



RUMEX INSTRUMENTS FOR VITREORETINAL SURGERY

2022



AFFORDABLE. RELIABLE. PRECISE.

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 our instruments, and high quality materials they are composed of, will ensure that every surgical manipulation is gentle and precise.

Our vitreoretinal product line is a result of professional experience and manufacturing skills accumulated over many years. Following the latest trends of vitreoretinal surgery, we launched lines of 27 Ga instruments and disposable products for the posterior segment.

We are pleased to introduce RUMEX FLUSHING SYSTEM as one of the latest innovative achievements that allows for efficient cleaning without disassembling and increases the lifespan of a tool.

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 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 100 countries by now, and should you be interested to become a distributor of RUMEX products, please contact us for further details.



VITREORETINAL INSTRUMENTS AND CONSUMABLES

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A VARIETY OF OPTIONS FOR VITREORETINAL SURGERY

REUSABLE

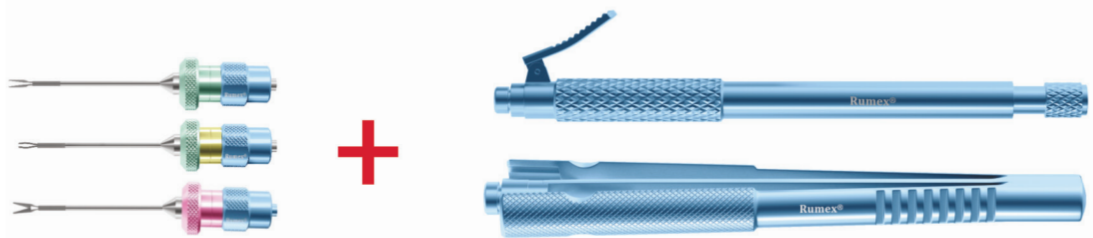
**EASY
TO CLEAN**

Option 1. Two-Piece Instruments

Universal Handle + Interchangeable Tips*

DURABLE **Ti** TITANIUM HANDLE **SS** STAINLESS STEEL TIPS

Money-Wise Solution



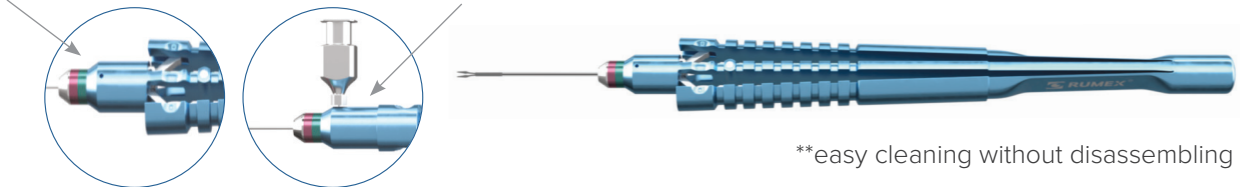
*completely detachable for most effective cleaning

Option 2. One-Piece Instruments

with Innovative RUMEX Flushing System**

Flushing port

Flushing cannula



**easy cleaning without disassembling

DISPOSABLE

**READY
FOR USE**

Option 1. All Stainless Steel Instruments*

Precise performance and instant tactile control

STERILE

2

**6
PER
BOX**

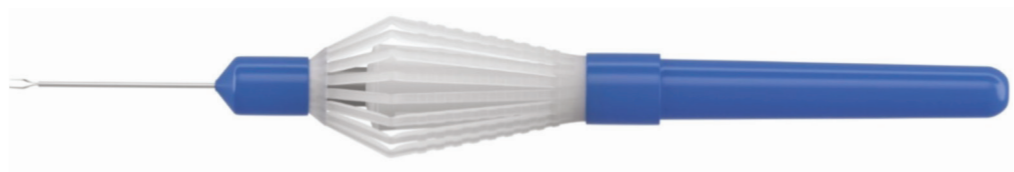
**SHELF LIFE
3 YEARS**



Option 2. Ergonomic 360-Degree Handle**

Enhanced utility due to rotatable squeeze handle

**SHELF LIFE
5 YEARS**



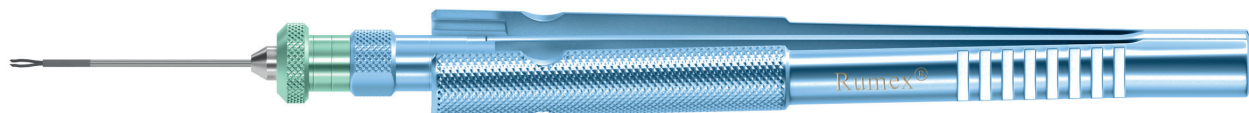
*Not available in US

**Not available in Europe, US

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

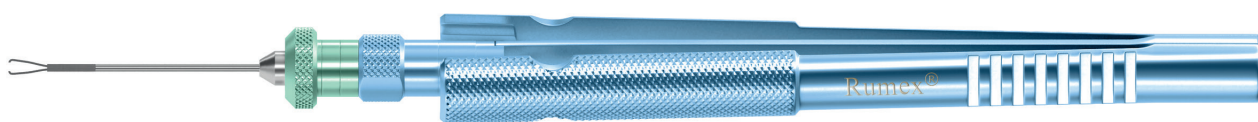


Universal End-Grasping Forceps allow the performing of ILM peeling and safe removal of epiretinal membranes. Asymmetrical design of branches provides for ideal maneuverability and excellent visualization of the grasped tissue.



| | | |
|-----------|-------|----------------|
| 12-420-23 | 23 Ga | POPULAR |
| 12-420-25 | 25 Ga | POPULAR |
| 12-420-27 | 27 Ga | |
| Tip only | | |

End-Grasping Forceps

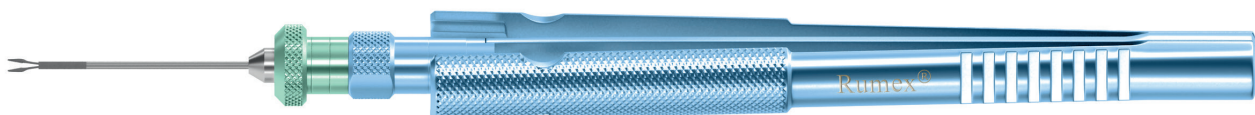


The special design of the tips promotes delicate, precise and safe ILM peeling. The strengthened jaws ensure enhanced gripping power. Expanded space between branches contributes to greater visualization of the grasped membrane in the macular area.



| | | |
|---------------------|-------|--|
| MOST POPULAR | | |
| 12-4013 | 23 Ga | |
| Tip only | | |

