

Aesculap Neurosurgery

Neuroendoscopy

Neuroendoscopic Equipment...



... for cranial and spinal neuroendoscopy.

For more than 10 years, minimally invasive techniques have had an established place in neurosurgery. Using an endoscope in neurosurgery brings the advantages of less traumatisation due to the smaller access (the "keyhole concept": as small as possible, as large as necessary – or "optimally invasive") and a wider field of vision thanks to endoscopes with lateral viewing angles. The endoscope guides the surgeon's eye directly to the operating site.

We differentiate between the fully endoscopic approach with a trocar system for intraventricular indications and the endoscope-assisted technique, where microscope and endoscope are used in combination to make minimally invasive access possible.

Particular indications for the fully endoscopic approach are ventriculocisternostomy and intraventricular cysts. The keyhole concept is used in the following indications: intracranial tumor surgery, vascular malformation surgery, especially aneurysm surgery, operations in the posterior cranial fossa and everywhere where optical monitoring behind structures, bone walls and dura folds is necessary (e.g. acoustic neurinoma, vascular decompression ...).



The **MINOP® (Minimally Invasive Neuroendoscopic OPeration)** System was developed in cooperation with AESCULAP for all neuroendoscopic indications. The system consists of rod lens endoscopes, trocars and rigid, tubular shaft instruments. For endoscope-assisted techniques, the range includes endoscopes with an angled ocular design to improve the field of vision together with tubular shaft instruments (XS micro instruments) specifically designed not to obstruct the view with the microscope. The Unitrac® pneumatic holding system and the Neuropilot® micromanipulator system are available for holding and positioning the endoscope/camera system.

MINOP® – a modular all round system for all fully endoscopic operations in the ventricular system, endoscope-assisted microsurgery and transnasal pituitary operations.

I cordially invite you to take part in one of the various neuroendoscopy courses conducted by the neurosurgical team of the University of Mainz and the Aesculap Academy in the Aesculapium in Tuttlingen/Germany or anywhere else in this world.



Prof. Dr. Axel Perneczky



The World Wide Learning Experience

In a modern and architecturally interesting environment you can become absorbed in discussions on topical subjects, in order to learn or perfect the latest operating techniques. Basic and advanced neuroendoscopy courses are offered, as well as courses for keyhole neurosurgery.

Our training includes courses for beginners as well as courses for the experienced surgeon who wants to learn more advanced neuroendoscopic techniques.

From a functional point of view, the Aesculapium is a new forum for communication in medicine. It offers all the technical facilities needed to demonstrate new operating techniques and technical highlights in the field of medicine: in the form of workshops, based on practical conditions; or for live operations that are transmitted by satellite to the lecture theatre of the Aesculapium. Video-conferences can be carried out at any time.

Exchanges of experiences and interdisciplinary dialogues with recognized international experts of specific viewpoints feature regularly in the calendar of events of the Aesculapium.



Neuroendoscopy Courses 2005

In Neurosurgery we offer since 1996 comprehensive training course programs. The course „Endoscope-assisted keyhole Microneurosurgery“ comprises intensive hands-on sessions, clinical case discussions and live operations.

**Endoscope-assisted
Keyhole Microneurosurgery**

| | |
|------------------------|-----------------|
| 17 – 21 January 2005 | Tuttingen/Mainz |
| 18 – 22 April 2005 | Mainz/Mainz |
| 4 – 8 July 2005 | Tuttingen/Mainz |
| 26 – 30 September 2005 | Mainz/Mainz |

**AESCLAP
AKADEMIE**

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MINOP SYSTEM®

The MINOP® system

The MINOP® system was developed in cooperation with Prof. Dr. Axel Perneczky from the Neurosurgical University Hospital in Mainz/Germany.

The MINOP® system is a multifunctional neuroendoscopy system primarily for use in intraventricular indications, although it can also be used for endoscope-assisted indications. It consists of various trocars with different diameters, rod lens endoscopes and a full range of instruments and accessories.



MINOP SYSTEM®

The MINOP® project was supported by the German Federal Ministry of Education and Research.





● Trocars

- Different shaft diameters (3.2, 4.6 or 6 mm)
- 1, 3 or 4 channels per trocar
- Blunt distal end for atraumatic insertion of trocar
- Trocar/endoscope with snap fastener lock for easy and vibrationless release/locking
- Straight working channel of ventriculoscope for rigid, detachable 2 mm instruments with tubular shaft
- Depth scale on the trocar shaft

● Angled endoscopes

- 2.7 mm shaft diameter
- Lateral connection of camera and light source
- Free view and working area parallel to endoscope for simultaneous use of microscope and micro instruments
- Optimal handling of trocar and endoscope by central centre of gravity
- Endoscopes with the SDS symbol can be sterilised by Steris® and Sterrad®

● Rigid instruments

- 2 mm shaft diameter
- 5 different jaw parts for efficient working
- Detachable for optimal cleaning, sterilisation and change of spare parts
- With rotation knob for easy and precise rotation of jaw part

● Electrodes

- 6 monopolar and 1 bipolar electrode for efficient electrosurgical application

Intraventricular Neuroendoscopy

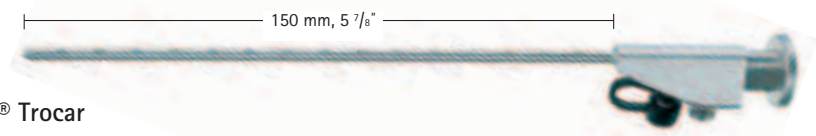


Trocars

FF397R

MINOP® Trocar
Outer diameter 3.2 mm

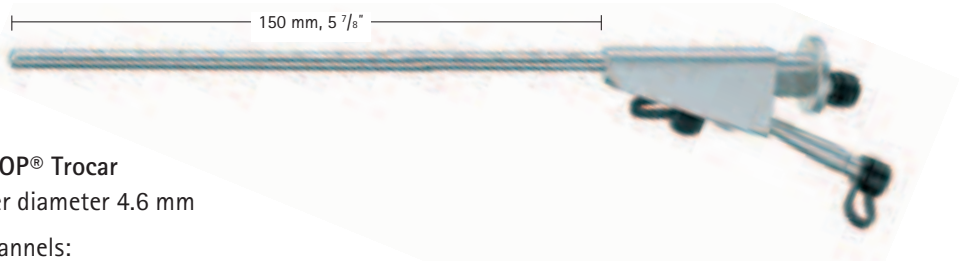
1 channel:
optic or working channel, diam. 2.8 mm
including obturator



FF398R

MINOP® Trocar
Outer diameter 4.6 mm

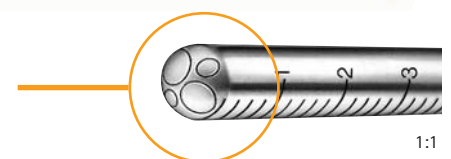
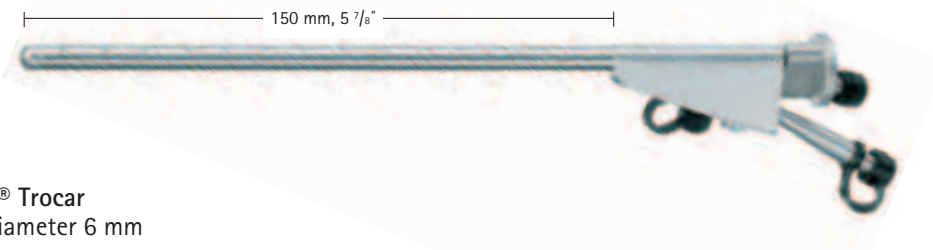
3 channels:
■ optic channel diam. 2.8 mm
■ irrigation channel diam. 0.8 mm
■ overflow channel diam. 0.8 mm
including obturator



FF399R

MINOP® Trocar
Outer diameter 6 mm

4 channels
■ optic channel, diam. 2.8 mm
■ working channel, diam. 2.2 mm
■ irrigation channel, diam. 1.4 mm
■ overflow channel, diam. 1.4 mm
including obturators



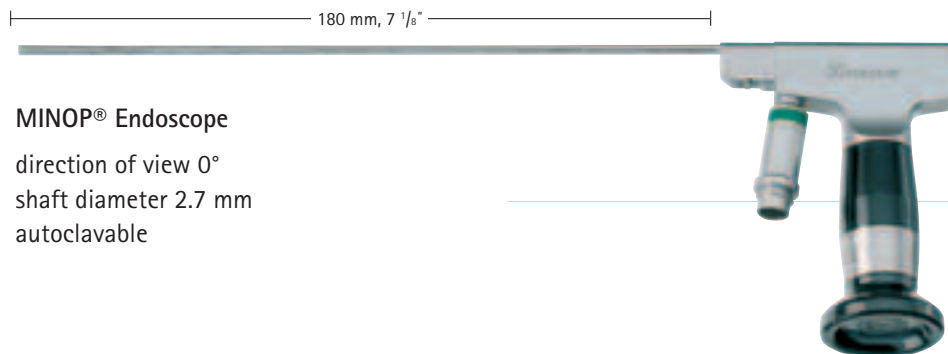
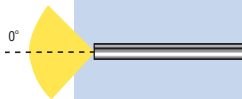


MINOP SYSTEM®

Angled endoscopes

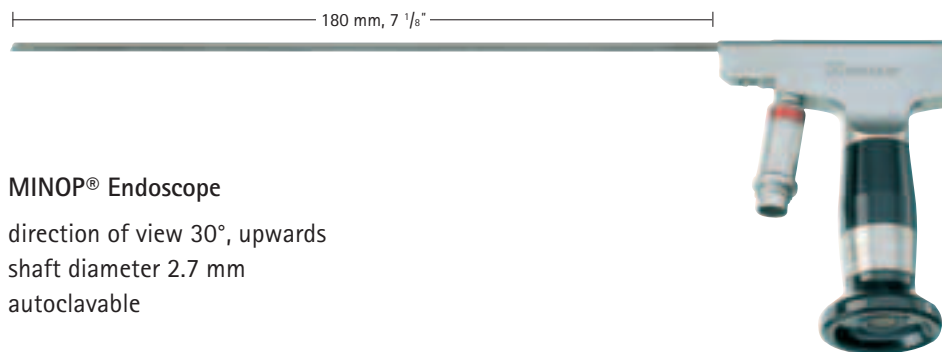
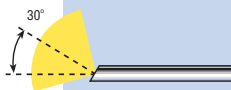
PE184A

MINOP® Endoscope
direction of view 0°
shaft diameter 2.7 mm
autoclavable



PE204A

MINOP® Endoscope
direction of view 30°, upwards
shaft diameter 2.7 mm
autoclavable



