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# K-TOP INTRODUCTION

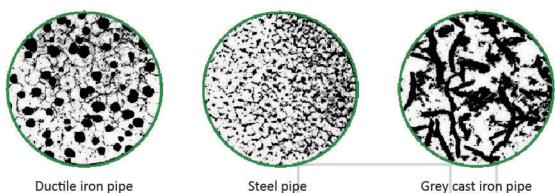
K-TOP ductile iron pipe, fittings and accessories are used for the transmission of potable water and across a number of areas such as drinking water & flushing water networks, fire-fighting systems, and HVAC water systems.



BS EN 545 PIPE

# **Ductile Iron Introduction**

Ductile iron, also called ductile cast iron, spheroidal graphite iron, or nodular cast iron, is a type of cast iron invented in 1943. While most varieties of cast iron are brittle, ductile iron is much more flexible and elastic, due to its nodular graphite inclusions.



Steel pipe

Grey cast iron pipe

# **Ductile Iron Properties**

Ductile iron are robust, can withstand mechanical stress and physical abuse, can be laid in unfavorable terrain and operating conditions and work without failure offering a long service life.

| Manhamiaal Duamantiaa       | Comple at | 11   | Valu | ue       |
|-----------------------------|-----------|------|------|----------|
| Mechanical Properties       | Symbol    | Unit | Pipe | Fittings |
| Minimum tensile strength    | Rm        | MPa  | 420  | 420      |
| Minimum yield strength      | Rp0.2     | MPa  | 300* | 300      |
| Minimum elongation at break | А         | (%)  | 10   | 5        |
| Maximum hardness            |           | HBW  | 230  | 250      |

<sup>\* 270</sup>MPa are allowed with an elongation at break is greater than 12% for DN40 to DN1000 or greater than 10% for DN greater than DN1000.

# Advantage of Ductile Iron Pipes and Fittings

- High tensile strength, good elastic module and excellent ductility, making it suitable for high stress
  applications and where pressure surge may be experienced.
- High corrosion resistance.
- Excellent hydraulic flow.
- · High working pressure compared to other types of pipes.
- Ease of installation.
- Long lifetime.
- Can accommodate ground movement.



# Normative Reference

The following specifications contain provisions which constitute provisions of K-TOP Ductile Iron Pipes and Fittings.

| BS EN 545    | Ductile iron pipes, fittings, accessories and their joints for water pipelines.  |
|--------------|--|
| BS EN 681-1  | Elastomeric seals. Material requirement for pipe joint seals used in water and drainage application.   |
| BS EN 1092-2 | Circular flanges for pipes, valves, fittings and accessories, PN designated  – Part 2: Cast iron flanges.  |
| BS EN 197-1  | Cement Part1: Composition, specifications and conformity criteria for common cements.  |
| BS 6920      | Suitability of non-metallic materials and products for use in contact with water intended for human consumption with regard to their effect on the quality of the water. |
| ISO 4633     | Rubber seals joint rings for water supply, drainage and sewerage pipelines (Specification for materials).  |
| ISO 8179-1   | Ductile iron pipes, fittings, accessories and their joints. External zinc-based coating.  – Part 1: Metallic zinc with finishing layer.                                  |
| ISO 8179-2   | Ductile iron pipes, fittings, accessories and their joints. External zinc-based coating.  – Part 2: Zinc-rich paint.   |
| ISO 6708     | Pipe works components – definition and selection of DN (size).   |
| ISO 4179     | Ductile iron pipes for pressure and non-pressure pipelines – centrifugal cement mortar lining general requirements.  |
|              |  |

# **Limit Deviations of Pipes and Fittings**

According to BS EN 545: 2010, the limit deviations of socketed joints fittings and flanged joints fittings are +/-20mm and +/-10mm on length respectively. The details requirement are as follows: -

| Type of castings                                   | Limit deviations on length |
|--|----------------------------|
| Sheet San      | mm                         |
| Socket and spigot pipes (full length or shortened) | - 30/ + 70                 |
| Fittings for socketed joints                       | ± 20                       |
| Pipes and fittings for flanged joints              | ± 10 *                     |

<sup>1.</sup> All drawings shown are for reference only (not in scale), the final size would be subject to mill production certificate according to manufacturer recommendations.

The list of products in this catalogue represent but not limited to all K-TOP ductile iron products, non-standard and design length items (those items do not mentioned at BS EN 545 standard) may be supplied upon request. Please contact your representative for assistance.

# Coating

## EXTERNAL COATING PROTECTION

The external coating of K-TOP ductile pipes and fittings comprise with:

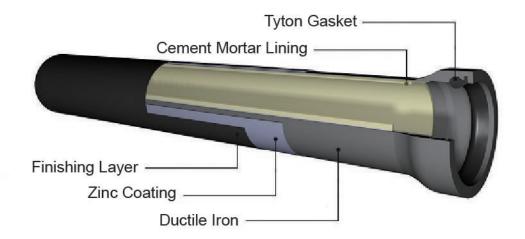
BS EN 545 Pipes –  $200g/m^2$  of metallic zinc covered by a finishing layer of black HCPE anticorrosive coating, the total mean thickness of protective coating shall be more than  $70\mu m$ .

BS EN 545 Fittings – Zinc-rich paint coating covered by a finishing layer of HCPE anticorrosive coating, the total mean thickness of protective coating shall be more than 70µm.

#### INTERNAL COATING PROTECTION

The internal coating of K-TOP ductile pipes and fittings comprise a cement mortar lining of: BS EN 545 – Sulphate Resistant Cement mortar lining (SRC)

\* The SRC linings would offer with valid WRAS Certificate (Pipes and Fittings) upon request.





# Various Joints

## TYTON JOINT

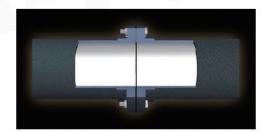
Tyton joint is simplicity itself. A single rubber sealing type joint that employs a circular rubber gasket assures a tight, permanent seal. This "push-on" type joint is simple to assemble and fast to install. Eliminates the needs for bolts, nuts and glands. The rubber gasket fits the inside contour of the bell which seats the gasket. The plain end of pipe is beveled to further ease assembly.

Tyton joint pipe is highly recommended wherever there is a need for an easily assembled tight joint for ductile iron pressure pipe. It is particularly well suited for water or other liquid services.



## **FLANGE JOINT**

Over ground and specialized applications require retrained joints where flange joint would be recommended to use. Flange joint would be acted as rigid and self-restrained joint reducing the requirement of thrust blocks. Flanged pipe is ideal for over-ground, exposed installations, and vertical pipelines. It is widely used in industrial piping systems, water treatment plants, and sewerage treatment plants, and for other interior piping. Normally 3 types of flanged pipes would be manufactured: integrally cast-on flanged pipes, screwed-on flanged pipes and welded-on flanged pipes.



