



C A T A L O G U E



أكتوبر للصناعات البترولية
OCTOBER FOR PLASTIC PIPES S.A.E





ABOUT US

Hebeish Group the mother company of 4 subsidiary companies, completing each other to provide our customer with full HDPE piping solutions. Our aim is to deliver the highest quality in order to ensure the best outcome for our customers.

We manufacture comprehensive plastic piping & hoses solutions for the building, civil, mining, and industrial market. Our products range from **high density polyethylene (HDPE)** piping systems for **Pressure, Non pressure, Cable Protection, and Micro Ducts** to polyvinyl chloride (**PVC**) hoses. We aim to provide our customers with a full fledged service from the pipes to all the welding and technical support that might be needed for them to achieve the best results for their projects.

We produce our own HDPE pipes, segmented fittings and manholes. We complement our range by being the official distributors for **Widos** Germany HDPE pipe welding machines, **NTG** HDPE PE 100 injection fittings, **Akatherm** Netherlands special drainage fittings & **GAO** China GRP manhole covers.

Our manufacturing unit of PE pipes and accessories have been accredited by **The National Organization for Potable and Sanitary Drainage of Egypt**.

Besides our manufacturing and importation departments we provide technical and welding support for the actual execution of the projects.

All our products are manufactured according to the German standards using extrusion technology and we ensure that all our production goes through stringent quality assurance systems and extensive testing to ensure that the highest quality standards are met.

Our Vision is to raise the quality of potable, sewage networks and waste water treatments in Egypt and North Africa, hence improving the living conditions.

Our Mission is to achieve our vision by providing the market with the most reliable and efficient product that guarantee long life and leakage free network, as well as maintaining satisfied and loyal clients.

We are fully equipped to undertake any project involving HDPE pipes with our comprehensive piping system and experience.

Partnering with Hebeish Group will ensure the delivery of best results for your projects while experiencing the highest level of client satisfaction.





أكتوبر للمواسير البلاستيكية ش.م.م
OCTOBER FOR PLASTIC PIPES S.A.E

MEMBER OF HEBEISH GROUP

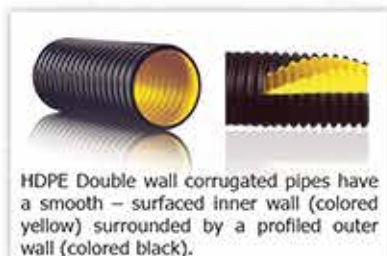
Previously



HDPE DOUBLE-WALL CORRUGATED PIPE

PRODUCT CHARACTERISTICS

Pipe Structure



High protection against corrosion and resistance to chemicals



Telescopic storage



Easy joining methods



Produced in various lengths



Easy repair and maintenance



Long service life



Efficient flow of fluids smooth inner face



Flexible



MAIN APPLICATIONS AREAS OF PRODUCT

HDPE Corrugated pipes are used in transporting liquids by gravity such as :

- 1-Sewage System.
- 2-Rain drainage pipes.
- 3-Efficient water transportation system.
- 4-Industrial wastewater system.



PIPE SPECIFICATIONS

Manufactured according to DIN 16961 - 16566 & EN 13476

| Inner Diameter | A | B | C | D | E | F | G | H | I | J |
|----------------|-----|-----|-----|-------|-----|-----|-----|-----|------|-------|
| Ø 150 | 150 | 181 | 187 | 197.4 | 2.3 | 1.2 | 1.1 | 2.5 | 67.3 | 19.08 |
| Ø 200 | 200 | 233 | 242 | 248 | 2.5 | 2.1 | 1.9 | 3 | 75 | 28 |
| Ø 250 | 250 | 291 | 303 | 310 | 3.0 | 2.3 | 2.1 | 4 | 85 | 33 |
| Ø 300 | 300 | 353 | 367 | 375 | 3.5 | 2.5 | 2.3 | 5 | 108 | 38.7 |
| Ø 400 | 400 | 460 | 476 | 485 | 4.5 | 2.8 | 2.6 | 6 | 142 | 51.4 |

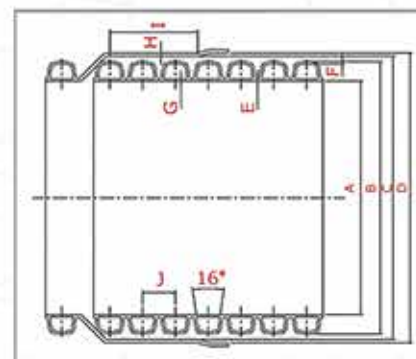
* Pipe length: 12m

* All dimensions are in (mm)

• SN8

SN: The measurement unit for the ring stiffness of the pipe.

Ring Stiffness: The maximum weight that the pipe can withstand.



INSTALLATION

Using elastomeric seal ring spigot jointing, the connection and installation is as follows:

1- Clean pipe surface



2- Install rubber ring



3- Spread Lubricant



4- Connect pipe



5- Insert pipe

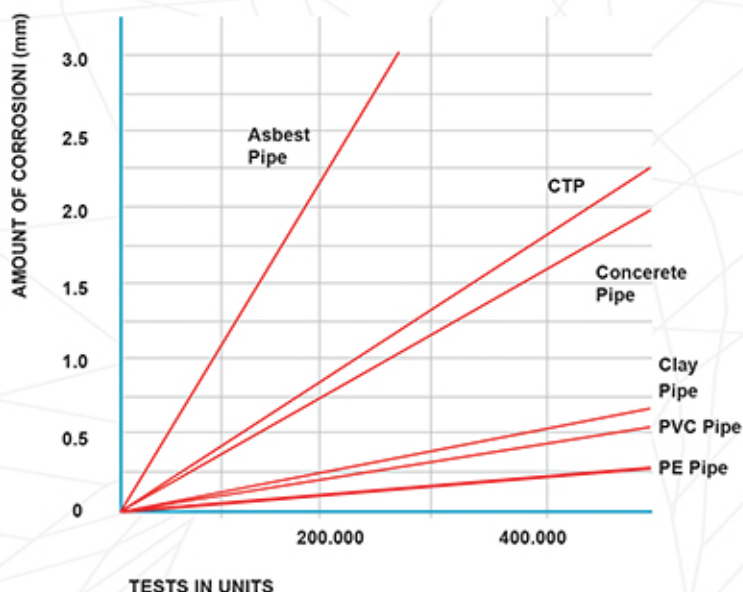


PIPE FITTING

Matching pipe fitting can be made as per customer's requirements. Custom-made elbows in various angles, tees, saddle and connectors are available.

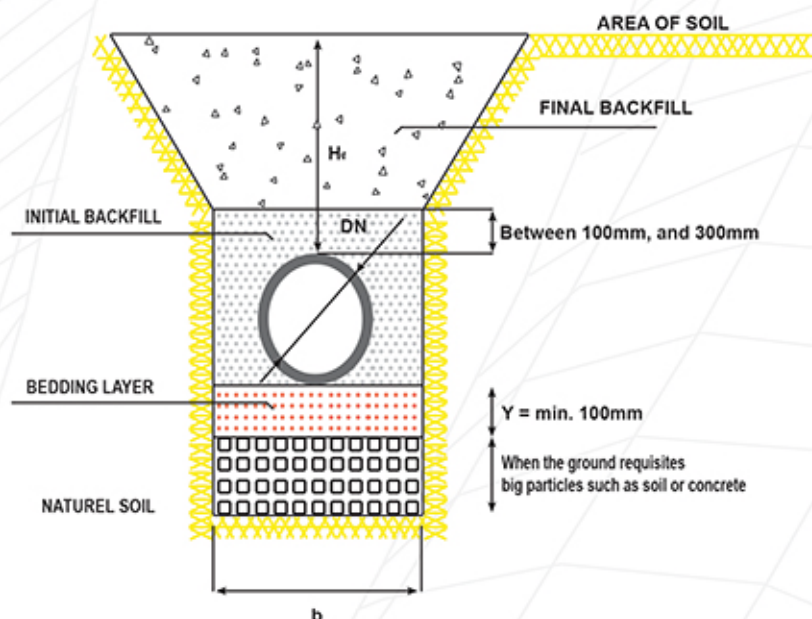


CHEMICAL AND WEAR RESISTANCE



After several tests Polyethylene pipes have shown, to have the least exposure to corrosion from the movement of particles during the flow.

TRENCH CROSS-SECTION OF CORRUGATED PIPE



- * **Final Backfill:** Decompressed area of soil (cross-sections are excluded).
- * **Initial Backfill:** All solid materials are removed, decompressed area of soil.
- * **Bedding Layer:** Decompressed area of sand.
- * **Ho:** Distance between the ground to the top of the pipe.
- * **b:** Width of the trench (mm).
- * **Y:** Height of the bedding layer (mm).
- * **DN:** Pipe outside diameter (mm).
- * **Ho has to be minimum 50 cm.**



HDPE PE100 POLYETHYLENE PIPE (Solid wall)

- * Pipes are available in 6 and 12 meter straight lengths, other lengths can be supplied to order.
- * Pipes up to 110 mm OD are also available in coils of 50m and 100m and can be supplied in longer length on drums.
- * Pipe can also be extruded with four co-axial stripes.
- * Pipes are manufactured according to **DIN 8074 & DIN 8075**

HDPE pipes manufacturing from PE100

Water network, Drainage, Sewage, Fire fighting system

| O.D | PN 5 bar | | | PN 6 bar | | | PN 8 bar | | | PN 10 bar | | | PN 12.5 bar | | | PN 16 bar | | | PN 20 bar | | | PN 25 bar | | |
|-----|----------|------|---------|----------|------|---------|----------|------|---------|-----------|------|---------|-------------|------|---------|-----------|------|---------|-----------|------|---------|-----------|-------|---------|
| | SDR 33 | | | SDR 26 | | | SDR 21 | | | SDR 17 | | | SDR 13.6 | | | SDR 11 | | | SDR 9 | | | SDR 7.4 | | |
| | I.D | S | W(kg/m) | I.D | S | W(kg/m) | I.D | S | W(kg/m) | I.D | S | W(kg/m) | I.D | S | W(kg/m) | I.D | S | W(kg/m) | I.D | S | W(kg/m) | I.D | S | W(kg/m) |
| 16 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 12.4 | 1.8 | 0.084 | 11.6 | 2.2 | 0.099 |
| 20 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 16.4 | 1.8 | 0.107 | 16.2 | 1.9 | 0.112 | 15.4 | 2.3 | 0.133 | 14.4 | 2.8 | 0.200 |
| 25 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 21.4 | 1.8 | 0.137 | 21.2 | 1.9 | 0.144 | 20.4 | 2.3 | 0.171 | 19.4 | 2.8 | 0.200 | 18 | 3.5 | 0.240 |
| 32 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 28.2 | 1.9 | 0.187 | 27.2 | 2.4 | 0.232 | 26.2 | 2.9 | 0.272 | 24.8 | 3.6 | 0.327 | 23.2 | 4.4 | 0.386 |
| 40 | --- | --- | --- | 36.4 | 1.8 | 0.227 | 36.2 | 1.9 | 0.239 | 35.2 | 2.4 | 0.295 | 34.0 | 3.0 | 0.356 | 32.6 | 3.7 | 0.430 | 31.0 | 4.5 | 0.509 | 29 | 5.5 | 0.600 |
| 50 | 46.4 | 1.8 | 0.287 | 46.0 | 2.0 | 0.314 | 45.2 | 2.4 | 0.374 | 44.0 | 3.0 | 0.453 | 42.6 | 3.7 | 0.549 | 40.8 | 4.6 | 0.666 | 38.8 | 5.6 | 0.788 | 36.2 | 6.9 | 0.936 |
| 63 | 59.0 | 2.0 | 0.399 | 58.0 | 2.5 | 0.494 | 57.0 | 3.0 | 0.580 | 55.4 | 3.8 | 0.721 | 53.6 | 4.7 | 0.873 | 51.4 | 5.8 | 1.050 | 48.8 | 7.1 | 1.260 | 45.8 | 8.6 | 1.47 |
| 75 | 70.4 | 2.3 | 0.551 | 69.2 | 2.9 | 0.675 | 67.8 | 3.6 | 0.828 | 66.0 | 4.5 | 1.020 | 63.8 | 5.6 | 1.240 | 61.4 | 6.8 | 1.470 | 58.2 | 8.4 | 1.670 | 54.4 | 10.3 | 2.09 |
| 90 | 84.4 | 2.8 | 0.791 | 83.0 | 3.5 | 0.978 | 81.4 | 4.3 | 1.180 | 79.2 | 5.4 | 1.460 | 76.6 | 6.7 | 1.770 | 73.6 | 8.2 | 2.120 | 69.8 | 10.1 | 2.540 | 65.4 | 12.3 | 3.00 |
| 110 | 103.2 | 3.4 | 1.170 | 101.6 | 4.2 | 1.430 | 99.4 | 5.3 | 1.770 | 96.8 | 6.6 | 2.170 | 93.8 | 8.1 | 2.620 | 90.0 | 10.0 | 3.140 | 85.4 | 12.3 | 3.780 | 79.8 | 15.1 | 4.49 |
| 125 | 117.2 | 3.9 | 1.510 | 115.4 | 4.8 | 1.840 | 113.0 | 6.0 | 2.270 | 110.2 | 7.4 | 2.670 | 106.6 | 9.2 | 3.370 | 102.2 | 11.4 | 4.080 | 97.0 | 14.0 | 4.870 | 90.8 | 17.1 | 5.77 |
| 140 | 131.4 | 4.3 | 1.880 | 129.2 | 5.4 | 2.320 | 126.6 | 6.7 | 2.830 | 123.4 | 8.3 | 3.460 | 119.4 | 10.3 | 4.220 | 114.6 | 12.7 | 5.080 | 108.6 | 15.7 | 6.110 | 101.6 | 19.2 | 7.25 |
| 160 | 150.2 | 4.9 | 2.420 | 147.6 | 6.2 | 3.040 | 144.6 | 7.7 | 3.720 | 141.0 | 9.5 | 4.520 | 136.4 | 11.8 | 5.500 | 130.8 | 14.6 | 6.670 | 124.2 | 17.9 | 7.960 | 116.2 | 21.9 | 9.44 |
| 180 | 169.0 | 5.5 | 3.100 | 166.2 | 6.9 | 3.790 | 162.8 | 8.6 | 4.670 | 158.6 | 10.7 | 5.710 | 153.4 | 13.3 | 6.980 | 147.2 | 16.4 | 8.420 | 139.8 | 20.1 | 10.100 | 130.8 | 24.6 | 11.9 |
| 200 | 187.6 | 6.2 | 3.840 | 184.6 | 7.7 | 4.690 | 180.8 | 9.6 | 5.780 | 176.2 | 11.9 | 7.050 | 170.6 | 14.7 | 8.560 | 163.6 | 18.2 | 10.400 | 155.2 | 22.4 | 12.400 | 145.2 | 27.4 | 14.8 |
| 225 | 211.2 | 6.9 | 4.770 | 207.8 | 8.6 | 5.890 | 203.4 | 10.8 | 7.300 | 198.2 | 13.4 | 8.930 | 191.8 | 16.6 | 10.900 | 184.0 | 20.5 | 13.100 | 174.6 | 25.2 | 15.800 | 163.4 | 30.80 | 18.6 |
| 250 | 234.6 | 7.7 | 5.920 | 230.8 | 9.6 | 7.300 | 226.2 | 11.9 | 8.930 | 220.4 | 14.8 | 11.000 | 213.2 | 18.4 | 13.400 | 204.6 | 22.7 | 16.200 | 194.2 | 27.9 | 19.400 | 181.6 | 34.2 | 23.0 |
| 280 | 262.8 | 8.6 | 7.400 | 258.6 | 10.7 | 9.100 | 253.2 | 13.4 | 11.300 | 246.8 | 16.6 | 13.700 | 238.8 | 20.6 | 16.800 | 229.2 | 25.4 | 20.300 | 217.4 | 31.3 | 24.300 | 203.4 | 38.3 | 28.9 |
| 315 | 295.6 | 9.7 | 9.370 | 290.8 | 12.1 | 11.600 | 285.0 | 15.0 | 14.200 | 277.6 | 18.7 | 17.400 | 268.6 | 23.2 | 21.200 | 257.8 | 28.6 | 25.600 | 244.6 | 35.2 | 30.800 | 228.8 | 43.1 | 36.5 |
| 355 | 333.2 | 10.9 | 11.800 | 327.8 | 13.6 | 14.600 | 321.2 | 16.9 | 18.000 | 312.8 | 21.1 | 22.100 | 302.8 | 26.1 | 26.900 | 290.6 | 32.2 | 32.500 | 275.6 | 39.7 | 39.100 | 258 | 48.5 | 46.3 |
| 400 | 375.4 | 12.3 | 15.100 | 369.4 | 15.3 | 18.600 | 361.8 | 19.1 | 22.900 | 352.6 | 23.7 | 28.000 | 341.2 | 29.4 | 34.100 | 327.4 | 36.3 | 41.300 | 310.6 | 44.7 | 49.600 | 290.6 | 54.7 | 58.8 |
| 450 | 422.4 | 13.8 | 19.000 | 415.6 | 17.2 | 23.500 | 407.0 | 21.5 | 28.900 | 396.9 | 26.7 | 35.400 | 383.8 | 33.1 | 43.200 | 368.2 | 40.9 | 52.300 | 349.4 | 50.3 | 62.700 | 327 | 61.5 | 74.4 |
| 500 | 469.4 | 15.3 | 23.400 | 461.8 | 19.1 | 28.900 | 452.2 | 23.9 | 35.700 | 440.6 | 29.7 | 43.800 | 426.4 | 36.8 | 53.300 | 409.2 | 45.4 | 64.500 | 388.4 | 55.8 | 77.300 | 363.4 | 68.3 | 91.8 |
| 560 | 525.6 | 17.2 | 29.400 | 517.2 | 21.4 | 36.200 | 506.6 | 26.7 | 44.700 | 493.6 | 33.2 | 54.800 | 477.6 | 41.2 | 66.900 | 458.4 | 50.8 | 80.800 | 435.0 | 62.5 | 97.000 | --- | --- | --- |
| 630 | 591.4 | 19.3 | 37.100 | 581.8 | 24.1 | 45.900 | 570.0 | 30.0 | 56.400 | 555.2 | 37.4 | 69.400 | 537.4 | 46.3 | 84.600 | 515.6 | 57.2 | 102.000 | --- | --- | --- | --- | --- | --- |

