PE-RT/Al/PE-RT Pipe

General Information

FIRAT multilayer PE-RT/Al/PE-RT pipes are used for hot and cold water applications and underground heating systems.

Multilayer composite pipe is flexible, can easily shaped by hand, and maintain its form. This is why pipes are suitable to apply different ground, pavement and wall types with varieties of plumbing instillations.

FIRAT PE-RT/Al/PE-RT pipes produced according to German Standard SKZ HR 3.12 (Application Class 4)

Max Peak Temperature: 95°C
Max Operating Pressure: 10 bar
Min Bending Radius: 5 x Outer Diameter
Thermal Conductivity: 0,45 W/m K
Thermal Expansion Coefficient: 0,026 mm/m K

(*Five Layered Composite Pipe*) PE-RT /Al/ PE-RT;

- Long Service Life
- Low thermal conductivity
- High temperature and corrosion resistance
- Hygienic, Environmental Friendly

-Inner Layer: Smooth and Clear PE-RT Surface provides great water flow, have all properties and advantages of PE-RT.

-Adhesive Layer: Special highly adhesion layer keeps layers together as one, even in tough conditions.

-Aluminum Layer: This integrated to inner layer with adhesive and maintains maximum oxygen tightness to protect metal components from corrosion.

-Adhesive Layer: Special highly adhesion layer keeps layers together as one even in tough conditions.

-Outer Layer: Have all properties and advantages of PE-RT, Protects Aluminum core from outside effects and helps to stand against high temperature.

PE-RT /Al/ PE-RT Pipe has special welding technique named as Tungsten Inert Gas has been considered to be a very important technological development by the plastics industry in recent years. This method includes bending the aluminum layer onto the PE-RT, inner layer and then fixing these two layers through arc butt welding.

Raw Material

PE-RT: Polyethylene of Raised Temperature Resistance

PE-RT has a higher; Long-Term Hydrostatic strength (LTHS) and Mechanical properties in hot water

Properties

Physical	**Test Method**	**Unit**	**S.I**
Melt Index	ISO 1133	g/10 min	0,55
Melt Index	ISO 1133	g/10 min	1,85
Density	ISO 1183	g/cm^3	0,941
Vicat Softening Point	ISO 306	°C	124,7
Thermal Conductivity	DIN 52612-1	W/(mK)	0,4
Thermal Expansion Coefficent	DIN 53752 A	$10^{-4}/K$	1,8
Mechanical			
Hardness , Shore D	ISO 868	-	60,5
Tensile Yield	ISO 527-2	Mpa	20,3
Tensile Yield Elongation	ISO 527-2	%	14
Ultimate Tensile	ISO 527-2	Mpa	37
Ultimate Elongation	ISO 527-2	%	780
Flexural Modulus	ISO 178	Mpa	660
Elastic Modulus(1)	ISO 527-2	Mpa	645
Izod İmpact	ISO 180	kJ/m^2	23,0

*1 Elastic modulus is vital indicator of bending resistance for PE-RT pipe.This value is 645 Mpa at 20°C

PE-RT/Al/PE-RT Service Life

Pipe Type		**S4**
Temperature (°C)	**Service Life (Year)**	**Pressure (bar)**
10	1	18,7
	5	18,4
	10	18,3
	25	18,1
	50	17,9
20	1	16,6
	5	16,3
	10	16,2
	25	16,0
	50	15,9
30	1	14,7
	5	14,4
	10	14,3
	25	14,2
	50	14,1

40	1	13,1
	5	12,8
	10	12,7
	25	12,6
	50	12,5
50	1	11,7
	5	11,4
	10	11,3
	25	11,2
	50	11,1
60	1	10,4
	5	10,2
	10	10,1
	25	10,0
	50	9,9
70	1	9,3
	5	9,1
	10	9,1
	25	9,0
	50	8,9
80	1	8,4
	5	8,2
	10	8,1
	25	8,0
90	1	7,5
	5	7,4
	10	7,3
	15	7,3
95	1	7,1
	5	7,0
	10	6,9