Söring

Ultrasonic tumor aspiration:
LEVICS – Going further in ultrasonic aspiration

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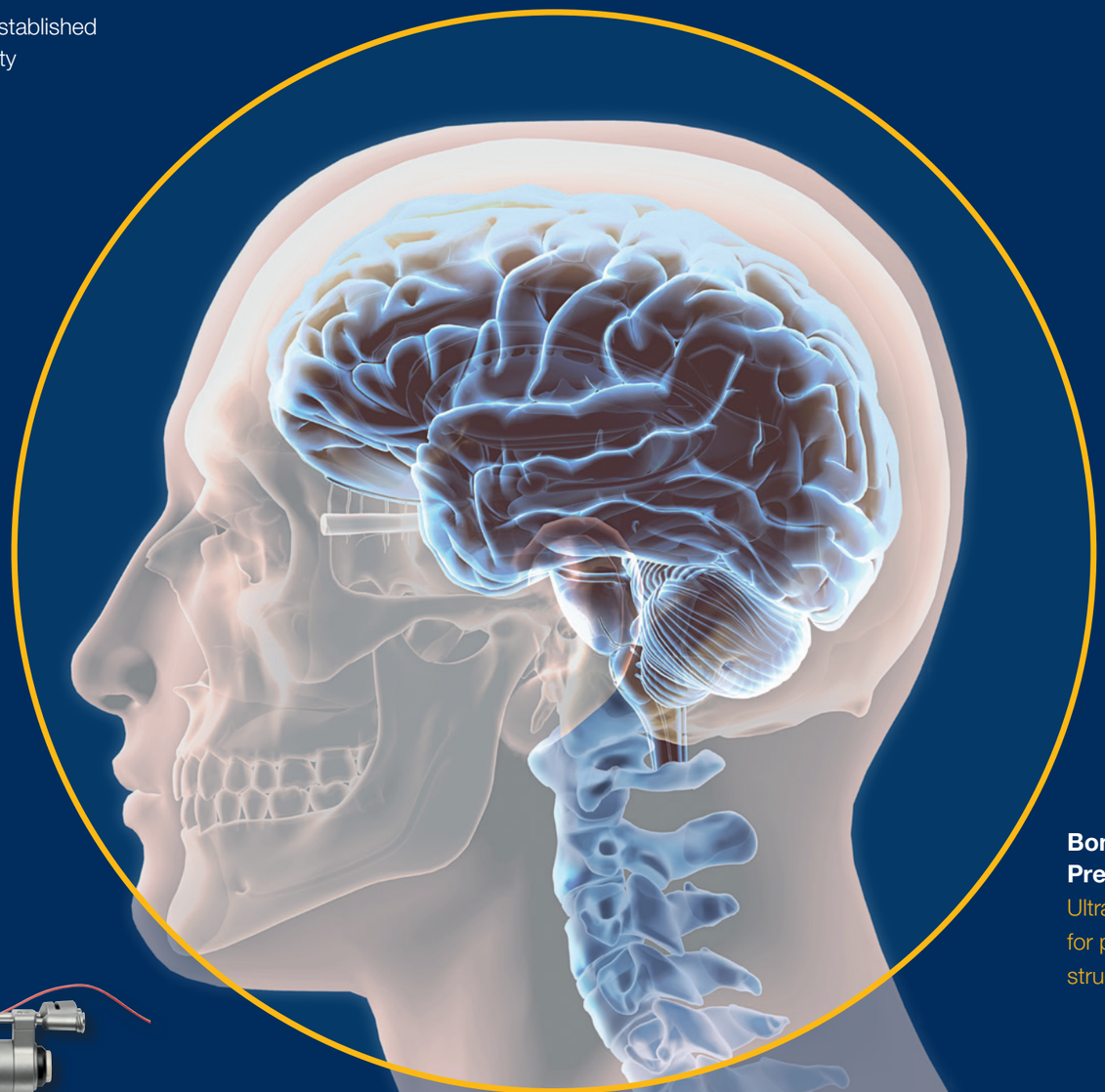
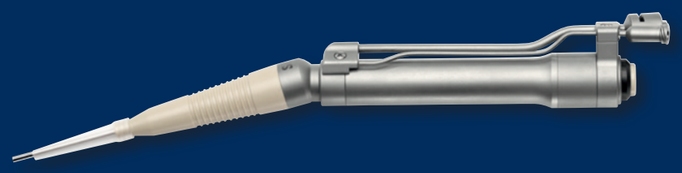
Söring enables advanced surgical techniques for neurosurgery and focuses on the continuous development of medical devices. Through intensive global collaboration with leading neurosurgeons, we enable optimized work efficiency while improving patient safety. Specializing in microscopic and endoscopic neurosurgery, we offer a unique and comprehensive product portfolio. These instruments for ultrasonic tumor aspiration and ultrasonic bone resection provide the reliable support that neurosurgeons need in the operating room.