# Ductile Iron Pipes with Tyton Joint (T-TYPE)

## **DETAILS**

- For K9 and K12 class ductile iron pipes, the standard effective length should be 6m.
- All the K-Top pipes are stricity compliance with BS EN 545 standard, the requirement shows as following table:-

| Nominal Size<br>DN | Mean<br>External |       | ure Class<br>545:2010)    | K12                       | Standard Require<br>(BSEN545:2006) |                               | К9 5                      | Standard Requirn<br>(BSEN545:2006) |                               |
|--------------------|------------------|-------|---------------------------|---------------------------|------------------------------------|-------------------------------|---------------------------|------------------------------------|-------------------------------|
| DIV                | Diameter         | Class | Minimum Wall<br>Thickness | Nominal Wall<br>Thickness | Minimum Wall<br>Thickness          | Total Weight<br>Approximation | Nominal Wall<br>Thickness | Minimum Wall<br>Thickness          | Total Weight<br>Approximation |
| (mm)               | (mm)             |       | (mm)                      | (mm)                      | (mm)                               | (kg)                          | (mm)                      | (mm)                               | (kg)                          |
| 80                 | 98               | 100   | 4.70                      | 6.96                      | 5.58                               | 88                            | 5.22                      | 3.92                               | 77                            |
| 100                | 118              | 100   | 4.70                      | 7.20                      | 5.80                               | 110                           | 5.40                      | 4.10                               | 95                            |
| 150                | 170              | 100   | 5.90                      | 7.80                      | 6.35                               | 175                           | 5.85                      | 4.55                               | 144                           |
| 200                | 222              | 64    | 5.00                      | 8.40                      | 6.90                               | 249                           | 6.30                      | 4.80                               | 194                           |
| 250                | 274              | 64    | 6.10                      | 9.00                      | 7.45                               | 331                           | 6.75                      | 5.20                               | 255                           |
| 300                | 326              | 64    | 7.30                      | 9.60                      | 8.00                               | 422                           | 7.20                      | 5.60                               | 323                           |
| 350                | 378              | 64    | 8.50                      | 10.20                     | 8.55                               | 522                           | 7.65                      | 6.00                               | 403                           |
| 400                | 429              | 50    | 7.50                      | 10.80                     | 9.10                               | 630                           | 8.10                      | 6.40                               | 482                           |
| 450                | 480              | 50    | 8.40                      | 11.40                     | 9.65                               | 748                           | 8.55                      | 6.80                               | 575                           |
| 500                | 532              | 50    | 9.30                      | 12.00                     | 10.20                              | 872                           | 9.00                      | 7.20                               | 669                           |
| 600                | 635              | 50    | 11.10                     | 13.20                     | 11.30                              | 1150                          | 9.90                      | 8.00                               | 882                           |
| 700                | 738              | 40    | 10.40                     | 14.40                     | 12.40                              | 1464                          | 10.80                     | 8.80                               | 1123                          |
| 800                | 842              | 40    | 11.90                     | 15.60                     | 13.50                              | 1816                          | 11.70                     | 9.60                               | 1394                          |
| 900                | 945              | 40    | 13.30                     | 16.80                     | 14.60                              | 2202                          | 12.60                     | 10.40                              | 1691                          |
| 1000               | 1048             | 40    | 14.80                     | 18.00                     | 15.70                              | 2625                          | 13.50                     | 11.20                              | 2017                          |
| 1100               | 1152             | 40    | 16.20                     | 19.20                     | 16.80                              | 3085                          | 14.40                     | 12.00                              | 2372                          |
| 1200               | 1255             | 40    | 17.70                     | 20.40                     | 17.90                              | 3585                          | 15.30                     | 12.80                              | 2758                          |
| 1400               | 1462             | 30    | 15.50                     | 22.80                     | 20.1                               | 4746                          | 17.10                     | 14.40                              | 3669                          |
| 1500               | 1565             | 30    | 16.60                     | 24.00                     | 21.2                               | 5389                          | 18.00                     | 15.20                              | 4175                          |
| 1600               | 1668             | 30    | 17.70                     | 25.20                     | 22.3                               | 6027                          | 18.90                     | 16.00                              | 4668                          |

- 1. The mass shall be indicated for ductile iron layer of pipe only.
- 2. Flanged joints pipes are available upon request.

#### PIPE FLEXIBLE JOINTS ALLOWABLE ANGULAR DEFLECTION

The allowable angular deflection declared by K-TOP shall not be less than following data according to BS EN 545

- DN 80 to DN 300 : 3°30′ - DN 350 to DN 600 : 2°30′ - DN 700 or above : 1°30′

## PIPE MARKING

K9 Pipe Body Marking: K-TOP DUCTILE IRON PIPE BSEN 545 (Size) x 6M (CLASS) ZN200 K9 K12 Pipe Body Marking: K-TOP DUCTILE IRON PIPE BSEN 545 (Size) x 6M (CLASS) ZN200 K12

K-TOP DUCTILE IRON PIPE BSEN545 DN250X6M C64 ZN200 K12

In general, ductile iron fittings are of designs similar to those of grey iron fittings and their ends are flanged or preferably, socket.

The greater mechanical strength of ductile iron has made it possible to improve the design of fittings and to reduce their dimensions. This makes easier to lay mains in congested urban areas of large towns, and resets in a reduction in the size of valve chambers, the dimensions of which depend mainly on the space occupied by the fittings.

Flanged socket pieces and straight collars have an internal diameter enlarged sufficiently to allow the adjacent pipes to slide through, facilitating and the longitudinal adjustment of pipeline sections.

The double-socket bends have lengths increasing in proportion to their angle of deviation, their bearing surface on the thrust blocks thus being adjusted to the size of the lateral forces which they exert on these thrust blocks.

The use of reducing flanges and double-flanged tapers has made it possible to simplify the range of flanged-branch tees the use of a combination of these fittings makes it possible to provide users with the greatest number of possibilities with the smallest number of types of castings.

The effect of this arrangement based on market statistics is to reduce stores both at the manufacture's works and at the customer's premises and also to make supply easier.

Double-socket tapers, used mainly for a reduction in diameter, have the shortest practicable lengths.

This catalogue is only for the reference, not for the base of any examination.



BS EN 545 TEE

## WALL THICKNESS

The thickness of fittings (e) can be calculated as a function of nominal size DN by using the formula with a constant value for K as below:

e = K (0.5 + 0.001 DN)

e = nominal wall thickness

K = class coefficient

DN = nominal size

The minimum thickness of fittings is limited to 6.96mm.

| Nominal Size<br>DN | Mean<br>External | Barrel                            |                                   |  |  |  |
|--------------------|------------------|-----------------------------------|-----------------------------------|--|--|--|
| DIN                | Diameter         | K12                               | K14                               |  |  |  |
| (mm)               | (mm)             | Nominal Wall<br>Thickness<br>(mm) | Nominal Wall<br>Thickness<br>(mm) |  |  |  |
| 80                 | 98               | 6.96                              | 8.12                              |  |  |  |
| 100                | 118              | 7.20                              | 8.40                              |  |  |  |
| 150                | 170              | 7.80                              | 9.10                              |  |  |  |
| 200                | 222              | 8.40                              | 9.80                              |  |  |  |
| 250                | 274              | 9.00                              | 10.50                             |  |  |  |
| 300                | 326              | 9.60                              | 11.20                             |  |  |  |
| 350                | 378              | 10.20                             | 11.90                             |  |  |  |
| 400                | 429              | 10.80                             | 12.60                             |  |  |  |
| 450                | 480              | 11.40                             | 13.30                             |  |  |  |
| 500                | 532              | 12.00                             | 14.00                             |  |  |  |
| 600                | 635              | 13.20                             | 15.40                             |  |  |  |

Above 600mm fittings would upon request by confirmation

The K-Top fittings are compliance with BS EN 545 Class K12 and Class K14 standard:-All the fittings except Tee fittings comply to K12 class, specific Tee fittings comply to K14 class.

