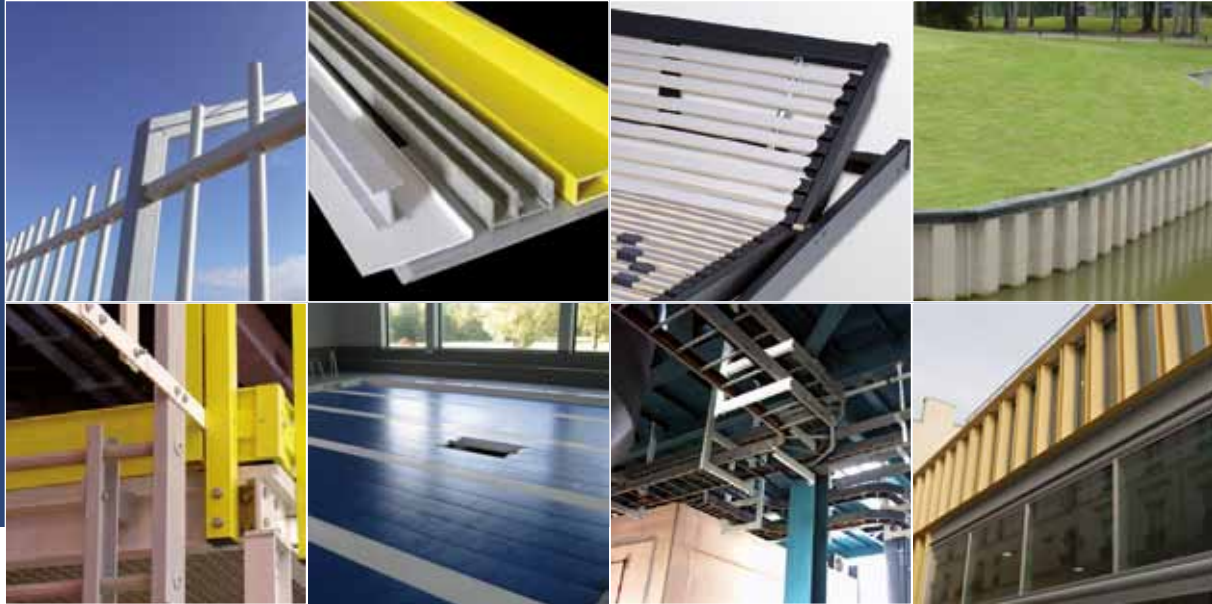


FiberConcept[®]

DuroLine[™]

GRP-Profiles

DuroLine™ standard + DuroLine™ exclus – the innovative material of the future



DuroLine™ GRP profiles are the innovative alternative to traditional materials such as wood, concrete, aluminium or steel.

They can be used with great success in diverse application areas, e.g.
windows · ladders · facades · stairways · catwalks and walkways · beams · radomes · scrapers · beds · cable ladders · bridges · gratings · protective walls · interior and exterior trims · tools · fences · covers...

Do you require a new product development to suit your special application – you are welcome to contact us – the FiberConcept® team will provide you with a tailor made solution.

DuroLine™ GRP profiles – many advantages merged into one material

- > Flexible product development
- > High strength and rigidity
- > Low weight
- > Corrosion resistance
- > Resistance to chemicals
- > Electrically and thermally insulating
- > Dimensionally stable at low and high temperatures
- > Low flammability
- > Good adhesive and coating properties
- > Customised colour shades
- > Easy to process and assemble
- > Long service life
- > Maximum cost efficiency



DuroLine™ standard

GRP standard profiles for versatile applications Selection of DuroLine™ standard GRP profiles



**Beam,
standard**

50x25x5 mm
100x50x5 mm
100x100x6 mm
108x54x4 mm
120x60x6 mm
150x75x6 mm
150x75x8 mm
160x50x8 mm
200x100x9,5 mm
200x200x10 mm
290x190x10 mm



**Square tube,
standard**

15x15x1,5 mm
30x30x5 mm
40x40x3 mm
50x50x4,5 mm
50x50x5 mm
60x60x4,5 mm
60x60x5 mm
76x76x3,5 mm
76x76x9,25 mm
76x76x6 mm
102x102x6 mm
102x102x8 mm



**Angle profile,
standard**

20x20x3 mm
20x15x3 mm
30x30x3 mm
35x35x5 mm
40x40x5 mm
45x35x5 mm
45x45x5 mm
50x30x2,5 mm
50x50x5 mm
60x60x5 mm
60x30x6 mm
60x60x8 mm
75x75x6 mm
80x80x8 mm
100x100x8 mm
150x80x3 mm
150x100x10 mm



**Flat profile,
standard**

15x15 mm
30x10 mm
30x20 mm
30x3 mm
30x30 mm
30x3 mm
30x6 mm
40x4 mm
40x6 mm
100x4 mm
100x6 mm
300x2,5 mm
300x5 mm
1000x3 mm
1000x5 mm
1000x10 mm



