I-APEX multilayer tubing

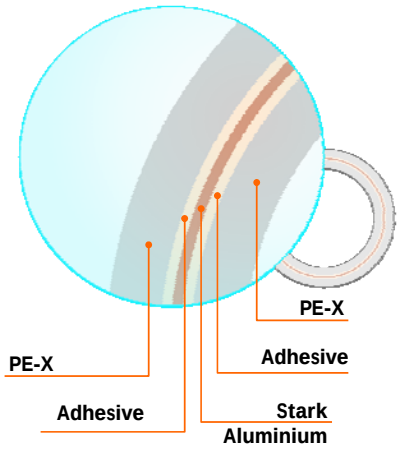
I-APEX is a multilayer pipe suitable for the distribution of hot and cold potable water, heating and air-conditioning systems. I-APEX pipe features a 5-layer structure in which a butt-welded aluminium pipes is contained between two layers in cross-linked polyethylene, being the layers bonded together by adhesive layers. Available in rolls, with or without blue or red insulation.

■ CODES

COD.	OD/wt [mm]	Insulation	L [m]
I-APEX16R100	16/2		100
I-APEX16R200	16/2		200
I-APEX16R500	16/2		500
I-APEX16RCB50	16/2	■ blue	50
I-APEX16RCR50	16/2	■ red	50
I-APEX20R100	20/2		100
I-APEX20RCB50	20/2	■ blue	50
I-APEX20RCR50	20/2	■ red	50

COD.	OD/wt [mm]	Insulation	L [m]
I-APEX26R50	26/3		50
I-APEX26RCB25	26/3	■ blue	25
I-APEX26RCR25	26/3	■ red	25
I-APEX26RCB50	26/3	■ blue	50
I-APEX26RCR50	26/3	■ red	50
I-APEX32R50	32/3		50
I-APEX32RCB25	32/3	■ blue	25

■ TECHNICAL FEATURES



The two plastic layers in I-APEX pipes are made of crosslinked polyethylene PEX-b. This crosslinking method consists in creating chemical bonds by the addition of silanes during the extrusion process and by the immersion of the extruded pipes into a hot water bath (about 70-95 °C).

The aluminium layer in I-APEX pipes is made of Stark aluminium alloy, a highly resistant material (twice the resistance of the standard aluminium used in multilayer pipes) with a good yield strength. It is cylindrically conformed within PEX on the inside layer and butt welded with no overlapping along the whole guide through TIG welding in controlled atmosphere. The presence of the aluminium layer prevents the flow of oxygen through the pipe wall, thus excluding the onset of corrosion phenomena in the metal components of the system.

The layers are bonded together by a long-lasting and temperature-resistant adhesive.

Outside Diameter (OD) x wall thickness (wt) [mm]	16 × 2	20 × 2	26 × 3	32 × 3
Aluminium thickness [mm]	0.2	0.25	0.3	0.4
Linear thermal expansion coefficient at room temperature [mm/(m K)]	0.026	0.026	0.026	0.026
Thermal conductivity [W/(m K)]	0.43	0.43	0.43	0.43
Maximum working temperature [°C]	95	95	95	95
Maximum working pressure [bar]	10	10	10	10
Water content [l/m]	0.113	0.201	0.314	0.531
Bending radius (by hand) [mm]	5 × OD	5 × OD	5 × OD	5 × OD
Bending radius (by tools) [mm]	4 × OD	4 × OD	4 × OD	4 × OD
Degree of crosslinking [%]	> 65	> 65	> 65	> 65

Insulation

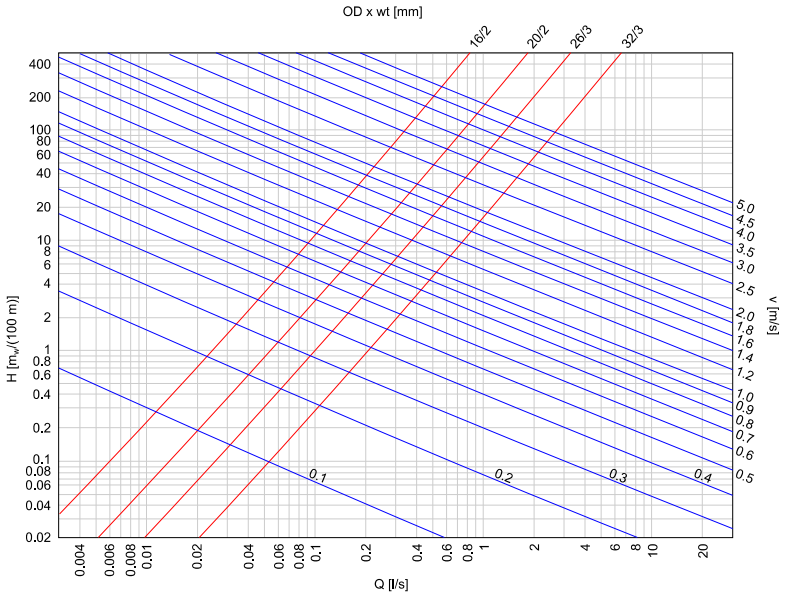
I-APEX pipes are available with insulation. The insulation layer is made of grey low-density closed-cell polyethylene foam, finished with an outer extruded film in low-density polyethylene PE-LD.

