

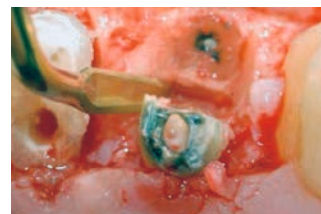
..... MECTRON PIEZOSURGERY®
PIEZOELECTRIC EXTRACTIONS
TO SIMPLIFY IMPLANTOLOGY



mectron

PIEZO-EXTRACTIONS - ALVEOLAR BONE PRESERVATION FOR A SIMPLIFIED IMPLANT TREATMENT

For centuries, extractions were performed with levers and forceps — effective, but often traumatic for bone and soft tissues. With the introduction of piezoelectric surgery in 2001, a new era began: precise, less traumatic and versatile extractions. From the start, tooth extraction was a core focus of PIEZOSURGERY®, pioneered 1997 by Tomaso Vercellotti developing the original EX1 insert, the most common shape worldwide.



Today, thanks to several years of research* and clinical evaluation the portfolio has expanded to include longer, thinner instruments, solutions for inflammatory tissue removal, and dedicated inserts for complex cases. These innovations give clinicians full control, enabling extractions with precision, safety, and confidence, while preserving the surrounding anatomy hard and soft tissues even in ankylotic root extractions.



DIFFERENT TYPES OF EXTRACTIONS - DIFFERENT CHALLENGES

Every extraction is a case of its own. A pre-extraction diagnosis makes it possible to define the degree of difficulty and to select the most appropriate tools and surgical protocol.

Anatomical classification	Periodontal biotype thickness	Periodontal ligament	Risk of tissue damage	Surgical difficulty	Technique	Tool
Type 1	normal	normal	low	easy	standard	manual or PIEZOSURGERY®
Type 2	thin	normal	high	easy	advanced	PIEZOSURGERY®
Type 3	normal	ankylotic	low	difficult	advanced	PIEZOSURGERY®
Type 4	thin	ankylotic	very high	very difficult	advanced	PIEZOSURGERY®

Periodontal ligament thickness

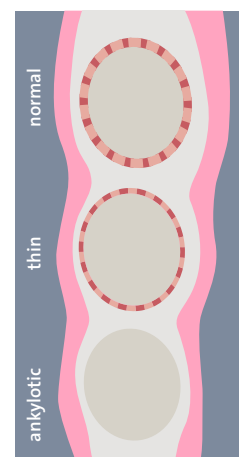


Table: Vercellotti, T. (2020) Piezoelectric Bone Surgery - A New Paradigm. Quintessence Publishing USA. ISBN 978-0-86715-832-8.

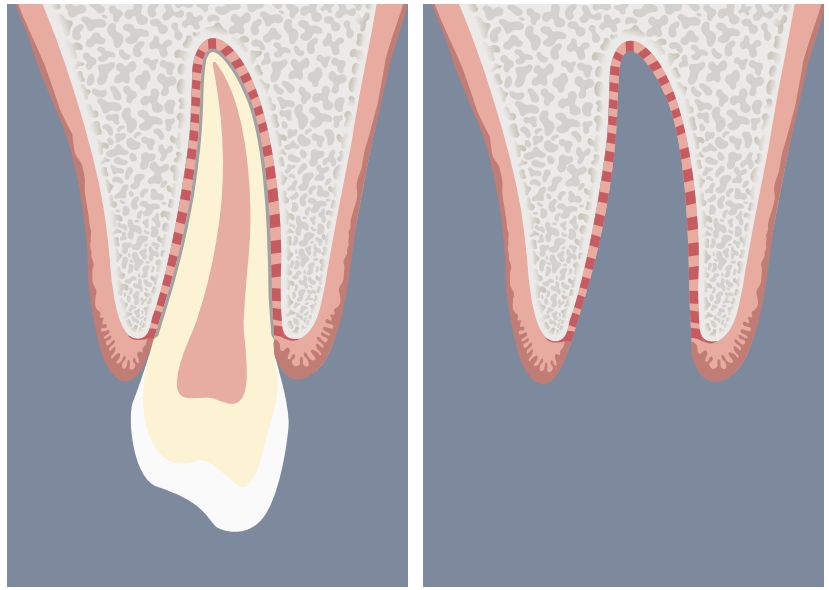
* please find the QR-code for the bibliography on the back cover

→ CLINICAL OUTCOMES MATTER - PRESERVE ALVEOLAR BONE. PROTECT SOFT TISSUE

In complex extraction cases – such as multi-rooted or ankylosed teeth – manual instruments and traditional burs often reach their limits. Scientific evidence has shown that burs can be aggressive, increasing the risk of trauma and compromising alveolar bone integrity. These limitations highlight the need for a more precise and atraumatic approach.

