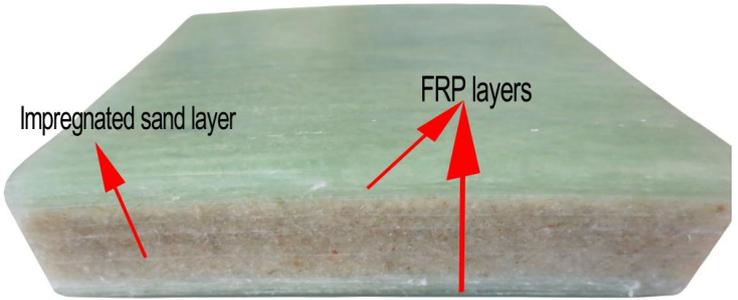
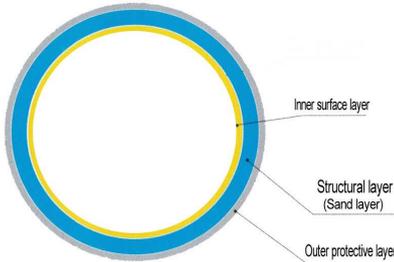


Process description

FRP mortar pipe is consisting of resin (select food grade resin for transmitting drinking water), glass fiber and quartz sand, manufacture uses a special process. Its operating temperature is below 80, suitable for various soil.

Structural composition



1. Inner surface layer: also known as anti-seepage and anti-corrosion layer. In pipe it plays a key role in anti-seepage and anti-corrosion. The inner surface layer is made of 90% resin and 10% felt.
2. Transition layer: made of two layers of chopped strand mat and 75 ± 5% resin. The function is to prevent capillary phenomenon.
3. Structural layer: this layer is the fiber winding layer, which is the key to the strength of the product. The resin content was 30 ± 5%. in order to improve the stiffness of pipe the quartz sand added in this layer, and its thickness depends on the external force.
4. Outer protective layer: this layer is the outermost layer of pipe, which is composed of 100% resin, its function is to prevent the buried pipe from being eroded by corrosive media in the soil, in addition, the layer is equipped with toughening agent and anti-aging agent, which can resist aging and increase the service life of pipe. Its thickness is generally 0.25~0.5mm.

Advantages

- Perfect corrosion resistance, no effect on water quality: FRP mortar pipe can be resistant to acid, alkali, salt, sea water, sewage without treatment, corrosive soil or groundwater, and erosion from various chemical fluids.
- Anti-fouling and anti-moth: the surface of unsaturated polyester resin is clean and smooth; it will not be defiled or attached by microorganism such as armour shellfish and fungus in the ocean sewage.
- Good heat resistance and frost resistance: in -30°C condition, mortar pipe still has good toughness and high strength; it can be use in the range of minus 50°C~80°C for a long term, it can also used in temperature above 110°C condition with a specially formulated resin.
- Light weight, high strength, easy transportation and installation: specific gravity about 1.85, is only 1/4 of steel's, hoop tensile strength is 180~300MPa, axial tensile strength is 60~150MPa, using socket connection, easy transportation and installation.
- Small frictional resistance, high transmission capacity: innwe wall of FRP mortar pipe is very smooth. Roughness coefficient is 0.0084, but concrete pipe is 0.014 and cast iron pipe is 0.013. FRP mortar pipe can significantly reduce the fluid pressure loss along the way and increase transmission capacity.
- Good electrical and thermal insulation: insulation resistance is in the range from 1012~1015 Ω .cm, heat transfer coefficient of FRP material is very small, only 0.23.
- Good wear resistance.
- low maintenance costs: no need precaution and maintenance for rust-proof, stain resistant, insulation.
- Good adaptability: design pipe with different pressure class and stiffness based on client's specific requirements.
- Long service life, safe and reliable: Laboratory simulation experiments show that service life of FRP pipe can reach more than 50 years.

FRP mortar wall thickness parameter list										
Stiffness SN	SN2500			SN5000			SN10000			
Pressure	MPa			MPa			MPa			
Diameter	0.25	0.6	1.0	0.25	0.6	1.0	0.25	0.6	1.0	1.6
300					7.2	7.2		7.2	7.2	7.2
350					8.2	7.6		8.2	8.2	7.6
400					8.2	7.6		8.5	8.2	7.6
500	7.1	7.2	7.0	8.8	9.0	8.6	11.1	11.3	10.6	9.2
600	8.4	8.6	8.3	10.5	10.8	10.0	13.4	13.4	12.4	11.9
700	9.4	9.6	8.3	12.3	11.9	11.5	15.5	15.1	14.2	13.4
800	11.2	10.7	9.8	14.0	13.3	12.9	17.8	16.8	16.1	14.9
900	12.5	11.9	10.8	15.8	15.5	14.2	20.0	19.0	17.8	16.7
1000	13.9	13.2	12.3	17.5	16.6	15.8	22.2	21.0	19.7	18.2
1100	15.4	14.5	13.6	19.3	18.3	17.2	24.6	23.4	21.7	20.8
1200	16.0	15.5	14.5	21.0	18.4	18.6	26.8	25.0	23.3	21.8
1300	18.1	16.7	15.6	22.9	21.5	20.0	29.2	26.9	25.5	23.6
1400	19.5	17.7	16.4	24.6	22.4	21.5	31.2	28.6	27.0	25.5
1500	20.7	19.0	17.7	26.1	24.4	23.5	33.3	30.4	29.6	27.1
1600	21.8	20.5	19.2	27.8	26.0	24.5	35.4	33.3	31.0	28.9
1800	24.6	22.6	20.4	31.3	28.8	26.8	39.9	36.9	34.1	31.3
2000	27.4	25.4	23.4	35.0	32.4	29.6	44.7	38.2	37.3	36.1
2200	29.7	27.6	25.3	37.8	35.3	32.6	48.7	42.5	41.5	40.4
2400	32.6	30.3	28.4	41.8	38.8	34.6	53.4	45.8	44.6	42.8
2600	36.3	33.5	31.5	45.2	40.5	35.4	55.8	48.9	47.2	45.6
2800	39.3	36.0	34.0	49.4	45.1	42.0	62.0	56.5	53.0	51.0
3000	41.0	38.1	36.2	52.0	47.0	45.3	67.0	61.7	58.2	54.0

Applications

1. Potable water transmission; 2. Sewage disposal; 3. Seawater transmission; 4. Power plant circulating water piping; 5. Chemical corrosion media transmission; 6. Agricultural irrigation.

Installation and construction procedure

