

# SCHOTT Cartridges High Speed (HS)



## Cartridge Filling: a Growing Market

The demand for pharmaceutical glass cartridges is growing and as market requirements are changing rapidly, new technologies for filling are evolving. In response to this trend, SCHOTT is extending its cartridge portfolio to meet customer demands.

## Physical & Chemical Product Properties

Our cartridges are made of SCHOTT FIOLAX® clear glass tubing which is characterized by the following physical and chemical properties:

Glass properties:	Physical Data	Chemical Data
FIOLAX® clear (Type I)	<b>Coefficient of mean linear thermal expansion</b>	<b>Hydrolytic Resistance</b>
	$\alpha$ (20°C; 300°C) acc. to ISO 7991	– acc. To ISO 719
	Transformation Temperature T <sub>g</sub>	– acc. To C – Ph. Eur.
	<b>Glass temperature at viscosity <math>\eta</math> in dPa · s</b>	– acc. To C – USP
	10 <sup>13</sup> (annealing point)	– acc. To C – JP
10 <sup>7.6</sup> (softening point)	Acid resistance (DIN 12116)	
10 <sup>4</sup> (working point)	Acid resistance (ISO 695)	
<b>Density <math>\rho</math> at 25°C</b>	2.34 g · cm <sup>-3</sup>	ASTM E 438
		<b>Glass Composition</b> (in %): SiO <sub>2</sub> (75), B <sub>2</sub> O <sub>3</sub> (10.5), Al <sub>2</sub> O <sub>3</sub> (5), Na <sub>2</sub> O (7), CaO (1.5)

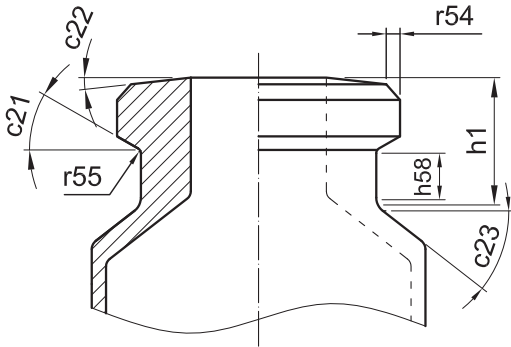
## TopLine Quality Classification

In addition to the statistical process control, SCHOTT Cartridges HS are 100% dimension controlled and are 100% inspected for cosmetic defects by the SCHOTT Automated Inspection System based on customized AQL levels.

## Special Requirements of High-speed Cartridges Filling Lines

Laser-controlled, high-speed filling lines enable bubble-free dosing while reducing overfilling. However, the success of these production lines depend on high quality containers. In close collaboration with our customers, SCHOTT has developed high-tech glass cartridges that are fully compatible with the requirements of laser-controlled, high-speed filling lines.

### Product Information



Dimensions (mm)		Tolerances
h1	5.0	± 0.2
h58	1.8	± 0.3
r54	0.3	± 0.2
r55	0.2	± 0.1
c21°	8.0	± 5.0
c22°	11.0	± 2.0
c23°	30.0	± 4.0

### Value-adding Product Benefits and Services

The precise geometry of SCHOTT Cartridges HS allows for highly accurate filling on laser-controlled, high-speed lines. Reduced overfilling and increased machine speed drive efficiency. SCHOTT offers a variety of quality options to best meet customer requirements. SCHOTT has established all processes according to the highest international industry standards and can also accommodate specific customer requests.

#### Superior glass quality

- High-quality SCHOTT glass tubing processed from excellent raw materials is the basis for all SCHOTT pharma cartridges.

#### Improved container properties

- Optimized laser transmission through superior cartridge design
- Compatible with laser-controlled, high-speed filling lines

#### Optimized production outcome

- Allows precise filling level control (over- and underfilling)
- Reduces downtimes on filling lines

### Packaging

SCHOTT Cartridges HS are delivered in an Akylux box with a lid.

“Newest upcoming generation of filling equipment enables cost reduction and increased efficiency. Up to 600 cartridges per minute are being filled on these high-speed filling-lines.”

Dr. Bernhard Hladik, Head of Product Management, SCHOTT Pharmaceutical Packaging

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