Gripping Forceps with a 'Crocodile' Platform



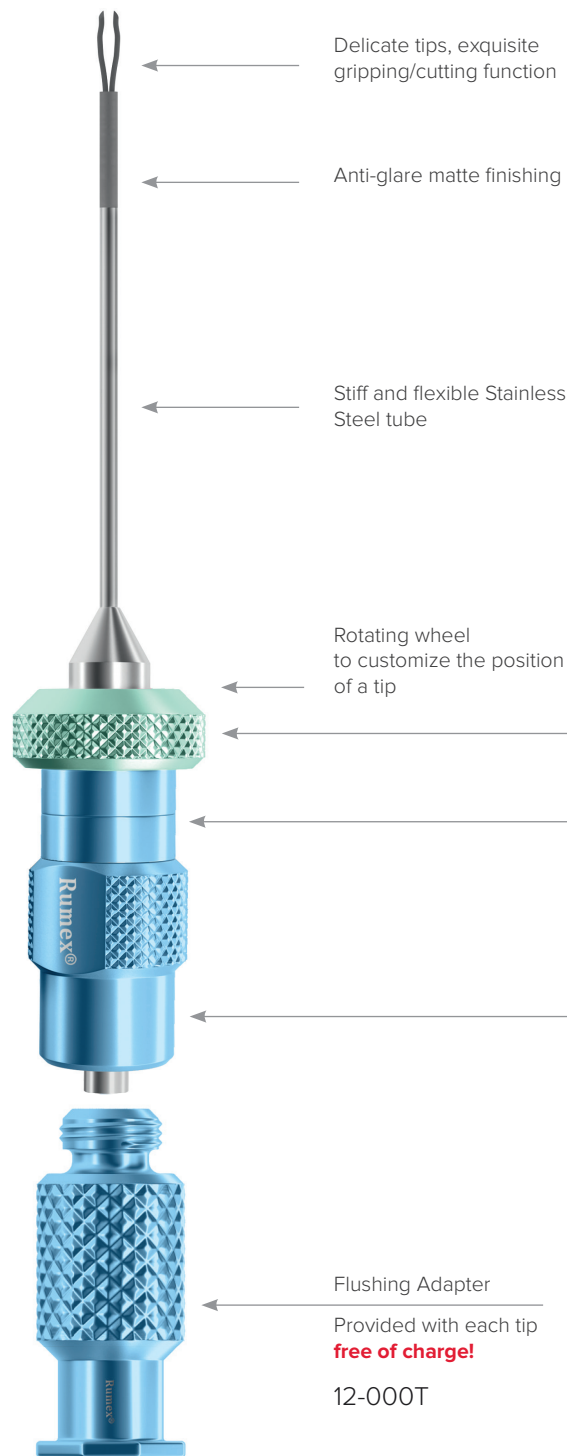
Designed for the removal of epiretinal membranes. Blunt, atraumatic serration intensifies grasping capacity and prevents tissue shredding.



| | | |
|-----------|-------|---------------------|
| 12-304 | 20 Ga | MOST POPULAR |
| 12-304-23 | 23 Ga | |
| 12-304-25 | 25 Ga | |
| Tip only | | |

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 | | |
|------------------------|--------|------|
| Gauge | (inch) | (mm) |
| 19 Ga | 0.043 | 1.10 |
| 20 Ga | 0.036 | 0.90 |
| 21 Ga | 0.032 | 0.80 |
| 22 Ga | 0.028 | 0.70 |
| 23 Ga | 0.025 | 0.63 |
| 25 Ga | 0.020 | 0.50 |
| 27 Ga | 0.016 | 0.40 |

Color Code System**

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

| Function | |
|---------------------------------------|-------------------|
| Pink | Scissors |
| Green | Forceps |
| Gauge | |
| Grey | 17 |
| Pink | 20 |
| Green | 23 |
| Blue | 25 |
| Yellow | 27 |
| COMPATIBILITY (adjustable to handles) | |
| Pink | 12-001T |
| Blue | 12-001T / 12-003T |

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

HANDLES FOR VITREORETINAL INSTRUMENTS*

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)

**MOST
POPULAR**

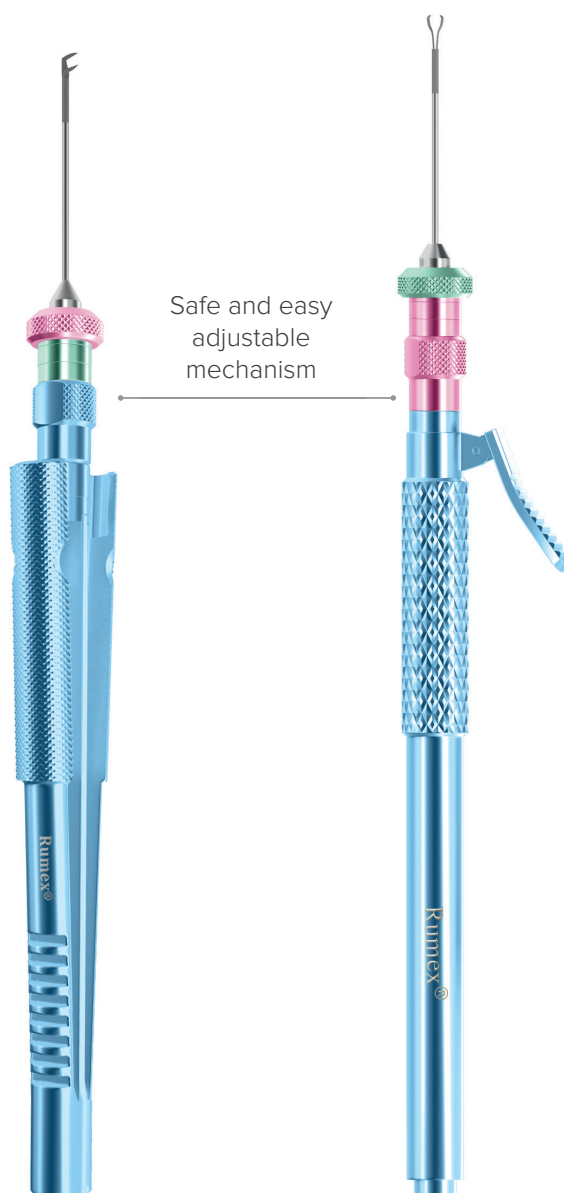


Ergonomic Model

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



**MOST
POPULAR**

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!

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

SCISSORS*

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



COMPATIBLE
WITH 12-003T ONLY

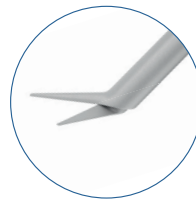


Vertical Scissors

70°
Sharp tips

12-202 20 Ga
12-202-23 23 Ga

MOST
POPULAR



Horizontal Scissors

55°

12-206** 20 Ga



Klaus Lucke Retinotomy Scissors

With bulbous tip

12-2020 20 Ga



Horizontal Scissors

Angled
45°

Short blades (1.70 mm
in the closed position)

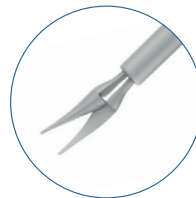
12-2085 20 Ga



Vertical Scissors

45°

12-2029 25 Ga



Curved Subretinal Scissors

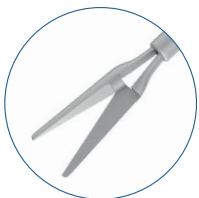
Curvature radius 12.00 mm

12-209 20 Ga

12-209-23 23 Ga

12-2099 25 Ga

MOST
POPULAR



Straight Scissors

Blunt tips

12-211 20 Ga

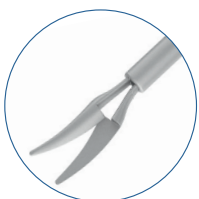


Horizontal Scissors

Angled
45°

With illumination

12-2084 20 Ga



Side Curved Scissors

12-215 20 Ga

*Tips are sold separately!

** Compatible with Universal Handle 12-001T Only

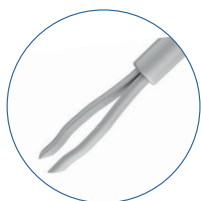
Product design and/or features that do not influence its functionality and main parameters are subject to change

INTERNAL LIMITING MEMBRANE (ILM) FORCEPS

Delicate branches for ILM peeling



ILM



Asymmetrical End-Grasping Forceps

Standard tube, 28.00 mm

12-420-23 23 Ga **POPULAR**
12-420-25 25 Ga **POPULAR**
12-420-27 27 Ga

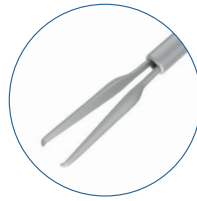
Designed for myopic eyes.
Elongated tube, 30.00 mm

12-4202-23 23 Ga

Enhanced visualization!