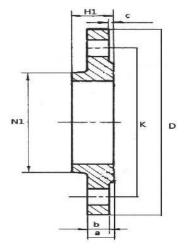
#### HYDROSTATIC PRESSURE TEST

The internal hydrostatic pressure shall be raised steadily until the requirement, which is maintained for a sufficient time to allow visual inspection of pipe barrel. The total duration of the pressure cycle shall be not less than 15 seconds.

| Nominal Diameter | HYDROSTATIC TEST PRESSURE (bar)           |  |
|------------------|---|--|
| DN               | Pipes and Fittings not centrifugally cast |  |
| 80 ≤ DN ≤ 300    | 25  |  |
| 350 ≤ DN ≤ 600   | 16  |  |
| 700 ≤ DN         | 10  |  |

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# FLANGE (SHORT NECK) - FOR SCREW ON



Sectional drawing of fitting



Image of fitting

#### Dimension in mm

| Nominal Diameter |     |      |      | PN16 |     |    |     | Во   | olt |
|------------------|-----|------|------|------|-----|----|-----|------|-----|
| DN               | D   | а    | b    | С    | N1  | H1 | К   | Size | No. |
| 80               | 200 | 19.0 | 16.0 | 3    | 108 | 30 | 160 | M16  | 8   |
| 100              | 220 | 19.0 | 16.0 | 3    | 134 | 30 | 180 | M16  | 8   |
| 150              | 285 | 19.0 | 16.0 | 3    | 179 | 35 | 240 | M20  | 8   |
| 200              | 340 | 20.0 | 17.0 | 3    | 238 | 38 | 295 | M20  | 12  |
| 250              | 400 | 22.0 | 19.0 | 3    | 290 | 45 | 355 | M24  | 12  |
| 300              | 455 | 24.5 | 20.5 | 4    | 342 | 50 | 410 | M24  | 12  |
| 350              | 520 | 26.5 | 22.5 | 4    | 398 | 54 | 470 | M24  | 16  |
| 400              | 580 | 28.0 | 24.0 | 4    | 445 | 57 | 525 | M27  | 16  |
| 450              | 640 | 30.0 | 26.0 | 4    | 500 | 61 | 585 | M27  | 20  |
| 500              | 715 | 31.5 | 27.5 | 4    | 556 | 64 | 650 | M30  | 20  |
| 600              | 840 | 36.0 | 31.0 | 5    | 659 | 71 | 770 | M33  | 20  |

<sup>\*</sup>Dimensional measurement complied with BS EN 1092-2.

## Dimension in mm

| Nominal Diameter |     |      |      | PN25 |     |    |     | Во   | olt |
|------------------|-----|------|------|------|-----|----|-----|------|-----|
| DN               | D   | a    | b    | с    | N1  | H1 | К   | Size | No. |
| 80               | 200 | 19.0 | 16.0 | 3    | 108 | 30 | 160 | M16  | 8   |
| 100              | 235 | 19.0 | 16.0 | 3    | 134 | 30 | 190 | M20  | 8   |
| 150              | 300 | 20.0 | 17.0 | 3    | 179 | 35 | 250 | M24  | 8   |
| 200              | 350 | 22.0 | 19.0 | 3    | 238 | 38 | 310 | M24  | 12  |
| 250              | 425 | 24.5 | 21.5 | 3    | 290 | 45 | 370 | M27  | 12  |
| 300              | 485 | 27.5 | 23.5 | 4    | 342 | 50 | 430 | M27  | 12  |
| 350              | 555 | 30.0 | 26.0 | 4    | 398 | 54 | 490 | M30  | 16  |
| 400              | 620 | 32.0 | 28.0 | 4    | 445 | 57 | 550 | M33  | 16  |
| 450              | 670 | 34.5 | 30.5 | 4    | 500 | 61 | 600 | M33  | 20  |
| 500              | 730 | 36.5 | 32.5 | 4    | 556 | 64 | 660 | M33  | 20  |
| 600              | 845 | 42.0 | 37.0 | 5    | 659 | 71 | 770 | M36  | 20  |

<sup>\*</sup>Dimensional measurement complied with BS EN 1092-2.

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<sup>2.</sup> The list of products in this catalogue represent but not limited to all K-TOP ductile iron products, non-standard and design length items (those items do not mentioned at BS EN 545 standard) may be supplied upon request. Please contact your representative for assistance.

# CAST-ON DOUBLE FLANGE PIPE, PN16 (K12)



Dimension in mm

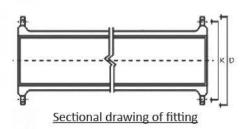


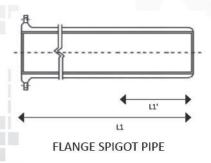


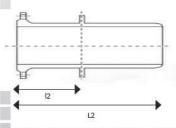
Image of fitting

| Nominal Diameter |     |     | PN16           |
|------------------|-----|-----|----------------|
| DN               | D   | К   | Maximum Length |
| 80               | 200 | 160 | 1000           |
| 100              | 220 | 180 | 1000           |
| 150              | 285 | 240 | 1200           |
| 200              | 340 | 295 | 1200           |
| 250              | 400 | 355 | 2000           |
| 300              | 455 | 410 | 2000           |
| 350              | 520 | 470 | 2000           |
| 400              | 580 | 525 | 2400           |
| 450              | 640 | 585 | 2400           |
| 500              | 715 | 650 | 2400           |
| 600              | 840 | 770 | 2400           |

Above 600mm fittings would upon request by confirmation

# FLANGE SPIGOT PIPE/FLANGE SPIGOT PIPE WITH PUDDLE, PN16 (K12)





FLANGE SPIGOT PIPE WITH PUDDLE

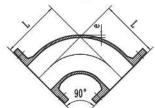
|                        |     | PI             | N16                                |     |  |
|------------------------|-----|----------------|------------------------------------|-----|--|
| Nominal Diameter<br>DN |     | l Spigot<br>pe | Flanged Spigot Pipe<br>with Puddle |     |  |
|                        | L1  | L1'            | L2                                 | 12  |  |
| 80                     | 350 | 215            | 1200                               | 600 |  |
| 100                    | 360 | 215            | 1200                               | 600 |  |
| 150                    | 380 | 225            | 1200                               | 600 |  |
| 200                    | 400 | 230            | 1200                               | 600 |  |
| 250                    | 420 | 240            | 1200                               | 600 |  |
| 300                    | 440 | 250            | 1200                               | 600 |  |
| 350                    | 460 | 260            | 1200                               | 600 |  |
| 400                    | 480 | 270            | 1200                               | 600 |  |
| 450                    | 500 | 280            | 1200                               | 600 |  |
| 500                    | 520 | 290            | 1200                               | 600 |  |
| 600                    | 560 | 310            | 1200                               | 600 |  |

Above 600mm fittings would upon request by confirmation

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## **DOUBLE FLANGE BEND**

## Double Flanged 90° Bend, PN16 (K12)



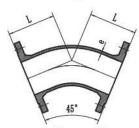
Sectional drawing of fitting

Image of fitting



Above 600mm fittings would upon request by confirmation

## Double Flanged 45° Bend, PN16 (K12)



Sectional drawing of fitting

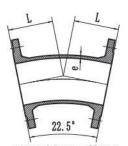


Image of fitting

| DN    | e     | L    |
|-------|-------|------|
| (mm)  | (mm)  | (mm) |
| * 80  | 6.96  | 130  |
| * 100 | 7.20  | 140  |
| * 150 | 7.80  | 160  |
| * 200 | 8.40  | 180  |
| * 250 | 9.00  | 350  |
| * 300 | 9.60  | 400  |
| * 350 | 10.20 | 298  |
| * 400 | 10.80 | 324  |
| * 450 | 11.40 | 350  |
| * 500 | 12.00 | 375  |
| * 600 | 13.20 | 426  |

Above 600mm fittings would upon request by confirmation

## Double Flanged 22.5° Bend, PN16 (K12)



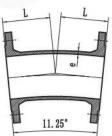
Sectional drawing of fitting

Image of fitting

| DN    | е     | L    |
|-------|-------|------|
| (mm)  | (mm)  | (mm) |
| * 80  | 6.96  | 105  |
| * 100 | 7.20  | 110  |
| * 150 | 7.80  | 109  |
| * 200 | 8.40  | 131  |
| * 250 | 9.00  | 190  |
| * 300 | 9.60  | 210  |
| 350   | 10.20 | 210  |
| 400   | 10.80 | 239  |
| 450   | 11.40 | 349  |
| 500   | 12.00 | 375  |
| 600   | 13.20 | 426  |

Above 600mm fittings would upon request by confirmation

# Double Flanged 11.25° Bend, PN16 (K12)



Sectional drawing of fitting

| DN    | e     | L    |
|-------|-------|------|
| (mm)  | (mm)  | (mm) |
| * 80  | 6.96  | 113  |
| * 100 | 7.20  | 115  |
| * 150 | 7.80  | 113  |
| * 200 | 8.40  | 132  |
| * 250 | 9.00  | 165  |
| * 300 | 9.60  | 175  |
| 350   | 10.20 | 191  |
| 400   | 10.80 | 205  |
| 450   | 11.40 | 349  |
| 500   | 12.00 | 375  |
| 600   | 13.20 | 426  |

Above 600mm fittings would upon request by confirmation



Image of fitting

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- 2. The list of products in this catalogue represent but not limited to all K-TOP ductile iron products, non-standard and design length items (those items do not mentioned at BS EN 545 standard) may be supplied upon request. Please contact your representative for assistance.

