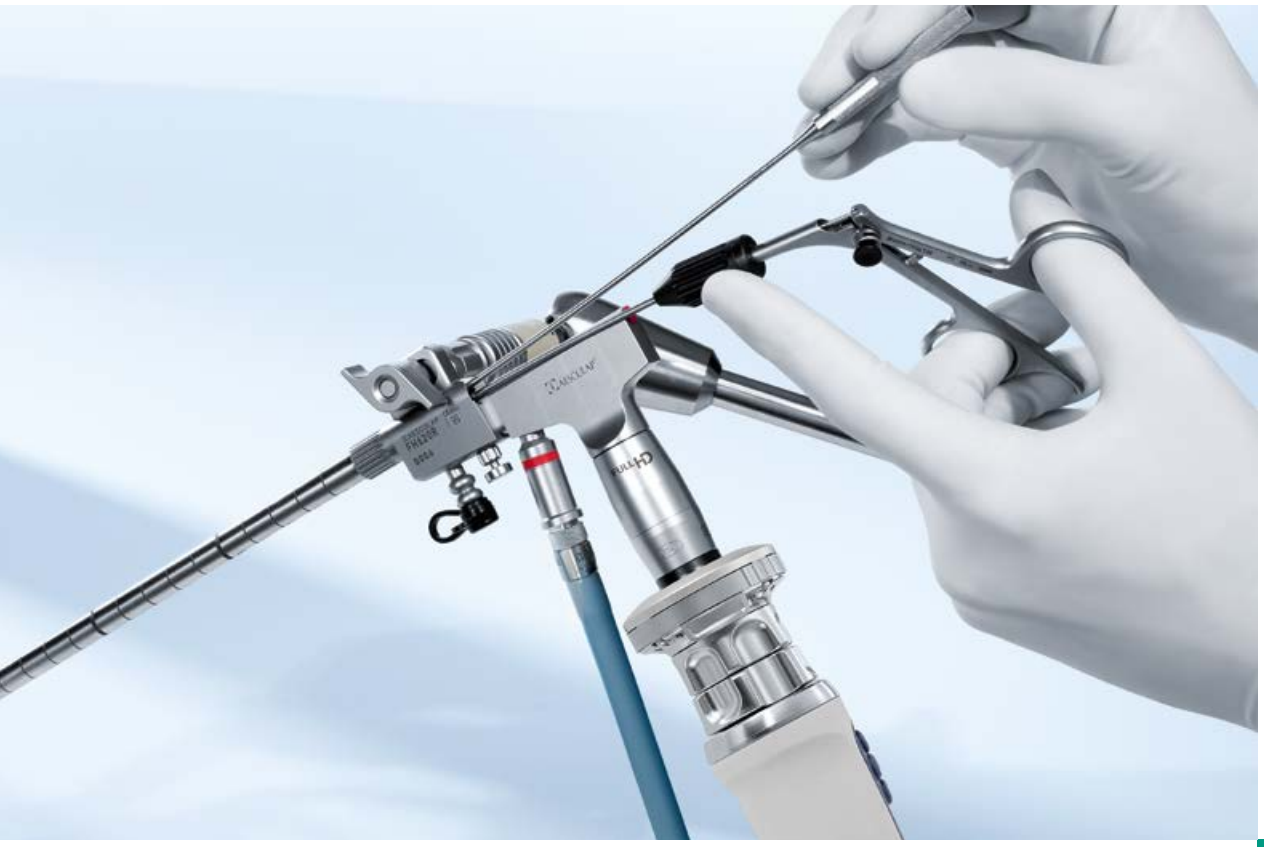
B BRAUN
SHARING EXPERTISE



NEUROSURGERY

AESCULAP® NEUROENDOSCOPY

With comments from international experts in the field of neuroendoscopy and minimally invasive neurosurgery.

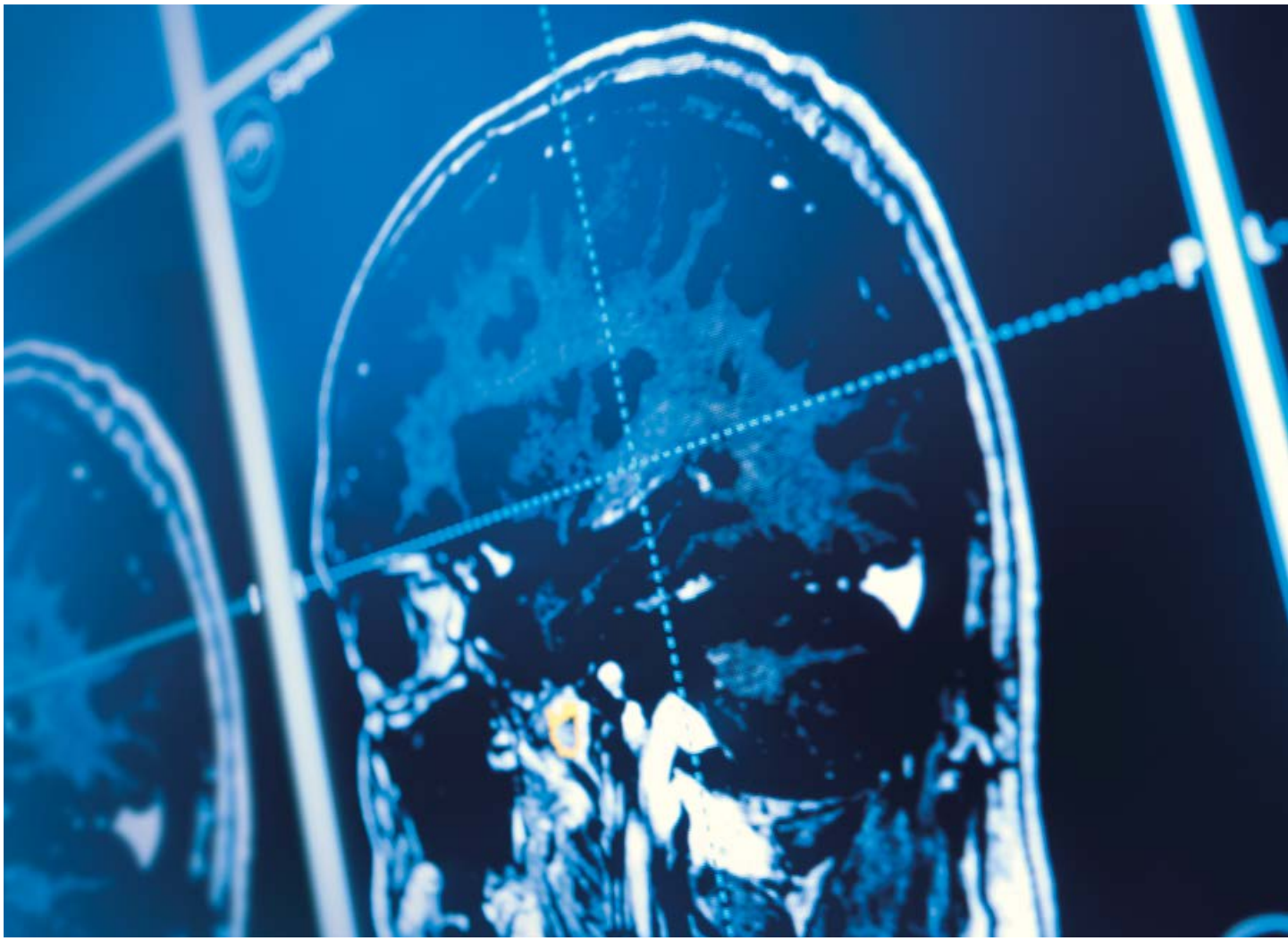
AESCULAP® NEUROENDOSCOPY

In this catalog you will find our current product line for various applications in neurosurgery. For the individual intended use of each product, please refer to the respective instructions for use under: https://eifu.bbraun.com.

In 1924, the famous general and neurological surgeon William Halsted expressed his belief "...that the tendency will always be in the direction of exercising greater care and refinement in operating". Today, within the third millennium this fundamental philosophy of minimally invasive therapy should be emphasized more than ever before, operating with a minimum of iatrogenic trauma while achieving maximum surgical efficiency.

Recent improvements in preoperative imaging and surgical instrumentation allow neurosurgeons to treat more complex pathologies through customized less invasive approaches.

Using the advanced diagnostic tools of digital subtraction angiography, 3D angiography, computer tomography and magnetic resonance imaging, one is able to demonstrate and elucidate preoperatively the individual anatomy and pathology of the patient. Therefore, anatomically preformed surgical dissection can be described preoperatively and may so be included into the planning of surgery. With the individual anatomic details of a specific patient, it becomes possible to perform a tailored surgical procedure reducing the size of the



Michael Fritsch
Neubrandenburg, Germany

Jeremy Greenlee
Iowa City, USA

André Grotenhuis
Nijmegen, Netherlands

Peter Nakaji
Phoenix, USA

Mark Souweidane
New York, USA

Charles Teo
Sydney, Australia

skin incision, the craniotomy, and the extent of brain surface traumatization and retraction to a necessary minimum limit. These advantages of minimally invasive microsurgery contribute to improved postoperative results, including shorter hospitalization time because of reduction of the risk for complications.

However, small sized minimally invasive approaches cause two important limitations: the significant loss of optical control and limited maneuverability of microsurgical instruments. The intraoperative use of endoscopes and dedicated minimally invasive instruments overcome these restrictions, thus enabling neurosurgeons to achieve deep seated regions without approach related traumatization of sensitive neurovascular structures.

The endoscopic image allows illumination and inspection of angles in hidden parts of the surgical field with clear depiction of anatomical details. In addition, due to the enormous optical depth of field of modern endoscopes, endoscopes provide a three dimensional aspect of anatomic structures.

There are three main indications of endoscopic neurosurgery: the intraventricular, transcranial and transnasal application. In this brochure, contemporary endoscopic equipment and instrumentation is presented in a comprehensive way. International experts in the field of minimally invasive and endoscopic neurosurgery comment the different applications, giving remarks with important tips and ideas, thus providing valuable instructions for the use of endoscopes in the field of minimally invasive neurosurgery.

Michael Fritsch, Neubrandenburg, Germany
Jeremy Greenlee, Iowa City, USA
André Grotenhuis, Nijmegen, Netherlands
Peter Nakaji, Phoenix, USA
Mark Souweidane, New York, USA
Charles Teo, Sydney, Australia

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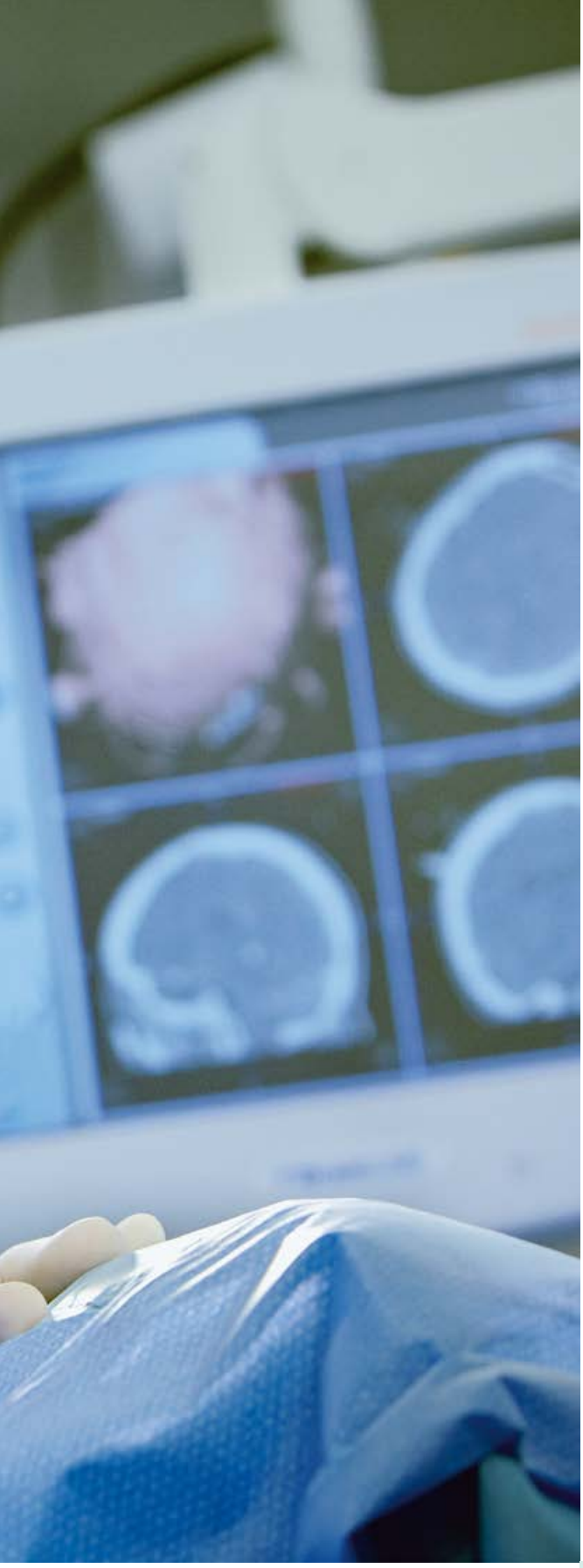
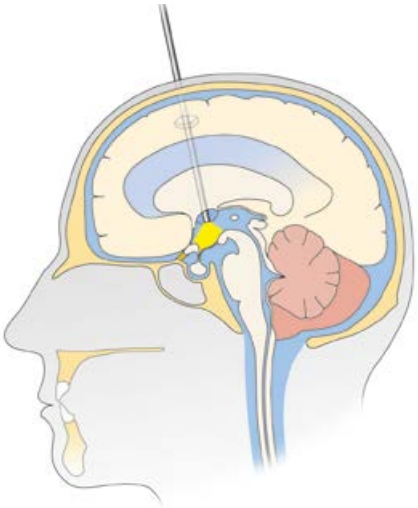


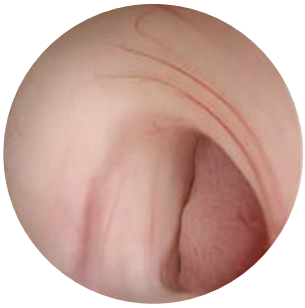


INTRAVENTRICULAR NEUROENDOSCOPY

MINOP®

Intraventricular Neuroendoscopic System

Minimally Invasive Neuroendoscopic OPeration



The genesis of endoscopic surgery within the ventricular compartment can be attributed to the development of small caliber rod lens optics, fiberoptic light transmission and dedicated instrumentation. Since the advent of intraventricular endoscopic surgery, neurosurgeons have applied the technology to treat a number of disorders. While the enthusiasm has been great and the full potential not yet realized, a major benefit to the patient has been proven for selected conditions. Most notably the treatment of non-communicating hydrocephalus, management of patients with pineal region tumors, fenestration of intracranial cysts, and removal of colloid cysts have all been shown to provide significant benefit and reduced morbidity compared with conventional treatment strategies.

The benefit in minimally invasive endoscopic procedures is analogous to that of any endoscopic procedure, namely minimal tissue disruption, enhanced visualization, improved cosmetic results, shorter hospital stay, and less surgical morbidity.
The surgeon willing to utilize intraventricular endoscopic surgery is first responsible for attaining a considerable degree of familiarity with the technology, relevant anatomy, and the surgical procedures. Given the relative nascence of the field, the discipline is only now being commonly implemented in training programs. Hence, for those that have not had the opportunity to have endoscopic surgery as part of their formal training, it is strongly recommended that the surgeon participates in established practical courses in endoscopic neurosurgery, such as the courses from the Aesculap Academy.

Once fluent with the endoscopic equipment, more advanced procedures can be performed with greater familiarity and experience. It is anticipated with future generations of neurosurgeons that the endoscope will be an indispensable part of the neurosurgeon's armamentarium given the unmatched image resolution and minimally invasive qualities.

This foreseeable integration will expectantly be paralleled with continued evolution in compatible equipment to suit the needs of an expanding repertoire.

Few neurosurgical procedures demand a degree of familiarity with equipment as do neuroendoscopic techniques. This feature is somewhat explained by the recent introduction of the neuroendoscope as well as the delicate nature of the equipment. The basic components of any neuroendoscopic procedure include the endoscope and trocar, a camera with light source and monitor, as well as compatible instrumentation.

Charles Teo
Mark Souweidane

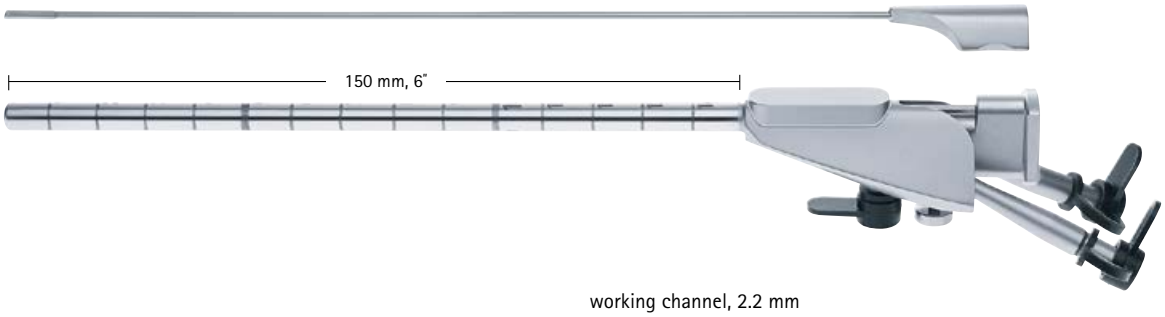
Charles Teo
Sydney, Australia

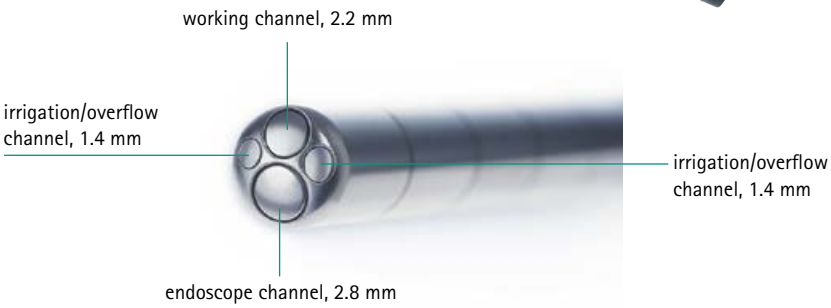
Mark Souweidane
New York, USA

MINOP®

Intraventricular Neuroendoscopic System - MINOP® Trocars

- Rounded tip for less traumatic insertion into the brain
- Single obturator for working channel enables insertion of the trocar under visual control, with the 0° endoscope
- Large depth scale on the outer shaft of the trocar
- Conical entry of the working channel supporting the insertion of instruments into the trocar
- Attachment on top of the trocar for connection of peripheral devices





FF399R

MINOP® trocar

Outer diam. 6 mm

4 channels:

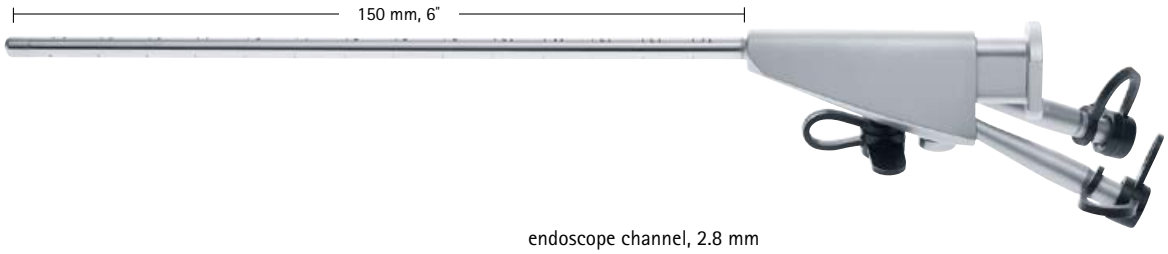
- Endoscope channel, diam. 2.8 mm
- Working channel, diam. 2.2 mm
- Irrigation channel, diam. 1.4 mm
- Overflow channel, diam. 1.4 mm

Including:

- 3 obturators for all channels and 1 single obturator for the working channel
- 3 sealing caps for Luer-Lock connector
- Cleaning brush

"I had used the Aesculap MINOP® system for all intraventricular cases and was mostly pleased with its versatility and safety. However, I had some concerns regarding its user-friendliness and applicability when one needed to be a 2-handed surgeon. Both these issues have been addressed with the MINOP® trocar and I have been very pleased with its added safety and practicality. I honestly believe it is quite clearly the best scope on the market for intraventricular endoscopic procedures. I applaud Aesculap for listening to the people who count most... the surgeons!"

Charles Teo, Sydney, Australia



FF398R

MINOP® trocar

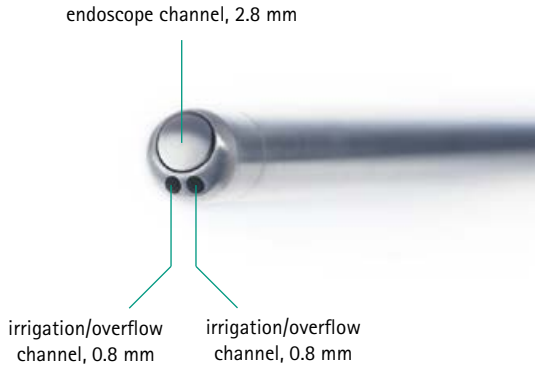
Outer diam. 4.6 mm

3 channels:

- Endoscope channel, diam. 2.8 mm
- Irrigation channel, diam. 0.8 mm
- Overflow channel, diam. 0.8 mm

Including:

- 1 obturator for the endoscope channel
- 3 sealing caps for Luer-Lock connector
- Cleaning brush



FF397R

MINOP® trocar

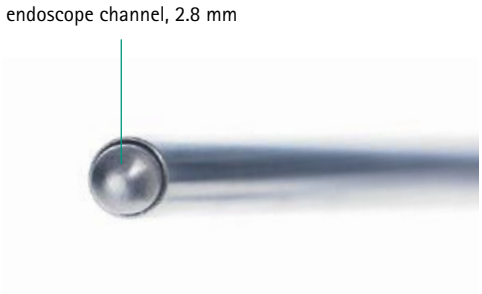
Outer diam. 3.2 mm

1 channel:

- Endoscope channel: diam. 2.8 mm

Including:

- 1 obturator for endoscope channel
- 1 sealing cap for Luer-Lock connector



MINOP®

Intraventricular Neuroendoscopic System - Spare Parts for Trocars

1/1

PF893800

Cleaning brush for MINOP® trocars
FF398R and FF399R

EJ751251

Sealing cap for Luer-Lock connector
Sales unit:
PAK = Package of 20 pieces

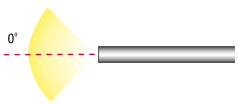
EJ751200

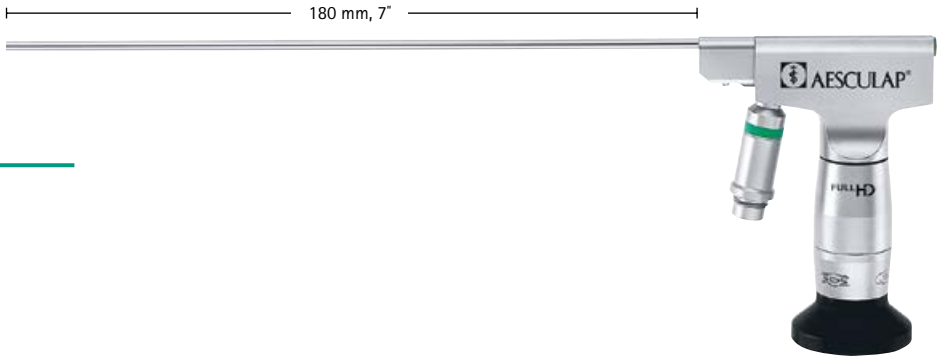
Sealing cap for Luer-Lock connector
Sales unit:
ST = Package of 1 piece

MINOP®

Intraventricular Neuroendoscopic System - MINOP® Endoscopes

- Full HD compatible
- Optimized optical components leading to an enlarged image area, higher image quality, brightness and contrast
- Angled endoscope design for enhanced instrument maneuverability
- Autoclavable / Sterrad®

