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// Advantages for the patient

Magnetic Mallet is the most innovative surgical device able to improve working standards in dental surgery and implantology.

| 01 | NO MORE BPPV SYNDROME |
| 02 | LESS TRAUMA DURING SURGERY |
| 03 | FASTER RECOVERY |
| 04 | NO BONE LOSS |
| 05 | IMPROVING POOR BONE QUALITY |
// Advantages for the doctor

06 Better **VISIBILITY** and **CONTROL**
07 Simplified **BONE AUGMENTATION** procedure
08 Precision in osteotome positioning and alignment
09 Higher initial implant **STABILITY**
10 Limitation of bone **MILLING**
11 Creating more implant **SITES**
12 Elimination of sinus lift with **CALDWELL-LUC**
13 Alveolar integrity **PRESERVATION**
14 Better **ACCESS** to posterior **MAXILLA**
15 Simplification of surgery on **LOWER JAW**
16 Faster **TECHNIQUE**
17 Assisted **IMPLANT INSERTION**
// Magnetic Mallet

**Why is Magnetic Mallet revolutionary?**

Because it’s a totally innovative and unique surgical device that can be used in all dentistry techniques, from the simpler to the more complex one.

Magnetic Mallet originates as an evolution of Summers’ osteotome technique, keeping all its advantages and removing all the drawbacks and the inconveniences of the manual practice.

Designed to be used in dentistry surgery and implantology, this device is giving the surgeon a series of facilities in all the advanced bone augmentation procedures such as sinus lift, split crest and ridge expansion, avoiding the use of milling and drills.

Moreover the several specific instruments, supplied with, simplify the roots, implants and impacted teeth extraction enabling alveolar integrity preservation as well as the crown and bridges removal.

Thanks to the Magnetic Mallet the surgeon can operate with a greater visibility and control, preserving the bone and assuring the greatest possible comfort to the patient, both in complex implant surgeries and in simple extractions.

That’s why Magnetic Mallet features of innovation, safety and ergonomics make it such a versatile device enabling the majority of surgical practices to be performed in an easier, safer and faster way obtaining fulfilling and predictable results.

Magnetic Mallet with its several optional instruments and handpieces, from the PLUS handpiece exploiting 30% higher forces to the Crown Remover, can be the most versatile device to be used in everyday surgery.
How does Magnetic Mallet works?

Magnetic Mallet exploits an electro-magnetic, electronically operated collision between two masses, allowing to get a high intensity impact applied in a very short timing creating an elastic wave, followed by a quantity of motion, which expresses itself in an inelastic shock wave on the bone.

This facilitates the plastic deformation of the bone and, by inverting the movement, enables riskless crown and bridges removal.

Magnetic Mallet is designed to apply four forces of different strength, from the lighter one (force number 1) to the stronger one (force number 4) and can be used with three different handpieces, according to the practice to be carried out (see graphic 01).

Comparison applied forces of a manual surgical hammer and Magnetic Mallet Level 1,2,3,4 (daN/μs)

Tests conducted at CNR - Centro Nazionale di Ricerca - University of Milan - MIUR
If we compare a surgical hammer impact going from 60 to 80 daN applied in 300 microseconds, to the Magnetic Mallet one, going from 65 to 260 daN applied in 120 μs, it’s clear that the whole impact will affect only the bone mass on which the doctor operates and not the whole craniofacial mass. This means no more problems of distress for the patient such as dizziness, vertigo, nausea (BPPV) due to the displacement of the otoliths in the inner ear (see drawing 02).

A further advantage of the handpiece, combining surgical hammer and instrument, is to give the surgeon the possibility to use just one hand to carry on the surgery, thus getting a higher control and visibility.

That way he can be more defined in instrument entry direction and directionality avoiding all deviation caused by the varying density of the bone.

Ultimately with just one control unit, he can activate three different handpieces exploiting different kind of surgeries.

“You can’t expect things to change if you let yourself become lodged in a routine”

(Albert Einstein).
// Standard Supply

01 Blades
02 Control Unit
03 Footswitch
04 Osteotome Handpiece
05 Osteotome - standard kit tray
// Osteotomes

Osteotomes are the heart of Summers’ technique in implantology. Now you can use them with Magnetic Mallet, avoiding all disadvantages of the manual technique and, once you use them, they will become the pulsing heart of this technique.