This is where piezoelectric instruments set a new standard.

The inserts, through the mechanical action of ultrasonic micro-vibrations, provide a more precise and controlled cutting action compared to manual instruments. Unlike periostomes or syndesmotomes, which require greater force and carry a higher risk of damaging the alveolar bone, piezoelectric micro-vibrations allow targeted cutting with minimal pressure. This results in enhanced intra-operative surgical control, reduced iatrogenic risks, and improved preservation of surrounding structures. The result is a predictable preservation of the alveolar structure, fewer complications, and the creation of ideal conditions for long-term implant success.

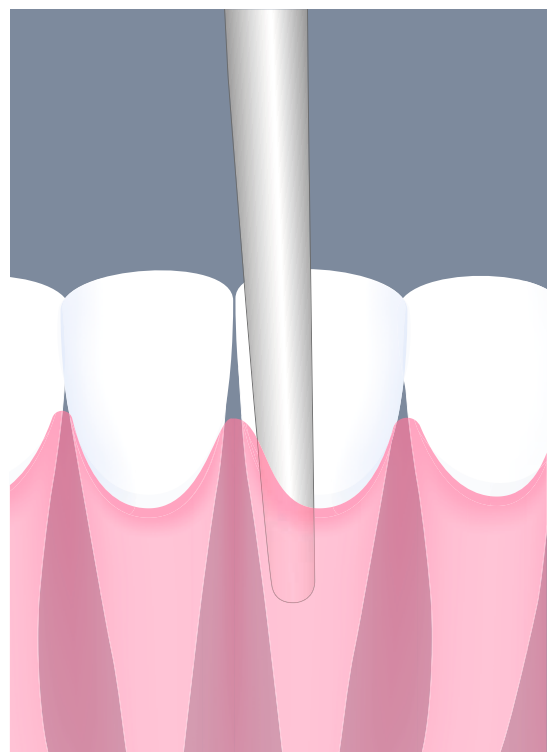


→ FROM PERIOTOMY TO EXTRACTION - A REDEFINED WORKFLOW

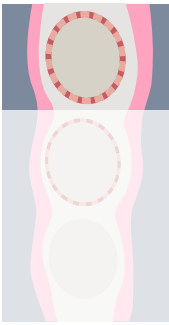
Up to now, the extraction technique has consisted of three maneuvers performed with manual instruments:

- 1:** Periostomy of the periodontal attachment with a scalpel.
- 2:** Luxation of the periodontal ligament with levers.
- 3:** Extraction of the root with forceps.

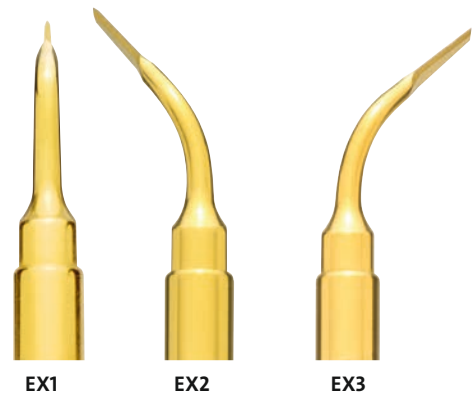
This technique remains the first choice in cases of normal anatomy. Today, however, dental extraction has gained greater importance, since the ultimate goal is to remove a hopeless tooth while preserving the integrity of the alveolar bone for implantology. This necessity has led to the integration and, in some cases, replacement of manual instruments with piezoelectric ones in order to increase performance and safety.