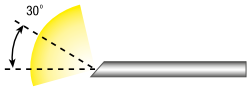


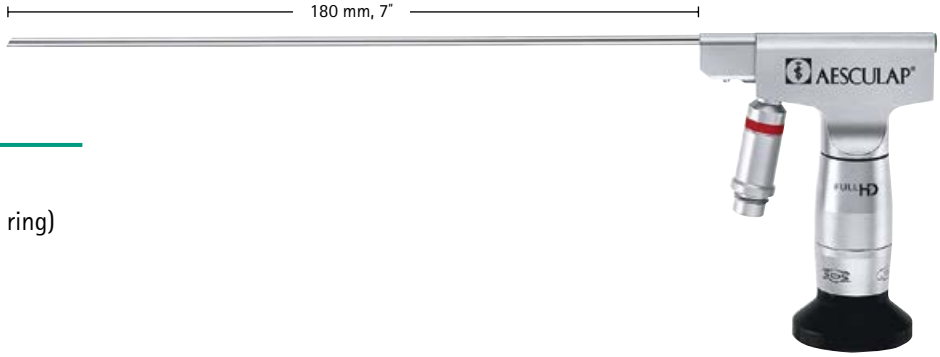


PE184A

MINOP® angled endoscope

Direction of view: 0° (green ring)
Shaft diam.: 2.7 mm





PE204A

MINOP® angled endoscope

Direction of view: 30° upwards (red ring)
Shaft diam.: 2.7 mm

MINOP®

Intraventricular Neuroendoscopic System - Tube Shaft Instruments

Instruments

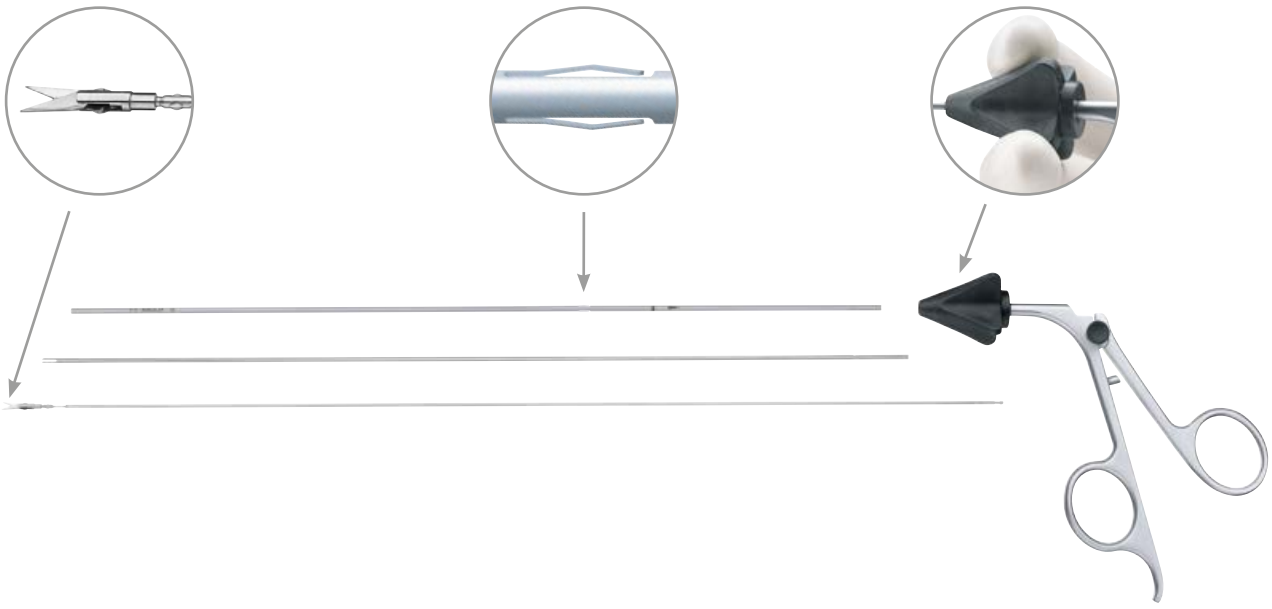
- Working length 265 mm, 10 ½"
- Shaft diameter 2 mm
- Detachable for reprocessing

Tactile Feedback

- Improved control during instrument insertion thanks to the integrated tactile feedback which delivers a noticeable resistance indicating that the instrument tip is emerging from the trocar

Rotating Knob

- Smooth rotation of the instrument tip by turning the knob with the index finger leading to enhanced handling and precision during neuroendoscopic surgery



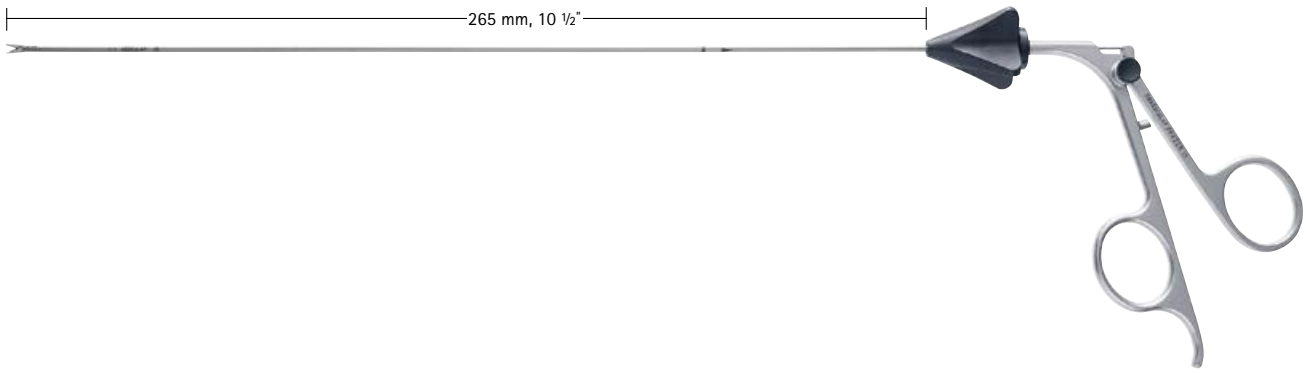
"A very appealing feature of the MINOP tube shaft instruments is a rotational capability of the instrument tip through a coaxial system thus eliminating the need for hand rotation and reducing excessive movement of the endoscope. Irrespective of the instrument, graduated markings or precalibrated indicators on the shaft are important in providing the surgeon knowledge as to when the instrument will enter the endoscopic field. Even more safety is provided by the tactile feedback of the MINOP instruments. A small spring delivers a tactile resistance "telling" the surgeon that the instrument tip is exiting the trocar."

Mark Souweidane, New York, USA

MINOP®

Intraventricular Neuroendoscopic System - Tube Shaft Instruments

2 mm **Instrument complete:** Handle · outer tube · jaw part with inner tube, detachable, including cleaning brush



FF385R

MINOP® scissors
sharp/sharp

FF386R

MINOP® scissors
blunt/blunt

FF387R

MINOP® biopsy forceps

FF388R

MINOP® grasping and dissecting forceps

FF389R

MINOP® surgical forceps, 1 x 2 teeth

The very delicate MINOP® instruments should be carefully and completely detached and pre-cleaned manually at the end of the operation. Keeping them in dedicated baskets for sterilization protects the super-fine instrument tips. A careful handling by trained operating & CSSD staff is highly recommended and can reduce the wear and tear of these sensitive but highly necessary neuro-endoscopic tools.

MINOP®

Intraventricular Neuroendoscopic System - Spare Parts for Tube Shaft Instruments

FF432R

MINOP® instrument handle, only

FF433R

MINOP® outer tube, only

2/1

FF435R

Scissors, jaw part with inner tube
sharp / sharp

2/1

FF437R

Biopsy forceps, jaw part with inner tube

2/1

FF436R

Scissors, jaw part with inner tube
blunt/blunt

2/1

FF438R

Grasping and dissecting forceps,
jaw part with inner tube

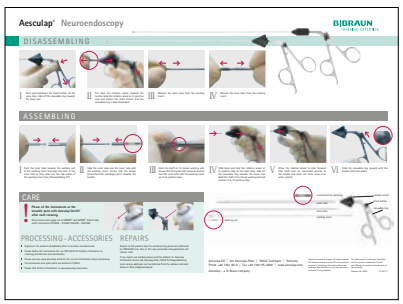
2/1

FF439R

Surgical forceps, jaw part with inner tube,
1 x 2 teeth

TA012889

Cleaning brush for tube shaft instruments
without illustration

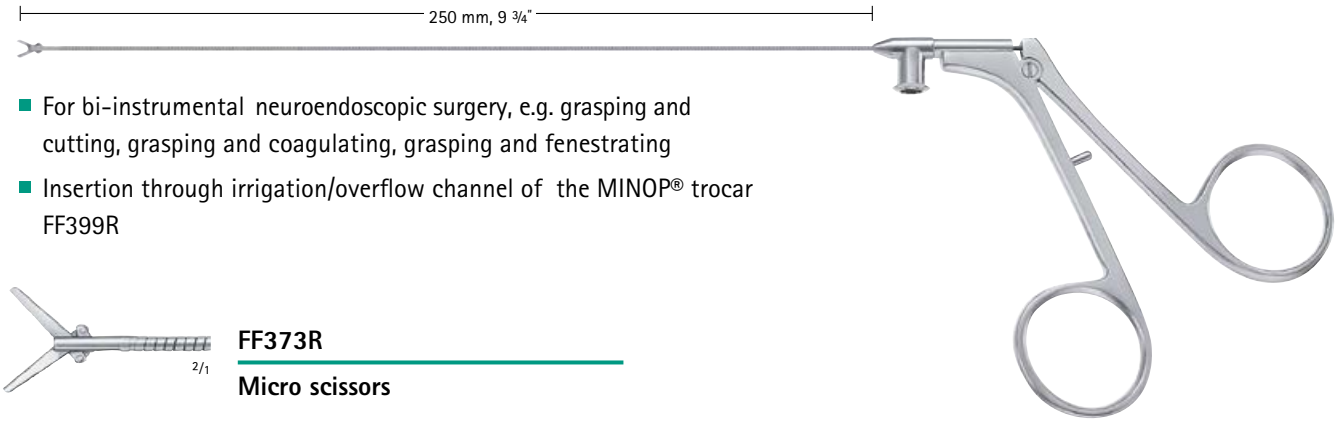


- For disassembly and assembly of MINOP® tube shaft instruments see poster no. C60911.

MINOP®

Intraventricular Neuroendoscopic System - Flexible Instruments

Instruments with irrigation port for cleaning and reprocessing, non-detachable



- For bi-instrumental neuroendoscopic surgery, e.g. grasping and cutting, grasping and coagulating, grasping and fenestrating
- Insertion through irrigation/overflow channel of the MINOP® trocar FF399R

FF373R

Micro scissors

FF374R

Micro grasping and dissecting forceps

FF378R

Micro biopsy forceps

"The MINOP® system is providing bi-instrumental endoscopic work. For example in cyst removal or endoscopic tumor surgery the surgeon has the opportunity to grasp and cut or grasp and coagulate at the same time. One can utilize flexible instruments or electrodes in one of the side-channels and rigid tube shaft instruments in the working channel. The design of the side-channels of the MINOP® trocar makes sure that both instruments do not interfere with each other."

Michael Fritsch, Neubrandenburg, Germany

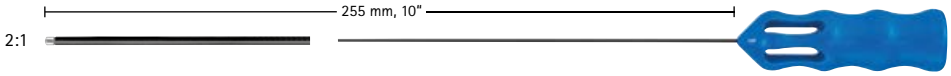
MINOP®

Intraventricular Neuroendoscopic System - Electrodes

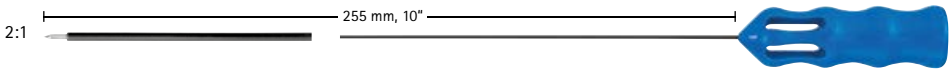
MONOPOLAR

1.1 mm — Monopolar straight electrodes, for bi-instrumental work through the irrigation/overflow channel of the MINOP® trocar FF399R

GK361R
Blunt electrode

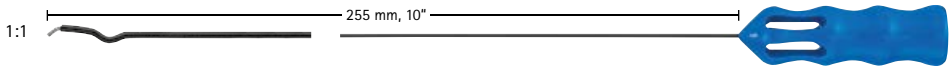


GK363R
Needle electrode

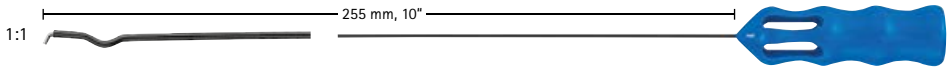


1.1 mm — Monopolar hook electrodes, tip width 2.2 mm

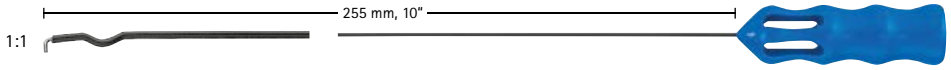
GK364R
Hook electrode, 45°



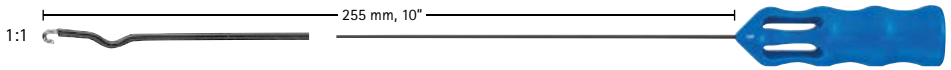
GK365R
Hook electrode, 70°



GK362R
Hook electrode, 90°



GK366R
Hook electrode, 180°

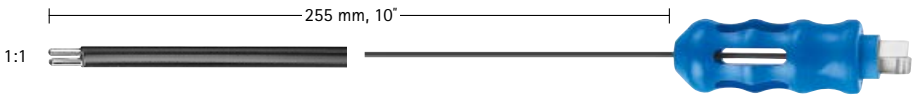


GN202
Monopolar cable, 3.5 m length
suitable for GN300, GN640

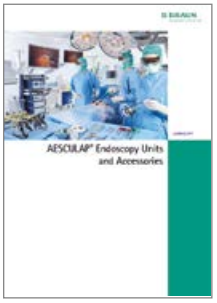
BIPOLAR

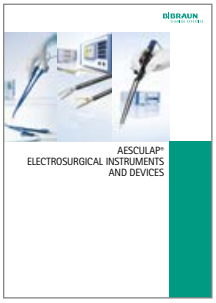
2.1 mm — Bipolar fork electrode

GK360R
Fork electrode, 0°



GN130
Bipolar cable, 4 m length
suitable for GN060, GN160,
GN300, GN640



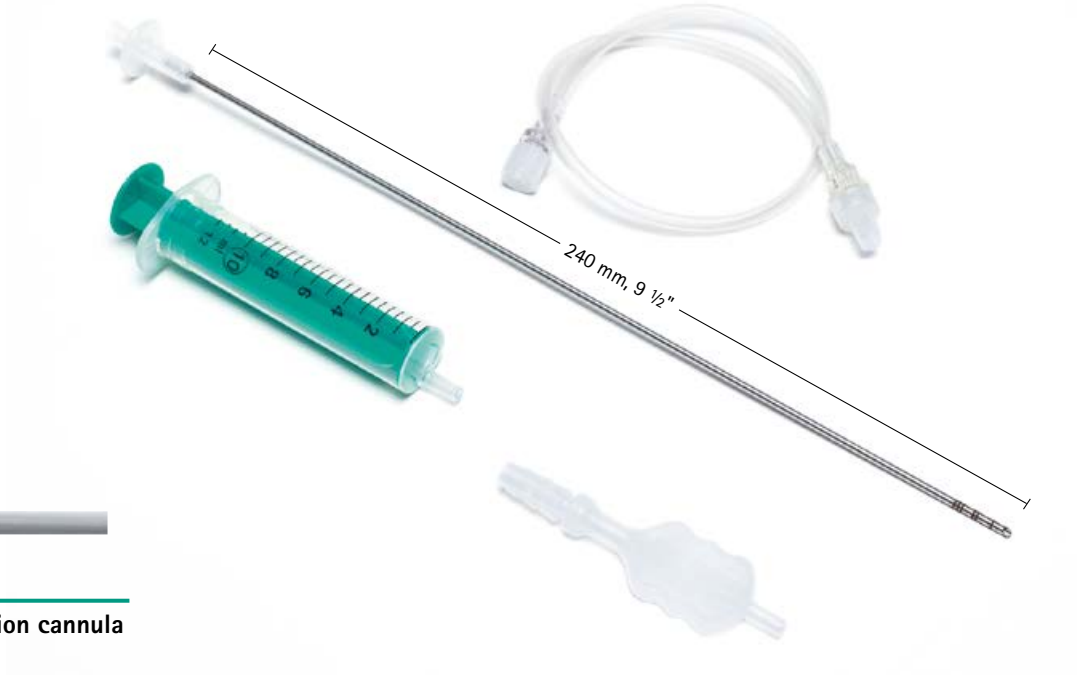


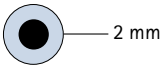
- For further details about AESCULAP® HF units and accessories see brochures no. C46702 and C30402.

MINOP®

Intraventricular Neuroendoscopic System - Single-use Suction Cannulas

- For the aspiration of tissue and fluids during surgery of the ventricular system (e.g. removal of cystic intraventricular lesions or puncturing the floor of the 3rd ventricle)
- Available with blunt or sharp tip
- Optional control of suction
  - via thumb plate or
  - via syringe
- Single-use, sterile packed





FH606SU

MINOP® single-use suction cannula

blunt tip 0°

FH607SU

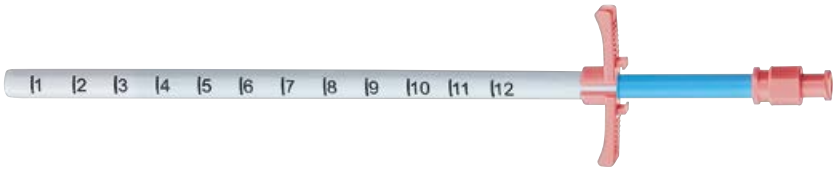
MINOP® single-use suction cannula

sharp tip 45°

MINOP®

Intraventricular Neuroendoscopic System - Single-use Introducer

- 19 Fr. disposable introducer set including obturator and sheath
- Especially for MINOP® trocar FF399R
- Preserves the brain in case of repeated intraparenchymal back- and forth movements of the trocar during the procedure
- Round & blunt obturator tip for less traumatic insertion into the ventricles
- Large depth scale
- Easy to peel with side handles
- Single-use, sterile packed



FH604SU

MINOP® single-use introducer
19 Fr.

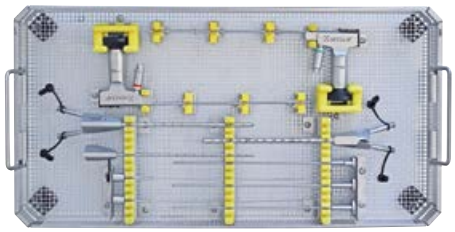
Sales unit:
PAK = Package of 5 pieces
3 Fr. = 1 mm

The MINOP® suction cannula and the MINOP® disposable introducer are designed for intraventricular neuroendoscopic surgery. The suction cannula can be used e.g. for the removal of intraventricular soft tumors or colloid cysts with its sharp cannula tip or even for the opening of the floor of the 3rd ventricle. The disposable introducer (also called peel-away sheath) acts as a temporary pathway to the ventricles, reducing tissue trauma when repeated intraparenchymal back and forth movements of the trocar are necessary.

MINOP®

Intraventricular Neuroendoscopic System - Sterilization and Storage

■ Basket for MINOP® trocars and endoscopes



FF358R Dimensions (L/W/H) 485 x 253 x 56 mm

Basket with instrument racks with silicone and lid
(instruments not included)

■ Basket for MINOP® instruments and electrodes

FF359R Dimensions (L/W/H) 485 x 253 x 120 mm

Basket with silicone mat and instrument racks with silicone, without lid (lid not necessary)
(instruments not included)

■ 1/1 Sterile container (basic version)
for baskets FF358R and FF359R

consisting of:

JK440

Bottom 1/1 for FF358R
without base perforation
Outside/Inside dimensions with inner lid:
L/W/H 592 x 285 x 108 mm
L/W/H 544 x 258 x 75 mm

JK444

Bottom 1/1 for FF359R
without base perforation
Outside/Inside dimensions with inner lid:
L/W/H 592 x 285 x 205 mm
L/W/H 544 x 258 x 172 mm

JK486

Inner lid 1/1
blue

A special-designed storage concept keeps the scopes and instruments protected during the sterilization process, transport and storage.

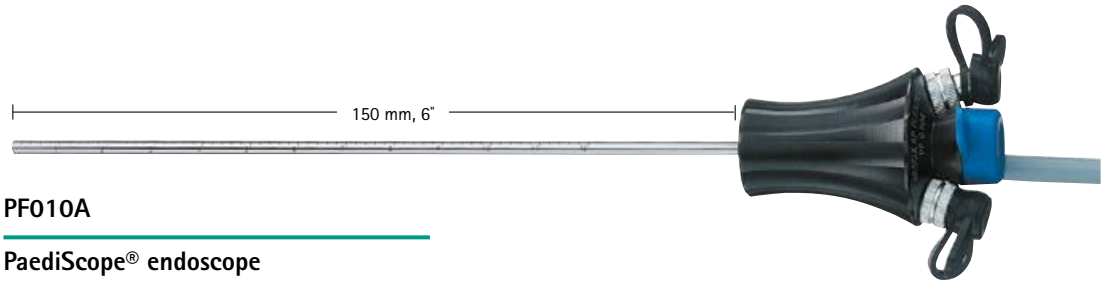
■ For further details about the AESCULAP® Sterile Container System see brochure no. C40402.

■ For more information on intraventricular neuroendoscopy see our Practical Atlas no. C29202.

PaediScope®

Paediatric Intraventricular Neuroendoscopic System - Endoscope

- Outer diameter of 3 mm for minimally invasive paediatric surgery
- 30,000 pixel fibre optic
- Light-weight design:
  Camera weight is away from the operating site
- Depth scale
- Autoclavable



PF010A

PaediScope® endoscope
with integrated optical fibres

For complete PaediScope® please order both: PF010A and PF011A

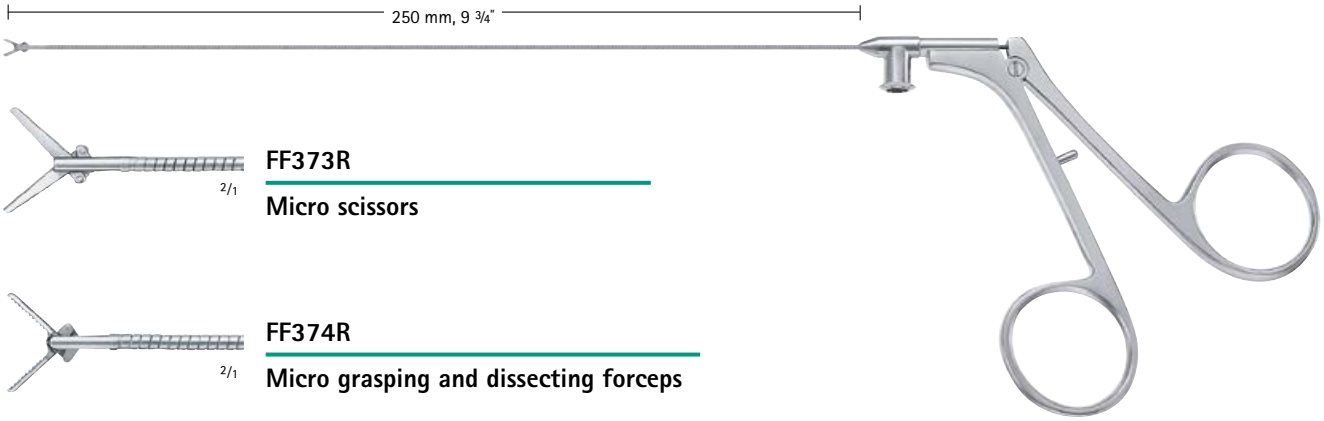
PF011A

PaediScope® ocular with focus

PaediScope®

Paediatric Intraventricular Neuroendoscopic System - Flexible Instruments & Introducer

1 mm Instruments with irrigation port for cleaning and reprocessing, non-detachable



FF373R

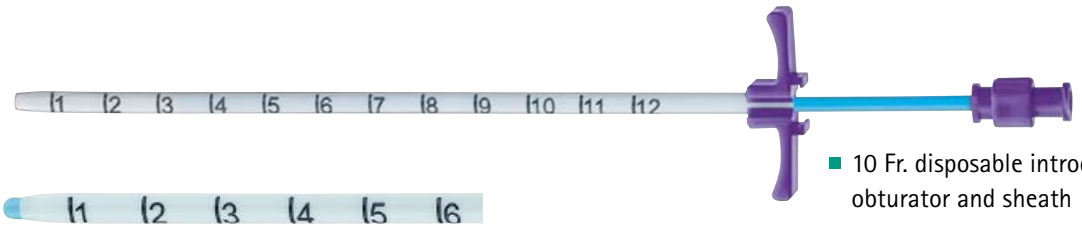
Micro scissors

FF374R

Micro grasping and dissecting forceps

FF378R

Micro biopsy forceps



FH603SU

PaediScope® single-use introducer

10 Fr.

Sales unit:
PAK = Package of 5 pieces
3 Fr. = 1 mm

- 10 Fr. disposable introducer set including obturator and sheath
- Especially for PAEDISCOPE®, PF010A
- Preserves the brain in case of repeated intra-parenchymal back- and forth movements of the trocar during the procedure
- Round & blunt obturator tip for less traumatic insertion into the ventricles
- Large depth scale
- Easy to peel with side handles
- Single-use, sterile packed

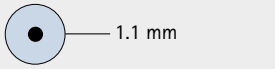
The peel away sheath protects the brain while inserting and removing the pediatric endoscope. Because of its small outer diameter, the Paediscope does not have a dedicated trocar. The blunt obturator tip of the sheath allows atraumatic insertion into the ventricles. The sheath has a depth scale for precise positioning and is easy to peel back the side handles. Using a peel away sheath is especially helpful, if repeated in and out movements of the scope are necessary or different instruments or catheters (e.g. for aqueductoplasty) have to be utilized in addition to the scope.

