BUREAU VERITAS
Certification

BIS PIPE FITTING INDUSTRY CO.,LTD.

107 MOO4, PETCHKASEM RD., OMNOI, KRATUMBAN, SAMUTSAKORN 74130 THAILAND

Bureau Veritas Certification certify that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the management system standards detailed below

Standards

ISO 9001:2008

Scope of certification

MANUFACTURING AND SALES OF PIPE FITTINGS

Certification cycle start date: **9 February 2013**

Subject to the continued satisfactory operation of the organisation's Management System, this certificate expires on: **8 February 2016**

Original certification date: **2 June 2009**

Certificate no. **TH004796** Version **01** , Revision date: **4/2/2013**

Certification Authority

UKAS MANAGEMENT SYSTEMS
008

Certification body address: Brandon House, 180 Borough High Street, London SE1 1LB, United Kingdom
Local office: Bureau Veritas Certification (Thailand) Ltd. 16th Floor, Bangkok Tower, 2170 New Petchburi Road, Bangkapi, Huaykwang, Bangkok 10310, Thailand

Further clarifications regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organisation.
To check this certificate validity please call: +662 670 4800

COMPANY PROFILE

BIS Pipe Fitting Industry Co., Ltd., founded in 1974, is one of the leading manufacturer and exporter of the High Grade Malleable Iron Pipe Fitings for use in Water, Gas, Oil and Air services. **BIS** fittings are manufactured according to the International standards, namely, the **American standard [ANSI/ASTM],** the **British standard [BS EN],** and the **DIN/European standard [EN]**

Our production starts with careful sourcing of raw materials and supplies. State of the Art technologies and machines are introduced into the production process. Highly strict quality controls are implemented on every step of production to ensure the product quality delivering to the market. Through years of hard work and continuing improvement of quality, we are certified and accredited with the **DIN EN ISO 9001:2008** by **BUREAU VERITAS** for our entire quality system.

Over the years, use of **BIS** fittings proves to be the most effective and efficient, long lasting and durable, trustworthy yet economical for installation of pipelines whereas the **BIS** fittings have been widely supplied to more than 40 countries around the globe. Close and sincere cooperation with our suppliers and customers has put us on the leading edge.

The quality improvement on products and services is never ending at **BIS**. We are continuing to improve our quality fittings that value to save every single drop of water and save our earth.

Galvanized/Black Malleable Iron Pipe Fittings (Class 150) Standard specification :

Standard	AMERICAN	BRITISH	DIN
Design	ANSI/ASME B-16.3 ANSI/ASME B-16.14 ANSI/ASME B-16.39	BS EN 10242 BS 143 & 1256	DIN EN 10242
Threads	ANSI/ASME B-1.20.1	ISO 7, ISO 228 ANSI/ASME B 1.20.1	ISO 7, ISO 228
Material	ASTM A197	BS EN 1562	DIN EN 1562
Galvanizing	ASTM A153	BS EN ISO 1461	DIN EN ISO 1461
Type	BANDED	BANDED	BEADED

TIS 249-1997
THAI INDUSTRIAL STANDARD CERTIFICATION

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UL

FM Approvals

HHXX.EX15201
Fittings, Cast Iron, Ductile Iron, Malleable Iron and Bronze

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Fittings, Cast Iron, Ductile Iron, Malleable Iron and Bronze

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BIS PIPE FITTING INDUSTRY CO LTD
107 MOO 4 PETCHKASEM RD
OMNOI KRATUMBAN
SAMUTSAKORN, 74130 THAILAND

EX15201

Malleable Iron Threaded Fittings (ANSI/ASME B16.3)

Fittings fabricated with dimensional specifications in accordance with ANSI/ASME B16.3