Endoscopes with the SDS
symbol can be sterilised by
Steris® and Sterrad®

Intraventricular Neuroendoscopy

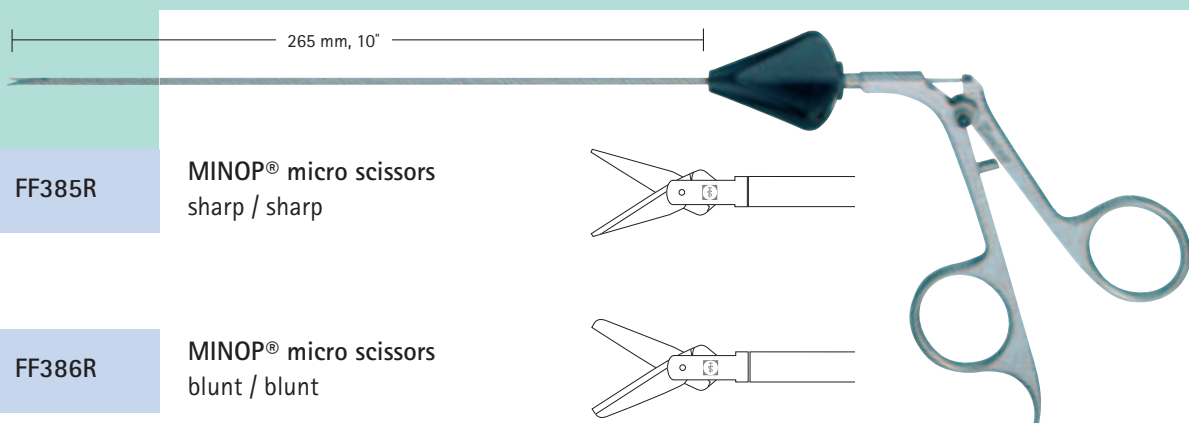
Detachable instruments with tubular shaft

MINOP
SYSTEM®

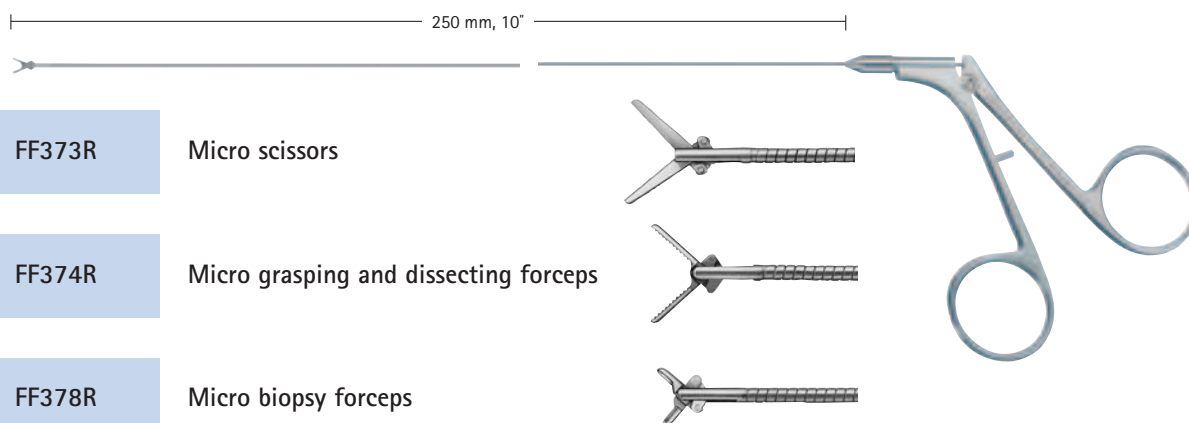


Instrument complete

Handle · outer tube · jaw part with inner tube



For bi-instrumental operation, 1mm instruments can be introduced short term through the irrigation channel of the trocar FF399R (e.g. for simultaneous grasping and fenestration of a cyst).





MINOP SYSTEM®



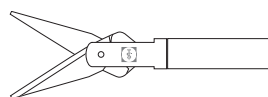
2mm

Individual parts

Jaw part with inner tube for FF385R – FF389R

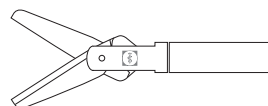
FF435R

MINOP® micro scissors
sharp / sharp



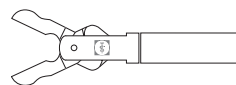
FF436R

MINOP® micro scissors
blunt / blunt



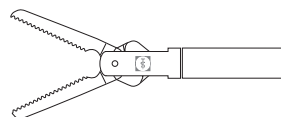
FF437R

MINOP® biopsy forceps



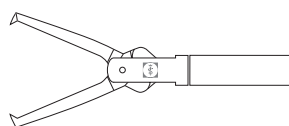
FF438R

MINOP® grasping and dissecting forceps



FF439R

MINOP® surgical micro forceps



FF432R

Instrument handle only
for FF385R – FF389R



FF433R

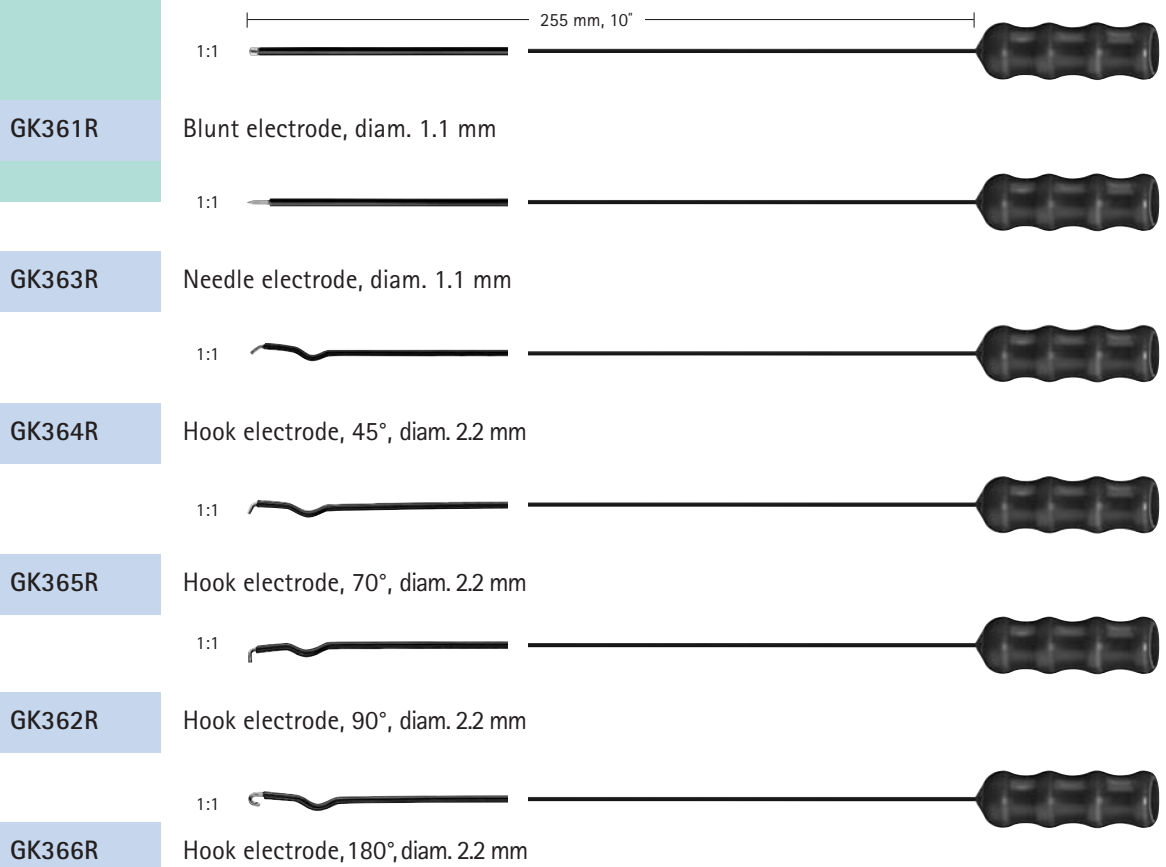
Outer tube only
for FF385R – FF389R



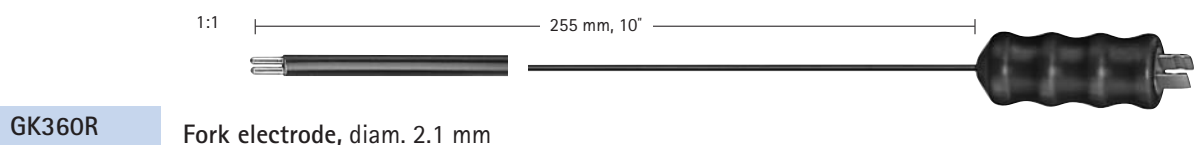
Intraventricular Neuroendoscopy



Monopolar Electrodes



Bipolar Electrodes





MINOP SYSTEM®

Storage racks

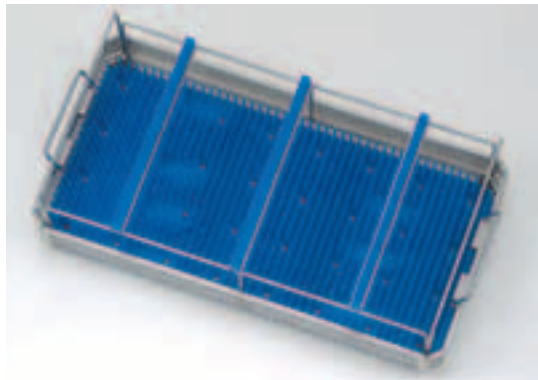
FF358R

Storage rack
with silicone cushioning racks and lid
for MINOP® trocars and endoscopes
(not included)



FF359R

Storage rack
with silicone cushioning racks
for MINOP® micro instruments and electrodes
(not included)



JK404

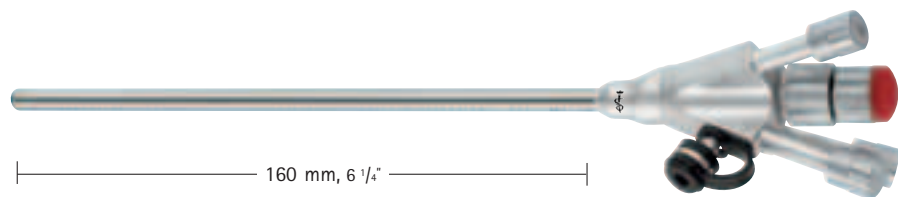
Container (Basic version)
for storage racks FF358R and FF359R



Intraventricular Neuroendoscopy

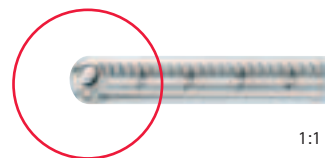
Ventriculoscope System – short version for "freehand"-use

Trocar

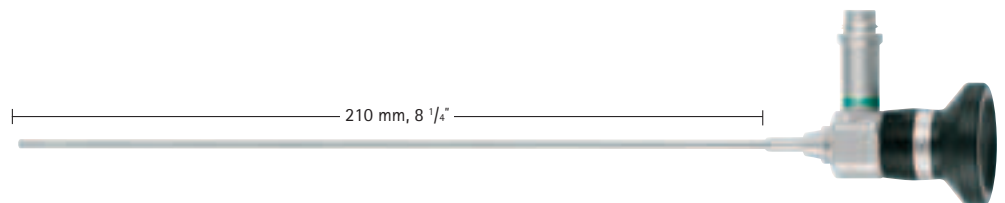


FF372R

Trocar, outer diam. 6.2 mm
4 channels
■ optic channel, diam. 2.8 mm
■ working channel, diam. 2.2 mm
■ irrigation channel, diam. 1.4 mm
■ overflow channel, diam. 1.4 mm
including obturators