ILM



Eckardt End-Gripping Forceps

12-410 20 Ga
12-410-23 23 Ga
12-410-25 25 Ga
12-410-27 27 Ga

**MOST
POPULAR**

ILM



Tano Asymmetrical End-Gripping Forceps

12-411 20 Ga
12-411-23 23 Ga
12-411-25 25 Ga

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.

ILM

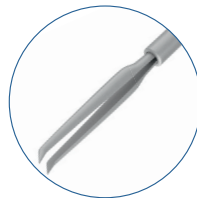


MOST POPULAR End-Grasping Forceps

Expanded space between branches

12-4013 23 Ga

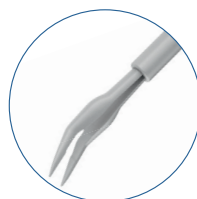
Enhanced visualization!



Tanaka Maculorhexis Forceps

12-414 23 Ga

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.



Kawai ILM Forceps

12-415 25 Ga

*Tips are sold separately!

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

EPIRETINAL FORCEPS*

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



ERM ~~12-301-23D~~ ~~12-301-25D~~

Gripping Forceps
 With a sandblasted platform

| | |
|-----------|-------|
| 12-301 | 20 Ga |
| 12-301-23 | 23 Ga |
| 12-3019 | 25 Ga |

MOST POPULAR

ERM

End-Gripping Forceps
 With serrated micro jaws

| | |
|--------|-------|
| 12-400 | 20 Ga |
|--------|-------|

ERM

Lucke Multipurpose Forceps
 12-3044 20 Ga

End-Gripping Forceps
 With extended gripping area at the end of the tip

| | |
|---------|-------|
| 12-401 | 20 Ga |
| 12-4012 | 23 Ga |

ERM ~~12-304-23D~~ ~~12-304-23D_a~~ ~~12-304-25D~~ ~~12-304-25D_a~~

Gripping Forceps
 With a "crocodile" platform

| | |
|-----------|-------|
| 12-304 | 20 Ga |
| 12-304-23 | 23 Ga |
| 12-304-25 | 25 Ga |

MOST POPULAR

End-Gripping Forceps
 With nail-shaped jaws

| | |
|-----------|-------|
| 12-402 | 20 Ga |
| 12-402-23 | 23 Ga |
| 12-4089 | 25 Ga |

POPULAR

Designed for the removal of epiretinal membranes. Blunt, atraumatic serration intensifies grasping capacity and prevents tissue shredding.

*Tips are sold separately!

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

PICK FORCEPS*

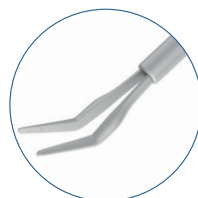


Pick Forceps

12-325 20 Ga
12-325-23 23 Ga
12-3259 25 Ga

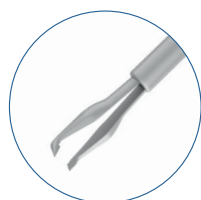


**MOST
POPULAR
POPULAR**



Diamondized
Angled Gripping
Forceps

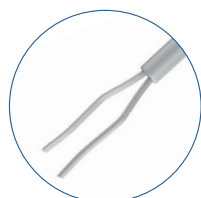
12-303 20 Ga



De Juan
Pick Forceps

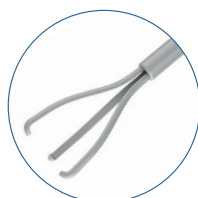
12-413 20 Ga

FOREIGN BODY REMOVAL FORCEPS*



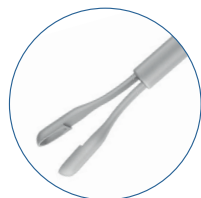
Avci Foreign
Body Forceps

12-412*** 17 Ga



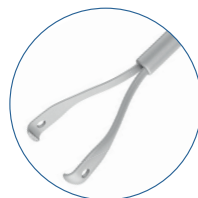
Spring Gripping
Forceps

12-321** 20 Ga
12-321-23*** 23 Ga **POPULAR**



Vitreoretinal
Forceps

With cup jaws
12-313** 20 Ga



Stolyarenko
Forceps

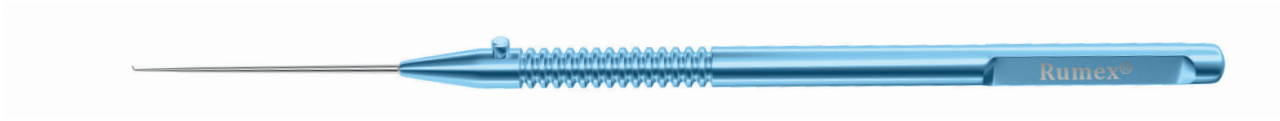
For large foreign bodies
12-335** 20 Ga **POPULAR**

*Tip only. Handles are sold separately.

** Compatible with Universal Handle 12-001T only

*** Compatible with Universal Handles 12-001T and 12-003T

MEMBRANE INSTRUMENTS



Delicate Membrane Pick

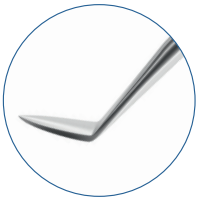
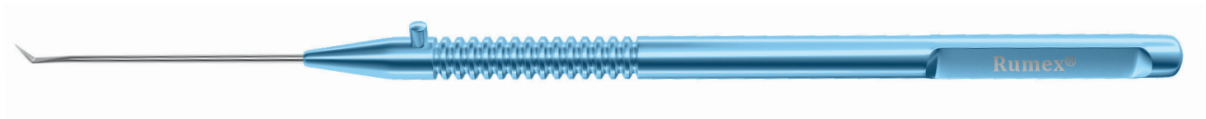
13-097-23 23 Ga
 13-0979 25 Ga
 13-097-27 27 Ga

**MOST
 POPULAR**



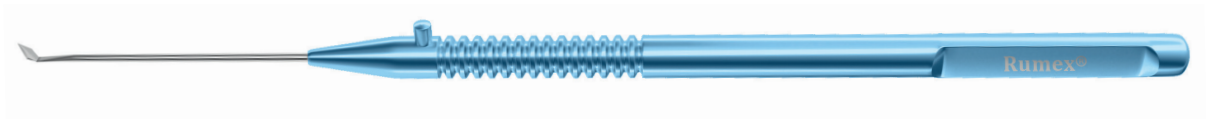
Membrane Scratcher

13-092 20 Ga



Ogura PVD Spatula

13-1081-23 23 Ga



BRVO Knife

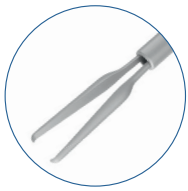
Designed for performing a lateral CRVO incision.

13-1091-23 23 Ga

23 GAUGE INSTRUMENTS*



ILM



MOST POPULAR



Eckardt End-Gripping Forceps

12-410-23 23 Ga



Tano Asymmetrical End-Gripping Forceps

12-411-23 23 Ga



POPULAR Asymmetrical End-Grasping Forceps

12-420-23 23 Ga

Enhanced visualization!



Asymmetrical End-Grasping Forceps

Designed for myopic eyes. Elongated tube, 30.00 mm

12-4202-23 23 Ga

Enhanced visualization!

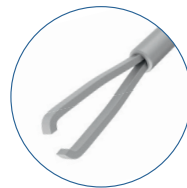
MOST POPULAR

End-Grasping Forceps

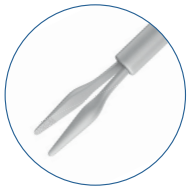
Expanded space between branches

12-4013 23 Ga

Enhanced visualization!



