Supreme©

People who know plastics best

# Polyethylene Piping Systems

## . . . The Next Generation Piping

**Supreme** a name synonymous with quality innovation and service is a trend setter in plastic piping system in India. Our objective is to meet the growing needs of the customers in water, waste management and infrastructure sector through specially developed high performance piping range. The supreme comprehensive and exclusive range of plastic pipe systems are designed and manufactured to meet the highest standards set across the world. **Supreme** has, no doubt, brought about a revolution in the Indian plastic pipe industry.

As a part of its ambitious expansion and new product development plan yet another new product is evolved i.e. Polyethylene (PE) pipes for potable water supply, irrigation, OFC ducting and bore well application etc.

**Supreme** PE pipes are user friendly, simple and easy to fit and equipped with many outstanding features that assures long term system performance and low maintenance cost.

## The System

**Supreme** polyethylene pipes are a safe, long lasting and cost effective solution for potable water supply, irrigation, telecom and bore well application. Supreme HDPE pipes are manufactured from virgin raw material with the help of the state of art manufacturing facilities. The plant is equipped with R and D facilities along with Quality Assurance laboratory carrying stringent raw material and finished goods tests for maintaining quality as per Indian as well as International Standards. Being pioneer in bringing innovative piping products for varied applications, continuous improvement is a regular phenomenon. All these activities are carried out with the help of experts in the field of Polymer. **Supreme** strongly believes in providing uncompromising quality products and services to delight the customers.

The pipes and fittings are available in complete range from 32mm to 400mm sizes. The pipes are available in PN 4 to PN 16 pressure class in PE63, PE80 and PE100 grade. Supreme PE pipes are manufactured according to Indian as well International standards. It is technically superior, cost effective and offers many advantages over conventional products.

## Pipes :

Size range - 32mm to 400mm
Pressure class - PN 4 to PN 16
Grades - PE-63, PE-80, PE-100.

## Fittings :

90mm to 315mm bends (Handmade) in different angles and 90mm to 250mm tee's are available. Other accessories like flanges, stub ends, reducers and end caps are also available.

## Features and benefits

- High reliability and proven service performance.
- High corrosion resistance
- High impact strength.
- High chemical and abrasion resistance.
- Excellent flow characteristics results into significant energy savings.
- Great flexibility, light weight, easy and fast installation.
- Excellent water hammer resistance.
- Ideal in shifting soil condition and earthquake prone areas.
- Excellent UV resistance.
- Excellent weld - ability - leak proof joints.
- Wide variety of installation methods
- Long service life - overall economy.

## Standards

| Application | Grade | Applicable standard |
|---|---|---|
| Potable water mains, house connections | PE 63 and PE 80 | IS:4984, ISO:4427 and DIN 8074/75 |
| Rural and agricultural pipes | PE 63 and PE 80 | IS:14151 (P-1) |
| Column pipes for submersible pumps in coil form | PE 63 and PE 80 | Company std / IS 4984 |
| Sprinkler and drip irrigation | PE 63 | IS:14151 Part -1 and 2 |
| Coal handling in Mines | PE 80 and PE 100 | IS:4984 |
| Industrial applications | PE 80 | IS:4984 |
| PLB Ducts | PE 63 and PE 80 | TEC specification G/CDS-08/02, NOV.2004. |

## Applications of HDPE Pipes

| Water Supply Systems | Industrial | Environmental Protection | Agriculture | Other |
|---|---|---|---|---|
| Transportation and distribution system | Effluents, chemicals and treated/untreated water disposal | Underground drainage and sewerage application / rehabilitation of existing sewer. | Column piping for submersible and jet pumps. | Transportation of chemicals, solids, gas and oils. |
| House service connection e.g. Municipal water bodies, SEZ's, layout's, etc. | As hydro transport system for handling and conveyance of iron, coal and cement slurry in mines | Effluent and waste treatment plants. | Suction and delivery pipes. | Underwater pipelines. / Desalination plants |
| | For conveyance of edible oil, fruit pulps, juices, milks and other food materials | Dust suppression piping systems in cement industry. | Sprinkler and drip irrigation systems. | Telecommunication cable ducting (PLB duct.) |
| | As a ventilation and air conditioning duct. | Sand slurry disposal pipes in dredging. | Lift irrigation | |
| | | De-gassing pipes in water effluent marine outfalls. | Insecticide spraying | |