**Round tube,
standard**

10x6x2 mm
20x10x5 mm
20x15x2,5 mm
24x20x2 mm
28x20x4 mm
28x25x1,5 mm
30x25x2,5 mm
32x10x11 mm
40x10x15 mm
40x20x10 mm
40x35x2,5 mm
50x42,5x3,75 mm
50x45x2,5 mm
60x40x10 mm
60x45x7,5 mm
60x50x5 mm
60x55x2,5 mm



**Rod,
standard**

4 mm
5 mm
6 mm
7 mm
8 mm
10 mm
12 mm
13 mm
14 mm
16 mm
20 mm
22 mm
23 mm
24 mm
25 mm
26 mm
28 mm
30 mm
32 mm
35 mm
38 mm
40 mm



**Rectangular,
tube standard**

30x25x3 mm
40x25x4 mm
58x25x3 mm
80x50x5 mm
102x77x4 mm
175x55x5 mm



**U-profile,
standard**

30x20x4 mm
50x30x4 mm
60x50x5 mm
70x60x5 mm
90x35x8 mm
120x50x6 mm
150x45x8 mm
160x48x8 mm
200x60x10 mm
200x55x9,5 mm
200x100x10 mm



**T-profile,
standard**

30x30x3 mm
45x54x6 mm
46x62x10 mm
75x75x8 mm
100x100x9,5 mm

Other DuroLine™ standard
GRP profiles on request.





DuroLine™ standard

Mechanical properties, DuroLine™ standard

Mechanical Properties

Property	Parallel to fibre direction	Perpendicular to fibre direction	Unit	Standard
Bending strength	200-450	40-180	MPa	DIN/EN 63-77
Tensile strength	200-400	30-120	MPa	DIN/EN 61-77
Breaking elongation	1-3	1-2	%	DIN/EN 61-77
Compression strength	150-300	60-150	MPa	DIN 53 454-71
Young's modulus (bending test)	14000-40000	7000-12000	MPa	DIN 53 457-87
Impact strength	40-125	20-100	kJ/m ²	DIN 53 453-75
Hardness	40-60	40-60	Barcol	ASTM D2583-87
Shear strength	20-40	20-40	MPa	ASTM D2344-84
Shear modulus	2500-4000	2500-4000	MPa	ASTM D2344-84

Properties applicable to all variants

Specific contact resistance	10 ¹⁰ -10 ¹⁵ Ohm/cm
Surface contact resistance	10 ¹⁰ -10 ¹⁵ Ohm
Dielectric strength	5-10 kV/mm
Surface-leakage strength	CTI KA 3c / KB 500 / KC 600
Dielectric coefficient	< 5
Linear thermal expansion coefficient	12*10 ⁻⁶ / K
Thermal conductivity	0.2 - 0.6 W/m K
Specific heat capacity	1.0 - 1.2 kJ/kg K
Continuous operating temperature	-100 °C...155 °C (180°C)
Water absorption	0.15 %
Dimensional stability according to Martens	200°
Resistance to glow heat	Level 2b
Fire performance	B2, UL94 V1, UL94 V0, DIN 5510 S4 SR2 ST2, ASTM E84 < 25, ASTM D635

The material data are valid for the temperature range from 20°C to 60°C.

The suitability for a specific application is to be determined on a case-by-case basis.

By modifying matrix, fibre content and arrangement of fibres, performance data can be optimised to match customer needs.

Tolerances

Profile width and profile height: +/- 1%
 Wall thickness: +/-10%
 Length: -0/+20 %
 Weight: +/- 10

Reduced tolerances possible in individual cases.

Quality and safety are our number one priority



Certified quality

The production of DuroLine™ GRP profiles is certified to ISO 9001:2000.

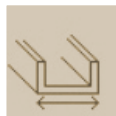
All DuroLine™ GRP profiles are manufactured and checked by independent test houses, in compliance with the European EN 13706 standard.



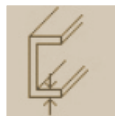


DuroLine™ exclus

GRP standard profiles for customised applications Design variants:



Maximum width
1000 mm



Wall thickness
min. 2 mm / max. 60 mm



No
length limit



Hollow sections
in longitudinal direction



Max. height
400 mm



Surfaces suitable for
adhesive bonding



Varying
wall thicknesses



Minimum radius
1 mm



Profiling in
longitudinal direction



Ribs in
longitudinal direction

*FiberConcept® offers you
a tailor-made profile*

High-grade matrix systems for DuroLine™ standard and DuroLine™ exclus

Polyester IPR – good all-round properties

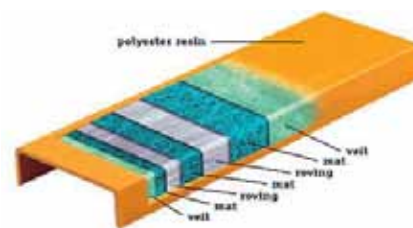
Unsaturated polyester resins can be divided into 2 main groups: ortho polyesters and iso polyesters. As compared to ortho polyester, the iso polyester stands out due to its increased impact resistance and flexibility and its temperature stability and corrosion resistance.

