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# Beyond Packs

Ophthalmic single-use instruments and accessories

**Geuder**<sup>®</sup>  
Precision made in Germany

**MedOne**<sup>®</sup>

**OPHTHALMED**

**KAWACK**

# The Family



Kawack Teb Amurtat is focused on providing consumables of vitreo-retinal and cataract surgeries in Iran. Kawack is proud to have brought highly experienced faculty on board who have previously served leading market entities, giving us an edge in operations, marketing and logistics. We have brought the best of all worlds and we serve it the best.



Kawack Teb Amurtat LLC. 64 Hoquqi,  
Peach-Shemiran Tehran, Iran

T| +98 21 7762 4412  
T| +98 21 7762 4413  
F| +98 21 7753 8653

[www.kawack.com](http://www.kawack.com)  
[info@kawack.com](mailto:info@kawack.com)



Geuder AG has been one of the most innovative eye surgical product manufacturers for the past 70 years. Ophthalmic surgeons in over 100 countries rely on more than 3,000 Geuder products when performing surgical operations.



GEUDER AG. Hertzstr. 4, 69126  
Heidelber, Germany

T| +49 6221 3066  
F| +49 6221 303122

[www.geuder.de](http://www.geuder.de)  
[info@geuder.de](mailto:info@geuder.de)



for over a decade, MedOne Surgical, Inc. has been helping surgeons around the world conquer complex surgical challenges with innovative, high-quality products. Our primary focus is on single-use products for vitreoretinal surgery, including specialty cannulas, backflush instruments, and related devices for retina surgery. We also offer a small range of products for neurotology and skull base surgery.



MedOne Surgical, Inc. 670 Tallevast  
Road Sarasota, FL 34243, USA

T| +1 866 633-6631  
T| +1 941 359-3129  
F| +1 941 359-1708

[www.medone.com](http://www.medone.com)  
[medone@medone.com](mailto:medone@medone.com)



In business since 2001, Ophthalmed LLC specializes in designing and manufacturing higher quality endo photocoagulation laser probes. The range of our products is one of the most extensive on the market, backed up by several patent pending applications, and private labeled to major companies in US and world-wide, including well known laser machine manufacturers and other high profile distributors.



OphthalMed LLC. 1050 North-  
field Ct. Suite 280, Roswell, GA  
30076, USA

T| +1 770 777-6613  
F| +1 678 623-3765

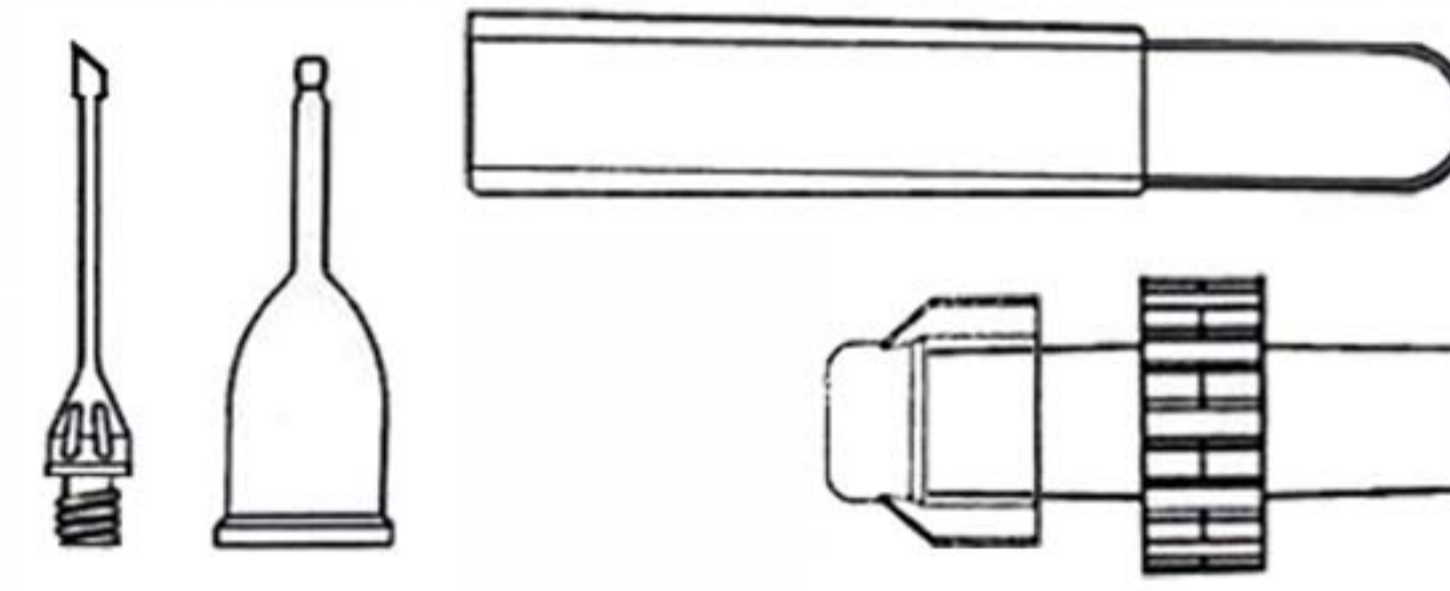
[www.opthalmed.com](http://www.opthalmed.com)  
[info@opthalmed.com](mailto:info@opthalmed.com)



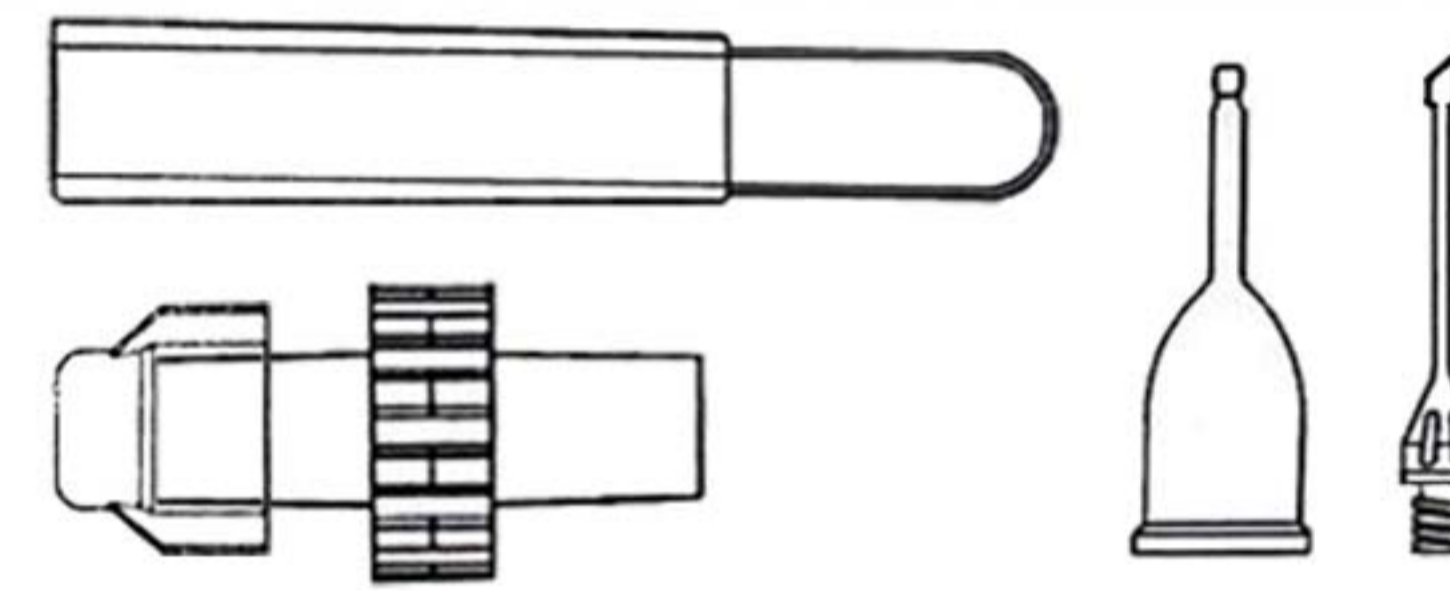
# Phaco Kits

## Stepped tips

**G-24306** Single-Use Phaco Kit  
for 2.6 – 2.75 mm incision  
including:  
ultrasonic tip STEPPED titanium 30°,  
infusion sleeve,  
test anterior chamber,  
wrench

