



PEEK Product Capabilities Brochure

Extruding high-performance thermoplastics into products that
enable innovation across markets.



www.zeusinc.com | support@zeusinc.com

Best-in-class performing material.

Focus on PEEK

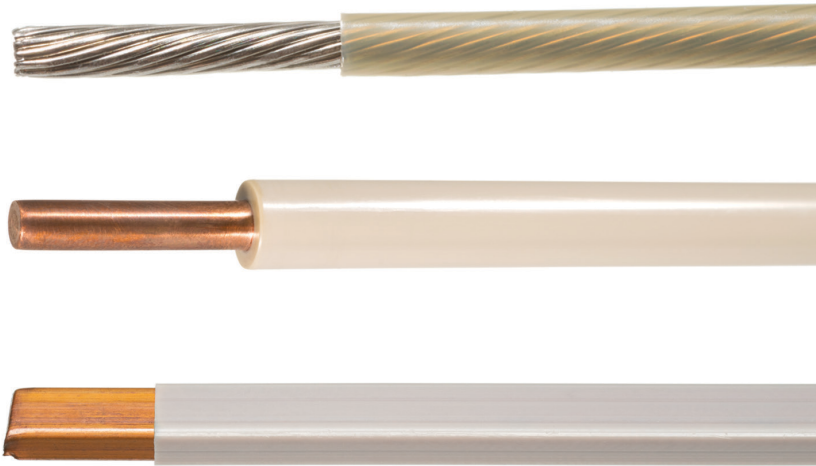
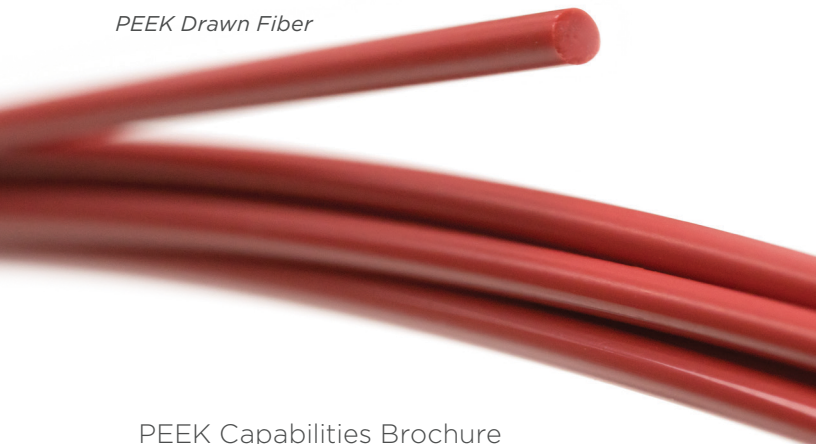
PEEK (polyetheretherketone): A strong, versatile material with excellent purity, high tensile strength, temperature resistance (500 °F / 260 °C), dielectric strength, and lubricity. Design engineers in diverse markets such as medical devices and energy opt to use PEEK in their applications because of its high-performance properties.

PEEK's ability to be extruded in a variety of products such as extruded tubing, drawn fiber, insulated wire, PEEKshrink™ (heat shrink), multi-lumen and thin-walled Sub-Lite-Wall™ tubing enables end users to push the boundaries of innovation. Its high tensile strength, columnar stiffness, and light weight positions it to be an ideal replacement for stainless steel and other metals.

Extruded PEEK Products

Drawn Fiber: PEEK Drawn Fiber is a high tensile, abrasion resistant fiber commonly used in braiding applications for wires and cables.

PEEK Drawn Fiber



PEEK Insulation over stranded, round, and special shapes

Insulated Wire: This extrusion of PEEK over wire is an ideal magnet or motor winding insulation and electromechanical applications. PEEK Insulated Wire delivers outstanding performance at high continuous service temperatures up to 500 °F (260 °C), along with excellent abrasion and chemical resistance and dielectric strength.

Extruded Tubing: We can extrude PEEK tubing in a variety of diameters and wall thicknesses (ranging from 0.002" to 0.062"). Tolerances and sizes can be customized to meet the most demanding design requirements.

Heat Shrink: We are the world's first manufacturer of heat shrinkable PEEK, known as PEEKshrink™. This product provides an ideal "shrink to fit" layer of protection - available with shrink ratios up to 1.4:1 - which protects wiring and components from elemental extremes.

Peek Reinforced Optical Fiber: Our PEEK Reinforced Optical Fiber retains all the benefits of PEEK even during dramatic temperature fluctuations from -10 °C (-14 °F) to 260 °C (500 °F) without attenuation, or compression. This coating experiences significantly less loss at the tightest bend radius.

Multi-Lumens & Custom Profiles: Extrusion of multi-lumens and custom profiles with PEEK allows for multiple channels within one tube, or complex shapes for a variety of product options. To get started, send us your CAD file(s) or concept drawing to see how we can make a customized extrusion for you.

