

ceramus®

HiClass in dispensing.



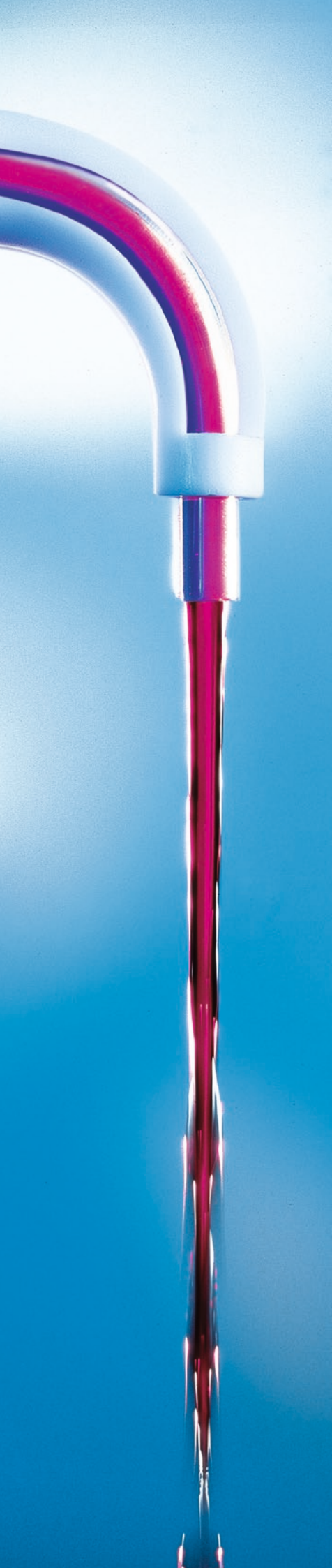
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ceramus[®].

Helping you achieve reliable measuring results.

There can be no time compromises where reliable measuring results are involved.

Ceramic ensures that the greatest level of resistance is provided

A dispensing piston made of maximum-purity aluminium oxide ceramic forms the centrepiece of the ceramus[®]. Contrary to PTFE-coated pistons, this material ensures the highest degree of chemical and thermal resistance. This is not only the guarantee of an enduringly reliable dimensional stability of parts which determine the volume, but also superior operating comfort. The ceramic piston is a perfect-tolerance fit, can be operated smoothly with a minimal application of force and retains its functional safety through its service life.

A digital engaging volumetric adjustment device ensures a maximum level of reproducibility

The graduated gauge and digital engaging volumetric adjustment guarantee a consistently accurate volumetric delivery and ensure that a volume which is selected once can be set again exactly, time after time. Subsequent calibration is unnecessary.

Rapid, simple and safe dispensing

A sure-grip setting ring is used to adjust the volume. The mechanical/digital volumetric adjustment device engages in pre-specified graduations, so that 9.75 ml remains 9.75 ml. Simple, accurate and user-independent. That means rapidity, efficiency and – most importantly – sure results.

Perfection of detail for professional working results

A clearly-designed adjusting scale, a dispenser which rotates freely on the bottle and a unique environmental and user-friendly media recirculation system - ceramus[®] distinguishes itself through solutions which are both detailed and practical and provides optimum prerequisites for a daily laboratory routine which is even more economical, safe and efficient. It's logical ergonomic design aids professional results and greater concentration during applications.

An individual quality test for maximum assurance

The precision of dispensers which are deposited on bottles is generally determined through random sampling and confirmed with a batch certificate. This method is too inaccurate for us. We want you to have complete faith in the precision of your dispenser. This is why we check the accuracy of each individual ceramus[®], confirming this by issuing an individual certificate of quality with the associated serial number. This ensures the highest level of assurance when it comes to the reliability of your measuring results.

■ **Consistent:**
ceramic piston, dimensional stability and functional safety for the entire service life

■ **High precision:**
consistent volumetric delivery and absolute reproducibility, thanks to a graduated gauge and digital engaging volumetric adjustment device, calibrated for a lifetime

■ **Precise:**
rapid volumetric adjustment

■ **Ergonomic:**
sure-grip operation and simple, consistently accurate volumetric adjustment

ceramus®.
Professionalism – right down to the last detail

■ **Comprehensive:**
from 0.2 ml to 60 ml, fixed and variable

■ **High-quality:**
medium-conveying components exhibit the highest degree of chemical and thermal resistance

■ **Perfection of detail:**
sturdy ejector unit, parkbox for closure cap, free rotation, threaded suction hose

■ **Professional:**
user-independent consistent volumetric delivery

■ **Safe:**
individual certificate of quality with conformity declaration

■ **User-friendly:**
the complete unit can be sterilised with steam at 121° C without dismantling. Valves can be unscrewed in a second

■ **Environmentally-friendly:**
no reagent loss, thanks to the user-friendly medium recirculation system





Precision is no accident of nature ...

