



For liquid and  
gaseous media



# Excalibur HD FCP Measurement Cell

ROBUST FLOW-THROUGH CELL FOR **PRECISE SPECTROSCOPIC  
ONLINE MEASUREMENTS** IN THE MANUFACTURING PROCESS

MAINTENANCE-FREE  
AND ROBUST, SUITABLE  
FOR HEAVY DUTY USE

EASY TO INTEGRATE  
AND COMPATIBLE WITH  
ALL STANDARD PROCESS  
SPECTROMETERS

CAN BE USED IN  
POTENTIALLY  
EXPLOSIVE ZONES

# SPECTROSCOPIC REAL-TIME MEASUREMENT OF GASES AND LIQUIDS

## Online measurements directly in the main product flow or bypass

Spectroscopic UV, Vis or NIR online measurements in real-time are standard in industrial process analytical technology (PAT). They provide data on the composition and quality of liquids and gases directly from the main process flow or can be used for monitoring reactions in the bypass.

The selection of a suitable measuring interface however is a challenge: Optical probes and flow-through measurement cells must function reliably even under harsh conditions and must be compatible with the overall system.

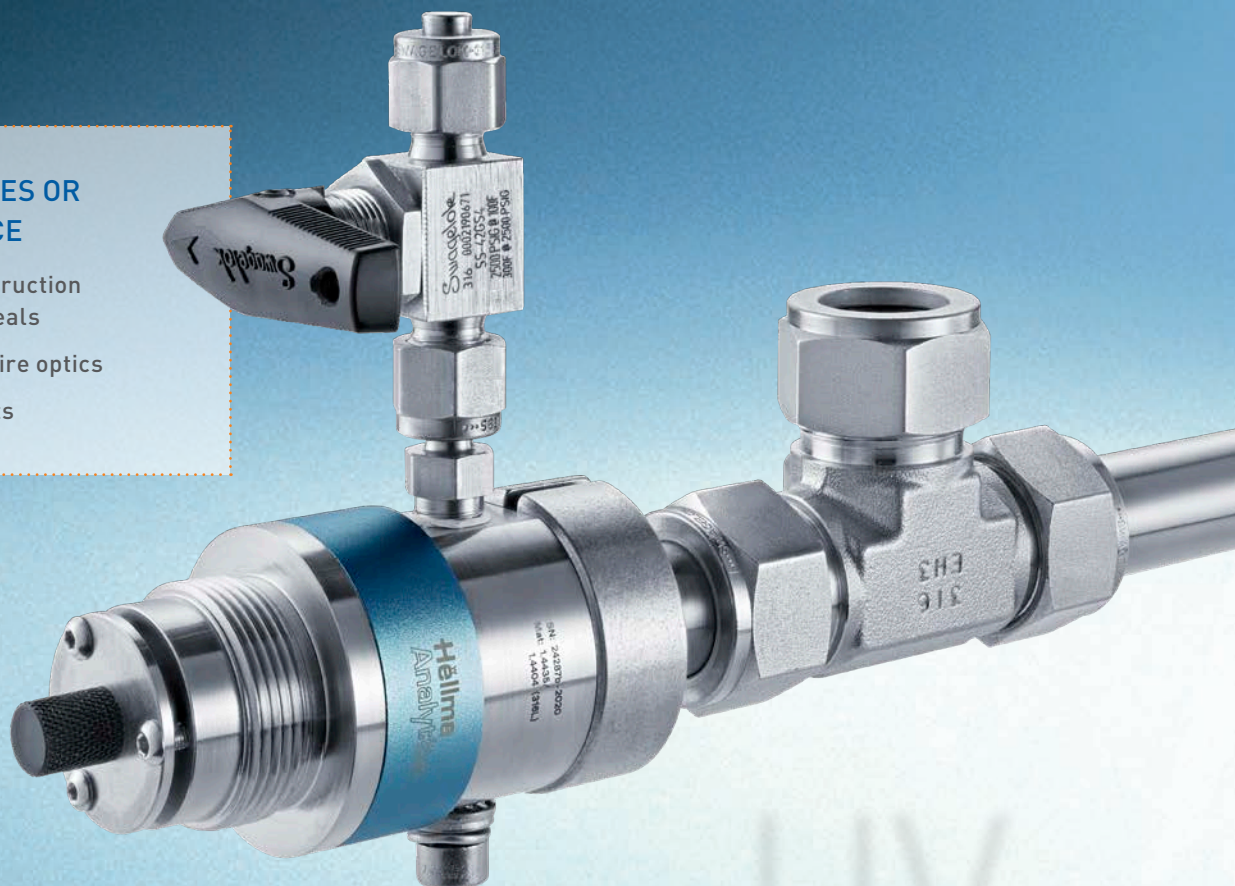
## Exceptionally robust measurement cell for process use

The Excalibur HD FCP measurement cell is particularly pressure and temperature resistant (**up to 250 bar / 300 °C**) by using wear-free metal seals and sapphire optics. Maintenance-related failures or downtimes are eliminated – process costs are reduced.

The measurement cell is filled with nitrogen. The slight overpressure and the presence of a second barrier prevent the medium from escaping. This means that the measurement cell is well equipped for use in demanding process environments.