Söring stands for leading ultrasonic technology with its numerous established applications. From development to design, from production to quality management, everything at Söring is “Made in Germany”.

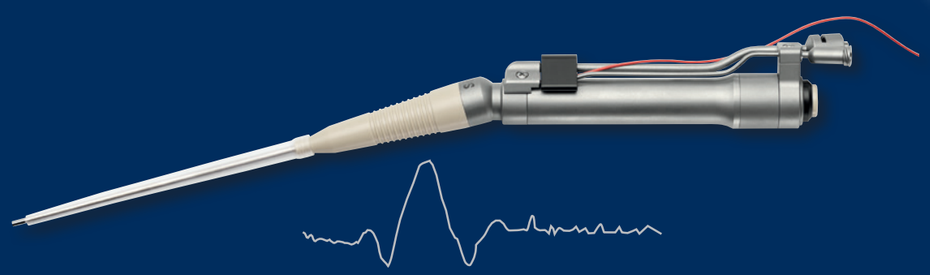
Endoscopic Micro instrument ENP:
Advanced neuroendoscopy with ultrasonic aspiration
The world‘s only endoscopic ultrasonic aspirator for the unique resection of intraventricular tumors and cysts.



LEVICS ultrasonic aspirator:
Excellent instrument design for precise working
The low weight supports a safe working over long periods of surgery while the angled instrument ensures an optimum view of the surgical field.



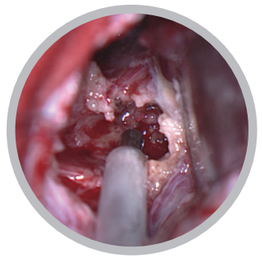
LEVICS ultrasonic aspiration merged with IONM:
Clinical outcome maximized. Safety optimized.
The combination of two technologies: ultrasonic aspiration and IONM for resection of tumors near the corticospinal tract.



Bone instrument – decisive effects:
Precise on bone, gentle on critical structures
Ultrasonic instrument with low temperature development for precise preparation of bone close to highly sensitive structures of the spine, e.g. during decompression surgery.

LEVICS ultrasonic aspirator:
excellent instrument design for precise working

The resection of intracranial and spinal tumors requires an accurate proceeding to preserve the surrounding structures as much as possible. The neurosurgical LEVICS Micro instrument from Söring has been specially developed for this challenge and is therefore characterized by its excellent design. With its working frequency of 35 kHz, it fragments tumors of different consistencies precisely and effectively.



LEVICS excellent instrument design for precise working

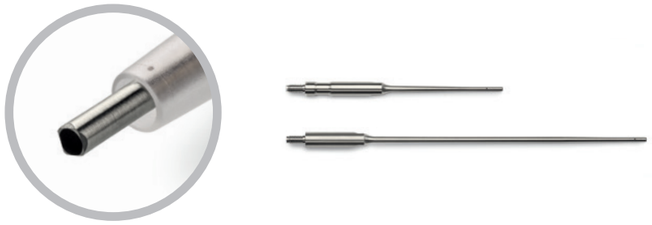
- *fragments tumors of different consistencies precisely and effectively*
- *well balanced and lightweight instrument supports a safe working over long periods of surgery*
- *filigree and angled shape of the instrument body ensures an optimum view of the surgical field*
- *using the intuitive torque wrench, the sonotrode can be mounted rapidly and easily without any additional tools*