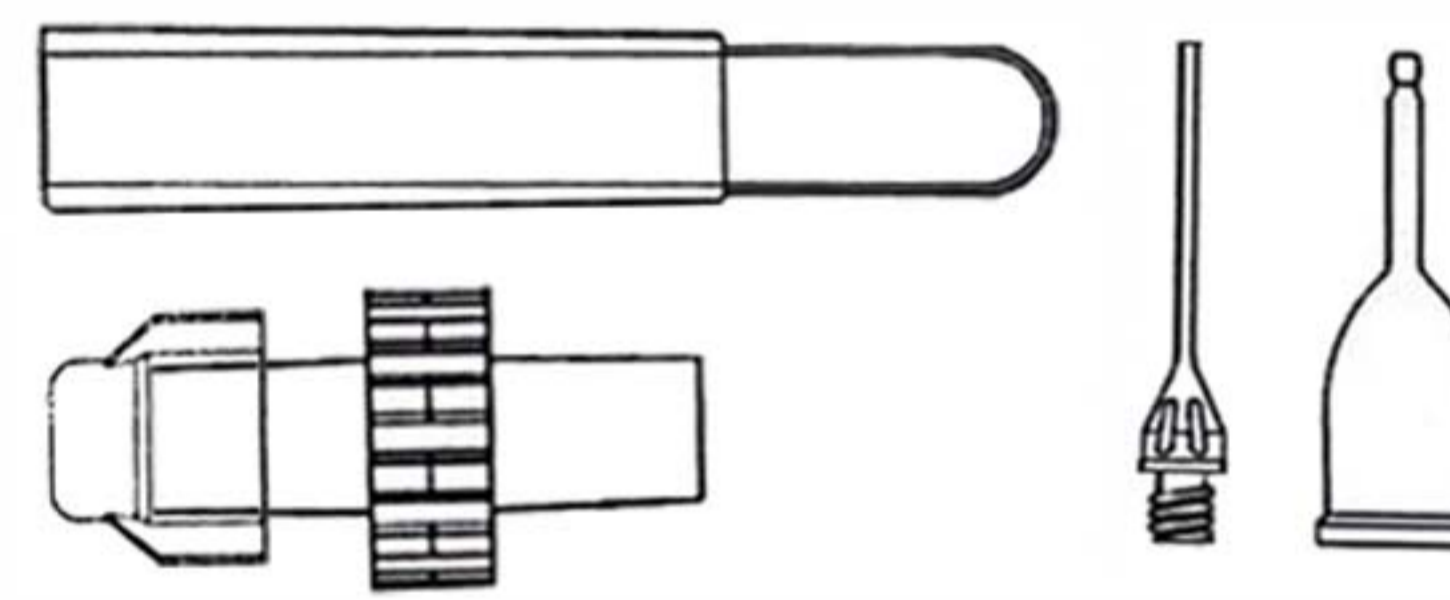


**G-24307** Single-Use Phaco Kit  
for 2.8 – 2.95 mm incision  
including:  
ultrasonic tip STEPPED titanium 30°,  
infusion sleeve,  
test anterior chamber,  
wrench

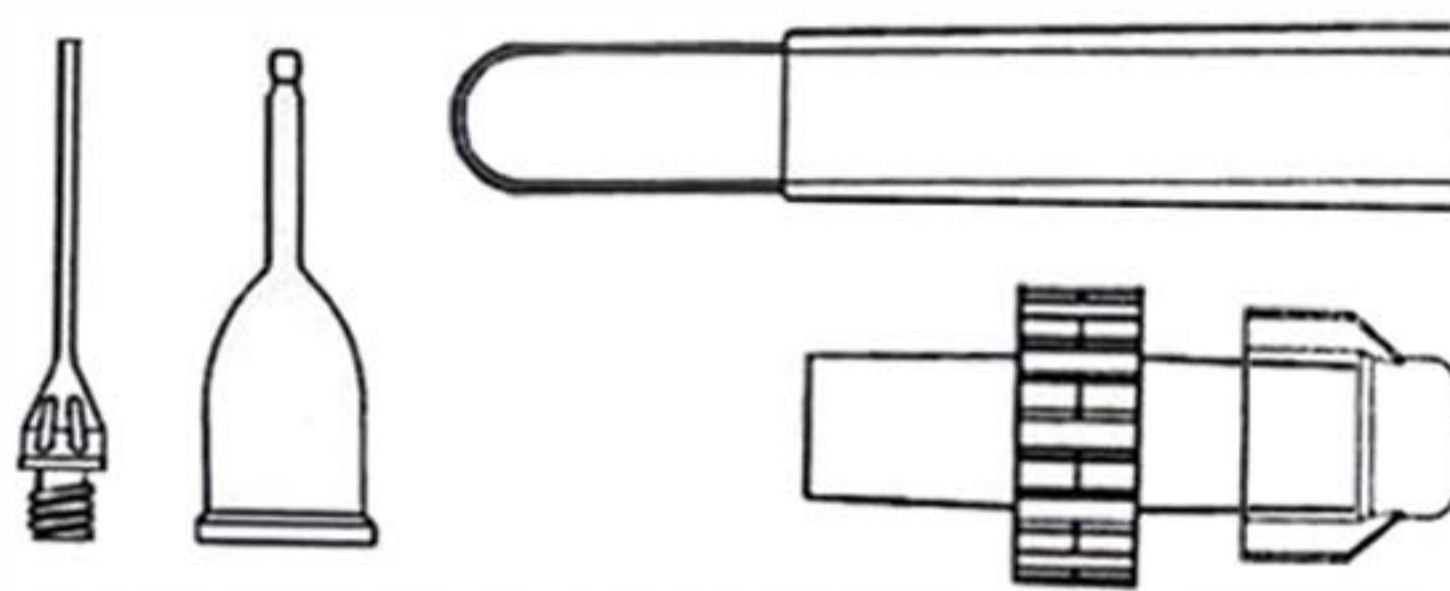


## Stright tips

**G-24353** Single-Use Phaco Kit  
for 2.6 – 2.75 mm incision  
including:  
ultrasonic tip STRIGHT titanium 30°,  
infusion sleeve,  
test anterior chamber,  
wrench



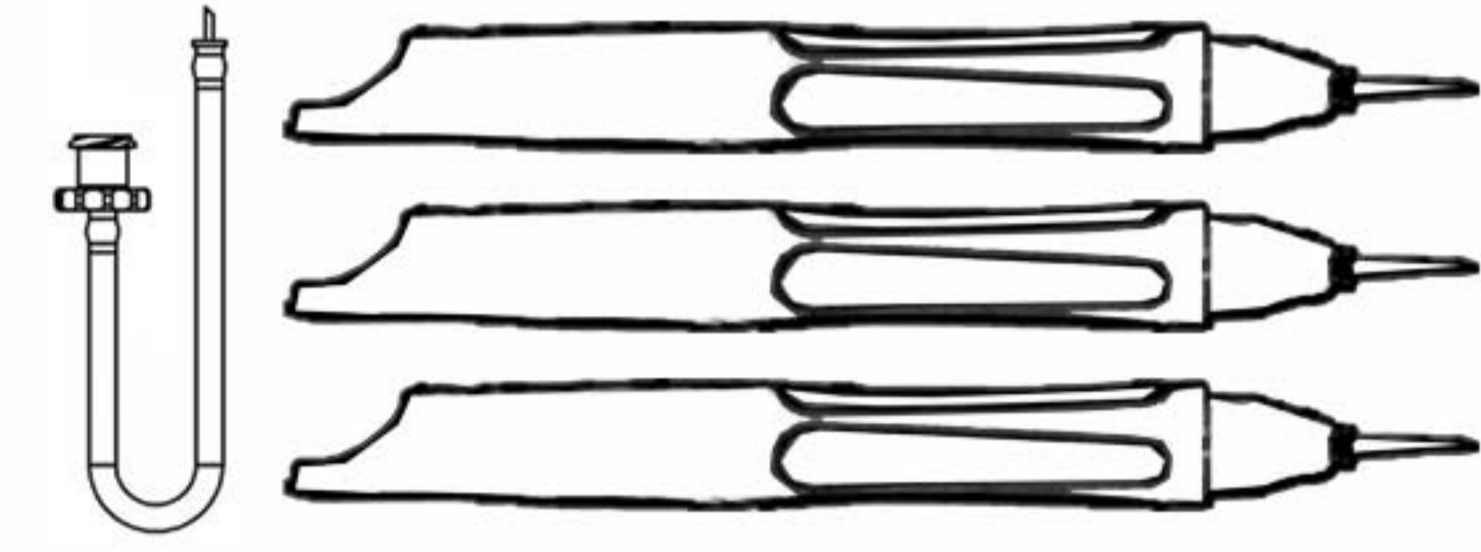
**G-24354** Single-Use Phaco Kit  
for 2.8 – 2.95 mm incision  
including:  
ultrasonic tip STRIGHT titanium 30°,  
infusion sleeve,  
test anterior chamber,  
wrench



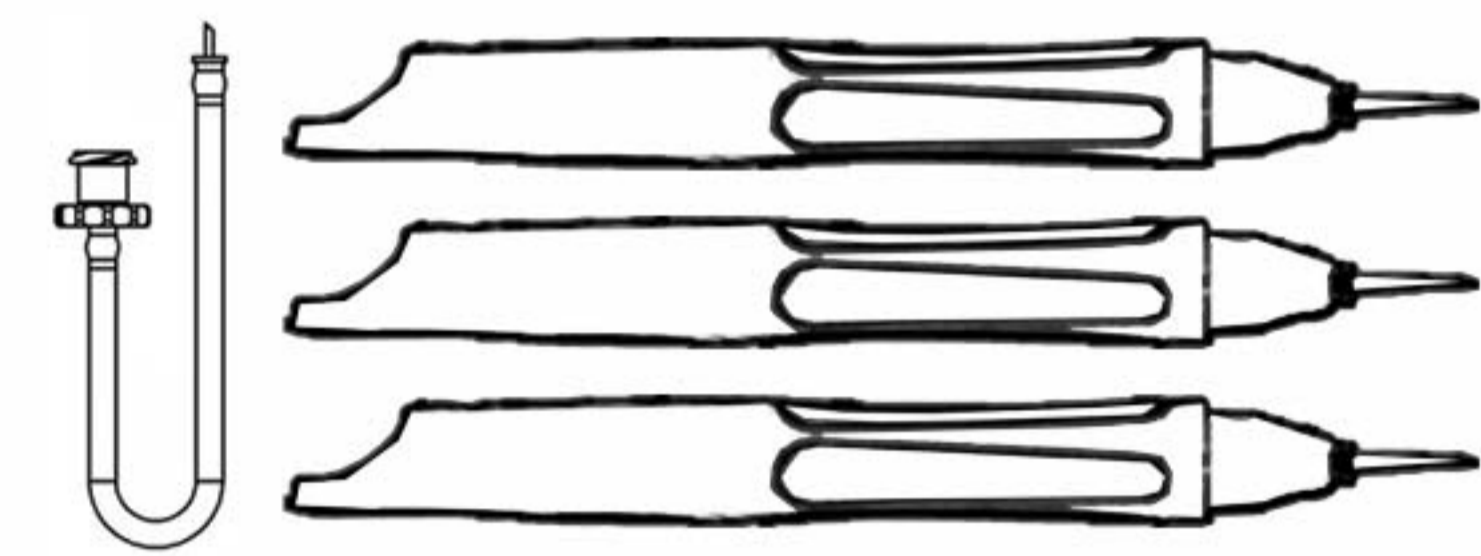
# Trocar System

## Trocars + inflow

- 23g | **G-42311** Hattenbach / Nikolic Single-Use Trocar System One-Step  
23G Uno Colorline GREEN: 23 gauge / 0.6 mm  
3 ports for one-step technique, incl. infusion tubing  
1 set per box, sterile



