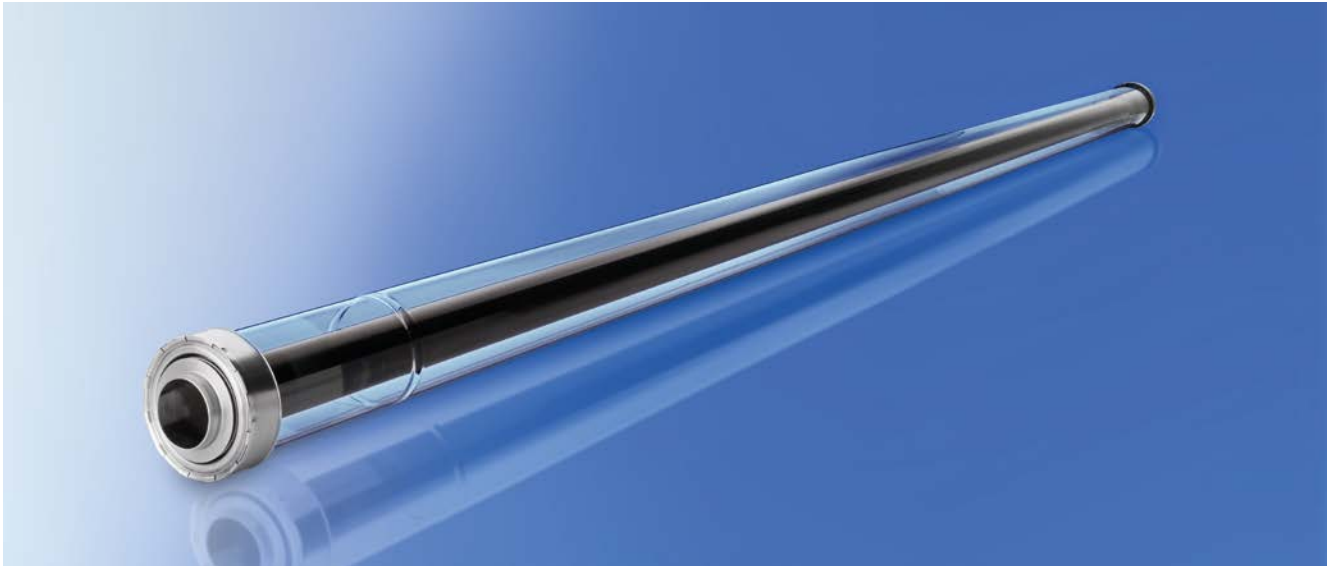


# SCHOTT PTR<sup>®</sup>70 Receivers

Designed for maximum profitability of the power plant

SCHOTT Solar CSP introduces the 4<sup>th</sup> generation of receivers, which benefits from the experience of more than 1 Million receivers installed in over 50 CSP projects worldwide. The new generation SCHOTT PTR<sup>®</sup>70 again sets the benchmark in product performance and provides superior product durability and lifetime.

The SCHOTT PTR<sup>®</sup>70 is designed for usage in state-of-the-art power plants operating with oil-based heat transfer fluids at temperatures up to 400°C.



## Stable performance

The optical properties of the absorber coating are crucial for the performance of the collector field. SCHOTT Solar CSP has developed and patented the absorber coating with remarkable optical and thermal values for a long-term performance stability.

## Higher efficiency through low heat loss

A new receiver end design includes an innovative internal heat shield that minimizes heat losses and improves the efficiency of the receiver.

## Improved handling and robustness

The 4<sup>th</sup> generation receiver is significantly lighter and is equipped with a protection cap at the receiver ends. It prevents mechanical impact to sensitive parts during mounting, installation and operation, thus improving project execution.

**SCHOTT**  
solar

### Validated best-in-class performance

According to measurements at DLR (German Aerospace Centre) Quarz, the SCHOTT 4<sup>th</sup> generation receiver shows an optical performance 6% above the industry standard.

Heat loss measurements carried out in a round robin test performed by SCHOTT Solar CSP in cooperation with NREL (US National Renewable Energy Laboratory) and DLR confirmed a heat loss of less than 250 W/m at working temperatures (400°C).

### Technical specification

Components	Specification
Dimension	<ul style="list-style-type: none"> <li>length: 4060 mm at 20°C ambient temperature (159.8 inches at 68°F)</li> <li>aperture length: &gt; 96.7% of the bulk length at 350°C/662°F working temperature</li> </ul>
Absorber	<ul style="list-style-type: none"> <li>outer diameter: 70 mm / 2.75 inches</li> <li>steel-type: DIN 1.4541 or similar</li> <li>solar absorptance:                             <ul style="list-style-type: none"> <li><math>\alpha_{ISO} \geq 95.5\%</math></li> <li><math>\alpha_{ASTM} \geq 96\%</math></li> </ul> </li> <li>thermal emittance: <math>\epsilon \leq 9.5\%</math></li> </ul>
Glass envelope	<ul style="list-style-type: none"> <li>Borosilicate glass</li> <li>outer diameter: 125 mm / 4.9 inches</li> <li>antireflective coating</li> <li>solar transmittance: <math>\tau \geq 97\%</math></li> </ul>
Thermal losses	<ul style="list-style-type: none"> <li>in conjunction with SCHOTT Solar CSP patented shields</li> <li>&lt; 250 W/m (@ 400°C)</li> <li>&lt; 165 W/m (@ 350°C)</li> <li>&lt; 110 W/m (@ 300°C)</li> <li>&lt; 70 W/m (@ 250°C)</li> </ul>
Vacuum	<ul style="list-style-type: none"> <li>residual gas pressure: <math>\leq 10^{-3}</math> mbar</li> </ul>
Heat transfer fluid	<ul style="list-style-type: none"> <li>non-corrosive thermal oil with an effective partial pressure of dissolved Hydrogen of <math>p_{H_2} &lt; 30</math> Pa</li> </ul>
Operating pressure	<ul style="list-style-type: none"> <li><math>\leq 41</math> bar (absolute)</li> </ul>

### Thermal losses