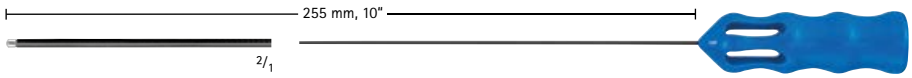
Michael Fritsch, Neubrandenburg, Germany

PaediScope®

Paediatric Intraventricular Neuroendoscopic System - Electrodes

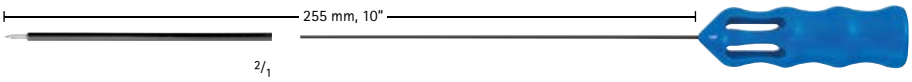
MONOPOLAR





GK361R

Blunt electrode



GK363R

Needle electrode

GK202

Monopolar cable, length 3.5 m
suitable for GN300, GN640

PaediScope®

Paediatric Intraventricular Neuroendoscopic System - Sterilization and Storage

■ Basket for PaediScope®, instruments and electrodes

FF379R Dimensions (L/W/H) 485 x 253 x 56 mm

Basket with instrument racks with silicone and lid
(instruments not included)

■ 1/1 Sterile container (basic version) for basket FF379R

consisting of:

JK440

Bottom 1/1
without base perforation
Outside/Inside dimensions with inner lid:
L/W/H 592 x 285 x 108 mm
L/W/H 544 x 258 x 75 mm

JK486

Inner lid 1/1
blue

■ For further details about the AESCULAP® Sterile Container System see brochure no. C40402.

MINOP® InVent

Advanced IntraVentricular Neuroendoscopic System

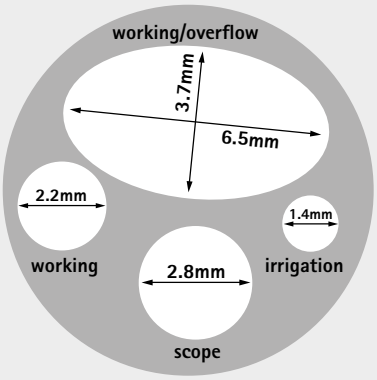
Aesculap® MINOP® InVent is an advanced intraventricular neuroendoscopic system offering a unique solution for bi-manual resection of tumors and cysts.

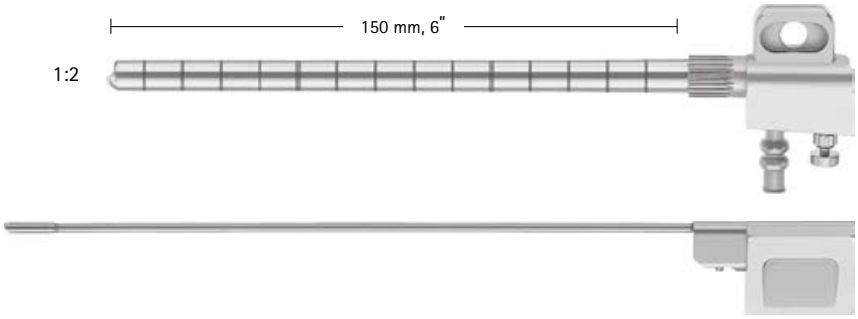
The multi- directional flexibility experienced through the large working channel coupled with the specially designed instrumentation enables innovative treatment options, thus expanding the possibilities for intraventricular and paraventricular neuroendoscopy.

MINOP® InVent

Advanced IntraVentricular Neuroendoscopic System - Trocar

- Oval working channel enables innovative treatment options and multi-directional flexibility
- Bi-instrumental technique close to traditional microneurosurgery thanks to the increased freedom of movement
- For the first time, insertion of angled instruments possible
- Grooved section of the sheath for the connection of peripheral devices
- Attachment on top of the trocar for the fixation of the adapter RT068R





FH620R

MINOP® InVent trocar
Outer diam. 8.3 mm

3 (4) channels:

- Endoscope channel, diam. 2.8 mm
- Irrigation channel, diam. 1.4 mm
- 2 merging channels
  - Large working/overflow channel, 3.7 x 6.5 mm
  - Small working channel, diam. 2.2 mm

Including:

- 2 obturators for endoscope channel and working /overflow channel
- 1 sealing cap for Luer-Lock connector
- Cleaning brush

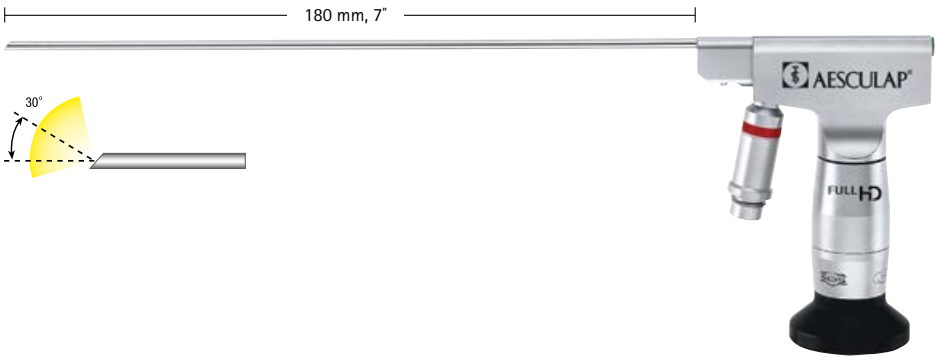
RT068R

Adapter for fixation of MINOP® InVent trocar FH620R to AESCULAP® holding arm

MINOP® InVent

Advanced IntraVentricular Neuroendoscopic System - Endoscope

- Full HD compatible
- Optimized optical components leading to an enlarged image area, higher image quality, brightness and contrast
- Angled endoscope design for enhanced instrument maneuverability
- Autoclavable / Sterrad®



PE204A

MINOP® angled endoscope

Direction of view: 30° upwards (red ring)
Shaft diam.: 2.7 mm

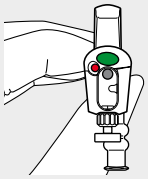
"The MINOP® InVent system is truly unique and the next step for the future of Neuroendoscopy. This system allows for a true bi-manual technique through the large/small working channels expanding the possibilities to treat further indications. The angled instrumentation provide the ability to simultaneously grasp and cut or grasp and coagulate similar to traditional microsurgery. The MINOP InVent provides a new possibility for the treatment of intra- and paraventricular cysts and tumors in complex hydrocephalus and alleviating the need for certain craniotomies."

Mark Souweidane, New York, USA

MINOP® InVent

Advanced IntraVentricular Neuroendoscopic System - Dissectors, Hook and Knife

To be inserted through:



FH629R

MINOP® InVent dissector,
tip width 2.2 mm

FH632R

MINOP® InVent hook, 90° blunt,
hook deflection width 3.5 mm

FH630R

MINOP® InVent dissector,
tip width 1.7 mm

FH634R

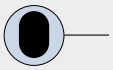
MINOP® InVent knife, backwards cutting,
knife deflection width 3 mm

FH631R

MINOP® InVent dissector,
tip width 1 mm

MINOP® InVent

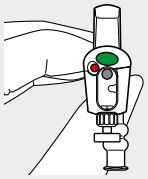
Advanced IntraVentricular Neuroendoscopic System - Shaft Instruments

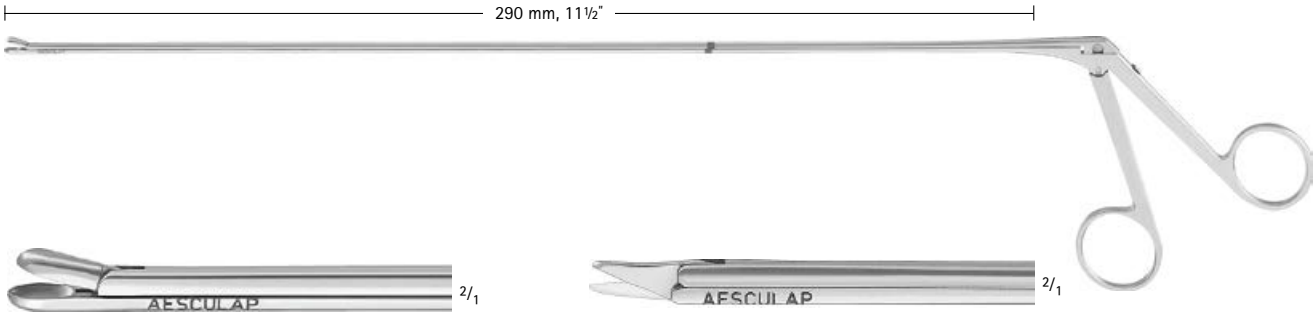


Width x Height:
2 mm x 3.1 mm

Instruments non-detachable

To be inserted through:





FH621R

MINOP® InVent forceps, straight

FH622R

MINOP® InVent forceps, right

FH623R

MINOP® InVent forceps, left

FH624R

MINOP® InVent grasping forceps, straight

FH625R

MINOP® InVent scissors, straight

FH626R

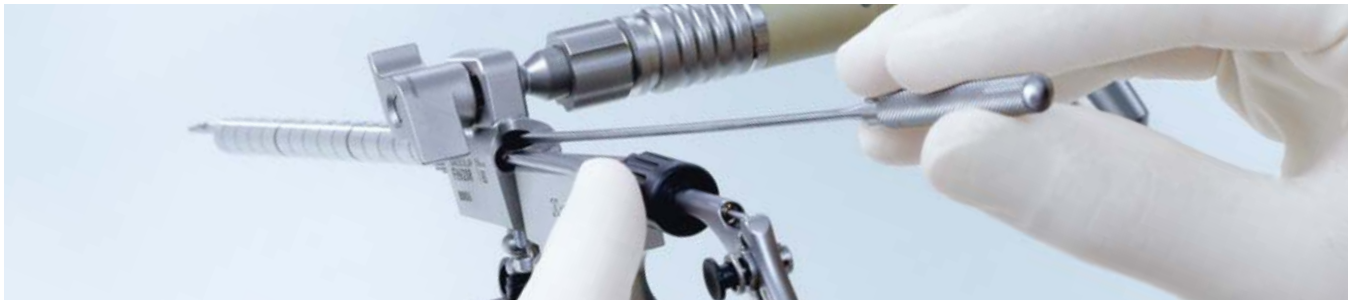
MINOP® InVent scissors, left

FH627R

MINOP® InVent scissors, right

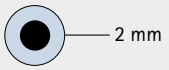
FH628R

MINOP® InVent scissors, upwards



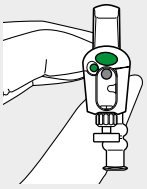
MINOP® InVent

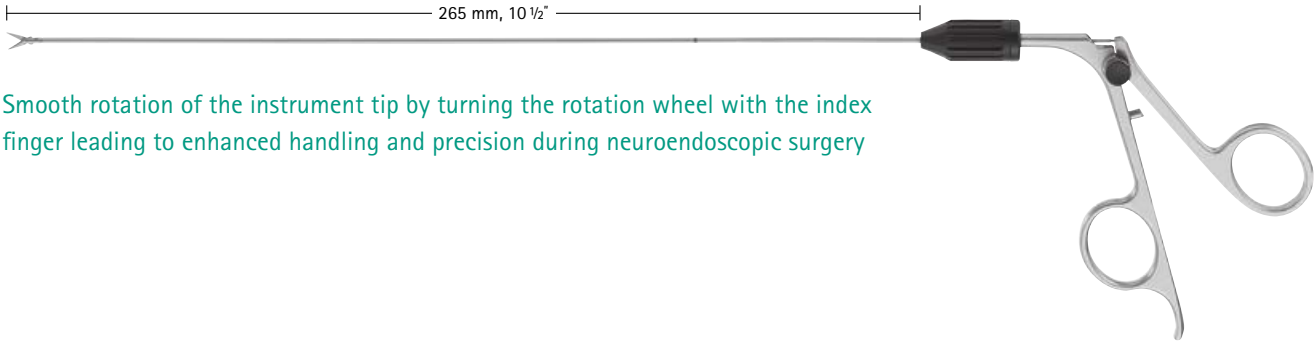
Advanced IntraVentricular Neuroendoscopic System - Tube Shaft Instruments



Instrument complete: Handle · outer tube · jaw part with inner tube, detachable, including cleaning brush

To be inserted through:





Smooth rotation of the instrument tip by turning the rotation wheel with the index finger leading to enhanced handling and precision during neuroendoscopic surgery

FH635R

MINOP® InVent scissors
sharp/sharp

FH637R

MINOP® InVent biopsy forceps

FH636R

MINOP® InVent scissors
blunt/blunt

FH638R

MINOP® InVent grasping and dissecting forceps

FH639R

MINOP® InVent surgical forceps
1 x 2 teeth

MINOP® InVent

Advanced IntraVentricular Neuroendoscopic System - Tube Shaft Instruments - Spare Parts

FH633R

MINOP® InVent instrument handle, only

FH635200

MINOP® InVent outer tube, only

FF435R

Scissors, jaw part with inner tube sharp/sharp

FF437R

Biopsy forceps, jaw part with inner tube

FF436R

Scissors, jaw part with inner tube blunt/blunt

FF438R

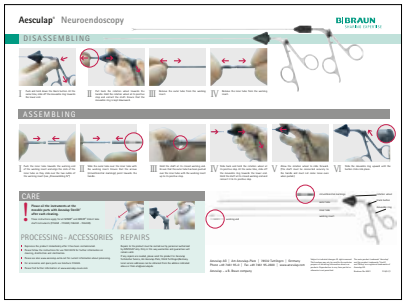
Grasping and dissecting forceps, jaw part with inner tube

TA012889

Cleaning brush for tube shaft instruments, without illustration

FF439R

Surgical forceps, jaw part with inner tube 1 x 2 teeth



- For disassembly and assembly of MINOP® InVent tube shaft instruments see poster no. C60911.

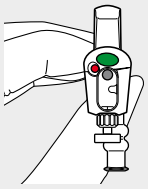
MINOP® InVent

Advanced IntraVentricular Neuroendoscopic System - Electrodes

BIPOLAR

Width x Height:
3.2 mm x 2.1 mm

To be inserted through:



GK343R

MINOP® InVent bipolar electrode
0°

GK344R

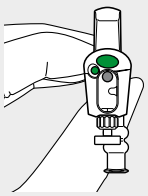
MINOP® InVent bipolar electrode
40°

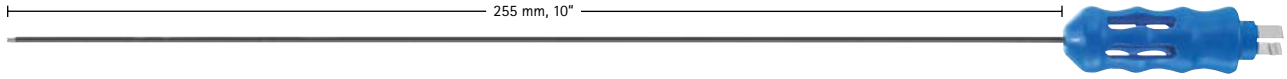
GK345R

MINOP® InVent bipolar electrode
30°

2.1 mm

To be inserted through:





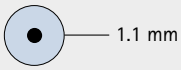
GK360R

Fork electrode, 0°

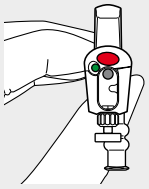
GN130

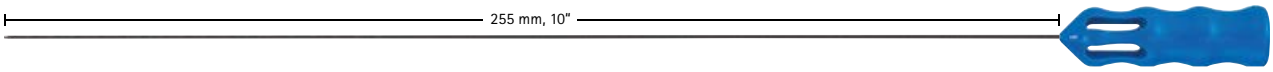
Bipolar cable, 4 m length
suitable for GN060, GN160, GN300, GN640

MONOPOLAR



To be inserted through:





GK361R

Blunt electrode

GK363R

Needle electrode

GK364R

Hook electrode, 45°

GK365R

Hook electrode, 70°

GK362R

Hook electrode, 90°

GK366R

Hook electrode, 180°

Hook electrodes:
tip width 2.2 mm

GN202

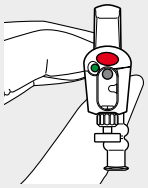
Monopolar cable, 3.5 m length
suitable for GN300, GN640

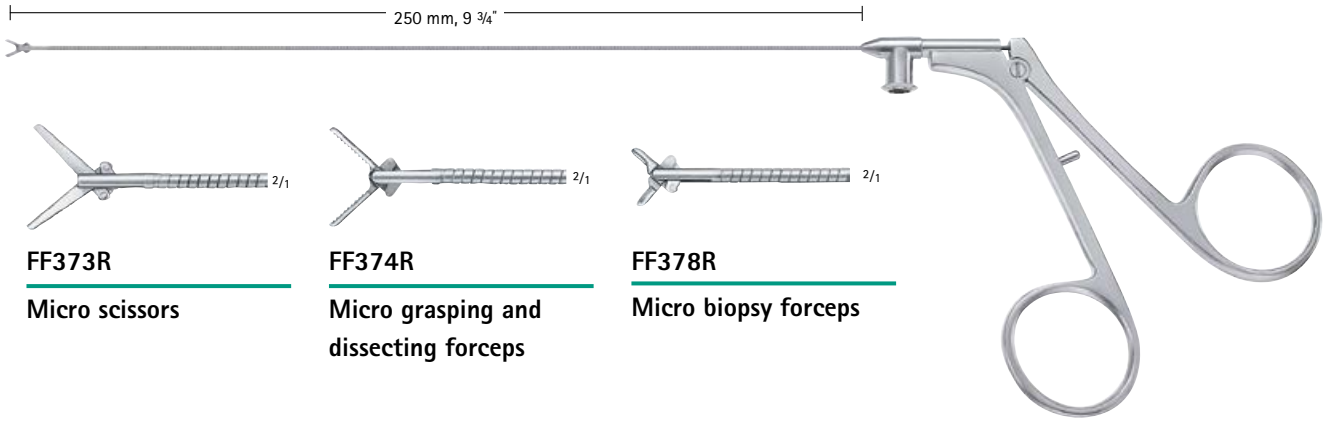
MINOP® InVent

Advanced IntraVentricular Neuroendoscopic System - Flexible Instruments, Suction Cannulas

Instruments with irrigation port for cleaning and reprocessing, non-detachable

To be inserted through:





FF373R

Micro scissors

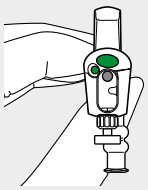
FF374R

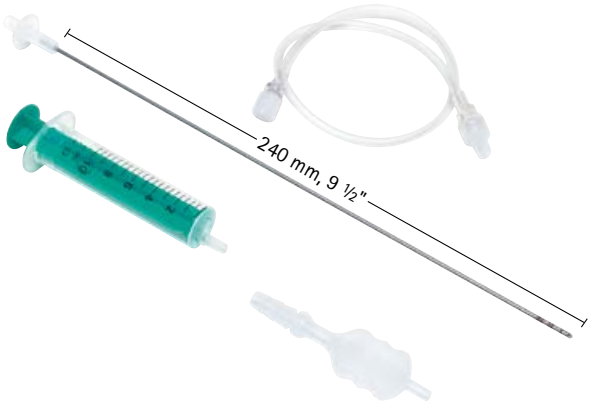
Micro grasping and dissecting forceps

FF378R

Micro biopsy forceps

To be inserted through:



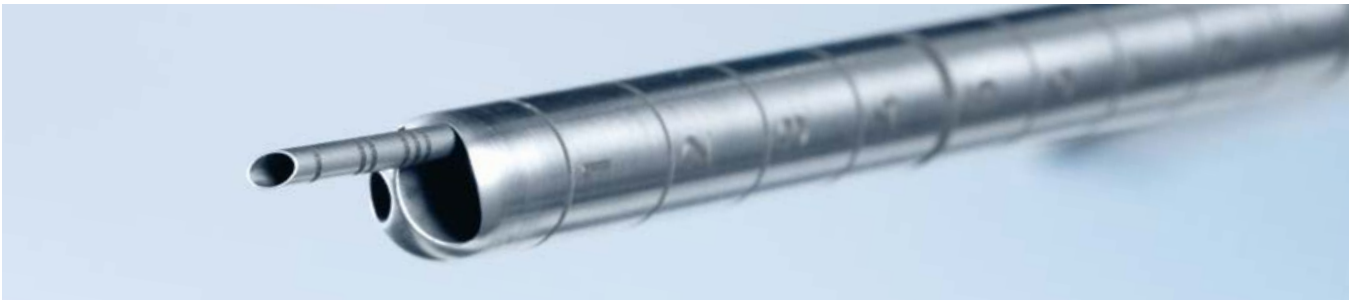


FH606SU

MINOP® single-use suction cannula
blunt tip 0°

FH607SU

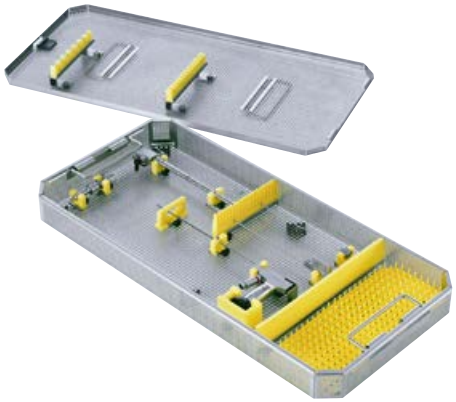
MINOP® single-use suction cannula
sharp tip 45°



MINOP® InVent

Advanced IntraVentricular Neuroendoscopic System - Sterilization and Storage

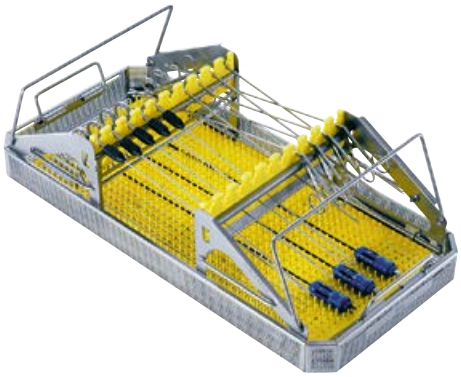
■ Basket for MINOP® InVent trocars and endoscopes



FH358R Dimensions (L/W/H) 540 x 253 x 56 mm

Basket with silicone mat, instrument racks with silicone and lid (instruments not included)

■ Basket for MINOP® InVent instruments and electrodes



FH359R Dimensions (L/W/H) 540 x 253 x166 mm

Basket with silicone mat and instrument racks with silicone, without lid (lid not necessary)
(instruments not included)

■ 1/1 Sterile container (basic version)
for baskets FH358R and FH359R

consisting of:

JK440

Bottom 1/1 for FH358R
without base perforation
Outside/Inside dimensions with inner lid:
L/W/H 592 x 285 x 108 mm
L/W/H 544 x 258 x 75 mm

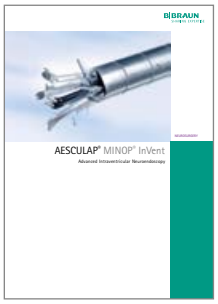
JK444

Bottom 1/1 for FH359R
without base perforation
Outside/Inside dimensions with inner lid:
L/W/H 592 x 285 x 205 mm
L/W/H 544 x 258 x 172 mm

JK486

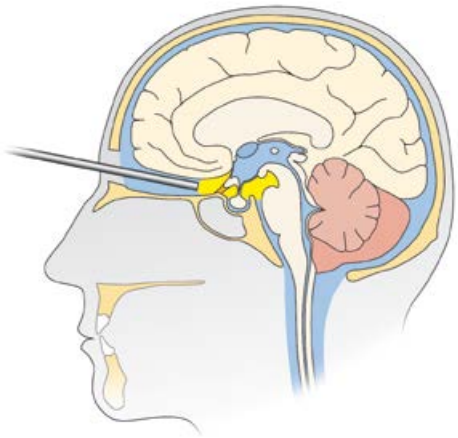
Inner lid 1/1
blue

■ For further details about the AESCULAP® Sterile Container System see brochure no. C40402.



■ For further details about MINOP® InVent see brochure no. C86802.