Model/Fig.	Configuration	Size (in.)	Rated Pressure (psig)
90	90o Elbows	1/8, 1/4, 3/8, 1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4	300
120	45o Elbows	1/4, 3/8, 1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4	300
92	90o Street Elbows	1/8, 1/4, 3/8, 1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4	300
121	45o Street Elbows	1/4, 3/8, 1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4	300
90R	90o Reducing Elbows	1/4 x 1/8, 3/8 x 1/4, 3/8 x 1/8, 1/2 x 3/8, 1/2 x 1/4, 3/4 x 1/2, 3/4 x 3/8, 3/4 x 1/4, 1 x 3/4, 1 x 1/2, 1 x 3/8, 1-1/4 x 1, 1-1/4 x 3/4, 1-1/4 x 1/2, 1-1/2 x 1-1/4, 1-1/2 x 1, 1-1/2 x 3/4, 2 x 1-1/2, 2 x 1-1/4, 2 x 1, 2 x 3/4, 2-1/2 x 2, 2-1/2 x 1-1/2, 3 x 2-1/2, 3 x 2, 4 x 3	300
134	Street Tee	1/2, 3/4, 1, 1-1/2, 2	300
130	Tees	1/8, 1/4, 3/8, 1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4	300
270	Couplings	1/8, 1/4, 3/8, 1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4	300
240	Reducing Couplings	1/4 x 1/8, 3/8 x 1/8, 3/8 x 1/4, 1/2 x 1/8, 1/2 x 1/4, 1/2 x 3/8, 3/4 x 1/8, 3/4 x 1/4, 3/4 x 3/8, 3/4 x 1/2, 1 x 1/4, 1 x 3/8, 1 x 1/2, 1 x 3/4, 1-1/4 x 3/8, 1-1/4 x 1/2, 1-1/4 x 3/4, 1-1/4 x 1, 1-1/2 x 3/8, 1-1/2 x 1/2, 1-1/2 x 3/4, 1-1/2 x 1, 1-1/2 x 1-1/4, 2 x 1/2, 2 x 3/4, 2 x 1, 2 x 1-1/4, 2 x 1-1/2, 2-1/2 x 1/2, 2-1/2 x 3/4, 2-1/2 x 1, 2-1/2 x 1-1/4, 2-1/2 x 1-1/2, 2-1/2 x 2, 3 x 1/2, 3 x 3/4, 3 x 1, 3 x 1-1/4, 3 x 1-1/2, 3 x 2, 3 x 2-1/2, 4 x 1/2, 4 x 3/4, 4 x 1, 4 x 1-1/4, 4 x 1-1/2, 4 x 2, 4 x 2-1/2, 4 x 3	300
301	Caps	1/8, 1/4, 3/8, 1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4	300
180	Crosses	1/8, 1/4, 3/8, 1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4	300
165	Y Branches	1/2, 3/4, 1, 1-1/4, 1-1/2, 2	300
130R	Reducing Tees	1/4 x 1/4 x 1/8, 1/8 x 1/8 x 1/4, 3/8 x 3/8 x 1/4, 3/8 x 3/8 x 3/8, 1/8 x 1/4 x 3/8, 3/8 x 1/4 x 1/4, 1/4 x 1/4 x 3/8, 1/2 x 1/2 x 3/8, 1/2 x 1/2 x 1/4, 1/2 x 3/8 x 1/2, 1/2 x 3/8 x 3/8, 1/2 x 1/4 x 1/2, 3/8 x 3/8 x 1/2, 3/4 x 3/4 x 1/2, 3/4 x 3/4 x 3/8, 3/4 x 3/4 x 1/4, 3/4 x 1/2 x 3/4, 3/4 x 1/2 x 1/2, 3/4 x 1/2 x 3/8, 3/4 x 3/8 x 3/4, 3/4 x 3/8 x 3/8, 3/4 x 1/4 x 3/4, 1/2 x 1/2 x 3/4, 1 x 1 x 3/4, 1 x 1 x 1/2, 1 x 1 x 3/8, 1 x 1 x 1/4, 1 x 3/4 x 1, 1 x 3/4 x 3/4, 1 x 3/4 x 1/2, 1 x 1/2 x 1, 1 x 1/2 x 3/4, 1 x 1/2 x 1/2, 3/4 x 3/4 x 1, 1/2 x 1/2 x 1, 1-1/4 x 1-1/4 x 1, 1-1/4 x 1-1/4 x 3/4, 1-1/4 x 1-1/4 x 1/2, 1-1/4 x 1-1/4 x 3/8, 1-1/4 x 1 x 1-1/4, 1-1/4 x 1 x 1, 1-1/4 x 1 x 3/4, 1-1/4 x 1 x 1/2, 1-1/4 x 3/4 x 1-1/4, 1-1/4 x 3/4 x 1, 1-1/4 x 3/4 x 3/4, 1-1/4 x 1/2 x 1-1/4, 1-1/4 x 1/2 x 1, 1 x 1 x 1-1/4, 3/4 x 3/4 x 1-1/4, 1-1/2 x 1-1/2 x 1-1/4, 1-1/2 x 1-1/2 x 1, 1-1/2 x 1-1/2 x 3/4, 1-1/2 x 1-1/2 x 1/2, 1-1/2 x 1-1/4 x 1-1/2, 1-1/2 x 1-1/4 x 1-1/4, 1-1/2 x 1-1/4 x 1, 1-1/2 x 1-1/4 x 3/4, 1-1/2 x 1-1/4 x 1/2, 1-1/2 x 1 x 1-1/2, 1-1/2 x 1 x 1-1/4, 1-1/2 x 1 x 1, 1-1/2 x 3/4 x 1/2, 1-1/2 x 1/2 x 1-1/2, 1-1/4 x 1-1/4 x 1-1/2, 1 x 1 x 1-1/2, 2 x 2 x 1-1/2, 2 x 2 x 1-1/4, 2 x 2 x 1, 2 x 2 x 3/4, 2 x 2 x 1/2, 2 x 1-1/2 x 2, 2 x 1-1/2 x 1-1/2, 2 x 1-1/2 x 1-1/4, 2 x 1-1/2 x 1, 2 x 1-1/4 x 2, 2 x 1-1/4 x 1-1/2, 2 x 1-1/4 x 1-1/4, 2 x 1 x 2, 2 x 1 x 1-1/2, 2 x 3/4 x 2, 2 x 1/2 x 2, 1-1/2 x 1-1/2 x 2, 1-1/4 x 1-1/4 x 2, 1 x 1 x 2, 2-1/2 x 2-1/2 x 2, 2-1/2 x 2-1/2 x 1-1/2, 2-1/2 x 2-1/2 x 1-1/4, 2-1/2 x 2-1/2 x 1, 2-1/2 x 2-1/2 x 3/4, 2-1/2 x 2 x 2-1/2, 2-1/2 x 2 x 2, 2-1/2 x 1-1/2 x 2-1/2, 2-1/2 x 1-1/2 x 2, 2 x 2 x 2-1/2, 3 x 3 x 2-1/2, 3 x 3 x 2, 3 x 3 x 1-1/2, 3 x 3 x 1-1/4, 3 x 3 x 1-1/2, 3 x 3 x 3/4, 3 x 2-1/2 x 3, 3 x 2-1/2 x 2-1/2, 3 x 2-1/2 x 2, 3 x 2 x 3, 3 x 2 x 2, 2-1/2 x 2-1/2 x 3, 3-1/2 x 3-1/2 x 2-1/2, 4 x 4 x 3, 4 x 4 x 2-1/2, 4 x 4 x 2, 4 x 4 x 1-1/2, 4 x 3 x 4, 3 x 3 x 4	300

ONLINE CERTIFICATIONS DIRECTORY

HHXX.EX15201
Fittings, Cast Iron, Ductile Iron, Malleable Iron and Bronze

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See General Information for Fittings, Cast Iron, Ductile Iron, Malleable Iron and Bronze

BIS PIPE FITTING INDUSTRY CO LTD EX15201
107 MOO 4 PETCHKASEM RD
OMNOI KRATUMBAN
SAMUTSAKORN, 74130 THAILAND

Malleable Iron Threaded Fittings (ANSI/ASME B16.14)

Fittings fabricated with dimensional specifications in accordance with ANSI/ASME B16.14

Model/Fig.	Configuration	Size (in.)	Rated Pressure (psig)
291	Cored Plugs	1/8, 1/4, 3/8, 1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 3-1/2	300
291	Slotted Head Plug	4	300
241	Outside & Inside Head Bushings	1/4 x 1/8, 3/8 x 1/4, 3/8 x 1/8, 1/2 x 3/8, 1/2 x 1/4, 1/2 x 1/8, 3/4 x 1/2, 3/4 x 3/8, 3/4 x 1/4, 3/4 x 1/8, 1 x 3/4, 1 x 1/2, 1 x 3/8, 1 x 1/4, 1 x 1/8, 1-1/4 x 1, 1-1/4 x 3/4, 1-1/4 x 1/2, 1-1/4 x 3/8, 1-1/4 x 1/4, 1-1/2 x 1-1/4, 1-1/2 x 1, 1-1/2 x 3/4, 1-1/2 x 1/2, 1-1/2 x 3/8, 1-1/2 x 1/4, 2 x 1-1/2, 2 x 1-1/4, 2 x 1, 2 x 3/4, 2 x 1/2, 2 x 3/8, 2 x 1/4, 2-1/2 x 2, 2-1/2 x 1-1/2, 2-1/2 x 1-1/4, 2-1/2 x 1, 1-1/2 x 3/4, 2-1/2 x 1/2, 3 x 2-1/2, 3 x 2, 3 x 1-1/2, 3 x 1-1/4, 3 x 1, 3 x 3/4, 3 x 1/2, 3-1/2 x 3, 3-1/2 x 2-1/2, 3-1/2 x 2, 3-1/2 x 1-1/2, 3-1/2 x 1-1/4, 3-1/2 x 1, 4 x 3-1/2, 4 x 3, 4 x 2-1/2, 4 x 2, 4 x 1-1/2, 4 x 1-1/4, 4 x 1	300
312	Locknuts	1/4, 3/8, 1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4	300

Last Updated on 2011-09-06

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FM APPROVED

Certificate of Compliance

This certificate is issued for the following:

Threaded End Pipe Fittings
Sizes ¼ through 6 inch NPS
(see Table Attached)

Prepared for:

BIS Pipe Fitting Industry Co Ltd
107 Moo 4 Petchkasem Road Omnoi Kratumban
Samutsakhon, 74130
Thailand

Manufactured at:

BIS Pipe Fitting Industry Co Ltd
107 Moo 4 Petchkasem Road Omnoi Kratumban
Samutsakhon, 74130
Thailand

FM Approvals Class: 1920

Approval Identification: 0003040734 Approval Granted: January 31, 2012

Said Approval is subject to satisfactory field performance, continuing follow-up Facilities and Procedures Audits, and strict conformity to the constructions as shown in the Approval Guide, an online resource of FM Approvals.

