

oertli®
SWITZERLAND

CataRhex 3®

MAKING THE DIFFERENCE WITH SPEEP®

EYE SURGERY. SWISS MADE.

Making the difference
in eye surgery

Since 1955, Oertli has been setting new standards in eye surgery. As a Swiss family-managed company, we focus on what counts: superior quality, outstanding services and pioneering innovations tailored to the needs of our customers.

Driven by our purpose to preserve eyesight worldwide, we make the difference for surgeons and their patients. By focusing on the real needs of the OR, we develop and manufacture surgical platforms, instruments, and consumables that enable surgeons and OR personnel to perform cataract, glaucoma, and vitreoretinal surgeries safe, easy, and efficient.

Used in thousands of cataract procedures worldwide, the CataRhex 3 has become a trusted surgical platform for everyday clinical practice. As Oertli's most widely adopted surgical platform, it combines compact design with focused functionality tailored to the requirements of cataract surgery.



Christoph Bosshard
Co-CEO

Thomas Bosshard
Co-CEO

Your CataRhex 3®
journey begins now

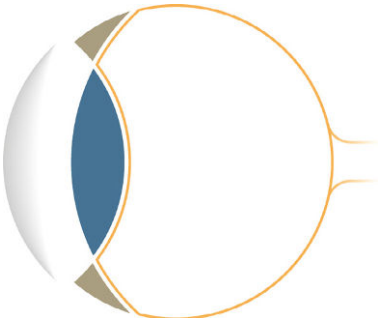
Portable platform	**4**	Compact in size, versatile in application and ready for the demands of everyday surgery.
Two pump system	**6**	With peristaltic pump and SPEEP, the CataRhex 3 combines two pump systems in one device.
Linear pedal	**7**	The linear pedal of the CataRhex 3 is the reliable control unit for the surgeon.
Intuitive operation	**8**	With its compact design, quick setup and intuitive operation, the CataRhex 3 supports efficient surgical preparation.
Fields of application	**10**	**Cataract surgery** At the heart of the system is the proven easyPhaco technology for phacoemulsification. High-frequency capsulotomy, irrigation and aspiration, bipolar diathermy and anterior vitrectomy complete its range of cataract surgery applications.
	18	**Glaucoma surgery** With High Frequency Deep Sclerotomy (HFDS), the CataRhex 3 offers an implant-free, ab interno procedure for micro-invasive glaucoma surgery (MIGS) to treat primary open-angle glaucoma.
Performance spectrum	**20**	Technical data and performance spectrum at a glance.

