Polyvinyl Chloride Pipes System For Pressure Water, Drainage \& Sewerage, Electrical \& Communication

## PVC- U

ENISO 1452, BSEN 1452, DIN 8062, ISO 161/1, BS 3505, ASTM D 1785, ASTM D 2241, BSEN 1401, BSEN 1329, BS 4660, BS 5255, BS 4514, BS 5481, DIN 19534 \& 19531, BS 4607, BS 3506, NEMA TC2, NEMA TC3, NEMA TC6, NEMA TC8, NEMA TC9, BSEN 61386, QCS

# Pipesitech 

شركة تكنولوجيـا الأنابيب ذ.م.م PIPES TECHNOLOGY CO. W.L.L.
"Our Clients deserves the highest Quality Thermoplastic Systems"

## INTRODUCTION

Pipes Technology Co. W.L.L., known as PIPESTECH, was established in the state of Qatar since year 2003. PIPESTECH is registered under new commercial registration number 83608.

PIPESTECH specializes in supplying a wide range of high quality Thermoplastic piping network products, specifically HDPE, PVC, CPVC and PPR pipes fittings and valves for various applications such as water supply, sewage network, sub-surfaces water drainage system, irrigation network system and electrical communication cable protection networks. For industrial, commercial and domestic according to various internationally accredited standards, namely ISO, DIN, SASO, ASTM and BS EN standards.

PIPESTECH has a vast experience in construction market supplies in the State of Qatar through the cooperation of our valued principals namely - FIP (Formatura Iniezione Polimeri) - UPVC, CPVC, PVDF, PP-H pipes, fittings and valves, HDPE for buttwelding fittings - Italy; SYSTEM GROUP (SAB PP Channel drains, ITALIANA CORRUGATI - HDPE corrugated pipes and fittings - Italy); Fabco PVC Pipes; PPR Pipes and fittings; FAF VALVES - Turkey; FRIATEC HDPE Electro fusion fittings, machines, tools and accesories - Germany; IPEX PVC, CPVC Pipes \& Fittings - USA/CANADA; SPEARS CPVC fittings and valves - USA; RITMO Welding Machines - Italy; FRIATEC Welding Machines - Germany; CANDAN Welding Machines -Turkey; IPS WELDON solvent cements - USA; AKATHERM Dblue - Netherlands; WEFATHERM PPR - Pipe System - Germany and OATEY PVC floor drains - USA


## uPVC Pressure Pipes for Water Distribution

| SPECIFICATION | APPLICATION | RATING | SIZES |
| :---: | :---: | :---: | :---: |
| BS EN 1452 Inch | Pressure | PN9 | 1/2" $16^{\prime \prime}$ |
| BS EN 1452 Inch | Pressure | PN12 | 1/2" 16 " |
| BS EN 1452 Inch | Pressure | PN15 | $1 / 2$ " 16 " |
| EN ISO 1452 Metric | Pressure | PN6 | 40-400 mm |
| EN ISO 1452 Metric | Pressure | PN8 | 32-400 mm |
| EN ISO 1452 Metric | Pressure | PN10 | 32-400 mm |
| EN ISO 1452 Metric | Pressure | PN12.5 | 25-400 mm |
| EN ISO 1452 Metric | Pressure | PN16 | 20-400 mm |
| EN ISO 1452 Metric | Pressure | PN20 | 20-400 mm |
| EN ISO 1452 Metric | Pressure | PN25 | 110-200 mm |
| DIN 8062 | Pressure | PN4 | 75-400 mm |
| DIN 8062 | Pressure | PN6 | 50-400 mm |
| DIN 8062 | Pressure | PN8 | 40-400 mm |
| DIN 8062 | Pressure | PN10 | 32-400 mm |
| DIN 8062 | Pressure | PN12.5 | 25-400 mm |
| DIN 8062 | Pressure | PN16 | 20-400 mm |
| DIN 8062 | Pressure | PN20 | 20-315 mm |
| DIN 8062 | Pressure | PN25 | 20-280 mm |
| ISO 161/1 | Pressure | PN6.3 | 50-400 mm |
| ISO 161/1 | Pressure | PN10 | 40-400 mm |
| ISO 161/1 | Pressure | PN16 | 20-400 mm |
| ISO 161/1 | Pressure | PN20 | 20-400 mm |
| ISO 161/1 | Pressure | PN25 | 20-400 mm |
| BS 3505 | Pressure | Class B (6 Bar) | 3-16 inch |
| BS 3505 | Pressure | Class C (9 Bar) | 2-16 inch |
| BS 3505 | Pressure | Calss D (12 Bar) | 11/4-16 inch |
| BS 3505 | Pressure | Class E (15 Bar) | 1/2-16 inch |
| ASTM 1785 | Pressure | Schedule 40 | 1/2-16 inch |
| ASTM 1785 | Pressure | Schedule 80 | 1/2-16 inch |
| ASTM D2241 | Pressure | SDR 41-100 psi | 4-16 inch |
| ASTM D2241 | Pressure | SDR 32.5-125psi | 3-16 inch |
| ASTM D2241 | Pressure | SDR 26-160 psi | 1-16 inch |
| ASTM D2241 | Pressure | SDR 21-200 psi | 3/4-16 inch |
| ASTM D2241 | Pressure | SDR 17-250 psi | 3/4-16 inch |
| ASTM D2241 | Pressure | SDR 13.5-315 psi | 1/2-6 inch |

Polyvinyl Chloride Pipes System For Pressure Water, Drainage \& Sewerage, Electrical \& Communication

## Conduit Pipes for Electrical System

| SPECIFICATION | RATING | SIZES |  |
| :--- | :--- | :--- | :--- |
| BS 4607 | APPLICATION | Duct | $3 / 4-1 \mathrm{l}$ |
| DIN 8062 | Conduit | Inch |  |
| BS 3506 | Non-Pressure | Class O | $75-630 \mathrm{~mm}$ |
| NEMA - TC2 Pipes | Non-Pressure | Duct | $1 / 2-10 \mathrm{Inch}$ |
| NEMA - TC3 Fittings | Non-Pressure | Duct | $1 / 2-8$ Inch |
| NEMA- TC8 \& TC6 Pipes | Non-Pressure | Duct | $1 / 2-6$ Inch |
| NEMA - TC9 Fittings | Non-Pressure | Conduit | $2-6$ Inch |
| SSA 255 / 1981 Pipes | Non-Pressure | Conduit | $16-32 \mathrm{~mm}$ |
| SSA 255 / 1981 Fittings | Non-Pressure | Conduit | $16-32 \mathrm{~mm}$ |
| BSEN-61386 Pipes | Non-Pressure | Conduit | $20-50 \mathrm{~mm}$ |
| BSEN-61386 Fittings | Non-Pressure |  | $20-50 \mathrm{~mm}$ |

Duct Pipes for Telecommunication System

| SPECIFICATION | APPLICATION | RATING | SIZES |
| :---: | :---: | :---: | :---: |
| Ooredoo | Telephone Duct | Duct $54 / 56$ | $2-31 / 2$ Inch |

