Hellma® Analytics
High Precision in Spectro-Optics

RELIABLE MEASUREMENTS IN OPTICAL ANALYSIS!

Product Catalogue BestCellers

OPTICAL COMPONENTS FOR UV/VIS/NIR SPECTROSCOPY

// CELLS

// TRAYCELL®
MICRO VOLUME ANALYSIS

// REFERENCE MATERIALS

// OPTICAL IMMERSION PROBES

// QUARTZ MICROPLATES

Made in Germany
Certified Quality

THE HELLMA *Group*

High-tech optical products made of glass, quartz glass and calcium fluoride – these serve as the essential key components in systems, instruments and machines, and therefore ensure the best possible results in highly diverse applications. Hellma has been developing unique products and solutions since 1922, and is the top choice worldwide for the most renowned manufacturers in industry, technology and research.

HELLMA GROUP

TRUSTED NO.1 INDUSTRY SUPPLIER

INTEGRATED RANGE – FROM RAW MATERIALS UP TO COMPLETE SOLUTIONS

Hellma is unique in the market with its integrated product and service range. For many years, industry has trusted in the company's unification of raw material production, component manufacture, technology and solution expertise. Awareness of its responsibilities ensures that the Hellma Group is a competent and reliable partner for their customers.

We take Responsibility®.

RAW MATERIALS → COMPONENTS → TECHNOLOGY/ SOLUTION PARTNER

Hellma® Materials

// OPTICAL MATERIALS
Calcium Fluoride Crystals – CaF_2
Barium Fluoride Crystals – BaF_2
// RADIATION DETECTION MATERIALS
$CeBr_3$; SrI_2:Eu; CaF_2:Eu; BaF_2
// LASER CRYSTALS
Yb^{3+}:CaF_2

Hellma Materials GmbH
07745 Jena
phone +49 3641 2877-0
www.hellma-materials.com
info.materials@hellma.com

Hellma® Optics

// CYLINDRICAL OPTICS
// TORIC OPTICS
// FLAT OPTICS
// SPECIAL OPTICS
// OPTICAL GLASS

Hellma Optik GmbH Jena
07745 Jena/Germany
phone +49 3641 609814
www.hellma-optics.com
sales@hellma.com

Hellma® Analytics

// CELLS FOR SPECTROSCOPY AND CYTOMETRY
// REFERENCE MATERIALS FOR SPECTROSCOPY
// MICRO VOLUME ANALYSIS
// OPTICAL IMMERSION PROBES FOR LABORATORY USE AND PROCESS CONTROL

Hellma GmbH & Co. KG
79379 Müllheim/Germany
phone +49 7631 182-0
www.hellma-analytics.com
info.de@hellma.com

CONTENT

Product Catalogue BestCellers

Product Catalogue BestCellers

You will find our top BestCellers in this product catalogue. These are the products in our range which are available at short notice and which are most often put into use by our customers. Should you be unable to find a suitable product in this selection, then please contact us or search for the product of your choice on our website with the aid of the cuvette finder or the immersion probe configurator. We will gladly collaborate with you to develop individual and tailor-made solutions for your measurement tasks.

www.hellma-analytics.com/cuvettefinder
www.mypatprobe.com

HOW TO REACH US

Select your local distribution partner:
www.hellma-analytics.com/contacts

Please check your order on completeness acc. to the following points:

- ✓ ARTICLE NUMBER
- ✓ NEEDED QUANTITY
- ✓ TRANSMISSION MATCHED ..... YES/NO
- ✓ POLARIMETRIC CERTIFICATION ..... YES/NO
- ✓ ANTIREFLECTION OR REFLECTIVE COATINGS, IF REQUIRED ..... YES/NO

SPECTRAL AND POLARIMETRIC CHECKING

On request all cells can be spectrally calibrated and assembled into sets of equal transmission values (measuring uncertainty ± 1 %). These cells are provided with a three digit calibration code number containing coded data about the material and the transmission at a wavelength typical for the cell material.

Some cells can be polarimetrically checked on request. They are marked with a »P« and are delivered together with a certificate confirming that the predetermined limit for the rotation angle of 0.01° is not exceeded.

SPECIAL DESIGNS

Within the scope of technical possibilities we will be pleased to make specially designed cells and immersion probes according to your needs and specifications. For price reasons we endeavor to use standard cells or probes as the basis for these whenever possible If you are interested in special designs please send us a technical drawing. Before manufacture commences, you will then receive a drawing from Hellma Analytics and once you acknowledge approval, this drawing will serve as an agreed specification for manufacture.

OPTICAL PATH LENGTH AND TOLERANCES

The optical path length is a particularly important parameter for some photometric applications.

Please note the following data for tolerances, shown in relation to optical path length and material of the cells:

MATERIAL	OPTICAL PATH LENGTH	TOLERANCE
Quartz	0.01 mm bis 0.05 mm	± 0.003 mm
Quartz	0.1 mm bis 0.2 mm	± 0.005 mm
Quartz	0.5 mm bis 20 mm	± 0.01 mm
Quartz	30 mm bis 100 mm	± 0.02 mm
Special Optical Glass	0.1 mm bis 20 mm	± 0.01 mm
Special Optical Glass	30 mm bis 100 mm	± 0.02 mm
Optical Glass	10 mm bis 30 mm	± 0.1 mm
Optical Glass	40 mm bis 100 mm	± 0.2 mm

These optical path length tolerances apply to absorption cells.
For fluorescence cells, both for the direction of excitation and emission the tolerance is ± 0.05 mm.

MATERIAL AND TRANSMISSION CURVES

Regarding the transmission curves, please note that the measurements were carried out on empty cells. The maximum transmission values (80 % – 90 %) are caused mainly by reflection losses at the four glass/air boundaries. As the losses by reflection depend solely on the refractive index, the reflection losses of the empty cells can be calculated for each wavelength. For example, at a wavelength of 588 nm we obtain the following values:

WINDOW MATERIAL	REFRACTIVE INDEX	REFLECTION LOSSES	TRANSMISSION THEORETICAL	TRANSMISSION MEASURED
SUPRASIL®	1.458	13 %	87 %	87 % ± 1 %
HOQ 310H	1.458	13 %	87 %	87 % ± 1 %
Borofloat®	1.473	14 %	86 %	85 % ± 1 %
UK 5/B 270	1.523	16 %	84 %	84 % ± 1 %

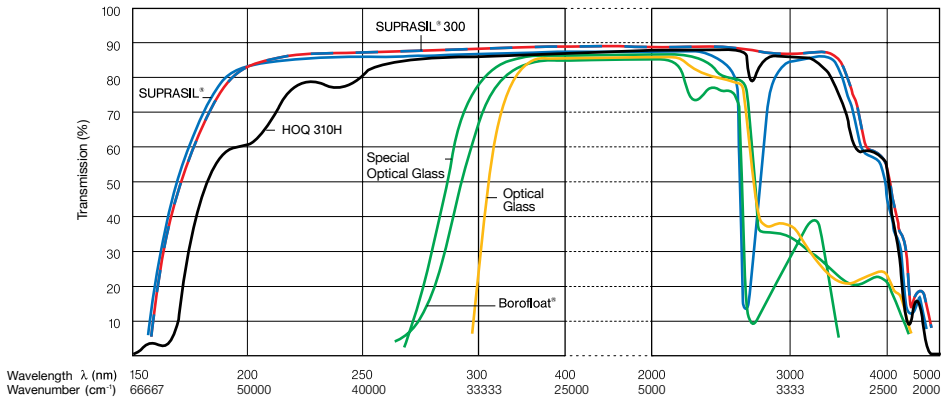
The table shows that the measured transmission values within the measuring uncertainty accord with the theoretical values. From this it can be concluded that the absorption in the material at a window thickness of 1.25 mm can be disregarded.

When comparing transmission data, it is absolutely essential that identical measuring conditions prevail. Should a measurement with a clean, empty cell yield significantly higher transmission values, it is likely that this is due to a measuring error.

MATERIAL	TRADEMARKS	WAVELENGTH
Optical glass	OG	360 nm–2500 nm
Borofloat®	BF	330 nm–2500 nm
Special optical glass	OS	320 nm–2500 nm
HOQ 310H	UV	260 nm–2500 nm
Quartz SUPRASIL®	QS	200 nm–2500 nm
Quartz SUPRASIL® 300	QX	200 nm–3500 nm

We can supply, on request, data sheets detailing the physical and chemical properties of the materials used.

Transmission of empty cells made of different materials



NEW

T-shaped geometric design enables rapid measurement cycles and very fast cleaning.

// Efficient application
// Measurement chamber volume 18 µl
// Excellent cost-to-performance ratio

T DESIGN

Flow-through cell

FOR ULTRA-LOW VOLUMES.

MEASUREMENT CHAMBER VOLUME 18 µl

Product description

The innovative T-design of this new flow-through cell reduces the distance that fluid must travel to reach the measurement chamber, thereby minimizing sample carryover and greatly accelerating the speed of cleaning. What is more, the T-design enables more rapid measurement cycles. The cell has an aluminium frame and features two female threads in the top section enabling connection of commercially available tubes using M6 grippers.

Benefits

// Excellent cost-to-performance ratio
// Hybrid construction; anodized aluminium frame with embedded measuring aperture made of special optical glass
// Shorter fluid travel for faster cleaning and minimum carryover
// Suitable for standard cell shafts and standard M6 gripper fittings

Areas of use

// Clinical chemistry
// Biochemistry
// Beverage industry

SEE PAGE 15 FOR TECHNICAL DETAILS.

More versatile, flexible and efficient

Thanks to its two optical path lengths and the innovative internal thread cut directly in the quartz glass cuvette.

3 IN
// transmission
// fluorescence
// 2 optical path lengths
all in one single cuvette

WORLD DEBUT

All-quartz flow-through cuvette.®

IDEALLY SUITED FOR TABLET DISSOLUTION TESTS (TDA) AND FLOW-THROUGH SPECTROSCOPIC ANALYSIS

Product description

The All-quartz flow-through cuvette is a high-precision cell for applications in spectroscopy. New technology enables the positioning of precise internal threads into the quartz glass, thus making the aluminum frame typically used unnecessary. Tubes can now be connected very easily and securely directly to the cuvette. Cleaning efficiency and temperature stability are also significantly enhanced. The cell comes with two different optical path lengths that provide meaningful advantages in terms of costs and use. Furthermore, it is possible to measure the fluorescence with each optical path length. Time-consuming switching of cells is no longer necessary – the All-quartz flow-through cell is simply turned by 90° – all tubes remain screwed in place.

Clear advantages due to the innovative all-quartz design

// Flexible in use and cost-effective because of two different optical path lengths in one cell
// No leaking of liquid possible; the cell is manufactured from monolithic quartz glass
// Easy cleaning and autoclavable due to the lack of an aluminum frame
// Quick and secure connection of tubes due to an innovative quartz glass internal thread
// Stress-relieved and extremely resistant to chemicals due to the exclusive use of quartz glass
// Suitable for standard M6 screw connectors

Fields of application

It is ideally suited for tablet dissolution tests or other spectrophotometric transmission or fluorescence measurements in a continuous flow.

SEE PAGE 19 FOR TECHNICAL DETAILS.

