Safe and atraumatic ultrasonic piezo bone surgery

PIEZOTOME® Solo M+

PIEZOTOME® M+

IMPLANTCENTER® M+

COMEG medical is a company of the ACTEON® Group, specializing in endoscopic medical technology and ultrasonic piezoelectric systems.

- Customer-oriented and dedicated to continuous innovation
- Tailored offer to meet the needs of all operating room staff
- Intuitive techniques that guarantee performance, ergonomics and safety for all the specialties (gynecology, urology, general surgery, ENT, arthroscopy, CMF, spinal surgery)
- Partnership with surgeons and teams for approximately 40 years

COMEG medical creates intuitive and connected solutions for minimally invasive surgery.

Find out more on our YouTube channel

Local contact:
ULTRASONIC PIEZO CLINICAL BENEFITS

Ultrasonic piezo bone surgery was initially used by CMF surgeons and then extended to many other specialties, due to its great clinical benefits in oral and extra-oral surgeries:

Intra-operative

- **Safety**
  - Selective cut: soft tissues are preserved (nerve, arteries, dura mater)
  - Avoid bone overheating

- **Precision**
  - Thin & precise osteotomies
  - Maximize bone volume

- **Comfort**
  - No handpiece vibration
  - Low pressure

Post-operative

- **Smoothness**
  - Reduced pain
  - Less swelling and bruising
  - More natural results

- **Healing**
  - Favors bone regeneration
  - Fast recovery
  - Stable and long term results

When Safety & Efficacy Matter

MINIMALLY INVASIVE SURGERY

The generator produces a modulated frequency ranging from 28 to 36 kHz. This signal alternates between high and low amplitude, known as the PIEZOTOME® modulated mode. The bone is cut at a frequency close to its relaxation frequency, limiting the risk of injury to fragile anatomical structures [nerves, arteries]. Bone cutting is precise, cell regeneration is optimized and the healing is of high quality. The ultrasonic piezoelectric technology is suitable for any type of oral or extra-oral surgery where precision and safety is a must.

References

- Compendium (upon request). Ultrasonic Piezo Surgery.
NEWTRON® TECHNOLOGY

The Perfect Match

Ultrasonic power generators are piloted by patented NEWTRON® technology electronics. The electronic module, the handpiece and the tips are perfectly tuned providing great efficacy and clinical benefits.

PRESERVATION

Soft tissue preservation
- Safety: preserve soft tissue (Piezo modulated mode)

Bone preservation
- Highly precise cut
- Linear tip vibrations
- Controlled and regular tip amplitude

Frequency adjustment
- Maximum performance for each tip
- Optimal and continuous efficiency irrespective of the load applied

Power regulation
- Constant performance even in dense bone
- Effortless cutting without pressure

Efficacy

Efficacy
Electric current generates a deformation of the piezoceramic rings. The movement of these rings leads to vibrations, thus the tip vibrates in a very regular longitudinal movement.
- Patented electronic technology
- 6 ceramic rings for a boosted handpiece

EFFICACY

For both surgeon and patient
- Safe with effortless cutting
- Increased tactile sensation
- Reduced post-operative pain

COMFORT

PRESERVATION

Our powerful piezoelectric generators broaden the scope of surgical applications

When Safety & Efficacy Matter
THE CHOICE OF HIGH TECHNOLOGY

COMEAG devices are operating room certified. Approved by independent notified body, each device fulfills the most demanding medical regulatory standards. The advanced electronics prevent any interfering emissions. Find out more from your biomedical engineer.
CONCENTRATED ULTRASONICS

PIEZOTOME® Solo M+, compact and efficient, brings together all of the powerful, reliable and safe components of the M+ range for maximum performance and safety.

Clinical indications

Active on hard tissue while preserving soft tissue.
Small bones osteotomies, osteoplasties, drilling, smoothing where safety and precision are essential.

CONNECTED ACCESSORIES

PIEZOTOME® M+ LED handpiece
- Boosted handpiece: 6 ceramic rings
- Cold LED light for high visibility and low heat generation
- 3 m long cord adapted to the operating room environment

Peristaltic pump for controlled irrigation
- Quick set-up
- Robust
- Precise and constant flow rate (avoids bone overheating)
- Silent running

Footswitch (operating room certified IPX6 guarantee against water-jet)
Makes it possible to control the principal actions to respond to the sterile environment:
- Power mode
- Ultrasound ON/OFF

Concentrated ultrasonics for bone surgery in an easy and powerful device
PIEZOTOME® M+ is a versatile device. Its dual connection allows you to connect two handpieces thus enabling faster clinical procedures. Easy adjustment settings with its touch screen and multifunction footswitch for perfect control throughout the surgical procedure.