## Dimensions and pressure rating chart for HDPE pipes (PE 63) as per IS : 4984

| OD | PN 4 | | PN 6 | | PN 8 | | PN 10 | | PN 12.5 | | PN 16 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DN | Min | Max | Min | Max | Min | Max | Min | Max | Min | Max | Min | Max |
| 32 | – | – | 2.3 | 2.8 | – | – | – | – | – | – | – | – |
| 40 | – | – | 2.8 | 3.3 | – | – | – | – | – | – | – | – |
| 50 | 2.4 | 2.9 | 3.5 | 4.1 | – | – | – | – | – | – | – | – |
| 63 | 3.0 | 3.5 | 4.4 | 5.1 | 5.8 | 6.6 | 7.0 | 7.9 | 8.6 | 9.7 | 10.5 | 11.8 |
| 75 | 3.6 | 4.2 | 5.3 | 6.1 | 6.9 | 7.8 | 8.4 | 9.5 | 10.2 | 11.5 | 12.5 | 14.0 |
| 90 | 4.3 | 5.0 | 6.3 | 7.2 | 8.2 | 9.3 | 10.0 | 11.2 | 12.2 | 13.7 | 15.0 | 16.7 |
| 110 | 5.3 | 6.1 | 7.7 | 8.7 | 10.0 | 11.2 | 12.3 | 13.8 | 14.9 | 16.6 | 18.4 | 20.5 |
| 125 | – | – | 8.8 | 9.9 | 11.4 | 12.8 | 13.9 | 15.5 | 16.9 | 18.8 | 20.9 | 23.2 |
| 140 | – | – | 9.8 | 11.0 | 12.8 | 14.3 | 15.6 | 17.4 | 19.0 | 21.1 | 23.4 | 26.0 |
| 160 | – | – | 11.2 | 12.6 | 14.6 | 16.3 | 17.8 | 19.8 | 21.7 | 24.1 | 26.7 | 29.6 |
| 180 | – | – | 12.6 | 14.1 | 16.4 | 18.3 | 20.0 | 22.2 | 24.4 | 27.1 | 30.0 | 33.2 |
| 200 | – | – | 14.0 | 15.6 | 18.2 | 20.3 | 22.3 | 24.8 | 27.1 | 30.1 | 33.4 | 37.0 |
| 225 | – | – | 15.7 | 17.5 | 20.5 | 22.8 | 25.0 | 27.7 | 30.5 | 33.8 | 37.5 | 41.5 |
| 250 | – | – | 17.5 | 19.5 | 22.8 | 25.3 | 27.8 | 30.8 | 33.8 | 37.4 | 41.7 | 46.1 |
| 280 | – | – | 19.6 | 21.8 | 25.5 | 28.3 | 31.2 | 34.6 | 37.9 | 41.9 | 46.7 | 51.6 |
| 315 | – | – | 22.0 | 24.4 | 28.7 | 31.8 | 35.0 | 38.7 | 42.6 | 47.1 | 52.5 | 58.0 |
| 355 | – | – | 24.8 | 27.5 | 32.3 | 35.8 | 39.5 | 43.7 | 48.0 | 53.0 | 59.2 | 65.4 |
| 400 | – | – | 28.0 | 32.4 | 36.4 | 42.1 | 44.5 | 51.4 | 54.1 | 62.5 | – | – |

