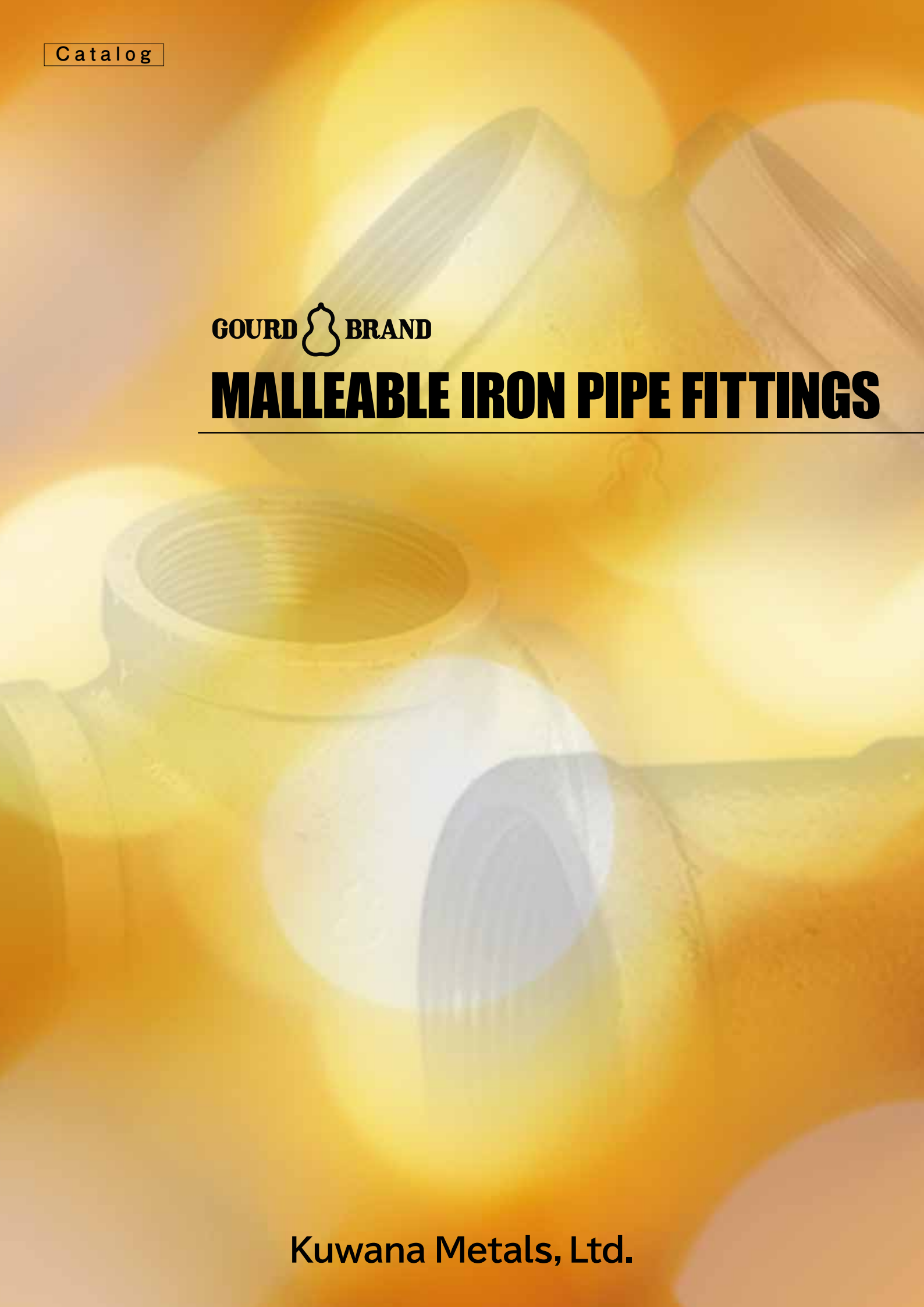
Catalog

GOURD BRAND

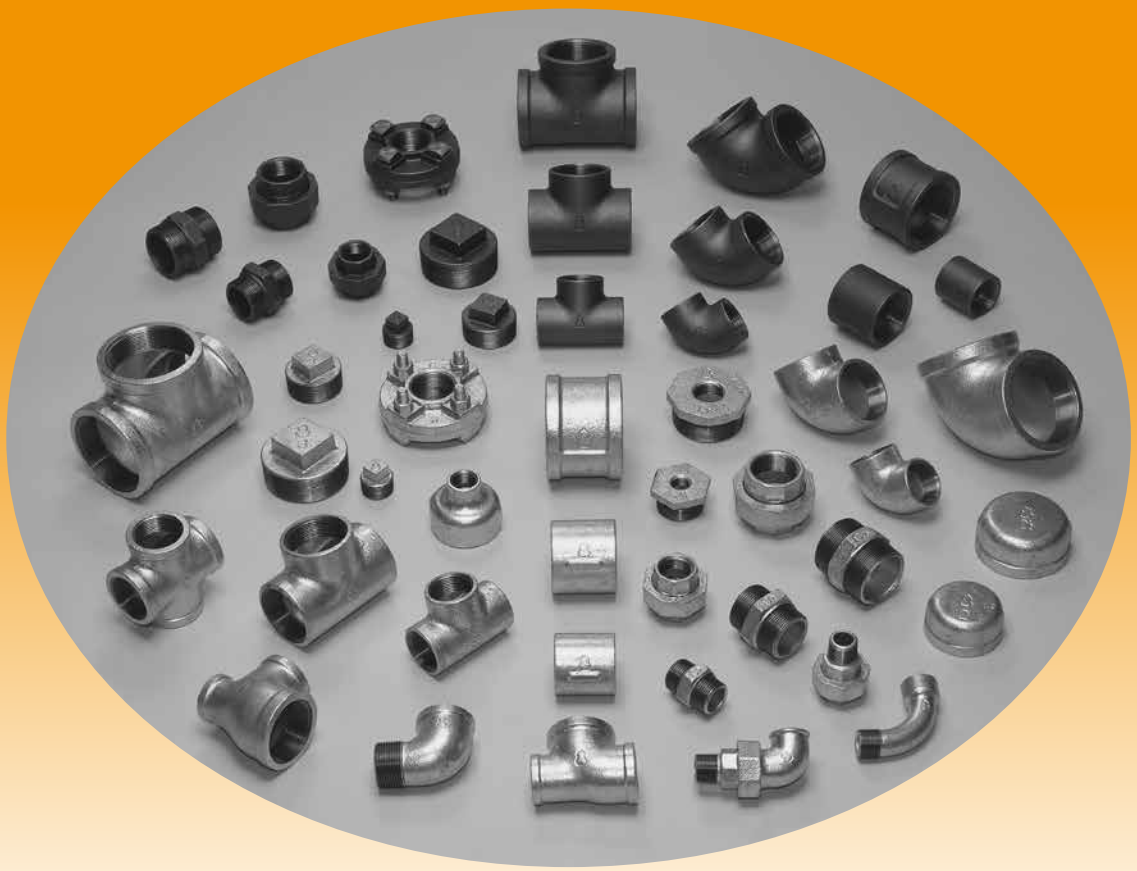
MALLEABLE IRON PIPE FITTINGS



Kuwana Metals, Ltd.

GOURD BRAND

MALLEABLE IRON PIPE FITTINGS



GOURD **BRAND** malleable iron pipe fittings are manufactured by Kuwana Metals, Ltd. the leading manufacturer of malleable iron pipe fittings in the world with a century of experience.

The high quality of **GOURD** **BRAND** pipe fittings is achieved by strict quality control in every stage of the manufacturing process.

GOURD **BRAND** has lived up to its reputation for excellence in quality, variety, and punctual delivery, which is known the world over.

Contents

Technical Information

1) Material

GOURD BRAND pipe fittings made of black heart malleable iron to ASTM A197

2) Specification

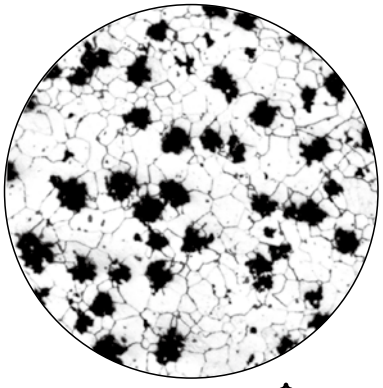
ANSI/ASME B16.3, B16.14, B16.39

3) Thread

NPT:ANSI/ASME B1.20.1, BS/DIN:ISO7-1:1994

4) Galvanized

NPT/BS/DIN:ANSI/ASTM A153 / A153M (equiv. BS143 & 1256/EN10242)



Microstructure of the GOURD BRAND
Black Heart Malleable Iron after Annealing (x100)

5) Pressure - Temperature Ratings

Maximum Working Pressure for Class 150lbs	