CataRhex 3®: Small in size, great in surgery

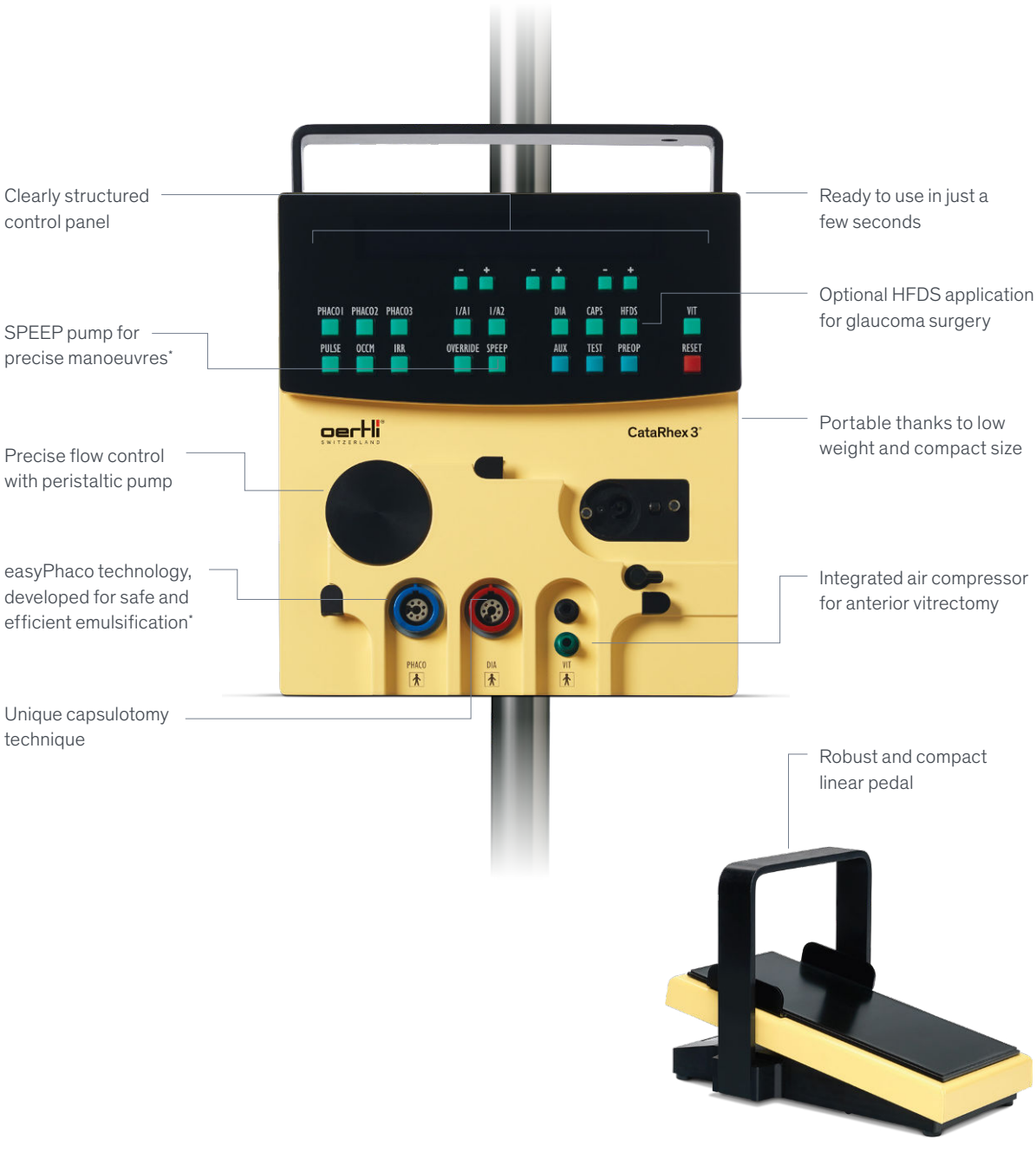
Today, cataract surgery is about more than technology alone. It is about enabling access to surgical care, regardless of where patients are treated. Whether in high-volume operating theatre, an ambulatory surgery centre, a clinic or during outreach missions, the CataRhex 3 has been designed to bring together the diverse requirements of cataract surgery in a compact and portable platform. With a weight of just 5 kg, a two pump system and an integrated air compressor, the system supports applications ranging from phacoemulsification and high-frequency capsulotomy to anterior vitrectomy.

Make the difference – with the CataRhex 3 from Oertli.

Cataract	●
Glaucoma	●
Vitrectomy	



CataRhex 3® at a glance



Master fluidics with a two pump system

The CataRhex 3 offers two pump systems: a peristaltic pump and the SPEEP pump, giving surgeons the flexibility to choose the fluidics principle that best matches their preferred technique.

Choose your preferred pump system
The peristaltic pump is flow-based and can be finely tuned. The vacuum builds up by occlusion up to the preset limit.

Going a step further, the unique SPEEP pump combines the advantages of a flow-controlled peristaltic pump with the dynamics of a vacuum-controlled Venturi pump. Flow and vacuum can be controlled independently. This allows you to attract and precisely manipulate fragments and tissue, providing full aspiration control in free-flow and occlusion.