O.D: Outside Diameter

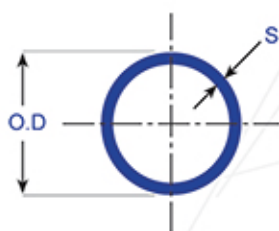
I.D: Inner Diameter

S: Min Wall Thickness

PN: Working Pressure

RELEVANT STANDARDS ISO 4427 - EN12201

STANDARD
DIMENSION
RATIO



$$SDR = \frac{O.D}{S}$$

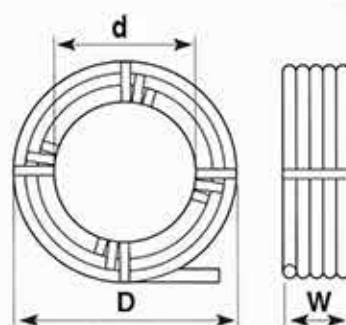
SDR ... Standard Dimension Ratio

O.D ... Outer Diameter (mm)

S ... wall thickness (mm)

DIMENSIONS OF COILS UP TO 110 MM

| OD mm | Length m | d mm | D mm | w mm |
|----------|-------------|---------|---------|---------|
| 20 | 100 | 660 | 840 | 190 |
| 25 | 100 | 660 | 880 | 240 |
| 32 | 50 | 880 | 1060 | 210 |
| | 100 | 880 | 1170 | 240 |
| 40 | 50 | 880 | 1100 | 260 |
| | 100 | 880 | 1240 | 300 |
| 50 | 50 | 1000 | 1280 | 330 |
| | 100 | 1000 | 1450 | 330 |
| 63 | 50 | 1750 | 1990 | 350 |
| | 100 | 1750 | 2090 | 410 |
| 75 | 100 | 1750 | 2290 | 410 |
| 90 | 50 | 2500 | 3100 | 270 |
| | 100 | 2500 | 3300 | 360 |
| 110 | 50 | 2500 | 2800 | 450 |
| | 100 | 2500 | 3100 | 570 |





PRESSURE SYSTEM DIMENSIONS

| DIN | | DIN/ISO/EN | |
|-----|-----|------------|--------|
| DN | OD | versus | Inch |
| 4 | 6 | | |
| 5 | 8 | | |
| 6 | 10 | | |
| 8 | 12 | | 1/4" |
| 10 | 16 | | 3/8" |
| 15 | 20 | | 1/2" |
| 20 | 25 | | 3/4" |
| 25 | 32 | | 1" |
| 32 | 40 | | 1 1/4" |
| 40 | 50 | | 1 1/2" |
| 50 | 63 | | 2" |
| 65 | 75 | | 2 1/2" |
| 80 | 90 | | 3" |
| 100 | 110 | | 4" |
| 100 | 125 | | 4" |
| 125 | 125 | | 5" |
| 125 | 140 | DIN | 5" |
| 150 | 160 | | 6" |
| 150 | 180 | | 6" |
| | GAS | | |
| 200 | 200 | | 8" |
| 200 | 225 | DIN | 8" |
| 250 | 250 | | 10" |
| 250 | 280 | DIN | 10" |
| 300 | 315 | | 12" |
| 350 | 355 | | 14" |
| 400 | 400 | | 16" |
| 400 | 450 | DIN | 18" |
| 500 | 500 | | 20" |
| 500 | 560 | DIN | 22" |
| 600 | 630 | | 24" |

DN = Nominal Diameter
OD = Outside Diameter

ADVANTAGES OF HDPE

- UV-resistance.
- High Flexibility.
- Light weight.
- High chemical resistance.
- Weathering resistance.
- Radiation resistance.
- Proficient weldability.
- High abrasion resistance.
- No deposits and no overgrowth possible.
- Low friction losses - smooth internal surface.
- Resistant to rodents.
- Higher rigidity (MRS).
- Very high stress crack resistance.

USAGE OF HDPE

- * **Water Transportation**
 - Underground and Overground
 - Potable water systems
 - Irrigation systems
 - Fire water systems
- * **Distribution of Energy**
 - Natural gas systems
 - Cooling water systems
 - Geothermal pipe systems
- * **Discharging Waste Water**
 - Deep sea discharge systems
 - Sewage disposal units
- * **Telecommunication Systems**
 - Cable pipes / conduit





PHYSICAL AND MECHANICAL PROPERTIES OF THE MATERIAL

| Properties | PE 100 Typical Value | Unit |
|---|-------------------------|-------------------|
| Density | > 0.95 | g/cm ³ |
| Melt flow index MFI 190°C /5Kg | 0.15-0.3 | g/10 min |
| Yield stress | 25 | N/mm ² |
| Elongation at fracture | > 600 | % |
| Bend creep module (1 min. value) | 840 | N/mm ² |
| Crystallite melting range | 127-131 | °C |
| Coefficient of linear expansion | 0.13 | mm/m*°K |
| Heat conductivity at 20°C | 0.38 | W/m*°K |
| Surface resistance | >10 ¹⁴ | Ω |
| Modulus of elasticity (1 mm/min.) | 1200 | MPa |
| Linear coefficient of thermal expansion | 1.3x10 ⁻⁴ | ° K ⁻¹ |
| Specific heat | 1.9 | J/g ° K |
| Thermal conductivity | 0.38 | W/m ° K |
| Min. radius of curvature | 25 x dy * | |

*dy = outside diameter of plastic pipe

Pressure Rating

HDPE (PE100) has a MRS of 10 MPa. The hydrostatic Design stress for the material is determined by applying a safety factor of 1.25.

The design life for the water industry requires a minimum life of 50 years, therefore the design stress for PE 100 is (8 MPa)

Polyethylene pipe pressure ratings are generally referred to in bar; 1 bar is approximately equivalent to 10.2 meter head.

The maximum permitted operating pressure (PN) for water at 20°C and a planned operating duration of 50 Years is:

| SDR | PE 100 | Wall thickness for d110 |
|--------|--------------------------|----------------------------|
| | (MRS = 10 C = 1.25) (PN) | |
| SDR 9 | 20 bar | 12.3 mm |
| SDR 11 | 16 bar | 10 mm |
| SDR 17 | 10 bar | 6.6 mm |
| SDR 26 | 6 bar | 4.2 mm |
| SDR 33 | 5 bar | 3.4 mm |

$$P = (20 \times \text{MRS}) / (C \times (\text{SDR} - 1)) \text{ [bar]} = \text{PN}$$

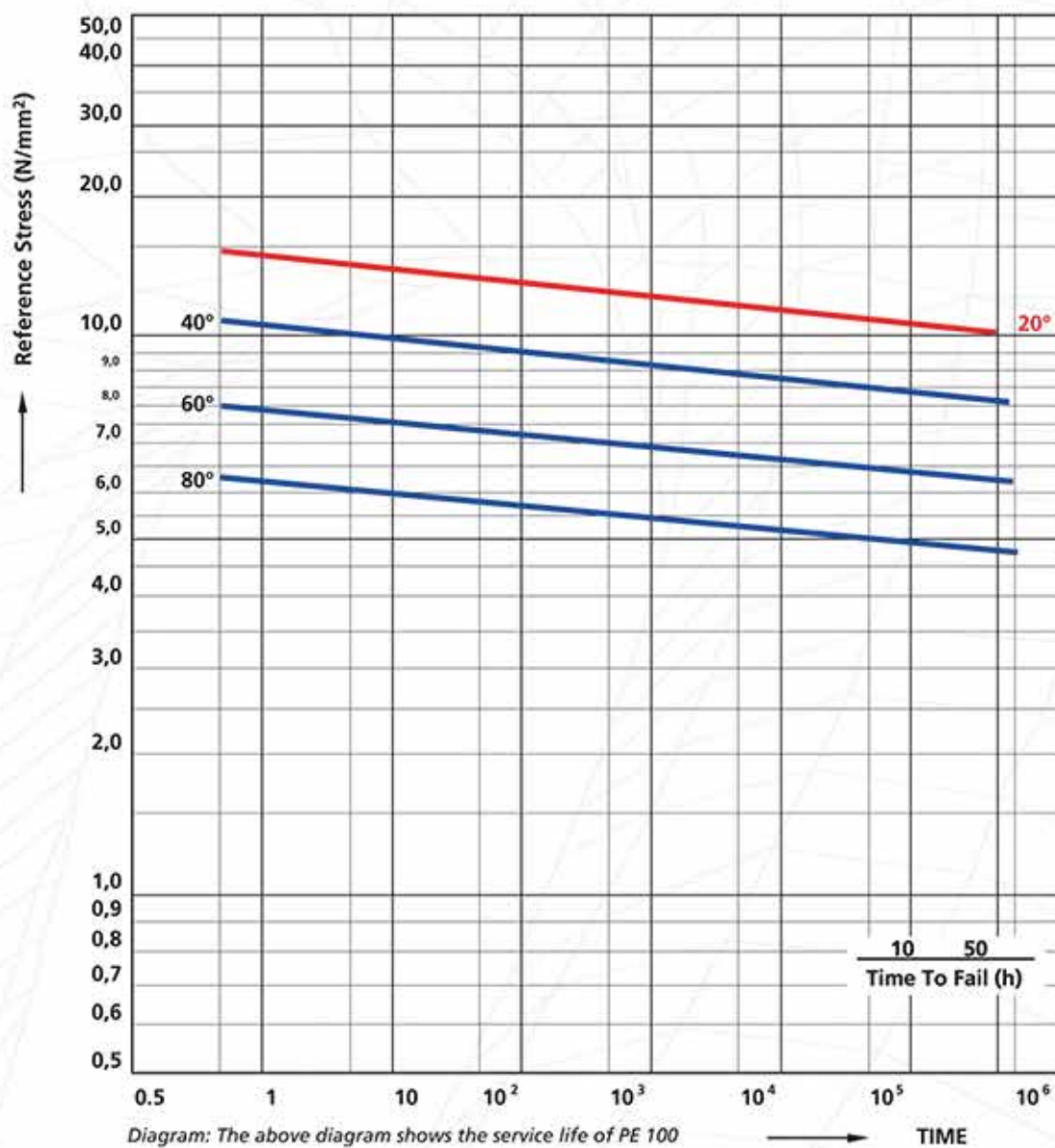
* In other liquids or at medium temperatures above 20 °C, appropriate reduction factors should be taken into consideration for the maximum permitted operating pressure. (Ref. to p.13)

* HDPE pipes can sustain upto 110 °C in gravity no pressure applications.

* HDPE pipes linear expansion (20-90°C) according to ASTM D 696 test method is 0.2 mm/m*°C .

CALCULATION

SERVICE LIFE OF PE 100



Type of Raw Material

PE 100

Valid for 20°C and 50 years
life time MRS (Mpa)

10

Max. Hydrostatic
Design Stress (Mpa)

8



Allowable working pressure for pipes made from PE100, conveying water, with a safety factor of 1.25

| Tem- pera- ture, in °C | Years of service | Pipe series | | | | | | | | | | | | | |
|--|------------------------|--------------------------------|-----|-----|------|------|------|------|------|------|------|------|------|------|------|
| | | 25 | 20 | 16 | 12.5 | 10.5 | 10 | 8.3 | 8 | 6.3 | 5 | 4 | 3.2 | 2.5 | 2 |
| | | Standard dimension ratio (SDR) | | | | | | | | | | | | | |
| | | 51 | 41 | 33 | 26 | 22 | 21 | 17.6 | 17 | 13.6 | 11 | 9 | 7.4 | 6 | 5 |
| | | Allowable working pressure | | | | | | | | | | | | | |
| 10 | 5 | 4.0 | 5.0 | 6.3 | 7.9 | 9.4 | 10.1 | 12.1 | 12.6 | 15.7 | 20.2 | 25.2 | 31.5 | 40.4 | 50.5 |
| | 10 | 3.9 | 4.9 | 6.2 | 7.8 | 9.3 | 9.9 | 11.9 | 12.4 | 15.5 | 19.8 | 24.8 | 31.0 | 39.7 | 49.6 |
| | 25 | 3.8 | 4.8 | 6.0 | 7.6 | 9.0 | 9.6 | 11.6 | 12.1 | 15.1 | 19.3 | 24.2 | 30.2 | 38.7 | 48.4 |
| | 50 | 3.8 | 4.7 | 5.9 | 7.5 | 8.9 | 9.5 | 11.4 | 11.9 | 14.8 | 19.0 | 23.8 | 29.7 | 38.0 | 47.6 |
| | 100 | 3.7 | 4.6 | 5.8 | 7.3 | 8.7 | 9.3 | 11.2 | 11.6 | 14.6 | 18.7 | 23.3 | 29.2 | 37.4 | 46.7 |
| 20 | 5 | 3.3 | 4.2 | 5.3 | 6.6 | 7.9 | 8.4 | 10.2 | 10.6 | 13.2 | 16.9 | 21.2 | 26.5 | 33.9 | 42.4 |
| | 10 | 3.3 | 4.1 | 5.2 | 6.5 | 7.8 | 8.3 | 10.0 | 10.4 | 13.0 | 16.6 | 20.8 | 26.0 | 33.3 | 41.6 |
| | 25 | 3.2 | 4.0 | 5.0 | 6.4 | 7.6 | 8.1 | 9.8 | 10.1 | 12.7 | 16.2 | 20.3 | 25.4 | 32.5 | 40.7 |
| | 50 | 3.2 | 4.0 | 5.0 | 6.3 | 7.5 | 8.0 | 9.6 | 10.0 | 12.5 | 16.0 | 20.0 | 25.0 | 32.0 | 40.0 |
| | 100 | 3.1 | 3.9 | 4.9 | 6.1 | 7.3 | 7.8 | 9.4 | 9.8 | 12.2 | 15.7 | 19.6 | 24.5 | 31.4 | 39.2 |
| 30 | 5 | 2.8 | 3.6 | 4.5 | 5.6 | 6.7 | 7.2 | 8.6 | 9.0 | 11.2 | 14.4 | 18.0 | 22.5 | 28.8 | 36.0 |
| | 10 | 2.8 | 3.5 | 4.4 | 5.5 | 6.6 | 7.0 | 8.5 | 8.8 | 10.0 | 14.1 | 17.7 | 22.1 | 28.3 | 35.4 |
| | 25 | 2.7 | 3.4 | 4.3 | 5.4 | 6.4 | 6.9 | 8.3 | 8.6 | 10.8 | 13.8 | 17.2 | 21.6 | 27.6 | 34.5 |
| | 50 | 2.7 | 3.3 | 4.2 | 5.3 | 6.3 | 6.7 | 8.1 | 8.4 | 10.6 | 13.5 | 16.9 | 21.2 | 27.1 | 33.9 |
| 40 | 5 | 2.4 | 3.0 | 3.8 | 4.8 | 5.8 | 6.1 | 7.4 | 7.7 | 9.6 | 12.3 | 15.4 | 19.3 | 24.7 | 30.9 |
| | 10 | 2.4 | 3.0 | 3.8 | 4.7 | 5.7 | 6.0 | 7.3 | 7.6 | 9.5 | 12.1 | 15.2 | 19.0 | 24.3 | 30.4 |
| | 25 | 2.3 | 2.9 | 3.7 | 4.6 | 5.5 | 5.9 | 7.1 | 7.4 | 9.2 | 11.8 | 14.8 | 18.5 | 23.7 | 29.7 |
| | 50 | 2.3 | 2.9 | 3.6 | 4.5 | 5.4 | 5.8 | 7.0 | 7.2 | 9.1 | 11.6 | 14.5 | 18.2 | 23.3 | 29.1 |
| 50 | 5 | 2.1 | 2.6 | 3.3 | 4.2 | 5.0 | 5.3 | 6.4 | 6.7 | 8.3 | 10.7 | 13.4 | 16.7 | 21.4 | 26.8 |
| | 10 | 2.0 | 2.6 | 3.2 | 4.0 | 4.8 | 5.2 | 6.2 | 6.5 | 8.1 | 10.4 | 13.0 | 16.2 | 20.3 | 26.0 |
| | 15 | 1.9 | 2.3 | 2.9 | 3.7 | 4.4 | 4.7 | 5.7 | 5.9 | 7.4 | 9.5 | 11.8 | 14.8 | 19.0 | 23.7 |
| 60 | 5 | 1.5 | 1.9 | 2.4 | 3.0 | 3.6 | 3.8 | 4.6 | 4.8 | 6.0 | 7.7 | 9.7 | 12.1 | 15.5 | 19.4 |
| 70 | 2 | 1.2 | 1.5 | 1.9 | 2.4 | 2.9 | 3.1 | 3.7 | 3.9 | 4.9 | 6.2 | 7.8 | 9.8 | 12.5 | 15.7 |

