RUMEX International Co. is one of the leading manufacturers of high precision ophthalmic instruments for handheld surgery. Since 1994 our company has been working closely with honorable surgeons all over the world. The distinguished ergonomic design of instruments, and high quality materials they are composed of, will ensure that every surgical manipulation is gentle and precise.

The comprehensive line of vitreoretinal products is a result of professional experience and manufacturing skills accumulated over many years. The range of vitreoretinal products offers a variety of options to meet any preference: reusable and disposable instruments in one-piece and two-piece design made of titanium, stainless steel and plastics.

The recently introduced group of reusable instruments with RUMEX FLUSHING SYSTEM is one of the latest innovative achievements that allows for efficient cleaning without disassembling and increases the lifespan of a tool.

COMING SOON section includes essential disposable products: vitreectomy cutters, fiber optic and laser probes that can be adjusted to the major brands of vitreo machines as well as VitreoOcta (perfluorooctane liquid), VitreoBlue & VitreoBlue Plus (trypan blue and brilliant blue dyes for posterior segment).

The brochure features suggested sets of vitreoretinal products, which include trocar systems, most popular models of scissors and forceps, backflush tools, diamond dusted scrapers and a selection of cannulas completed with silicone oil and infusion systems. The sets can be easily customized according to your personal requirements.

We respect long-term relationships and are always looking for new partners. Our brand is presented in more than 100 countries by now, and should you be interested to become a distributor of RUMEX products, please contact us for further details.
<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
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<tr>
<td>💚</td>
<td>SKU preferred by the majority of customers</td>
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<td>Central Retinal Vein Occlusion</td>
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<tr>
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<td>Epiretinal Membrane</td>
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<tr>
<td>ILM</td>
<td>Internal Limiting Membrane</td>
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<tr>
<td>MVR</td>
<td>Micro-vitreoretinal</td>
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<tr>
<td>PFC</td>
<td>Perfluorocarbon</td>
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<tr>
<td>PVD</td>
<td>Posterior Vitreous Detachment</td>
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<tr>
<td>PVR</td>
<td>Proliferative Vitreoretinopathy</td>
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CONTENTS

› A VARIETY OF OPTIONS FOR VITREORETINAL SURGERY 6
› FEATURED PRODUCTS 7
› VITREORETINAL INSTRUMENT TIPS 8
› HANDLES FOR VITREORETINAL INSTRUMENTS 9
› SCISSORS 10
› INTERNAL LIMITING MEMBRANE (ILM) FORCEPS 11
› EPIRETINAL (ERM) FORCEPS 12
› PICK FORCEPS 13
› FOREIGN BODY REMOVAL FORCEPS 13
› MEMBRANE INSTRUMENTS 14
› 23 GAUGE INSTRUMENTS 15
› 25 GAUGE INSTRUMENTS 16
› 27 GAUGE INSTRUMENTS 16
› ONE-PIECE VITREORETINAL INSTRUMENTS WITH FLUSHING SYSTEM 17
› REUSABLE TWO STEP TROCAR SYSTEMS 18
› DISPOSABLE ONE-PIECE STAINLESS STEEL INSTRUMENTS 19
› DISPOSABLE INSTRUMENTS WITH PLASTIC HANDLE 20
› DISPOSABLE DIAMOND DUSTED RETRACTABLE ILM ELEVATORS 20
› DISPOSABLE ONE STEP TROCAR SYSTEMS 21
› DISPOSABLE BACKFLUSH INSTRUMENTS 22
› BACKFLUSH HANDLES AND RESERVOIRS 22
› VITREORETINAL CANNULAS 23
› SILICONE OIL 1000/5000 24
› SILICONE OIL INFUSION SYSTEMS 25
› COMING SOON 26
› FEATURED SETS, 23/25 GAUGE 31
› HANDLING OF VITREORETINAL INSTRUMENTS 33
A VARIETY OF OPTIONS FOR VITREORETINAL SURGERY

REUSABLE

Option 1. Two-Piece Instruments
Universal Handle + Interchangeable Tips*

Option 2. One-Piece Instruments
with Innovative RUMEX Flushing System**

REUSABLE

Option 1. Two-Piece Instruments
Universal Handle + Interchangeable Tips*

Money-Wise Solution

* completely detachable for most effective cleaning
One handle for the set

Option 2. One-Piece Instruments
with Innovative RUMEX Flushing System**

Flushing port
Flushing cannula

** easy cleaning without disassembling

Complete tool – no need to adjust the tip to the handle
Delicate cleaning – flushing liquid streams towards the tips with zero stress for the jaws
Increased lifespan – the inner mechanism is not involved into the cleaning process and stays intact

DISPOSABLE

Option 1. All Stainless Steel Instruments
Precise performance and instant tactile control

Option 2. Ergonomic 360-Degree Handle*
Enhanced utility due to rotatable squeeze handle

* Not available in the US and Europe

STERILE

*Not available in the US and Europe
Product design and/or features that do not influence its functionality and main parameters are subject to change.
FEATURED PRODUCTS

UNIVERSAL END-GRASPING FORCEPS WITH ASYMMETRICAL BRANCHES

Universal End-Grasping Forceps allow the performing of ILM peeling and safe removal of epiretinal membranes. Asymmetrical design of branches provides for ideal maneuverability and excellent visualization of the grasped tissue.

END-GRASPING FORCEPS

The special design of the tips promotes delicate, precise and safe ILM peeling. The strengthened jaws ensure enhanced gripping power. Expanded space between branches contributes to greater visualization of the grasped membrane in the macular area.

GRIPPING FORCEPS WITH A ‘CROCODILE’ PLATFORM

Designed for the removal of epiretinal membranes. Blunt, atraumatic serration intensifies grasping capacity and prevents tissue shredding.
VITREORETINAL INSTRUMENT TIPS:
GAUGE CONVERSION CHART, COLOR CODE SYSTEM

We offer various models of vitreoretinal tips that can be adjusted to Universal Handles (12-001T or 12-003T)*.

Gauge Conversion Chart

<table>
<thead>
<tr>
<th>Gauge</th>
<th>(inch)</th>
<th>(mm)</th>
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<tbody>
<tr>
<td>19 Ga</td>
<td>0.043</td>
<td>1.10</td>
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<tr>
<td>20 Ga</td>
<td>0.036</td>
<td>0.90</td>
</tr>
<tr>
<td>21 Ga</td>
<td>0.032</td>
<td>0.80</td>
</tr>
<tr>
<td>22 Ga</td>
<td>0.028</td>
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</tr>
<tr>
<td>23 Ga</td>
<td>0.025</td>
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<tr>
<td>25 Ga</td>
<td>0.020</td>
<td>0.50</td>
</tr>
<tr>
<td>27 Ga</td>
<td>0.016</td>
<td>0.40</td>
</tr>
</tbody>
</table>

Color Code System**

Color code system is used to indicate vitreoretinal tips, their function and size.

Manual Cleaning

Proper cleaning of the instrument is necessary to preserve its working condition.

RUMEX manufactures interchangeable microincisional and vitreoretinal instrument tips that can be cleaned with a regular syringe.

*Handles are sold separately! **Colors of details may differ slightly from those displayed in this catalog.
Product design and/or features that do not influence its functionality and main parameters are subject to change.
RUMEX International Co is pleased to provide you with two models of Universal Handles that can be used with interchangeable tips.