Endoscopes



PE183A

Wide angle endoscope, direction of view: 0°, diam. 2.7 mm

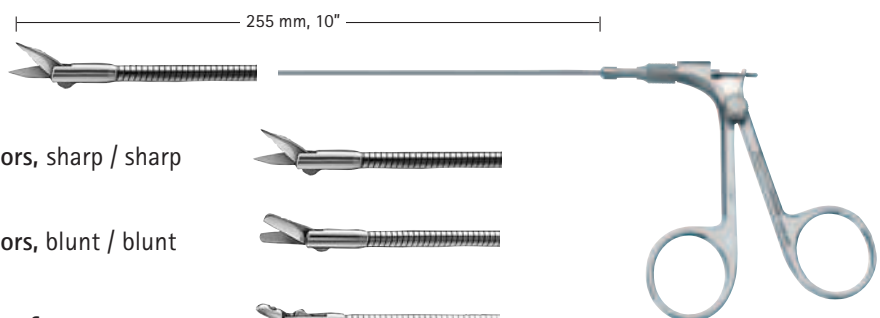
PE203A

Wide angle endoscope, direction of view: 30°, diam. 2.7 mm



2.1 mm

Flexible Instruments



FF395R

Micro scissors, sharp / sharp

FF390R

Micro scissors, blunt / blunt

FF392R

Micro biopsy forceps

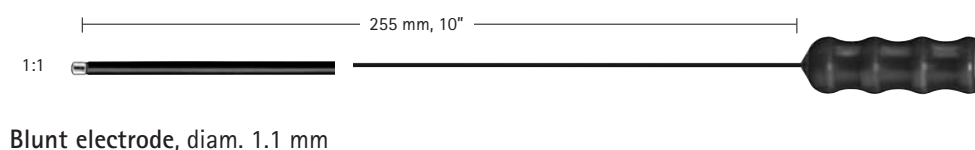
FF394R

Micro grasping forceps, sharp



Monopolar Electrodes

GK361R



Blunt electrode, diam. 1.1 mm

GK363R



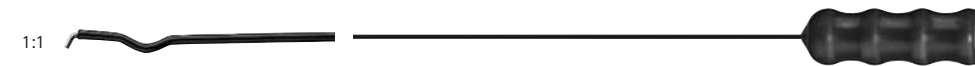
Needle electrode, diam. 1.1 mm

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

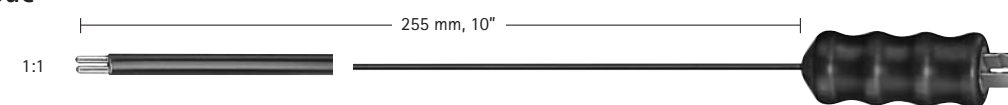
GK245

Monopolar cable
suitable for GN300, GN640



Bipolar Electrode

GK350R



Fork electrode, diam. 2.2 mm

GN073

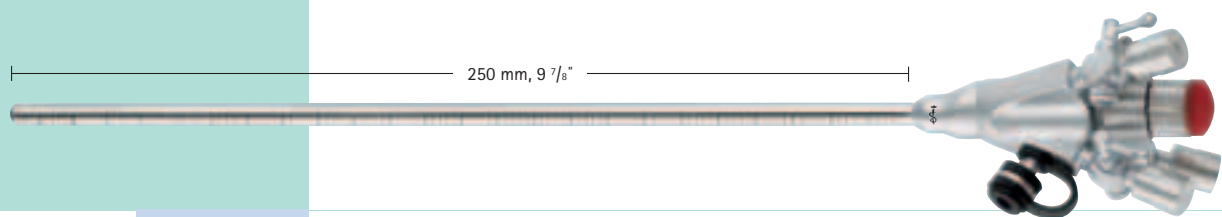
Bipolar cable
suitable for GN060, GN300



Intraventricular Neuroendoscopy

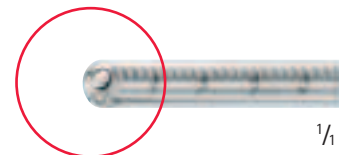
Ventriculoscope System – Long version to be used with stereotactic frame

Trocar

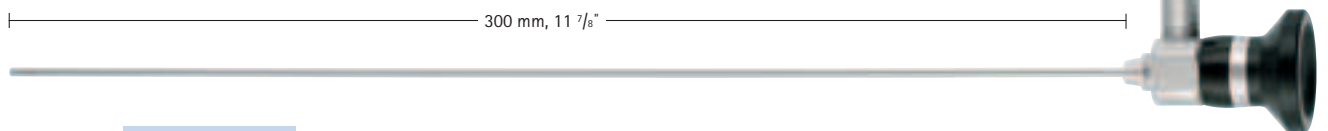


FF370R

Trocar, outer diam. 6.2 mm
4 channels
■ optic channel, diam. 2.8 mm
■ working channel, diam. 2.2 mm
■ irrigation channel, diam. 1.4 mm
■ overflow channel, diam. 1.4 mm
including obturators



Endoscopes



PE188A

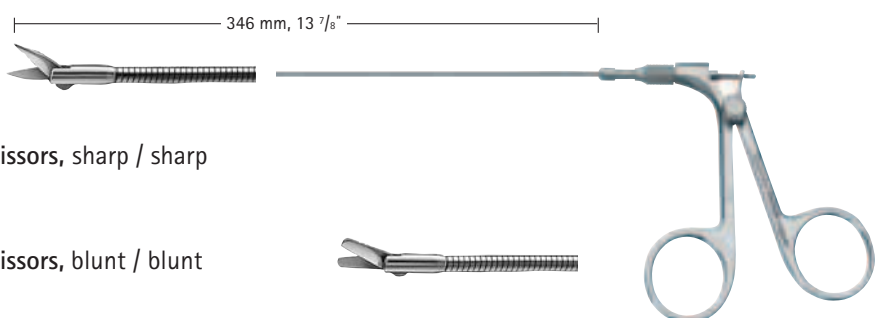
Wide angle endoscope, direction of view: 0°, diam. 2.7 mm

PE208A

Wide angle endoscope, direction of view: 30°, diam. 2.7 mm



Flexible Instruments



FF365R

Micro scissors, sharp / sharp

FF360R

Micro scissors, blunt / blunt

FF362R

Micro biopsy forceps

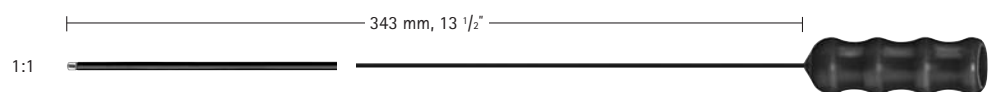
FF364R

Micro grasping forceps, sharp





Monopolar Electrodes



GK351R

Blunt electrode, diam. 1.1 mm



GK353R

Needle electrode, diam. 1.1 mm



GK352R

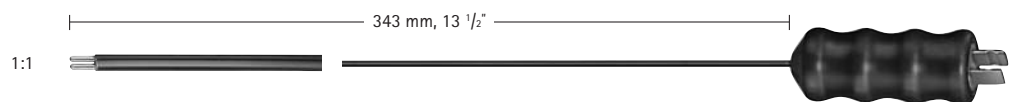
Hook electrode, 90°, diam. 2.2 mm

GK245

Monopolar cable
suitable for GN300, GN640



Bipolar Electrode



GK350R

Fork electrode, diam. 2.1 mm

GN073

Bipolar cable
suitable for GN060, GN300

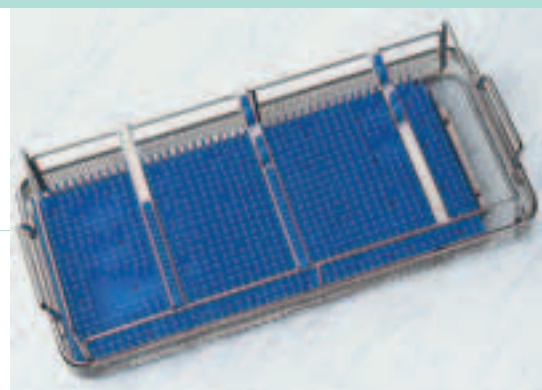


Intraventricular Neuroendoscopy

Storage racks

FF380R

Storage rack
with silicone cushioning racks
for ventriculoscope trocars, instruments and
electrodes (not included)



JF433R

Storage rack
with silicone cushioning racks and lid
for straight ventriculoscope optics with
diam. 2.7mm (not included)



JK402

Container (Basic version)
for storage racks FF380R and JF322R





proGAV – the adjustable MIETHKE gravitational valve



3 Tesla
MRI compatible



Aesculap Neurosurgery

Safe – Effective – Comfortable – Precise

- continuous adjustment between 0 and 20 cm H₂O.
- effective protection against overdrainage
- "active-lock" mechanism protects from unintended readjustments by external magnetic fields
- 3 Tesla MRI compatible
- pressure verification without subjecting the patient to x-ray examinations
- easy, fast and uncomplicated treatment
- extremely precise valve technology

B | BRAUN
SHARING EXPERTISE

Aesculap AG & Co KG · Am Aesculap-Platz · 78532 Tuttlingen · www.aesculap.de

A-CHO5010

Intraventricular Neuroendoscopy

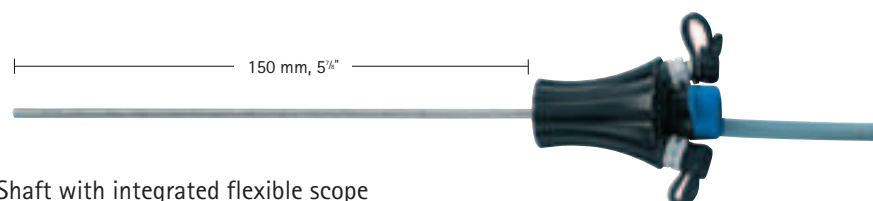
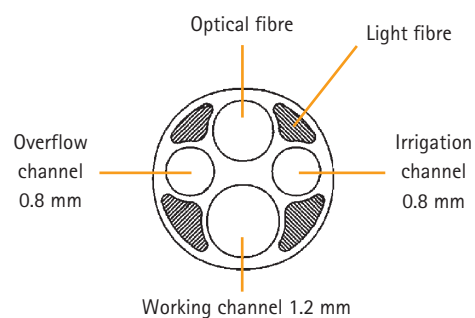
NEW

PaediScope® – the ventriculoscope system for paediatric neurosurgery



The new design of the PaediScope® with a long flexible shaft, which removes the ocular lens and the camera head from the operating field, offers the advantage of reduced weight, making the scope shaft easier to manipulate.