Duct Pipes System According to QCS

| SPECIFICATION | APPLICATION | RATING | SIZES |
| :---: | :---: | :---: | :---: |
| QCS | General Purpose Duct | Duct | $56-315 \mathrm{~mm}$ |

uPVC Non Pressure Pipes for Drainage \& Sewerage

| SPECIFICATION | APPLICATION | RATING | SIZES |
| :---: | :--- | :--- | :--- |
| BS 5255 | Waste | Drainage | $11 / 4-2 \mathrm{inch}$ |
| BS 4514 | Soil | Drainage | $3,4 \& 6 \mathrm{inch}$ |
| BS 4660 | Underground | Drainage | 8 inch |
| BS 5481 | Gravity Sewer | Drainage | $8,10,12 \& 16 \mathrm{inch}$ |
| EN 1329 | Soil \& Waste | Drainage | $110-400 \mathrm{~mm}$ |
| EN 1401 | Underground Drain | Drainage | $110-400 \mathrm{~mm}$ |
| DN 19534 | Gravity Sewer | Drainage | $110-630 \mathrm{~mm}$ |

#  

## uPVC Pressure <br> Pipes System Imperial \& Metric Range



ASTM D1785•ASTM D2241•BS 3505
EN 1452-2:2009•ISO 161/1•DIN 8062:2009

## Pressure Pipes System

We produce a wide range of UPVC Pressure Pipes to most of the major international standards and dimensions of Metric and Imperial. The pipes are made from $100 \%$ virgin UPVC resin with necessary additives and chemical so that the pipes meet or exceed the rigorous hydrostatic requirements of the standards. The pipes are produced in a range of colors such as grey, white, blue, purple and carry full printing and identification at 1 m intervals according to the standard requirements.

Pipes can be supplied with integral solvent weld joints a long with solvent cement or rubber ring joints using high performance EPDM seals to EN681. The joints exceed the pressure rating of the pipe and can therefore cover all the applications where the pipes are installed.

All pipes produced under quality assurance system and are specially designed to meet the harsh climate condition of the Gulf region, we place great importance on quality, reliability and economy. Strict in house quality control is backed by testing through independent laboratories of international repute to certify quality of pipes. For export requirements pipes can be supplied in 5.8 m (19ft.) length so they can be loaded in container without damaging socket. We place focus on great customer satisfaction through quality products.

Mechanical and Physical Properties

| Material Strength | MRS $\geq 25 \mathrm{MPa}$ | EN921 |
| :--- | :--- | :--- |
| Impact Resistance | TIR $\geq 10 \%$ | EN744 |
| Tensile Strength | MIN $45 \mathrm{~N} / \mathrm{mm}^{2}$ | ISO 6259 |
| Resistance to internal Pressure $20^{\circ} \mathrm{C}$ | $42 \mathrm{Mpa} / 1 \mathrm{hour}$ | EN921 |
| Vicat Softening | $\geq 80^{\circ} \mathrm{C}$ | EN721 |
| Logitudinal Reversion | Maximum $5 \%$ | EN743 |
| Dichloromethane Acid Resistance | No Attack | EN580 |
| Socket strength dia $\leq 90 \mathrm{~mm}$ | $4.2 \times[P N]$ | EN921 |
| Socket strength dia $\geq 90 \mathrm{~mm}$ | $3.6 \times[P N]$ | EN921 |

Pressure Derating Factors ( $\mathbf{2 0 - 4 5}{ }^{\circ} \mathrm{C}$ ) EN1452

| Temp C | Derating Factor |
| :---: | :---: |
| $20^{\circ}$ | 1.00 |
| $25^{\circ}$ | 1.00 |
| $30^{\circ}$ | 0.90 |
| $35^{\circ}$ | 0.80 |
| $40^{\circ}$ | 0.70 |
| $45^{\circ}$ | 0.60 |

Thermoplastics Materials loose their strength to Pressure \& Tension with increasing temperature. The above table can be used as a guide to common thermoplastics and their derated strength with temperature, and to determine the maximum working pressure rating of the pipes at the elevated temperature choosing.

uPVC Pressure Pipes System
Metric Range


DIN 8061/62 EN ISO 1452, SSA 14 \& 15/1998, ISO 161/1

| Nominal <br> Outside <br> Dimeter <br> mm . | Nominal (minimum) Wall Thickness |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Nominal Pressure PN based on safety factor (SF) = 2.5 |  |  |  |  |  |  |  |  |  |
|  | CLASS-1 |  | CLASS-2 |  | CLASS-3 |  | CLASS-4 |  | CLASS-5 |  |
|  | Series 62.5 SDR 126 PN 2 WT | Nominal Weight (Kg/m) | Series 25 SDR 51 PN 4 | Nomina Weight (Kg/m) | $\begin{gathered} \text { Series } 16.7 \\ \text { SDR } 34.4 \\ \text { PN } 6 \\ \text { WT } \end{gathered}$ | Nominal Weight (Kg/m) | Series 10 SDR 21 PN 10 | Nominal Weight (Kg/m) | Series 6.3 <br> SDR 13.6 <br> PN 16 | Nominal Weight (Kg/m) |
| 20 | - | - | - | - | - | - | - | - | 1.50 | 0.137 |
| 25 | - | - | - | - | - | - | 1.50 | 0.174 | 1.90 | 0.212 |
| 32 | - | - | - | - | - | - | 1.80 | 0.264 | 2.40 | 0.342 |
| 40 | - | - | - | - | 1.80 | 0.334 | 1.90 | 0.35 | 3.00 | 0.525 |
| 50 | - | - | - | - | 1.80 | 0.422 | 2.40 | 0.552 | 3.70 | 0.809 |
| 63 | - | - | - | - | 1.90 | 0.562 | 3.00 | 0.854 | 4.70 | 1.29 |
| 75** | - | - | 1.80 | 0.642 | 2.20 | 0.782 | 3.60 | 1.22 | 5.60 | 1.82 |
| 90** | - | - | 1.80 | 0.774 | 2.70 | 1.130 | 4.30 | 1.75 | 6.70 | 2.61 |
| 110** | 1.80 | 0.95 | 2.20 | 1.160 | 3.20 | 1.640 | 5.30 | 2.61 | 8.20 | 3.90 |
| 125** | 1.80 | 1.08 | 2.50 | 1.48 | 3.70 | 2.130 | 6.00 | 3.34 | 9.30 | 5.01 |
| 140 | 1.80 | 1.21 | 2.80 | 1.48 | 4.10 | 2.650 | 6.70 | 4.18 | 10.40 | 6.27 |
| 160** | 1.80 | 1.39 | 3.20 | 2.41 | 5.30 | 3.440 | 7.70 | 5.47 | 11.80 | 8.17 |
| 200** | 1.80 | 1.74 | 4.00 | 3.70 | 5.90 | 5.370 | 9.60 | 8.51 | 14.90 | 12.80 |
| 225** | 1.80 | 1.96 | 4.50 | 4.70 | 6.60 | 6.760 | 10.80 | 10.80 | 16.70 | 16.10 |
| 250** | 2.00 | 2.40 | 4.90 | 5.65 | 7.30 | 8.310 | 11.90 | 13.20 | 18.60 | 19.90 |
| 280* | 2.30 | 3.11 | 5.50 | 7.11 | 8.20 | 10.40 | 13.40 | 16.60 | 20.80 | 24.90 |
| 315* | 2.50 | 3.78 | 6.20 | 9.02 | 9.20 | 13.20 | 15.00 | 20.90 | 23.40 | 31.50 |
| 355* | 2.90 | 4.88 | 7.00 | 11.40 | 10.40 | 16.70 | 16.90 | 26.50 | 26.80 | 39.90 |
| 400* | 3.20 | 6.10 | 7.90 | 14.50 | 11.70 | 21.10 | 19.10 | 33.70 | 29.70 | 50.80 |
| 450* | 3.60 | 7.65 | 8.90 | 18.30 | 13.20 | 26.80 | 21.50 | 42.70 | - | - |
| 500* | 4.00 | 9.38 | 9.80 | 22.40 | 14.60 | 32.90 | 23.90 | 52.60 | - | - |
| 630* | 5.00 | 14.70 | 12.40 | 35.70 | 18.40 | 52.20 | 30.00 | 83.20 | - | - |