The following tables illustrate the effect of some of the chemical materials (acids, alkaline, salts,... etc) on HDPE pipes on different temperatures according to the following symbols:

| | | | |
|-----------------|---|----------------|----------------------|
| Susp. | Suspension prepared in saturated solution | op.sol. | Operational solution |
| Sat.sol. | Saturated liquid solution | R | Resistance |
| l.tp. | liquid in technical purity | LR | Limited Resistance |
| g.tp. | Gas in technical purity | NR | Non-resistance |

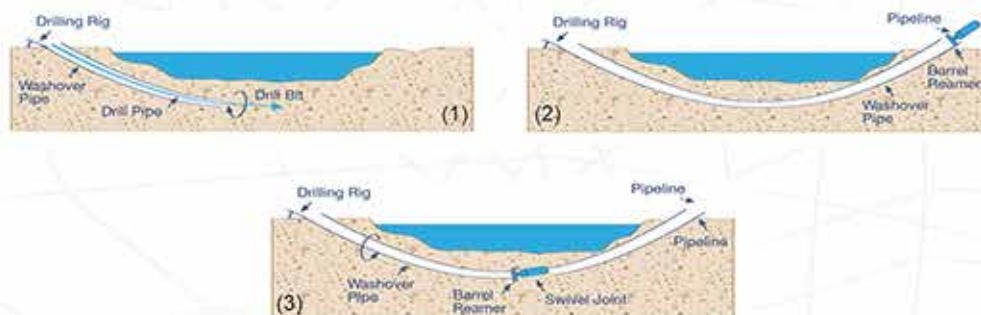
| Name of Chemical | % Conct. | T (C°) | Degree of Resistance |
|-------------------------------------|----------------|----------|----------------------|
| Adipic acid | sat.sol. % 1.4 | 20 60 | R |
| Allele alcohol | l.tp | 20 60 | R |
| Aluminium hydroxide | susp. | 20 60 | R |
| Ammonium, dry gas | g.tp | 20 60 | R |
| Ammonium, liquid | sta.sol. | 20 60 | R |
| | g.tp | 20 60 | R |
| Ammonium chloride | sta.sol. | 20 60 | R |
| Ammonium sulphide | sta.sol. | 20 60 | R |
| Aniline | sta.sol. | 20 60 | R |
| Acetic acid | 50 | 20 60 | R |
| acetic acid, freezes | > 96 | 20 60 | R |
| Acetone | l.tp. | 20 60 | LR |
| Cooper (II) sulphate | sta.sol. | 20 60 | LR |
| Benzene | l.tp | 20 60 | R |
| Benzene (fuel) | sta.sol. | 20 60 | R |
| Beer | op.sol. | 20 60 | R |
| Vegetables oils | l.tp | 20 60 | R |
| Butane, gas | g.tp | 20 60 | R |
| Mercury | l.tp | 20 60 | R |
| Iron (II) and (III) chloride | sat.sol. | 20 60 | LR |
| Ethanol | 40 | 20 60 | R |
| Ethylene glycol | l.tp | 20 60 | R |
| Phenol | sol. | 20 60 | R |
| Formaldehyde | 30 - 40 | 20 60 | R |
| Glycerine | l.tp | 20 60 | R |
| Air | g.tp | 20 60 | R |
| Hydrogen | g.tp | 20 60 | R |
| Hydrogen peroxide | 30 | 20 60 | R |
| Hydrogen acid | 30 | 20 60 | R |
| | derisik | 20 60 | R |
| Urine | | 20 60 | NR |



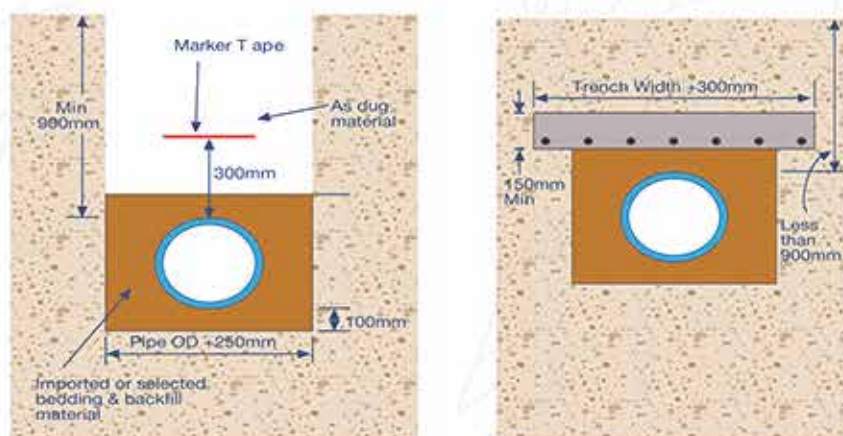
| Name of Chemical | % Conct. | T (C°) | Degree of Rasistance |
|------------------------------------|----------|----------|----------------------|
| Iodine (in alcohol) | op.sol. | 20 60 | R R |
| Calcium | susp | 20 60 | |
| Calcium | sat.sol. | 20 60 | R R |
| Carbon diaxide moisted gas | g.tp | 20 60 | R R |
| Carbon moisted gas | g.tp | 20 60 | R LR |
| Carbon tetrachloride | g.tp | 20 60 | NR LR |
| Chlorine (dry gas) | g.tp | 20 60 | NR LR |
| water with Chorine | sat.sol. | 20 60 | NR NR |
| Chloroform | l.tp | 20 60 | NR R |
| Lead acetate | sat.sol. | 20 60 | R R |
| Sulphur dioxide (dry gas) | | 20 60 | R R |
| Methyl Alcohol | l.tp | 20 60 | R R |
| | 10 | 20 60 | R R |
| Nitric acid | 25 | 20 60 | R NR |
| | >50 | 20 60 | NR NR |
| with fumed nitrogen oxide | | 20 60 | NR R |
| Oxygen, gas | g.tp | 20 60 | LR R |
| Potassium hydroxide | sol. | 20 60 | R |
| | up to 50 | 20 60 | R R |
| Cyclohexanole | ts-k | 20 60 | R R |
| Sodium bicarbonate | sat.sol. | 20 60 | R R |
| Vinegar | op.sol. | 20 60 | R R |
| Sodium hydroxide | sol. | 20 60 | R R |
| | 40 | 20 60 | R R |
| Sodium carbonate | sat.sol. | 20 60 | R R |
| | up to 50 | 20 60 | R R |
| Sodium chloride | sat.sol. | 20 60 | R R |
| Sodium solphate | sat.sol. | 20 60 | R R |
| Water distilled sea | | 20 60 | R R |
| Water, usage, mineral | op.sol. | 20 60 | R R |
| | 10 30 | 20 60 | R R |
| Sulphuric acid | 50 | 20 60 | R NR |
| | 98 | 20 60 | NR NR |
| | dumanli | 20 60 | R R |
| Milk | op.sol. | 20 60 | R R |
| Wine | op.sol. | 20 60 | LR NR |
| Toluene | g.tp | 20 60 | NR NR |
| Trichloroethylene | g.tp | 20 60 | R R |
| Urea | sol. | 20 60 | R LR |
| Oils (vegetable and animal) | g.tp | 20 60 | |

INSTALLATION

TYPICAL DIRECTIONAL DRILLING



TRENCH EXCAVATION

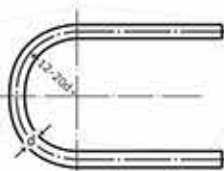


ANCHORING (THURST BLOCK)

Anchoring is required, only when fitting with a rubber sealing ring are used or, at the points where valves are installed. Anchoring is not necessary, when heat-welded fittings are used.

BENDING

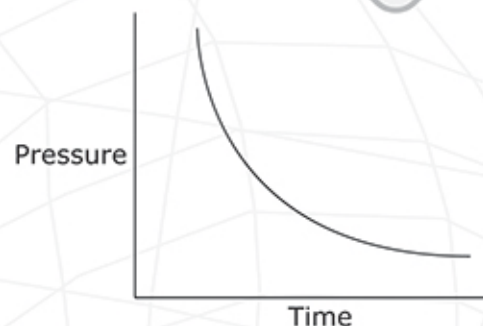
HDPE pipes can, at ambient temperature, be bent to a radius of $R=12-20$ times above their outside diameter (DIN 16933 specification).





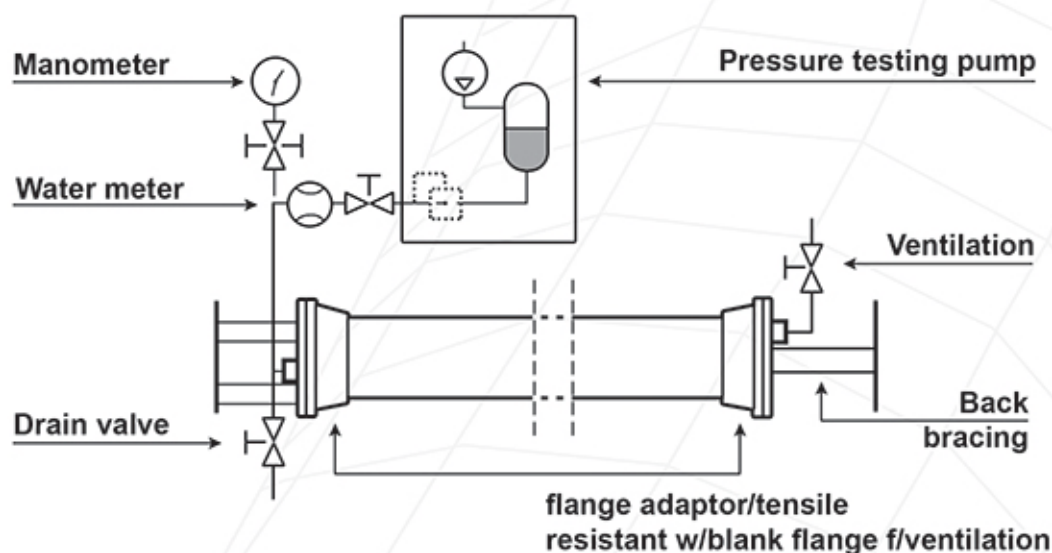
SITE PRESSURE TEST

When a Polyethylene pipeline is sealed under a pressure test there will be a reduction in pressure (pressure decay), even in a leak free system, due to the visco elastic (creep) response of the material. This pressure decay is non-linear in an unconstrained pipe.



Pressure test method on site for PE Pipe lines

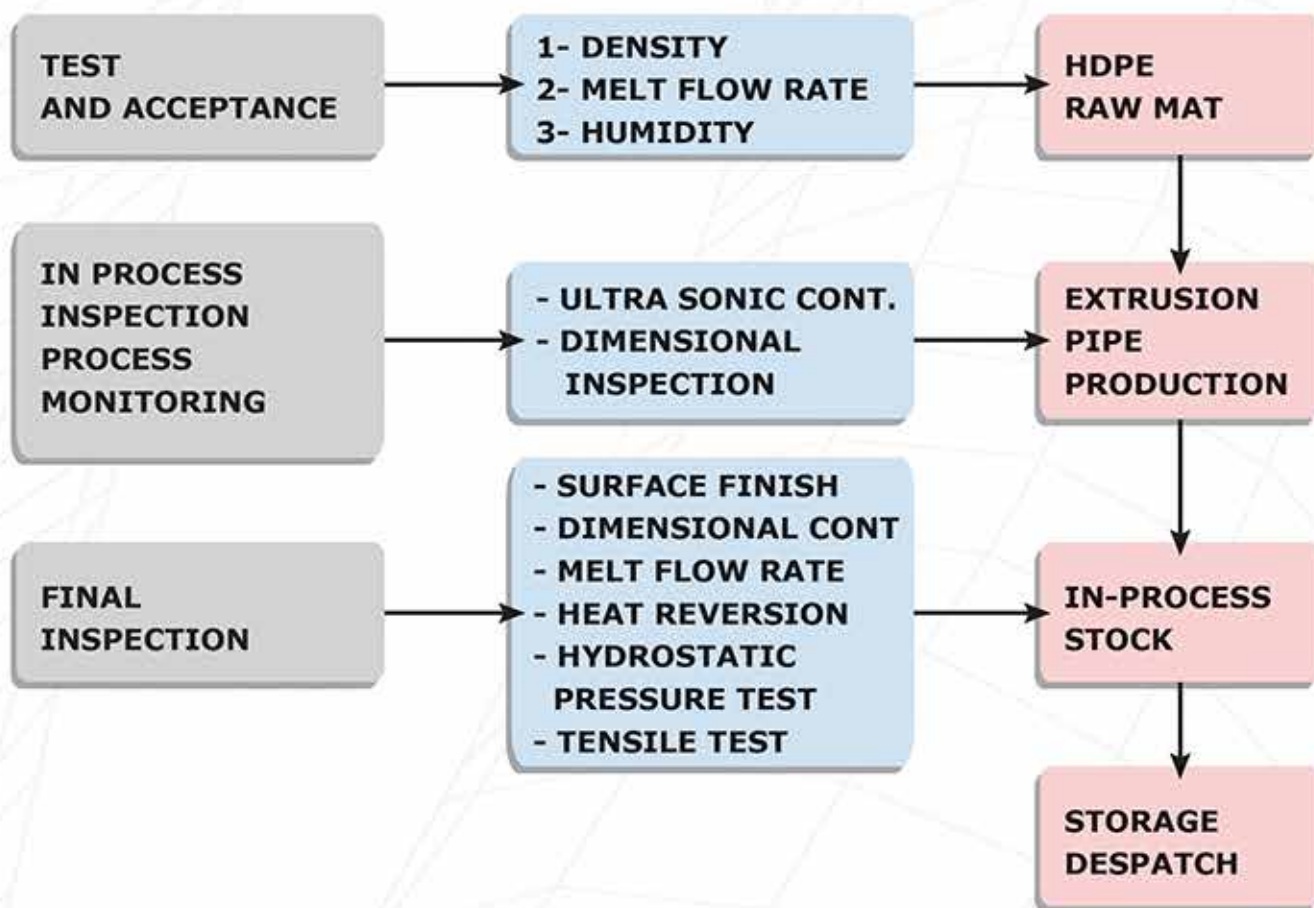
- The PE Pipe line must be filled with water at least 24 hours prior to the starting of the pressure test.
- Ventilation of the system must be ensured.
- Calibrated pressure indicator must be installed with the system.
- Start raising the pressure gradually.
- The water pumping must be stopped at 1.5 working pressure of PE Pipes.
- The pressure must be maintained for two hours and the system fed with water to substitute any drop of pressure during the first hour as a result of a relaxation phenomenon.
- The permissible drop of pressure during the second hour is between 5% to 10% according to tested line length (the suitable length is 500 meter).



