

# Pipe Fittings Catalogue



# Fittings

**CRANE**<sup>®</sup>

FLUID SYSTEMS

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## Introduction

Crane pipe fittings have been produced in the Ipswich Works since 1928 and today the plant is one of Europe's most modern units for large volume production of malleable iron pipe fittings. It is renowned for its rigid enforcement of stringent quality control procedures and inspection at all stages of manufacture.

The Crane trademark, coupled with the British Standards Institution Kitemark and other quality assurance scheme approvals ensures that Crane fittings are fully suitable for a wide range of applications and will give reliable service.

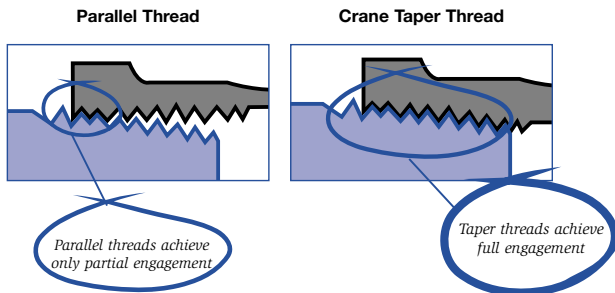
## Crane Taper Thread Pipe Fittings

Pipe threads on Crane Pipe Fittings are British Standard taper to BS21 (ISO7-1) unless otherwise stated.

Crane Taper Thread Fittings offer installers numerous advantages over equivalent fittings with parallel threads:

- **Full engagement the whole thread length -**  
*reliable strong joints*
- **No need for hemp filler -**  
*faster installation, lower costs*
- **High torques can be applied without risk of**  
**damaging the fitting**
- **Freedom to break and re-make joints**
- **Professional joint appearance**

*Crane Taper Thread fittings provide the most effective jointing solution*



*Taper threads make better joints*

## SPECIFICATION

### Pipe threads

The machined threads of Crane fittings are checked by the System B method of gauging specified in BS 21. This system is more exacting than the gauging requirements of ISO 7 Part 2. Threads on all fittings are chamfered to assist assembly and avoid 'cross threading'. Female fittings have a chamber behind the thread, permitting the male thread to be assembled without restriction or 'bottoming'.

### Design standards

ISO 49 : 1994 is the international standard for "Malleable cast iron fittings threaded to ISO 7-1. This standard was revised in December 1994 and, compared with the 1983 edition, contained some technical revisions relating to use of alternative ferrous materials, hot dip zinc coatings, dispatch condition, pressure/temperature ratings, acceptance tests, marking and quality assurance. BS EN 10242 : 1995 is the new British European Standard for "Threaded pipe fittings in malleable cast iron" first published in August 1995 and very closely follows ISO 49 : 1994, the main difference being the inclusion of two informative annexes relating to "Assessment of conformity" and the "Relationship with the essential requirements of the Construction Products Directive (84/106/EEC)". All European Standards have to be adopted by the member countries of the EU and any conflicting national standards withdrawn. BS143 and 1256: 2000 has been retained to cover those fittings not in BS EN 10242. It should also be noted that BS EN 10242 details a number of fitting types and sizes which were not included in BS 143 & 1256 because they were not in regular demand and/or not available from UK manufacturers. BS 143 & 1256 : 2000 specifies requirements for the design and performance of "Malleable cast iron and cast copper alloy threaded pipe fittings" and has developed over many years. BS 143 was first published in 1922 and BS 1256 in 1945, subsequently the two standards were combined in 1968. The BS 143 design requires fittings to have taper external threads and taper internal threads conforming to BS 21 (ISO 7-1) whereas the BS 1256 design has taper external threads and parallel internal threads. The 1986 revision was more closely related to ISO 49 : 1983 and more accurately reflected the ranges of fittings available from UK manufacturers. BS 143 & 1256 has always been technically more demanding than ISO 49 and consequently BS EN 10242.

BS 143 & 1256 were amended in August 1995 to delete those fittings now covered by BS EN 10242, so the scope of BS 143 & 1256 is now essentially : (a) BS 143 design and BS 1256 design fittings in malleable iron not covered by BS EN 10242, (b) BS 143 design fittings threaded to ANSI B1.20.1 (NPT) and (c) BS 143 design fittings made in cast copper alloy (bronze) material.

### Conformance of Crane fittings

Both malleable iron and steel fittings have been verified by the British Standards Institute (BSI) as conforming to BS EN 10242 and BS143 & 1256, as appropriate, and as such are permitted to bear the British Standards Kitemark Logo - Kitemark Licence No. KM00382.

Some small size fittings are manufactured in steel and will conform to BS EN 10241.

Crane malleable iron fittings also have the approval of the Loss Prevention Certification Board (LPCB) for use in sprinkler systems.

### The Pressure Equipment Directive 97/23/EC (PED)

The Directive applies to the design, manufacture and conformity of pressure equipment and assemblies of pressure equipment with a maximum allowable pressure greater than 0.5 bar. Individual piping components, such as fittings, are excluded from the scope of the Directive and therefore cannot be CE marked. However Crane manufactured pipe fittings are

manufactured to the appropriate European standards and satisfy the essential safety requirements of the PED.

A "Certificate of Incorporation for Pipe Fittings" can be accessed on the Crane website, or will be provided on request from Crane.

## Piping installation

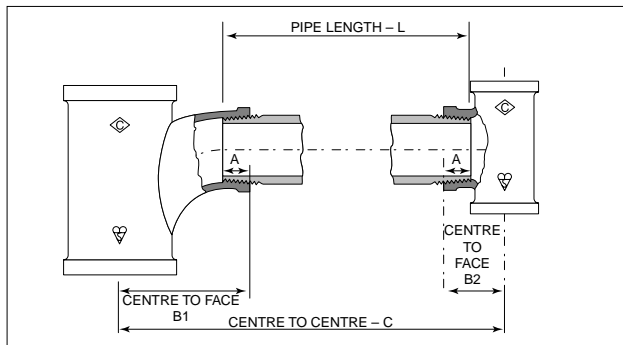
Compiled from British and International standards on Pipe Threads BS 21 (ISO 7-1) and Pipe Fittings standards BS EN 10242, BS 143 & 1256 and ISO 49.

Much unnecessary labour and creation of random lengths of pipe might be saved by the application of a few simple figures by the engineer when erecting the pipe line. Generally the pipe line, section by section, is either accommodated within fixed limits, usually the lines of building construction, or is fixed by prescribed dimensions. Except in the case of a continuous run of piping connected either by sockets or flanges, the engineer needs to know the length of pipe required to make up between fixed positions of fittings prior to cutting and threading.

The diagram below and table of 'A' dimensions indicates the length of thread engagement of BS 21 (ISO 7-1) taper pipe threads in nominal sizes 1/8 to 6 inch.

The approximate pipe length is calculated by using the expression

$$L = C - (B1 + B2) + 2A.$$



## 'A' Dimension information

Fitting size inches	A (mm)
1/8	7
1/4	10
3/8	10
1/2	13
3/4	15
1	17
1 1/4	19

Fitting size inches	A (mm)
1 1/2	19
2	24
2 1/2	27
3	30
4	36
5	40
6	40

Dimensions given do not allow for tapping or threading tolerances.

## Pipe ends

Users are advised to ensure that the external threads on the pipe being screwed into Crane fittings are free from damage or any malformation and conform to the gauging requirements of BS 21.