→ INSERTS EX1, EX2, EX3 STANDARD EXTRACTIONS

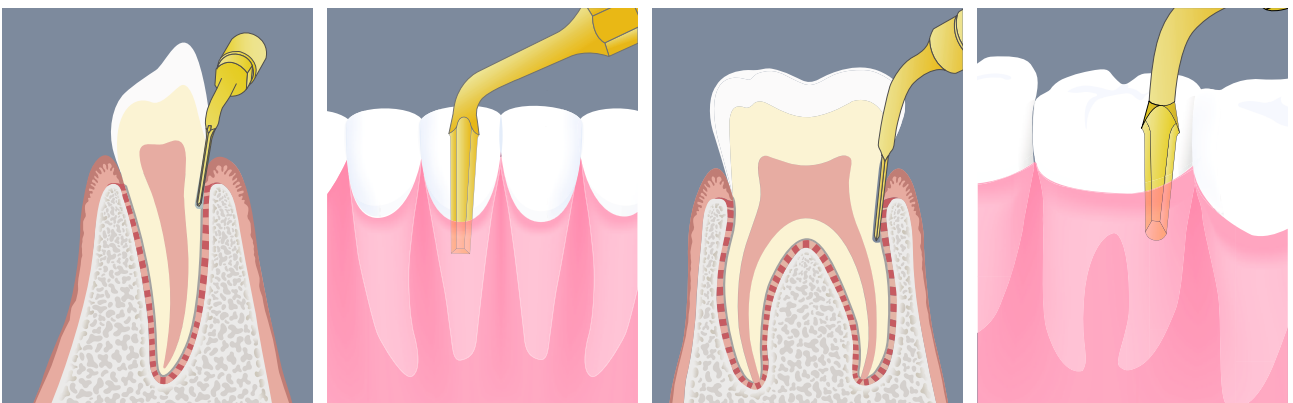


The traditional EX1–3 inserts are used for periotomy of the connective tissue attachment and for stimulating the periodontal ligament fibres, in order to facilitate tooth mobility when using manual levers.

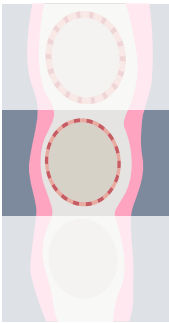


Insert	Dedication	Clinical application
EX1	principal extraction scalpel	periotomy of connective tissue
EX2	angled extraction scalpel	analogue to EX1 in the posterior regions
EX3	angled extraction scalpel	analogue to EX1 in the posterior regions

→ CLINICAL INDICATION



→ INSERTS EX0410, EX0510, EX0610 ADVANCED EXTRACTIONS

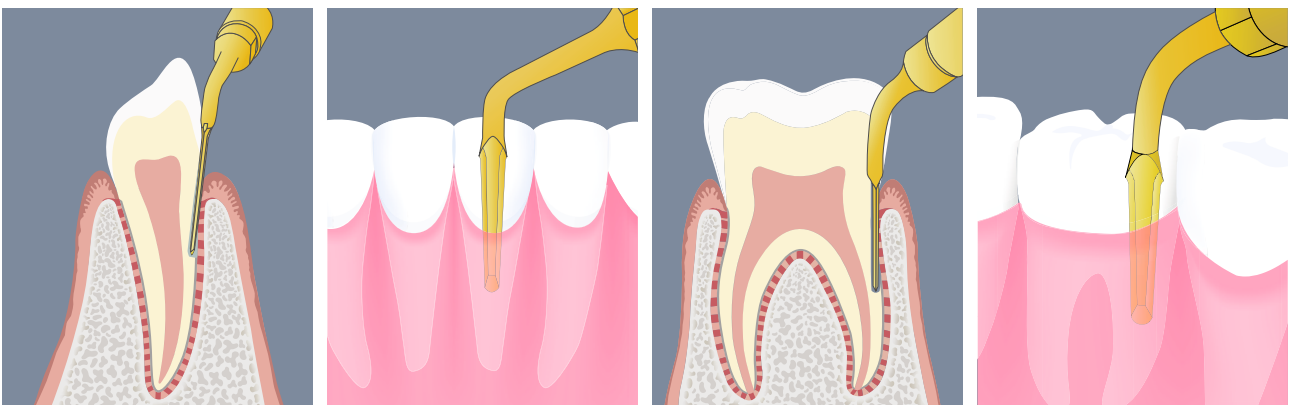


The new inserts, thanks to their sharper design and greater operative length relative to EX1/EX2/EX3, allow deeper access into the periodontal ligament space along the root surface. By enabling controlled, minimally invasive radiculoplasty on the root surface, the inserts facilitate the separation of the periodontal ligament, making luxation easier than with manual instruments.