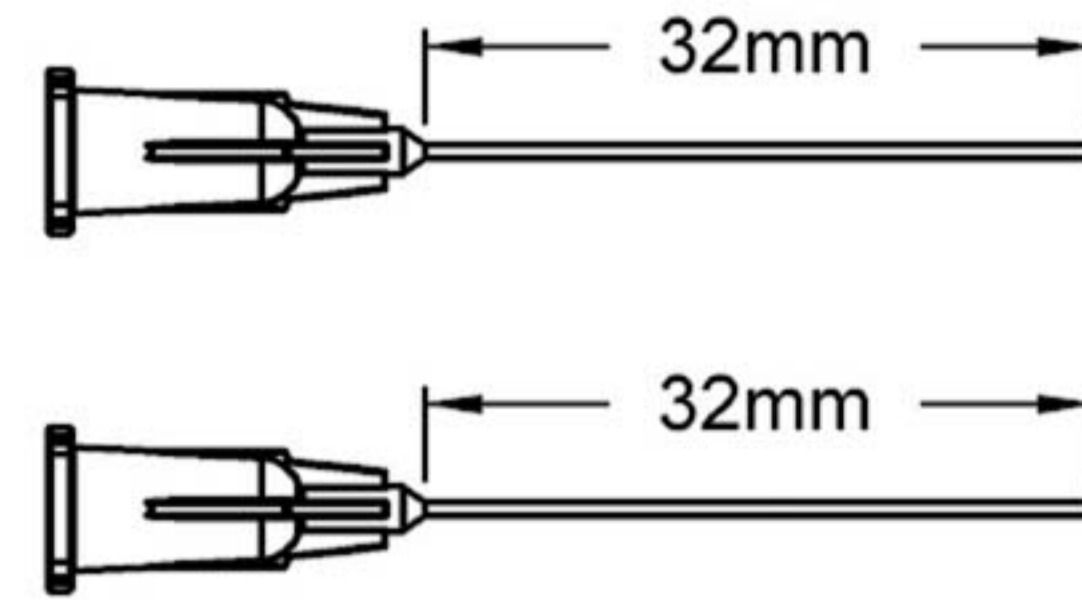
- 25g | **G-42511** Hattenbach / Nikolic Single-Use Trocar System One-Step  
25G Uno Colorline BLUE: 25 gauge / 0.5 mm  
3 ports for one-step technique, incl. infusion tubing  
1 set per box, sterile



# Cannulas

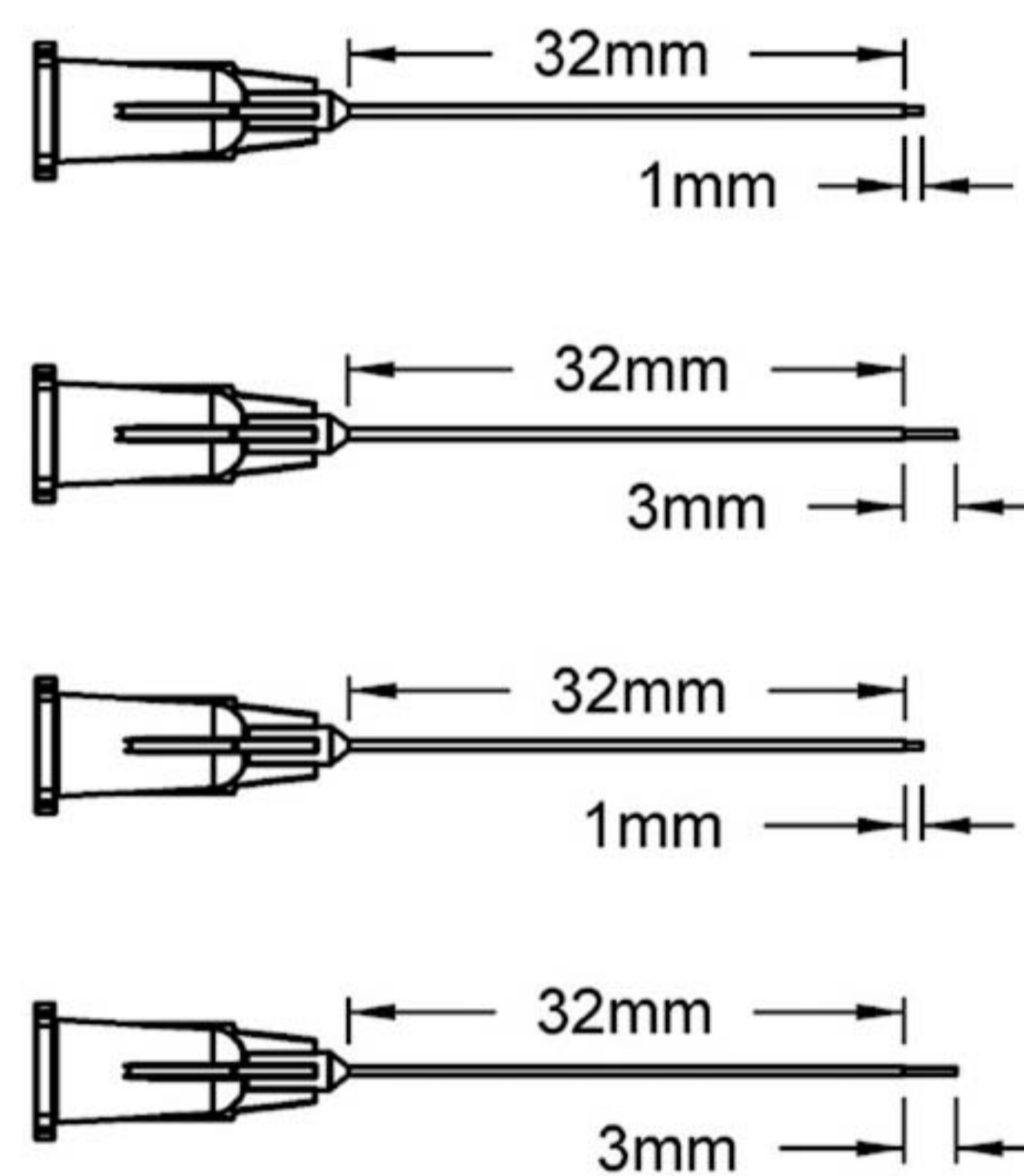
## Hard Tip Cannulas

- 23g | **3234** Cannula (23g)  
23g x 32mm
- 25g | **3225** Cannula (25g)  
25g x 32mm



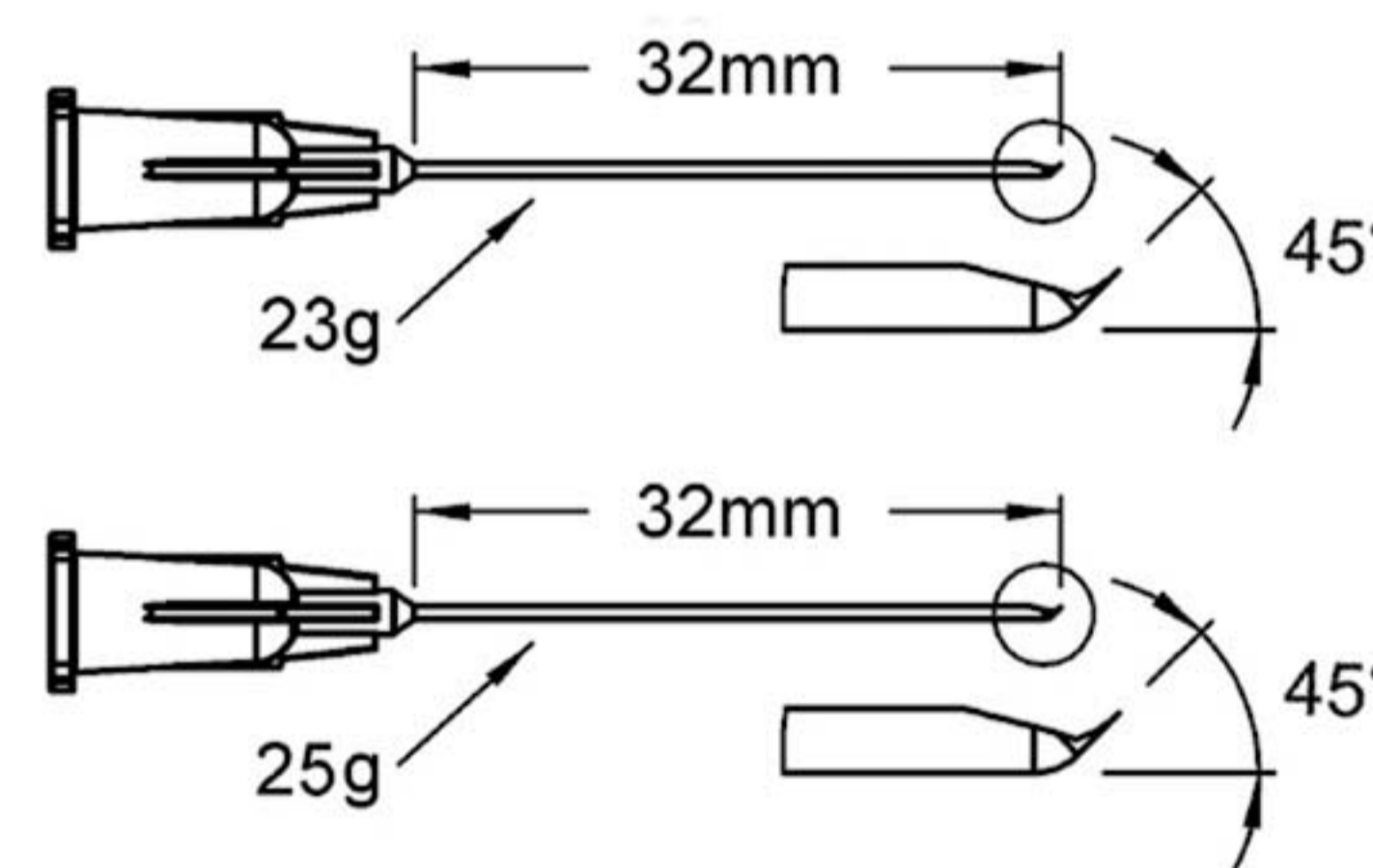
## Soft Tip Cannulas

- 23g | **3230** FlexTip™ Cannula (23g) 1mm  
23g x 32mm cannula with 1mm tip
- 23g | **3231** FlexTip™ Cannula (23g) 3mm  
23g x 32mm cannula with 3mm tip
- 25g | **3221** FlexTip™ Cannula (25g) 1mm  
25g x 32mm cannula with 1mm tip
- 25g | **3220** FlexTip™ Cannula (25g) 3mm  
25g x 32mm cannula with 3mm tip