- Made of Titanium
- Corrosion resistant
- Can be used with tips of any gauge 20/23/25/27 (and other gauges)

**Ergonomic Model**

Two Fingers Control Squeeze Handle

12-003T

- Two fingers linear actuation
- Ergonomic handle with specially designed gripping area for amplified control over the instrument
- Optimal diameter round handle allows 360° rotation
- Non compatible with the following tips: 12-206, 12-313, 12-321, 12-335

**Classic Model**

One Finger Control Handle

12-001T

- One finger linear actuation
- Classic design approved by decades of work
- Compatible with all models of tips

Adjustable screw mechanism (to customize the opening of branches before manipulation)

*Tips are sold separately!*
**SCISSORS**

Designed for cutting membranes and junction zones of the proliferative tissue.

**Vertical Scissors**
- 70° Sharp tips
- 12-202 20 Ga
- 12-202-23 23 Ga

**Horizontal Scissors**
- 55°
- 12-206** 20 Ga

**Vertical Scissors**
- 45°
- 12-2029 25 Ga

**Horizontal Scissors**
- Angled
- 45°
- Short blades (1.70 mm in the closed position)
- 12-2085 20 Ga

**Straight Scissors**
- Blunt tips
- 12-211 20 Ga

**Curved Subretinal Scissors**
- Curvature radius 12.00 mm
- 12-209 20 Ga
- 12-209-23 23 Ga
- 12-2099 25 Ga

*Tips are sold separately! ** Compatible with Universal Handle 12-001T Only

Product design and/or features that do not influence its functionality and main parameters are subject to change.
INTERNAL LIMITING MEMBRANE (ILM) FORCEPS

Delicate branches for ILM peeling

Universal End-Grasping Forceps allow the performing of ILM peeling and safe removal of epiretinal membranes. Asymmetrical design of branches provides for ideal maneuverability and excellent visualization of the grasped tissue.

Asymmetrical End-Grasping Forceps
- Standard tube, 28.00 mm
  - 12-420-23 23 Ga
  - 12-420-25 25 Ga
  - 12-420-27 27 Ga
- Designed for myopic eyes. Elongated tube, 30.00 mm
  - 12-4202-23 23 Ga
  - Enhanced visualization!

Eckardt End-Gripping Forceps
- 12-410 20 Ga
  - 12-410-23 23 Ga
  - 12-410-25 25 Ga
  - 12-410-27 27 Ga

Tano Asymmetrical End-Gripping Forceps
- 12-411 20 Ga
  - 12-411-23 23 Ga
  - 12-411-25 25 Ga

End-Grasping ILM Forceps with Texturized Outer Platform
- Increased friction between tissue and forceps
- Can be used as ILM elevator
  - 12-450-23 23 Ga
  - Enhanced cohesion!

End-Grasping Forceps
- Expanded space between branches
  - 12-4013 23 Ga
  - Enhanced visualization!

The special design of the tips promotes delicate, precise and safe ILM peeling. The strengthened jaws ensure enhanced gripping power. Expanded space between branches contributes to greater visualization of the grasped membrane in the macular area.

Notes:
- Tips are sold separately!
- Product design and/or features that do not influence its functionality and main parameters are subject to change.

* Tips are sold separately!
**EPIRETINAL (ERM) FORCEPS**

- Strengthened jaws for the removal of epiretinal membranes
- Gripping function is enhanced by sandblasted/serrated platform or nail shaped jaws

**Gripping Forceps**
- With a sandblasted platform
  - 12-301-23: 23 Ga
  - 12-3019: 25 Ga

**End-Gripping Forceps**
- With extended gripping area at the end of the tip
  - 12-4012: 23 Ga

**Gripping Forceps**
- With a “crocodile” platform
  - 12-304: 20 Ga
  - 12-304-23: 23 Ga
  - 12-304-25: 25 Ga

**End-Gripping Forceps**
- With nail-shaped jaws
  - 12-402: 20 Ga
  - 12-402-23: 23 Ga
  - 12-4089: 25 Ga

*Tips are sold separately!
Product design and/or features that do not influence its functionality and main parameters are subject to change.
PICK FORCEPS*

- Pick Forceps
  - 12-325-23 23 Ga
  - 12-3259 25 Ga

FOREIGN BODY REMOVAL FORCEPS*

- Avci Foreign Body Forceps
  - 12-412*** 17 Ga

- Vitreoretinal Forceps
  - With cup jaws
  - 12-313** 20 Ga

- Spring Gripping Forceps
  - 12-321** 20 Ga
  - 12-321-23*** 23 Ga

- Stolyarenko Forceps
  - For large foreign bodies
  - 12-335** 20 Ga

*Tip only. Handles are sold separately. ** Compatible with Universal Handle 12-001T only
*** Compatible with Universal Handles 12-001T and 12-003T

Product design and/or features that do not influence its functionality and main parameters are subject to change.
MEMBRANE INSTRUMENTS

Delicate Membrane Pick
- Unique geometry of the tip for maximal effectiveness and minimal shredding of the tissue
- Jut on the handle identifies the tip orientation

13-097-23  23 Ga
13-0979  25 Ga
13-097-27  27 Ga

Membrane Scratcher
- Flat, thin instrument to remove tissue and fine membranes from retinal surface in early stages of PVR
- Useful for cleaning residual ERM or ILM
- Great for lifting of large membrane edges without shredding

13-092  20 Ga

Ogura PVD Spatula
- Overall length 132

13-1081-23  23 Ga

BRVO Knife
- Designed for performing a lateral CRVO incision.

Overall length 135
13-1091-23  23 Ga
### 23 Gauge Instruments*

<table>
<thead>
<tr>
<th>Instrument Type</th>
<th>Description</th>
<th>Model</th>
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<td><strong>ILM</strong></td>
<td>Eckardt End-Gripping Forceps</td>
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<td>23 Ga</td>
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<tr>
<td></td>
<td>Asymmetrical End-Grasping Forceps</td>
<td>12-420-23</td>
<td>23 Ga</td>
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<td></td>
<td>Tano Asymmetrical End-Gripping Forceps</td>
<td>12-411-23</td>
<td>23 Ga</td>
</tr>
<tr>
<td></td>
<td>Asymmetrical End-Grasping Forceps</td>
<td>12-420-23</td>
<td>23 Ga</td>
</tr>
<tr>
<td></td>
<td>Enhanced visualization!</td>
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<tr>
<td><strong>ERM</strong></td>
<td>Gripping Forceps</td>
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<td>23 Ga</td>
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<td>Pick Forceps</td>
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<td></td>
<td>End-Gripping Forceps</td>
<td>12-4012</td>
<td>23 Ga</td>
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<tr>
<td></td>
<td>Spring Gripping Forceps</td>
<td>12-321-23</td>
<td>23 Ga</td>
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<tr>
<td></td>
<td>Curved Subretinal Scissors</td>
<td>12-209-23</td>
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<td>End-Gripping Forceps</td>
<td>12-402-23</td>
<td>23 Ga</td>
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</table>

*Tip only. Handles are sold separately. Product design and/or features that do not influence its functionality and main parameters are subject to change.
**25 GAUGE INSTRUMENTS**

**ILM**
- Eckardt End-Gripping Forceps
  - 12-410-25  25 Ga
- Tano Asymmetrical End-Gripping Forceps
  - 12-411-25  25 Ga
- Asymmetrical End-Grasping Forceps
  - 12-420-25  25 Ga
  - Enhanced visualization!

**ERM**
- Gripping Forceps
  - With a sandblasted platform
  - 12-3019  25 Ga
- Vertical Scissors
  - 45°
  - Sharp tips
  - 12-2029  25 Ga
- Pick Forceps
  - 12-3259  25 Ga
- Curved Subretinal Scissors
  - Curvature radius 12 mm
  - 12-2099  25 Ga
  - Enhanced visualization!

