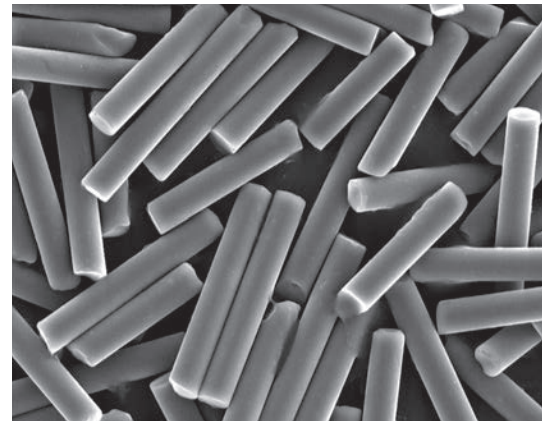


# Micro Rods

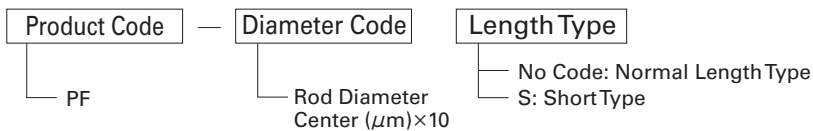
Micro Rods are manufactured by cutting glass fiber and used mainly as gap spacers in LCDs. Owing to their high dimensional precision, they can be used as gap spacers not only in LCDs but also in a diversity of other sub-micron-grade applications.

## Features

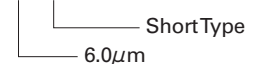
- Very precise diameter distribution attributable to manufacturing method
- High adhesive strength with coupling agents and sealants



## Part No.



Example : PF-60S



## Specifications (example)

Rod Diameter Center	Part No.	Rod Diameter ( $\mu\text{m}$ )		
		Mean	Standard Deviation	Maximum
6.0 $\mu\text{m}$	PF-60	6.00 $\pm$ 0.01	0.07 max.	6.20
	PF-60S			

## Product Lineup

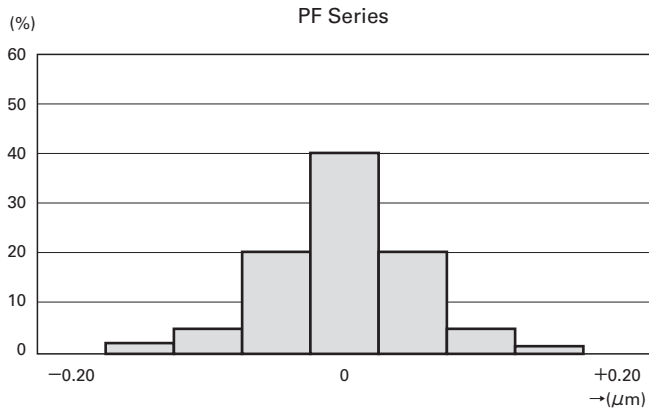
	PF Series	
Rod Length	Normal Length Type	Short Type
Rod Diameter	5.0-30.0 $\mu\text{m}$	3.0-15.0 $\mu\text{m}$

Please contact us for details.

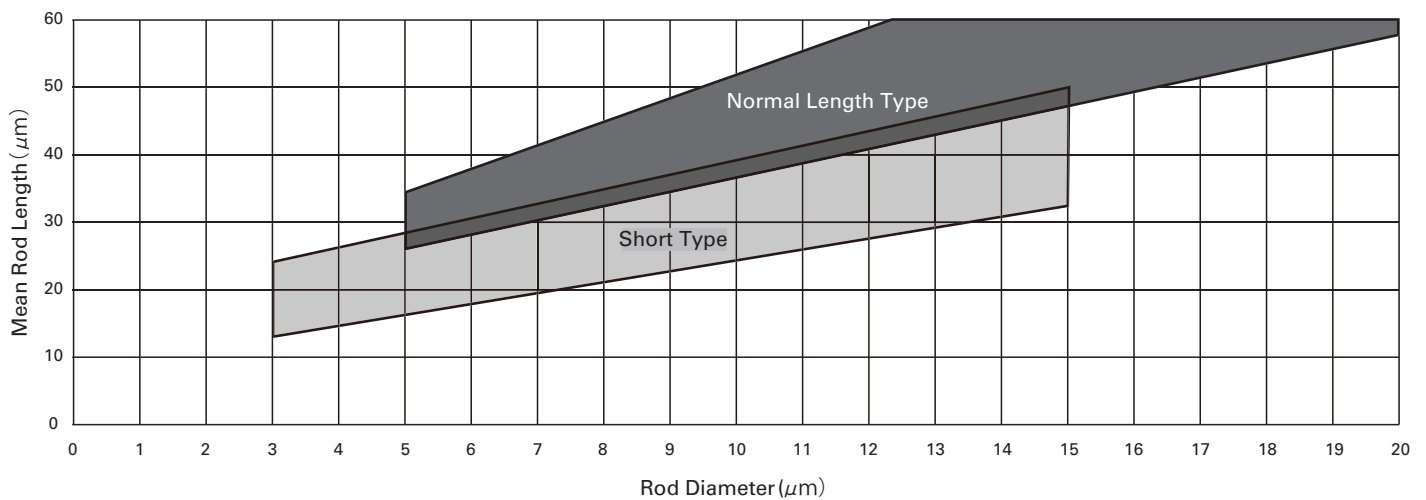
## Properties

Properties/Glass Code			PF
Coefficient of thermal expansion	30-380°C	$\times 10^{-7}/\text{K}$	56
Strain point		°C	635
Annealing point		°C	680
Softening point		°C	850
Dielectric constant	1MHz, 25°C		6.7
tan $\delta$	1MHz, 25°C	$\times 10^{-4}$	15
Volume resistivity Log $\rho$	150°C	$\Omega \cdot \text{cm}$	17
	200°C	$\Omega \cdot \text{cm}$	13.6
Thermal conductivity	0°C	W/m·K	1.04
Vickers hardness	Hv (0.2)		640
Moh's hardness			6.5
Density		$\times 10^3 \text{kg}/\text{m}^3$	2.6
Refractive index ( $n_d$ )			1.56

## Distribution of Rod Diameter (example)

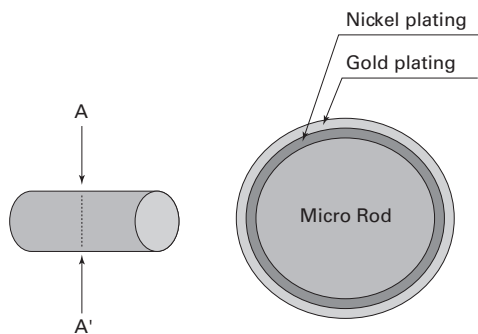


## Correlation between Rod Diameter and Rod Length by Type



## Conductive Type (option)

Conductive Micro Rods with nickel/gold double-layer plating are available.



Cross section (A-A')

### Plating Specifications

Material	Base: Ni	Surface layer: Au
Plating Thickness (μm)	0.10	0.05
Specific Volume Resistance (Ω·cm)	0.1 max.	