<sup>\*</sup> Mark products have granted GA and would offer with WSD approval letter.

## **DOUBLE FLANGE BEND**

Double Flanged 90° Ductfoot Bend, PN16 (K12)



Sectional drawing of fitting



Image of fitting

| DN    | e     | L    | С    | d    |
|-------|-------|------|------|------|
| (mm)  | (mm)  | (mm) | (mm) | (mm) |
| * 80  | 6.96  | 165  | 110  | 180  |
| * 100 | 7.20  | 180  | 125  | 200  |
| * 150 | 7.80  | 220  | 160  | 250  |
| * 200 | 8.40  | 260  | 190  | 300  |
| * 250 | 9.00  | 350  | 225  | 350  |
| * 300 | 9.60  | 400  | 255  | 400  |
| 350   | 10.20 | 450  | 290  | 450  |
| 400   | 10.80 | 500  | 320  | 500  |
| 450   | 11.40 | 550  | 355  | 550  |
| 500   | 12.00 | 600  | 385  | 600  |
| 600   | 13.20 | 700  | 450  | 700  |

Above 600mm fittings would upon request by confirmation

## Double Flanged Long Radius 90° Bend, PN16 (K12)



Sectional drawing of fitting



Image of fitting

| DN    | e     | L    |
|-------|-------|------|
| (mm)  | (mm)  | (mm) |
| * 80  | 6.96  | 380  |
| * 100 | 7.20  | 400  |
| * 150 | 7.80  | 450  |
| * 200 | 8.40  | 500  |
| * 250 | 9.00  | 550  |
| * 300 | 9.60  | 600  |
| 350   | 10.20 | 650  |
| 400   | 10.80 | 700  |
| 450   | 11.40 | 750  |
| 500   | 12.00 | 800  |
| 600   | 13.20 | 900  |

Above 600mm fittings would upon request by confirmation

Mark products have granted GA and would offer with WSD approval letter.

<sup>1.</sup> All drawings shown are for reference only (not in scale), the final size would be subject to mill production certificate according to manufacturer recommendations. 2. The list of products in this catalogue represent but not limited to all K-TOP ductile iron products, non-standard and design length items (those items do not mentioned at BS EN 545 standard) may be supplied upon request. Please contact your representative for assistance.

# ALL FLANGED TEE, PN16 (K14)

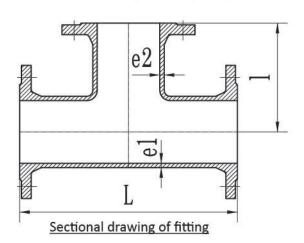




Image of fitting

| DN          | e1    | L    | e2    | Ţ    |
|-------------|-------|------|-------|------|
| (mm)        | (mm)  | (mm) | (mm)  | (mm) |
| * 80 x 50   | 8.12  | 330  | 8.12  | 165  |
| * 80 x 80   | 8.12  | 330  | 8.12  | 165  |
| * 100 x 50  | 8.40  | 360  | 8.12  | 170  |
| * 100 x 80  | 8.40  | 360  | 8.12  | 175  |
| * 100 x 100 | 8.40  | 360  | 8.40  | 180  |
| * 150 x 50  | 9.10  | 440  | 8.12  | 200  |
| * 150 x 80  | 9.10  | 440  | 8.12  | 205  |
| 150 x 100   | 9.10  | 440  | 8.40  | 210  |
| * 150 x 150 | 9.10  | 440  | 9.10  | 220  |
| * 200 x 80  | 9.80  | 520  | 8.12  | 235  |
| * 200 x 100 | 9.80  | 520  | 8.40  | 240  |
| * 200 x 150 | 9.80  | 520  | 9.10  | 250  |
| * 200 x 200 | 9.80  | 520  | 9.80  | 260  |
| * 250 x 80  | 10.50 | 700  | 8.12  | 265  |
| * 250 x 100 | 10.50 | 700  | 8.40  | 275  |
| * 250 x 150 | 10.50 | 700  | 9.10  | 300  |
| * 250 x 200 | 10.50 | 700  | 9.80  | 325  |
| * 250 x 250 | 10.50 | 700  | 10.50 | 350  |
| * 300 x 100 | 11.20 | 800  | 8.40  | 300  |
| 300 x 150   | 11.20 | 800  | 9.10  | 325  |
| * 300 x 200 | 11.20 | 800  | 9.80  | 350  |
| * 300 x 250 | 11.20 | 800  | 10.50 | 375  |
| * 300 x 300 | 11.20 | 800  | 11.20 | 400  |
| * 350 x 300 | 11.90 | 850  | 11.20 | 425  |
| * 350 x 350 | 11.90 | 850  | 11.90 | 425  |
| 400 x 350   | 12.60 | 900  | 11.90 | 450  |
| 400 x 400   | 12.60 | 900  | 12.60 | 450  |
| 450 x 400   | 13.30 | 950  | 12.60 | 475  |
| 450 x 450   | 13.30 | 950  | 13.30 | 475  |
| 500 x 450   | 14.00 | 1000 | 13.30 | 500  |
| * 500 x 500 | 14.00 | 1000 | 14.00 | 500  |
| * 600 x 500 | 15.40 | 1100 | 14.00 | 550  |
| * 600 x 600 | 15.40 | 1100 | 15.40 | 550  |

Above 600mm fittings would upon request by confirmation

<sup>\*</sup> Mark products have granted GA and would offer with WSD approval letter.

<sup>1.</sup> All drawings shown are for reference only (not in scale), the final size would be subject to mill production certificate according to manufacturer recommendations.

<sup>2.</sup> The list of products in this catalogue represent but not limited to all K-TOP ductile iron products, non-standard and design length items (those items do not mentioned at BS EN 545 standard) may be supplied upon request. Please contact your representative for assistance.

## DOUBLE FLANGED TAPER, PN16 (K12)

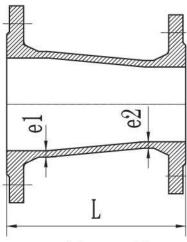






Image of fitting

| DN          | e1    | e2    | L    |
|-------------|-------|-------|------|
| (mm)        | (mm)  | (mm)  | (mm) |
| * 80 x 50   | 6.96  | 6.96  | 150  |
| * 80 x 65   | 6.96  | 6.96  | 200  |
| * 100 x 50  | 7.20  | 6.96  | 150  |
| * 100 x 65  | 7.20  | 6.96  | 150  |
| * 100 x 80  | 7.20  | 6.96  | 200  |
| * 150 x 80  | 7.80  | 6.96  | 400  |
| * 150 x 100 | 7.80  | 7.20  | 300  |
| * 200 x 80  | 8.40  | 6.96  | 600  |
| * 200 x 100 | 8.40  | 7.20  | 600  |
| * 200 x 150 | 8.40  | 7.80  | 300  |
| * 250 x 100 | 9.00  | 7.20  | 600  |
| * 250 x 150 | 9.00  | 7.80  | 600  |
| * 250 x 200 | 9.00  | 8.40  | 300  |
| * 300 x 100 | 9.60  | 7.20  | 600  |
| * 300 x 150 | 9.60  | 7.80  | 600  |
| * 300 x 200 | 9.60  | 8.40  | 600  |
| * 300 x 250 | 9.60  | 9.00  | 300  |
| * 350 x 300 | 10.20 | 9.60  | 300  |
| * 400 x 350 | 10.80 | 10.20 | 300  |
| * 450 x 400 | 11.40 | 10.80 | 300  |
| * 500 x 450 | 12.00 | 11.40 | 300  |
| * 600 x 500 | 13.20 | 12.00 | 600  |

Above 600mm fittings would upon request by confirmation

<sup>\*</sup> Mark products have granted GA and would offer with WSD approval letter.