**Available in Rubber Ring
*Resale Product
Note: DIN 8062; 2009 Superseded EN ISO 1452-2: 2009

## uPVC Pressure Pipes System For Water Distribution

BS 3505

| Nominal Size | Outside Diameter |  | Wall Thickness |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | $\begin{gathered} \hline \text { CLASSC } \\ \text { (9 Bar) } \end{gathered}$ |  |  | $\begin{aligned} & \text { CLASSD } \\ & \text { (12 Bar) } \end{aligned}$ |  |  | $\begin{aligned} & \text { CLASSE } \\ & \text { (15 Bar) } \end{aligned}$ |  |  |
| Inch | Min. mm | Max. mm | Min. mm | Max. mm | Nominal weight $\mathrm{Kg} / \mathrm{m}$ | Min. mm | Max. mm | Nominal weight $\mathrm{Kg} / \mathrm{m}$ | Min. mm | Max. mm | Nominal weight $\mathrm{Kg} / \mathrm{m}$ |
| 1/2 | 21.20 | 21.50 | - | - | - | - | - | - | 1.70 | 2.10 | 0.158 |
| $3 / 4$ | 26.60 | 26.90 | - | - | - | - | - | - | 1.90 | 2.50 | 0.225 |
| 1 | 33.40 | 33.70 | - | - | - | - | - | - | 2.20 | 2.70 | 0.350 |
| $11 / 4$ | 42.10 | 42.40 | - | - | - | 2.20 | 2.70 | 0.434 | 2.70 | 3.20 | 0.508 |
| $11 / 2$ | 48.10 | 48.40 | - | - | - | 2.50 | 3.00 | 0.534 | 3.10 | 3.70 | 0.667 |
| 2* | 60.20 | 60.50 | 2.50 | 3.00 | 0.683 | 3.10 | 3.70 | 0.850 | 3.90 | 4.50 | 1.042 |
| $21 / 2$ | 75.00 | 75.30 | 3.00 | 3.50 | - | 3.90 | 4.50 | - | 4.80 | 5.50 | - |
| 3* | 88.70 | 89.10 | 3.50 | 4.10 | 1.417 | 4.60 | 5.30 | 1.834 | 5.70 | 6.60 | 2.250 |
| 4* | 114.10 | 114.50 | 4.50 | 5.20 | 2.350 | 6.00 | 6.90 | 3.050 | 7.30 | 8.40 | 3.700 |
| 5 | 140.00 | 140.40 | 5.50 | 6.40 | - | 7.30 | 8.40 | - | 9.00 | 10.40 | - |
| $6 *$ | 168.00 | 168.50 | 6.60 | 7.60 | 5.084 | 8.80 | 10.20 | 6.72 | 10.80 | 12.50 | 8.143 |
| 8* | 218.80 | 219.40 | 7.80 | 9.00 | 7.086 | 10.30 | 11.90 | 10.17 | 12.60 | 14.50 | 12.28 |
| 10* | 272.60 | 273.40 | 9.70 | 11.20 | - | 12.80 | 14.80 | - | 15.70 | 18.10 | - |
| 12* | 323.40 | 324.30 | 11.50 | 13.30 | - | 15.20 | 17.50 | - | 18.70 | 21.60 | - |
| 14 | 355.00 | 356.00 | 12.60 | 14.50 | - | 16.70 | 19.20 | - | 20.50 | 23.60 | - |
| $16^{*}$ | 405.90 | 406.90 | 14.50 | 16.70 | - | 19.00 | 21.90 | - | 23.40 | 27.00 | - |

*Available in Rubber Ring

BS EN 1452-2: 2009 Inch Series

| Nominal Size | Outside Diameter |  | Nominal Wall Thickness |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | PN 9 |  |  | PN 12 |  |  | PN 15 |  |  |
| Inch | Min. mm | Max. mm | Min. mm | Max. mm | Nominal weight $\mathrm{Kg} / \mathrm{m}$ | Min. mm | Max. mm | Nominal weight $\mathrm{kg} / \mathrm{m}$ | Min. mm | Max. mm | $\begin{aligned} & \text { Nominal } \\ & \text { weight } \\ & \mathrm{Kg} / \mathrm{m} \end{aligned}$ |
| 1/2 | 21.20 | 21.50 | - | - | - | - | - | - | 1.70 | 2.10 | - |
| $3 / 4$ | 26.60 | 26.90 | - | - | - | - | - | - | 1.90 | 2.50 | - |
| 1 | 33.40 | 33.70 | - | - | - | - | - | - | 2.20 | 2.80 | 0.350 |
| $11 / 4$ | 42.10 | 42.40 | - | - | - | 2.20 | 2.70 | 0.434 | 2.70 | 3.30 | 0.508 |
| $11 / 2$ | 48.10 | 48.40 | - | - | - | 2.50 | 3.00 | 0.534 | 3.10 | 3.70 | 0.667 |
| $2^{*}$ | 60.20 | 60.50 | 2.50 | 3.00 | 0.683 | 3.10 | 3.70 | 0.850 | 3.90 | 4.50 | 1.042 |
| 3* | 88.70 | 89.10 | 3.50 | 4.10 | 1.417 | 4.60 | 5.30 | 2.250 | 5.70 | 6.60 | 2.250 |
| 4* | 114.10 | 114.50 | 4.50 | 5.20 | 2.350 | 6.00 | 6.90 | 3.700 | 7.30 | 8.40 | 3.700 |
| $6 *$ | 168.00 | 168.50 | 6.60 | 7.60 | 5.084 | 8.80 | 10.20 | 8.143 | 10.80 | 12.50 | 8.143 |
| 8* | 218.80 | 219.40 | 7.80 | 9.00 | 7.086 | 10.30 | 11.90 | - | 12.60 | 14.50 | 12.28 |
| 10* | 272.60 | 273.40 | 9.70 | 11.20 | - | 12.80 | 14.80 | - | 15.70 | 18.10 | - |
| 12* | 323.40 | 324.30 | 11.50 | 13.30 | - | 15.20 | 17.50 | - | 18.70 | 21.60 | - |
| $16^{*}$ | 405.90 | 406.90 | 14.50 | 16.70 | - | 19.00 | 21.90 | - | 23.40 | 27.00 | - |

[^0]uPVC Pressure Pipes System
American Standard

## uPVC Pressure Pipes System Cold Potable Water

## ASTM D 1785

Schedule 40/Schedule 80

| Nominal <br> Pipe Size <br> inch | Outside <br> Diameter <br> mm | Wall Thickness |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Schedule 40 <br> mm | Nominal <br> weight <br> Kg $/ \mathrm{m}$ | Schedule 80 <br> mm | Nominal <br> weight <br> Kg $/ \mathrm{m}$ |
| $1 / 2$ | 21.30 | 2.80 | 0.248 | 3.70 | 0.309 |
| $3 / 4$ | 26.70 | 2.90 | 0.329 | 3.90 | 0.418 |
| 1 | 33.40 | 3.40 | 0.483 | 4.50 | 0.614 |
| $11 / 4$ | 42.20 | 3.60 | 0.652 | 4.80 | 0.850 |
| $11 / 2$ | 48.30 | 3.70 | 0.779 | 5.10 | 1.030 |
| 2 | 60.30 | 3.90 | 1.040 | 5.50 | 1.430 |
| $21 / 2$ | 73.00 | 5.20 | 1.650 | 7.00 | 2.180 |
| 3 | 88.90 | 5.50 | 2.160 | 7.60 | 2.910 |
| 4 | 114.30 | 6.00 | 3.070 | 8.60 | 4.260 |
| 6 | 168.30 | 7.10 | 5.410 | 11.00 | 8.130 |
| 8 | 219.10 | 8.20 | 8.143 | 12.70 | 12.400 |
| 10 | 273.10 | 9.30 | - | 1.10 | - |
| 12 | 323.90 | 10.30 | - | 17.50 | - |
| 14 | 355.60 | 11.10 | - | 19.10 | - |
| 16 | 406.40 | 12.70 | - | 21.40 | - |