Temperature(°C)	Pressure(bar)
-29 to 66	20.7
100	17.5
125	15.2
150	12.8
175	10.5*1

*1 Permissible for service temperature up to 186°C, reflecting the temperature of saturated steam at 10.3 bar.

General Notes;

(a) 1bar = 14.5psi = 100kPa (b) $°C = \frac{°F-32}{1.8}$

6) Tolerances*2

Size	Tolerance(mm)
1/8	±0.8
1/4	±1.0
3/8	±1.3
1/2,3/4	±1.5
1 ,1 1/4	±1.8

Size	Tolerance(mm)
1 1/2,2	±2.0
2 1/2,3	±2.5
4,5	±3.0
6	±3.6

*2 The tolerances listed in the table are the allowable tolerances for the dimensions from the center to the end of the fittings and apply to the items specified in ANSI/ASME. Tolerances for end-to-end dimensions and lengths of the fittings including reducers shall be twice those given. The largest bore's tolerance to be applied in reducing fittings. These tolerances do not apply to caps, plugs, bushings, locknuts, and unions. (See ANSI/ASME 16.3)
For dimensions of plugs, bushings, and locknuts, see ANSI/ASME B16.14.
For dimensions of unions, see ANSI/ASME B16.39.

Ordering Information

1) When ordering the GOURD BRAND Pipe Fittings, please specify the requirements:
- •Type of thread.
- •Black or Galvanized.
- •Fig. number.
- •Name, size and quantity.

