



STEEL WIRE REINFORCED  
THERMOPLASTIC (PE)  
COMPOSITE PIPE

To Life[+] a Health

## STEEL WIRE REINFORCED THERMOPLASTIC (PE) COMPOSITE PIPE

Steel Wire Reinforced Thermoplastics (PE) composite pipe is a kind of improved product which is developed under the "replacing steel by plastic" policy of the state government.

We take foreign advanced technology within this field as our reference, use environmental protective materials to produce this kind of pipes; it combines advantages of both plastic and steel pipes and overcome the disadvantage of plastic pipe which is easy to break when face the pressure and steel pipe which is easy to get eroded, and it is more flexible. Put all the advantage together, that is why it is more suitable for long distance under ground water and gas supply. This is the one to replace steel pipe.

- > The product is characterized of strength, rigidity and impact resistance exceeding plastic pipes as well as low linear expansion coefficient and creep resistance similar to steel pipes.
- > It has the same corrosion resistance as plastic pipes as well as high service temperature and corrosion resistance and low thermal coefficient.
- > The inner wall is glabrous and dirt-free, with the head loss 30% lower than that of steel pipes and spheroidal graphite pipes.
- > Pipes with various pressure ratings can be made through adjustment of the steel band thickness or the diameter or number of steel wires.
- > The flame-retarding and static-resistant PE material is used for the steel-mesh skeleton PE composite pipe under the coal well, and thus it has good flame-retarding and static-resistant performance.
- > The pipe is highly reliable. In normal conditions, its service life can be 50 years.
- > Excellent structure. Since the intensified framework of pipes is integrated into the inner and outer plastic, you needn't worry about whether it will peel off from them.
- > It's light and convenient for installation. The pipe line is connected with electro-fusion joints with high axial tensile resistance. It can be connected with various pipelines, valves and equipment, with mature and reliable connection technique, complete types and specifications of pipe fittings.
- > It has provided solution for rapid crack propagation of plastic pipes. Since the material is made through structural composite of steel and plastic, it's free of the problem of rapid crack propagation of plastic pipes.
- > It's the best substitute for steel pipes, spheroidal graphite pipes and plastic pipes, with preferential price, sanitation and innocuity.



## Water Supply, Special Fluid Series

| Nominal Outside Diameter |             | Nominal Pressure (MPa)     |      |      |      |      | Decides The Ruler |
|--------------------------|-------------|----------------------------|------|------|------|------|-------------------|
| (Basic Dimension)        | (Deviation) | 1.0                        | 1.6  | 2.0  | 2.5  | 3.5  |                   |
|                          |             | Nominal Wall Thickness(mm) |      |      |      |      | Meters/Piece      |
| 63                       | +1.2<br>0   |                            | 4.5  | 5.0  | 5.5  | 5.5  | 6                 |
| 75                       | +1.2<br>0   |                            | 5.0  | 5.0  | 5.5  | 6.0  | 6                 |
| 90                       | +1.4<br>0   |                            | 5.5  | 5.5  | 5.5  | 6.0  | 8                 |
| 110                      | +1.5<br>0   | 5.5                        | 7.0  | 7.0  | 7.5  | 8.5  | 8                 |
| 140                      | +1.7<br>0   | 5.5                        | 8.0  | 8.5  | 9.0  | 9.5  | 8                 |
| 160                      | +2.0<br>0   | 7.0                        | 9.0  | 9.5  | 10.0 | 10.5 | 8/12              |
| 200                      | +2.3<br>0   | 8.0                        | 9.5  | 10.5 | 11.0 | 12.5 | 8/12              |
| 225                      | +2.5<br>0   | 9.0                        | 10.0 | 10.5 | 11.0 |      | 12                |
| 250                      | +2.5<br>0   | 10.5                       | 12.0 | 12.0 | 12.5 |      | 12                |
| 315                      | +2.7<br>0   | 11.5                       | 13.0 | 13.0 |      |      | 12                |
| 355                      | +2.8<br>0   | 12.0                       | 14.0 | 14.5 |      |      | 12                |
| 400                      | +3.0<br>0   | 12.5                       | 15.0 | 15.5 |      |      | 12                |
| 450                      | +3.2<br>0   | 13.5                       | 16.0 |      |      |      | 12                |
| 500                      | +3.2<br>0   | 15.5                       | 18.0 |      |      |      | 12                |
| 560                      | +3.2<br>0   | 20.0                       | 20.0 |      |      |      | 12                |
| 630                      | +3.2<br>0   | 23.0                       | 23.0 |      |      |      | 12                |
| 275(DN250)*              | +2.5<br>0   | 12.5                       | 12.5 | 12.5 |      |      | 12                |
| 326(DN300)*              | +2.7<br>0   | 13.0                       | 13.0 | 13.0 |      |      | 12                |
| 431(DN400)*              | +3.0<br>0   | 15.5                       | 15.5 |      |      |      | 12                |
| 483(DN450)*              | +3.2<br>0   | 16.5                       | 16.5 |      |      |      | 12                |
| 536(DN500)*              | +3.2<br>0   | 18.0                       | 18.0 |      |      |      | 12                |

