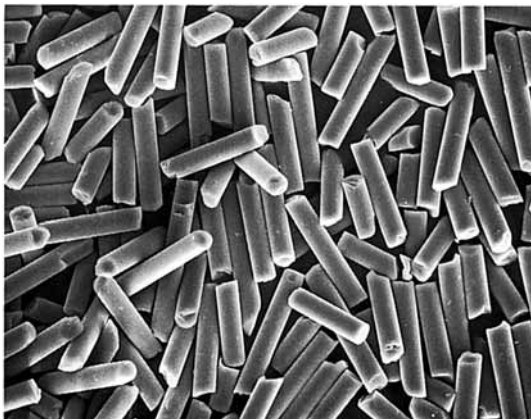


Micro Rods

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

Features

- Very precise diameter distribution attributable to manufacturing method.
- Chemically inert Micro Rods do not interact with the liquid crystal and aligning films.
- Having been washed in de-ionized water, Micro Rods exhibit high adhesive strength with coupling agents and sealants.



Part No.

Diameter

—

Product No.

Symbol

PF: Precise Diameter
SPF: Super Precise Diameter

Rod Diameter Center (μm)×10

No Symbol: Normal Type
S: Short Type
SSS: Super Short Type

Example: SPF-60SSS

6μm Super Precise Diameter

Super Short Type

Specifications (example)

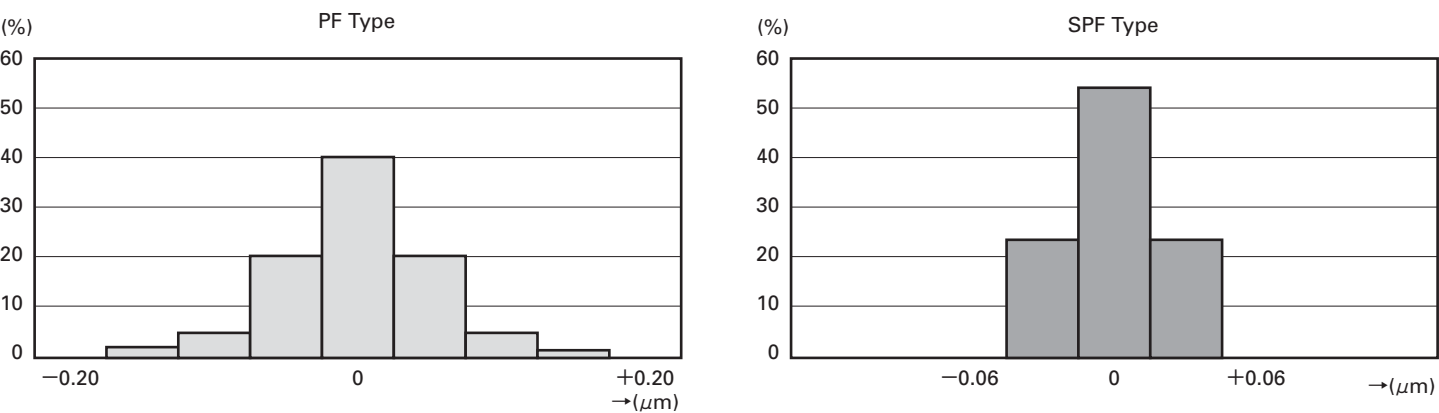
		Rod Diameter (μm)				Distribution of Rod Length (μm)			
Rod Diameter Center	Part No.	Diameter	Center	Standard Deviation	Max.	Rod Length	Longer than 100	Longer than 60	Longer than 30
6μm	SPF-60	Super Precise	6.00±0.01	0.02 max.	6.06	Normal	None	1% max.	—
	SPF-60S					Short	None	None	—
	SPF-60SSS					Super Short	None	None	None
	PF-60	Precise	6.00±0.01	0.08 max.	6.20	Normal	None	1% max.	—
	PF-60S					Short	None	None	—
	PF-60SSS					Super Short	None	None	None

Rod Diameter Range

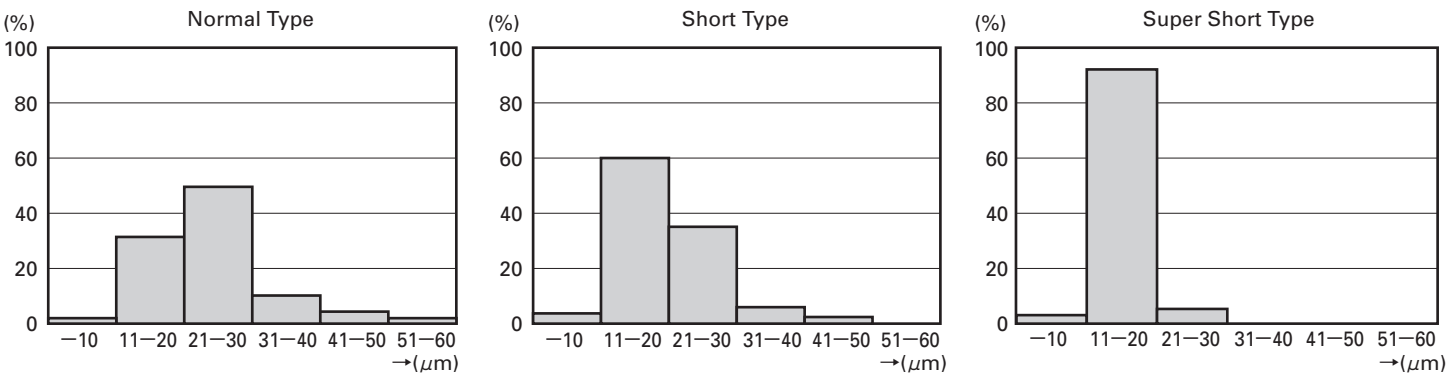
Rod Length Rod Diameter (μm)	Normal Length Type		Short Type Super Short Type	
1.5 —	No product specified		Special Ordered Products	—1.4μm
5.0 —			Standard	Precise 1.5—9μm <div>Super Precise 2.5—8μm</div>
9.0 —	Standard	Super Precise 5—8μm		Precise 5—11μm
11.0 —			Special Ordered Products	
15.0 —	Special Ordered Products	11.1—60.0μm		
60.0			No product specified	

• Standard products are available in rod diameters ranging from 5μm to 11μm in normal length type and from 1.5μm to 9μm in short and super short types.

Distribution of Rod Diameter (example)



Distribution of Rod Length (example)



Micro Glass

Glass Composition

	(wt. %)
SiO ₂	55
Al ₂ O ₃	14
B ₂ O ₃	7.5
CaO+MgO	22.5
Na ₂ O+K ₂ O+Li ₂ O	0.5
TiO ₂ +Fe ₂ O ₃	0.5

Properties

Properties/Glass Code			PF
Thermal expansion coeff.	30~380°C	×10 ⁻⁷ /K	56
Strain point		°C	635
Annealing point		°C	680
Softening point		°C	850
Dielectric constant	1MHz, 25°C		6.7
tan δ	1MHz, 25°C	×10 ⁻⁴	15
Volume resistivity Log ρ	150°C	Ω·cm	17
	200°C	Ω·cm	13.6
Thermal conductivity	0°C	W/m·K	1.04
Vickers hardness	Hv (0.2)		640
Moh's hardness			6.5
Density		×10 ³ kg/m ³	2.57
Refractive index (n _D)			1.56