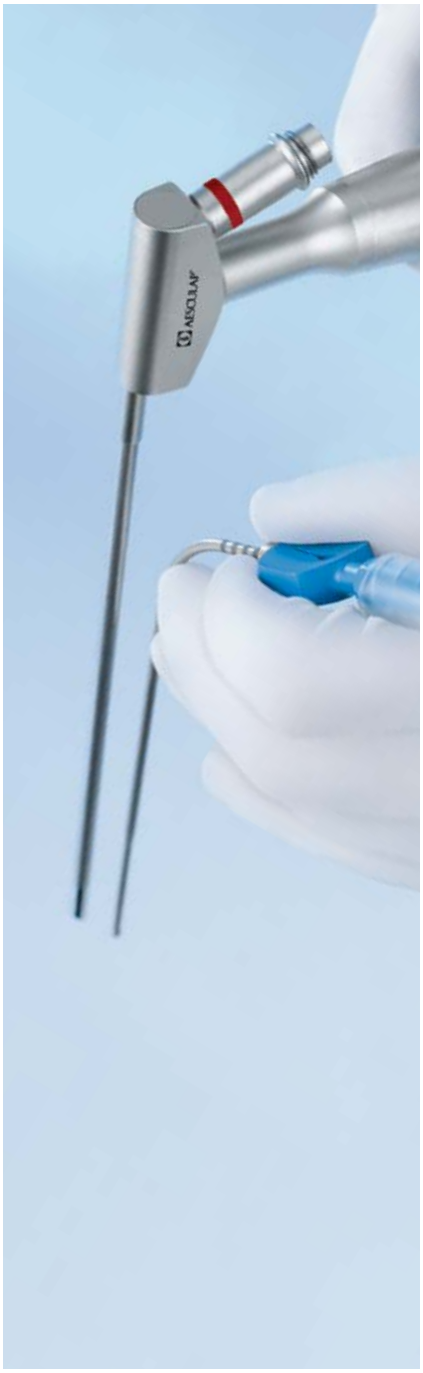

PE 506A 30°
FULL HD
FOR HUMAN USE

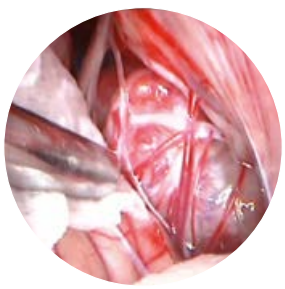


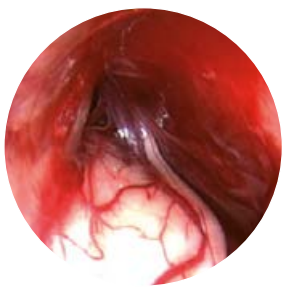
ENDOSCOPE-ASSISTED MICRONEUROSURGERY

MINOP® TEAM

Transcranial Endoscope-Assisted Microneurosurgery







The aim of minimally invasive neurosurgery is to avoid approach-related traumatization of the patient by creating a tailor-made limited craniotomy based on skilled preoperative planning.

Using modern diagnostic tools, surgical instruments and visual equipment, the specific anatomy and pathology of the individual patient can be precisely visualized and anatomical pathways and surgical corridors determined for the surgical approach. According to the predefined access, surgical dissection can be subsequently performed creating a much less traumatic cranial opening. The aim is not the limited cranial opening, but the limited approach associated injury with less brain exploration and retraction. The craniotomy should be as small as possible for minimally invasive exposure, but as large as necessary for achieving maximal surgical effect. In this way, limited exposure is not the primary goal but the result of the keyhole concept with the main and most important goal being to avoid surgery-related complications.

The intraoperative use of microscopes is mandatory in keyhole neurosurgery. The operating microscope provides both stereoscopic magnification and illumination of the surgical field. However, the loss of light intensity in the depth of the surgical field is a fundamental problem in keyhole approaches. For the purpose of bringing light into the site, operating microscopes can effectively be combined with the intraoperative use of modern endoscopes. The advantages of the endoscopic image are increased light, extended viewing angle and a better depiction of anatomical details in close-up. The endoscope is especially ideal for obtaining a detailed view of structures in the shadow of the microscope's light beam. Thus, in situations during microsurgical dissection where additional visual information of the target area is desired or when avoidance of retraction of superficial structures is recommended, an endoscope may be introduced into the surgical site.

The use of dedicated microneurosurgical instruments is obligatory in transcranial endoscope-assisted microneurosurgery. Highly sophisticated instrumentation including microdrills, KERRISON micropunches, self-retaining retractors, suction tubes, fine bipolar forceps, microscissors, diamond knives, microforceps, microdissectors, microcurettes, and clip appliers are mandatory for microsurgical dissection.

All before mentioned surgical tools - the microscope, endoscope and dedicated surgical instruments - complement each other and contribute in a TEAM-work manner to the goal of the keyhole concept: the achievement of the smallest iatrogenic trauma with the highest therapeutic effect for the patients.

Peter Nakaji

Peter Nakaji, Phoenix, USA

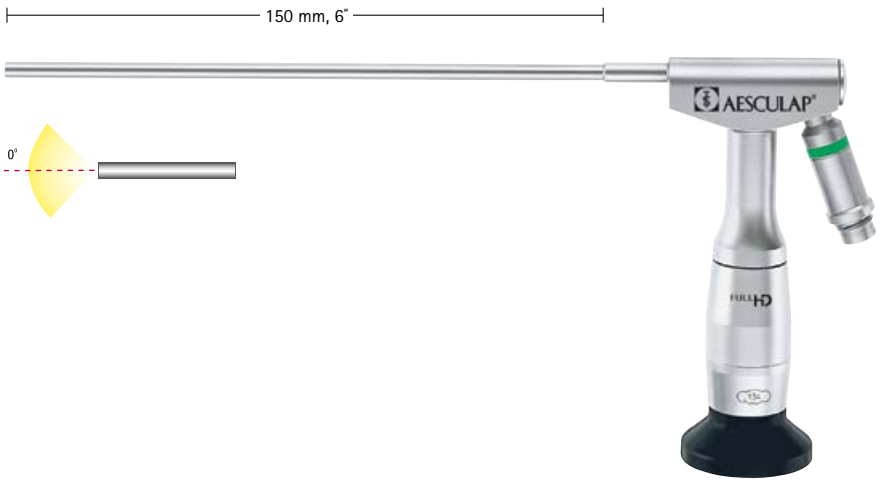
MINOP® TEAM

Transcranial Endoscope-Assisted Microneurosurgery - Endoscopes acc. PERNECZKY

- Full HD compatible
- Optimized optical components leading to an enlarged image area, higher image quality, brightness and contrast
- Angled endoscope design and lateral connection for camera and light source allow simultaneous use of microscope and micro instruments
- Autoclavable / Sterrad®

PE486A

MINOP® TEAM angled endoscope
Direction of view: 0° (green ring)
Shaft diam.: 4 mm

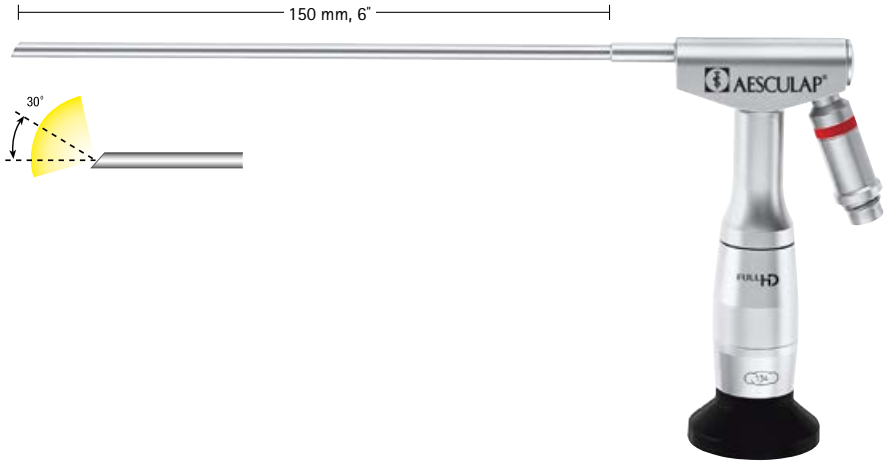


"I have been using the Aesculap angled Perneczky scopes since the mid nineties and in over 1000 cases. I have trialed many different scopes for endoscope-assisted surgery but the Perneczky scopes have the versatility that I need when removing tumors from many different cranial locations. The main advantage of the angled scopes is the unique design that allows simultaneous use of endoscope and microscope. Other important qualities that are met by this system are robustness, ability to use it to retract if necessary and clarity of image. I believe these scopes are an essential tool in the neurosurgeon's armamentarium."

Charles Teo, Sydney, Australia

PE506A

Angled endoscope
Direction of view: 30°
(red ring), upwards
Shaft diam.: 4 mm



"During microneurosurgical skull base approaches for either vascular lesions or tumors, there is often a difficulty of visualizing important neurovascular structures around and behind the lesion. In such a situation, the use of endoscopes has greatly advanced my surgical possibilities. The additional view through the endoscopes, which is complementary to what can be seen through the operating microscope, facilitates the handling of the lesion, be it aneurysm clipping or tumor removal, while at the same time there is no need for extensive retraction or bone removal."

André Grotenhuis, Nijmegen, Netherlands

MINOP® TEAM

Transcranial Endoscope-Assisted Microneurosurgery - Sterilization and Storage

■ Basket for 2 MINOP® TEAM angled endoscopes

JF324R Dimensions (L/W/H) 243 x 253 x 64 mm

Basket with instrument racks with silicone and lid (instruments not included)

■ 1/2 Sterile container (basic version)
for basket JF324R

consisting of:

JK340

Bottom 1/2
without base perforation
Outside/inside dimensions with inner lid
L/W/H 300 x 285 x 108 mm
L/W/H 254 x 258 x 75 mm

JK386

Inner lid 1/2
blue

■ For further details about the AESCULAP® Sterile Container System see brochure no. C40402.

Aesculap Aeos®

Digital Surgical Microscope Platform

TEAMwork
of the microscope, endoscope and dedicated surgical instruments in minimally invasive keyhole approaches with the aim of achieving the best patient outcome.

» MORE INFORMATION AT A GLANCE

- Excellent depth of field[1]
- Wider field of view
- Superior illumination
- Backlight illuminated 3D fluorescence modes
- Improved teamwork and teaching
- Plug-and-play integration with neuroendoscopes and other imaging technologies
- Picture in Picture with digital imaging sources

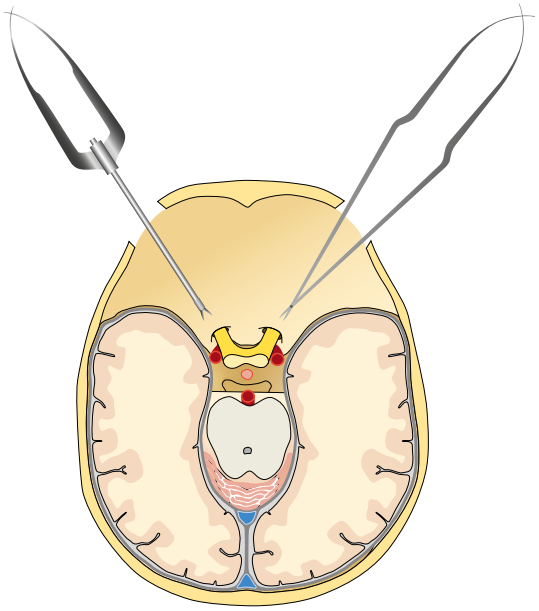
[1] According to feedback within the scope of a survey of 24 surgeons that used the Aesculap Aeos® clinically conducted by Aesculap.

- For more information on Aesculap Aeos® see brochure no. C03102.

MINOP® TEAM

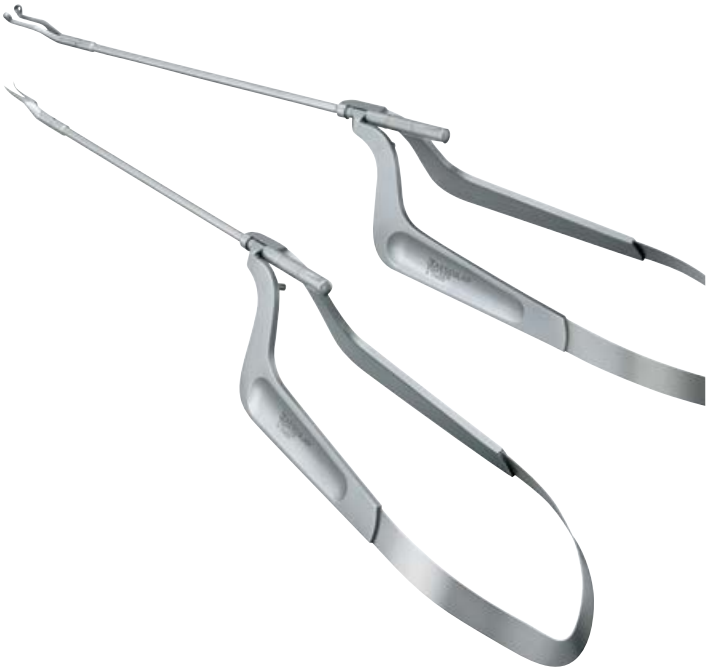
Transcranial Endoscope-Assisted Microneurosurgery - XS Tube Shaft Micro Instruments

Narrow operative sites require especially designed fine and slender micro instruments



XS Micro Instruments

- Narrow tubular shaft for increased freedom of movement
- Angled bayonet shape for enhanced sight when working under the microscope
- Dismountable for cleaning and reprocessing
- Exchangeable handles and jaw inserts



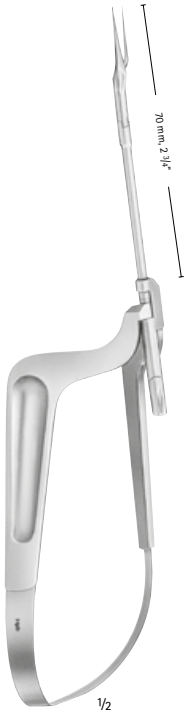
MINOP® TEAM

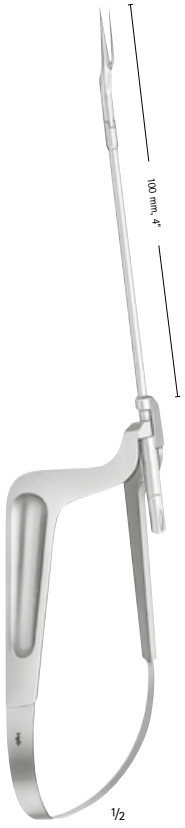
Transcranial Endoscope-Assisted Microneurosurgery - XS Micro Scissors

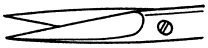
acc. PERNECZKY/CHRISTANTE

sharp/sharp

blunt/blunt





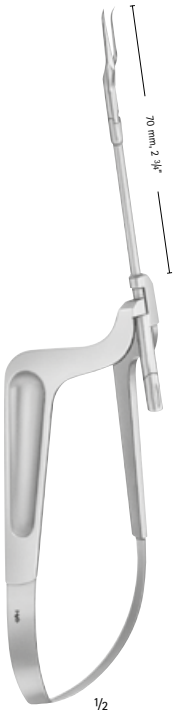
straight jaws			
sharp/sharp 	**FM670R**	**FM671R**	**FM672R**
blunt/blunt 	**FM690R**	**FM691R**	**FM692R**
Working length	70 mm, 2 3/4"	100 mm, 4"	130 mm, 5 1/8"
Total length	200 mm, 7 7/8"	230 mm, 9"	260 mm, 10 1/4"

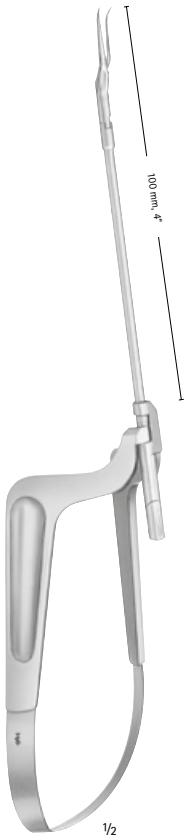
MINOP® TEAM

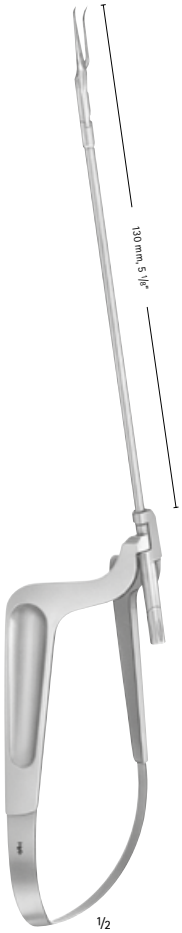
Transcranial Endoscope-Assisted Microneurosurgery - XS Micro Scissors acc. PERNECZKY/CHRISTANTE

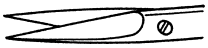
sharp/sharp

blunt/blunt



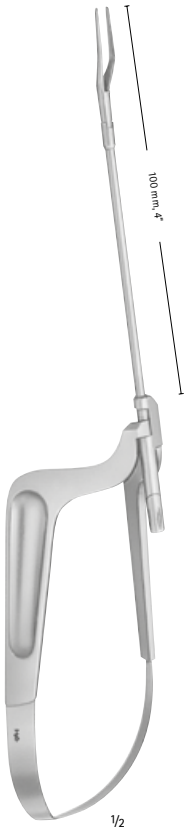


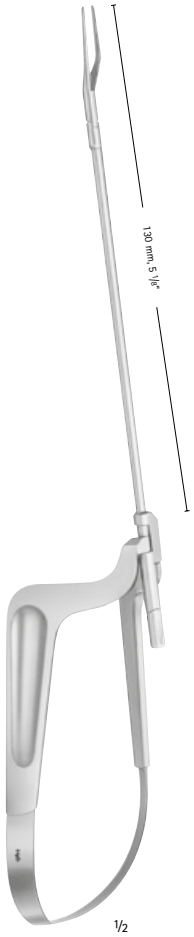


curved jaws			
sharp/sharp 	**FM680R**	**FM681R**	**FM682R**
blunt/blunt 	**FM700R**	**FM701R**	**FM702R**
Working length	70 mm, 2 3/4"	100 mm, 4"	130 mm, 5 1/8"
Total length	200 mm, 7 7/8"	230 mm, 9"	260 mm, 10 1/4"

MINOP® TEAM

Transcranial Endoscope-Assisted Microneurosurgery - XS Micro Tissue Grasping Forceps acc. PERNECZKY/CHRISTANTE

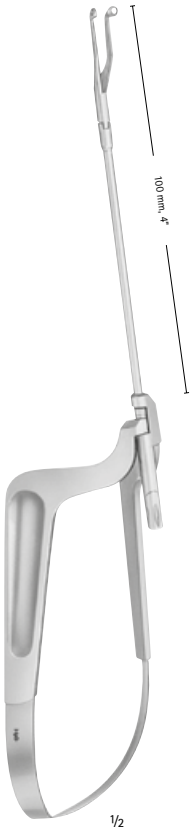


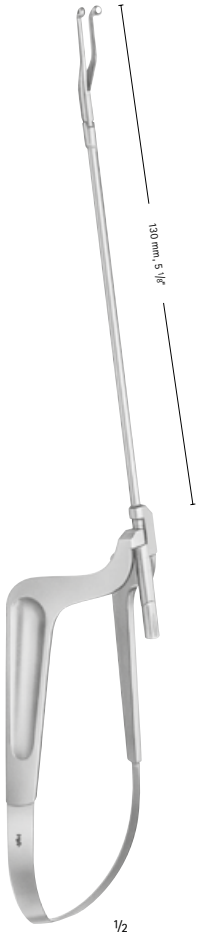


Jaw			
0.9 mm	**FM710R**	**FM711R**	**FM712R**
Working length	70 mm, 2 ¾"	100 mm, 4"	130 mm, 5 ⅛"
Total length	200 mm, 7 ⅞"	230 mm, 9"	260 mm, 10 ¼"

MINOP® TEAM

Transcranial Endoscope-Assisted Microneurosurgery - XS Micro Tumor Grasping Forceps acc. PERNECZKY/CHRISTANTE





Jaw			
3 mm, sharp 	**FM720R**	**FM721R**	**FM722R**
Working length	70 mm, 2 3/4"	100 mm, 4"	130 mm, 5 1/8"
Total length	200 mm, 7 7/8"	230 mm, 9"	260 mm, 10 1/4"

MINOP® TEAM

Transcranial Endoscope-Assisted Microneurosurgery - XS Tube Shaft Aneurysm Clip Appliers

Total length 230 mm, 9"

	Standard	Mini
For Titanium clips	**FT495T**	**FT490T**
For Phynox clips	**FE495K**	**FE490K**

Total length 250 mm, 9 ¾"

	Standard	Mini
For Titanium clips	**FT496T**	**FT491T**
For Phynox clips	**FE496K**	**FE491K**

MINOP® TEAM

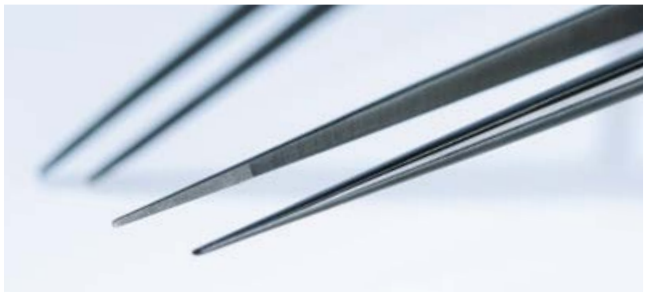
Transcranial Endoscope-Assisted Microneurosurgery - MIN Micro Instruments

Slender design and angled bayonet shape
Slender design and angled bayonet shape allow for less obstructions while working under the microscope.

Round golf ball handle design
Designed to provide a good grip and to enable the rotation of the instruments between the fingers.

Various working lengths
One handle design aligned with precisely adapted working lengths.

Noir® coating
Aesthetic surface coating effectively reduces disturbing light reflections.

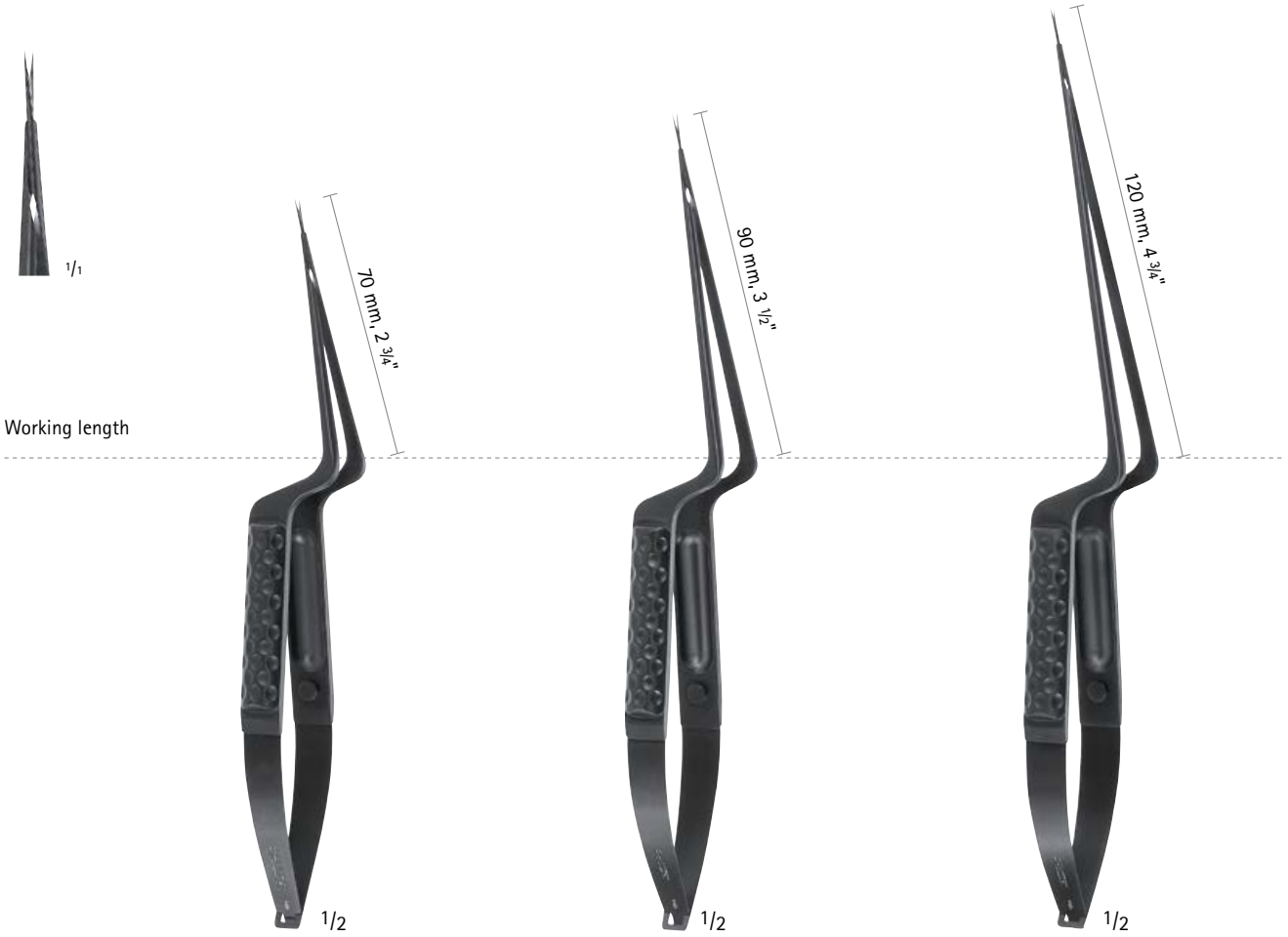


Fine instrument tips
Designed for working in very small operating corridors and close to sensitive structures.