PIEZOTOME® M+ LED handpiece
- 2 handpiece connections
- Boosted handpiece: 6 ceramic rings
- Cold LED light for high visibility and low heat generation
- 3 m long cord adapted to the operating room environment

Touch interface
- Large 5.7” operator-oriented screen
- Easy and intuitive settings
- Memory function

Footswitch (operating room certified IPX8 guarantee watertightness)
Easy to move due to its arch, offers optimal control of the main functions:
- Power settings
- Choice of the active handpiece
- PIEZOTOUCH™ mode: progressive power regulation

The ultrasonic expert for fast and secure bone surgery

OPERATING ROOM CERTIFIED

PIEZOTOME® M+
IMPLANTCENTER™ M+ is a unique concept combining the power of a rotary motor and the safety of piezoelectric instrumentations. It therefore ensures total independence for the surgeon and leads to a multitude of surgeries.

The perfect alliance of rotating and ultrasonic technologies.

**The rotating motor**
- Cranio-Maxillo-Facial certified
- Durable (brushless motor): robust, maintenance-free
- No vibration
- Sterilizable for perfect asepsis

**Performances**
- Perfect balance between torque and speed for unmatched stability
- High torque: 6 Ncm
- Large speed rotation motor: 300 - 40,000 Rpm

**PIEZOTOME® M+ LED handpiece**
- Boosted handpiece: 6 ceramic rings
- Cold LED light improved and low heat generation
- 3 m long cord adapted to the operating room environment

**Footswitch (operating room certified IPX8 guarantee watertightness)**
Easy to move due to its arch, offers optimal control of the main functions:
- Global unit control
- PIEZOTOUCH™ mode: progressive power regulation
A COMPLETE OFFER

Find the device that matches your needs.

<table>
<thead>
<tr>
<th>DELIVERED WITH</th>
<th>PIEZOTOME® SOLO M+</th>
<th>PIEZOTOME® M+</th>
<th>IMPLANTCENTER™ M+</th>
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<tbody>
<tr>
<td></td>
<td>1x bracket</td>
<td>2x brackets</td>
<td>1x i-SURGE™ LED micromotor</td>
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<td>5x 3 m single use irrigation lines</td>
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<td>1x handpiece holder</td>
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<td>5x single use perforators</td>
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<td>1x IPX6 M+ footswitch</td>
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<td>1x M+ wrench</td>
<td>1x M+ wrench</td>
<td>1x IPX8 M+ multifunction footswitch</td>
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<td>1x 3m mains cord</td>
<td>1x 3m mains cord</td>
<td>1x M+ wrench</td>
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AS AN OPTION

M+ Pack Ref. F57802
1x autoclavable metal case,
1x PIEZOTOME® M+ LED handpiece and its 3m long cord,
1x M+ wrench

CONSUMABLES

Kits & tips
Disposable, delivered sterile
5x re-usable, delivered non-sterile

Disposable irrigation line
Ref. F57378 x1
Ref. F57379 set of 5
Performance comes together with specifically designed long lasting durable components.

**Handpiece – POWERFUL**
- LED handpiece fully sterilizable
- Delivered in its autoclavable metal case
- Ready for sterilization
  Ref. FS7802

**Tips – ROBUST**
- Designed to respect the patients anatomy
- Fast assembly screwing system: saves time during surgery
- Medical grade stainless steel
- Strengthened by thermic and surface treatments
- Synthetic diamond-coated tip
- Sterile tips treatment: gamma-ray

**Pump & Irrigation – SAFE**
A perfect control of irrigation is necessary for:
- Removing bone debris
- Reducing the risk of bone necrosis
- Generating a hemostatic effect due to the cavitation (implosion of microbubbles releasing oxygen)
ULTRASONIC CRANIO-MAXILLO-FACIAL SURGERY

Piezoelectric surgery is a new bone cutting technique increasing safety especially in anatomically difficult to reach areas. Micrometric vibrations ensure very thin and precise osteotomies with stable and long term results for a broad range of clinical applications.

**Cranio**
- Frontal sinus osteotomy
- Craniosynostosis
- Parietal graft

**Maxillo**
- LeFort I osteotomy
- Bilateral Sagittal Split Osteotomy (B.S.S.O)
- Genioplasty

**Facial**
- LeFort II & III osteotomy
- Zygomatic bone osteotomy
- Reconstruction

The M+ Piezosurgical device, for the first time in the history of Piezoelectric-Surgery provides sufficient power for a fast surgical procedure in all cases of large osteotomies in orthognathic surgery, reconstructive surgery needing large autologous bone-transplants from the skull and in cosmetic surgery on facial hard-tissues. With its unrivaled precision and atraumaticity in bone-cutting CMF surgical procedures can usually be completed in less time than with traditional rotary or oscillating instruments with substantially less blood loss. In facial cosmetic surgery the application of newly developed ultrasonic surgical protocols provide a significant reduction of postsurgical morbidity and enhanced patient satisfaction with the outcome.