ABSORPTION CELLS

MACRO CELLS

with PTFE lid or stopper

TYPE/WINDOW MATERIAL	OPTICAL PATH LENGTH mm	OUTSIDE DIM. H × W × D mm	INSIDE WIDTH mm	BASE THICKN. mm	VOL. µl	ARTICLE-NO.	REMARKS
100-OS	1	45 x 12.5 x 3.5	9.5	1.5	350	100-1-20	glass lid
	2	45 x 12.5 x 4.5	9.5	1.5	700	100-2-20	glass lid
	5	45 x 12.5 x 7.5	9.5	1.5	1750	100-5-20	
	10	45 x 12.5 x 12.5	9.5	1.5	3500	100-10-20	
	20	45 x 12.5 x 22.5	9.5	1.5	7000	100-20-20	
	40	45 x 12.5 x 42.5	9.5	1.5	14000	100-40-20	
	50	45 x 12.5 x 52.5	9.5	1.5	17500	100-50-20	
	100	45 x 12.5 x 102.5	9.5	1.5	35000	100-100-20	glass lid
100-QS	1	45 x 12.5 x 3.5	9.5	1.5	350	100-1-40	glass lid
	2	45 x 12.5 x 4.5	9.5	1.5	700	100-2-40	glass lid
	5	45 x 12.5 x 7.5	9.5	1.5	1750	100-5-40	
	10	45 x 12.5 x 12.5	9.5	1.5	3500	100-10-40	
	20	45 x 12.5 x 22.5	9.5	1.5	7000	100-20-40	
	40	45 x 12.5 x 42.5	9.5	1.5	14000	100-40-40	
	50	45 x 12.5 x 52.5	9.5	1.5	17500	100-50-40	
	100	45 x 12.5 x 102.5	9.5	1.5	35000	100-100-40	glass lid
100-QX	1	45 x 12.5 x 3.5	9.5	1.5	350	100-1-46	glass lid
	2	45 x 12.5 x 4.5	9.5	1.5	700	100-2-46	glass lid
	5	45 x 12.5 x 7.5	9.5	1.5	1750	100-5-46	
	10	45 x 12.5 x 12.5	9.5	1.5	3500	100-10-46	
	20	45 x 12.5 x 22.5	9.5	1.5	7000	100-20-46	
	40	45 x 12.5 x 42.5	9.5	1.5	14000	100-40-46	
	50	45 x 12.5 x 52.5	9.5	1.5	17500	100-50-46	
	100	45 x 12.5 x 102.5	9.5	1.5	35000	100-100-46	glass lid
402.000-OG	10	40 x 23.6 x 15	18.5	2	4500	402-10-10	
	20	40 x 23.6 x 25	18.5	2	9000	402-20-10	
	50	40 x 23.6 x 55	18.5	2	22500	402-50-10	
110-OS	1	52 x 12.5 x 3.5	9.5	1.5	350	110-1-20	
	2	52 x 12.5 x 4.5	9.5	1.5	700	110-2-20	
	5	46 x 12.5 x 7.5	9.5	1.5	1750	110-5-20	
	10	46 x 12.5 x 12.5	9.5	1.5	3500	110-10-20	from 40 mm with 2 stoppers
	50	46 x 12.5 x 52.5	9.5	1.5	17500	110-50-20	
110-QS	1	52 x 12.5 x 3.5	9.5	1.5	350	110-1-40	
	2	52 x 12.5 x 4.5	9.5	1.5	700	110-2-40	
	5	46 x 12.5 x 7.5	9.5	1.5	1750	110-5-40	
	10	46 x 12.5 x 12.5	9.5	1.5	3500	110-10-40	
	20	46 x 12.5 x 22.5	9.5	1.5	7000	110-20-40	
	40	46 x 12.5 x 42.5	9.5	1.5	14000	110-40-40	from 40 mm with 2 stoppers
	50	46 x 12.5 x 52.5	9.5	1.5	17500	110-50-40	
	100	46 x 12.5 x 102.5	9.5	1.5	35000	110-100-40	
110-QX	1	52 x 12.5 x 3.5	9.5	1.5	350	110-1-46	
	2	52 x 12.5 x 4.5	9.5	1.5	700	110-2-46	
	5	46 x 12.5 x 7.5	9.5	1.5	1750	110-5-46	
	10	46 x 12.5 x 12.5	9.5	1.5	3500	110-10-46	
	20	46 x 12.5 x 22.5	9.5	1.5	7000	110-20-46	

WINDOW MATERIAL

OG	Optical Glass	360 nm–2500 nm	QS	Quartz SUPRASIL®	200 nm–2500 nm
OS	Special Optical Glass	320 nm–2500 nm	QX	Quartz SUPRASIL® 300	200 nm–3500 nm

100 10 mm | 100 50 mm | 100 100 mm | 402.000 10 mm | 110 10 mm | 110 50 mm | 110 100 mm

MACRO CELLS

with PTFE lid or stopper

TYPE/WINDOW MATERIAL	OPTICAL PATH LENGTH mm	OUTSIDE DIM. H × W × D mm	INSIDE WIDTH mm	BASE THICKN. mm	VOL. µl	ARTICLE-NO.	REMARKS
404.000-QX	1 2 10	47.5 x 23.6 x 7.5 47.5 x 23.6 x 7.5 47.5 x 23.6 x 12.5	18.5 18.5 18.5	2.5 2.5 2.5	700 1400 7000	404-1-46 404-2-46 404-10-46	with 2 stoppers
6030-OG	10 20 40 50	45 x 12.5 x 12.5 45 x 12.5 x 22.5 45 x 12.5 x 42.5 45 x 12.5 x 52.5	9.5 9.5 9.5 9.5	1.5 1.5 1.5 1.5	3500 7000 14000 17500	6030-10-10 6030-20-10 6030-40-10 6030-50-10	without lid
6030-UV	10 (± 0.05)	45 x 12.5 x 12.5	9.5	1.5	3500	6030-UV-10-531	without lid

SEMI-MICRO CELLS

with PTFE lid or stopper

TYPE/WINDOW MATERIAL	OPTICAL PATH LENGTH mm	OUTSIDE DIM. H × W × D mm	INSIDE WIDTH mm	BASE THICKN. mm	VOL. µl	ARTICLE-NO.	REMARKS
6040-OG	10	45 x 12.5 x 12.5	4	3.2	1400	6040-10-10	without lid
6040-UV	10 (± 0.05)	45 x 12.5 x 12.5	4	3.2	1400	6040-UV-10-531	without lid
104-OS	10 50	45 x 12.5 x 12.5 45 x 12.5 x 52.5	4 4	3.2 3.2	1400 7000	104-10-20 104-50-20	
104-QS	5 10 50	45 x 12.5 x 7.5 45 x 12.5 x 12.5 45 x 12.5 x 52.5	4 4 4	3.2 3.2 3.2	700 1400 7000	104-5-40 104-10-40 104-50-40	
104-QX	10	45 x 12.5 x 12.5	4	3.2	1400	104-10-46	

WINDOW MATERIAL

OG	Optical Glass	360 nm–2500 nm	QS	Quartz SUPRASIL®	200 nm–2500 nm
OS	Special Optical Glass	320 nm–2500 nm	QX	Quartz SUPRASIL® 300	200 nm–3500 nm
UV	H0Q310H	260 nm–2500 nm			

404.000
10 mm

6030
10 mm

6030-UV
10 mm

6040
10 mm

6040-UV
10 mm

104
10 mm

ABSORPTION CELLS

SEMI-MICRO CELLS

with PTFE lid or stopper

TYPE/WINDOW MATERIAL	OPTICAL PATH LENGTH mm	OUTSIDE DIM. H × W × D mm	INSIDE WIDTH mm	BASE THICKN. mm	VOL. µl	ARTICLE-NO.	REMARKS
104B-OS	10	45 x 12.5 x 12.5	4	3.2	1400	104B-10-20	black side walls and base
104B-QS	10	45 x 12.5 x 12.5	4	3.2	1400	104-B-10-40	black side walls and base
108-OS	10	45 x 12.5 x 12.5	4	9	1000	108-000-10-20	
108-QS	10	45 x 12.5 x 12.5	4	9	1000	108-000-10-40	
108B-QS	10	45 x 12.5 x 12.5	4	9	1000	108B-10-40	black side walls and base
114-OS	10	46 x 12.5 x 12.5	4	3.2	1400	114-10-20	
114-QS	10	46 x 12.5 x 12.5	4	3.2	1400	114-10-40	
114B-QS	10	46 x 12.5 x 12.5	4	3.2	1400	114B-10-40	black side walls and base

MICRO CELLS

with PTFE lid or stopper

TYPE/WINDOW MATERIAL	OPTICAL PATH LENGTH mm	OUTSIDE DIM. H × W × D mm	INSIDE WIDTH mm	BASE THICKN. mm	VOL. µl	ARTICLE-NO.	REMARKS
104.002-OS	10	45 x 12.5 x 12.5	2	3.2	700	104-002-10-20	
104.002-QS	10	45 x 12.5 x 12.5	2	3.2	700	104-002-10-40	
104.002B-OS	10	45 x 12.5 x 12.5	2	3.2	700	104002B-10-20	black side walls and base
104.002B-QS	10	45 x 12.5 x 12.5	2	3.2	700	104002B-10-40	black side walls and base
105-QS	10	25 x 12.5 x 12.5	2	1.5	300	105-10-40	
105B-QS	10	25 x 12.5 x 12.5	2	1.5	300	105-B-10-40	black side walls and base
108.002-QS	10	45 x 12.5 x 12.5	2	9	500	108-002-10-40	

WINDOW MATERIAL

OS Special Optical Glass 320 nm–2500 nm

QS Quartz SUPRASIL® 200 nm–2500 nm

104B 10 mm | 108 10 mm | 108B 10 mm | 114 10 mm | 114B 10 mm | 104.002 10 mm | 104.002B 10 mm | 105 10 mm | 105B 10 mm | 108.002 10 mm

MICRO CELLS

with PTFE lid or stopper

TYPE/WINDOW MATERIAL	OPTICAL PATH LENGTH mm	OUTSIDE DIM. H × W × D mm	INSIDE WIDTH mm	BASE THICKN. mm	VOL. µl	ARTICLE-NO.	REMARKS
108.002B-QS	10	45 x 12.5 x 12.5	2	9	500	108002B-10-40	black side walls and base
115-QS	10	40 x 12.5 x 12.5	2	1.25	400	115-10-40	
115B-QS	10	40 x 12.5 x 12.5	2	1.25	400	115B-10-40	black side walls and base

ULTRA-MICRO CELLS

with PE stopper or open with pipette tips

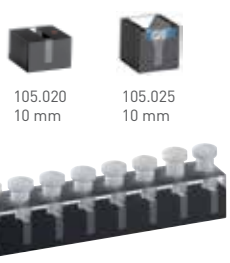
TYPE/WINDOW MATERIAL	OPTICAL PATH LENGTH mm	CENTER HEIGHT mm	OUTSIDE DIM. H × W × D mm	APERTURE H × W mm	CHAMBER VOL. µl	FILLING VOL. µl	ARTICLE-NO.
105.200-QS	10 10	15 8.5	45 x 12.5 x 12.5 45 x 12.5 x 12.5	8 x 2 8 x 2	160 160	180 180	105-200-15-40 105-200-85-40
105.201-QS	10 10	15 8.5	45 x 12.5 x 12.5 45 x 12.5 x 12.5	5 x 2 5 x 2	100 100	120 120	105-201-15-40 105-201-85-40
105.202-QS	10 10	15 8.5	45 x 12.5 x 12.5 45 x 12.5 x 12.5	2.5 x 2 2.5 x 2	50 50	70 70	105-202-15-40 105-202-85-40
105.203-QS	10 10	15 8.5	45 x 12.5 x 12.5 45 x 12.5 x 12.5	Ø 2.5 Ø 2.5	50 50	70 70	105-203-1015-40 105-203-1085-40
105.204-QS	10 10	15 8.5	45 x 12.5 x 12.5 45 x 12.5 x 12.5	Ø 1.5 Ø 1.5	20 20	40 40	105-204-1015-40 105-204-1085-40
105.020-QS	10	4.5	8.1 x 12.6 x 12.6	6 x 2	120	130	105-020-40
105.025-QS	10	4.5	12 x 12.5 x 12.5	5 x 2	120	320	105-025-40
105.210-QS	5 5 10 10	15 8.5 15 8.5	40 x 12.5 x 12.5 40 x 12.5 x 12.5 40 x 12.5 x 12.5 40 x 12.5 x 12.5	Ø 0.8 Ø 0.8 Ø 0.8 Ø 0.8	2.5 2.5 5 5	5 5 10 10	105210-515-40 105210-585-40 1052101015-40 1052101085-40
660.236-QS	10	4.5	12 x 74.5 x 12.5	2 x 6	120 (8 x)	120 (8 x)	660-236-40

WINDOW MATERIAL

QS Quartz SUPRASIL® 200 nm–2500 nm

108.002B 10 mm | 115 10 mm | 115B 10 mm

105.200 10 mm | 105.201 10 mm | 105.202 10 mm | 105.203 10 mm | 105.204 10 mm | 105.210 10 mm



