

# Advantages of fibre-reinforced plastics

# Precondition for successful projects



**Low weight**  
75% Lighter than steel,  
30% lighter than aluminium



**High strength**  
Superior to traditional metals,  
concrete and wood



**Low conductivities**  
Excellent insulation properties  
compared to steel



**RF transmittance**  
FRP are permeable to radio  
frequencies and X-rays



**High corrosion resistance**  
Compared to metal and wood,  
FRP do not rust or corrode.

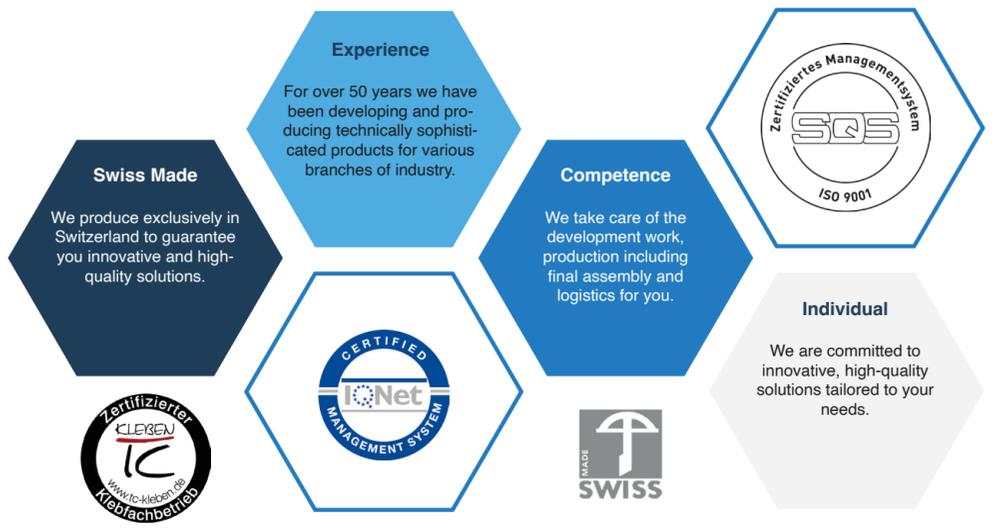


**Low maintenance**  
Need for maintenance work is  
reduced or even completely  
unnecessary

Founded in 1944, over half a century of  
experience in a wide range of process  
technologies.

# Moulded parts made from fibre- reinforced plastics

	FVK	Steel	Aluminium	Wood
<b>Corrosion resistance</b>	High	Low	Medium	Low
<b>Strength</b>	High	High	High	Low
<b>Weight</b>	Low	High	Low	Medium
<b>Electrical conductivity</b>	Very low	High	High	Low
<b>Thermal conductivity</b>	Very low	High	High	Low
<b>RF transmittance (X-Ray)</b>	High	Low	Medium	High
<b>Maintenance costs</b>	Low	High	High	Low



Your needs are our focus. We support you in identifying  
the optimal solution for you in terms of stability, security  
and costs.



axpel composites AG | Part of the axpel group

Murgenthalerstrasse 46, CH-4628 Wolfwil  
www.axpel-composites.com

+41 62 867 20 60  
office.composites@axpel.com



## End markets

### Our products are versatile in their use

For over 50 years we have been developing and producing high-quality products made of fibre-reinforced plastics for demanding end markets. We cover the entire value chain; from development to final assembly.

Your individual needs for the highest quality are our focus. We offer optimal solutions in terms of adherence to deadlines, safety and costs.

## Processes and materials

### We develop the optimal solution for you

## Our competences

### We cover the entire value chain



#### Procedures

##### Hand laminate

Fire protection EN 45545, smaller series up to 500 pieces, one side rough

##### Wet pressing

Fibre content up to 50% both sides smooth, good for X-Ray

##### RIM and RTM

Fibre content up to 50%, optimal for load calculation, higher production capacity

##### 3D printing

Prototyping / sample production  
Production of small series

#### Railway industry

Driver's desk tops  
Fronts  
Aprons  
Roofs

#### Apparatus construction

Wind power  
Machine industry

#### Construction and architecture

Facade construction  
Carbon beams  
Bridges  
Cladding  
Bonnets  
Floor elements

#### Medical technology

Permeable X-ray plates  
Shuttering  
X-ray couches  
Carbon parts

#### Utility vehicles

Bonnets  
Boot lids  
Panelling  
Attachment parts

#### Electric industry

Air ducting  
Insulation cover



#### Fibre

##### Glass fibre

Cost-effective, easy processing, good mechanical properties, high resin content

##### Carbon fibre

Low weight / density 1.2, high strength and stiffness, high temperature resistance, high raw material costs

##### Kevlar

Impact and wear resistance, good ballistic properties, high tensile strength, not UV resistant.

##### Natural fibres

Life cycle, environmentally friendly, noise insulation, low strength and stiffness, weight savings



#### Resins

##### Polyester

Easy to process, weatherproof / waterproof, attractive raw material costs, shrinkage on curing

##### Vinylester

Weatherproof / waterproof, good chemical resistance, high temperature resistance, high raw material costs

##### Epoxy

Low shrinkage, high mechanical strength, high abrasion resistance, good adhesive properties

##### Phenols

Very high fire protection, very high strength, very high abrasion resistance, suitable for large series



#### Development

##### Construction and design

3D CAD with Solidworks Premium

##### Prototypes

Hand samples and functional models as an optimal basis for decision-making

##### Mould making

CAD / CAM supported milling centres, both 3- and 5-axis, allow the production of moulds and gages made of wood, aluminium, steel and plastics.

#### Assembly

##### Final assembly

Comprehensive component tree  
Customised quality controls

##### Additional parts

Additional parts are assembled and glued in the final assembly by our technical specialists

#### Optimisation

##### Process evaluation

Identification of the optimal manufacturing process for your product

##### Selection

Processing methods Hand laminate, RIM / RTM, wet pressing, carbon fibre / carbon, PUR low-pressure casting

##### Selection of FRP materials

Fibres, resins, adhesives, fire protection

#### Logistics

##### Delivery service

Delivery of components using our own vehicles or in cooperation with third-party suppliers

#### Production

##### Moulded parts

CAD / CAM systems Solidworks, FeatureCam and Tebis enable dimensionally accurate components.  
5-axis milling centres / max X = 5500 mm, Y = 2200 mm, Z = 1100 mm

##### Finishing

Finishing by our in-house paint department enables cleanly painted components with and without structure, high gloss or matt.

##### 3D Printing

Prototype construction / sample construction  
Small series production