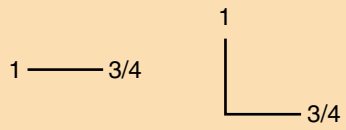
2) To minimize handling costs, GOURD BRAND Pipe Fittings shall require quantities suitable for exports.

3) To avoid confusion, GOURD BRAND Pipe Fittings with different diameters should be described as follows,

A Two Ways Fittings;Larger diameter comes first, and smaller second.

(Example A)

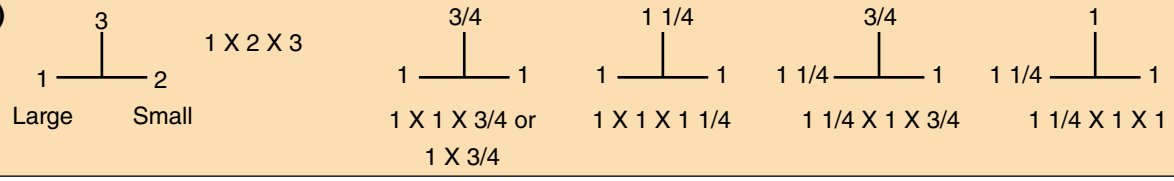
1 X 3/4



B Three Ways Fittings (Tees)

Larger diameter of the two on the same line comes first and smaller second, and the remaining third.

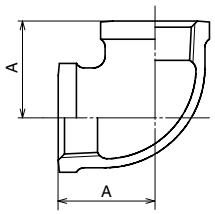
(Example B)



Items and Dimensions of Class 150

Elbows 90° Banded Equal — Fig.002

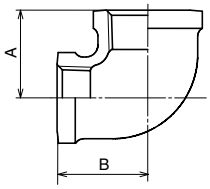
BL



Size (Inch)	Dimension (mm) A
1/8	17.5
1/4 ●	20.0
3/8	24.1
1/2	28.5
3/4	33.3
1	38.1
1 1/4	44.5
1 1/2	49.3
2	57.2
2 1/2	68.6
3	78.2
4	96.3
5	114.3
6	130.3

Elbows 90° Banded Reducing — Fig.002

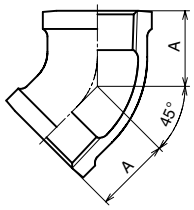
BRL



Size (Inch)	Dimensions (mm) A	B
1/4X1/8 ●	18.8	18.0
3/8X1/8 ●	19.0	21.6
3/8X1/4 ●	20.0	22.9
1/2X1/4	24.6	24.9
1/2X3/8	26.4	26.2
3/4X1/2	30.5	31.0
1X1/2	32.0	35.5
1X3/4	34.8	36.8
1 1/4X1/2	34.0	38.9
1 1/4X3/4	36.8	41.2
1 1/4X1	40.1	42.4
1 1/2X1/2 *	37.9	45.2
1 1/2X3/4 ●	42.0	46.0
1 1/2X1	41.9	45.7
1 1/2X1 1/4	46.2	47.8
2X3/4	40.6	50.0
2X1	43.9	51.3
2X1 1/4	48.3	53.3
2X1 1/2	51.3	54.9
2 1/2X2	60.7	66.0
3X1 *	50.0	68.0
3X2	64.0	73.4

Elbows 45° Banded Equal — Fig.004

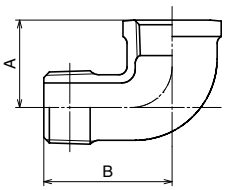
BL45



Size (Inch)	Dimensions (mm) A
1/2	22.4
3/4	24.9
1	28.5
1 1/4	32.8
1 1/2	36.3
2	42.7
2 1/2	49.5
3	55.1
4	66.3
6	87.9

Street Elbows 90° Banded Equal — Fig.006

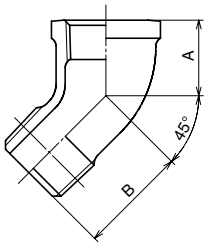
SL



Size (Inch)	Dimensions (mm) A	B
1/8	17.5	25.4
1/4 ●	19.0	30.2
3/8	24.1	36.6
1/2	28.5	41.2
3/4	33.3	48.0
1	38.1	54.4
1 1/4	44.5	62.2
1 1/2	49.3	68.3
2	57.2	82.8
2 1/2	68.6	98.0
3	78.2	114.6
4	96.3	144.5

Street Elbows 45° Banded Equal — Fig.007

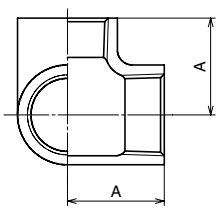
SL45



Size (Inch)	Dimensions (mm) A	B
1/2 ●	22.4	33.0
3/4 ●	24.9	37.5
1 ●	28.5	43.0
1 1/4 ●	32.8	47.4
1 1/2 ●	36.3	51.7
2 ●	42.7	60.4

Side Outlet Elbows Banded * — Fig.009

SOL

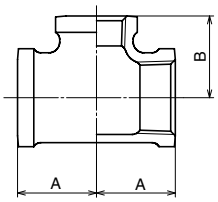


Size (Inch)	Dimensions (mm) A
1/2	28.4
3/4	33.3
1	38.1
1 1/4	44.5
1 1/2	49.3
2	57.2

*Item based on our own specification.
● Size is specified by ANSI/ASME, but Dimensions are based on our standards.

