B BRAUN
SHARING EXPERTISE

NEUROSURGERY

AESCULAP® NEUROENDOSCOPY

Intraventricular, Endoscope-Assisted, Transnasal Neuroendoscopic Equipment

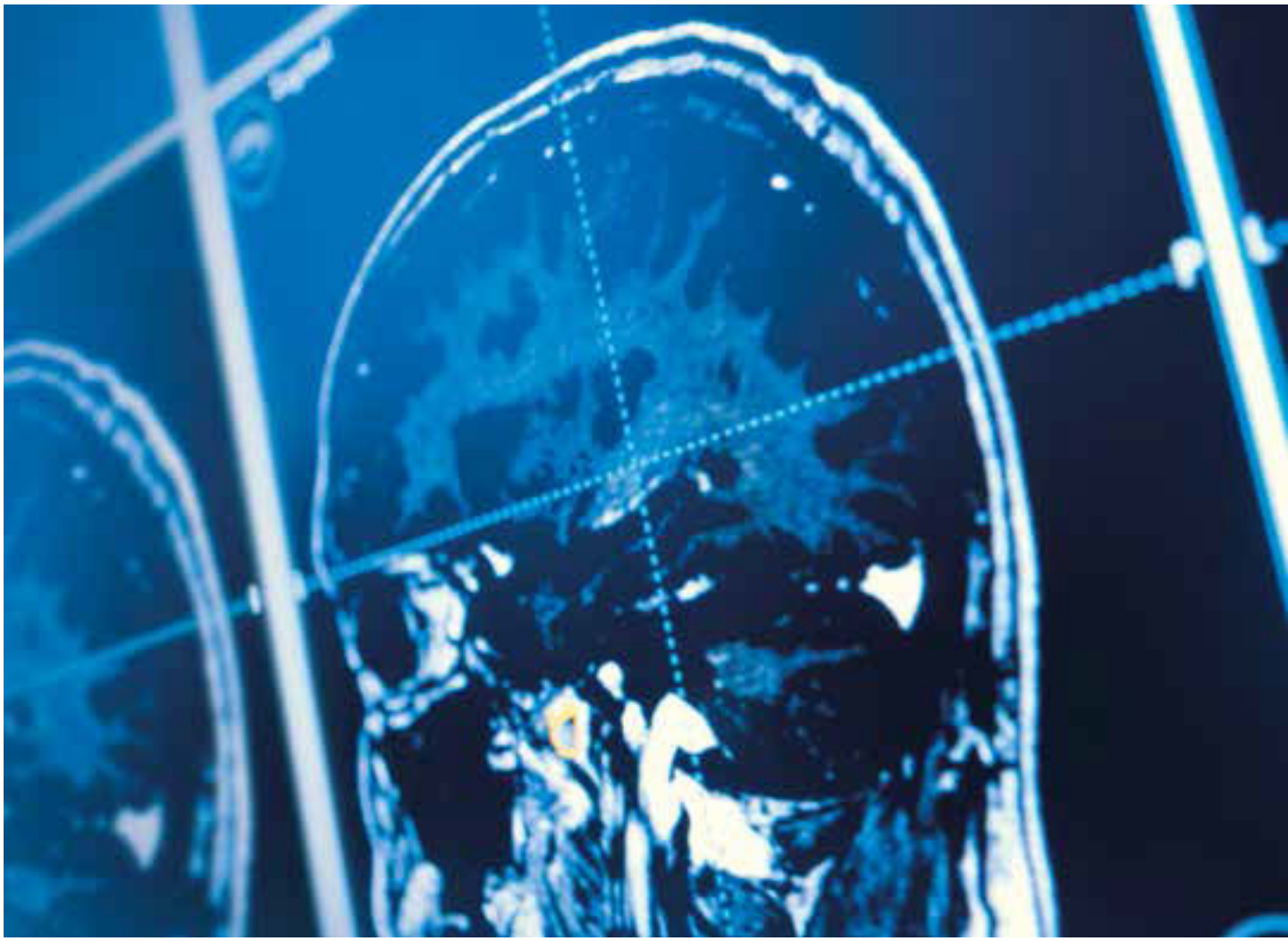
With comments from international experts in the field of neuroendoscopy and minimally-invasive neurosurgery.

AESCULAP® NEUROENDOSCOPY

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

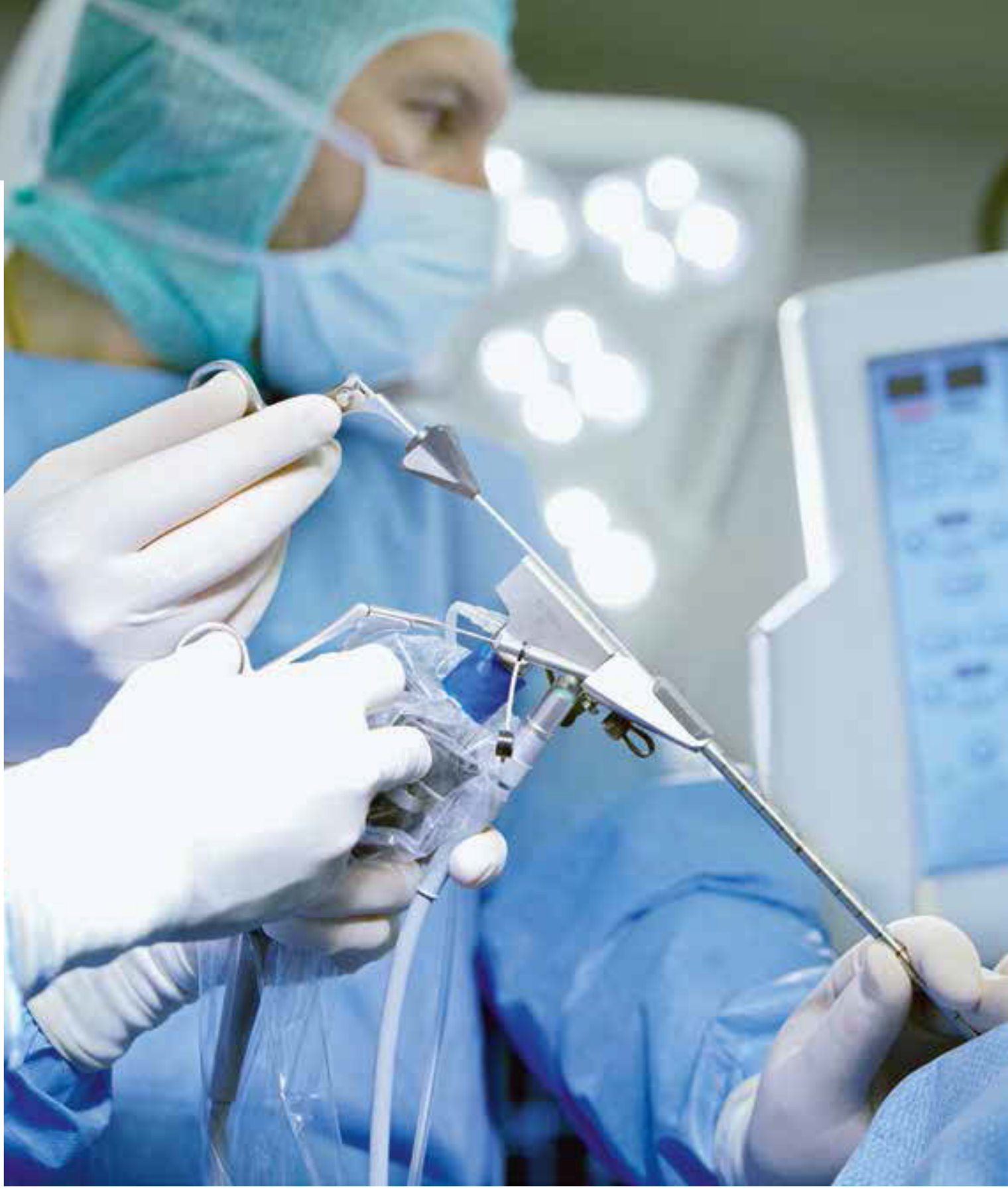
skin incision, the craniotomy, and the extent of brain surface traumatization and retraction to a necessary minimum limit. These advantages of minimally invasive microsurgery contribute to improved postoperative results, including shorter hospitalization time because of reduction of the risk for complications.

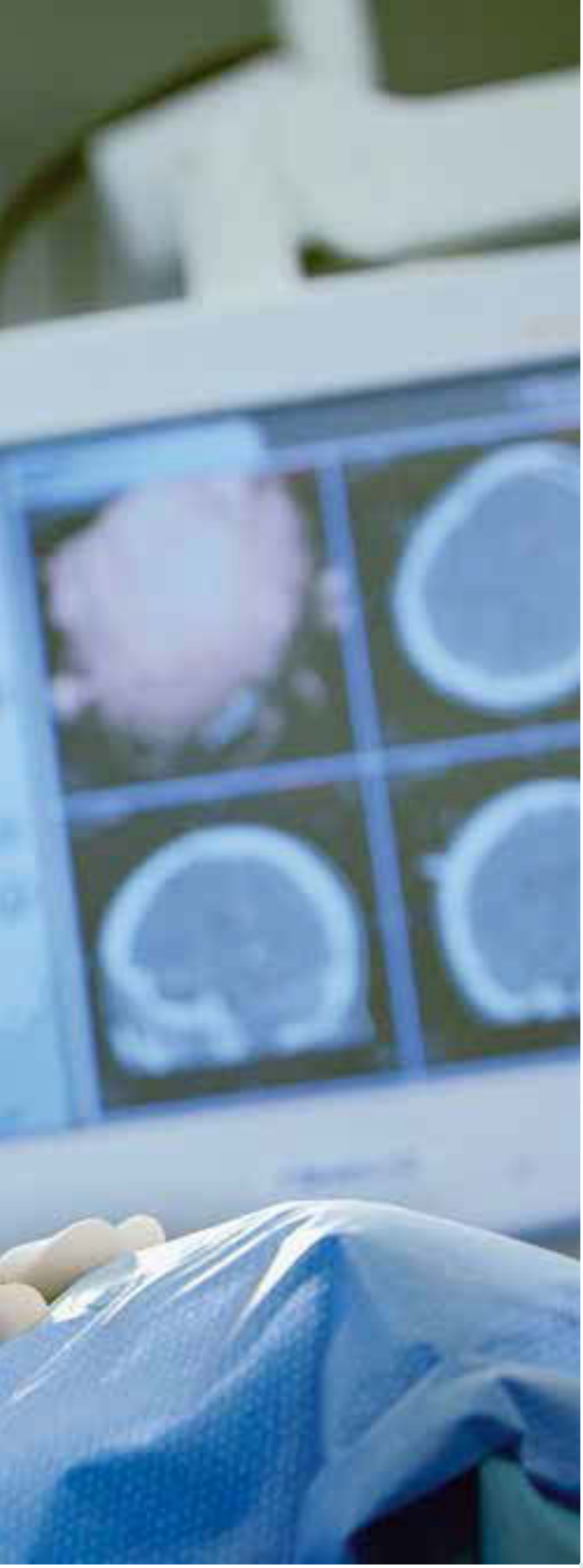
However, small sized minimally invasive approaches cause two important limitations: the significant loss of optical control and limited maneuverability of microsurgical instruments. The intraoperative use of endoscopes and dedicated minimally invasive instruments overcome these restrictions, thus enabling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

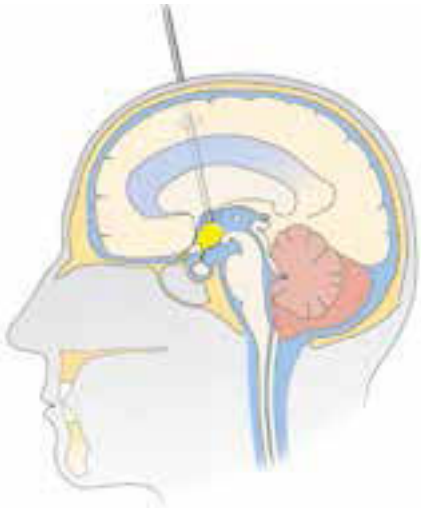
The endoscopic image allows illumination and inspection of angles in hidden parts of the surgical field with the and clear depiction of anatomical details. In addition, due to the enormous optical depth of field of modern endoscopes, endoscopes provide a three dimensional aspect of anatomic structures. Recently, the intraoperative use of full high definition (HD) image quality offers a new area in endoscopic neurosurgery with an increased range of indications in minimally invasive neurosurgery.

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







INTRAVENTRICULAR NEUROENDOSCOPY

MINOP®

Intraventricular Neuroendoscopic System

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 neuroendos-copic 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

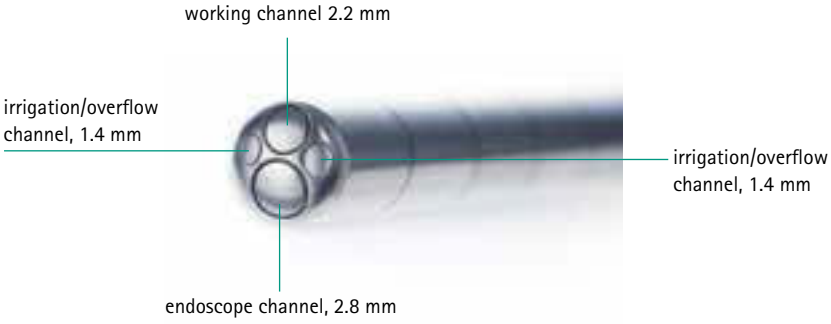
Charles Teo
Sydney, Australia

Mark Souweidane
New York, USA

MINOP®

Intraventricular Neuroendoscopic System - MINOP® Trocars

- Smooth tip of trocar for atraumatic insertion into the brain
- Single obturator for working channel enables insertion of the trocar, under visual control, with the endoscope
- Large depth scale on the outer shaft of the trocar
- Conical entry of working channel for intuitive insertion of instruments into trocar
- Attachment on top of trocar for improved handling and universal connection of peripheral devices



FF399R

MINOP® trocar,
Outer diameter 6 mm

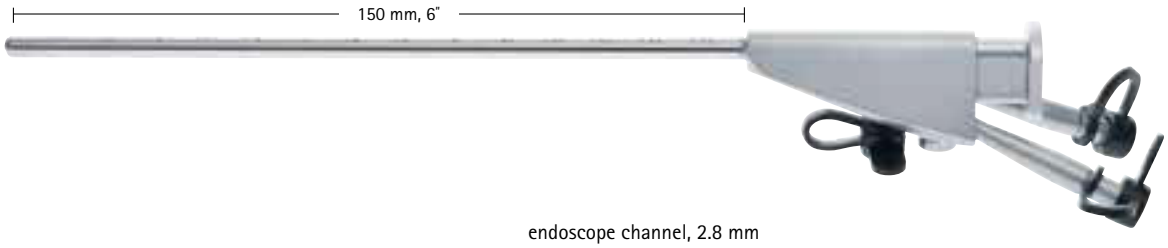
4 channels:

- 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 4 obturators for all channels

"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 new, improved 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



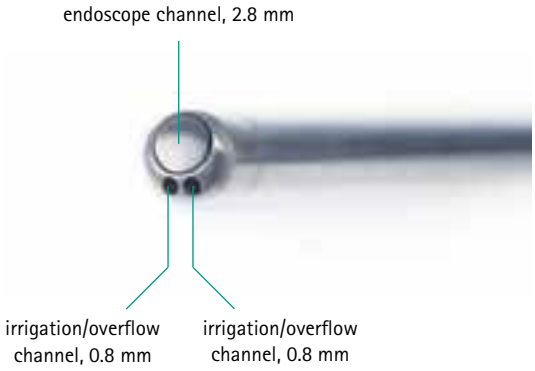
FF398R

MINOP® trocar,
Outer diam. 4.6 mm

3 channels:
- Scope channel, diam. 2.8 mm
- Irrigation channel, diam. 0.8 mm
- Overflow channel, diam. 0.8 mm

Including one obturator for scope channel

1 sealing cap for pressure balance in endoscope channel

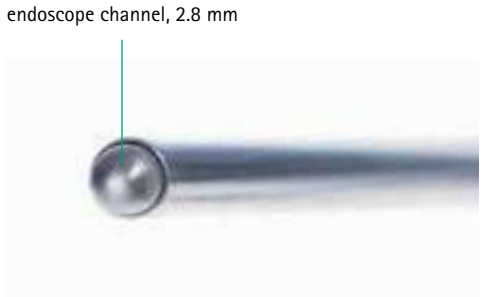


FF397R

MINOP® trocar,
outer diam. 3.2 mm

1 channel:
- Single channel for endoscope, including 1 obturator
- Endoscope channel: diam. 2.8 mm

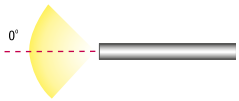
1 sealing cap for pressure balance in scope channel

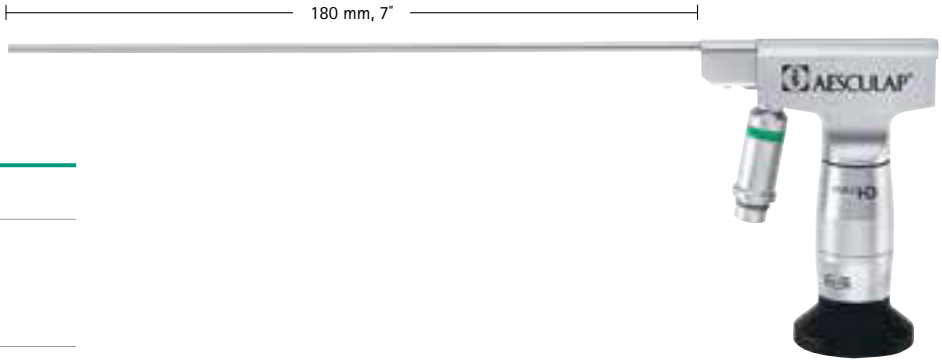


MINOP®

Intraventricular Neuroendoscopic System - MINOP® Endoscopes

- FULL HD compatible
- New optical components for enlarged image area and enhanced image quality, brightness, contrast
- Improved fibre optics provide more light
- The external tube is made from a high strength special alloy for superior breaking resistance
- Service-optimised construction reduces maintenance costs
- Autoclavable/Steris/Sterrad



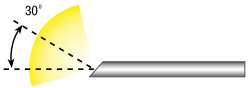


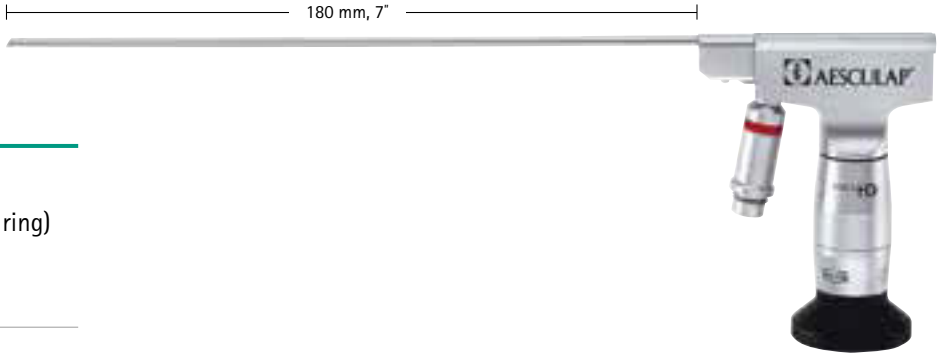
PE184A

MINOP® angled endoscope

Direction of view: 0° (green ring)
Shaft diam.: 2.7 mm
Shaft length, 180 mm

Autoclavable





PE204A

MINOP® angled endoscope

Direction of view: 30° upwards (red ring)
Shaft diam.: 2.7 mm
Shaft length: 180 mm

Autoclavable

MINOP®

Intraventricular Neuroendoscopic System - MINOP® Rigid Instruments

Instruments

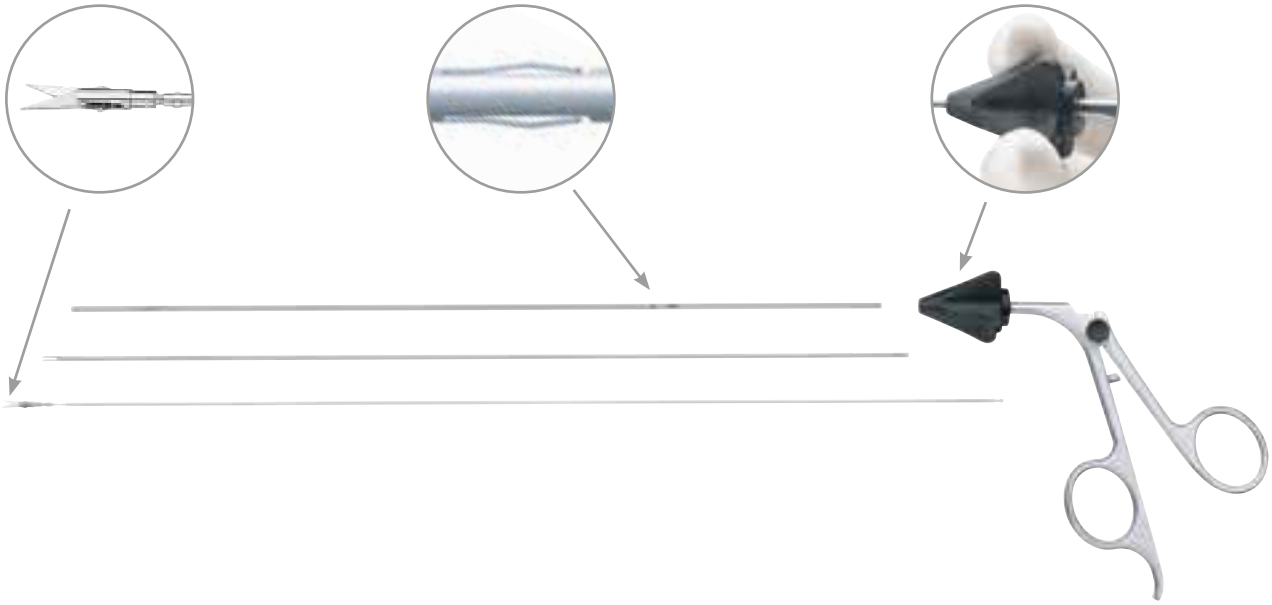
- Shaft length 265 mm
- Diameter 2.0 mm
- Fully detachable for reprocessing
- High precision instrument tip