- > The product executive standard is: CJ/T189-2007 «Steel wire reinforced thermoplastics(PE) composite pipe and fitting», while those products with(\*) specifications conform to the internal control standard of the enterprise.
- > Composite pipes with the same specification but different pressure classes have different steel wire diameter and mesh parameters;
- > The nominal pressure is the maximum working pressure of pipes to transport such media as water and gas under 20℃, which is subject to calibration if the medium temperature changes.
- > Generally pipes are black while gas pipes are black or black with yellow mark lines; in case of special requirements by users, the color is agreed between the supplier and the purchaser additionally.
- > Main scope of application: transmission of water, acid, alkali and other corrosive liquids, corrosive gases, solid powder, residue sludge, tailings and other media.

Gas Series

| Nominal Outside Diameter (dn)/mm |             | Nominal Pressure (MPa)     |      |      |      | Decides The Ruler |
|----------------------------------|-------------|----------------------------|------|------|------|-------------------|
| (Basic Dimension)                | (Deviation) | 0.4                        | 0.6  | 0.8  | 1.0  |                   |
|                                  |             | Nominal Wall Thickness(mm) |      |      |      | Meters/Piece      |
| 90                               | +1.4<br>0   | 7.5                        | 7.5  | 8.0  | 8.0  | 8                 |
| 110                              | +1.5<br>0   | 8.0                        | 8.0  | 8.5  | 8.5  | 8                 |
| 140                              | +1.7<br>0   | 9.0                        | 9.0  | 9.0  | 9.0  | 8                 |
| 160                              | +2.0<br>0   | 9.5                        | 9.5  | 9.5  | 9.5  | 8/12              |
| 200                              | +2.3<br>0   | 10.5                       | 10.5 | 10.5 | 11.0 | 8/12              |
| 225                              | +2.5<br>0   | 11.0                       | 11.0 | 11.0 | 11.0 | 12                |
| 250                              | +2.5<br>0   | 12.0                       | 12.0 | 12.0 | 12.5 | 12                |
| 315                              | +2.7<br>0   | 13.0                       | 13.0 | 13.0 |      | 12                |
| 355                              | +2.8<br>0   | 14.0                       | 14.0 | 14.0 |      | 12                |
| 400                              | +3.0<br>0   | 15.0                       | 15.0 | 15.0 |      | 12                |
| 450                              | +3.2<br>0   | 16.0                       | 16.0 | 16.0 |      | 12                |
| 500                              | +3.2<br>0   | 18.0                       | 18.0 | 18.0 |      | 12                |
| 275(DN250)*                      | +2.5<br>0   | 12.5                       | 12.5 | 12.5 |      | 12                |
| 326(DN300)*                      | +2.7<br>0   | 13.0                       | 13.0 | 13.0 |      | 12                |
| 431(DN400)*                      | +3.0<br>0   | 15.5                       | 15.5 | 15.5 |      | 12                |
| 483(DN450)*                      | +3.2<br>0   | 16.5                       | 16.5 | 16.5 |      | 12                |
| 536(DN500)*                      | +3.2<br>0   | 18.0                       | 18.0 | 18.0 |      | 12                |

- > The product executive standard is:CJ/T189-2007 《Steel wire reinforced thermoplastics (PE) composite pipe and fitting》 , while those products with(\*)specifications conform to the internal control standard of the enterprise.
- > Composite pipes with the same specification but different pressure classes have different steel wire diameter and mesh parameters;
- > The nominal pressure is the maximum working pressure of pipes to transport such media as water and gas under 20℃ ,which is subject to calibration if the medium temperature changes.
- > Generally pipes are black while gas pipes are black or black with yellow mark lines; in case of special requirements by users, the color is agreed between the supplier and the purchaser additionally.
- > Main applicability: natural gas, coal gas or other media.