- 30.000 pixel fiber optic for unsurpassed picture quality
- 3 mm outer diameter for minimal invasive access
- Working channel for special designed instruments
- Irrigation and overflow channel
- All components autoclavable



PF010A*

Shaft with integrated flexible scope

PF011A*

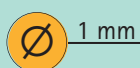
Ocular



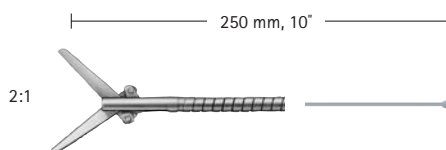
*For complete PaediScope®, please order PF010A and PF011A



NEW

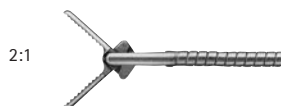


Flexible Instruments



FF373R

Micro scissors



FF374R

Micro grasping and dissecting forceps

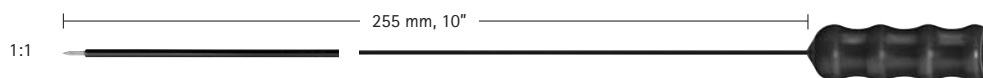


FF378R

Micro biopsy forceps



Monopolar Electrodes



GK363R

Needle electrode



GK361R

Blunt electrode

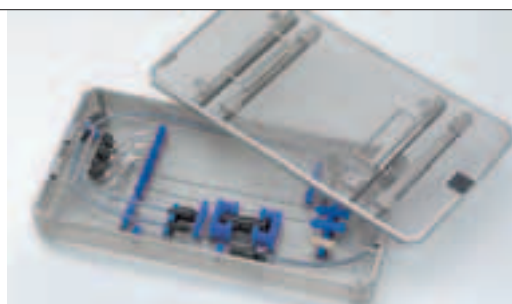
GK245

Monopolar cable
suitable for GN300, GN640



FF379R

Storage tray
with silicone cushioning racks and lid
for complete PaediScope® System
(not included)



Intraventricular Neuroendoscopy

Flexible, steerable endoscope
with working channel

PF901



Technical data:

Direction of view: 0° with 85° angle of view

Depth of field: 3 mm to ∞

Flexible working end:

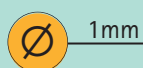
Length: 400 mm with linear markings

Diameter: 4.3 mm

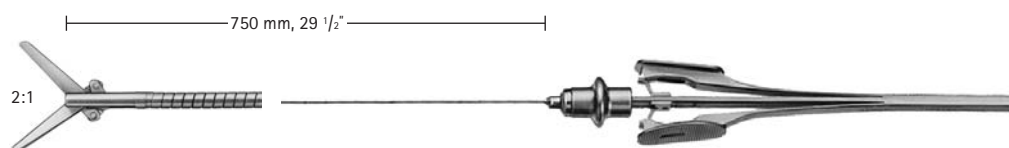
Deflection: 140° up and down

Working channel: diam.1.4 mm

Flexible micro instruments and electrodes



Instruments



FF382R

Flexible micro scissors (DBGM / Germ.Reg.Des.)



FF383R

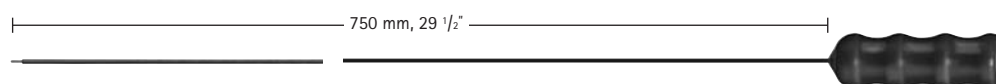
Flexible micro grasping forceps (DBGM / Germ.Reg.Des.)



FF384R

Flexible micro biopsy forceps (DBGM / Germ.Reg.Des.)

Monopolar Electrodes



GK354R

Straight electrode, flexible, 0.7 mm



GK355R

Hook electrode, flexible, 1.4 mm

GK245

Monopolar cable
suitable for GN300, GN640

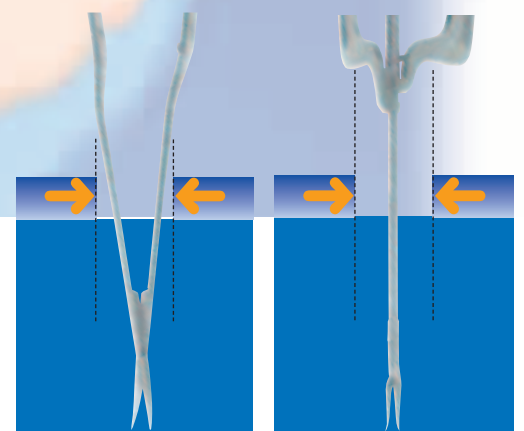

Endoscope-assisted Neurosurgery (Keyhole Concept)

The keyhole concept is applied in endoscope-assisted neurosurgery, following the motto "optimally invasive: as small as possible, as large as necessary". This means the combined use of endoscope and microscope to provide a double image.



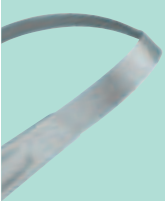
Indications

- Intracranial tumor surgery
- Vascular malformation surgery, particularly in aneurysm surgery
- Operations in the posterior cranial fossa
- Acoustic neurinoma
- Vascular decompression



Classical Micro Instruments

XS Micro Instruments.
Slim tubular shaft for axial freedom of movement



When it comes to small craniotomies or narrow operation sites, classical micro instruments clearly have their limits.

Owing to the way they are constructed (two shafts running distally from the handle that intersect in front of the jaw part) the shaft area of the instrument in particular obscures the microscopic field of view. Moreover, freedom of movement of instruments in small craniotomies and in narrow operation sites is severely limited.

A revolutionary new design has been realized in the manufacture of the XS Micro Instruments.

The XS Micro instruments were developed in cooperation with:

Prof. Dr. Axel Perneczky

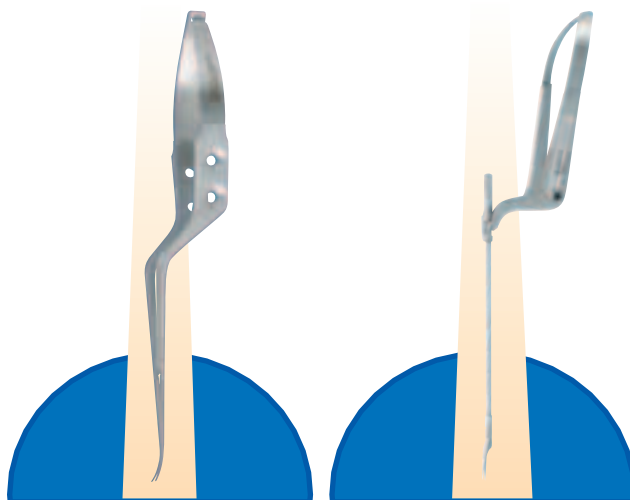
Neurosurgical University Hospital
Mainz, Germany

Prof. Dr. Loris Cristante

Section of Neurosurgery
University of Manitoba Medical School
Winnipeg, Manitoba, Canada

Features Angled Neuroscopes

- Brilliant image, rod lens system and different viewing directions (0°, 30°, 70°) enlarge the angle of vision and provide optimal illumination of details in the deep-seated operation site
- Angled endoscope design and lateral connection for camera and light source
 - Ergonomic handling by central centre of gravity
 - Permits parallel microscope image
 - Free working area for parallel use of micro instruments
- Autoclavable
 - Endoscopes with the SDS Symbol can be sterilised by Steris® and Sterrad®



Classical bayonet shape

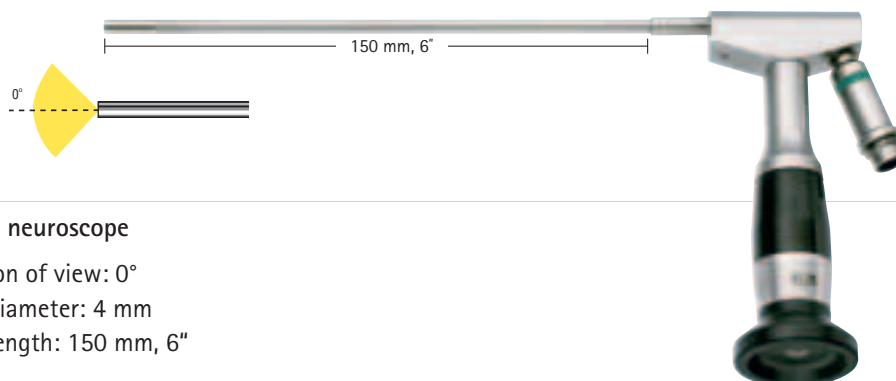
Angled bayonet shape for enhanced sight lines and easier handling

Product features XS Micro Instruments:

- Distal tubular shaft design
- Bayonet-shaped handle and jaw for better microscope vision and easier manipulation in small craniotomies
- Slim tubular shaft instruments can be separated into two pieces – easy component change and cleaning

Endoscope-assisted Neurosurgery

Angled Neuroscopes acc. PERNECZKY



PE486A

Angled neuroscope

Direction of view: 0°

Shaft diameter: 4 mm

Shaft length: 150 mm, 6"



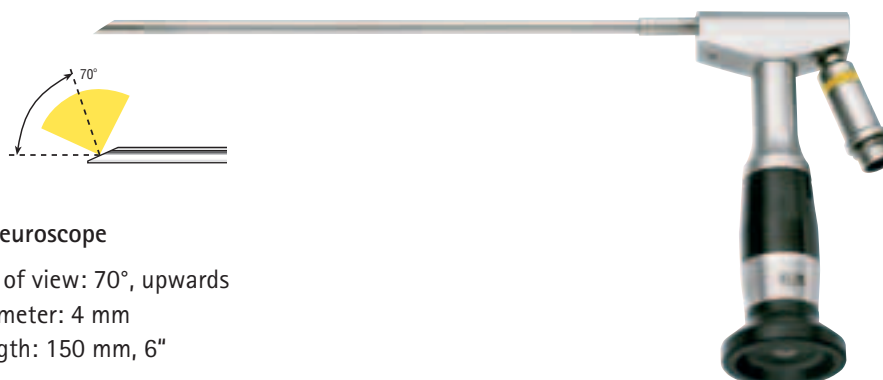
PE506A

Angled neuroscope

Direction of view: 30°, upwards

Shaft diameter: 4 mm

Shaft length: 150 mm, 6"



PE526A

Angled neuroscope

Direction of view: 70°, upwards

Shaft diameter: 4 mm

Shaft length: 150 mm, 6"



JF324R

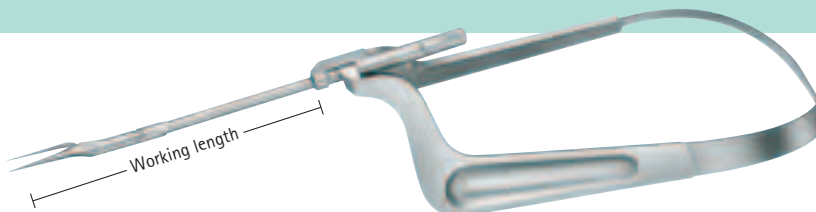
Storage tray

with silicone cushioning racks and lid
for 2 angled neuroscopes (not included)