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## ISO – BS EN – BS identification symbols

Symbol	Type	Crane Fig. No.	
		Mall.	Bronze
A1	Elbows	151	J51
A1/45°		155	J55
A4		152	J53
B1	Tees	161	J61
-		163	-
C1	Crosses	171	J71
D1	Bends	193	-
D4		192	-
D4/45°		156	-
-		191	-
E1	Pitcher tees	199	-
E2	Twin elbows	197	-
Kb1	Return bends	213	-
-	Sockets	176	J76
M2		177	-
M2		179	J79
M3		180	-
N4	Bushes	140	J40
N8	Nipples	144	J44
N8		145	J45
P4	Back nuts	150	J50
T2	Caps	185	J85
T8	Plugs	147	-
T8		148	J48
T9		146	-
T11		149	J49
U1	Unions	241	
U11		256	J256
U11		271	
U11		289	-
U12		257	-
U12		272	-
UA11	Elbow	261	-
UA11	Unions	276	-
UA12		262	-
UA12		277	-

The symbols shown in the above table are those given in BS 143 & 1256, BS EN 10242 and ISO 49 for malleable iron fittings and in BS 143 & 1256 for copper alloy fittings, and relate to the identification of fitting types.

## Designation of fitting size

The designation of fitting size for the fittings shown in this catalogue is as follows:

**EQUAL FITTINGS:** Equal fittings where all outlets are the same size are designated by that one size, irrespective of the number of outlets.

**UNEQUAL FITTINGS:** Unequal fittings (reducing or enlarging) are specified by the sizes of each outlet, the sequence being dependent on the number of outlets:

- (a) For fittings having two outlets, the larger outlet is specified first.

Example: Fig. No. 145 hexagon reducing nipple with one end threaded size 2 and other end threaded size 1, is designated 2 x 1

- (b) For fittings having more than two outlets. Crane uses BSEN 10242 method (b) which gives the run as the first and second sizes of the designation and the branch as the third size of the designation.

This is in contrast to BSEN 10242 method (a) which gives the run as the first and third sizes of the designation and the branch as the second size of the designation. This method is used in certain international markets. (Please see the diagrams below for a visual explanation).

BSEN 10242 method (a) equivalents are specified in this catalogue where applicable.

UK method  
BSEN 10242 and ISO 49  
**Method (b)**  
as used by Crane.

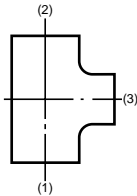


Fig. No. 161 tees

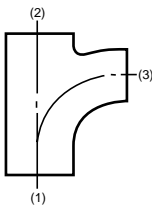


Fig. No. 199 pitcher tees

International method  
BSEN 10242 and ISO 49  
**Method (a)**

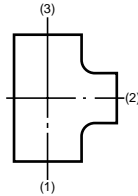


Fig. No. 161 tees

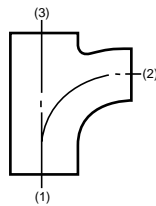


Fig. No. 199 pitcher tees

## SPECIFICATION

### Malleable cast iron

Crane malleable iron is of the Blackheart type ideally suited to pipe fitting and manufacture and conforms to BS EN 1562 Designation EN-GJMB-300-6, ASTM A197 and ISO 5922.

Typical properties of Crane malleable iron are given in the table below, exceeding the requirements in the above BS EN, ASTM and ISO standards.

Chemical composition		Mechanical properties	Typical
Total carbon	2.80%	Tensile strength (N/mm <sup>2</sup> )	340
Silicon	1.35%	Elongation on 36mm (%)	12
Manganese	0.44%	Izod impact (room temp.) (J)	12
Sulphur	0.19%	Brinell hardness	125
Phosphorous	0.08%	Density (g/cm <sup>3</sup> )	7.56

The close relationship between the physical properties of test bars and actual castings ensures design integrity and the preservation of high safety factors. Shock pressures within pipe systems can be tolerated with complete safety.

The corrosion resistance of Crane malleable iron is good when compared with grey cast iron and mild steel for most general applications including water, gas and steam.

### Crane bronze

Crane bronze has very good resistance to corrosion by aggressive waters, steam and other fluids which promote dezincification in certain copper alloys. It is also suitable for a wide range of temperatures.

### Mild steel

BS143 and 1256 allow small size (½ and smaller) straight fittings to be supplied in other ferrous materials e.g. mild steel as an alternative to malleable cast iron, providing the mechanical properties are at least equivalent to the specified grade of malleable iron.

Individual data pages state which Crane fittings are supplied in mild steel.

### Galvanising

Where additional resistance to corrosion is required, malleable cast iron fittings can be hot-dip zinc coated (galvanised) prior to machining. This process involves coating the fittings with zinc which, in addition to its natural resistance to corrosion, provides electro-chemical protection where the iron of the fitting is exposed by damage. Mild steel fittings can be supplied with a proprietary zinc based coating.

The coating weight on Crane galvanised fittings conforms to the requirements of BSEN ISO 1461 1998 and ASTM 153 with a minimum coating of 610 g/m<sup>2</sup> (2 oz/ft<sup>2</sup>) equal to a thickness of 86µm (0.0034 in). Average coatings are well in excess of this and exceed the requirements given in BS EN 10242 and ISO 49.

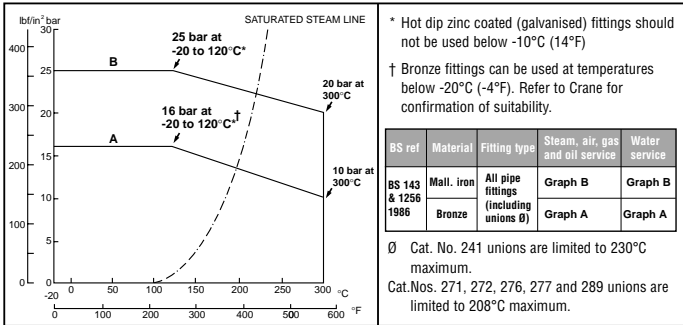
When ordering galvanised or zinc coated fittings add the suffix 'G' to the figure number.

## SPECIFICATION

## Pressure/Temperature ratings

BS 143 & 1256 : 1986 states that fittings are for general purposes for the transmission of fluids within the pressure and temperature ranges specified. The ratings given are updated from those in the 1968 edition, both for malleable cast iron and bronze fittings.

The graph below shows the BS pressure temperature ratings. Crane malleable iron and bronze fittings are suitable for use at these new ratings with the exception of certain unions (see note Ø below), but such use is dependent on the suitability of the connecting pipe material, the threaded joint and any thread sealants used. Due consideration should also be given to any applicable codes of practice. Pressures stated are maximum non-shock gauge.




## Testing

Production testing: Meets requirements of BS EN 10242 or BS 143 and 1256 as applicable. Type testing: In addition to production testing, all pressure containing fittings are required by BS EN 10242, BS 143 & 1256 and ISO 49 to be designed to withstand specified design test pressures and to be type tested accordingly - 100 bar (1450 lbf/in<sup>2</sup>) for sizes 4 and smaller malleable iron fittings, 64 bar (928 lbf/in<sup>2</sup>) for sizes 5 and 6 malleable iron and all sizes bronze fittings. Tests carried out show that production fittings have safety margins well in excess of the BS requirement. Some typical burst tests on Crane fittings illustrate their capabilities - size ½ Fig. No. 193 bend tested to 550 bar (8000 lbf/in<sup>2</sup>) without failure; size 1 Fig. No. 241 flat seat union tested to 248 bar (3600 lbf/in<sup>2</sup>) without failure; size 6 Fig. No. 151 elbow tested to 190 bar (2750 lbf/in<sup>2</sup>) without failure.

## Finish




























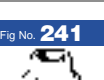








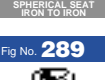

All malleable iron fittings are given an oil finish as protection against rust while in stock or during transit and after installation prior to plant commissioning. Finished fittings are free of any polycyclic aromatic hydrocarbons.