MINOP® TEAM

Transcranial Endoscope-Assisted Microneurosurgery - MIN Micro Scissors

All scissors are equipped with wavecut



	straight jaws	slightly curved jaws	curved jaws	straight jaws	slightly curved jaws	curved jaws	straight jaws	slightly curved jaws	curved jaws
sharp/sharp	**FD701B**	**FD702B**	**FD703B**	**FD731B**	**FD732B**	**FD733B**	**FD771B**	**FD772B**	**FD773B**
blunt/blunt	**FD704B**	**FD705R**	**FD706B**	**FD734B**	**FD735B**	**FD736B**	**FD774B**	**FD775B**	**FD776B**
Working length	70 mm, 2 3/4"			90 mm, 3 1/2"			120 mm, 4 3/4"		
Total length	200 mm, 7 7/8"			220 mm, 8 3/4"			250 mm, 9 3/4"		

straight jaws

slighly curved jaws

curved jaws

MINOP® TEAM

Transcranial Endoscope-Assisted Microneurosurgery - MIN Micro Needle Holders

For suture material size 7/0 and smaller.

Working length

All needle holders are equipped with a ratchet

	FD717B	FD718B	FD719B
Working length	70 mm, 2 3/4"	90 mm, 3 1/2"	120 mm, 4 3/4"
Total length	200 mm, 7 7/8"	220 mm, 8 3/4"	250 mm, 9 3/4"

MINOP® TEAM

Transcranial Endoscope-Assisted Microneurosurgery - MIN Tissue and Tumor Grasping Forceps

0.5 mm	**FD711B**	**FD741B**	**FD761B**
0.9 mm	**FD713B**	**FD743B**	**FD763B**
Working length	70 mm, 2 3/4"	90 mm, 3 1/2"	120 mm, 4 3/4"
Total length	190 mm, 7 1/2"	210 mm, 8 1/4"	240 mm, 9 1/2"

MINOP® TEAM

Transcranial Endoscope-Assisted Microneurosurgery - MIN Tissue and Tumor Grasping Forceps

2.5 mm	FD766B	FD786B	FD767B	FD787B	FD768B	FD788B
3.5 mm	FD769B	FD789B	-	-	-	-
Working length	90 mm, 3 1/2"	120 mm, 4 3/4"	90 mm, 3 1/2"	120 mm, 4 3/4"	90 mm, 3 1/2"	120 mm, 4 3/4"
Total length	210 mm, 8 1/4"	240 mm, 9 1/2"	210 mm, 8 1/4"	240 mm, 9 1/2"	210 mm, 8 1/4"	240 mm, 9 1/2"

MINOP® TEAM

Transcranial Endoscope-Assisted Microneurosurgery - Modular MIN Micro Instruments

1/2

	Noir® Modular Handles
FD811B	Handle, diam. 8 mm, 100 mm, 4"
FD812B	Handle, diam. 11 mm, 100 mm, 4"
FD818B	Handle, diam. 8 mm, 100 mm, 4"
FD819B	Handle, diam. 11 mm, 100 mm, 4"
FD848B	Handle, diam. 8 mm, 100 mm, 4"
FD849B	Handle, diam. 11 mm, 100 mm, 4"

1/1

	Noir® Probes / Hooks
FD797B	Probe ball-tip, 200 mm, 7 7/8", 0°
FD798B	Probe ball-tip, 200 mm, 7 7/8", 45°
FD799B	Probe ball-tip, 200 mm, 7 7/8", 90°
FD808B	Hook, blunt, 200 mm, 7 7/8", 45°
FD809B	Hook, blunt, 200 mm, 7 7/8", 90°
FD805B	Hook, sharp, 200 mm, 7 7/8", 90°

1/1

	Noir® Scoops
FD814B	Scoop, 200 mm, 7 7/8", 2 mm, 10°
FD815B	Scoop, 200 mm, 7 7/8", 2 mm, 45°
FD816B	Scoop with neck, 200 mm, 7 7/8", 2 mm, 45°

1/1

	Noir® Dissectors
FD821B	Dissector, curved, 200 mm, 7 7/8", 1 mm
FD822B	Dissector, curved, 200 mm, 7 7/8", 2 mm
FD823B	Dissector, curved, 200 mm, 7 7/8", 3 mm

MINOP® TEAM

Transcranial Endoscope-Assisted Microneurosurgery - Modular MIN Micro Instruments

1/1

	Noir® Curettes
FD824B	Curette, 200 mm, 7 7/8", diam. 4 mm, 0°, semi-sharp
FD825B	Curette, 200 mm, 7 7/8", diam. 4 mm, 45°, semi-sharp
FD826B	Curette, 200 mm, 7 7/8", diam. 4 mm, 90°, semi-sharp
FD827B	Curette with neck, 200 mm, 7 7/8", diam. 4 mm, 45°, semi-sharp
FD828B	Curette with neck, 200 mm, 7 7/8", diam. 4 mm, 90°, semi-sharp
FD835B	Curette, 200 mm, 7 7/8", diam. 6.5 mm, 45°, semi-sharp
FD836B	Curette, 200 mm, 7 7/8", diam. 6.5 mm, 90°, semi-sharp

1/1

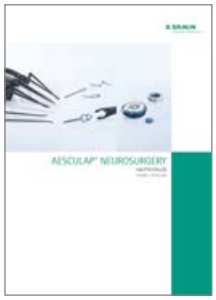
	Noir® Raspatories
FD831B	Raspatory, 200 mm, 7 7/8", 1 mm
FD832B	Raspatory, 200 mm, 7 7/8", 2 mm
FD833B	Raspatory, 200 mm, 7 7/8", 3 mm

1/1

	Noir® Tumor knives
FD839B	Noir® Tumor knife, 200 mm, 7 7/8", 1.5 mm, 45°
FD840B	Noir® Tumor knife, 200 mm, 7 7/8", 3 mm, 45°
FD841B	Noir® Tumor knife, 200 mm, 7 7/8", 4.5 mm, 45°

	Basket for MIN micro instruments
FD467R	Dimensions (L/W/H) 243 x 253 x 44 mm

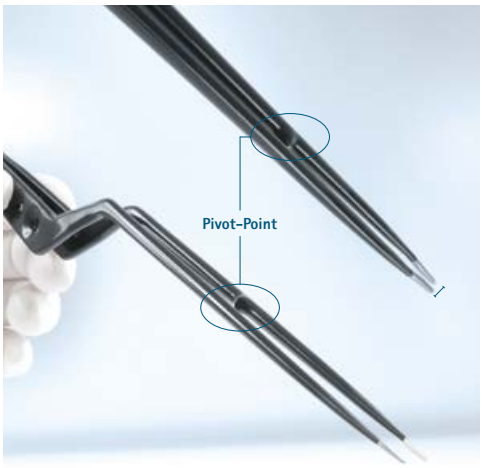
- For more information on the AESCULAP® MIN Instruments see brochure no. C92011.



- For information on further neurosurgical instruments see our Neurosurgery Main Catalogue no. C20121.

MINOP® TEAM

Transcranial Endoscope-Assisted Microneurosurgery - Pivot-Point Bipolar Forceps



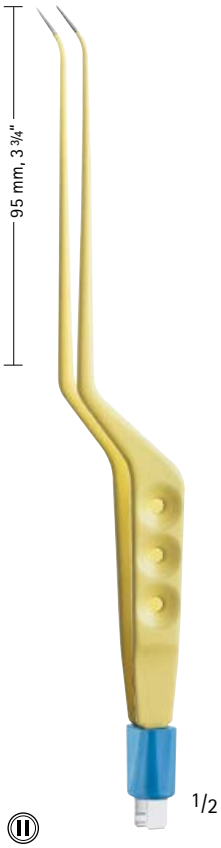
AESCULAP® tab connector					
0.7 mm	1/1	**GK822R**	**GK826R**	**GK823R**	**GK827R**
1.0 mm	1/1	**GK824R**	**GK828R**	**GK825R**	**GK829R**
Working length		95 mm, 3 ¾"	135 mm, 5 ¼"	95 mm, 3 ¾"	135 mm, 5 ¼"
Total length		215 mm, 8 ½"	255 mm, 10"	215 mm, 8 ½"	255 mm, 10"

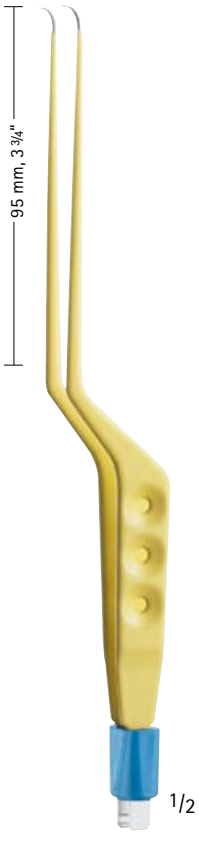
"The black "Pivot-Point" bipolar forceps are a great advance. The bipolar is as essential a tool as the neurosurgeon's own fingers. As we go more and more minimally invasive, the need for a very slim, responsive bipolar that will work under tight conditions is essential. The tips can be precisely separated even when the shafts are together in a tiny space. This is a must-have instrument, especially for transphenoidal and keyhole approaches."

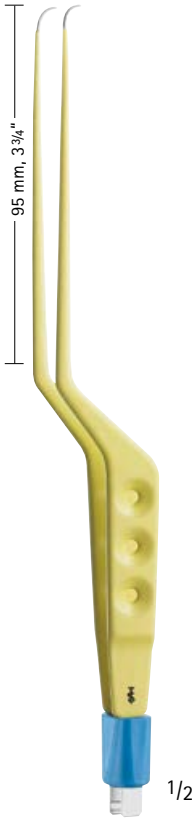
Peter Nakaji, Phoenix, USA

MINOP® TEAM

Transcranial Endoscope-Assisted Microneurosurgery - Bipolar Yasargil Forceps

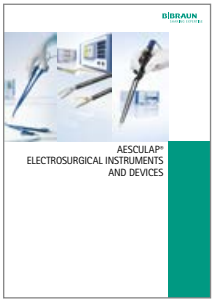






AESCULAP®
tab connector

	-	0.4 mm 1/1	GK780R	0.4 mm	-
0.7 mm 1/1	GK777R	0.7 mm 1/1	GK781R	0.7 mm 1/1	GK785R
Working length	95 mm, 3 3/4"		95 mm, 3 3/4"		95 mm, 3 3/4"
Total length	215 mm, 8 1/2"		215 mm, 8 1/2"		215 mm, 8 1/2"



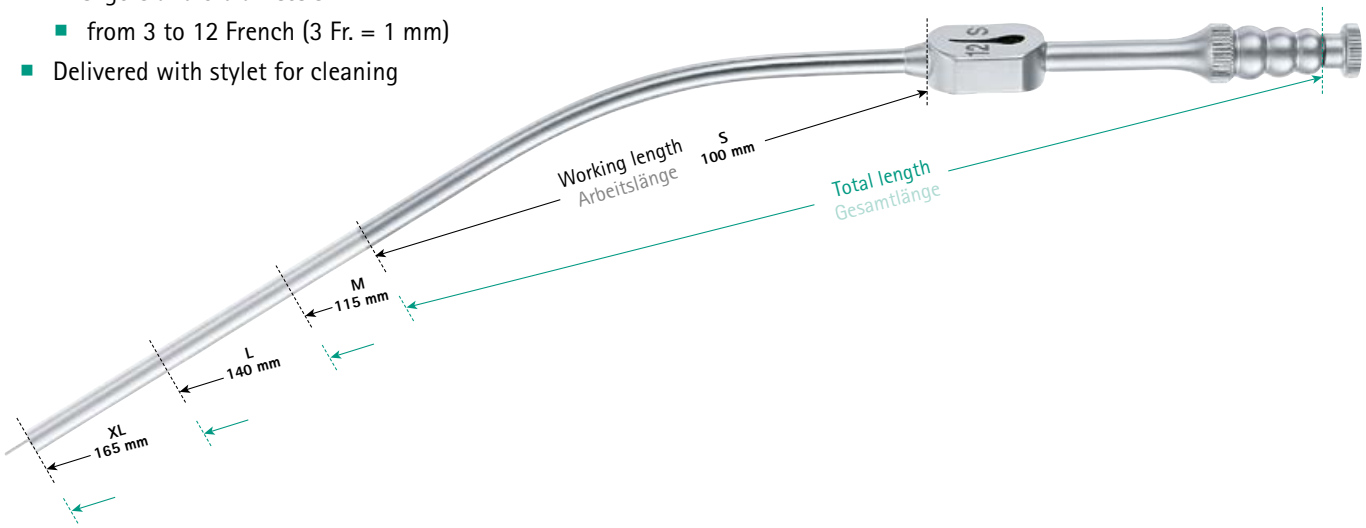
- For more information on AESCULAP® electrosurgical instruments and devices see brochure no. C30402.

MINOP® TEAM

Transcranial Endoscope-Assisted Microneurosurgery - FUKUSHIMA Suction Cannulas

Fukushima Design

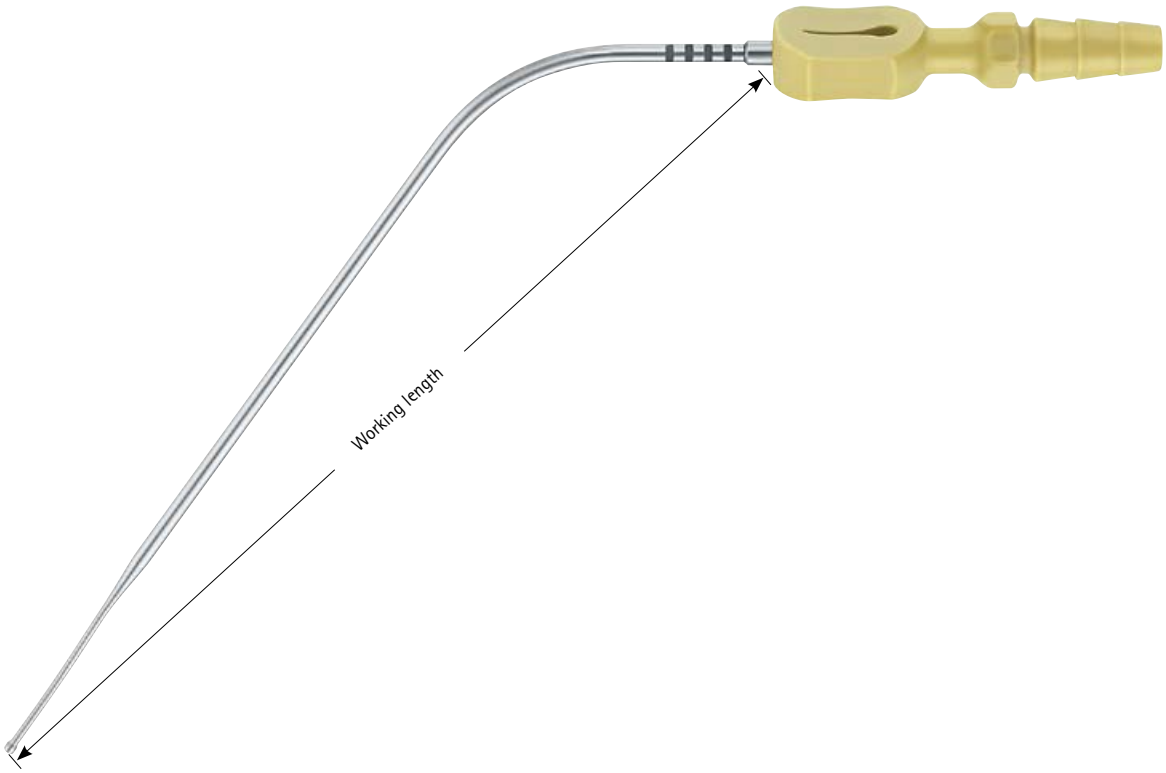
- Teardrop shaped thumb control for suction regulation
- Malleable material for individual forming of the suction hose
- Conical design of suction cannulas
- 4 lengths and 9 diameters
  - from 3 to 12 French (3 Fr. = 1 mm)
- Delivered with stylet for cleaning



	S	M	L	XL
Working length	100 mm, 4"	115 mm, 4 ½"	140 mm, 5 ½"	165 mm, 6 ½"
Total length	165 mm, 6 ½"	180 mm, 7"	205 mm, 8"	230 mm, 9"
3 Fr.	**GF401R**	**GF391R**	**GF411R**	**GF421R**
4 Fr.	**GF402R**	**GF392R**	**GF412R**	**GF422R**
5 Fr.	**GF403R**	**GF393R**	**GF413R**	**GF423R**
6 Fr.	**GF404R**	**GF394R**	**GF414R**	**GF424R**
7 Fr.	**GF405R**	**GF395R**	**GF415R**	**GF425R**
8 Fr.	**GF406R**	**GF396R**	**GF416R**	**GF426R**
9 Fr.	**GF407R**	**GF397R**	**GF417R**	**GF427R**
10 Fr.	**GF408R**	**GF398R**	**GF418R**	**GF428R**
12 Fr.	**GF409R**	**GF399R**	**GF419R**	**GF429R**

MINOP® TEAM

Transcranial Endoscope-Assisted Microneurosurgery - RAABE Suction Cannulas



RAABE		S	M	L	XL
Working length		80 mm, 3 1/8"	100 mm, 4"	120 mm, 4 3/4"	140 mm, 5 1/2"
4 Fr. yellow	1/1	**GF470R**	**GF473R**	**GF476R**	**GF479R**
6 Fr. blue	1/1	**GF471R**	**GF474R**	**GF477R**	**GF480R**
8 Fr. green	1/1	**GF472R**	**GF475R**	**GF478R**	**GF481R**

3 Fr. = 1 mm

The ball tip at the end of the instrument is designed for gentle preparation.

Colour coding for the identification of all three diameters. Black rings as indicators to identify the instrument length.

MINOP® TEAM

Transcranial Endoscope-Assisted Microneurosurgery - Noir® Brain Spatulas

Noir® coated Brain Spatula

- Malleable metal spatula
- Conically tapered
- Smooth surface
- Rounded, blunt edges
- Black Noir® surface coating for reduced disturbing light reflections
- Reusable

FF456B

S = 8/4 mm
Length:
200 mm, 7 7/8"

2/3

FF457B

M = 13/6 mm
Length:
200 mm, 7 7/8"

2/3

FF458B

L = 17/9 mm
Length:
200 mm, 7 7/8"

2/3

FF459B

XL = 21/11 mm
Length:
200 mm, 7 7/8"

2/3

MINOP® TEAM

Transcranial Endoscope-Assisted Microneurosurgery - TREND Instruments

Bayonet shaped with golf ball handle design for pituitary and skull base surgeries

FA041R-FA068R

Working length:
130 mm, 5 1/8"

Total length:
280 mm, 11"

diam. 6.5 mm

NICOLA

FA041R

Curette
semi-sharp
45° vertical angled
long neck
shaft malleable

diam. 6.5 mm

NICOLA

FA042R

Curette
semi-sharp
45° horizontal angled
short neck
shaft malleable

HARDY

FA043R

Enucleator
blunt
up cvd.
left cutting
shaft malleable

HARDY

FA044R

Enucleator
blunt
up cvd.
right cutting
shaft malleable

diam. 4 mm

HARDY

FA045R

Curette
semi-sharp
90° left angled
long neck
shaft malleable

diam. 4 mm

HARDY

FA046R

Curette
semi-sharp
90° left angled
short neck
shaft malleable

diam. 4 mm

HARDY

FA047R

Curette
semi-sharp
90° right angled
long neck
shaft malleable

diam. 4 mm

HARDY

FA060R

Curette
semi-sharp
90° right angled
short neck
shaft malleable

diam. 4 mm

HARDY

FA061R

Curette
semi-sharp
45° horizontal,
left angled
short neck
shaft malleable

diam. 4 mm

HARDY

FA062R

Curette
semi-sharp
45°horizontal,
right angled
short neck
shaft malleable

diam. 6 mm

HARDY

FA063R

Curette
semi-sharp
90° left angled
long neck
shaft malleable

diam. 6 mm

HARDY

FA064R

Curette
semi-sharp
90° left angled
short neck
shaft malleable

diam. 6 mm

HARDY

FA065R

Curette
semi-sharp
90° right angled
long neck
shaft malleable

diam. 6 mm

HARDY

FA066R

Curette
semi-sharp
90° right angled
short neck
shaft malleable

tip length 1.7 mm

LANDOLT-
REULEN

FA067R

Micro hook
blunt
shaft rigid

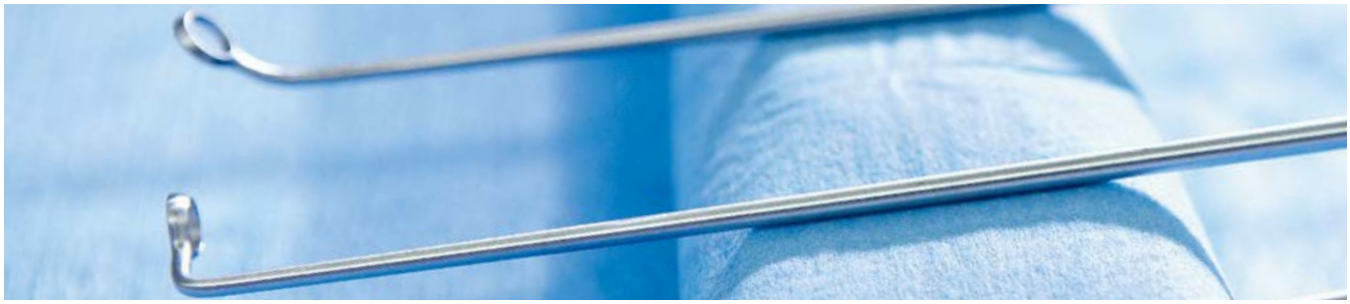
width 2 mm

1/1

LANDOLT-
REULEN

FA068R

Dissector
blunt
shaft rigid



MINOP® TEAM

Transcranial Endoscope-Assisted Microneurosurgery - KERRISON Detachable Bone Punches

Jaw position 130°, upbiting

Shaft length	Width	Footplate	Ejector	Jaw opening	Detachable	Noir®, detachable
180 mm, 7"	1.0 mm	standard	-	8 mm	**FK900R**	**FK900B**
	1.5 mm	standard	-	9 mm	**FK911R**	**FK911B**
	2.0 mm	standard	✔	9 mm	**FK901R**	**FK901B**
	2.5 mm	standard	✔	10 mm	**FK912R**	**FK912B**
	3.0 mm	standard	✔	10 mm	**FK902R**	**FK902B**
200 mm, 7 7/8"	1.0 mm	standard	-	8 mm	**FK960R**	**FK960B**
	1.5 mm	standard	-	9 mm	**FK966R**	**FK966B**
	2.0 mm	standard	✔	9 mm	**FK913R**	**FK913B**
	2.5 mm	standard	✔	10 mm	**FK967R**	**FK967B**
	3.0 mm	standard	✔	10 mm	**FK914R**	**FK914B**

Large figure for identification of jaw width.

Ejector - facilitates the removal of punched-out material.

Numerical code – for the identification of the two matching components during the assembly.

MINOP® TEAM

Transcranial Endoscope-Assisted Microneurosurgery - Bayonet-shaped KERRISON Punches

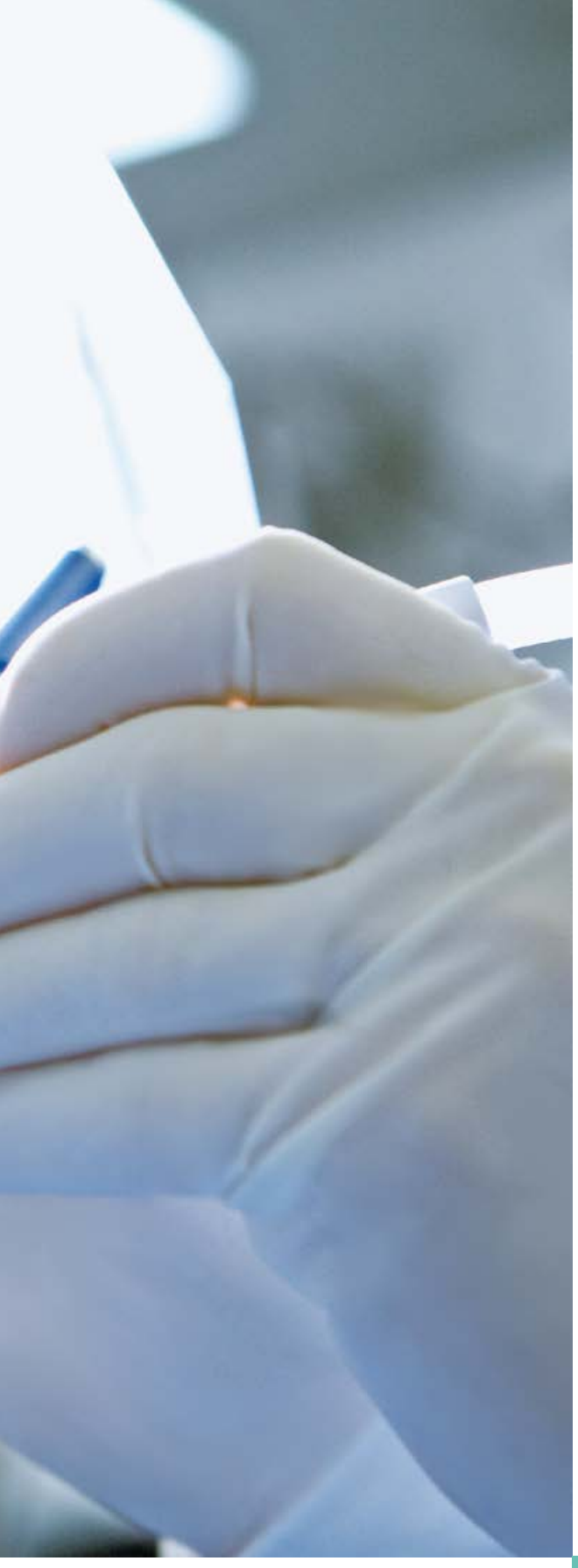
Jaw position 130°, upbiting

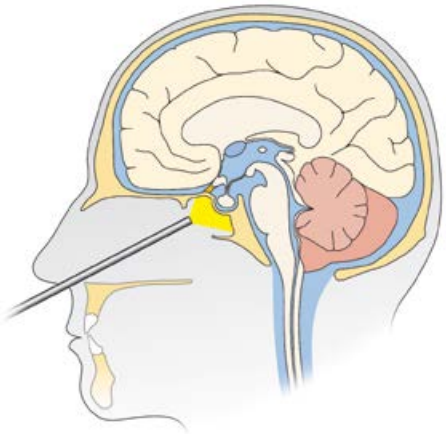
Shaft length	Width	Working length	Ejector	Jaw opening	Art. No.
250 mm, 9 ½"	2.0 mm	170 mm, 6 ¾"	-	10 mm	**FF496R**
	3.0 mm	170 mm, 6 ¾"	-	10 mm	**FF497R**
	4.0 mm	170 mm, 6 ¾"	-	10 mm	**FF498R**
	5.0 mm	170 mm, 6 ¾"	-	10 mm	**FF499R**

- For more information on transcranial endoscope-assisted microneurosurgery see our Practical Atlas no. C29802.