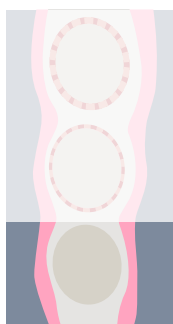
In comparison with conventional manual instruments, the inserts minimize unnecessary trauma and preserve alveolar bone integrity.



→ CLINICAL INDICATION



→ INSERTS EXP3-L, EXP3-R, EXP4-L, EXP4-R EXPLANTATION AND ADVANCED EXTRACTIONS



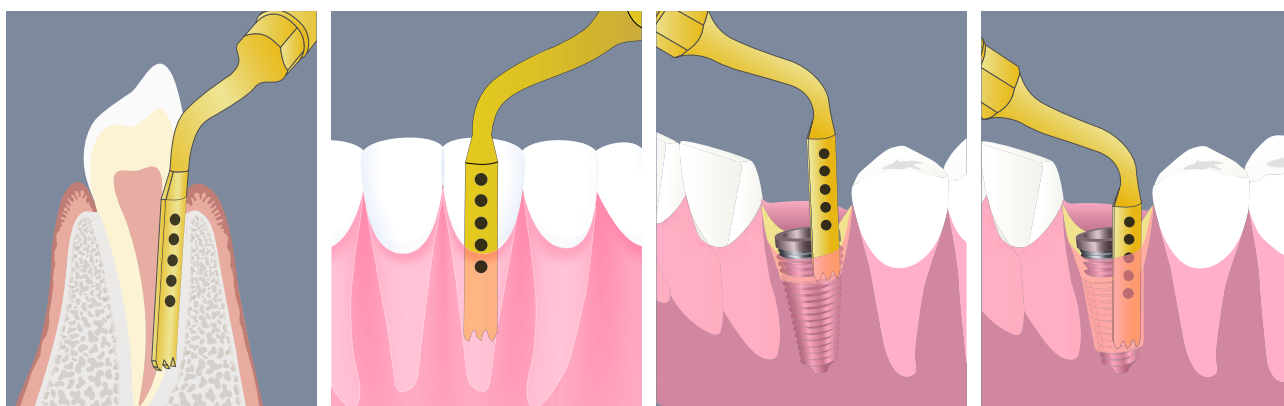
For Implants: The circular shape and the thin section of the insert produce a periimplant thin osteotomy for simplified and less traumatic implant explantation technique. The two different shapes are dedicated to tapered or cylindrical implants. The main advantage is the bone preservation and low morbidity.

For Roots: For the most severe case of ankylotic tooth, a very thin osteotomy around the root can be performed.



Insert	Dedication	Clinical application
EXP3-L EXP3-R	saw with a convex blade	cut around tapered implant or ankylotic tooth
EXP4-L EXP4-R	saw with a convex blade	cut around cylindric implant or ankylotic tooth