What are the advantages of the SPEEP pump?
In challenging cases such as floppy iris syndrome or zonular weakness, precise fluidics control is essential. Thanks to independent settings for flow and vacuum, SPEEP offers finely adjustable holdability at the instrument port – ensuring greater control. Flow can be adjusted in increments of 0.1 ml.

Advantages of the 2-pump system*

→ Standardised cassette type for quickly switching between the two pump systems

→ Unique SPEEP pump:
- Independent control of flow and vacuum
- Full aspiration control in free-flow and under occlusion
- Manual control of holdability for precise manoeuvres, regardless of tissue type

Easy handling meets cable-bound reliability

The linear foot pedal is the central control unit of the CataRhex 3. Made of durable metal, it responds precisely to the surgeon's commands and enables efficient work.

Precise control. Intuitive response.
At just 2.6 kg, the waterproof [1] pedal is easy to handle and can be conveniently repositioned with the foot.

The CataRhex 3 is controlled intuitively through four movement areas: from linear control and recalling stored data to activating or deactivating specific functions.

Advantages of the linear pedal*

→ Linear pedal control
→ Waterproof [1], robust and compact
→ Cable connection for reliable transmission of control commands
→ Four movement areas for intuitive control



Smart usability in every detail

Thousands of cataract procedures worldwide show the role the CataRhex 3 plays in daily surgical practice: compact, focused and built for the realities of cataract surgery. Switch it on, and the CataRhex 3 is ready for operation within seconds.

Instrument connections
The instrument connections are conveniently accessible from the front, making surgical preparation simple and efficient. Clear colour coding ensures quick orientation.

Clearly structured control panel
The pivotable display clearly shows current operating parameters. Via the user-friendly control panel, you can activate preset functions directly at the touch of a button, and you can create up to 20 user profiles for personalised use.

Optional infusion pole
The optional infusion pole offers a simple way to mount the CataRhex 3 using a rod clamp, allowing it to be moved easily around the operating theatre.