## Marking

All Crane fittings are marked with the  logo and where size permits, the fitting size and Kitemark symbol. In addition, some castings also display a pattern identification number. This is normally located next to the band of the fitting. This number is used during the manufacturing process as part of the rigorous quality control procedures to ensure consistent high quality castings. The number is not of relevance to the end user of the product.

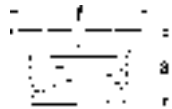
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MALLEABLE IRON PIPE FITTINGS

Fig No. <b>140</b>  HEXAGON BUSH	Fig No. <b>144</b>  HEXAGON NIPPLE	Fig No. <b>145</b>  HEXAGON NIPPLE REDUCING	Fig No. <b>146</b>  BEADED PLUG SOLID	Fig No. <b>147</b>  PLAIN PLUG HOLLOW
Fig No. <b>148</b>  PLAIN PLUG SOLID	Fig No. <b>149</b>  COUNTERSUNK PLUG	Fig No. <b>150</b>  BACKNUT PARALLEL THREAD TO BS 2779 (ISO 228-1)	Fig No. <b>151</b>  ELBOW	Fig No. <b>152</b>  M & F ELBOW
Fig No. <b>155</b>  45° ELBOW	Fig No. <b>156</b>  45° M & F ELBOW	Fig No. <b>161</b>  TEE	Fig No. <b>163</b>  M & F TEE	Fig No. <b>171</b>  CROSS
Fig No. <b>176</b>  SOCKET PARALLEL THREAD TO BS 2779 (ISO 228-1)	Fig No. <b>177</b>  SOCKET TAPER THREAD	Fig No. <b>179</b>  SOCKET REDUCING	Fig No. <b>180</b>  ECCENTRIC SOCKET	Fig No. <b>185</b>  CAP
Fig No. <b>191</b>  MALE BEND	Fig No. <b>192</b>  M & F BEND	Fig No. <b>193</b>  BEND	Fig No. <b>197</b>  TWIN ELBOW	Fig No. <b>199</b>  PITCHER TEE
Fig No. <b>213</b>  RETURN BEND	Fig No. <b>233</b>  ROUND FLANGE	Fig No. <b>241</b>  UNION FLAT SEAT	Fig No. <b>256</b>  UNION SPHERICAL SEAT IRON TO IRON	Fig No. <b>257</b>  M & F UNION SPHERICAL SEAT IRON TO IRON
Fig No. <b>261</b>  ELBOW UNION SPHERICAL SEAT IRON TO IRON	Fig No. <b>262</b>  M & F ELBOW UNION SPHERICAL SEAT IRON TO IRON	Fig No. <b>271</b>  UNION SPHERICAL SEAT BRONZE TO IRON	Fig No. <b>272</b>  M & F UNION SPHERICAL SEAT BRONZE TO IRON	Fig No. <b>276</b>  ELBOW UNION SPHERICAL SEAT BRONZE TO IRON
Fig No. <b>277</b>  M & F ELBOW UNION SPHERICAL SEAT BRONZE TO IRON	Fig No. <b>289</b>  UNION SPHERICAL SEAT BRONZE TO BRONZE	Fig No. <b>290</b>  UNION SELF ALIGNING (SA)		

\* Supplied in mild steel.

FITTING SIZE	DIMENSIONS		WEIGHT kg PER 100 PIECES
	a (mm)	f (mm)	
* ¼ x ¼	14	16	1.14
* ⅜ x ⅜	19	19	2.51
* ⅜ x ¼	19	19	1.60
½ x ½	24	24	4.05
* ½ x ¼	24	24	3.64
½ x ⅜	24	24	3.05
¾ x ¾	26	30	7.56
¾ x ¼	26	30	6.82
¾ x ⅜	26	30	6.51
¾ x ½	26	30	5.30
1 x ¼	29	36	11.67
1 x ⅜	29	36	11.45
1 x ½	29	36	10.19
1 x ¾	29	36	8.20
1¼ x ¼	31	46	17.72
1¼ x ⅜	31	46	19.42
1¼ x ½	31	46	18.65
1¼ x ¾	31	46	16.97
1¼ x 1	31	46	14.17
1½ x ¼	31	52	23.72
1½ x ⅜	31	52	23.96
1½ x ½	31	52	25.18
1½ x ¾	31	52	23.45
1½ x 1	31	52	20.82
1½ x 1¼	31	52	13.62
2 x ⅜	35	64	40.42
2 x ½	35	64	36.35
2 x ¾	35	64	40.14
2 x 1	35	64	41.41
2 x 1¼	35	64	35.60
2 x 1½	35	64	29.67
2½ x ½	40	79	61.02
2½ x ¾	40	79	59.74
2½ x 1	40	79	60.61
2½ x 1¼	40	79	61.02
2½ x 1½	40	79	63.49
2½ x 2	40	79	49.14
3 x ½	44	93	85.28
3 x ¾	44	93	85.49
3 x 1	44	93	86.50
3 x 1¼	44	93	87.70
3 x 1½	44	93	89.15
3 x 2	44	93	90.90
3 x 2½	44	93	61.76



PN 25

**FIG. NO. 140 • HEXAGON BUSH**



<i>FITTING SIZE</i>	<i>DIMENSIONS</i> <i>a</i> (mm) <i>f</i> (mm)		<i>WEIGHT kg</i> <i>PER 100</i> <i>PIECES</i>
4 x 1	51	118	149.45
4 x 1¼	51	118	146.62
4 x 1½	51	118	150.38
4 x 2	51	118	151.41
4 x 2½	51	118	157.69
4 x 3	51	118	138.64
5 x 4	58	144	210.33
6 x 2	61	171	352.70
6 x 3	61	171	369.67
6 x 4	61	171	359.47

**FIG. NO. 144 • HEXAGON NIPPLE**



<i>FITTING SIZE</i>	<i>DIMENSIONS</i> <i>a</i> (mm) <i>f</i> (mm)		<i>WEIGHT kg</i> <i>PER 100</i> <i>PIECES</i>
* ¼	33	15	2.50
* ⅜	35	18	3.91
½	44	23	6.15
¾	49	28	9.77
1	56	46	23.77
1¼	63	55	36.72
1½	63	60	40.44
2	71	72	65.70
2½	80	77	101.04
3	89	101	162.12
4	102	124	223.92
6	114	172	492.34

**FIG. NO. 145 • HEXAGON NIPPLE**



<i>FITTING SIZE</i>	<i>DIMENSIONS</i> <i>a</i> (mm) <i>f</i> (mm)		<i>WEIGHT kg</i> <i>PER 100</i> <i>PIECES</i>
* ¼ x ¼	30	15	2.13
* ⅜ x ¼	35	18	4.02
½ x ¼	41	23	6.42
½ x ⅜	41	23	5.81
¾ x ⅜	48	28	9.32
¾ x ½	49	28	9.67
1 x ½	56	35	15.85
1 x ¾	56	35	15.64

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\* Supplied in mild steel.