**27 GAUGE INSTRUMENTS**

**ILM**
- Eckardt End-Gripping Forceps
  - 12-410-27  27 Ga
- Asymmetrical End-Grasping Forceps
  - 12-420-27  27 Ga
  - Enhanced visualization!

*Tip only. Handles are sold separately. Product design and/or features that do not influence its functionality and main parameters are subject to change.*
ONE-PIECE VITREORETINAL INSTRUMENTS WITH FLUSHING SYSTEM

NEW

Flushing port
Flushing cannula

The tip can be easily cleaned without disassembling.
Special flushing cannula is provided for free!

ILM

Eckardt End-Gripping Forceps
- 12-410-23H 23 Ga
- 12-410-25H 25 Ga

End-Grasping Forceps
- Expanded space between branches
- 12-4013H 23 Ga
- 12-4013-25H 25 Ga
- Enhanced visualization!

ERM

Gripping Forceps
- With a “crocodile” platform
- 12-304-23H 23 Ga
- 12-304-25H 25 Ga

Gripping Forceps
- With a sandblasted platform
- 12-301-23H 23 Ga
- 12-301-25H 25 Ga

Curved Subretinal Scissors
- Curvature radius 12.00 mm
- 12-209-23H 23 Ga
- 12-209-25H 25 Ga

Product design and/or features that do not influence its functionality and main parameters are subject to change.
VITREORETINAL INSTRUMENTS AND CONSUMABLES

REUSABLE TWO STEP TROCAR SYSTEMS

Reusable Trocar System with Closure Valves
Package includes:
- Trocar cannula with closure valves – 5 pcs
- Loading forceps – 1 pc
- Fixation plate – 1 pc
- Cannula inserter – 3 pcs
- Universal infusion line – 1 pc
- Sterilization tray – 1 pc

12-5173-23 23 Ga
12-5173-25 25 Ga

2 extra cannulas
MVR knives should be purchased separately

Loading Forceps
12-5186 23/25 Ga

Instrument Cannula Inserter
12-5187 23 Ga
12-5187-25 25 Ga

Fixation Plate
12-5188 23/25 Ga

MVR Knives
Multifacet blade

STERILE

Straight
VRS-19 - 19 Ga
VRS-20 - 20 Ga
VRS-23 - 23 Ga
VRS-25 - 25 Ga

Angled
VRA-19 - 19 Ga
VRA-20 - 20 Ga
VRA-23 - 23 Ga
VRA-25 - 25 Ga

Scleral Plugs Forceps
Cross-action mechanism reduces hand fatigue.
Overall length 106 mm
12-5086S 20 Ga

Watzke Sleeve Spreading Forceps
Used to stretch the silicone sleeve placed around the eyeball.
Serrated tips aid in gripping the sleeve and allow for adjustable traction.
Overall length 110 mm
4-2201T
DISPOSABLE ONE-PIECE STAINLESS STEEL INSTRUMENTS

All stainless steel disposable instruments in 23 and 25 Ga are designed for precise manipulations during posterior segment surgeries.

- **ILM**
  - Eckardt End-Gripping Forceps
    - 12-410-23D  23 Ga
    - 12-410-25D  25 Ga

- **ERM**
  - Gripping Forceps
    - With a “crocodile” platform
    - 12-304-23D  23 Ga
    - 12-304-25D  25 Ga

- **ILM**
  - Asymmetrical End-Grasping Forceps
    - 12-420-23D  23 Ga
    - 12-420-25D  25 Ga

- **ERM**
  - Pick Forceps
    - 12-325-23D  23 Ga
    - 12-325-25D  25 Ga

- **ERM**
  - Gripping Forceps
    - 12-301-23D  23 Ga
    - 12-301-25D  25 Ga

- **ERM**
  - Curved Scissors
    - 12-209-23D  23 Ga
    - 12-209-25D  25 Ga

Product design and/or features that do not influence its functionality and main parameters are subject to change.
VITREORETINAL INSTRUMENTS AND CONSUMABLES

DISPOSABLE INSTRUMENTS WITH PLASTIC HANDLE*

360-degree handle design incorporates a unique rotatability, convenience and actuation. The instrument’s weight is less than 8 grams. Lightweight plastic ergonomic handle especially valuable during hours-long surgeries.

ILI

**Eckardt End-Gripping Forceps**

<table>
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<tbody>
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**Curved Scissors**

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<td>12-209-23DP</td>
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<td>25</td>
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<tr>
<td>12-209-27DP</td>
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**Vertical Scissors**

45°

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<tr>
<td>12-202-25DP</td>
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|**ERL**

**Gripping Forceps**

With a “crocodile” platform

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<tbody>
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<tr>
<td>12-304-27DP</td>
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**Straight Scissors**

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<td>12-211-25DP</td>
<td>25</td>
</tr>
<tr>
<td>12-211-27DP</td>
<td>27</td>
</tr>
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</table>

DISPOSABLE DIAMOND DUSTED RETRACTABLE ILM ELEVATORS**

Designed to consistently create a precise edge to facilitate the ILM removal with forceps.

**Soft Silicone Tip** is safe for retinal surface. **Diamond Dusted** finish provides an extreme grip.

<table>
<thead>
<tr>
<th>Code</th>
<th>Ga</th>
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<tbody>
<tr>
<td>12-7523</td>
<td>23</td>
</tr>
<tr>
<td>12-7525</td>
<td>25</td>
</tr>
</tbody>
</table>

**Retractable Version** enables easy insertion through the trocar cannula.

*Not available in the US and Europe ** Not available in Europe

Product design and/or features that do not influence its functionality and main parameters are subject to change.
DISPOSABLE ONE STEP TROCAR SYSTEMS*

Each set includes:
- Trocar knife with preloaded trocar cannula – 3 pcs
- Self-sealing trocar cannula (preloaded) – 3 pcs
- Universal infusion line – 1 pc

12-5229  23 Ga
12-5244  25 Ga
12-5227  27 Ga

---

Sharp MVR Blade
Helps to create a smooth incision and promotes low-pressure insertion and superior sealing.

Trocar Cannula
Innovative beveled design of the cannula contributes to unstoppable smooth trocar insertion.

Silicone Closure Valves
Removable self-sealing valves ensure maintenance of the desired intraocular pressure throughout the case and eliminate the need for plugs.

Trocar Cannula Inserter
The tip of the plastic handle serves as a caliper/scleral marker (2 dimensions: 3.00 and 4.00 mm).

Universal Infusion Line for BSS

---

*Not available in Europe
Product design and/or features that do not influence its functionality and main parameters are subject to change.
**DISPOSABLE BACKFLUSH INSTRUMENTS**

One-piece instrument combines a handle and a soft, brush or blunt tip cannula. Used for intraocular fluids and debris aspiration during vitreoretinal surgery.

- **23 Ga**
- **25 Ga**
- **27 Ga**

With Blunt Tip:
- 12-5164H: 23 Ga x 34 mm
- 12-5156H: 25 Ga x 34 mm
- 12-5492H: 27 Ga x 34 mm

With Silicone Brush Tip:
- 12-5162H: 23 Ga x 34 mm
- 12-5160H: 25 Ga x 34 mm
- 12-5167H: 27 Ga x 34 mm

With Silicone Soft Tip:
- 12-5161H: 23 Ga x 34 mm
- 12-5152H: 25 Ga x 34 mm
- 12-5491H: 27 Ga x 34 mm

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**BACKFLUSH HANDLES AND RESERVOIRS**

**Reusable Backflush Handle**
- Titanium
- 12-6000: Active aspiration
- 12-6010: Passive aspiration

**Disposable Replacement Reservoir for Backflush Handle**
- 12-5159: Active aspiration
- 12-5147: Passive aspiration

*Not available in Europe

Product design and/or features that do not influence its functionality and main parameters are subject to change.
Vitreoretinal Instruments and Consumables

Vitreoretinal Cannulas

Disposable Backflush Cannulas*
Designed for efficient and safe manipulations in the posterior segment. Used with the backflush handle.