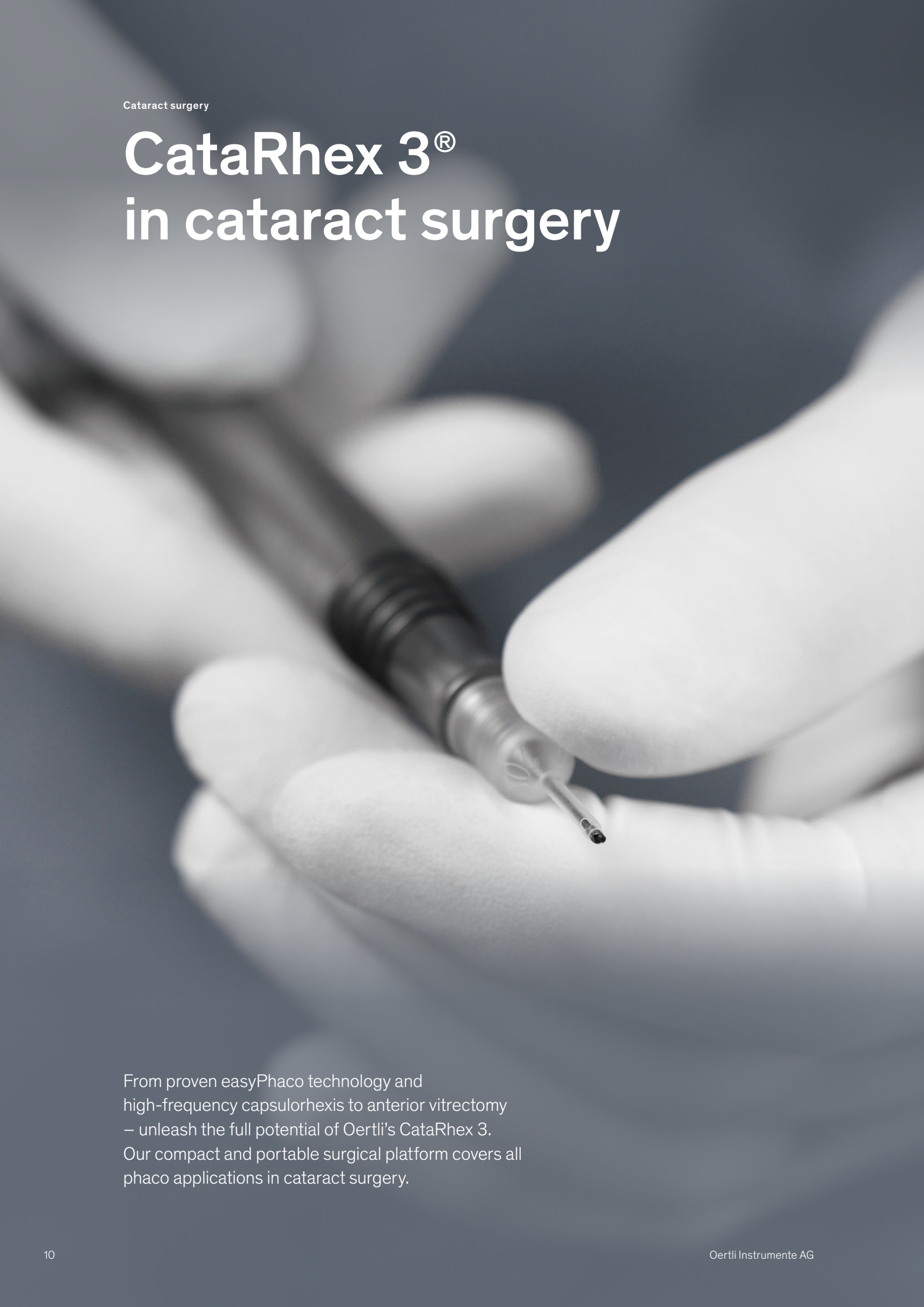
Making the difference with reliability



«We have been thrilled with the CataRhex 3, which our practice is using for 100% of our in-office phacos. The machine is indestructible, utterly reliable, and completely intuitive, so there is zero learning curve. The machine is beautiful in its simplicity and a true joy to use.»D

Jack Parker, MD PhD
Parker Cornea Alabama, USA

CataRhex 3®
in cataract surgery



From proven easyPhaco technology and high-frequency capsulorhexis to anterior vitrectomy – unleash the full potential of Oertli's CataRhex 3. Our compact and portable surgical platform covers all phaco applications in cataract surgery.

The full spectrum of cataract care

High-frequency capsulotomy

Since its launch in 1991, high-frequency capsulotomy has proven to be an alternative method for opening the lens capsule in countless cases. The capsular bag can be cut open using high-frequency energy – entirely without the usual tearing by forceps or needles. It is sufficient to gently slide the capsulotomy tip over the tissue, even under the iris, while applying the diathermy energy*.

