Angle modulation system

developed by Dr. Ernst Fuchs for minimally invasive widening of the alveolar ridge

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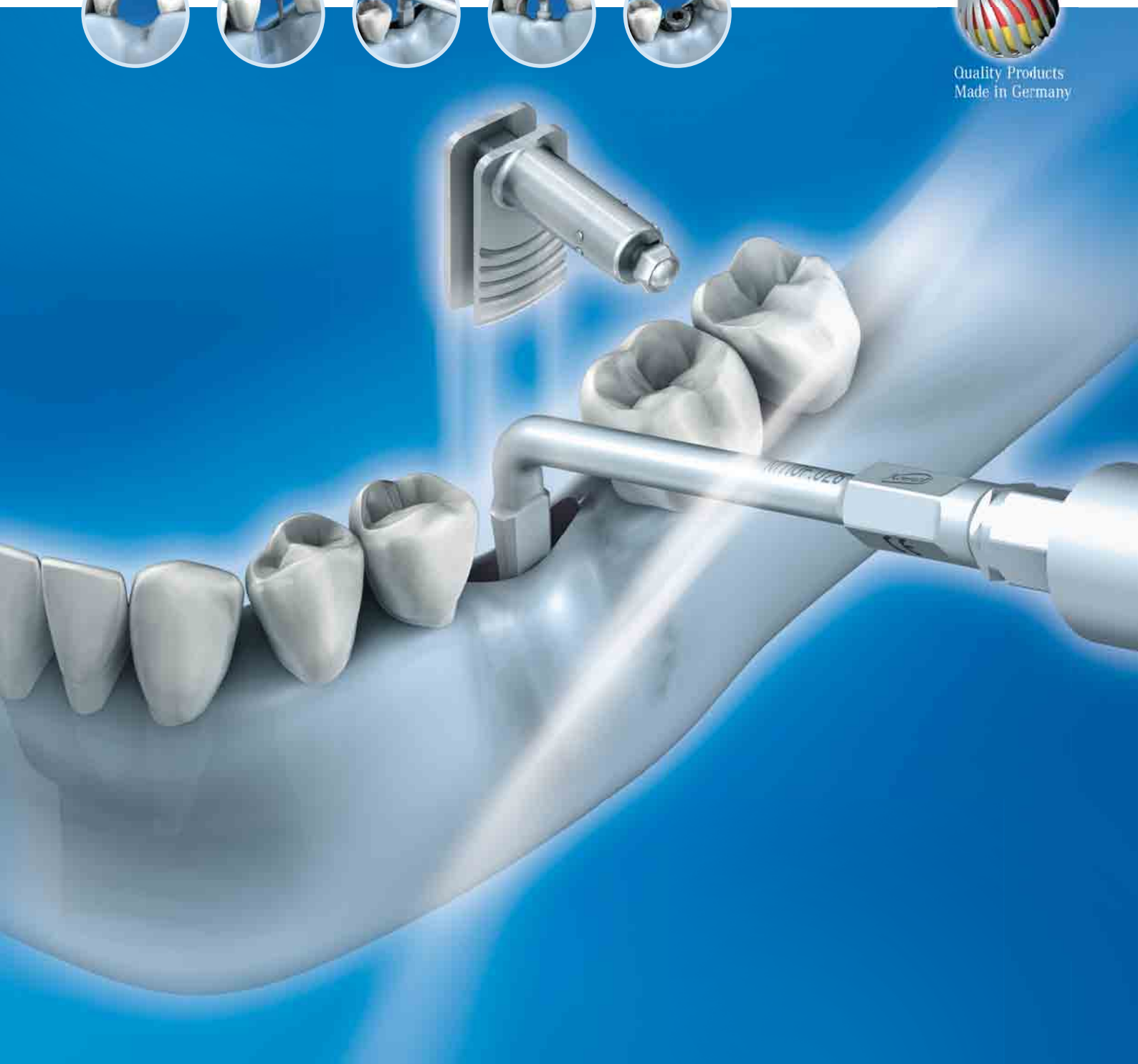
Made in Germany



Dr. med. + med. dent.
Ernst Fuchs Schaller

CH-8800 Thalwil/Zürich,
Schweiz
www.bonemanagement.com

Dr. Fuchs' dental activities are focused on minimally invasive treatments allowing successful insertion of implants even in cases of insufficient bone substance. He has contributed to the compilation of successful bone treatment systems by providing his designs of minimally invasive instruments for bone augmentation. Dr. Fuchs owns the patents for numerous instruments he has developed for use in implantological practices.