Remarks:

<sup>1.</sup> All drawings shown are for reference only (not in scale), the final size would be subject to mill production certificate according to manufacturer recommendations. 2. The list of products in this catalogue represent but not limited to all K-TOP ductile iron products, non-standard and design length items (those items do not mentioned at BS EN 545 standard) may be supplied upon request. Please contact your representative for assistance.

# BLANK FLANGE, PN16

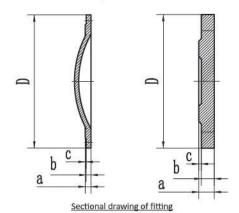


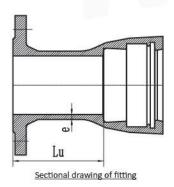


Image of fitting

| DN                | D    | а    | b    | С    |
|-------------------|------|------|------|------|
| (mm)              | (mm) | (mm) | (mm) | (mm) |
| 80                | 200  | 19.0 | 16.0 | 3    |
| 100               | 220  | 19.0 | 16.0 | 3    |
| 150               | 285  | 19.0 | 16.0 | 3    |
| 200               | 340  | 20.0 | 17.0 | 3    |
| 250               | 400  | 22.0 | 19.0 | 3    |
| 300               | 455  | 24.5 | 20.5 | 4    |
| 350 (Dome Shape)  | 520  | 26.5 | 22.5 | 4    |
| 400 (Dome Shape)  | 580  | 28.0 | 24.0 | 4    |
| 450 (Dome Shape)  | 640  | 30.0 | 26.0 | 4    |
| 500 (Dome Shape)  | 715  | 31.5 | 27.5 | 4    |
| 600 (Dome Shape)  | 840  | 36.0 | 31.0 | 5    |
| 700 (Dome Shape)  | 910  | 39.5 | 34.5 | 5    |
| 800 (Dome Shape)  | 1025 | 43.0 | 38.0 | 5    |
| 900 (Dome Shape)  | 1125 | 46.5 | 41.5 | 5    |
| 1000 (Dome Shape) | 1255 | 50.0 | 45.0 | 5    |

Above 600mm fittings would upon request by confirmation

# FLANGED SOCKET, PN16 (K12)



|  |   | - |
|--|---|---|
|  | 1 |   |



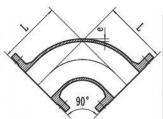
Image of fitting

| DN   | e     | Lu   |
|------|-------|------|
| (mm) | (mm)  | (mm) |
| 80   | 6.96  | 130  |
| 100  | 7.20  | 130  |
| 150  | 7.80  | 135  |
| 200  | 8.40  | 140  |
| 250  | 9.00  | 145  |
| 300  | 9.60  | 150  |
| 350  | 10.20 | 155  |
| 400  | 10.80 | 160  |
| 450  | 11.40 | 165  |
| 500  | 12.00 | 170  |
| 600  | 13.20 | 180  |

Above 600mm fittings would upon request by confirmation

- 1. All drawings shown are for reference only (not in scale), the final size would be subject to mill production certificate according to manufacturer recommendations.
- 2. The list of products in this catalogue represent but not limited to all K-TOP ductile iron products, non-standard and design length items (those items do not mentioned at BS EN 545 standard) may be supplied upon request. Please contact your representative for assistance.

## Double Flanged 90° Bend, PN25 (K12)



Sectional drawing of fitting

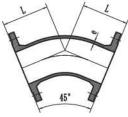


Image of fitting

| DN    | е     | L    |
|-------|-------|------|
| (mm)  | (mm)  | (mm) |
| * 80  | 6.96  | 165  |
| * 100 | 7.20  | 180  |
| * 150 | 7.80  | 220  |
| * 200 | 8.40  | 260  |
| 250   | 9.00  | 350  |
| 300   | 9.60  | 400  |
| 350   | 10.20 | 450  |
| 400   | 10.80 | 500  |
| 450   | 11.40 | 550  |
| 500   | 12.00 | 600  |
| 600   | 13.20 | 700  |

Above 600mm fittings would upon request by confirmation

## Double Flanged 45° Bend, PN25 (K12)



Sectional drawing of fitting

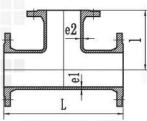


Image of fitting

|   | DN   | е     | L    |
|---|------|-------|------|
|   | (mm) | (mm)  | (mm) |
| * | 80   | 6.96  | 130  |
| * | 100  | 7.20  | 140  |
| * | 150  | 7.80  | 160  |
| * | 200  | 8.40  | 180  |
|   | 250  | 9.00  | 350  |
|   | 300  | 9.60  | 400  |
|   | 350  | 10.20 | 298  |
|   | 400  | 10.80 | 324  |
|   | 450  | 11.40 | 350  |
|   | 500  | 12.00 | 375  |
|   | 600  | 13.20 | 426  |

Above 600mm fittings would upon request by confirmation

## All Flanged Tee, PN25 (K14)



Sectional drawing of fitting

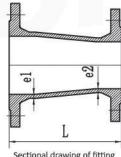


Image of fitting

|    | DN        | e1    | L    | e2    | 1    |
|----|-----------|-------|------|-------|------|
| Ī  | (mm)      | (mm)  | (mm) | (mm)  | (mm) |
|    | 80 x 50   | 8.12  | 330  | 8.12  | 165  |
| *  | 80 x 80   | 8.12  | 330  | 8.12  | 165  |
| Γ  | 100 x 50  | 8.40  | 360  | 8.12  | 170  |
|    | 100 x 80  | 8.40  | 360  | 8.12  | 175  |
| *  | 100 x 100 | 8.40  | 360  | 8.40  | 180  |
|    | 150 x 50  | 9.10  | 440  | 8.12  | 200  |
|    | 150 x 80  | 9.10  | 440  | 8.12  | 205  |
| 7  | 150 x 100 | 9.10  | 440  | 8.40  | 210  |
| *  | 150 x 150 | 9.10  | 440  | 9.10  | 220  |
|    | 200 x 80  | 9.80  | 520  | 8.12  | 235  |
|    | 200 x 100 | 9.80  | 520  | 8.40  | 240  |
| Т  | 200 x 150 | 9.80  | 520  | 9.10  | 250  |
| *  | 200 x 200 | 9.80  | 520  | 9.80  | 260  |
|    | 250 x 80  | 10.50 | 700  | 8.12  | 265  |
| Ţ  | 250 x 100 | 10.50 | 700  | 8.40  | 275  |
| Ţ  | 250 x 150 | 10.50 | 700  | 9.10  | 300  |
|    | 250 x 200 | 10.50 | 700  | 9.80  | 325  |
|    | 250 x 250 | 10.50 | 700  | 10.50 | 350  |
|    | 300 x 100 | 11.20 | 800  | 8.40  | 300  |
| Ţ  | 300 x 150 | 11.20 | 800  | 9.10  | 325  |
| Ī  | 300 x 200 | 11.20 | 800  | 9.80  | 350  |
|    | 300 x 250 | 11.20 | 800  | 10.50 | 375  |
| í  | 300 x 300 | 11.20 | 800  | 11.20 | 400  |
|    | 350 x 300 | 11.90 | 850  | 11.20 | 425  |
| Į. | 350 x 350 | 11.90 | 850  | 11.90 | 425  |
| Т  | 400 x 350 | 12.60 | 900  | 11.90 | 450  |
|    | 400 x 400 | 12.60 | 900  | 12.60 | 450  |
|    | 450 x 400 | 13.30 | 950  | 12.60 | 475  |
| Ţ  | 450 x 450 | 13.30 | 950  | 13.30 | 475  |
|    | 500 x 450 | 14.00 | 1000 | 13.30 | 500  |
|    | 500 x 500 | 14.00 | 1000 | 14.00 | 500  |
|    | 600 x 500 | 15.40 | 1100 | 14.00 | 550  |
|    | 600 x 600 | 15.40 | 1100 | 15.40 | 550  |