ERM



MOST POPULAR



Gripping Forceps

With a sandblasted platform

12-301-23 23 Ga



MOST POPULAR



Gripping Forceps

With a "crocodile" platform

12-304-23 23 Ga

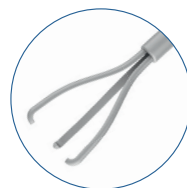


MOST POPULAR

Vertical Scissors

70°
Sharp tips

12-202-23 23 Ga



POPULAR

Spring Gripping Forceps

12-321-23 23 Ga

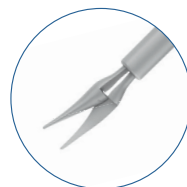


MOST POPULAR



Pick Forceps

12-325-23 23 Ga



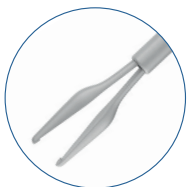
MOST POPULAR



Curved Subretinal Scissors

Curvature radius 12.00 mm

12-209-23 23 Ga



End-Gripping Forceps

With extended gripping area at the end of the tip

12-4012 23 Ga



POPULAR

End-Gripping Forceps

With nail-shaped jaws

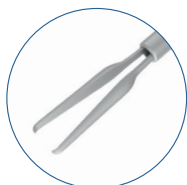
12-402-23 23 Ga

*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



MOST POPULAR



Eckardt End-Gripping Forceps

12-410-25 25 Ga



Tano Asymmetrical End-Gripping Forceps

12-411-25 25 Ga



POPULAR

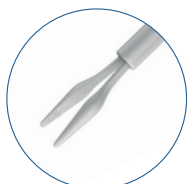
Asymmetrical End-Grasping Forceps

12-420-25 25 Ga

Enhanced visualization!



ERM



Gripping Forceps

With a sandblasted platform

12-3019 25 Ga



MOST POPULAR

Gripping Forceps

With a "crocodile" platform

12-304-25 25 Ga



Vertical Scissors

45°
Sharp tips

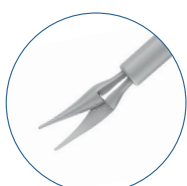
12-2029 25 Ga



POPULAR

Pick Forceps

12-3259 25 Ga



MOST POPULAR

Curved Subretinal Scissors

Curvature radius 12 mm

12-2099 25 Ga



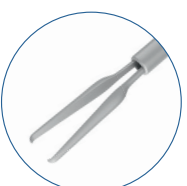
End-Gripping Forceps

With nail-shaped jaws

12-4089 25 Ga

27 GAUGE INSTRUMENTS*

ILM



Eckardt End-Gripping Forceps

12-410-27 27 Ga



Asymmetrical End-Grasping Forceps

12-420-27 27 Ga

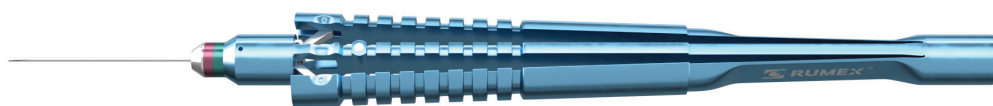
Enhanced visualization!

*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

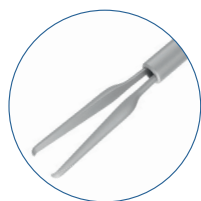
NEW



The tip can be easily cleaned without disassembling.

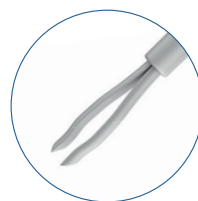
Special flushing cannula is provided for free!

ILM



Eckardt End-Gripping Forceps

12-410-23H 23 Ga
12-410-25H 25 Ga



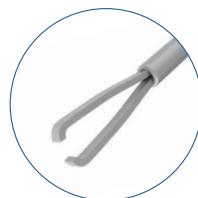
Asymmetrical End-Grasping Forceps

12-420-23H 23 Ga
12-420-25H 25 Ga



Tano Asymmetrical End-Gripping Forceps

12-411-23H 23 Ga
12-411-25H 25 Ga



End-Grasping Forceps

Expanded space
between branches

12-4013H 23 Ga
12-4013-25H 25 Ga

Enhanced visualization!

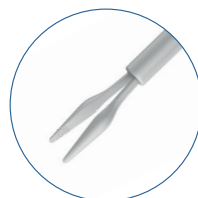
ERM



Gripping Forceps

With a "crocodile" platform

12-304-23H 23 Ga
12-304-25H 25 Ga



Gripping Forceps

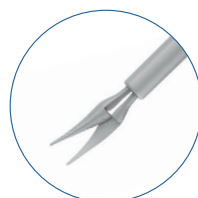
With a sandblasted platform

12-301-23H 23 Ga
12-301-25H 25 Ga



Pick Forceps

12-325-23H 23 Ga
12-325-25H 25 Ga

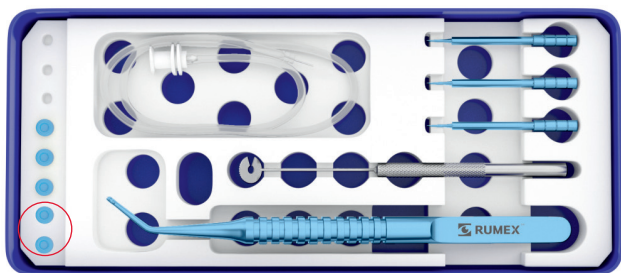


Curved Subretinal Scissors

Curvature radius 12.00 mm

12-209-23H 23 Ga
12-209-25H 25 Ga

REUSABLE TWO STEP TROCAR SYSTEMS



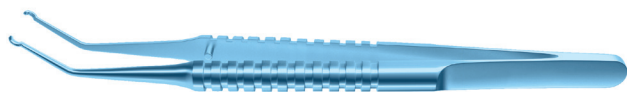
2 extra cannulas

Reusable Trocar System with Closure Valves

Package includes:

- Trocar cannula with closure valves – 5 pcs
- Loading forceps – 1 pc
- Fixation plate – 1 pc
- Blunt cannula inserter – 3 pcs
- Universal infusion line – 1 pc
- Sterilization tray – 1 pc

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



Loading Forceps

- 12-5186 23/25 Ga



Instrument Cannula Inserter

- 12-5187 23 Ga



Fixation Plate

- 12-5188 23/25 Ga



MVR Knives

STERILE

2

6
BOX

Multifacet blade

Straight

Angled

VRS-19 - 19 Ga

VRA-19 - 19 Ga

VRS-20 - 20 Ga

VRA-20 - 20 Ga

VRS-23 - 23 Ga

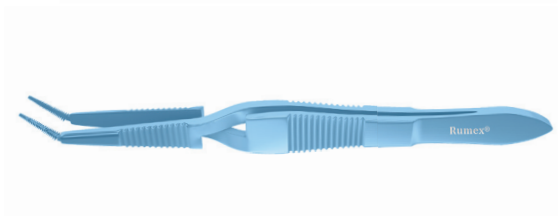
VRA-23 - 23 Ga



Scleral Plugs Forceps

Cross-action mechanism reduces hand fatigue.

- 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.

- 4-2201T

DISPOSABLE ONE-PIECE STAINLESS STEEL INSTRUMENTS

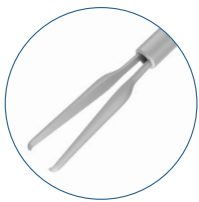
STERILE **2** **6** PER BOX

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

The instruments are supplied sterile in a box of 6.