FITTING SIZE	DIMENSIONS		WEIGHT kg PER 100 PIECES
	a (mm)	f (mm)	
1¼ x ½	64	44	25.03
1¼ x ¾	64	44	25.39
1¼ x 1	64	44	23.48
1½ x 1	64	50	28.94
1½ x 1¼	64	50	29.26
2 x 1	69	61	48.82
2 x 1¼	69	61	47.05
2 x 1½	71	62	49.00
2½ x 2	77	77	74.78
3 x 2	86	90	104.75
3 x 2½	85	90	109.39



FIG. NO. 146 • BEADED PLUG – SOLID

FITTING SIZE	DIMENSIONS		WEIGHT kg PER 100 PIECES
	c (mm)	f (mm)	
¼	22	10	2.19
¾	24	10	3.40
½	33	12	6.89
¾	38	14	11.98
1	38	19	22.56
1¼	41	22	32.40
1½	45	22	46.60
2	49	26	73.44

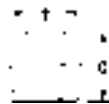
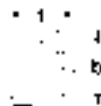


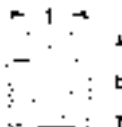
FIG. NO. 147 • PLAIN PLUG – HOLLOW

FITTING SIZE	DIMENSIONS		WEIGHT kg PER 100 PIECES
	b (mm)	f (mm)	
½	23	12	3.40
¾	26	14	5.28
1	28	18	8.14
1¼	33	24	14.31
1½	35	29	19.25
2	41	32	29.66
2½	39	35	46.31
3	44	37	71.15
4	46	44	83.28



PN 25

FIG. NO. 148 • PLAIN PLUG - SOLID



FITTING SIZE	DIMENSIONS		WEIGHT kg PER 100 PIECES
	b (mm)	f (mm)	
* 1/8	13	7	0.72
* 1/4	18	10	1.67
3/8	19	11	2.31
1/2	23	12	4.16
3/4	26	14	7.21
1	28	18	12.66
1 1/4	33	24	22.60
1 1/2	35	29	32.20
2	41	32	56.44

FIG. NO. 149 • COUNTERSUNK PLUG

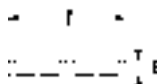


FITTING SIZE	DIMENSIONS		WEIGHT kg PER 100 PIECES
	d (mm)	f (mm)	
3/8	11	8	1.41
1/2	15	11	2.71
3/4	16	14	4.65
1	19	15	8.15
1 1/4	21	20	15.51
1 1/2	21	20	21.71
2	26	27	45.20

FIG. NO. 150 • BACKNUT



Parallel  
thread to  
BS 2779  
(ISO 228-1)



FITTING SIZE	DIMENSIONS		WEIGHT kg PER 100 PIECES
	a (mm)	f (mm)	
* 1/4	7	22	1.12
3/8	8	26	2.17
1/2	8	31	2.43
3/4	9	38	4.32
1	10	45	6.40
1 1/4	11	55	9.68
1 1/2	12	63	13.64
2	13	76	23.38
2 1/2	13	98	30.18
3	21	109	59.84

\* Supplied in mild steel.

FITTING SIZE	DIMENSIONS		WEIGHT kg PER 100 PIECES
	a (mm)	b (mm)	
Equal			
1/8	19	19	3.12
1/4	21	21	4.08
3/8	25	25	5.91
1/2	28	28	9.82
3/4	33	33	14.77
1	38	38	24.72
1 1/4	45	45	36.00
1 1/2	50	50	46.35
2	58	58	81.06
2 1/2	69	69	113.37
3	78	78	170.16
4	96	96	287.78
5	115	115	500.57
6	131	131	700.00
Reducing			
3/8 x 1/4	23	23	5.47
1/2 x 1/4	25	25	6.59
1/2 x 3/8	26	26	8.03
3/4 x 1/2	30	31	13.29
1 x 1/2	32	34	18.17
1 x 3/4	35	36	20.63
1 1/4 x 1/2	36	41	22.25
1 1/4 x 3/4	36	41	25.31
1 1/4 x 1	42	46	29.21
1 1/2 x 3/4	39	44	31.98
1 1/2 x 1	42	46	34.01
2 x 1	44	51	50.82
2 x 1 1/2	52	55	67.53



PN 25 FIG. NO. 152 • M & F ELBOW



FITTING SIZE	DIMENSIONS		WEIGHT kg PER 100 PIECES
	a (mm)	b (mm)	
Equal			
1/8	19	25	2.60
1/4	21	28	4.34
3/8	25	32	6.36
1/2	28	37	8.76
3/4	33	43	15.97
1	38	52	25.34
1 1/4	45	60	34.36
1 1/2	50	68	44.81
2	58	74	83.02
2 1/2	69	88	124.48
3	78	98	169.95
4	96	118	301.79
Reducing			
3/4 x 1/2	30	40	10.58
1 x 1/2	32	51	16.20
1 x 3/4	35	46	17.23

FIG. NO. 155 • 45° ELBOW



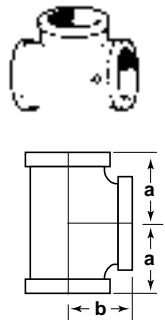
FITTING SIZE	DIMENSIONS		WEIGHT kg PER 100 PIECES
	a (mm)	b (mm)	
1/8	19		4.36
3/8	20		5.44
1/2	22		7.97
3/4	25		11.80
1	28		18.13
1 1/4	33		27.84
1 1/2	36		39.39
2	43		62.64
2 1/2	50		97.34
3	55		136.58
4	66		257.09
6	88		609.25

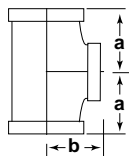
FITTING SIZE	DIMENSIONS		WEIGHT kg PER 100 PIECES
	a (mm)	b (mm)	
¼	19	19	3.19
⅜	21	21	4.79
½	22	28	7.58
¾	29	29	12.57
1	35	35	20.39
1¼	42	42	31.48
1½	48	48	44.04
2	55	55	66.83
2½	61	61	108.97
3	68	68	138.64
4	87	87	296.23



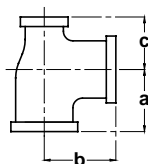
FIG. NO. 161 • TEE

FITTING SIZE		DIMENSIONS		WEIGHT kg PER 100 PIECES
BSEN 10242		a	b	
method (b)	method (a)	(mm)	(mm)	
<b>Equal</b>				
¼		19	19	4.02
⅜		21	21	5.43
½		25	25	7.81
¾		28	28	16.41
1		33	33	22.60
1¼		38	38	35.12
1½		45	45	57.43
2		50	50	73.83
2½		58	58	106.91
3		69	69	151.31
4		78	78	216.09
5		96	96	395.11
6		115	115	651.99
6		131	131	1023.00
<b>Reducing on branch</b>				
¾ x ¼		23	23	7.55
½ x ¼		24	24	10.14
½ x ⅜		26	26	10.30
¾ x ¼		26	27	13.72
¾ x ⅜		28	28	14.29
¾ x ½		30	31	20.25
1 x ¼		28	31	19.16
1 x ⅜		32	35	24.44
1 x ½		32	35	25.98
1 x ¾		35	36	27.21
1¼ x ½		34	38	32.25
1¼ x ¾		36	41	37.96
1¼ x 1		40	42	40.47





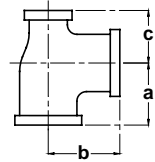
FITTING SIZE		DIMENSIONS		WEIGHT kg PER 100 PIECES
BSEN 10242		a	b	
method (b)	method (a)	(mm)	(mm)	
<b>Reducing on branch</b>				
1½ x ½		36	42	41.67
1½ x ¾		38	44	44.13
1½ x 1		42	46	51.66
1½ x 1¼		46	48	59.90
2 x ½		38	48	60.89
2 x ¾		40	50	62.58
2 x 1		44	52	65.88
2 x 1¼		48	54	76.84
2 x 1½		52	55	83.02
2½ x ½		41	57	84.87
2½ x ¾		44	59	91.58
2½ x 1		47	60	105.78
2½ x 1¼		52	62	114.33
2½ x 1½		55	63	118.86
2½ x 2		61	66	135.03
3 x ½		51	68	156.96
3 x ¾				147.19
3 x 1				142.35
3 x 1¼		55	70	154.60
3 x 1½		58	71	163.87
3 x 2		64	73	177.57
3 x 2½		72	76	164.90
4 x 1		56	81	204.76
4 x 1¼		61	83	220.42
4 x 1½		64	84	255.03
4 x 2		70	86	250.08
4 x 2½		77	89	376.36
4 x 3		84	92	315.18
6 x 3		92	121	676.71
6 x 4		105	125	748.30



