

Comprehensive Features Comparison between different kinds of pipe

Item	Cast Iron	Stainless steel(Seamless)	Plastic Line Steel (PE Lined)	Teflon Lined Steel	Rubber Lined Steel	GRP	Steel mesh reinforced HDPE Pipe
Standards	IS1536:2001	ANSI/ASME 36.19M	Reference steel pipe standard			ISO10467/ISO10639/ISO25780/EN1796/EN14364/	CJ-123-2004/CJ-124-2004
Manufacturing	Cast Iron pipe	Stainless steel pipe	Lined steel pipe			Grass fiber reinforced pipe	New kind of high density polyethylene pipe which is reinforced by a steel wire mesh skeleton.The manufacturing process is use spot welding crossing steel wire to make it a net-cylinder structure as reinforcing part and continuously extrude HDPE as the stuffing material to this structure on producing line at the same time, just like reinforced concrete structure.
Comprehensive features	Mainly be used for water supply and drainage	Super high pressure resistance and super high temp. resistance, good corrosion resistance, but cost high	Super corrosion resistance and smooth surface, super high pressure resistance	Super corrosion resistance, better solution for high temp.strongly corrosive medium	Super abrasive resistance and better solution for abrasive medium	Stronger strength, light weight, corrosion resistance, no scar, but installation difficult, highly requirements for connection and repair is not easy.	Stronger strength, light weight, inner and outer layer is anti-corrosion, abrasion resistance, installation easy, inner surface is smooth, save energy and save cost, longer service time, more than 30 years.
Weight Proportion	≥6	8	≥6	≥6	≥6	1.6—2.5	3.5—4
Inner surface (Flow Capacity&Energy Consume)	inner surface is not smooth and easily scaling	inner surface is smooth, flowing resistance is low	inner surface is smooth, flowing resistance is low	inner surface is smooth, flowing resistance is low	Flowing resistance is high	40% Inner surface is very smooth and friction coefficient is 40% lower than steel.	The absolute roughness coefficient is 0.01mm, improve flowing capacity 30% higher than steel pipe
Chemical corrosion resistance	Not suitable for Acidic and Alkalini solutions	Good for Alkalinity, but not good for high concentrate Acid, super oxidation resistance and good for organic-chemical material	Good for Acidity and alkalinity, but with temp. limitation	Good for Alkalinity, but not good for high concentrate Acid, and organic-chemical material also	Depends on rubber material	Depends on resin matrix and fiber reinforcement material, good for Acidity and alkalinity, but not good for organic chemical material	Good for Alkalinity, but not good for high concentrate Acid, and good for organic-chemical material
Weather resistance	Weak	Better	Acceptable	Acceptable	Acceptable	Better	Better
Connection	Socket, Flange, Sleeve, Threaded	Socket, flange, sleeve, Threaded	Flange, Threaded	Flange, Threaded	Flange	Butt joint and wrapped, glue, Socket, flange, Threaded	Electro-fusion connection & Flange connection
Heat Preservation	Thermal coefficient 20W/m. °C	Thermal coefficient 25W/m. °C	According the lined layer thickness			Thermal coefficient 0.36W/m. °C	Thermal coefficient 0.43W/m. °C
Working Temp	-10—100°C	-40—450°C	-25—65°C	-200—200°C	-25—85°C	-40—100°C	-20—70°C
Working Pressure, Mpa	≤2.5	≤20	1—3.5	-0.1—6.4	-1—3.5	Low pressure class pipe ≤2.0 Middle pressure class ≤2.0—5.5 High pressure class pipe ≥ 5.5 Max pressure is 20	≤4
Impact resistance	Weak	Acceptable	Acceptable	Acceptable	Acceptable	Good	Good
Lengths Available	5,6 mtr/pcs	12m/pcs(Max)	3m/pcs			6,12m/pcs	6,8,10,12 mtr/pcs (Max)
Linear Expansion Coefficient (20~100 °C)	11.2×10 ⁻⁶ /K	9~9.5×10 ⁻⁶ /K	/			9~15×10 ⁻⁶ /K	35.4-35.9×10 ⁻⁶ /K
Tensile Yielding strength (Mpa)	98~276, according different type	According different Grade	/			100~300	22~23
Crack possibility	Sectional crack caused by chemical corrosion, fatigue corrosion. Oxide coating layer easily be		Lined layer easily separated from steel cause the different heat expansion coefficient			The connection joint	The connection joint
Repair	Small crack can be welded, it will need cut and replace a new piece of pipe for big crack		Replace a new piece of pipe			Manually resin painting and glass fiber wrapping	Small crack can be welded by heater, it will need cut and replace a new piece of pipe for big crack
Service Life (In Years)	5	10	10	15	15	15-20	@ 20