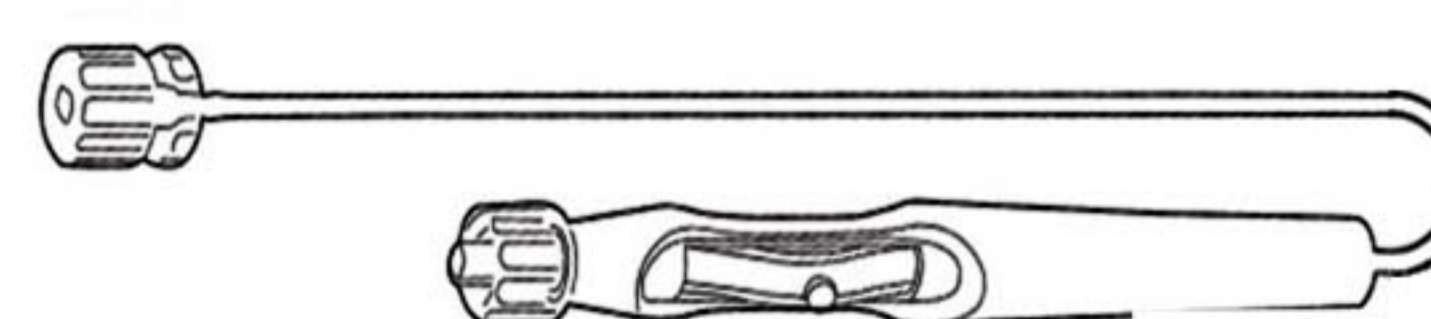
## Micro Picks

- 23g | **3229** MicroPick (23g)  
23g x 32mm
- 25g | **3204** MicroPick (25g)  
25g x 32mm



## Backflush Handle

- — | **3228** Backflush Handle Active



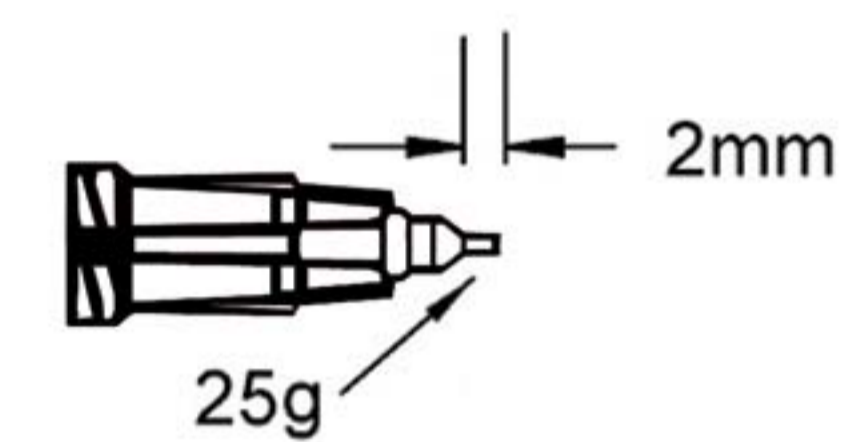
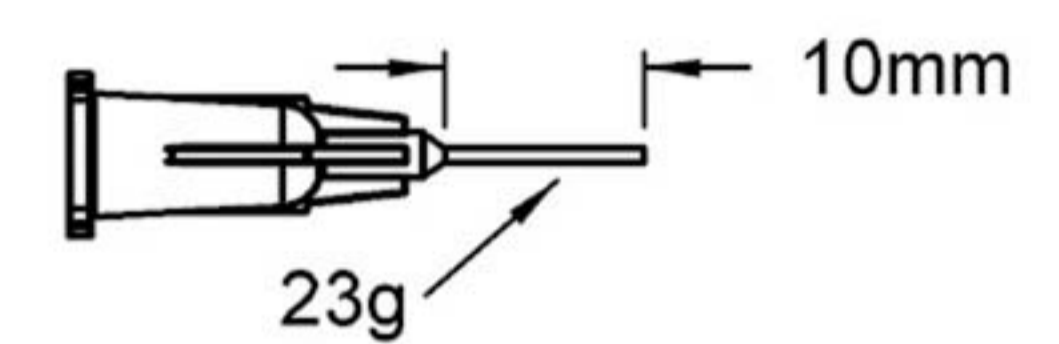
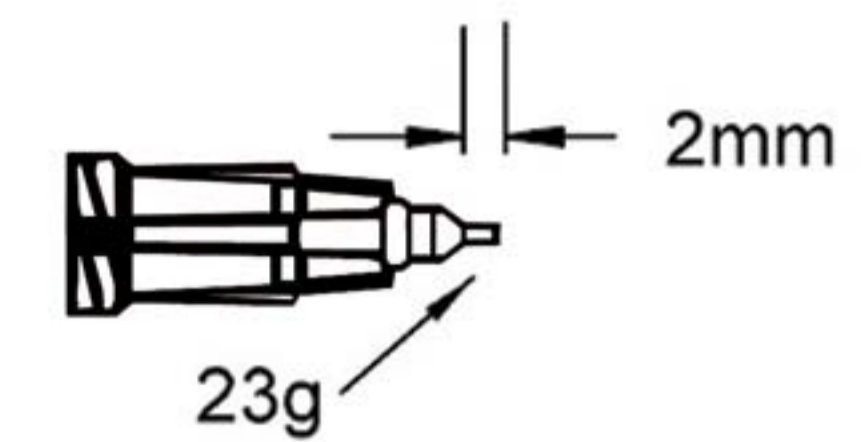
3228

# Oil Injection & Extraction

## VFI Cannulas

MedOne VFI Cannulas utilize an extremely thin-walled tube, allowing injection of viscous fluids such as silicone oil through an entry cannula. The luer lock hub enables an easy, secure connection to a syringe, extension tube, or injection system.

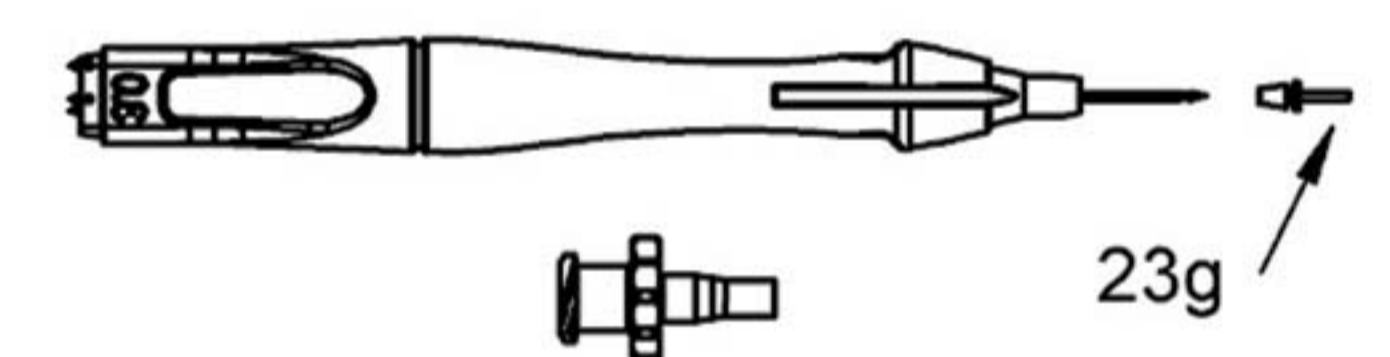
- 23g
  - 3235** VFI Cannula (23g)  
23g x 2mm
  - 3241** PolyTip VFI Cannula (23g) 10mm  
23g x 10mm
- 25g
  - 3226** VFI Cannula (25g)  
25g x 2mm



## Oil Removal Cannula (Kapran)

MedOne's innovative Oil Removal Cannula enables removal of oil through a sutureless incision. Simply place the trocar cannula using standard technique. Then push the included silicone tube onto the specially-shaped port cannula and aspirate the oil using a standard syringe or pump system.