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Group Manager – Fire Protection
FM Approvals
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1.Performance

BIS black heart malleable iron fittings meet all the requirements of the **EN 10242: 1994** standard, design symbol **B(R, Rp; beaded) and D(R, Rc, banded)**. This standard specifies the requirements of the design and performance of the threaded pipe fittings in malleable cast iron.

As specified in this standard, the fittings are fit for the transmission of fluids and gases up to the following limits of pressure and temperatures (see figure 1):

Applications

a. Minimum service temperature: -20°C.

   Pressure to the minimum service temperature: 25 bar.

b. Maximum working pressure for temperatures between -20°C - 120°C: 25 bar.

c. Maximum working pressure for temperatures between 120°C - 300°C: 20 - 25 bar*.

   *Interpolated values

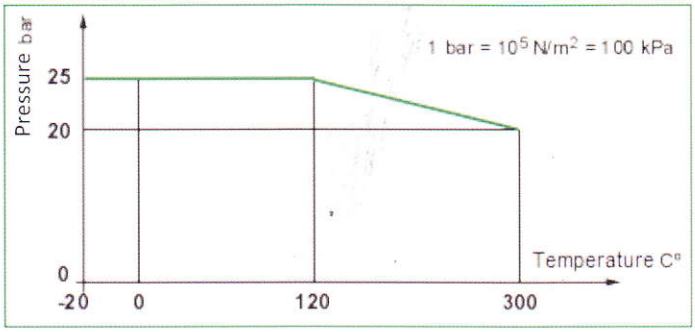


Fig. 1

BIS black heart malleable iron fittings can be used in all types of installations for the transport of fluids: **liquids, air, water, steam, natural gas, fuel gas, hydrocarbons,** etc.

2. Material

BIS fittings are produced in **black heart malleable cast iron** in accordance with the specifications of the **design symbol B(R, Rp; beaded) and D(R, Rc; banded)**. of the **EN 10242: 1994** standard. This quality grade is known as **B300-06**

In order to guarantee that the material is free from internal defects that might cause problems of leakage, the **BIS** fittings are **individually** checked in a pressure test according to **EN 10242:1994**

3.Galvanizing

BIS black heart malleable iron fittings are **hot dip galvanized** according to **EN 10242:1994**.

The zinc coating has the following properties:

- The coating is over 500 g/m2, which implies an average thickness of more than 70 µm.
- The purity of the zinc coating is 98.1% and the impurities do not exceed the admissible values according to **EN 10242:1994**.

The process of **hot dip galvanization** provides our BIS fittings with a zinc coating that is joined metallurgically to the base material by a number of Fe-Zn alloys.

This metallurgical joint provides a strong adhesion between the zinc and the base material.

The thickness of the zinc coating and the adhesion between the zinc and the base material give to our **BIS** black heart malleable iron fittings an optimal and permanent corrosion protection.

Product range


1


2


3


40


41


90


90R


92


120


121


130


130R


134


165


180


221


223


240


241




246


270


280


291



















Product range


1


2


3


40


41


85


90


90R


92


95


96


97


98


120


121


130


130R


131


133


134


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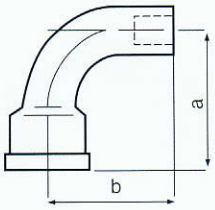
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FIG. 1
BENDS M&F 90° (BMF 90)

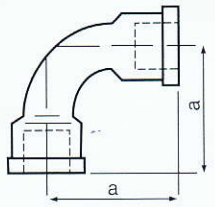




SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
1/8	32.0	32.0		0	-
1/4	40.0	36.0		450	24
3/8	44.0	44.0		0	-
1/2	52.0	52.0		180	23
3/4	69.0	60.0		90	19
1	82.0	82.0		45	16
1-1/4	100.0	100.0		20	12
1-1/2	116.0	105.0		15	12
2	140.0	140.0		8	10
2-1/2	175.0	175.0		3	8
3	205.0	190.0		2	10
4	260.0	245.0		4	26
6	375.0	375.0		1	23

FIG. 2
BENDS F 90° (BF 90)

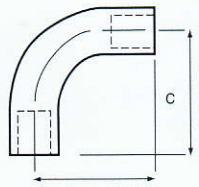




SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
1/2	52.0			150	23
3/4	65.0			80	20
1	82.0			40	16
1-1/4	100.0			20	13
1-1/2	115.0			14	12
2	140.0			7	11
2-1/2	175.0			3	8
3	205.0			2	9
4	260.0			2	18

FIG. 3
BENDS M&M 90° (BM 90)

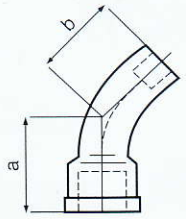




SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
1/2			48.0	270	27
3/4			60.0	100	18
1			75.0	70	16
1-1/4			95.0	30	12
1-1/2			105.0	20	11
2			130.0	12	10

FIG. 40
BENDS M&F 45° (BMF 45)

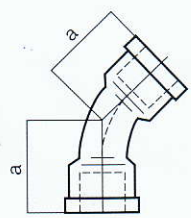




SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
3/8	35.0	35.0		400	30
1/2	38.0	38.0		200	21
3/4	45.0	45.0		110	20
1	55.0	55.0		70	21
1-1/4	63.0	63.0		30	14
1-1/2	70.0	70.0		25	14
2	85.0	85.0		14	14
2-1/2	99.0	86.0		6	10
3	113.0	100.0		3	7
4	148.0	137.0		2	10

FIG. 41
BENDS F 45° (BF 45)

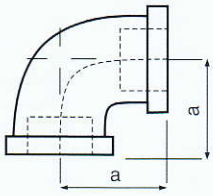




SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
1/2	38.0			150	21
3/4	45.0			90	20
1	55.0			50	17
1-1/4	63.0			30	16
1-1/2	70.0			20	14
2	85.0			10	12
2-1/2	100.0			6	12
3	115.0			3	8
4	145.0			0	-

FIG. 90
ELBOWS 90° (L 90)

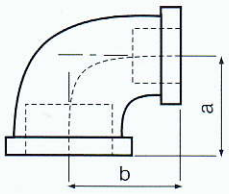




SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
1/8	17.5			1100	33
1/4	20.6			600	28
3/8	24.1			350	25
1/2	28.5			230	26
3/4	33.3			120	23
1	38.1			70	19
1-1/4	44.5			45	19
1-1/2	49.3			30	18
2	57.2			18	17
2-1/2	68.6			10	13
3	78.2			4	9
4	96.3			2	9
5	114.3			1	7
6	130.3			1	7