## Dimensions and pressure rating chart for HDPE pipes (PE 80) as per IS : 4984

| OD | PN 6 | | PN 8 | | PN 10 | | PN 12.5 | | PN 16 | |
|---|---|---|---|---|---|---|---|---|---|---|
| DN | Min | Max | Min | Max | Min | Max | Min | Max | Min | Max |
| 63 | 3.6 | 4.2 | 4.7 | 5.4 | 5.8 | 6.6 | 7.0 | 7.9 | 8.7 | 9.8 |
| 75 | 4.3 | 5.0 | 5.6 | 6.4 | 6.9 | 7.8 | 8.4 | 9.5 | 10.4 | 11.7 |
| 90 | 5.1 | 5.9 | 6.7 | 7.6 | 8.2 | 9.3 | 10.0 | 11.2 | 12.5 | 14.0 |
| 110 | 6.3 | 7.2 | 8.2 | 9.3 | 10.0 | 11.2 | 12.3 | 13.8 | 15.2 | 17.0 |
| 125 | 7.1 | 8.1 | 9.3 | 10.5 | 11.4 | 12.8 | 13.9 | 15.3 | 17.3 | 19.3 |
| 140 | 8.0 | 9.0 | 10.4 | 11.7 | 12.8 | 14.3 | 15.6 | 17.4 | 19.4 | 21.6 |
| 160 | 9.1 | 10.3 | 11.9 | 13.3 | 14.6 | 16.3 | 17.8 | 19.8 | 22.1 | 24.6 |
| 180 | 10.2 | 11.5 | 13.4 | 15.0 | 16.4 | 18.3 | 20.0 | 22.2 | 24.9 | 27.6 |
| 200 | 11.4 | 12.8 | 14.9 | 16.6 | 18.2 | 20.3 | 22.3 | 24.8 | 27.6 | 30.6 |
| 225 | 12.8 | 14.3 | 16.7 | 18.6 | 20.5 | 22.8 | 25.0 | 27.7 | 31.1 | 34.5 |
| 250 | 14.2 | 15.9 | 18.6 | 20.7 | 22.8 | 25.3 | 27.8 | 30.8 | 34.5 | 38.2 |
| 280 | 15.9 | 17.7 | 20.8 | 23.1 | 25.5 | 28.3 | 31.2 | 34.6 | 38.7 | 42.8 |
| 315 | 17.9 | 19.9 | 23.4 | 26.0 | 28.7 | 31.8 | 35.0 | 38.7 | 43.5 | 48.1 |
| 355 | 20.1 | 22.4 | 26.3 | 29.2 | 32.3 | 35.8 | 39.5 | 43.7 | 49.0 | 54.1 |
| 400 | 22.7 | 25.4 | 29.7 | 34.4 | 36.4 | 42.1 | 44.5 | 51.4 | 55.2 | 63.7 |

## Dimensions and pressure rating chart for HDPE pipes (PE 100) as per IS : 4984

| OD | PN 6 | | PN 8 | | PN 10 | | PN 12.5 | | PN 16 | |
|---|---|---|---|---|---|---|---|---|---|---|
| DN | Min | Max | Min | Max | Min | Max | Min | Max | Min | Max |
| 63 | 2.9 | 3.4 | 3.8 | 4.4 | 4.7 | 5.4 | 5.7 | 6.5 | 7.1 | 8.1 |
| 75 | 3.5 | 4.1 | 4.5 | 5.2 | 5.6 | 6.4 | 6.8 | 7.7 | 8.5 | 9.6 |
| 90 | 4.1 | 4.8 | 5.4 | 6.2 | 6.7 | 7.6 | 8.2 | 9.3 | 10.2 | 11.5 |
| 110 | 5.0 | 5.7 | 6.6 | 7.5 | 8.1 | 9.2 | 10.0 | 11.2 | 12.4 | 13.9 |
| 125 | 5.7 | 6.5 | 7.5 | 8.5 | 9.2 | 10.4 | 11.3 | 12.7 | 14.1 | 15.8 |
| 140 | 6.4 | 7.3 | 8.4 | 9.5 | 10.3 | 11.6 | 12.7 | 14.2 | 15.8 | 17.6 |
| 160 | 7.3 | 8.3 | 9.6 | 10.8 | 11.8 | 13.2 | 14.5 | 16.2 | 18.1 | 20.2 |
| 180 | 8.2 | 9.3 | 10.8 | 12.1 | 13.3 | 14.9 | 16.3 | 18.2 | 20.3 | 22.6 |
| 200 | 9.1 | 10.3 | 12.0 | 13.4 | 14.8 | 16.5 | 18.1 | 20.2 | 22.6 | 25.1 |
| 225 | 10.3 | 11.6 | 13.5 | 15.1 | 16.6 | 18.5 | 20.4 | 22.7 | 25.4 | 28.2 |
| 250 | 11.4 | 12.8 | 15.0 | 16.7 | 18.4 | 20.5 | 22.6 | 25.1 | 28.2 | 31.3 |
| 280 | 12.8 | 14.3 | 16.8 | 18.7 | 20.6 | 22.9 | 25.3 | 28.1 | 31.6 | 35.0 |
| 315 | 14.4 | 16.1 | 18.9 | 21.0 | 23.2 | 25.8 | 28.5 | 31.6 | 35.5 | 39.3 |
| 355 | 16.2 | 18.1 | 21.2 | 23.6 | 26.2 | 29.1 | 32.1 | 35.6 | 40.0 | 44.2 |
| 400 | 18.2 | 21.2 | 23.9 | 27.7 | 29.5 | 34.2 | 36.2 | 41.9 | 45.1 | 52.1 |