XS Micro Instruments acc. PERNECZKY / CRISTANTE

Instrument, complete, consists of: Jaw insert and handle



Working length
Total length

70 mm
200 mm

100 mm
230 mm

130 mm
260 mm



XS Micro Scissors, straight, sharp / sharp

FM670R

FM671R

FM672R



XS Micro Scissors, straight, blunt / blunt

FM690R

FM691R

FM692R



XS Micro Scissors, curved, sharp / sharp

FM680R

FM681R

FM682R



XS Micro Scissors, curved, blunt / blunt

FM700R

FM701R

FM702R

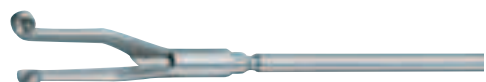


XS Micro Forceps, Jaw 0.9 mm

FM710R

FM711R

FM712R



XS Micro Tumor Grasping Forceps,
Jaw 3 mm, sharp

FM720R

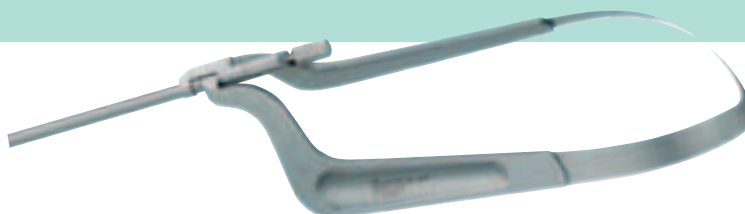
FM721R

FM722R

Endoscope-assisted Neurosurgery

XS Micro Instruments acc. PERNECZKY / CRISTANTE

Instrument single parts: Handle



| | Working length | 70 mm | 100 mm | 130 mm |
|----------------------------|----------------|--------|--------|--------|
| | Total length | 200 mm | 230 mm | 260 mm |
| XS Micro Instrument Handle | | FM730R | FM731R | FM732R |

Instrument single parts: Jaw insert

| Working length | 70 mm | 100 mm | 130 mm |
|----------------|--------|--------|--------|
| Total length | 200 mm | 230 mm | 260 mm |



| | | | |
|--|--------|--------|--------|
| XS Micro Scissors, straight, sharp / sharp | FM675R | FM676R | FM677R |
|--|--------|--------|--------|



| | | | |
|--|--------|--------|--------|
| XS Micro Scissors, straight, blunt / blunt | FM695R | FM696R | FM697R |
|--|--------|--------|--------|



| | | | |
|--|--------|--------|--------|
| XS Micro Scissors, curved, sharp / sharp | FM685R | FM686R | FM687R |
|--|--------|--------|--------|



| | | | |
|--|--------|--------|--------|
| XS Micro Scissors, curved, blunt / blunt | FM705R | FM706R | FM707R |
|--|--------|--------|--------|



| | | | |
|------------------------------|--------|--------|--------|
| XS Micro Forceps, Jaw 0.9 mm | FM715R | FM716R | FM717R |
|------------------------------|--------|--------|--------|

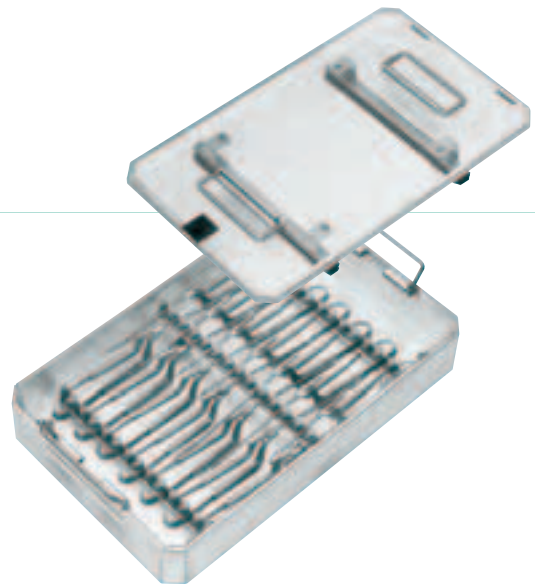


| | | | |
|---|--------|--------|--------|
| XS Micro Tumor Grasping Forceps, Jaw 3 mm, sharp | FM725R | FM726R | FM727R |
|---|--------|--------|--------|



FM665R

Perforated basket with silicone
cushioning racks and lid
for storage of XS Micro Instruments
(not included)



JK701

3/4 container (basic version)
suitable for one perforated basket FM665R



Endoscope-assisted Neurosurgery

Viewing Dissector acc. PERNECZKY

PA200

PERNECZKY viewing dissector

distal diameter: 1.4 mm
total length: 1600 mm
length of flexible part: 1300 mm
angle of image: 80°
direction of view: 0°
high contrast image with accurate colour rendition
gas sterilization

JF660R

Tray for PA200

Main indications:

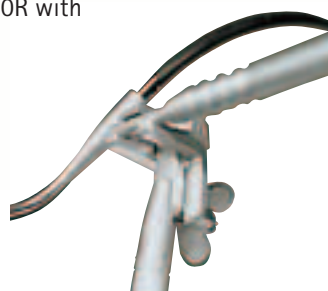
Endoscope-assisted microsurgery for

- aneurysms
- tumors
- epidural inspection
- spinal indications





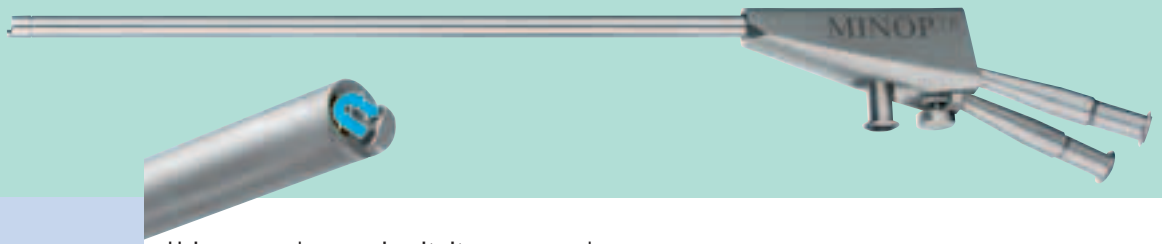
Fixation to the LEYLA retractor FF270R with
the fixation device FF274R.



Endoscopic pituitary surgery

NEW

MINOP[®] TR



Using an endoscope in pituitary surgery has the advantage, as in neuroendoscopy, of offering a direct view onto the operation site. Endoscopes with lateral viewing directions make it possible to achieve a better lateral view without additional opening of the sella floor. Tumour remains that can not be seen through the microscope can be made visible with the endoscope. Other advantages of the endoscopic procedure are narrower expansion of the speculum, if used, leading to less traumatization, as well as a smaller access to the base of the skull, reducing the risk of postoperative CSF loss.

The MINOP[®] TR endoscopic pituitary system for the transnasal approach has been developed in cooperation with Prof. Dr. Axel Perneczky and Dr. Wesley King to be compatible with the existing MINOP[®] system. It consists of a special irrigation and suction trocar which cleans the distal endoscope lens during the approach through the nose and the sphenoidal cavity.

The trocar is simply connected to an irrigation bag and a suction device. The irrigation procedure can be activated with the foot switch when the lens is dirty. Permanent suction assists the cleaning effect and the flow of air also minimises fogging of the lens.

Advantages of the system:

- Compatible with the MINOP[®] system
- Only one special cleaning trocar required for 0° and 30° endoscope – makes changing scopes during surgery easier
- Simple to assemble and use
- Optimal results are achieved through simple adjustment of irrigation pressure and suction
- Permanent suction keeps endoscope lens free from residue

The MINOP[®] TR System was developed in cooperation with:

Prof. Dr. Axel Perneczky

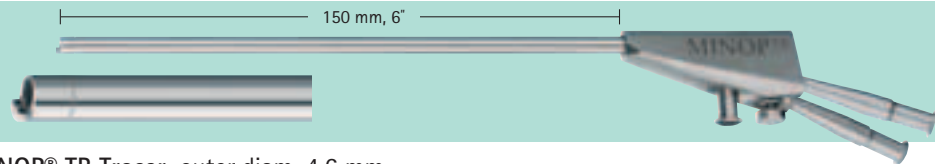
Neurosurgical University Hospital
Mainz, Germany

Dr. Wesley King

Department of Neurosurgery
The Mount Sinai Medical Center
New York, USA



NEW



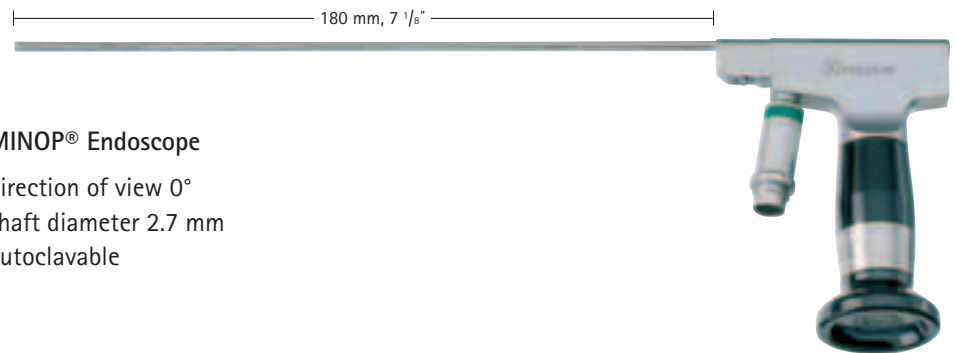
FH601R

MINOP® TR Trocar, outer diam. 4.6 mm

3 channels

- optic channel, diam. 2.8 mm
- irrigation channel, diam. 0.8 mm
- suction channel, diam. 0.8 mm

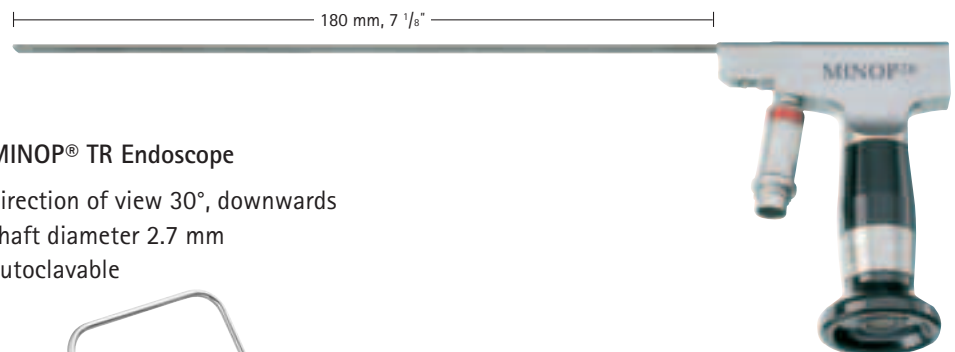
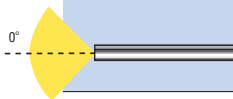
Endoscopic
pituitary surgery



PE184A

MINOP® Endoscope

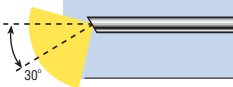
direction of view 0°
shaft diameter 2.7 mm
autoclavable