FIG. NO 90R
RED. ELBOWS (RL)

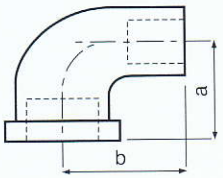




SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
1/4x1/8	18.8	19.3		0	-
3/8x1/8	20.5	21.6		450	24
3/8x1/4	22.4	22.9		450	29
1/2x1/8	22.0	23.4		350	28
1/2x1/4	24.6	24.9		350	29
1/2x3/8	26.4	26.2		300	28
3/4x1/8	24.1	26.0		130	14
3/4x1/4	26.7	27.4		170	21
3/4x3/8	28.5	28.7		170	22
3/4x1/2	30.5	31.0		150	23
1x1/8	26.2	29.7		0	-
1x1/4	28.2	31.0		110	17
1x3/8	30.0	32.3		120	21
1x1/2	32.0	35.5		100	20
1x3/4	34.8	36.8		100	23
1-1/4x3/8	32.8	36.6		60	16
1-1/4x1/2	34.0	38.9		55	15
1-1/4x3/4	36.8	41.2		55	16
1-1/4x1	40.1	42.4		50	17
1-1/2x3/8	33.8	39.0		50	16
1-1/2x1/2	35.8	42.2		50	16
1-1/2x3/4	38.6	44.5		45	21
1-1/2x1	41.9	45.7		35	15
1-1/2x1-1/4	46.2	47.8		30	14
2x1/2	37.3	43.4		25	12
2x3/4	40.6	50.0		25	13
2x1	43.5	50.5		25	14
2x1-1/4	48.3	53.3		20	13
2x1-1/2	51.3	54.9		20	14
2-1x3/4	43.8	59.4			
2-1/2x1	47.5	60.2		15	14
2-1/2x1-1/4	51.8	62.2		12	12
2-1/2x1-1/2	54.9	63.8		12	13
2-1/2x2	60.7	66.0		10	12
3x1-1/2	57.9	71.0		6	8
3x2	64.0	73.4		6	8
3x2-1/2	71.9	75.9		5	9
4x2	69.0	88.5		4	9
4x2-1/2	81.0	91.0		3	9
4x3	83.8	91.4		3	9

FIG. 92
STREET ELBOWS 90° (SL 90)

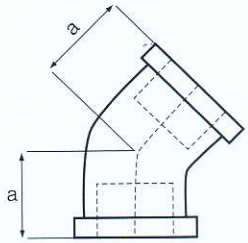




SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
1/8	17.5	25.4		1200	31
1/4	20.6	30.2		700	31
3/8	24.1	36.6		500	28
1/2	28.5	41.2		230	24
3/4	33.3	48.0		130	20
1	38.1	54.4		70	19
1-1/4	44.5	62.2		40	16
1-1/2	49.3	68.3		30	16
2	57.2	82.8		15	12
2-1/2	68.6	98.0		8	12
3	78.2	114.6		5	12
4	96.3	144.5		2	8

FIG. 120
ELBOWS 45° (L 45)

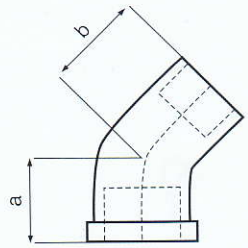




SIZE (INCH)-	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
1/8	17.0			900	25
1/4	18.5			630	32
3/8	20.3			400	27
1/2	22.4			250	27
3/4	24.9			150	25
1	28.5			90	23
1-1/4	32.8			45	17
1-1/2	36.3			30	15
2	42.7			20	14
2-1/2	49.5			10	13
3	55.1			6	12
4	66.3			2	7
5	77.5			2	7
6	87.9			1	6

FIG. 121
STREET ELBOWS 45° (SL 45)

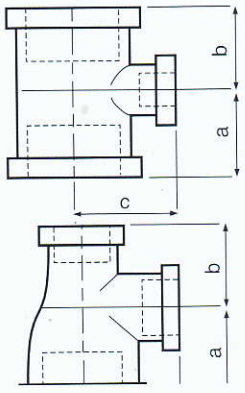




SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
1/8	17.0	21.0		320	8
1/4	18.5	23.9		650	26
3/8	20.3	26.2		500	34
1/2	22.4	29.2		300	25
3/4	24.9	32.8		180	26
1	28.5	37.3		100	21
1-1/4	32.8	43.4		50	16
1-1/2	36.3	47.8		35	16
2	42.7	56.4		18	13
2-1/2	49.5	65.3		12	15
3	55.1	76.2		6	12
4	66.3	94.0		2	7

FIG. 130
RED. TEES (RT)

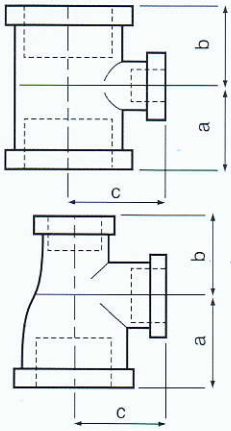




SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
1/4x1/8	18.8	18.8	19.3	400	24
3/8x1/8	20.6	20.6	21.6	300	23
3/8x1/4	22.4	22.4	22.9	300	27
1/2x1/8	22.8	22.8	23.8	200	22
1/2x1/4	24.6	24.6	24.9	150	17
1/2x3/8	26.4	26.4	26.2	150	21
3/4x1/8	24.8	24.8	26.8	75	12
3/4x1/4	26.7	26.7	27.4	100	17
3/4x3/8	28.5	28.5	28.7	75	14
3/4x1/2	30.5	30.5	31.0	75	19
1x1/4	28.2	28.2	31.0	70	19
1x3/8	30.0	30.0	32.3	70	18
1x1/2	32.0	32.0	35.5	60	17
1x3/4	34.8	34.8	36.8	50	16
1-1/4x3/8	32.0	32.0	36.6		

FIG. 130R
RED. TEES (RT)