105.020 10 mm | 105.025 10 mm | 660.236 10 mm

ABSORPTION CELLS

CELLS FOR MAGNETIC STIRRERS

macro, semi-micro, with PTFE lid or stopper

TYPE/WINDOW MATERIAL	OPTICAL PATH LENGTH mm	OUTSIDE DIM. H × W × D mm	INSIDE WIDTH mm	BASE THICKN. mm	VOL. µl	ARTICLE-NO.	REMARKS
109.000-QS	10	45 x 12.5 x 12.5	9.5	5	3500	109-000-10-40	
109.004-QS	10	45 x 12.5 x 12.5	4	5	1500	109-004-10-40	
119.000-QS	10	49.5 x 12.5 x 12.5	9.5	5	3500	119-10-40	
119.004-QS	10	49.5 x 12.5 x 12.5	4	5	1500	119-004-10-40	

SEALABLE CELLS

macro, semi-micro, for anaerobic applications

(with ISO thread GL 14 and screw cap with silicone rubber seal)

TYPE/WINDOW MATERIAL	OPTICAL PATH LENGTH mm	OUTSIDE DIM. H × W × D mm	INSIDE WIDTH mm	BASE THICKN. mm	VOL. µl	ARTICLE-NO.	REMARKS
117.100-QS	10	56 x 12.5 x 12.5	9.5	1.5	3500	117-100-10-40	
117.104-QS	10	56 x 12.5 x 12.5	4	1.25	1400	117-104-10-40	

CELLS WITH TUBES

macro, tube Ø 8 mm, tube length 80 mm

TYPE/WINDOW MATERIAL	OPTICAL PATH LENGTH mm	OUTSIDE DIM. H × W × D mm	INSIDE WIDTH mm	BASE THICKN. mm	VOL. µl	ARTICLE-NO.	REMARKS
220-QS	10	40 x 12.5 x 12.5	9.5	1.5	3500	220-10-40	Quartz DURAN® tube

WINDOW MATERIAL

■ QS ■ Quartz SUPRASIL® 200 nm–2500 nm

109.000 10 mm | 109.004 10 mm | 119.000 10 mm | 119.004 10 mm | 117.100 10 mm | 117.104 10 mm | 220 10 mm

CYLINDRICAL CELLS

macro, with PTFE stopper

TYPE/WINDOW MATERIAL	OPTICAL PATH LENGTH mm	OUTSIDE-DIAMETER mm	INSIDE-DIAMETER mm	OUTSIDE DEPTH mm	VOL. µl	ARTICLE-NO.	REMARKS
120-OS	10 50 100	22 22 22	19 19 19	12.5 52.5 102.5	2800 14000 28000	120-10-20 120-50-20 120-100-20	from 50 mm with 2 stoppers
120-QS	1 2 5 10 20 50 100	22 22 22 22 22 22 22	19 19 19 19 19 19 19	3.5 4.5 7.5 12.5 22.5 52.5 102.5	280 560 1400 2800 5600 14000 28000	120-000-1-40 120-000-2-40 120-5-40 120-10-40 120-20-40 120-50-40 120-100-40	from 50 mm with 2 stoppers
120-QX	10	22	19	12.5	2800	120-10-46	
121.000-QS	0.1 0.2 0.5 1	22 22 22 22	13 13 13 13	20 20 20 20	160 170 210 280	121-0.10-40 121-0.20-40 121-0.50-40 121-1-40	2 ports and stoppers

TEMPERATURE CONTROLLED CELLS

macro

TYPE/WINDOW MATERIAL	OPTICAL PATH LENGTH mm	OUTSIDE-DIAMETER mm	INSIDE-DIAMETER mm	OUTSIDE DEPTH mm	VOL. µl	ARTICLE-NO.	REMARKS
165-QS	1 10	22 22	9 10	30 12.5	160 800	165-1-40 165-10-40	2 stoppers 1 port and stopper

CELL WITH TWO CHAMBERS

TYPE/WINDOW MATERIAL	OPTICAL PATH LENGTH mm	OUTSIDE DIM. H × W × D mm	INSIDE WIDTH mm	BASE THICKN. mm	VOL. µl	ARTICLE-NO.	REMARKS
238-QS	2 x 4.375	46 x 12.5 x 12.5	9.5	1.5	2 x 1000	238-000-40	with 2 stoppers

WINDOW MATERIAL

OS	Special Optical Glass	320 nm–2500 nm	QX	Quartz SUPRASIL® 300	200 nm–3500 nm
QS	Quartz SUPRASIL®	200 nm–2500 nm			

120
1 mm

120
10 mm

120
50 mm

121.000
1 mm

165
1 mm

165
10 mm

238
2 x 4.375 mm

ABSORPTION CELLS

CELLS FOR FLOW-THROUGH MEASUREMENTS

macro, with in/outlet tubes

TYPE/WINDOW MATERIAL	OPTICAL PATH LENGTH mm	CENTER HEIGHT mm	OUTSIDE DIM. H × W × D mm	APERTURE H × W mm	VOL. µl	ARTICLE-NO.	REMARKS
130-QS	10		45 x 12.5 x 12.5	33 x 9.5	3200	130-10-40	
137-QS	1 2 5 10		45 x 12.5 x 3.5 45 x 12.5 x 4.5 45 x 12.5 x 7.5 45 x 12.5 x 12.5	20 x 9 20 x 9 20 x 9 20 x 9	260 520 1300 2600	137-1-40 137-2-40 137-5-40 137-10-40	
170-OS	1	all dim.	35 x 12.5 x 12.5	17.5 x 6.5	120	170-000-1-20	
170-QS	1 2	all dim.	35 x 12.5 x 12.5 35 x 12.5 x 12.5	17.5 x 6.5 17.5 x 6.5	120 240	170-000-1-40 170-000-2-40	
175.000-OS	10 10	15 8.5	45 x 12.5 x 12.5 38.5 x 12.5 x 12.5	11 x 6.5 11 x 6.5	750 750	175-000-10-20 175-85-10-20	
175.000-QS	10 10	15 8.5	45 x 12.5 x 12.5 38.5 x 12.5 x 12.5	11 x 6.5 11 x 6.5	750 750	175-15-10-40 175-85-10-40	

COMPACT, WITH 2 SCREW CONNECTORS M 6 X 1 AND FEP TUBES

(outside Ø 1.9 mm, inside Ø 1.1 mm, 500 mm long)

TYPE/WINDOW MATERIAL	OPTICAL PATH LENGTH mm	CENTER HEIGHT mm	OUTSIDE DIM. H × W × D mm	APERTURE H × W mm	VOL. µl	ARTICLE-NO.	REMARKS
170.700-QS	0.1 0.2 0.5 1 2	all dim.	35 x 12.5 x 12.5 35 x 12.5 x 12.5 35 x 12.5 x 12.5 35 x 12.5 x 12.5 35 x 12.5 x 12.5	17.5 x 3.5 17.5 x 3.5 17.5 x 3.5 17.5 x 3.5 17.5 x 3.5	6.2 12.4 31 62 124	170700-0.1-40 170700-0.2-40 170700-0.5-40 170-700-1-40 170-700-2-40	up to 0.5 mm with bypass for flow optimisation

SEMI-MICRO, WITH IN/OUTLET TUBES

TYPE/WINDOW MATERIAL	OPTICAL PATH LENGTH mm	CENTER HEIGHT mm	OUTSIDE DIM. H × W × D mm	APERTURE H × W mm	VOL. µl	ARTICLE-NO.	REMARKS
174-QS	10		48 x 12.5 x 12.5	36 x 4	1500	174-10-40	
176.000-QS	10 10 50 50	15 8.5 15 8.5	45 x 12.5 x 12.5 38.5 x 12.5 x 12.5 45 x 12.5 x 52.5 38.5 x 12.5 x 52.5	11 x 4 11 x 4 11 x 4 11 x 4	450 450 2250 2250	176-15-10-40 176-85-10-40 176-50-40 176-50-85-40	

Subject to change without notice.

WINDOW MATERIAL

OS Special Optical Glass 320 nm–2500 nm

QS Quartz SUPRASIL® 200 nm–2500 nm

130
10 mm

137
10 mm

170
1 mm

175.000
10 mm

170.700
1 mm

174
10 mm

176.000
10 mm

CELLS FOR FLOW-THROUGH MEASUREMENTS

compact, with 2 screw connectors M 6 x 1 and FEP tubes

(outside Ø 1.9 mm, inside Ø 1.1 mm, 500 mm long)

TYPE/WINDOW MATERIAL	OPTICAL PATH LENGTH mm	CENTER HEIGHT mm	OUTSIDE DIM. H × W × D mm	APERTURE H × W mm	VOL. µl	ARTICLE-NO.	REMARKS
176.700-QS	5	15	35 x 12.5 x 12.5	11 x 3.5	195	1767005-15-40	
	5	8.5	35 x 12.5 x 12.5	11 x 3.5	195	1767005-85-40	
	10	15	35 x 12.5 x 12.5	11 x 3.5	390	1767001510-40	
	10	8.5	35 x 12.5 x 12.5	11 x 3.5	390	1767008510-40	
	50	15	35 x 12.5 x 52.5	11 x 3.5	1950	1767001550-40	
	50	8.5	35 x 12.5 x 52.5	11 x 3.5	1950	1767008550-40	
176.703-QS	10	15	35 x 12.5 x 12.5	8 x 2	160	176703-Z15-40	
	10	8.5	35 x 12.5 x 12.5	8 x 2	160	176703-10-85-4	

micro, ultra-micro, with in/outlet tubes

178.010-OS	10	15	45 x 12.5 x 12.5	Ø 3	80	1780101015-20	optical path length 50 mm on request
	10	8.5	38.5 x 12.5 x 12.5	Ø 3	80	178010-85-20	
178.010-QS	10	15	45 x 12.5 x 12.5	Ø 3	80	1780101015-40	
	10	8.5	38.5 x 12.5 x 12.5	Ø 3	80	178-010-10-40	
	50	15	45 x 12.5 x 52.5	Ø 3	370	178-010-50-40	
	50	8.5	38.5 x 12.5 x 52.5	Ø 3	370	178010-50-85-40	
178.011-OS	10	15	45 x 12.5 x 12.5	Ø 2	30	178011-15-20	
	10	8.5	38.5 x 12.5 x 12.5	Ø 2	30	178011-85-20	

compact, with 2 screw connectors M 6 x 1 and FEP tubes

(outside Ø 1.9 mm, inside Ø 1.1 mm, 500 mm long)

178.710-OS	10	15	35 x 12.5 x 12.5	Ø 3	80	178-710-20	
	10	8.5	35 x 12.5 x 12.5	Ø 3	80	178-710-10-20	
178.710-QS	10	15	35 x 12.5 x 12.5	Ø 3	80	178-710-10-40	
	10	8.5	35 x 12.5 x 12.5	Ø 3	80	1787108510-40	
	50	15	35 x 12.5 x 52.5	Ø 3	370	1787101550-40	
	50	8.5	35 x 12.5 x 52.5	Ø 3	370	178-710-50-40	
178.711-OS	10	15	35 x 12.5 x 12.5	Ø 2	30	178-711-10-20	
	10	8.5	35 x 12.5 x 12.5	Ø 2	30	1787118510-20	
178.712-OS	10	8.5	35 x 12.5 x 12.5	Ø 1.5	18	178712-10-20	
178.712-QS	10	15	35 x 12.5 x 12.5	Ø 1.5	18	1787121510-40	
	10	8.5	35 x 12.5 x 12.5	Ø 1.5	18	1787128510-40	
178.765-OS*	10	8.5	45 x 12,5/17 x 12,5	Ø 1.5	18	178-765-10-20	Further information see page 6.

New

*Please order tubes seperately – see page 23.

Subject to change without notice.

