

ZOLTEK™ PX35

COMMERCIAL CARBON FIBER

ZOLTEK 

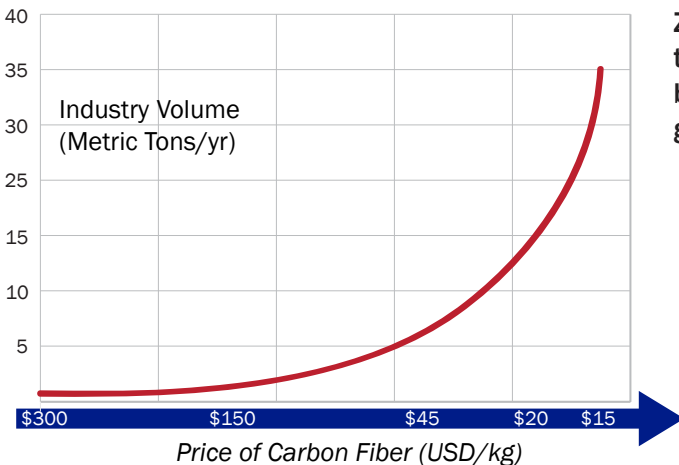
 Toray Group

ZOLTEK™ PX35

In the world of materials, ZOLTEK PX35 has emerged as the industrial carbon fiber - one that is both affordable and delivers the strength to weight performance equal to or better than many “aerospace” grades.

ZOLTEK PX35 reinforced composites are remarkable in their performance characteristics and properties that include: high strength, low weight, high stiffness, corrosion resistance, heat resistance, and electrical conductivity.

ZOLTEK PX35 is made from our abundant textile-based precursor and manufactured in a proprietary high-throughput process that allows it to be the lowest cost commercial carbon fiber on the market.



ZOLTEK is actively lowering the cost of carbon fiber by adding capacity and growing new markets.

ZOLTEK PX35 APPLICATIONS

ZOLTEK PX35 is the dominant material in the wind turbine industry, and is on the forefront of many other applications including automotive, CNG/pressure vessels, offshore drilling, marine, building & construction, and other industrial applications. It is the best value proposition of any other carbon fiber with market-leading properties at a market-leading price.

- WIND ENERGY
- AUTOMOTIVE
- OIL & GAS
- INFRASTRUCTURE
- MARINE
- AIRCRAFT INTERIORS
- CNG/PRESSURE VESSELS
- ENERGY STORAGE
- SPORTING GOODS
- THERMOPLASTIC COMPOUNDING

ZOLTEK'S COMMUNICATION STRATEGY

LOWEST COST PRODUCER

ZOLTEK's textile-type precursor, high throughput process, and the lowest capex in the industry allows us to provide the best carbon fiber value worldwide.

SUSTAINABLE PRICING

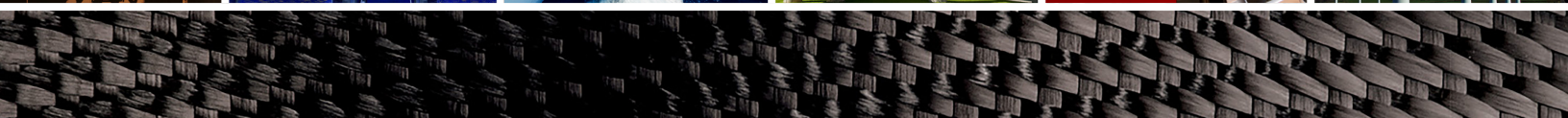
ZOLTEK's pricing structure is independent of the volatile aerospace industry, and structured to compete with other primary building materials.

SUPPLY COMMITMENT

ZOLTEK has demonstrated the ability to rapidly expand manufacturing and maintain capacity for growing and emerging applications.

PROCESSING SUPPORT

ZOLTEK provides intermediate carbon fiber products, and the processing support to facilitate the use of commercial carbon fiber in end-products.





CONTINUOUS TOW (50K)

ZOLTEK PX35 Continuous Tow is the premier commercial carbon fiber on the market. It is a 50K filament fiber manufactured from polyacrylonitrile (PAN) precursor, and is available with a range of sizings for optimal processing and compatibility with a variety of resin systems.