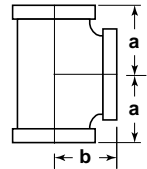
FITTING SIZE		DIMENSIONS			WEIGHT kg PER 100 PIECES
BSEN 10242		a	b	c	
method (b)	method (a)	(mm)	(mm)	(mm)	
<b>Reducing on run</b>					
½ x ¼ x ½	½ x ½ x ¼	28	28	25	12.26
¾ x ½ x ¾	¾ x ¾ x ½	33	33	31	17.24
1 x ½ x 1	1 x 1 x ½	38	38	34	24.75
1 x ¾ x 1	1 x 1 x ¾	38	38	36	27.51
1¼ x ½ x 1¼	1¼ x 1¼ x ½	45	45	38	38.32
1¼ x ¾ x 1¼	1¼ x 1¼ x ¾	45	45	41	41.69
1¼ x 1 x 1¼	1¼ x 1¼ x 1	45	45	42	44.23
1½ x ½ x 1½	1½ x 1½ x ½	50	50	44	56.36
1½ x ¾ x 1½	1½ x 1½ x ¾	50	50	44	53.87
1½ x 1 x 1½	1½ x 1½ x 1	50	50	46	60.62



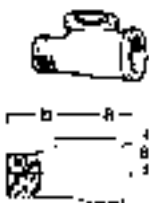
FITTING SIZE		DIMENSIONS			WEIGHT kg PER 100 PIECES
BSEN 10242		a	b	c	
method (b)	method (a)	(mm)	(mm)	(mm)	
<b>Reducing on run</b>					
2 x ½ x 2	2 x 2 x ½	58	58	52	79.77
2 x ¾ x 2	2 x 2 x ¾	58	58	52	78.92
2 x 1 x 2	2 x 2 x 1	58	58	52	75.34
2 x 1½ x 2	2 x 2 x 1½				83.17
2½ x 1½ x 2½	2½ x 2½ x 1½	69	69	64	124.68
3 x 2 x 3	3 x 3 x 2	78	78	73	186.84
<b>Reducing on run &amp; branch</b>					
½ x ¾ x ¾	½ x ¾ x ¾	26	26	25	9.34
¾ x ½ x ½	¾ x ½ x ½	30	31	28	13.69
1 x ¾ x ½	1 x ½ x ¾	32	34	30	19.88
1 x ¾ x ¾	1 x ¾ x ¾	35	36	33	26.04
1¼ x 1 x ½	1¼ x ½ x 1	36	41	35	31.04
1¼ x 1 x ¾	1¼ x ¾ x 1	36	41	35	29.25
1¼ x 1 x 1	1¼ x 1 x 1	40	42	38	33.60
1½ x 1 x 1	1½ x 1 x 1	42	46	38	43.22
1½ x 1¼ x ½	1½ x ½ x 1¼	37	43	33	37.55
1½ x 1¼ x 1	1½ x 1 x 1¼	42	46	40	45.92
1½ x 1¼ x 1¼	1½ x 1¼ x 1¼	46	48	45	55.70
2 x 1½ x ½	2 x ½ x 1½	44	51	41	66.85
2 x 1½ x ¾	2 x ¾ x 1½	44	51	41	64.22
2 x 1½ x 1	2 x 1 x 1½	44	51	41	59.97
2 x 1½ x 1¼	2 x 1¼ x 1½	48	54	46	66.70
2 x 1½ x 1½	2 x 1½ x 1½	52	55	50	71.89



FITTING SIZE		DIMENSIONS		WEIGHT kg PER 100 PIECES
BSEN 10242		a	b	
method (b)	method (a)	(mm)	(mm)	
<b>Increasing on branch</b>				
½ x ¾		31	30	15.15
¾ x 1		36	35	22.55
1 x 1¼		42	40	35.27
1 x 1½		46	42	42.91
1¼ x 2		54	48	77.35
1½ x 2		55	52	72.68
2 x 2½		66	61	119.77



PN 25 FIG. NO. 163 • M & F TEE



FITTING SIZE	DIMENSIONS		WEIGHT kg PER 100 PIECES
	a (mm)	b (mm)	
½	29	41	12.36
¾	33	48	19.85
1	38	54	31.19

FIG. NO. 171 • CROSS



FITTING SIZE	DIMENSIONS		WEIGHT kg PER 100 PIECES
	a (mm)		
¼	21		7.08
¾	25		10.04
½	28		15.48
¾	33		21.68
1	38		37.12
1¼	45		54.16
1½	50		77.35
2	58		101.76
2½	69		165.73
3	78		233.81
4	96		447.43

FIG. NO. 176 • SOCKET



Parallel  
thread to  
BS 2779  
(ISO 228-1)

FITTING SIZE	DIMENSIONS		WEIGHT kg PER 100 PIECES
	a (mm)		
* ¼	24		2.11
* ¼	27		3.57
* ¾	30		4.53
½	34		6.26
¾	39		8.45
1	42		13.66
1¼	49		22.33
1½	54		29.53
2	64		41.72
2½	73		75.19
3	81		101.46
4	94		183.96

FITTING SIZE	DIMENSIONS a (mm)	WEIGHT kg PER 100 PIECES
¼	27	3.30
⅜	30	4.17
½	34	6.60
¾	39	9.02
1	42	14.13
1¼	49	24.62
1½	54	33.21
2	64	48.99
2½	73	80.71
3	81	105.16
4	94	186.43
6	121	454.64

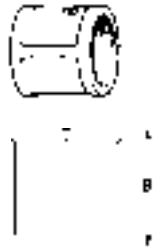


FIG. NO. 179 • REDUCING SOCKET

FITTING SIZE	DIMENSIONS a (mm)	WEIGHT kg PER 100 PIECES
Reducing * ⅜ x ¼	29	4.71
½ x ¼	32	7.83
½ x ⅜	32	5.26
¾ x ¼	37	13.18
¾ x ⅜	37	7.62
¾ x ½	37	14.53
1 x ¼	43	11.14
1 x ⅜	43	18.23
1 x ½	43	19.79
1 x ¾	43	15.80
1¼ x ½	52	24.10
1¼ x ¾	52	23.55
1¼ x 1	52	27.30
1½ x ½	59	28.39
1½ x ¾	59	26.35
1½ x 1	59	27.93
1½ x 1¼	59	33.23
2 x ½	71	34.98
2 x ¾	71	42.56
2 x 1	71	52.12
2 x 1¼	71	54.38
2 x 1½	71	58.61
2½ x ½	83	62.58
2½ x 1	83	64.73
2½ x 1¼	83	73.62
2½ x 1½	83	67.28
2½ x 2	83	73.24
3 x 1	94	97.80
3 x 2	94	95.53
3 x 2½	94	107.84
4 x 2	111	161.71
4 x 2½	111	178.91
4 x 3	111	201.37
6 x 4	149	443.93



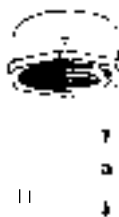
FIG. NO. 180 • ECCENTRIC SOCKET

\* Supplied in mild steel.