Tees Banded Reducing — Fig.011

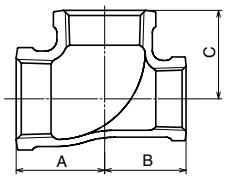
BRT



Size (Inch)	Dimensions (mm)	
	A	B
3/8X1/4 ●	20.0	22.0
1/2X1/8 ✱	22.6	23.5
1/2X1/4	24.6	24.9
1/2X3/8	26.4	26.2
3/4X3/8	28.5	28.7
3/4X1/2	30.5	31.0
1X1/4	28.2	31.0
1X3/8	30.0	32.3
1X1/2	32.0	35.5
1X3/4	34.8	36.8
1 1/4X1/2	34.0	38.9
1 1/4X3/4	36.8	41.2
1 1/4X1	40.1	42.4
1 1/2X1/2	35.8	42.2
1 1/2X3/4	38.6	44.5
1 1/2X1	41.9	45.7
1 1/2X1 1/4	46.2	47.8
2X1/2	37.9	47.8
2X3/4	40.6	50.0
2X1	43.9	51.3
2X1 1/4	48.3	53.3
2X1 1/2	51.3	54.9
2 1/2X1/2 ✱	41.0	57.0
2 1/2X3/4	44.2	58.9
2 1/2X1	47.5	60.2
2 1/2X1 1/4	51.8	62.2
2 1/2X1 1/2	54.9	63.8
2 1/2X2	60.7	66.0
3X1/2 ✱	43.0	65.0
3X3/4	47.5	66.3
3X1	50.8	67.6
3X1 1/4	55.1	69.6
3X1 1/2	58.2	71.1
3X2	64.0	73.4
3X2 1/2	71.9	76.0
4X1 ✱	57.0	83.0
4X1 1/4✱	61.0	86.0
4X1 1/2	63.8	84.3
4X2	69.6	86.6
4X2 1/2	77.5	89.2
4X3	83.8	91.4
6X4	104.9	125.5

Tees Banded Reducing — Fig.011

BRT



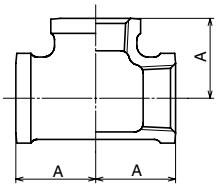
Size (Inch)	Dimensions (mm)		
	A	B	C
1/2X1/2X3/4 ✱	30.0	30.0	30.0
1/2X1/2X1 ✱	33.0	33.0	32.0
3/4X1/2X1/2	30.5	28.5	31.0
3/4X1/2X3/4	33.3	31.0	33.3
3/4X3/4X1 ✱	35.7	35.7	35.3
1X1/2X1/2 ●	32.0	27.0	33.0
1X1/2X3/4	34.8	31.0	36.8
1X1/2X1	38.1	35.5	38.1
1X3/4X1/2 ●	32.0	30.5	33.0
1X3/4X3/4	34.8	33.3	36.8
1X3/4X1	38.1	36.8	38.1
1X1X1 1/4	42.4	42.4	40.1
1X1X1 1/2	45.7	45.7	41.9
1 1/4X1/2X3/4 ✱	37.0	30.0	40.0
1 1/4X1/2X1	40.1	34.5	42.4
1 1/4X1/2X1 1/4	44.5	38.9	44.5
1 1/4X3/4X1 1/4	44.5	41.2	44.5
1 1/4X1X1/2	34.0	32.0	38.9
1 1/4X1X3/4	36.8	34.8	41.2
1 1/4X1X1	40.1	38.1	42.4
1 1/4X1X1 1/4	44.5	42.4	44.5
1 1/4X1 1/4X1 1/2	47.8	47.8	46.2
1 1/2X1/2X1 1/2	49.3	42.2	49.3
1 1/2X1X1	41.9	38.1	45.7
1 1/2X1X1 1/4	46.2	42.4	47.8
1 1/2X1X1 1/2	49.3	45.7	49.3
1 1/2X1 1/4X1/2	35.8	34.0	42.2
1 1/2X1 1/4X3/4	38.6	36.3	44.5
1 1/2X1 1/4X1	41.9	40.1	45.7
1 1/2X1 1/4X1 1/4	46.2	44.5	47.8
1 1/2X1 1/4X1 1/2	49.3	47.8	49.3
1 1/2X1 1/2X2	54.9	54.9	51.3
2X1/2X2	57.2	47.8	57.2
2X3/4X2	57.2	50.0	57.2
2X1X2	57.2	51.3	57.2
2X1 1/4X1 ✱	45.0	41.0	52.0
2X1 1/4X1 1/4	48.3	44.5	53.3
2X1 1/2X3/4 ✱	41.0	38.0	50.0
2X1 1/2X1	43.9	41.9	51.3
2X1 1/2X1 1/4	48.3	46.2	53.3
2X1 1/2X1 1/2	51.3	49.3	54.9
2 1/2X2X1 1/2 ✱	55.0	52.0	62.0
2 1/2X2X2	60.7	57.2	66.0
3X2X2	64.0	57.2	73.4
3X2 1/2X2 1/2	71.9	68.6	76.0

✱Item based on our own specification.
● Size is specified by ANSI/ASME, but Dimensions are based on our standards.