WINDOW MATERIAL

OS Special Optical Glass 320 nm–2500 nm

QS Quartz SUPRASIL® 200 nm–2500 nm

176.700 10 mm | 176.700 50 mm | 176.703 10 mm | 178.010 10 mm | 178.010 50 mm | 178.011 10 mm | 178.710 10 mm | 178.710 50 mm | 178.711 10 mm | 178.712 10 mm | 178.765 10 mm

FLUORESCENCE CELLS

MACRO CELLS

with PTFE lid or stopper, triangular cell

TYPE/WINDOW MATERIAL	OPTICAL PATH LENGTH mm	OUTSIDE DIM. H × W × D mm	INSIDE WIDTH mm	BASE THICKN. mm	VOL. µl	NO. OF WINDOWS	ARTICLE-NO.	REMARKS
101-OS	10 x 10	45 x 12.5 x 12.5	10	1.25	3500	4	101-10-20	on request with a polished base
101-QS	10 x 10 10 x 20	45 x 12.5 x 12.5 45 x 12.5 x 22.5	10 10	1.25 1.25	3500 7000	4 4	101-10-40 101-20-40	on request with a polished base
111-OS	10 x 10	46 x 12.5 x 12.5	10	1.25	3500	4	111-10-20	on request with a polished base
111-QS	10 x 10	46 x 12.5 x 12.5	10	1.25	3500	4	111-10-40	on request with a polished base
111.061-QS		46 x 12.4 x 12.4	10	1.25	1750	3	111-061-40	on request with a polished base

SEMI-MICRO CELLS

with PTFE lid or stopper

TYPE/WINDOW MATERIAL	OPTICAL PATH LENGTH mm	OUTSIDE DIM. H × W × D mm	INSIDE WIDTH mm	BASE THICKN. mm	VOL. µl	ARTICLE-NO.	REMARKS
104F-OS	10 x 4	45 x 12.5 x 12.5	4	1.25	1400	104F-10-20	on request with a polished base
104F-QS	10 x 4	45 x 12.5 x 12.5	4	1.25	1400	104F-10-40	on request with a polished base
108F-QS	10 x 4	45 x 12.5 x 12.5	4	9	1000	108-F-10-40	on request with a polished base
114F-QS	10 x 4	46 x 12.5 x 12.5	4	1.25	1400	114F-10-40	on request with a polished base

MICRO CELLS

with PTFE lid or stopper

TYPE/WINDOW MATERIAL	OPTICAL PATH LENGTH mm	OUTSIDE DIM. H × W × D mm	INSIDE WIDTH mm	BASE THICKN. mm	VOL. µl	ARTICLE-NO.	REMARKS
104.002F-QS	10 x 2	45 x 12.5 x 12.5	2	1.25	700	104002F-10-40	on request with a polished base
108.002F-QS	10 x 2	45 x 12.5 x 12.5	2	9	500	108002F-10-40	on request with a polished base
115F-QS	10 x 2	40 x 12.5 x 12.5	2	1.25	400	115-F-10-40	on request with a polished base

WINDOW MATERIAL

OS Special Optical Glass 320 nm–2500 nm

QS Quartz SUPRASIL® 200 nm–2500 nm

101 10 x 10 mm | 111 10 x 10 mm | 111.061 | 104F 10 x 4 mm | 108F 10 x 4 mm | 114F 10 x 4 mm | 104.002F 10 x 2 mm | 108.002F 10 x 2 mm | 115F 10 x 2 mm

MICRO CELLS

with and without PTFE stopper

TYPE/ WINDOW MATERIAL	OPTICAL PATH LENGTH mm	CENTER HEIGHT mm	OUTSIDE DIM. H × B × D mm	INSIDE DIM. H × B × D mm	BASE-PATH mm	VOL. µl	NO. OF WINDOWS	ARTICLE-NO.	REMARKS
101.015-QS	3 x 3		21 x 5.4 x 5.4	19.9 x 3 x 3	1.1	130	5	101-015-40	
013.013		15 8.5	50.5 x 12.5 x 12.5 44 x 12.5 x 12.5					013-013-15-71 013-013-85-71	holder for cell type 101.015
101.016-QS	5 x 5		33.5 x 6.9 x 6.9	32.7 x 5 x 5	0.8	600	5	101-016-40	
013.016			44 x 12.5 x 12.5					013-016-71	holder for cell type 101.016
101.057-QS	5 x 5		45 x 7.5 x 7.5	43.75 x 5 x 5	1.25	850	5	101-057-40	
111.057-QS	5 x 5		46 x 7.5 x 7.5	38.75 x 5 x 5	1.25	850	5	111-057-40	
013.011			44 x 12.5 x 12.5					013-011-71	holder for cell type 111.057 and 101.057

ULTRA-MICRO CELLS

with PE stopper

TYPE/ WINDOW MATERIAL	OPTICAL PATH LENGTH mm	CENTER HEIGHT mm	OUTSIDE DIM. H × B × D mm	APERTURE H × D mm	CAMBER VOLUME µl	FILLING VOLUME µl	NO. OF WINDOWS	ARTICLE-NO.
105.250-QS	10 x 2 10 x 2	15 8.5	45 x 12.5 x 12.5 45 x 12.5 x 12.5	5 x 2 5 x 2	100 100	120 120	3 3	105-250-15-40 105-250-85-40
105.251-QS	3 x 3 3 x 3	15 8.5	45 x 12.5 x 12.5 45 x 12.5 x 12.5	5 x 3 5 x 3	45 45	70 70	3 3	105-251-15-40 105-251-85-40
105.252-QS	1.5 x 1.5 1.5 x 1.5	15 8.5	45 x 12.5 x 12.5 45 x 12.5 x 12.5	5 x 1.5 5 x 1.5	12 12	30 30	3 3	105-252-15-40 105-252-85-40
105.253-QS	10 x 2 10 x 2	15 8.5	45 x 12.5 x 12.5 45 x 12.5 x 12.5	5 x 2 5 x 2	100 100	120 120	3 3	105-253-15-40 105-253-85-40
105.254-QS	3 x 3 3 x 3	15 8.5	45 x 12.5 x 12.5 45 x 12.5 x 12.5	5 x 3 5 x 3	45 45	70 70	3 3	105-254-15-40 105-254-85-40

WINDOW MATERIAL
QS Quartz SUPRASIL® 200 nm–2500 nm

101.015 3 x 3 mm | 101.016 5 x 5 mm | 101.057 5 x 5 mm | 111.057 5 x 5 mm | 013.011 013.013 013.016 | 105.250 10 x 2 mm | 105.251 3 x 3 mm | 105.252 1.5 x 1.5 mm | 105.253 10 x 2 mm | 105.254 3 x 3 mm

FLUORESCENCE CELLS

FLUORESCENCE CELLS FOR MAGNETIC STIRRERS

macro, semi-micro, with PTFE lid or stopper

TYPE/WINDOW MATERIAL	OPTICAL PATH LENGTH mm	OUTSIDE DIM. H × W × D mm	INSIDE WIDTH mm	BASE THICKN. mm	VOL. µl	NO. OF WINDOWS	ARTICLE-NO.
109.000F-QS	10 x 10	45 x 12.5 x 12.5	10	5	3500	4	109000F-10-40
119.000F-QS	10 x 10	49.5 x 12.5 x 12.5	10	5	3500	4	119F-10-40
109.004F-QS	10 x 4	45 x 12.5 x 12.5	4	5	1500	4	109004F-10-40
119.004F-QS	10 x 4	49.5 x 12.5 x 12.5	4	5	1500	4	119004F-10-40

SEALABLE CELLS

macro, semi-micro, for anaerobic applications

TYPE/WINDOW MATERIAL	OPTICAL PATH LENGTH mm	OUTSIDE DIM. H × W × D mm	INSIDE WIDTH mm	BASE THICKN. mm	VOL. µl	NO. OF WINDOWS	ARTICLE-NO.
117.100F-QS	10 x 10	56 x 12.5 x 12.5	10	1.25	3500	4	117100F-10-40
117.104F-QS	10 x 4	56 x 12.5 x 12.5	4	1.25	1400	4	117104F-10-40

With ISO thread GL 14 and screw cap with silicone rubber seal.

CELLS WITH TUBES QUARTZ/DURAN®

macro, tube Ø 8 mm, tube length 80 mm

TYPE/WINDOW MATERIAL	OPTICAL PATH LENGTH mm	OUTSIDE DIM. H × W × D mm	INSIDE WIDTH mm	BASE THICKN. mm	VOL. µl	NO. OF WINDOWS	ARTICLE-NO.
221-QS*	10 x 10	40 x 12.5 x 12.5	10	1.25	3500	4	221-10-40
221.001-QS**	10 x 10 Tol.+- 0.2	40 x 12.5 x 12.5	10	1.25	3500	4	221001-10-80

* on request with a polished base
** for measurements at high and low temperatures

WINDOW MATERIAL
QS Quartz SUPRASIL® 200 nm–2500 nm


109.000F
10 x 10 mm


119.000F
10 x 10 mm


109.004F
10 x 4 mm


119.004F
10 x 4 mm


117.100F
10 x 10 mm


117.104F
10 x 4 mm


221
10 x 10 mm


221.001
10 x 10 mm

CELLS FOR FLOW-THROUGH MEASUREMENTS

macro, with in/outlet tubes

TYPE/WINDOW MATERIAL	OPTICAL PATH LENGTH mm	OUTSIDE DIM. H × W × D mm	APERTURE H × W mm	VOL. µl	NO. OF WINDOWS	ARTICLE-NO.	REMARKS
131-QS	10 x 10	45 x 12.5 x 12.5	33 x 10	3300	4	131-10-40	base and lid 6 mm

semi-micro, with in/outlet tubes

TYPE/WINDOW MATERIAL	OPTICAL PATH LENGTH mm	CENTER HEIGHT mm	OUTSIDE DIM. H × W × D mm	APERTURE H × W mm	VOL. µl	NO. OF WINDOWS	ARTICLE-NO.
176.050-QS	10 x 4 10 x 4	15 8.5	45 x 12.5 x 12.5 38.5 x 12.5 x 12.5	11 x 4 11 x 4	450 450	3 3	176-050-40 176050-10-85-40

compact, with 2 screw connectors M 6 x 1 and FEP tubes

(outside Ø 1.9 mm, inside Ø 1.1 mm, 500 mm long)

TYPE/WINDOW MATERIAL	OPTICAL PATH LENGTH mm	CENTER HEIGHT mm	OUTSIDE DIM. H × W × D mm	APERTURE H × W mm	VOL. µl	NO. OF WINDOWS	ARTICLE-NO.
176.751-QS	3 x 3 3 x 3	15 8.5	35 x 12.5 x 12.5 35 x 12.5 x 12.5	11 x 3 11 x 3	100 100	3 3	176-751-15-40 176-751-85-40
176.754-QS	10 x 2.5 10 x 2.5	15 8.5	35 x 12.5 x 12.5 35 x 12.5 x 12.5	11 x 2.5 11 x 2.5	275 275	4 4	176-754-10-15-40 176-754-10-85-40

New

ALL-QUARTZ FLOW-THROUGH CELL WITH TWO OPTICAL PATH LENGTHS

with screw connectors M6 x 1, with FEP tubing 500 mm length

TYPE/WINDOW MATERIAL	OPTICAL PATH LENGTH mm	CENTER HEIGHT mm	OUTSIDE DIM. H × W × D mm	APERTURE H × W mm	VOL. µl	NO. OF WINDOWS	ARTICLE-NO.	REMARKS Further center heights on request.
176.760-QS	5 and 10	8.5	35 x 12.5 x 12.5	11 x 6/11 x 5	550		176-760-85-40	Further details see page 7 15 mm center height on request.
176.761-QS	2.5 and 5	8.5	35 x 12.5 x 12.5	11 x 4/11 x 2.5	140		176-761-85-40	
176.762-QS	1.5 and 3	8.5	35 x 12.5 x 12.5	11 x 2.5 x 11	50		176-762-85-40	

WINDOW MATERIAL
QS Quartz SUPRASIL® 200 nm–2500 nm

Subject to change without notice.