ASTM D 2241
Class 100/ Class 125 / Class 160 / Class 200 / Class 315

uPVC Pressure Pipes System Metric Range

## PERFORATED AND SLOTTED uPVC PIPES

Perforated or Slotted uPVC pipes are manufactured upon request depending on the size and class of the pipes below figures given a general configuration which may vary for clients requirements.

## Perforated Pipes:

(Staggered rows)


4 Rows

(Straight rows)


| Wall Thickness | 75 mm to 500 mm |
| :--- | :--- |
| Angular pitch of holes | $40^{\circ}$ for 3 or 4 rows <br> $40^{\circ}, 80^{\circ}$ or $120^{\circ}$ for 2 rows <br> Longitudinal pitch <br> of holes (LP) <br> Hole Diameter <br> Number of rows to 200 mm |
| 1 to 6 |  |

## Slotted Pipes:

Slotted pipes are produced according to RDA requirements and for use in lowering the underground water table.

(Staggered Slots)


| Slot length | Depend on <br> the size |
| :---: | :---: |
| Slot width | $1,1.1 / 2^{\prime \prime}$ <br> 2 mm \& 3 mm |
| No . of Row | $4,6 \& 8$ (but <br> according to the size) |
| Angular pitch | Recommended <br> by us |



For further details please refer to Marketing Technical Sales Department.

## Duct and Conduit

For use in electrical telephone, communication and other duct system

## Duct and Conduit According to UL 651 Standard

We produces a range of PVC schedule 40 ducts in size $1 / 2^{\prime \prime}$ to 8 " that are in accordance with NEMA TC-2A standard and listed to UL 651.

The conduits are suitable for above or below ground installations and made from $100 \%$ virgin PVC resin.
The ducts meet and exceed all the mechanical and performance requirement of both the NEMA TC2 and UL 651 standards.

## General Properties

- Fully compliant to NEMA TC-2 and UL 651.
- Rated for use $90^{\circ} \mathrm{C}$ conductors.
- Ultraviolet protected.
- High Impact and deformation properties.
- Solvent cement joints with deep sockets.
- Can be supplied in various lengths such as $3 \mathrm{~m}, 6 \mathrm{~m}, 2.9 \mathrm{~m}$, 5.8 m (standard leg lengths $3 \mathrm{~m}, 6 \mathrm{~m}$ ).
- Smooth solid wall.
- Produced According to ISO 9001:2008 Quality Assurance System.


## MECHANICAL PROPERTIES

|  | ASTM | TYPICAL VALUE |
| :--- | :--- | :--- |
| Specific Gravity | D792 | $1.4-1.7$ |
| Tensile Strength (psi) @ 73.4 ${ }^{\circ} \mathrm{F}$ | D638 | 5,000 |
| Izod impact - ft Ibs/in of notch | D256 | $0.65-1.50$ |
| Flexural Strength (psi) | D790 | 12,500 |
| Comprehensive Strength (psi) | D695 | 9,000 |
| Hardness (Durometer D) | D2240 | 95 |
|  |  |  |

## ELECTRICAL PROPERTIES

|  | ASTM | TYPICAL VALUE |
| :--- | :---: | :---: |
| Dielectric Strength - volts/mil <br> Dielectric Constant | D149 | 1,100 |
| 60 CPS @ $30{ }^{\circ} \mathrm{C}$ | D150 | 4.00 |
| Power Factor <br> 60 CPS @ $30{ }^{\circ} \mathrm{C}$ | D150 | 1.93 |

THERMAL PROPERTIES

|  | ASTM | TYPICAL VALUE |
| :--- | :--- | :--- |
| Coefficient of Thermal <br> Expansion - in/in ${ }^{\circ} \mathrm{C}$ | D696 | $5.13 \times 10^{-5}$ |
| Coefficient of Thermal <br> Expansion - in/in ${ }^{\circ} \mathrm{F}$ | D696 | $3.0 \times 10^{-5}$ |
| Deflection Temp.${ }^{\circ}$ F Under |  |  |
| Load @ 264 psi |  |  |$\quad$ D648 $\quad 140^{\circ} \mathrm{F}$.

FIRE RESISTANCE PROPERTIES

|  | ASTM | TYPICAL VALUE |
| :--- | :---: | :---: |
| Fire Resistance | - | Self Extinguishing |
| Flame Spread | E162 | 10 |
| Smoke Development | E84 | 330 |

According to NEMA \& UL 651 Standards

## NEMA TC-2 Pipes System

PVC Electric Plastic Tubing (EPT) \& Conduit (EPC - 40 \& EPC - 80)

## Dimensions of Electrical Plastic Tubing

| Nominal 1 IN isize inch | Outside <br> Diameter | EPT-A -PVC |  | EPC-40-PVC |  | EPC-80-PVC |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Wall Thickness | N.Weight $\mathrm{Kg} / \mathrm{m}$ | Wall Thickness | N.Weight $\mathrm{Kg} / \mathrm{m}$ | Wall Thickness | N.Weight $\mathrm{Kg} / \mathrm{m}$ |
|  | mm | mm |  | mm |  | mm |  |
| $1 / 2 "$ | 21.34 | 1.52 | 0.155 | 2.77 | 0.248 | 3.73 | 0.309 |
| $3 / 4$ " | 26.67 | 1.52 | 0.197 | 2.87 | 0.329 | 3.91 | 0.418 |
| $1 "$ | 33.40 | 1.52 | 0.250 | 3.38 | 0.483 | 4.55 | 0.614 |
| $11 / 4 "$ | 42.15 | 1.78 | 0.365 | 3.56 | 0.652 | 4.85 | 0.850 |
| $11 / 2 "$ | 48.26 | 2.03 | 0.468 | 3.68 | 0.779 | 5.08 | 1.030 |
| $2 "$ | 60.32 | 2.54 | 0.717 | 3.91 | 1.04 | 5.54 | 1.430 |
| $21 / 2^{\prime \prime}$ | 73.02 | 2.79 | 0.952 | 5.16 | 1.65 | 7.01 | 2.180 |
| $3 "$ | 88.90 | 3.18 | 1.310 | 5.49 | 2.160 | 7.62 | 2.900 |
| 4" | 114.30 | 3.81 | 2.000 | 6.02 | 3.070 | 8.56 | 4.260 |
| 5" | 141.30 | - | - | 6.55 | 4.17 | 9.52 | 5.910 |
| $6 "$ | 168.28 | - | - | 7.11 | 5.410 | 10.97 | 8.130 |
| 8" | 219.07 | - | - | 8.18 | 8.143 | 12.70 | 12.400 |

EPT-A-PVC Electrical Plastic Tubing for encasement in concrete, EPC 40 Electrical plastic conduit for normal duty application \& EPC 80 Electrical Plastic Conduit for heavy-duty application.