ILM



Eckardt End-Gripping Forceps

12-410-23D 23 Ga **POPULAR**
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

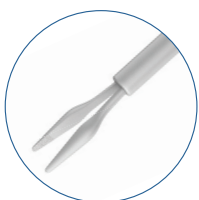
12-420-23D 23 Ga
12-420-25D 25 Ga

Pick Forceps



12-325-23D 23 Ga
12-325-25D 25 Ga

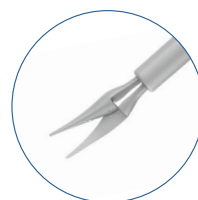
ERM



Gripping Forceps

12-301-23D 23 Ga
12-301-25D 25 Ga

Curved Scissors



12-209-23D 23 Ga
12-209-25D 25 Ga

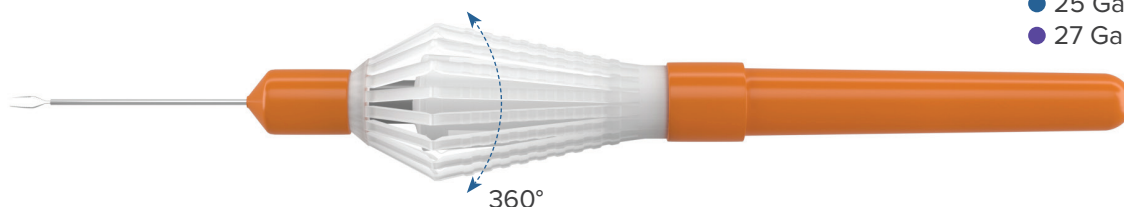
DISPOSABLE INSTRUMENTS WITH PLASTIC HANDLE

STERILE **2** **6** PER BOX

NEW

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.

- 23 Ga
- 25 Ga
- 27 Ga



ILM

Eckardt End-Gripping Forceps

- 12-410-23DP 23 Ga
- 12-410-25DP 25 Ga
- 12-410-27DP 27 Ga

ERM

Gripping Forceps

With a "crocodile" platform

- 12-304-23DP 23 Ga
- 12-304-25DP 25 Ga
- 12-304-27DP 27 Ga

Curved Scissors

- 12-209-23DP 23 Ga
- 12-209-25DP 25 Ga
- 12-209-27DP 27 Ga

Straight Scissors

- 12-211-23DP 23 Ga
- 12-211-25DP 25 Ga
- 12-211-27DP 27 Ga

Vertical Scissors

- 45°
- 12-202-23DP 23 Ga
 - 12-202-25DP 25 Ga

DISPOSABLE DIAMOND DUSTED RETRACTABLE ILM ELEVATORS*

STERILE **2** **5** PER BOX

NEW

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

Diamond dusted soft silicone tip provides an extreme grip

Retractable version helps to adjust the length of the tip and allows for easy insertion through the trocar cannula



- 12-7523 23 Ga
- 12-7525 25 Ga



* 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*

STERILE **2** **6** PER BOX

Each set includes:

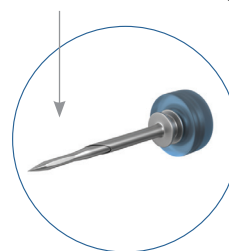
- Trocar knife with preloaded trocar cannula – 3 pcs
- Self-sealing trocar cannula (preloaded) – 3 pcs
- Universal infusion line – 1 pc

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



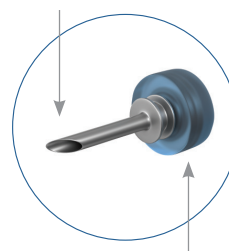
Sharp MVR Blade

Helps create a smooth incision and promotes low-pressure insertion and superior sealing



Trocar Cannula

Innovative sharp design of the cannula contributes to unstoppable smooth trocar insertion.



Silicone Closure Valves

Removable self-sealing valves ensure maintenance of the desired intraocular pressure (IOP) 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 and 4 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

BACKFLUSH HANDLES AND RESERVOIRS

**MOST
POPULAR**



Reusable Backflush Handle

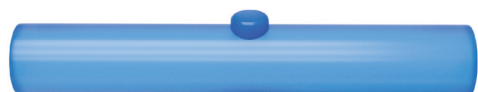
Titanium

12-6000

Active aspiration

12-6010

Passive aspiration



STERILE

2

5
PER
BOX

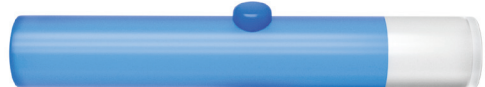
Disposable Replacement
Reservoir for Backflush Handle*

12-5159

Active aspiration

12-5147

Passive aspiration



DISPOSABLE BACKFLUSH INSTRUMENTS*

STERILE

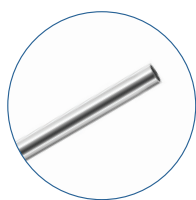
2

6
PER
BOX

The tool combines handle with soft, brush or blunt tip cannulas into one instrument. The set comes with two connectors for active and passive aspiration. Used for intraocular fluids and debris aspiration during vitreoretinal surgery.

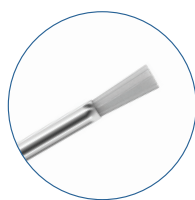
NEW

- 23 Ga
- 25 Ga
- 27 Ga



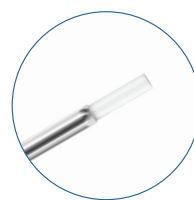
with **Blunt Tip**

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

*Not available in Europe

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

VITREORETINAL CANNULAS

Disposable Backflush Cannulas*

STERILE

2

5
PER
BOX

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.

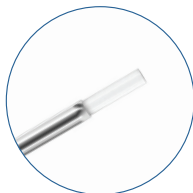
12-5164 23 Ga x 34 mm
12-5156 25 Ga x 34 mm
12-5492 27 Ga x 34 mm



Soft Tip Cannulas

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

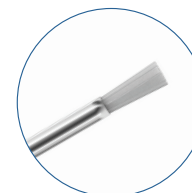
12-5161 23 Ga x 34 mm
12-5152 25 Ga x 34 mm
12-5491 27 Ga x 34 mm



Brush Tip Cannulas

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

12-5162 23 Ga x 34 mm
12-5160 25 Ga x 34 mm
12-5167 27 Ga x 34 mm



STERILE

2

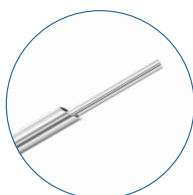
5
PER
BOX

Dual Bore Cannulas*

Dual Bore PFC Cannulas

Simultaneous infusion of heavy liquids and aspiration of intraocular fluids.

12-5203 23 Ga x 33 mm
12-5205 25 Ga x 33 mm



*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*

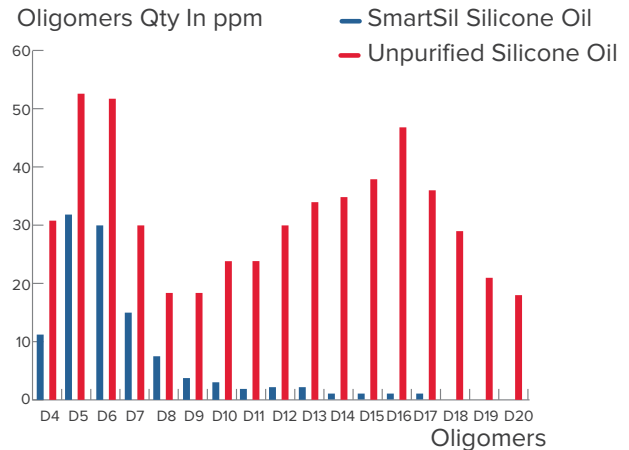
Purified Silicone Oil for Vitreoretinal Surgery