- 23g
  - 3300** Oil Removal Cannula (23g) Kapran  
System includes :  
handle , trocar cannula , and adaptor tubing



Developed in cooperation with Ziya Kapran, MD



Watch a demo video  
on our YouTube  
Channel or go to  
[www.MedOne.com](http://www.MedOne.com)



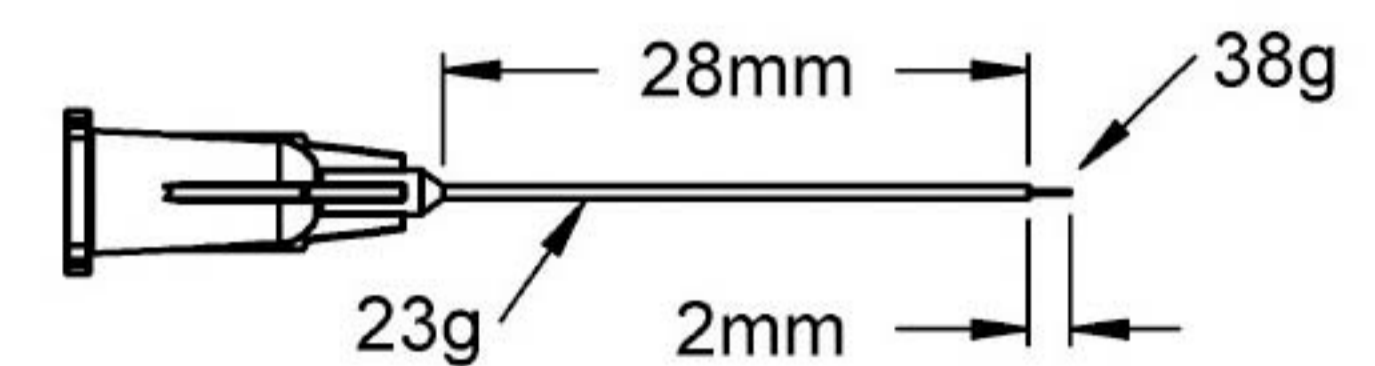
# Subretinals

## Subretinal PolyTip® Cannulas

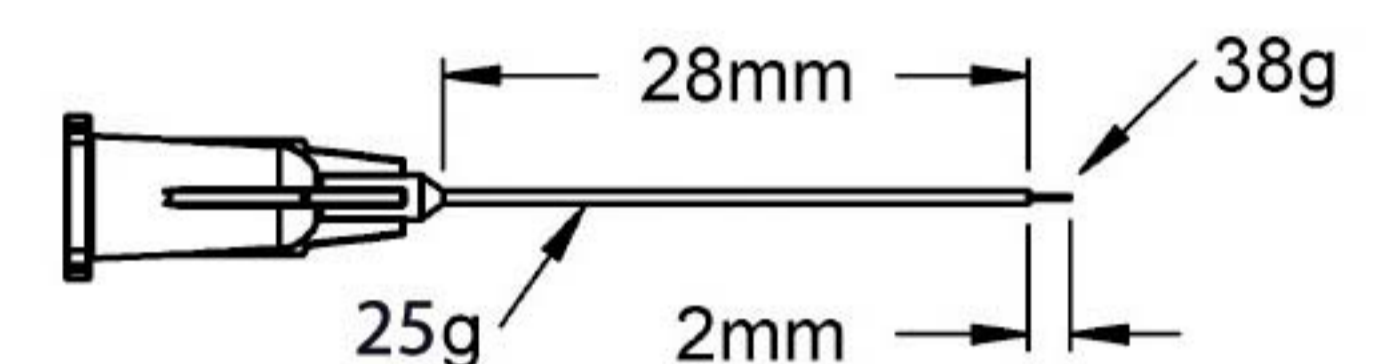
The 38g microtip is ideal for subretinal injection. The tip is rigid enough to penetrate the retina, eliminating the need to create a separate retinotomy.

Green polyimide tip allows enhanced visibility for accurate positioning during surgery. Short 2mm tip length results in increased stiffness for easier insertion into the subretinal space.

- 23g | **3254** PolyTip® Cannula 23g/38g (2mm)  
23g x 28mm cannula  
with 38g (0.12mm) x 2mm tip



- 25g | **3255** PolyTip® Cannula 25g/38g (2mm)  
25g x 28mm cannula  
with 38g (0.12mm) x 2mm tip



MedOne subretinal PolyTip® Cannulas are equivalent to "41g" cannulas in other brands:



## MicroDose™ Injection Kit

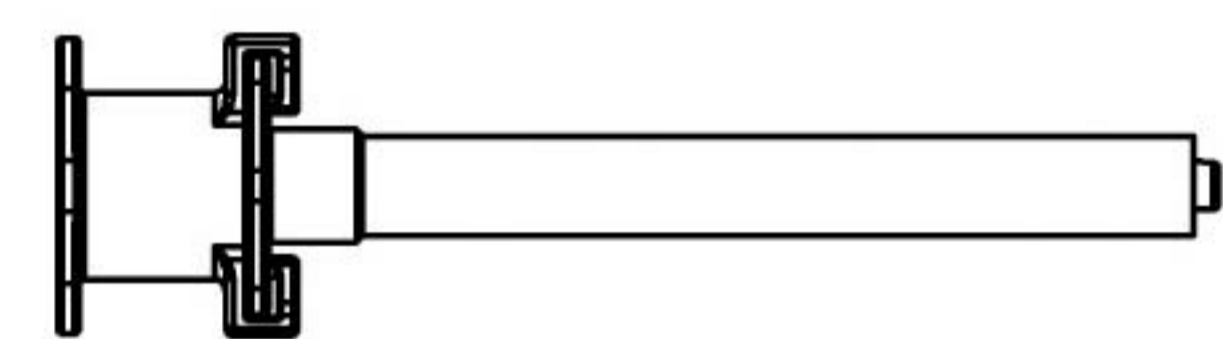
Adapts your vitrectomy console viscous fluid injection set to use a 1mL syringe. It is ideal for low volume subretinal injections. It enables full surgeon control for administering subretinal injections with minimal fluid loss.

Kit includes adapter and syringe. MicroDose™ Kit can be connected to the VFI tubing set from Constellation®, Stellaris®, and EVA® systems.

- — | **3275** MicroDose™ Injection Kit

Developed in cooperation with David M. Brown, MD, Houston, TX

Constellation® is a trademark of Alcon Laboratories, Stellaris® is a trademark of Valeant and EVA® is a trademark of Dutch Ophthalmic.



## Extension Tube

This short silicone extension tube can be used with any of our cannulas for precise, controlled microinjections. It is ideal for use with our subretinal PolyTip® Cannulas, enabling precise positioning of the cannula tip while injection is performed with the opposite hand or by an assistant. The short, small-bore tube has a 0.2mL priming volume for minimal fluid loss and precise delivery.

- — | **3223** Extension Tube (Hammer)  
5cm (2in) silicone tube with  
male and female luer lock connectors



# Laser Probes

compatible with

**Alcon:** Constellation, PurePoint, EyeLite \*

**Ellex:** Solitaire \*

**Topcon:** PASCAL, LC-300 \*

● 23g	Straight	<b>A21A000</b>	
	Angled	<b>A23A000</b>	
● 25g	Straight	<b>A32A000</b>	
	Angled	<b>A37A000</b>	

compatible with

**Bausch+Lomb:** Stellaris PC \*

**Iridex:** GL, Oculight \*

● 23g	Straight	<b>A21A000</b>	
	Angled	<b>A23A000</b>	
● 25g	Straight	<b>A32A000</b>	
	Angled	<b>A37A000</b>	

compatible with

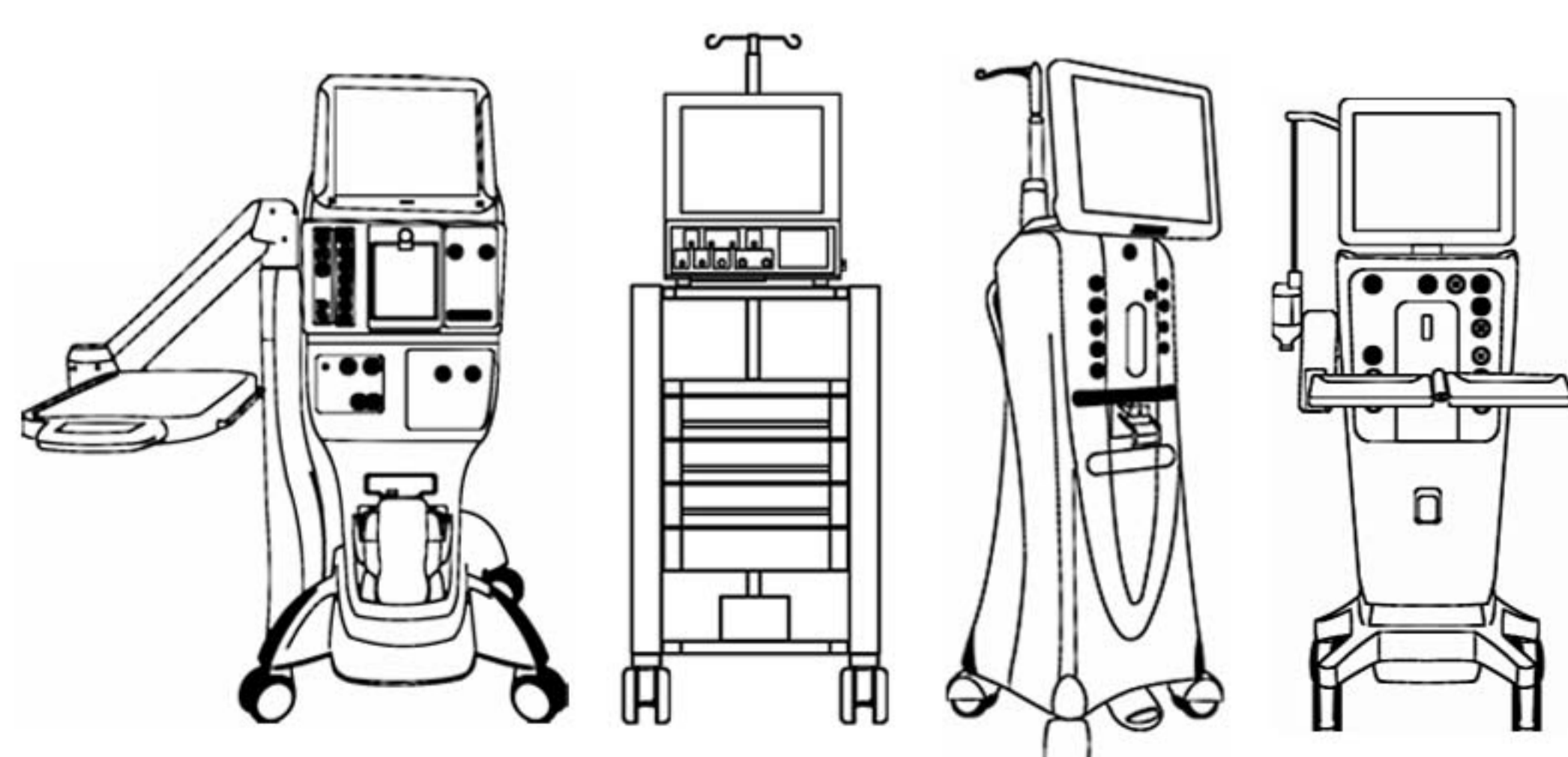
**DORC:** EVA, LaserStar \*

● 23g	Straight	<b>A21A000</b>	
	Angled	<b>A23A000</b>	
● 25g	Straight	<b>A32A000</b>	
	Angled	<b>A37A000</b>	