→ CLINICAL INDICATION



→ LEVERS EXL1, EXL2, EXL3 THIRD MOLAR EXTRACTIONS

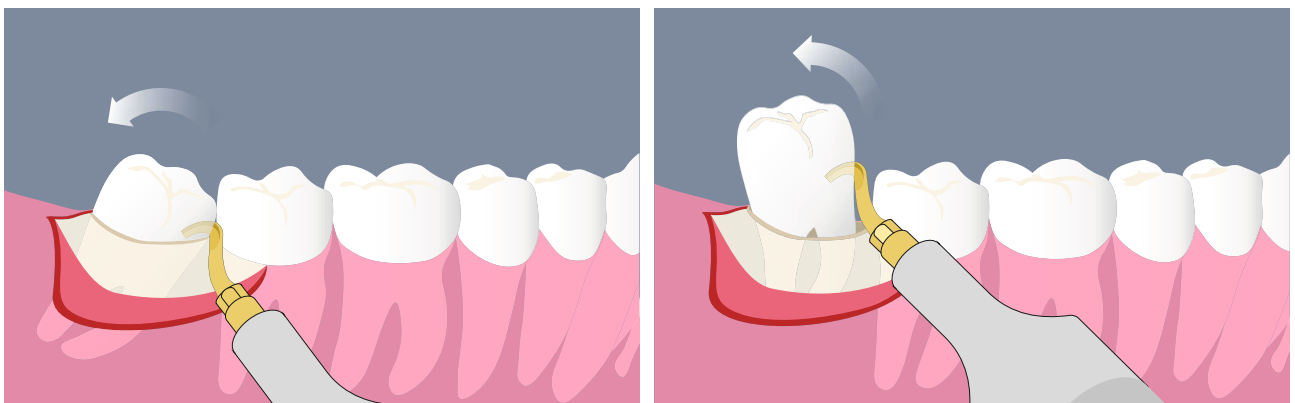
The PIEZOSURGERY® EXL levers have been developed by Dr. Fabrizio Fontanella* to simplify third molar extraction and fractured apex removal.

They enable less traumatic luxation and controlled root extraction, especially in ankylosed teeth, combining ultrasonic precision with reduced surgical time.



Lever	Dedication	Clinical application
EXL1	main lever for third molar extraction	enables luxation and root extraction in one manoeuvre
EXL2	short lever for third molar extraction	its shorter radius, allows greater force
EXL3	straight lever for alveolar debridement	alveolar debridement and root fragment removal

→ CLINICAL INDICATION



* Fontanella, F., Grusovin, M. G., Gavatta, M., & Vercellotti, T. (2020). Clinical efficacy of a new fully piezoelectric technique for third molar root extraction without using manual tools: a clinical randomized controlled study. Quintessence international (Berlin, Germany : 1985), 51(5), 406–414. <https://doi.org/10.3290/j.qi.a44370>

→ INSERTS OP1125, OP1225 – INFLAMMATORY TISSUE REMOVAL AND CYST CLEANING

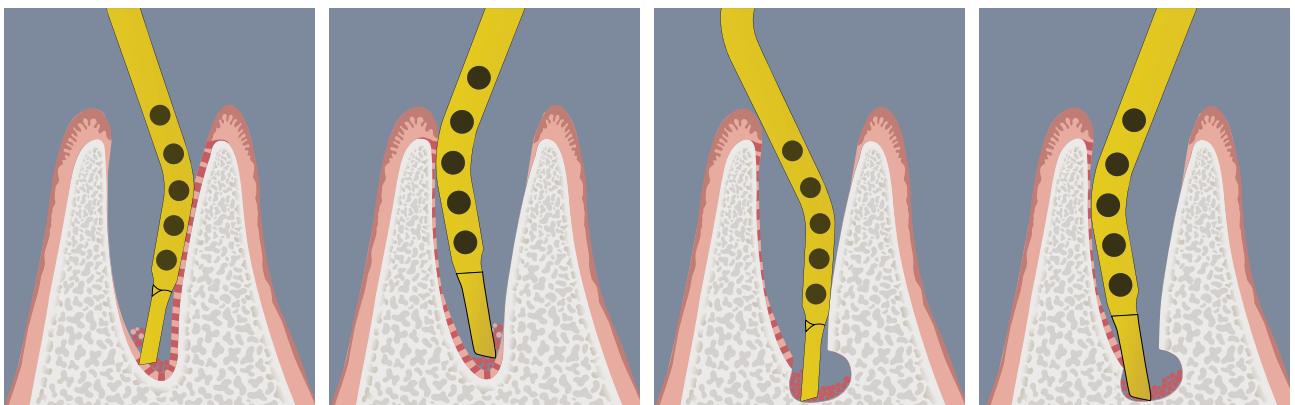
Cleaning the extraction socket is a fundamental step to ensure optimal tissue healing response.

The combined effect of micro-vibrations and cavitation produced by the piezoelectric spoon generates temporary hemostasis and maintains a blood-free surgical site, improving surgical visibility. Together with the selective cutting, these benefits ensure effective bone debridement without leaving behind contaminated or necrotic bone fragments. This precise and clean cutting surface promotes optimal conditions for regeneration, facilitating a more favorable osseous response and improving long-term surgical outcomes, such as implant osteointegration and bone stability.



