EXCALIBUR XP

Optical Transmission Probe

Highly precise immersion probe for spectroscopic online measurements

The Excalibur XP process probe is the right choice when accuracy and reproducibility of measurement results are top priorities. It can be used for transmission measurements of liquids for analysis and quality determination in a wide range of applications. This probe model is available in the diameters 12 mm, 20 mm and 25 mm.

WIDE RANGE OF APPLICATION

The main areas of application for probes in the "Xtremely Precise" category lie in the chemical, petrochemical, biotechnological and pharmaceutical industries. Applications include incoming inspection, immediate and very accurate reaction tracking, ingredient concentration measurements, and fractional control.

Examples of parameters that often play a decisive role in manufacturing processes and that can be precisely determined with the Excalibur XP are:

- Amine number
- OH number
- Acid number
- Iodine number
- Peroxide number
- API content
- Water content
- Nutrient concentration
- API content

EASY TRANSFERABILITY OF MODELS

The Hellma »Excalibur XP« is constructed with standardized components from a modular system. The same optical design is also available for laboratory probes.

HIGH PRECISION AND REPRODUCIBILITY

The probe has an elastomer-sealed, monolithic measuring head made of quartz or sapphire, in which several functions are combined in one optical component by bonding. Bonding is a unique technology used only by Hellma. Transitions between the bonded individual parts are no longer optically detectable.

The number of phase transitions of the measuring beam is thus reduced to a minimum, resulting in a high light yield. This guarantees very high transmission and thus particularly reliable and reproducible measurement results. The high reproducibility of the results improves the transferability of the methods between identical probes.

HIGH FLEXIBILITY AND ADAPTABILITY

The Hellma "Excalibur XP" can be installed in reactors as well as in pipelines. With the help of the Hellma online configurator, the pre-configured basic version of the probe can be easily adapted to individual process conditions depending on the application. The probe is compatible with all common NIR spectrometers.

BETTER AVAILABILITY

The components of this probe model are kept in stock. This guarantees rapid availability. The supply of spare parts is ensured. Repairs can be carried out quickly. This leads to higher process reliability and plant efficiency.

MAINTENANCE AND REPAIR SERVICE

Hellma offers a maintenance and repair service for elastomer-sealed process probes and measurement cells. This extends product life and helps to avoid downtime.

Maintenance-free probe models with metal seals are also available if required.

BENEFITS:

- Very high path length accuracy and very high transmission
- High reproducibility
- High adaptability of the products
- High temperature resistance

PRODUCT CONFIGURATION

Model	**Excalibur XP**
Measurement Principle	Transmission
Outer Diameter	12 / 20 / 25 mm
Optical Path	1, 2, 5, 10 mm / 20 mm (Ø 20 or 25 mm)
Pathlength Tolerance	Quartz ±0,01 mm, Sapphire ±0,05 mm
Optical Material	Quartz Glass / Sapphire
Probe Body Material	Stainless Steel 1.4571 (316Ti) / Hastelloy C-22 (2.4602)
Sealing Technology	Kalrez 6375 / 6230 / 6380 / 7075
Spectral Range	NIR / UV/Vis
Optical Connection	F-SMA Socket and ATEX PMA Housing NW 23/ 2m glass fiber with stainless steel spiral hose, 2x F-SMA connector and ATEX PMA housing
Lightguide Technology	Standard Fiber Optics/ High Temperature Fiber Optics
Process Connection	Without Flange / Different EN/DIN/ASME Flanges / according to customer specification
Probe Barrel	Not suitable for Swagelok
Maximum Immersion Depth	Without Flange: 100 mm-640 mm (Ø 12 and 20 mm), 940 mm (Ø 25 mm) With Flange: 600 mm (Ø 12 and 20 mm), 900 mm (Ø 25 mm)
Minimum Immersion Depth	30 mm + optical pathlength
Length of Probe Barrel	Without Flange: immersion depth + 10 mm / With Flange: immersion depth + 50 mm
Additional Functions	Internal purging of body probe (optional)
Temperature Restrictions	T max: optical connection 150 °C (without ext. fibers), Copex PMA 130 °C (85 °C for ATEX)
Temperature	5 °C to 180 °C (Standard Fiber Optics) / -80 to 300°C (High Temperature Fiber Optics)
Maximum Pressure	40 bar (Class 300, over pressure at RT, 31 bar at 200 °C, 27 bar at 300 °C, 25 bar at 400 °C
Pressure	0 bar to 40 bar
Scope of Dellivery	Immersion Probe, Manual, Customer's Drawing, Certificate of the pressure test, Protocol of transmission test, Transport case