- For more information on AESCULAP® Bone Punches see brochure no. C84802.


MINOP

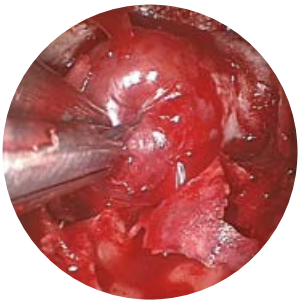




TRANSNASAL NEUROENDOSCOPY

MINOP® TREND

TRansnasal ENDoscopic System



"When looking at recent publications on transsphenoidal surgery, it will be clear that **TR**ansphenoidal **END**oscopy is TREND-setting! However, this endoscopic technique is not in routine use everywhere and neurosurgeons are often reluctant to use it: One is often cautious about an endoscopic endonasal dissection because the permanent contamination of the endoscope with blood and nasal secretions hinders orientation. In addition, the para-endoscopic and biportal dissection is very unfamiliar requiring an unacceptably steep learning curve.

Nevertheless, endoscopic visualization and para-endoscopic dissection without using the surgical microscope offers several undisputable advantages. Advantages in visualization increases light intensity in the deep-seated surgical field and clearly displays patho-anatomical details. In addition, the extended viewing angle of endoscopes enables surgeons to observe hidden parts of the surgical field. The major benefit in surgical dissection is the unhindered approach to these clearly visible structures: Without using a nasal speculum, surgical manipulation is not impeded and the instruments are freely mobile. In addition, a pure endoscopic technique avoids the need for rhinoseptal submucosal dissection providing a direct and quicker approach to the sphenoid sinus. This method avoids the need for postoperative nasal packing, thus causing less pain and discomfort after surgery, providing better nasal airflow and a shorter hospital stay.

Pre-conditions of transsphenoidal endoscopy are the basic endoscopic experience and anatomical studies in the laboratory; however, it is indispensable to use a dedicated endoscopic system to further shorten the learning phase. The endoscope for transsphenoidal skull base surgery must provide a brilliant image quality with true colors, high contrast and highly realistic images. This simplifies the differentiation between healthy or pathological structures. It is essential to have an effective cleaning function in order to free the endoscope lens from fog, blood or mucosal secretions. The endoscope must offer a highly ergonomic design and sufficient working length for extended approaches. For selected cases, it is also necessary to connect the endoscope to a navigation system or a holding device."

André Grotenhuis

André Grotenhuis
Nijmegen, Netherlands

MINOP® TREND

TRansnasal ENDoscopic System – Trocars, Handle and Accessories

- Suction, cleaning and irrigation function controlled via handle
- Handle rotatable around the endoscope shaft for improved flexibility in positioning the endoscope
- No irrigation pump needed

FH610R

MINOP® TREND suction and irrigation trocar
for 0° endoscope PE487A
Diam.: 4.5 / 6 mm

FH611R

MINOP® TREND suction and irrigation trocar
for 30° endoscope PE507A
Diam.: 4.5 / 6 mm

FH615

Handle with irrigation button
for MINOP® TREND trocars
FH610R and FH611R

RT099R

Adapter for fixation of MINOP® TREND handle FH615 to AESCULAP® holding arm

FH605SU

Single-use suction and irrigation tube, sterile packed, Length 4.5 m, 2 puncture needles, for MINOP® TREND handle FH615, Sales unit: PAK = Package of 10 tubes

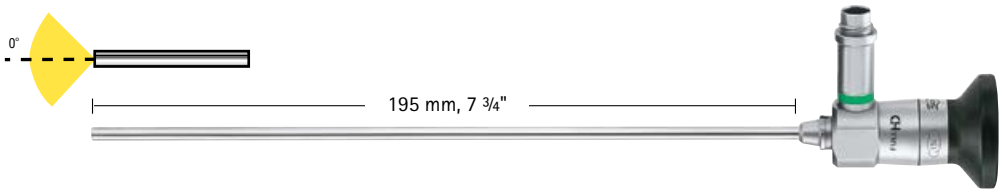
"No other system that I have used combines as many helpful features in a single ‚instrument'. The lens cleaning is rapid and conveniently controlled with a button, instead of a pedal. The suction is effective. The ability to rotate the scope easily and quickly within the handle improves angled viewing. Overall, these features make the MINOP TREND an asset for endonasal surgery."

Jeremy Greenlee, Iowa City, USA

MINOP® TREND

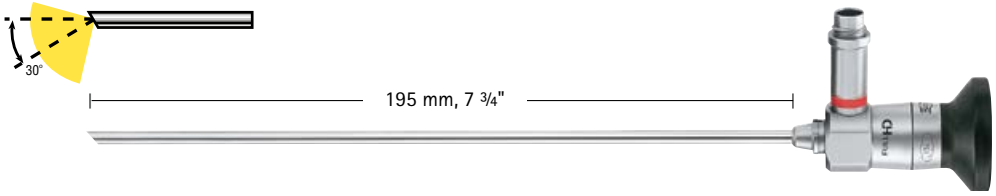
TRansnasal ENDoscopic System – Endoscopes

- Full HD compatible
- Optimized optical components leading to an enlarged image area, higher image quality, brightness and contrast
- Autoclavable / Sterrad®



PE487A

MINOP® TREND endoscope
Direction of view: 0° (green ring)
Shaft diam.: 4 mm



PE507A

MINOP® TREND endoscope
Direction of view: 30° (red ring)
Shaft diam.: 4 mm

"The view through the operating microscope allows a purely coaxial visualisation in transsphenoidal surgery: laterally located structures are concealed behind the nasal speculum. Blind tumor removal involves a higher risk of iatrogenic damage to neurovascular structures and a possible increase in tumor remnants. With the use of the MINOP TREND endoscope for transnasal procedures, these laterally located parts of the field are directly visible and therefore surgically better approachable. In the past several years of endoscopic transnasal surgery, the use of endoscopes has proven to be not only indispensable but rather mandatory for a safe and effective transnasal surgery in de sellar and parasellar region."

André Grotenhuis, Nijmegen, Netherlands

MINOP® TREND

TRansnasal ENDoscopic System – Sterilization and Storage

■ Basket for MINOP® TREND trocar, endoscopes, handle and adapter

FF357R Dimensions (L/W/H) 406 x 253 x 56 mm

Basket with silicone mat, instrument racks with silicone and lid (instruments not included)

■ 3/4 Sterile container (basic version) for basket FF357R

consisting of:

JK740

Bottom 3/4
without base perforation
Outside/Inside dimensions with inner lid:
L/W/H 470 x 285 x 108 mm
L/W/H 421 x 258 x 75 mm

JK786

Inner lid 3/4
blue

■ For further details about the AESCULAP® Sterile Container System see brochure no. C40402.

MINOP® TREND

TRansnasal ENDoscopic System - TREND Instruments

Bayonet shaped with golf ball handle design

FA041R-FA068R

Working length:
130 mm, 5 1/8"

Total length:
280 mm, 11"

diam. 6.5 mm

NICOLA

FA041R

Curette
semi-sharp
45° vertical angled
long neck
shaft malleable

diam. 6.5 mm

NICOLA

FA042R

Curette
semi-sharp
45° horizontal angled
short neck
shaft malleable

HARDY

FA043R

Enucleator
blunt
up cvd.
left cutting
shaft malleable

HARDY

FA044R

Enucleator
blunt
up cvd.
right cutting
shaft malleable

diam. 4 mm

HARDY

FA045R

Curette
semi-sharp
90° left angled
long neck
shaft malleable

diam. 4 mm

HARDY

FA046R

Curette
semi-sharp
90° left angled
short neck
shaft malleable

diam. 4 mm

HARDY

FA047R

Curette
semi-sharp
90° right angled
long neck
shaft malleable

diam. 4 mm

HARDY

FA060R

Curette
semi-sharp
90° right angled
short neck
shaft malleable

diam. 4 mm

HARDY

FA061R

Curette
semi-sharp
45° horizontal,
left angled
short neck
shaft malleable

diam. 4 mm

HARDY

FA062R

Curette
semi-sharp
45°horizontal,
right angled
short neck
shaft malleable

diam. 6 mm

HARDY

FA063R

Curette
semi-sharp
90° left angled
long neck
shaft malleable

diam. 6 mm

HARDY

FA064R

Curette
semi-sharp
90° left angled
short neck
shaft malleable

diam. 6 mm

HARDY

FA065R

Curette
semi-sharp
90° right angled
long neck
shaft malleable

diam. 6 mm

HARDY

FA066R

Curette
semi-sharp
90° right angled
short neck
shaft malleable

tip length 1.7 mm

LANDOLT-
REULEN

FA067R

Micro hook
blunt
shaft rigid

width 2 mm

1/1

LANDOLT-
REULEN

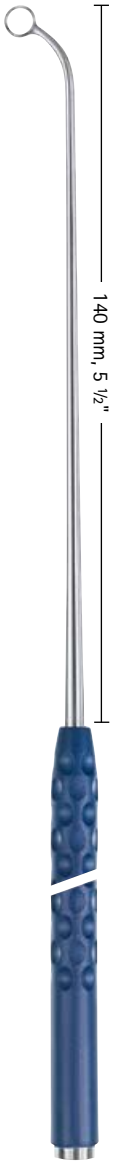
FA068R

Dissector
blunt
shaft rigid

MINOP® TREND

TRansnasal ENDoscopic System - TREND Instruments

Straight shape with golf ball handle design



FA030R–FA040R

Working length:
140 mm, 5 ½"

Total length:
265 mm, 10 ½"

diam. 6.5 mm

NICOLA

FA030R

Curette
semi-sharp
45° vertical angled
long neck
shaft malleable

diam. 6.5 mm

NICOLA

FA031R

Curette
semi-sharp
45° horizontal
angled
short neck
shaft malleable

HARDY

FA032R

Enucleator
blunt
up cvd.
left cutting
shaft malleable

HARDY

FA033R

Enucleator
blunt
up cvd.
right cutting
shaft malleable

diam. 4 mm

HARDY

FA034R

Curette
semi-sharp
90° angled
long neck
shaft malleable

diam. 4 mm

HARDY

FA035R

Curette
semi-sharp
90° angled
short neck
shaft malleable

diam. 4 mm

HARDY

FA036R

Curette
semi-sharp
45° angled
short neck
shaft malleable

diam. 6 mm

HARDY

FA037R

Curette
semi-sharp
90° angled
long neck
shaft malleable

diam. 6 mm

HARDY

FA038R

Curette
semi-sharp
90° angled
short neck
shaft malleable

diam. 1.7 mm

LANDOLT-REULEN

FA039R

Micro hook
blunt
shaft rigid

diam. 2 mm

LANDOLT-REULEN

FA040R

Dissector
blunt
shaft rigid

MINOP® TREND

TRansnasal ENDoscopic System - Transsphenoidal Specula

1/2

PAPAVERO-CASPAR

Art. No.	Blade size
FF589R	80 x 11 mm
FF590R	90 x 13 mm
FF591R	100 x 15 mm

Slim profile and lightweighted specula for transsphenoidal surgery
incl. key TE749R

1/2

FF590B

Noir® Transsphenoidal specula
incl. TE749R

1/2

TE749R

Key for socket-head screw for FF589R, FF590R, FF591R, FF590B

MINOP® TREND

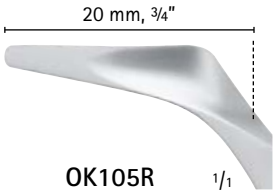
TRansnasal ENDoscopic System - Nasal Specula

1/2

COTTLE

OK105R-OK108R
OK090R

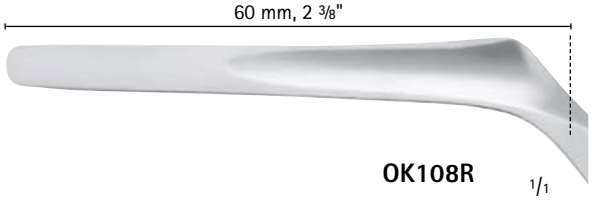
with aseptic joint, set-screw,
with extra thin blades
140 mm, 5 ½"



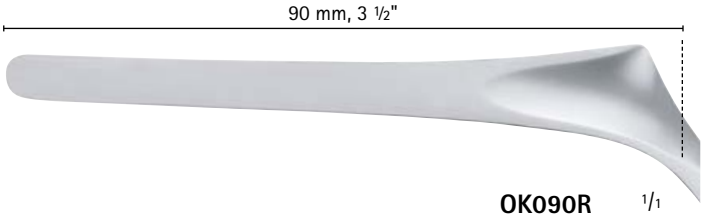
OK105R 1/1

OK106R 1/1

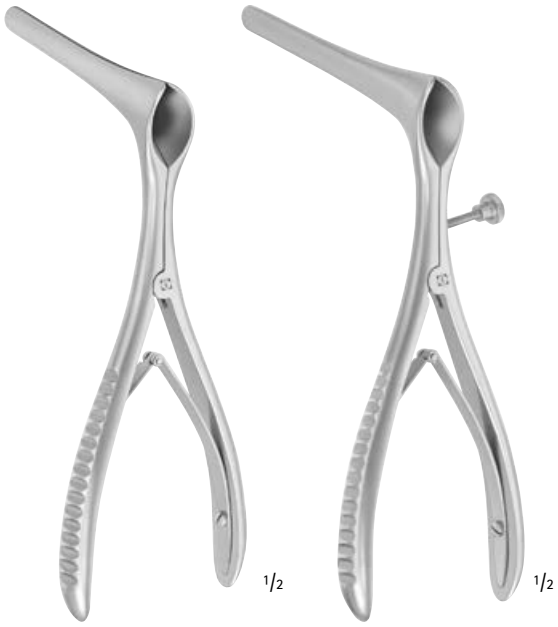
OK107R 1/1



OK108R 1/1



OK090R 1/1



KILLIAN

OK081R	Fig. 1	**OK091R**	Fig. 1
OK082R	Fig. 2	**OK092R**	Fig. 2
OK083R	Fig. 3	**OK093R**	Fig. 3
OK084R	Fig. 4	**OK094R**	Fig. 4
with aseptic joint 145 mm, 5 3/4"		with screw joint 145 mm, 5 3/4"	

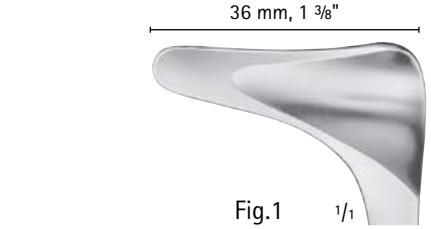


Fig.1 1/1

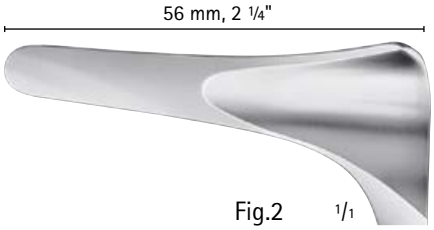


Fig.2 1/1

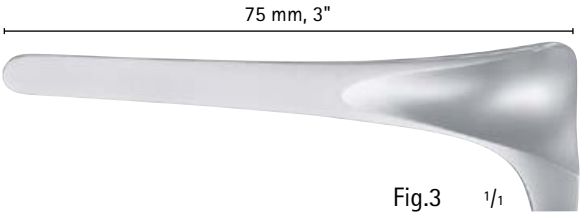


Fig.3 1/1

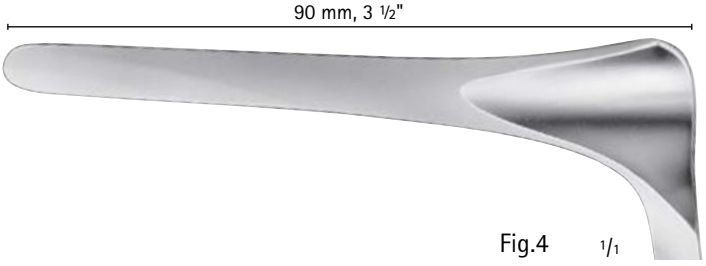


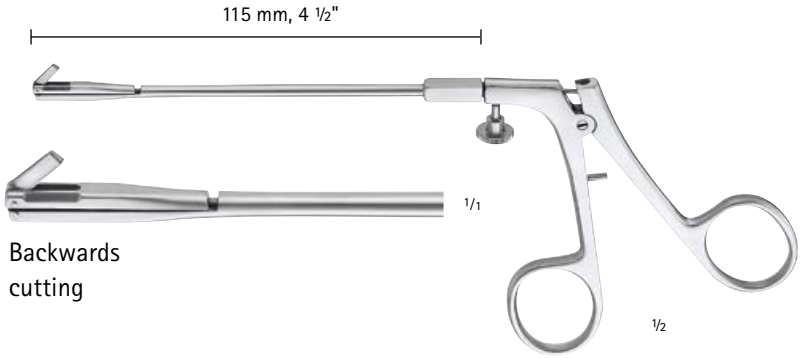
Fig.4 1/1

MINOP® TREND

TRansnasal ENDoscopic System - Antrum and Sinus Punches

FA076R

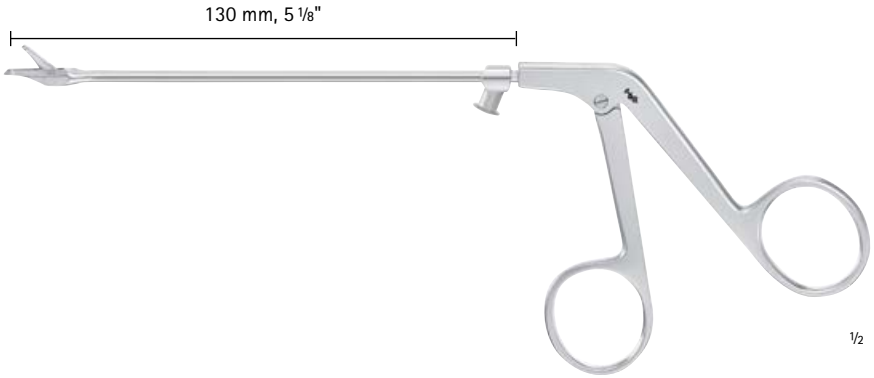
Antrum punch
for removal of posterior nasal septum
Rotating sheath 360°



Backwards cutting

OK602R-OK609R

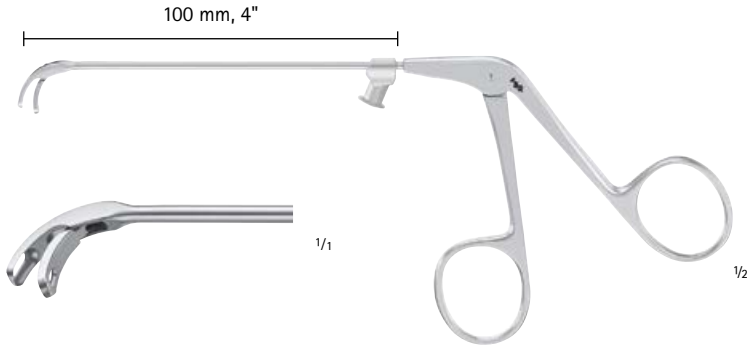
Sinus punches



		2/1 6 x 1.5 mm	2/1 8 x 3 mm	2/1 11.5 x 3.5 mm
	straight	**OK608R** forward through cutting	MACKAY-GRUNEWALD **OK602R** forward through cutting	MACKAY-GRUNEWALD **OK603R** forward through cutting
	45° upwards angled	**OK609R** forward through cutting	MACKAY-GRUNEWALD **OK606R** forward through cutting	MACKAY-GRUNEWALD **OK607R** forward through cutting

MINOP® TREND

TRansnasal ENDoscopic System - Antrum Grasping Forceps



OK680R

jaw opening backwards,
curved downwards

OK681R

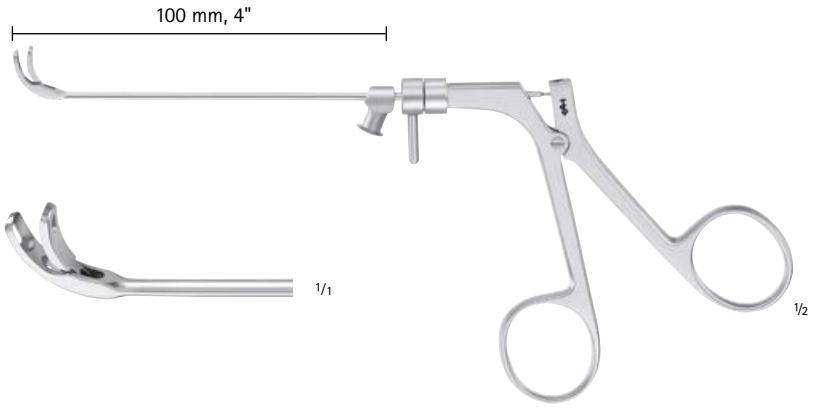
jaw opening backwards,
curved upwards

OK682R

jaw opening backwards,
curved to right

OK683R

jaw opening backwards,
curved to left



OK684R

jaw opening backwards,
jaw 360° rotatable

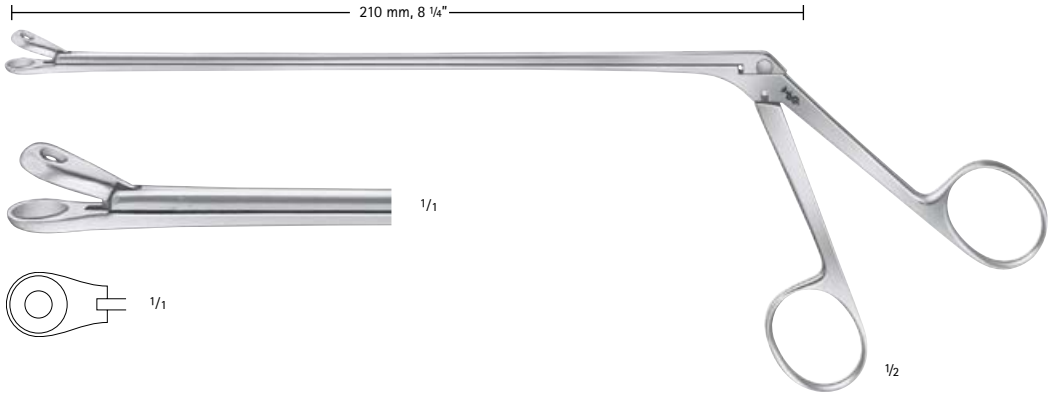
MINOP® TREND

TRansnasal ENDoscopic System - Nasal Forceps

LANDOLT

FF345R

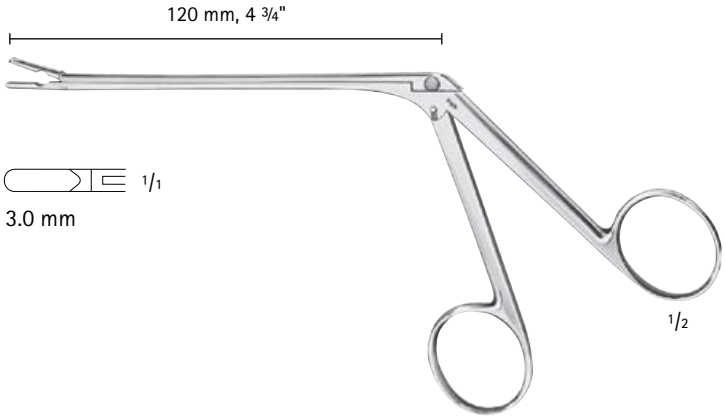
Tumor grasping forceps, blunt, straight
Diam. 9.0 mm



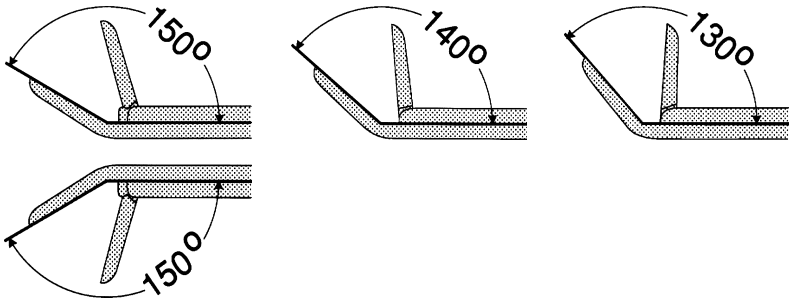
TAKAHASHI

OK525R

Rongeur, straight



Angled positions for rongeurs



WEIL-BLAKESLEY

OK505R–OK509R

Ethmoidal forceps, straight

OK505R	3.0 mm		1/1
OK506R	3.6 mm		1/1
OK507R	4.2 mm		1/1
OK508R	4.8 mm		1/1
OK509R	5.6 mm		1/1

WEIL-BLAKESLEY

OK520R–OK522R

Ethmoidal forceps, upwards curved, **140°**

OK520R	3.6 mm		1/1
OK521R	4.2 mm		1/1
OK522R	4.8 mm		1/1

- For more information on AESCULAP® **F**unctional **E**ndoscopic **S**inus **S**urgery instruments see brochure no. C87511.