- 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**

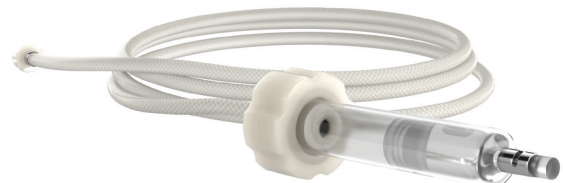
Physico-chemical properties

| | |
|---------------------|------------------------------------|
| Interfacial tension | $\geq 40 \text{ mNm}^{-1}$ at 37°C |
| Density | 0.97 |
| Viscosity | 1000/5000 cSt |
| Refractive index | 1.40 |
| Volatility | < 1% |
| Polydispersity | < 2.80 |
| Volume of oil | 10 ml |
| Syringe | 20 ml |
| Shelf Life | 3 years |

GC



Silicone Oil Infusion System is sold separately



Purification

- 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.



| Surgical System | Reusable |
|--|-----------|
| Ioltech® Pentasys™ Optikon® Antares™ Alcon® STTO™ Storz® Premiere™ DORC® Harmony Budget™ | 12-RTUB-1 |
| DORC® Associate™ Alcon® Constellation™, Accurus™ | 12-RTUB-2 |
| B&L® Millenium™, Stellaris™ | 12-RTUB-3 |
| Oertli® Orbit™, Faros™, OS3™ Optikon® R-Evolution® | 12-RTUB-4 |

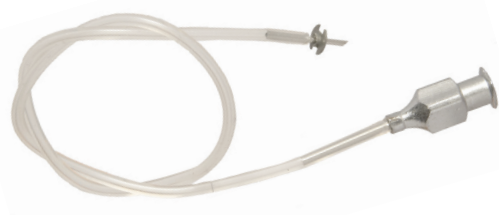
STERILE



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 Silicone Oil Infusion Cannula

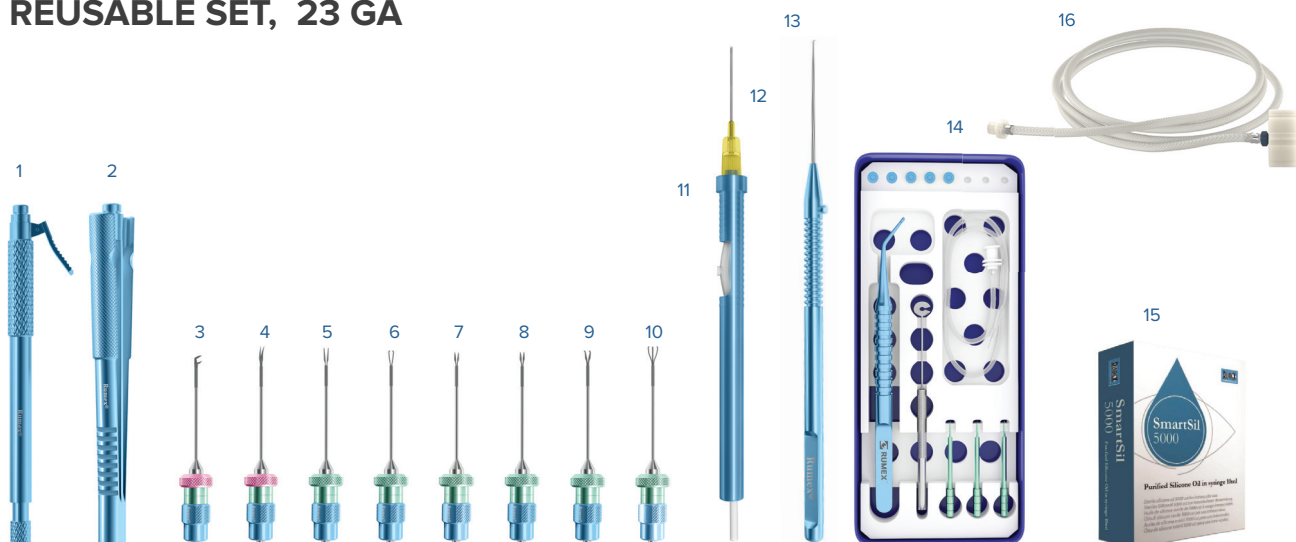
Self-retaining hub of 6.00 mm

| | |
|--------|-------|
| 12-026 | 20 Ga |
|--------|-------|

*Not available in Europe

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

REUSABLE SET, 23 GA

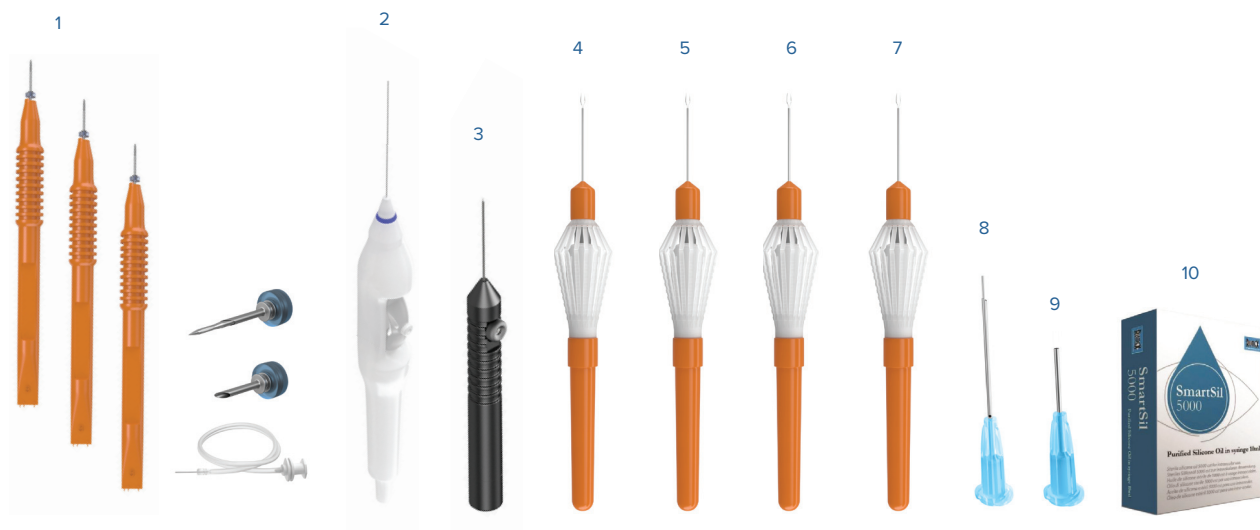


| Reference | Key | Description |
|-----------|-----|--|
| 12-001T | 1 | Universal Instrument Handle, One Finger Control |
| 12-003T | 2 | Universal Instrument Handle, Squeeze Model, Two Fingers Control |
| 12-202-23 | 3 | Vertical Vitreoretinal Scissors, 23 Ga, Tip only |
| 12-209-23 | 4 | Curved Subretinal Scissors, 23 Ga, Tip only |
| 12-410-23 | 5 | Eckardt End-Gripping Forceps, 23 Ga, Tip only |
| 12-4013 | 6 | End-Grasping Forceps, Expanded Space between Branches, 23 Ga, Tip only |
| 12-301-23 | 7 | Vitreoretinal Forceps with a Sandblasted Platform, 23 Ga, Tip only |
| 12-304-23 | 8 | Vitreoretinal Forceps with a "Crocodile" Platform, 23 Ga, Tip only |

| Reference | Key | Description |
|-------------------|-----|--|
| 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 |
| 12-5161 | 12 | Soft Tip Cannula, 23 Ga, Disposable, 5 per Box |
| 13-097-23 | 13 | Delicate Membrane Pick, 23 Ga |
| 12-5173-23 | 14 | Reusable Trocar System, 23 Ga |
| SmartSil5000 | 15 | Purified Silicone Oil for Retinal Endotamponade, 5000 cSt |
| 12-RTUB-2 18-305* | 16 | Reusable Tubing System for the Infusion of Silicone Oil Plastic Sterilization Tray with Silicone Finger Mat, Double Level, Extra Large |