Vinyl ester VER – excellent resistance to chemicals

Vinyl ester resin is used for extra resistance to chemicals and temperatures and to provide outstanding impact and fatigue strength.

Epoxy EPR - particular electrical properties.

Epoxy resin is mainly used to obtain a high fatigue strength as well as excellent electrical properties.

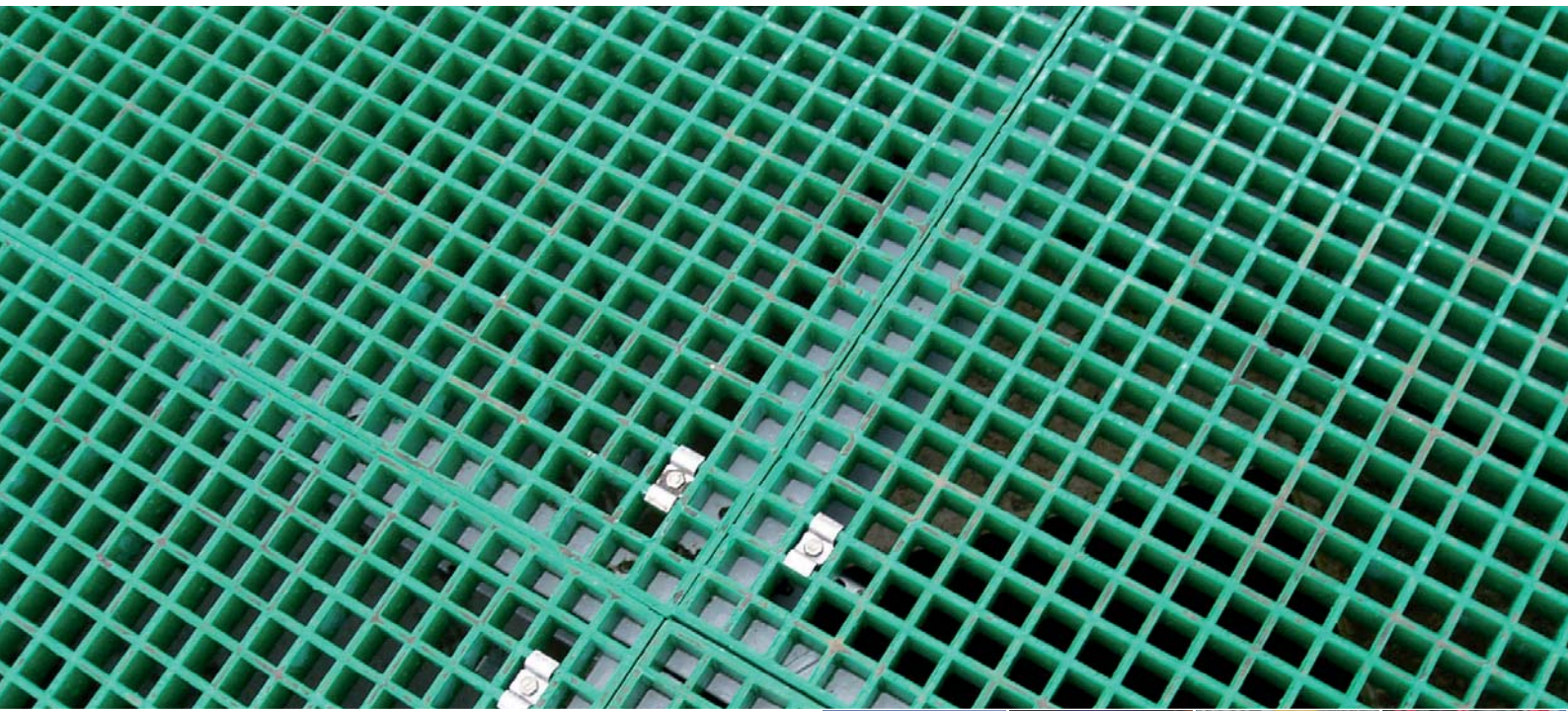


Phenolic resin PHR – high degree of fire safety

Phenolic resin excels in its outstanding temperature and fire resistance, low smoke emissions and toxicity of fire gases, low spread of flames in case of fire.

Production at the highest level

The production of GRP profiles by pultrusion enables us to manufacture optimum structures in order to meet specific customer requirements.



GERMANY · FRANCE · ITALY
BENELUX · AUSTRIA · SWITZERLAND
NORWAY · POLAND · HUNGARY
ROMANIA · CZECHIA · SPAIN

GERMANY

FCT FiberConcepT® GmbH · Otto-Hahn-Ring 11 · D-64653 Lorsch
Phone: ++49 (0) 6251 854 723 0 · Fax: ++49 (0) 6251 854 723 29
E-Mail: info@fiberconcept.com · www.fiberconcept.com