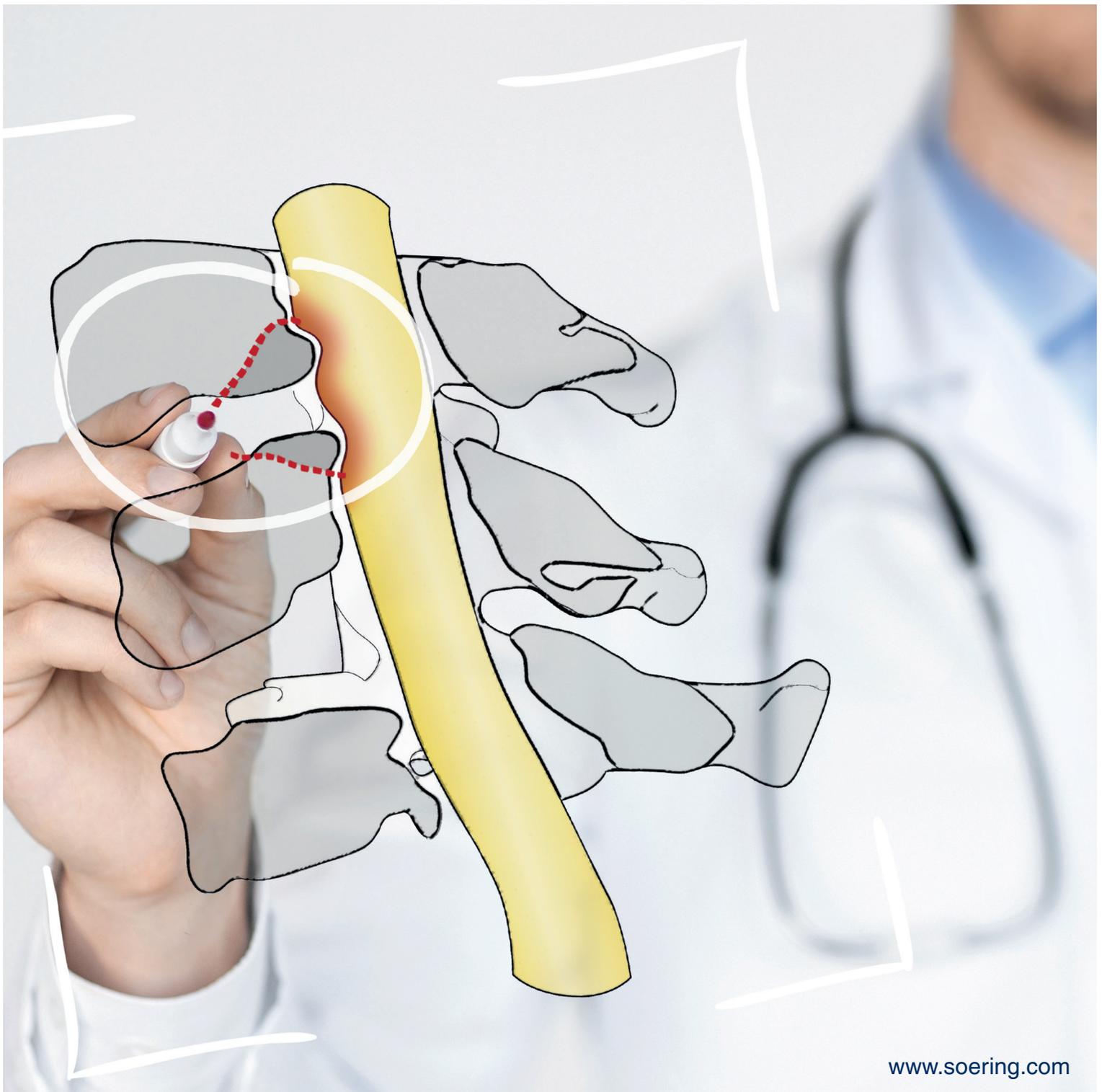




Precise on bone, gentle on critical structures:  
**Bone instrument - making the difference**



## → Spinal surgery with ultrasonic instruments by Söring: a range of different effects on tissue

While surgical procedures on the spine are routine operations, they are always very challenging. The ultrasonic bone instrument by Söring was developed specifically for the resection of bone. The ultrasonic technology offers the significant advantage that different effects are displayed distinctly and to varying degrees on various types of tissue. On bone, this consists primarily of mechanical removal, while mostly no effect is visible on tissue containing collagen with a high elastin content (e.g. blood vessels, nerve fibres, dura mater).

