



# The ideal Choice for Sensor Housings and Optics

## Enormous Variety of Specialty Glass – Developed for World Markets

For over 130 years SCHOTT's Business Unit Tubing offers specialty glass products for various applications. Our broad portfolio of more than 60 glass types covers tubing, rods, discs and other shapes. Every product meets highest quality standards to provide the ideal material for further processing steps in the appropriate applications. This long-standing experience makes SCHOTT Tubing the perfect partner – as your component supplier as well as your service provider – from consulting services over prototypes to mass production, we are at your side. Our unique level of specialization and dedication ensures constant reliability and availability for decades.

## Unique advantages of our glass types for sensor housings and optics

### Proven stability in various aspects

Hermetic seal of e.g. SCHOTT 8366 with other glass types. This leads to high thermal shock resistance of the glass interfaces. In addition there is a proven compatibility of CTE (Coefficient of Thermal Expansion) of Silicon and e.g. DURAN® through anodic bonding. The mentioned glasses withstand also highly corrosive environments.

### Durable in processing and use

Glass tubing and rods provide high strength against pressure and impacts due to the shape itself, the rotational symmetry makes them highly suitable for automated machine processing. Tubular glass in general is known for its outstanding compression strength in the material world.

### Ideal optical characteristics

Optical sensors can benefit from glass housings and windows with high tailored transmission - from UV-C to near Infra-red.

### Optimal electrical characteristics

Sensor housings like pH-electrodes need the high electrical resistance of glasses (SCHOTT 8366) and need to be sealable with a broad range of pH-sensitive membrane glasses.

### Eco-friendly alternatives

Eco-friendly lead-free glasses like SCHOTT 8366 & DURAN® among others offer the same processing properties as traditional lead glasses.

### Design advantages

The characteristic high geometrical precision and homogeneity of material thickness of SCHOTT glass tubes enables light-weight designs.

For all glass types we can also offer them in a cut-to-size format – directly made in-house at SCHOTT. Get in touch with our product management for further details.

DURAN® is a registered trademark of DWK Life Sciences GmbH.

[schott.com](http://schott.com)

SCHOTT AG, Erich-Schott-Strasse 14, 95666 Mitterteich / Germany  
Phone +49 (0) 9633/80-0, [info.tubing@schott.com](mailto:info.tubing@schott.com)

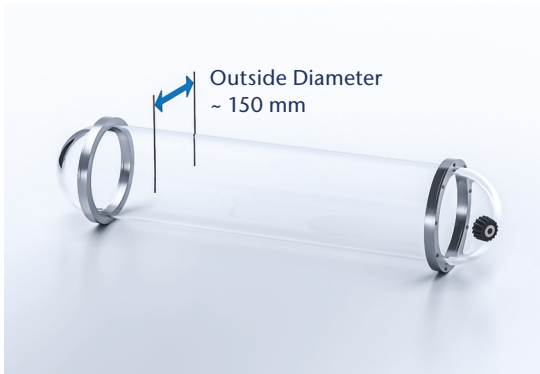
**SCHOTT**  
glass made of ideas

## Glass tubing for chemical sensors/pH-electrodes



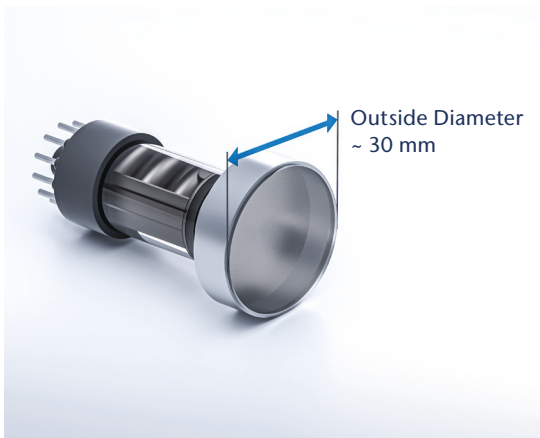
SCHOTT 8366	
Coefficient of mean linear thermal expansion CTE $\alpha$ (20°C; 300°C) [ $10^{-6} \text{ K}^{-1}$ ]	9.2
Anodic bondable to Silicium	no
Range for hot forming	675 – 1015 °C
Maximum allowable temperature in use case	< 420 °C
Electric volume resistivity at 150°C [ $\Omega\cdot\text{cm}$ ]	$1\cdot 10^{8.6}$
High resistance to compressive stress [ $\text{N}/\text{mm}^2$ ]	> 100
Geometrical range (outside diameter standards)	1.25 – 25.5 mm
Lead-free	Yes

## Glass tubing for various sensor types



DURAN®	
Coefficient of mean linear thermal expansion CTE $\alpha$ (20°C; 300°C) [ $10^{-6} \text{ K}^{-1}$ ]	3.3
Anodic bondable to Silicium	yes
Range for hot forming	825 – 1260 °C
Maximum allowable temperature in use case	< 500 °C
Electric volume resistivity at 150°C [ $\Omega\cdot\text{cm}$ ]	$1\cdot 10^{8.0}$
High resistance to compressive stress [ $\text{N}/\text{mm}^2$ ]	> 100
Geometrical range (outside diameter standards)	3 – 465 mm
Lead-free	Yes

## Glass discs for sensor windows



SCHOTT 8337B	
Coefficient of mean linear thermal expansion CTE $\alpha$ (20°C; 300°C) [ $10^{-6} \text{ K}^{-1}$ ]	4.1
UV-C Transmission at 254 nm (Wall Thickness 1 mm)	~ 90%
VIS and NIR Transmission < 2500 nm (Wall Thickness 1 mm)	> 90%
Refractive index ( $\lambda = 587,6 \text{ nm}$ ) $n_d$	1.476
Range for hot forming	705 – 1085 °C
Maximum allowable temperature in use case	< 390 °C
Chemical stability	average
Geometrical range	Discs OD 3 – 30 mm
Lead-free	Yes

## Glass rods or discs for light guides for sensors



SCHOTT 8347	
Coefficient of mean linear thermal expansion CTE $\alpha$ (20°C; 300°C) [ $10^{-6} \text{ K}^{-1}$ ]	3.3
UV-C Transmission at 254 nm (Wall Thickness 1 mm)	~ 75%
VIS and NIR Transmission < 2500 nm (Wall Thickness 1 mm)	> 90%
Refractive index ( $\lambda = 587,6 \text{ nm}$ ) $n_d$	1.471
Range for hot forming	825 – 1260 °C
Maximum allowable temperature in use case	< 500 °C
Chemical stability	Tailored for high resistance against ambient conditions
Geometrical range	Rods or discs: Only customized
Lead-free	Yes