HIRSCHMANN®

ceramus®

HiClass in dispensing

ceramus®
Uncompromising reliability

Years of experience gained by Hirschmann in liquid handling are reflected in the perfection embodied in ceramus® and absolute attention to detail. The graduation gauge and digital volume configuration engagement guarantee consistent precision and volume dispensing and ensure reproducible results – absolutely independent of the user.

The dispensing piston made of high-purity aluminium oxide ceramic and the DURAN® glass* cylinder guarantee a maximum level of chemical and thermal resistance.

This ensures continuously reliable dimensional stability of the parts which determine the volume and superior user comfort. The piston fits with absolute precision, can be operated easily with a minimum of effort and retains its functional reliability throughout the entire period of use.

The high-quality materials in all parts conveying medium enable the use of ceramus® within a temperature range from 4 °C to 50 °C, and the unit can be steam sterilised at 121 °C.

Overview of details

- Piston made of high-purity aluminium oxide ceramic
- Fixed and variable volumes from 0.2 ml to 60 ml
- Complete unit can be sterilised at 121 °C
- Free rotation
- Media recirculating system for simple and rapid venting without reagent loss
- User-independent, reproducible volume dispensing
- Digital volume configuration engagement, calibrated for a lifetime
- Robust ejection unit
- Threaded suction hose fitting
- Optimum chemical and thermal resistance of parts conveying medium
- Quality certificate with declaration of conformity acc. to DIN 12600
- Discharge valves and valve seats consisting of high-purity aluminium oxide ceramic
- Valve springs from Hastelloy

* DURAN® is a registered trademark of the DURAN Group GmbH, Wertheim.

ceramus®

Absolute perfection down to the last detail

consistent
Ceramic piston dimensional stability and functional reliability throughout the entire period of use

high precision
Consistent volume dispensing and absolute reproducibility through graduation gauge and digital volume configuration engagement, calibrated for a lifetime

ergonomic
A firm hold for control and simple, rapid, consistently exact volume configuration

professional
User-independent consistent volume dispensing

reliable
Quality certificate with declaration of conformity acc. to DIN 12600

user-friendly
Valves can be unscrewed in seconds

comprehensive
From 0.2 ml to 60 ml, fixed and variable

Superior quality
Optimum chemical and thermal resistance of parts conveying media

environmentally friendly
No reagent loss, thanks to user-friendly media recirculation system

Uncompromisingly reliable

Precise and consistent

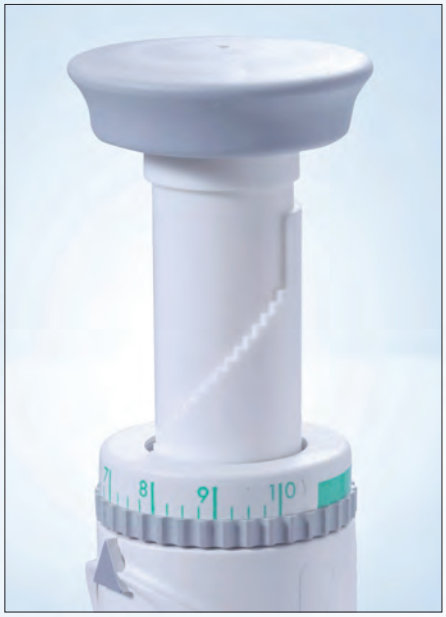
ceramus® is distinguished by a unique combination of a ceramic piston, graduation gauge and digital volume configuration engagement.

The chemical and thermal resistance of all parts conveying medium enables use of ceramus® for dispensing of practically all media within an extremely broad temperature range from 4 °C to 50°C. Functional reliability and precision remain absolutely guaranteed. The complete unit can be steam sterilised at 121 °C.

Perfect ergonomics
Attention to detail: the ergonomically designed handle supports rapid, reliable and non-fatiguing working, both when heating the medium and dispensing.

User-friendly recirculation system
ceramus® is equipped with a unique comfortable media recirculation system. Venting is realised simply, reliably and rapidly with a single rotation – without reagent loss.

