

SCHOTT Reed Switch Glass Tubing

Enabling reliable hermetic encapsulation that is lead-free and IR-absorbent

Product Information

SCHOTT's 8516 reed glass tubing was specially developed for the encapsulation of reed switches. Typical tubing diameters range from just over 1 mm to more than 8 mm and are precisely cut to size according to individual customer requirements. Sections can be as short as 5 mm for truly miniaturized applications.

Sealing Method

8516 is green due to its high iron content, which enables particularly high IR absorption rates. This allows our customers to seal the glass free of contamination by using light (e.g. using Nd-Yag lasers or tungsten halogen lamps) rather than flames.

Advantages

Enables reliable, long-term functionality of electronic components

Hermetic encapsulation along with the inert character of glass leads to consistent chemical stability inside the body. This results in high reliability and long-term functionality of electronic components for millions of switching cycles. Furthermore, reed switches do not consume power in „stand-by“ mode. This sets them apart from semiconductor solutions.

Autoclavable

By using laser or infrared light, the open ends of the glass vials can be closed, creating a hermetic and reliably-sealed unit that is fully autoclavable.

With automated cutting and cleaning technology, SCHOTT meets the most stringent requirements for applications in the electronic and automotive fields:

- All products are lead-free
- Automated online quality control
- Uniform fire-polished ends
- Fast and flexible sampling for custom-made solutions



Applications

End-use applications are found in a variety of fields:

- Automotive applications, including brake fluid control, seatbelt, and crash sensors.
- Home appliance applications, including switches for electrical appliances such as toothbrushes, water heaters, etc.
- Semiconductor test equipment, where reed switches enable loss-free switching of signals during test cycle.

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Please refer to the following table for properties of SCHOTT's 8516 reed glass:

Glass Number	8516	
Sealing alloy	NiFe 52	
Evaporation tendency (1)	0	
CTE	10 ⁻⁶ /K	8.9
Transformation temperature	°C	440
Softening point (10 ^{7.6} dPas)	°C	650
Working point (10 ⁴ dPas)	°C	990
Density	g/cm ³	2.56
Modulus of elasticity	GPa	72
Refractive index	1.516	
t _g 100 (DIN 52326)	°C	250
Electrical volume resistivity (in cm) log ρ at 250 °C	8.1	
Electrical volume resistivity (in cm) log ρ at 350 °C	6.4	
Dielectric constant	(25°C, 1 MHz)	6.5
Loss angle tanδ	(25°C, 1 MHz)	25x10 ⁻⁴
Classes of chemical stability		
Transmiss of 0.5 mm glass at 1.1 μm	16	
Water resistance (DIN 12111) class	3	
Acid resistance (DIN 12116) class	1	
Acid resistance (DIN 52322) class	2	

Overview of available dimensions for IR tubes 8516*

Outer Diameter	Inner Diameter	Wall Thickness
1.30 +/- 0.03 mm		0.225 +/- 0.025
1.45 +/- 0.05 mm		0.225 +/- 0.025
1.70 +/- 0.03 mm		0.25 +/- 0.03
1.75 +/- 0.03 mm		0.25 +/- 0.03
2.06 +/- 0.04 mm		0.23 +/- 0.04
2.10 +/- 0.05 mm		0.275 +/- 0.025
2.13 +/- 0.05 mm		0.33 +/- 0.025
2.15 +/- 0.04 mm		0.28 +/- 0.04
2.21 +/- 0.04 mm		0.355 +/- 0.025
2.40 +/- 0.05 mm	1.71 +/- 0.05 mm	
2.40 +/- 0.04 mm		0.38 +/- 0.025
2.40 +/- 0.05 mm		0.32 +/- 0.05
2.45 +/- 0.05 mm		0.35 +/- 0.05
2.50 +/- 0.025 mm	2.0 +/- 0.025 mm	
2.55 +/- 0.05 mm		0.36 +/- 0.03
3.00 +/- 0.05 mm	2.20 +/- 0.05 mm	
3.50 +/- 0.05 mm		0.45 +/- 0.05
3.85 +/- 0.05 mm		0.33 +/- 0.03
4.63 +/- 0.12 mm	3.8 +/- 0.1 mm	
4.90 +/- 0.07 mm	3.7 +/- 0.07 mm	
4.90 +/- 0.07 mm		0.65 +/- 0.05
4.90 +/- 0.10 mm		0.55 +/- 0.05
5.05 +/- 0.07 mm	3.6 +/- 0.07 mm	
5.10 +/- 0.10 mm		0.65 +/- 0.05
5.20 +/- 0.10 mm		0.45 +/- 0.05
6.50 +/- 0.10 mm		0.56 +/- 0.05
8.10 +/- 0.13 mm	6.5 +/- 0.13 mm	

Forms of Supply and Product Packaging

- Reed glass tube sections are packed in antistatic trays
- Other special packaging options available upon request
- Products can be delivered with special cleaning and packing in clean room conditions

Specifications

Supply format:	Glass vial, both sides open
Outer diameter from:	1.30 to 8.10 mm
Length from:	7 to 50 mm**

Quality

For information on our quality assurance programs, please refer to our quality assurance pages.

About SCHOTT Electronic Packaging

SCHOTT Electronic Packaging is a world-leading supplier of hermetic packaging solutions for the reliable, long-term protection of sensitive electronic devices. Since the 1930s, we have been developing, manufacturing and optimizing hermetic packaging solutions by using specialty glass, glass-to-metal, and ceramic-to-metal sealing technology.

*Subject to change – Other sizes available upon request.

**Depending on the length diameter ratio.