

Glass-fibre reinforced polyester (GRP) non-circular pipe systems

Produced by filament winding according to EN 14364 and ISO 16611



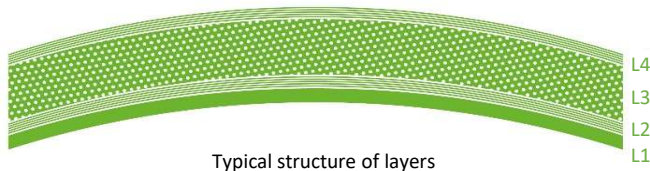
Budaplast has been offering a wide range of GRP profiles for residential and industrial wastewater with almost 50 years of tradition. Production of special GRP (such as egg, mouth or kite) pipe profiles in the lengths of 1.0 m; 2.3 m; 3.0 m and 4.6 m for rehabilitations is the main focus of the company.

Technical Data Sheet (TDS)

01.09.2023

WALL STRUCTURE

Built up by continuously winding from the core to the outside



Typical structure of layers

L4 - outer reinforcing layer: a layer consisting of filament wound glass-fibres, with a sand coating outside

L3 - stiffening layer: a stiffening core consisting of resin and silica sand

L2 - inner reinforcing layer: a layer consisting of continuous filament wound glass-fibres

L1 - inner layer resistant to abrasion: a layer rich in resin with a reinforcement of glass veil and chopped glass-fibres

MATERIALS

high quality unsaturated polyester resin system
corrosion resistant ECR glass fiber
silica sand filler

MECHANICAL CHARACTERISTIC

Structural wall thickness			< 20 mm	< 30 mm	≥ 30 mm
Short term	Flexural modulus, radial (E)	ISO 178	12 000 MPa	10 000 MPa	10 000 MPa
	Minimum elongation, radial (ε)	ISO 178	1.60 %	1.50 %	1.40 %
	Flexural strength, radial (σ)	ISO 178	192 MPa	150 MPa	140 MPa
Long term	Flexural modulus, radial (E)	ISO 10468	7 100 MPa	5 900 MPa	5 900 MPa
	Minimum elongation, radial (ε)	ISO 10952	0.78 %	0.73 %	0.68 %
	Flexural strength, radial (σ)	ISO 10952	95 MPa	73 MPa	68 MPa
Creep factor (α _{50,dry})	EN 761	0.61			
Creep factor (α _{50,wet})	ISO 10468	0.59	and	ISO 10952	0.49
Nominal ring stiffness (SN)	EN 14364	variable			
Nominal pressure (PN)	ISO 16611	1 bar (gravity pipe)			
Glass and resin content	EN ISO 1172	> 25 %			
Joint type	ISO 16611	flexible or rigid			
Profile dimension			< 470/705	< 680/1020	≥ 680/1020 mm
Max. angular deflection (δ)	ISO 16611	arctan((T - 0,002*L) / MDC _α)			
Max. draw (D)	ISO 16611	0,002*L			
Total draw (T)	ISO 16611	30 mm	25 mm	20 mm	
<i>L: laying length, MDC_α: max. dimension of cross section in the plane of angular deflection</i>					
Testing of rigid and flexible joints	ISO 16611	passed	with p = 1.5 bar		
Strain corrosion	ISO 10952	passed	ε _{ex50a} = 1.07 %		
Min. initial long. tensile strength	ISO 8513 m. A	passed	acc. to EN 14364 and ISO 16611		
Jetting resistance	DIN 19523-1	passed			
Abrasion resistance	EN 295-3	passed	0.04 mm wear after 100 000 cycles		
Chemical resistance	EN ISO 175	passed			
Product standards	EN 14364, ISO 16611				
External monitoring	CEN TES 14632, DIN 18200, CSTB QB 09				
Technical assessments	NMÉ, Avis Technique, BENOR				