Tactile Feedback

- Integrated tactile feedback delivers small resistance indicating that instrument tip emerges from the trocar
- Improves control during insertion of instruments

Rotating Knob

- By rotating the knob slightly with index finger, the tip of instrument turns equally
- No need anymore to turn/rotate instrument with the entire arm/handle
- Improves precision of neuroendoscopic surgery
- Integrated safety mechanism in instrument shaft



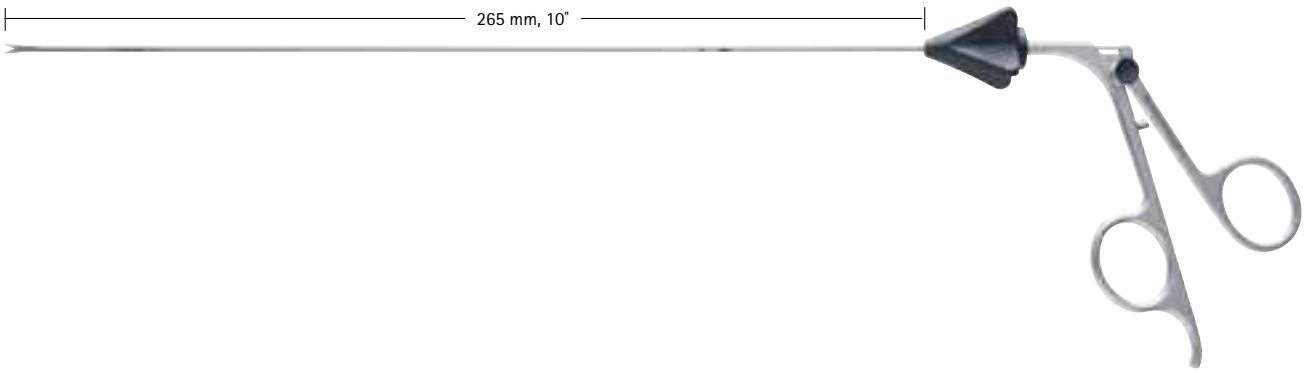
"A very appealing feature of the MINOP tube shaft instruments is a rotational capability of the instrument tip through a coaxial system thus eliminating the need for hand rotation and reducing excessive movement of the endoscope. Irrespective of the instrument, graduated markings or precalibrated indicators 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 new tactile feedback of the improved 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 - MINOP® Rigid Instruments

Ø 2 mm **Instrument complete:** Handle · outer tube · jaw part with inner tube



FF385R

MINOP® scissors

sharp / sharp

FF386R

MINOP® scissors

blunt/blunt

FF387R

MINOP® biopsy forceps

FF388R

MINOP® grasping and dissecting forceps

FF389R

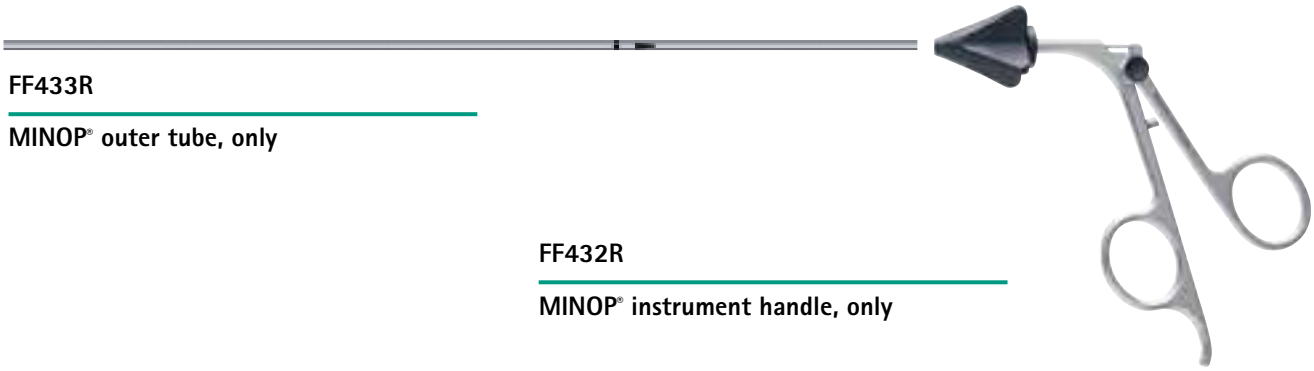
MINOP® surgical forceps, 1 x 2 teeth

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

MINOP®

Intraventricular Neuroendoscopic System - MINOP® Rigid Instruments - Spare Parts

Ø 2 mm Jaw part with inner tube for FF385R - FF389R



FF433R

MINOP® outer tube, only

FF432R

MINOP® instrument handle, only

FF435R

MINOP® scissors, jaw part

sharp/sharp

FF437R

MINOP® biopsy forceps, jaw part

FF436R

MINOP® scissors, jaw part

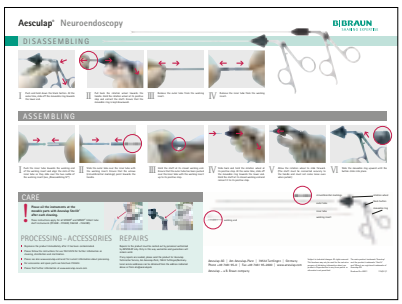
blunt/blunt

FF438R

MINOP® grasping and dissecting forceps, jaw part

FF439R

MINOP® surgical forceps, jaw part, 1 x 2 teeth

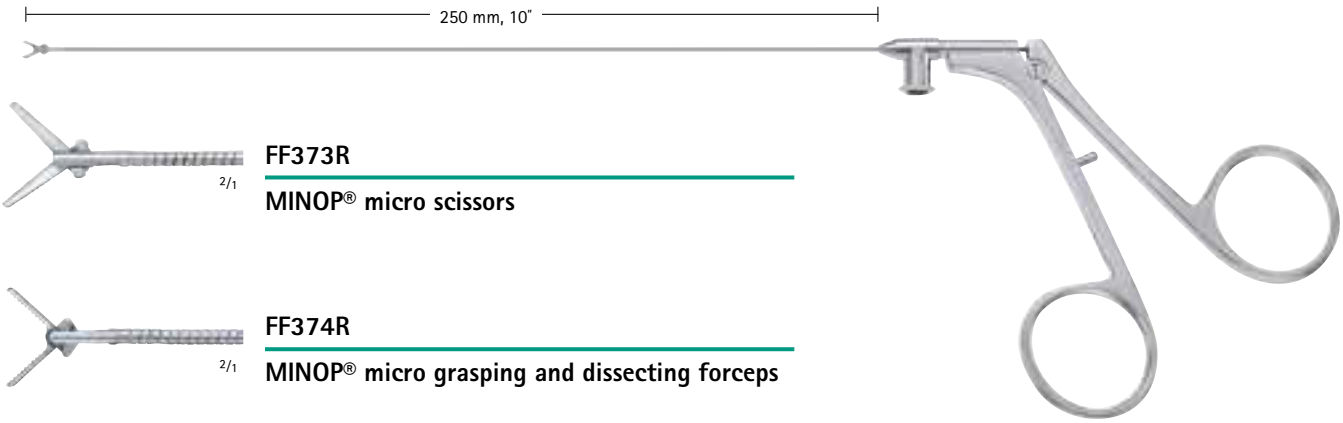


- For disassembly and assembly of MINOP® tube shaft instruments see brochure no. C60911

MINOP®

Intraventricular Neuroendoscopic System - MINOP® Flexible Instruments

Ø 1 mm — 1.0 mm Instruments, non detachable



FF373R

MINOP® micro scissors

FF374R

MINOP® micro grasping and dissecting forceps

FF378R

MINOP® micro biopsy forceps

FF373R – FF378

With irrigation port for reprocessing/cleaning

Ø 1 mm — 1.0 mm instruments, for bi-instrumental work

Flexible instruments:

- For bi-instrumental / bi-manual neuroendoscopic surgery
- E.g. grasping and cutting, grasping and coagulating, grasping and fenestrating
- To be used through irrigation or overflow channel of the MINOP® trocar FF399R
- Diam. 1.0 mm, shaft length 250 mm
- Non-detachable
- With irrigation port for reprocessing/cleaning

"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 - MINOP® Electrodes

Monopolar electrodes

for bi-instrumental / bi-manual working through irrigation/overflow channel of trocar FF399R

GK361R

Blunt electrode, diam. 1.1 mm

GK363R

Needle electrode, diam. 1.1 mm

Not for bi-manual

GK364R

Hook electrode, 45°, diam. 2.2 mm

GK365R

Hook electrode, 70°, diam. 2.2 mm

GK362R

Hook electrode, 90°, diam. 2.2 mm

GK366R

Hook electrode, 180°, diam. 2.2 mm

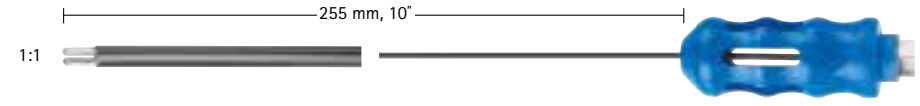
GN202

Monopolar cable, 3.5 m length
suitable for GN300, GN640

Bipolar electrode

GK360R

Fork electrode, 0°, diam. 2.1 mm



GN130

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

- For further details see brochures no. C46702 and no. C61511.

MINOP®

Intraventricular Neuroendoscopic System - MINOP® Single use Suction Cannulas

- For removal of cystic intraventricular lesions
- For puncturing the floor of the 3rd ventricle
- Depth scale
- Outer diameter of 2.0 mm
- Suitable for working channel of MINOP® trocar FF399R
- Available with blunt or sharp tip suction cannula
- Optional control of suction
  - via thumb plate or
  - via syringe
- Single-use, sterile packed

FH606SU

Suction cannula

blunt tip 0°, diam. 2 mm

FH607SU

Suction cannula

sharp tip 45°, diam. 2 mm

MINOP®

Intraventricular Neuroendoscopic System - MINOP® Single use Introducer

- Introducer sheath protects the brain while inserting and removing the endoscope/trocar
- Especially for MINOP® trocar FF399R
- 19 Fr disposable introducer set including obturator and sheath
- Round & blunt obturator tip for atraumatic insertion into the ventricles
- Large depth scale
- Easy to peel with side handles
- Sterile packed

FH604SU

Introducer

19 Fr

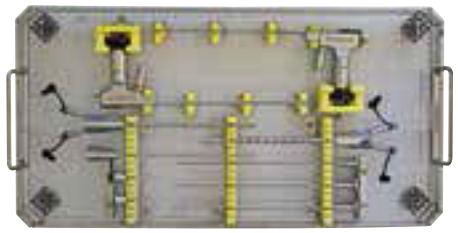
Sales unit:
PAK - Package of 5 pieces

The MINOP® suction cannula and the MINOP® disposable introducer can be used in almost any intraventricular neuroendoscopic surgery providing more control during the procedure. The suction cannula can be used for the controlled and fast 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) is very helpful when several intraparenchymal in- and out-movements of the trocar are necessary.

MINOP®

Intraventricular Neuroendoscopic System - MINOP® Storage

■ for MINOP® trocars and endoscopes



FF358R Dimension (L/W/H) 489 x 257 x 63 mm

Storage rack with silicone protection cushioning tray and lid

only for reprocessing, not for transportation/shipment
(instruments not included)

■ for MINOP® instruments and electrodes

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

Storage rack with silicone protection cushioning
tray without lid (lid not necessary

only for reprocessing, not for transportation/shipment
(instruments not included)

■ 1/1 Container (basic version)
for storage racks FF358R and FF359R

consisting of:

JK440

Container body 1/1 for FF358R
without base perforation

Outside/Inside dimensions with lid:
L/W/H 592 x 285 x 108 mm
L/W/H 544 x 258 x 75 mm

JK444

Container body 1/1 for FF359R
without base perforation

Outside/Inside dimensions with lid:
L/W/H 592 x 285 x 209 mm
L/W/H 544 x 258 x 172 mm

JK486

Inner lid 1/1
blue

Dedicated storage racks for cleaning and reprocessing are highly recommended for your neuroendoscopic equipment. A special-designed storage concept is keeping the scopes and instruments properly stored and protected.

PF893800

Cleaning brush

EJ751251

Sealing cap Luer-Lock

Sales unit:
PAK = Package of 20 piece

EJ751200

Sealing cap Luer-Lock

Sales unit:
ST = Package of 1 piece

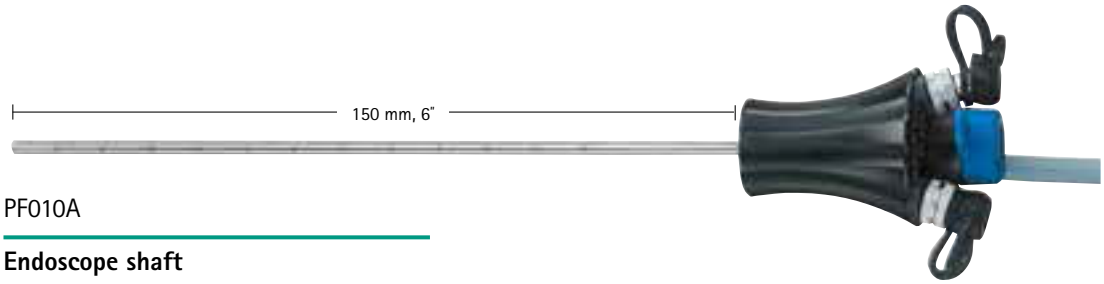
- For further details see brochure no. C40402

PAEDISCOPE®

Paediatric Intraventricular Neuroendoscopic System

PAEDISCOPE®

- 3.0 mm outer diameter for minimally invasive paediatric surgery
- 30.000 pixel fibre optic
- Light-weight and ergonomic design
- Weight of camera is away from the operating site
- Depth scale



PF010A

Endoscope shaft
with integrated optical fibres

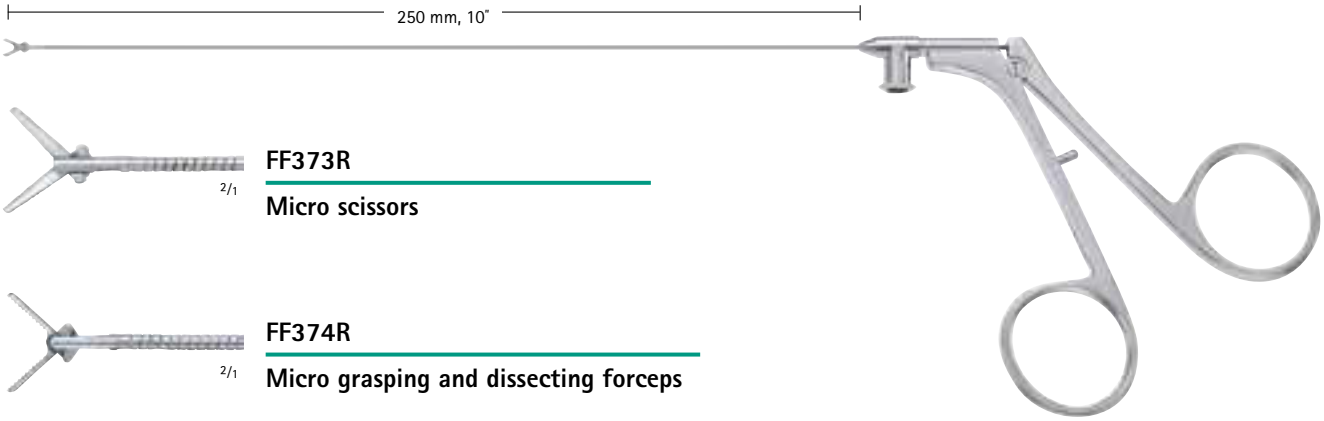
PF011A

Ocular with focus
for complete PAEDISCOPE® please order both: PF010A and PF011A

PAEDISCOPE®

Paediatric Intraventricular Neuroendoscopic System - Flexible Instruments

Ø 1 mm — 1.0 mm Instruments, non detachable



FF373R

Micro scissors

FF374R

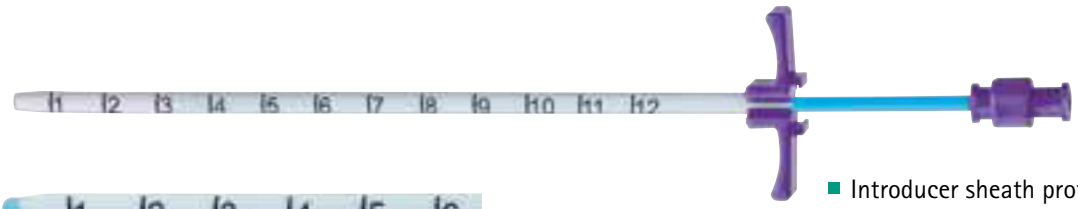
Micro grasping and dissecting forceps

FF378R

Micro biopsy forceps

FF373R – FF378

With irrigation port for reprocessing/cleaning



FH603SU

PAEDISCOPE® Single use introducer, 10 FR

Sales unit:
PAK = Package of 5 pieces

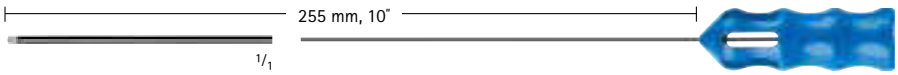
- Introducer sheath protects the brain while inserting and removing the endoscope/trocar
- Especially for PAEDISCOPE® PF010A
- 10 Fr disposable introducer set including obturator and sheath
- Round & blunt obturator tip for atraumatic insertion into the ventricles
- Large depth scale
- Easy to peel with side handles
- 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

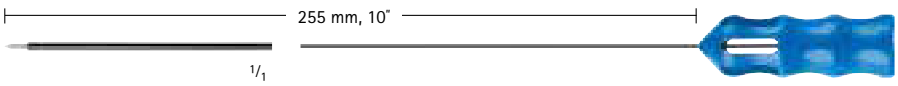
PAEDISCOPE®

Paediatric Intraventricular Neuroendoscopic System - Monopolar Electrodes



GK361R

Blunt electrode, diam. 1.1 mm



GK363R

Neelde electrode, diam. 1.1 mm

GK202

Monopolar cable, length 3.5 m
suitable for GN300, GN640

PAEDISCOPE®

Paediatric Intraventricular Neuroendoscopic System - Storage

- Storage rack for PAEDISCOPE® instruments and electrodes

FF379R Dimension (L/W/H) 489 x 257 x 63 mm

Storage rack with silicone protection cushioning, tray and lid

only for reprocessing, not for transportation/shipment (instruments not included)

- 1/1 Container (basic version) for storage rack FF379R

consisting of:

JK440

Container body 1/1 for FF358R
without base perforation

Outside/Inside dimensions with 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

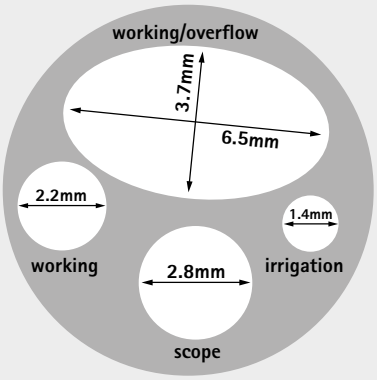
- For futher details see brochure no. C29202 and no. C40402

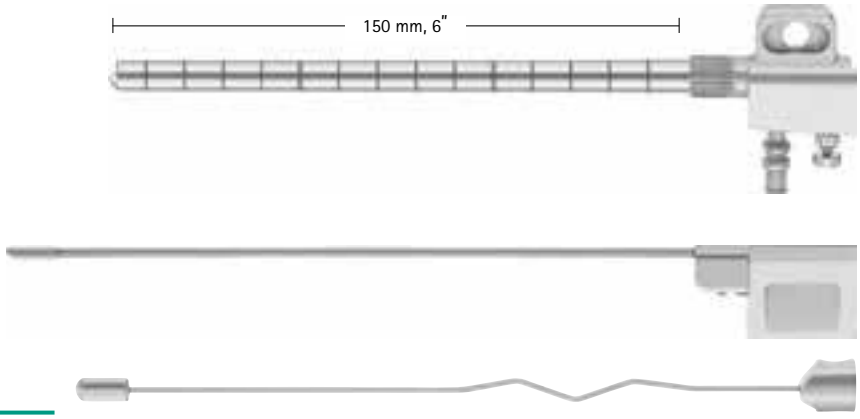

AESCULAP

MINOP® InVent

Intraventricular Neuroendoscopic System for Experts - Trocar

- Larger trocar with an oval working channel allows innovative treatment options and multi-directional flexibility
- Bi-instrumental technique is similar to traditional micro neurosurgery, due to the increased freedom of movement
- For the first time, angled instruments can be used
- Up to 32 different instruments usable





FH620R

MINOP® InVent trocar,
Outer diameter 8,3 mm

3 (4) channels:
- Endoscope channel: diam. 2.8 mm
- Irrigation channel: diam. 2.2 mm

