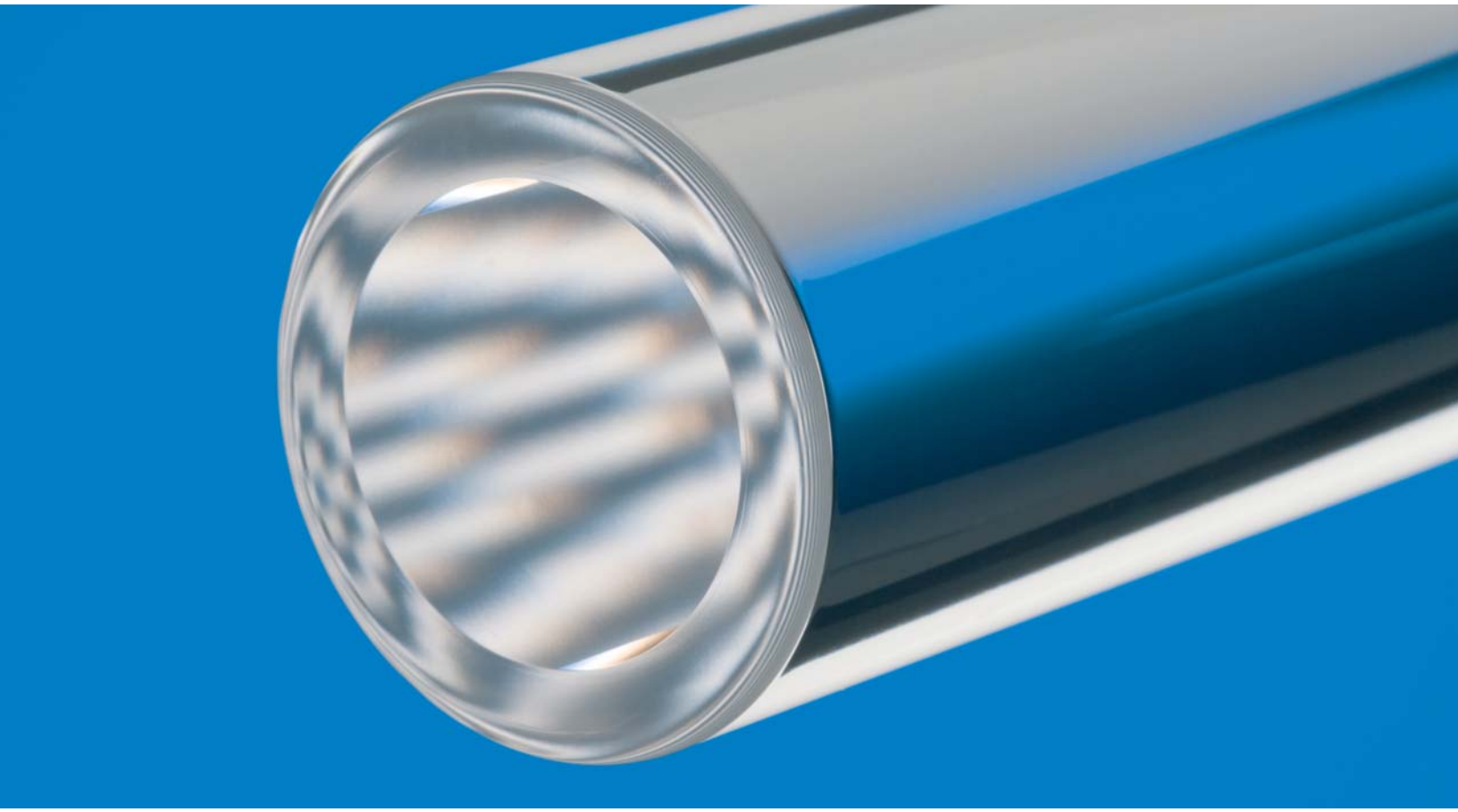
Heraeus

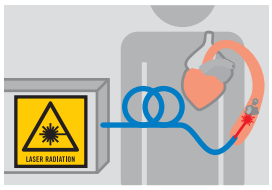


Specialty Fiber Preforms for the Most Demanding Applications

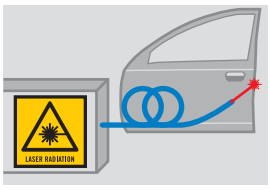
Fluosil® preforms are fused silica core step index multimode preforms made using the Plasma Outside Deposition (POD) process. This process facilitates the creation of a highly fluorine doped cladding with a depressed index compared to fused silica. Fluosil® preforms are principally characterized by the core material properties, cladding thickness, and numerical aperture.