* Pipe's surface temp should be considered before applying the above mentioned procedures. Depending on the temp, apply the applicable operating pressure reduction (Ref. to p.13)



INTERNAL SYSTEM CONTROL FOR HDPE PIPES



TRANSPORTATION, HANDLING & STORAGE

STORAGE

Polyethylene is a resilient material, lightweight and easy to handle. Nonetheless, care should be taken. Badly stacked pallets, coils or bundles may slip or collapse, causing injury to personnel or damage to the pipe.

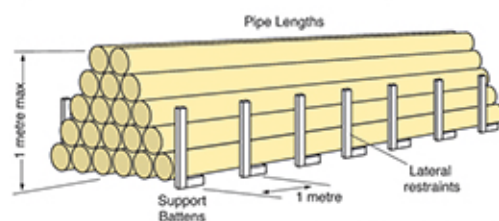
It is preferable that pipes & fittings stored onsite to be kept in a warehouse.



If they are stored in open construction sites, the pipes & fittings are preferable to be stacked in the shade, under a roof, preventing direct sun exposure, but allowing the wind to freshen the air (to avoid an oven-effect).

LENGTHS

Pipe lengths stored individually should be stacked like a pyramid, not exceeding one meter high, with the bottom layer fully restrained by wedges.

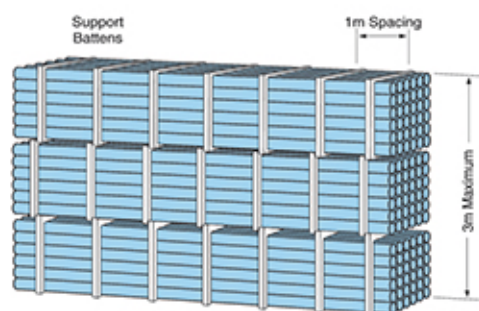


Storage of loose pipes

BUNDLES

Bundled packs of pipes should be stored on clear leveled ground, with the battens support from the outside by timbers or concrete blocks. For safety, bundled packs should not be stacked more than three meters high.

*** Upon Request**

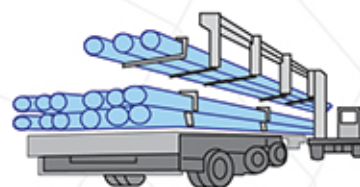


Storage of bundles

TRANSPORTATION

If the load would be carried in bulk, loading surface of the vehicle should be smooth and free of sharp objects.

Pipes and fittings must be carefully placed away from heat sources and from oils, which may cause contamination.



Handling of long lengths

HDPE PIPES WELDING MISSION STATEMENT

BUTT WELDING

Butt welding is the process of using heat & force to join together HDPE pipe

(1) The pipe is loaded to the fusion machine



(2) Create smooth clean surface



(3) Thermostat control heater using temperature

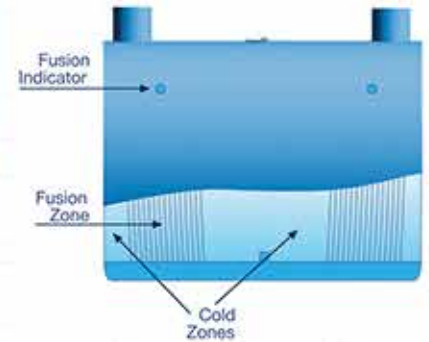


(4) The pipes are pushed together by force



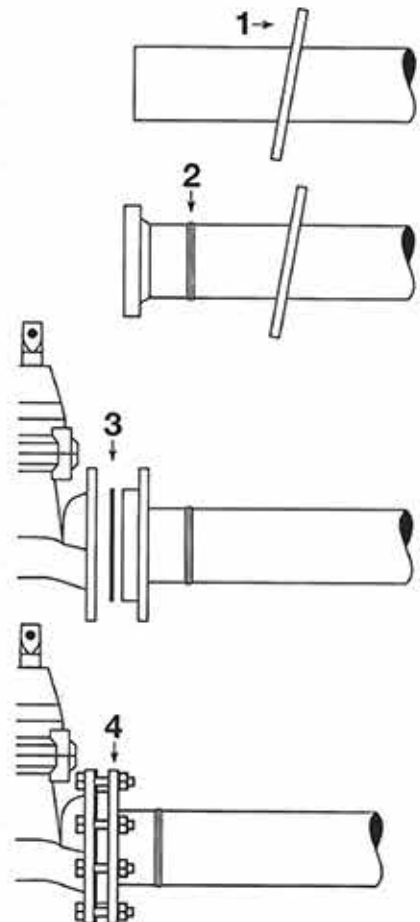


ELECTRO FUSION



STUB FLANGE

- 1) Place the flange ring on the PE pipe.
- 2) Butt-fuse the stub flange to the pipe's end.
- 3) Locate the flange gasket.
- 4) Bolt the flange, using a torque wrench as outlined in the instructions.



UNDERGROUND CABLE PROTECTION

FLEXIBLE CONDUIT PIPE 450N

HDPE double wall corrugated cable protection PE halogen free conduit pipe (Flexible 450N), with main application protection of low tension electrical and telephone underground cables. It is available in coils of various standard length.

- Product dimensions are according to EN 61386-24.
- Compression test > 450N vertical deflection equivalent 5% of the original diameter.
- Impact strength Normal
- Can be used in temperatures ranging from -10°C to 60°C.
- Minimum bending radius 8 times the external diameter.



450N

SIZE / DIMENSIONS

| Dimension (OD) | ID Tolerance | OD Tolerance | Coils Length (M) |
|----------------|--------------|---------------|------------------|
| 50 | 41.00 + 0.20 | 50.00 + 1.20 | 50 / 100 |
| 63 | 51.00 + 0.20 | 63.00 + 1.20 | 50 / 100 |
| 75 | 62.00 + 0.20 | 75.00 + 1.20 | 50 / 100 |
| 90 | 75.00 + 0.25 | 90.00 + 2.00 | 50 / 100 |
| 110 | 92.00 + 0.25 | 110.00 + 2.00 | 50 / 100 |
| 125 | 108.00 + 0.3 | 125.00 + 3.00 | 50 |
| 160 | 138.00 + 0.3 | 160.00 + 3.00 | 25 |

- * Any other lengths are available upon request
- * Any other Colors are available upon request
- * Standard colour : Black

ACCESSORIES

Coupling

Coupling provides sandtight joints.



Spacer





RIGID CONDUIT PIPE 750N

HDPE double wall corrugated cable protection PE halogen free conduit pipes in 6m bars, with excellent compression strength and very high impact resistance due to the advanced combination of the corrugated outside layer and the smooth inside layer.

The 750N series pipe is the best solution to apply when high ground tension and constant vehicular load is a presistent factor.

- Product dimensions are according to EN 61386-24.
- Compression test > 750N vertical deflection equivalent 5% of the original diameter.
- Impact strength Normal
- Can be used in temperatures ranging from -10°C to 60°C.



750N

SIZE / DIMENSIONS

| Dimension (OD) | ID Tollerence | OD Tollerence | Length of Bar (M) |
|----------------|---------------|---------------|-------------------|
| 50 | 41.00 + 0.20 | 50.00 + 1.20 | 6 |
| 63 | 51.00 + 0.20 | 63.00 + 1.20 | 6 |
| 75 | 62.00 + 0.20 | 75.00 + 1.20 | 6 |
| 90 | 75.00 + 0.25 | 90.00 + 2.00 | 6 |
| 110 | 92.00 + 0.25 | 110.00 + 2.00 | 6 |
| 125 | 108.00 + 0.3 | 125.00 + 3.00 | 6 |
| 160 | 138.00 + 0.3 | 160.00 + 3.00 | 6 |

- * Any other lengths are available upon request
- * Any other Colors are available upon request
- * Standard colour : Black

ACCESSORIES

Coupling

Coupling provides sandtight joints.



Spacer



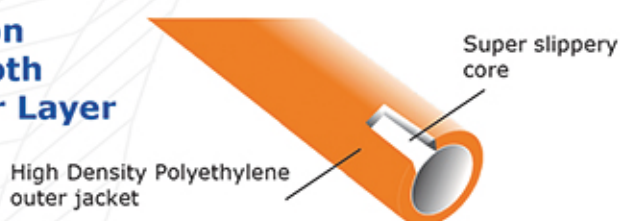
HDPE HEBEISH DUCTS

Are made of HDPE PE 100 outer layer with smooth silicon inner layer.
 All production is made according to specification of DIN 8074/8075.

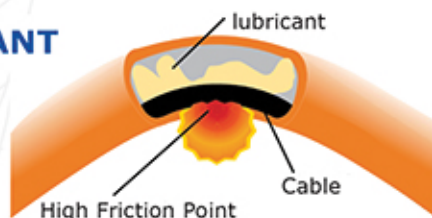
| O.D | PN 5 bar | | | PN 6 bar | | | PN 8 bar | | | PN 10 bar | | | PN 12.5 bar | | | PN 16 bar | | | PN 20 bar | | | PN 25 bar | | |
|-----------------------|----------|-----|---------------------|----------|-----|-----------------------|----------|-----|----------------------|-----------|-----|---------|-------------|-----|---------|-----------|-----|---------|-----------|-----|---------|-----------|-----|---------|
| | SDR 33 | | | SDR 26 | | | SDR 21 | | | SDR 17 | | | SDR 13.6 | | | SDR 11 | | | SDR 9 | | | SDR 7.4 | | |
| | I.D | S | W(kg/m) | I.D | S | W(kg/m) | I.D | S | W(kg/m) | I.D | S | W(kg/m) | I.D | S | W(kg/m) | I.D | S | W(kg/m) | I.D | S | W(kg/m) | I.D | S | W(kg/m) |
| 20 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 16.4 | 1.8 | 0.107 | 16.2 | 1.9 | 0.112 | 15.4 | 2.3 | 0.133 | 14.4 | 2.8 | 0.200 |
| 25 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 21.4 | 1.8 | 0.137 | 21.2 | 1.9 | 0.144 | 20.4 | 2.3 | 0.171 | 19.4 | 2.8 | 0.200 | 18 | 3.5 | 0.240 |
| 32 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 28.2 | 1.9 | 0.187 | 27.2 | 2.4 | 0.232 | 26.2 | 2.9 | 0.272 | 24.8 | 3.6 | 0.327 | 23.2 | 4.4 | 0.386 |
| 40 | --- | --- | --- | 36.4 | 1.8 | 0.227 | 36.2 | 1.9 | 0.239 | 35.2 | 2.4 | 0.295 | 34.0 | 3.0 | 0.356 | 32.6 | 3.7 | 0.430 | 31.0 | 4.5 | 0.509 | 29 | 5.5 | 0.600 |
| 50 | 46.4 | 1.8 | 0.287 | 46.0 | 2.0 | 0.314 | 45.2 | 2.4 | 0.374 | 44.0 | 3.0 | 0.453 | 42.6 | 3.7 | 0.549 | 40.8 | 4.6 | 0.666 | 38.8 | 5.6 | 0.788 | 36.2 | 6.9 | 0.936 |
| 63 | 59.0 | 2.0 | 0.399 | 58.0 | 2.5 | 0.494 | 57.0 | 3.0 | 0.580 | 55.4 | 3.8 | 0.721 | 53.6 | 4.7 | 0.873 | 51.4 | 5.8 | 1.050 | 48.8 | 7.1 | 1.260 | 45.8 | 8.6 | 1.47 |
| O.D: Outside Diameter | | | I.D: Inner Diameter | | | S: Min Wall Thickness | | | PN: Working Pressure | | | | | | | | | | | | | | | |

The silicon material used for the inner layer ensures easy installation of cable, zero friction and no lubricants required, making the blowing of the cables a very easy process.

Silicon Smooth Inner Layer



LUBRICANT

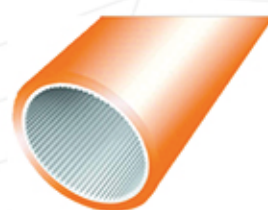


Heat builds, lubricant dissipates causing direct contact between cable and HDPE duct. Installation friction increases causing damage where the cable contacts the duct.

ADVANTAGES

- Low cost.
- Quick re-routing of fibers to meet customer's demand.
- Fast installation.
- Easy upgradable networks.
- Smooth inner layer to make it easy to blow in the cables and to decrease friction with the wire.
- Wide range to meet different needs.
- Flexible and lightweight which makes installation easier.

Silicon Ribbed Inner Layer



SILICON



Cable remains in contact with SILICON. Reduced burn through, low coefficient of friction, and easier, longer cable pulls!

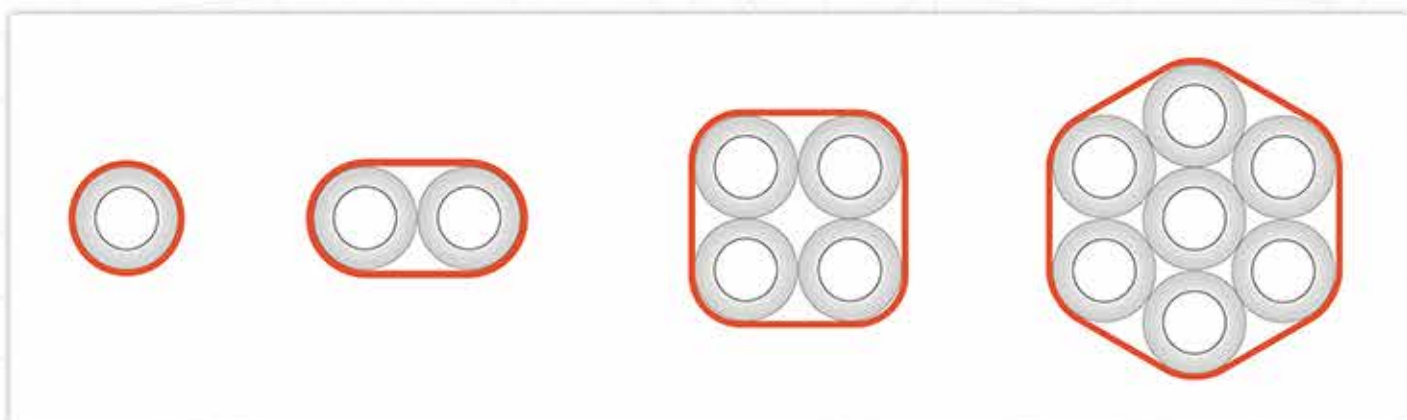
PACKAGING

All production is delivered in coils.



HDPE MICRO DUCTS

Are natural colored with colored stripe HDPE outer layer tubes with inner silicon layer. They are bundled together by a flexible outer sheath. Pipes are labeled with inkjet printing at a distance of a meter. They come in bundles of 1,2,3,4,7 (Special requests can be done as requested)



Fiber optics installation can be injected, inserted, pushed or blown into ducts.