... but rather a result of the unique combination of a ceramic piston, graduated gauge and digital engaging volumetric adjustment device.

All components which determine the volume are manufactured from ceramic and calibrated precision glass

The ceramic piston is manufactured from extremely hard, maximum-purity aluminium oxide ceramic and inserted in the DURAN® glass cylinder with micrometer accuracy, forming a complete seal. This enables the achievement of an impressively smooth action with the highest degree of functional safety. Abrasion, scoring, swelling or flaking of a coating layer are thus ruled out completely

Chemical and thermal resistance

The chemical and thermal resistance of all medium-conveying components enable utilisation of the ceramus® within an extremely broad dispensing temperature range from 4° C to 50° C for practically every medium. Functional safety and accuracy are assured to a maximum. The complete unit can be sterilised with steam at 121° C without dismantling.



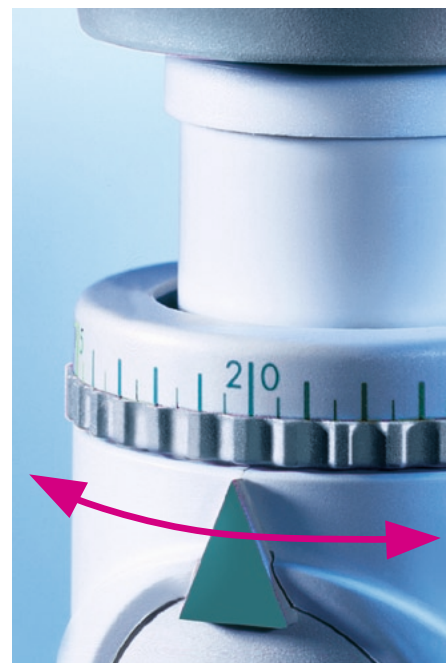
Ergonomic perfection

Attention to detail, both during drawing and dispensing of the medium, is supported by the ergonomically-designed handle, enabling safe and fatigue-free working.



Absolute reproducibility

The graduated gauge means that perfect reproducibility is ensured during work. A volume which has already been selected can be reset and is always identical to the previous setting. Recalibration is absolutely unnecessary.



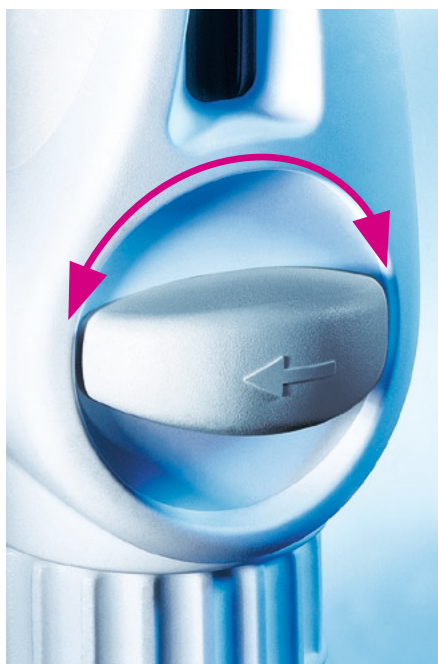
Precision replaces visual assessment

The digital engaging volumetric adjustment device ensures rapid, consistent and totally reliable setting of the desired volume.



Flexible and safe

ceramus® can be rotated freely on the bottle. The advantage: the label and inscription on the bottle is always visible to the user, even if the outlet is turned away from the user while dispensing aggressive media. This means you can keep an eye on the complete procedure at all times.



User-friendly recirculation system

ceramus® is equipped with a unique, comfortable media recirculation system. A single turn is all that is required for simple, safe and rapid ventilation – with no reagent loss. This reduces the pressure on the environment and your budget.



Tailored results with the suction hose

Perfection, right down to the last detail. The sturdy suction hose is not simply pushed onto the receiver, but rather screwed firmly to the unit. This prevents the formation of air bubbles during suctioning.



Complete dispensing system for professional applications



ceramus® provides a complete programme for fixed and variable volumes from 0.2 ml to 60 ml. A universal Luer lock connection is located at the rear of the unit, enabling connection of drying tubes, filters and accessories (e.g. diverse



ejector units). This allows the realisation of individually-adapted working procedures to suit practical requirements.



For hydrofluoric acid and other media

ceramus® HF is ideal for dispensing operations involving extremely aggressive media. Piston and cylinder are manufactured from maximum-purity aluminium oxide ceramic, valve seats and balls are ceramic and the valve springs are made of platinum/iridium. The volume can be varied between 2 ml and 10 ml.



Series design: individual certificate of quality instead of a batch certificate

Each ceramus® is individually tested for suitability. The individual certificate of quality documents five test volumes, the serial number and conformity with standard weights and measurements legislation. It can

therefore be included directly in DIN EN ISO 9000 quality documentation. This is your guarantee of safety.