Charles Flute Cannulas
Designed to aspirate blood and debris from the posterior segment. Smooth, finished tip provides atraumatic entry and reduces risk of trauma to surrounding tissue.

<table>
<thead>
<tr>
<th>Item Code</th>
<th>Gauge</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-5164</td>
<td>23 Ga</td>
<td>34 mm</td>
</tr>
<tr>
<td>12-5156</td>
<td>25 Ga</td>
<td>34 mm</td>
</tr>
<tr>
<td>12-5492</td>
<td>27 Ga</td>
<td>34 mm</td>
</tr>
</tbody>
</table>

Soft Tip Cannulas
Flexible silicone tip allows atraumatic entry through retinal or macular tears or holes and enables aspiration of subretinal fluid.

<table>
<thead>
<tr>
<th>Item Code</th>
<th>Gauge</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-5161</td>
<td>23 Ga</td>
<td>34 mm</td>
</tr>
<tr>
<td>12-5152</td>
<td>25 Ga</td>
<td>34 mm</td>
</tr>
<tr>
<td>12-5491</td>
<td>27 Ga</td>
<td>34 mm</td>
</tr>
</tbody>
</table>

Brush Tip Cannulas
The soft silicone brush tip cannula designed for atraumatic brushing of retina.

<table>
<thead>
<tr>
<th>Item Code</th>
<th>Gauge</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-5162</td>
<td>23 Ga</td>
<td>34 mm</td>
</tr>
<tr>
<td>12-5160</td>
<td>25 Ga</td>
<td>34 mm</td>
</tr>
<tr>
<td>12-5167</td>
<td>27 Ga</td>
<td>34 mm</td>
</tr>
</tbody>
</table>

Dual Bore Cannulas*

Dual Bore PFC Cannulas
Simultaneous infusion of heavy liquids and aspiration of intraocular fluids.

<table>
<thead>
<tr>
<th>Item Code</th>
<th>Gauge</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-5203</td>
<td>23 Ga</td>
<td>33 mm</td>
</tr>
<tr>
<td>12-5205</td>
<td>25 Ga</td>
<td>33 mm</td>
</tr>
</tbody>
</table>

*Not available in Europe

Product design and/or features that do not influence its functionality and main parameters are subject to change.
**SILICONE OIL**

**SmartSil 1000/5000***

Purified Silicone Oil for Vitreoretinal Surgery

- Maximum interfacial tension and minimum interactions between tissues, cells and endo-tamponades media
- Optimal combination of specific gravity, refractive index and surface tension
- Different viscosity indexes enable easy injection (1000 cSt) and stable temporary tamponade (5000 cSt)
- Vacuum molecular distillation solvent-free purification - no risk of emulsification

**Physico-chemical properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>1000/5000 cSt</th>
<th>1000/5000 cSt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interfacial tension</td>
<td>≥ 40 mN/m at 37°C</td>
<td></td>
</tr>
<tr>
<td>Density</td>
<td>0.97</td>
<td></td>
</tr>
<tr>
<td>Viscosity</td>
<td>1000/5000 cSt</td>
<td></td>
</tr>
<tr>
<td>Refractive index</td>
<td>1.40</td>
<td></td>
</tr>
<tr>
<td>Volatility</td>
<td>&lt; 1%</td>
<td></td>
</tr>
<tr>
<td>Polydispersity</td>
<td>&lt; 2.80</td>
<td></td>
</tr>
<tr>
<td>Volume of oil</td>
<td>10 ml</td>
<td></td>
</tr>
<tr>
<td>Syringe</td>
<td>20 ml</td>
<td></td>
</tr>
<tr>
<td>Shelf Life</td>
<td>3 years</td>
<td></td>
</tr>
</tbody>
</table>

**GC**

- Vacuum molecular distillation solvent-free purification
- Potentially toxic low molecular weight oligomers (D4 to D20) extraction
- Residual volatile components extraction (water, ethanol, etc.)

**Indication**

SmartSil 1000/5000 is used for prolonged tamponade after surgical treatment for severe retinal detachment (RD), especially:

- RD with proliferative vitreal retinopathy
- RD with diabetic retinopathy complications
- RD with giant tears
- Traumatic RD
- Secondary RD with viral retinitis

*Not available in the US*  
*To be used with Silicone Oil Infusion System*  
Product design and/or features that do not influence its functionality and main parameters are subject to change.
SILICONE OIL INFUSION SYSTEMS

Silicone Oil Infusion Systems are used to connect RUMEX silicone oil syringe to the vitreoretinal surgical equipment.

<table>
<thead>
<tr>
<th>Surgical System</th>
<th>Reusable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ioltech® Pentasys™</td>
<td></td>
</tr>
<tr>
<td>Optikon® Antares™</td>
<td></td>
</tr>
<tr>
<td>Alcon® STTO™</td>
<td></td>
</tr>
<tr>
<td>Storz® Premiere™</td>
<td>12-RTUB-1</td>
</tr>
<tr>
<td>DORC® Harmony Budget™</td>
<td></td>
</tr>
<tr>
<td>Reusable Tubing System for the Infusion Of Silicone Oil, Caprolone Adapter</td>
<td>12-RTUB-2</td>
</tr>
<tr>
<td>Adjustable To DORC® Associate®, EVA®, EVA NEXUS®, Alcon® Constellation®, Accurus™</td>
<td></td>
</tr>
<tr>
<td>B&amp;L® Millenium®, Stellaris™</td>
<td>12-RTUB-3</td>
</tr>
<tr>
<td>Oertli® Orbit®, Faros®, OS3®, Optikon® R-Evolution®</td>
<td>12-RTUB-4</td>
</tr>
</tbody>
</table>

**STERILE**

Disposable Viscous Fluid Injection Cannulas*

Allow injection of viscous fluids such as silicone oil through a 23 Ga or 25 Ga trocar cannula.

- 12-5248 23 Ga x 4 mm
- 12-5258 25 Ga x 4 mm

Infusion Cannula

Reusable Infusion Cannula

- 12-026 20 Ga
  Self-retaining hub of 6.00 mm
- 12-025 20 Ga
  Self-retaining hub of 4.00 mm

*Not available in Europe

Product design and/or features that do not influence its functionality and main parameters are subject to change.
COMING SOON*

DISPOSABLE LASER PROBES

Designed to perform endo-ocular laser photocoagulation treatment

<table>
<thead>
<tr>
<th>Surgical system/type of the probe</th>
<th>Straight</th>
<th>Curved</th>
<th>Extensible</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMA 905 Connector: Alcon®, Zeiss®, COHERENT®, Ellex®</td>
<td>RLS-23AZ  23 Ga</td>
<td>RLC-23AZ  23 Ga</td>
<td>RLEX-23AZ  23 Ga</td>
</tr>
<tr>
<td></td>
<td>RLS-27AZ  27 Ga</td>
<td>RLC-27AZ  27 Ga</td>
<td></td>
</tr>
<tr>
<td>DORC®</td>
<td>RLS-23D  23 Ga</td>
<td>RLC-23D  23 Ga</td>
<td>RLEX-23D  23 Ga</td>
</tr>
<tr>
<td></td>
<td>RLS-27D  27 Ga</td>
<td>RLC-27D  27 Ga</td>
<td></td>
</tr>
</tbody>
</table>