JOINING TECHNOLOGY (PLUG-IN CONNECTIONS)





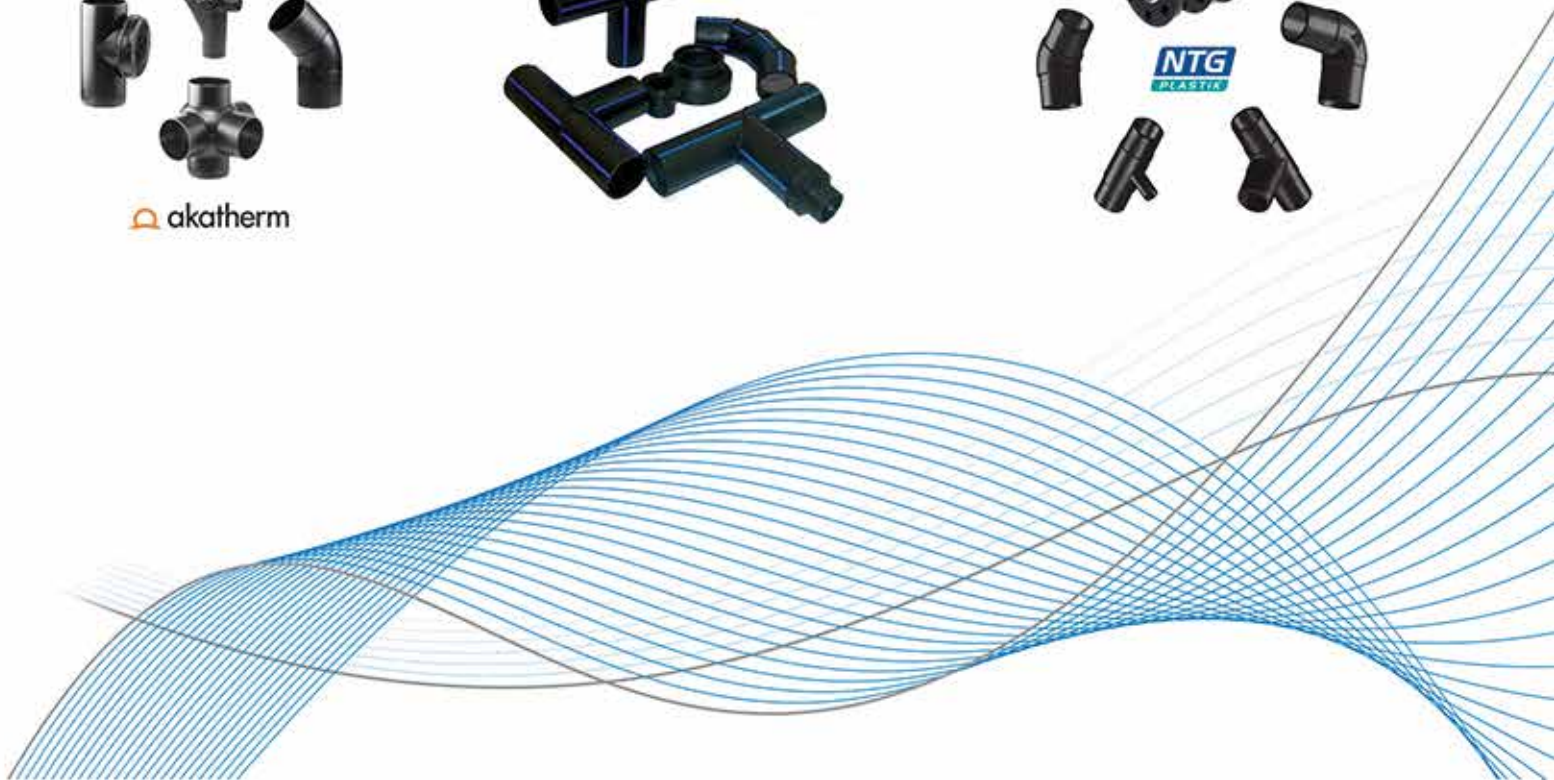
HEBEISH

For Engineering Works

MEMBER OF HEBEISH GROUP



akatherm

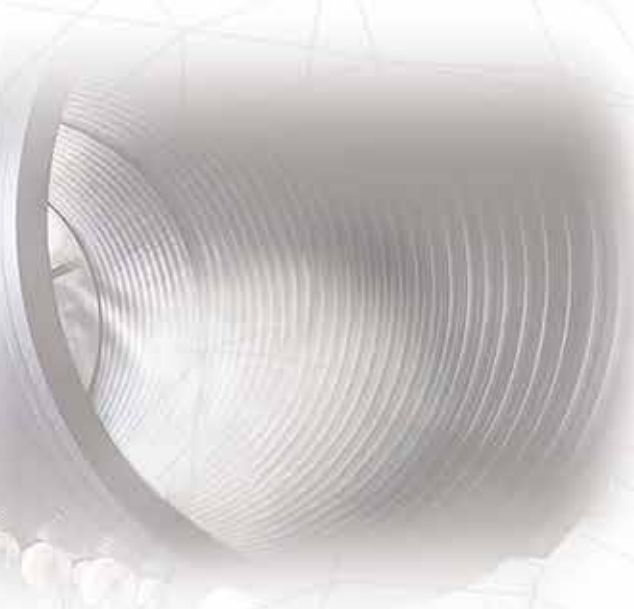


HDPE SPIRAL PROFILE PIPE

INTRODUCTION

HDPE Spiral profile pipe represents the latest advancements in both material and manufacturing technology.

Raw material properties and product technology have been combined to provide a lightweight engineered pipe for various non-pressure applications in municipal, industrial, road construction, rehabilitation and marine pipeline applications.



ADVANTAGES

Lightweight



Impact Resistance



Corrosion & Chemical Resistance



Leak Proof



Long Service Life



Environmentally Friendly



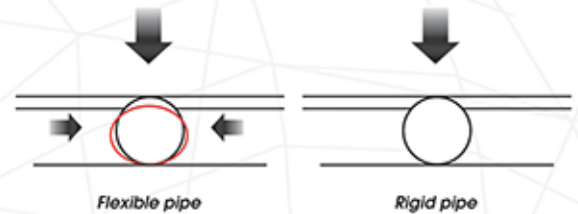
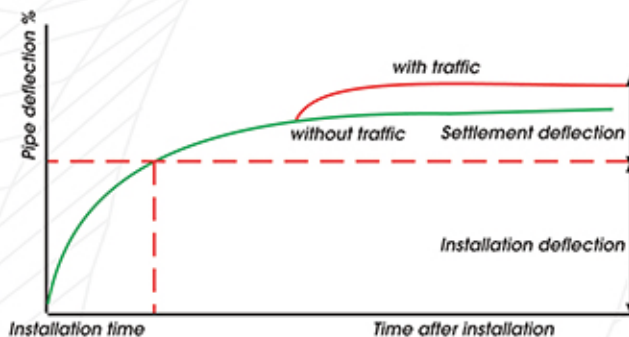
STRUCTURAL DESIGN

A flexible pipe, like Hebeish's spiral pipe is by definition, a pipe which will deflect when subjected to external loads (traffic, ground water changes, frost actions, soil settlement etc.) - as opposed to a rigid pipe, which carries all external loads by itself.

The degree of deflection of a flexible pipe will depend on the pipe stiffness, support from the surrounding soil, and external loads.

Spangler formula:

$$\text{deflection (\%)} = \frac{\text{vertical load on the pipe}}{\text{pipe stiffness} + \text{soil stiffness}}$$



After installation, further compaction of the surrounding soil develops with time, due to external loading and soil settlement.

Experience shows that the maximum deflection will be achieved within 1-3 years after installation, depending on backfill material, quality of backfill compaction work and on external loads. The maximum allowable deflection is 8-10%.

MATERIAL PROPERTIES

| Property | Property | Test Method | Typical Value |
|---------------------------------------|----------------------|-------------|---------------------|
| Density | g/cm ³ | DIN 53479 | 0.953+0.960 |
| Melt index 190/5 | g/10min ¹ | DIN 53735 | 0.3-0.7 |
| Yield stress | N/mm ² | DIN 53455 | 24 |
| Elongation at yield point | % | ISO/R 527 | 15 |
| Elongation at break | % | 125 mm/min | >800 |
| Flexural stress at a given deflection | N/mm ² | DIN 53452 | 28 |
| Modulus of elasticity | MPa | | 900 |
| Shore hardness D | | DIN 53505 | 60 |
| Notched impact strength | | DIN 53453 | no failure |
| Coefficient of linear expansion | K ⁻¹ | ASTM 696 | 1,7.10 ⁴ |
| Thermal conductivity at 20°C | W/(m.k) | DIN 52612 | 0.43 |

APPLICATION

HDPE pipes are used in transporting liquids by natural sloping such as :

- Gravity sewer system
- Industrial system
- Manholes
- Septic Tank
- Silor



PIPES RANGE

The pipe materials have been manufactured and tested in compliance with: DIN 16961 - 16566.

| Inner Diameter (mm) | Thickness (mm) |
|---------------------|----------------|
| 500 | 31 |
| 600 | 31 |
| 800 | 31 |
| 1000 | 37 |
| 1200 | 37 |
| 1500 | 37 |
| 2500 | 70 |



Compliance with the Egyptian code of practice for the design and installation of potable and sewage pipes.

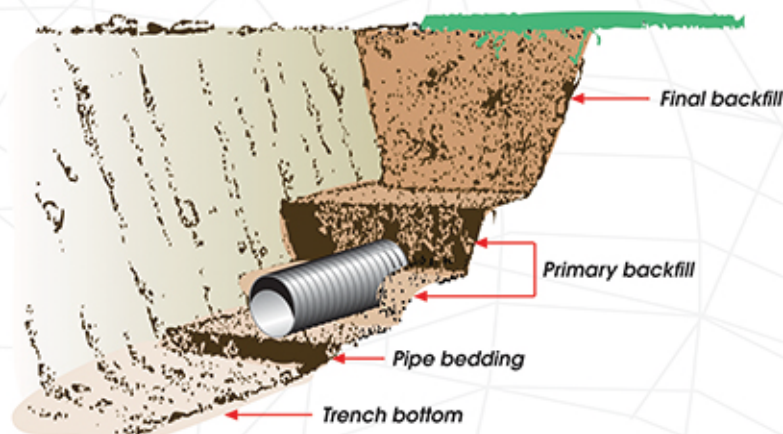
CONNECTION

Connection by butt welding through heating both ends of the pipes with hydraulic pressing by using welding machine.



INSTALLATION

The pipe stiffness is chosen in regards with soil type, bedding and backfill material, depth of installation and external live and dead load (ground water, traffic etc.) on the pipeline. Please refer to national codes of practice for installation of plastic wherever applicable.



PIPE BEDDING

The bedding soil should be free from stone within the breadth of the pipe trench. On the trench bottom, a 10-15 cm thick bedding layer is prepared and well compacted. The bedding shall be at least 20 cm wider than the pipe's outside diameter. For installations in soft/wet soil, a geotextile is placed under the bedding.

PRIMARY BACKFILL

The primary backfill material should be friction soil or macadam. Backfilling should be made over the whole width of the trench. Compaction of the backfill material should be made in layer of 15-30 cm. The final layer or the primary backfill should extend 30 cm over the pipe crown.
Note: No compaction is to be done directly above the pipe until the backfill has reached 30 cm above the pipe crown.

FINAL BACKFILL

The final backfill is done in regard with the original soil and external loads (traffic). When deemed necessary, the compaction is carried out in several layers. The final backfill material can be compactable as dug materials. However, the material must be free from stones.

INSTALLATION DEPTH

The recommended installation depth is 0.6m - 6m depending on external loads (ground water, traffic etc.)
For pipe sizes above 1200mm, detailed static calculations are normally necessary to determine trench proportions and pipe stiffness.

HDPE MANHOLES

WHY HDPE MANHOLE

Plastic Manholes made of HDPE are highly resistant to sulphuric acid, a substance that is frequently found in sewers.

HDPE Manholes is highly recommended over the traditional manholes made out of concrete or bricks.

HDPE Manholes offer advantages such as a watertight fit, easy handling, a shorter installation time and less maintenance resulting in an effective plastic solution in contrast to traditional materials.



THE ADVANTAGES



PRODUCT LINE

HDPE MANHOLE

Access for widely available operational equipment,

Inner Diameter
60 cm

Length: 50 cm
(Length can be customized)

Chamber elements
made of HDPE

| Inner Diameter | Thickness |
|----------------|-----------|
| 100 cm | 3.7 cm |
| 120 cm | 3.7 cm |
| 150 cm | 3.7 cm |

Option for
connecting

BASE UNIT



INSPECTION CHAMBER



| Inner Diameter | Thickness |
|----------------|-----------|
| 50 cm | 3.1 cm |
| 60 cm | 3.1 cm |
| 80 cm | 3.1 cm |

BASE UNIT



Inspection Chamber (Corrugated - handhole)

| Inner Diameter | Length |
|----------------|--------------|
| 40 cm | upon request |



CHAMBER ELEMENT



BASE UNIT

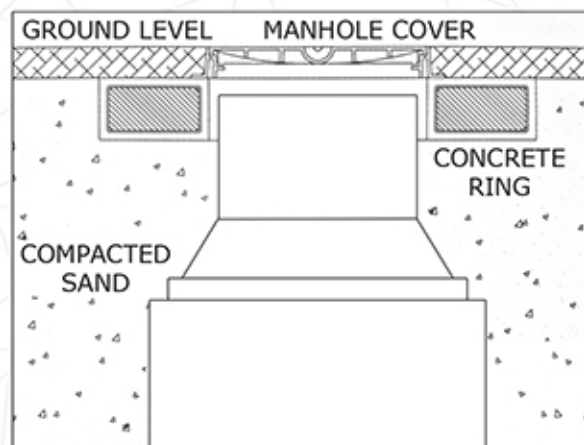


Drops

Mark the drop opening according to the pipe diameter and the desired location.

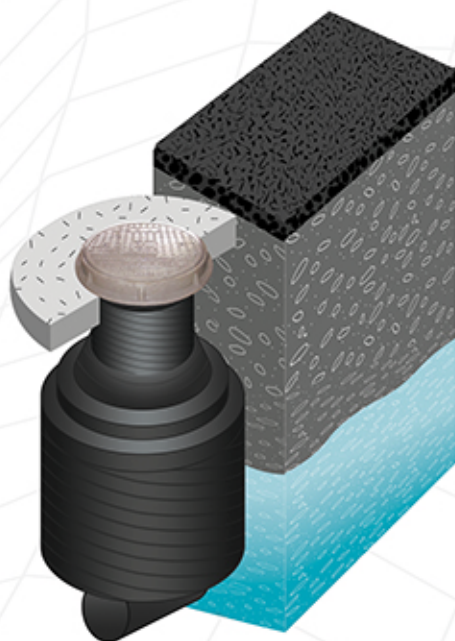
Filling and compaction

- Fill the crevice created between the manhole and the excavation with sand or gravel.
- In the event of development works being carried out in the country, mark the manhole in a prominent manner until the works are over.



The Manhole Cover

- The manhole cover should be suitable for the location and traffic conditions.
- In case of medium or heavy load, the lid should be placed on a concrete slab.
- The concrete slab should be placed around the manhole's top neck to prevent transfer of direct load to the manhole.




HEBEISH manhole cover




concrete slab



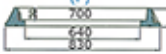
• JJG-D-700




(Z)



(P)



(Q)



| ITEM CODE | ITEM | TYPE | KGS/SET KGS | Loading Tons | Sets/20 Container Stes |
|-------------|-------------|-------------|----------------|-----------------|---------------------------|
| JJG-D-700-Z | Round Cover | Heavy Type | 72.5 | 25 | 270 |
| JJG-D-700-P | Round Cover | Medium Type | 50.8 | 15 | 400 |
| JJG-D-700-Q | Round Cover | Light Type | 27.7 | 9 | 720 |

** Any cover can be installed on our Manholes.*

INSTALLATION OF INLET & OUTLET

The installation procedure is one of the strong points of the HDPE Manhole. The faster installation, reduced manpower requirements, light lifting gear and ease of connection to the sewage system are just some of factors which contribute towards reducing the installation cost up to 50%, compared to an equivalent solution with concrete manholes.