Ophthalmed's 8ft (illuminated) laser probe is indicated for Endo-Ocular laser photocoagulation treatments in order to provide coagulation (and illumination) during surgical interventions at laser operating wavelength of 500 to 1,100nm.

Ophthalmed's laser fiber is terminated from one side with a connector that attaches the fiber end to the laser source. In illuminated laser probes, the fiber is terminated from the same side with a connector that attaches the fiber end to the illumination machine.




From the other side, it is terminated with a handpiece for holding and manipulation during surgery. In ordinary (illuminated) laser probes, the handpiece is terminated by a stainless steel tubing that holds the tip of the fiber (of 20/23/25 or 27g in size). In bending (illuminated) laser probes, the handpiece is terminated by a proximal stainless steel tubing that is 20/23/25 or 27 gauge in size, and ending with a distal pre-curved PEEK memory tube that can change angle when activated by the sliding button on the handle side. When the sliding button on the handle is advanced, an internal straightening tube advances into the distal pre-curved PEEK memory tube, thus causing a reduction of the angle of the pre-curved PEEK memory tube, down to zero degrees at the maximum sliding position, allowing the selection of the desired angle during surgery.





knowing more  
serving better



 (021) 7762 4412  
 (021) 7762 4413  
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 [www.kawack.com](http://www.kawack.com)  
 [info@kawack.com](mailto:info@kawack.com)  
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Geuder®

**vivos**

# System for Phacoemulsification

Setting Standards in Cataract Surgery

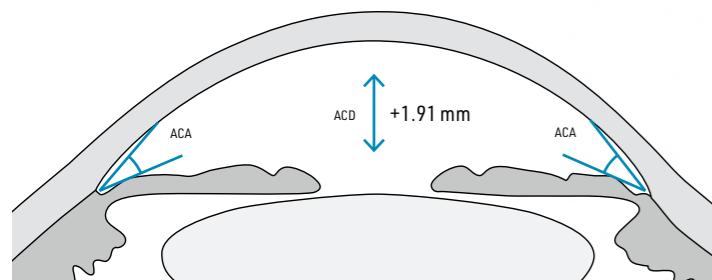


**Geuder®**  
Germany

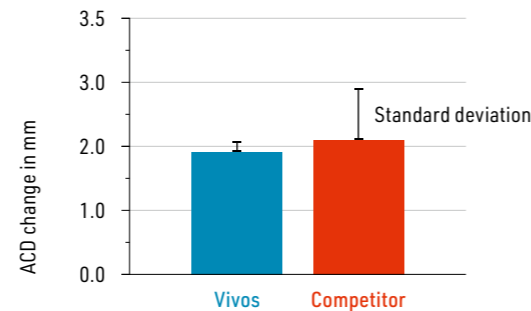
## Setting standards in cataract surgery

The key features of Vivos, designed to enhance performance and precision in anterior segment surgery, represent a logical evolution from our trusted megaTRON systems.

Remarkable IOP control, a maximized vacuum range, and fast vacuum rise time are elevating phacoemulsification efficiency to the next level.



Vivos mean AC depth change



Mean AC depth change in comparison

### Remarkable IOP Control

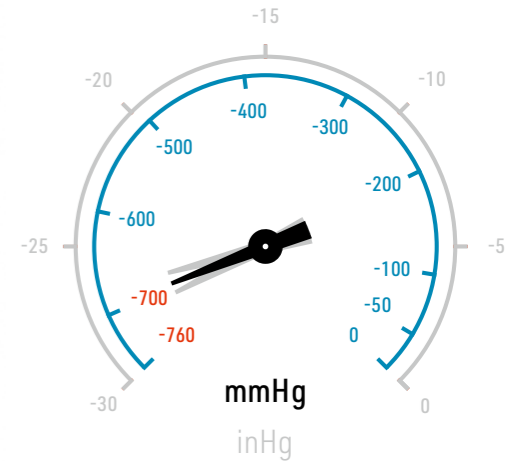
Experience impressive stability in the anterior chamber through an actively pumped infusion mode. The unique fluidic management of Vivos ensures a perfect balance between irrigation and aspiration, allowing for precise control of the corresponding intraocular pressure.

When compared to state-of-the-art machines, Vivos demonstrates a remarkable **25% reduction in anterior chamber depth change**, ensuring consistent IOP control across all vacuum settings.

### Maximum Vacuum

The adjustable vacuum range of Vivos extends to a **maximum value of 700 mmHg**, nearly approaching the upper limit defined by the laws of physics (~760 mmHg).

When combined with active infusion, which maintains constant control over irrigation and aspiration, high vacuum settings can be confidently employed, providing a secure surgical experience.

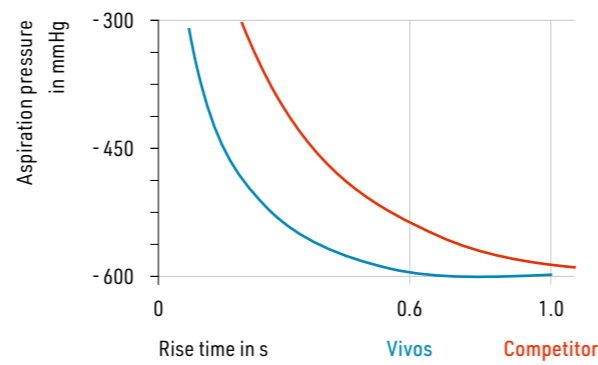


# Precision and Power

## Fast Vacuum Rise Time

Vivos features a highly responsive pump system. It achieves desired vacuum levels **40% faster** than state-of-the-art systems by elevating the **maximum flow rate to 100 ml/min**.

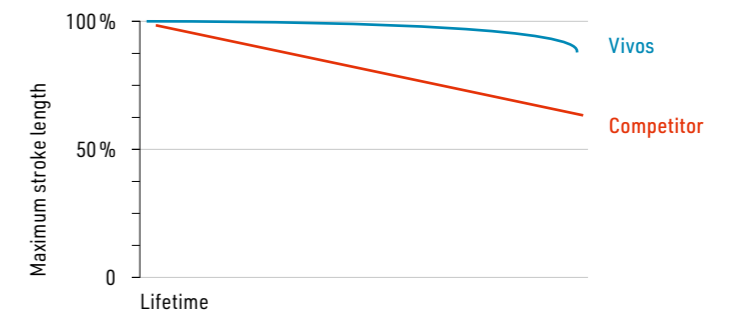
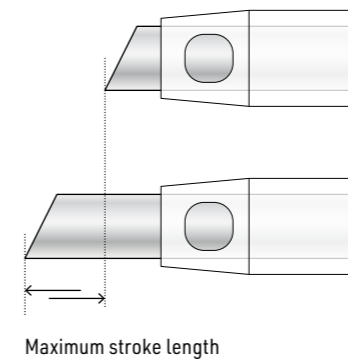
A fast rise time allows for quicker procedures and reduces overall treatment time, maximizing patient comfort and satisfaction.



## Consistent Performance

The built-in **autotune** technology of Vivos ensures consistent performance throughout the system's lifetime.

This feature **maintains the maximum stroke length** of phaco tips and preserves the effectiveness for a prolonged use of handpieces.



## Intuitive User Interface

The Vivos user interface is designed for seamless and precise control of all system functions and settings. Its touchscreen interface is user-friendly, providing quick access to essential features to streamline your workflow.

The highly acclaimed logical user guidance of our megaTRON devices was also applied to Vivos to ensure that it complements **your style** on **our system**.

## Conclusion

With the Vivos system for phacoemulsification, you will not only gain access to the latest technology but also exceptional performance, precision and safety. Experience the difference that Vivos can make in your practice and be at the forefront of ophthalmic surgery.