*not shown

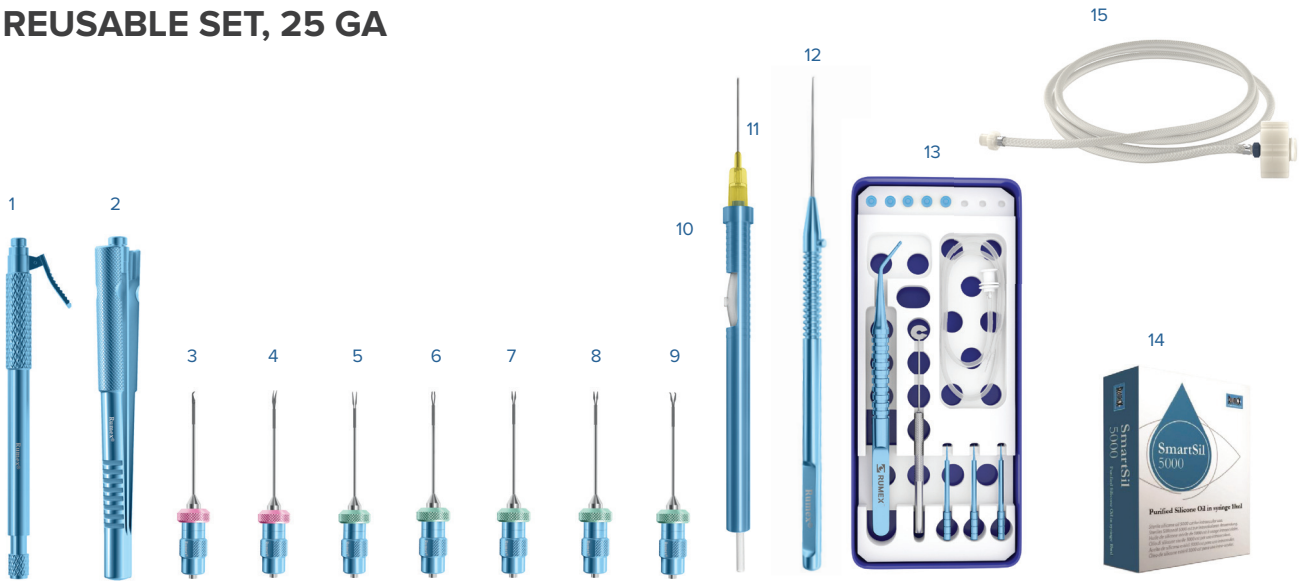
DISPOSABLE SET, 23 GA



| Reference | Key | Description |
|-------------|-----|--|
| 12-5229 | 1 | Disposable One Step Trocar System 23 Ga, 6 per Box |
| 12-5161H | 2 | Backflush Instrument with Soft Tip, 23 Ga, 6 per Box |
| 12-7523 | 3 | Disposable Diamond Dusted Retractable ILM Elevator, 23 Ga, 5 per Box |
| 12-209-23DP | 4 | Disposable Vitreoretinal Curved Scissors, 23 Ga, Plastic Handle 360°, 6 per Box |
| 12-410-23DP | 5 | Disposable Vitreoretinal Eckardt End-Gripping Forceps, 23 Ga, Plastic Handle 360°, 6 per Box |

| Reference | Key | Description |
|--------------|-----|--|
| 12-304-23DP | 6 | Disposable Vitreoretinal Gripping Forceps with a "Crocodile Platform", 23 Ga, Plastic Handle 360°, 6 per Box |
| 12-202-23DP | 7 | Disposable Vitreoretinal Vertical Scissors, 23 Ga, Plastic Handle 360°, 6 per Box |
| 12-5203 | 8 | Dual Bore PFC Cannula, 23 Ga, 5 per Box |
| 12-5248 | 9 | Viscous Fluid Injection Cannula, 23 Ga, 4 mm Tip, 5 per Box |
| SmartSil5000 | 10 | Purified Silicone Oil for Retinal Endotamponade, 5000 cSt |

REUSABLE SET, 25 GA

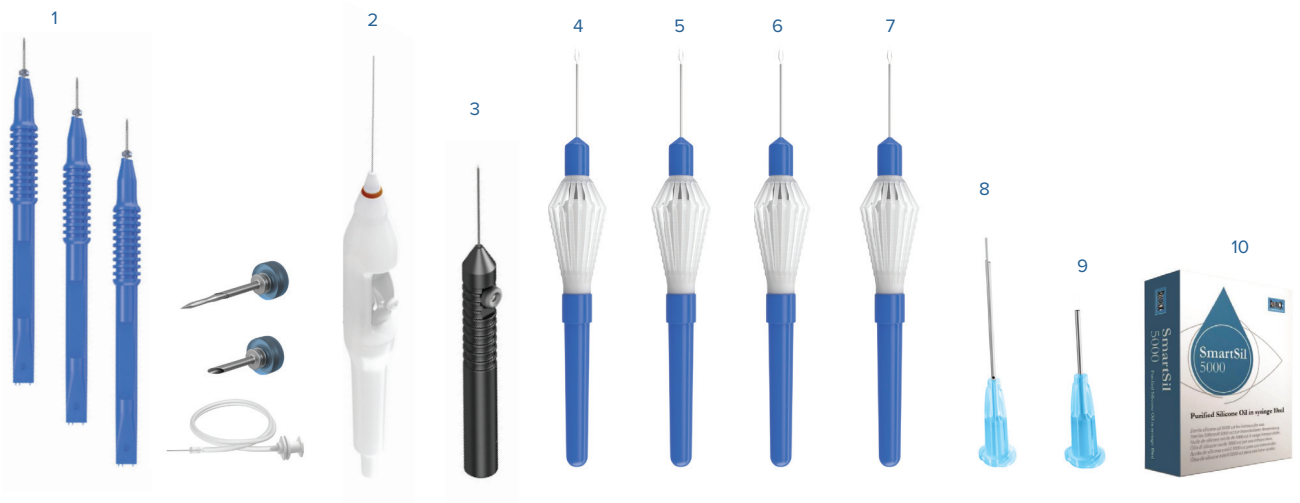


| Reference | Key | Description |
|-----------|-----|--|
| 12-001T | 1 | Universal Instrument Handle, One Finger Control |
| 12-003T | 2 | Universal Instrument Handle, Squeeze Model, Two Fingers Control |
| 12-2029 | 3 | Vertical Vitreoretinal Scissors, 25 Ga, Tip only |
| 12-2099 | 4 | Curved Subretinal Scissors, 25 Ga, Tip only |
| 12-410-25 | 5 | Eckardt End-Gripping Forceps, 25 Ga, Tip only |
| 12-420-25 | 6 | Asymmetrical End-Grasping Forceps, 25 Ga, Tip Only |
| 12-3019 | 7 | Vitreoretinal Forceps with a Sandblasted Platform, 25 Ga, Tip only |
| 12-304-25 | 8 | Vitreoretinal Forceps with a "Crocodile" Platform, 25 Ga, Tip only |

| Reference | Key | Description |
|--------------|-----|--|
| 12-3259 | 9 | Pick Vitreoretinal Forceps, 25 Ga, Tip only |
| 12-6000 | 10 | Titanium Backflush Handle, Active Aspiration |
| 12-5152 | 11 | Soft Tip Cannula, 25 Ga, Disposable, 5 per Box |
| 13-0979 | 12 | Delicate Membrane Pick, 25 Ga |
| 12-5173-25 | 13 | Reusable Trocar System, 25 Ga |
| SmartSil5000 | 14 | Purified Silicone Oil for Retinal Endotamponade, 5000 cSt |
| 12-RTUB-2 | 15 | Reusable Tubing System for the Infusion of Silicone Oil |
| 18-305* | | Plastic Sterilization Tray with Silicone Finger Mat, Double Level, Extra Large |