FITTING SIZE	DIMENSIONS a (mm)	WEIGHT kg PER 100 PIECES
Reducing ¾ x ½	37	13.31
1 x ½	43	12.33
1 x ¾	43	12.86
1¼ x ½	52	19.92
1¼ x ¾	52	25.03
1¼ x 1	52	22.33
1½ x ½	59	35.64
1½ x ¾	59	29.68
1½ x 1	59	38.19
1½ x 1¼	59	45.22
2 x ½	71	55.83
2 x ¾	71	57.37
2 x 1	71	56.44
2 x 1¼	71	47.42
2 x 1½	71	52.41
2½ x ½	83	86.40
2½ x 1½	83	99.56
2½ x 2	83	144.10
3 x 2	94	119.17
3 x 2½	94	113.67

FIG. NO. 185 • CAP



FITTING SIZE	DIMENSIONS a (mm)	WEIGHT kg PER 100 PIECES
* ¼	17	3.21
* ⅜	19	4.94
½	26	7.36
¾	27	7.18
1	32	15.75
1¼	32	20.19
1½	33	25.94
2	38	42.81
2½	41	65.46
3	44	92.65
4	52	165.83

FITTING SIZE	DIMENSIONS a (mm)	WEIGHT kg PER 100 PIECES
½	45	8.70
¾	50	13.60
1	63	23.82
1¼	76	42.66
1½	85	56.73
2	102	97.28



FIG. NO. 192 • M & F BEND

FITTING SIZE	DIMENSIONS a (mm)	WEIGHT kg PER 100 PIECES
¼	30	4.19
¾	36	6.97
½	45	10.87
¾	50	15.81
1	63	26.27
1¼	76	45.24
1½	85	63.45
2	102	102.54
2½	114	163.56
3	127	246.79
4	165	481.53
6	229	1125.79



FIG. NO. 193 • BEND

FITTING SIZE	DIMENSIONS a (mm)	WEIGHT kg PER 100 PIECES
¼	30	6.32
¾	36	8.84
½	45	13.40
¾	50	19.57
1	63	32.80
1¼	76	64.84
1½	85	77.15
2	102	120.20
2½	114	191.58
3	127	270.68
4	165	486.68
5		761.17
6	229	1176.26



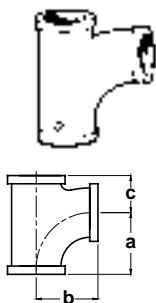
PN 25

**FIG. NO. 197 • TWIN ELBOW**



FITTING SIZE	DIMENSIONS a (mm)	WEIGHT kg PER 100 PIECES
½	45	20.68
¾	50	29.66
1	63	49.23
1¼	76	88.73
1½	85	111.14
2	102	176.75
2½	114	313.94
3	127	409.12

**FIG. NO. 199 • PITCHER TEE**



FITTING SIZE	DIMENSIONS			WEIGHT kg PER 100 PIECES
	a (mm)	b (mm)	c (mm)	
<b>Equal</b>				
½	45	45	24	22.06
¾	50	50	28	25.45
1	63	63	33	40.46
1¼	76	76	40	70.91
1½	85	85	43	96.67
2	102	102	53	164.18
2½	114	114	61	262.01
3	127	127	70	353.91
4	165	165	87	608.73
<b>Reducing on branch</b>				
¾ x ½	47	48	25	21.88
1 x ½	49	51	28	29.16
1 x ¾	53	56	30	32.75
1¼ x ½	51	56	30	40.71
1¼ x ¾	55	58	33	47.43
1¼ x 1	66	68	36	57.26
1½ x ½	52	58	29	51.35
1½ x ¾	55	61	33	55.11
1½ x 1	66	71	36	65.63
1½ x 1¼	77	79	41	94.60
2 x ½	54	64	32	72.31
2 x ¾	58	67	35	84.87
2 x 1	70	77	40	96.56
2 x 1¼	80	85	45	114.79
2 x 1½	91	94	48	136.06
2½ x ½	60	75	37	115.88
2½ x ¾	60	75	37	115.22
2½ x 1	72	85	40	131.90
2½ x 1¼	83	93	45	147.50
2½ x 1½	94	103	48	182.96
2½ x 2	104	109	54	226.19



FITTING SIZE		DIMENSIONS			WEIGHT kg PER 100 PIECES
BSEN 10242		a	b	c	
method (b)	method (a)	(mm)	(mm)	(mm)	
Reducing on branch					
3 x 1½		96	109	50	232.76
3 x 2		106	116	56	266.52
4 x 2½					
4 x 3		121	133	69	431.06
Reducing on run & branch					
¾ x ½ x ½	¾ x ½ x ½	47	48	24	20.73
1 x ¾ x ½	1 x ½ x ¾	49	51	25	26.47
1 x ¾ x ¾	1 x ¾ x ¾	53	54	28	31.11
Reducing on run					
¾ x ½ x ¾	¾ x ¾ x ½	50	50	27	25.38

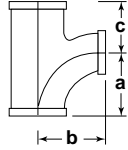


FIG. NO. 213 • RETURN BEND

FITTING SIZE	DIMENSIONS a (mm)	WEIGHT kg PER 100 PIECES
½	38	17.87
¾	51	35.71
1	64	52.22
1¼	76	92.37
1½	89	115.21
2	102	146.36



PN 25

**FIG. NO. 233 • ROUND FLANGE**



<i>FITTING SIZE</i>	<i>DIMENSIONS a (mm)</i>	<i>WEIGHT kg PER 100 PIECES</i>
Undrilled & unfaced		
½	95	25.75
¾	102	34.03
1	114	47.90
1¼	121	53.02
1½	133	73.13
2	152	105.27
2½	165	124.22
3	184	161.50
4	216	252.35

**FIG. NO. 241 • UNION**

FLAT SEAT



<i>FITTING SIZE</i>	<i>DIMENSIONS a (mm)</i>	<i>f (mm)</i>	<i>WEIGHT kg PER 100 PIECES</i>
½	49	42	20.44
¾	53	49	30.39
1	58	57	41.22

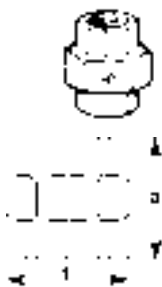
**FIG. NO. 299 • GASKET FOR FIG. NO. 241**

(compressed non-asbestos fibre)

<i>FITTING SIZE</i>	<i>WEIGHT kg PER 100 PIECES</i>
½	-
¾	-
1	-

**FIG. NO. 256 • UNION**

SPHERICAL SEAT –  
iron to iron



<i>FITTING SIZE</i>	<i>DIMENSIONS a (mm)</i>	<i>f (mm)</i>	<i>WEIGHT kg PER 100 PIECES</i>
¼	42	32	11.14
¾	45	36	13.75
½	49	42	20.70
¾	53	49	30.08
1	58	57	40.75
1¼	64	68	60.67
1½	68	76	78.49
2	75	92	119.89
2½	84	111	187.05
3	92	125	248.33
4	107	155	426.52



FITTING SIZE	DIMENSIONS			WEIGHT kg PER 100 PIECES
	b (mm)	a (mm)	f (mm)	
¼	57	32	†	11.95
⅜	61	36	†	16.07
½	68	56	42	25.85
¾	74	74	49	36.77
1	82	57	57	50.63
1¼	91	68	†	74.26
1½	95	76	†	99.95
2	104	92	†	147.70
2½	116	111	†	232.78
3	131	125	†	324.66

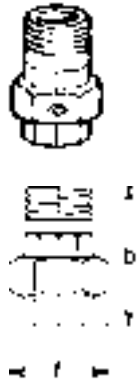


FIG. NO. 261 • ELBOW UNION

FITTING SIZE	DIMENSIONS			WEIGHT kg PER 100 PIECES
	a (mm)	c (mm)	f (mm)	
½	56	28	42	25.72
¾	64	33	49	37.31
1	72	38	57	54.38

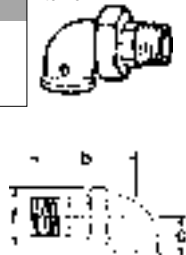
SPHERICAL SEAT – iron to iron



FIG. NO. 262 • M & F ELBOW UNION

FITTING SIZE	DIMENSIONS			WEIGHT kg PER 100 PIECES
	b (mm)	c (mm)	f (mm)	
½	78	28	42	29.89
¾	86	33	49	44.44
1	98	38	57	62.88