Items and Dimensions of Class 150

Tees Banded Equal — Fig.011

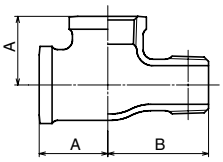
BT



Size (Inch)	Dimension (mm) A
1/8	17.5
1/4 ●	20.0
3/8	24.1
1/2	28.5
3/4	33.3
1	38.1
1 1/4	44.5
1 1/2	49.3
2	57.2
2 1/2	68.6
3	78.2
4	96.3
5	114.3
6	130.3

Service Tees Banded Equal — Fig.012

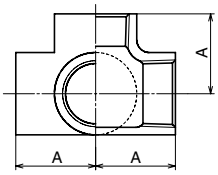
ST



Size (Inch)	Dimension (mm)	
	A	B
1/2	28.5	41.2
3/4	33.3	48.0
1	38.1	54.4
1 1/4	44.5	62.2
1 1/2	49.3	68.3
2 ●	57.2	79.0

Side Outlet Tees Plain * — Fig.013

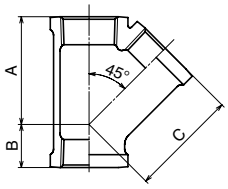
SOT



Size (Inch)	Dimension (mm) A
1/2	27.0
3/4	32.0
1	39.0
1 1/4	46.0
1 1/2	48.0
2	57.0

Y Branches 45° Banded — Fig.014

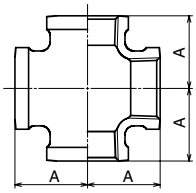
BY45



Size (Inch)	Dimension (mm)		
	A	B	C
1/2	43.4	15.5	43.4
3/4	52.1	18.3	52.1
1	61.7	21.6	61.7
1 1/4	74.2	25.9	74.2
1 1/2	83.3	27.9	83.3
2	99.8	37.5	99.8

Crosses Banded Equal — Fig.016

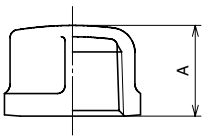
BCR



Size (Inch)	Dimension (mm) A
1/2	28.5
3/4	33.3
1	38.1
1 1/4	44.5
1 1/2	49.3
2	57.2
2 1/2	68.6
3	78.2
4	96.3

Caps Banded — Fig.018

BCA

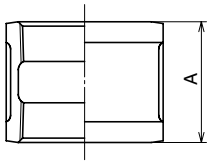


Size (Inch)	Dimension (mm) A (min.)
1/8	13.5
1/4 ●	15.0
3/8	18.8
1/2 ●	20.5
3/4 ●	23.0
1 ●	28.0
1 1/4 ●	31.0
1 1/2 ●	32.0
2 ●	35.0
2 1/2 ●	41.0
3	45.7
4	52.8

*Item based on our own specification.
● Size is specified by ANSI/ASME, but Dimensions are based on our standards.

Sockets Banded Equal With Ribs — Fig.020

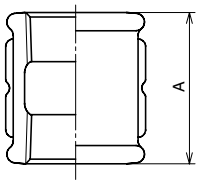
BS



Size (Inch)	Dimension (mm) A
1/8 ●	22.0
1/4	26.9
3/8	29.5
1/2	34.0
3/4	38.6
1	42.4
1 1/4	49.0
1 1/2	54.6
2	64.3
2 1/2	73.2
3	80.8
4	93.7
5 *	95.0
6 *	105.0

Sockets Right & Left Hand Threads With * — Fig.020A

EBS

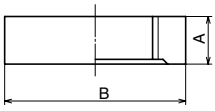


Size (Inch)	Dimension (mm) A
3/8	31.0
1/2	35.0
3/4	40.0
1	44.5
1 1/4	50.0
1 1/2	55.0
2	62.5

Type of Thread:Rp

Locknuts — Fig.024

LN

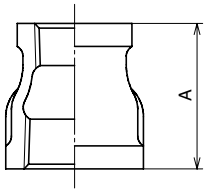


Size (Inch)	Dimension (mm)	
	A (min.)	B (min.)
1/2	7.9	30.0
3/4	8.6	36.3
1	9.7	44.5
1 1/4	10.7	53.3
1 1/2	11.9	59.7
2	13.5	73.2
2 1/2	15.0	88.9
3	17.0	108.5
4	20.3	136.7

Type of Thread:NPSL

Reducing Sockets Banded — Fig.022

BRS



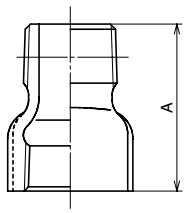
Size (Inch)	Dimension (mm) A
1/4X1/8	25.4
3/8X1/8	28.7
3/8X1/4	28.7
1/2X1/4	31.8
1/2X3/8	31.8
3/4X3/8	36.6
3/4X1/2	36.6
1X3/8	42.9
1X1/2	42.9
1X3/4	42.9
1 1/4X1/2	52.3
1 1/4X3/4	52.3
1 1/4X1 ●	48.0
1 1/2X1/2 ●	54.0
1 1/2X3/4 ●	54.0
1 1/2X1 ●	54.0
1 1/2X1 1/4 ●	52.0
2X1/2	71.4
2X3/4	71.4
2X1	71.4
2X1 1/4	71.4
2X1 1/2	71.4
2 1/2X1	82.6
2 1/2X1 1/4	82.6
2 1/2X1 1/2	82.6
2 1/2X2	82.6
3X3/4 ●	74.0
3X1 ●	72.0
3X1 1/4	93.7
3X1 1/2	93.7
3X2	93.7
3X2 1/2	93.7
4X1 1/2	111.3
4X2	111.3
4X2 1/2	111.3
4X3	111.3
6X4 *	105.0

*Item based on our own specification.
●Size is specified by ANSI/ASME, but Dimensions are based on our standards.