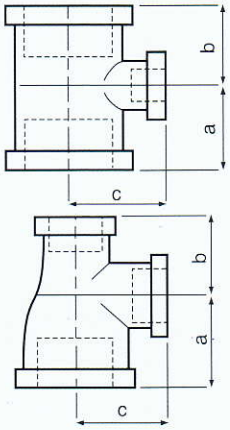




SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
1-1/4x1/2	34.0	34.0	38.9	40	16
1-1/4x3/4	36.8	36.8	41.2	40	18
1-1/4x1	40.1	40.1	42.4	30	15
1-1/2x1/4	31.0	31.0	38.0	30	13
1-1/2x1/2	35.8	35.8	42.2	30	16
1-1/2x3/4	38.6	38.6	44.5	30	17
1-1/2x1	41.9	41.9	45.7	30	19
1-1/2x1-1/4	46.2	46.2	47.8	25	17
2x1/2	37.9	37.9	47.8	24	19
2x3/4	40.6	40.6	50.0	22	17
2x1	43.9	43.9	51.3	18	15
2x1-1/4	48.3	48.3	53.3	16	15
2x1-1/2	51.3	51.3	54.9	15	12
2-1/2x1/2	41.0	41.0	57.0	10	13
2-1/2x3/4	44.2	44.2	58.9	10	12
2-1/2x1	47.5	47.5	60.2	10	11
2-1/2x1-1/4	51.8	51.8	62.2	10	14
2-1/2x1-1/2	54.9	54.9	63.8	10	15
2-1/2x2	60.7	60.7	66.0	8	12
3x1/2	43.0	43.0	65.7	6	8
3x3/4	47.5	47.5	66.3	6	9
3x1	50.8	50.8	67.6	6	9
3x1-1/4	55.1	55.1	69.6	6	10
3x1-1/2	58.2	58.2	71.1	6	14
3x2	64.0	64.0	73.4	5	12
3x2-1/2	71.9	71.9	76.0	5	12
4x1/2	50.0	50.0	79.0	3	7
4x3/4	57.0	57.0	80.5	2	5
4x1	57.0	57.0	82.5	2	5
4x1-1/4	60.5	60.5	86.5	2	6
4x1-1/2	63.8	63.8	84.3	2	6
4x2	69.6	69.6	86.6	2	7
4x2-1/2	77.5	77.5	89.2	2	7
4x3	83.8	83.8	91.4	2	9
5x3	87.0	87.0	107.0	2	-
6x2	78.2	78.2	115.8	1	7
6x2-1/2	86.1	86.1	118.4	1	7
6x3	92.5	92.5	120.7	1	8
6x4	104.9	104.9	125.5	1	9
3/4x1/2x1/2	30.5	28.5	31.0	100	19
3/4x3/8x3/4	33.3	28.7	33.3	90	19
3/4x1/2x3/4	33.3	31.0	33.3	75	16
3/4x1/2x1	34.8	33.0	34.0	65	17
1x1/2x1/2	32.0	28.5	35.5	60	14
1x1/2x3/4	34.8	31.0	36.8	60	15
1x1/2x1	38.1	35.5	38.1	50	11
1x3/4x1/2	32.0	30.5	35.3	70	18
1x3/4x3/4	34.8	33.3	36.8	60	18
1x3/4x1	38.1	36.8	38.1	60	14
1-1/4x1/2x1/2	34.0	32.0	34.4	50	16
1-1/4x1/2x3/4	48.0	42.5	53.8	50	16
1-1/4x1/2x1	40.1	34.5	42.4	40	16
1-1/4x1/2x1-1/4	44.5	38.9	44.5	30	14
1-1/4x3/4x1/2	33.8	29.3	38.3	50	16
1-1/4x3/4x3/4	36.8	33.3	41.2	40	15
1-1/4x3/4x1	40.1	36.8	42.4	30	12
1-1/4x3/4x1-1/4	44.5	41.2	44.5	30	15
1-1/4x1x1/2	34.0	32.0	38.9	30	11
1-1/4x1x3/4	36.8	34.8	41.2	30	12
1-1/4x1x1	40.1	38.1	42.4	30	14
1-1/4x1x1-1/4	44.5	42.4	44.5	25	13
1-1/2x1/2x1/2	35.0	27.4	42.3	35	13
1-1/2x1/2x3/4	38.6	31.0	44.5	35	15
1-1/2x1/2x1	41.0	32.8	45.5	35	14
1-1/2x1/2x1-1/4	49.3	42.2	47.8	25	15
1-1/2x1/2x1-1/2	49.3	42.2	49.3	25	17
1-1/2x3/4x1/2	35.0	29.0	42.3	40	14
1-1/2x3/4x3/4	37.9	31.9	43.3	40	17
1-1/2x3/4x1	41.9	36.9	45.7	40	22
1-1/2x3/4x1-1/4	46.0	41.0	48.0	25	14
1-1/2x3/4x1-1/2	49.3	44.5	49.3	30	20
1-1/2x1x1/2	35.0	32.3	42.3	40	16

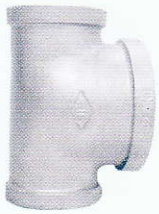
FIG. 130R
RED. TEES (RT)

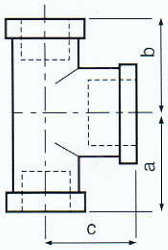




SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
1-1/2x1x3/4	42.0	35.0	43.0	30	14
1-1/2x1x1	41.9	38.1	45.7	30	15
1-1/2x1x1-1/4	46.2	42.4	47.8	20	13
1-1/2x1x1-1/2	49.3	45.7	49.3	20	14
1-1/2x1-1/4x1/2	35.8	34.0	42.2	30	14
1-1/2x1-1/4x3/4	38.6	36.3	44.5	30	15
1-1/2x1-1/4x1	41.9	40.1	45.7	25	14
1-1/2x1-1/4x1-1/4	46.2	44.5	47.8	20	13
1-1/2x1-1/4x1-1/2	49.3	47.8	49.3	20	14
1-1/2x1-1/4x2	55.0	54.0	52.5	16	15
2x1/2x1/2	37.8	27.0	48.7	30	16
2x1/2x2	57.2	47.8	57.2	18	16
2x3/4x2	57.2	50.0	57.2	22	16
2x1x1/2	38.0	31.0	48.4	20	11
2x1x3/4	41.2	33.0	49.0	20	11
2x1x1	44.8	38.3	52.4	20	13
2x1x1-1/4	47.8	42.1	54.2	16	13
2x1x1-1/2	51.3	45.7	54.9	16	14
2x1x2	57.2	51.3	57.2	16	16
2x1-1/4x1/2	38.0	34.0	50.0	25	15
2x1-1/4x3/4	41.0	38.0	49.3	25	15
2x1-1/4x1	45.0	40.6	52.0	20	13
2x1-1/4x1-1/4	48.3	44.5	53.3	15	12
2x1-1/4x1-1/2	51.3	47.8	54.9	15	15
2x1-1/4x2	57.2	53.3	57.2	16	16
2x1-1/2x1/2	46.3	45.7	48.4	16	12
2x1-1/2x1	43.9	41.9	51.3	16	12
2x1-1/2x1-1/4	48.3	46.2	53.3	16	13
2x1-1/2x1-1/2	51.3	49.3	54.9	16	14
2x1-1/2x2	57.2	54.8	57.2	15	13
2-1/2x1-1/2x2-1/2	69.2	63.8	68.5	6	12
2-1/2x2x1-1/2	60.7	57.2	63.8		
2-1/2x2x2-1/2	68.6	66.0	68.6	6	12
3x2x2	64.0	57.2	73.4	5	9

FIG. 130R
BULL HEAD TEE (BHT)

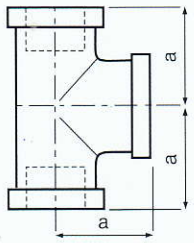




SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
3/8x3/8x1/2	26.2	26.2	26.4		
1/2x1/2x3/4	31.0	31.0	30.5	100	18
1/2x1/2x1	34.6	34.6	32.0	70	16
3/4x3/4x1	36.8	36.8	34.8	50	13
3/4x3/4x1-1/4	41.2	41.2	36.8		
1x1x1-1/4	42.4	42.4	40.1	30	15
1x1x1-1/2	45.7	45.7	41.9	30	17
1x1x2	51.3	51.3	48.9		
1-1/4x1-1/4x1-1/2	47.8	47.8	46.2	40	16
1-1/4x1-1/4x2	53.3	53.3	48.3	16	13
1-1/2x1-1/2x2	54.9	54.9	51.3	16	15
2x2x2-1/2	66.0	66.0	60.7	9	14
2-1/2x2-1/2x3	76.0	76.0	71.9	5	13

