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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 Better **access to posterior maxilla**
14 Simplification of surgery on **lower jaw**
15 Faster technique
16 Assisted **implant insertion**
// Magnetic Mallet

Why is Magnetic Mallet revolutionary?

Because it’s a totally innovative and unique surgical device to 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 eliminating all the drawbacks and the inconveniences of the manual practice.

This device, designed to be used in dentistry surgery and implantology, 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 usage of milling and drills.

Moreover the several specific instruments, supplied with, simplify the roots, implants and impacted teeth extraction 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’s features of innovation, safety and ergonomics make it such a versatile device that the majority of surgical practices can be done in an easier, safer and faster way obtaining fulfilling and predictable results.

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

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, all that permits you to get an elastic wave, followed by a quantity of motion, which expresses itself in an inelastic shock wave on the bone.

This lets you obtain the plastic deformation of the bone and, by inverting the movement, a 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)
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. In that way no more problems of distress for the patient causing 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 in carrying 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 dissimilarity in the density of the different parts 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.

In our instruments the initial and final diameters are laser-marked on each piece to make osteotome organization and use easier and they are available both in an autoclavable container and separately. All instruments are made of A630 surgical grade stainless steel.

The surgeon will establish the suitability of each instrument according to the used implant system and the practice to be carried out.

Surgery instruments are available both in the autoclavable tray and separately.
Bone Expanders
Suitable for bone augmentation and compression. Available with 1.00 - 2.00 and 3.00 mm dia on the tip.

Suitable for augmentation of the implant site. Available with 2.30 - 3.30 and 3.60 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.

Inserter
Instrument to insert the dental implant.

Extractor
Instrument for the abutment and root extraction.

* we suggest to use Suann-Morton SM-64 blades, but the beaver is compatible with any disposable blade.
// Tools on demand: Optional instruments

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

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

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

Bone expander (160)
Suitable as initial instrument to avoid milling.

Bone expander a punta
Round tip scalpel thickness 2.00 mm.

Round tip scalpel thickness 3.50 mm.

Suitable for bone expansion. 1.60 mm dia.

**Optional instruments**

**Double-bended**: Suitable for bone expansion. 1.60 mm dia.
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: Optional instruments

**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.

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*Round tip scalpel thickness 3.50 mm.*

*Specific for wisdom-teeth.*

*Flat tip scalpel. Specific for mono-directional split crest.*
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 at disposal.

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

The handpiece can be used simply coupling it to the power supply, through the same connector entry used for osteotome handpiece, that way the surgeon can 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 allows the surgeon to achieve the deformation and the breaking of the retention cement with the consequent loosening of the crown or of the bridge to be removed in an easier, faster and safer way.

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

Anyhow it will always be up to the surgeon to verify the feasibility of the surgery and the force to 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.
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
- 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

Thanks to Magnetic Mallet it’s possible to execute mini sinus lift in a simpler way as you can have the immediate implant positioning, where it’s suitable, such way obtaining a faster recovery path; this also allows to avoid the execution of other more invasive surgeries, such as a sinus lift with cladwell luc, which oblige to have the implant insertion after 6 months from the surgery.

Dr. L. Arduini – 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. 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

Bone compression and horizontal expansion using Magnetic Mallet

By courtesy of Dr. R. Crespi

Crown removal with Magnetic Mallet Crown Remover handpiece

By courtesy of Dr. G.B. Bruschi
// 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.”

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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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