Items and Dimensions of Class 150

Extension Pieces Banded * — Fig.025

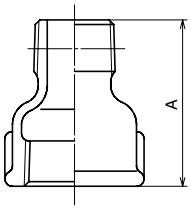
X



Size (Inch)	Dimensions (mm) A
3/8	34.0
1/2	42.0
3/4	48.0
1	55.0
1 1/4	60.0
1 1/2	65.0
2	70.0

Sockets Reducing Male & Female * — Fig.025A

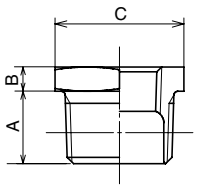
MFS



Size (Inch)	Dimensions (mm) A
1/2X3/8	43.0
3/4X1/2	48.0
1X3/4	55.0
1 1/4X1/2	60.0
1 1/4X1	60.0
1 1/2X3/4	63.0
1 1/2X1	63.0
1 1/2X1 1/4	63.0
2X1	70.0
2X1 1/4	70.0
2X1 1/2	70.0

Bushings — Fig.026

BU

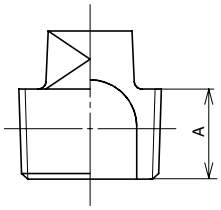


Size (Inch)	Dimensions (mm) A (min.)	B (min.)	C (min.)
1/4X1/8	11.2	3.6	16.3
3/8X1/8	12.2	4.1	17.3
3/8X1/4	12.2	4.1	17.3
1/2X1/8	14.2	4.8	22.1
1/2X1/4	14.2	4.8	22.1
1/2X3/8	14.2	4.8	22.1
3/4X1/8	16.0	5.6	29.2
3/4X1/4	16.0	5.6	29.2
3/4X3/8	16.0	5.6	29.2
3/4X1/2	16.0	5.6	29.2
1X1/8 *	20.0	7.0	38.0
1X1/4 *	20.0	7.0	38.0
1X3/8 *	22.3	7.0	38.0
1X1/2	19.1	6.4	36.1
1X3/4	19.1	6.4	36.1
1 1/4X1/2 *	22.0	8.0	46.0
1 1/4X3/4	20.3	7.1	44.7
1 1/4X1	20.3	7.1	44.7
1 1/2X3/8 *	25.3	9.0	54.0
1 1/2X1/2 *	25.3	9.0	54.0
1 1/2X3/4 *	25.3	9.0	54.0
1 1/2X1	21.1	7.9	50.8
1 1/2X1 1/4	21.1	7.9	50.8
2X3/8 *	27.3	11.0	63.0
2X1/2 *	27.3	11.0	63.0
2X3/4 *	27.3	11.0	63.0
2X1 *	27.3	11.0	63.0
2X1 1/4	22.4	8.6	63.0
2X1 1/2	22.4	8.6	63.0
2 1/2X3/4 *	30.3	11.0	80.0
2 1/2X1 *	30.3	11.0	80.0
2 1/2X1 1/4 *	30.3	11.0	80.0
2 1/2X1 1/2 ●	27.2	10.0	68.1
2 1/2X2	27.2	9.4	75.7
3X1 *	34.3	12.0	95.0
3X1 1/4 *	34.3	12.0	95.0
3X1 1/2 *	34.3	12.0	95.0
3X2 ●	34.3	12.0	95.0
3X2 1/2 ●	34.3	12.0	95.0
4X1 *	39.3	14.0	120.0
4X1 1/4 *	39.3	14.0	120.0
4X1 1/2 *	39.3	14.0	120.0
4X2 *	39.3	14.0	120.0
4X2 1/2 *	39.3	14.0	120.0
4X3	31.0	12.7	117.3
5X2 *	40.0	15.0	145.0
5X3 *	40.0	15.0	145.0
5X4 ●	40.0	15.0	145.0
6X3 *	44.0	18.0	175.0
6X4 *	44.0	18.0	175.0
6X5 ●	44.0	18.0	175.0

*Item based on our own specification.
● Size is specified by ANSI/ASME, but Dimensions are based on our standards.