LEVICS enhanced sonotrode assortment

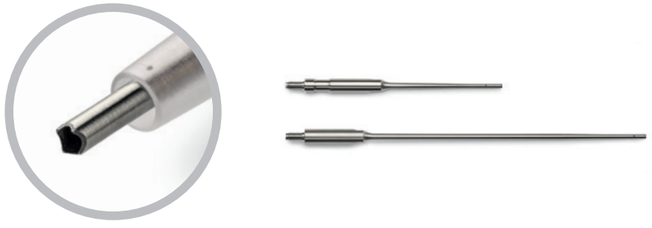
- *broad range of sonotrodes with different lengths, diameters and tip geometries*
- *excellent visibility - minimal spray formation*
- *minimal adhesion and sticking to tissue*

LEVICS standard sonotrodes, available in working lengths 36 mm, 98 mm and 108 mm

LEVICS beveled sonotrodes, available in working lengths 37 mm and 97 mm



LEVICS notched sonotrodes, available in working lengths 37 mm and 98 mm



"The filigree LEVICS ultrasonic aspirator offers a good solution for the precise fragmentation of tumors due to its wide range of different sonotrode geometries. With the beveled and notched sonotrodes, even hard and calcified tumors can be removed effectively and effortlessly."

Prof. Raphael Guzman, Chief physician and clinical director neurosurgery, Universitätsspital Basel, Switzerland

LEVICS ultrasonic aspiration merged with IONM:
Clinical outcome maximized. Safety optimized.

Tumors located close to the corticospinal tract are very challenging to resect. While the maximum extent of tumor shall be removed, functional structures need to be kept intact. To address this challenge with a maximized clinical outcome, two technologies were combined:

LEVICS
Ultrasonic tumor aspiration

+

inomed stimulation clip
Intraoperative neuromonitoring

=

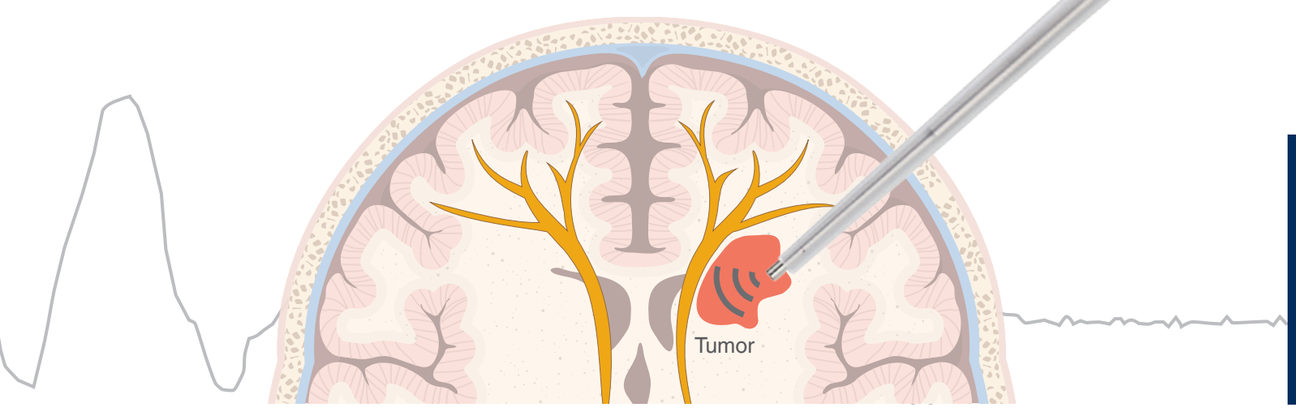
LEVICS enables a new mapping standard

Classical approach - dynamic mapping:

- *use of a separate monopolar stimulation stimulation probe*
- *tumor resection is temporarily interrupted when the tissue is stimulated*

New standard - dynamic continuous mapping:

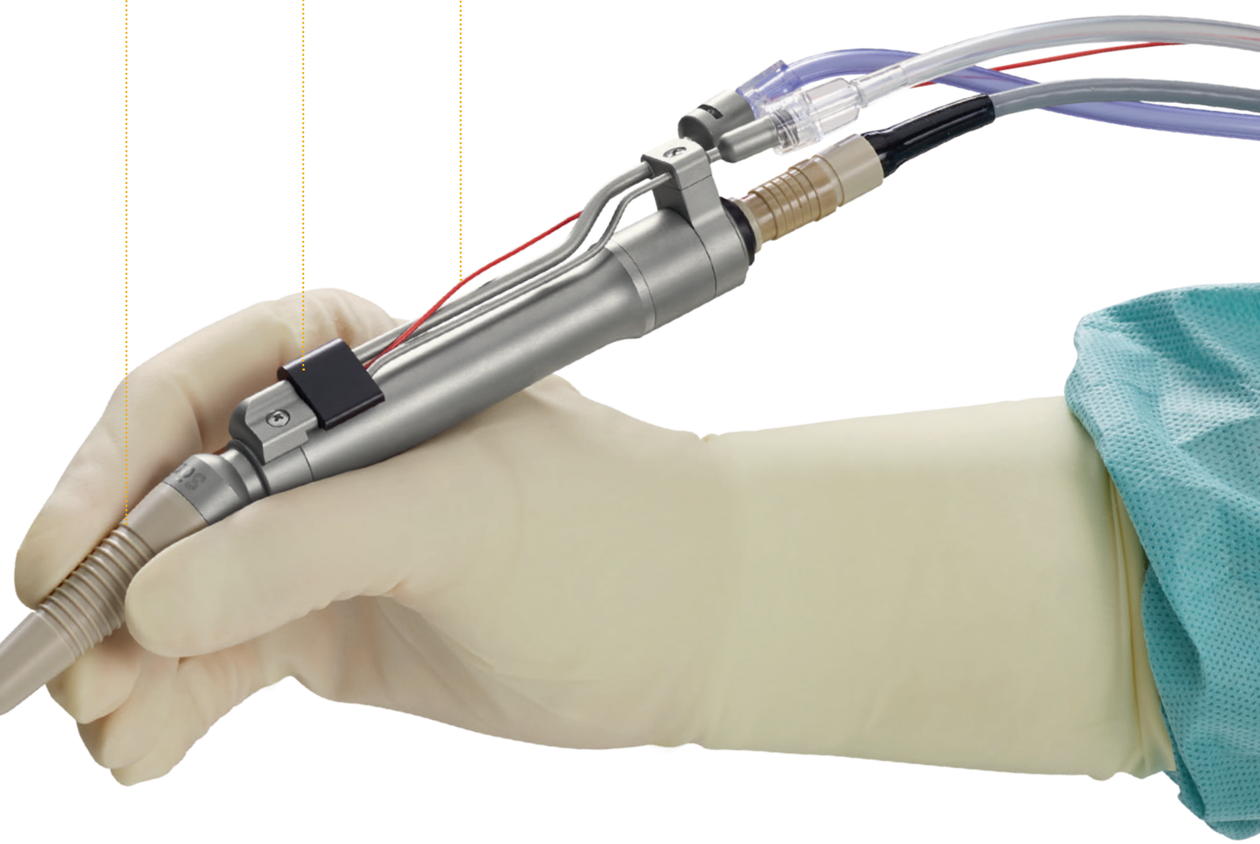
- *ultrasonic aspirator is a resection and stimulation device*
- *interruption-free workflow, continuous acoustic feedback is given*



Higher accuracy of mapping[1]
The tissue is stimulated right at the place of resection.

Simplified intraoperative ergonomics[1]
Stimulation and resection is performed with only one device[2].

Safer resection process[1]
Continuous acoustic feedback is given regarding the distance of the corticospinal tract.



"The use of the LEVICS instrument as stimulation-ultrasonic aspiration device allows an accurate and continuous motor mapping for safer resection near the corticospinal tract while intraoperative ergonomics are facilitated."

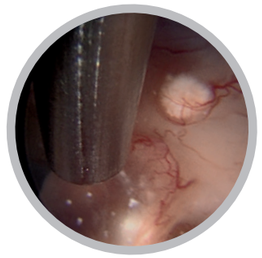
Prof. Dr. Karl Schaller, Head of Division Neurosurgery, Hôpitaux Universitaires Genève, Switzerland

[1] are associated with dynamic continuous mapping by inomed as stated in the information material: Dynamic mapping of the corticospinal tract: instrument choice, D030166 EN

[2] illustrated connection clip set is an optional product of ionmed GmbH, Emmendingen

Endoscopic Micro instrument ENP:
advanced neuroendoscopy with ultrasonic aspiration

When removing intra- and paraventricular tumors and cysts, a minimally invasive approach may be the preferred option. Söring supports this surgical technique by providing the endoscopic Micro instrument ENP, the world‘s only endoscopic ultrasonic aspirator.