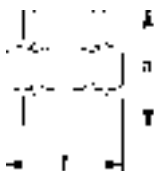
SPHERICAL SEAT – iron to iron



PN 25

**FIG. NO. 271 • UNION**

SPHERICAL SEAT— bronze to iron



FITTING SIZE	DIMENSIONS		WEIGHT kg PER 100 PIECES
	a (mm)	f (mm)	
½	42	32	12.26
¾	42	32	11.03
¾	45	36	14.54
½	49	42	20.69
¾	53	49	30.33
1	58	57	40.79
1¼	64	68	59.64
1½	68	76	77.87
2	75	92	120.10
2½	84	111	187.15
3	92	125	247.81
4	107	155	432.60

**FIG. NO. 272 • M & F UNION**

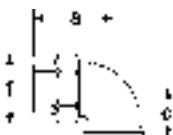
SPHERICAL SEAT— bronze to iron



FITTING SIZE	DIMENSIONS		WEIGHT kg PER 100 PIECES
	a (mm)	f (mm)	
½	68	42	25.34
¾	74	49	37.80
1	82	57	50.99
1¼	91	68	74.16
1½	95	76	98.30
2	104	92	150.28

**FIG. NO. 276 • ELBOW UNION**

SPHERICAL SEAT— bronze to iron



FITTING SIZE	DIMENSIONS			WEIGHT kg PER 100 PIECES
	a (mm)	c (mm)	f (mm)	
½	56	28	42	25.63
¾	64	33	49	37.27
1	72	38	57	55.00

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FITTING SIZE	DIMENSIONS			WEIGHT kg PER 100 PIECES
	b (mm)	c (mm)	f (mm)	
½	78	28	42	30.44
¾	86	33	49	44.17
1	98	38	57	62.98

SPHERICAL  
SEAT—  
bronze to iron

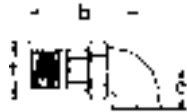


FIG. NO. 289 • UNION

FITTING SIZE	DIMENSIONS		WEIGHT kg PER 100 PIECES
	a (mm)	f (mm)	
¼	42	32	10.91
¾	45	36	14.98
½	49	42	20.97
¾	53	49	30.44
1	58	57	40.99
1¼	64	68	61.13
1½	68	76	79.78
2	75	92	121.54
2½	84	111	187.72
3	92	125	248.02

SPHERICAL  
SEAT –  
bronze to  
bronze

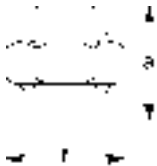
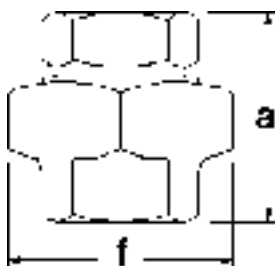


FIG. NO. 290 • UNION

FITTING SIZE	DIMENSIONS		WEIGHT kg PER 100 PIECES
	a (mm)	f (mm)	
½	49	44	22.96
¾	52	48	28.66
1	57	55	37.44
1¼	67	67	60.00
1½	78	76	94.48
2	87	90	134.79



### THE CRANE SA (SELF ALIGNING) UNION

The Crane SA Union is made with double spherical seats. Pipes which are not in alignment can be securely connected at any angle up to 6° of arc from centre line of the union, thus avoiding the need for offsets. The union provides a pressure tight joint without the use of gaskets or washers.

- Self aligning (SA) Union
- Double spherical seats
- Iron to iron seating
- Taper threads to BS 21 (ISO 7-1)
- Black or Galvanised



*SA Union - female*



*6° out of alignment and still pressure tight*



## MALLEABLE IRON HANGERS AND BRACKETS

Fig No. **501**



BRACKET SCREW  
FIXING

Fig No. **515**



BACKPLATE BSP  
TAPPING BS 2779

Fig No. **515M**



BACKPLATE METRIC  
TAPPING BS 3643

Fig No. **529M**



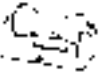
RING SINGLE SOCKET  
METRIC TAPPING  
BS 3643

Fig No. **530M**



RING DOUBLE SOCKET  
METRIC TAPPING  
BS 3643

Fig No. **573**



ROLLER AND CHAIR

### FIG. NO. 501 • BRACKET

Screw fixing



FITTING SIZE	DIMENSIONS		WEIGHT kg PER 100 PIECES
	a (mm)	b (mm)	
¼	33	45	6.73
⅜	36	51	8.44
½	38	52	8.11
¾	41	59	11.10
1	46	68	13.96
1¼	54	79	19.49
1½	64	92	28.82
2	71	105	38.36
2½	89	95	46.77
3	97	108	62.73
4	118	143	103.77

### FIG. NO. 515 • BACKPLATE

BSP tapping  
BS 2779  
ISO 228-1



SIZE	SOCKET TAPPING	DIMENSIONS		WEIGHT kg PER 100 PIECES
		a (mm)	b (mm)	
¾	¾	80	57	8.99
½	½	86	64	11.91

### FIG. NO. 515M • BACKPLATE

Metric tapping  
BS 3643



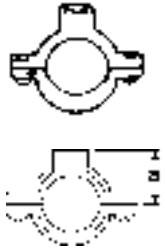
SIZE	SOCKET TAPPING	DIMENSIONS		WEIGHT kg PER 100 PIECES
		a (mm)	b (mm)	
⅜	M10	67	48	6.02
¼	M12	73	54	6.60

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**FIG. NO. 529M • RING**

SIZE	SOCKET TAPPING	DIMENSIONS a (mm)	WEIGHT kg PER 100 PIECES
Equal			
¼	M10	18	6.10
⅜	M10	20	6.63
½	M10	22	7.27
¾	M10	26	8.28
1	M10	30	10.00
1¼	M10	36	14.67
1½	M10	41	17.61
2	M10	47	23.67
2½	M12	58	31.72
3	M12	65	40.20
4	M12	86	74.95
5	M12	101	116.49
6	M12	116	140.58

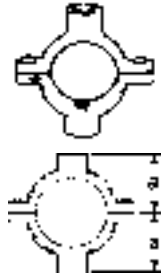
Single socket -  
metric tapping  
BS 3643



**FIG. NO. 530M • RING**

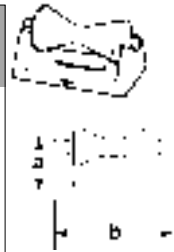
SIZE	SOCKET TAPPING	DIMENSIONS a (mm)	WEIGHT kg PER 100 PIECES
½	M10	22	8.44
¾	M10	26	9.89
1	M10	30	11.45
1¼	M10	36	16.66
1½	M10	41	22.15
2	M10	47	26.06

Double  
socket -  
Metric tapping  
BS 3643



**FIG. NO. 573 • ROLLER AND CHAIR**

FITTING SIZE	DIMENSIONS a b SLOT (mm)(mm) (mm)			WEIGHT kg PER 100 PIECES
Rollers				
No.1	40	76	32 x 8	17.41
No.2	47	83	38 x 8	27.08
No.3	61	127	63 x 10	94.40
No.4	75	143	76 x 13	150.90
Chairs				
No.1	40	76	32 x 8	19.17
No.2	47	83	38 x 8	31.96
No.3	61	127	63 x 10	70.22
No.4	75	143	76 x 13	107.02



