Dimensions Plumbing Pipes

1) Basic Information

The following table compares the performance of a Polybutene-1 pipe with competitive materials in a 40 mm diameter pipe for a 50-year life expectancy at 70°C continuous operating temperature including design factors, tested in accordance with ISO 15874, ISO 15875, ISO 15876, and the ISO 15877.

2) Grafic overview

Pipe Flow Performance

Calculated for 50 year life @ 70°C, including design factor

	PB-1	PP-R (1)	PP-R (2)	PE-X	PVC-C
Pipe OD, mm	40	40	40	40	40
Pipe ID, mm	32.6	26.6	24.0	29.0	31.0
Pipe wall thickness, mm	3.7	6.7	8.0	5.5	4.5
Standard Dimension Ratio (SDR)	11	6	5	7.3	9
Pipe inner section area, mm^2	835	556	452	661	755
Flow speed @ 2 liters/second, m/s	2.4	3.6	4.4	3.0	2.6
Pressure loss @ 2 liters/second, mbar/m	18	50	81	33	24

3) Results

As long as the minimum wall thickness is exceeded, it is allowable to calculate pipe thicknesses according to standardised performance criteria where the advantages of using Polybutene-1 can be realised in terms of lower pipe weight and hence less raw material consumption and cost.

Lower flow speed and pressure loss for PB-1 compared to all other materials. For PP-R the next higher dimension d50 is required for the same performance.

PB-1 pipes can be used with smaller pipe diameters, this saves space for installation or allows for more insulation.

4) References/Standards

PB-1 pipes are used for 4 of 5 new one familiy houses in England.

Technical data are subject to alteration.