*ceramus[®]-classic.
The classic unit for
perfect measuring
results.*

Are you looking for an absolutely top-quality unit for consistently reliable measuring results which offers a high degree of user-comfort? Can you do without a few equipment characteristics? ceramus[®]-classic enables the realisation of simple, rapid dispensing with sure results and is equipped with the unique combination of ceramic piston, graduated gauge and digital volumetric adjustment device, just like our leading model.

- Ceramic piston manufactured from maximum-purity aluminium oxide ceramic, for dimensional stability and functional safety during the entire service life
- Graduated gauge and digital volumetric adjustment device for consistent volumetric delivery and absolute reproducibility, calibrated for a lifetime
- Superior chemical and thermal resistance of medium-conveying components
- Simple, rapid and accurate volumetric adjustment
- Individual certificate of quality with conformity declaration
- From 0.2 ml to 60 ml, fixed and variable
- Screw-fitted suction hose
- User-independent reproducible volumetric delivery
- The complete unit can be sterilised with steam at 121° C without dismantling. Valves can be unscrewed in a second
- Sure-grip operation

ceramus®. HiClass in dispensing.

Performance data

Volume selection	with micro-engaging adjusting ring, accurate and reproducible, thanks to the mechanical-digital principle („with fixed pre-adjustment in defined steps“); adjusting steps with 0.05 to 1ml resolution (depending on the model)
Volumetric accuracy	precise and reproducible with absolute accuracy („R“) of 0.5% and standard deviation („CV“) of 0.1%
Piston	practically inert and wear-resistant, manufactured from ceramic with 99.7% purity Al ₂ O ₃
Cylinder	practically inert and wear-resistant, manufactured from calibrated DURAN® glass (HF: ceramic)
Valves	practically inert and wear-resistant, ball and seat manufactured from borosilicate glass (HF: ceramic), ejector valve spring manufactured from Hastelloy (HF: platinum/iridium). Valves can be easily mounted and replaced using an assembly wrench (included in delivery)
Plastic parts	of all components in contact with the medium are manufactured from highly-resistant fluoropolymers: valve housing is manufactured from ECTFE, the suction hose and ejector hose from FEP
Sterilization	Completely sterilisable with steam at 121°C, including ejector unit
Protection against breakage	provided by completely enclosed plastic casing with transparent viewing window
Test report	for each individual unit examination, certified and including individual unit number

Scope of delivery

- ceramus®, suitable for A45 thread; ceramus®-classic, suitable for A32 thread
- Suction hose, assembly wrench, individual certificate of quality; ceramus® also includes recirculation hose
- A 32, A 38 and S 40 threaded adapters for ceramus; A 28, S 40 and A 45 threaded adapters for ceramus®-classic

Ordering information

	Volumes ml	Subdivision (ml)	Accuracy (R %)	Reproducibility (CV %)	Code no. ceramus® / ceramus®-classic
ceramus®/ceramus®-classic	0,2 - 1,0	0,05	0,6	0,1	931 20 00 / 931 00 00
ceramus®/ceramus®-classic	0,4 - 2,0	0,05	0,5	0,1	932 20 00 / 932 00 00
ceramus®/ceramus®-classic	1,0 - 5,0	0,10	0,5	0,1	933 20 00 / 933 00 00
ceramus®/ceramus®-classic	2,0 - 10,0	0,25	0,5	0,1	934 20 00 / 934 00 00
ceramus®/ceramus®-classic	5,0 - 30,0	0,50	0,5	0,1	935 20 00 / 935 00 00
ceramus®/ceramus®-classic	10,0 - 60,0	1,00	0,5	0,1	936 20 00 / 936 00 00
ceramus®/ceramus®-classic	1 fix	–	0,6	0,1	931 21 00 / 931 11 00
ceramus®/ceramus®-classic	2 fix	–	0,5	0,1	932 21 00 / 932 11 00
ceramus®/ceramus®-classic	5 fix	–	0,5	0,1	933 21 00 / 933 11 00
ceramus®/ceramus®-classic	10 fix	–	0,5	0,1	934 21 00 / 934 11 00
ceramus®/ceramus®-classic	25 fix	–	0,5	0,1	935 21 00 / 935 11 00
ceramus®/ceramus®-classic	50 fix	–	0,5	0,1	936 21 00 / 936 11 00
ceramus® HF	2,0 - 10,0	0,25	0,5	0,1	934 23 00
EM-dispenser PP	2,0 - 10,0	0,25	0,6	0,1	934 02 00
EM-dispenser PP	10,0 - 60,0	1,00	0,6	0,1	936 02 00

Please visit us at www.hirschmann-laborgeraete.de for more information on our dispensing, pipetting, titrating and volumetric measuring solutions and our precision glass capillaries.

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