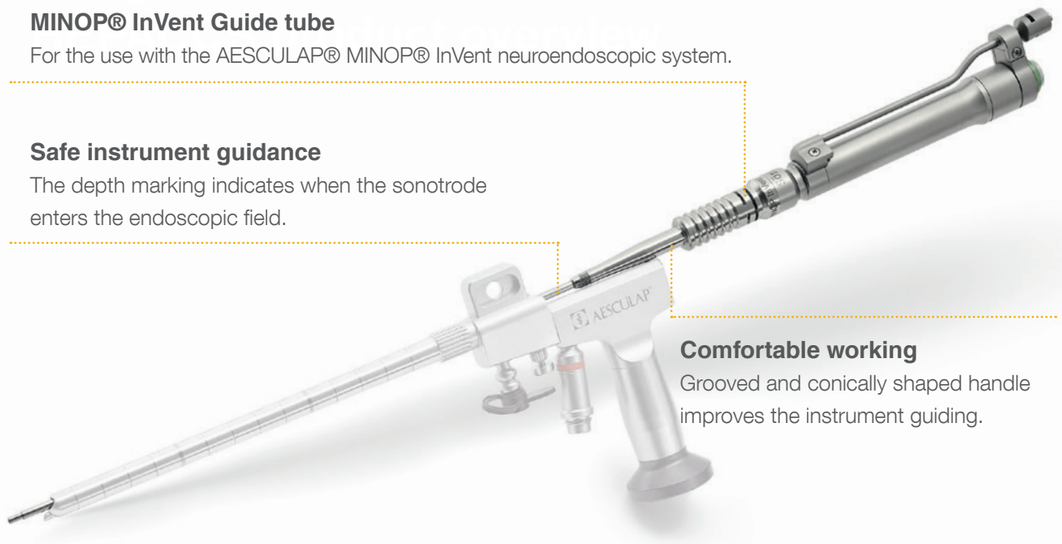


Endoscopic ultrasonic technique:

- *resection simply via a neuroendoscopic approach*
- *fast resection by simultaneous fragmentation and aspiration of tissue* [3]
- *clear visibility due to continuous irrigation flow* [4]
- *also efficient for firmer tumor tissue* [5,6]

MINOP® InVent Guide tube
For the use with the AESCULAP® MINOP® InVent neuroendoscopic system.

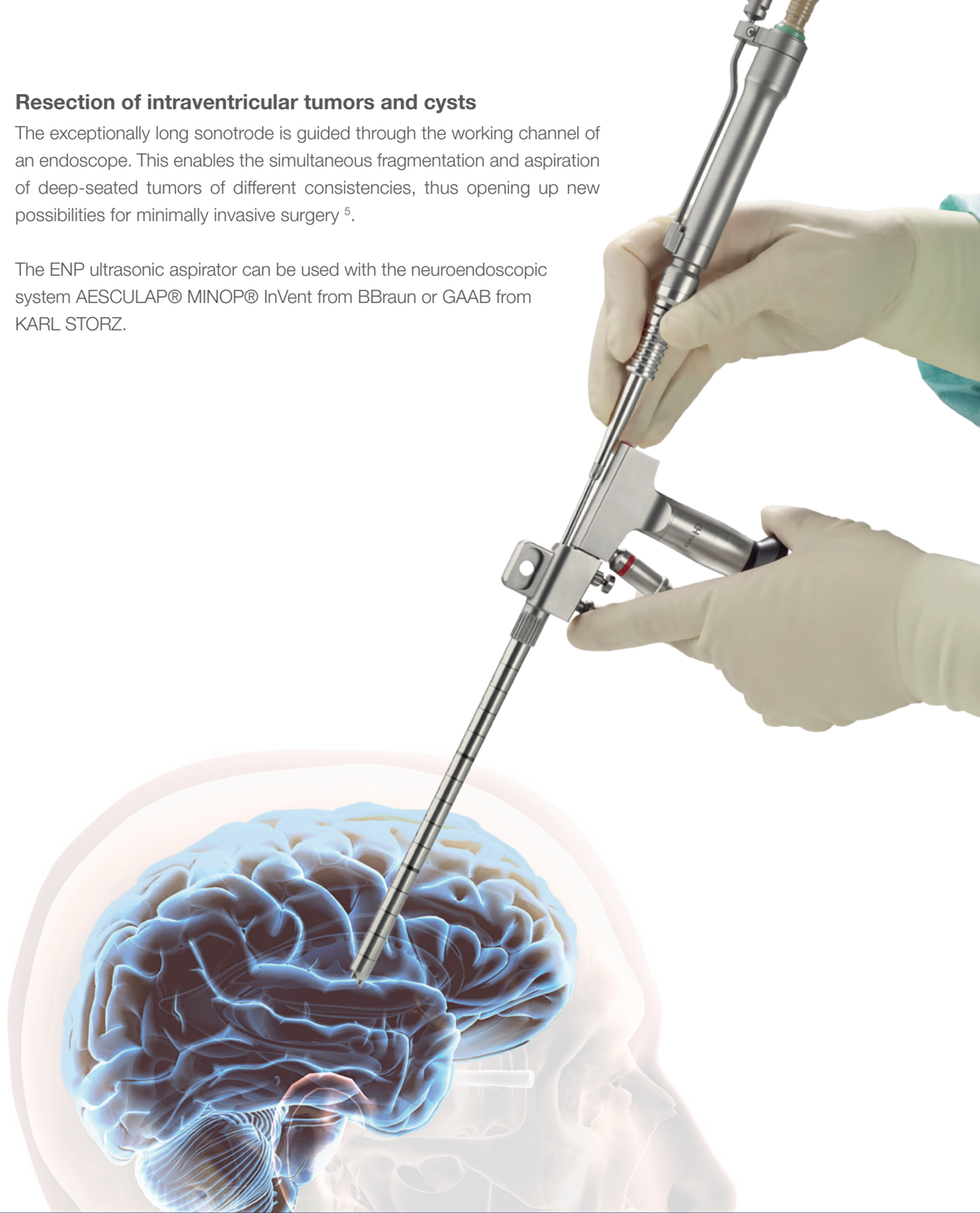
Safe instrument guidance
The depth marking indicates when the sonotrode enters the endoscopic field.