*Sterile

*Surgical system in the process of development and certification

*Products in the process of development and certification
Product design and/or features that do not influence its functionality and main parameters are subject to change.
VITREORETINAL INSTRUMENTS AND CONSUMABLES

COMING SOON*
DISPOSABLE FIBER OPTIC PROBES

Used to illuminate the interior of the eye

- 23 Ga
- 25 Ga
- 27 Ga

<table>
<thead>
<tr>
<th>Surgical system/type of illumination</th>
<th>Standard</th>
<th>Wide-angle</th>
<th>Shielded</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Alcon®</strong></td>
<td>12-5177  23 Ga</td>
<td>12-5178  23 Ga</td>
<td>12-5625  23 Ga</td>
</tr>
<tr>
<td></td>
<td>12-5135  25 Ga</td>
<td>12-3625  25 Ga</td>
<td>12-5627  25 Ga</td>
</tr>
<tr>
<td></td>
<td>12-5927  27 Ga</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>B&amp;L®</strong></td>
<td>12-5179  23 Ga</td>
<td>12-5180  23 Ga</td>
<td>12-5725  23 Ga</td>
</tr>
<tr>
<td></td>
<td>12-5125  25 Ga</td>
<td>12-5427  25 Ga</td>
<td>12-5727  25 Ga</td>
</tr>
<tr>
<td></td>
<td>12-5127  27 Ga</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Oertli®</strong></td>
<td>12-4123  23 Ga</td>
<td>12-5463  23 Ga</td>
<td>12-5853  23 Ga</td>
</tr>
<tr>
<td></td>
<td>12-4125  25 Ga</td>
<td>12-5465  25 Ga</td>
<td>12-5855  25 Ga</td>
</tr>
<tr>
<td></td>
<td>12-4127  27 Ga</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BVI® (OPTIKON)</strong></td>
<td>12-9123  23 Ga</td>
<td>12-5453  23 Ga</td>
<td>12-5843  23 Ga</td>
</tr>
<tr>
<td></td>
<td>12-9125  25 Ga</td>
<td>12-5455  25 Ga</td>
<td>12-5845  25 Ga</td>
</tr>
<tr>
<td></td>
<td>12-9127  27 Ga</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Products in the process of development and certification
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**COMING SOON**

**DISPOSABLE CHANDELIER FIBER OPTIC PROBES**

Enable bimanual vitreoretinal surgery  
Allow for diffuse illumination to enhance visualization  
Facilitate the recording of surgical videos by providing consistent lighting

<table>
<thead>
<tr>
<th>Surgical system/type of the probe</th>
<th>Standard</th>
<th>Dual Fiber</th>
<th>with preloaded Trocar and Inserter</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Alcon®</strong></td>
<td>12-4563</td>
<td>12-4526</td>
<td>12-5233</td>
</tr>
<tr>
<td></td>
<td>23 Ga</td>
<td>25 Ga</td>
<td>23 Ga</td>
</tr>
<tr>
<td><strong>B&amp;L®</strong></td>
<td>12-4573</td>
<td>12-4545</td>
<td></td>
</tr>
<tr>
<td></td>
<td>23 Ga</td>
<td>25 Ga</td>
<td></td>
</tr>
<tr>
<td><strong>Oertli®</strong></td>
<td>12-4593</td>
<td>12-4543</td>
<td>12-5543</td>
</tr>
<tr>
<td></td>
<td>23 Ga</td>
<td>25 Ga</td>
<td>23 Ga</td>
</tr>
<tr>
<td><strong>BVI® (OPTIKON)</strong></td>
<td>12-4583</td>
<td>12-4543</td>
<td>12-5545</td>
</tr>
<tr>
<td></td>
<td>23 Ga</td>
<td>25 Ga</td>
<td>25 Ga</td>
</tr>
<tr>
<td><strong>Synergetics®</strong></td>
<td>12-4553</td>
<td>12-4535</td>
<td>12-5535</td>
</tr>
<tr>
<td></td>
<td>23 Ga</td>
<td>25 Ga</td>
<td>25 Ga</td>
</tr>
</tbody>
</table>

* Products in the process of development and certification  
Product design and/or features that do not influence its functionality and main parameters are subject to change.
## DISPOSABLE VITRECTOMY CUTTERS

Help to efficiently cut and aspirate vitreous

### COMING SOON*

<table>
<thead>
<tr>
<th>Surgical system/type of the cutter</th>
<th>Single Cut</th>
<th>Speed/Pressure</th>
<th>Double Cut</th>
<th>Speed/Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcon®, Accurus®; DORC®, Associate®</td>
<td>RV-23AC 23 Ga</td>
<td>Speed: 2000 CPM Pressure: 42 PSI</td>
<td>RV-23BFd 23 Ga</td>
<td>Speed: 10000 CPM Pressure: 42 PSI</td>
</tr>
<tr>
<td></td>
<td>RV-25AC 25 Ga</td>
<td></td>
<td>RV-25BFd 25 Ga</td>
<td></td>
</tr>
<tr>
<td>B&amp;L®, Stellaris®</td>
<td>RV-23BF 23 Ga</td>
<td>Speed: 5000 CPM Pressure: 42 PSI</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>RV-25BF 25 Ga</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>RV-27BF 27 Ga</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oertli®, OS4®</td>
<td>RV-23OS 23 Ga</td>
<td>Speed: 5000 CPM Pressure: 35-37 PSI</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>RV-25OS 25 Ga</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>RV-27OS 27 Ga</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BVI® (OPTIKON); R-Evo Smart® CR</td>
<td>RV-23OB 23 Ga</td>
<td>Speed: 5000 CPM Pressure: 30 PSI</td>
<td>RV-23OBd 23 Ga</td>
<td>Speed: 10000 CPM Pressure: 30 PSI</td>
</tr>
<tr>
<td></td>
<td>RV-25OB 25 Ga</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>RV-27OB 27 Ga</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BVI® (OPTIKON); R-Evolution®; CRZEISS®, VISALIS®</td>
<td>RV-23OZ 23 Ga</td>
<td>Speed: 6000 CPM Pressure: 43 PSI</td>
<td>RV-23OZd 23 Ga</td>
<td>Speed: 12000 CPM Pressure: 43 PSI</td>
</tr>
<tr>
<td></td>
<td>RV-25OZ 25 Ga</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>RV-27OZ 27 Ga</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DORC®, EVA®</td>
<td>RV-23GC 23 Ga</td>
<td>Speed: 8000 CPM Pressure: 42 PSI</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>RV-25GC 25 Ga</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>RV-27GC 27 Ga</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Products in the process of development and certification

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COMING SOON*

**PFO LIQUID**

**VitreoOcta**
Perfluorooctane liquid for vitreoretinal surgery (PFO)

An ideal intraoperative tool to improve the efficiency and safety of vitreoretinal surgical procedures.

