

### Mechanical properties (E23 European standard)

Property	Unit	E23	E17
Full section bend test	GPa	23	17
Tension modulus - axial	GPa	23	17
Tension modulus - transverse	GPa	7	5
Tension strength - axial	MPa	240	170
Tension strength - transverse	MPa	50	30
Pin bearing strength - axial	MPa	150	90
Pin bearing strength - transverse	MPa	70	50
Flexural strength - axial	MPa	240	170
Flexural strength - transverse	MPa	100	70
Interlaminar shear strength - axial	MPa	25	15

### Recommended references for use of pultruded profiles in structural applications:

EN13706: European standard for structural pultrusions  
 EN14122: European standards for access structures  
 DIN 18829  
 - Reduction factors for long term loadings  
 - Chemical resistance tables  
 Eurocomp Design guidance

### Physical properties

Property	Method	Unit	Typical value
Density	ISO1183	g/cm <sup>3</sup>	1.7 - 2.0
Barcol hardness	ASTM D2583	Barcol	50
Water absorption	ISO62	%	0.7 max
Electrical strength	DIN53481	kV/mm	5-10
Coefficient of linear thermal expansion	BS6319	10 <sup>-6</sup> /K	6-10
Heat distortion temperature	ISO75	°C	>150

### Chemical properties

Environment	Concentration	Isophthalic polyester	
		20°C	60°C
Acetic acid	25	R	NR
Acetone	100	NR	NR
Ammonium hydroxide	10	NR	NR
Fatty acids	100	R	R
Gasoline	100	R	NR
Hydrochloric acid	15	R	NR
Mineral oils	100	R	R
Nitric acid	5	R	NR
Sodium hydroxide	5	NR	NR
Sodium hypochlorite	5	R	NR
Sulphuric acid	10	R	NR
Water (all)	100	R	R

R = Recommended      NR = Not recommended

This table represents the effects of various chemicals on our standard structural profiles. The information is based upon test results and years of experience, and is correct to the best of our knowledge. Please contact Exel for recommendations on the use in your particular environment, which may involve other chemicals or combinations thereof. Good practice requires sample evaluation in the actual chemical environment to precede any application, if questions about suitability arise.