EXCALIBUR HD FPT Optical Immersion Probe for Transmission Measurements

Particularly robust spectroscopic probe for the most demanding online process monitoring applications

The "Excalibur HD FPT" transmission probe was specially developed for maximum safety and cost control under the toughest operating conditions. The use of the latest manufacturing technologies ensures maximum precision for the best measurement results. The probe offers maximum robustness in combination with high photometric transmission and accuracy for a wide range of process applications, especially for high temperatures, temperature shocks or the use of aggressive chemicals.

A special feature of the "Excalibur HD FPT" probes is the use of hollow light guides instead of internal optical fibers. This has a considerable advantage in terms of temperature stability and enables both very high and low process temperatures.

TYPICAL APPLICATIONS

- Reaction tracking and reaction endpoint determination in chemical plants with increased requirements
- Quality control of material flows in petrochemical plants
- Quality control of organic solvents

PRODUCT FEATURES

Double safety barrier

The probe has a second barrier on the side facing away from the process. This prevents product spillage and leakage even in extreme situations.

Sapphire metal sealing technology

The use of high-quality materials such as metal seals and sapphire windows ensures a high degree of chemical resistance and pressure resistance. In combination with innovative manufacturing processes, sapphire metal sealing technology offers clear advantages over other sealing technologies.

No elastomer seals

The absence of elastomer seals ensures reliable long-term operation. The probe is therefore maintenance-free.

Use of light guides

A distinctive feature of the »Excalibur HD FPT« probes is the use of light guides instead of internal optical fibers. This has a significant benefit in terms of temperature stability and allows their use at both very high and very low process temperatures.

Nitrogen filling

Thanks to the nitrogen filling, the probe meets the necessary requirements to enable extreme temperature changes and low-temperature applications without additional flushing of the internal nitrogen filling. This eliminates the costs that would be incurred for the installation and operation of continuous purging.

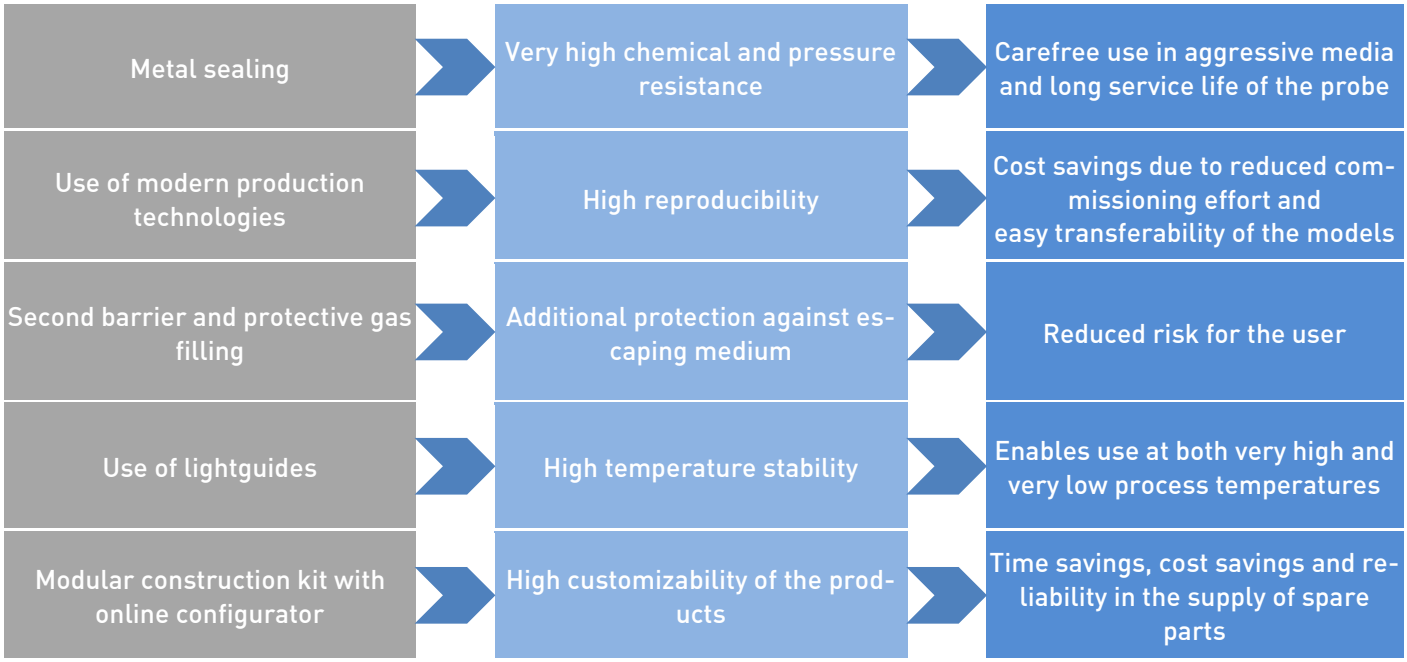
Also available in a version suitable for cryogenic applications down to -190 °C

In combination with a purge or vacuum connection, the probe is also available as a low-temperature version, which ensures reliable operation down to –190 °C

Consistent measurement results for easy method transfer

The use of state-of-the-art manufacturing technologies such as electron beam welding and the use of high-precision optical components ensures that the Excalibur HD FPT probe offers consistently high-quality measurement results. In addition, method transfer between individual measuring points is facilitated.

All benefits at a glance



EXCALIBUR HD FPT – Product Configuration

Measuring principle	TRANSMISSION
Outer Diameter	26 mm (1,02 inch) / 25 mm (1 inch)
Optical Path Length / Focus	2 mm / 3 mm / 4 mm / 5 mm / 10 mm
Optical Material	Sapphire
Probe Body Material	Stainless Steel 1.4435/1.4404 (316L) / Hastelloy C-276
Sealing Technology	Gold coated High-Nickel Alloy C-Ring
Spectral Range	UV / Vis / NIR
Wavelength	for UV: 200 - 800 nm (opt. >230 nm) Vis: 350 - 2000 nm; NIR: 800 - 2500 nm
Optical Connection	F-SMA or FC/PC socket with different connections for protective hoses
Fiber Optic Technology	Light guides
Process Connection	EN/DN 40 to 80 or ASME B 16,5 NPS 1 to 2 or flange according to customer requirements
Probe Barrel	Not suitable for Swagelok
Maximum Pressure	to 300 bar (Hastelloy, depending on the flange)
Maximum Immersion Depth	940 mm (without flange)
Minimum Immersion Depth	35 mm + path length
Length of Probe Barrel	Without flange: 250, 450, 650 or 950 mm, with flange: depending on max. immersion depth, allow 50 mm space for flange
Additional Functions	Back filled with inert gas (N2)
Temperature Restrictions	T max: secondary confinement 290 °C, optical connector 150 °C, Copex PMA 130 °C (85 °C for ATEX) The FPT provides a safety barrier and inerting with shielding gas (unless internal flushing is selected)
Temperature	-30 °C to 400 °C
Pressure	-1 bar to 250 bar
Delivery Scope	Optical immersion probe, manual, customer information drawing, certificate of pressure test, protocol of transmission test, transport packaging