Comfortable working
Grooved and conically shaped handle improves the instrument guiding.

Resection of intraventricular tumors and cysts
The exceptionally long sonotrode is guided through the working channel of an endoscope. This enables the simultaneous fragmentation and aspiration of deep-seated tumors of different consistencies, thus opening up new possibilities for minimally invasive surgery [5].

The ENP ultrasonic aspirator can be used with the neuroendoscopic system AESCULAP® MINOP® InVent from BBraun or GAAB from KARL STORZ.



“The endoscopic ultrasonic aspiration with the Micro instrument ENP is a safe and reliable technique for extensive decompression or complete removal of intra- and paraventricular lesions.”

Prof. Giuseppe Cinalli, Head of the Department of Neurosciences and Head of the Division of Pediatric Neurosurgery, Santobono-Pausilipon Children‘s Hospital, Naples, Italy

“The ultrasonic aspirator allows a minimally invasive surgical resection of intra-/ paraventricular tumors. Especially in case of limited vascularized tumors, we are able to reduce the operation and anaesthesia time.”

Prof. Dr. med. Ulrich W. Thomale, Head of Paediatric Neurosurgery, Charité Universitaetsmedizin Berlin, Germany

[3] related to a standard neuroendoscopic approach
[4] inflow via the endoscopic system, outflow via ultrasonic aspirator
[5] Cinalli G, et al.: Initial experience with endoscopic ultrasonic aspirator in purely neuroendoscopic removal of intraventricular tumors, J Neurosurg Pediatr 19:325–332, 2017
[6] Ibanez-Botella G, et al.: Purely neuroendoscopic resection of intraventricular tumors with an endoscopic ultrasonic aspirator, Neurosurg Rev 1-10, 2018.
[7] working length with 616K0093 guide tube 92-030 for MINOP InVent: 268.0 mm | working length with 92-030 with guide tube for GAAB endoscope: 213.5 mm

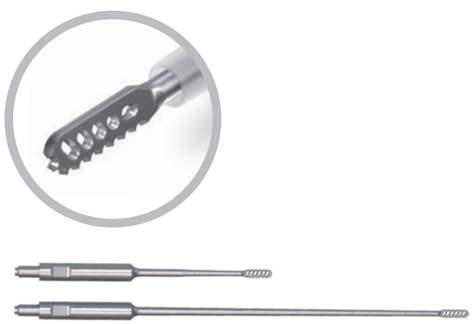
Bone instrument – making the difference:
precise on bone, gentle on critical structures

Surgical procedures on the spine are routine operations, but nevertheless highly demanding. Compared to conventional techniques, the use of the bone instrument enables precise preparation of the bone with less temperature development[7]. At the same time, surgery can be performed in close proximity to highly sensitive structures on the spine. These decisive effects are convincing in spinal surgery due to the numerous advantages for e.g. modeling or decompression procedures.