## NEMA TC-3 FITTINGS using NEMA TC-2 PIPES

PVC FITTINGS FOR USE WITH RIGID PVC CONDUIT AND TUBING
Coupling and Bell End


## Duct and Conduit <br> According to NEMA \& UL 651 <br> Standards

## NEMA TC-3 FITTINGS Using NEMA TC-2 PIPES

## Long Radius Bend



TC-3 Register coupling

TC-3 Repair coupling

TC-3 Long Radius Bend

TC-3 Bell End

NEMA TC-8 \& TC-6 PIPES
PVC PLASTIC UTILITIES DUCT FOR UNDERGROUND INSTRUCTIONS
Dimensions of Underground Utilities Duct

| Nominal Pipe size Inch | Average Outside Diameter | $\begin{gathered} \text { TC6 } \\ \text { TYPE EB-20 } \end{gathered}$ | Weight (Kg)/Mtr | TC8 <br> TYPE EB-35 | Weight (Kg)/Mtr | $\begin{gathered} \text { TC6 } \\ \text { TYPE DB-60 } \end{gathered}$ | Weight (Kg)/Mtr | $\begin{gathered} \text { TC8 } \\ \text { TYPE DB-100 } \end{gathered}$ | Weight (Kg)/Mtr | $\begin{gathered} \text { TC8 } \\ \text { TYPE DB-120 } \end{gathered}$ | Weight (Kg)/Mtr |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Wall Thickness |  | Wall Thickness |  | Wall Thickness |  | Wall Thickness |  | Wall Thickness |  |
|  | mm | mm |  | mm |  | mm |  | mm |  | mm |  |
| $1 "$ | 33.40 | - | - | - |  | - | - | - |  | 1.52 | 0.251 |
| $11 / 2^{\prime \prime}$ | 48.26 | - | - | - |  | - | - | - | - | 1.52 | 0.369 |
| 2 " | 60.32 | - | 0.465 | 1.52 | 0.465 | 1.651 | 0.465 | - |  | 1.96 | 0.576 |
| 3" | 88.90 | 1.70 | 0.703 | 1.93 | 0.847 | 2.54 | 1.000 | 2.84 | 1.160 | 3.00 | 1.250 |
| 4" | 114.30 | 2.26 | 1.170 | 2.54 | 1.390 | 3.327 | 1.650 | 3.68 | 1.930 | 3.91 | 2.050 |
| 5" | 141.30 | 2.84 | 1.171 | 3.20 | 2.090 | 4.165 | 2.500 | 4.55 | 2.940 | 4.85 | 3.120 |
| $6 "$ | 168.28 | 3.42 | 2.530 | 3.86 | 3.020 | 4.978 | 3.570 | 5.41 | 4.170 | 5.77 | 4.420 |

Note : EB for Encased Burial in Concrete \& DB for Direct Burial without Concrete


## NEMA TC-9 FITTINGS using NEMA TC-6 \& TC-8 PIPES

FITTINGS FOR PVC PLASTIC UTILITIES DUCT FOR UNDERGROUND INSTALLATION
Repair Coupling


Register Coupling


Socket Bell End


## Telephone Duct QNBN

British Standard Telephone Duct QNBN (ooredoo)

| Duct No. | OutsideDiameter(mm) | InsideDiameter(mm) | SocketLength $(\mathrm{mm})$ | U_jj Thickness(mm) $^{\text {54D }}$ |
| :---: | :---: | :---: | :---: | :---: |
| 96.50 | 90.00 | 100.00 | 3.25 |  |
| 56D | 56.50 | 50.00 | 70.00 | 3.25 |

- All the Ducts \&the Bendsare Black.
- All the Ducts \& the Bendsare SolventWeldType.

BS 3506

| Nominal Size | Outside Diameter |  | Wall Thickness |  |  | Weight (Kg)/Mt |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | (non pressure) |  |  |  |
|  |  |  | Average Value |  |  |  |
| inch | $\begin{gathered} \mathrm{Min} \\ \mathrm{~mm} . \end{gathered}$ | Max mm. | mm | $\begin{aligned} & \mathrm{Min} \\ & \mathrm{~mm} . \end{aligned}$ | $\begin{aligned} & \mathrm{Max} \\ & \mathrm{~mm} . \end{aligned}$ |  |
| $11 / 2$ | 48.10 | 48.40 | 2.02 | 1.80 | 2.20 | 0.40 |
| 2 | 60.20 | 60.50 | 2.20 | 1.80 | 2.20 | 1.50 |
| $21 / 2$ | 75.00 | 75.30 | 2.20 | 1.80 | 2.20 | 1.63 |
| 3 | 88.70 | 89.10 | 2.20 | 1.80 | 2.20 | 0.75 |
| 4 | 114.10 | 114.50 | 2.80 | 2.30 | 2.80 | 1.23 |
| 6 | 168.00 | 168.50 | 3.70 | 3.10 | 3.70 | 2.41 |
| 8 | 218.80 | 219.40 | 3.70 | 3.10 | 3.70 | 3.16 |
| 10 | 272.60 | 273.40 | 3.70 | 3.10 | 3.70 | - |
| 12 | 323.40 | 324.30 | 3.70 | 3.10 | 3.70 | - |
| 16 | 405.90 | 406.90 | 4.80 | 4.10 | 4.80 | - |



Duct Pipes System
According to QCS

## Duct Pipes System According to QCS

| Nominal Size(inch) | OutsideDiameter(mm) | Wall Thickness(mm) | Standard Length(meters) |
| :---: | :---: | :---: | :---: |
| $2^{\prime}$ | 55.75 | 2.00 | 4.00 |
| $2^{1 / 2}{ }^{\prime}$ | 75.30 | 2.60 | 4.00 |
| $3^{\prime}$ | 82.40 | 2.20 | 4.00 |
| $4^{\prime}$ | 110.00 | 2.40 | 5.80 |
| $4^{\prime}$ | 110.00 | 3.20 | 5.80 |
| $5^{\prime}$ | 140.30 | 2.60 | 5.80 |
| $5^{\prime}$ | 140.30 | 3.20 | 5.80 |
| $5^{\prime}$ | 140.30 | 3.50 | 5.80 |
| $6^{\prime}$ | 160.00 | 2.60 | 5.80 |
| $6^{\prime}$ | 160.00 | 3.60 | 5.80 |
| $6^{\prime}$ | 160.00 | 4.70 | 5.80 |
| $8^{\prime}$ | 200.00 | 4.00 | 5.80 |
| $8^{\prime}$ | 200.00 | 4.90 | 5.80 |
| $10^{\prime \prime}$ | 250.00 | 4.90 | 5.80 |
| $10^{\prime \prime}$ | 250.00 | 6.10 | 5.80 |
| $12^{\prime \prime}$ | 315.00 | 7.70 | 5.80 |
| $12^{\prime \prime}$ | 315.00 | 9.20 | 5.80 |