- DNV-GL Approved
- ISO & AS Certified
- Processing Support Available
- Spool to Spool Consistency Yielding Low Coefficients of Variation

	SI	US
Tensile Strength	4137 MPa	600 ksi
Tensile Modulus	242 GPa	35 msi
Electrical Conductivity	0.00155 ohm-cm	0.00061 ohm-in
Density	1.81 g/cc	0.065 lb/in ³
Fiber Diameter	7.2 microns	0.283 mils
Carbon Content	95%	
Yield	267 m/kg	397 ft/lb
Spool Weight	5.5 kg, 11 kg	12 lb, 24 lb
Spool Length	1500 m, 3000 m	1640 yd, 3280 yd

Compatible Resins: Epoxy, Vinyl Ester, Engineering Thermoplastic



- High Bulk Density Value
- Clean, Consistent Flow Rates
- Distributes Easily During Compounding
- Improved Process & Product Performance
- Available in Pellet, Flake or Stick Form

CHOPPED FIBERS

ZOLTEK PX35 Chopped Fibers are commonly compounded with general engineering thermoplastics (e.g., PC, Nylon, etc.) and high-temperature thermoplastic resins. The resulting composite offers high strength-to-weight and stiffness-to-weight ratios.

PRODUCT DESCRIPTION	RECOMMENDED USE
Chopped Pellet - Type 95, Type 45	Polyamides
Chopped Pellet - Type 83	High Temperature Thermoplastics (HTTP): PPS, PEEK, PEI, PPA, PAI, PES, PSU
Chopped Pellet - Type 65	Engineering Thermoplastics (ETP): PC, PA, POM, PBT/PET, ABS
Chopped Pellet - Type 45	Engineering Thermoplastics (ETP): PC, PA, POM, PBT/PET
Chopped Flake - Type 13	Thermoset Resins: Epoxy, Vinyl Ester, Unsaturated Polyester and Phenolic
Dispersible Chopped Flake - Type 01, 02 (Unsize)	Applications requiring full dispersion of fiber bundles.

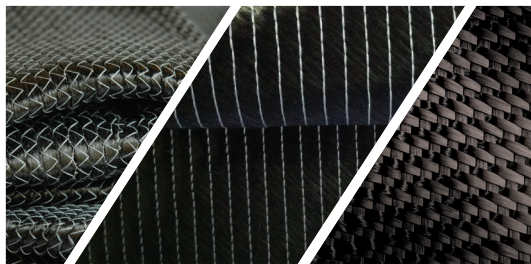


- Electrically Conductive
- Excellent Buoyancy Properties

MILLED FIBERS

ZOLTEK PX35 Milled Fibers are for high-volume applications that require strength and/or electrostatic dissipation. ZOLTEK's in-house milling system ensures product quality and traceability from raw material through finished product.

	PX35	PX30
Carbon Content	95%	99%
Fiber Diameter	7.2 μm (0.283 mils)	7.2 μm (0.283 mils)
Bulk Density	490 g/L (30.6 lb/ft ³)	465 g/L (29.0 lb/ft ³)
Filament Shape	Round	

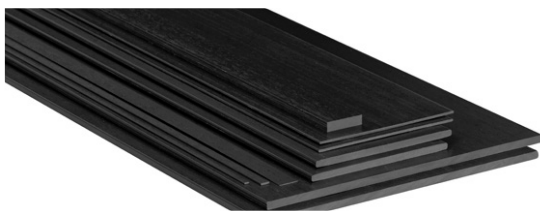


- Unidirectional Fabrics
- Bi-Axial Fabrics (+/- 45, 0/90)
- Woven Fabrics (Plain, Twill, Satin)
- Fabric Weights from 150 - 900 gsm
- Constructed for Enhanced Infusibility and drapability

CARBON FABRICS

ZOLTEK PX35 Stitch-Bonded and Woven Fabrics are produced from our ZOLTEK PX35 50K Continuous Tow Carbon Fiber. Unique fiber spreading techniques enable a wide range of fabric weights and constructions for composite part applications. Quick composite part build-up is cost effectively achieved with our diverse weight range of low-cost carbon fabric products.