The whole range of bone expanders/osteotomes, cutters and surgery instruments for Magnetic Mallet has been designed in collaboration with a brain trust and are the outcome of clinical tests and relevant feedback.

The initial and final diameters are laser-marked on each piece to make instruments easy to organize and use. They are available both in an autoclavable container and separately. All instruments are made of surgical grade 630 stainless steel.

The surgeon can establish the suitability of each instrument according to the implant system in use and the surgery to be carried on

Surgery instruments are available both in the autoclavable tray and separately.
//STANDARD KIT  (supplied with the Magnetic Mallet)

**Bone Expanders**
Suitable for bone augmentation and compression. Available with 1,00 - 2,00 and 3,00 mm dia on the tip.

**Beaver**
Fitted for the initial cut of the bone crest.
Long 73,5 mm*.

**Cutter**
Designed for bone crest expansion.

**P. BEAVER**
**BLADE**
**CUT**

*we suggest to use Swann-Morton SM-64 blades, but the beaver is compatible with any disposable blade.

**Inserter**
Instrument to insert the dental implant.

**Extractor**
Instrument for the abutment and root extraction.
// Tools on demand: Optional instruments

**Bone Expander (160)**
Suitable for bone expansion. 1.60 mm dia.

**Inserters**
Hexagonal internal surface - 3.50 mm hexagone.

**Double-bended Instruments**
Double bended version available for all instruments, except for the Beaver.

--

**Bone Expander (160)**

Suitable for bone expansion. 1.60 mm dia.

**Inserters**

Hexagonal internal surface - 3.50 mm hexagone.

**Double-bended Instruments**

Double bended version available for all instruments, except for the Beaver.
These instruments have been designed with a shape and depth differing from the standard ones and are suitable for specific applications.

All these instruments can be ordered both in their autoclavable tray and separately.
Tools on demand: Extractors

Extractors
Specific instruments for roots and teeth extraction.

Scalpel bone expanders
Instruments for split crest on bone.

Bone expander scalpel
Flat tip scalpel. Specific for mono-directional split crest.

Scalpel bone expander
Round tip scalpel thickness 2.00 mm.

Tapered bone expander
Suitable as initial instrument to avoid milling.

Extractor
Short spoon-shaped. Its curved shape fits with roots anatomy.

Extractor
Long spoon-shaped. Its curved shape fits with roots anatomy.

Extractor
Tapered tip, flat surface on both sides. Specific for wisdom-teeth.

Extractor
Tapered tip, flat surface on both sides. Specific for wisdom-teeth.

Extractor
Tapered tip, flat surface on both sides. Specific for wisdom-teeth.
The PLUS handpiece is the most recent evolution of Magnetic Mallet increasing its intended use and giving the surgeon further support in surgery.

This handpiece has been designed to provide a 30% higher force than the standard one, in order to facilitate the surgeon in penetrating the maxilla bone, which has a greater density, and to easily extract impacted teeth or roots.

This handpiece allows the surgeon to facilitate both upper and lower jaw surgery. In that way the surgery will be faster, riskless and much less invasive for the patient.

Moreover this handpiece, having all the features of the standard one, gives the surgeon the possibility to always have a second handpiece ready for use.

The PLUS handpiece is supplied in its suitcase containing expanders, extractors and some optional osteotome.
The Crown Remover handpiece, can be considered a further evolution of the Magnetic Mallet and it’s intended to remove crown and bridges.

This handpiece can be used coupling it to the power supply, through the same connector entry used for osteotome handpiece, this allows the surgeon to use Magnetic Mallet, also when a crown or a bridge has to be easily and safely removed.

The handpiece working is the same one of the osteotome version, but the power is applied in reverse and it’s conveying an extractive calibrated pulse which is adjusted according to the selected power supply force (1-4).

This calibrated pulse enables the deformation and the breaking of the retention cement with the consequent loosening of the crown or of the bridge. Thus the removal will be safer, easier and faster, avoiding distress to patient.

Thanks to the Crown Remover handpiece the doctor will avoid milling of the crown or the bridge, saving time and guaranteeing a higher comfort to the patient.

Though the surgeon to verify the feasibility of the surgery and the force should always be applied with Magnetic Mallet, in relation to the abutment fragility.

