



AL SAAD CO

ENGINEERING CONSULTING

Ductile Iron Pipes (Socket & Spigot Pipes)

Al-Saad Engineering Consulting Pipeline supply a High Quality and specifications with good Prices for the customers.

The Range of Diameter that Al-Saad Engineering Consulting can supply is from 100DN-1000DN.

The Most of the Projects of the Ductile Iron pipes succeed on Testing, the Subject of Testing under:

- A. Tensile Strength.
- B. Yield Strength.
- C. Elongation.
- D. Hardness.
- E. Wall Thickness.
- F. Hydrostatic Test.
- G. Cement Mortar Thickness.
- H. Zinc Coating.
- I. Bituminous Paint.

All the Pipes Produce under the ISO 2531: 1998 or / and EN545, and the subject of the SGS Inspection are included for any Quotation provide to the customer.

The Pipes are classified as K7 & K9 depending upon the service, Condition and Manufacturing Process. The Class Designation shall comprise of:

- a. Prefix K.
- b. Whole number used for thickness class designation (This is the selected coefficient depending on the service conditions).

The nominal wall thickness of pipe 'e' in mm shall be calculated as a function of the nominal diameter by the following equation with a minimum of 5 mm for K=7, 6mm for K=8 & 7mm for K=12.



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$$E=k(0.5+0.001DN)$$

Where e = wall thickness in mm

DN= the nominal diameter

K= the whole number coefficient.

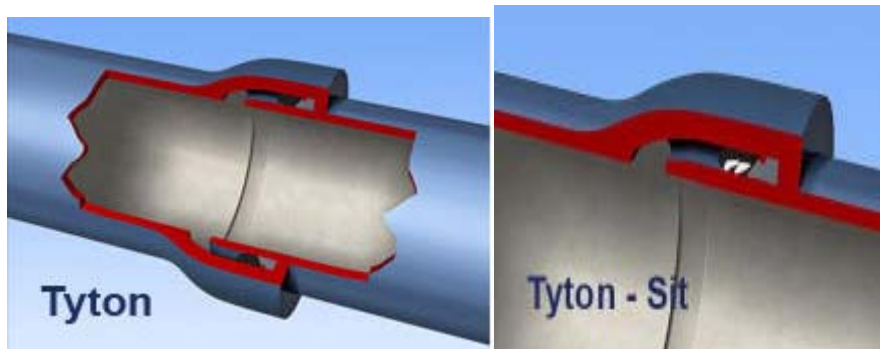
The whole number used for thickness class designation with K(i.e. K7,k9 etc.) depends on the service condition like water supply, sewerage conveyance, gas supply etc.

Standard Length for Pipes:

| Size (DN) | Standard Length |
|------------|--------------------------------|
| 100 - 150 | 5.0 M.L - 5.5 M.L (per Pipe) |
| 200 - 600 | 5.5 M.L - 6.0 M.L (per Pipe) |
| 700 - 1000 | 5.5 M.L - 6.0 M.L (per Pipe) |

Tolerance on standard length for socket and spigot pipes is -30/ +70 BS EN545:2002.

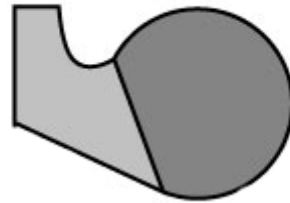
Tolerance on Length of socket & spigot pipes is ± 100 as per ISO8329:2000.





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Socket and Spigot Joints (TYTON) are assembled with a rubber gasket as shown in the above detail. A typical push fit rubber gasket has a hard heel and a soft bulb.

The heel is inserted into the groove for retaining the gasket, when the spigot enters the socket; the bulb gets compressed and does the sealing. Push fit gaskets can also be used for Anchorage when a TYTON -sit anchor gasket is used.

| Ductile pipe X 5500mm in length (X6000mm to be calculated) | | | | |
|--|-------------------|-----------|-----------------|----------------------------|
| DN mm | external Dia (mm) | tolerance | K9 wt p/pipe KG | K7 (class 40) wt p/pipe KG |
| 80 | 98 | +1/- 2.2 | 86.5 | 85 |
| 100 | 118 | +1/-2.8 | 107 | 102 |
| 150 | 170 | +1/-2.9 | 162 | 153 |
| 200 | 222 | +1/-3.0 | 218 | 204 |
| 250 | 274 | +1/-3.1 | 286 | 262 |
| 300 | 326 | +1/-3.3 | 359 | 331 |
| 350 | 378 | +1/-3.4 | 441 | 404 |
| 400 | 429 | +1/-3.5 | 524 | 482 |
| 450 | 480 | +1/-3.6 | 616 | 565 |
| 500 | 532 | +1/-3.8 | 713 | 656 |
| 600 | 635 | +1/-4.0 | 930 | 855 |
| 700 | 738 | +1/-4.3 | 1185 | 1104 |



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| | | | | |
|------|------|---------|------|------|
| 800 | 842 | +1/-4.5 | 1444 | 1353 |
| 900 | 945 | +1/-4.8 | 1726 | 1608 |
| 1000 | 1048 | +1/-5.0 | 2029 | 1890 |

Double Flanged Pipes:

Al-Saad Engineering Consulting can supply flanged pipes with flanges either screwed or welded on ductile Iron pipes of K9 Class. The flanges for screwed on or welded on double flanged pipes should be of ductile iron of 420 MPa minimum tensile strength and 5% minimum elongation and maximum hardness 250 HP.

The flanges are rated as PN10, PN16, and PN25 & PN40 which correspond to the pressure rating values.

Nominal pressure (PN) is a numerical designation expressed by a number which is used for reference purposes. All components of the same nominal size DN designated by same PN number have compatible mating dimensions. For screwed or welded on flanges pipes, the minimum classes as per working pressure criteria are given below:

Minimum Class for Ductile Iron flanged Pipes:



| Nominal Dia | Screwed on Flanged Minimum | | | | Welded On Flange Minimum | | | |
|-------------|----------------------------|------|------|------|--------------------------|------|------|------|
| | PN10 | PN16 | PN25 | PN40 | PN10 | PN16 | PN25 | PN40 |
| 100- 450 | K9 | K9 | K9 | K9 | K9 | K9 | K9 | K9 |
| 500-600 | K10 | K10 | K10 | K10 | K9 | K9 | K9 | K10 |
| 700-1000 | K10 | K10 | K10 | - | K9 | K9 | K9 | - |

Pipe Length:

The flanged pipes are supplied as given in the table or under the requested of the customer and under negotiation:

| Type of Pipe | DN | Standard Length |
|--|------------|-------------------|
| With screwed - on or welded - on flanged | 100 - 1000 | 4 or 5 or 5.5 M.L |

Internal & External protection for pipes & fittings:

All pipes and fittings are delivered internally & externally coated. A wide range of coating is offered to customers for their selection.

Pipes:

- Bitumen Coating.
- Metallic Zinc with finishing layer in accordance with ISO 8179-1.
- Zinc Rich paint finishing layer in accordance with ISO 8179-2.
- Thicker Metallic zinc with finishing layer.

Additional protection can be provided with:

- Epoxy.
- Polyethylene sleeving.



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- Adhesive tapes.

Pipe fittings:

- Bitumen Coating.
- Epoxy Coating.
- Zinc with finishing layer.

Internal protection for pipes and fittings:

Cement Mortar:

- Sulphate resistant Cement (including blast furnace slag cement).
- High Alumina (Calcium aluminates) Cement Mortar.
- Portland cements Mortar.

Epoxy:

Bituminous Paint.