## Dimensions and pressure rating chart for HDPE pipes (PE 100) as per ISO:4427

| OD | PN 10 | | PN 12.5 | | PN 16 | |
|---|---|---|---|---|---|---|
| DN | Min | Max | Min | Max | Min | Max |
| 32.0 | - | - | - | - | 3.0 | 3.5 |
| 40.0 | - | - | - | - | 3.7 | 4.3 |
| 50.0 | - | - | - | - | 4.6 | 5.3 |
| 63.0 | - | - | 4.7 | 5.5 | 5.8 | 6.7 |
| 75.0 | 4.5 | 5.2 | 5.6 | 6.5 | 6.8 | 7.9 |
| 90.0 | 5.4 | 6.3 | 6.7 | 7.8 | 8.2 | 9.5 |
| 110.0 | 6.6 | 7.6 | 8.1 | 9.4 | 10.0 | 11.5 |
| 125.0 | 7.4 | 8.6 | 9.2 | 10.6 | 11.4 | 13.2 |
| 140.0 | 8.3 | 9.6 | 10.3 | 11.9 | 12.7 | 14.7 |
| 160.0 | 9.5 | 11.0 | 11.8 | 13.6 | 14.6 | 16.8 |
| 180.0 | 10.7 | 12.4 | 13.9 | 15.3 | 16.4 | 19.6 |
| 200.0 | 11.9 | 13.7 | 14.7 | 17.0 | 18.2 | 21.8 |
| 225.0 | 13.4 | 15.5 | 16.6 | 19.9 | 20.5 | 24.5 |
| 250.0 | 14.8 | 17.1 | 18.4 | 22.0 | 22.7 | 27.2 |
| 280.0 | 16.6 | 19.9 | 20.6 | 24.7 | 25.4 | 30.4 |
| 315.0 | 18.7 | 22.4 | 23.2 | 27.8 | 28.6 | 34.3 |
| 355.0 | 21.1 | 25.3 | 26.1 | 31.3 | 32.2 | 38.6 |
| 400.0 | 23.7 | 28.4 | 29.4 | 35.2 | 36.3 | 43.5 |

## Jointing Techniques

Supreme Polyethylene pipes can be jointed by different means, some of the jointing techniques are as given below:

- Butt Fusion
- Socket Fusion
- Flanged joint
- Electro Fusion
- Compression Joint
- Coupling joint.

## Training on "Jointing Techniques"

**Supreme** has in house "Training Centre" at Gadegaon, near Jalgaon. It is our endeavor to impart knowledge to our customers on various jointing methods indicated above. We have experts with indepth knowledge in the above mentioned jointing technologies who can guide our customers through a well structured training programme.

## Length and Packaging :

| Size Range (mm) | Coil Length(M) |
|---|---|
| 32 - 50 | 300,500 |
| 63 - 75 | 200,300 |
| 90 -110 | 50,100, Straight length of 6 - 12m |
| 125 - 400 | Straight length 6 - 12m |

## Water Hammer Resistance

HDPE can withstand repetitive pressure surges that exceed the static pressure rating of the pipe giving it excellent resistance to water hammer events. In D.I. pipe, anticipated surge pressures are the highest. Surge pressure in P.E. is 44 % less than in PVC and 81% less than in DI.P.E. withstands surges up to 150-200 % of design pressure.

**When P.E. is used, piping system components are subjected to a significantly lower surge.**

## Check the Wall Alignment and Gap

The alignment of the two parts should be checked at the same time. A possible misalignment on the outside must not exceed 10% of the thickness of the wall (Fig 5). If this limit is exceeded, a better clamping position is to be sought by rotating the pipe. In such a case, however, the surface must be re-planed.Important - The welding surfaces must be planed immediately prior to the jointing.

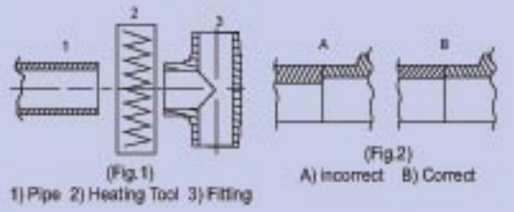
## Butt-Welding Procedure

Once it has attained the fusion temperature, position the heating element in the butt-welding machine. Press the parts to be joined against the heating element with the force required for equalization until the entire circumference of each of the jointing faces rests completely against it and a bead has formed. Reduce the equalization pressure almost to 0. The heating time listed in the table below is measured from this moment.