High surgical precision:
- *non-rotary technology*
- *knife geometry designed for precise cuts with a straight cut surface*
- *bone at the cut surface remains viable[8]*
- *rasp geometry designed for precise bone removal*

In the proximity of critical structures:
- *less temperature development[7]*
- *optimised for an effect on bone*
- *no additional pressure on already constricted areas*
- *no grabbing*

Knife sonotrode for precise cuts with a straight cutting surface, available in working lengths 36 mm and 101 mm



Rasp sonotrode for precise bone ablation, available in working lengths 36 mm and 100 mm

[7] Matthes, M., Pillich, D. T., El Refaee, E., Schroeder, H. W.S., Müller, J.-U.: Heat Generation During Bony Decompression of Lumbar Spinal Stenosis Using a High-Speed Diamond Drill with or without Automated Irrigation and an Ultrasonic Bone-Cutting Knife: A Single-Blinded Prospective Randomized Controlled Study. World Neurosurgery 2018; 111: e72-e81, https://doi.org/10.1016/j.wneu.2017.11.172

[8] Data available.

At a glance:
product overview

The SONOCA 300 ultrasonic generator

The SONOCA 300 is characterised by its high reliability and ease of use.

The advantages in brief:
- *integrated irrigation and aspiration function*
- *quick set-up with automatic self-test*
- *presetting of operating parameters*
- *easy and safe operation*

Bone instrument	
Article no.	**92-050**

Irrigation tubing	
Article no.	**700S0310**
Delivery | Reprocessing	sterile | single use

Knife sonotrodes		
Article no.	**612K0057-SET-10**	**612K0058-SET-10**
Working length sonotrode	36 mm	101 mm
Blade width	0.8 mm	0.8 mm
Blade length	10 mm	10 mm
Delivery | Reprocessing	sterile | single use	sterile | single use

Rasp sonotrodes		
Article no.	**612K0060-SET-10**	**612K0061-SET-10**
Working length sonotrode	36 mm	100 mm
Rasp area	4 mm²	4 mm²
Delivery | Reprocessing	sterile | single use	sterile | single use

Instrument Tray for LEVICS and bone instrument	
Artikel-Nr.	**616S0100**

At a glance: **LEVICS produkt overview**

LEVICS Micro instrument

Article no.	**92-501**

LEVICS torque wrench

Article no.	**616K0006**

Double tubing

Article no.	**700S0316**
Delivery | Reprocessing	sterile | single-use

LEVICS sonotrode and flue, standard



Article no.	**616K0051**	**616K0052**	**616K0053**
Working length sonotrode	36 mm	98 mm	108 mm
External Ø | Internal Ø of the sonotrode	2.0 mm | 1.4 mm	2.0 mm | 1.4 mm	2.3 mm | 1.7 mm
Delivery | Reprocessing	sterile | single-use	sterile | single-use	sterile | single-use

LEVICS sonotrode and flue, notched


Article no.	**616K0054**	**616K0055**
Working length sonotrode	37 mm	98 mm
External Ø | Internal Ø of the sonotrode	1.9 mm | 1.4 mm	2.0 mm | 1.4 mm
Delivery | Reprocessing	sterile | single-use	sterile | single-use

LEVICS sonotrode and flue, beveled


Article no.	**616K0056**	**616K0057**
Working length sonotrode	37 mm	97 mm
External Ø | Internal Ø of the sonotrode	1.9 mm | 1.4 mm	2.0 mm | 1.4 mm
Delivery | Reprocessing	sterile | single-use	sterile | single-use

Bundle: Micro instrument ENP for MINOP® InVent (consisting of the following items below)

Order no.	**92-030-MINOP-INVENT**

Micro instrument ENP

Article no.	**92-030**

Guide tube 92-030 for MINOP® InVent

Article no.	**616K0093**

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