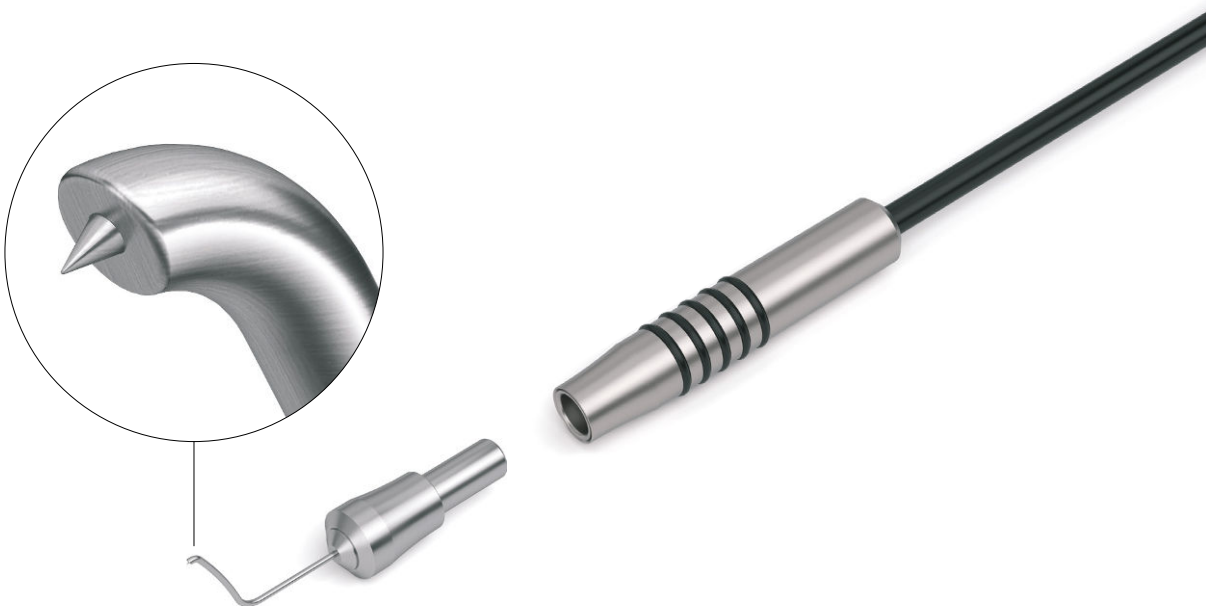
HF capsulotomy is suitable for selected indications such as a lack of fundus reflex, hypermature cataract, traumatic cataract, intumescent cataract and juvenile cataract. Even with narrow pupils, out-of-control rhexis or rhexis phimosis, HF capsulotomy delivers reliable outcomes*.

Advantages of HF capsulotomy*

→ Easy application in capsulorhexis

→ Cutting open the capsular bag without tearing with forceps or needles

→ For numerous indications such as lack of fundus reflex, hypermature cataract or narrow pupils



easyPhaco®: Fluidics based on physics

Connecting skills with technology

The easyPhaco technology is developed for safe and efficient phacoemulsification. Thanks to Oertli's unique fluidics concept, easyPhaco allows direct control over fragments and ensures a high holdability. The occluded fragments absorb the ultrasound energy and are then efficiently aspirated with no clogging. The infusion capacity is several times higher than the aspiration, enabling the intraocular pressure to be maintained for a stable anterior chamber*[52].

easyPhaco® handpiece
With an external diameter of 13 mm, an internal infusion line and a low weight of 42 grams, the titanium easyPhaco handpiece has set the standard since 2002. The handpiece has six piezo crystals. The five rubber rings on the handpiece make it comfortable to hold.

easyTip phaco tips
The angled easyTip opening has been designed to hold fragments firmly at the tip. Thanks to the high vacuum created, the fragments are efficiently aspirated. The single-use easyTips are supplied with an irrigation sleeve, a test chamber and a phaco and emergency key. The easyTip range includes six different tips: from CO-MICS (1.6 mm) up to 3.2 mm incisions*.

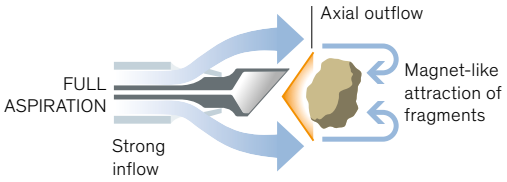
Advantages of easyPhaco®*[2]

→ easyPhaco technology, developed for safe and efficient emulsification
→ Fragment followability and holdability thanks to Oertli's fluidics concept
→ U/S energy absorbed by the occluded fragments
→ Smooth fragment aspiration without clogging
→ Stable anterior chamber
→ Available from 1.6 mm to 3.2 mm incisions



The principle behind easyPhaco®

Direct fragment followability
The high vacuum setting and the wide infusion path of the easyTips create a direct flow to the tip. This results in a magnet-like attraction of the fragments*.