**Indicated to treat:**
- Retinal detachments
- Giant tears
- Ocular trauma
- Removal of dislocated lenses and foreign bodies from vitreous

**Product features:**
- High vapor pressure and specific gravity
- Low surface tension
- Low viscosity
- Non-toxic, absolutely safe

---

**EYE DYES**

**VitreoBlue**
Trypan blue 0.15% solution for ILM and ERM staining during vitreoretinal surgery

- Facilitates tissue removal and reduces the risk of retinal damage
- Distinguishes between new and old PVR membranes
- Helps to identify and facilitate removal of posterior hyaloids remnants in tractional diabetic retinopathy

**VitreoBluePlus**
Brilliant Blue Solution 0.05 % for ILM staining during vitreoretinal surgery

- Selectively stains and visualizes Internal Limiting Membrane
- Facilitates complete peeling during retinal surgery to repair macula holes
- Reduces the risk of retinal damage

---

*Products in the process of development and certification
Product design and/or features that do not influence its functionality and main parameters are subject to change.*
### VITREORETINAL INSTRUMENTS AND CONSUMABLES

#### FEATURED SETS 23/25 GAUGE

#### REUSABLE SET, 23 GA

<table>
<thead>
<tr>
<th>Reference</th>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-0007</td>
<td>1</td>
<td>Universal Instrument Handle, One Finger Control</td>
</tr>
<tr>
<td>12-0037</td>
<td>2</td>
<td>Universal Instrument Handle, Squeeze Model, Two Fingers Control</td>
</tr>
<tr>
<td>12-202-23</td>
<td>3</td>
<td>Vertical Vitreoretinal Scissors, 23 Ga, Tip only</td>
</tr>
<tr>
<td>12-209-23</td>
<td>4</td>
<td>Curved Subretinal Scissors, 23 Ga, Tip only</td>
</tr>
<tr>
<td>12-410-23</td>
<td>5</td>
<td>Eckardt End-Gripping Forceps, 23 Ga, Tip only</td>
</tr>
<tr>
<td>12-4013</td>
<td>6</td>
<td>End-Graping Forceps, Expanded Space between Branches, 23 Ga, Tip only</td>
</tr>
<tr>
<td>12-301-23</td>
<td>7</td>
<td>Vitreoretinal Forceps with a Sandblasted Platform, 23 Ga, Tip only</td>
</tr>
<tr>
<td>12-304-23</td>
<td>8</td>
<td>Vitreoretinal Forceps with a “Crocodile” Platform, 23 Ga, Tip only</td>
</tr>
</tbody>
</table>

*not shown

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#### DISPOSABLE SET, 23 GA

<table>
<thead>
<tr>
<th>Reference</th>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-5229</td>
<td>1</td>
<td>Disposable One Step Trocar System 23 Ga, 6 per Box</td>
</tr>
<tr>
<td>12-561H</td>
<td>2</td>
<td>Backflush Instrument with Soft Tip, 23 Ga, 6 per Box</td>
</tr>
<tr>
<td>12-7523</td>
<td>3</td>
<td>Disposable Diamond Dusted Retractable ILM Elevator, 23 Ga, 5 per Box</td>
</tr>
<tr>
<td>12-209-23D</td>
<td>4</td>
<td>Disposable Curved Scissors, 23 Ga, Stainless Steel, 6 per Box</td>
</tr>
<tr>
<td>12-209-23DP*</td>
<td>5</td>
<td>Disposable Vitreoretinal Curved Scissors, 23 Ga, Plastic Handle 360°, 6 per Box</td>
</tr>
<tr>
<td>12-410-23D</td>
<td>6</td>
<td>Disposable Eckardt End-Gripping Forceps, 23 Ga, Stainless Steel, 6 per Box</td>
</tr>
<tr>
<td>12-410-23DP*</td>
<td>7</td>
<td>Disposable Vitreoretinal Eckardt End-Gripping Forceps, 23 Ga, Plastic Handle 360°, 6 per Box</td>
</tr>
<tr>
<td>12-304-23DP</td>
<td>8</td>
<td>Disposable Vitreoretinal Gripping Forceps with a “Crocodile” Platform, 23 Ga, Plastic Handle 360°, 6 per Box</td>
</tr>
<tr>
<td>12-304-23D*</td>
<td>9</td>
<td>Disposable Gripping Forceps with a “Crocodile” Platform, 23 Ga, Stainless Steel, 6 per Box</td>
</tr>
</tbody>
</table>

---

12-325-23 | 9 | Pick Vitreoretinal Forceps, 23 Ga, Tip only |
12-321-23 | 10 | Spring Gripping Forceps, 23 Ga, Tip only |
12-6000   | 11 | Titanium Backflush Handle, Active Aspiration |
12-5611   | 12 | Soft Tip Cannula, 23 Ga, Disposable, 5 per Box |
13-097-23 | 13 | Delicate Membrane Pick, 23 Ga |
12-573-23 | 14 | Reusable Trocar System, 23 Ga |
SmartSil5000 | 15 | Purified Silicone Oil for Retinal Endotamponade, 5000 cSt |
12-RTUB.2 | 16 | Reusable Tubing System for the Infusion Of Silicone Oil, Caprolone Adapter Adjustable To DORC® Associate™, EVA®, EVA NEXUS®, Alcon® Constellation®, Accurus™ Plastic Sterilization Tray with Silicone Finger Mat, Double Level, Extra Large |

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*not shown

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12-5229 Disposable One Step Trocar System 23 Ga, 6 per Box
12-561H Backflush Instrument with Soft Tip, 23 Ga, 6 per Box
12-7523 Disposable Diamond Dusting Retractable ILM Elevator, 23 Ga, 5 per Box
12-209-23D Disposable Curved Scissors, 23 Ga, Stainless Steel, 6 per Box
12-209-23DP Disposable Vitreoretinal Curved Scissors, 23 Ga, Plastic Handle 360°, 6 per Box
12-410-23D Disposable Eckardt End-Gripping Forceps, 23 Ga, Stainless Steel, 6 per Box
12-410-23DP Disposable Vitreoretinal Eckardt End-Gripping Forceps, 23 Ga, Plastic Handle 360°, 6 per Box
12-304-23DP Disposable Vitreoretinal Gripping Forceps with a “Crocodile” Platform, 23 Ga, Plastic Handle 360°, 6 per Box
12-304-23D Disposable Gripping Forceps with a “Crocodile” Platform, 23 Ga, Stainless Steel, 6 per Box
12-325-23 Pick Vitreoretinal Forceps, 23 Ga, Tip only
12-321-23 Spring Gripping Forceps, 23 Ga, Tip only
12-6000 Titanium Backflush Handle, Active Aspiration
12-5611 Soft Tip Cannula, 23 Ga, Disposable, 5 per Box
13-097-23 Delicate Membrane Pick, 23 Ga
12-573-23 Reusable Trocar System, 23 Ga
SmartSil5000 Purified Silicone Oil for Retinal Endotamponade, 5000 cSt
SmartSil1000 Purified Silicone Oil for Retinal Endotamponade, 1000 cSt
RLC-23AZ Disposable Laser Probe, Curved, 23 Ga - SMA 905 Connector: Alcon®, Zeiss®, COHERENT®, Ellex®, 6 per box
12-5780 Disposable Wide Angle Fiber Optic Probe, 23 Ga - B&L®, 6 per box
12-4573 Disposable Chandelier Fiber Optic Probe, 23 Ga - B&L®, 6 per box
RV-23BFd Disposable Posterior Vitrectomy Cutter, Double Cut, 23 Ga, 6 per box

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*not shown

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30 Product design and/or features that do not influence its functionality and main parameters are subject to change.
VITREORETINAL INSTRUMENTS AND CONSUMABLES