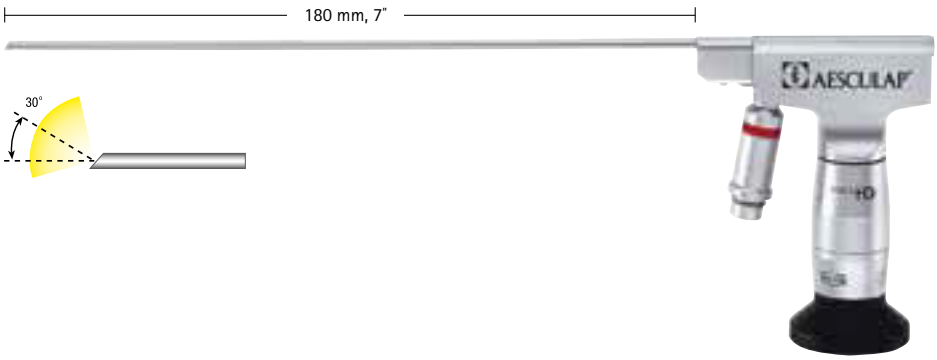
2 merging channels
- Large working/overflow channel: 3.7 x 6.5 mm
- Small working channel, diam. 2.2 mm

including 2 obturators for endoscope channel and large working/overflow channel

MINOP® InVent

Intraventricular Neuroendoscopic System for Experts - Endoscope

- FULL HD compatible
- New optical components for enlarged image area and enhanced image quality, brightness, contrast
- Improved fibre optics provide more light
- The external tube is made from a high strength special alloy for superior breaking resistance
- Service-optimised construction reduces maintenance costs
- Autoclavable/Steris/Sterrad



PE204A

MINOP® InVent angled endoscope

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

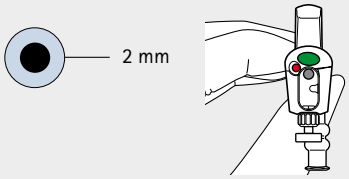
Autoclavable

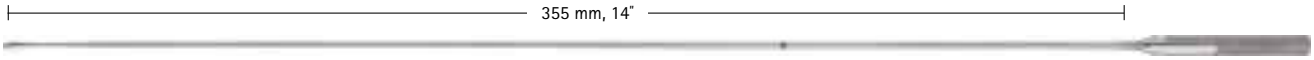
"The MINOP® InVent system is truly unique and the next step for the future of Neuroendoscopy. This system allows for a true bi-manual technique through the large/small working channels expanding the possibilities to treat further indications. The angled instrumentation provide the ability to simultaneously grasp and cut or grasp and coagulate similar to traditional microsurgery. The MINOP InVent providesa 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

Intraventricular Neuroendoscopic System for Experts - Dissectors, Hook and Knife





FH629R

MINOP® InVent dissector,
tip width 2.2 mm

FH623R

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

FH630R

MINOP® InVent dissector,
tip width 1.7 mm

FH623R

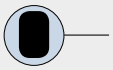
MINOP® InVent knife, backwards cutting,
knife deflection width 3.0 mm

FH631R

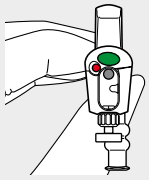
MINOP® InVent dissector,
tip width 1.0 mm

MINOP® InVent

Intraventricular Neuroendoscopic System for Experts - Shaft Instruments



Width x Height:
2.0 mm x 3.1 mm



290 mm, 11½"

2/1

FH621R

MINOP® InVent forceps, straight

2/1

FH622R

MINOP® InVent scissors, straight

2/1

FH622R

MINOP® InVent forceps, right

2/1

FH626R

MINOP® InVent scissors, left

2/1

FH623R

MINOP® InVent forceps, left

2/1

FH627R

MINOP® InVent scissors, right

2/1

FH624R

MINOP® InVent grasping forceps, straight

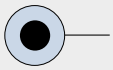
2/1

FH628R

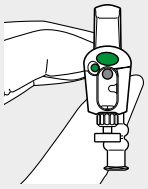
MINOP® InVent scissors, upwards

MINOP® InVent

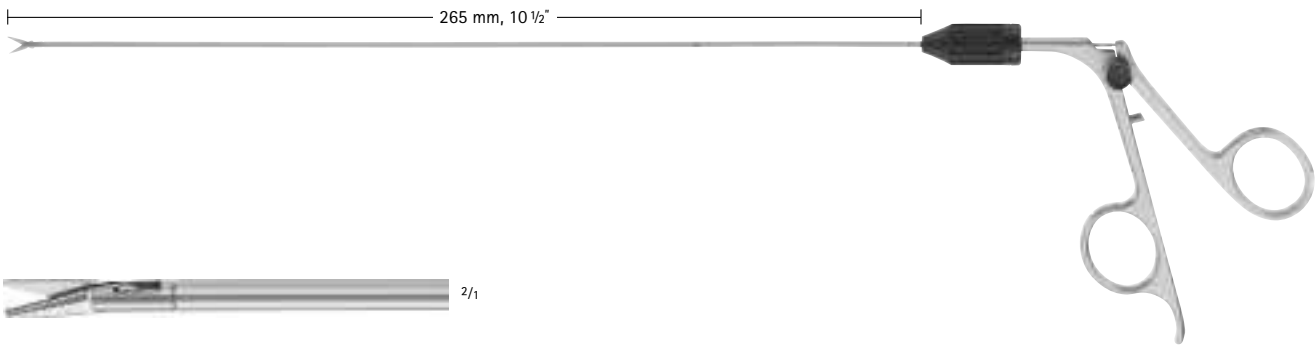
Intraventricular Neuroendoscopic System for Experts - Tube Shaft Instruments



Instrument complete: Handle · outer tube · jaw part with inner tube



- High precision working ends
- Rotation wheel for comfortable rotation of working end



FH635R

MINOP® InVent scissors
sharp / sharp

FH636R

MINOP® InVent scissors
blunt / blunt

FH636R

MINOP® InVent biopsy forceps

FH638R

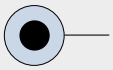
MINOP® InVent grasping and dissecting forceps

FH639R

MINOP® InVent surgical forceps
1 x 2 teeth

MINOP® InVent

Intraventricular Neuroendoscopic System for Experts - Tube Shaft Instruments - Spare Parts



FH635200

MINOP® InVent outer tube, only

FH633R

MINOP® InVent instrument handle, only

FH435R

MINOP® InVent scissors, jaw part
sharp / sharp

FH436R

MINOP® InVent scissors, jaw part
blunt / blunt

FH436R

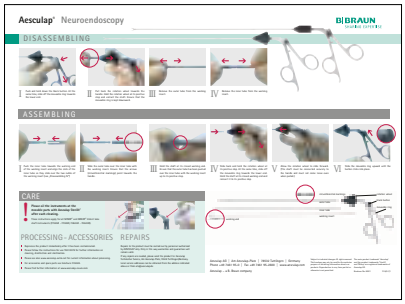
MINOP® InVent biopsy forceps, jaw part

FH438R

MINOP® InVent grasping and dissecting forceps, jaw part

FH439R

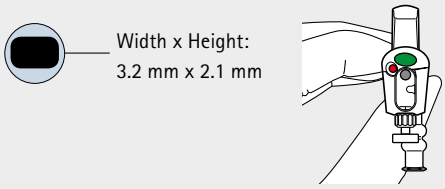
MINOP® InVent surgical forceps, jaw part
1 x 2 teeth

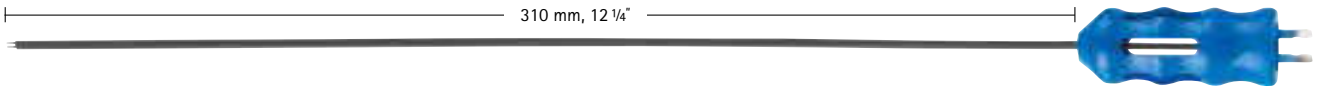


- For disassembly and assembly of MINOP® tube shaft instruments see brochure no. C60911

MINOP® InVent

Intraventricular Neuroendoscopic System for Experts - Bipolar Electrodes





GK343R

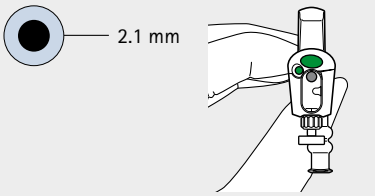
MINOP® InVent bipolar electrode,
0°, diam.: 2.7 mm

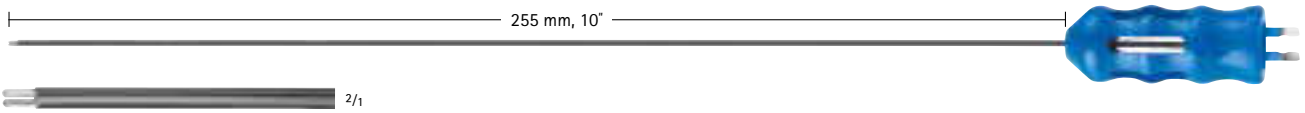
GK344R

MINOP® InVent bipolar electrode,
40°, diam.: 2.7 mm

GK345R

MINOP® InVent bipolar electrode,
30°, diam.: 2.7 mm





GK360R

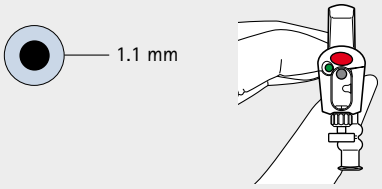
Fork electrode, 0°, diam. 2.1 mm

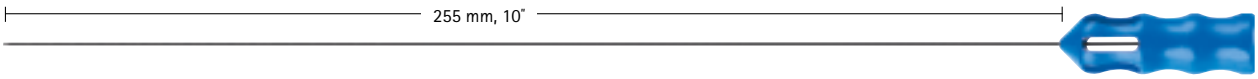
GN130

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

MINOP® InVent

Intraventricular Neuroendoscopic System for Experts - Monopolar Electrodes





GK361R

Blunt electrode, diam. 1.1 mm

GK363R

Needle electrode, diam. 1.1 mm

GK364R

Hook electrode, 45°, diam. 2.2 mm

GK365R

Hook electrode, 70°, diam. 2.2 mm

GK362R

Hook electrode, 90°, diam. 2.2 mm

GK366R

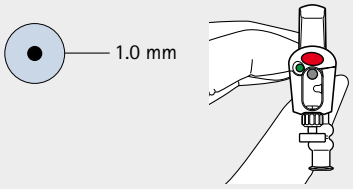
Hook electrode, 180°, diam. 2.2 mm

GN202

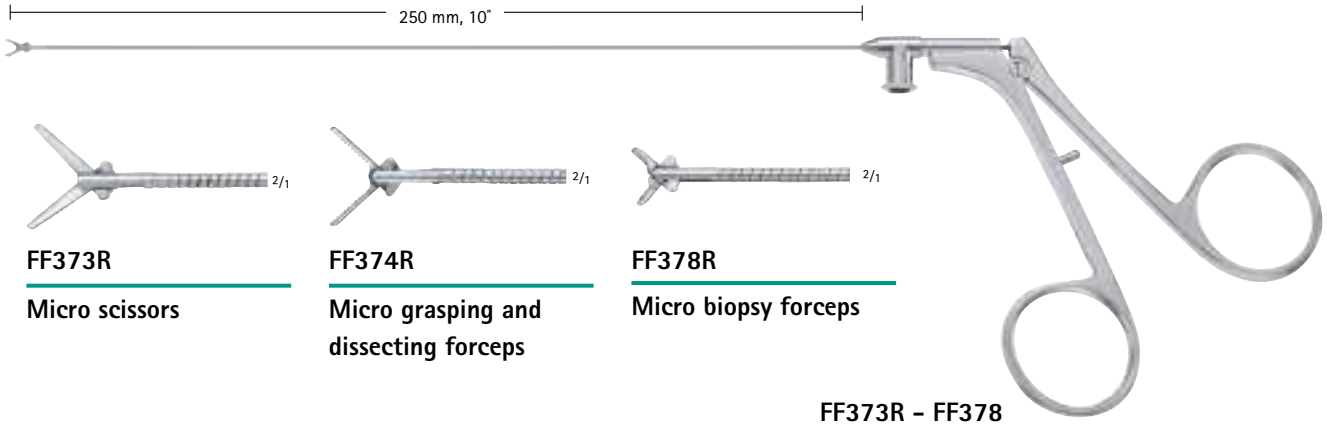
Monopolar cable, 3.5 m length
suitable for GN300, GN640

MINOP® InVent

Intraventricular Neuroendoscopic System for Experts - Flexible Instruments, Suction Cannulas



■ non-detachable



FF373R

Micro scissors

FF374R

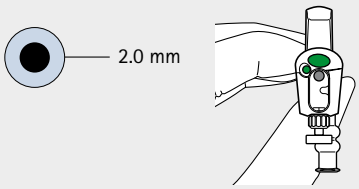
Micro grasping and dissecting forceps

FF378R

Micro biopsy forceps

FF373R – FF378

With irrigation port for reprocessing/cleaning



FH606SU

Suction cannula

blunt tip 0°, diam. 2 mm

FH607SU

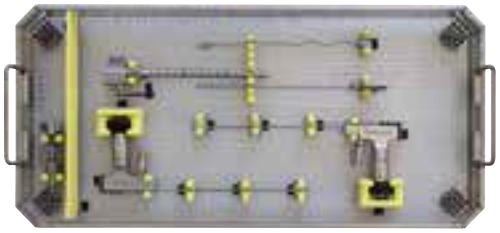
Suction cannula

sharp tip 45°, diam. 2 mm

MINOP® InVent

Intraventricular Neuroendoscopic System for Experts - Storage

■ for MINOP® InVent trocars and endoscopes

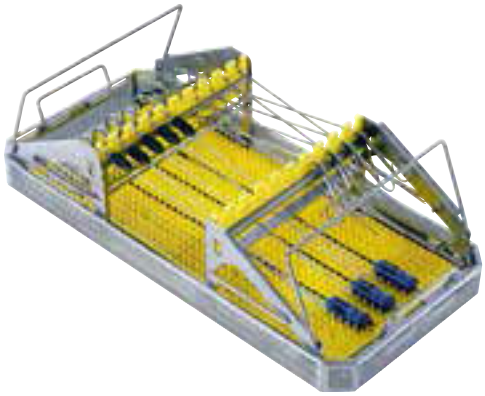


FH358R Dimension (L/W/H) 540 x 253 x 56 mm

Storage rack with silicone protection cushioning tray and lid

only for reprocessing, not for transportation/shipment
(instruments not included)

■ for MINOP® InVent instruments and electrodes



FH359R Dimension (L/W/H) 540 x 253 x 120 mm

Storage rack with silicone protection and cushioning,
tray without lid (lid not necessary)

only for reprocessing, not for transportation/shipment
(instruments not included)

■ 1/1 Container (basic version)
for storage racks FF358R and FF359R,

consisting of:

JK440

Container body 1/1 for FF358R
without base perforation

Outside/Inside dimensions with lid:
L/W/H 592 x 285 x 108 mm
L/W/H 544 x 258 x 75 mm

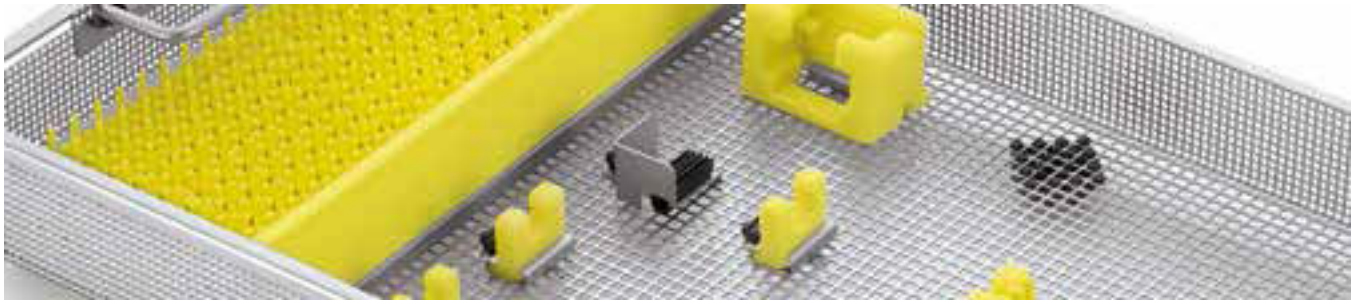
JK444

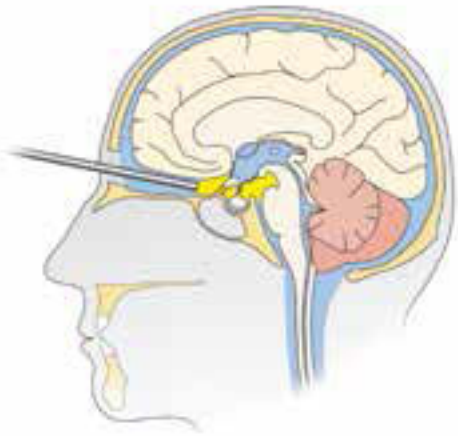
Container body 1/1 for FF359R
without base perforation

Outside/Inside dimensions with lid:
L/W/H 592 x 285 x 209 mm
L/W/H 544 x 258 x 172 mm

JK486

Inner lid 1/1
blue

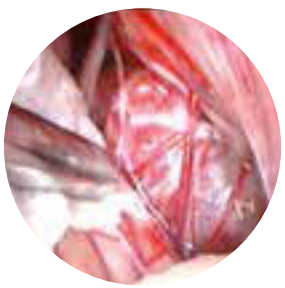


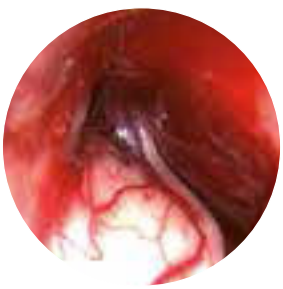


ENDOSCOPE-ASSISTED MICRO NEUROSURGERY

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

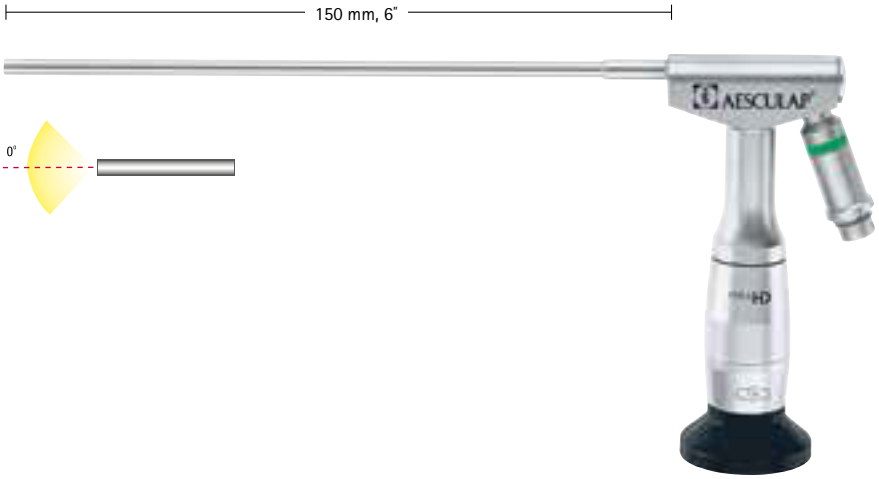
MINOP® TEAM

Transcranial Endoscope Assisted Microneurosurgery - Angled "PERNECZKY" Endoscopes

- FULL HD compatible
- Different viewing angles (0°, 30°, 70°)
- Angled endoscope design and lateral connection for camera and light source allow to use microscope and micro instruments in parallel
- Ergonomic handling by centered balance of weight
- Autoclavable / Steris® / Sterrad®
- Robust and rigid scope sheath

PE486A

Angled endoscope
Direction of view: 0°
Shaft diameter: 4 mm
Shaft length: 150 mm, 6"

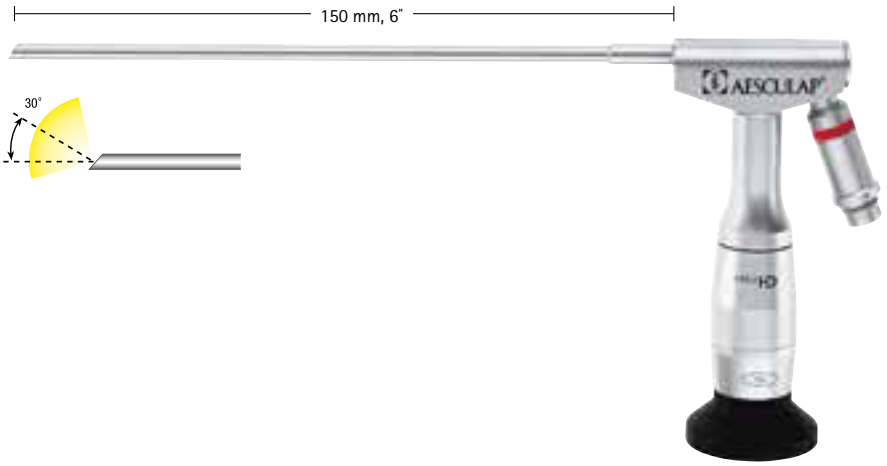


"I have been using the Aesculap angled Perneczky scopes since the mid nineties and in over 1000 cases. I have trialed many different scopes for endoscope-assisted surgery but the Perneczky scopes have the versatility that I need when removing tumors from many different cranial locations. The main advantage 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°, upwards
Shaft diameter: 4 mm
Shaft length: 150 mm, 6"



PE526A

Angled endoscope
Direction of view: 70°, upwards
Shaft diameter: 4 mm
Shaft length: 150 mm, 6"

JF324R

Storage tray
with silicone cushioning racks and lid
for 2 angled neuroscopes (not included)
(L/W/H 247 x 257 x 64 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 - Aesculap Micro Instruments

Small craniotomies or narrow operative sites require especially designed fine and slender micro instruments

Experience our three different lines of minimally invasive Micro Instruments

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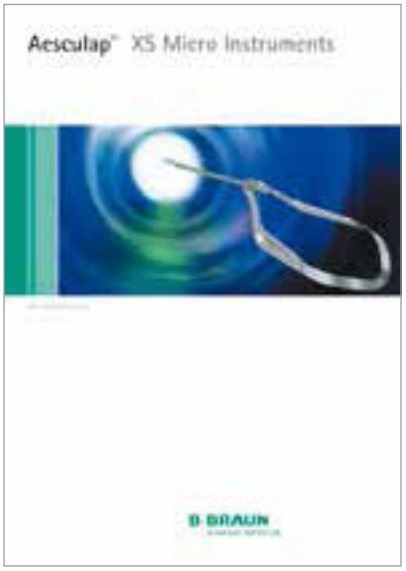