- Brown, Graydlack.
- All pipes are solvent



## (BS-EN-61386)PIPES

## CONDUIT SYSTEM FOR CABLE MANAGEMENT

As per British standards BS-EN-6099 and BS-EN-50086-2 replaced by BS-EN-61386-21-2004

| Nominal <br> size | Light Gauge |  |  | Medium Gauge |  |  | Heavy Gauge |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Wall Thickness <br> mm | Minimum <br> Inside Diameter <br> mm | Weight <br> $($ Kg)/Mtr | Wall Thickness <br> mm | Minimum <br> Inside Diameter <br> mm | Weight <br> $($ Kg $) /$ Mtr | Wall Thickness <br> mm | Minimum <br> Inside Diameter <br> mm | Weight <br> $($ Kg $) /$ Mtr |
| 20 | 1.30 | 17.40 | 0.120 | 1.55 | 16.90 | 0.140 | 2.10 | 15.80 | 0.180 |
| 25 | 1.45 | 22.10 | 0.165 | 1.80 | 21.40 | 0.200 | 2.20 | 20.60 | 0.240 |
| 32 | 1.70 | 28.60 | 0.245 | 2.10 | 27.80 | 0.296 | 2.70 | 26.60 | 0.370 |
| 38 | 2.00 | 34.00 | 0.338 | 2.25 | 33.50 | 0.376 | 2.75 | 32.50 | 0.452 |
| 40 | 2.10 | 35.80 | 0.352 | 2.30 | 35.40 | 0.406 | 2.80 | 34.40 | 0.485 |
| 50 | 2.45 | 45.10 | 0.540 | 2.85 | 44.30 | 0.622 | 3.40 | 43.20 | 0.707 |

*Dimensions in millimeters

Conduit are offered in 3 or 2.9 meter long in black or white color.

## BRITISH STANDARD (BS-EN-61386)FITTINGS

Long Radius Bend

| Nominal size | Outside Diameter of Bend (d1) |  | Minimum Inside Diameter of Bend (d2) | Inside Diameter of Collar (d3) | R | Weight (Kg)/Mtr |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Dimension | Tolerance |  |  |  |  |
| 20 | 20 | $\pm 0.022$ | 16.90 | 16.90 | 65 | 0.140 |
| 25 | 25 | $\pm 0.022$ | 21.40 | 21.40 | 90 | 0.200 |
| 32 | 32 | $\pm 0.025$ | 27.80 | 27.80 | 125 | 0.296 |
| 38 | 38 | $\pm 0.028$ | 33.50 | 33.50 | 159 | 0.376 |
| 40 | 40 | $\pm 0.030$ | 36.40 | 36.40 | 180 | 0.406 |
| 50 | 50 | $\pm 0.030$ | 44.30 | 44.30 | 240 | 0.622 |

[^1]
# Drainage <br> Pipes System <br> British Standard 



BS EN $1329 \cdot$ BS EN $1401 \cdot$ BS $5255 \cdot$ BS 4514 BS 4660 • BS 5481 • DIN 19534

## UPVC Drainage <br> Pipes System

## Drainage Pipes System

We produce a range of UPVC pipes for above and below ground made of $100 \%$ virgin UPVC and supply full range of fittings in both solvent weld and rubber ring joint for all sizes in cooperation with other pipes \& fittings manufacturer.

The pipes are produced in all the major international standards ie: European Standards BS EN $1401, B S E N$ 1329, as well.

## General Properties of our Drainage Pipes

- Fully compliant to the main international Standards.
- Tough, impact resistant.
- EPDM rubber rings following EW681 Standard.
- Can be supplied in Solvent Weld or Rubber Ring Joint (from 3" and above).
- Different Length available $3 \mathrm{~m}, 2.9 \mathrm{~m}, 6 \mathrm{~m}, 5.8 \mathrm{~m}$. Other length on request.
- Distinctive colour coded system (ie Light Gray, Brown, White, etc.) with full printing at 1 m intervals.
- Superior chemical and acid resistance.
- Outstanding mechanical properties of tensile strength and resistance to pressure.

BS 5255, BS 4514, BS 4660, BS 5481

| Code <br> BS 5255 WASTE | Nominal OD mm(inch) | Minimum OD mm | Minimum Wall Thickness mm | Colour | Weight (Kg)/Mt |
| :---: | :---: | :---: | :---: | :---: | :---: |
| DR-125 <br> DR-15 <br> DR-2(50*) <br> DR-2(55) | $\begin{aligned} & 36\left(1 \frac{1}{4}\right)^{\prime \prime} \\ & 43\left(1 \frac{1}{2}\right)^{\prime \prime} \\ & 50\left(2^{\prime \prime}\right) \\ & 56\left(2^{\prime \prime}\right) \end{aligned}$ | $\begin{aligned} & 36.15 \\ & 42.75 \\ & 50.00 \\ & 55.75 \end{aligned}$ | $\begin{aligned} & 1.80 \\ & 1.90 \\ & 2.00 \\ & 2.00 \end{aligned}$ | WH/LG <br> WH/LG <br> WH/LG <br> WH/LG | $\begin{aligned} & 0.345 \\ & 0.427 \\ & 0.502 \\ & 0.586 \end{aligned}$ |
| BS 4514 SOIL |  |  |  |  |  |
| DR-3/LG <br> DR-4/LG <br> DR-6/LG | $\begin{aligned} & 82\left(3^{\prime \prime}\right) \\ & 110\left(4^{\prime \prime}\right) \\ & 160\left(6^{\prime \prime}\right) \end{aligned}$ | $\begin{aligned} & 82.00 \\ & 110.00 \\ & 160.00 \end{aligned}$ | $\begin{aligned} & 3.00 \\ & 3.20 \\ & 3.20 \end{aligned}$ | LG | $\begin{aligned} & 1.20 \\ & 1.68 \\ & 2.41 \end{aligned}$ |
| BS 4660 UNDERGROUND |  |  |  |  |  |
| $\begin{aligned} & \text { DR-4/BR } \\ & \text { DR-6/BR } \end{aligned}$ | $\begin{aligned} & 110\left(4^{\prime \prime}\right) \\ & 160\left(6^{\prime \prime}\right) \end{aligned}$ | $\begin{aligned} & 110.00 \\ & 160.00 \end{aligned}$ | $\begin{aligned} & 3.20 \\ & 4.10 \end{aligned}$ | $\mathrm{BR}$ | $\begin{aligned} & 1.680 \\ & 3.030 \end{aligned}$ |
| BS 5481 GRAVITY SEWER |  |  |  |  |  |
| DR-8/BR <br> DR-10/BR <br> DR-12/BR <br> DR-16/BR | $\begin{aligned} & 200\left(8^{\prime \prime}\right) \\ & 250\left(10^{\prime \prime}\right) \\ & 315\left(12^{\prime \prime}\right) \\ & 400\left(16^{\prime \prime}\right) \end{aligned}$ | $\begin{aligned} & 200.00 \\ & 250.00 \\ & 315.00 \\ & 400.00 \end{aligned}$ | $\begin{aligned} & 4.90 \\ & 6.10 \\ & 7.70 \\ & 9.80 \end{aligned}$ | $\mathrm{BR}$ | $\begin{gathered} 4.679 \\ 7.296 \\ 11.110 \\ 17.800 \end{gathered}$ |

## UPVC Drainage <br> Pipes System

The main features of drainage Pipes \& Fittings are:

- Strong and resistance to impact.
- Easy to install and compatible with National Plastic Drainage pipe.
- Fully compliant to the BS standards.
- Resistant to a wide range of chemical / fluids.
. Smooth bore to give excellent flow characteristics.


Raw Material
The Raw material is $100 \%$ virgin PVC-U

## Colour

BS EN 1329-1:2000 v Light Gray
BS EN 1401-1:2000v Orange Brown
Chamfering
A $15^{\circ}$ chamfer is applied to all spigot ends for rubber ring pipe.

Length
Pipes are normally supplied in 6 m overall length.
Pipes can also be supplied in 5.8 m overall length to fit Inside containers.