REUSABLE SET, 25 GA

<table>
<thead>
<tr>
<th>Reference</th>
<th>Key</th>
<th>Description</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-001T</td>
<td>1</td>
<td>Universal Instrument Handle, One Finger Control</td>
<td><img src="1" alt="Image" /></td>
</tr>
<tr>
<td>12-003T</td>
<td>2</td>
<td>Universal Instrument Handle, Squeeze Model, Two Fingers Control</td>
<td><img src="2" alt="Image" /></td>
</tr>
<tr>
<td>12-2029</td>
<td>3</td>
<td>Vertical Vitreoretinal Scissors, 25 Ga, Tip only</td>
<td><img src="3" alt="Image" /></td>
</tr>
<tr>
<td>12-2099</td>
<td>4</td>
<td>Curved Subretinal Scissors, 25 Ga, Tip only</td>
<td><img src="4" alt="Image" /></td>
</tr>
<tr>
<td>12-410-25</td>
<td>5</td>
<td>Eckardt End-Gripping Forceps, 25 Ga, Tip only</td>
<td><img src="5" alt="Image" /></td>
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<tr>
<td>12-420-25</td>
<td>6</td>
<td>Asymmetrical End-Gripping Forceps, 25 Ga, Tip Only</td>
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<tr>
<td>12-3029</td>
<td>7</td>
<td>Vitreoretinal Scissors with a Sandblasted Platform, 25 Ga, Tip only</td>
<td><img src="7" alt="Image" /></td>
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<tr>
<td>12-304-25</td>
<td>8</td>
<td>Vitreoretinal Forceps with a &quot;Crocodile&quot; Platform, 25 Ga, Tip only</td>
<td><img src="8" alt="Image" /></td>
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*Not shown

DISPOSABLE SET, 25 GA

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<tr>
<th>Reference</th>
<th>Key</th>
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<tr>
<td>12-5244</td>
<td>1</td>
<td>Disposable One Step Trocar System 25 Ga, 6 per Box</td>
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<tr>
<td>12-5152H</td>
<td>2</td>
<td>Backflush Instrument with Soft Tip, 25 Ga, 6 per Box</td>
<td><img src="2" alt="Image" /></td>
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<td>12-7525</td>
<td>3</td>
<td>Disposable Diamond Dusted Retractable ILM Elevator, 25 Ga, 5 per Box</td>
<td><img src="3" alt="Image" /></td>
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<tr>
<td>12-209-25D</td>
<td>4</td>
<td>Disposable Curved Scissors, 25 Ga, Stainless Steel, 6 per Box</td>
<td><img src="4" alt="Image" /></td>
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<tr>
<td>12-209-25DP*</td>
<td>5</td>
<td>Disposable Vitreoretinal Curved Scissors, 25 Ga, Plastic Handle 360°, 6 per Box</td>
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<tr>
<td>12-410-25D</td>
<td>6</td>
<td>Disposable Eckardt End-Gripping Forceps, 25 Ga, Stainless Steel, 6 per Box</td>
<td><img src="6" alt="Image" /></td>
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<tr>
<td>12-410-25DP*</td>
<td>7</td>
<td>Disposable Vitreoretinal Eckardt End-Gripping Forceps, 25 Ga, Plastic Handle 360°, 6 per Box</td>
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<tr>
<td>12-304-25DP*</td>
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<td>Disposable Vitreoretinal Gripping Forceps with a &quot;Crocodile Platform&quot;, 25 Ga, Plastic Handle 360°, 6 per Box</td>
<td><img src="8" alt="Image" /></td>
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<tr>
<td>12-304-25D*</td>
<td>9</td>
<td>Disposable Gripping Forceps with a &quot;Crocodile&quot; Platform, 25 Ga, Stainless Steel, 6 per Box</td>
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*Not shown

<table>
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<tr>
<td>12-3259</td>
<td>9</td>
<td>Pick Vitreoretinal Forceps, 25 Ga, Tip only</td>
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<td>12-6000</td>
<td>10</td>
<td>Titanium Backflush Handle, Active Aspiration</td>
<td><img src="2" alt="Image" /></td>
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<tr>
<td>12-5152</td>
<td>11</td>
<td>Soft Tip Cannula, 25 Ga, Disposable, 5 per Box</td>
<td><img src="3" alt="Image" /></td>
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<tr>
<td>12-0979</td>
<td>12</td>
<td>Delicate Membrane Pick, 25 Ga</td>
<td><img src="4" alt="Image" /></td>
</tr>
<tr>
<td>12-5173-25</td>
<td>13</td>
<td>Reusable Trocar System, 25 Ga</td>
<td><img src="5" alt="Image" /></td>
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<tr>
<td>SmartSil5000</td>
<td>14</td>
<td>Purified Silicone Oil for Retinal Endotamponade, 5000 cSt</td>
<td><img src="6" alt="Image" /></td>
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<tr>
<td>12-RTUB-2</td>
<td>15</td>
<td>Reusable Tubing System for the Infusion Of Silicone Oil, Caprolone Adapter Adjustable To DORC® Associate™, EVA®, EVA NEXUS®, Alcon® Constellation™, Accurus™ Plastic Sterilization Tray with Silicone Finger Mat, Double Level, Extra Large</td>
<td><img src="7" alt="Image" /></td>
</tr>
</tbody>
</table>
HANDLING OF VITREORETINAL AND MICROINCISIONAL INSTRUMENTS

We at RUMEX guarantee our instruments against manufacturing defects, but the lifespan of reusable instruments lies within proper handling and care. To help your instruments preserve their initial conditions, we strongly recommend you to read the instructions below carefully before use.

A common misconception that “stainless steel” or “titanium” have extreme durability and are indestructible is in need of correction; these metals still might be affected by chemical, mechanical, thermal attacks and etc. However, if you are aware of metal characteristics and understand how to handle them, the lifespan of the instruments may be extended.

A particular care should be taken after microsurgical instruments as they have very delicate working tips. These instructions are being general recommendations, cleaning guidelines of the solutions, equipment manufacturer and your institution, especially those regarding temperature, time of exposure and concentration, should be observed.

APPLICATION

RUMEX Instruments (ophthalmic scissors and forceps for vitreoretinal and microincisional surgery) are designed for various applications in ophthalmic surgery. It is essential that the instrument is cleaned and sterilized before initial use and after each surgery, following as outlined in this instruction brochure.

CARE AND HANDLING

The intraocular tips have a delicate precision mechanism inside. Intraocular fluids will enter this mechanism during surgery. Proteins may also accumulate inside of the mechanism. If these fluids are not promptly and properly cleaned out, it will lead to corrosion or clogs and the possibility of instrument malfunction. Ensure the cleaning procedure is implemented after each surgery — warranty shall not extend to instruments that have been improperly handled. One-piece and two-piece vitreoretinal instruments are cleaned by use of special adapter and cannula.

INSPECTION

It is essential that the instrument is inspected before use. Please conduct this inspection under a microscope or magnification lens. If a problem is detected, notify us immediately. Once the instrument is examined and accepted, IT SHOULD BE CLEANED BEFORE PLACING IT IN THE STERILIZATION TRAY.

Stage 1: PRE-STERILIZATION CLEANING

Never skip this cleaning stage as residues on instruments such as care agents and the ones of package materials may form stains and depositions in course of sterilization.

It is imperative to follow the rules:
1. As much moisture as possible must be eliminated from all instrument’s parts since moisture promotes corrosion.
2. Only detergents and cleaners specially designed for use on surgical stainless steel or titanium instruments are acceptable for use in all the cleaning process. Cleaning guidelines of the solution manufacturer and your institution should be observed.
3. Thorough cleaning immediately after use is essential for the longevity of the instrument. We recommend that the established surgical instrument cleaning procedures of your institution be followed using these instructions as a guideline.
4. The cleaning/disinfecting solutions should be exchanged daily.