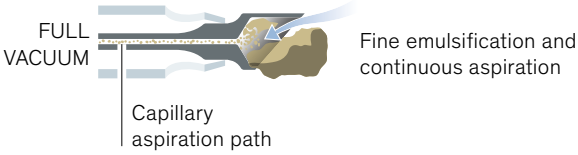
Strong fragment holdability
The angled easyTip opening has been designed to hold fragments firmly at the tip*.



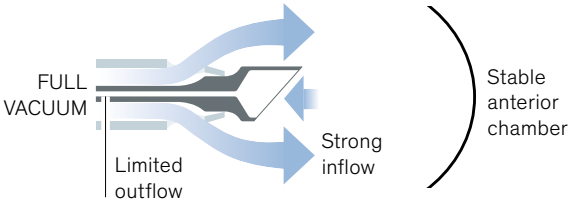
U/S energy absorbed by the occluded fragments
Thanks to the strong holdability and the longitudinal movements of the easyTips, ultrasound is directed axially to the occluded fragments.



Smooth fragment aspiration
Following an occlusion break, the capillary aspiration path of the easyTips provides continuous aspiration. Thanks to the high vacuum created, the fragments are efficiently aspirated*.

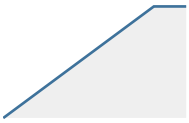


Stable anterior chamber
The infusion capacity is several times higher than the aspiration, enabling the intraocular pressure to be maintained for a stable anterior chamber[2].



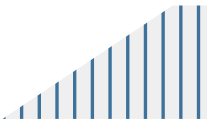
Three selectable phaco modes

Continuous linear
Phaco power is controlled via pedal deflection. The further the pedal is depressed, the higher the delivered energy.



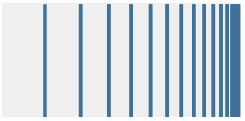
Continuous linear

PULSE Modulation
In PULSE modulation, ultrasound energy is delivered in short pulses. This reduces energy input compared to continuous delivery. Phaco power is controlled via the foot pedal.



PULSE Modulation

BURST Modulation
BURST modulation reduces the amount of ultrasound delivered per unit of time compared to continuous linear control. Burst duration and power can be set independently of pedal position, while the pause between bursts is controlled via the pedal. The further the pedal is pressed, the shorter the pauses between bursts.



BURST Modulation

Versatile options for I/A

Controlled cortex removal

The Quick Tips with Safety Design feature a long shaft for subincisional access. The small aspiration port enables rapid occludability for a stable anterior chamber, while its strategic position prevents unintended grasping of the capsular bag.

Advantages of I/A instruments with Safety Design

→ Developed to ensure stable anterior chamber conditions

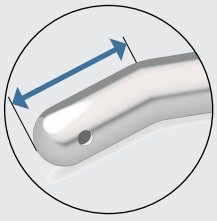
→ Long shaft for subincisional access

→ Rapid occludability

→ Ideal when combined with the SPEEP pump

→ Available from 1.6 mm to 2.8 mm

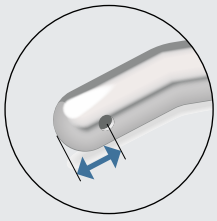




Long shaft length for subincisional access



Small aspiration port for rapid occludability



Strategic position of ports to prevent unintended grasping of the capsular bag

Controlled high-frequency energy

Bipolar diathermy

The bipolar diathermy function offers a number of applications such as the diathermy tip and forceps, the unique capsulotomy, and the HFDS procedure for MIGS surgery.

Both the handpiece and the tips are made from high-quality titanium and can be reused. Thanks to a simple plug-in system, tips can be changed easily on the handpiece.