Sizes 36, 43 and 56 mm are supplied in 4 m overall length with plain ends.

UPVC Drainage Pipes System British Standard

| Standards | BS EN 1329 / BS 5255 - Light Gray; |
| :---: | :---: |
|  | BS 4514 - Light Gray; |
|  | BS EN 1401 / BS 4660 - Brown |
| Material | 100\% uPVC |
| Joints | Female solvent weld sockets |
| Temp Range | $: 0^{\circ} \mathrm{C}-80^{\circ} \mathrm{C}$ <br> (for intermittent discharge) |
| Tensile streng | : Min. $45 \mathrm{~N} / \mathrm{mm}^{2}$ |

## Characteristics of Pipes BS EN1329,BS EN1401

## Compound Characteristics

The compounds used in our pipes conforming to the standards have the following Characteristics.

| Modulus of Elasticity | $=\mathrm{E}(1 \mathrm{~min}) \geq 3000 \mathrm{mPa}$ |
| :--- | :--- |
| Average Density | $=1.4 \mathrm{~g} / \mathrm{cm}^{3}$ |
| Average Coefficient of |  |
| Linear Thermal Expansion | $=0.8 \mathrm{~mm} / \mathrm{mk}^{2}$ |
| Thermal Conductivity | $=0.16 \mathrm{WK}^{-1} \mathrm{~m}^{-1}$ |
| Surface Resistance | $=>10^{12} \Omega$ |



## UPVC Drainage

Pipes System
Mechanical and Physical Characteristics

| Characteristics | Requirement | Test Method |
| :--- | :---: | :---: |
| Impact Resistance | TIR $\leq 10 \%$ | EN 744 |
| Vicat Softening | $\geq 79^{\circ} \mathrm{C}$ | EN 727 |
| Longitudinal Reversion | No attack | EN 743 |
| Dichloromethane Acid Resistance | No leakage | EN 580 |
| Water Tightness of Rubber Ring Joint | No leakage | EN 1277 |
| Elevated Temp. Cycling | 1.90 days $\geq 1.3$ bar | EN 1055 |
| Long Term Performance of TPE Seals | 2.100 years $\geq 0.6$ bar | prEN 1989 |
| Resistance to internal Pressure | No failure during the test | EN 921 |

BS EN 1329-1:2000

| Nominal Size DN/OD | Nominal OD | Mean Outside Diameter |  | Wall Thickness Application Area "B" |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | (dem,min) | (dem,max) | (e,min) | (e,max) |
| 32 | 32 | 32.00 | 32.20 | 3.00 | 3.50 |
| 36 (1 1/4") | 36 | 36.20 | 36.50 | 3.00 | 3.50 |
| 40 | 40 | 40.00 | 40.20 | 3.00 | 3.50 |
| 43 (1/1/2") | 43 | 42.80 | 43.10 | 3.00 | 3.50 |
| 50 | 50 | 50.00 | 50.20 | 3.00 | 3.50 |
| 56 (2") | 56 | 55.80 | 56.10 | 3.00 | 3.50 |
| 75 | 75 | 75.00 | 75.30 | 3.00 | 3.50 |
| 82 (3") | 82 | 82.00 | 82.30 | 3.00 | 3.50 |
| 110 (4") | 110 | 110.00 | 110.30 | 3.20 | 3.80 |
| 160 (6") В | 160 | 160.00 | 160.40 | 3.20 | 3.80 |
| 160 (6") BD | 160 | 160.00 | 160.40 | 4.00 | 4.60 |
| 200 (8")B | 200 | 200.00 | 200.50 | 3.90 | 4.50 |
| 200 (8")BD | 200 | 200.00 | 200.50 | 4.90 | 5.60 |
| 250 (10") B | 250 | 250.00 | 250.50 | 4.90 | 5.60 |
| 250 (10")BD | 250 | 250.00 | 250.50 | 6.20 | 7.10 |
| 315 (12")B | 315 | 315.00 | 315.60 | 6.20 | 7.10 |
| 315 (12")BD | 315 | 315.00 | 315.60 | 7.70 | 8.70 |

*Dimensions in millimeters
$N: B$ Application area " $B$ " for components intended to be used above ground inside the building or outside building fixed to a wall
BS EN 1401-1:1998

| Nominal Size DN/OD | Nominal Size OD | Mean Outside Diameter |  | Wall Thickness SN2, SDR 51 |  |  | Wall Thickness SN4, SDR 41 |  |  | Wall Thickness SN8, SDR 34 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | (e,min) | (e, max) | (e,min) | (e,max) | $\begin{gathered} \hline \text { Weight } \\ (\mathrm{Kg}) / \mathrm{Mtr} \end{gathered}$ | (e,min) | (e,max) | Weight (Kg)/Mtr | (e,min) | (e,max) | $\begin{aligned} & \text { Weight } \\ & (\mathrm{Kg}) / \mathrm{Mtr} \end{aligned}$ |
| 110 (4") | 110 | 110.00 | 110.30 | - | - | - | 3.20 | 3.80 | 1.680 | 3.20 | 3.80 | 2.210 |
| 160 (6") | 160 | 160.00 | 160.40 | 3.20 | 3.80 | 2.41 | 4.00 | 4.60 | 3.030 | 4.70 | 5.40 | 3.580 |
| 200 (8") | 200 | 200.00 | 200.50 | 3.90 | 4.50 | 3.62 | 4.90 | 5.60 | 4.679 | 5.90 | 6.70 | 5.600 |
| 250 (10") | 250 | 250.00 | 250.50 | 4.90 | 5.60 | 5.65 | 6.20 | 7.10 | 7.296 | 7.30 | 8.30 | 8.600 |
| 315 (10") | 315 | 315.00 | 315.60 | 6.20 | 7.10 | 9.02 | 7.70 | 8.70 | 11.110 | 9.20 | 10.40 | 13.650 |
| 400 (16") | 400 | 400.00 | 400.70 | 7.90 | 8.90 | 14.50 | 9.80 | 11.00 | 17.800 | 11.70 | 13.10 | 21.680 |

[^2]$\mathrm{N}: \mathrm{B}$ For Outside the building structure application area "U" SN2 $=$ Ring Stiffness of $2 \mathrm{KN} / \mathrm{m}^{2} \mathrm{SN} 4=$ Ring stiffness of $4 \mathrm{KN} / \mathrm{m}^{2}$

## UPVC Drainage Pipes System DIN Standard

uPVC PIPES ACCORDING TO DIN 19534

| Nominal Diameter (mm) | Outside Diameter (mm) | Wall Thickness | Weight (Kg)/Mtr |
| :---: | :---: | :---: | :---: |
| 100 | 110 | 3.00 | 1.63 |
| 125 | 125 | 3.00 | 1.83 |
| 150 | 160 | 3.60 | 2.65 |
| 200 | 200 | 4.50 | 4.12 |
| 250 | 250 | 6.10 | 7.00 |
| 300 | 315 | 7.70 | 11.11 |
| 400 | 400 | 9.80 | 17.80 |
| 500 | 500 | 12.20 | 27.65 |
| 600 | 630 | 15.40 | 41.87 |

uPVC PIPES ACCORDING TO DIN 19531

| Nominal Pipe Size (mm) | Outside diameter min (mm) | Wall Thickness min (mm) | Weight (Kg)/Mtr |
| :---: | :---: | :---: | :---: |
| 40 | 40 | 1.80 | 0.334 |
| 50 | 50 | 1.80 | 0.422 |
| 75 | 75 | 1.80 | 0.642 |
| 110 | 110 | 2.20 | 1.160 |
| 125 | 125 | 2.50 | 1.480 |
| 160 | 160 | 3.20 | 2.410 |

## HANDLING AND SUPPORT

## HANDLING:

- The pipe should be handled with reasonable care to avoid breakage or damage.
- The pipe should never be pushed or thrown from a delivery truck.
- The pipe should be protected from direct sunlight at all times.
- The pipe should be kept away from sharp objects (rocks, irons...etc.) to prevent damage.
- Lifting of pipes requires extra care as the extended pipe weight can cause cracking or breakage.