INLET INSTALLATION



OUTLET INSTALLATION



HDPE (PE100) INJECTION FITTINGS **NTG** PLASTIK



Elbow 90°



SDR11 - PN16
Range: 20 to 400 mm
SDR17 - PN10
Range: 63 to 400 mm

Elbow 45°



SDR11 - PN16
Range: 20 to 400 mm
SDR17 - PN10
Range: 63 to 400 mm

Equal Tee



SDR11 - PN16
Range: 20 to 400 mm
SDR17 - PN10
Range: 63 to 400 mm

Reduced Tee



SDR11 - PN16
X (mm) 50 to 315
Y (mm) 25 to 250
SDR17 - PN10
X (mm) 75 to 315
Y (mm) 63 to 250

For more diameters supply can be done by special order from NTG



* BW=Butt welding

Equal Tee 45°



SDR11 - PN16
Range: 63 to 250 mm
SDR17 - PN10
Range: 63 to 250 mm

For Reduced (Y)



* BW=Butt welding

EF Saddle



SDR11 - PN16
X (mm) 40 to 225
Y (mm) 20 to 63

EF Coupler



SDR11 - PN16
Range: 20 to 1200 mm

PP Covered steel flange



SDR11 - PN16
Range: 20 to 400 mm
SDR17 - PN10
Range: 200 to 630 mm
ANSI Dimension can be imported by special order

PE/Brass Transition Fittings (Male, Female)



SDR11 - PN16
X (inch) 1/2" to 4"
Y (mm) 20 to 125

FABRICATED HDPE (PE100) FITTINGS

Hebeish For Engineering Works produces a wide range of Polyethylene fitting according to DIN standards.

Tee 45°

Range:
50 to 710 mm



Tee 90°

Range:
50 to 710 mm



Reduced Tee

Range:
50 to 710 mm



Elbow

30° - 45° - 60° and 90°

Range:
50 to 710 mm



Cross

Range:
50 to 710 mm



Pulling Head

Range:
110 to 1000 mm



Reducer

Range:
50 to 1000 mm



Stub End

Range:
50 to 1000 mm



Puddle Flange

Range:
90 to 630 mm



Inspection Screw

Range:
40 to 250 mm



End Cap

Range:
50 to 1000 mm



* All SDR available

SEGMENTED ELBOW 90° / 60° / 45° / 30°

Dimensions according to DIN 16963-1

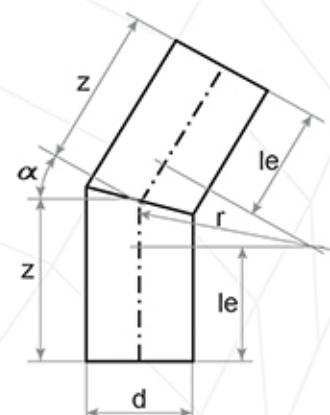
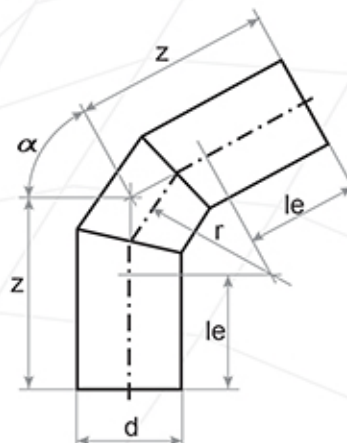
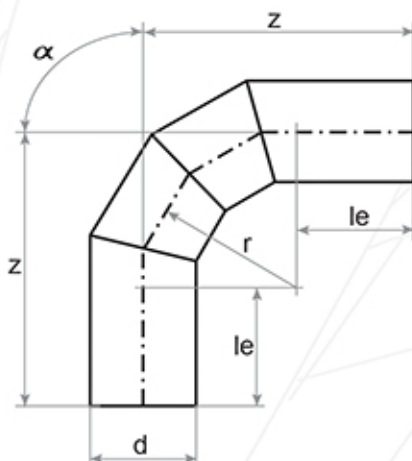
| d | le | r | $\alpha \pm 2^\circ$ | | | |
|-----|-----|------|----------------------|------|-----|-----|
| | | | 90° | 60° | 45° | 30° |
| | | | z | z | z | z |
| 110 | 150 | 165 | 315 | 245 | 218 | 194 |
| 125 | | 188 | 338 | 258 | 228 | 200 |
| 140 | | 210 | 360 | 271 | 237 | 206 |
| 160 | | 240 | 390 | 288 | 249 | 214 |
| 180 | | 270 | 420 | 305 | 262 | 222 |
| 200 | | 300 | 450 | 323 | 274 | 230 |
| 225 | 250 | 338 | 488 | 345 | 290 | 241 |
| 250 | | 375 | 625 | 466 | 412 | 350 |
| 280 | | 420 | 670 | 492 | 424 | 362 |
| 315 | | 473 | 773 | 576 | 498 | 428 |
| 355 | 300 | 533 | 833 | 608 | 520 | 443 |
| 400 | | 600 | 900 | 646 | 548 | 461 |
| 450 | | 675 | 975 | 689 | 580 | 481 |
| 500 | 350 | 750 | 1100 | 783 | 665 | 551 |
| 560 | | 840 | 1190 | 835 | 698 | 575 |
| 630 | | 945 | 1295 | 896 | 741 | 603 |
| 710 | | 1065 | 1415 | 965 | 792 | 636 |
| 800 | | 1200 | 1550 | 1043 | 847 | 672 |

* All SDR available



* Elbows 22.5° & 11.25° are available upon request

* All dimensions are in (mm)

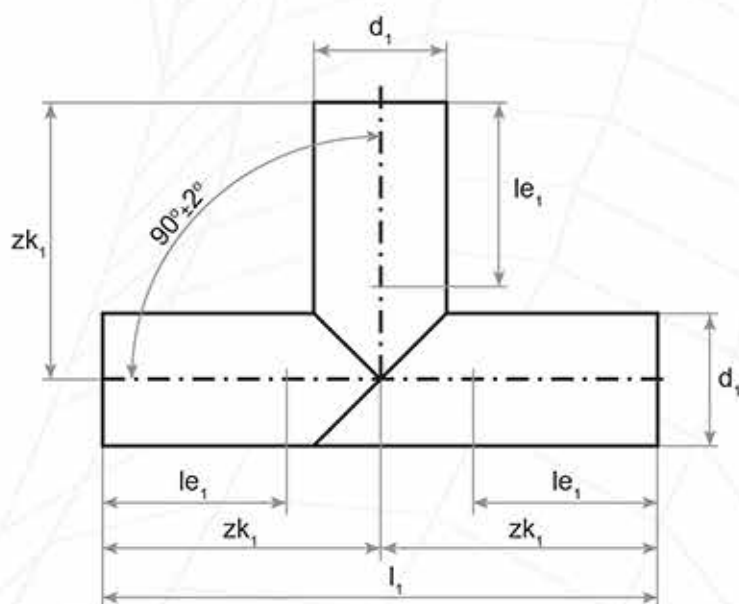


SEGMENTED TEE 90°

Dimensions according to DIN 16963/2

| d_1 | le_1 | l_1 | zk_1 |
|-------|--------|-------|--------|
| 110 | 150 | 410 | 205 |
| 125 | | 430 | 215 |
| 140 | | 440 | 220 |
| 160 | | 460 | 230 |
| 180 | | 480 | 240 |
| 200 | | 500 | 250 |
| 225 | 250 | 530 | 265 |
| 250 | | 750 | 375 |
| 280 | | 780 | 390 |
| 315 | 300 | 920 | 460 |
| 355 | | 960 | 480 |
| 400 | | 1000 | 500 |
| 450 | | 1050 | 525 |
| 500 | 350 | 1200 | 600 |
| 560 | | 1260 | 630 |
| 630 | | 1330 | 665 |
| 710 | | 1410 | 705 |
| 800 | | 1500 | 750 |

* All SDR available



* All dimensions are in (mm)



FABRICATED CONCENTRIC REDUCER (SHORT FORM)

Dimensions according to DIN 16962/63

| d1 | d2 | z | l1 | l2 |
|-----|-----|-----|----|----|
| 25 | 20 | 50 | 23 | 25 |
| 32 | 20 | 50 | 22 | 22 |
| 32 | 25 | 50 | 22 | 24 |
| 40 | 20 | 50 | 21 | 21 |
| 40 | 25 | 50 | 21 | 22 |
| 40 | 32 | 50 | 21 | 24 |
| 50 | 25 | 50 | 20 | 20 |
| 50 | 32 | 50 | 20 | 21 |
| 50 | 40 | 50 | 20 | 24 |
| 63 | 32 | 60 | 25 | 22 |
| 63 | 40 | 60 | 25 | 24 |
| 63 | 50 | 60 | 25 | 27 |
| 75 | 32 | 70 | 30 | 25 |
| 75 | 40 | 70 | 30 | 25 |
| 75 | 50 | 70 | 30 | 28 |
| 75 | 63 | 70 | 30 | 33 |
| 90 | 50 | 80 | 35 | 28 |
| 90 | 63 | 80 | 35 | 32 |
| 90 | 75 | 80 | 35 | 36 |
| 110 | 63 | 90 | 35 | 35 |
| 110 | 75 | 90 | 35 | 38 |
| 110 | 90 | 90 | 35 | 43 |
| 125 | 75 | 100 | 40 | 39 |
| 125 | 90 | 100 | 40 | 43 |
| 125 | 110 | 100 | 40 | 51 |
| 140 | 75 | 110 | 50 | 37 |
| 140 | 90 | 110 | 50 | 39 |
| 140 | 110 | 110 | 50 | 45 |
| 140 | 125 | 110 | 50 | 51 |
| 160 | 90 | 120 | 55 | 40 |
| 160 | 110 | 120 | 55 | 44 |
| 160 | 125 | 120 | 55 | 48 |
| 160 | 140 | 120 | 55 | 53 |
| 180 | 110 | 130 | 60 | 45 |
| 180 | 125 | 130 | 60 | 47 |
| 180 | 140 | 130 | 60 | 50 |
| 180 | 160 | 130 | 60 | 58 |
| 200 | 140 | 140 | 60 | 48 |
| 200 | 160 | 140 | 60 | 54 |
| 200 | 180 | 140 | 60 | 63 |

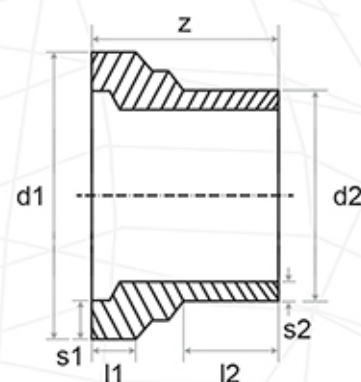
* All dimensions are in (mm)

| d1 | d2 | z | l1 | l2 |
|-----|-----|-----|----|-----|
| 225 | 140 | 160 | 65 | 55 |
| 225 | 160 | 160 | 65 | 58 |
| 225 | 180 | 160 | 65 | 65 |
| 225 | 200 | 160 | 65 | 73 |
| 250 | 160 | 180 | 75 | 63 |
| 250 | 180 | 180 | 75 | 66 |
| 250 | 200 | 180 | 75 | 72 |
| 250 | 225 | 180 | 75 | 83 |
| 280 | 180 | 200 | 85 | 70 |
| 280 | 200 | 200 | 85 | 72 |
| 280 | 225 | 200 | 85 | 80 |
| 280 | 250 | 200 | 85 | 90 |
| 315 | 200 | 230 | 95 | 85 |
| 315 | 225 | 230 | 95 | 88 |
| 315 | 250 | 230 | 95 | 95 |
| 315 | 280 | 230 | 95 | 107 |
| 355 | 225 | 140 | 57 | 40 |
| 355 | 250 | 130 | 54 | 40 |
| 355 | 280 | 120 | 53 | 40 |
| 355 | 315 | 110 | 53 | 40 |
| 400 | 250 | 150 | 61 | 40 |
| 400 | 280 | 140 | 60 | 40 |
| 400 | 315 | 120 | 50 | 40 |
| 400 | 355 | 110 | 51 | 40 |
| 450 | 280 | 160 | 65 | 40 |
| 450 | 315 | 140 | 55 | 40 |
| 450 | 355 | 130 | 57 | 40 |
| 450 | 400 | 120 | 60 | 40 |
| 500 | 355 | 150 | 62 | 40 |
| 500 | 400 | 140 | 65 | 40 |
| 500 | 450 | 120 | 60 | 40 |
| 560 | 400 | 160 | 68 | 40 |
| 560 | 450 | 140 | 62 | 40 |
| 560 | 500 | 130 | 67 | 40 |
| 630 | 450 | 170 | 72 | 40 |
| 630 | 500 | 150 | 67 | 40 |
| 630 | 560 | 130 | 64 | 40 |

* All SDR available

* Eccentric reducer upon request

* Other sizes upon request



Reducer



Several Levels Reducers



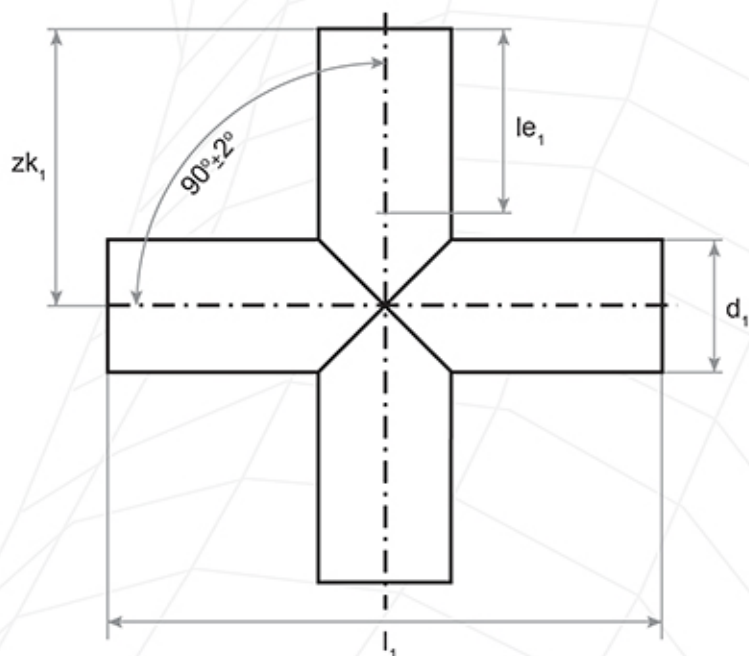
* Sizes that are not standard are several levels reducers

SEGMENTED CROSS

Dimensions according to DIN 16963/2

| d_1 | le_1 | l_1 | zk_1 |
|-------|--------|-------|--------|
| 110 | 150 | 410 | 205 |
| 125 | | 430 | 215 |
| 140 | | 440 | 220 |
| 160 | | 460 | 230 |
| 180 | | 480 | 240 |
| 200 | | 500 | 250 |
| 225 | 250 | 530 | 265 |
| 250 | | 750 | 375 |
| 280 | | 780 | 390 |
| 315 | | 920 | 460 |
| 355 | 300 | 960 | 480 |
| 400 | | 1000 | 500 |
| 450 | | 1050 | 525 |
| 500 | | 1200 | 600 |
| 560 | 350 | 1260 | 630 |
| 630 | | 1330 | 665 |
| 710 | | 1410 | 705 |
| 800 | | 1500 | 750 |

* All SDR available

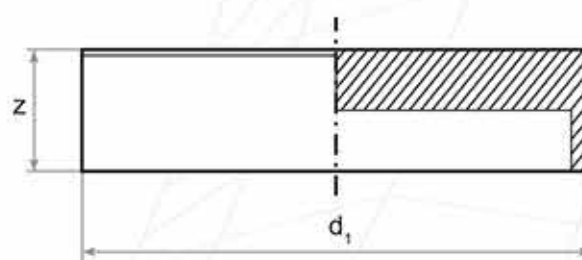


* All dimensions are in (mm)