MINOP® TREND

TRansnasal ENDoscopic System - Nasal Scissors

OK560R

straight, blades serrated

OK561R

left curved, blades serrated

OK562R

right curved, blades serrated

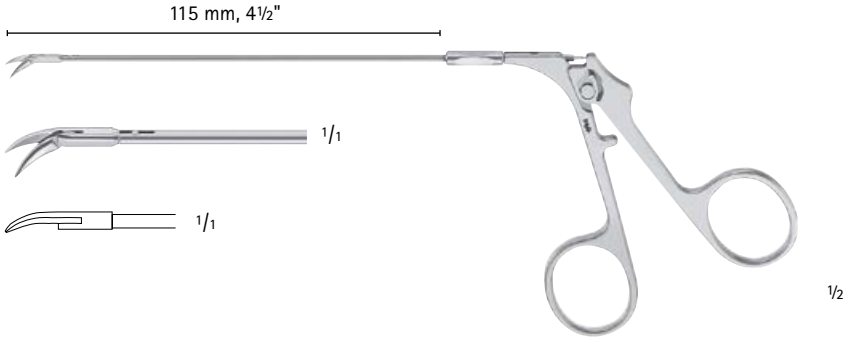
OK560R – OK562R

Nasal scissors

CASPAR

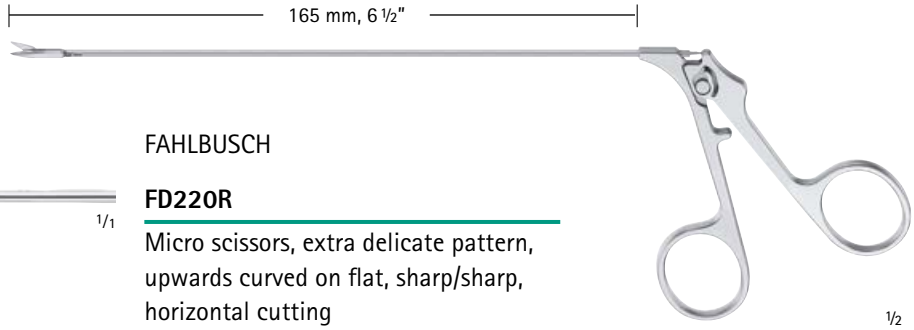
FD228R

Micro scissors, curved
rotatable 360°,
detachable for cleaning



MINOP® TREND

TRansnasal ENDoscopic System - Pituitary Scissors and Forceps



FAHLBUSCH


1/1

FD220R

Micro scissors, extra delicate pattern, upwards curved on flat, sharp/sharp, horizontal cutting

NICOLA


1/1

FD222R

Forceps, scoop-shaped, diam. 2.5 mm

YASARGIL-NICOLA


1/1

FD224R

Grasping forceps with long conical jaw

NICOLA

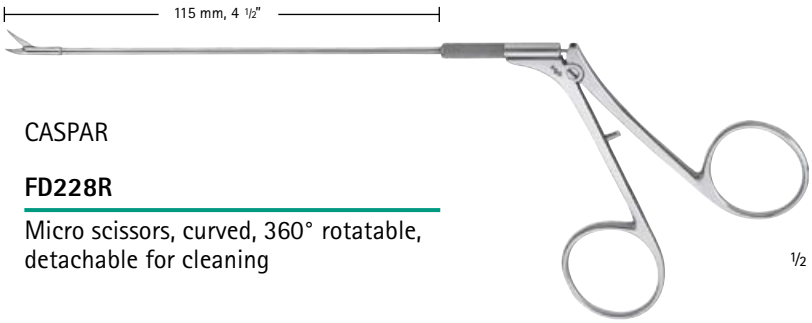

1/1

FD226R

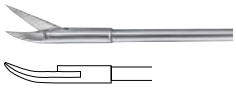
Micro scissors, straight, diam. 2.5 mm

FD220R–FD226R

Extra delicate tubular shaft scissors and grasping instruments for pituitary & skull base surgery



CASPAR


1/1

FD228R

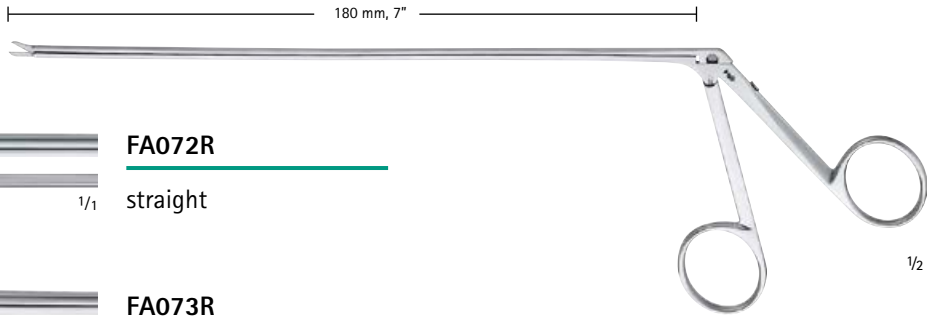
Micro scissors, curved, 360° rotatable, detachable for cleaning

"Essential part of the endoscopic transnasal surgery is the nasal dissection, using special pituitary instruments. Goal is the maximum exploration of the target area, but also minimally invasive nasal traumatisation, thus avoiding mucosal lacerations and unnecessary bony fractures. This influences patients postoperative quality of life enormously."

André Grotenhuis, Nijmegen, Netherlands

MINOP® TREND

TRansnasal ENDoscopic System - Pituitary Scissors and Forceps




1/1

FA072R

straight


1/1

FA073R

left curved


1/1

FA074R

right curved

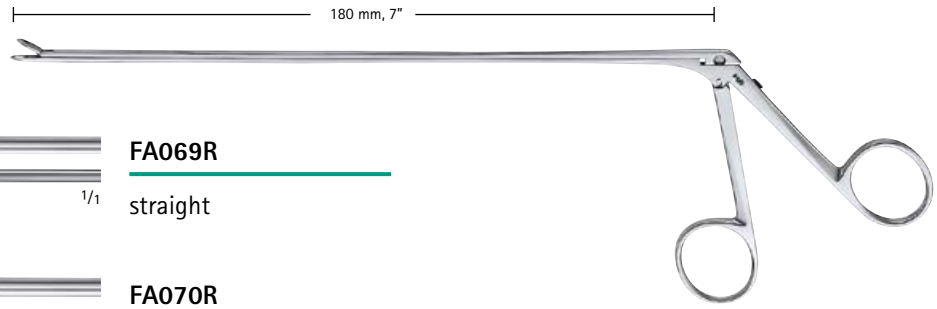

1/1

FA075R

angular

FA072R–FA075R

Micro Scissors




1/1

FA069R

straight


1/1

FA070R

right curved


1/1

FA071R

left curved

FA069R–FA071R 1/2

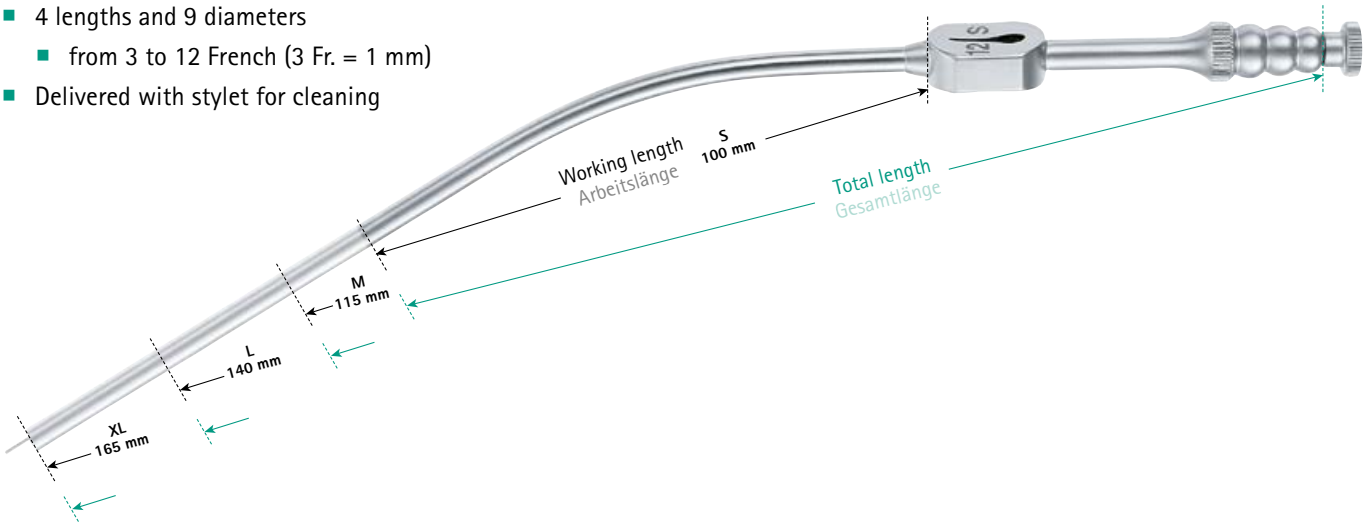
Micro Forceps

MINOP® TREND

TRansnasal ENDoscopic System - FUKUSHIMA Suction Instruments

Fukushima Design

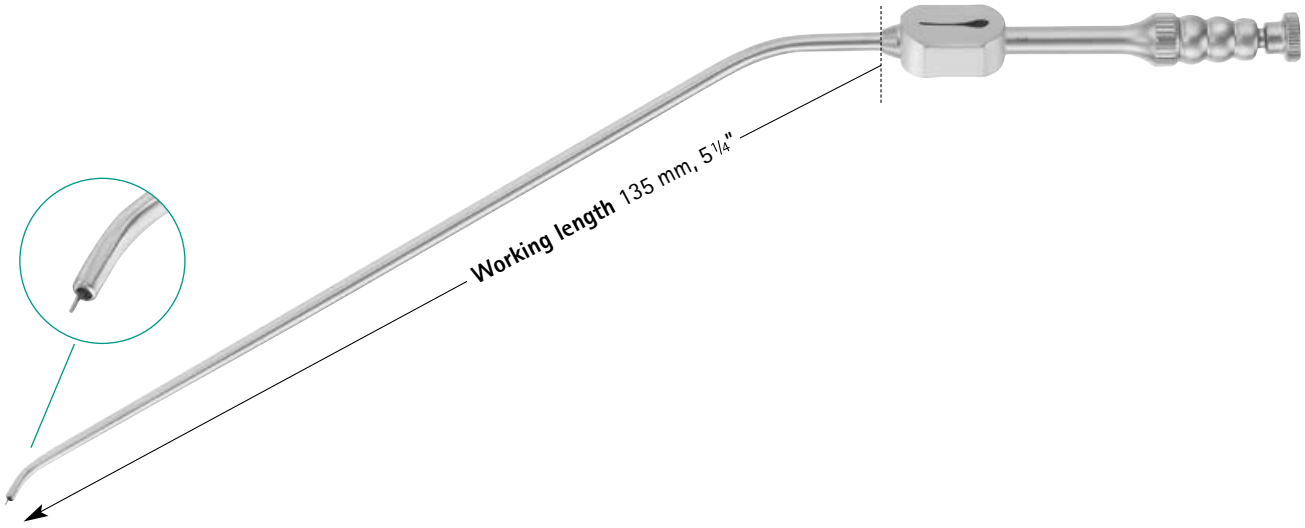
- Teardrop shaped thumb control for suction regulation
- Malleable material for individual forming of the suction hose
- Conical design of suction cannulas
- 4 lengths and 9 diameters
  - from 3 to 12 French (3 Fr. = 1 mm)
- Delivered with stylet for cleaning



	S	M	L	XL
Working length	100 mm, 4"	115 mm, 4 ½"	140 mm, 5 ½"	165 mm, 6 ½"
Total length	165 mm, 6 ½"	180 mm, 7"	205 mm, 8"	230 mm, 9"
3 Fr.	**GF401R**	**GF391R**	**GF411R**	**GF421R**
4 Fr.	**GF402R**	**GF392R**	**GF412R**	**GF422R**
5 Fr.	**GF403R**	**GF393R**	**GF413R**	**GF423R**
6 Fr.	**GF404R**	**GF394R**	**GF414R**	**GF424R**
7 Fr.	**GF405R**	**GF395R**	**GF415R**	**GF425R**
8 Fr.	**GF406R**	**GF396R**	**GF416R**	**GF426R**
9 Fr.	**GF407R**	**GF397R**	**GF417R**	**GF427R**
10 Fr.	**GF408R**	**GF398R**	**GF418R**	**GF428R**
12 Fr.	**GF409R**	**GF399R**	**GF419R**	**GF429R**

MINOP® TREND

TRansnasal ENDoscopic System - Curved FUKUSHIMA Suction Instruments



	Outer diameter	Inner diameter	Angled tip	Working length
GF431R	2.7 mm	2.0 mm	Right angled tip	135 mm, 5 ¼"
GF432R	2.7 mm	2.0 mm	Left angled tip	135 mm, 5 ¼"

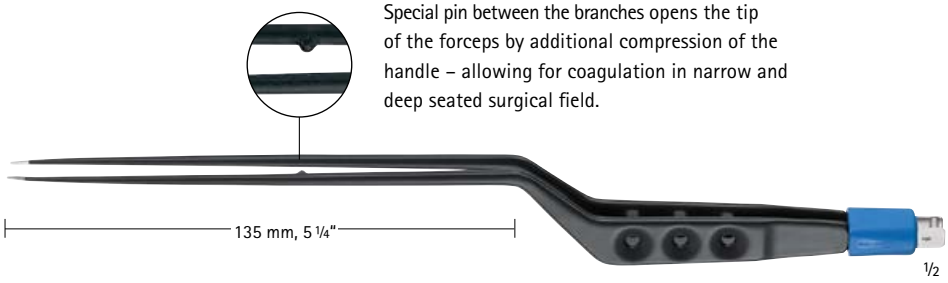
MINOP® TREND

TRansnasal ENDoscopic System - Bipolar Forceps

GK826R

Bipolar coagulation forceps
with slender jaws

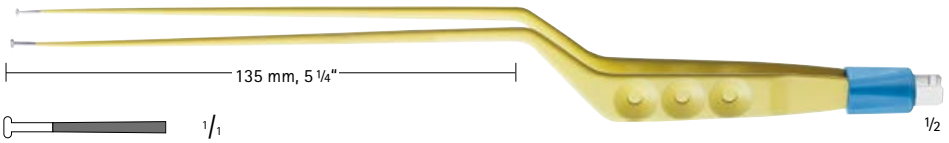
Total length 255 mm, 10"
Aesculap tab connector



GK800R

T-coagulation forceps
with blunt, t-shaped tips

Total length 255 mm, 10"
Aesculap tab connector



MINOP® TREND

TRansnasal ENDoscopic System - Further Instruments

OF601R

Sickle knife, sharp tip
Total length 190 mm, 7 ½"

BN175R

Frontal sinus ostium seeker,
double ended, curved
Total length 220 mm, 8 ¾"

FM158R

SENSATION Micro tissue grasping forceps,
bayonet-shaped, straight tip
Total length 245 mm, 9 ⅝"

FM156R Tip 0.5 mm

FM157R Tip 0.9 mm

SENSATION Micro Tissue grasping forceps, angled
bayonet-shaped, straight tip
Total length 240 mm, 9½"

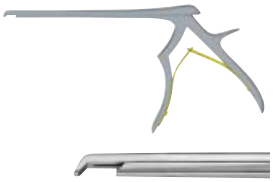
MINOP® TREND

TRansnasal ENDoscopic System - KERRISON Detachable Bone Punches

Jaw position 130°, upbiting

Shaft length	Width	Footplate	Ejector	Jaw opening	Detachable	Noir®, detachable
180 mm, 7"	1.0 mm	thin	-	8 mm	**FK906R**	**FK906B**
	1.5 mm	thin	-	9 mm	**FK923R**	**FK923B**
	2.0 mm	thin	✔	9 mm	**FK907R**	**FK907B**
	2.5 mm	thin	✔	10 mm	**FK924R**	**FK924B**
	3.0 mm	thin	✔	10 mm	**FK908R**	**FK908B**
	4.0 mm	thin	✔	12 mm	**FK909R**	**FK909B**

Jaw position 130°, downbiting



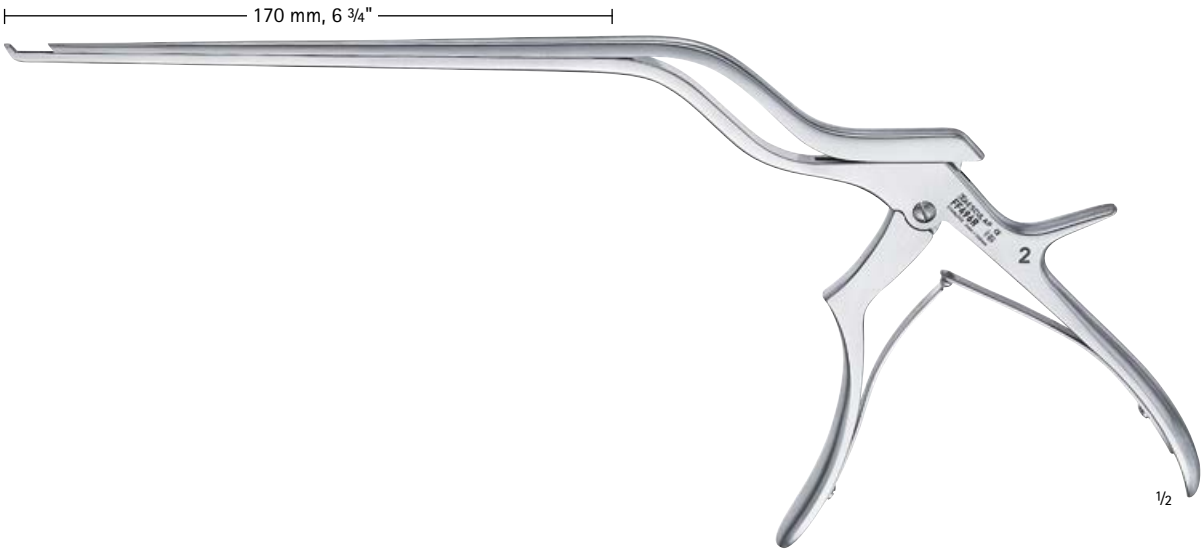
Shaft length	Width	Footplate	Ejector	Jaw opening	Detachable
180 mm, 7"	1.0 mm	thin	-	8 mm	**FK936R**
	2.0 mm	thin	✔	9 mm	**FK937R**
	3.0 mm	thin	✔	10 mm	**FK938R**

MINOP® TREND

TRansnasal ENDoscopic System - KERRISON Bayonet Bone Punches

Jaw position 130°, upbiting

Shaft length	Width	Working length	Jaw opening	Art. No.
240 mm, 9½"	2.0 mm	170 mm, 6 ¾"	10 mm	**FF496R**
	3.0 mm	170 mm, 6 ¾"	10 mm	**FF497R**
	4.0 mm	170 mm, 6 ¾"	10 mm	**FF498R**
	5.0 mm	170 mm, 6 ¾"	10 mm	**FF499R**



- For more information on transnasal neuroendoscopy see our Practical Atlas no. C26402.

- For more information on AESCULAP® bone punches see brochure no. C84802.

Holding Devices

M-TRAC® - Mechanical Holding Device

- Total length: 107 cm
- Length of fixation bar: 46 cm
- Diameter of fixation bar: 20 mm
- Total weight: 0.7 kg
- Holding force: 4 kg
- Mechanical fixation via clamping handle
- Small, flexible joints for fine positioning
- Autoclavable 134°C, 5 minutes
- Adapters for connecting AESCULAP® endoscopes, trocars and instruments available
- Holding arm fits into regular Standard 1/1 Sterile container, see brochure no. C40402

FF168R

M-TRAC® flexible holding arm with mechanical fixation

FF280R

Flexible fixation element with ball joint suitable for RT040R and FF168R

RT090R

Flexible fixation element with sprocket suitable for RT040R and FF168R

FF151R

Rigid fixation element suitable for RT040R and FF168R

- For further details see brochure no. C26911.

Holding Devices

UNITRAC® - Pneumatic Holding Device

- Single-handed use
- Adapters for connecting AESCULAP® endoscopes, trocars and instruments available
- Direct connection to OR compressed air supply
- Diameter of fixation bar: 20 mm
- To be used with JG901

RT040R

UNITRAC® pneumatic holding arm

JG901

Sterile drape for UNITRAC® holding arm, single-use
Sale unit:
PAK = Package of 50 pieces

RT020R

Quick connect adapter for use with sterile drape JG901 allows the change of instruments after draping with JG901

RT043R

CO_2 cartrigde adapter for use of UNITRAC®, independent from compressed air sources

RT044SU

CO_2 air cartridge, single-use
Sale unit:
PAK = Package of 10 pieces

- For further details see brochure no. C47411.

Holding Devices

Adapters for M-TRAC® and UNITRAC®

RT046P

Universal holder
for endoscopes and trocars with shaft outer diam. 3 - 7.5 mm, consisting of: RT081R and RT055P

RT081R

Adapter
for universal insert RT055P

RT055P

Universal insert (Spare Part)
for endoscopes and trocars with shaft outer diam. 3 - 7.5 mm

RT079R

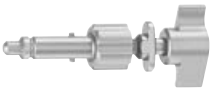
Adapter
for fixation of MINOP® TEAM angled endoscopes PE486A, PE506A, PE526A on endoscope body together with RT079205 (not included)

RT079205

Silicone bit
for RT079R

RT068R

Adapter
for fixation of MINOP® InVent trocar FH620R



RT099R

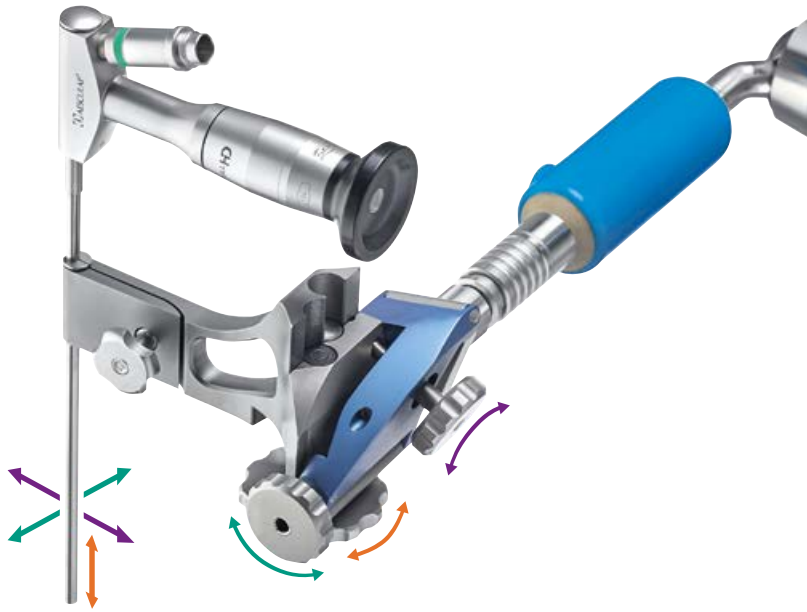
Adapter
for fixation of MINOP® TREND handle FH615

	MINOP® trocars FF397R FF398R FF399R	PaediScope® PF010A	MINOP® InVent trocar FH620R	MINOP® TEAM angled scopes PE486A PE506A PE526A	MINOP® TREND handle FH615
RT046P	●	●		●	
RT099R					●
RT079R with RT079205				●	
RT068R			●		

HOLDING DEVICES

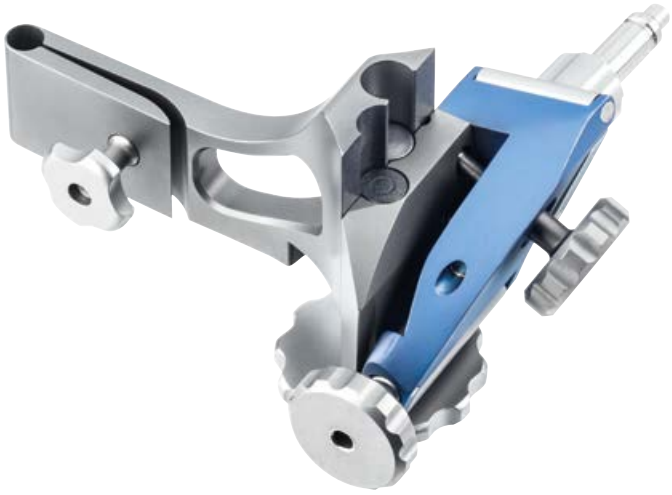
NEUROPILOT® – Fine-positioning for M-TRAC® and UNITRAC®

NEUROPILOT® is a steering device designed for intraventricular neuroendoscopic and endoscope-assisted procedures.
After positioning the neuroendoscope in situ, finest corrections or adjustments are necessary, to receive the optimal endoscopic image.
With conventional holding devices (e.g. mechanical holding arms), only rough positioning is possible.