FIG. 130
TEES (T)

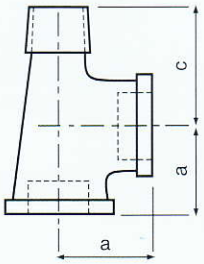




SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
1/8	17.5			620	28
1/4	20.6			320	20
3/8	24.1			200	20
1/2	28.5			140	23
3/4	33.3			80	20
1	38.1			45	18
1-1/4	44.5			25	14
1-1/2	49.3			22	18
2	57.2			13	17
2-1/2	68.6			6	11
3	78.2			4	12
3-1/2	86.9				
4	96.3			2	11
5	114.3			1	7
6	130.3			1	11

FIG. 134
STREET TEES (ST)

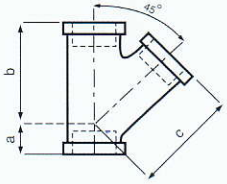




SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
1/2	28.5		41.2	150	23
3/4	33.3		48.0	80	18
1	38.1		54.4	45	17
1-1/2	49.3		68.3	21	16
2	57.2		82.8	12	16

FIG. 165
LATERAL Y BRANCH, 45° (Y 45)

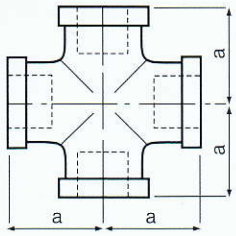




SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
1/2	15.5	43.4	43.4		
3/4	18.3	52.1	52.1		
1	21.6	61.7	61.7	40	21
1-1/4	25.9	74.2	74.2	22	18
1-1/2	27.9	83.3	83.3	18	18
2	31.5	99.8	99.8		

FIG. 180
CROSSES (CR)

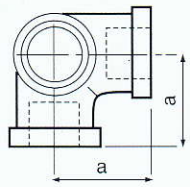




SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
1/8	17.5			500	26
1/4	20.6			280	24
3/8	24.1			170	21
1/2	28.5			110	19
3/4	33.3			60	17
1	38.1			40	18
1-1¼	44.5			18	13
1-1/2	49.3			17	14
2	57.2			7	11
2-1/2	68.6			5	12
3	78.2			4	12
4	96.3			1	6
6	130.3			1	13

FIG. 221
SIDE OUTLET ELBOWS (SOL)

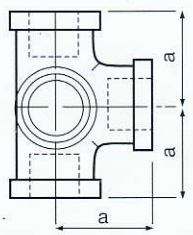




SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
1/2	28.0			140	21
3/4	33.0			80	18
1	38.0			50	19
1-1/4	45.0			25	14
1-1/2	50.0			18	13
2	58.0			9	11

FIG. 223
SIDE OUTLET TEES (SOT)

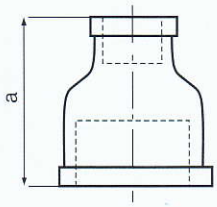




SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
1/2	28.0			0	-
3/4	33.0			60	17
1	38.0			40	18
1-1/4	45.0			20	14
1-1/2	50.0			12	11
2	58.0			6	7

FIG. 240
RED. COUPLING (RED. SOCKETS) (RS)

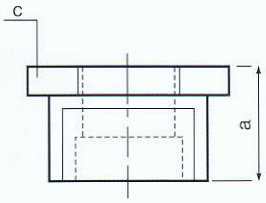


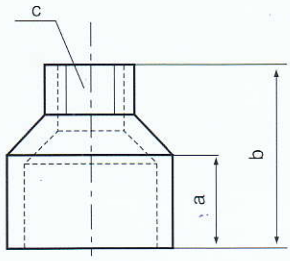


SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
1/4x1/8	25.4			1000	37
3/8x1/8	28.7			500	24
3/8x1/4	28.7			500	26
1/2x1/8	31.8			450	32
1/2x1/4	31.8			450	32
1/2x3/8	31.8			420	30
3/4x1/8	36.6			200	21
3/4x1/4	36.6			200	20
3/4x3/8	36.6			200	23
3/4x1/2	36.6			200	23
1x1/4	42.9			160	22
1x3/8	42.9			150	22
1x1/2	42.9			120	21
1x3/4	42.9			110	21
1-1/4x3/8	52.3			0	-
1-1/4x1/2	52.3			70	17
1-1/4x3/4	52.3			70	19
1-1/4x1	52.3			70	20
1-1/2X3/8	58.7			60	14
1-1/2X1/2	58.7			60	19
1-1/2x3/4	58.7			60	20
1-1/2x1	58.7			50	19
1-1/2x1-1/4	58.7			40	16
2X1/4	71.4			36	14
2X3/8	71.4			35	15
2x1/2	71.4			36	16
2x3/4	71.4			36	16
2x1	71.4			36	20
2x1-1/4	71.4			30	16
2x1-1/2	71.4			24	15
2-1/2x1/2	82.6			20	15
2-1/2x3/4	82.6			20	15
2-1/2x1	82.6			20	14
2-1/2x1-1/4	82.6			20	15
2-1/2x1-1/2	82.6			16	12
2-1/2x2	82.6			16	14
3x1/2	72.0			16	17
3x3/4	72.0			16	15
3x1	72.0			16	15
3x1-1/4	72.0			10	10
3x1-1/2	72.0			10	10
3x2	93.7			10	10
3x2-1/2	93.7			9	11
4x1/2	85.0				
4x3/4	85.0			0	-
4x1	85.0			7	10
4x1-1/4	85.0			7	11
4x1-1/2	85.0			6	10
4x2	85.0			6	12
4x2-1/2	111.3			6	10
4x3	85.0			6	12
5X3	95.0			6	16
5X4	95.0			4	11
6X2	120.0			4	14
6X3	120.0			4	14
6X4	120.0			4	17
6X5	120.0			2	9

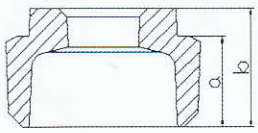
FIG. 241
BUSHINGS (BU)

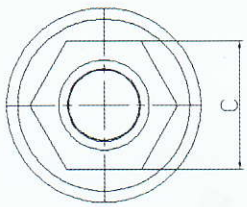




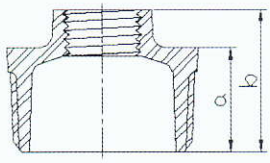


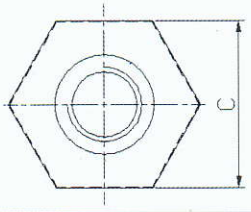
Note :
C : Width of Head (American Standard)





Note :
C : Width of Head (British Standard)