PE206A

MINOP® TR Endoscope

direction of view 30°, downwards
shaft diameter 2.7 mm
autoclavable



FH600

MINOP® Foot switch



FH602

MINOP® TR tube set for FH601R

length: 4.5 m, diameter: 4 mm
with Luer-Lock and puncture needle, sterile,
package contains 5 single use sets

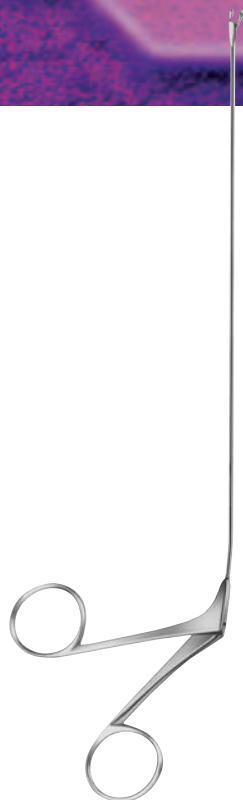
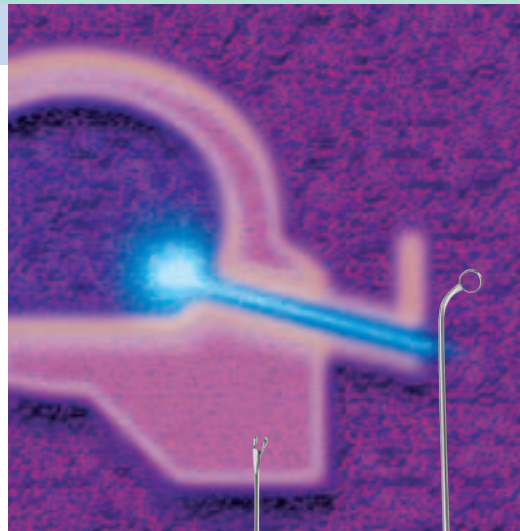
FF358R

Storage rack
with silicone cushioning racks and lid
for MINOP® trocars and endoscopes
(not included)



Endoscopic pituitary surgery

Instrumentation for pituitary surgery





| | |
|--------|--|
| OK090R | Self retaining nasal speculum, 90 x 7 mm |
| FK902R | KERRISON punch, length 180 mm, jaw width 3 mm, regular footplate |
| FK906R | KERRISON punch, length 180 mm, jaw width 1 mm, thin footplate |

| | |
|--------|---|
| GF351R | FERGUSON suction cannula, length 110 mm, diam. 2 mm |
| GF353R | FERGUSON suction cannula, length 110 mm, diam. 3 mm |

| | |
|--------|--|
| GK788R | YASARGIL coagulation forceps, bayonet-shape, length 235 mm, jaw width 0.4 mm |
| GK719R | Coagulation forceps, angled, length 215 mm, jaw width 1mm |
| GK560R | LANDOLT bipolar coagulation grasping forceps, length 150 mm |

| | |
|--------|--------------------------------------|
| FD222R | Forceps, scoop-shaped, length 165 mm |
| FD226R | Scissors, straight, length 165 mm |

| | |
|--------|--|
| BB057R | Scalpel handle, bayonet-shaped, 250 mm |
| BB367R | Microsurgery blades, sterile, package of 10 pieces |

| | |
|--------|---|
| FF616R | NICOLA curette, malleable, cutting to the right length 260 mm, diam. 6.5 mm |
| FF617R | NICOLA curette, malleable, cutting to the left length 260 mm, diam. 6.5 mm |
| FF618R | NICOLA curette, malleable, length 260 mm, diam. 6.5 mm |

For more
information and
instruments, see
Neurosurgery
General Catalogue
C20111



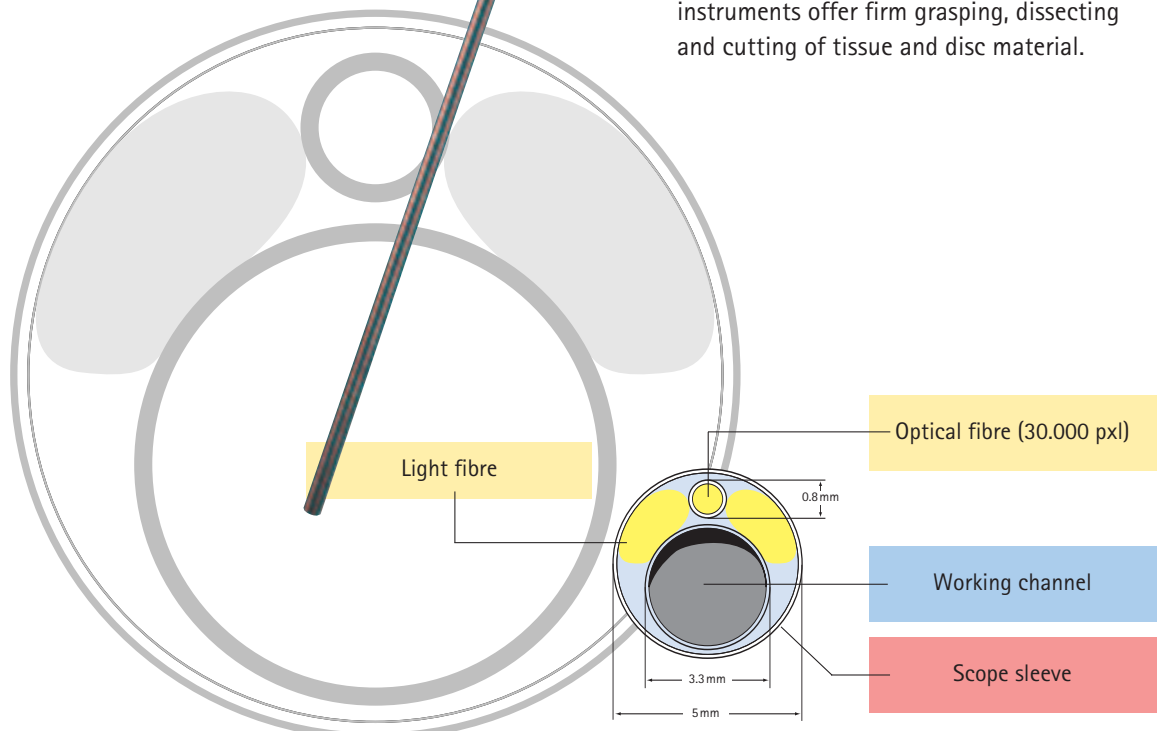
Spinal neuroendoscopy

Transforaminal endoscopic discectomy

ENDOSPY

Through a uni-portal dorsal, transforaminal approach this new system allows disc material removal under direct visualization of the epidural space. The reusable flexible scope system combined with a 3.3 mm working channel enables instrument maneuvers without restriction by optical components.

The 2.5 mm detachable modular tube shaft instruments offer firm grasping, dissecting and cutting of tissue and disc material.





FG065

EndoSpy®-Set

Content

PF001

Ocular

PF005

Flexible scope with rigid scope sleeve
(suitable for gas sterilization)

FG121R

Set of dilatation tubes with working cannula,
outer diameter 3 –7.5 mm

BT078R

Exploration hook 45° angled 300 mm shaft length

BT079R

Exploration hook 90° angled 300 mm shaft length

FG090R

Micro knife 300 mm shaft length

PM020R

Micro scissors pointed jaw sharp/sharp

PM507R

Biopsy forceps

PM145R

MARYLAND tissue grasping forceps

JF222R

Perforated basket

JF936

Silicone pads

Please order separately

FG106

Guide wire 0.8 mm length 400 mm, blunt tip

FG107S

Guide wire 1.2 mm length 400 mm, blunt tip

FG108S

Guide wire 1.2 mm length 400 mm, pointed tip

FG089R

Micro dissector 300 mm shaft length

FG098R

Nucleus forceps toothed

FG122R

Set of dilatation tubes
outer diameter 3.0 – 7,5 mm, beveled tip

GK360R

Bipolar fork electrode diam. 2.1 mm, 255 mm shaft length

SK048C

Tubing connection Luer-Lock

GA242300

Suction and irrigation tube

EJ446255

additional sealing caps for working cannula
(package with 20 pieces)

EJ670202

additional sealing caps for scope sleeve
(package with 20 pieces)

Spinal neuroendoscopy

Syringomyeloscope

PF612

Syringomyeloscope

| | |
|-----------------|---|
| outer diam. | 2.3 mm |
| length | 1000 mm |
| working channel | diam. 1 mm (suitable for 400 μ laser fibers) |
| depth marking | each 50 mm |





- extremely high flexibility over entire length
- wide-angle endoscope
- large illuminating fibre content for optimum illumination
- suitable for gas sterilization

Main indications

Neuroscopic treatment of septated syringomyelia,
subdural hematomas, cysts, epiduroscopy



Spinal neuroendoscopy

Holding devices

RT040R

UNITRAC®

Flexible holding device with pneumatic fixation

- UNITRAC®, the universal retraction and holding system with special accessories for neuroendoscopy
- Pneumatically-assisted system for direct connection to OR compressed air supply
- Integrated safety systems prevent collapse of holding arm if OR compressed air supply is interrupted
- Simple to assemble onto the OR table railing
- Single handed use
- Fast and sterile set-up in the OR
- All components fully autoclavable



Ø 20 mm

Fixation devices for UNITRAC®

FF280R

Flexible fixing element with ball joint suitable for RT040R and FF169R



RT090R

Flexible fixing element with sprocket suitable for RT040R and RT091R



Compressed air hose system for UNITRAC® RT040R

AESCULAP-Dräger system, for complete exhaust air release

GA460 3 m, spiral

GA464 3 m, straight

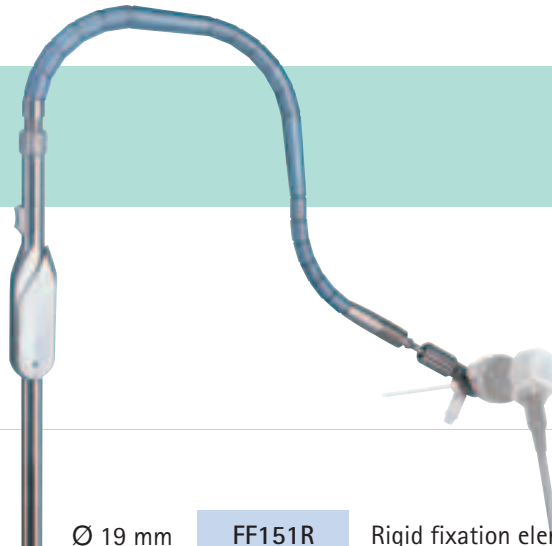
GA466 5 m, straight

AESCULAP-Standard hose system, for pressureless exhaust air release outside the operation area

GA461 3 m, with diffusor

GA463 3 m, without diffusor

GA465 5 m, without diffusor



FF169R

Large LEYLA arm

Flexible holding device
with mechanic fixation

Ø 19 mm

FF151R

Rigid fixation element suitable
for RT040R and FF169R

Adapter for UNITRAC® and large LEYLA arm

RT079R

Adapter
for fixation of angled neuroscopes
PE486A, PE506A, PE526A



RT081R

Adapter
for PEEK-inserts RT082P – RT089P
for fixation of trocars



RT082P

PEEK-insert
with inner diameter 6.2 mm (for
fixation of long or short ventriculoscope
trocar FF370R or FF372R)

RT083P

PEEK-insert
with inner diameter 6 mm (for fixation
of MINOP® trocar FF399R)

RT084P

PEEK-insert
with inner diameter 4.6 mm (for fixation
of MINOP® trocar FF398R and FH601R)

RT085P

PEEK-insert
with inner diameter 3.2 mm (for fixation
of MINOP® trocar FF397R)

RT089P

PEEK-insert
with inner diameter 3 mm (for fixation
of PaediScope® PF010A)



Spinal neuroendoscopy

neur

o

pilot

NEW

Micro Manipulator for Neuroendoscopes



NeuroPilot® **IV+EA** for **IntraVentricular** and **Endoscope-Assisted** indications with all Aesculap neuroendoscopes



NeuroPilot® **IV** for **IntraVentricular** indications with the long Aesculap ventriculoscope FF370R

NeuroPilot® is a new, unique steering device for neuroendoscopes. After positioning of the neuroendoscope in situ finest corrections or adjustments are necessary, to receive the optimal endoscopic image. With traditional holding devices only a rough positioning is possible; a precise and fine steering of the neuroendoscope is mainly not possible.