## Nominal Pressure Calibration Modulus

| Temperature t℃  | -20 < t < -10 | -10 < t < 0 | 0 < t < 20 | 20 < t < 30 | 30 < t < 40 | 40 < t < 50 | 50 < t < 60 |
|-----------------|---------------|-------------|------------|-------------|-------------|-------------|-------------|
| Basic Dimension | 0.90          | 0.95        | 1.0        | 0.95        | 0.9         | 0.86        | 0.81        |

## Main Technical Performances

| Series Number | Technical Performance Item | Index                        |
|---------------|----------------------------|------------------------------|
| 1             | Medium Temperature         | -20°C ≤ T ≤ 65°C             |
| 2             | Elasticity Modulus         | 2.8-4.0GPa                   |
| 3             | Corrosion Resistance       | Good                         |
| 4             | Thermal conductivity       | 0.2-0.3w/m.k                 |
| 5             | Wall Roughness             | Ra=0.007                     |
| 6             | Linear-Expansibility       | 12-15×10 <sup>-5</sup> m/m.k |

## Physical And Mechanical Properties

| Item   |                                    | Index  |
|--|------------------------------------|--|
| (1)Hydraulic Compression Test  | Water Supply, Special Fluid Series | Temperature: 20°C; Time:1h; Pressure: Nominal Pressure×2           |
|  |                                    | Temperature: 80°C; Time:165h; Pressure: Nominal Pressure×2×0.6     |
|  | Gas series                         | Temperature: 20°C; Time:1h; Pressure: Nominal Pressure×1.6×2       |
|  |                                    | Temperature: 80°C; Time:165h; Pressure: Nominal Pressure×1.6×2×0.6 |
| (2)Blasting Compression Test   | Water Supply, Special Fluid Series | Temperature: 20°C; Burst Pressure ≥ Nominal Pressure×3.0           |
|  | Gas Series                         | Temperature: 20°C; Burst Pressure ≥ Nominal Pressure×3.3×1.6       |
| (3)Thermal Stability (200°C)Min  |                                    | >20  |
| (4)Weather ability (After the pipe accumulatively receives aging energy ≥ 3.5GJ/M)<br>Note: except from black composite pipe |                                    | Meet the requirement of fom( 1).and keep good jointing performance |

## Coal Mine Series

| Nominal Outside Diameter (dn)/mm |           | Nominal Pressure(MPa)      |      |      |      |      |      |
|----------------------------------|-----------|----------------------------|------|------|------|------|------|
| Basic Dimension                  | Deviation | 0.8                        | 1.0  | 1.6  | 2.0  | 2.5  | 3.5  |
|                                  |           | Nominal Wall Thickness(mm) |      |      |      |      |      |
| 90                               | +1.4<br>0 |                            |      | 7.5  | 7.5  | 8.0  | 8.0  |
| 110                              | +1.5<br>0 |                            |      | 8.0  | 8.0  | 8.5  | 8.5  |
| 140                              | +1.7<br>0 |                            |      | 9.0  | 9.0  | 10.0 | 10.0 |
| 160                              | +2.0<br>0 |                            |      | 9.5  | 9.5  | 10.5 | 10.5 |
| 200                              | +2.3<br>0 | 9.0                        | 9.0  | 10.0 | 10.0 | 12.0 | 12.5 |
| 225                              | +2.5<br>0 | 10.0                       | 10.0 | 10.5 | 11.0 | 11.5 |      |
| 250                              | +2.5<br>0 | 11.0                       | 11.0 | 12.0 | 12.0 | 12.5 |      |
| 315                              | +2.7<br>0 | 12.0                       | 12.0 | 13.0 | 13.0 |      |      |
| 355                              | +2.8<br>0 | 13.0                       | 13.0 | 14.0 |      |      |      |
| 400                              | +3.0<br>0 | 13.5                       | 13.5 | 15.0 |      |      |      |
| 450                              | +3.2<br>0 | 15.0                       | 15.0 | 16.0 |      |      |      |
| 500                              | +3.2<br>0 | 16.5                       | 16.5 | 18.0 |      |      |      |
| 560                              | +3.2<br>0 | 20.0                       | 20.0 | 20.0 |      |      |      |
| 630                              | +3.2<br>0 | 23.0                       | 23.0 | 23.0 |      |      |      |