Plugs Plain — Fig.028

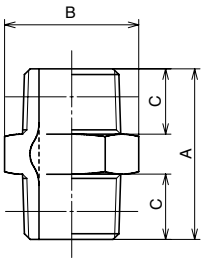
P



Size (Inch)		Dimensions (mm) A (min.)
1/4	●	9.0
3/8	●	9.5
1/2		14.2
3/4		16.0
1	●	16.5
1 1/4	●	17.0
1 1/2	●	17.5
2	●	18.0
2 1/2		27.2
3		28.7
4	*	31.0

Nipples Equal * — Fig.032

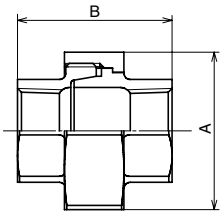
NI



Size (Inch)	Dimension (mm)		
	A	B	C
1/8	32.0	14.0	11.0
1/4	34.0	17.0	12.0
3/8	36.0	21.0	13.0
1/2	45.0	26.0	18.5
3/4	48.0	31.0	19.5
1	53.0	38.0	21.5
1 1/4	56.0	46.0	23.0
1 1/2	60.0	54.0	24.0
2	70.0	69.0	29.0
2 1/2	76.0	80.0	29.5
3	84.0	95.0	33.5
4	95.0	120.0	38.5
5	110.0	145.0	44.0
6	116.0	170.0	46.0

Unions Taper Seat Iron to Iron Female * — Fig.031A

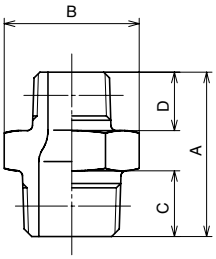
UC



Size (Inch)	Dimension (mm)	
	A	B
3/8	37.0	43.0
1/2	42.0	46.5
3/4	49.0	50.5
1	59.0	57.0
1 1/4	69.0	64.0
1 1/2	78.0	69.5
2	93.0	76.5
2 1/2	112.0	85.0
3	127.0	94.0
4	158.0	113.0

Nipples Reducing * — Fig.032A

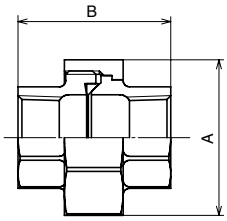
RNI



Size (Inch)	Dimension (mm)			
	A	B	C	D
3/8X1/4	38.0	21.0	14.5	13.5
1/2X1/4	42.5	26.0	18.5	14.0
1/2X3/8	43.0	26.0	18.5	14.5
3/4X3/8	43.2	32.3	18.7	13.5
3/4X1/2	47.0	32.0	19.0	17.0
1X1/2	52.0	38.0	22.0	18.0
1X3/4	53.0	38.0	22.0	19.0
1 1/4X1/2	52.0	46.0	22.0	18.0
1 1/4X3/4	56.0	46.0	23.5	20.5
1 1/4X1	59.0	46.0	23.0	21.0
1 1/2X1/2	63.0	54.0	25.0	20.0
1 1/2X1	60.0	54.0	25.0	24.0
1 1/2X1 1/4	60.0	54.0	23.0	23.0
2X1	68.0	63.0	27.5	25.0
2X1 1/4	70.5	63.0	27.5	25.0
2X1 1/2	70.0	63.0	27.5	27.0
2 1/2X1 1/2	68.0	80.0	28.0	23.0
2 1/2X2	70.0	80.0	28.0	25.0
3X2	86.0	95.0	40.0	29.0
3X2 1/2	77.0	95.0	32.0	28.0
4X2	80.0	120.0	37.0	25.0
4X3	87.0	120.0	37.0	32.0

Unions Brass to Iron Seat Female — Fig.031B

US



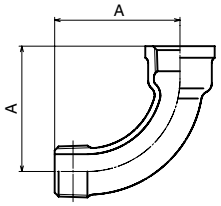
Size (Inch)		Dimension (mm)	
		A(min.)	B(min.)
3/8		32.0	40.9
1/2	●	36.8	43.5
3/4		43.4	49.3
1		52.6	52.3
1 1/4		63.5	57.4
1 1/2	●	71.6	61.0
2		86.6	69.9
2 1/2		104.6	81.8
3		120.7	88.9
4		152.4	97.8

*Item based on our own specification.
● Size is specified by ANSI/ASME, but Dimensions are based on our standards.

Items and Dimensions of Class 150

Bends 90° Bended Male & Female * — Fig.033B

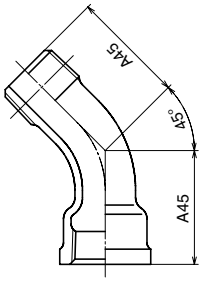
BMBE



Size (Inch)	Dimensions (mm) A
3/8	44.0
1/2	52.0
3/4	65.0
1	82.0
1 1/4	100.0
1 1/2	115.0
2	140.0
2 1/2	171.5
3	205.0
4	260.0

Bends 45° Bended Male & Female * — Fig.033C

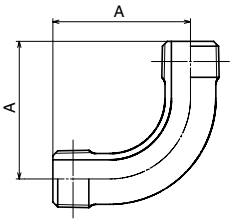
BMBE45



Size (Inch)	Dimensions (mm) A
1/2	38.0
3/4	45.0
1	55.0
1 1/4	63.0
1 1/2	70.0
2	85.0
2 1/2	100.0
3	115.0
4	145.0

