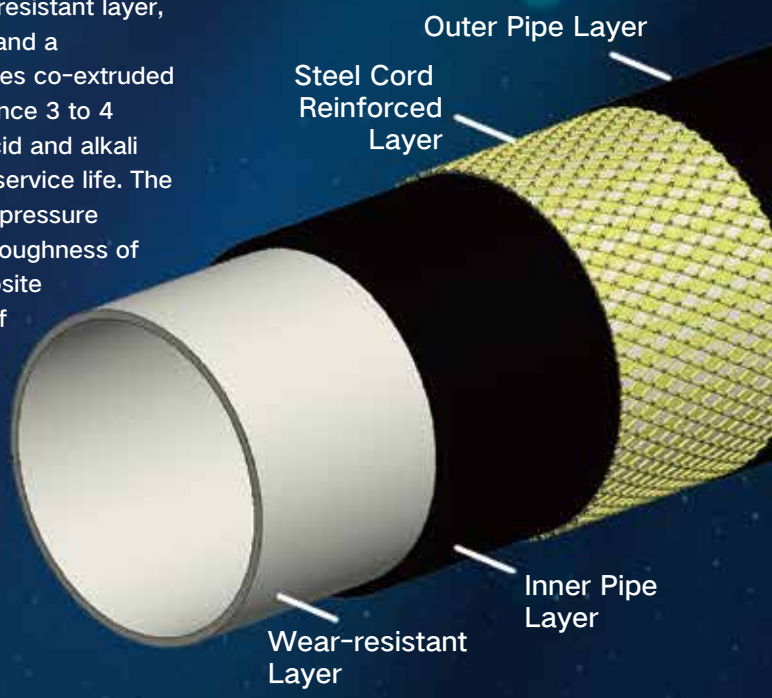
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Wear-resistant Steel Cord Composite Pipe for Mining

The wear-resistant steel cord composite pipe for mining was designed and developed to solve the issues of serious corrosion, high maintenance costs, high transportation resistance and poor wear resistance of steel pipes used in underground coal mines. It is mainly composed of a wear-resistant layer, a polyethylene inner pipe layer, a steel cord reinforced layer and a polyethylene outer pipe layer. The wear-resistant layer features co-extruded wear-resistant elastic material, with wear-resistant performance 3 to 4 times that of ordinary polyethylene materials, which offers acid and alkali resistance, electrochemical corrosion resistance, and a long service life. The use of steel cord as a reinforced layer not only improves the pressure bearing capacity of the composite pipe, but also retains the toughness of the plastic pipe. The pipe can be designed as a coiled composite structure for coil transportation, which reduces the number of joints and guarantees easier installation.





Product Features

01 Corrosion Resistance

The outer layer of the composite pipe is made of polyethylene material, and the inner layer consists of wear-resistant elastic material, which offer resistance to acid, alkali, salt corrosion and gas corrosion.

02 Smooth Inner Wall and Low Transportation Resistance

The composite pipe has a smooth inner wall with low roughness and small friction coefficient, making it difficult to scale and delivering a higher circulation efficiency, low fluid resistance and low noise.

03 Good Wear Resistance

The wear resistance of the pipe is 3 to 4 times higher than that of conventional polyethylene, and 4 to 7 times higher than that of carbon steel.

04 Easy Installation and Good Construction Efficiency

The installation joints are connected by special beaded flanges, which allows for quick and easy installation, and high construction efficiency.

Applications

Suitable for use in underground mine water supply and drainage, ventilation, guniting, pulverized coal slurry transportation and industrial pipelines for corrosive fluids

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Performance Standard

- T/CSTM 001 73-2019 Co-extrusion Abrasion Resistant Inner Layer and Reinforced Plastic Composite Pipes and Fittings
- SYT 6662.1-2022 Non-metallic Composite Pipe for Petroleum and Natural Gas Industries -- Part 1: Steel Skeleton Reinforced Polythene Composite Pipes
- SY/T 6794-2018 Spoolable Reinforced Plastic Line Pipe
- MT558.1-2005 Plastic Pipes in Coal Mining Part 1: Polyethylene Pipes
- MT181-1988 Specifications for Safety Performance Inspection of Plastic Pipes for Underground Use in Coal Mines
- CJ/T189-2007 Steel Wire Reinforced Thermoplastics (PE) Composite Pipe and Fitting

Performance Indicators

Performance Indicators of Wear-resistant Layer

No.	Project	Indicators	Test Method
1	Density	0.88±0.02	GB/T 1033.1-2008
2	Melt flow rate (MFR) at 190°C,2.1 6kg: g/10min	0.50±0.2	GB/T 3682-2000
3	Tensile strength (Mpa)	⩾20	GB/T 1040.3-2006
4	Tensile strain at break (%)	⩾600	GB/T 1040.3-2006
5	Low-temperature impact embrittlement temperature (℃)	⩽-40	GB/T 5470-2008A
6	Oxidation induction time (OIT-200°C, min)	⩾30	GB/T 19466.6-2009
7	Mortar wear rate (%)	⩽0.30	Please refer to Appendix A

Performance Indicators of Composite Pipe

No.	Project			Indicators
1	The stability of no splitting for pressed composite pipes			0.88±0.02
2	Longitudinal reversion (110℃ for 1h) (%)			⩾30
3	Short-term hydrostatic strength test	At a temperature of 20°C for 1h; Test pressure: nominal pressure ×2		No leakage or rupture
		At a temperature of 70°C for 165h; Test pressure: nominal pressure ×1.5×0.7		
		At a temperature of 80°C for 165h; Test pressure: nominal pressure ×1.5×0.6×2.291		
4	Instantaneous burst strength test	Gas medium	Instantaneous burst pressure at a temperature of 20°C	>nominal pressure *3.3×16
		Other types of media		nominal pressure ×3
5	Chemical resistance			No cracking, no sticking, no abnormal shape, etc.
6	Oxidation induction time (210°C, min)			>20
7	Melt flow rate (MFR) (190°C, g/10min)			The change before and after processing < 20%
8	Weather resistance test (after the composite pipe receives no less than 3.5GJ/m aging energy)			Still compliant with the requirements of short-term hydrostatic strength test
9	Peel strength (100mm/min)			The average peel strength is no less than 15N/mm, and the peel strength of a single sample is no less than 12N/mm with the peeling interface exhibiting ductile failure and a flocculent surface.

Pipe Specifications

Nominal Inner Diameter (mm)	Nominal Pressure (MPa)
63	1.6、2.0、2.5、3.5、4.0
75	
90	
110	
140	
160	
200	
225	
250	

Connection Method

The wear-resistant steel cord composite pipe for mining is connected by a special connection method:





Flange connection with internal beading and crimping