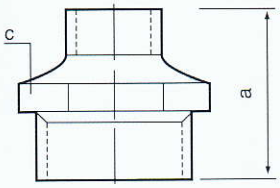




SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
1/4x1/8	20.0		17.0	1200	16
3/8x1/8	20.0		19.0	1000	20
3/8x1/4	20.0		19.0	1000	19
1/2x1/8	24.0		22.1	500	21
1/2x1/4	24.0		22.1	500	19
1/2x3/8	24.0		22.1	500	19
3/4x1/8	26.0		30.0	350	25
3/4x1/4	26.0		30.0	350	25
3/4x3/8	26.0		30.0	350	22
3/4x1/2	26.0		30.0	350	20
1x1/8	19.2	31.0	28.5		
1x1/4	19.2	31.0	28.5	250	29
1x3/8	19.2	31.0	28.5	250	30
1x1/2	29.0		36.1	250	25
1x3/4	29.0		36.1	250	21
1-1/4x1/8	20.3	33.0	28.5	130	20
1-1/4x1/4	20.3	33.0	28.5	130	32
1-1/4x3/8	20.3	33.0	28.5	130	24
1-1/4x1/2	20.3	32.9	34.0	130	17
1-1/4x3/4	33.0		45.0	130	22
1-1/4x1	33.0		45.0	130	18
1-1/2x1/4	22.0	35.0	28.5	90	22
1-1/2X3/8	22.0	35.0	28.5	150	27
1-1/2X1/2	21.0	34.0	34.1	120	33
1-1/2x3/4	21.0	34.0	41.5	120	33
1-1/2x1	34.0		51.0	120	28
1-1/2x1-1/4	34.0		51.0	120	20
2X1/4	22.5	38.0	28.5	90	32
2X3/8	22.5	38.0	28.5	90	35
2x1/2	22.5	38.0	34.0	50	20
2x3/4	22.5	38.0	41.5	50	15
2x1	22.5	38.0	49.5	50	20
2x1-1/4	35.0		63.7	50	18
2x1-1/2	35.0		63.7	50	15
2-1/2x1/2	33.5	42.0	34.0	40	28
2-1/2x3/4	28.0	44.5	42.0	40	25
2-1/2x1	30.0	46.0	50.0	40	28
2-1/2x1-1/4	30.0	46.0	60.7	40	26
2-1/2x1-1/2	42.0		80.0	40	25
2-1/2x2	42.0		80.0	40	18
3x1/2	46.0	61.0	95.0	18	18
3x3/4	46.0	61.0	95.0	18	18
3x1	46.0	59.0	95.0	18	18
3x1-1/4	46.0	61.0	95.0	18	20
3x1-1/2	46.0	61.0	95.0	18	19
3x2	48.0		95.0	18	17
3x2-1/2	48.0		95.0	18	13
3-1/2x1-1/2	30.0	43.5	68.0	20	20
3-1/2x2	30.0	43.5	84.0	20	20
3-1/2x3	41.0		117.3	20	18
4x1/2	53.0	71.0	120.0		
4x3/4	53.0	71.0	120.0	0	-
4x1	53.0	71.0	120.0	10	17
4x1-1/4	53.0	71.0	120.0	10	19
4x1-1/2	53.0	71.0	120.0	10	15
4x2	51.0	49.0	83.0	10	16
4x2-1/2	29.4	46.0	98.3	10	17
4x3	51.0		120.0	10	15
5x4	57.0		145.0	6	13
6x2	64.0		170.0	5	21
6x2-1/2	64.0		176.0	5	21
6X3	64.0		176.0	5	22
6X4	64.0		176.0	5	20
6X5	64.0		176.0	5	14

FIG. 245
RED. HEX. NIPPLES (RNI)



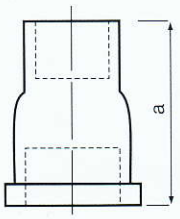


Note :
C : Spanner width

SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
3/8x1/4	38.0		19.0	700	28
1/2x1/4	44.0		22.0	450	25
1/2x3/8	44.0		22.0	500	35
3/4x3/8	47.0		30.0	230	21
3/4x1/2	47.0		30.0	230	24
1x1/2	53.0		36.0	150	22
1x3/4	53.0		38.0	150	25
1-1/4x1/2	57.0		46.0	90	22
1-1/4x3/4	57.0		46.0	80	18
1-1/4x1	57.0		46.0	80	19
1-1/2X1/2	59.0		50.0	60	15
1-1/2x3/4	59.0		50.0	60	16
1-1/2x1	59.0		50.0	60	17
1-1/2x1-1/4	59.0		50.0	60	18
2x3/4	68.0		65.0	36	16
2x1	68.0		65.0	36	16
2x1-1/4	68.0		65.0	35	16
2x1-1/2	68.0		65.0	35	15
2-1/2x1-1/2	75.0		80.0	24	16
2-1/2x2	75.0		80.0	24	17
3x2	83.0		94.0	15	15
3x2-1/2	83.0		94.0	12	11
4x2	95.0		120.0	8	14
4x3	95.0		120.0	8	14

FIG. 246
EXTENSION PIECES (X)

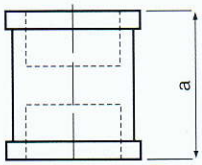




SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
3/8	35.0			500	22
1/2	43.0			350	32
3/4	48.0			190	24
1	55.0			100	19
1-1/4	60.0			50	15
1-1/2	63.0			40	15
2	70.0			20	12

FIG. 270
COUPLINGS (SOCKETS) (S)

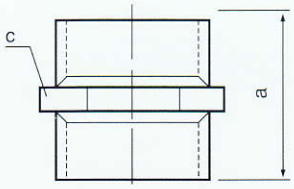




SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
1/8	24.4			1200	31
1/4	26.9			800	33
3/8	29.5			500	29
1/2	34.0			300	24
3/4	39.0			180	22
1	42.4			110	22
1-1/4	49.0			60	19
1-1/2	54.6			40	17
2	64.3			24	16
2-1/2	73.2			18	17
3	80.8			12	20
4	93.7			5	15
6	105.0			2	13

FIG. 280
HEXAGON NIPPLES (NI)



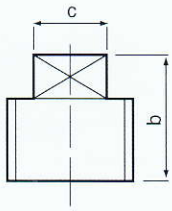


Note :
C : Spanner width

SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
1/8	29.0		17.0	0	–
1/4	36.0		19.0	1000	31
3/8	38.0		22.0	600	29
1/2	44.0		25.0	380	24
3/4	47.0		32.0	200	24
1	53.0		41.0	130	22
1-1/4	57.0		46.0	70	16
1-1/2	59.0		54.0	60	21
2	68.0		68.0	30	14
2-1/2	75.0		85.0	18	14
3	83.0		94.0	12	12
4	95.0		120.0	6	10
5	104.0		145.0	4	12
6	117.0		170.0	2	8

FIG. 291
PLUGS (P)