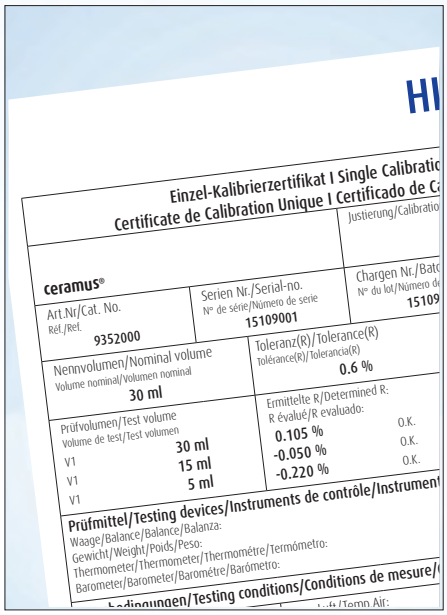
Precision instead of sense of proportion
Digital volume configuration engagement ensures immediate, consistent and absolutely reliable adjustment of the desired volume.



Absolute reproducibility
The graduation gauge ensures absolutely reproducible work. A volume originally selected which is newly configured is always identical to the previous setting – with no need for subsequent calibration.

Flexible and reliable
ceramus® can be screwed directly onto the bottle. The advantage: the labels or labelled side of the bottle remains visible to the user if, for example, the discharge is turned away from the user during dispensing of aggressive media. This means that you can keep an eye on everything.

Precision work with suction hose
The robust suction hose is not pushed on, but screwed firmly to the unit. This reliably prevents the formation of air bubbles during suctioning.



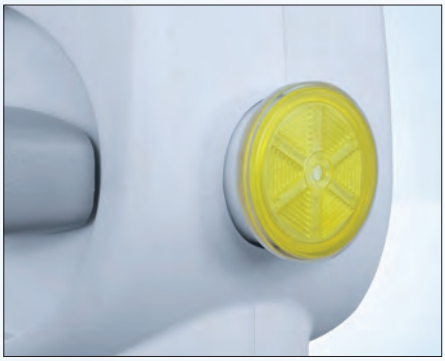
Einzel-Kalibrierzertifikat I Single Calibratio
Certificate de Calibration Unique I Certificado de C

ceramus®

Art.Nr/Cat. No. Réf./Ref. 9352000	Serien Nr./Serial-no. N° de série/Número de serie 15109001	Chargen Nr./Batc N° du lot/Número de 15109
Nennvolumen/Nominal volume Volume nominal/Volumen nominal 30 ml	Toleranz(R)/Tolerance(R) Tolérance(R)/Tolerancia(R) 0.6 %	
Prüfvolumen/Test volume Volume de test/Test volumen 30 ml	Ermittelte R/Determined R: R évalué/R evaluado: 0.105 %	O.K.
V1 15 ml	-0.050 %	O.K.
V1 5 ml	-0.220 %	O.K.
V1		

Prüfmittel/Testing devices/Instruments de contrôle/Instrument
Waage/Balance/Balance/Balanza:
Gewicht/Weight/Poids/Peso:
Thermometer/Thermometer/Thermomètre/Termómetro:
Barometer/Barometer/Baromètre/Barómetro:

Standard feature: quality certificate
Each ceramus® is individually inspected for precision. The quality certificate documents five tested volumes, the serial number and conformity pursuant to the German Calibration Regulation (Eichordnung) and can therefore be filed directly in quality documentation conforming to DIN EN ISO 9000. This ensures reliability.



Universal Luer connector
A universal Luer connector is fitted to the rear of the unit to enable connection of the dry tube, filters and much more.

Ceramic piston made of extremely hard, high-purity aluminium oxide ceramic
The ceramic piston is made of extremely hard, high-purity aluminium oxide ceramic and is fitted into the DURAN® glass cylinder with micrometre precision for an absolutely tight seal. This achieves impressive ease of guidance and a maximum degree of functional reliability. Abrasion, serration, gushing or the detaching of a layer are prevented.

Professional from A to Z

ceramus® classic
The classic unit for rapid dispensing with reliable results

ceramus® classic is the proven basic unit for manual dispensing. Superior-quality materials, simple handling and well-engineered user comfort make laboratory routines easier.

The graduation gauge and digital volume configuration engagement also guarantee consistent precision and volume dispensing and ensure reproducible results in the case of the ceramus® classic – absolutely independent of the user. The dispensing piston made of high-purity aluminium oxide ceramic guarantees a maximum level of chemical and thermal resistance. The complete unit can be steam sterilised at 121 °C.

The ceramus® classic FIX is also available in six different volumes for dispensing with fixed volume configurations.