NeuroPilot® offers a number of unique advantages:

- Optimal fixation of the neuroendoscope in the NeuroPilot® and the holding device UNITRAC®
- Precise steering of the neuroendoscope by three screws in the three-dimensional space
- Safe manoeuvring of the neuroendoscope by defined movements in the sub-millimeter area
- Optimal positioning of the neuroendoscope in situ

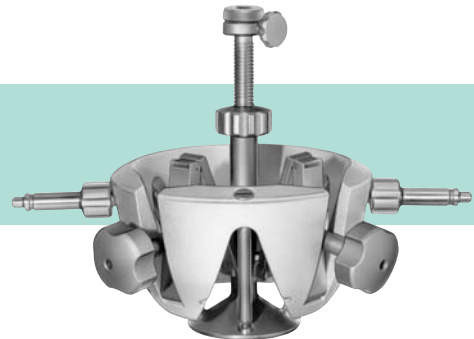
NeuroPilot® was developed in cooperation with:

Prof. Dr. Axel Perneczky
Neurosurgical University Hospital
Mainz, Germany



NEW

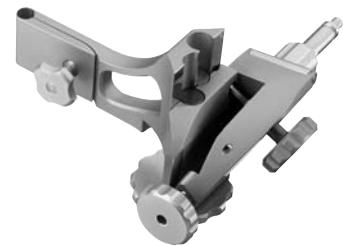
Micro manipulator for Neuroendoscopes



| | |
|--------|---|
| RT059R | NeuroPilot® IV for intraventricular indications with the long Aesculap ventriculoscope FF370R |
|--------|---|

| | |
|--------|--|
| RT067P | Insert for long ventriculoscope FF370R with diam. 6.2 mm |
|--------|--|

| | |
|--------|---|
| RT060R | NeuroPilot® IV+EA for intraventricular and endoscope-assisted indications with all Aesculap neuroendoscopes |
|--------|---|



| | |
|--------|---|
| RT061R | Insert for angled neuroscopes PE486A - PE526A with diam. 4 mm |
|--------|---|

| | |
|--------|---|
| RT062R | Insert for short ventriculoscope FF372R with diam. 6.2 mm |
|--------|---|

| | |
|--------|---|
| RT063R | Insert for MINOP® trocar FF397R with diam. 3.2 mm |
|--------|---|

| | |
|--------|---|
| RT064R | Insert for MINOP® trocars FF398R and FH601R with diam. 4.6 mm |
|--------|---|

| | |
|--------|---|
| RT065R | Insert for MINOP® trocar FF399R with diam. 6 mm |
|--------|---|

| | |
|--------|---|
| RT066R | Insert for PaediScope® PF010A with diam. 3 mm |
|--------|---|



Cameras

- Micro-lens-on-chip technology ■ DIGI-Technology
- Resolution > 460 horizontal lines, 3-Chip Camera, 750 horizontal lines
- Small Scope Funktion ■ Automatic white balance ■ Min. light sensitivity: 1 Lux
- Dynamic Gain ■ Remote Control

DAVID



PV140

PAL David 1-Chip Camera

PV142

NTSC David 1-Chip Camera

consisting of:

- Camera control unit
- Camera head and camera cable
- Endocoupler
- S-VHS connecting cable

DAVID3



PV430

PAL David 3-Chip Camera

PV432

NTSC David 3-Chip Camera

consisting of:

- Camera control unit
- Camera head and camera cable
- Endocoupler
- S-VHS connecting cable

Accessories David 1-Chip Camera

- | | |
|--------------|--|
| PV961 | Composite connecting cable, 2 m |
| PV963 | Y/C connecting cable, 2 m |
| PV967 | Remote control cable, 1.7 m |
| JG904 | Sterile cover, disposable, package of 25 |
| JG910 | Antifog Solution, single use, disposable of 10 |

Accessories David 3-Chip Camera

- | | |
|--------------|--|
| PV425 | RGB connecting cable, 2.3 m, 15 pin/15 pin |
| PV963 | Y/C connecting cable, 2 m |
| PV967 | Remote control cable, 1.7 m |
| JG904 | Sterile cover, disposable, package of 25 |
| JG910 | Antifog Solution, single use, disposable of 10 |



Xenon Light Source

- Xenon technology provides a very high light intensity and ensures an optimum colour reproduction
- The AXeL light source sets new standards regarding the operating noise due to the integrated special "whisper ventilators"
- The light source design is compact and light
- The light intensity is continuously adjustable
- The light source is fully compatible with light guide cables of other manufacturers by using suitable adapters

AXeL 180

AXeL 300



OP930

Xenon Light Source 180 W

Technical Data

| | |
|------------------------|-------------------------|
| Lamp | Xenon |
| Lamp power | 180 W |
| Lamp voltage | 15 V/12.0 A |
| Light intensity | continuously adjustable |
| Colour temperature | 6000 K |
| Weight | 6.4 kg |
| Dimensions (w x h x d) | 305 x 125 x 305 mm |
| Standard | EN 60601-1 |

Accessories

OP931

Xenon spare lamp, 15 V/180 W

Adapter for Xenon light source:

OP936

Wolf

OP937

Olympus (Xenon)

OP938

Circon ACMI

Light guide cables (autoclavable)
diam.: 4.8 mm

OP906

Length: 180 cm

OP913

Length: 250 cm

OP914

Length: 350 cm

OP932

Xenon Light Source 300 W

Technical Data

| | |
|------------------------|-----------------------------|
| Lamp | Xenon |
| Lamp power | 300 W |
| Lamp voltage | 17 V/15 A |
| Light intensity | continuously adjustable |
| Colour temperature | 6000 K |
| Weight | 7.6 kg |
| Dimensions (w x h x d) | 305 x 125 x 305 mm |
| Standard | EN 60601-1, EN 60601-1-2 |

Accessories

OP933

Xenon spare lamp 17 V/300 W

Adapter for Xenon light source:

OP936

Wolf

OP937

Olympus (Xenon)

OP938

Circon ACMI

Light guide cables (autoclavable)
diam.: 4.8 mm

OP906

Length: 180 cm

OP913

Length: 250 cm

OP914

Length: 350 cm

Monitors



PV941

15" Flat panel display "Touch Screen"

Technical details

| | |
|------------------------|-------------------|
| Screen size | 15" (38 cm) |
| Resolution (Pixel) | 1027 x 768 (XGA) |
| Weight | 4.3 kg |
| Dimensions (w x h x d) | 387 x 301 x 81 mm |

Additional technical data

| | |
|-----------------------------|---|
| Menu control | 7 languages |
| Video Signal inputs/outputs | DVI-I (analog and digital VGA) SDI 1x In/1x Out S-VHS 1x In/1x Out RS 232 (9 pin D-sub) 24 V Power Input |

Additional accessories

PV885

Articulating arm for adaptation to Aesculap trolley

PV918

Base for all flat panel displays



PV915

15" Flat panel display

Technical details

| | |
|------------------------|-------------------|
| Screen size | 15" (38 cm) |
| Resolution (Pixel) | 1024 x 768 (XGA) |
| Weight | 4.3 kg |
| Dimensions (w x h x d) | 387 x 301 x 81 mm |

Additional technical data

| | |
|-----------------|--|
| Standard | UL 2601-1, EN 60601-1 EN 60601-1-2 |
| Inputs | DVI-I (analog and digital VGA) RGB Sync (15 pin D-sub) S-VHS, Composite RS 232 (9 pin D-sub) 24 V Power Input |
| Mounting system | VESA-Standard |
| Power supply | Input 100-240 V AC, 50-60 Hz Output 24 V DC |

PV919

19" Flat panel display

Technical details

| | |
|--------------------|--------------------|
| Screen size | 19.1" (38 cm) |
| Resolution (Pixel) | 1280 x 1024 (SXGA) |
| Weight | 6.4 kg |



Documentation



PV920

DVD System PAL/NTSC

Technical details

| | |
|------------------------------|---|
| DVD System | DVD-R/-RW; DVD+R/+RW |
| Capturing video sequences | On hard drive, directly to DVD/CD or network |
| Video Signal Inputs | 1 x S-VHS |
| Video Signal Outputs | 1 x DVI-D 1 x Analog VGA (15 pin D-sub) 1 x S-VHS 2 x RS232 parallel (9 pin D-sub) |
| Standard | EN60 601-1, EN 60601-1-2 |
| Dimensions (w x h x d) | 305 x 125 x 305 mm |
| Weight | 8 kg |
| Accessories (included) | Power cord |
| Archiving | still images, video sequences, audio data |

Additional accessories

PV428

Serial connecting cable from Eddy DVD
to PV941 Flat Panel Display, 3 m



PV914

Colour Video Printer PAL/NTSC, RGB compatible

Technical details

| | |
|------------------------|---|
| Printing method | Colour sublimation |
| Paper size | 144 mm x 100 mm (DIN A 6) |
| Image size | 127 mm x 92 mm |
| Pixels | 1524 x 1458 (PAL) 2032 x 1452 (NTSC) |
| Colour gradation | > 16.7 million colours |
| Resolution | 403 dpi (dots per inch) |
| Printing time | approx. 16 sec. |
| Video inputs | 1 x Composite 1 x S-VHS 1 x RGB 2 x Remote control |
| Video outputs | 1 x Composite 1 x S-VHS 1 x RGB |
| Interface | RS-232-C |
| Standards | UL 2601-1, EN 60601-1 CSA 601.1 |
| Dimensions (w x h x d) | 212 x 125 x 395 mm |
| Weight | approx. 6.5 kg |
| Power requirements | 100-120 V, 220-240 V, 50/60 Hz |