Markets Served

Aerospace: PEEK's various extruded forms such as PEEKshrink™, Convoluted Tubing, and Drawn Fiber can all be utilized as lightweight wire management products. PEEKshrink™ is an ideal splicing aid or insulating product while PEEK Insulated Wire can provide an abrasion resistant wire coating over solid or braided conductors.

Automotive: PEEK is an excellent material for protecting wires, and decreasing weight to increase fuel efficiency. PEEK Drawn Fiber is a perfect braiding material for wires and cables due to its chafe resistance. PEEK Insulated Wire and PEEKshrink™ can accelerate electrical performance to power automobiles for electric generation.

Energy: PEEK Insulated Wire is a popular choice for insulating electric motors, especially in SAGD (Steam-Assisted Gravity Drainage) environments. PEEKshrink™ makes an excellent splicing aid for PEEK insulated wire which can boast more than 3,000 v/mil of insulation resistance.

Fiber Optics: PEEK can be extruded into multi-lumens, allowing multiple channels to encapsulate fibers independently in one OD. PEEK tubing is also an excellent sheathing for fiber optics because of its strength. PEEK Convoluted Tubing is a highly abrasion resistant, flexible solution that can operate in a variety of temperature extremes up to 500 °F (260 °C). PEEK Engineered Surface Tubing can be an excellent loose sheathing for fiber to decrease strain as it has increased lubricity.



Interrogator with PEEK Reinforced Fiber Optics

Fluid Handling: PEEK extruded tubing possesses high tensile strength and an excellent burst pressure rating for high-performance liquid chromatography (HPLC) applications. It is chemically inert and can also be heat formed into unique profiles and shapes.

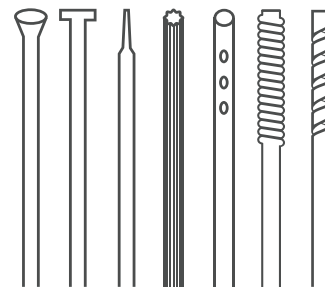
Medical: PEEK extrusions are used in medical applications due to its columnar stiffness and tight bend radius in thin walls which helps maneuver catheters through the body's tortuous pathways. This material can be sterilized using gamma, ethylene oxide (EO or EtO), e-beam or autoclave.

PEEK Capabilities		
PROPERTY	RANGE	
Extruded Tubing		
Inner Diameter (ID)	0.002"	2.000"
Wall	0.002"	0.062"
Heat Shrink Tubing (up to 1.4:1)		
Expanded ID Minimum	0.030"	2.100"
Wall	0.003"	0.015"
Insulated Wire		
AWG	40	3
Wall	0.001"	0.026"
Drawn Fiber		
Outer Diameter (OD)	0.002"	0.020"
PEEK Coated Optical Fiber		
Outer Diameter (OD)	0.010"	0.030"
Wall	0.001"	0.020"

Value-add Services

We have an impressive array of solutions for advanced applications. By having us perform these value-add services, you can experience increased economies of scale, improved yields and manufacturing efficiencies.

- Flaring
- Flanging
- Draw Down
- Engineered Surface
- Drilling
- Convoluted
- Spiral Cutting



Get to know Zeus.



2,400+
TEAM MEMBERS



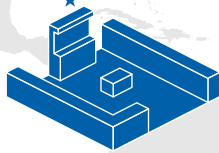
ZOS
OPERATIONAL
EXCELLENCE



100+
COUNTRIES
SERVED



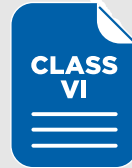
160+
SCIENTISTS, ENGINEERS,
AND R&D PERSONNEL



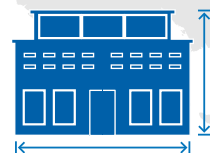
35+
DEVOTED
CLEAN ROOMS



CERTIFIED
ISO 9001 | AS 9100
ISO 13485



100+
CLASS VI APPROVED
RESINS & PIGMENTS



13
WORLD-CLASS
FACILITIES

— OUR MISSION —

PROVIDE SOLUTIONS · ENABLE INNOVATION · ENHANCE LIVES

Zeus, headquartered in Orangeburg, South Carolina, is the world's leading polymer extrusion and catheter design manufacturer. With over 55 years of experience in medical, aerospace, energy, automotive, fiber optics, and other leading industries, Zeus's mission is to provide solutions, enable innovation, and enhance lives. The company employs over 2,400 people worldwide with facilities in Aiken, Columbia, Gaston, Orangeburg, and St. Matthews, South Carolina; Branchburg, New Jersey; Chattanooga, Tennessee; San Jose, California; Arden Hills, Minnesota; Guangzhou, China; and Letterkenny, Ireland. For more information, visit www.zeusinc.com.



AMERICAS: +1 803.268.9500 | **EUROPE:** +353 (0)74 9109700 | **ASIA/PACIFIC:** +(86)20-38254906

support@zeusinc.com | www.zeusinc.com