*not shown

DISPOSABLE SET, 25 GA



| Reference | Key | Description |
|-------------|-----|--|
| 12-5244 | 1 | Disposable One Step Trocar System 25 Ga, 6 per Box |
| 12-5152H | 2 | Backflush Instrument with Soft Tip, 25 Ga, 6 per Box |
| 12-7525 | 3 | Disposable Diamond Dusted Retractable ILM Elevator, 25 Ga, 5 per Box |
| 12-209-25DP | 4 | Disposable Vitreoretinal Curved Scissors, 25 Ga, Plastic Handle 360°, 6 per Box |
| 12-410-25DP | 5 | Disposable Vitreoretinal Eckardt End-Gripping Forceps, 25 Ga, Plastic Handle 360°, 6 per Box |

| Reference | Key | Description |
|--------------|-----|--|
| 12-304-25DP | 6 | Disposable Vitreoretinal Gripping Forceps with a "Crocodile Platform", 25 Ga, Plastic Handle 360°, 6 per Box |
| 12-202-25DP | 7 | Disposable Vitreoretinal Vertical Scissors, 25 Ga, Plastic Handle 360°, 6 per Box |
| 12-5205 | 8 | Dual Bore PFC Cannula, 25 Ga, 5 per Box |
| 12-5258 | 9 | Viscous Fluid Injection Cannula, 25 Ga, 4 mm Tip, 5 per Box |
| SmartSil5000 | 10 | Purified Silicone Oil for Retinal Endotamponade, 5000 cSt |

HANDLING OF VITREORETINAL 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 enlarged.

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 and 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: DESINFECTION

Soaking

1. For effective cleaning of instruments it is recommended to start pre-treatment as soon as possible, no later than 30 minutes after surgery is completed. The cleaning/disinfection should be carried out within the next two hours.
2. Use distilled/demineralized water to prepare the working solution.
3. Water temperature should be as specified in the manufacturer’s instructions. Water layer above the instruments should be no less than 1 cm (.39 inches).
4. Make sure the disinfectant is free of aldehydes, glutaraldehydes. Stainless steel tools must not be exposed for a long time to media which can promote corrosion (for example, chloride or iodine ions). This also applies to the vapors of the substances mentioned.

Do not immerse stainless steel instruments in an isotonic solution (e.g. physiological saline solution) as stress corrosion cracking and pitting may occur.

5. Carry out disinfection according to the mode, indicated in the instructions of product manufacturer. Disinfectant solution should not foam.

Rinsing

1. Place the products in a container with distilled/demineralized water and wash off the remaining solution.
2. Then rinse with distilled water.

Stage 2: 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 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

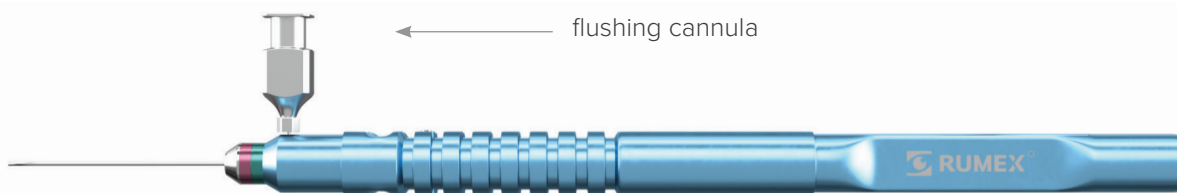
1. Unscrew the tip from the handle, then attach flushing adapter 12-000T.



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.

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. 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 | |
|-------------------|--------------------|
| Concentration ETO | 850±50mg/l |
| Temperature | 37-47°C (99-117°F) |
| Exposure time | 3–4 hours |
| Humidity | 70% RH minimum |
| Drying Cycle | 1 hour |

| | Steam Autoclaving | “Flash” Autoclaving |
|-----------------|-------------------|---------------------|
| Sterilizer Type | Prevacuum | Prevacuum |
| Sample Config. | wrapped | unwrapped |
| Temperature°C | +132°C | +132°C |
| Temperature°F | +270°F | +270°F |
| Exposure Time | 3 minutes | 3 minutes |
| Drying Cycle | min. 10 minutes | min. 10 minutes |

WARNING! The sterilization steam must not contain any impurities.

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.

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

RECOMMENDED PRODUCTS FOR CARE AND CLEANING

| Product name, Manufacturer | Description | Composition | Processing stage | Compatibility |
|--|---|---|---|--|
| SEKUSEPT Activ, Ecolab Deutschland GmbH | Disinfectant for automatic and manual processing of tools | ≥ 30% oxygen-based bleaching agents; <5% non-ionic surfactants, phosphonates; 50% sodium perborate monohydrate; 25% tetraacetylenediamine; active antimicrobial components, nonionic surfactants, corrosion inhibitor; pH of 2% solution: 7.4-8.4 | Disinfection; Pre-sterilization cleaning; Sterilization | Compatible. Discoloration of metal, residual detergent or water film formation may occur. |
| Neodisher MediClean Forte, Dr. Weigert GmbH & Co. | Detergent for automatic and manual cleaning of surgical instruments. Prevents reprecipitation of protein residues. | < 5% non-ionic and anionic surfactants; enzymes; pH: 10.4-10.8 | Pre-sterilization cleaning | Compatible. Discoloration of metal, residual detergent or water film formation may occur. |
| Neodisher MediKlar, Dr. Weigert GmbH & Co. | Rinser for automatic and manual cleaning of surgical instruments. Recommended for use with MediClean forte. Prevents reprecipitation of protein residues. | < 5% anionic surfactants, polycarboxylates; 5 - 15% non-ionic surfactants also preservatives; 2-octyl-2H-isothiazol-3-one, a mixture of: 5-Chloro-2-methyl-2H-isothiazol-3-one [EC-no.247-500-7] and 2-Methyl-2H-isothiazol-3-one; pH: 5.9-6.9 | Pre-sterilization cleaning | Compatible |
| ERIZYME, KiiltoClean FARMOS Oy | Detergent for hand treatment, washer disinfectors and ultrasonic treatment | non-ionic surfactants (< 5%); amphoteric surfactants (< 5%); complexing agent (5-15%); monopropylene glycol (15-30%); anti-foaming agent; enzymes; pH: 7.5 | Pre-sterilization cleaning | Compatible |
| ERISAN OXY+, KiiltoClean FARMOS Oy | Disinfectant in disposable sachets | sodium percarbonate 30 - <50%; citric acid 15 - <30%; tartaric acid 5 - <15%; pH: 5.9-6.9 | Disinfection; Pre-sterilization cleaning; Sterilization | Compatible |

Fully demineralized water for rinsing and correct loading must be used to prevent staining!

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).

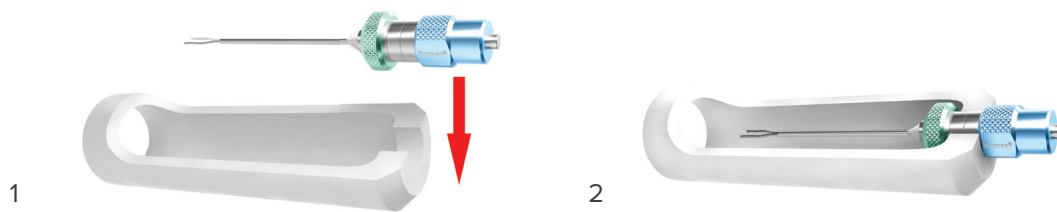
AT THE END OF THE SURGICAL DAY

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.

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