Widening of the manidibular ridge for the insertion of 2 implants

Widening of the alveolar ridge in case of an extremely narrow mandible

Widening of the maxillary ridge

Widening of the mandibulary ridge

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February 2012

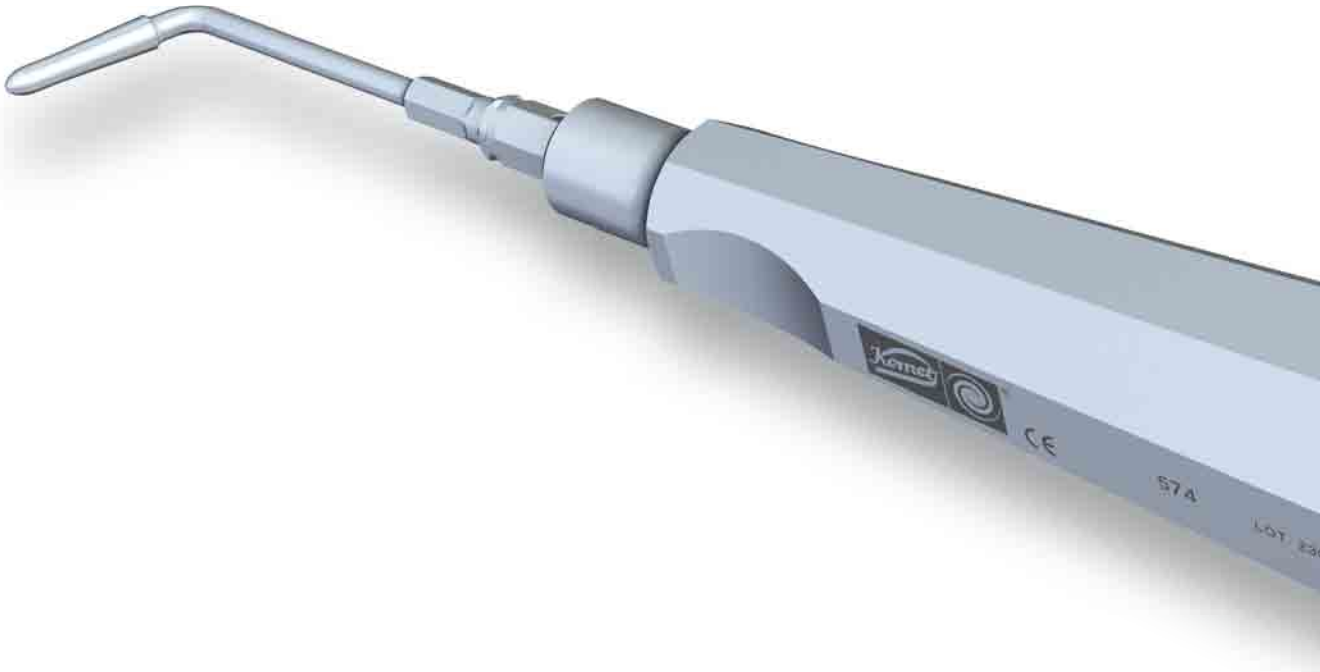
Angle modulation system developed by Dr. Ernst Fuchs for minimally invasive widening of the alveolar ridge

The angle modulation system developed by Dr. Ernst Fuchs permits a minimally invasive horizontal widening of the alveolar ridge by spreading the ridge and rotating the cortical lamella, which, combined with the resulting height increase of the bone, facilitate the intended implant insertion by means of specially developed manual instruments.

This is achieved by axially displacing the mobilized cortical plate in lateral direction.

This **minimally invasive** technique is particularly suitable for spreading the ridge of the distal mandibular. It ideally enhances and expands the MaxilloPrep Spread-Condense System. Both systems can be used in combination.

The particularly well thought-out, clearly represented instrument range includes everything that is needed to carry out individually adapted treatments following a systematic clinical sequence.



Advantages of angle modulation

An essential advantage of this method is that the jaw does not have to be folded up, i.e. the creation of a flap can be avoided. Consequently, the periosteum and the mucosa do not have to be detached, thus promoting faster and safer healing. This procedure is less traumatic – the “biologically active container” remains intact.