For more information about XS Micro Instruments please see our brochure C77011

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For more information about MIN Set please see our brochure C92011

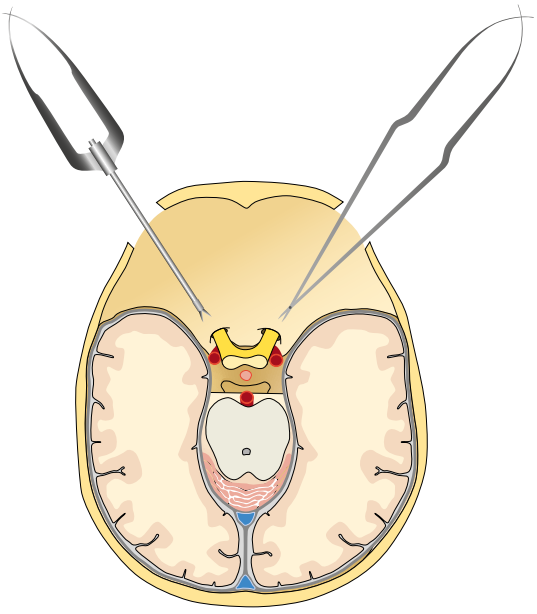
For more information about SENSATION Micro Instruments please see our brochure C84902

MINOP® TEAM

Transcranial Endoscope Assisted Microneurosurgery
XS Tube Shaft Micro Instruments

XS MICRO INSTRUMENTS

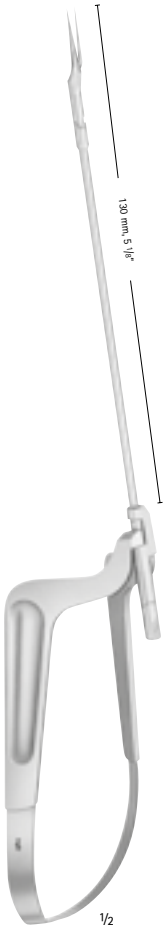
- Narrow tubular shaft for maximal freedom of movement
- Angled bayonet shape for enhanced sight lines and easier handling
- Dismountable for easy, effective cleaning and reprocessing
- Exchangeable handles and jaw inserts for economic use

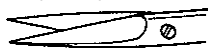
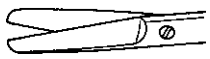


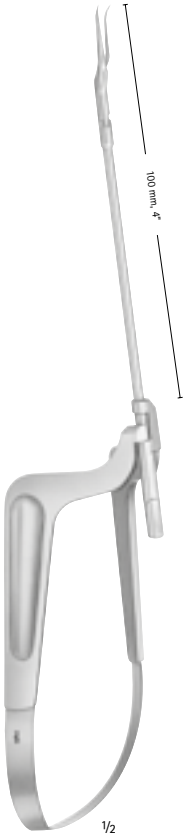
MINOP® TEAM

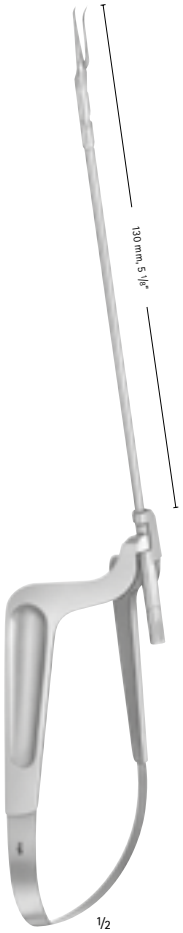
Transcranial Endoscope Assisted Microneurosurgery

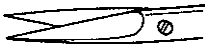
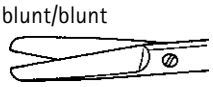
XS Micro Scissors acc. PERNECZKY/CHRISTANTE, Bayonet-shaped



straight jaws	Instrument complete	Single parts		Instrument complete	Single parts		Instrument complete	Single parts	
		Jaw insert	Handle		Jaw insert	Handle		Jaw insert	Handle
sharp/sharp 	**FM670R**	**FM675R**	**FM730R**	**FM671R**	**FM676R**	**FM731R**	**FM672R**	**FM677R**	**FM732R**
blunt/blunt 	**FM690R**	**FM695R**		**FM691R**	**FM696R**		**FM692R**	**FM697R**	
Working length	70 mm, 2 ¾"			100 mm, 4"			130 mm, 5 ⅛"		
Total length	200 mm, 8"			230 mm, 9"			260 mm, 10 ¼"		

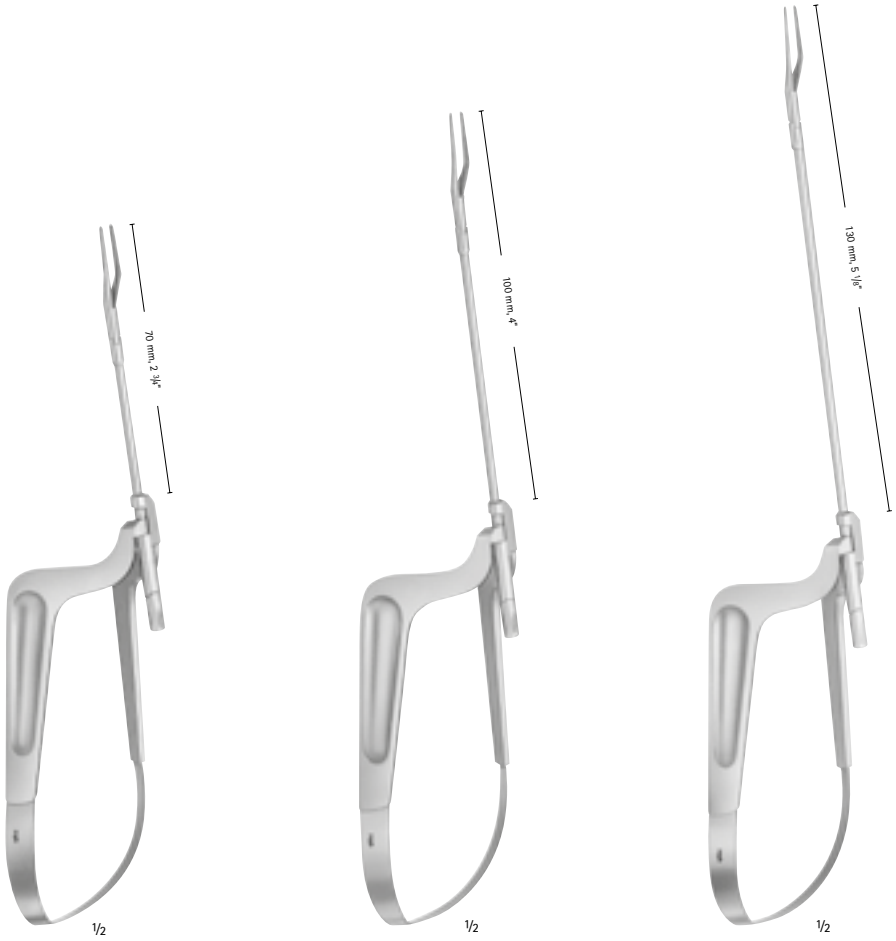




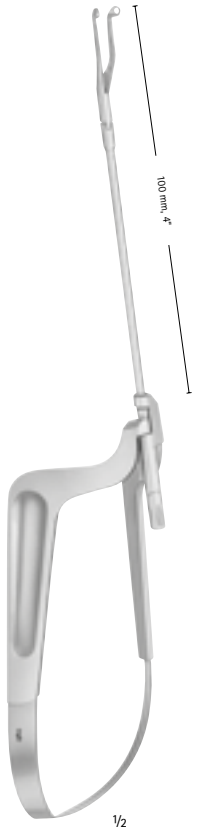
curved jaws	Instrument complete	Single parts		Instrument complete	Single parts		Instrument complete	Single parts	
		Jaw insert	Handle		Jaw insert	Handle		Jaw insert	Handle
sharp/sharp 	**FM680R**	**FM685R**	**FM730R**	**FM681R**	**FM686R**	**FM731R**	**FM682R**	**FM687R**	**FM732R**
blunt/blunt 	**FM700R**	**FM705R**		**FM701R**	**FM706R**		**FM702R**	**FM707R**	
Working length	70 mm, 2 ¾"			100 mm, 4"			130 mm, 5 ⅛"		
Total length	200 mm, 8"			230 mm, 9"			260 mm, 10 ¼"		

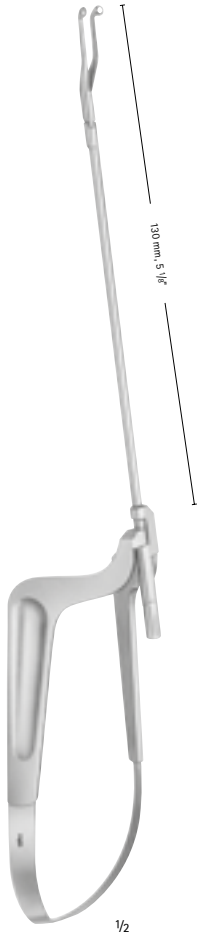
MINOP® TEAM

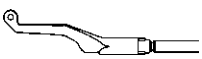
Transcranial Endoscope Assisted Microneurosurgery -
XS Micro Tissue Forceps acc. PERNECZKY/CHRISTIANE, Bayonet-shaped



Jaw	Instrument complete	Single parts		Instrument complete	Single parts		Instrument complete	Single parts	
		Jaw insert	Handle		Jaw insert	Handle		Jaw insert	Handle
0.9 mm	**FM710R**	**FM715R**	**FM730R**	**FM711R**	**FM716R**	**FM731R**	**FM712R**	**FM717R**	**FM732R**
Working length	70 mm, 2 ¾"			100 mm, 4"			130 mm, 5 ⅛"		
Total length	200 mm, 8"			230 mm, 9"			260 mm, 10 ¼"		





Jaw	Instrument complete	Single parts		Instrument complete	Single parts		Instrument complete	Single parts	
		Jaw insert	Handle		Jaw insert	Handle		Jaw insert	Handle
3 mm, sharp 	**FM720R**	**FM725R**	**FM730R**	**FM721R**	**FM726R**	**FM731R**	**FM722R**	**FM727R**	**FM732R**
Working length	70 mm, 2 3/4"			100 mm, 4"			130 mm, 5 1/8"		
Total length	200 mm, 8"			230 mm, 9"			260 mm, 10 1/4"		

MINOP® TEAM

Transcranial Endoscope Assisted Microneurosurgery
XS Tube Shaft Aneurysm Clip Applying Forceps

- 360° rotation
- suitable for narrow approaches

190 mm, 7"

	Standard	Mini
For Titanium clips	**FT494T**	**FT489T**
For Phynox clips	**FE494K**	**FE489K**

230 mm, 9"

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

250 mm, 9 3/4"

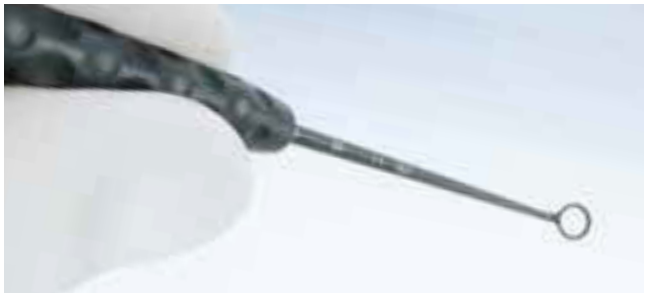
	Standard	Mini
For Titanium clips	**FT496T**	**FT491T**
For Phynox clips	**FE496K**	**FE491K**

The cause for the significant superiority of the endovascular treatment of aneurysms compared with the surgical therapy in the ISAT study was the surgical morbidity and mortality of large sized standard approaches. In my opinion, surgical clipping will play an important role in the treatment of intracranial aneurysms in the future only, if it will be able to reduce approach related complications using limited craniotomies. The use of endoscope-assisted techniques and tube-shaft clip appliers offer increased safety in keyhole vascular neurosurgery, thus achieving the basic goal with minimally invasive and maximal effective aneurysm closure.

MINOP® TEAM

Transcranial Endoscope Assisted Microneurosurgery
MIN Noir® Micro Instruments

Slender design and angled bayonet shape
Improved visibility of the surgical site due to the slender design. Angled bayonet shape allows for less obstructions while working under the microscope.



Round golf ball handle design
Designed to provide an excellent grip and enable easy rotation of the instruments. This allows precise handling.

Various working lengths
One handle design aligned with precisely adapted working lengths. Always provides the right instrument at your fingertips!

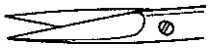
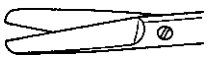
Noir®, No Irritating Reflections
Aesthetic surface coating effectively prevents disturbing light reflections.

Fine instrument tips
Especially important when working in very small operating corridors and close to sensitive structures.

MINOP® TEAM

Transcranial Endoscope Assisted Microneurosurgery

MIN Noir® Micro Scissors with Round Golfball Design Handle, Bayonet-shaped

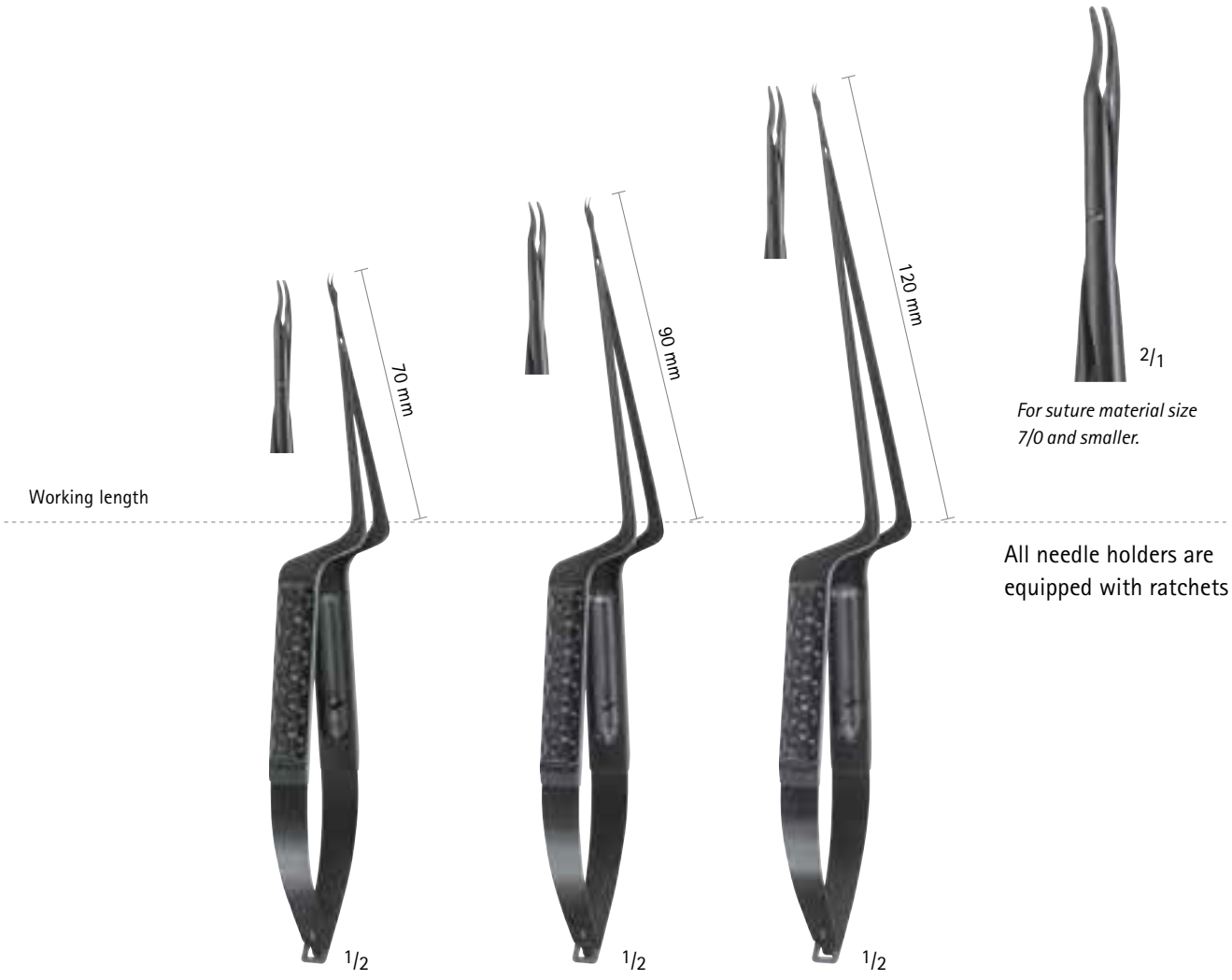
	straight jaws	slightly curved jaws	curved jaws	straight jaws	slightly curved jaws	curved jaws	straight jaws	slightly curved jaws	curved jaws
sharp/sharp 	**FD701B**	**FD702B**	**FD703B**	**FD731B**	**FD732B**	**FD733B**	**FD771B**	**FD771B**	**FD773B**
blunt/blunt 	**FD704B**	**FD705R**	**FD706B**	**FD734B**	**FD735B**	**FD736B**	**FD774B**	**FD775B**	**FD776B**
Working length	70 mm, 2 3/4"			100 mm, 4"			130 mm, 5 1/8"		
Total length	200 mm, 8"			230 mm, 9"			260 mm, 10 1/4"		

- For more information to MIN Instruments, please ask your local Aesculap sales representative or see our brochure C92011

MINOP® TEAM

Transcranial Endoscope Assisted Microneurosurgery

MIN Noir® Micro Needle Holders with Round Golfball Design Handle, Bayonet-shaped



For suture material size 7/0 and smaller.

All needle holders are equipped with ratchets

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

2.5 mm	FD766B	FD786B	FD767B	FD787B	FD768B	FD788B
3.5 mm	FD769B	FD789B	-	-	-	-
Working length	90 mm, 3 ½"	120 mm, 4 ¾"	90 mm, 3 ½"	120 mm, 4 ¾"	90 mm, 3 ½"	120 mm, 4 ¾"
Total length	210 mm, 8 ¼"	240 mm, 9 ½"	210 mm, 8 ¼"	240 mm, 9 ½"	210 mm, 8 ¼"	240 mm, 9 ½"

MINOP® TEAM

Transcranial Endoscope Assisted Microneurosurgery
MIN Micro Instruments

1/2

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

1/1

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

1/1

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

1/1

	Noir® Dissectors
FD821B	Dissector, curved, 200 mm, 1 mm
FD822B	Dissector, curved, 200 mm, 2 mm
FD823B	Dissector, curved, 200 mm, 3 mm

1/1

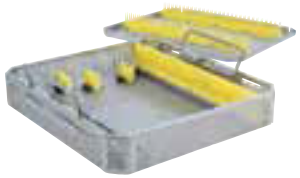
	Noir® Currettes
FD824B	Curette, 200 mm, diam. 4 mm, 0°
FD825B	Curette, 200 mm, diam. 4 mm, 45°
FD826B	Curette, 200 mm, diam. 4 mm, 90°
FD827B	Curette with neck, 200 mm, diam. 4 mm, 45°
FD828B	Curette with neck, 200 mm, diam. 4 mm, 90°
FD835B	Curette, 200 mm, diam. 6,5 mm, 45°
FD836B	Curette, 200 mm, diam. 6,5 mm, 90°

1/1

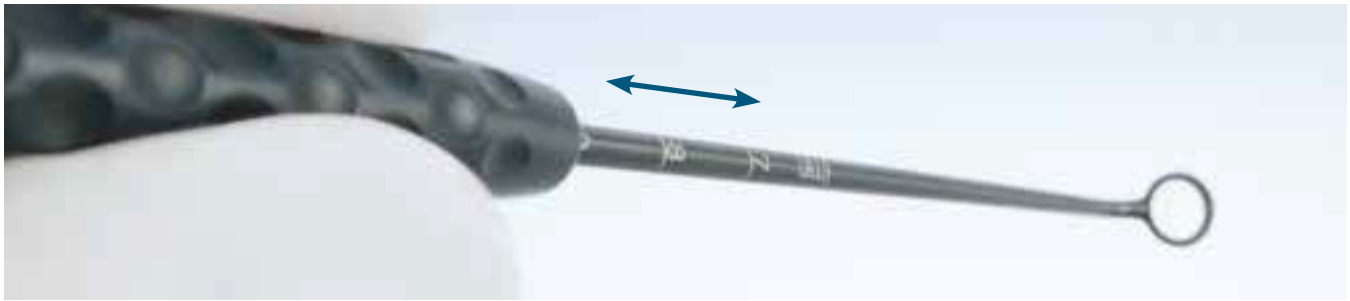
	Noir® Rasparatories
FD831B	Rasparatory, 200 mm, 1 mm
FD832B	Rasparatory, 200 mm, 2 mm
FD833B	Rasparatory, 200 mm, 3 mm

1/1

	Noir® Tumor knives
FD839B	Noir Tumor knife, 200 mm, diam. 1,5 mm, 45°
FD840B	Noir Tumor knife, 200 mm, diam. 3 mm, 45°
FD841B	Noir Tumor knife, 200 mm, diam. 4,5 mm, 45°

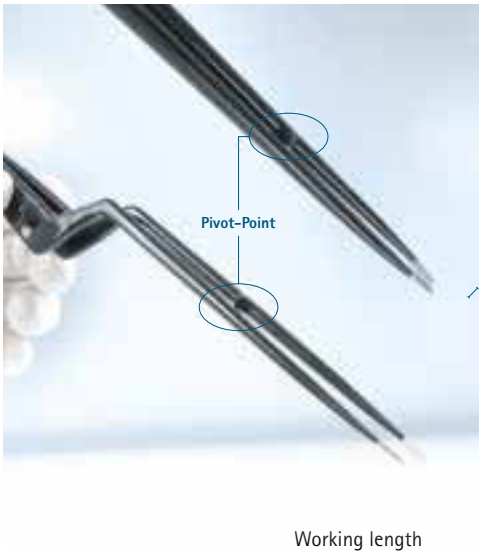


FD467R	Tray



MINOP® TEAM

Transcranial Endoscope Assisted Microneurosurgery
MIN Pivot-Point Bipolar Forceps