Overview of details

- Piston made of high-purity aluminium oxide ceramic
- For fixed and variable volumes from 0.2 ml to 60 ml
- Complete unit can be steam sterilised at 121 °C
- Threaded suction hose fitting
- User-independent, reproducible volume dispensing
- Digital volume configuration engagement, calibrated for a lifetime
- Optimum chemical and thermal resistance of parts conveying medium
- Individual quality certificate with declaration of conformity acc. to DIN 12600
- Discharge valves and valve seats consisting of high-purity aluminium oxide ceramic
- Valve springs from Hastelloy

ceramus® HF
Specially developed for hydrofluoric acid or other aggressive media

A special version designed for dispensing very aggressive media, the ceramus® HF, is also available. The piston, cylinder, valve seats and balls are made of high-purity aluminium oxide ceramic, while the valve springs are made of platinum-iridium.

The volume can be variably adjusted from 2 ml to 10 ml.

EM-dispenser PP

The EM Dispenser PP with parts for conveying media made of polypropylene supplements the ceramus® family as a light version. With a precision ground glass piston and cylinder made of DURAN® glass, it is ideal for non-problematic watery and organic media which do not attack polypropylene.

ceramus® family

Order number	Article designation	ceramus®	ceramus® classic up to 10 ml and EM Dispenser PP 2–10 ml	ceramus® classic from 25 ml and EM Dispenser PP 10–60 ml	ceramus® HF
	Threaded adapters				
931 35 23	PP A 45 to A 28	✓			✓
931 35 24	PP A 45 to A 38/430	✓			✓
931 36 21	ETFE A 45 to A 32	✓			✓
931 36 23	ETFE A 45 to A 28	✓			✓
931 36 24	ETFE A 45 to A 38/430	✓			✓
931 36 25	ETFE A 45 to A 38	✓			✓
931 36 27	ETFE A 45 to S 40	✓			✓
931 35 02	PP A 32 to A 25		✓	✓	
931 35 05	PP A 32 to A 38		✓	✓	
931 36 06	EFTE A 32 to A 45		✓	✓	
931 36 07	EFTE A 32 to S 40		✓	✓	
	Valves				
931 60 28	Discharge valve, valve seat/ball made of high purity aluminium oxide ceramic (Al_2O_3 99,7%), spring made of platin-iridium (HF)	✓			✓
931 60 10	Discharge valve, valve seat/ball made of high purity aluminium oxide ceramic (Al_2O_3 99,7%), spring made of Hastelloy		✓		
931 60 15	Discharge valve, valve seat/ball made of high purity aluminium oxide ceramic (Al_2O_3 99,7%), spring made of Hastelloy	✓		✓	
931 65 28	Suction valve, valve seat/ball made of high purity aluminium oxide ceramic (Al_2O_3 99,7%), spring made of platin-iridium (HF)	✓			✓
931 65 10	Suction valve, valve seat/ball made of high purity aluminium oxide ceramic (Al_2O_3 99,7%), spring made of Hastelloy		✓		
931 65 15	Suction valve, valve seat/ball made of high purity aluminium oxide ceramic (Al_2O_3 99,7%), spring made of Hastelloy	✓		✓	
931 66 26	Recirculation valve, valve seat/ball made of high purity aluminium oxide ceramic (Al_2O_3 99,7%), spring made of platin-iridium (HF)	✓			✓
931 66 15	Recirculation valve, valve seat/ball made of high purity aluminium oxide ceramic (Al_2O_3 99,7%), spring made of Hastelloy	✓			
	Ejection units				
931 30 15	Titration ejection unit	✓			✓
956 30 04	Ejection unit, titration, variable, with hose clip, 400 mm, FEP	✓			✓
931 30 26	Ejection unit, flexible, spiral shaped	✓			✓
931 30 27	Ejection unit, flexible, spiral shaped	✓			✓
931 30 28	Ejection unit, with Luer lock connector	✓			✓
931 30 29	Ejection unit, with Luer lock connector	✓			✓
931 30 07	Ejection unit FEP, flexible, spiral shaped, working length approx. 1 m			✓	
931 30 08	Ejection unit, with Luer lock connector			✓	
931 30 09	Ejection unit, with Luer lock connector			✓	
931 30 09	Ejection unit FEP, flexible, spiral shaped, working length approx. 1 m		✓		
	Suction/ Recirculation hoses				
931 50 07	Suction hose with screw fitting	✓		✓	✓
931 50 07	Suction hose FEP with union nut		✓		
	Miscellaneous				
990 37 04	Round filter set (with plug connection on one side)	✓			✓

Newly developed accessory range for maximum adaptability

Base support instead of bottle attachment
The base support enables suctioning of the medium directly from a separate storage container using a hose.