Insert	Dedication	Clinical application
OP1125	piezoelectric spoon	distal alveolar bone debridement
OP1225	piezoelectric spoon	mesial alveolar bone debridement

→ CLINICAL INDICATION



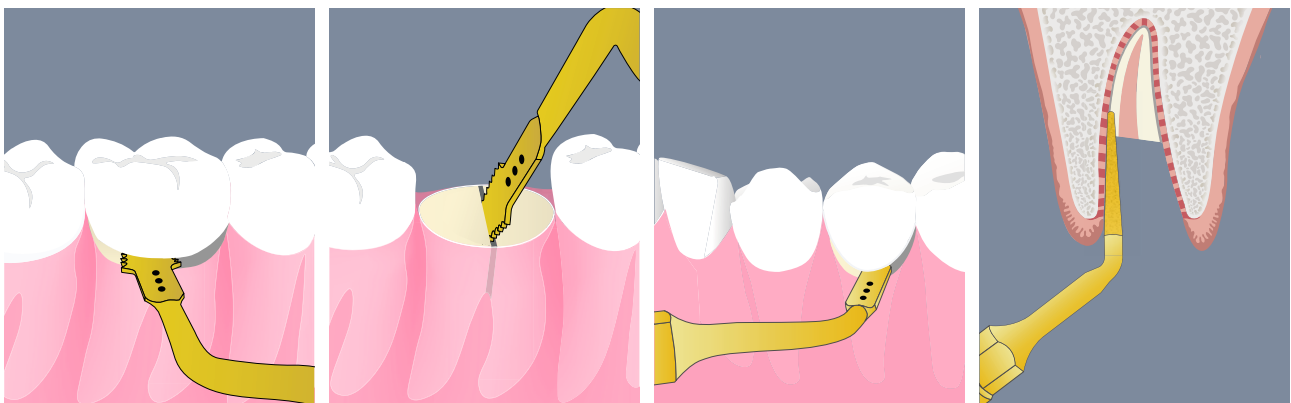
→ INSERTS OT7S-3, OT12, SLO-H, OP5 THE COMPLEMENTARY TOOLS

The highly efficient osteotomy inserts OT12, OT7S-3, and OT7S-4 are optimal for performing access osteotomies in impacted teeth. Their cutting action on the teeth allows coronectomy, root sectioning and in multirouted teeth also root separation, to be performed with ease, speed, and precision. The SLO-H insert is particularly useful for crown exposure and peripheral osteotomy of partially impacted third molars. The conical, diamond-coated OP5 insert enables precise work within the alveolus to release root or apical fragments.



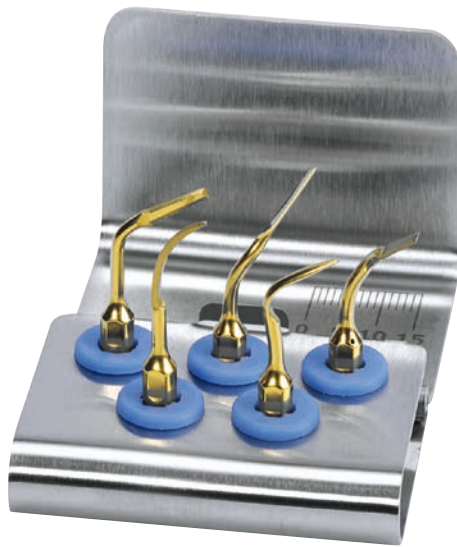
Insert	Dedication	Clinical application
OT7S-3	saw with 3 teeth	coronectomy root separation
OT12	long saw with only 0,35 mm cutting width	coronectomy root separation
SLO-H	osteotomy insert	pericoronal osteoplasty
OP5	micro-osteoplasty insert	bone debridement