Above 600mm fittings would upon request by confirmation

## Double Flanged Taper, PN25 (K12)



Sectional drawing of fitting



Image of fitting

| DN          | e1    | e2    | L    |
|-------------|-------|-------|------|
| (mm)        | (mm)  | (mm)  | (mm) |
| * 80 x 50   | 6.96  | 6.96  | 150  |
| 80 x 65     | 6.96  | 6.96  | 200  |
| * 100 x 50  | 7.20  | 6.96  | 150  |
| 100 x 65    | 7.20  | 6.96  | 150  |
| * 100 x 80  | 7.20  | 6.96  | 200  |
| * 150 x 80  | 7.80  | 6.96  | 400  |
| * 150 x 100 | 7.80  | 7.20  | 300  |
| 200 x 80    | 8.40  | 6.96  | 600  |
| * 200 x 100 | 8.40  | 7.20  | 600  |
| * 200 x 150 | 8.40  | 7.80  | 300  |
| 250 x 100   | 9.00  | 7.20  | 600  |
| 250 x 150   | 9.00  | 7.80  | 600  |
| 250 x 200   | 9.00  | 8.40  | 300  |
| 300 x 100   | 9.60  | 7.20  | 600  |
| 300 x 150   | 9.60  | 7.80  | 600  |
| 300 x 200   | 9.60  | 8.40  | 600  |
| 300 x 250   | 9.60  | 9.00  | 300  |
| 350 x 300   | 10.20 | 9.60  | 300  |
| 400 x 350   | 10.80 | 10.20 | 300  |
| 450 x 400   | 11.40 | 10.80 | 300  |
| 500 x 450   | 12.00 | 11.40 | 300  |
| 600 x 500   | 13.20 | 12.00 | 600  |

Above 600mm fittings would upon request by confirmation

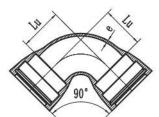
Mark products have granted GA and would offer with WSD approval letter.

# Remarks:

- 1. All drawings shown are for reference only (not in scale), the final size would be subject to mill production certificate according to manufacturer recommendations.
  - 2. The list of products in this catalogue represent but not limited to all K-TOP ductile iron products, non-standard and design length items (those items do not mentioned at BS EN 545 standard) may be supplied upon request. Please contact your representative for assistance.

## DOUBLE SOCKET BENDS

## Double Socket 90° Bend (K12)

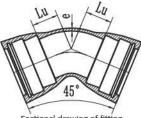


Sectional drawing of fitting

| DN    | e     | Lu   |
|-------|-------|------|
| (mm)  | (mm)  | (mm) |
| * 80  | 6.96  | 100  |
| * 100 | 7.20  | 120  |
| * 150 | 7.80  | 170  |
| * 200 | 8.40  | 220  |
| * 250 | 9.00  | 270  |
| * 300 | 9.60  | 320  |
| 350   | 10.20 | 370  |
| 400   | 10.80 | 420  |
| 450   | 11.40 | 470  |
| 500   | 12.00 | 520  |
| 600   | 13.20 | 620  |

Above 600mm fittings would upon request by confirmation

## Double Socket 45° Bend (K12)



| V         |         |     |         |
|-----------|---------|-----|---------|
| Coetional | drawing | of. | filling |
| Sectional | urawing | UI  | HUUHIR  |
|           |         | _   |         |

Image of fitting

| DN    | e     | Lu   |
|-------|-------|------|
| (mm)  | (mm)  | (mm) |
| * 80  | 6.96  | 55   |
| * 100 | 7.20  | 65   |
| * 150 | 7.80  | 85   |
| * 200 | 8.40  | 110  |
| * 250 | 9.00  | 130  |
| * 300 | 9.60  | 150  |
| 350   | 10.20 | 170  |
| 400   | 10.80 | 195  |
| 450   | 11.40 | 220  |
| 500   | 12.00 | 240  |
| 600   | 13.20 | 285  |

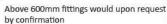




Image of fitting

## Double Socket 22.5° Bend (K12)

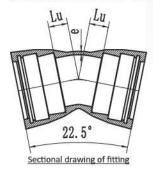
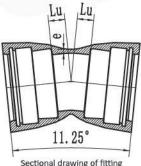


Image of fitting

| DN    | e     | Lu   |
|-------|-------|------|
| (mm)  | (mm)  | (mm) |
| * 80  | 6.96  | 40   |
| * 100 | 7.20  | 40   |
| * 150 | 7.80  | 55   |
| * 200 | 8.40  | 65   |
| * 250 | 9.00  | 75   |
| * 300 | 9.60  | 85   |
| 350   | 10.20 | 95   |
| 400   | 10.80 | 110  |
| 450   | 11.40 | 120  |
| 500   | 12.00 | 130  |
| 600   | 13.20 | 150  |

Above 600mm fittings would upon request by confirmation

# Double Socket 11.25° Bend (K12)



Sectional drawing of fitting

| DN               | e         | Lu   |
|------------------|-----------|------|
| (mm)             | (mm)      | (mm) |
| * 80             | 6.96      | 30   |
| * 100            | 7.20      | 30   |
| * 150            | 7.80      | 35   |
| * 200            | 8.40      | 40   |
| * 250            | 9.00      | 50   |
| * 300            | 9.60      | 55   |
| 350              | 10.20     | 60   |
| 400              | 10.80     | 65   |
| 450              | 11.40     | 70   |
| 500              | 12.00     | 75   |
| 600              | 13.20     | 85   |
| a commence acres | Section 1 |      |



Image of fitting

Above 600mm fittings would upon request by confirmation

- 1. All drawings shown are for reference only (not in scale), the final size would be subject to mill production certificate according to manufacturer recommendations.
- 2. The list of products in this catalogue represent but not limited to all K-TOP ductile iron products, non-standard and design length items (those items do not mentioned at BS EN 545 standard) may be supplied upon request. Please contact your representative for assistance.

<sup>\*</sup> Mark products have granted GA and would offer with WSD approval letter.