Furthermore, Oertli's surgical platforms enable finely and directly controlled dosing of high-frequency energy and the bipolar energy delivered produces a precise and local effect* [4].

Advantages of bipolar diathermy*

→ One function for different applications:
Diathermy tip and forceps, capsulotomy, HFDS procedure

→ Simple plug-in system between handpiece and tips

→ High-quality titanium finish

→ Fine and controlled dosing of HF energy



Anterior vitrectomy, ready on demand

Vitreous body removal

Thanks to its built-in air compressor, the CataRhex 3 is instantly ready for anterior vitrectomy. No external air supply is required, enabling flexible use even outside conventional operating theatres. The pneumatically driven Continuous Flow Cutter enables efficient work with up to 2,400 cuts per minute.

Advantages for anterior vitrectomy

→ Integrated air compressor for anterior vitrectomy

→ Pneumatically driven Continuous Flow Cutter developed for low-traction work

→ Up to 2,400 cpm with the CataRhex 3



CataRhex 3®
in glaucoma surgery



The CataRhex 3 offers High Frequency Deep Sclerotomy (HFDS): an implant-free, ab interno procedure for micro-invasive glaucoma surgery (MIGS) that aims to lower intraocular pressure by reducing aqueous humour outflow resistance.

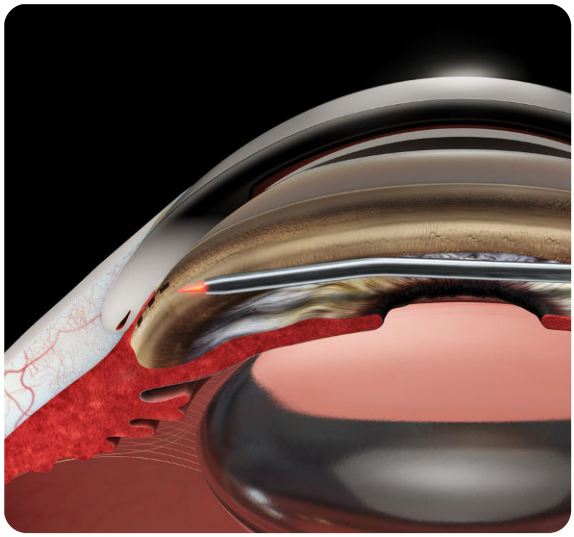
IOP Reduction.
Zero implants.

What is HFDS?

With High Frequency Deep Sclerotomy (HFDS), the CataRhex 3 offers an implant-free, ab interno procedure for micro-invasive glaucoma surgery (MIGS) to treat primary open-angle glaucoma.

Treating primary open-angle glaucoma
The HFDS glaucoma tip is inserted through a 1.2 mm paracentesis and uses high-frequency diathermy to create six small pockets in the iridocorneal angle. This technique aims to improve natural aqueous humour outflow and lower IOP, entirely without the need for permanent implants.

Clinical evidence
In the treatment of primary open-angle glaucoma, Oertli's HFDS ab interno MIGS technology delivers promising long-term results in reducing IOP. Clinical studies have confirmed a long-term and significant reduction in IOP over a 4-year period, together with a reduction in anti-glaucoma medications (AGMs)[3].



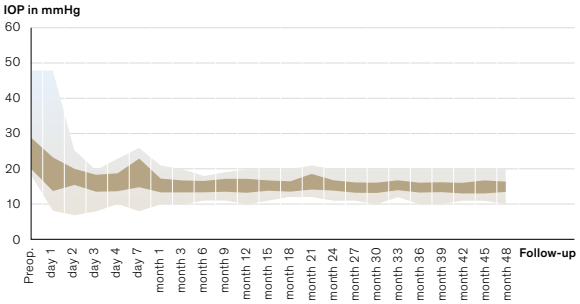
Advantages of HFDS[3]