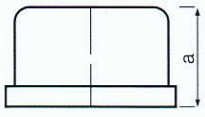




SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
1/8		15.4	7.0	5000	35
1/4		18.2	9.5	3000	39
3/8		20.2	11.0	1600	40
1/2		24.1	14.2	900	40
3/4		27.1	15.8	500	34
1		31.8	20.6	300	37
1-1/4		34.5	23.8	150	21
1-1/2		36.0	28.6	120	21
2		40.0	33.3	70	21
2-1/2		49.0	33.5	35	18
3		49.0	43.0	35	26
3-1/2		54.0	49.0	30	34
4		58.0	58.0	14	17
5		70.0	68.5	8	19
6		73.0	76.5	7	20

FIG. 301
CAPS (CA)

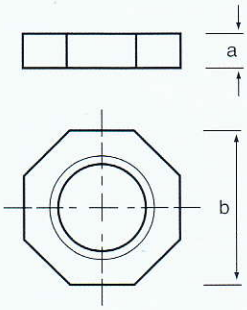




SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
1/8	13.5			1000	17
1/4	16.0			1000	26
3/8	18.8			700	30
1/2	22.1			500	30
3/4	24.6			300	27
1	29.5			180	27
1-1/4	32.5			100	23
1-1/2	33.8			80	24
2	36.8			50	20
2-1/2	43.2			32	24
3	45.7			20	21
4	52.8			12	20
5	58.9			8	19
6	64.8			5	17

FIG. 312
LOCKNUTS (LN)

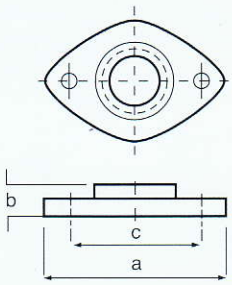




SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
1/4	7.5	22.0			
3/8	8.0	27.0		1500	38
1/2	9.0	32.0		900	33
3/4	10.0	38.0		600	32
1	11.0	46.0		370	31
1-1/4	12.0	56.0		200	23
1-1/2	13.0	63.0		150	23
2	14.5	78.0		100	24
2-1/2	17.0	100.0		40	18
3	19.0	113.0		35	21
5	22.0	145.0		20	23
4	22.0	165.0		0	-
6	30.0	210.0		0	-

FIG. (320)
OVAL FLANGES (OF)

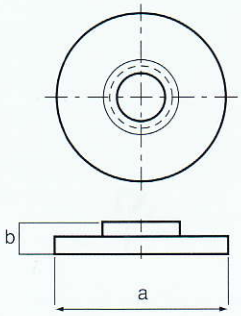




SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
1/2	80.0	17.0	55.0	200	48
1-1/4	120.0	22.0	90.0	50	27
2	140.0	24.0	110.0	40	30

FIG. 321A
FLOOR FLANGES WITHOUT HOLES (BF)

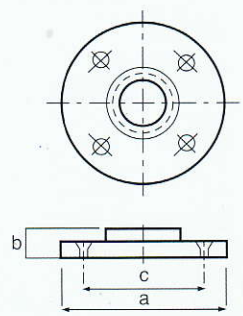




SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
1/8	50.0	8.3		450	28
1/4	64.2	8.5		320	31
3/8	75.0	10.0		250	34
1/2	95.0	12.0		150	40
3/4	102.0	14.0		70	21
1	114.0	16.0		60	23
1-1/4	120.0	18.0		40	21
1-1/2	133.0	19.0		30	20
2	152.0	21.0		20	20
2-1/2	164.5	24.0		15	19
3	184.0	26.0		15	27
4	216.0	30.0		6	14
5	254.0	32.0		3	12
6	280.0	35.0		2	10

FIG. 321B
FLOOR FLANGES 4 HOLES (AFF)

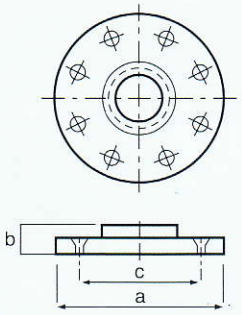




SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
1/4	60.0	8.6	40.0		
3/8	68.0	12.0	46.0	200	27
1/2	76.0	12.5	52.0	150	36
3/4	82.5	14.0	58.0	70	21
1	96.5	19.0	76.0	60	26
1-1/4	101.4	19.0	76.7	40	20
1-1/2	112.7	23.5	84.0	30	18
2	129.3	25.3	100.0	20	18

FIG. 321 C
FLOOR FLANGES

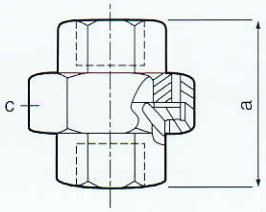




SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
1/2	95.0	12.0	67.0		
3/4	102.0	14.0	73.0		
1	114.0	16.0	83.0		
1-1/4	120.0	18.0	87.0		
1-1/2	133.0	19.0	98.0		
2	152.0	21.0	114.0		
2-1/2	165.0	24.0	127.0		
3	184.0	26.0	146.0		
5	216.0	30.0	178.0		
4	254.0	32.0	210.0	6	14
6	280.0	35.0	235.0	2	9

FIG. 330
UNION FLAT SEAT (U)



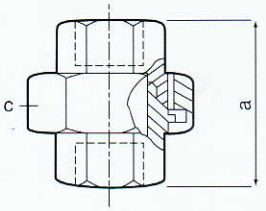


Note :
C : Spanner width

SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
1/8	32.5		26.0	0	-
1/4	37.5		31.0	250	22
3/8	42.0		37.0	200	29
1/2	49.5		43.0	130	26
3/4	51.5		49.0	60	17
1	59.0		59.0	50	22
1-1/4	60.0		69.0	30	17
1-1/2	67.0		78.0	25	21
2	75.5		93.0	14	18
2-1/2	84.0		114.0	10	19
3	93.0		127.0	5	14
4	114.0		160.0	4	19
6	140.0		219.0	1	10

FIG. 340
UNION CANICAL JOINT IRON TO IRON FEMALE (EU)



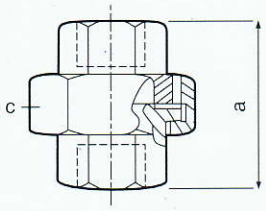


Note :
C : Spanner width

SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
3/8	44.0		36.0	200	31.4
1/2	49.0		41.0	120	19.3
3/4	52.0		49.0	60	17.3
1	58.0		55.0	50	17.7
1-1/4	66.0		70.0	30	17.9
1-1/2	69.0		75.0	25	18.9
2	78.0		91.0	14	16.9
2-1/2	84.0		110.0	12	23.5
3	95.0		130.0	5	14.1
4	109.0		150.0	4	15.0

FIG. 350
UNION BRASS SEAT (AU)





SIZE (INCH)	a	b (mm.)	c	PCS/ CARTON	WT/ MASTER KGS.
1/8	33.0		25.0	0	-
1/4	37.5		31.0	0	-
3/8	42.0		37.0	200	29
1/2	50.0		42.0	130	25
3/4	51.5		49.0	90	26
1	58.5		59.0	50	22
1-1/4	60.0		69.0	35	21
1-1/2	66.5		78.0	20	16
2	77.0		93.0	14	17
2-1/2	84.0		114.0	10	19
3	94.0		127.0	5	13
4	115.0		160.0	4	19
6	143.0		219.0	0	-