# ALL SOCKET TEE (K14)

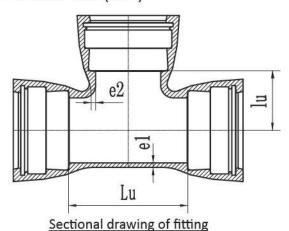




Image of fitting

| DN          | e1    | Lu   | e2    | lu   |
|-------------|-------|------|-------|------|
| (mm)        | (mm)  | (mm) | (mm)  | (mm) |
| 80 x 80     | 8.12  | 170  | 8.12  | 85   |
| * 100 x 80  | 8.40  | 170  | 8.12  | 95   |
| * 100 x 100 | 8.40  | 190  | 8.40  | 95   |
| 150 x 80    | 9.10  | 170  | 8.12  | 120  |
| 150 x 100   | 9.10  | 195  | 8.40  | 120  |
| 150 x 150   | 9.10  | 255  | 9.10  | 125  |
| 200 x 100   | 9.80  | 200  | 8.40  | 145  |
| 200 x 150   | 9.80  | 255  | 9.10  | 150  |
| 200 x 200   | 9.80  | 315  | 9.80  | 155  |
| 250 x 100   | 10.50 | 200  | 8.40  | 170  |
| 250 x 150   | 10.50 | 260  | 9.10  | 175  |
| 250 x 200   | 10.50 | 315  | 9.80  | 180  |
| 250 x 250   | 10.50 | 375  | 10.50 | 190  |
| 300 x 100   | 11.20 | 205  | 8.40  | 195  |
| 300 x 150   | 11.20 | 260  | 9.10  | 200  |
| 300 x 200   | 11.20 | 320  | 9.80  | 205  |
| 300 x 250   | 11.20 | 375  | 10.50 | 210  |
| 300 x 300   | 11.20 | 435  | 11.20 | 220  |
| 350 x 250   | 11.90 | 380  | 10.50 | 240  |
| 350 x 300   | 11.90 | 435  | 11.20 | 285  |
| 350 x 350   | 11.90 | 495  | 11.90 | 250  |
| 400 x 300   | 12.60 | 440  | 11.20 | 310  |
| 400 x 350   | 12.60 | 500  | 11.90 | 315  |
| 400 x 400   | 12.60 | 555  | 12.60 | 320  |
| 450 x 350   | 13.30 | 500  | 11.90 | 340  |
| 450 x 400   | 13.30 | 560  | 12.60 | 305  |
| 450 x 450   | 13.30 | 615  | 13.30 | 310  |
| 500 x 400   | 14.00 | 565  | 12.60 | 330  |
| 500 x 450   | 14.00 | 620  | 13.30 | 375  |
| 500 x 500   | 14.00 | 680  | 14.00 | 340  |
| 600 x 450   | 15.40 | 625  | 13.30 | 425  |
| 600 x 500   | 15.40 | 685  | 14.00 | 430  |
| 600 x 600   | 15.40 | 800  | 15.40 | 400  |

Above 600mm fittings would upon request by confirmation

# Remarks:

<sup>\*</sup> Mark products have granted GA and would offer with WSD approval letter.

<sup>1.</sup> All drawings shown are for reference only (not in scale), the final size would be subject to mill production certificate according to manufacturer recommendations. 2. The list of products in this catalogue represent but not limited to all K-TOP ductile iron products, non-standard and design length items (those items do not

mentioned at BS EN 545 standard) may be supplied upon request. Please contact your representative for assistance.

# DOUBLE SOCKET TEE WITH FLANGED BRANCH, PN16 (K14)

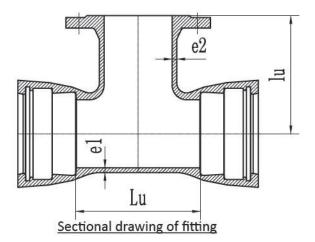




Image of fitting

| DN          | e1    | Lu   | e2    | lu   |
|-------------|-------|------|-------|------|
| (mm)        | (mm)  | (mm) | (mm)  | (mm) |
| * 80 x 80   | 8.12  | 170  | 8.12  | 160  |
| * 100 x 80  | 8.40  | 170  | 8.12  | 175  |
| * 100 x 100 | 8.40  | 190  | 8.40  | 180  |
| * 150 x 100 | 9.10  | 195  | 8.40  | 210  |
| * 150 x 150 | 9.10  | 255  | 9.10  | 220  |
| 200 x 100   | 9.80  | 200  | 8.40  | 240  |
| * 200 x 150 | 9.80  | 255  | 9.10  | 250  |
| * 200 x 200 | 9.80  | 315  | 9.80  | 260  |
| 250 x 150   | 10.50 | 260  | 9.10  | 280  |
| * 250 x 200 | 10.50 | 315  | 9.80  | 290  |
| * 250 x 250 | 10.50 | 375  | 10.50 | 300  |
| 300 x 200   | 11.20 | 320  | 9.80  | 320  |
| * 300 x 250 | 11.20 | 375  | 10.50 | 330  |
| * 300 x 300 | 11.20 | 435  | 11.20 | 340  |
| 350 x 250   | 11.90 | 380  | 10.50 | 360  |
| 350 x 300   | 11.90 | 435  | 11.20 | 370  |
| 350 x 350   | 11.90 | 495  | 11.90 | 380  |
| 400 x 300   | 12.60 | 440  | 11.20 | 400  |
| 400 x 350   | 12.60 | 500  | 11.90 | 410  |
| 400 x 400   | 12.60 | 555  | 12.60 | 420  |
| 450 x 350   | 13.30 | 500  | 11.90 | 440  |
| 450 x 400   | 13.30 | 560  | 12.60 | 450  |
| 450 x 450   | 13.30 | 615  | 13.30 | 460  |
| 500 x 400   | 14.00 | 565  | 12.60 | 480  |
| 500 x 450   | 14.00 | 620  | 13.30 | 490  |
| 500 x 500   | 14.00 | 680  | 14.00 | 500  |
| 600 x 450   | 15.40 | 625  | 13.30 | 550  |
| 600 x 500   | 15.40 | 685  | 14.00 | 560  |
| 600 x 600   | 15.40 | 800  | 15.40 | 580  |

Above 600mm fittings would upon request by confirmation

<sup>\*</sup> Mark products have granted GA and would offer with WSD approval letter.

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## DOUBLE SOCKET TAPER (K12)

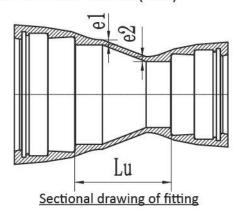




Image of fitting

| DN          | e1    | e2    | Lu   |
|-------------|-------|-------|------|
| (mm)        | (mm)  | (mm)  | (mm) |
| * 100 x 80  | 7.20  | 6.96  | 90   |
| * 150 x 80  | 7.80  | 6.96  | 190  |
| * 150 x 100 | 7.80  | 7.20  | 150  |
| * 200 x 80  | 8.40  | 6.96  | 250  |
| * 200 x 100 | 8.40  | 7.20  | 250  |
| * 200 x 150 | 8.40  | 7.80  | 150  |
| * 250 x 100 | 9.00  | 7.20  | 250  |
| * 250 x 150 | 9.00  | 7.80  | 250  |
| * 250 x 200 | 9.00  | 8.40  | 150  |
| * 300 x 100 | 9.60  | 7.20  | 450  |
| * 300 x 150 | 9.60  | 7.80  | 350  |
| * 300 x 200 | 9.60  | 8.40  | 250  |
| * 300 x 250 | 9.60  | 9.00  | 150  |
| 350 x 200   | 10.20 | 8.40  | 360  |
| 350 x 250   | 10.20 | 9.00  | 260  |
| 350 x 300   | 10.20 | 9.60  | 160  |
| 400 x 250   | 10.80 | 9.00  | 360  |
| 400 x 300   | 10.80 | 9.60  | 260  |
| 400 x 350   | 10.80 | 10.20 | 160  |
| 450 x 300   | 11.40 | 9.60  | 360  |
| 450 x 350   | 11.40 | 10.20 | 260  |
| 450 x 400   | 11.40 | 10.80 | 160  |
| 500 x 350   | 12.00 | 10.20 | 360  |
| 500 x 400   | 12.00 | 10.80 | 260  |
| 500 x 450   | 12.00 | 11.40 | 160  |
| 600 x 400   | 13.20 | 10.80 | 460  |
| 600 x 450   | 13.20 | 11.40 | 360  |
| 600 x 500   | 13.20 | 12.00 | 260  |

Above 600mm fittings would upon request by confirmation

<sup>\*</sup> Mark products have granted GA and would offer with WSD approval letter.

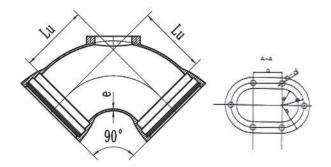
Remarks:

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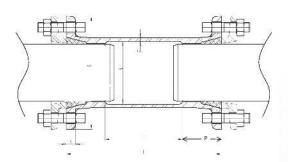
mentioned at BS EN 545 standard) may be supplied upon request. Please contact your representative for assistance.