131
10 x 10 mm

176.050
10 x 4 mm

176.751
3 x 3 mm

176.754
10 x 2,5 mm

111.070
10 x 10 mm

176.762-QS
1,5 und 3 mm

CELLS AND OPTICAL ELEMENTS FOR SPECIAL APPLICATIONS

DYE-LASER CELL

macro, with PTFE stoppers

TYPE/WINDOW MATERIAL	OUTSIDE DIM. H × W × D mm	INSIDE CROSS SECTION mm	VOL. µl	NO. OF WINDOWS	ARTICLE-NO.	REMARKS
111.070-QS	46 x 12.5 x 12.5	10 x 10	3500	4	111-070-40	on request with a polished base

CELL FOR CYTOMETRY

TYPE/WINDOW MATERIAL	OPTICAL PATH LENGTH mm	OUTSIDE DIM. H × W × D mm	INSIDE CROSS SECTION mm	VOL. µl	ARTICLE-NO.	REMARKS
131.050-QS	0.25 x 0.25	20.3 x 4.2 x 4.2	0.25 x 0.25	1.3	131-050-40	flow channel surfaces polished

CELLS FOR LIGHT-SCATTERING MEASUREMENTS

with PTFE stoppers

TYPE/WINDOW MATERIAL	OUTSIDE DIM. H × DIAMETER mm	INSIDE DIM. H × DIAMETER mm	VOL. µl	ARTICLE-NO.	REMARKS
540.110-QS	75 x 10	74 x 8	2800	540-110-80	
540.111-QS	75 x 10	74 x 8	2800	540-111-80	polished outer cylinder
540.114-QS	75 x 25	73 x 22.6	22000	540-114-80	
540.115-QS	75 x 25	73 x 22.6	22000	540-115-80	polished outer cylinder
540.135-QS	75 x 20	74 x 18	14000	540-135-20-40	

WINDOW MATERIAL
QS Quartz SUPRASIL® 200 nm–2500 nm

CELL FOR TURBIDITY MEASUREMENTS

rectangular cell

TYPE/WINDOW MATERIAL	OPTICAL PATH LENGTH mm	OUTSIDE DIM. H × W × D mm	INSIDE DIM. H × W × D mm	VOL. µl	ARTICLE-NO.	REMARKS
402.013-OG	25 x 25	70 x 30 x 30	67 x 25 x 25	25000	402-013-10	25 ml marking, 5 windows

CELLS FOR REFLECTION MEASUREMENTS

cylindrical cells, without lids

TYPE/WINDOW MATERIAL	OUTSIDE DIM. H × DIAMETER mm	INSIDE DIM. H × DIAMETER mm	VOL. µl	ARTICLE-NO.	REMARKS
692.091-OG	25 x 34	23 x 31.6	12000	692-091-12	
692.103-BF	30 x 50	27.5 x 45	32000	692-103-23	
692.104-BF	40.5 x 60	39 x 55.6	73000	692-104-23	

WINDOW MATERIAL

OG Optical Glass 360 nm–2500 nm BF Borofloat® 330 nm–2500 nm

402.013


692.091


692.103


692.104

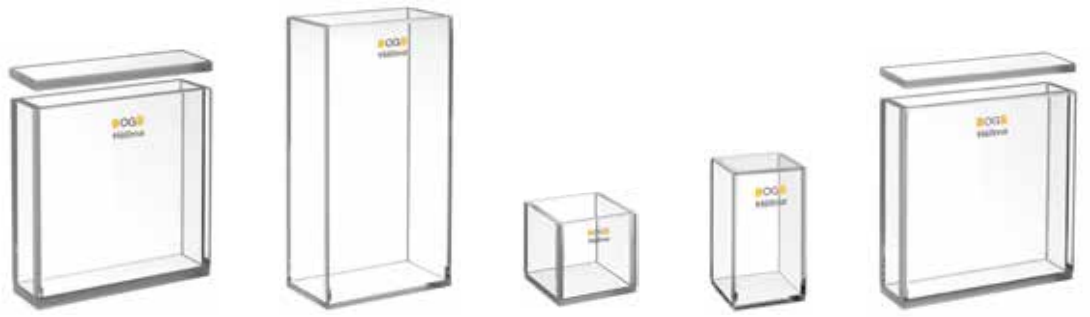
CELLS AND OPTICAL ELEMENTS FOR SPECIAL APPLICATIONS

LARGE CELLS

with glass lids

TYPE/WINDOW MATERIAL	OPTICAL PATH LENGTH mm	OUTSIDE DIM. H × W × D mm	INSIDE WIDTH mm	VOL. µl	ARTICLE-NO.	REMARKS
700.000-OG	10 ± 0.2 20 ± 0.2	53 x 55 x 15 53 x 55 x 25	50 x 50 x 10 50 x 50 x 20	20000 40000	700-000-10-10 700-000-20-10	
700.010-OG	20 ± 0.2	82 x 44.4 x 24.4	80 x 40 x 20	56000	700-010-20-10	without lid
700.015-OG	28 ± 0.2	35 x 35 x 32	33 x 31 x 28	22000	700-015-10	without lid
700.016-OG	18 ± 0.2	38 x 22 x 22	36 x 18 x 18	10000	700-016-10	without lid
700.019-OG	10 ± 0.2	55 x 55 x 15	52.5 x 50 x 10	20000	700-019-10	
704.000-OG	20 ± 0.2	22.5 x 25 x 25	20 x 20 x 20	6000	704-000-20-10	
704.001-OG	30 ± 0.2	32.5 x 35 x 35	30 x 30 x 30	22500	704-001-30-10	
704.002-OG	40 ± 0.2	42.5 x 45 x 45	40 x 40 x 40	56000	704-002-40-10	
704.003-OG	50 ± 0.5	52.5 x 55 x 55	50 x 50 x 50	88000	704-003-50-10	
740.000-OG	34.5 ± 0.2	100 x 50 x 39.5	97 x 44 x 34.5	100000	740-000-10	without lid

WINDOW MATERIAL
OG Optical Glass 360 nm–2500 nm



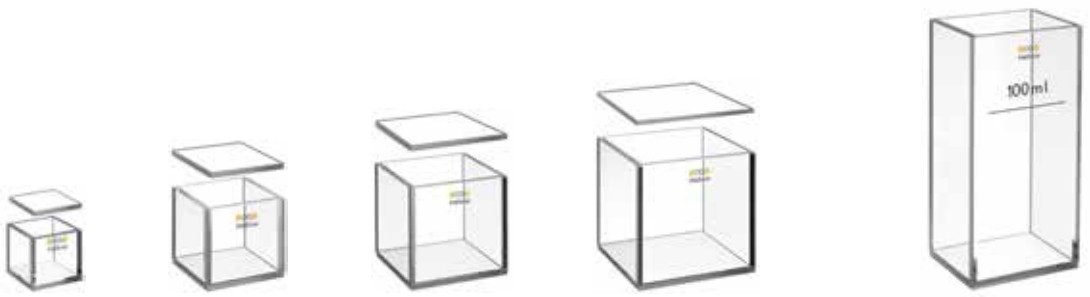
700.000
10 mm

700.010
20 mm

700.015
30 mm

700.016
18 mm

700.019
10 mm



704.000
20 mm

704.001
30 mm

704.002
40 mm

704.003
50 mm

740.000
34.5 mm

DEMOUNTABLE CELLS

cells with detachable windows

TYPE/WINDOW MATERIAL	OPTICAL PATH LENGTH mm	OUTSIDE DIM. H × W × D mm	PATH mm	INSIDE WIDTH mm	VOL. µl	ARTICLE-NO.	REMARKS
106-QS	0.01 ± 0.003 0.1 ± 0.005 0.2 ± 0.005 0.5 ± 0.010	45 x 12.5 45 x 12.5 45 x 12.5 45 x 12.5	2.5 2.6 2.7 3	9 9 9 9	2.6 26 52 130	106-0.01-40 106-0.10-40 106-0.20-40 106-0.50-40	demountable rectangular cells
665.000-QS		45 x 12.5 x 12.5				665-000-40	rectangular window from Quartz SUPRASIL
665.000-QX		45 x 12.5 x 12.5				665-000-46	rectangular window from Quartz SUPRASIL 300
013.000		45 x 12.5 x 12.5				013-000-71	cell holder for cell type 106
124-QS	0.1 ± 0.005	Ø 22	2.6	Ø 15	18	124-0.1-40	demountable circular cell
020.001 020.002	0.01 - 1 2 - 2.5					020-001-761 020-002-761	cell holder for cell type 124 and 201/202 cell holder for cell type 201/202
201	1 ± 0.01	Ø 21				201-1-23	ring from Duran for cell holder 020.001
201	2.5 ± 0.01	Ø 21				201-2.5-23	ring from Duran for cell holder 020.002
202-QS	1.25	Ø 22				202-40	circular window from Quartz SUPRASIL
202-QX	1.25	Ø 22				202-46	circular window from Quartz SUPRASIL 300

OTHER ACCESSORIES

TYPE/WINDOW MATERIAL	DESCRIPTION	ARTICLE-NO.	REMARKS
013.101	Aluminium spacer 38 x 12.5 x 9 mm	013-101-71	to fit cells with 1 mm optical path length into 10 mm cell holder
013.102	Aluminium spacer 38 x 12.5 x 8 mm	013-102-71	to fit cells with 2 mm optical path length into 10 mm cell holder
013.105	Aluminium spacer 38 x 12.5 x 5 mm	013-105-71	to fit cells with 5 mm optical path length into 10 mm cell holder
040.111	FEP tubing set 500mm long; outside ø 1.9mm; inside ø 1.1mm	040-111-722	for compact and 3-in-1 cells; with one short and one long screw fitting
040.222	PTFE tubing set 500mm long with Omnifit gripper outside ø 1.6mm; inside ø 1.0mm	040-222-72	for compact and 3-in-1 cells; with one short and one long Omnifit Gripper

WINDOW MATERIAL

QS Quartz SUPRASIL® 200 nm–2500 nm

QX Quartz SUPRASIL® 300 200 nm–3500 nm

106 013.000

020.001 124-QS

020.002 201 Duran 202

665.000

040.111 040.222

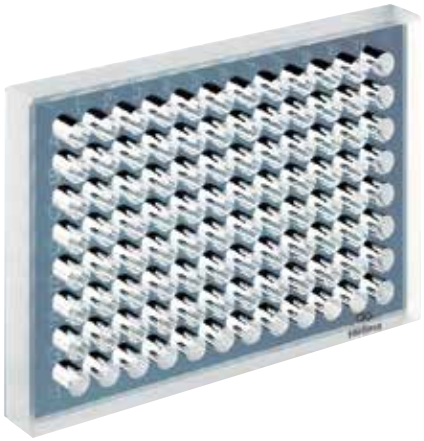
013.102

QUARTZ MICROPLATES

QUARTZ MICROPLATES

TYPE/WINDOW MATERIAL	DESCRIPTION	OUTSIDE DIM. H × B × L mm	BASE mm	WELLS			ARTICLE-NO.
				DIAMETER mm	DEPTH mm	VOLUME µl	
730.009-QG	Quartz Microplate** with 96 wells Base: Synthetic Quartz Glass	14.5 x 127 x 85.5	2*	6.6	12.5	300	730-009-44
730.009B-QG	Black Quartz Microplate** with 96 wells Base: Synthetic Quartz Glass	14.5 x 127 x 85.5	2*	6.6	12.5	300	730009-B-44

QG is synthetic quartz glass with a transmission over 80% between 200 nm and 2500 nm for an empty cell.
* On request base with reduced thickness down to 0.5 mm.
** Available made of Borofloat® on request.



730.009-QG

730.009B-QG

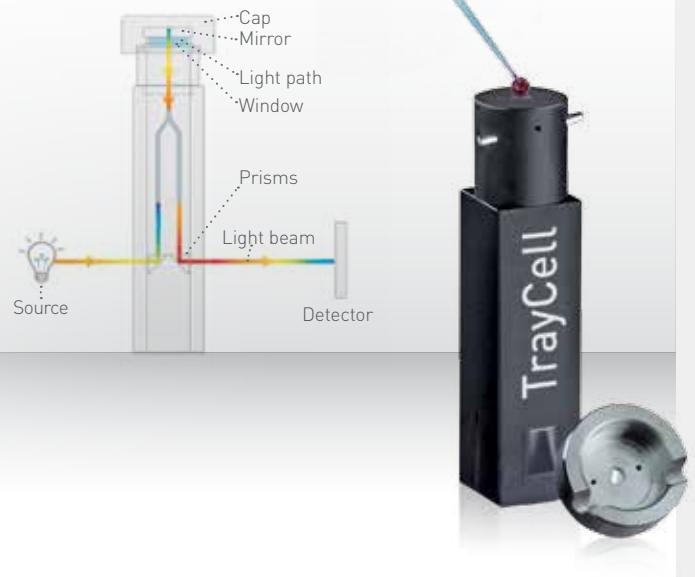
TRAYCELL™

Micro Volume Analysis with spectrophotometer

The TrayCell is a **fiber-optic ultra-micro measuring cell** designed for the UV/Vis analysis of DNA/RNA and proteins. The dimensions of the TrayCell are equivalent to a standard cuvette in order to work in most spectrophotometers.