Geuder® **vivos**  
 Technical Data

**General Specifications**

**Dimensions (H x W x D)**  
 195 x 427 x 524 mm

**Weight**  
 28 kg

**Power Supply**

**Voltage**  
 100 - 260 V

**Frequency**  
 50/60 Hz

**Maximum Power Consumption**  
 260 W

**Peristaltic Pump**

**Vacuum**  
 (linear, exponential, logarithmic and fixed control)  
 1 - 700 mmHg

**Flow**  
 (linear, fixed control and pulsation)  
 0 - 100 ml/min

**Pulsation Frequency**  
 (adjustable)  
 1 - 20 Hz

**Vacuum Rise Time**  
 600 mmHg with 100 ml/min  
 in 0.6 sec

**Ultrasound**

**Frequency Range**  
 26 - 55 kHz

**Power Output**  
 (linear, exponential, logarithmic and fixed control)  
 1 - 100 %

**Pulsation Frequency**  
 (adjustable)  
 1 - 100 Hz

**Pulse Duration**  
 (adjustable)  
 10 - 990 ms

**Anterior Vitrectomy**

**Cut Rate**  
 (linear and fixed control)

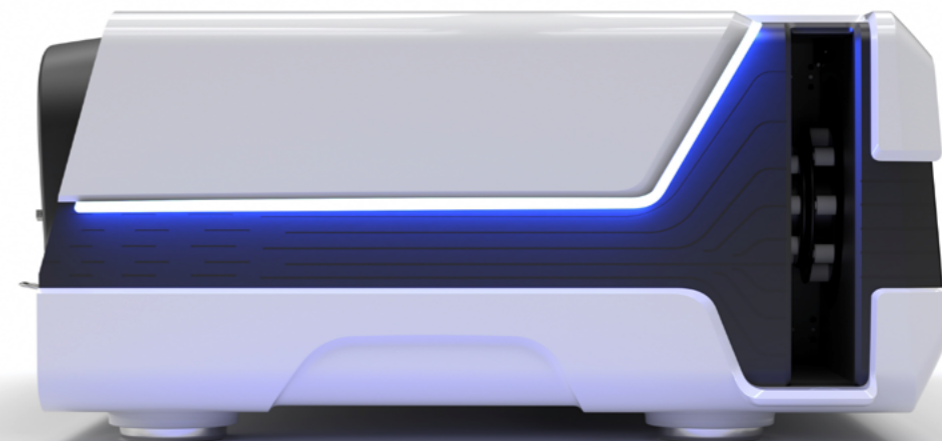
**Pneumatic**  
 (with UNO Colorline Mach2 Vitrector)  
 20 - 3000 cuts/min

**Pneumatic**  
 (with UNO Colorline Vitrector)  
 10 - 1500 cuts/min

**Bipolar Diathermy**

**Power Consumption**  
 (linear and fixed control)  
 0 - 15 W

**Pulsation Frequency**  
 (adjustable)  
 1 - 100 Hz





CE pending

**Geuder**<sup>®</sup>  
geuder.de

Geuder reserves the right to make changes to technical details in response to recent developments. Geuder does not assume liability for the accuracy of each individual statement. Illustrations are not drawn to scale.

Geuder AG  
Hertzstr. 4  
69126 Heidelberg  
Germany

info@geuder.de  
**geuder.de**

Phone +49 6221 3066  
Fax +49 6221 303122

# SEEING THE FULL SPECTRUM

RGB LED LIGHT SOURCE  
FOR OPHTHALMIC SURGERY



SOLEA®

## ESSENTIAL REQUIREMENTS

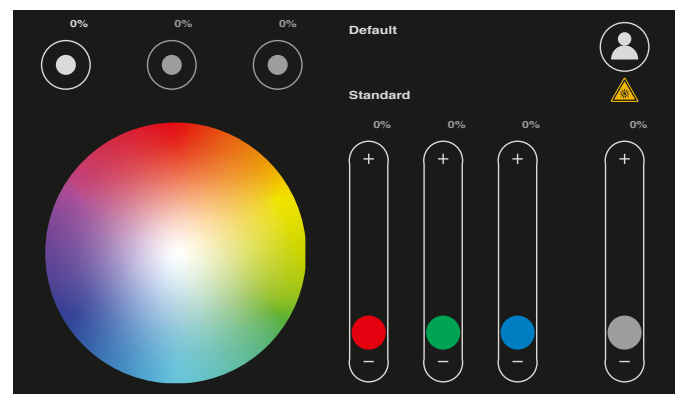
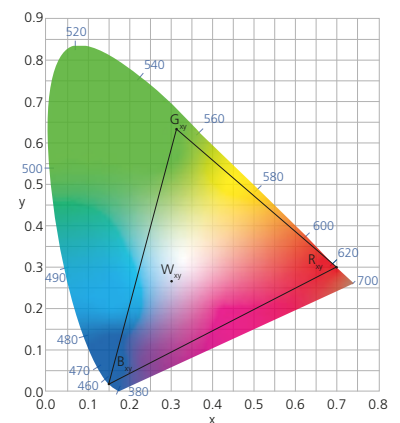
Intraocular illumination of the surgical field plays a fundamental role in vitreoretinal surgery. It has an influence on the success and efficiency of a surgery.

### Light sources must meet three main characteristics:

- generate a color rendering that enables correct conclusions about the anatomy
- provide the necessary brightness
- provide a high level of safety for users and patients before, during and after use

## THE SPECTRUM OF INNOVATIVE RGB TECHNOLOGY

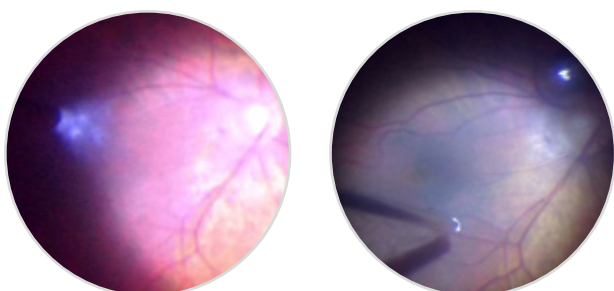
- By displaying 16.7 million colors, the RGB LED technology provides new insights into the posterior segment and thus new applications
- Local contrast enhancement improves the visualization of specific structures in the eye (e.g. vitreous body, ERM, ILM, etc.)
- The SOLEA® opens up new possibilities for making vitreoretinal surgery even safer, in particular through the use of a red LED
- Due to the narrow-band emission of light from the RGB LEDs it makes the use of additional UV or IR filters unnecessary
- The user-friendly control panel and intuitive user interface increase the safety and efficiency in the OR





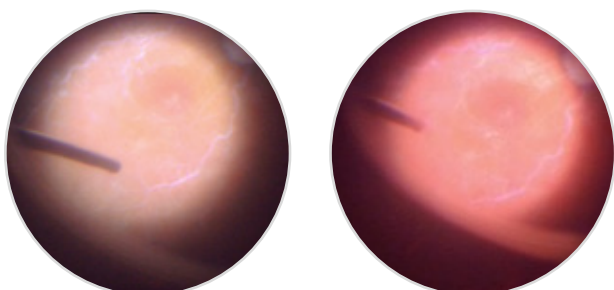
## NEW INSIGHTS THROUGH RGB LED

The Geuder SOLEA® light source not only meets essential requirements, but also offers new application possibilities thanks to the new RGB technology.

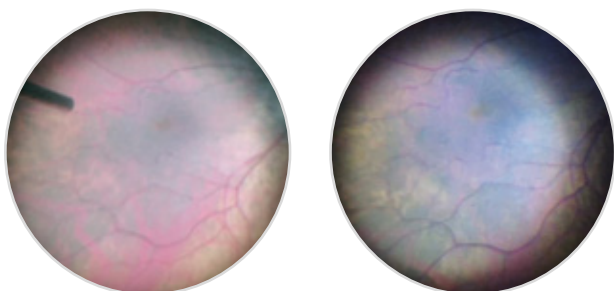


Contrast enhancement through targeted color rendering can visualize the vitreous in central or peripheral vitrectomies up to the vitreous base – here a turquoise-blue hue can increase visibility.

Bluish colors are particularly suitable for ablation and removal of vitreous remnants.



Orange-brown shades can be useful for specific contrast enhancements, for example, during the localization of retinal detachments.



Thanks to the additive color mixing in the RGB color space, the surgeon can use e.g. green hues, to better visualize deeper structures as the choroid.

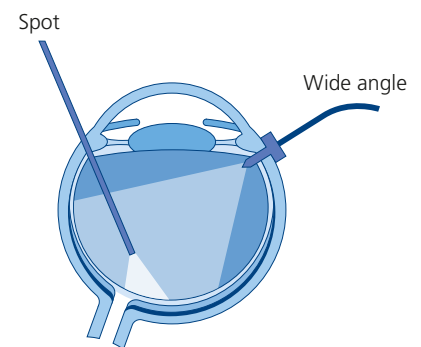
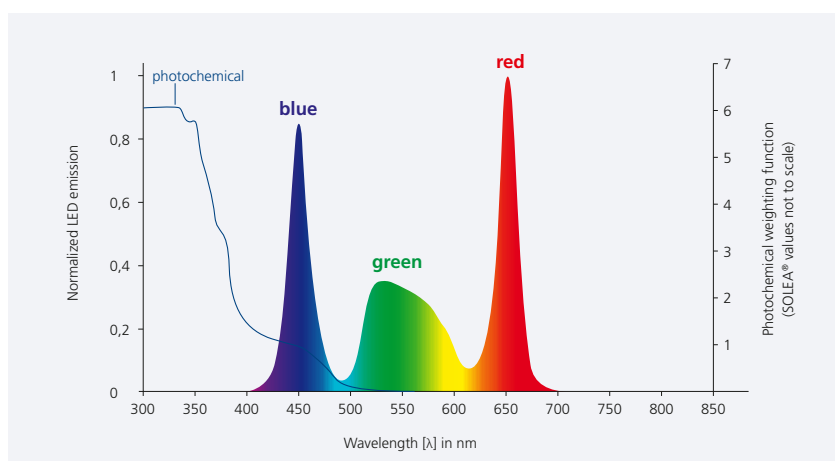
## MINIMIZING PHOTOTOXICITY

Despite numerous innovations, some problems in endoillumination of the eye have not yet been solved in recent years. Harmful UV and IR rays arriving from outside are largely filtered by the cornea and lens of the eye, but this natural protective barrier is bypassed during endoillumination.