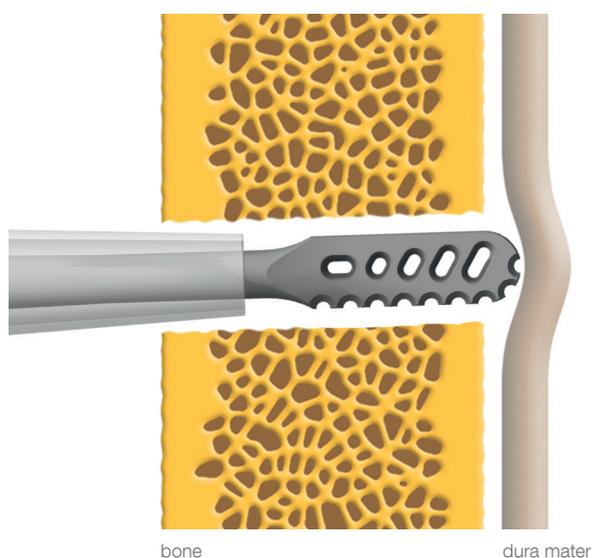
Compared to conventional techniques, the use of the bone instrument enables precise preparation of the bone with less heat development.\* At the same time, surgery can be performed in direct proximity to extremely delicate structures on the spine. These crucial features can make all the difference by offering numerous advantages in spinal surgery, e.g. for modelling 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\**
- *rasp geometry designed for precise bone ablation*

### In close proximity to critical structures:

- *less heat generation\**
- *optimised for work on bone*
- *pressure-free working in tight spaces*
- *no grabbing*



Ultrasonic vibrations and manual movement facilitate precise, controlled cutting through bone and targeted bone removal. Elastic structures are significantly more resistant to ultrasonic oscillations, enabling them to adapt to the oscillations in the event of contact and remain intact.

### For the toughest challenges

***'The precision, minimal heat generation and safety of the bone instrument significantly reduce stress for spine surgeons during complicated operations, particularly during procedures on the cervical spine.'***

M.Ch. Dr Shrinivas Rohidas, Director and Chairman Dr Rohidas' Centre for Minimally Invasive Spine & Neurosurgery, Kolhapur (India)

\* data on file

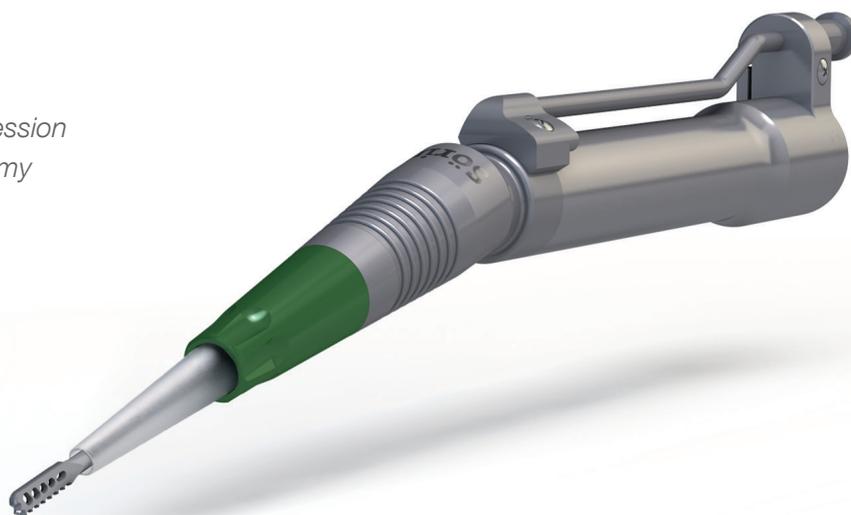
# The essentials at a glance: **precision and targeted bone preparation**

The bone instrument with its slim knife sonotrode ensures minimal bone loss and straight cutting edges on vital bone. Thanks to the ultrasonic oscillations, the sonotrode tip vibrates longitudinally 35,000 times per second. Cutting is so precise and fine that bone can be removed even in proximity to extremely delicate structures.

The bone is no longer ground before removal, but can be removed in pieces. Osteophytes causing problems can be resected and the bone material can be used for other purposes.

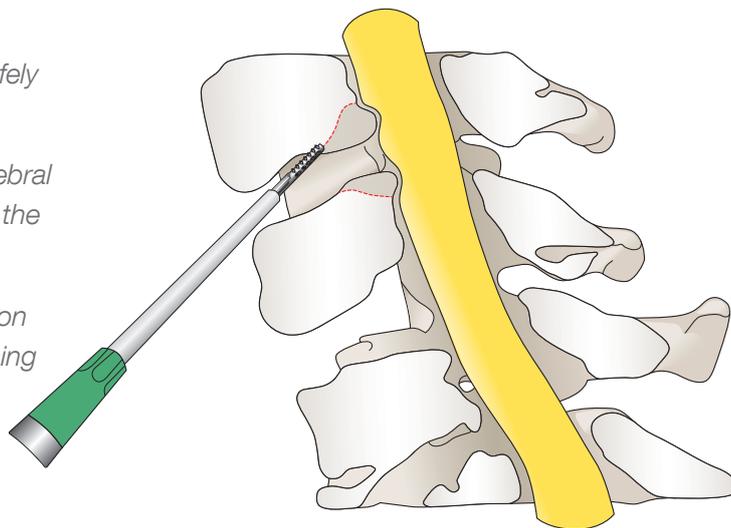
## Examples of indications

- (anterior) cervical decompression
- anterior cervical foraminotomy
- foraminotomy
- laminotomy
- laminectomy
- laminoplasty
- lumbar decompression
- accesses for fusions



## Resection of cranial osteophytes in cases of cervical spinal stenosis\*

- Osteophytes cause narrowing of the spinal canal and compression of the spinal cord.
- With targeted cuts, an osteophyte can be safely dissected into pieces and extracted.
- Cutting can be proceeded from the intervertebral disc space into the wider spinal canal above the stenosis.
- This procedure does not exert any pressure on sites where the stenosis is already compressing the spinal cord.



