | 20 | 2 (51) | - | 2½ (54) | - | 23 (584) | - | ¼ (6) | - | - | 4¼ (108) | - |
| Class 1500 | 38¼ (984) | 32¼ (832) | 16 | 3 (76) | - | 3½ (79) | - | 23 (584) | - | ¼ (6) | - | - | 7 (178) | - |
| BS 10 | | | | | | | | | | | | | | |
| Table A | 27¼ (705) | 25¼ (641) | 12 | ¾ (22) | 1 (25) | 1 (25) | - | - | - | - | 1½ (29) | 1½ (29) | - | - |
| Table D | 27¼ (705) | 25¼ (641) | 16 | ¾ (22) | 1 (25) | 1 (25) | - | - | - | - | 1½ (32) | 1½ (32) | - | - |
| Table E | 27¼ (705) | 25¼ (641) | 16 | ¾ (22) | 1 (25) | 1 (25) | - | - | - | - | 1½ (38) | 1½ (32) | 1½ (32) | - |
| Table F | 29 (737) | 26¼ (673) | 24 | 1½ (29) | 1¼ (32) | 1¼ (32) | - | - | - | - | 1½ (41) | 1½ (38) | 1½ (38) | - |
| Table H | 29 (737) | 26¼ (673) | 24 | 1½ (29) | 1¼ (32) | 1¼ (32) | - | 23¼ (597) | - | ½ (2) | 2¼ (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

Technical Information

Flanges

Nominal Size 600mm (24")

| BS EN 1092 | Diameter of flange | Bolt circle diameter | No 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 & 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 | 32 (813) | 29½ (749) | 20 | 1¼ (32) | 1¾ (35) | 1¾ (35) | - | 27¼ (692) | - | ⅞ (2) | 1¾ (48) | - | 1¾ (48) | - |
| Class 300 | 36 (914) | 32 (813) | 24 | 1½ (38) | - | 1¾ (41) | - | 27¼ (692) | - | ⅞ (2) | - | - | 2¼ (70) | - |
| Class 600 | 37 (940) | 33 (838) | 24 | 1¾ (48) | - | 2 (51) | - | 27¼ (692) | - | ¾ (6) | - | - | 4 (102) | - |
| Class 900 | 41 (1041) | 35½ (902) | 20 | 2½ (64) | - | 2¾ (67) | - | 27¼ (692) | - | ¾ (6) | - | - | 5½ (140) | - |
| Class 1500 | 46 (1168) | 39 (991) | 16 | 3½ (89) | - | 3¾ (92) | - | 27¼ (692) | - | ¾ (6) | - | - | 8 (203) | - |
| BS 10 | | | | | | | | | | | | | | |
| Table A | 32½ (826) | 29¼ (756) | 12 | 1 (25) | 1¾ (29) | 1¾ (29) | - | - | - | - | 1⅜ (30) | 1⅜ (30) | - | - |
| Table D | 32½ (826) | 29¼ (756) | 16 | 1 (25) | 1¾ (29) | 1¾ (29) | - | - | - | - | 1¾ (35) | 1¾ (35) | 1¾ (35) | - |
| Table E | 32½ (826) | 29¼ (756) | 16 | 1¾ (29) | 1¼ (32) | 1¼ (32) | - | - | - | - | 1¾ (41) | 1½ (38) | 1½ (38) | - |
| Table F | 33½ (851) | 30¾ (781) | 24 | 1¼ (32) | 1¼ (32) | 1¾ (35) | - | - | - | - | 1¾ (44) | 1¾ (41) | 1¾ (41) | - |
| Table H | 33½ (851) | 30¾ (781) | 24 | 1¼ (32) | 1¾ (35) | 1¾ (35) | - | 27¼ (699) | - | ⅞ (2) | 2½ (64) | 2¼ (57) | 2¼ (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



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| Borehamwood | 020 8327 4100 |
| Bournemouth | 01202 711 300 |
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| Cardiff | 029 2043 2400 |
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| Glasgow | 0141 418 4444 |
| Gloucester | 01452 872200 |
| Grimsby | 01472 265100 |
| Hull | 01482 625800 |
| Inverness | 01463 701810 |
| Kings Cross | 020 7619 7600 |
| Leeds | 0113 203 2203 |
| Leicester | 0116 242 7800 |

| BRANCH NAME | TELEPHONE |
|------------------|---------------|
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| Lincoln | 01522 565700 |
| Liverpool | 0151 482 2500 |
| London Docklands | 020 7531 3900 |
| Luton | 01582 875600 |
| Maidstone | 01622 713600 |
| Manchester | 0161 888 6464 |
| Newcastle | 0191 256 5100 |
| Northampton | 01604 251400 |
| Norwich | 01603 253200 |
| Nottingham | 0115 943 5900 |
| Oldham | 0161 624 4621 |
| Oxford | 01865 398870 |
| Peterborough | 01733 336000 |
| Plymouth | 01752 675300 |
| Portsmouth | 023 9265 8740 |
| Preston | 01772 557800 |
| Reading | 0118 923 8900 |
| Romford | 01708 771800 |
| Sheffield | 0114 289 3900 |
| Slough | 01753 537999 |
| Southampton | 023 8068 3700 |
| Stockton | 01642 665500 |
| Stoke | 01782 382382 |
| Swansea | 01792 762300 |
| Swindon | 01793 601500 |
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