The greatest danger is the destruction of cells in the retinal pigment epithelium (RPE) due to blue light damage, also called phototoxicity. The irradiation causes so-called oxidative stress on the photoreceptors in the RPE<sup>1</sup>, in which oxygen radicals (ROS) can form due to the photochemical processes and thus an increased deposition of e.g. lipofuscin is induced. This problem ultimately leads to increased cell death and

thus promotes the development of other pathologies such as macular degeneration (AMD)<sup>2,3</sup>.

Studies show that high-energy, visible wavelengths of 415 – 455 nm have the highest potential for oxidative stress on the RPE<sup>2,3</sup>. These wavelengths are increasingly produced by cool white LEDs, which means that a phototoxic light component that cannot be neglected is present.



Different types of fiber optics and working distances

Blue light has the highest phototoxic potential

Other factors influencing the degree of phototoxicity include intensity and exposure duration of the irradiation as well as the size and type of the endoilluminator, but also the distance to the retina.

In addition to the selection of the endoilluminator, e.g. wide angle fiber optic, which scatters the light more broadly and thus has lower irradiation intensities on the retina, primarily the selection of the right light source plays a role in reducing the exposure to phototoxic radiation.

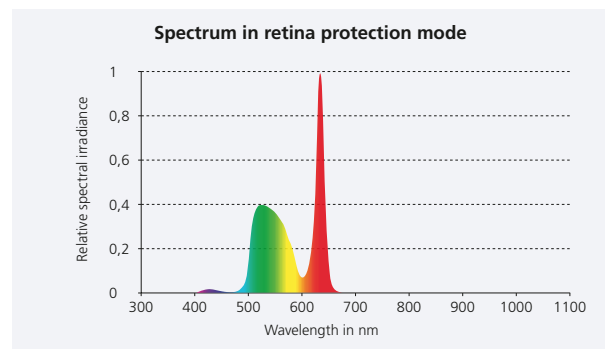
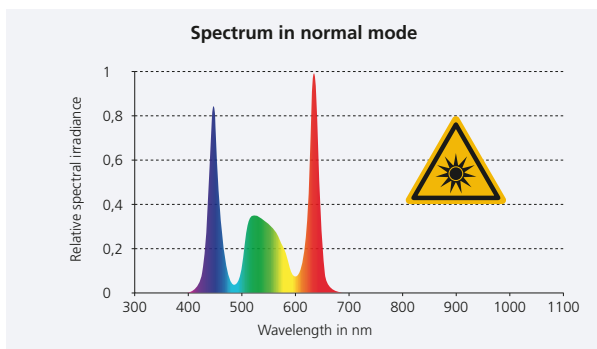
In order to further minimize the risk, appropriate standards such as ISO 15004-2 have been created. These determine, among other things, the safety of the application through limiting values for the maximum irradiation in the eye. Nevertheless, in spite of all the measures taken so far, damage cannot be completely eliminated.

1 Kuse Y, Ogawa K, Tsuruma K, Shimazawa M, Hara H. Damage of photo-receptor-derived cells in culture induced by light emitting diode-derived blue light. *Sci Rep.* 2014;4:5223. Published 2014 Jun 9. doi:10.1038/srep05223 2 Dunbar M, Melton R. The Lowdown on Blue Light: Good vs. Bad, and Its Connection to AMD. 2014 <https://www.revieweducationgroup.com/ce/the-lowdown-on-blue-light-good-vs-bad-and-its-connection-to-amd-109744> 3 Tosini G, Ferguson I, Tsubota K. Effects of blue light on the circadian system and eye physiology. *Mol Vis.* 2016 Jan 24;22:61-72. PMID: 26900325; PMCID: PMC4734149.

# TREND-SETTING RETINA PROTECTION

To further reduce the risk of phototoxicity, the new Geuder SOLEA® light source features an innovative retina protection mode. This new function deactivates the blue LED and thus minimizes the phototoxic component almost completely. The remaining light when the blue LED is deactivated is composed of a red and green LED, which due to their wavelengths

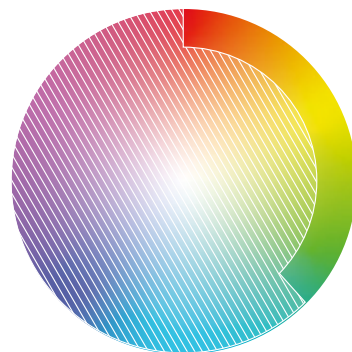
in the relevant range between 500 and 635 nm have a lower phototoxicity than cool white LEDs. In addition, the safe irradiation time is increased to at least 30 min (according to ISO 15004-2).



Switching off the blue LED changes the relative spectral irradiation of the SOLEA®



The coloring of the SOLEA®, which can generate 16.7 million colors in normal mode with three RGB LEDs, enables smart lighting concepts to display fine tissue structures that can be better differentiated by means of complementary contrast.



Thanks to the innovative RGB design, the blue LED can be deactivated and thus protective filters can be dispensed. In retina protection mode, despite this restriction, a variation of 65,536 colors can be generated in the orange-yellow-green spectrum.

## THE FACTS AT A GLANCE

- INNOVATION**
- Innovative RGB technology for free color composition and visualization of fine structures
  - 16.7 million colors for individual color composition and contrast enhancement

- PROTECTION**
- RGB LED technology prevents harmful radiation in the UV or IR range without filters
  - Retinal protection mode minimizes phototoxic effects by deactivating the blue LED, thus extending the safe surgery time to min. 30 min.
  - 3 independent fiber optic outputs with up to 45 lm luminous flux each
  - Long durability of the LEDs with up to 60.000 h<sup>4</sup>
  - Only ophthalmic surgical light source with red LED

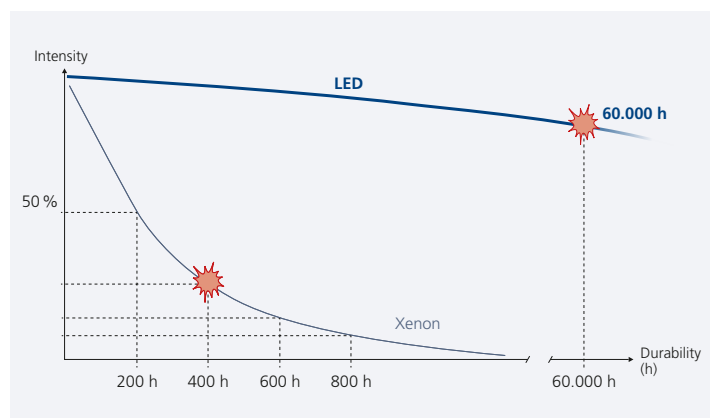
- EASY TO USE**
- Intuitive handling thanks to 7" multi touch display (proven PCAP technology - projective capacitive touch screen)
  - Individual user profiles and parameter settings
  - Auto-save function automatically saves the last values
  - Easy cleaning and wipe disinfection of the glass surface with protection class IP33 (including protection against spray water)
  - Color temperature from 3,000 - 6,000 K indirectly adjustable via color composition

4 red and blue LED up to 60.000 h, green LED up to 15.000 h



## LED DURABILITY

The short durability of the xenon light sources is extended by up to 100 times thanks to the longevity properties of the LEDs. Whereas conventional xenon light sources require a lamp replacement after approx. 300 – 500 h, LEDs allow durability of up to 60,000 h<sup>5</sup> and thus reduce the service effort and follow-up costs. LEDs also have a constant light output, whereas xenon lamps have power losses (approx. 50 % after 200 h).



## ADVANTAGES OF STAND-ALONE MODE

A separate and independent light source has two decisive advantages over an integrated overall solution with vitrectomy device:

- Acquisition costs are lower if product innovations and improvements are followed independently of the long innovation cycles of the overall solutions
- In the event of a dysfunction, the entire surgical unit does not fail

<sup>5</sup> 5 red and blue LED up to 60.000 h, green LED up to 15.000 h

**G-26500 SOLEA® LED  
LIGHT SOURCE**  
FOR ENDOILLUMINATION  
FOR OPHTHALMIC SURGERIES



## OPTIONAL ACCESSORIES

**G-26501 Display foil SOLEA®**  
for capacitive touchscreens,  
for use with SOLEA®  
dimensions: 193 x 137 mm, 50 pcs. per box, sterile

**G-26502 megaTRON® S4 HPS top rack for SOLEA®**

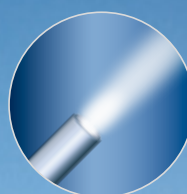
**G-26503 endoTRON® 532 top rack for SOLEA®**  
(in combination with megaTRON® S4 HPS)

**G-60600 Equipment Carriage (for megaTRON® S4)**  
with swing-out tray (360 x 400 mm),  
1 drawer, 4 brakes, cable guards,  
dimensions: 108 x 67 x 63 cm (H x W x D)

**G-60680 Equipment Carriage (for megaTRON® S systems)**  
with pull-out tray (360 x 491 mm),  
4 brakes  
dimensions: 108 x 67 x 63 cm (H x W x D)



**Single-Use Fiber Optic S**  
UNO Colorline®  
Spot, sterile



**G-42021** 20G, 1 pcs. per box

**G-42321** 23G, 1 pcs. per box

**G-42521** 25G, 1 pcs. per box

**Single-Use Fiber Optic WA**  
UNO Colorline®  
wide angle, sterile



**G-42022** 20G, 1 pcs. per box

**G-42322** 23G, 1 pcs. per box

**G-42522** 25G, 1 pcs. per box

**Single-Use Fiber Optic WS**  
UNO Colorline®  
wide angle, shielded



**G-42023** 20G, 1 pcs. per box

**G-42323** 23G, 1 pcs. per box

**G-42523** 25G, 1 pcs. per box



GEUDER AG reserves the right to make changes to technical details  
in response to recent developments. GEUDER does not assume liability  
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Illustrations not drawn to scale.

GEUDER AG  
Hertzstr. 4  
69126 Heidelberg  
Germany

Phone: +49 6221 3066  
Fax: +49 6221 303122  
info@geuder.de  
www.geuder.com