### NO DOWNTIMES OR MAINTENANCE

- Robust construction with metal seals
- Use of sapphire optics
- No wear parts



## SELECTION OF DIFFERENT CENTRAL PARTS FOR DIFFERENT PATH LENGTHS



for liquid media

H-Cell with high-precision path length accuracy (2 mm, 5 mm or 10 mm)



Cost-effective and readily available X-Cross variant for liquid measurements (path length 2.5 mm)



for gaseous media

T-Piece for gas measurements in hazardous areas (path length from 100 mm to 2,000 mm)

### RELIABLE AND PRECISE MEASUREMENTS

- H-Cell central part with highest precision for path lengths of 2 mm, 5 mm or 10 mm
- Precise measurements and high reproducibility guaranteed

### FLEXIBLE ADAPTATION AND INTEGRATION

- Easy to understand and easy to configure (Hellma online configurator)
- Can be used for liquid or gaseous substances thanks to the interchangeable central cell part
- Problem-free installation thanks to standardized connections
- Compatible with all commercially available process spectrometers

### SAFE OPERATION

- Can be used in potentially explosive areas (ATEX zones 1, 2, 21 and 22)
- Second barrier with nitrogen filling
- Pressure and temperature resistant up to 250 bar / 300 °C



NIR

# EXCALIBUR HD FCP MEASUREMENT CELL FOR A WIDE RANGE OF APPLICATIONS

## Chemistry



## Petrochemistry



## Paints and coatings

## Agriculture

### MEASUREMENTS OF GASES AND LIQUIDS IN PILOT PLANTS AND IN THE MANUFACTURING PROCESS

- Monitoring the moisture content in clean gases
- Monitoring of chemical reactions
- Quality control of raw materials
- Measurement of the water content of solvents
- Real-time measurement of gas flows in the petrochemical industry



### Many other applications possible

Talk to us – we will help you to find the right Hellma product.

## Product Standard Configuration

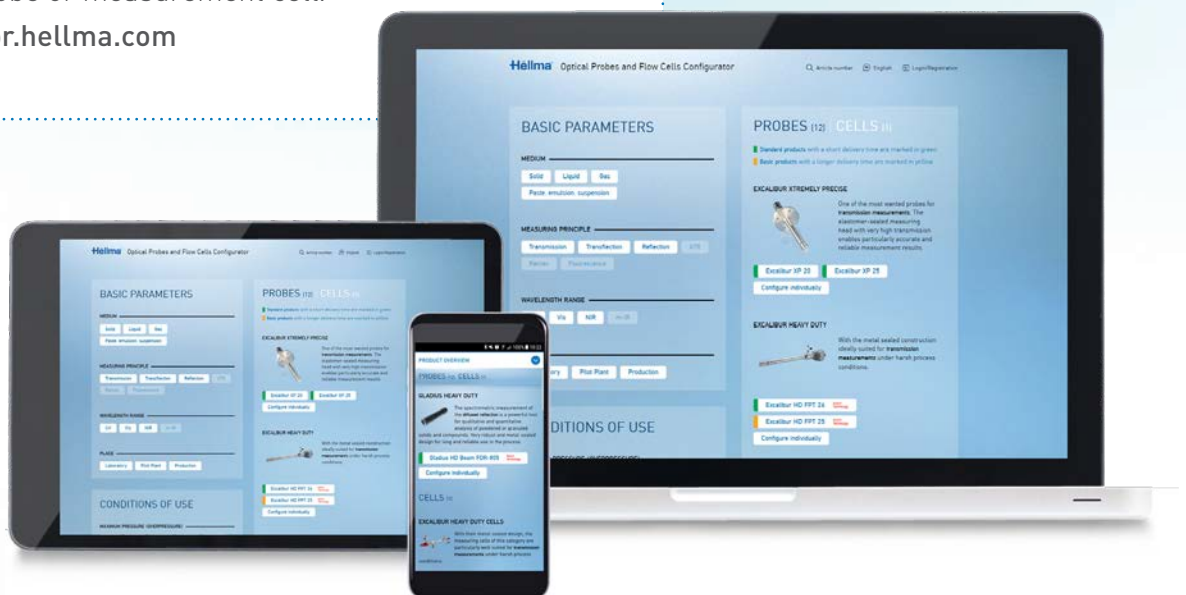
Model series	Excalibur HD FCP		
Measuring principle	Transmission		
Path length central parts	with H-Cell	with X-Cross	with T-Piece
Optical path length	2 mm (opt.: 5 mm, 10 mm)	2.5 mm	100 mm (opt. to 2,000 mm)
	for liquid measurements		for gaseous measurements
Optical material	Sapphire		
Central parts material	Stainless steel 1.4435/1.4404 (316L)		
Sealing technology	C-ring with gold coating		
Spectral range	NIR (opt. UV, Vis)		
Optical connection	F-SMA female and ATEX PMA housing, fibre core Ø 600 µm		
Process connection	0.75 inch Swagelok		
Pressure range	-1 to 200 bar (class 1500)	-1 to 250 bar	
Temperature range	-30 to 300 °C		
Product No.	CACCGSSN002NGIXG	CACSGSSN002NGDXG	CACTGSSNM01NGDXG



### Immersion probe online configurator

Hellma offers the largest selection of products worldwide and the highest level of expertise to support your online measurements from UV to IR. Find the right measuring interface quickly and easily or configure your individual immersion probe or measurement cell.

► [configurator.hellma.com](https://configurator.hellma.com)



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