## STORAGE:

- The pipe should be protected from the sun. This will prevent the effects of ultraviolet-rays and heat build ups.
- If the pipe is stored in racks, it should be continuously supported along its length.
- Pipes should be stored inside and should be attached to prevent damage.
- When pipes are stacked, ensure that the weight of upper units does not cause deformation to pipes in the bottom of the stack.
- Pipes and fittings should always be protected from dirt and foreign matter.



## INSTALLATION



## PVC Handling \& Installation Manual

## INSTALLATION

## GENERAL:

UPVC pipes do not fracture under load but can be liable to deformation. The extent of this deformation depends largely upon the compaction of the immediate surrounding fill. This fill should depends largely upon the extend to the trench width in normal situations.

The external backfill and surcharge loads imposed on a pipe of rigid material, (such as vitrified clay, concrete, asbestos cement or cast iron) are supported mainly by the resistance of the pipe to circumferential bending. On the other hand, UPVC pipes being relatively flexible, offer less resistance to circumferential deformation and rely partly on external support to resist deformation. Therefore, it is of primary importance for UPVC pipes that fill material, particularly the bedding and side fill, should be properly compacted in order to prevent excessive deformation.

It is desirable that vertical deformation should be limited to $5 \%$ on completion of the backfilling, which can only be achieved by proper composition and compaction of the backfill. It is essential to avoid high stress concentrations and sharp objects such as large stones or flints which should not be allowed to come into contact with the surface of the pipe.

The flexible nature of UPVC pipes helps them to accommodate deformations resulting from ground movement or from other differential settlement under normal circumstances.

When a vertical load is imposed on the UPVC pipes the resulting horizontal force is transmitted to the undisturbed trench wall by the side fill. Any deflection of the pipe will cease when the horizontal reaction of the side fill corresponds to the transmitted vertical load and a state or equilibrium is reached.

Except in special circumstances, e.g. at very shallow cover depths or where it is necessary to safeguard the foundations of existing structures, the use of concrete for bedding or surrounding the pipes is unnecessary.

## PIPE LAYING:

Normally, drainage pipe work is laid in straight lines. However, in special circumstances, it may something be acceptable to the jointed pipes to a slight curve to avoid an obstacle, or to follow the curvature of a street. If this is done and joints are of the push-fit type, care has to be taken not to spring the pipe work too sharp. Otherwise, a curve or the joints may be overstrained and cause a subsequent failure. Straining of the joints can be minimized by firmly backfilling a short length of pipe.

The pipe should be anchored in this position by further backfilling before the next joint is made and the process repeated as necessary. The trench may need to be widened on the curve to accommodate the pipe in its straight position. It is essential that the jointing is always carried out in the straight position.

## EXCAVATION:

The trench should not be opened too long in advance of pipe laying and should be backfilled as soon as possible. It is essential to ensure that the sides of the trenches are adequately supported

The width of the trench within any timbering should be as narrow as is practicable, but not less than the outside diameter of the pipe plus sufficient extra width (usually about 150 mm ) on each side of the pipe to provide access for making the joints, as well as placing and compacting side fill.

## PIPE BEDDING:

The maximum and minimum recommended depths are illustrated in the below construction details:




## PROTECTION OF UPVC PIPES:

If the UPVC pipe has less than 300 mm depth of cover under an area other than a vehicular area, it should have concrete paving slabs laid as bridging on granular or other flexible filling at least 75 mm above the top of the pipe. If the UPVC pipe has less than 600 mm bridging in a similar manner.


If the material is suitable for use as bedding, the bottom of the trench may be trimmed to form the pipe bed. Otherwise, the trench should be excavated to an adequate depth below the level of the pipe to necessary thickness of bedding material.

The thickness of bedding under the pipes should be at least 100mm, but in very wet or soft conditions or where the trench bottom is very irregular, it may be necessary to increase this thickness.

Bedding should be properly compacted and finished so as to provide uniform support for the pipe. It is essential that bricks or other hard materials are not placed under the pipes for temporary or permanent support.

## BEDDING MATERIAL:

Material to be used for bedding and surrounding the pipes should be selected granular material.

## Suitable Materials for UPVC Pipe Bedding:

| Pipe ND (mm) | Bedding Material |
| :--- | :--- |
| 110 | 10 mm single-sized granules |
| 160 | 10 mm or 14 mm single-sized or 14 to 5 graded granules |
| 200 and above | $10 \mathrm{~mm}, 14 \mathrm{~mm}$ or 20 mm single-sized, or 14 to 5 or 20 to 5 graded granules |

Bedding material should not contain pieces with sharp edges. The maximum particle size should generally not exceed 20 mm . The presence of an occasional particle between 20 mm and 40 mm is acceptable provided the total quantity of such particles is only a very small fraction.

## TESTING:

Tests should be carried out after the system has been installed before and after backfilling.
The following steps should be taken:

1. The system should be flushed out with water to clean any undesired matter before the test.
2. Air test: Air to be pumped into the system until a pressure of 100 mm head is achieved; Maximum loss of head on a manometer should not exceed 25 mm during a period of 5 minutes.
3. Water test: The system to be filled with water, a test pressure of 1.5 m head above the crown of the pipe is to be applied at the higher end of the sewer ensuring that the resultant head at the lower end is not exceeding 4.0m. The sewer should then be left filled with water for at least 1 hour. The level of the water in the stand pipe should be maintained by adding known quantities of water every 10 minutes for a period of 30 minutes. The loss of water should not exceed one liter per hour, per linear meter, per meter of nominal diameter.
4. Pressure hydrostatic testing specification will be at the discretion of the responsible Engineer but should not exceed $11 / 2$ times designed working pressure of the lowest rated component in the system and a time duration of 24 hours. A permissible water loss of 3 liters per kilometer of pipe per 25 mm nominal bore, per 3 bar of test pressure, per 24 hours, may be considered reasonable. Air testing is not recommended. If, however, for practical reasons, pneumatic testing is necessary, this should be limited to a maximum pressure of 1.5 bar.

# (6) OReqistration <br> Awarded to 

## PIPES TECHNOLOGY CO W.L.L

## at

P.O.BOX NO:23783, OFFICE NO: 21 , BUILDING NO: 05, BARWA VILLAGE, AL WAKRA ROAD, DOHA, QATAR

Quality Registrar Systems certify that the management system of the above organization has been audited and found to be in compliance with the QRS requirements for registration of the management system standard detailed below:

## ISO 9001:2015

Quality Management Systems

## Scope of work

$>$ SUPPLY OF THERMOPLASTIC PIPES, FITTINGS AND VALVES
$>$ TRADING OF BUILDING MATERIALS
$>$ ELECTRICAL AND SANITARY CONTRACTING
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## Pipesĩ̄C(H)

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[^0]:    *Available in Rubber Ring

[^1]:    Dimensions in millimeters

[^2]:    *Dimensions in millimeters

