



Applications

Kamenny Vek offers a wide range of products for building and road construction:

- Wet or dry chopped strands for premix technology
- Gun-roving for spray-up and shotcrete technologies
- High strength roving for production of rebars and pultruded profiles
- Basalt mats and fabric for concrete reinforcement and buildings thermo insulation
- Reinforcing mesh for road construction



Basfiber[®] properties

- High tensile strength and modulus
- High heat resistance
- High corrosion resistance
- High resistance to salt water, acids and alkalis

Basfiber[®] advantages

Nowadays composites materials successfully replace steel in construction industry. But even among composites materials Basfiber is the product of choice for this application due to its unique combination of properties:

In comparison to steel:

- **A high strength to weight ratio:** Basalt fiber is 3 times lighter and up to 2.5 times stronger in tensile strength than steel
- **Chemical and corrosion resistance:** Basalt fiber doesn't rust and is resistant to the action of salt ions, chemicals, and the alkalinity inherent in concrete
- **Low thermal conductivity:** Basalt fiber has extremely low coefficient of heat conductivity compared to steel. This advantage helps to reduce heat transfer from building exteriors to interiors and significantly improves energy efficiency

- **Zero electrical and magnetic conduction:** Basalt fiber has much higher electrical resistance compared to steel and doesn't interfere on the operation of sensitive electronic devices

In comparison to E-glass:

- **Tensile strength and modulus:** Basfiber shows 25% higher tensile strength and 15% higher tensile modulus compared to E-glass
- **Chemical resistance:** Basalt fiber shows much better chemical resistance compared to E-glass
- **Heat and fire resistance:** Basfiber has 100°C higher extended range of operating temperature compared to E-glass



Basalt fiber reinforced rebars

Reinforced concrete is a traditional building material for the construction. By far steel is the most common reinforcement in this application but basalt fiber is more and more used for that purpose.

Basalt fiber reinforced rebars significantly improves the durability of civil engineering structures especially under corrosion environment.

The technology:

The basalt rebars are produced by combining the pultrusion and winding processes from high quality basalt fibers along with polyester, vinylester or epoxy resin.

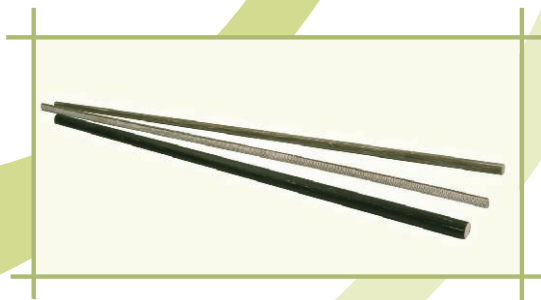
Typical Basfiber® products for this application:

Continuous fiber 13 to 17 μm , 2400 to 4800 tex, internal unwinding, KV-12 or KV-32 (epoxy compatible) or KV-11 (vinylester and polyester compatible) sizing.



Rebar's properties	Basfiber®	E-glass	Beton steel
Tensile strength, MPa	800 - 1200	500 - 800	550
Tensile modulus, GPa	45 - 55	40 - 46	200
Thermal conductivity, W/mK	<0.5	<0.5	60
Density, g/cm ³	2.2	2.3	7.85

Pultruded load-bearing profiles for bridges and buildings



Pultruded load-bearing profiles are widely used for construction of bridges and buildings.

Kamenny Vek provides high strength basalt roving specially designed for pultrusion. This product has high tex, low catenary and various sizing to meet customer's requirements.

Typical Basfiber® products for this application:

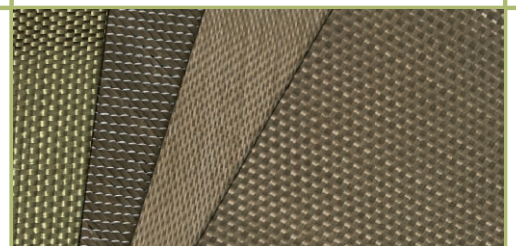
Continuous fiber 17 μm , 4800 tex, internal unwinding, KV-12 or KV-32 (epoxy compatible) or KV-11 (vinylester and polyester compatible) sizing.

Fire-protection in housing

The usage of incombustible basalt fabric and mats as fire protection and thermo-insulation is cost-effective and harmless way to increase the level of fire-safety and improve energy efficiency in various applications for the construction industry.

The product range includes:

- Woven basalt fabrics with plain or twill weave and surface density 160 to 700 g/m²
- Needle-punched basalt mats with thickness 6 to 12 mm



Thermal properties	Basfiber®	E-glass
Application temperature, °C	-260 up to + 560	-60 up to + 460
Short-term maximum operation temperature, °C	up to + 700	up to + 550
Heat conductivity, W/mK	0.031 - 0.038	0.034 - 0.04

Reinforcing mesh

Basalt reinforcing meshes are designed for reinforcing road and highway overlays to prolong the pavement life span by reducing the effects of reflective cracking caused by traffic loading, age hardening and temperature cycling.

Pavement life between maintenance can be prolonged significantly. Basalt reinforcing mesh makes it possible to reduce thickness of asphalt concrete pavement up to 20%. Typical paving temperatures will not cause any loss of strength or distortion which may occur with synthetic material.

Basfiber® significantly outperforms synthetic materials by their ability to withstand low temperatures that is extremely important for roads and highways in the north regions.



Basalt fiber reinforced concrete



Basalt fiber reinforced concrete is a cement-based composite material. Use of chopped basalt strands in this application is an effective way to increase chemical, impact and cracking resistance of the mortar.

Basfiber® concrete grade is produced with a special sizing agent to provide good compatibility with different types of concretes and easy mixing even at high content.

Basalt fiber reinforced concrete can extend the life circle of bridges, highways, railways, housing, sea structures, tunnels etc.

The technologies:

- Spray-up and shotcrete technologies
- Premix technology

Typical Basfiber® products for this application:

For spray-up and shotcrete: Continuous gun-roving 13 to 17 mkm, B1.5 (cement compatible) sizing.

For premix: Filament diameter 13 to 19 mkm, length 3 to 50 mm, wet chopped strands with KV-05/1 (hydrophilic) sizing or dry chopped strands with KV-12 (hydrophobic) sizing.



Chemical resistance	Basfiber®	Alkali resistant glass	E-glass
Fiber's weight loss after 3h boiling in cement saturated solution, %	0.35	0.15	4.5
Fiber's weight loss after 3 h boiling in 1N solution of HCl,%	7.1		38.5



Logistics advantages

- English speaking sales and R&D staff
- Packaging labels and shipment documents in English
- Door-to-door delivery all around the world
- Worldwide distribution network
- Regional warehouses in Europe and USA



Ways of delivery

- 20' container, 11 pallets 120x80 cm (max net weight is 10 000 kg)
- 40' container, 23 pallets 120x80 cm (max net weight is 18 500 kg)
- A truck, up to 31 pallets (max net weight is 18 500 kg)

Distribution Network

USA

E.T. HORN COMPANY
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