The Crown Remover handpiece is supplied in its suitcase containing also 3 hooks and their dedicated container which can be sterilized by autoclave.
// Clinical pictures

Split crest using the Magnetic Mallet
By courtesy of Dr. M. Csonka
For the operator the advantages of using Magnetic Mallet, compared to traditional techniques, are:
maximum respect of bone tissues, highest intra-surgery precision, best operating speed without any eating of the tissues and the possibility to position implants in a bone with reduced volume.

Dr. R. Crespi – Italy
I've been using Magnetic Mallet since eight months and it has immediately become one of the key elements in the surgery room outfitting.

The instrument perfectly performs the function it was designed for, which is to make more acceptable for the patient all the maneuvers to be carried out in order to obtain the bone structure division and modification and, if needed, to extend it in a way of creating a surgical alveolus for the implant accommodation.

Using Magnetic Mallet and its various instruments it's now possible to perform, with a great control and a high threshold of acceptance by the patient, the maneuvers necessary to get both horizontal and vertical bone expansion in the patient site or in the sites that should accommodate the implant.

Prof. G.B. Bruschi – Italy

Very good initial stability of implant due to packing bone rather than removing the bone as with other systems. Automatic correction of buccal alveolar bone defects when preparing the site. This overcomes a major obstacle in esthetic implant surgery.

Dr. A. Celik – Spain

I really like to use the Magnetic Mallet. This is a great tool! It's a chisel and a hammer in a high tech version. In the oral surgery operating room it became a standard equipment.

Dr. Gaspar Lajos - Hungary
The introduction of the magnetic mallet device in our training and clinical setting has broadened the field of minimal invasive indications, increased the safety of the described techniques, reduced the patient's discomfort so far without any substantial adverse effects.

Univ.Prof. DDr. Werner Zechner, Private Practice & Dental University Clinic Vienna

I found the Magnetic Mallet an incredibly useful addition to my armamentarium. I used the instrument mainly in the preparation of osteotomies in the posterior maxilla for indirect elevation of the Schneiderian membrane and I found much easier to keep the correct positions and angulation of the osteotomes. Patients feedback regarding eventual discomfort was very encouraging and based on my clinical observations I would have no objection in endorsing this product as I can see it being an integral part of my practice.

Dr. Kia Rezavandi - England

I very rarely get impressed by different dental devices, but this piece of machinery is fantastic, especially for extractions, removal of cemented constructions, sinus lifts and implant site preps. I see it as "must haves" at your departments. This is just a strong recommendation to perform our work easier and more efficient.

Dr. B. Friberg - Sweden
// Testimonials

“For the operator the advantages of using Magnetic Mallet, compared to traditional techniques, are: maximum respect of bone tissues, highest intra-surgery precision, best operating speed without any eating of the tissues and the possibility to position implants in a bone with reduced volume.”

Dr. R. Crespi – Univ. Prof. at San Raffaele Institute – Milan/Italy

“The introduction of the magnetic mallet device in our training and clinical setting has broadened the field of minimal invasive indications, increased the safety of the described techniques, reduced the patient’s discomfort so far without any substantial adverse effects.”

Prof. G.B. Bruschi – Assistant Prof. at Boston University – Italy

“I found the Magnetic Mallet an incredibly useful addition to my armamentarium. I used the instrument mainly in the preparation of osteotomies in the posterior maxilla for indirect elevation of the Schneiderian membrane and I found much easier to keep the correct positions and angulation of the osteotomes. Patients feedback regarding eventual discomfort was very encouraging and based on my clinical observations I would have no objection in endorsing this product as I can see it being an integral part of my practice.”

Dr. W. Zechner – Univ. Prof. at Dental University Clinic – Wien/Austria

“I really like to use the Magnetic Mallet. This is a great tool! It’s a chisel and a hammer in a high tech version. In the oral surgery operating room it became a standard equipment.”

Dr. B. Friberg – Co-chairman of Branemark Clinic – Gotheborg/Sweden

“Very good initial stability of implant due to packing bone rather than removing the bone as with other systems. Automatic correction of buccal alveolar bone defects when preparing the site. This overcomes a major obstacle in esthetic implant surgery.”

Dr. A. Celik – Spain
The aim of Meta Ergonomica is to create ergonomically designed devices in order to optimize overall system performances. As a matter of fact ergonomics is the scientific discipline concerning the understanding of interactions between the elements of a system and their end use. Safety, suppleness and ease of use are quality factors leading the device to be considered "ergonomic".

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