

# Extruded Monofilaments

FEP, PEEK, PEEK Glide™, PFA, PTFE, and Glass-Filled PTFE

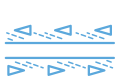
## Overview-

Extruded monofilaments are extensively utilized in the medical device industry, perhaps most notably as forming and support mandrels during catheter construction. Because mandrels help form the inside diameter (ID) of the finished device, choosing the correct mandrel material is of critical importance.

Traditionally, catheter manufacturers have opted for PTFE-coated stainless steel wire as the mandrel for most catheter builds. While stainless steel provides good mechanical strength, the thin PTFE coating applied over the wire is prone to flaking during mandrel removal, potentially compromising the build. Extruded PTFE monofilament, on the other hand, does not run the risk of flaking and still provides sufficient tensile and compressive strength for a wide range of catheter designs while also being easy to remove due to the inherent lubricity of PTFE.

For more complex builds or designs requiring a higher PIC count braiding, such as neurovascular catheters, glass particles can be compounded with the PTFE resin prior to extrusion to enhance the mechanical properties of the extruded PTFE monofilament while still maintaining high lubricity for easy removal.

For other devices, Zeus is capable of extruding monofilaments in several other resins, including FEP, PFA, PEEK, and PEEK Glide™. Zeus is also capable of extruding performance monofilaments in a variety of customizable shapes and profiles to meet the specific requirements of your design.



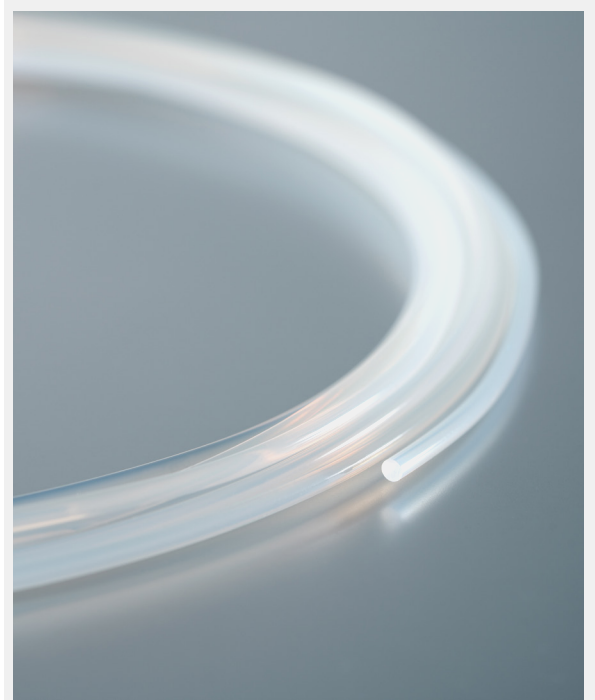
COEFFICIENT OF FRICTION



TENSILE STRENGTH



CONTINUOUS SERVICE TEMP



*Zeus glass-filled PTFE monofilament provides device manufacturers a tight tolerance, high compressive strength foundation upon which the next generation of advanced vascular catheters can be built.*

## APPLICATIONS

- Mandrel for catheter construction

## CAPABILITIES AND SIZING

- Diameters from 0.004" - 0.170" (0.102 mm - 4.318 mm)
- Tolerances as low as  $\pm 0.0005$ " ( $\pm 0.0127$  mm)
- Smooth surface finish

## KEY PROPERTIES

- Resin-dependent temperatures up to 500 °F (260 °C)
- Chemical resistance
- Lubricity and stiffness vary depending on resin



# Monofilaments

Typical monofilament capabilities are listed below. This table is meant to serve as a general guideline only. Users should evaluate the material to determine suitability for their own particular application. Supplied in natural color unless otherwise specified. Custom Pantone® colors or Zeus standard colors available upon request. Lot-to-lot testing is also available upon request.

MONOFILAMENT - TYPICAL SIZE RANGES				
TYPE	OD RANGE	OD TOLERANCE	LUBRICITY	STIFFNESS
FEP	0.010" - 0.120" (0.254 mm - 3.048 mm)	± 0.001" - 0.003" (± 0.025 mm - 0.076 mm)	★★★★☆	★★★☆☆
PEEK	0.010" - 0.070" (0.254 mm - 1.778 mm)	± 0.001" - 0.002" (± 0.025 mm - 0.051 mm)	★★★☆☆	★★★★★
PEEK Engineered Surface	0.010" - 0.070" (0.254 mm - 1.778 mm)	≥ ± 0.003" (≥ ± 0.076 mm)	★★★★☆	★★★★★
PEEK Glide™	0.010" - 0.070" (0.254 mm - 1.778 mm)	± 0.001" - 0.002" (± 0.025 mm - 0.051 mm)	★★★★☆	★★★★★
PFA	0.010" - 0.120" (0.254 mm - 3.048 mm)	± 0.001" - 0.003" (± 0.025 mm - 0.076 mm)	★★★★☆	★★★☆☆
PTFE	0.004" - 0.170" (0.102 mm - 4.318 mm)	± 0.0005" - 0.003" (± 0.0127 mm - 0.076 mm)	★★★★★	★★★☆☆
Glass-Filled PTFE	0.006" - 0.099" (0.152 mm - 2.515 mm)	± 0.0005" - 0.003" (± 0.0127 mm - 0.076 mm)	★★★★★	★★★★★



# PTFE Monofilament

Standard catalog PTFE monofilament sizes are listed below. Supplied in natural color unless otherwise specified. Custom Pantone® colors or Zeus standard colors available upon request. Lot-to-lot testing is also available upon request.

## PTFE MONOFILAMENT – STANDARD CATALOG SIZES

ORDERED BY DIAMETER	TOLERANCES
0.028" (0.711 mm)	± 0.002" (± 0.051 mm)
0.031" (0.787 mm)	± 0.002" (± 0.051 mm)
0.035" (0.889 mm)	± 0.002" (± 0.051 mm)
0.039" (0.991 mm)	± 0.002" (± 0.051 mm)
0.047" (1.194 mm)	± 0.002" (± 0.051 mm)
0.050" (1.270 mm)	± 0.002" (± 0.051 mm)
0.055" (1.397 mm)	± 0.002" (± 0.051 mm)
0.062" (1.575 mm)	± 0.002" (± 0.051 mm)
0.070" (1.778 mm)	± 0.002" (± 0.051 mm)
0.078" (1.981 mm)	± 0.003" (± 0.076 mm)
0.094" (2.388 mm)	± 0.003" (± 0.076 mm)
0.100" (2.540 mm)	± 0.003" (± 0.076 mm)
0.109" (2.769 mm)	± 0.003" (± 0.076 mm)
0.125" (3.175 mm)	± 0.003" (± 0.076 mm)
0.150" (3.810 mm)	± 0.003" (± 0.076 mm)