Advantages:

// Suitable for almost any current spectrophotometers
// Ideally suited for very small **measurement volumes; 0,7 to 10 µl**
// Trouble-free measurement of the sample at different optical path lengths simply by exchanging the cap (caps with dilution factors: 5, 10, 50 and 100)
// Fast and simple cleaning of the optics before measuring the next sample – the TrayCell remains in the cell holder!
// Samples can be reused after the measurement simply by pipetting them off
// During measurements, the TrayCell shows excellent reproducibility



TYPE	WINDOW MATERIAL	OPTICAL PATH LENGTH mm	CENTER HEIGHT mm*	EXTERNAL HEIGHT mm*	VOL. µl	ARTICLE-NO.
105.800-UVS	Quartz SUPRASIL®	0.2 mm (factor 50) 1.0 mm (factor 10) (+/- 0.02 mm)	8.5 15 20	68.5 75 80	0.7 – 4	105800-A3-V1-46
105.810-UVS	Quartz SUPRASIL®	0.2 mm (factor 50) 1.0 mm (factor 10) (+/- 0.02 mm)	8.5 15 20	53.0 59.5 64.5	0.7 – 4	105810-A3-V1-46

Included in delivery: TrayCell (Type: 105.800-UVS or 105.810-UVS), 2 caps with an optical path length of 0.2 and 1.0 mm, 2 adapters for a center height of 15 mm and 20 mm, screwdriver for center height adapter, premium storage box.

105.800-UVS

105.810-UVS

CAPS FOR TRAYCELL®

TYPE	MATERIAL	OPTICAL PATH LENGTH (+/- 0.02 mm)	VOL. µl	ARTICLE-NO.
665.703	Cap made of stainless steel with a mirror made of Quartz SUPRASIL® with an aluminum mirror layer	1 mm (factor* 10)	3 – 5	665-703-1-40
665.704		0.2 mm (factor* 50)	0.7 – 4	665-704-0.2-40
665.705		2 mm (factor* 5)	6 – 10	665-705-2-40
665.706		0.1 mm (factor* 100)	0.7 – 3	665-706-0.1-40

* factor = dilution factor compared to a standard cell with a path length of 10 mm


665.703


665.704


665.705


665.706

UV/VIS CERTIFIED REFERENCE MATERIALS

Regularly using certified reference materials from Hellma Analytics will ensure you obtain accurate measurement results in the long run and will meet your internal quality standards with ease. At the same time, you will achieve international comparability of your measurement results.

Certified Reference Materials from the Hellma Analytics' Calibration Laboratory (according to DIN EN ISO 17025) are traceable to primary references of NIST (National Institute of Standards and Technology) and are in accordance with the most important Pharmacopoeias (EP, DAB, USP).

DAkkS Deutsche Akkreditierungsstelle D-K-18752-01-00

DIN EN ISO 17025

NIST TRACEABLE

GLASS FILTERS WITH DAkkS CERTIFICATE

TYPE	MATERIAL	WAVELENGTH nm	ARTICLE-NO.
Glass Filter for testing the wavelength accuracy			
666-F1	Holmium Oxide Glass Filter F1	279; 361; 453; 536; 638	666F1-339
666-F7W	Didymium Glass Filter F7W	329; 472; 512; 681; 875	666F7W-323
Glass Filter for testing the photometric accuracy			
666-F2	Neutral Density Glass Filter F2 (Nominal value of the absorption 0.25)	440; 465; 546,1; 590; 635	666F2-39
666-F201	Neutral Density Glass Filter F201 (Nominal value of the absorption 0.3)	440; 465; 546,1; 590; 635	666F201-39
666-F3	Neutral Density Glass Filter F3 (Nominal value of the absorption 0.5)	440; 465; 546,1; 590; 635	666F3-38
666-F4	Neutral Density Glass Filter F4 (Nominal value of the absorption 1.0)	440; 465; 546,1; 590; 635	666F4-37
666-F202	Neutral Density Glass Filter F202 (Nominal value of the absorption 1.5)	440; 465; 546,1; 590; 635	666F202-36
666-F203	Neutral Density Glass Filter F203 (Nominal value of the absorption 2.0)	440; 465; 546,1; 590; 635	666F203-36
666-F7A	Neutral Density Glass Filter F7A (Nominal value of the absorption approx. 0.5–1.0)	270; 280; 297; 320; 340	666F7A-323
Glass Filter for testing the wavelength accuracy and the photometric accuracy			
666-F7	Didymium Glass Filter F7	A: 270; 280; 297; 320; 340 W: 329; 472; 512; 681; 875	666F7-323
Empty filter mount			
666-F0	Aluminum frame		666F0-71

TYPE	CONSISTING OF	WAVELENGTH nm	ARTICLE-NO.
Sets for testing the wavelength accuracy and the photometric accuracy			
666-S000	Complete Glass Filter Set: F1, F2, F3, F4, F0	A: 440; 465; 546,1; 590; 635 W: 279; 361; 453; 536; 638	666S000
New 666-S001	Glass Filter Set: F3, F4, F7	A: 270; 280; 297; 320; 340; 440; 465; 546,1; 590; 635 W: 329; 472; 512; 681; 875	666S001
New 666-S002	Glass Filter Set: F2, F3, F4	A: 440; 465; 546,1; 590; 635	666S002

A: Wavelength for Absorbance W: Wavelength for Wavelength accuracy

Complete Set 666-S000

666-F0 666-F1 666-F2 666-F3 666-F4

Single Filters

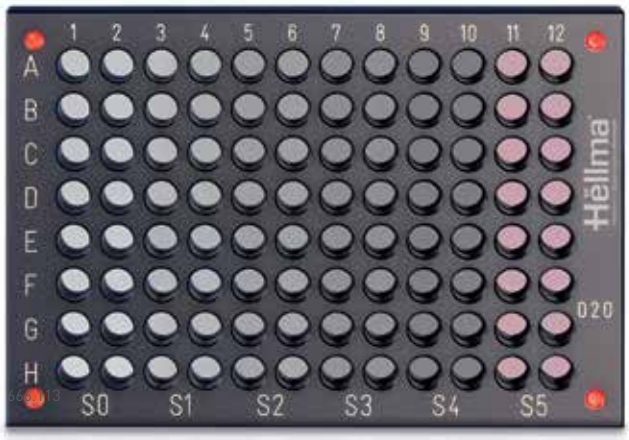
666-F201 666-F202 666-F203 666-F7

LIQUID FILTERS WITH DAkkS CERTIFICATE

TYPE	CONTENT	WAVELENGTH nm	ARTICLE-NO.
Liquid Filter for testing the photometric accuracy			
667-UV20	20 mg potassium dichromate in $HClO_4$ (0.25 Abs)	235; 257; 313; 350	667020
667-UV40	40 mg potassium dichromate in $HClO_4$ (0.5 Abs)	235; 257; 313; 350	667040
667-UV60	60 mg potassium dichromate in $HClO_4$ (0.75 Abs)	235; 257; 313; 350	667060
667-UV80	80 mg potassium dichromate in $HClO_4$ (1.0 Abs)	235; 257; 313; 350	667080
667-UV100	100 mg potassium dichromate in $HClO_4$ (1.25 Abs)	235; 257; 313; 350	6670100
667-UV600	600 mg potassium dichromate in $HClO_4$ (1.0 Abs)	430	667600
667-UV14	Perchloric acid ($HClO_4$), reference filter	235; 257; 313; 350	667014
667-UV301	Filter Set for UV range: UV60, UV14	235; 257; 313; 350	667301
667-UV304	Filter Set for Vis range: UV600, UV14	430	667304
667-UV305	Filter Set for UV/Vis range: UV60, UV600, UV14	235; 257; 313; 350; 430	667305
Liquid Filter Set for testing the linearity of the absorption			
667-UV307	Filter-Set: UV20, UV40, UV60, UV80, UV100, UV14	235; 257; 313; 350	667307
Liquid Filter for testing the wavelength accuracy			
667-UV5	Holmium oxide in perchloric acid	241; 287; 361; 536; 640	667005
667-UV400	Filter Set: UV05, UV14	241; 287; 361; 536; 640	667400
Liquid Filter for testing to stray light			
667-UV1	Potassium chloride in pure water	200 (cut-off)	667001
667-UV10	Sodium iodide in pure water	259 (cut-off)	667010
667-UV11	Sodium nitrite in pure water	385 (cut-off)	667011
667-UV12	Pure water (reference filter)	198; 200; 300; 400	667012
667-UV100	Filter Set UV-100: UV1, UV12	200 (cut-off)	667100
667-UV101	Filter Set UV-101: UV10, UV12	259 (cut-off)	667101
667-UV102	Filter Set UV-102: UV11, UV12	385 (cut-off)	667102
667-UV103	Filter Set UV-103: UV1, UV10, UV11, UV12	200; 259; 385 (cut-off)	667103
Liquid Filter for testing the resolution			
667-UV6*	Toluene in n-hexane	Scan: 265 – 270	667006
667-UV9*	n-hexane (reference filter)	Scan: 265 – 270	667009
667-UV200*	Filter Set UV-200: UV6, UV9	Scan: 265 – 270	667200
Complete Filter Set for testing the photometer according to Ph. Eur.			
667-UV003	Complete Filter Set: UV1, UV12, UV6, UV9, UV60, UV600, UV14, UV5	A: 235; 257; 313; 350; 430 W: 241; 287; 361; 536; 640 S: 200 (cut-off) R: Scan 265 – 270	667003

A: Wavelengths for absorbance W: Wavelengths for wavelength accuracy S: Wavelengths for stray light R: Wavelengths for spectral resolution *with Hellma Analytics calibration certificate

REFERENCE PLATES FOR QUALIFYING MICROPLATE READERS WITH DAkkS CERTIFICATE



With reference plates from Hellma Analytics you can check the photometric and wavelength accuracy of microplate readers. They have the same dimensions as a microplate with 96 wells and a 6.6 mm diameter per window (height 14.5 x width 125 x length 85.5 mm).

TYPE	USAGE	MATERIAL Nominal value of absorption	WAVELENGTH nm	ARTICLE-NO.
666-R013	to check photometric accuracy	Neutral Density Glass Filter NG 11 (0.25) , NG 5 (0.5), NG 4 (1.0), NG 3 (1.5), (2.5)	405, 450, 490, 650	666R013
666-R113	to check photometric accuracy and wavelength accuracy	Neutral Density Glass Filter NG 5 (0.5), NG 4 (1.0), NG 3 (1.5), (2.0) Holmium Oxide glass filter	405; 450; 490; 650 279; 361; 453; 536; 638	666R113

WE GRANT A 30 YEAR MANUFACTURER'S WARRANTY ON ALL CERTIFIED REFERENCE MATERIALS IF THEY ARE REGULARLY* RECERTIFIED IN THE HELLMA ANALYTICS CALIBRATION LABORATORY.

*at least every 2 years

RECOMMENDATION FOR RECERTIFYING REFERENCE MATERIALS

Recommendation for recertifying reference materials. Like any measuring device, reference materials that are being used to qualify spectrophotometers, must be checked and recertified within regular intervals. Thus you make sure that you are able to fulfill your internal quality standards as well as the high accuracy and security of your measurements.

It is generally recommended to have an inspection and recalibration of glass filters carried out every 12 months for the first two years of use, after that every 24 months. An inspection and recalibration of the liquid filters should be carried out not later than every 12 months.

The periods indicated are based on our experience and are supposed to be seen as reference values.