END CAP

* All SDR available

| d_1 | z |
|-------|-----|
| 50 | 25 |
| 63 | 30 |
| 75 | 30 |
| 90 | 30 |
| 110 | 35 |
| 125 | 40 |
| 140 | 40 |
| 160 | 45 |
| 180 | 45 |
| 200 | 50 |
| 225 | 55 |
| 250 | 60 |
| 280 | 65 |
| 315 | 70 |
| 355 | 80 |
| 400 | 85 |
| 450 | 95 |
| 500 | 105 |
| 560 | 115 |
| 630 | 125 |



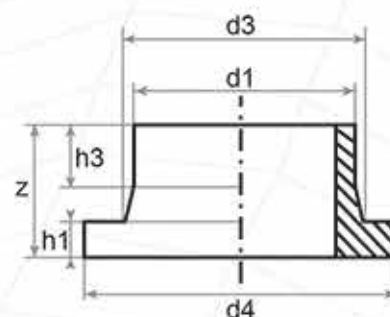
* All dimensions are in (mm)

STUB END (SHORT FORM)

Dimensions according to DIN 16962/63

| d1 | d3 | d4 | z | h1 | h3 |
|-----|-----|-----|-----|----|----|
| 20 | 27 | 45 | 50 | 7 | 30 |
| 25 | 33 | 58 | 50 | 9 | 28 |
| 32 | 40 | 68 | 50 | 10 | 27 |
| 40 | 50 | 78 | 50 | 11 | 24 |
| 50 | 61 | 88 | 50 | 12 | 23 |
| 63 | 75 | 102 | 50 | 14 | 16 |
| 75 | 89 | 122 | 50 | 16 | 14 |
| 90 | 105 | 138 | 80 | 17 | 43 |
| 110 | 125 | 158 | 80 | 18 | 37 |
| 125 | 132 | 158 | 80 | 25 | 35 |
| 140 | 155 | 188 | 80 | 25 | 27 |
| 160 | 175 | 212 | 80 | 25 | 27 |
| 180 | 180 | 212 | 80 | 30 | 20 |
| 200 | 232 | 268 | 100 | 32 | 28 |
| 225 | 235 | 268 | 100 | 32 | 38 |
| 250 | 285 | 320 | 100 | 35 | 25 |
| 280 | 291 | 320 | 100 | 35 | 35 |
| 315 | 335 | 370 | 100 | 35 | 25 |
| 355 | 373 | 430 | 120 | 40 | 40 |
| 400 | 427 | 482 | 120 | 46 | 29 |
| 450 | 514 | 585 | 130 | 60 | 10 |
| 500 | 530 | 585 | 120 | 60 | 10 |
| 560 | 615 | 685 | 130 | 60 | 10 |
| 630 | 642 | 685 | 120 | 60 | 20 |

* All SDR available



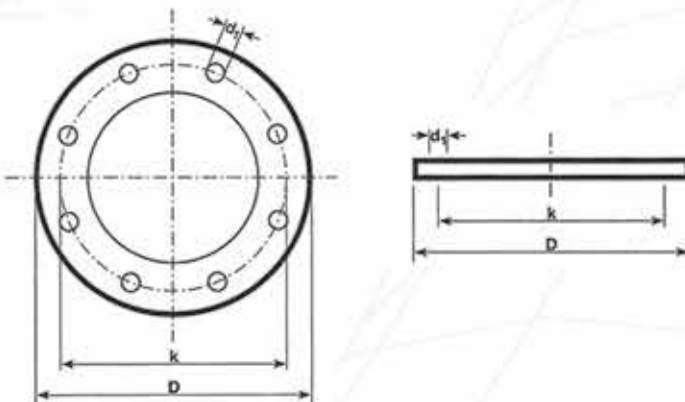
* Long form is upon request

* All dimensions are in (mm)

FLANGE

| OD | DN | D | | k | | d1 | | Bolts | | Number of Holes | |
|---------|-----|------|------|------|------|------|------|-------|------|-----------------|------|
| | | PN10 | PN16 | PN10 | PN16 | PN10 | PN16 | PN10 | PN16 | PN10 | PN16 |
| 32 | 25 | 115 | - | 85 | - | 14 | - | M 12 | - | 4 | - |
| 40 | 32 | 140 | - | 100 | - | 18 | - | M 16 | - | 4 | - |
| 50 | 40 | 150 | - | 110 | - | 18 | - | M 16 | - | 4 | - |
| 63 | 50 | 165 | - | 125 | - | 18 | - | M 16 | - | 4 | - |
| 75 | 65 | 185 | - | 145 | - | 18 | - | M 16 | - | 4 | - |
| 90 | 80 | 200 | 200 | 160 | 160 | 18 | 18 | M 16 | M 16 | 8 | 8 |
| 110+125 | 100 | 220 | 220 | 180 | 180 | 18 | 18 | M 16 | M 16 | 8 | 8 |
| 140 | 125 | 250 | 250 | 210 | 210 | 18 | 18 | M 16 | M 16 | 8 | 8 |
| 160+180 | 150 | 285 | 285 | 240 | 240 | 22 | 22 | M 20 | M 20 | 8 | 8 |
| 200+225 | 200 | 340 | 340 | 295 | 295 | 22 | 22 | M 20 | M 20 | 8 | 12 |
| 250+280 | 250 | 395 | 400 | 350 | 355 | 22 | 26 | M 20 | M 24 | 12 | 12 |
| 315 | 300 | 445 | 455 | 400 | 410 | 22 | 26 | M 20 | M 24 | 12 | 12 |
| 355 | 350 | 514 | 532 | 460 | 470 | 22 | 26 | M 20 | M 24 | 16 | 16 |
| 400 | 400 | 565 | 580 | 515 | 525 | 26 | 30 | M 24 | M 27 | 16 | 16 |
| 450+500 | 500 | 670 | 715 | 620 | 650 | 26 | 33 | M 24 | M 30 | 20 | 20 |
| 560+630 | 600 | 780 | 840 | 725 | 770 | 30 | 36 | M 27 | M 33 | 20 | 20 |

* All dimensions are in (mm)



HDPE DRAINAGE GRAVITY SOLUTION

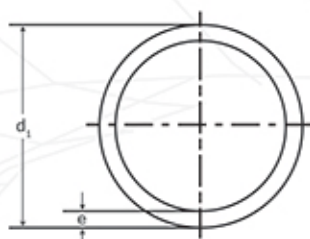
HDPE PE 80 PIPES

Application Purpose

- For all drainage pipes

Characteristics

- Heat and impact resistant.
- UV resistant



- * Manufactured according to: EN 1519
- * PE straight lined pipe (SDR 26)
- * Pipe length: 5 or 6 Mtr.

| d_1 | s | e | A cm ² | kg/m |
|-------|------|------|-------------------|-------|
| 32 | 12.5 | 3.0 | 8.12 | 0.27 |
| 40 | 12.5 | 3.0 | 9.10 | 0.36 |
| 50 | 12.5 | 3.0 | 15.20 | 0.45 |
| 56 | 12.5 | 3.0 | 19.60 | 0.51 |
| 63 | 12.5 | 3.0 | 25.50 | 0.58 |
| 75 | 12.5 | 3.0 | 37.40 | 0.70 |
| 90 | 12.5 | 3.5 | 54.10 | 0.98 |
| 110 | 12.5 | 4.2 | 80.70 | 0.43 |
| 125 | 12.5 | 4.8 | 104.20 | 1.85 |
| 160 | 12.5 | 6.2 | 170.10 | 3.04 |
| 200 | 12.5 | 7.7 | 267.64 | 4.69 |
| 250 | 12.5 | 9.6 | 418.37 | 7.30 |
| 315 | 12.5 | 12.1 | 664.17 | 11.60 |

HDPE DRAINAGE INJECTION FITTINGS

HDPE injection fittings SDR 26 for drainage application only according to EN 1519 and Din standards.

Manufactured in Netherlands, imported by Hebeish for Engineering Works, subsidiary of Hebeish Group.

 **akatherm**



CONNECTION METHOD

HDPE pipes manufactured by October for Plastic Pipes, subsidiary of Hebeish Group can be connected to Akatherm (Netherlands) fitting using the below methods as both of them are SDR 26.

- * Butt welding.
- * Electro fusion welding.

HDPE DRAINAGE GRAVITY INJECTION FITTINGS



Reducer eccentric

| | |
|--------|-----------|
| X (mm) | 50 to 160 |
| Y (mm) | 40 to 125 |



Reducer eccentric long

| | |
|--------|------------|
| X (mm) | 200 to 315 |
| Y (mm) | 110 to 250 |



Reducer concentric

| | |
|--------|-----------|
| X (mm) | 40 to 315 |
| Y (mm) | 32 to 250 |



Bend 90°

Range:
160 mm
200 mm
250 mm
315 mm



Bend 90° with long side

Range:
40 to 125 mm



* Electrofusable at one side

Bend 90° reduced

| | |
|--------|---------|
| X (mm) | 50 - 63 |
| Y (mm) | 40 - 50 |



Bend 180°

Range:
40 mm
50 mm
56 mm
63 mm



* Suitable for the fabrication of traps.

Elbow 88.5°

Range:
32 to 315 mm



* 200 up to 315 mm are fabricated items

Elbow 45°

Range:
32 to 315 mm



Elbow 45° with long side

Range:
75 mm
90 mm
110 mm



Elbow 90° with long side

Range:
90 mm
110 mm



* Electrofusable at one side

Y-piece 60°

| | |
|--------|-----------|
| X (mm) | 50-63-110 |
| Y (mm) | 40-50-110 |



Y branch 45°

| | |
|--------|----------|
| X (mm) | 32 - 315 |
| Y (mm) | 32 - 315 |



* 250 up to 315 mm are fabricated items

Branch 88.5°

| | |
|--------|----------|
| X (mm) | 32 - 315 |
| Y (mm) | 32 - 315 |



* 200 up to 315 mm are fabricated items

Double branch 45°

| | |
|--------|-----------|
| X (mm) | 110 |
| Y (mm) | 40-50-110 |



Clean out branch 45°



Clean out branch 90°



Branch 88.5° swept entry



Akavent aerator



Electrofusion coupler Akafusion



Snap socket (With protection plug)



Expansion socket with anchor point



Plug-in socket



Inspection screw lock long



* For detailed sizes & dimensions please refer to Akatherm catalogue.

* For full product range please refer to Akatherm catalogue.



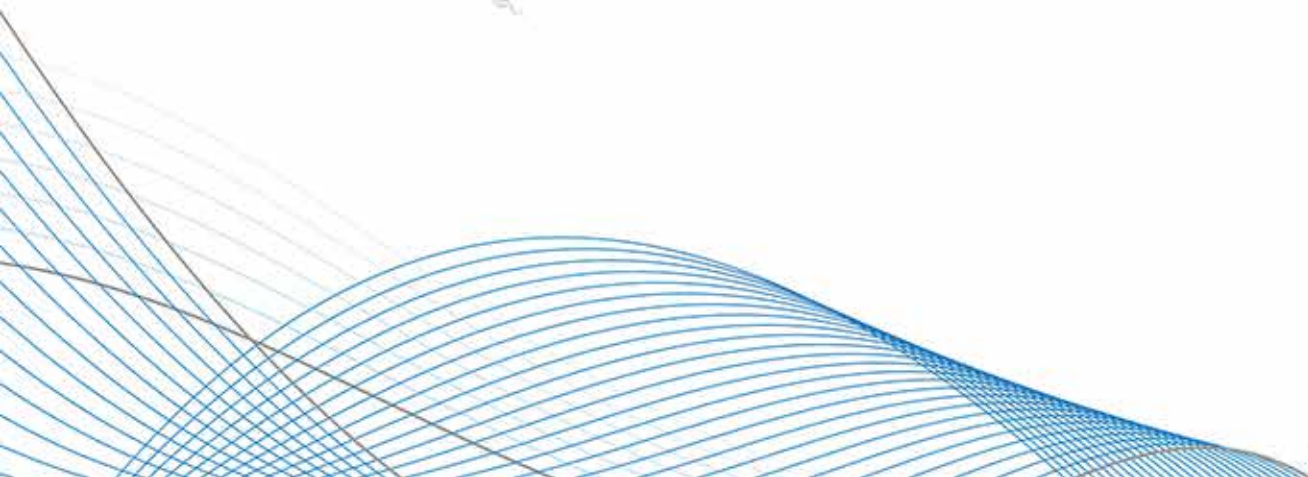
PE WELDING SERVICE

We offer site welding services of all polyethylene pipe line systems up to 2500 mm diameter.

For over a decade we have been the leading company in this field and carried out large numbers of projects in Egypt

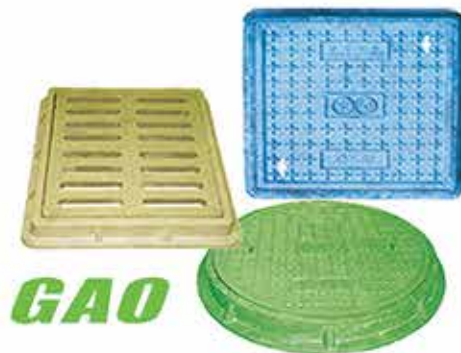


*With the cooperation of October for Plastic pipes
we are continuously involved with our customers supplying them
with after sales technical assistance and support.*





MEMBER OF HEBEISH GROUP

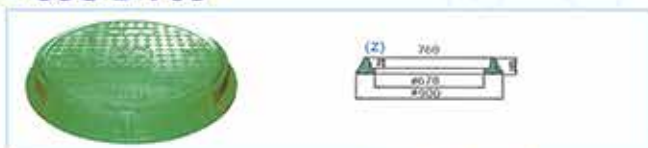


BMC MANHOLE COVERS

A wide range of BMC covers are supplied by A.Hebeish & Sons .
 These imported wide range of products include:

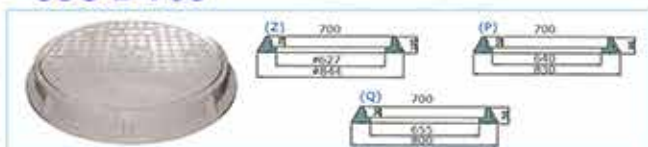
GAO
 MADE IN CHINA

• JJG-D-760



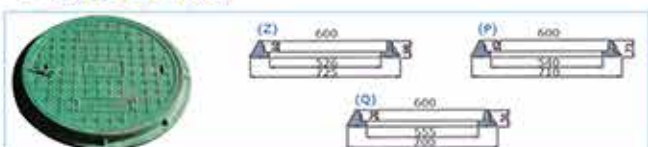
| ITEM CODE | ITEM | TYPE | KGS/SET KGS | Loading Tons |
|-------------|-------------|------------|----------------|-----------------|
| JJG-D-760-Z | Round Cover | Heavy Type | 83 | 25 |

• JJG-D-700



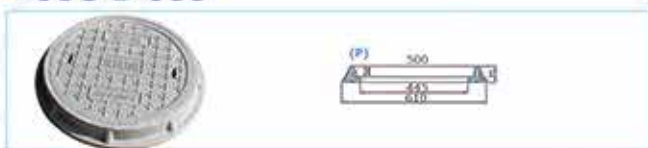
| ITEM CODE | ITEM | TYPE | KGS/SET KGS | Loading Tons | Sets/20 Container Sites |
|-------------|-------------|-------------|----------------|-----------------|----------------------------|
| JJG-D-700-Z | Round Cover | Heavy Type | 72.5 | 25 | 270 |
| JJG-D-700-P | Round Cover | Medium Type | 50.8 | 15 | 400 |
| JJG-D-700-Q | Round Cover | Light Type | 27.7 | 9 | 720 |

• JJG-D-600



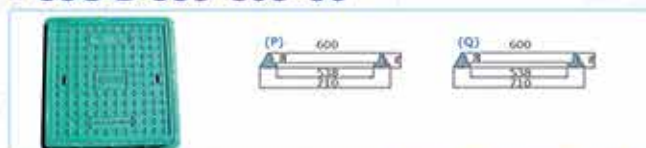
| ITEM CODE | ITEM | TYPE | KGS/SET KGS | Loading Tons | Sets/20 Container Sites |
|-------------|-------------|-------------|----------------|-----------------|----------------------------|
| JJG-D-600-Z | Round Cover | Heavy Type | 43.6 | 25 | 460 |
| JJG-D-600-P | Round Cover | Medium Type | 32.7 | 15 | 610 |
| JJG-D-600-Q | Round Cover | Light Type | 21.5 | 9 | 930 |

• JJG-D-500



| ITEM CODE | ITEM | TYPE | KGS/SET KGS | Loading Tons | Sets/20 Container Sites |
|-------------|-------------|-------------|----------------|-----------------|----------------------------|
| JJG-D-500-P | Round Cover | Medium Type | 26.3 | 15 | 760 |

• JJG-D-600*600*50



| ITEM CODE | ITEM | TYPE | KGS/SET KGS | Loading Tons | Sets/20 Container Sites |
|-----------------|--------------|-------------|----------------|-----------------|----------------------------|
| JJG-D-600*600-P | Square Cover | Medium Type | 42 | 15 | 470 |
| JJG-D-600*600-Q | Square Cover | Light Type | 40.25 | 9 | 490 |

• JSB 400*400*50



| ITEM CODE | ITEM | TYPE | KGS/SET KGS | Loading Tons | Sets/20 Container Sites |
|---------------|------------|------------|----------------|-----------------|----------------------------|
| JSB 400*400-Z | Rain Cover | Heavy Type | | 9 | |

• YG-756X50YD-001



| ITEM CODE | ITEM | TYPE | KGS/SET KGS | Loading Tons | Sets/20 Container Sites |
|-----------------|-------------|------------|----------------|-----------------|----------------------------|
| YG-756X50YD-001 | Round Cover | Heavy Type | 60 | 40 | 250 |

Advantages:

- Non recyclable which makes it of no value, hence eliminate incentive for stealing.
- Resists weights up to 40 tons.
- Light weight.
- Bottom lid designed to maintain perfect fit and avoid displacement.
- Non-abrasive.
- Resists bacteria and does not rot.