→ CLINICAL INDICATION

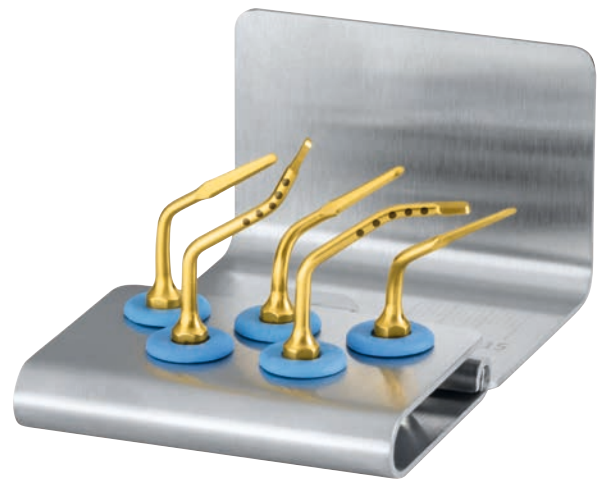


→ INSERTS SETS TAILORED FOR ALL EXTRACTION NEEDS

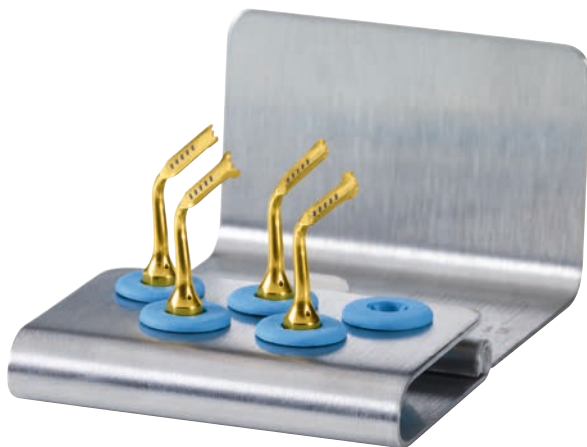
Each extraction case requires the appropriate instruments. Our four dedicated sets are designed to cover specific clinical situations — from single-rooted to multi-rooted and complex extractions — ensuring clinicians always have the right tools at hand. Choosing a set not only provides a complete, case-oriented solution in a dedicated tray but also offers a financial advantage compared to purchasing instruments individually.



→ EXTRACTION SET
equipped with inserts EX1, EX2, EX3, PS2 and PS6



→ ADVANCED EXTRACTION SET
equipped with inserts EX0410, EX0510, EX0610, OP1125
and OP1225



→ EXPLANATION SET
equipped with inserts EXP3-R, EXP3-L, EXP4-R and EXP4-L



→ THIRD MOLAR EXTRACTION SET
equipped with inserts EXL1, EXL2, EXL3, EX1 and SLO-H