Stand clip for fixing the basic unit
The stand clip also facilitates use of ceramus® in a stand assembly.

Adapter with NS 12/21 filling tube for funnel
The adapter with standard ground 12/21 filling tube enables problem-free filling of medium through a funnel - without unscrewing the basic unit.

Ground adapter for direct reagent extraction from a ground bottle
The NS 29/32 ground adapter enables secure use of the basic unit on standard ground bottles.

Accessory range

HIRSCHMANN®
10-60 ml
div. in 0,5 ml Ex 20°C
DE-M 16
ceramus®

ceramus® HiClass in dispensing

Performance data	
Volume selection	With micro-engagement adjusting ring, precise and reproducible, thanks to mechanical digital principle (with fixed preadjustment in defined graduations); individual graduations with 0.05 to 1 ml resolution (depending on model)
Volume accuracy	Precise and reproducible with absolute accuracy (R) of 0.6% and standard deviation (CV) of 0.2%
Piston	Mainly inert and wear-free ceramic consisting of 99.7% pure Al_2O_3 (EM Dispenser PP made of Duran®)
Cylinder	Mainly inert and wear-free design made of calibrated DURAN® glass (HF: ceramic)
Valves	Mainly inert and wear-free design, ball and seat made of ceramic (99.7% pure Al_2O_3), ejection valve springs made of Hastelloy (HF: platinum-iridium). The valves can be easily removed and replaced using the fitting wrench (included in scope of delivery)
Plastic parts	All parts which come into contact with the medium are made of highly resistant fluoroplastics: Valve housing made of ECTFE, suction and ejection hose made of FEP (EM Dispenser PP: valve block made of PP)
Sterilisability	Can be steam sterilised at 121°C, complete including ejection unit
Breakage resistance	Completely enclosed protective plastic jacket with clear inspection window
Test protocol	Each instrument is individually tested, certified and bears a unique instrument number

Scope of delivery

- ceramus®, suitable for A 45 thread; ceramus® classic, suitable for A 32 thread
- Suction hose, fitting wrench, individual quality certificate, ceramus® additionally with recirculation hose
- Threaded adapters A 32, A 38 and S 40, ceramus® classic threaded adapters A 28, S 40, A 45

Ordering data

	Volume (ml)	Graduation (ml)	Precision (R%)	Reproducibility (CV%)	Order no. ceramus® | ceramus® classic
ceramus® | ceramus® classic	0.2 - 1.0	0.05	0.6	0.2	931 20 00 | 931 00 00
ceramus® | ceramus® classic	0.4 - 2.0	0.05	0.6	0.2	932 20 00 | 932 00 00
ceramus® | ceramus® classic	1.0 - 5.0	0.10	0.6	0.2	933 20 00 | 933 00 00
ceramus® | ceramus® classic	2.0 - 10.0	0.25	0.6	0.2	934 20 00 | 934 00 00
ceramus® | ceramus® classic	5.0 - 30.0	0.50	0.6	0.2	935 20 00 | 935 00 00
ceramus® | ceramus® classic	10.0 - 60.0	1.00	0.6	0.2	936 20 00 | 936 00 00
ceramus® | ceramus® classic	1 FIX	–	0.6	0.2	931 21 00 | 931 11 00
ceramus® | ceramus® classic	2 FIX	–	0.6	0.2	932 21 00 | 932 11 00
ceramus® | ceramus® classic	5 FIX	–	0.6	0.2	933 21 00 | 933 11 00
ceramus® | ceramus® classic	10 FIX	–	0.6	0.2	934 21 00 | 934 11 00
ceramus® | ceramus® classic	25 FIX	–	0.6	0.2	935 21 00 | 935 11 00
ceramus® | ceramus® classic	50 FIX	–	0.6	0.2	936 21 00 | 936 11 00
ceramus® HF	2.0 - 10.0	0.25	0.6	0.2	934 23 00
EM-dispenser PP	2.0 - 10.0	0.25	0.6	0.2	934 02 00
EM-dispenser PP	10.0 - 60.0	1.00	0.6	0.2	936 02 00

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