Working length

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"

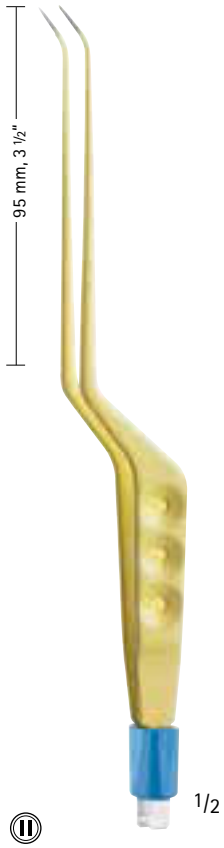
"The black „pivot" bipolar forceps are a great advance. The bipolar is as essential a tool as the neurosurgeon's own fingers. As we go more and more minimally invasive, the need for a very slim, responsive bipolar that will work under tight conditions is essential. The tips can be precisely separated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

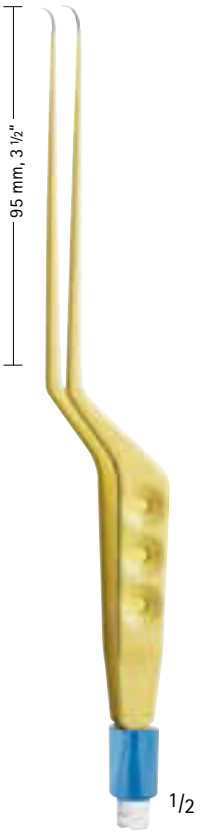
Peter Nakaji, Phoenix, USA

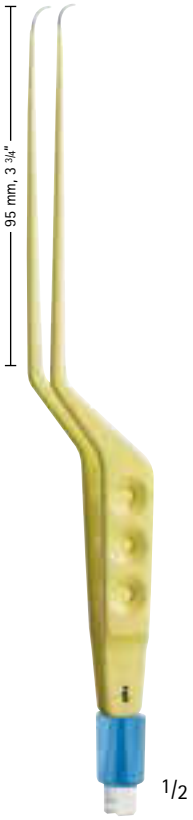
MINOP® TEAM

Transcranial Endoscope Assisted Microneurosurgery - Bipolar Yasargil Forceps

Bipolar Yasargil forceps:
extra-small bipolar forceps for keyhole approaches







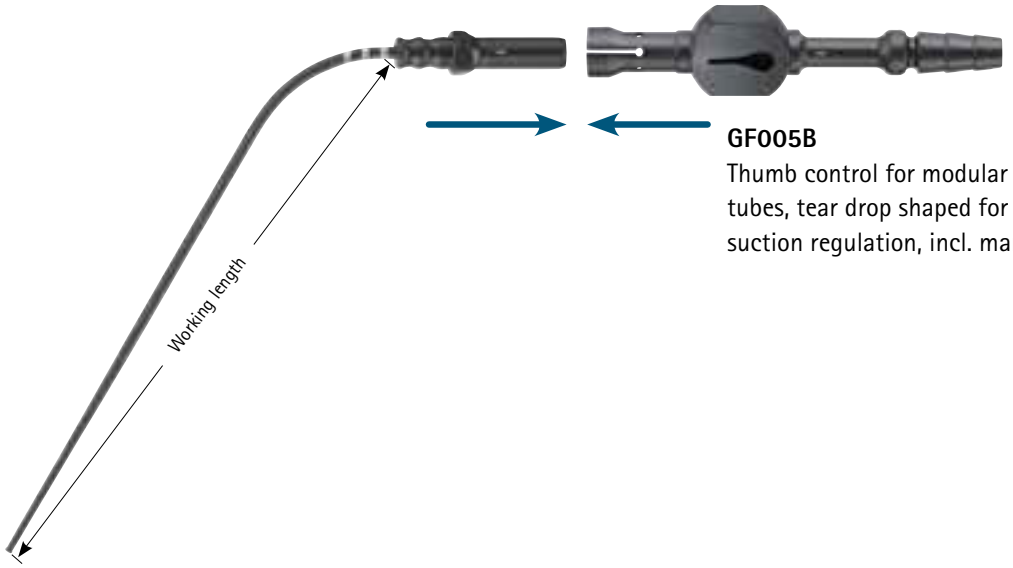
Aesculap tab connector

	-	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 ¾"		95 mm, 3 ¾"		95 mm, 3 ¾"
Total length	215 mm, 8 ½"		215 mm, 8 ½"		215 mm, 8 ½"

- For more information please ask your local Aesculap sales representative or see our brochure C30481

MINOP® TEAM

Transcranial Endoscope Assisted Microneurosurgery
MIN Modular Suction Cannulas



GF005B
Thumb control for modular suction tubes, tear drop shaped for a very precise suction regulation, incl. mandrin.

		S	M	L	XL
Working length		80 mm, 3 ½"	100 mm, 4"	120 mm, 4 ¾"	140 mm, 5 ½"
4 Fr. straight	○	**GF025B**	**GF035B**	**GF045B**	**GF055B**
6 Fr. straight	◎	**GF026B**	**GF036B**	**GF046B**	**GF056B**
6 Fr. straight, lateral holes	◈	–	**GF038B**	**GF048B**	**GF058B**
6 Fr. curved left	◎	–	**GF030B**	–	–
6 Fr. curved right	◎	–	**GF031B**	–	–
8 Fr. straight	◎	**GF027B**	**GF037B**	**GF047B**	**GF057B**
8 Fr. straight, lateral holes	◈	–	**GF039B**	**GF049B**	**GF059B**
8 Fr. curved left	◎	–	**GF032B**	–	–
8 Fr. curved left	◎	–	**GF033B**	–	–

3 Fr. = 1 mm

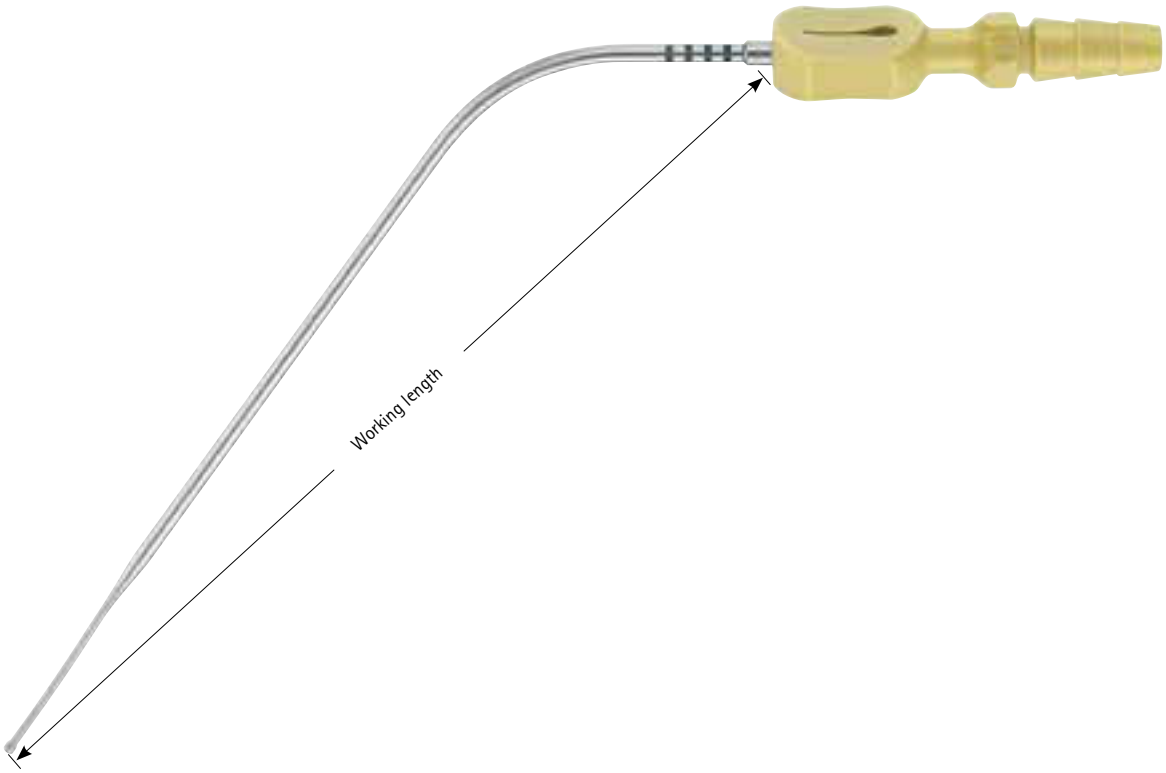
Benefits...

- Atraumatic tips enable blunt dissection and retraction
- Lateral bore holes reduce suction pressure
- Damaged suction tubes can be replaced individually
- Tray weight is reduced and less space is required
- Greater freedom for even more flexible use

MINOP® TEAM

Transcranial Endoscope Assisted Microneurosurgery

RAABE Micro 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"
Total length		130 mm, 5 1/8"	150 mm, 6	165 mm, 6 1/2"	185 mm, 7 1/4"
4F yellow, 1.4 mm	○	**GF470R**	**GF473R**	**GF476R**	**GF479R**
6 F blue, 2.0 mm	◎	**GF471R**	**GF474R**	**GF477R**	**GF480R**
8F green, 2.7 mm	◎	**GF472R**	**GF475R**	**GF478R**	**GF481R**

3 Fr = 1 mm

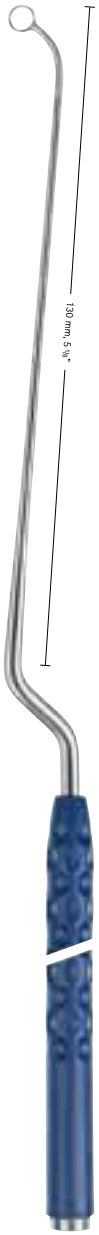
The ball tip at the end of the instrument allows gentle preparation and stable atraumatic retraction.

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

MINOP® TEAM

Transcranial Endoscope Assisted Microneurosurgery
TREND Curettes and Dissectors

Bayonet design with ergonomic grasping part and semi-sharp tips
for pituitary and skull base



FA041R–FA068R

Working length:
130 mm, 5 ⅛"

Total length:
280 mm, 11"

diam. 6.5 mm

NICOLA

FA041R

Curette
45° vertical angled
long neck

diam. 6.5 mm

NICOLA

FA042R

Curette
45° horizontal angled
short neck

HARDY

FA043R

Enucleator
left cutting

HARDY

FA044R

Enucleator
right cutting

diam. 4.0 mm

HARDY

FA045R

Curette
90° left angled
long neck

diam. 4.0 mm

HARDY

FA046R

Curette
90° left angled
short neck

diam. 4.0 mm

HARDY

FA047R

Curette
90° right angled
long neck

diam. 4.0 mm

HARDY

FA060R

Curette
90° right angled
short neck

diam. 4.0 mm

HARDY

FA061R

Curette
45° horizontal,
left angled.
short neck

diam. 4.0 mm

HARDY

FA062R

Curette
45°horizontal,
right angled
short neck

diam. 6.0 mm

HARDY

FA063R

Curette
90° left angled
long neck

diam. 6.0 mm

HARDY

FA064R

Curette
90° left angled
short neck

diam. 6.0 mm

HARDY

FA065R

Curette
90° right angled
long neck

diam. 6.0 mm

HARDY

FA066R

Curette
90° right angled
short neck

diam. 1.7 mm

REULEN-
LANDOLT

FA067R

Micro Hook

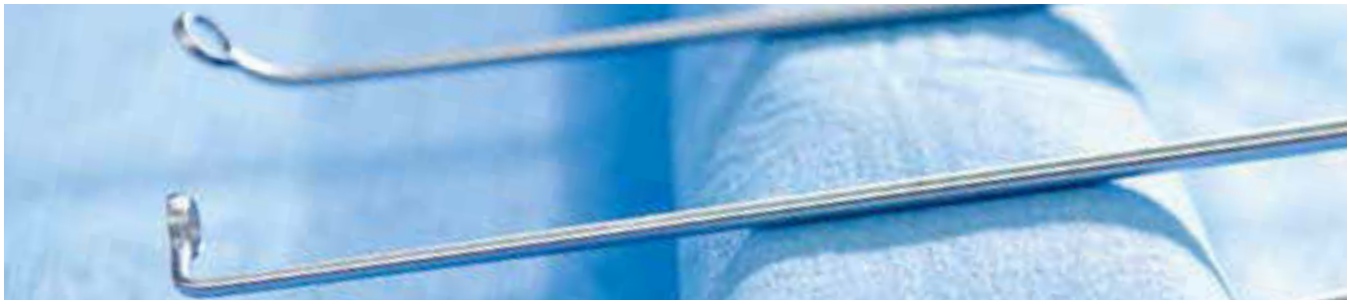
diam. 2.0 mm

REULEN-
LANDOLT

FA068R

Dissector
blunt

1/1



MINOP® TEAM

Transcranial Endoscope Assisted Microneurosurgery
Diamond Knives

Diamond knives

Due to the properties of their unique blade material, diamond knives offer excellent cutting characteristics for highly clean, precise and force-free incisions especially in neurosurgical applications and in cardiovascular and thoracic surgery.

- Blade made of natural diamond
- Superior mechanical stability & elasticity of the blade
- Sustained sharpness
- Excellently clean, precise and force-free incisions
- Protection mechanism for storage of the blade inside the handle
- Color coded Titanium handles
- Four different cutting geometries: round, retrograde, wedge and lancet blade

- For further details see brochure no. C22402.

FD113D

Round blade, gold-colored

7 facets
Length
205 mm, 8"

FD114D

Retro blade, copper-colored

60°
Length
205 mm, 8"

FD115D

Wedge blade, black-colored

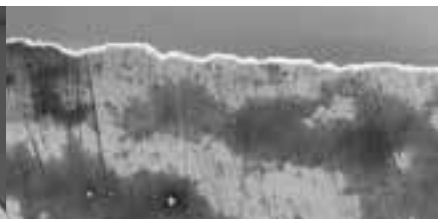
45°
Length
205 mm, 8"

FD116D

Lancet blade, bronze-colored

60°
Length
205 mm, 8"

SEM view of a diamond knife blade



SEM view of a common scalpel blade

MINOP® TEAM

Transcranial Endoscope Assisted Microneurosurgery
NOIR® Brain Spatulas

Noir® Coated brain spatula

- Malleable metal spatula
- Conically tapered
- Smooth surface
- Atraumatic rounded edges
- Black Noir® surface coating to avoid light reflections
- Reusable
- Easy to reprocess

FF456B

S = 8 x 4 mm
Length:
200 mm, 8"

FF457B

M = 13 x 6 mm
Length:
200 mm, 8"

FF458B

L = 17 x 9 mm
Length:
200 mm, 8"

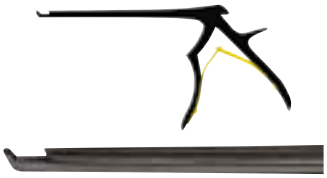
FF459B

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

MINOP® TEAM

Transcranial Endoscope Assisted Microneurosurgery
NOIR® coated KERRISON Detachable Bone Punches

Jaw position 130°, upbiting



Shaft length	Width	Footplate	NOIR®, detachable	Ejector	Jaw opening
180 mm, 7"	1.0 mm	thin	**FK900B**	-	8 mm
	1.5 mm	thin	**FK911B**	-	9 mm
	2.0 mm	thin	**FK901B**	✔	9 mm
	2.5 mm	thin	**FK912B**	✔	10 mm
	3.0 mm	thin	**FK902B**	✔	10 mm
200 mm, 8"	1.5 mm	standard	**FK966B**		9 mm
	2.0 mm	standard	**FK913B**		9 mm
	2.5 mm	standard	**FK967B**		10 mm
	3.0 mm	standard	**FK914B**	✔	10 mm

At a glance, large numbered jaw identification

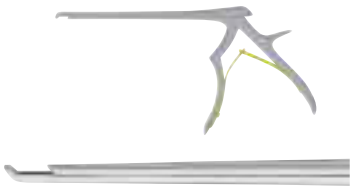
Ejector - for the easy removal of punched-out material.

Numerical code – for reliable identification when assembling the two punch components.

MINOP® TEAM

Transcranial Endoscope Assisted Microneurosurgery
Bayonet-shaped KERRISON Punches

Jaw position 130°, upbiting

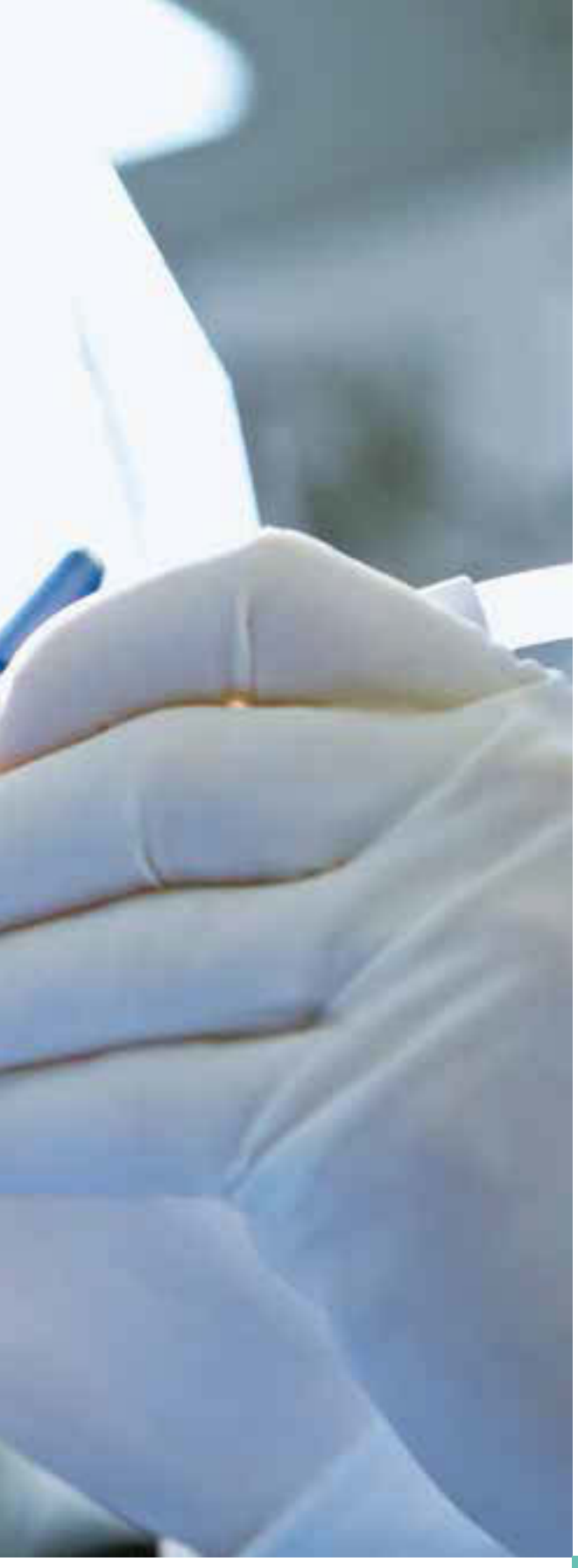


Shaft length	Width	Working length	Detachable	Jaw opening
240 mm, 9½"	2.0 mm	170 mm, 6¾	**FF496R**	10 mm
	3.0 mm	170 mm, 6¾	**FF497R**	10 mm
	4.0 mm	170 mm, 6¾	**FF498R**	10 mm
	5.0 mm	170 mm, 6¾	**FF499R**	10 mm

- For more information about MINOP® TEAM please see our „Practical Atlas" C29802.

- For more information about KERRISON bone punches please see our brochure C84802.