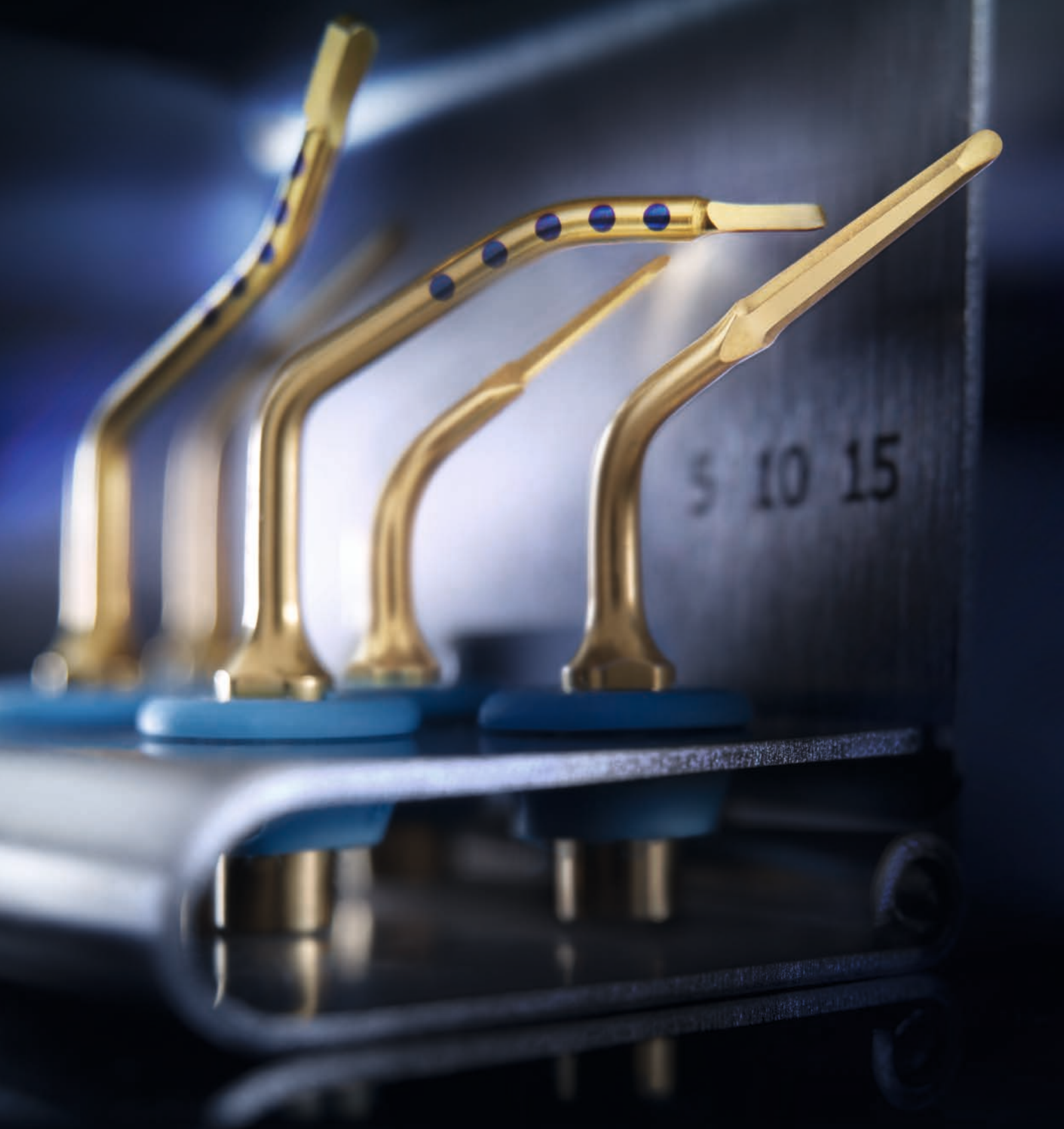
PIEZOELECTRIC EXTRACTIONS - THE INSERT RANGE

THE INSERTS

Insert EX1	principal extraction scalpel, short blade	03400001
Insert EX2	left angled extraction scalpel, short blade	03400002
Insert EX3	right angled extraction scalpel, short blade	03400003
Insert EX0410	long extraction scalpel	03400011
Insert EX0510	left angled thin, long extraction scalpel	03400012
Insert EX0610	right angled thin, long extraction scalpel	03400013
Insert OP1125	piezoelectric spoon	03400014
Insert OP1225	piezoelectric spoon	03400015
Insert EXL1	main lever for third molar extraction	03400008
Insert EXL2	short lever for third molar extraction	03400009
Insert EXL3	straight lever for alveolar debridement	03400010
Insert EXP3-R	right, hollow curved explantation insert, three teeth	03400004
Insert EXP3-L	left, hollow curved explantation insert, three teeth	03400005
Insert EXP4-R	right, hollow curved explantation insert, four teeth	03400006
Insert EXP4-L	left, hollow curved explantation insert, four teeth	03400007
Insert OT7S-3	thin osteotomy insert for root fractioning	033700015
Insert OT12	thin circular osteotomy insert for coronectomy	003370020
Insert SLO-H	blant insert for pericoronal osteoplasty	033700025
Insert OP5	root debridement insert	033800005

THE INSERT SETS

Extraction Set	equipped with inserts EX1, EX2, EX3, PS2 and PS6	01520003
Advanced Extraction Set	equipped with inserts EX0410, EX0510, EX0610, OP1125 and OP1225	01520029
Explantation Set	equipped with inserts EXP3-R, EXP3-L, EXP4-R and EXP4-L	01520021
Third Molar Extraction Set	equipped with inserts EXL1, EXL2, EXL3, EX1 and SLO-H	01520025



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BIBLIOGRAPHY

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