→ Implant-free micro-invasive glaucoma surgery

→ Convincing long-term results with a stable and long-term reduction in IOP and AGM

→ In combination with cataract surgery or utilised as a stand-alone application

Long-term IOP reduction after HFDS procedure[3]



CataRhex 3® performance spectrum

System

Fluidics system

→ Peristaltic pump
→ SPEEP pump
→ Tubing system with integrated closed pressure sensor
→ Auto venting
→ Limitable reflux
→ Pre-op, self-test and reset functions

Operation

→ Control panel with glass cover, crystal-clear indicator lights and silicone buttons
→ Linear multifunctional pedal
→ Individual programming for 20 surgeons
→ Audio signals

Pedal

→ Cable connection
→ Linear
→ Reflux function

Anterior segment

HF functions

→ Capsulotomy
→ HFDS MIGS glaucoma surgery
→ Conjunctiva coaptation
→ Macro diathermy

Phaco function

→ Three program memories with DirectAccess
→ Ultrasound phaco with auto tuning
→ easyPhaco handpiece with six piezo crystals
→ Linear, PULSE, BURST, CMP and Panel modes
→ Occlusion mode
→ easyPhaco, CO-MICS and MICS technology

I / A function

→ Two program memories with DirectAccess
→ Vacuum Override function
→ Continuous irrigation

Anterior vitrectomy

→ Three program memories
→ Linear 30 to 2,400 cpm
→ Single incision
→ Flexible changeover between Aspiration / Cut and Cut / Aspiration

Pilot case size.
Full-scale performance.



Swiss quality down to the last detail

Seven decades of ophthalmic excellence
Since 1955, Oertli has shaped ophthalmic surgery through Swiss precision, premium quality, and visionary innovation. Based in Berneck, Switzerland, we combine advanced technology with a strong commitment to manufacturing excellence.

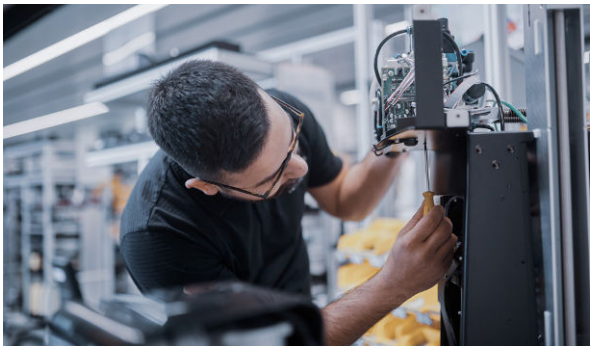
Innovation with purpose
More than 400 dedicated employees develop and manufacture surgical platforms, instruments, and consumables with one clear purpose: preserving eyesight worldwide.

At the core of our operations is our Lean Factory, where industrial efficiency and sustainability converge.

By consistently applying lean management principles and integrating advanced automation, we have created a state-of-the-art production environment.

Global reach, Swiss roots
Our international presence is anchored by five subsidiaries in Switzerland, Germany, Austria, South Africa, and the USA. This global presence is further strengthened by a network of over 60 independent distribution partners, ensuring that our innovations reach operating theatres worldwide.

We make the difference – for you and your patients.







References

* Oertli data on file

1 As per standard, IPX6

2 With the settings recommended on www.oertli-instruments.com

3 Abushanab, M. M. I., A. El-Shiaty, T. El-Beltagi, and S. Hassan Salah (2019). The Efficacy and Safety of High-Frequency Deep Sclerotomy in Treatment of Chronic Open-Angle Glaucoma Patients. BioMed research international 2019:1850141.

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4 Compared to monopolar diathermy

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Surgical Platforms



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CataRhex 3®

oertli®
SWITZERLAND

Oertli Instrumente AG
Hafnerwisenstrasse 4
9442 Berneck
Switzerland

T +41 71 747 42 00
F +41 71 747 42 90

www.oertli-instruments.com

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