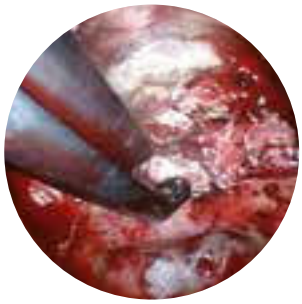

MINOR



TRANSNASAL NEUROENDOSCOPY

MINOP® TREND

TRansnasal ENDoscopic System



"When looking at recent publications on transsphenoidal surgery, it will be clear that **TR**anssphenoidal **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

MINOP® TREND Handle, Accessories and Storage

- Efficient suction, cleaning and irrigation function
- Highly ergonomic handle
- No irrigation pump needed
- Excellent image quality
- Different directions of view
- Big range of suitable instruments available

FH615

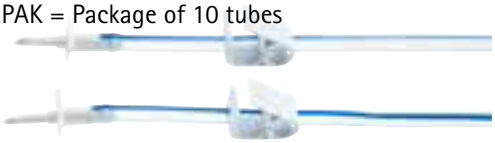
Ergonomic Handle with irrigation button
for FH610R and FH611R

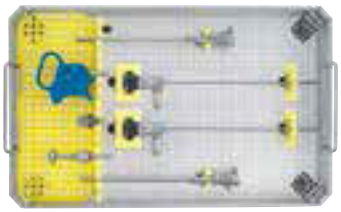
RT099R

Adapter for 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





FF357R

Storage tray with silicone padding and lid for all MINOP® TREND components

only for reprocessing, not for transportation/shipment (instruments not included)

Dimensions: (L/W/H) 410 x 257 x 64 mm

3/4 Container (basic version)
for storage racks FF357R, consisting of:

JK740

Container body 3/4 for FF357R without base perforation

Outside/Inside dimensions with lid:
L/W/H 470 x 285 x 112mm
L/W/H 421 x 258 x 75mm

JK789

Inner lid 3/4, blue

"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 15 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

MINOP® TREND Trocars and Endoscopes

FH610R

Suction and irrigation trocar
for 0° endoscope PE487A
Diameter: 4.5 / 6.0 mm
Working length: 120 mm

FH611R

Suction and irrigation trocar
for 30° endoscope PE507A
Diameter: 4.5 / 6.0 mm
Working length: 120 mm

PE487A

Endoscope
Direction of view: 0° (green ring)
Shaft diameter 4.0 mm
Autoclavable

PE507A

Endoscope
Direction of view: 30° (red ring)
Shaft diameter 4.0 mm
Autoclavable

"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

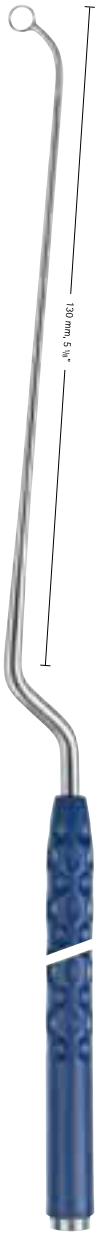
MINOP® TREND

TRansnasal ENDoscopic System - TREND – Curettes and Dissectors

FA041R–FA068R

Working length:
130 mm, 5 1/8"

Total length:
280 mm, 11"



diam. 6.5 mm

NICOLA

FA041R

Curette
45° vertical angled
long neck

diam. 6.5 mm

NICOLA

FA042R

Curette
45° horizontal angled
short neck

HARDY

FA043R

Enucleator
left cutting

HARDY

FA044R

Enucleator
right cutting

diam. 4.0 mm

HARDY

FA045R

Curette
90° left angled
long neck

diam. 4.0 mm

HARDY

FA046R

Curette
90° left angled
short neck

diam. 4.0 mm

HARDY

FA047R

Curette
90° right angled
long neck

diam. 4.0 mm

HARDY

FA060R

Curette
90° right angled
short neck

diam. 4.0 mm

HARDY

FA061R

Curette
45° horizontal,
left angled.
short neck

diam. 4.0 mm

HARDY

FA062R

Curette
45°horizontal,
right angled
short neck

diam. 6.0 mm

HARDY

FA063R

Curette
90° left angled
long neck

diam. 6.0 mm

HARDY

FA064R

Curette
90° left angled
short neck

diam. 6.0 mm

HARDY

FA065R

Curette
90° right angled
long neck

diam. 6.0 mm

HARDY

FA066R

Curette
90° right angled
short neck

diam. 1.7 mm

REULEN-
LANDOLT

FA067R

Micro Hook

diam. 2.0 mm

REULEN-
LANDOLT

FA068R

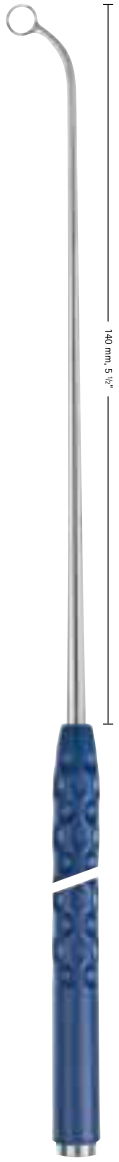
Dissector
blunt

1/1

MINOP® TREND

TRansnasal ENDoscopic System - TREND – Curettes and Dissectors

Straight design with ergonomic grasping part and semi-sharp tips



FA030R–FA040R

Working length:
140 mm, 5 ½"

Total length:
265 mm, 10 ½"

diam. 6.5 mm

NICOLA

FA030R

Curette
45° vertical angled, long neck

diam. 6.5 mm

NICOLA

FA031R

Curette
45° horizontal angled, short neck

HARDY

FA032R

Enucleator
left cutting

HARDY

FA033R

Enucleator
right cutting

diam. 4.0 mm

HARDY

FA034R

Curette
90° angled long neck

diam. 4.0 mm

HARDY

FA035R

Curette
90° angled short neck

1/1

diam. 4.0 mm

HARDY

FA036R

Curette
45° angled short neck

diam. 6.0 mm

HARDY

FA037R

Curette
90° angled long neck

diam. 6.0 mm

HARDY

FA038R

Curette
90° angled short neck

diam. 1.7 mm

LANDOLT-REULEN

FA039R

Micro Hook

diam. 2.0 mm

LANDOLT-REULEN

FA040R

Dissector
blunt

1/1

MINOP® TREND

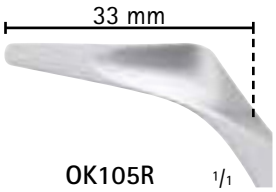
TRansnasal ENDoscopic System - Nasal Specula

1/2

COTTLE

OK105R-OK108R
OK090R

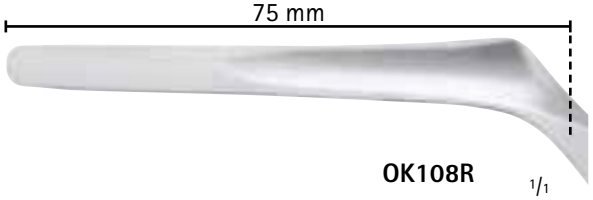
with aseptic joint, set-screw,
with extra thin blades
140 mm, 5 ½"



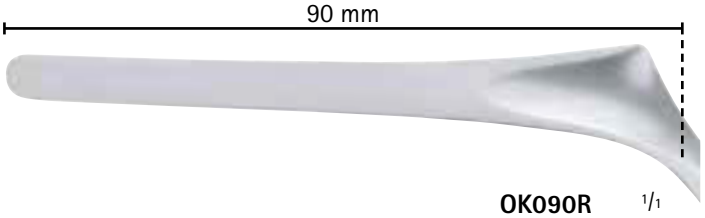
OK105R 1/1

OK106R 1/1

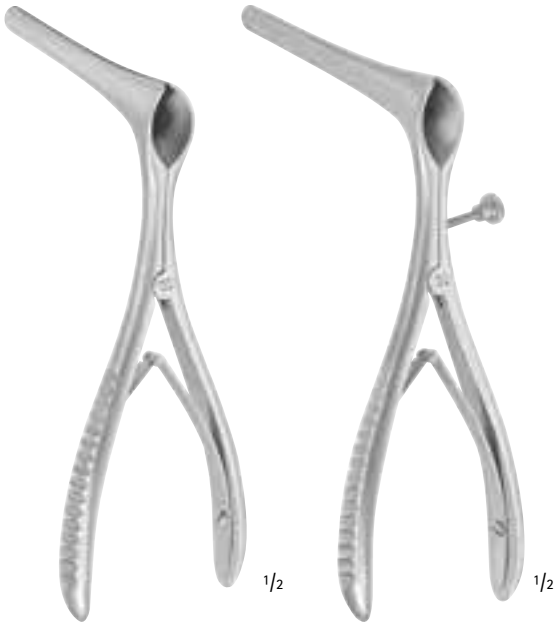
OK107R 1/1



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 140 mm, 5 1/2"	

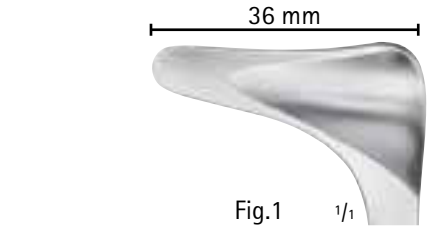


Fig.1 1/1

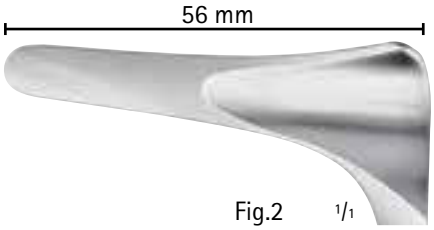


Fig.2 1/1

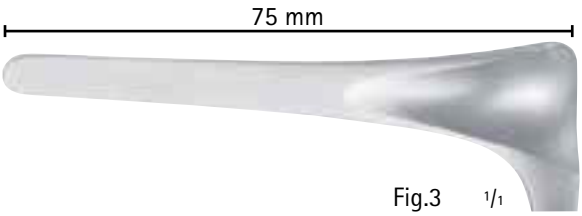


Fig.3 1/1

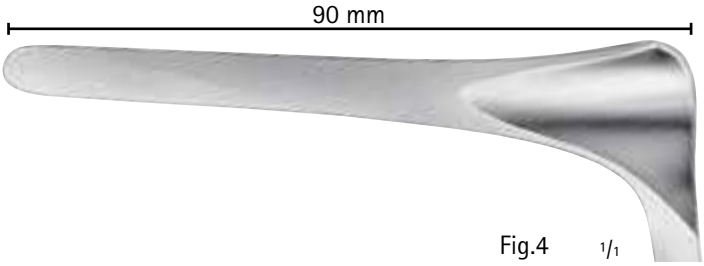


Fig.4 1/1

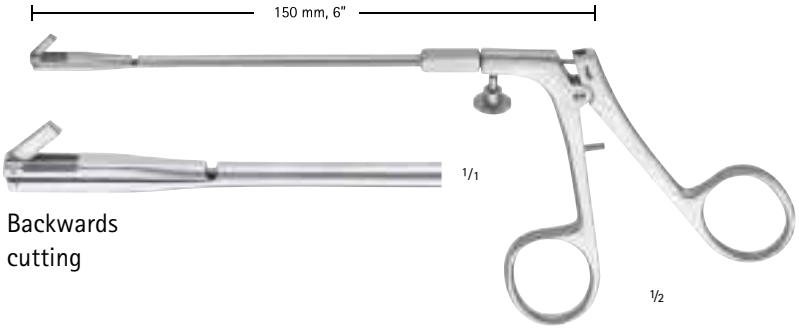
MINOP® TREND

TRansnasal ENDoscopic System - Pituitary Instruments / Sinus Punches

FA076R

Antrum punch for removal of posterior nasal septum,

Rotating sheath 360°,
Working length: 120 mm, 4 ¾"



Backwards cutting

OK602R-OK609R

Sinus Punches

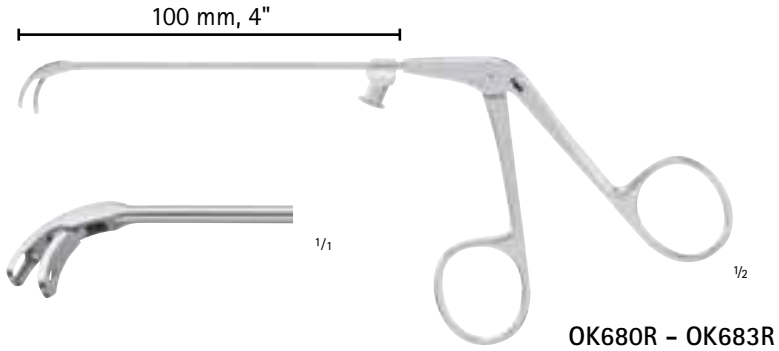
		2/1 6 x 1.5 mm	2/1 8 x 3 mm	2/1 11.5 x 3.5 mm
	straight	**OK608R** forward through cutting	MACKAY-GRUNEWALD **OK602R** forward through cutting	MACKAY-GRUNEWALD **OK603R** forward through cutting
	45° upwards angled	**OK609R** forward through cutting	MACKAY-GRUNEWALD **OK606R** forward through cutting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

MINOP® TREND

TRansnasal ENDoscopic System - Antrum Grasping Forceps

OK680R

jaw opening backwards,
curved downwards



OK680R – OK683R

OK681R

jaw opening backwards,
curved upwards

OK682R

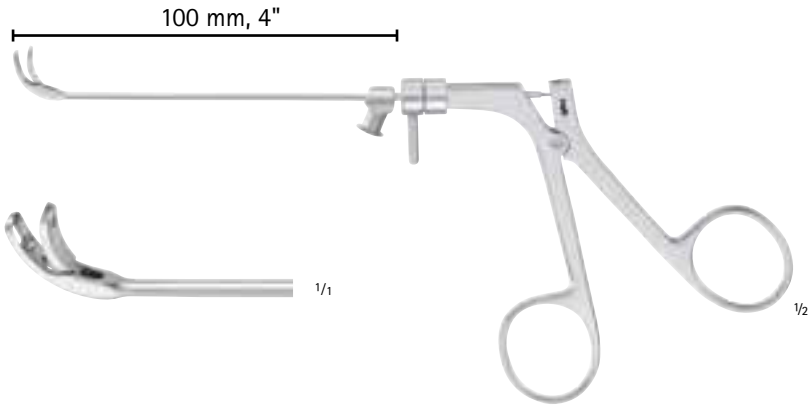
jaw opening backwards,
curved to right

OK683R

jaw opening backwards,
curved to left

OK684R

jaw opening backwards,
jaw 360° rotatable



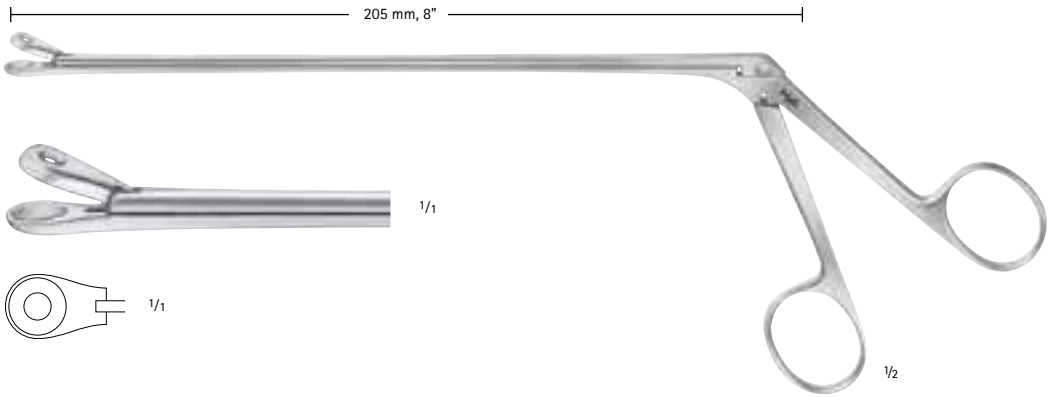
MINOP® TREND

TRansnasal ENDoscopic System - Nasal Forceps

LANDOLT

FF345R

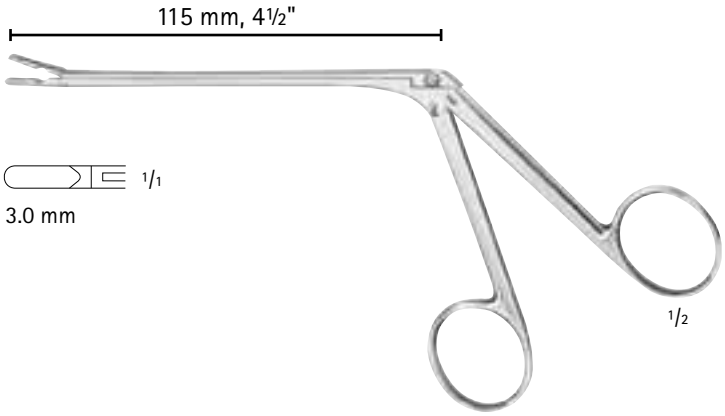
Tumor grasping forceps, blunt, straight
Diam. 9.0 mm



TAKAHASHI

OK525R

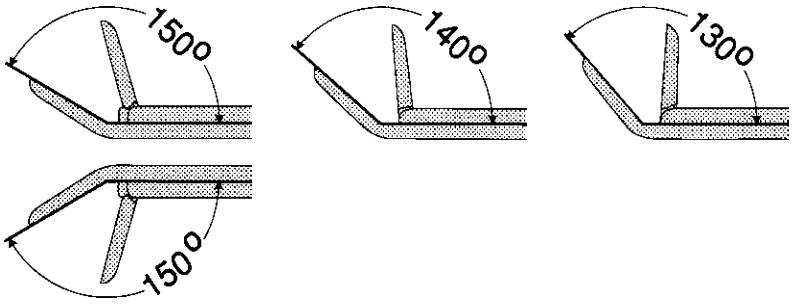
Rongeur, straight



MINOP® TREND

TRansnasal ENDoscopic System - Nasal Forceps

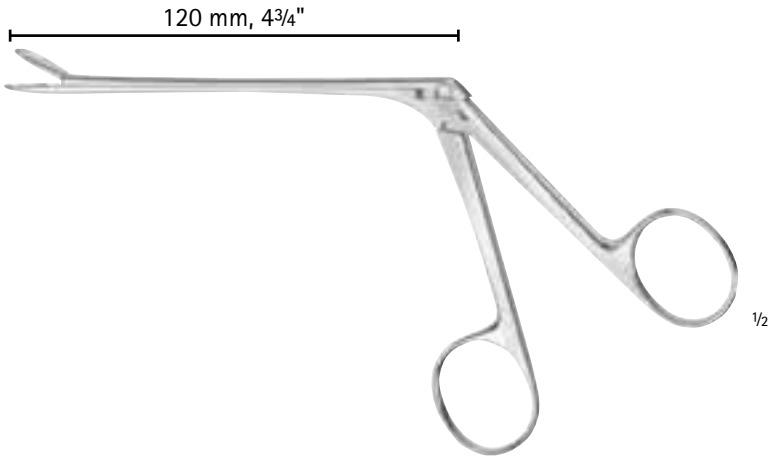
Angled positions for rongeurs



BLAKESLEY-WILDE

OK505R–OK509R

Ethmoidal forceps, straight

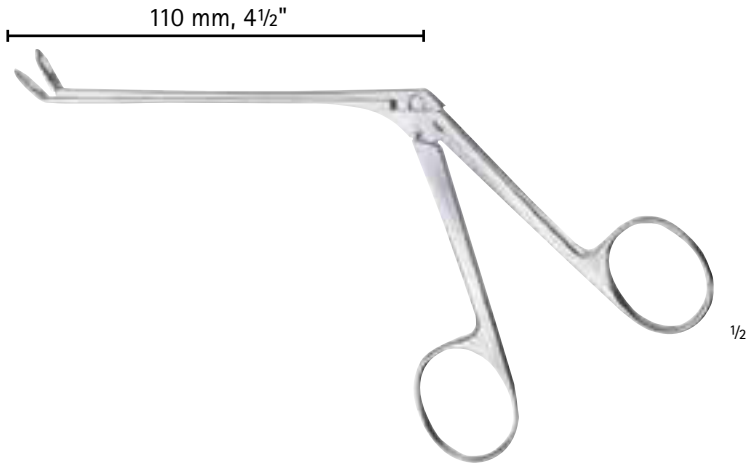


OK505R	3.0 mm		1/1
OK506R	3.6 mm		1/1
OK507R	4.2 mm		1/1
OK508R	4.8 mm		1/1
OK509R	5.6 mm		1/1

BLAKESLEY-WILDE

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 about instruments for **F**unctional **E**ndoscopic **S**inus **S**urgery (FESS), please ask your local Aesculap sales representative or see brochure no. C87511.