\*example of a procedure

## New method with huge potential

**'The use of an ultrasonic-assisted bone instrument changes the surgical procedure. Excessive bone matter is no longer milled, but removed entirely by the instrument.'**

Senior Physician Dr Jan-Uwe Müller, Deputy Director of the Clinic and Polyclinic for Neurosurgery, Greifswald University Hospital, Germany

# Product expertise: **proven quality, modular and ergonomic**



## **Flexibility and support:**

- *simple, intuitive assembly of the instrument and sonotrode*
- *single-use sonotrode with knife and rasp geometries in various working lengths*
- *instrument bodies can be completely autoclaved*
- *low instrument weight*
- *clear view of the surgical field thanks to ergonomic design*
- *clear surgical field thanks to integrated irrigation*

## **Sonotrode set (disposable accessory)**

- sonotrode
- flue
- torque wrench



# Overview of the product range:

## Bone instrument



Bone instrument	
Article no.	92-050
Length	180 mm
Weight with sonotrode	75 g -78 g
Angle	15°
Handle material	titanium
Irrigation	yes
Aspiration	without



Knife sonotrodes*		
Article no.	612K0057-SET-10	612K0058-SET-10
Working length	36 mm	101 mm
Knife width	0.8 mm	0.8 mm
Knife length	10 mm	10 mm


Rasp sonotrodes*		
Article no.	612K0060-SET-10	612K0061-SET-10
Working length	38 mm	100 mm
Rasp area	4 mm <sup>2</sup>	4 mm <sup>2</sup>

\*Sonotrodes are supplied as sonotrode sets consisting of the sonotrode, flue and torque wrench (sales unit: 10 sets).

### The ultrasonic generators by Söring

The Söring generators offer a range of uses depending on the series. The SONOCA 185 is compact in design and provides a specific range of performance, while the SONOCA 300 can be used for all applications of Söring products. Thanks to the plug-and-play function, all generators can be quickly and easily synchronised with the bone instrument.

#### SONOCA 185

- supports the bone instrument with a working frequency of 35 kHz
- supports UAW (Ultrasonic-Assisted Wound debridement) with a working frequency of 25 kHz
- integrated irrigation pump



#### SONOCA 300

- working frequencies of 25 kHz, 35 kHz and 55 kHz
- compatible with all Söring instruments for spine surgery, neurosurgery, liver surgery and UAW
- integrated irrigation pump
- integrated aspiration



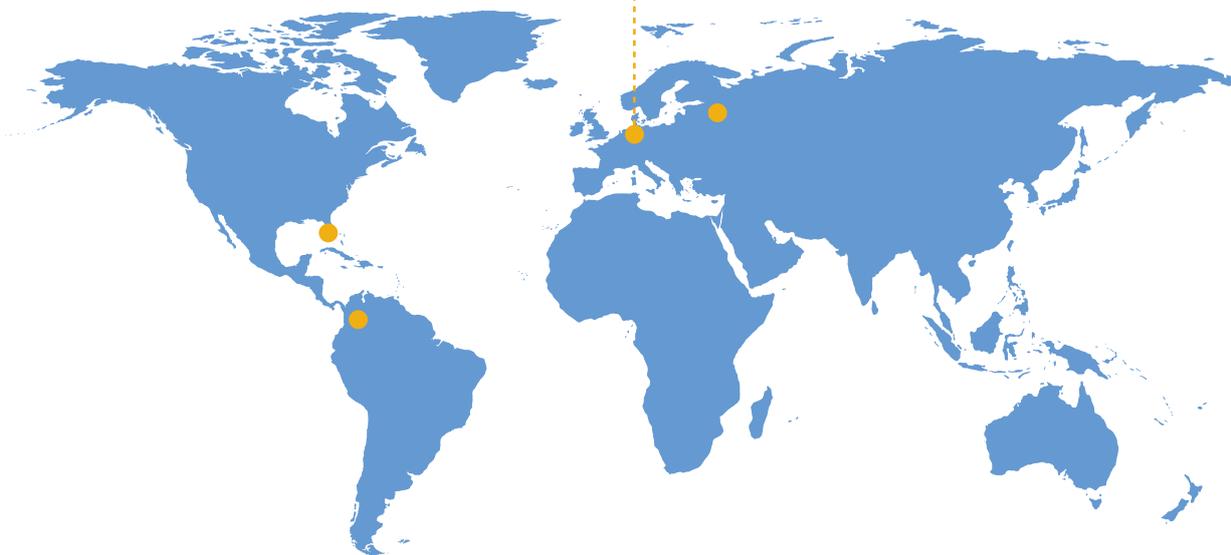
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