Property	Meas. unit	Value
Thermal conductivity	W/m·K	0.0397
Density	kg/dm^3	0.03
Working temperature range	°C	-30÷+95
Fire resistance	Class	1 self-extinguishing
Carbon residue	mg/dm^2	c ≤ 0.05 (c ≤ 0.2 required by EN 1057)

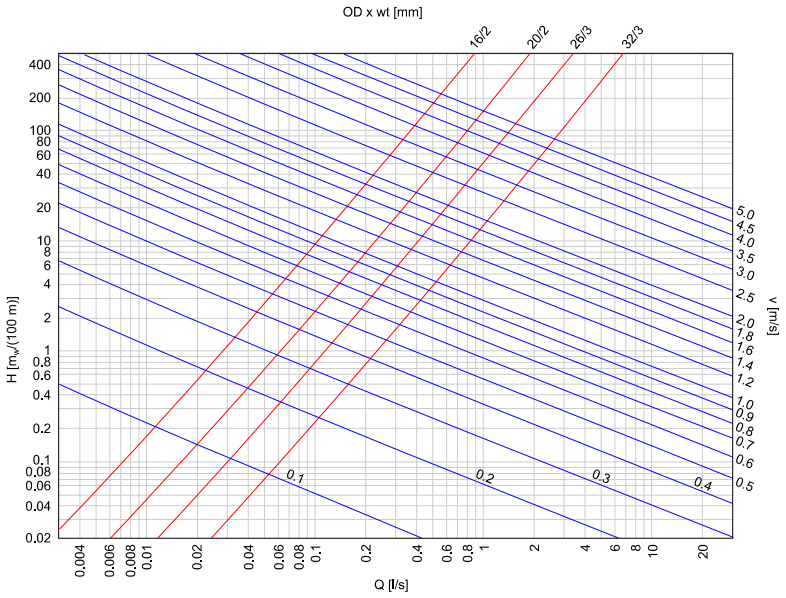
Insulation sheath thickness is 6 mm for Ø16x2 pipes and 10 mm for Ø20x2, Ø26x3 and Ø32x3 pipes.

■ HYDRAULIC FEATURES

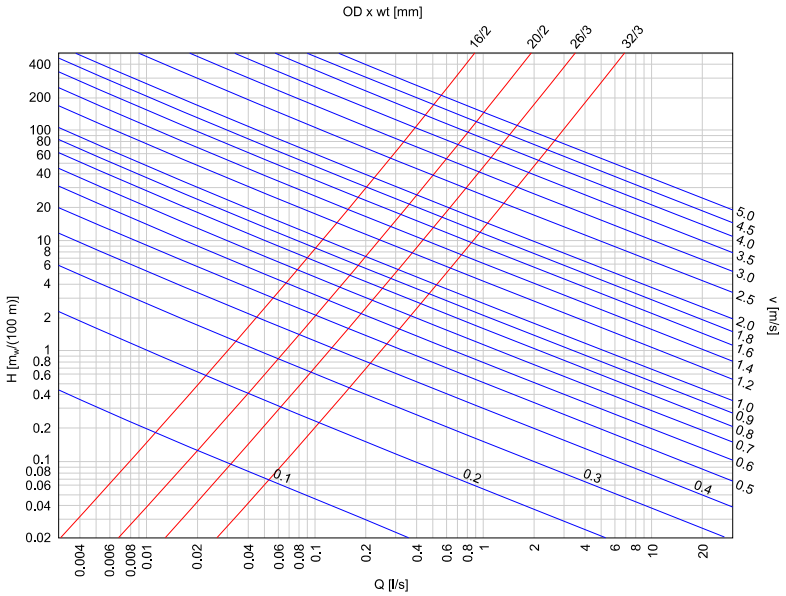
Water temperature: 10 °C



Water temperature: 50 °C



Water temperature: 80 °C



■ REMARKS

Main characteristics of I-APEX pipe making it suitable to a wide range of applications are:

- Excellent resistance to chemical and electrochemical corrosion;
- Resistance to abrasion and pressure at high temperature;
- No risk of deposits and fungi thanks to the internal layer smoothness;
- Safety, hygiene and non-toxicity for potable and food-grade liquids transport;
- Flexibility and easy installation;
- High dimensional stability, low thermal expansion coefficient;
- Impermeability to oxygen;
- Low linear pressure drops (surface roughness < 0.007 mm);
- Low thermal conductivity of plastic layers;
- High sound insulation coefficient;
- Long service life (> 50 years).

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