MINOP® TREND

TRansnasal ENDoscopic System - Nasal Scissors

OK560R – OK562R

Nasal scissors

OK560R

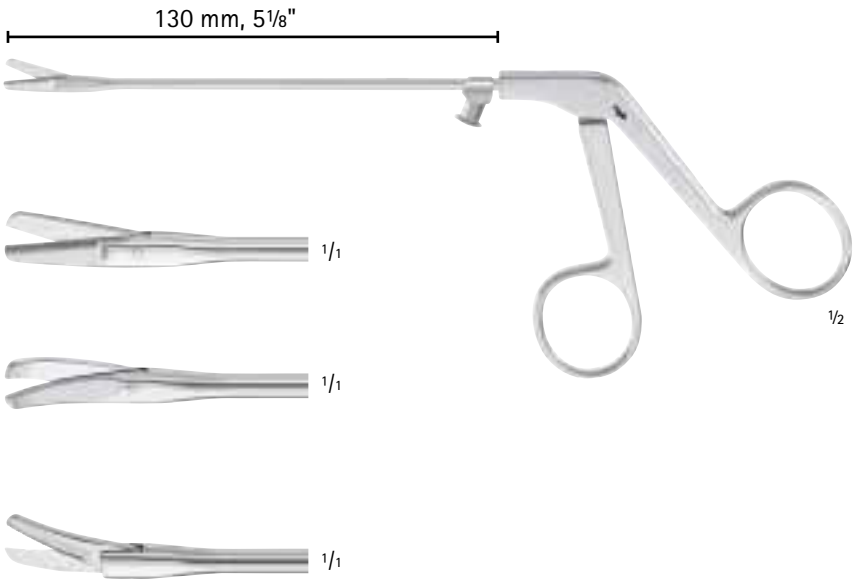
straight, blades serrated

OK561R

left curved, blades serrated

OK562R

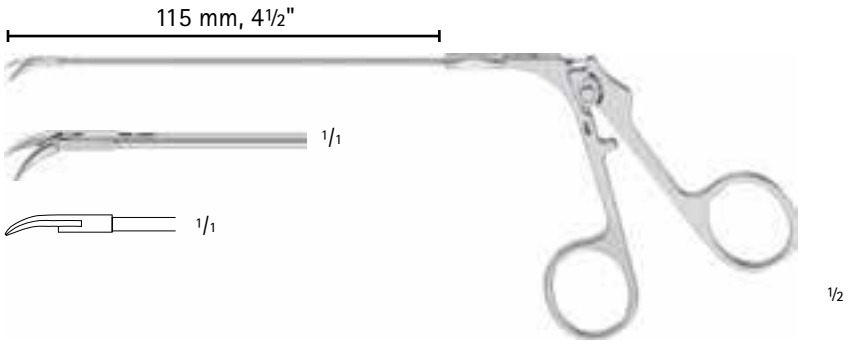
right curved, blades serrated



CASPAR

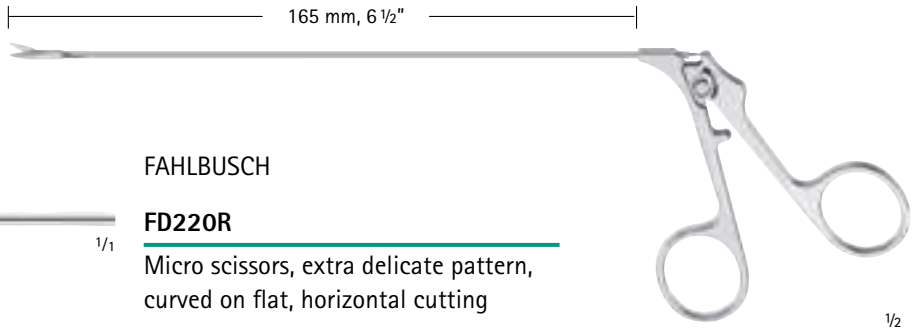
FD228R

Micro scissors, curved
rotatable 360°,
detachable for cleaning



MINOP® TREND

TRansnasal ENDoscopic System - Pituitary Scissors



FAHLBUSCH

FD220R

Micro scissors, extra delicate pattern, curved on flat, horizontal cutting

NICOLA

FD222R

Forceps, scoop-shaped, diam. 2.5 mm

YASARGIL-NICOLA

FD224R

Grasping forceps with long conical jaw

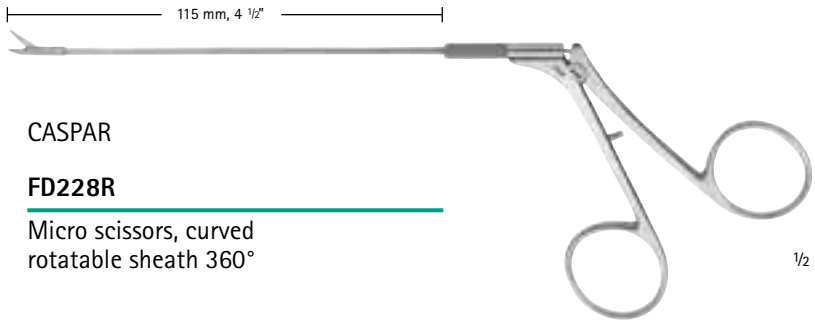
NICOLA

FD226R

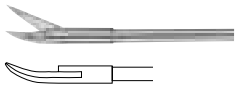
Micro scissors, straight, diam. 2.5 mm

FD220R–FD226R

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



CASPAR



FD228R

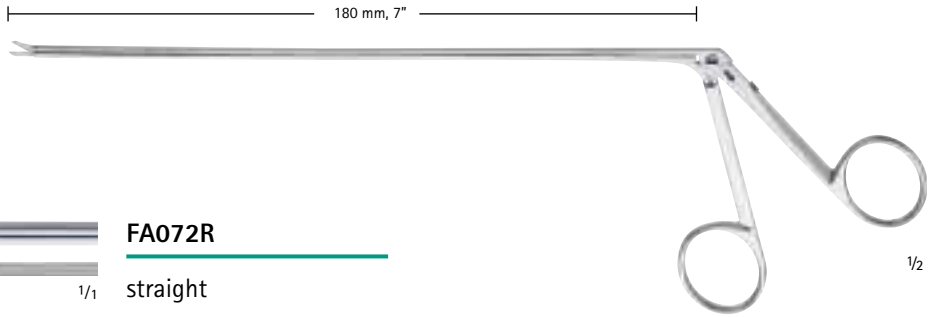
Micro scissors, curved rotatable sheath 360°

"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



1/2

1/1

FA072R

straight

1/1

FA073R

left curved

1/1

FA074R

right curved

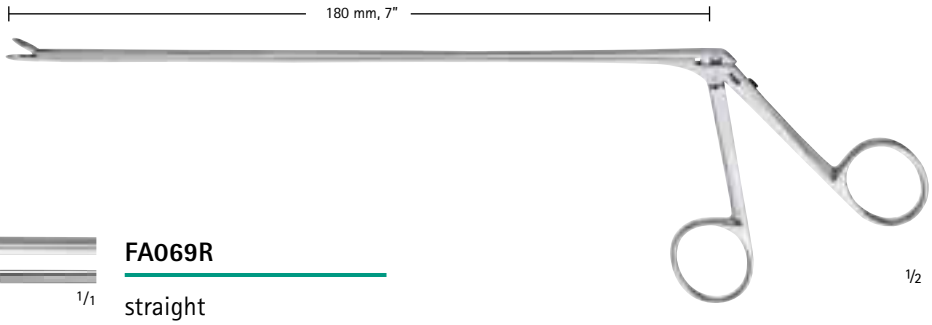
1/1

FA075R

angular

FA072R–FA075R

Micro Scissors



½

1/1

FA069R

straight

1/1

FA070R

right curved

1/1

FA071R

left curved

FA069R–FA071R

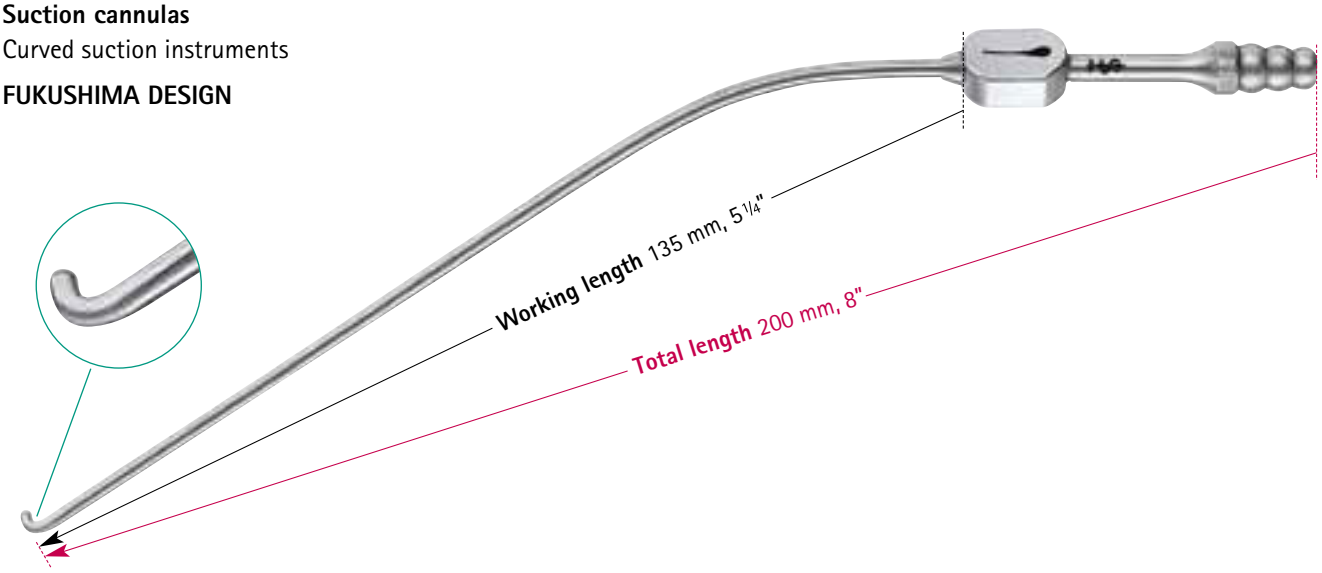
Micro Forceps

MINOP® TREND

TRansnasal ENDoscopic System - Curved Micro Suction Instruments

Suction cannulas
Curved suction instruments

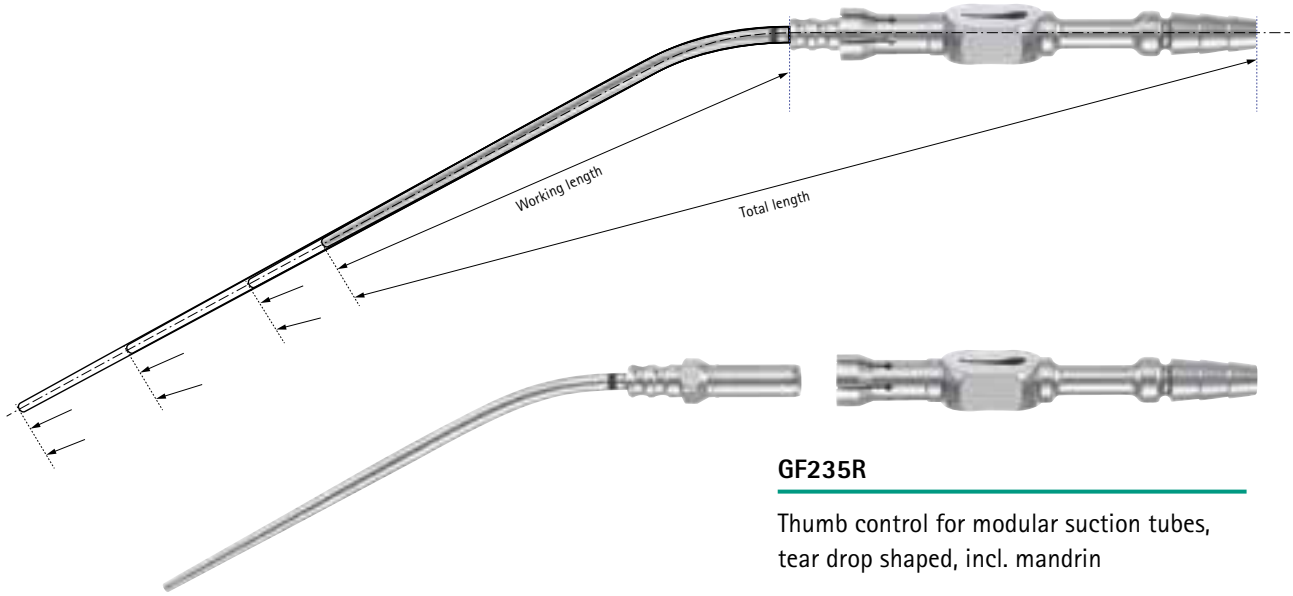
FUKUSHIMA DESIGN



	Outer diameter	Inner diameter	Angled tip	Working length	Total length
GF431R	2.7 mm	2.0 mm	Right angled tip	135 mm, 5 ¼"	200 mm, 8"
GF432R	2.7 mm	2.mm	Left angled tip	135 mm, 5 ¼"	200 mm, 8"

MINOP® TREND

TRansnasal ENDoscopic System - Micro Suction Instruments



GF235R

Thumb control for modular suction tubes, tear drop shaped, incl. mandrin

		S	M	L	XL
Working length		100 mm	115 mm	140 mm	165 mm
Total length		185 mm	200 mm	225 mm	250 mm
Outer diameter (3Fr = 1 mm)	3 Fr.	**GF240R**	**GF250R**	**GF260R**	**GF270R**
	4 Fr.	**GF241R**	**GF251R**	**GF261R**	**GF271R**
	5 Fr.	**GF242R**	**GF252R**	**GF262R**	**GF272R**
	6 Fr.	**GF243R**	**GF253R**	**GF263R**	**GF273R**
	7 Fr.	**GF244R**	**GF254R**	**GF264R**	**GF274R**
	8 Fr.	**GF245R**	**GF255R**	**GF265R**	**GF275R**
	9 Fr.	**GF246R**	**GF256R**	**GF266R**	**GF276R**
	10 Fr.	**GF247R**	**GF257R**	**GF267R**	**GF277R**
	12 Fr.	**GF248R**	**GF258R**	**GF268R**	**GF278R**

MINOP® TREND

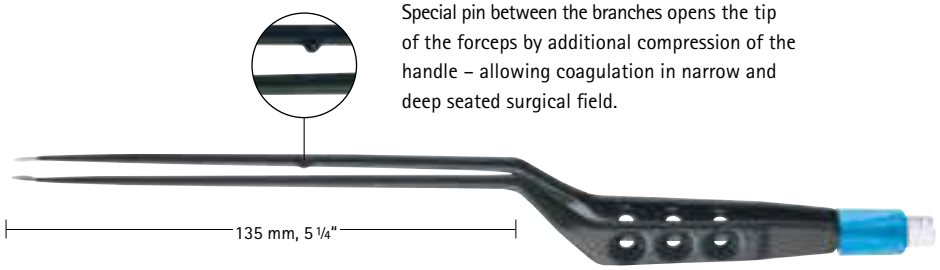
TRansnasal ENDoscopic System - Nasal Forceps

GK801R

Bipolar coagulation forceps
with slender jaws and higher spring tension

Total length 255 mm, 10"
Working length 135 mm, 5 ¼"

Aesculap tab connector



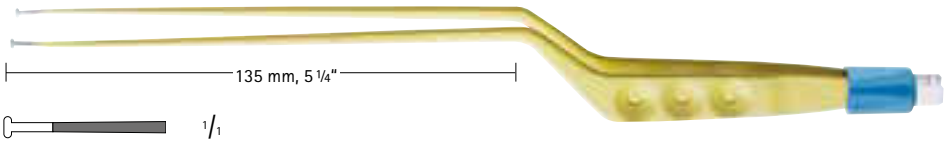
Special pin between the branches opens the tip of the forceps by additional compression of the handle – allowing coagulation in narrow and deep seated surgical field.

GK800R

T-coagulation forceps
with blunt, t-shaped tips

Total length 255 mm, 10"
Working length 135 mm, 5 ¼"

Aesculap tab connector



LANDOLT

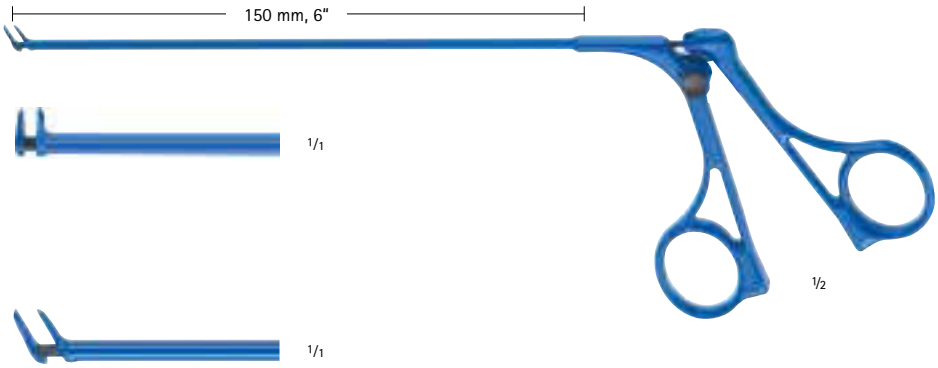
GK560R

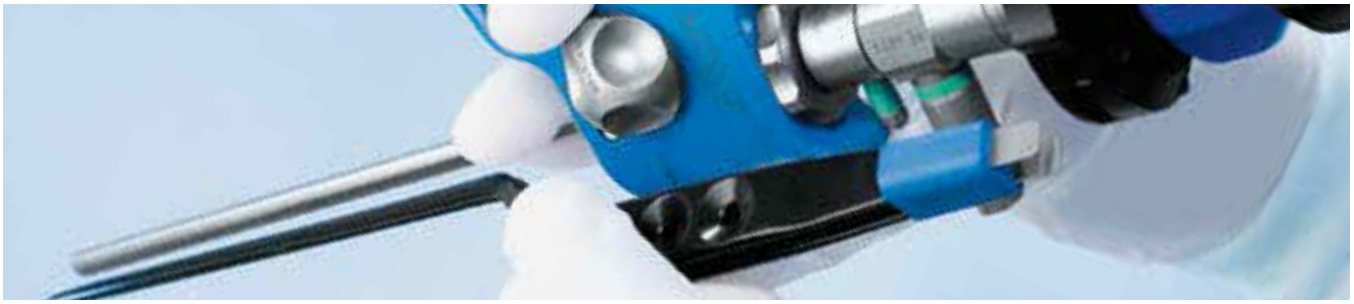
Coagulation forceps for hypophysectomy, 90°

LANDOLT

GK580R

Coagulation forceps for hypophysectomy, 120°





OF601R

Sickle knife, sharp tip
190 mm, 7 ½"

BN175R

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

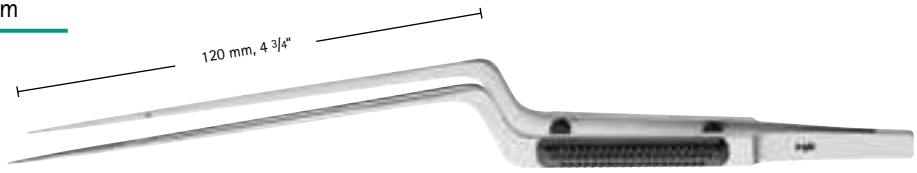
FM158R

Micro tissue grasping forceps,
bayonet-shaped, straight tip
Total length 245 mm, 9 5/8"
Working length 120 mm, 4 ¾ "

FM156R Jaw 0.5 mm

FM157R Jaw 0.9 mm

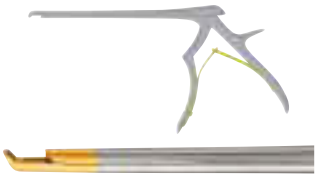
Micro Tissue grasping forceps
bayonet-shaped, straight tip
Working length 120 mm, 4 ¾"
Total length 240 mm, 9½"

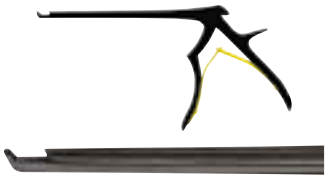


MINOP® TREND

TRansnasal ENDoscopic System - KERRISON Bone Punches

Jaw position 130°, upbiting





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

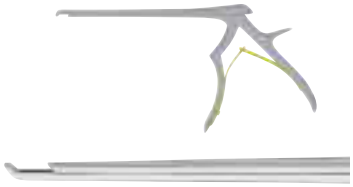
Jaw position 130°, downbiting

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

MINOP® TREND

TRansnasal ENDoscopic System - KERRISON Bayonet Bone Punches

Jaw position 130°, upbiting



Shaft length	Width	Working length	Detachable	Jaw opening
240 mm, 9½"	2.0 mm	170 mm, 6¾	**FF496R**	10 mm
	3.0 mm	170 mm, 6¾	**FF497R**	10 mm
	4.0 mm	170 mm, 6¾	**FF498R**	10 mm
	5.0 mm	170 mm, 6¾	**FF499R**	10 mm

- For more information about MINOP® TREND please see our „Practical Atlas" C26402.

AESCULAP NEUROSURGERY

M-TRAC® – Mechanical Holding Device

M-TRAC® – Flexible holding device with mechanical fixation

- 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
- Easy mechanical fixation by clamping handle
- Small, flexible joints for fine positioning
- Autoclavable 134°C, 5 minutes
- Full range of accessories/adapters for connecting Aesculap endoscopes, trocars and instruments
- Holding arm fits into regular Standard 1/1 Container, see brochure no. C40402

FF168R

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

AESCULAP NEUROSURGERY

UNITRAC® – Pneumatic Holding Device

UNITRAC® – Pneumatic holding arm

- Single handed use
- Full range of accessories / adapters for connecting Aesculap endoscopes, trocars and instruments
- Integrated safety systems prevent collapse of holding arm if OR compressed air supply is interrupted
- Direct connection to OR compressed air supply
- Diameter of fixation bar: 20 mm
- To be used with JG901

RT040R

JG901

Sterile drape for coverage of the Unitrac® arms, single-use product,

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 adapterfor 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

AESCULAP NEUROSURGERY

Adapters for UNITRAC® and M-TRAC®

RT046P

Universal holder
for endoscopes and trocars with diam. 3.0-7.5 mm, consisting of: RT081R and RT055P

RT081R

Adapter
for universal insert RT055P

RT055P

Universal insert (Spare Part)
for endoscopes and trocars with diam. 3.0-7.5 mm

RT099R

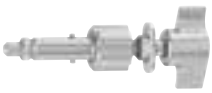
Adapter
for fixation of MINOP® TREND handle, FH615

RT079R

Adapter
for fixation of angled endoscopes PE486A, PE506A, PE526A

RT068R

Adapter
for fixation of MINOP® InVent trocar, FH620R



RT079205

Silicone bit
for RT079R

	MINOP® FF397R FF398R FF399R	Paediscope PA010A	MINOP® InVent FH620R	Angled scopes PE486A PE506A PE526A	MINOP® TREND FH615	MINOP® TR FH601R
RT046P	●	●		●		●
RT099R					●	
RT079R				●		
RT068R			●			

AESCULAP NEUROSURGERY

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

NEUROPILOT® for IntraVentricular and endoscope-assisted indications. NEUROPILOT® is a new, unique steering device for neuroendoscopes. After positioning the neuroendoscope in situ, finest corrections or adjustments are necessary, to receive the optimal endoscopic image. With traditio-nal holding devices, only rough positioning is possible; a precise and fine steering of the neuro-endoscope can be compromised.

NEUROPILOT® offers a number of unique advantages:

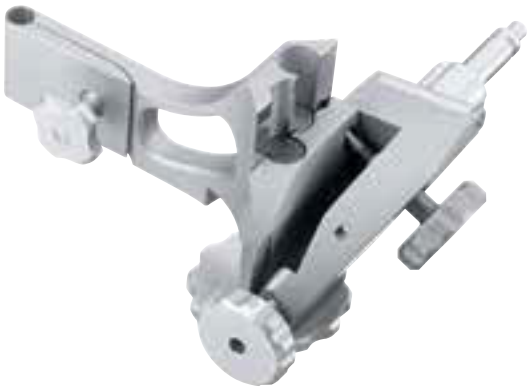
- Proper fixation of the neuro-endoscope in the NEUROPILOT® and the holding device
- Precise steering of the neuro-endo scope by three screws in the three-dimensional space
- Accurate manoeuvring of the neuro-endoscope by defined movements in the sub-millimeter area

"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 endos-cope in a three-dimensional space inside the ventricular compartments."