PV916

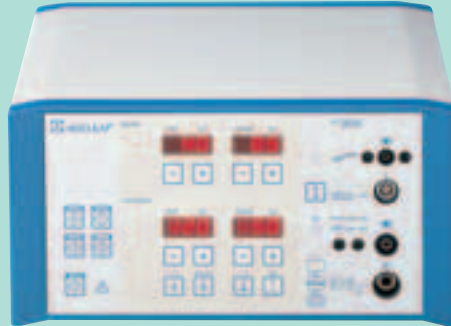
Print paper and print cartridge,
pack of 200 prints, for PV914

Combi Electrosurgical Unit

Electrosurgery unit (bipolar and monopolar),
microprocessor-controlled with membrane keypad

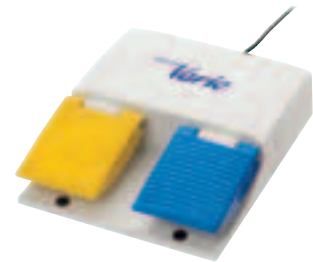
Monopolar: Cut, Contactcoag, SprayCoag – functions

Bipolar: Coagulation and cut function



GN300 Electrosurgical unit, mono- and bipolar, without power cord and accessories

GN325 Vario dual foot pedal,
explosion-proof, cable 4 m long



GK101 Universal neutral electrode,
128 cm² conductive area
50 pieces in Peel-pack

GK245 Monopolar cable
for Aesculap electrodes, length 3.5 m



GN073 Bipolar cable
for Aesculap electrodes, length 3.5 m



GN249 Neutral electrode cable, length 3.5 m



GN245 Neutral electrode cable, length 5 m



Bipolar Electrosurgical Unit GN060

Electrosurgery unit (only bipolar)
microprocessor-controlled with membrane keypad

Two operating modes:

- Micro: 0.1 – 10 W at 50 Ohm, adjustable in intervals of 0.1 W
- Macro: 1 – 50 W at 100 Ohm, adjustable in intervals of 1 W

4 memories available

Automatic switch-on option available



GN060

Electrosurgical unit, bipolar, without power cord and accessories

GK226

Foot-switch
explosion-proof, plastic housing,
cable 4 m long



GN073

Bipolar cable
for Aesculap electrodes and bipolar forceps,
cable 3.5 m long



More accessories and
information, see
Electrosurgery catalogue
C 304 81

HiLAN® XS – Pneumatic High Speed Power System



HILAN® XS SYSTEM ADVANTAGES

- 100.000 rpm
- Easy handling
- Keyless assembly
- High performance, starting already at 6 bar/87 psi
- Very quiet
- No intraoperative lubrication required
- Excellent long term running capabilities
- Compatible with low-speed systems and skull perforator
- Suitable for mechanical cleaning with ECCOS®

More accessories and information, see Power System Catalogue 0227 or HiLAN® XS brochure 0260

System components

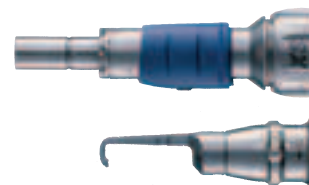
| | |
|-------|--|
| GA740 | High speed motor for bone dissection and craniotomy |
| GA513 | Pneumatic hose for small Aesculap motors (3 m) |
| GA521 | Foot switch |
| GA466 | Pneumatic hose with Aesculap-Dräger connection (5 m) |



Accessories Craniotomy

GB740R Hi-Line XS craniotome, without dura guard

GB742R Hi-Line XS dura guard, standard, length II



GE520R Hi-Line XS craniotome burr, length II

Accessories for high speed bone dissection



GB757R Hi-Line XS hand piece, angled, length II

GE504R Hi-Line XS Rosen burr, length II, Ø 2.3 mm

GE506R Hi-Line XS Rosen burr, length II, Ø 3.1 mm

GE507R Hi-Line XS Rosen burr, length II, Ø 4.0 mm

GE508R Hi-Line XS Rosen burr, length II, Ø 5.0 mm

GE509R Hi-Line XS Rosen burr, length II, Ø 6.0 mm



GE514R Hi-Line XS Diamond burr, length II, Ø 2.3 mm

GE516R Hi-Line XS Diamond burr, length II, Ø 3.1 mm

GE517R Hi-Line XS Diamond burr, length II, Ø 4.0 mm

GE518R Hi-Line XS Diamond burr, length II, Ø 5.0 mm

GE519R Hi-Line XS Diamond burr, length II, Ø 6.0 mm



Skull perforation with safety perforator

GA522R Perforator driver

GB106R HUDSON chuck for GA522R

GB302R Safety perforator with HUDSON-shaft, Ø 9/12mm



GA536 STERILIT® Hi oilspray for high speed motors and handpieces

Microspeed® EC Motor System – Electronic High Speed Power System

micro
speed[®]_{EC}



The electronic precision power system for high and low speed applications in neurosurgery

- Automatic motor recognition
- Integrated irrigation pump
- ECCOS®-system for mechanical cleaning

System components

| | |
|-------|----------------------------|
| GA650 | Microspeed® control unit |
| GA662 | Foot control, single pedal |
| GA661 | Motor connection cord |
| GD656 | High speed motor 100W |
| GD657 | Low speed motor 100W |



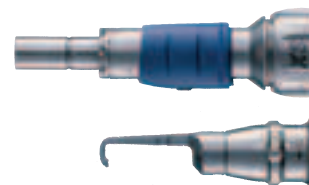
More accessories and information, see Power Systems Catalogue 0227 or Microspeed® brochure 0183



Accessories Craniotomy

GB740R Hi-Line XS craniotome, without dura guard

GB742R Hi-Line XS dura guard, standard, length II



GE520R Hi-Line XS craniotome burr, length II

Accessories for high speed bone dissection

GB757R Hi-Line XS hand piece, angled, length II



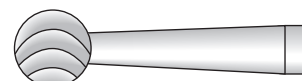
GE504R Hi-Line XS Rosen burr, length II, Ø 2.3 mm

GE506R Hi-Line XS Rosen burr, length II, Ø 3.1 mm

GE507R Hi-Line XS Rosen burr, length II, Ø 4.0 mm

GE508R Hi-Line XS Rosen burr, length II, Ø 5.0 mm

GE509R Hi-Line XS Rosen burr, length II, Ø 6.0 mm



GE514R Hi-Line XS Diamond burr, length II, Ø 2.3 mm

GE516R Hi-Line XS Diamond burr, length II, Ø 3.1 mm

GE517R Hi-Line XS Diamond burr, length II, Ø 4.0 mm

GE518R Hi-Line XS Diamond burr, length II, Ø 5.0 mm

GE519R Hi-Line XS Diamond burr, length II, Ø 6.0 mm



Skull perforation with safety perforator

GA522R Perforator driver

GB106R HUDSON chuck for GA522R

GB302R Safety perforator with HUDSON-shaft, Ø 9/12mm



GA536 STERILIT® Hi oilspray for high speed motors and handpieces

Trolleys

Large Trolley „Metro Classic“



PV890

Trolley „Metro Classic“

- Sturdy and non-tilting construction
- Modular trolley design
- Special antistatic castors
- Optimum stability for units
- Rubber bumpers on the base frame
- Easy cleaning and disinfection
- Smart cable management

PV891

Trolley „Metro Classic IT“

- with integrated Isolation Transformer (2000 VA)
- with integrated system monitoring

Technical Data:

| | |
|-----------------------------|--|
| Dimensions (w x h x d) | 935 x 1580 x 700 mm |
| Weight (without load) | 82 kg |
| Max. load capacity of cart | 210 kg |
| Standing Area (w x d) | 710 x 440 mm |
| Max. load capacity of shelf | 40 kg |
| Standard | EN 60601-1 EN 60601-1-1 EN 60601-1-2 |

PV883

Irrigator stand, one-hand height adjustment, 90 cm total height

PV885

Articulating arm for flat screen

PV884

Camera holder for 1- and 3 Chip cameras

| | |
|--|---|
| Safety Class acc. to EN 60601-1 | I |
| Classification acc. to norm 93/42/EEC | I |

PV893

Power plug Euro

PV894

Power plug UK/Ireland

PV895

Power plug USA/Canada/Japan



Small Trolley „Metro Junior“



PV880

Trolley „Metro Junior“

PV881

Trolley „Metro junior IT“

- with integrated Isolation Transformer (1120 VA)
- with integrated system monitoring

- Sturdy and non-tilting construction
- Modular trolley design
- Special antistatic castors
- Optimum stability for units
- Rubber bumpers on the base frame
- Easy cleaning and disinfection
- Smart cable management

Technical Data:

| | |
|-------------------------------|---|
| Dimensions (w x h x d) | 835 x 1580 x 750 mm |
| Weight (without load) | 89 kg |
| Max. load capacity of trolley | 210 kg |
| Standing Area (w x d) | 560 x 440 mm |
| Max. load capacity of shelf | 40 kg |
| Standard | EN60601-1 EN 60601-1-1 EN 60601-1-2 |

| | |
|--|---|
| Safety Class acc. to EN 60601-1 | I |
| Classification acc. to norm 93/42/EEC | I |

PV883

Irrigator stand, one-hand height adjustment, 90 cm total height

PV885

Articulating arm for flat screen

PV884

Camera holder for 1- and 3 Chip cameras

PV893

Power plug Euro

PV894

Power plug UK/Ireland

PV895

Power plug USA/Canada/Japan

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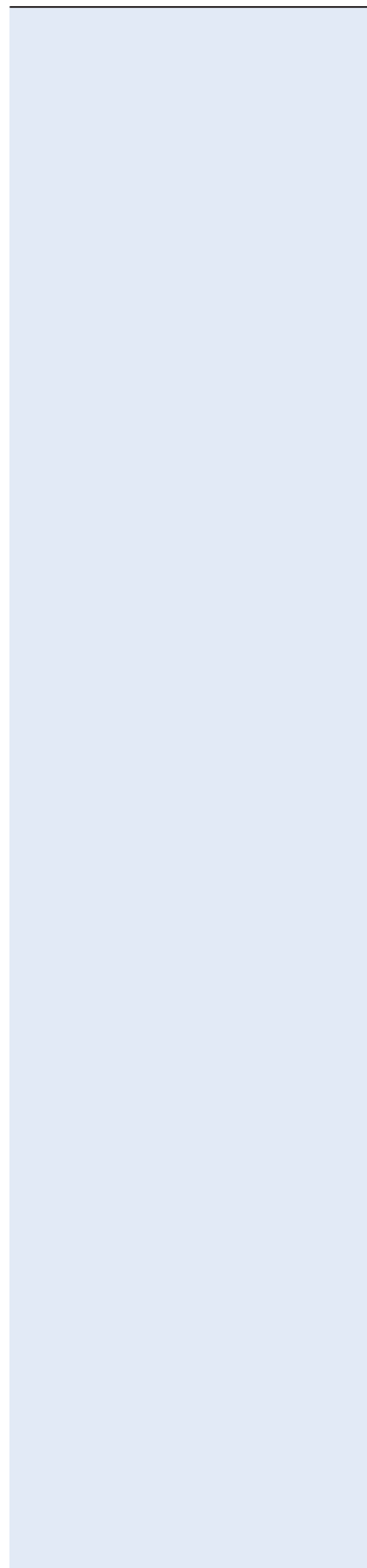
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