Bends 90° Male * — Fig.035

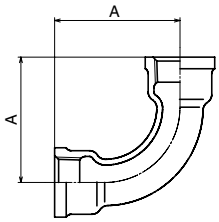
OBE



Size (Inch)	Dimension (mm) A
1/2	52.0
3/4	65.0

Bends 90° Bended Female * — Fig.036B

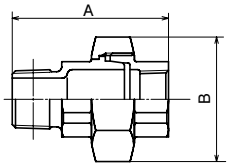
BIBE



Size (Inch)	Dimension (mm) A
3/8	44.0
1/2	52.0
3/4	65.0
1	82.0
1 1/4	100.0
1 1/2	115.0
2	140.0
2 1/2	171.5
3	205.0
4	260.0

Unions Taper Seat Male Female * — Fig.040A

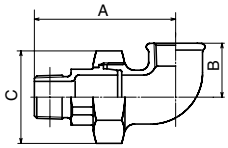
MUC



Size (Inch)	Dimension (mm)	
	A	B
3/8	57.5	37.0
1/2	65.0	42.0
3/4	71.5	49.0
1	80.8	59.0
1 1/4	90.8	69.0
1 1/2	96.5	78.0
2	107.5	93.0
2 1/2	119.8	112.0
3	131.7	127.0

Union Elbows Taper Seat Male & Female * — Fig.043A

MULC

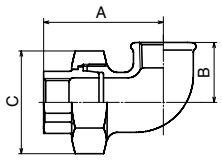


Size (Inch)	Dimension (mm)		
	A	B	C
1/2	78.5	27.0	42.0
3/4	87.0	33.0	49.0
1	98.3	38.0	59.0
1 1/4	110.3	45.0	69.0
1 1/2	122.0	50.0	78.0
2	136.5	58.0	93.0

*Item based on our own specification.

Unions Elbow Taper Seat Female * — Fig.040A

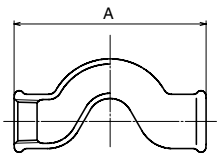
ULC



Size (Inch)	Dimension (mm)		
	A	B	C
1/2	60.5	27.0	42.0
3/4	66.5	33.0	49.0
1	74.8	38.0	59.0
1 1/4	83.8	45.0	69.0
1 1/2	95.5	50.0	78.0
2	106.0	58.0	93.0

Crossovers, Equal * — Fig.050

NOS



Size (Inch)	Dimension (mm) A
1/2	92.0
3/4	112.0
1	140.0

*Item based on our own specification.

Outline for Class 300

Pressure - Temperature Ratings

Maximum Working Pressure for Class 300lbs, Bar				
Temperature(°C)	1/4 – 1	1 1/4 – 2	2 1/2 – 3	Unions
– 29 to 66	137.9	103.4	69.0	41.4
100	119.6	90.5	61.5	37.5
125	106.4	81.1	56.1	34.6
150	93.1	71.8	50.7	31.7
175	79.9	62.5	45.2	28.9
200	66.6	53.1	39.8	26.0
225	53.4	43.8	34.3	23.1
250	40.1	34.5	28.9	20.3
275	26.9	25.2	23.4	17.4
288	20.7	20.7	20.7	15.9

Available Items

Fig.	Name and abbreviation		Size (Inch)
650	90° Elbows	HBL	1/2 - 5
652	45° Elbows	HBL45	1/2 - 5
653	90° Street Elbows	HSL	1/2 - 3
654	Tees	HBT	1/2 - 4
655	Reducing Tees	HBRT	3/4X1/2-2X1 1/2
656	Sockets	HBS	1/2 - 3
657	Reducing Sockets	HBRS	3/4X1/2-2X1 1/2
658	Caps	HBCA	1/2 - 3
659	Bushings	HBU	3/4X1/2-4X3
661	Unions Brass to Iron Seat Female	HUS	1/2 - 3

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  https://www.kuwana-metals.com

History

1910 The Tobata Foundry Co., which later became the Tobata Works, established. This was the first modern malleables manufacturing facility in Japan.

1922 Kizugawa Manufacturing, which later became the Kuwana Works, established as a plant specializing in fittings. Purchased in 1926 by the Tobata Foundry Co.

1935 Name of the Tobata Foundry Co. changed to Kokusan Industries, Ltd.

1937 Kokusan Industries, Ltd. purchased by Hitachi, Ltd.

1956 Hitachi Metals Industries, Ltd. established (Capital: ¥1 billion provided by Hitachi, Ltd.). Hitachi, Ltd., transferred its metals business and five plants to Hitachi Metals Industries, Ltd. (Tobata, Fukagawa, Kuwana, Wakamatsu, and Yasugi), and business activities began.

1965 Hitachi Metals America, Ltd., established in the United States.

1967 Merged with Hitachi Metals, Ltd., to change par value of shares and company name.

1970 Hitachi Metals Europe GmbH established in Germany.

1979 Hitachi Metals Singapore Pte. Ltd. established in Singapore.

1991 Recognized as ISO9002 Quality Management System (Kuwana Works).

1999 Recognized as ISO14001 Environment Quality Management System (Kuwana Works).

2003 Revised as ISO9001 Quality Management System (Kuwana Works).

2015 Hitachi Metals Korea Co., Ltd. established.

2023 Company name changed from Hitachi Metals, Ltd. to Proterial, Ltd.

2024 Kuwana Metals, Ltd. established with the transfer of Proterial's piping components business unit to Okaya & Co., Ltd.

Catalog KM-F-EN-01
Printed in 2024.8 (M-HT3)