WARNING! Never use abrasive powders or steel wool to remove stubborn stains – these can damage the superfine finish of an instrument and can actually help cause corrosion of stainless instruments.

CLEANING OF TWO-PIECE VITREORETINAL INSTRUMENTS
1. Unscrew the tip from the handle, then attach flushing adapter 12-000T.
2. Flush the tip with distilled or demineralized water by connecting a syringe filled with water to adapter.
3. Flush the tip with alcohol - this will remove the water and facilitate drying.
4. Dry the tip by forcing one or two syringes full of air through tip. Pressurized air is recommended, as it flushes out debris and fluid more efficiently than syringe forced air. Thoroughly dry handle, tip and cup.
5. Handle should be soaked in distilled or demineralized water for two minutes.
6. Dry with surgical sponge.
7. Lubricate joints in handle with instrument milk and work the mechanism by pressing the key.

CLEANING OF ONE-PIECE VITREORETINAL INSTRUMENTS

1. Put the instrument into PTFE protector (provided).
2. Soak it in the soap solution at temperature of 50°C (122°F) and keep it there for 15 min.
3. Wash the handle with brush and cotton/gauze pad.
4. Take the instrument out of soap bath and wash it under streaming water for 3 min.
5. Rinse the instrument with distilled or demineralized water.
6. After that flush the instrument with alcohol solution. It will remove water and contribute to drying.
7. Next, adjust the cannula on the luer of the syringe and fill the syringe with distilled or demineralized water.
8. A tube of the cannula then should be inserted into the port, situated at the base of the barrel near the colored wheels.
9. Flush the tube of the instrument and the tip with distilled or demineralized water by forcing syringe plunger. Then repeat the procedure with use of alcohol solution.
10. Finally, blow the air inside the tube by forcing it from the syringe into the port of the instrument. Pressurized air is recommended, as it flushes out debris and fluid more efficiently than syringe forced air.

WARNING! DO NOT apply ultrasonic cleaning to vitreoretinal and microincisional tips.

RECOMMENDED PRODUCTS FOR CARE AND CLEANING

<table>
<thead>
<tr>
<th>Product name, Manufacturer</th>
<th>Description</th>
<th>Composition</th>
<th>Compatibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEKUSEPT Activ, Ecolab Deutschland GmbH</td>
<td>Disinfectant for automatic and manual processing of tools</td>
<td>≥ 30% oxygen-based bleaching agents; &lt;5% non-ionic surfactants, phosphonates; 50% sodium perborate monohydrate; 25% tetraacetyl/ethylene diamine; active antimicrobial components, nonionic surfactants, corrosion inhibitor; pH of 2% solution: 7.4-8.4</td>
<td>Compatible. Discoloration of metal, residual detergent or water film formation may occur.</td>
</tr>
<tr>
<td>Neodisher MediClean Forte, Dr. Weigert GmbH &amp; Co.</td>
<td>Detergent for automatic and manual cleaning of surgical instruments. Prevents reprecipitation of protein residues.</td>
<td>&lt; 5% non-ionic and anionic surfactants; enzymes; pH: 10.4-10.8</td>
<td>Compatible. Discoloration of metal, residual detergent or water film formation may occur.</td>
</tr>
</tbody>
</table>
Fully demineralized water for rinsing and correct loading must be used to prevent staining!

WARNING! Hydrogen peroxide H2O2 may discolor titanium instruments.

The color of titanium instruments may change due to development of different properties of oxide layers. Such discoloration does not bring a safety risk, as well as water stains on the surface of the instruments. They don’t affect the biocompatibility, functionality, and lifetime of the instruments. However, discoloration may affect the visual inspection of the tools (e.g. determining residual dirt). To prevent the color change of titanium instruments, use only neutral or mild alkaline cleaning agents. While using them, do not exceed a temperature of 70 °C (158 °F).

LUBRICATION
Moving parts and working mechanisms of the Rumex instruments should be lubricated occasionally with a medical grade instrument lubricant (especially after an ultrasonic bath) to ensure the smooth operation of the working mechanism. The lubricant must be biocompatible, suitable for steam sterilization and vapor-permeable. No silicone oil should be applied. The paraffin/white oil based lubricants are allowed to be used.

The following products are recommended - Neodisher IP Spray, Miltex-Integra Spray Lube Instrument Lubricant, Sterilit® i lubricant.

After cleaning process let the instruments cool down to room temperature prior to their actuation, as otherwise metal abrasion may develop when the details of the tools rub against each other. This may destroy the instruments’ functionality.

The recommended directions of the instrument lubricant manufacturer and your institution should be observed.

Stage 3: STERILIZATION
Stainless steel and titanium instruments can be sterilized via steam autoclaving, chemical disinfectants, ethylene oxide gas, or even dry hot air. Gas and dry chemical sterilization are the best methods for stainless steel instruments, but it takes a lengthy time period to accomplish the desired result. The most practical method of sterilization is heat or steam, which require less time, however, these methods can be damaging to delicate instruments. Please, be sure that you and the members of your staff have read and understood the instructions supplied by the manufacturer of your particular sterilizer.

STERILIZATION CYCLES
Finally, the instrument should be sterilized prior to the next surgical procedure.

WARNING! Only clean and disinfected products can be sterilized.

For lumen instruments (e.g. tips, cannulas) the gravity procedure is not suitable!
RUMEX instruments can be sterilized using any of the following methods:

### 100% ETO cycles

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concentration ETO</td>
<td>850±50mg/l</td>
</tr>
<tr>
<td>Temperature</td>
<td>37-47°C (99-117°F)</td>
</tr>
<tr>
<td>Exposure time</td>
<td>3–4 hours</td>
</tr>
<tr>
<td>Humidity</td>
<td>70% RH minimum</td>
</tr>
<tr>
<td>Drying Cycle</td>
<td>1 hour</td>
</tr>
</tbody>
</table>

**WARNING!** Sterilization steam must not contain any impurities. Autoclave drying cycle should be used to avoid oxidation.

Gas plasma sterilization is not recommended as delicate instruments might be physically damaged when exposed to low pressure. The above-mentioned sterilization cycles represent the industry standards and should be capable of producing a sterile device. Due to variations in sterilization equipment and device bioburden in clinical use, RUMEX International Co. is not able to provide specific cycle parameters. It is the responsibility of each user to perform the validation and verification of the sterilization cycle to ensure an adequate sterility assurance level for our products.

**WARNING!** Follow the guidelines of the processing times. The rapid sterilization process should be reserved for emergency processing only and should not be used for routine instrument sterilization. Longer sterilization period and higher temperatures can lead to premature aging of instruments.

**AT THE END OF THE SURGICAL DAY**

Instruments should be washed clean of all residues, dried and inspected after each use. Be sure to inspect every microsurgical instrument at the end of your surgical day. Please conduct this inspection under a microscope or magnification lens. If a damaged instrument is detected, repair or replace it. Washing, drying and inspecting the instrument under magnification helps to ensure that the instrument is kept in proper condition for the next surgical procedure.

**STORAGE**

Surgical instruments should be stored in the sterilizing trays of proper size lined with soft silicone mats. Instruments should not touch each other. We recommend using safety protectors made of PTFE, which are autoclavable. The photos below illustrate the way to fix a tip in a protector.

Please insert the tips into PTFE protectors as shown in the picture:

1. Match the nut indicating the gauge with the hub, press the tip gently. Make sure the branches do not touch the protector.
2. The tips in their final position — safely fixed by the protector.

Note: the tips should be sterilized in the protector to avoid any contact with other instruments.

**WARNING!** Never store the instruments close to the chemicals.