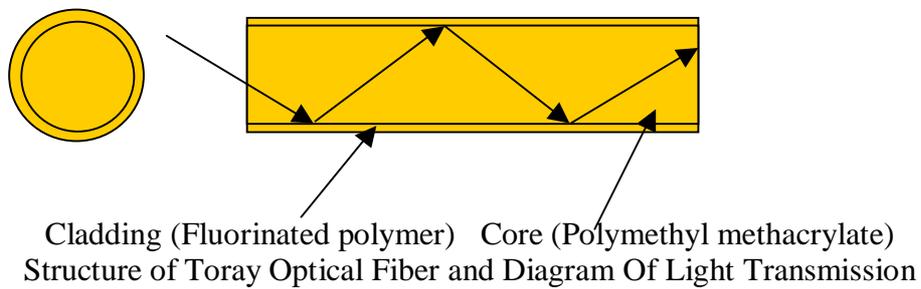


Toray polymer optical fibers have been developed by Toray Industries, Inc., based on its experience in polymer and fiber manufacturing as a leading producer of synthetic fibers and plastic products in the world. Our optical fiber is step index type with a core of high-purity polymethyl methacrylate and cladding of special fluorinated polymer.

We have two types of optical fiber, of which brief descriptions are given in the following table. Our optical fiber and its fabricated products are divided into three grades according to the attenuation.



KIND OF SERIES

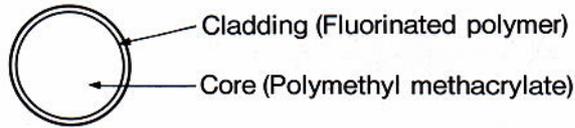
| | | Communication use PF Series | | | |
|---|-----------------------|--|------------|------------|------------|
| Material | Core Cladding | Polymethyl methacrylate Fluorinated Polymer | | | |
| Diameter | Fiber | 1.5~0.25mm | | | |
| Structure | | Step Index Type | | | |
| Numerical aperture (N.A.) | | 0.46 | | | |
| Acceptance Angle degree | | 55 | | | |
| Attenuation* dB/m at 650nm | Fiber Diameter | 1.5mm | 1.0,0.75mm | 0.5mm | 0.25mm |
| | Ultra grade | under 0.15 | under 0.15 | under 0.18 | |
| | Supra grade | | | | Under 0.30 |
| | Regular grade | | | | |
| Allowable Bending Radius | | >27mm | >17mm | | |
| Available temperature range Permanent use | | -40° C ~ 85° C | | | |
| Main usages | | Data transmission | | | |

*By Toray testing method

KIND OF SERIES

| | | Communication and Industrial use PG Series | | | | |
|--|-----------------------|---|------------|-------------|------------|---------------|
| Material | Core | Polymethyl methacrylate | | | | |
| | Cladding | Fluorinated Polymer | | | | |
| Diameter | Fiber | 3.0~0.25mm | | | | |
| Structure | | Step Index Type | | | | |
| Numerical aperture (N.A.) | | 0.5 | | | | |
| Acceptance Angle degree | | 60 | | | | |
| Attenuation* dB/m at 650nm | Fiber Diameter | 3.0, 2.0mm | 1.5mm | 1.0, 0.75mm | 0.5mm | 0.265, 0.25mm |
| | Ultra grade | | under 0.15 | under 0.15 | under 0.18 | |
| | Supra grade | | | | | under 0.30 |
| | Regular grade | Under 0.30 | under 0.20 | under 0.20 | under 0.25 | under 0.35 |
| Allowable Bending Radius | | >20mm | | >9mm | | |
| Available temperature range Permanent use | | -40° C ~ 70° C | | | | |
| Main usages | | Data transmission Light Guide Optical Sensor Electric Appliances Displays | | | | |

*By Toray testing method

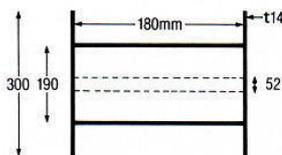


POLYMER OPTICAL FIBER

| Grade | Product Code | | Attenuation dB/m 650nm | Fiber Diameter (mm) | Fiber Length On Spool (m) | Spool Type |
|---------|--------------|------------|------------------------------|---------------------------|---------------------------------|---------------|
| | PF Series | PG Series | | | | |
| Ultra | | PGU-FB1500 | ~0.15 | 1.5 | 700 | B |
| | PFU-FB1000 | PGU-FB1000 | ~0.15 | 1.0 | 1500 | B |
| | PFU-FB1000 | PGU-FB1000 | ~0.15 | 1.0 | 5250 | A |
| | PFU-FB750 | PGU-FB750 | ~0.15 | 0.75 | 2700 | B |
| | PFU-FB500 | PGU-FB500 | ~0.18 | 0.5 | 6000 | B |
| Supra | | PGS-FB265 | ~0.30 | 0.265 | 12000 | B |
| | | PGS-FB250 | ~0.30 | 0.250 | 12000 | B |
| Regular | | PGR-FB3000 | ~0.20 | 3.0 | 150 | B |
| | | PGR-FB2000 | ~0.20 | 2.0 | 350 | B |
| | | PGR-FB1500 | ~0.20 | 1.5 | 700 | B |
| | | PGR-FB1000 | ~0.20 | 1.0 | 1500 | B |
| | | PGR-FB1000 | ~0.20 | 1.0 | 5250 | A |
| | | PGR-FB750 | ~0.20 | 0.75 | 2700 | B |
| | | PGR-FB750 | ~0.20 | 0.75 | 9000 | A |
| | | PGR-FB500 | ~0.25 | 0.5 | 6000 | B |
| | | PGR-FB250 | ~0.30 | 0.250 | 12000 | B |



Spool Type A



Spool Type B