PE WELDING MACHINES

A. Hebeish & Sons is a supplier of Widos butt-welding machines. We also offer after sales service and guarantee customer satisfaction.

BUTT WELDING MACHINE

| Modle | WIDOS Miniplast 2 (Manual) | | WIDOS 4400 | WIDOS 4600 | WIDOS 4900 | WIDOS 4911 |
|---------------|----------------------------|------------|------------|------------|-------------|-------------|
| OD size range | 20-110mm | | 50-160mm | 75-250mm | 90-315mm | 90-355mm |
| Modle | WIDOS 5100 | WIDOS 5500 | WIDOS 6100 | WIDOS 8000 | WIDOS 10000 | WIDOS 12000 |
| OD size range | 200-450mm | 200-500mm | 315-630mm | 450-800mm | 500-1000mm | 710-1200mm |



The WIDOS welding machines can be supplied in CNC hydraulic control unit version



ELECTRO FUSION MACHINE



* Welding range: 20 to 630 mm



| Technical Data | WIDOS ESI 2000 |
|---------------------|--|
| ISO 12176-2 Class | P2 3 U S1 V AK X |
| Input Voltage | 230V~/AC, (185V-300V) |
| Input Current | 16A |
| Input Frequency | 50Hz (40-70Hz) |
| Power Factor | cos p<0.6-0.9 (phase Angle Control) |
| Output Voltage | 8-48V |
| Output Current | 80A (max.: 1100A) |
| Energy Adjustment | Temperature compensation |
| Power Consumption | 3600VA |
| Temperature Range | -10°C - +50°C |
| Protection Class | IP54, Class 2 |
| Weight incl. Cables | 18kg |
| Main supply Cable | 4.5m (Euro-Plug) |
| Welding Cable | 4m (Fixed) |
| Welding Terminals | 4.0mm (opt 4.7mm) |
| Display | 4 x 20 Characters (alphanumeric), backlight lighting |
| Dimension | 440mm x 380mm x 320mm |

HDPE WELDING GUN



Hand extruders for plastic welding
1.8 kg/h, 4mm I MAK-18-S

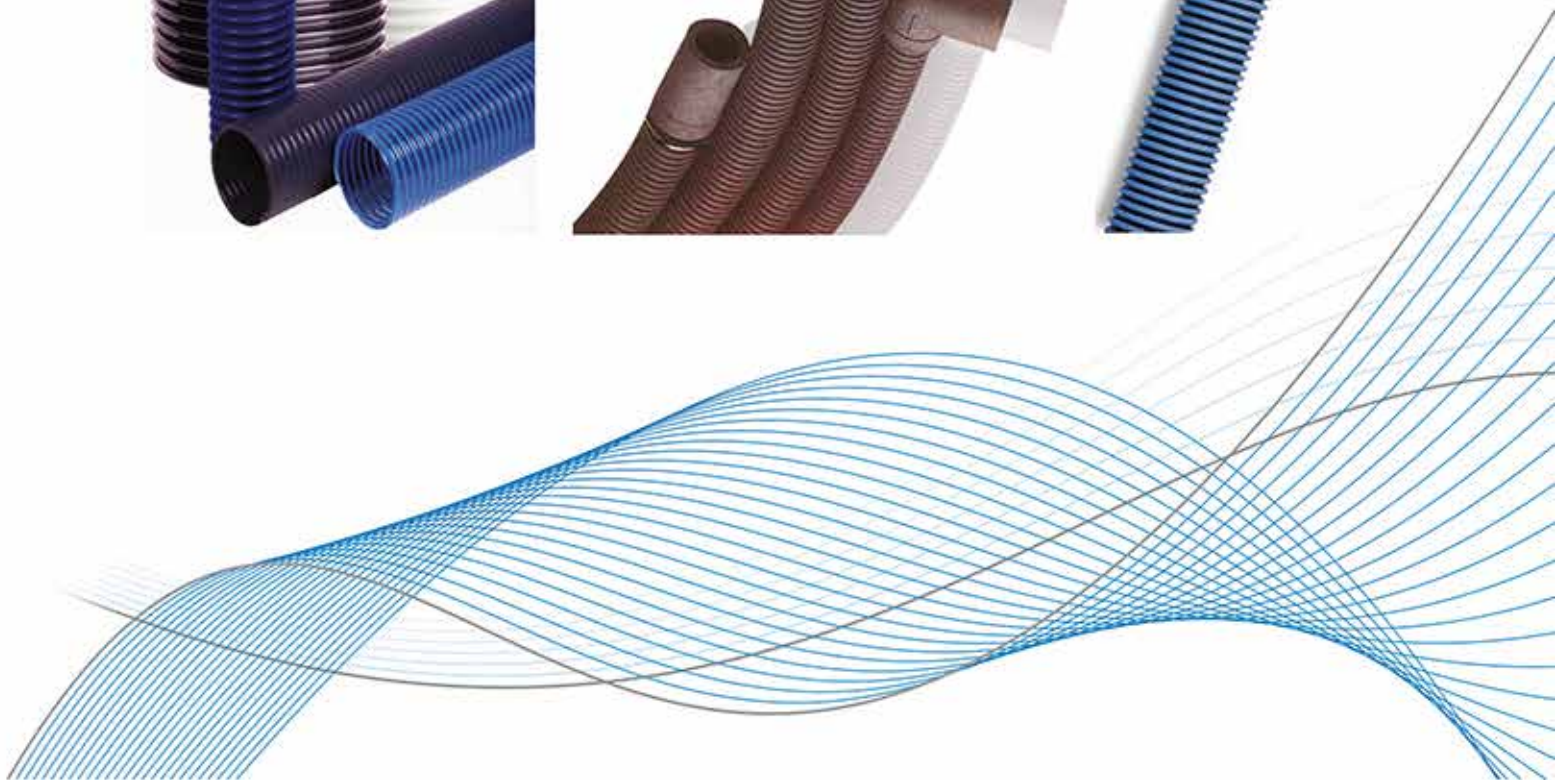
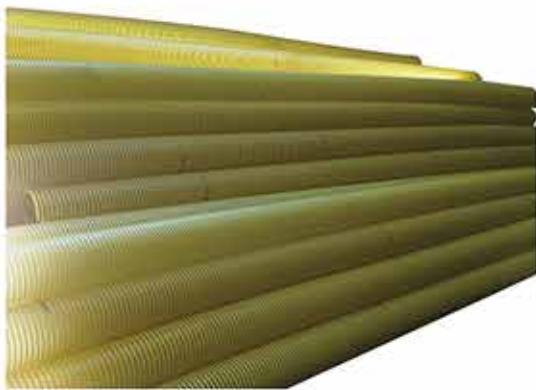
Product characteristics:

Max. welding rate: 1.8 kg/h, Ø4mm
1.1 kg/h, Ø3mm
Welding material: PP/ PE / PVDF
Extrudate:
Round rod 3 / 4 mm





MEMBER OF HEBEISH GROUP



Reinforced PVC hoses for suction, discharge, vacuum and ducting application are all made employing the same construction principle, a rigid PVC spiral is used for structural reinforcement embedded within the flexible PVC hose wall.

The results in a robust yet flexible smoothbore hose with outstanding crush - resistance and offering working pressure ratings to meet a wide range of applications. Strict control of the hose manufacturing process assures the quality.

Applications :

- Dredging
- Waste Disposal
- High speed pumping of water
- Abrasive slurries and sludge.

Other applications include various uses in the agricultural, food processing, chemical, air conditioning and ventilating industries.

- Temperature range - Between - 15°C and + 65°C.
- Recommended : Max working pressure at (20°C) 1/3 of bursting pressure.
- All Technical data is subject to a \pm 5% tolerance.

LUISIANA

Bending Radius :

Approx 4.5 times the internal diameter.

| ID | | Weight g/m | Wall thickness mm | Bursting pressure Bar | Coil length mtrs |
|--------|-----|---------------|-------------------------|-----------------------------|------------------------|
| inch | mm | | | | |
| 3/4 | 20 | 310 | 3.7 | 24 | 24 |
| 1 | 25 | 400 | 3.8 | 24 | 24 |
| 1, 1/4 | 32 | 470 | 3.75 | 21 | 24 |
| 1, 1/2 | 38 | 570 | 3.9 | 18 | 40 |
| 2 | 50 | 820 | 4.3 | 15 | 40 |
| 2, 4 | 60 | 1030 | 4.4 | 15 | 40 |
| 2, 1/2 | 63 | 1040 | 4.5 | 15 | 40 |
| 3 | 75 | 1360 | 4.8 | 12 | 40 |
| 3, 1/2 | 90 | 1800 | 4.9 | 12 | 40 |
| 4 | 100 | 2180 | 5.9 | 12 | 40 |
| 4, 1/2 | 110 | 2600 | 6.5 | 12 | 25 |
| 5 | 125 | 3100 | 6.5 | 9 | 24 |
| 6 | 150 | 4100 | 7.2 | 9 | 16 |
| 8 | 200 | 6000 | 9.2 | 9 | 12 |

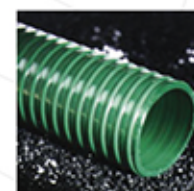


MEDIUM

Bending Radius :

Approx 5 times the internal diameter.

| ID | | Weight g/m | Wall thickness mm | Bursting pressure Bar | Coil length mtrs |
|--------|-----|---------------|-------------------------|-----------------------------|------------------------|
| inch | mm | | | | |
| 3/4 | 20 | 400 | 4.4 | 27 | 24 |
| 1 | 25 | 500 | 4.6 | 27 | 24 |
| 1, 1/4 | 32 | 590 | 4.4 | 24 | 24 |
| 1, 1/2 | 38 | 710 | 4.4 | 24 | 40 |
| 2 | 50 | 1030 | 5.1 | 21 | 40 |
| 2, 1/2 | 63 | 1350 | 5.4 | 19.5 | 40 |
| 3 | 75 | 1750 | 4.9 | 18 | 40 |
| 3, 1/2 | 90 | 2200 | 6.7 | 14 | 40 |
| 4 | 100 | 2600 | 6.6 | 13.5 | 40 |
| 4, 1/2 | 110 | 3100 | 7.5 | 12 | 24 |
| 5 | 125 | 3600 | 7.5 | 12 | 24 |
| 6 | 150 | 4500 | 8.2 | 9 | 16 |

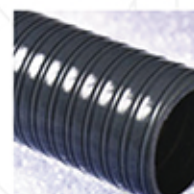


CLORADO

Bending Radius :

Approx 6.5 times the internal diameter.

| ID | | Weight g/m | Wall thickness mm | Bursting pressure Bar | Coil length mtrs |
|--------|-----|---------------|-------------------------|-----------------------------|------------------------|
| inch | mm | | | | |
| 3/4 | 20 | 450 | 4.9 | 39 | 24 |
| 1 | 25 | 600 | 5.3 | 30 | 24 |
| 1, 1/4 | 32 | 700 | 5.3 | 30 | 24 |
| 1, 1/2 | 38 | 770 | 4.9 | 30 | 40 |
| 2 | 50 | 1180 | 5.9 | 24 | 40 |
| 2, 1/2 | 63 | 1660 | 6.5 | 24 | 40 |
| 3 | 75 | 2000 | 6.7 | 21 | 40 |
| 3, 1/2 | 90 | 2600 | 7.5 | 15 | 40 |
| 4 | 100 | 3200 | 7.7 | 15 | 40 |
| 4, 1/2 | 110 | 3700 | 7.7 | 15 | 25 |
| 5 | 125 | 4200 | 7.8 | 15 | 24 |
| 6 | 150 | 5600 | 9.2 | 9 | 25 |

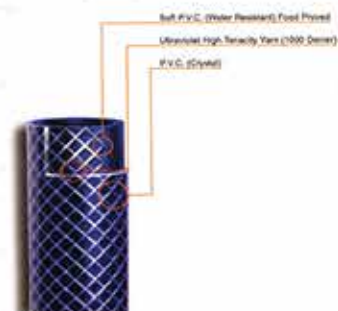


INDUSTRIAL HOSES

GARDEN HOSES

| I.D.mm. | O.D.mm. | Weight kg/m | Press. Bar |
|---------|---------|-------------|------------|
| 6 | 12 | 105 | 10 |
| 8 | 14 | 130 | 6 |
| 10 | 16 | 125 | 6 |
| 13 | 19 | 190 | 6 |
| 15 | 21 | 194 | 5 |
| 19 | 26 | 310 | 5 |
| 25 | 33 | 460 | 4 |
| 32 | 38 | 500 | 4 |
| 38 | 45 | 700 | 4 |

(Coils: 50&100m)



AIR HOSES

• Polipo 20 bar

Performance, look and softness like conventional rubber. Excellent resistance to low temperature and to oils.

Used for : Compressed air

| I.D. mm. | O.D.mm. | Working Press. Bar |
|----------|---------|--------------------|
| 8 | 15 | 20 |
| 8 | 17 | 20 |

(Coils: 50&100m)



OXYGEN & ACETYLENE HOSES

Highly flexible and light in weight. Excellent resistance to atmospheric agents and ageing. Good resistance at low temperature till - 15°C working temperature : up to + 50°C

Used for : Welding

| I.D. mm. | O.D.mm. | Working Press. Bar |
|----------|---------|--------------------|
| 8 | 15 | 20 |
| 8 | 17 | 20 |



VACUUM & DRAIN HOSES

VACUUM HOSES

• Flexible corrugated vacuum hoses

Highly flexible hose crushproof max bending without kinking very low flow loss temperature range - 30°C + 60°C

Application: extraction of air, dust, welding fumes exhaust gas.

| I.D. mm. | O.D. mm. | Weight gr/mtr. | Vacuum mtr. |
|----------|----------|----------------|-------------|
| 32 | 41 | 270 | 15 |
| 38 | 48 | 360 | 15 |
| 50 | 61 | 560 | 5 |



* Swimming pool vacuum hoses

DRAIN HOSES

• Washing machine outlet hose

Very flexible polyethylene hose for discharging cold and hot water on washing and dish-washing machines. Used by all leading washing machine manufacturers in Europe. Smooth inside, corrugated outside

Temperature range : from -10° to + 95°C.

Standard lengths : 1.50 - 2.00 mtrs



• Washing machine and dish-washer inlet hose

- Braiding reinforced P.V.C Hose
- Equipped with a 3/4" standard elbow and a 3/4" straight fitting
- Standard lengths 1.50 - 2.00 - 2.50
- Temperature range 0° + 60°C





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