## **OPTIONAL FITTINGS**

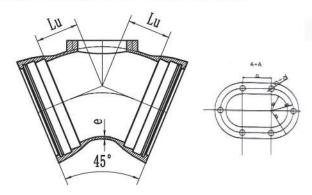
Double Socket Bend 90° With Access Door



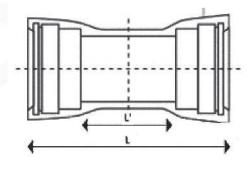
Mechanical Joint Collar



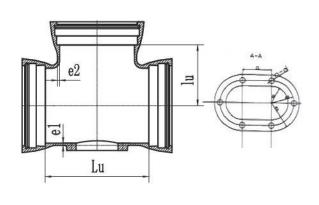
Double Socket Bend 45° With Access Door



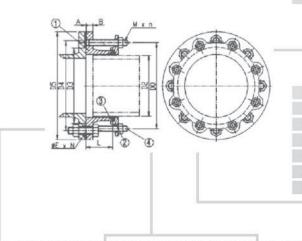
**Double Socket Collar** 



All Socket Tee 90° With Access Door



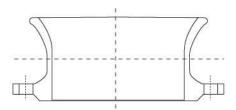
Flange Adaptor



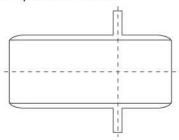
- 1. All drawings shown are for reference only (not in scale), the final size would be subject to mill production certificate according to manufacturer recommendations.
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## **OPTIONAL FITTINGS**

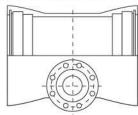
#### Bellmouth



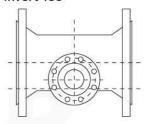
## Double Spigot Pipe With Puddle



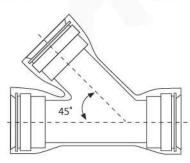
## Level Invert Tee With Flange Branch



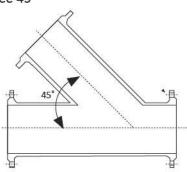
## All Flange Level Invert Tee



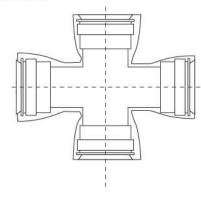
#### All Socket Tee 45°



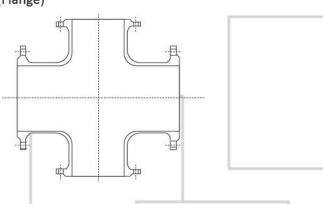
All Flange Tee 45°



## Cross Tee (Socket)



## Cross Tee (Flange)



## Remarks:

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# Installation Instruction

## TYTON JOINT PIPE

Assembly Instruction (1)

 All foreign matter in the socket must be removed, i.e., mud, sand, cinders, gravel, pebbles, trash, frozen material, etc. The gasket seat should be thoroughly inspected to be certain it is clean. Foreign matter in the gasket seat may cause a leak. Do not lubricate the inside of the bell.



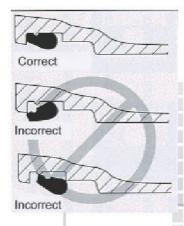
2. The gasket must be wiped clean with a clean cloth, flexed, and then placed into the socket with the rounded bulb end entering first. Looping the gasket in the initial insertion will facilitate seating the gasket heel evenly around the retainer seat. Smaller sizes require only one loop. With larger sizes it will be helpful to loop the gasket at the 12 o'clock and 6 o'clock positions. When installing TYTON JOINT pipe in subfreezing weather, the gaskets, prior to their use, must be kept at a temperature of at least 4°C by suitable means, such as storing in a heated area or keeping immersed in a tank of warm water. If the gaskets are kept in warm water, they should be dried before placing in the pipe socket.



The seating of the gasket may be facilitated by flexing the gasket on one or two points depending on size and then pressing the bulge or bulges out.



The inner edge of the retaining heel must not protrude from the retaining bead of the socket.



- A thin film of pipe joint lubricant should be applied to the inside surface of gasket which will come in contact with plain end of the pipe.
  - (The WRAS approved lubricant OR BS 6920 lubricant should be used according to factory recommendation)



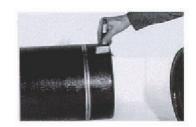
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# Installation Instruction

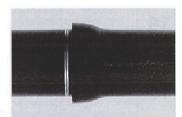
#### TYTON JOINT PIPE

Assembly Instruction (2)

6. Be sure that the plain end is beveled; square or sharp edges may damage or dislodge the gasket and cause a leak. The plain end of the pipe must be cleaned of all foreign matter on the outside from the end to the stripes. Frozen materials may cling to the pipe in cold weather and must be removed. In all cases, it is desirable to apply a thin film of lubricant to the outside of the plain end for about 3" back from the end. Do not allow the plain end to touch the ground or trench side after lubricating since foreign matter may adhere to the plain end and cause a leak. Lubricant other than that furnished with the pipe should not be used.



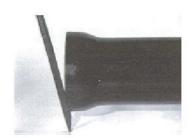
7. The plain end of the pipe should be in reasonably straight alignment and carefully entered into the socket until it just makes contact with the gasket. This is the starting position for the final assembly of the joint. Note the two painted stripes near plain end.



8. Joint assembly should then be completed by forcing the plain end of the entering pipe past the gasket (which is thereby compressed) until the plain end makes contact with the bottom of the socket. Note that the first painted stripe will have disappeared into the socket and the front edge of the second stripe will be approximately flush with the bell face. If assembly is not accomplished with the application of reasonable force by the methods indicated, the plain end of the pipe should be removed to check for the proper positioning of the gasket, adequate lubrication, and removal of foreign matter in the joint.



 For joint assemblies 8" and smaller, socketing of the plain end may be accomplished in some cases by pushing against the face of the bell of the entering pipe with a crowbar or spade. Large sizes require a more powerful means.



#### Field-Cut

The plain end of TYTON JOINT pipe is furnished beveled to ease its "sliding fit" with the gasket when the joint is assembled. When necessary to field-cut pipe, the cut end may be easily conditioned to readily accept the next joint.

Simply taper the outside cut-end of TYTON JOINT pipe at least 1/4" back, at an angle approximately 30 degrees with the center line of pipe. This can be done with a coarse file or portable grinder. The operation removes sharp or rough edges which could injure the gasket, and assures proper assembly.



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# Installation Instruction

## FLANGE JOINT PIPE AND FITTINGS

For quick reference, the highlights of the best installation practices are highlighted below:

- 1. Make sure that the sealing surfaces are clean, dry and free of grease.
  - Check the quality of flange and gasket, ensure to remove any dust and grime.
  - Line up the flange pipes.
  - Leave a space between two flanges for placing gasket.

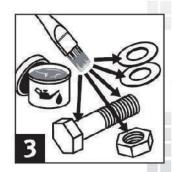




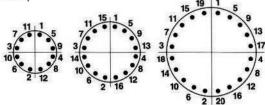
- 2. Position the gasket so that it is centered on the flange.
  - Slide the gasket into the gap between flanges, place all bolts, and fit its position with a rubber bend.
  - The gasket should be aligned and centered between the raised faces.

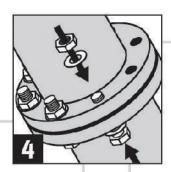


Lubricate the cable ties. Be sure to lubricate bolts, nuts and washers of all bearing surfaces.



 Assemble bolts, washers and nuts on the flange. Tightening bolts follow one direction and as below position.
 Preferably using a torque wrench for requited torque.
 (Tightening torque vary for different type of bolt and nut used)





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## **Global Sole Distributor:**

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