NEUROPILOT® offers a number of advantages:

- Proper fixation of the neuroendoscope or the trocar in the NEUROPILOT® and the holding device
- Precise steering by three screws in the three-dimensional space
- Accurate manoeuvring by defined movements in the sub-millimeter area



RT060R

NEUROPILOT®

"In pure intraventricular neuroendoscopy, a micro-steering device can be extremely useful. If the precision and adjustment of a holding arm is not enough, the Neuropilot closes this gap. Additionally, in cases where both hands are needed for instrumentation the Neuropilot is of great help.
The Aesculap Neuropilot is the only system on the market providing finest correction of your endoscope in a three-dimensional space inside the ventricular compartments."

Peter Nakaji, Phoenix, USA

RT061R

MINOP® TEAM angled endoscopes PE486A, PE506A and PE526A with diam. 4 mm

RT064R

Insert for MINOP® trocar FF398R with diam. 4.6 mm

RT065R

Insert for MINOP® trocar FF399R with diam. 6 mm

RT066R

Insert for PaediScope® PF010A with diam. 3 mm

	MINOP® trocar FF398R	MINOP® trocar FF399R	PaediScope® PF010A	MINOP® TEAM angled scopes PE486A PE506A PE526A
RT060R	●	●	●	●
RT061R				●
RT064R	●			
RT065R		●		
RT066R			●	

VISUAL EQUIPMENT

Visual Equipment Example for Neuroendoscopy

Full HD 3CMOS Camera, LED Light Source, Documentation System and Flat Screen

PV628

31" 4K UHD 2D flat screen

PV647

Monitor stand

PV485

Full HD 2D 3CMOS zoom camera head with zoom-coupler

PV826

Camera holding device for 2D camera head

PV480

Full HD 2D Camera control unit

PV640

EDDY DVD
Documentation System

PV800

Endoscopy equipment cart, narrow
W/H/D 703 x 1506 x 663 mm

PV638

27" Full HD 2D flat screen

PV833

Lateral height-adjustable **monitor arm**

OP950

LED light source

OP923

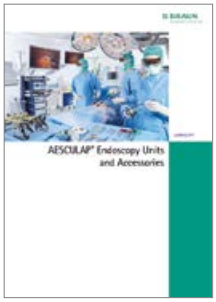
Full HD Light cable
autoclavable, diam. 4.8 mm, length 250 cm

JG904

Sterile camera drape,
Single-use, Sales unit:
PAK = package of 25 pieces

Sterile Anti-Fog Solution
Single-use, Sales unit:
PAK = package of 20 pieces

JG910



- For further details about the AESCULAP® endoscopic visual equipment see brochure no. C46702.


ELAN 4 electro
ELAN 4 electro
ELAN 4 electro

POWER SYSTEMS FOR NEUROSURGERY

POWER SYSTEMS

ELAN 4 electro – Electric Highspeed Power System

GA800

ELAN 4 electro control unit

GA806

ELAN 4 electro motor cable

Length 4.0 m

GA808

ELAN 4 electro foot control

GA810

ELAN 4 electro wireless foot control

GA861

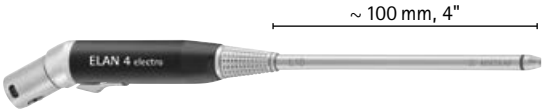
ELAN 4 electro 1-ring handpiece L4

GA862

ELAN 4 electro 1-ring handpiece L7

GA863

ELAN 4 electro 1-ring handpiece L10

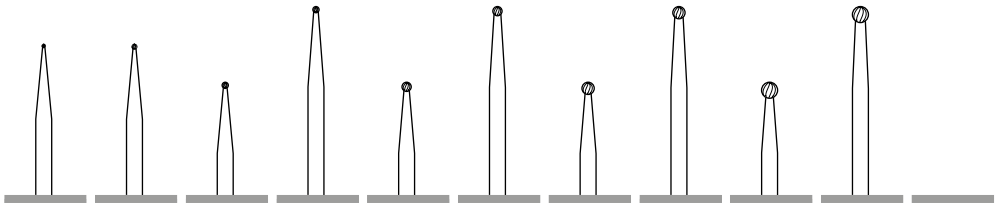


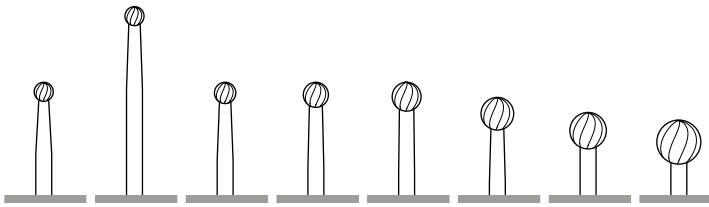
GA864

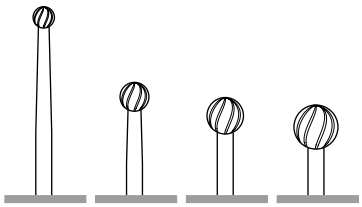
ELAN 4 electro 1-ring handpiece L13

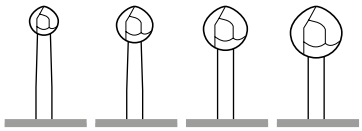
POWER SYSTEMS

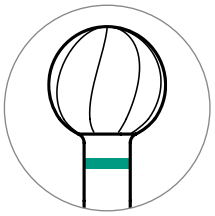
ELAN 4 tools for 1-ring handpieces

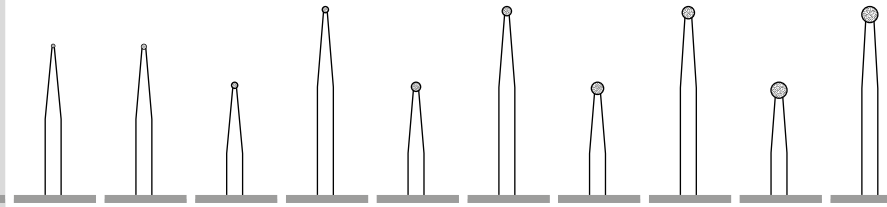
Ø	0.6 mm	0.8 mm	1.0 mm	1.0 mm	1.4 mm	1.4 mm	1.8 mm	1.8 mm	2.3 mm	2.3 mm		
												1 sterile
I	GP111R	GP112R	GP113R	GP114R	GP115R	GP116R	GP117R	GP118R	GP120R	GP121R		Rosen

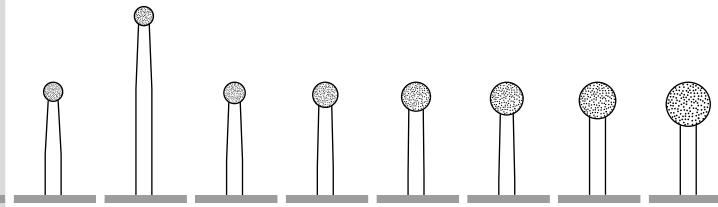
Ø	2.7 mm	2.7 mm	3.0 mm	3.5 mm	4.0 mm	4.5 mm	5.0 mm	6.0 mm				
												1 sterile
I	GP122R	GP123R	GP124R	GP125R	GP126R	GP127R	GP128R	GP129R				Rosen

Ø	3.0 mm	4.0 mm	5.0 mm	6.0 mm	
Soft cut					1 sterile
I	GP133R	GP134R	GP135R	GP136R	Rosen

Ø	4.0 mm	5.0 mm	6.0 mm	7.0 mm	
					1 sterile
I	GP184R	GP185R	GP186R	GP187R	Twin-Cut burr



Ø	0.6 mm	0.8 mm	1.0 mm	1.0 mm	1.4 mm	1.4 mm	1.8 mm	1.8 mm	2.3 mm	2.3 mm		
												1 sterile
l	GP141R	GP142R	GP143R	GP144R	GP145R	GP146R	GP147R	GP148R	GP149R	GP150R		Diamond burr

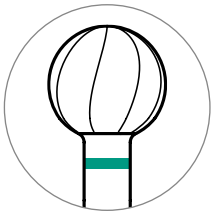
Ø	2.7 mm	2.7 mm	3.0 mm	3.5 mm	4.0 mm	4.5 mm	5.0 mm	6.0 mm				
												1 sterile
l	GP151R	GP152R	GP153R	GP154R	GP155R	GP156R	GP157R	GP158R				Diamond burr

POWER SYSTEMS

ELAN 4 tools for 1-ring handpieces

Ø	2.0 mm	2.0 mm	2.3 mm	2.3 mm	3.0 mm	3.0 mm	4.0 mm	5.0 mm	6.0 mm			
l	GP161R	GP162R	GP163R	GP164R	GP165R	GP166R	GP168R	GP169R	GP170R			1 sterile Diamond burr coarse

Ø	3.0 mm	4.0 mm	5.0 mm	6.0 mm	7.0 mm							
l	GP173R	GP174R	GP175R	GP176R	GP177R							1 sterile Diamond burr extra coarse



Ø	1.5 mm	2.0 mm	2.5 mm	3.0 mm	3.0 mm
US Type					
l	GP201R	GP202R	GP203R	GP204R	GP205R

1 sterile

Neuro cutter

Ø	2.0 mm	2.5 mm	3.0 mm
AESCULAP® Type			
l	GP208R	GP209R	GP210R

1 sterile

Neuro cutter

Ø	1.5 mm	1.5 mm	2.0 mm	2.0 mm	2.5 mm	2.5 mm	3.0 mm	3.0 mm	4.0 mm	4.0 mm
l	GP211R	GP212R	GP213R	GP214R	GP215R	GP216R	GP217R	GP218R	GP219R	GP220R

1 sterile

Neuro cutter diamond

Ø	4.0 mm	5.0 mm	6.0 mm
l	GP224R	GP225R	GP226R

1 sterile

Barrel burr

Ø	4.0 mm	5.0 mm	6.0 mm
Soft cut			
l	GP228R	GP229R	GP230R

1 sterile

Barrel burr

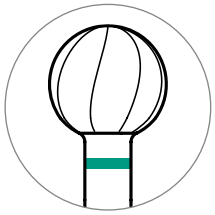
Ø	4.0 mm	5.0 mm	6.0 mm
l	GP234R	GP235R	GP236R

1 sterile

Cone burr

POWER SYSTEMS

ELAN 4 tools for 1-ring handpieces



Ø	3.0 mm	4.0 mm	5.0 mm	6.0 mm
I	GP193R	GP194R	GP195R	GP196R

1 sterile

Acorn burr

Ø	4.0 mm	5.5 mm
I	GP232R	GP233R

1 sterile

Oval burr

Ø	4.0 mm
I	GP238R

1 sterile

Reverse taper burr coarse diamond

Ø Tungsten Carbide	1.0 mm	2.0 mm	3.0 mm	4.0 mm	5.0 mm	6.0 mm
I	GP113TC	GP119TC	GP124TC	GP126TC	GP128TC	GP129TC

1 sterile

Rosen

Ø Tungsten Carbide	3.0 mm
I	GP210TC

1 sterile

Neuro cutter

Ø	2.3 mm	1.8 mm	2.1 mm	2.3 mm
I	GP240R	GP241R	GP242R	GP243R

1 sterile

Lindemann

Ø	1.5 mm	2.0 mm
I	GP188R	GP189R

1 sterile

Twist drill

Ø	1.0 mm
I	GP190R

1 sterile

Pin cutter

- For more information on the whole burr range for 1-ring handpieces see the Burrs & Blades catalogue no. 017599.

POWER SYSTEMS

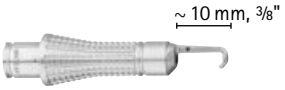
ELAN 4 craniotome-/multifunction handpieces and attachments

GA849

ELAN 4 electro craniotome and multifunction handpiece, 2 ring coding

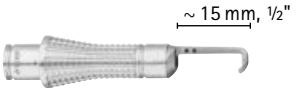
GB945R

Holding sleeve



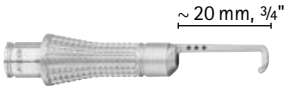
GB941R

Fixed dura guard
PEDIATRIC



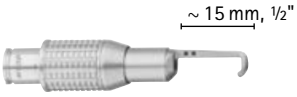
GB942R

Fixed dura guard
STANDARD



GB943R

Fixed dura guard
LONG

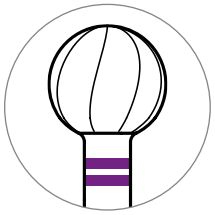


GB947R

Turnable dura guard
STANDARD

POWER SYSTEMS

ELAN 4 tools for 2-ring handpieces



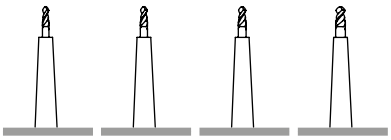
Ø	2.3 mm	3.0 mm	3.5 mm	4.0 mm	4.5 mm	5.0 mm	6.0 mm	7.0 mm	8.0 mm			
II	GP301R	GP302R	GP303R	GP304R	GP305R	GP306R	GP307R	GP308R	GP309R			1 sterile Rosen

Ø	2.3 mm	3.0 mm	3.5 mm	4.0 mm	4.5 mm	5.0 mm	6.0 mm					
II	GP311R	GP312R	GP313R	GP314R	GP315R	GP316R	GP317R					1 sterile Diamond burr

Ø	2.3 mm	3.0 mm	4.0 mm	5.0 mm	6.0 mm							
II	GP321R	GP322R	GP323R	GP324R	GP325R							1 sterile Diamond burr coarse

Ø	4.0 mm	5.0 mm	6.0 mm									
II	GP328R	GP329R	GP330R									1 sterile Diamond burr extra coarse

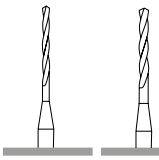
Ø	1.0 mm	1.1 mm	1.2 mm	1.5 mm
	4.0 mm	4.0 mm	4.0 mm	4.0 mm
II	GP344R	GP345R	GP346R	GP347R



1 sterile

Twist drill

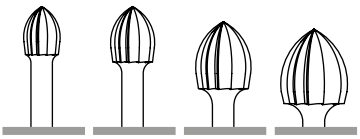
Ø	1.5 mm	2.0 mm
II	GP348R	GP349R



1 sterile

Twist drill

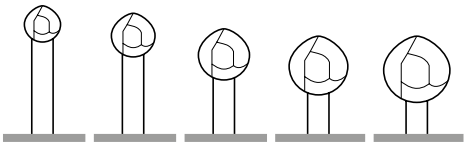
Ø	5.0 mm	6.0 mm	7.5 mm	9.0 mm
Midas Type				
II	GP355R	GP356R	GP357R	GP358R



1 sterile

Acorn burr

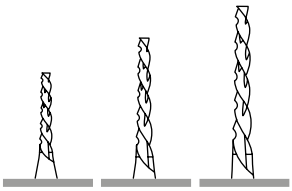
Ø	5.0 mm	6.0 mm	7.0 mm	8.0 mm	9.0 mm
II	GP335R	GP336R	GP337R	GP338R	GP339R



1 sterile

Twin-Cut burr

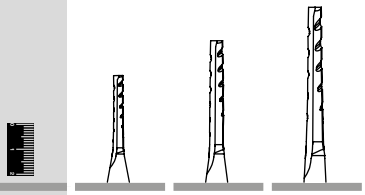
	•	••	•••
II	GP341R	GP342R	GP343R



1 sterile

Craniotome cutter - spiral type

	•	••	•••
II	GP351R	GP352R	GP353R



1 sterile

Craniotome cutter - straight type

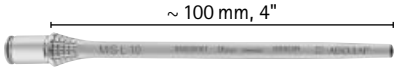
- For more information on the whole burr range for 2-ring handpieces see the Burrs & Blades catalogue no. O17599.

POWER SYSTEMS

ELAN 4 MIS handpieces and tools

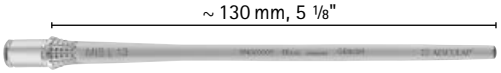
GA860

ELAN 4 electro MIS handpiece



GB920R

ELAN 4 MIS handpiece shaft L10 straight



GB925R

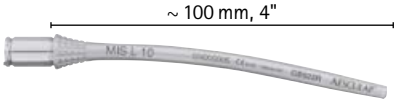
ELAN 4 MIS handpiece shaft L13 straight

GB921R

ELAN 4 MIS handpiece shaft L10 curved

GB926R

ELAN 4 MIS handpiece shaft L13 curved



GB922R

ELAN 4 MIS handpiece shaft L10 strong curved

GB927R

ELAN 4 MIS handpiece shaft L13 strong curved

Ø	3.0 mm	4.0 mm		
				
L10 ②	GP422SU	GP423SU		
L13 ②	GP442SU	GP443SU		

1 sterile

Rosen

Ø	2.0 mm	3.0 mm		
				
L10 ②	GP420SU	GP421SU		
L13 ②	GP440SU	GP441SU		

1 sterile

Neuro cutter

Ø	3.0 mm	4.0 mm	5.0 mm	
				
L10 ②	GP432SU	GP433SU	GP434SU	
L13	GP452SU	GP453SU	GP454SU	

1 sterile

Diamond burr

Ø	3.0 mm	4.0 mm	5.0 mm	
L10 ②	GP435SU	GP436SU	GP437SU	
L13 ②	GP455SU	GP456SU	GP457SU	

1 sterile

Diamond burr extra coarse

Ø	2.0 mm	3.0 mm	4.0 mm	5.0 mm
L10 ②	GP424SU	GP425SU	GP426SU	GP427SU
L13 ②	GP444SU	GP445SU	GP446SU	GP447SU

1 sterile




Neuro cutter diamond

Ø	3.0 mm	4.0 mm	5.0 mm	
L10 ②	GP428SU	GP429SU	GP430SU	
L13 ②	GP448SU	GP449SU	GP450SU	

1 sterile


Neuro cutter diamond extra coarse

POWER SYSTEMS

ELAN 4 perforator drivers and tools & ELAN 4 lowspeed motors

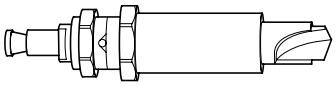
GA822

ELAN 4 electro perforator driver

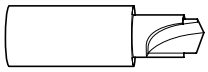
Skull perforators

1 sterile	Ø/mm	
GB300R	6/9	4.0 mm*
GB302R	9/12	5.0 mm*
GB304R	12/15	5.4 mm*

Hudson



1 sterile	Ø/mm	
TE561	6/9	4.0 mm*
TE562	9/12	5.0 mm*
TE563	12/15	5.4 mm*



* Minimal cranial bone thickness

GA824

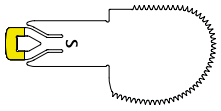
ELAN 4 electro lowspeed motor

GA836

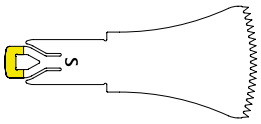
ELAN 4 electro micro sagittal saw

5 sterile				
GP491R	14 mm	13 mm	0.3 mm	0.3 mm
GP492R	15 mm	5 mm	0.3 mm	0.3 mm
GP493R	20 mm	5 mm	0.3 mm	0.3 mm
GP494R	20 mm	10 mm	0.3 mm	0.3 mm
GP495R	20 mm	15 mm	0.3 mm	0.3 mm
GP496R	25 mm	5 mm	0.3 mm	0.3 mm
GP497R	25 mm	12 mm	0.3 mm	0.3 mm

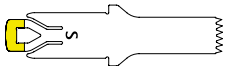
GP491R



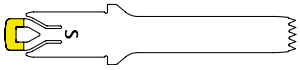
GP495R



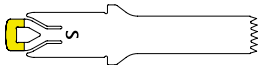
GP492R



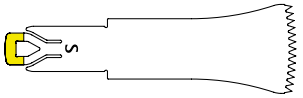
GP496R



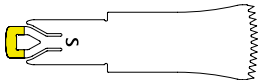
GP493R



GP497R



GP494R



POWER SYSTEMS

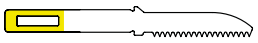
ELAN 4 micro reciprocating saws and saw blades

GA837

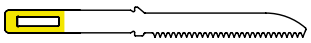
ELAN 4 electro micro reciprocating saw

5 sterile			
GP541R	16 mm	0.3 mm	0.3 mm
GP542R	13 mm	0.3 mm	0.3 mm
GP543R	20 mm	0.3 mm	0.3 mm
GP544R	13 mm	0.3 mm	0.3 mm
GP545R	20 mm	0.3 mm	0.3 mm

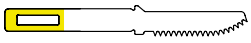
GP542R



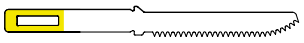
GP543R



GP544R



GP545R



POWER SYSTEMS

ELAN 4 Accessories

TE780

Main cable Europe, length 1.5 m

TE730

Main cable Europe, length 5.0 m

TE734

Main cable UK, length 5.0 m

TE735

Main cable USA, Canada, Japan, length 3.5 m

GA395SU

ELAN 4 electro single-use tube set

GA259SU

ELAN 4 spray nozzle
for craniotome attachment

GA261SU

ELAN 4 spray nozzle
for 1-ring handpiece L4

GA262SU

ELAN 4 spray nozzle
for 1-ring handpiece L7

GA263SU

ELAN 4 spray nozzle
for 1-ring handpiece L10

GA264SU

ELAN 4 spray nozzle
for 1-ring handpiece L13

GB796SU

spray nozzle
for MIS shafts L10

GB797SU

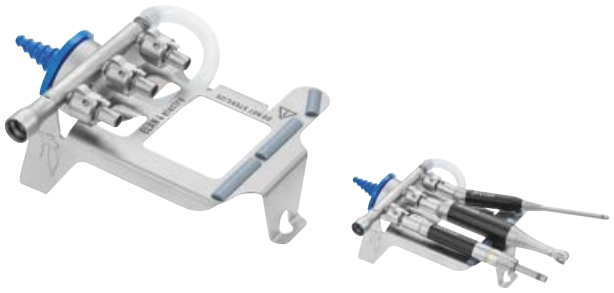
spray nozzle
for MIS shafts L13

GA258SU

ELAN 4 spray nozzle
for saws

POWER SYSTEMS

ELAN 4 cleaning and maintenance

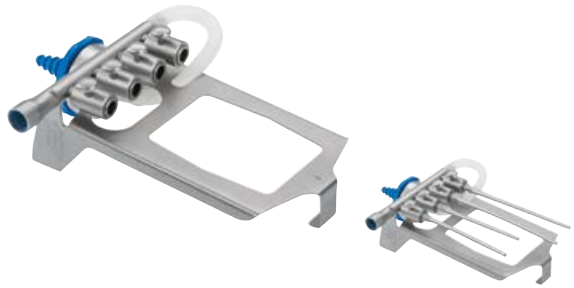


GB692R

ELAN 4 electro rinsing device
for mechanical cleaning
(not suitable for autoclaving)

GB698R

ELAN 4 electro rinsing adaptor
for manual cleaning



GB679R

ELAN 4 rinsing device for MIS handpiece shafts
for mechanical cleaning
(not suitable for autoclaving)

GB699R

ELAN 4 rinsing adaptor for MIS handpiece shafts
for manual cleaning

- For more information on ELAN 4 cleaning and maintenance see posters no. 071511 and 012002.

GB600

STERILIT Power Systems spray
300 ml

GB600860

STERILIT Power Systems spray adaptor
for ELAN 4 electro

GB600870

STERILIT Power Systems spray adaptor
for ELAN 4 MIS handpiece shafts

- For more information on ELAN 4 see catalogue no. 071602.

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