	SI	US
Tensile Strength	4137 MPa	600 ksi
Tensile Modulus	242 GPa	35 msi
Electrical Conductivity	0.00155 ohm-cm	0.00061 ohm-in
Density	1.81 g/cc	0.065 lb/in ³
Fiber Diameter	7.2 microns	0.283 mils
Carbon Content	95%	



- High Tensile Strength and Stiffness
- Corrosion Resistant
- Industrial Construction & Reinforcement

PULTRUDED PROFILES

ZOLTEK PX35 Pultruded Rods and Plates are produced with our commercial grade ZOLTEK PX35 Continuous Tow carbon fiber. Our pultruded profiles are typically produced with a thermoset epoxy or vinyl ester resin in a proprietary low-cost, high-throughput process.

	SI	US
Tensile Strength	2350 MPa	340 ksi
Tensile Modulus	155 GPa	22.5 msi
Density	1.6 g/cm ³	0.058 lb/in ³
Strain (elongation at break)	1.4%	

Typical data based on a .25" diameter rod, .06" thick flat plate with epoxy resin formulation, vinyl ester available.
Custom profiles available upon request

THE ZOLTEK ADVANTAGE



ZOLTEK's facility in Nyergesújfalu, Hungary boasts the most production space of all of ZOLTEK's facilities worldwide.

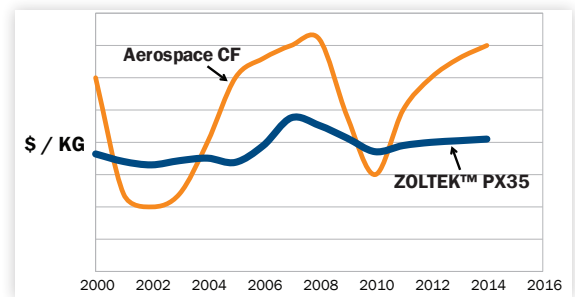
LOW-COST PRODUCTION WITH CAPACITY

ZOLTEK has demonstrated significant capacity to support application development and the ability to expand at the rate necessary to support commercialization of new applications through:

- Raw material technology and availability
- 6-month turnkey expansion
- The lowest cost capital investment in the industry

STABLE PRICING STRUCTURE

ZOLTEK's unique position in the marketplace enables the price stability that our customers need to operate and grow. Unlike other carbon fiber manufacturers, ZOLTEK pricing is independent of the volatile aerospace industry, and structured to compete with other primary building materials.



ISO 9001
AS9100
BUREAU VERITAS
Certification



QUALITY & PERFORMANCE

While commercial carbon fiber appears different from aerospace carbon fiber, product consistency and performance properties are equal.

Employee commitment, ISO and AS certifications all contribute to meet and exceed the needs and requirements of our customers.

VALUE ADDED INTERMEDIATE PRODUCTS

With the ability to produce carbon fiber in a variety of forms including pultrusion, fabric, and chopped, ZOLTEK has a product that is right for your needs. ZOLTEK does not rely exclusively on the existing value chain. This results in low-costs for the end user.





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SALES OFFICES

ZOLTEK Corporation (HQ)

3101 McKelvey Road
Bridgeton, MO 63044
T: 1-314-291-5110
F: 1-314-291-8536
E: sales@zoltek.com

ZOLTEK Europe

H-2537 Nyergesújfalu
Hungary
T: 36-33-536-021
E: europe-sales@zoltek.com

ZOLTEK China

E: china-sales@zoltek.com

ZOLTEK India

E: india-sales@zoltek.com

ZOLTEK Korea

E: korea-sales@zoltek.com

MANUFACTURING

St. Charles, Missouri

11 Research Park
St. Charles, MO 63304

St. Peters, Missouri

27 Guenther Blvd
St. Peters, MO 63376

Abilene, Texas

1221 Fulwiler Road
Abilene, TX 79603

Hungary

H-2537 Nyergesújfalu
Hungary

Mexico

KM. 3 Carretera a El Salto
45680 El Salto, Jalisco

Engineering Technology Corporation

2975 South 300 West
Salt Lake City, UT 84115

ABOUT ZOLTEK

Energy Technology is the next great global industry. But it cannot evolve without carbon fiber.

ZOLTEK is on a mission to lead the commercialization of carbon fiber and to drive new energy forward through advanced technology and expanded capacity.

Today ZOLTEK products are increasing the energy output of wind turbines, creating more fuel efficient vehicles, and lifting other industries to higher levels of performance.

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