**FOR SAFER AND MORE ACCURATE SURGERY**

**CMF Kit**  
<table>
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<tr>
<th>BS1L</th>
<th>BS2L XL</th>
<th>BS2R XL</th>
<th>BS1RD</th>
<th>SL1</th>
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- BS1L - Saw
  - Saw (0.6 mm) with laser marking at 3, 6, 9, 12 and 15 mm
  - Deep osteotomy

- BS2L XL & BS2R XL - Left & Right angled saws
  - Long lateral saws (39.5 mm length) for easier access adapted to patients anatomy
  - Osteotomy

- BS1RD - Rounded saw
  - With its rounded shape the tip is active on a 280° surface and its length (40 mm) makes it possible to reach posterior areas easily

- SL1 - Diamond-coated
  - Vestibular bone window cut
  - Smoothing of sharp angles
  - Bone incisions close to delicate structures

- BS4 - Circular scalpel
  - Osteoplasty
  - Bone harvesting

*Courtesy of Dr Troedhan, Vienna, Austria*
*Courtesy of Dr Solyom, Toulouse, France*
ULTRASONIC RHINOPLASTY

A smooth and less traumatic procedure offering precise bone reshaping and controllable long term results.

Precise bone treatment

• The new ultrasonic rhinoplasty protocol allows default corrections (nose too hard, too wide or bumpy) with no unwanted fracture even on brittle, thin or unstable bones.

Direct vision

• Surgery performed under direct vision for better precision.

Fast recovery

• Faster social-life re-integration: less ecchymosis and edema with more natural results.

Ultrasonic rhinosculpture

RHS2F and RHS2H tips allow to sculpt bones without any fracture.

Rhinoplasty with precise osteotomies

--- Low osteotomy – RHS5
--- Lateral osteotomy – RHS3L or RHS3R
--- Transverse osteotomy – RHS3L or RHS3R
--- Median oblique osteotomy – RHS5

Dr Gerbault MD, Vincennes, France

Piezoelectric surgery is a real disruptive technology in rhinoplasty, it allows a paradigm shift in the way of reshaping bones in rhinoplasty. It simplifies dramatically the way to perform hump reduction and osteotomies in rhinoplasty and adds a new dimension by allowing the possibility to sculpt and to polish nasal bones. Stable bones can be positioned with an unparalleled accuracy under direct vision and reshaped to achieve a perfect symmetry and smoothness of the bony vault. Moreover, this technique is easy, with a quick learning curve, simple to teach and the recovery is very fast as post-op ecchymosis is significantly reduced. For the first time in the history of rhinoplasty, a custom reshaping of the nasal bones is easily achievable.

DESIGNED FOR RHINOPLASTY

Developed in collaboration with Dr Gerbault, these tips are designed for a total respect of the anatomy (smoothness), they do not alter the skin nor the vessels for shorter post-surgical recovery.

Rhinoplasty Gerbault Kit

RHS2F - Fine rasp

RHS2H - Hard rasp

RHS3L & RHS3R - Rounded saws

RHS5 - Thin saw

RHS6 - Diamond-coated

RHS2H - Hard rasp

Use on thick skin or dense bone

• Fine reshaping of the nose pyramid
• Removal of the bony hump
• Smoothing of bone irregularities

RHS2F - Fine rasp

Use on thin skin or thin bone

RHS3L & RHS3R - Rounded saws

Left & Right angled saws
• Lateral and transversal osteotomies

RHS5 - Thin saw

Straight thin saw
• Low osteotomy
• Median oblique osteotomy
• Rib graft

RHS6 - Diamond-coated

Diamond-coated tip dedicated to nasal bone drilling or nasal spine drilling
• Bone suture
• Septal suture to bone

Bone removal

Courtesy of Dr Gerbault, Vincennes, France (RHS2H tip)
OTHER KITS AND TIPS TO COMPLETE THE RANGE

OSTEOTOMY/OSTEOPLASTY
Clean and thin cut for maximal bone volume
Ref. F57805

OSTEOPLASTY

CROWN EXTENSION
Excellent precision and accessibility
Ref. F57810

LATERAL SINUS LIFT
Maximal comfort: selective and hemostatic cut
Ref. F57806

CREST SPLITTING
Rapid and minimally invasive technique for controlled expansion
Ref. F57808

CRESTAL SINUS LIFT
Minimally invasive surgery for smooth sinus floor fracture
Ref. F57807

SYNDESMOTOMY
For maximum bone preservation
Ref. F57809

CREST SPLITTING

CRESTAL SINUS LIFT

LONG LENGTH TIPS FOR MINIMALLY INVASIVE TECHNIQUES AND EASIER ACCESS

SYNDESMOTOMY

Clinical Expertise