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## BRONZE PIPE FITTINGS

Fig No. **J40**

HEXAGON BUSH

Fig No. **J44**

HEXAGON NIPPLE

Fig No. **J45**HEXAGON NIPPLE  
REDUCINGFig No. **J48**

PLAIN PLUG SOLID

Fig No. **J49**

COUNTERSUNK PLUG

Fig No. **J50**BACKNUT PARALLEL  
THREAD TO BS 2779  
(ISO 228-1)Fig No. **J51**

ELBOW

Fig No. **J53**

M &amp; F ELBOW

Fig No. **J61**

TEE

Fig No. **J71**

CROSS

Fig No. **J76**SOCKET PARALLEL  
THREAD TO BS 2779  
(ISO 228-1)Fig No. **J79**

SOCKET REDUCING

Fig No. **J85**

CAP

Fig No. **J256**

STRAIGHT UNION

FITTING SIZE	DIMENSIONS		WEIGHT kg PER 100 PIECES
	a (mm)	f (mm)	
¼ x ¼	15	16	1.40
⅜ x ¼	16	18	2.34
⅜ x ¼	17	19	2.24
½ x ¼	22	24	5.67
½ x ¼	22	24	3.29
½ x ⅜	22	24	3.89
¾ x ¼	25	30	6.50
¾ x ⅜	25	30	7.87
¾ x ½	25	30	6.07
1 x ½	28	36	12.98
1 x ¾	28	36	9.68
1¼ x ½	30	46	22.43
1¼ x ¾	30	46	20.91
1¼ x 1	31	46	16.48
1½ x ½	26	51	30.34
1½ x ¾	26	51	20.09
1½ x 1	26	51	24.73
1½ x 1¼	26	51	15.76
2 x 1	30	64	48.27
2 x 1¼	30	64	41.61
2 x 1½	30	64	35.52

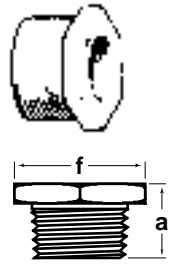


FIG. NO. J44 • HEXAGON NIPPLE

FITTING SIZE	DIMENSIONS		WEIGHT kg PER 100 PIECES
	a (mm)	f (mm)	
¼	35	17	2.68
⅜	36	21	4.45
½	44	23	5.31
¾	49	28	11.37
1	56	35	17.76
1¼	64	44	29.90
1½	64	50	38.11
2	71	6	55.35

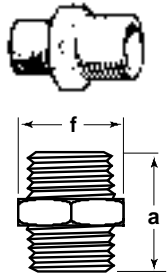
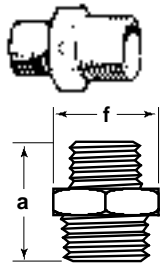


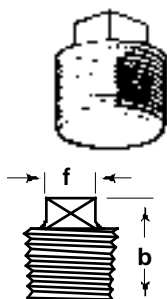
FIG. NO. J45 • HEXAGON NIPPLE

FITTING SIZE	DIMENSIONS		WEIGHT kg PER 100 PIECES
	a (mm)	f (mm)	
¼ x ¼	30	15	2.13
⅜ x ¼	35	22	3.99
½ x ⅜	38	25	4.56
¾ x ½	49	28	7.57
1 x ¾	50	38	19.32
1¼ x 1	64	44	31.62
1½ x 1¼	64	50	40.38
2 x 1½	71	62	59.84



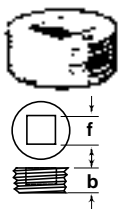
PN 16

FIG. NO. J48 • PLAIN PLUG – SOLID



FITTING SIZE	DIMENSIONS		WEIGHT kg PER 100 PIECES
	b (mm)	f (mm)	
¼	15	7	0.71
½	21	10	1.40
¾	23	11	2.52
1	23	12	5.22
1¼	26	13	8.72
1½	28	18	17.76
2	33	24	28.10
2½	35	29	44.38
3	41	32	67.03

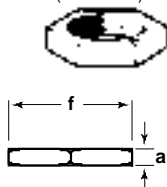
FIG. NO. J49 • COUNTERSUNK PLUG



FITTING SIZE	DIMENSIONS		WEIGHT kg PER 100 PIECES
	b (mm)	f (mm)	
¼	12	8	1.53
½	16	11	3.11
¾	17	14	5.42
1	20	15	10.63

FIG. NO. J50 • BACKNUT

Parallel thread  
to BS 2779  
(ISO 228-1)



FITTING SIZE	DIMENSIONS		WEIGHT kg PER 100 PIECES
	a (mm)	f (mm)	
¼	7	22	1.97
½	8	26	3.23
¾	8	31	3.15
1	9	38	5.22
1¼	10	45	7.36
1½	11	55	11.64
2	12	63	16.07
2½	13	76	23.70

FIG. NO. J51 • ELBOW



FITTING SIZE	DIMENSIONS a (mm)	WEIGHT kg PER 100 PIECES
¼	16	3.66
½	21	4.94
¾	25	7.00
1	28	11.47
1¼	33	13.26
1½	38	29.21
2	45	41.20
2½	50	57.32
3	58	79.10

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FITTING SIZE	DIMENSIONS		WEIGHT kg PER 100 PIECES
	a (mm)	c (mm)	
¼	21	30	4.50
⅜	24	37	7.00
½	29	41	10.46
¾	33	48	16.27
1	38	54	24.83
1¼	44	62	45.68
1½	49	68	60.26
2	60	76	92.03



FIG. NO. J61 • TEE

FITTING SIZE	DIMENSIONS a (mm)	WEIGHT kg PER 100 PIECES
⅜	22	9.26
½	26	14.31
¾	33	22.80
1	38	37.37
1¼	45	71.17
1½	50	84.91
2	58	119.58

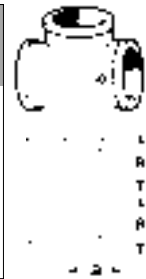


FIG. NO. J71 • CROSS

FITTING SIZE	DIMENSIONS a (mm)	WEIGHT kg PER 100 PIECES

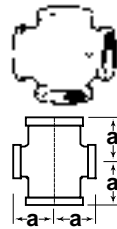
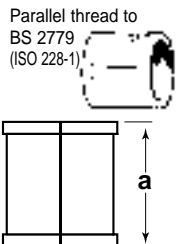


FIG. NO. J76 • SOCKET

FITTING SIZE	DIMENSIONS a (mm)	WEIGHT kg PER 100 PIECES
⅜	25	4.08
½	28	5.27
¾	34	7.21
1	39	10.29
1	42	15.45



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## FIG. NO. J79 • REDUCING SOCKET



<i>FITTING SIZE</i>	<i>DIMENSIONS a (mm)</i>	<i>WEIGHT kg PER 100 PIECES</i>
$\frac{3}{8} \times \frac{1}{4}$	26	4.68
$\frac{1}{2} \times \frac{3}{8}$	34	5.87
$\frac{3}{4} \times \frac{1}{2}$	37	9.82
$1 \times \frac{1}{2}$	44	14.69
$1 \times \frac{3}{4}$	44	15.88

## FIG. NO. J85 • CAP



<i>FITTING SIZE</i>	<i>DIMENSIONS a (mm)</i>	<i>WEIGHT kg PER 100 PIECES</i>
$\frac{1}{4}$	17	2.69
$\frac{3}{8}$	22	5.76
$\frac{1}{2}$	26	5.46
$\frac{3}{4}$	26	9.14
1	32	14.55

## FIG. NO. J256 • UNION



<i>FITTING SIZE</i>	<i>DIMENSIONS a      f (mm)    (mm)</i>		<i>WEIGHT kg PER 100 PIECES</i>
$\frac{1}{2}$	42	42	22.37
$\frac{3}{4}$	47	49	29.14
1	52	57	42.35
$1\frac{1}{4}$	56	69	67.18
$1\frac{1}{2}$	62	76	86.31
2	65	92	135.45

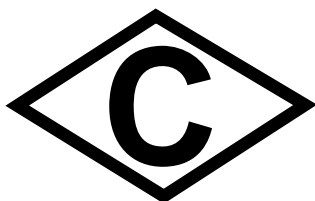
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