Examples of Applications

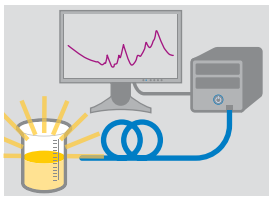
- Medical laser surgery (e.g., ablation of arterial blockage or vaporization of prostate tissue to treat BPH)
- Automotive applications (laser cutting and welding)
- Spectroscopy from UV, to VIS, to NIR ranges
- Specialty fiber bundles (e.g., beam homogenization for photo lithography and spot curing of UV adhesives)



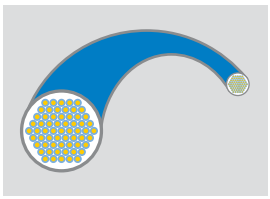
Medical technology



Laser cutting and welding



Optical spectroscopy



Fiber bundles

Product code – Customized Solutions

The product code of our Fluosil® preforms is based on their properties and is explained in the following sections:

	a	b	c	d	e	f
e.g.:	S	W	U	1.2	H	25mm

Fiber type – "S" is universal for our Step Index Profile a

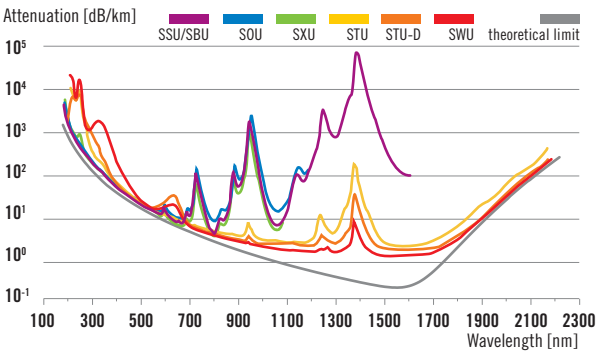
Core material – Your Choice b

Second portion of the product code signifies the type of core material used. "S", "B", "X" or "O" identifies high OH materials mainly for UV applications, while "W" or "T" corresponds to low OH materials for broad wavelength applications. Germanium doped core materials for applications where a numerical aperture >0.28 is required are identified by "L" for low, "H" for high, or "G" for graded index profile.

Preform Types – Influence of Core Materials

	Preform Type	Core Material	Wavelength [nm]	Features
High OH un-doped	SSU	F100	180 … 580, 670, 800, 1,030	■ Excellent transmission in UV ■ SSU: High radiation resistance to gamma irradiation at 800 nm ■ SBU: Low deep-UV solarization ■ SXU: Low solarization at 308 nm ■ SOU: Price-sensitive applications
	SBU	DQ, 600 … 800 ppm OH		
	SXU	F110 Spectrosil typ. 1000 ppm OH Cl-free		
	SOU			
Low OH un-doped	SWU	F300	500 … 2,200	■ Excellent transmission in VIS – NIR ■ OH content < 0.7 ppm, typ. 0.1 ppm ■ High power laser transmission ■ Spectroscopy
Low OH F doped	STU	F320-08 1 … 20 ppm OH	350 … 2.200	■ Broad range spectroscopy ■ High radiation resistance to gamma irradiation at VIS and 1.310 nm
	STU-D	F320-08 < 1 ppm OH		
Low OH Ge doped	SLU	1% Ge doped	500 … 2.200	■ High NA applications ■ SLU: NA ≤ 0.35 ■ SHU: NA ≤ 0.4 ■ SGU: NA ≤ 0.35
	SHU	2% Ge doped		
	SGU	Graded index 1% Ge doped		

Typical Fiber Attenuation as a Result of Core Material Properties

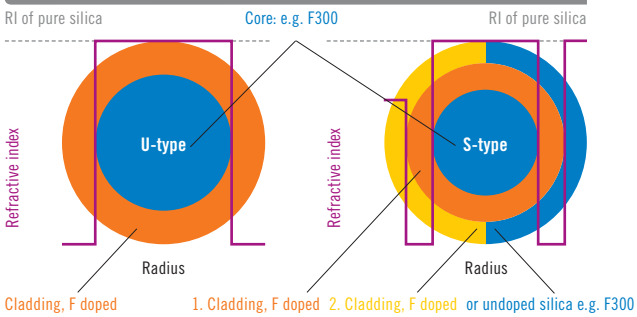


Fexible fiber design c & d

Due to our broad range of production capabilities we are able to realize complex customized fiber designs with multiple layer structures or special shapes. These different structures can be achieved by POD or utilizing jacket tubes for thicker layers. Single step cladding structures are indicated by the letter "U". Double or multiple cladding structures are indicated by an "S" c.

The relative thickness of the different layers d is described by the CCDR, the cladding to core diameter ratio. As a rule of thumb for low attenuation fibers, the cladding thickness should be ten times of the operational wavelength.

Cross Section and Refractive Index Profile



Numerical aperture (NA) e

The nomenclature in the product code for NA is blank for standard NA (0.22 ± 0.02), "L" for low NA (<0.2), "H" for high NA (0.26 ± 0.02) and "SH" for super high NA (>0.26). With respect to F300 the highest achievable NA's are 0.28.

Final part of our product nomenclature is the preform diameter given in mm f.

About us

Heraeus is the key global supplier of high purity synthetic fused silica products for optical fiber manufacturing. We have been a reliable partner in the world optical fiber industry since 1976.

We are certified for ISO 9001:2000 and our Total Quality Management system is based on the Business Excellence Model of the European Foundation for Quality Management (EFQM).

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