RECERTIFICATION OF YOUR FILTERS AT HELLMA ANALYTICS:
// Fill in return form
// Enclose copy of current calibration certificate
// Send filter to the Hellma Analytics Calibration Laboratory
// Filter will be cleaned and recertified
// You will receive your filter with a new DAkkS Calibration Certificate (DAkkS is the national accreditation body for the Federal Republic of Germany)

RECERTIFYING OF THE FILTERS WITH DAkkS CERTIFICATE

Glass Filters

TYPE	SERVICE	ARTICLE-NO.
666-S000	Recertifying Glass Filter Set (F0, F1, F2, F3, F4) for checking wavelength and photometric accuracy	666S000RE
666-S001	Recertifying Glass Filter Set (F3, F4, F7) for checking wavelength and photometric accuracy	666S001RE
666-S002	Recertifying Glass Filter Set (F2, F3, F4) for checking photometric accuracy	666S002RE
666-F1	Recertifying Holmium Oxide Glass Filter	666F1RE
666-F2	Recertifying Neutral Density Glass Filter (0.25 Abs)	666F2RE
666-F3	Recertifying Neutral Density Glass Filter (0.5 Abs)	666F3RE
666-F4	Recertifying Neutral Density Glass Filter (1 Abs)	666F4RE
666-F201	Recertifying Neutral Density Glass Filter (0.3 Abs)	666F201RE
666-F202	Recertifying Neutral Density Glass Filter (1.5 Abs)	666F202RE
666-F203	Recertifying Neutral Density Glass Filter (2.0 Abs)	666F203RE
666-F7A	Recertifying Didymium Glass Filter (0.5 – 1.0 Abs) for checking photometric accuracy	666F7ARE
666-F7	Recertifying Didymium Glass Filter for checking wavelength and photometric accuracy	666F7RE
666-F7W	Recertifying Didymium Glass Filter for checking wavelength accuracy	666F7WRE

Reference Plates

TYPE	SERVICE	MATERIAL	ARTICLE-NO.
666-R013	Recertifying Reference Plate for Microplate Reader	Neutral Density Glass Filter NG 11, NG 5, NG 4, NG 3	666R013RE
666-R113	Recertifying Reference Plate for Microplate Reader	Neutral Density Glass Filter NG 5, NG 4, NG 3 Holmium Oxide Glass Filter	666R113RE

RECERTIFYING OF THE FILTERS WITH DAkkS CERTIFICATE

Liquid Filters

TYPE	SERVICE	ARTICLE-NO.
667-UV003	Recertifying Complete Filter Set for checking the photometer according to Ph. Eur.	667003RE
667-UV100	Recertifying Filter Set for checking to stray light according to Ph. Eur.	667100RE
667-UV101	Recertifying Filter Set for checking to stray light	667101RE
667-UV102	Recertifying Filter Set for checking to stray light	667102RE
667-UV103	Recertifying Filter Set for checking to stray light	667103RE
667-UV200 *	Recertifying Filter Set for checking the resolution according to Ph. Eur.	667200RE
667-UV301	Recertifying Filter Set for checking photometric accuracy according to Ph. Eur.	667301RE
667-UV304	Recertifying Filter Set for checking photometric accuracy according to Ph. Eur.	667304RE
667-UV305	Recertifying Filter Set for checking photometric accuracy according to Ph. Eur.	667305RE
667-UV307	Recertifying Filter Set for checking the linearity of the absorption	667307RE
667-UV400	Recertifying Filter Set for checking wavelength accuracy	667400RE
667-UV5	Recertifying Holmium Oxide Liquid Filter for checking wavelength accuracy according to Ph. Eur.	667005RE
667-UV6 *	Recertifying Toluene in n-hexane Liquid Filter for checking the resolution according to Ph. Eur.	667006RE
667-UV1	Recertifying Potassium Chloride Liquid Filter for checking to stray light according to Ph. Eur.	667001RE
667-UV10	Recertifying Sodium Iodide Liquid Filter for checking to stray light	667010RE
667-UV11	Recertifying Sodium Nitrite Liquid Filter for checking to stray light	667011RE
667-UV12	Recertifying Pure Water for checking to stray light	667012RE
667-UV14	Recertifying Reference Liquid Filter ($HClO_4$) for checking photometric accuracy	667014RE
667-UV20	Recertifying Potassium Dichromate Liquid Filter (20 mg) for checking photometric accuracy	667020RE
667-UV40	Recertifying Potassium Dichromate Liquid Filter (40 mg) for checking photometric accuracy	667040RE
667-UV60	Recertifying Potassium Dichromate Liquid Filter (60 mg) for checking photometric accuracy according to Ph. Eur.	667060RE
667-UV80	Recertifying Potassium Dichromate Liquid Filter (80 mg) for checking photometric accuracy	667080RE
667-UV100	Recertifying Potassium Dichromate Liquid Filter (100 mg) for checking photometric accuracy	6670100RE
667-UV600	Recertifying Potassium Dichromate Liquid Filter (600 mg) for checking photometric accuracy for Vis range according to Ph. Eur.	667600RE

*Recertifying with Hellma Analytics calibration certificate

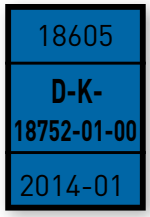
DAkkS CALIBRATION CERTIFICATE

DAkkS
Deutsche
Akkreditierungsstelle
D-K-18752-01-00

DAkkS CALIBRATION CERTIFICATE FROM HELLMA ANALYTICS.
GUARANTEE FOR CERTIFIED REFERENCE MATERIALS.

After careful manufacture, the reference materials are measured and certified using a high-performance UV/Vis Spectrometer in the Hellma Analytics' DIN EN ISO 17025 accredited calibration laboratory.

Only if the DAkkS calibration certificate has been issued and the calibration mark has been affixed, do the reference materials actually become certified reference materials.



Users are then able to test and calibrate their spectrometers by using the values documented and certified on the calibration certificate. DAkkS calibration certificates are certificates from the "Deutsche Kalibrierdienst" (German Calibration Service) and may only be issued by accredited partners.

The Hellma Analytics calibration laboratory is the only calibration laboratory in Germany accredited for the certification of UV/Vis reference materials.

OPTICAL IMMERSION PROBES

USAGE

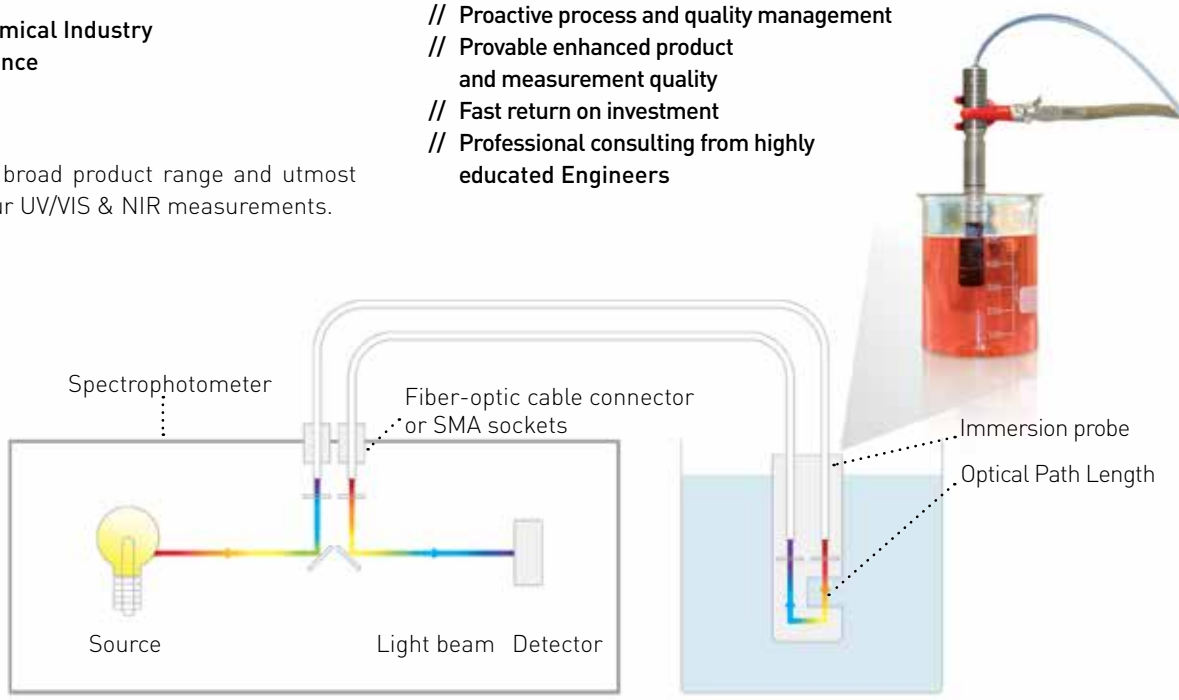
Immersion Probes support engineers, researchers and analysts in several fields where process efficiency is required.

For example:
// **Chemical and Petrochemical Industry**
// **Pharmacy and Life Science**
// **Food and Beverage**
// **Polymers**

Hellma Analytics offers a broad product range and utmost competence to support your UV/VIS & NIR measurements.

BENEFITS

// **Higher process efficiency and performance**
// **Simple and safe process monitoring**
// **Optimal control of complex reaction processes**
// **Proactive process and quality management**
// **Provable enhanced product and measurement quality**
// **Fast return on investment**
// **Professional consulting from highly educated Engineers**



EXCALIBUR STANDARD IMMERSION PROBE

All-Round Probe

This classic transmission probe features a broad range of possible applications. Whether for use in the lab, for online monitoring in process environment or even for TDA -measurements – it is always the right choice.

Optical Path Length mm (tolerance ± 0.01)	1 mm, 2 mm, 5 mm, 10 mm, 20 mm
Outer Diameter	probe head 15 mm probe shaft 20 mm protective sleeve 20 mm
Optical Material	Quartz
Probe Body Material	Stainless steel 1.4404 (316 L)
Sealing Technology	Kalrez® 6375 Kalrez® 4079
Spectral Range	UVS/Vis approx. 40 % in air above 300 nm NIR approx. 40 % in air above 400 nm
Fiber Optical Connection	1.80 m external fiber optical cables with SMA connectors
Temperature Range	5 °C to 150 °C
Pressure Range	-1 bar to 6 bar
Immersion Depth	100 mm (10 mm optical path length)

	UVS	NIR
Path Length mm	ARTICLE-NO.	
1	661-002-1-S-46	661-002-1-N-46
2	661-002-2-S-46	661-002-2-N-46
5	661-002-5-S-46	661-002-5-N-46
10	661-002-10-S-46	661-002-10-N-46
20	661-002-20-S-46	661-002-20-N-46

EXCALIBUR STANDARD IMMERSION PROBE

All-Quartz Probe

These Hellma Analytics all-quartz probes are outstanding due to its unique design which makes additional sealing material superfluous. This makes them the ideal tool for measuring aggressive samples even at the lowest temperatures – measuring beyond the limits.

Optical Path Length mm (tolerance ± 0.01)	1 mm, 2 mm, 5 mm, 10 mm, 20 mm
Outer Diameter	Probe head: 15 mm Quartz barrel: 18 mm
Optical Material	Quartz
Probe Body Material	Quartz
Sealing Technology	Directly fused
Spectral Range	UVS/Vis approx. 40 % in air above 300 nm NIR approx. 40 % in air above 400 nm
Fiber Optical Connection	1.80 m external fiber optical cables with SMA connectors
Temperature Range	5 °C to 150 °C (-180 °C to 150 °C with vacuum jack)
Pressure Range	-1 bar to 6 bar
Immersion Depth	210 mm (10 mm optical path length)

	UVS	NIR
Path Length mm	ARTICLE-NO.	
1	661-302-1-S-46	661-302-1-N-46
2	661-302-2-S-46	661-302-2-N-46
5	661-302-5-S-46	661-302-5-N-46
10	661-302-10-S-46	661-302-10-N-46
20	661-302-20-S-46	661-302-20-N-46

WITH VACUUM JACK FOR LOW TEMPERATURE APPLICATIONS

	UVS	NIR
Path Length mm	ARTICLE-NO.	
1	661-202-1-S-46	661-202-1-N-46
2	661-202-2-S-46	661-202-2-N-46
5	661-202-5-S-46	661-202-5-N-46
10	661-202-10-S-46	661-202-10-N-46
20	661-202-20-S-46	661-202-20-N-46

EXCALIBUR STANDARD IMMERSION PROBE

All-Quartz Probe Tapered version with ground glass joint NS 19/35

Optical Path Length mm (tolerance ± 0.01)	1 mm, 2 mm, 5 mm,10 mm, 20 mm
Outer Diameter	15.5 mm (probe head) Taper NS 19/35
Optical Material	Quartz
Probe Body Material	Quartz
Sealing Technology	Directly fused
Spectral Range	UVS/Vis approx. 40 % in air above 300 nm NIR approx. 40 % in air above 400 nm
Fiber Optical Connection	1.80 m external fiber optical cables with SMA connectors
Temperature Range	5 °C to 150 °C
Pressure Range	-1 bar to 6 bar
Immersion Depth	130 mm (10 mm optical path length)

	UVS	NIR
Path Length mm	ARTICLE-NO.	
1	661-500-1-S-46	661-500-1-N-46
2	661-500-2-S-46	661-500-2-N-46
5	661-500-5-S-46	661-500-5-N-46
10	661-500-10-S-46	661-500-10-N-46
20	661-500-20-S-46	661-500-20-N-46

OPTICAL IMMERSION PROBES

These transflection immersion probes have been specifically designed for laboratories and small volume analyses. They are available with fixed path lengths and very small outer diameters e.g. 3.2 mm/4 mm/6 mm. The 6 mm version offers increased flexibility due to interchangeable path length tips.