Peter Nakaji, Phoenix, USA

RT060R

NEUROPILOT®
for intraventricular and
endoscope-assisted indications



RT061R

Insert for angled endoscopes
PE486A - PE526A with diam. 4.0 mm

RT063R

Insert for MINOP® trocar FF397R
with diam. 3.2 mm

RT064R

Insert for MINOP® trocar FF398R
with diam. 4.6 mm

RT065R

Insert for MINOP® trocar FF399R
with diam. 6.0 mm

RT066R

Insert for PaediScope® PF010A
with diam. 3.0 mm

AESCULAP NEUROSURGERY

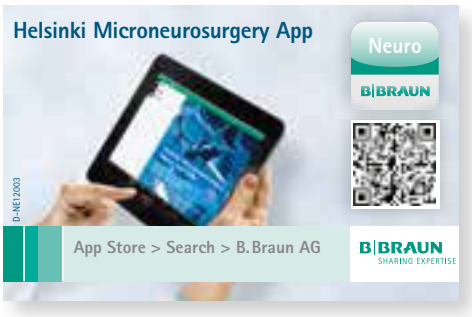
Holding Devices - NEUROPILOT® – Fine-positioning for UNITRAC® and M-TRAC®

	MINOP® FF397R	MINOP® FF398R	MINOP® FF399R	Paediscope PA010A	Angled scopes PE486A PE506A PE526A	MINOP® TR FH601R
RT060R	●	●	●	●	●	●
RT061R					●	
RT063R	●					
RT064R		●				●
RT065R			●			
RT066R				●		

AESCULAP NEUROSURGERY

Operating Manuals

Aesculap® MINOP®
Intraventricular Neuroendoscopy: A Practical Atlas
Mark M. Souweidane, M.D., F.A.C.S, F.A.A.P.
C29202



iTunes Google Play

iTunes Google Play

AESCULAP NEUROSURGERY

Visual Equipment Examples for Neuroendoscopy

Full HD Camera, Xenon Light Source, Documentation System and Touch Screen

PV463

3-Chip Full HD camera head
with fixed focus coupler

PV462

3-Chip Full HD camera head
with zoom-coupler

PV884

Camera holder

PV460

Full HD Cameracontrol unit

PV956

24" Full HD touch panel display

PV909

Monitor stand
for PV959 and PV956

OP940

LED ligth source

PV840

EDDY DVD
Digital Documentation System

JG904

Sterile Camera drape,
disposable, ring design,
package of 25

PV880

"Metro Junior" Endoscopy cart
835 x 1580 x 750 mm (w x h x d)

PV881

"Metro Junior" Endoscopy cart
with integrated Isolation Transformer

835 x 1580 x 750 mm (w x h x d)

AESCULAP NEUROSURGERY

Visual Equipment Examples for Neuroendoscopy
Full HD CMOS Camera, LED Light Source and Flat Screen

PV473

Full HD CMOS camera head
with fixed focus coupler

PV472

Full HD CMOS camera head
with zoom-coupler

PV884

Camera holder

PV460

Full HD Cameracontrol unit

PV959

26" Full HD touch panel display

PV909

Monitor stand
for PV959 and PV956

OP940

LED ligth source

PV880

"Metro Junior" Endoscopy cart
835 x 1580 x 750 mm (w x h x d)

PV881

"Metro Junior" Endoscopy cart
with integrated Isolation Transformer

835 x 1580 x 750 mm (w x h x d)

OP923

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

- For further details see brochure no. C46702


ELAN 4
ELAN 4
ELAN 4

POWER SYSTEMS FOR NEUROSURGERY

AESCULAP NEUROSURGERY

Power Systems - ELAN® 4 electro – Electric Highspeed Power System

GA800

ELAN® 4 electro control unit

GA806

ELAN® 4 electro motor cable

GA808

ELAN® 4 electro 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

AESCULAP NEUROSURGERY

Power Systems - ELAN® 4 air – Pneumatic Highspeed Power System

GA702R

ELAN® 4 air wall hose
3 m

GA710R

WALL ADAPTER
Aesculap-Draeger

GA712R

WALL ADAPTER Schrader

GA713R

WALL ADAPTER DIN

GA715R

WALL ADAPTER Synthes

GA708

ELAN® 4 air foot control

GA705R

ELAN® 4 air motor hose
3 m for foot control

GA706R

ELAN® 4 air motor hose
3 m with hand control

GA707R

ELAN® 4 air motor hose
5 m with hand control

GA761

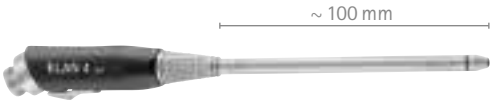
ELAN® 4 air 1-ring handpiece L4

GA762

ELAN® 4 air 1-ring handpiece L7

GA763

ELAN® 4 air 1-ring handpiece L10

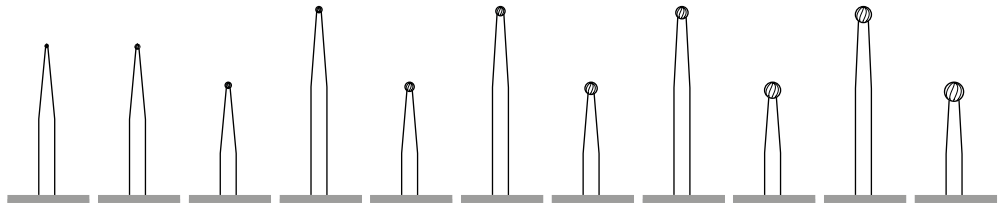


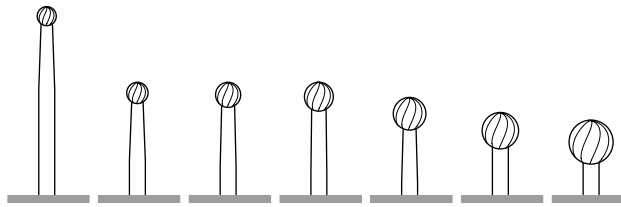
GA764

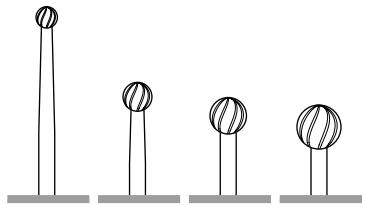
ELAN® 4 air 1-ring handpiece L13

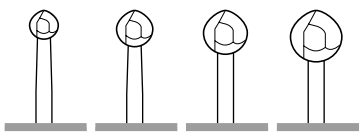
AESCULAP NEUROSURGERY

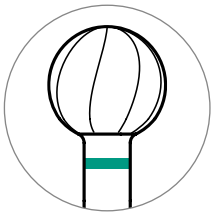
Power Systems - ELAN® 4 tools for 1-ring handpieces

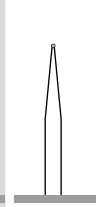
Ø	0.6 mm	0.8 mm	1.0 mm	1.0 mm	1.4 mm	1.4 mm	1.8 mm	1.8 mm	2.3 mm	2.3 mm	2.7 mm	
												1 sterile
I	GP111R	GP112R	GP113R	GP114R	GP115R	GP116R	GP117R	GP118R	GP120R	GP121R	GP122R	Rosen

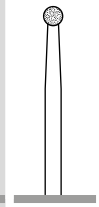
Ø	2.7 mm	3.0 mm	3.5 mm	4.0 mm	4.5 mm	5.0 mm	6.0 mm					
												1 sterile
I	GP123R	GP124R	GP125R	GP126R	GP127R	GP128R	GP129R					Rosen

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

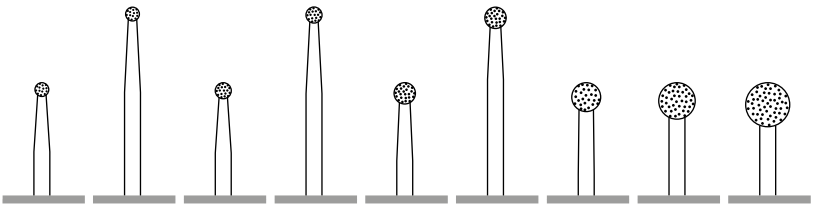


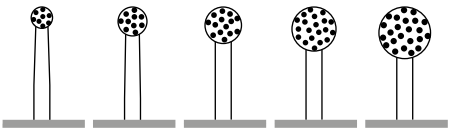
Ø	0.6 mm	0.8 mm	1.0 mm	1.0 mm	1.4 mm	1.4 mm	1.8 mm	1.8 mm	2.3 mm	2.3 mm	2.7 mm	
												1 sterile
l	GP141R	GP142R	GP143R	GP144R	GP145R	GP146R	GP147R	GP148R	GP149R	GP150R	GP151R	Diamond burr

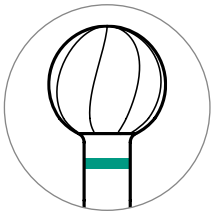
Ø	2.7 mm	3.0 mm	3.5 mm	4.0 mm	4.5 mm	5.0 mm	6.0 mm					
												1 sterile
l	GP152R	GP153R	GP154R	GP155R	GP156R	GP157R	GP158R					Diamond burr

AESCULAP NEUROSURGERY

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			
												1 sterile
l	GP161R	GP162R	GP163R	GP164R	GP165R	GP166R	GP168R	GP169R	GP170R			Diamond burr coarse

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



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

1 sterile

Neuro cutter

Ø	2.0 mm	2.5 mm	3.0 mm
Aesculap Type			
I	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
I	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
I	GP224R	GP225R	GP226R

1 sterile

Barrel burr

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

1 sterile

Barrel burr

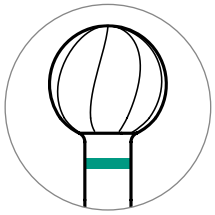
Ø	4.0 mm	5.0 mm	6.0 mm
I	GP234R	GP235R	GP236R

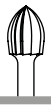
1 sterile

Cone burr

AESCULAP NEUROSURGERY

Power Systems - ELAN® 4 tools for 1-ring handpieces



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

1 sterile

Acorn burr

Ø	4.0 mm	5.5 mm
I	GP232R	GP233R

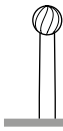
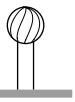
1 sterile

Oval burr

Ø	4.0 mm
I	GP238R

1 sterile

Reverse taper burr coarse diamond

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

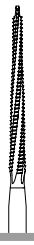
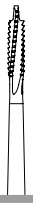
1 sterile

Rosen

Ø	3.0 mm
Tungsten Carbide	
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

GA849

ELAN® 4 electro craniotome and multifunction handpiece 2-ring

GA749

ELAN® 4 electro craniotome and multifunction handpiece 2-ring

GB945R

Holding sleeve

GB941R

Fixed dura guard
PAEDIATRIC

GB942R

Fixed dura guard
STANDARD

GB943R

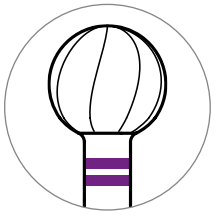
Fixed dura guard
LONG

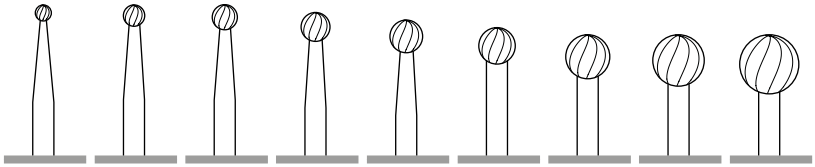
GB947R

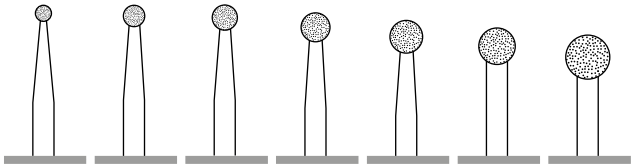
Turnable dura guard
STANDARD

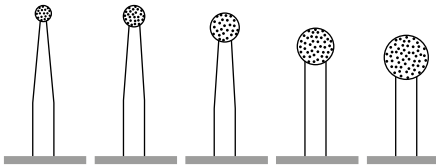
AESCULAP NEUROSURGERY

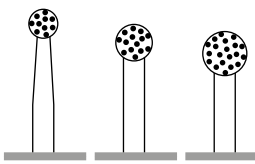
Power Systems - ELAN® 4 tools for craniotome and multifunction handpieces



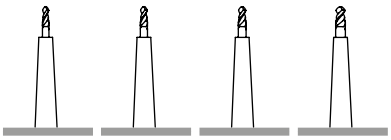
Ø	2.3 mm	3.0 mm	3.5 mm	4.0 mm	4.5 mm	5.0 mm	6.0 mm	7.0 mm	8.0 mm			
												1 sterile
II	GP301R	GP302R	GP303R	GP304R	GP305R	GP306R	GP307R	GP308R	GP309R			Rosen

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

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

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

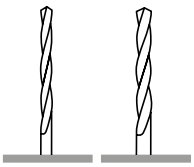
Ø	1.0 mm	1.1 mm	1.2 mm	1.5 mm
	4.0 mm	4.0 mm	4.0 mm	4.0 mm
II	GP344R	GP345R	GP346R	GP347R



1 sterile

Twist drill

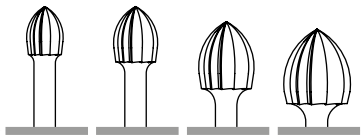
Ø	1.5 mm	2.0 mm
II	GP348R	GP349R



1 sterile

Twist drill

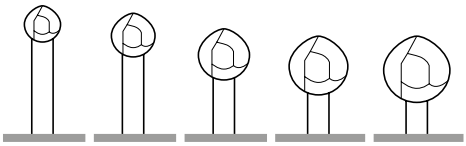
Ø	5.0 mm	6.0 mm	7.5 mm	9.0 mm
Midas Type				
II	GP355R	GP356R	GP357R	GP358R



1 sterile

Acorn burr

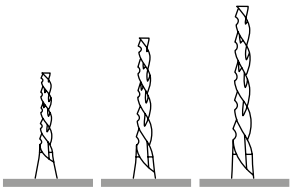
Ø	5.0 mm	6.0 mm	7.0 mm	8.0 mm	9.0 mm
II	GP335R	GP336R	GP337R	GP338R	GP339R



1 sterile

Twin-Cut burr

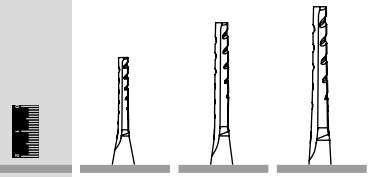
	L10	L15	L20
II	GP341R	GP342R	GP343R



1 sterile

Craniotome cutter - spiral type

	L10	L15	L20
II	GP351R	GP352R	GP353R



1 sterile

Craniotome cutter - straight type

- The whole burr range for 2-ring handpieces can be found in the Burrs & Blades catalogue 017599.

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Power Systems - ELAN® 4 perforator drivers and tools & ELAN® 4 lowspeed motors

GA822

ELAN® 4 electro perforator driver

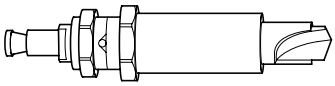
GA722

ELAN® 4 air perforator driver

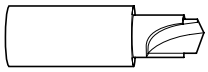
Skull perforators

1 sterile	Ø/mm
GB300R	6/9
GB302R	9/12
GB304R	12/15

Hudson



1 sterile	Ø/mm
TE561	6/9
TE562	9/12
TE563	12/15



GA824

ELAN® 4 electro lowspeed motor

GA724

ELAN® 4 air lowspeed motor

GA836

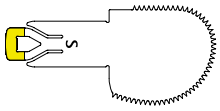
ELAN® 4 electro micro sagittal saw

GA736

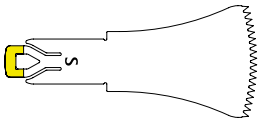
ELAN® 4 air micro sagittal saw

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

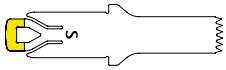
GP491R



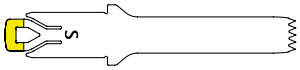
GP495R



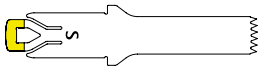
GP492R



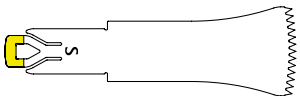
GP496R



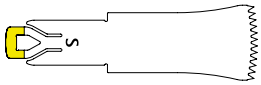
GP493R



GP497R



GP494R



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Power Systems - ELAN® 4 micro reciprocating saws and saw blades

GA837

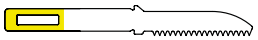
ELAN® 4 electro micro reciprocating saw

GA737

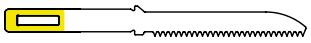
ELAN® 4 air micro reciprocating saw

5 sterile			
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

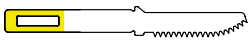
GP542R



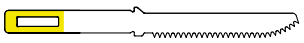
GP543R



GP544R



GP545R



TE780

POWER CORD Europe, 1.5 m

TE730

POWER CORD Europe, 5.0 m

TE734

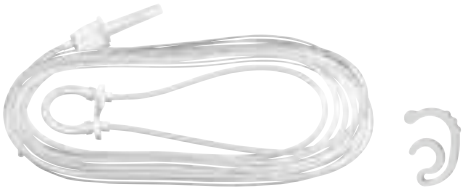
POWER CORD UK, 5.0 m

TE734

POWER CORD USA, Canada, Japan, 3.5 m

TE734

ELAN® 4 electro disposable 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

GA258SU

ELAN® 4 spray nozzle
for saws

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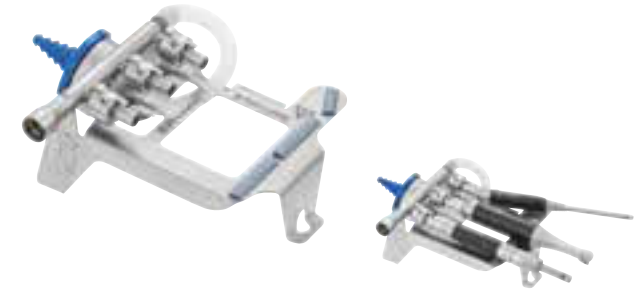
Power Systems - ELAN 4 cleaning and maintenance

GB691R

ELAN® 4 air rinsing device
for mechanical cleaning
not suitable for autoclaving



GB692R

ELAN® 4 electro rinsing device
for mechanical cleaning
not suitable for autoclaving

GB697R

ELAN® 4 air rinsing adaptor
for manual cleaning

GB698R

ELAN® 4 electro rinsing adaptor
for manual cleaning

GB600860

ELAN® 4 electro spray adaptor

GB600850

ELAN® 4 air spray adaptor

GB600

STERILIT® Power Systems oil spray

Main Catalogues

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Power Systems

O17599
Burrs & Blades

O22702
Power Systems – Old Systems*

ELAN 4

O71602
ELAN® 4

O71802
ELAN® 4 Burr Compendium*

Elan 4 Reprocessing

O71511
Rinsing Device

O12002
Manual Cleaning

O38902
Acculan 3Ti Electro

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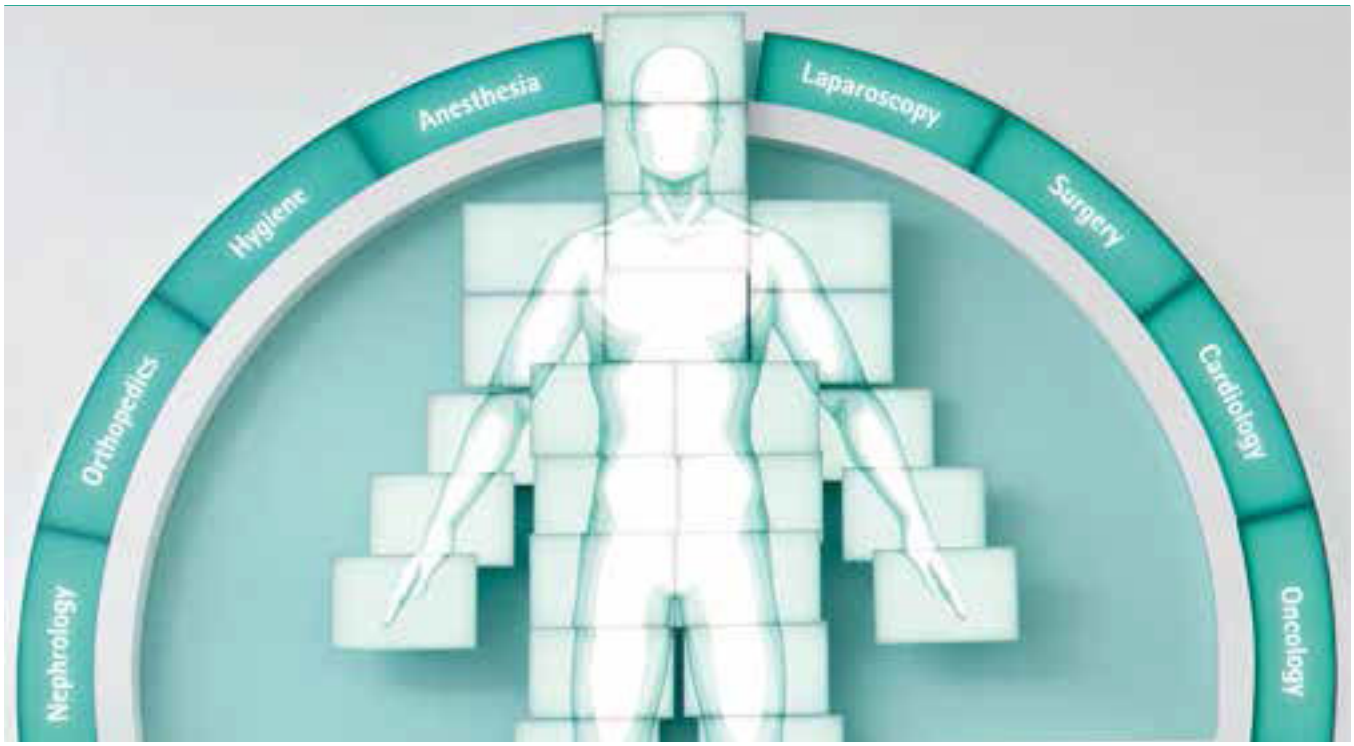

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