Leave parts in the butt-welding jointing machine at welding pressure until the end of the cooling period. Once the heating period has elapsed, remove the parts from heating element, which should then be removed without touching the jointing surfaces and push the parts together immediately. The change over time must not exceed the value listed in the table. Pay particular attention during jointing that the parts be moved together swiftly until the surface are about to touch. Then they should be moved together so that they are in contact along the entire circumference. Next the pressure should be increased rapidly to the present jointing within the period of time specified in the table below. This pressure must be necessary, especially shortly after the jointing pressure has been attained. (Fig 6) The jointing parts must stay in the welding machine under jointing pressure until the end of the cooling period specified in the table.

## Welding Bead Checks

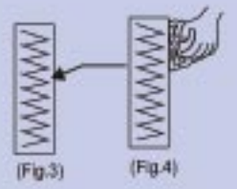
A bead should form around the entire circumference of the pipe. Jointing of two-lip point should be above the pipe circumference means always being positive. (Fig 7)



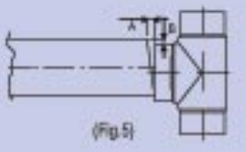
(Fig.1)
1) Pipe 2) Heating Tool 3) Fitting



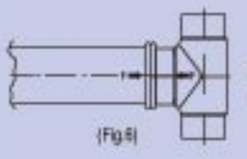
(Fig.2)
A) Incorrect B) Correct

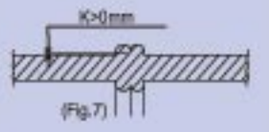

(Fig.3)


(Fig.4)



(Fig.5)


(Fig.6)



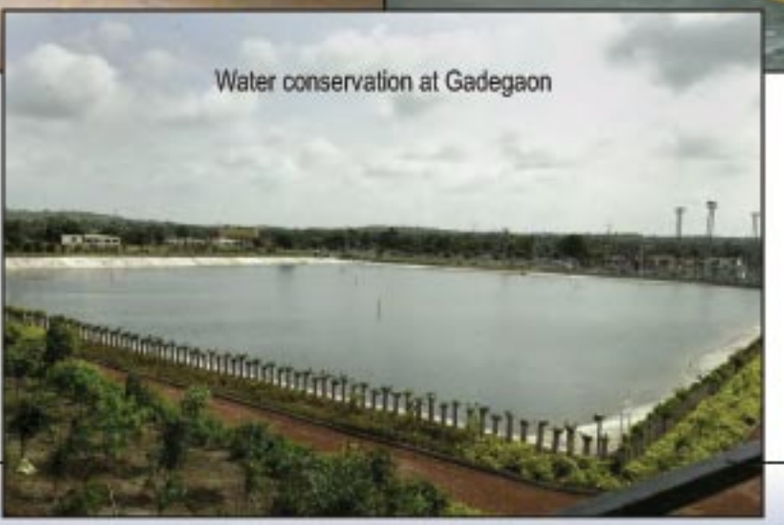
(Fig.7)

### Recommended values for the heated tool butt-welding of pipes and fittings

| Wall thickness (mm) | Height of bead (mm) | Heating time (sec) | Changeover time max. (sec) | Time to reach full jointing (sec) | Cooling time under joining pressure (min) |
|---|---|---|---|---|---|
| up to 4.5 | 0.5 | 45 | 5 | 5 | 6 |
| 4.5 -7 | 1.0 | 45-70 | 5-6 | 5-6 | 6-10 |
| 7 - 12 | 1.5 | 70-120 | 6-8 | 6-8 | 10-16 |
| 12-19 | 2.0 | 120-190 | 8-10 | 8-11 | 16-24 |
| 19-26 | 2.5 | 190-260 | 10-12 | 11-14 | 24-32 |
| 26-37 | 3.0 | 260-370 | 12-16 | 14-19 | 32-45 |
| 37-50 | 3.5 | 370-500 | 16-20 | 19-25 | 45-60 |
| 50-70 | 4.0 | 500-700 | 20-25 | 25-35 | 60-80 |

A view of advanced pipe plant

A view of advanced injection moulding unit



Water conservation at Gadegaon

A mega project at Gadegaon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