FALCATA STANDARD IMMERSION PROBE

with 3.2 mm and 4 mm diameter

These micro immersion probes have been specifically developed for measurements in small volumes. Due to their slim form, less sample material is required for a measurement to be taken.

Optical Path Length mm (tolerance ± 0.02)	5 mm, 10 mm
Outer Diameter	3.2 mm/4 mm
Optical Material	Quartz
Probe Body Material	Stainless steel 1.4404 (316 L)
Sealing Technology	Epoxy glue
Spectral Range	UVS/VIS approx. 30 % in air above 300 nm NIR approx. 30 % in air above 400 nm
Fiber Optical Connection	1.80 m external fiber optical cables with SMA connectors
Temperature Range	5 °C to 150 °C
Pressure Range	-1 bar to 6 bar
Immersion Depth	75 mm/130 mm (10 mm path length)

FALCATA STANDARD IMMERSION PROBE **3.2 mm DIAMETER**

	UVS	NIR
Path Length mm	ARTICLE-NO.	
5	661-610-5-S-46	661-610-5-N-46
10	661-610-10-S-46	661-610-10-N-46

FALCATA STANDARD IMMERSION PROBE **4 mm DIAMETER**

	UVS	NIR
Path Length mm	ARTICLE-NO.	
5	661-611-5-S-46	661-611-5-N-46
10	661-611-10-S-46	661-611-10-N-46

FALCATA STANDARD IMMERSION PROBE

with 6 mm diameter

Increased flexibility due to interchangeable path length tips.

Optical Path Length mm (tolerance ± 0.02)	1 mm, 2 mm, 5 mm, 10 mm, 20 mm through interchangeable tips
Outer Diameter	6 mm
Optical Material	Quartz
Probe Body Material	Stainless Steel 1.4435 (316 L)
Sealing Technology	Epoxid glue
Spectral Range	UVS/Vis approx. 40 % in air above 300 nm NIR approx. 40 % in air above 400 nm
Fiber Optical Connection	1.80 m external fiber optical cables with SMA connectors
Temperature Range	5 °C to 150 °C
Pressure Range	-1 bar to 6 bar
Immersion Depth	175 mm (10 mm optical path length)

	UVS	NIR
Path Length mm	ARTICLE-NO.	
1/2/5/10/20	661-622-set-S-46	661-622-set-N-46
1	661-622-1-S-46	661-622-1-N-46
2	661-622-2-S-46	661-622-2-N-46
5	661-622-5-S-46	661-622-5-N-46
10	661-622-10-S-46	661-622-10-N-46
20	661-622-20-S-46	661-622-20-N-46

ACCESSORIES INTERCHANGEABLE PATH LENGTH TIPS

	Path Length Tips
Path Length mm	ARTICLE-NO.
1	665-622-1-40
2	665-622-2-40
5	665-622-5-40
10	665-622-10-40
20	665-622-20-40

ACCESSORIES

EXTERNAL CELL HOLDER

The external cell holder is useful when the spectrophotometer does not have an internal cell holder or when measurements with cells are to be made at some distance from the spectrophotometer e.g. in a fume hood. To connect this cell holder properly to your system you will require 2 x 1 m fiber optic cables in the corresponding spectral range. You should select the option "SMA-Collimator".

Material	Aluminium, Black Anodised
Dimensions	123 mm x 40 mm x 45 mm
Temperature of solution in cell	Max. 120 °C (Quartz Cells Only)
Ambient temperature	Max. 50 °C
Fiber Optic Cables	These must be ordered separately.
Notes	Suitable for cells with path length 1 mm to 20 mm
ARTICLE-NO.	664-15-71

FIBER OPTIC INTERFACE

This accessory is to be used when SMA sockets are not available on your spectrophotometer. To connect this interface properly to your system you will require, in addition to your probe, 2 x 1 m fiber optic cables in the corresponding spectral range. You should select the option "SMA-Collimator". The SMA end is connected to your probe via a small SMA/SMA adapter and the collimating ends are plugged into the interface.

Effective Aperture	4 mm Diameter
Outside Dimension	60 mm x 12.5 mm x 12.5 mm
Center Height	8.5/15/20 mm
Wavelength Range	190 nm to 2300 nm, depends on cables used
Notes	Other center heights on request
ARTICLE-NO.	662-85-UVNIR-46 662-15-UVNIR-46 662-20-UVNIR-46

FIBER OPTIC CABLES

Fiber optic cables can be supplied with either SMA connectors or special collimating lenses to suit the application that they are being used for.

Core Diameter	600 µm
Numerical Aperture	0.22
Beam Diameter (lens)	3.7 mm
Max. Temperature	150 °C

ACCESSORIES SMA/SMA ADAPTER

ARTICLE-NO.	041-500-74

WAVELENGTH	LENGTH	SMA – SMA	SMA – COLLIMATOR	COLLIMATOR – COLLIMATOR
		ARTICLE-NO.	ARTICLE-NO.	ARTICLE-NO.
NIR	1 m	ALN001LSS	ALN001LSC	ALN001LCC
	2 m	ALN002LSS	ALN002LSC	ALN002LCC
	3 m	ALN003LSS	ALN003LSC	ALN003LCC
	4 m	ALN004LSS	ALN004LSC	ALN004LCC
	5 m	ALN005LSS	ALN005LSC	ALN005LCC
	6 m	ALN006LSS	ALN006LSC	ALN006LCC
	7 m	ALN007LSS	ALN007LSC	ALN007LCC
	8 m	ALN008LSS	ALN008LSC	ALN008LCC
UVS	1 m	ALS001LSS	ALS001LSC	ALS001LCC
	2 m	ALS002LSS	ALS002LSC	ALS002LCC
	3 m	ALS003LSS	ALS003LSC	ALS003LCC
	4 m	ALS004LSS	ALS004LSC	ALS004LCC
	5 m	ALS005LSS	ALS005LSC	ALS005LCC
	6 m	ALS006LSS	ALS006LSC	ALS006LCC
	7 m	ALS007LSS	ALS007LSC	ALS007LCC
	8 m	ALS008LSS	ALS008LSC	ALS008LCC

CLEANING CONCENTRATE FOR CELLS AND OPTICAL COMPONENTS

CLEANING

of cells and optical components

TYPE	DESCRIPTION	ARTICLE-NO.
320.003	Hellmanex® III Liquid cleaning concentrate, for glass, quartz cells and optical components Selling unit: 1.3 kg PE bottle (1.0 l). Delivery of 10 l or 25 l cans possible upon request.	9-307-011-4-507
325.000	SAVE-a-CELL plastic cell holder for 4 cells with 10 mm optical path lenght for cleaning purposes	325.000

320.003

325.000

APPLICATION

Hellmanex® III is an alkaline liquid concentrate which must simply be mixed with water to yield an effective cleaning solution of quartz and glass cells. It can also be used to clean other sensitive optical components made of glass, quartz, sapphire and porcelain.

CHARACTERISTICS

Hellmanex® III significantly reduces the surface tension of water. The removal of dirt particles is also assured by the good wetting action of Hellmanex® III aqueous solution, whilst its high emulsifying and dispersing capabilities prevent the redeposition of the loosened particles. Special surface-active substances facilitate the residue-free rinsing of the optical components once they have been cleaned.

CLEANING AND DILUTION

The optimal dilution depends on several factors, such as the hardness of the water, the degree and type of contamination, the temperature etc. The use of demineralised water improves the cleaning characteristics.

CONCENTRATION (% BY VOL.)	TEMPERATURE (°C)	TIME (MINUTES)
0.5–2	20–25	120–180
0.5–2	30–35	30–40
0.5–2	50–60 (Quartz only)	10–15
0.5–2	70–80 (Quartz only)	< 5

Our brochures provide detailed information about the appropriate product groups and in addition, offer thematic information as well as handling advice.

Hellma® Analytics

Download:
www.hellma-analytics.com/download

PRODUCT BROCHURES

Product Catalogue
BestCellers

Optical Immersion Probes
Fiber Optical Flow Cells

THEMATIC INFORMATION

Flow Channels for Cytometry

UV/Vis Certified
Reference Materials

TrayCell
Ultra-Micro-Cell

Hellmanex |||
Cleaning Concentrate

Technology Expertise

Hellma® Optics

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PRODUCT BROCHURES

Cylindrical Optics
Toric Optics

Flat Optics
Special Optics

Hellma® Materials

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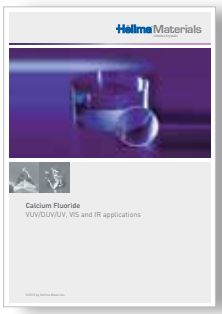
PRODUCT BROCHURES



Calcium Fluoride
Raw material and optical components

NOTES

NOTES

Hellma® Analytics
High Precision in Spectro-Optics

ASIA

Hellma (Asia Pacific) Pte Ltd
8 Boon Lay Way #03-10
8@TradeHub 21
Singapore 609964
phone + 65 6896 6945
fax + 65 6896 6750
info.asia@hellma.com

Hellma South Asia Pte Ltd
8 Boon Lay Way #03-10
8@TradeHub 21
Singapore 609964
phone + 65 6896 6942
fax + 65 6896 6750
info.in@hellma.com

Hellma China Pte Ltd
8 Boon Lay Way #03-10
8@TradeHub 21
Singapore 609964
phone + 65 6896 8603
fax + 65 6896 6750
info.cn@hellma.com

EUROPE

Hellma GmbH & Co. KG
Klosterrunsstraße 5
79379 Müllheim
Germany
phone + 49 7631 182 1010
fax + 49 7631 182 1011
info.de@hellma.com

Hellma Benelux BVBA
Hogen Akkerhoekstraat 14
9150 Kruibeke
Belgium
phone + 32 3 877 33 27
fax + 32 3 887 10 26
info.be@hellma.com

Hellma France S.A.R.L.
35 rue de Meaux
75019 Paris
France
phone + 33 1 42 08 01 28
fax + 33 1 42 08 13 65
info.fr@hellma.com

Hellma Italia S.r.l.
Via Gioacchino Murat, 84
20159 Milano
Italy
phone + 39 02 261 164 19
fax + 39 02 261 133 31
info.it@hellma.com

Hellma Schweiz AG
Schwäntenmos 15
8126 Zumikon
Switzerland
phone + 41 44 918 23 79
fax + 41 44 918 08 12
info.ch@hellma.com

Hellma UK LTD
Cumberland House
24-28 Baxter Avenue
Southend on Sea,
Essex SS2 6HZ
United Kingdom
phone + 44 1702 335 266
fax + 44 1702 430 652
info.uk@hellma.com

THE AMERICAS

Hellma USA INC.
80 Skyline Drive
Plainview, NY 11803
USA
phone + 1 516 939 0888
fax + 1 516 939 0555
info.us@hellma.com

Hellma Canada Ltd.
7321 Victoria Park Avenue,
Unit 108
Markham, Ontario L3R 2Z8
Canada
phone + 1 905 604 5013
fax + 1 905 604 5015
info.ca@hellma.com

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