- > The product executive standard is:MT181-88,CJ/T189,Q/HSJ02-2007 《Coal mine well steel wire reinforced thermoplastics (PE)composite pipe and fitting》 ;
- > Composite pipes with the same specification but different pressure classes have different steel wire diameters and mesh parameters;
- > Generally pipes are black;
- > Main applicability: supply water, drain away water, be ventilated, guniting, Shrink to put in a gas in coal mine well and soon.

## Physical and Mechanical Properties

| Item                          |   |   | Index  |
|-------------------------------|---|---|--|
| (1)Hydraulic Compression Test | Nominal Pressure < 1.0Mpa               | Temperature: 20°C; Time:1h;<br>Pressure: Nominal Pressure×1.6×1.5 | No Break, No Leakage                             |
|                               | 1.6Mpa < Nominal Pressure < 3.5Mpa Pipe | Temperature: 20°C; Time:1h;<br>Pressure: Nominal Pressure×2       |  |
| (2)Blasting Compression Test  | Nominal Pressure < 1.0Mpa               | Pressure: Nominal Pressure×3.3×1.6                                | No Break   |
|                               | 1.6Mpa < Nominal Pressure < 3.5Mpa Pipe | Pressure: Nominal Pressure×3                                      |  |
| (3)Drop Test                  |   |   | No Crack, No Destruction As Per MT1558.1-2005    |
| (4)Peel strength Test         |   |   | Peel Strength Value > 4N/mm As Per GB/T2791-1995 |

## Hinder Burning & Anti-static Electricity Specification Function

| No. | Item  | Index                         |  |
|-----|---|-------------------------------|--|
| 1   | Pipe Inside And Outside Surface Resistance Of Arithmetic Mean Square Value $\Omega$ | $\leq 1.0 \times 10^6 \Omega$ |  |
| 2   | Alcohol Burner Combustion Time S  | Flame Combustion              | Single Test Sample < 10s                           |
|     |   |                               | Arithmetic Average Value Of Six Test Samples < 3s  |
|     |   | Flameless Combustion          | Single Test Sample < 60s                           |
|     |   |                               | Arithmetic Average Value Of Six Test Samples < 20s |

### Security Warning:

- > The working pressure can not exceed nominal pressure.
- > The different uses of the pipe can not mix.
- > Hot-melt used must be completed in the well, is not allowed to operate in the underground.

Pipeline Connection: Hot-melt Looper Flange Connection Or Quick Connector Connection



Hot-melt Looper Flange Connection



Quick Connector Connection

Electric-fusion pipe fittings, injection molding pipe fittings and steel skeleton reinforced pipe fittings which are developed by our company are applicable for both steel wire frame polyethylene composite pipe and Porous strap steel polyethylene composite pipe's connection. They are featured by stable fusion performance and never leakage.

- > Our company boasts a 80,000g pipe fitting injection moulding machine with proprietary technology which is the first in China and more than 600 pairs of pipe fitting mould;
- > We boast D630 electro-fusion fittings with the largest caliber in china, injection moulding fittings and steel skeleton reinforced fittings;
- > All fittings are provided with the synchronous material selection and the parameter setting as per the pipe production standard to ensure the optimum matching with pipes;
- > We produce electro-fusion pe pipe fittings, injection moulding fusion pipe fittings and steel skeleton reinforced pipe fittings with various series and specifications ranging from D50-D630.



Electro-fusion Welding Mahine



Schematic Diagram For Pipe Network Combination



Electric-Melt 90° Bend



Electric-Melt different Tee joint



Electric-Melt Positive Tee joining



Electric-Melt 45° Bend



Electric-Melt Driect Connection



Electric-Melt Flange Joint



Electric-Melt Connection  
With Differet Diameter



Equipped Flange Piece