Clinical sequence

After minimally opening the mucosa and the periosteum, the entire bony surface is flexibly mobilized from the inside. To this end, the entire longitudinal surface of the planned expansion, i.e. along the inner side of the buccal lamella, is deepened until sufficient flexibility has been achieved. The cortical bone is laterally mobilised from the inside at the mesial and the distal end by vertical incisions.

The subsequent widening of the alveolar ridge towards the outside is done manually with the angled modulators. The resulting erection of the lamella leads to a height increase of the bone.

[1] This situation is frequently encountered in the dental practice:
the patient’s bone substance is not sufficient to support the insertion of an implant. To rectify this, an angle modulation is planned to create a bone with sufficient width and mainly cortical components.

[2] The mucosa and the periosteum are opened to a minimum extent. The incision line is orientated towards the lingual side, allowing as much attached gingiva as possible to be transported along with the buccal lamella.

[3] Score the compact bone surface of the alveolar ridge in rotary manner, with the diamond instrument.

[4] Parallel to the defect, the entire longitudinal surface at the inside of the buccal lamella is deepened with a sonic tip, in order to achieve better flexibility for subsequent rotation.

[5] The cortical bone is laterally mobilised from the inside by vertical incisions at the mesial and the distal end. These are created either by means of the diamond coated sonic tip or with the diamond instrument. The inner side might have to be deepened further, until the bone is sufficiently mobilized.

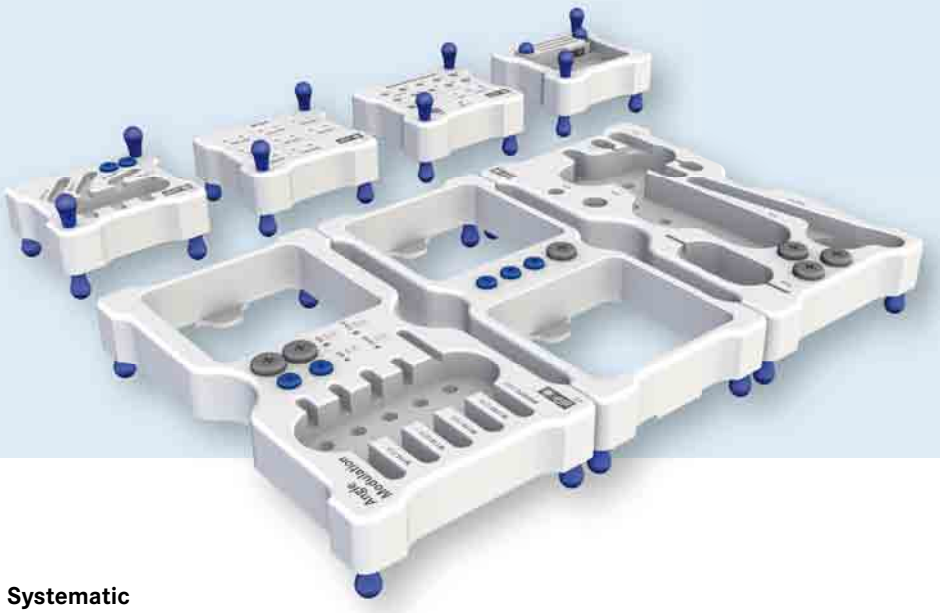
[6 a/b] The sufficiently mobilized alveolar ridge is widened by hand, gently and with intuition, by means of one or more selected modulators from the Angle Modulation System, depending on the situation. The flat modulator serves to distribute the pressure evenly across the flexible lamella.

[7 a/b] The angled modulator serves to prepare a semicircular shape in preparation for the implant to be inserted. Result: The cortical bone is erected and the alveolar ridge is sufficiently expanded.

[8 a/b] The implant is inserted in the remaining cancellous bone between the lingual and the flexible buccal lamella. A pilot hole can be drilled with the pilot drill 210L16.013, if required. Alternatively, this can be done with the diamond coated sonic tip SFS110.

The definite implant should be inserted at subcrestal level. The palatal or lingual height of the residual bone serves as orientation guide.

Result: Implant in place, with build-up and subsequent permanent prosthetic reconstruction.



Method and biology

By erecting and rotating the sufficiently mobilized cortical plate which remains supplied with nutrients during this non-traumatic, minimally invasive widening of the alveolar ridge, a “mechanical frame” is created which serves as a guideline for the formation of new bone substance, thus eliminating the need for invasive augmentative operations.

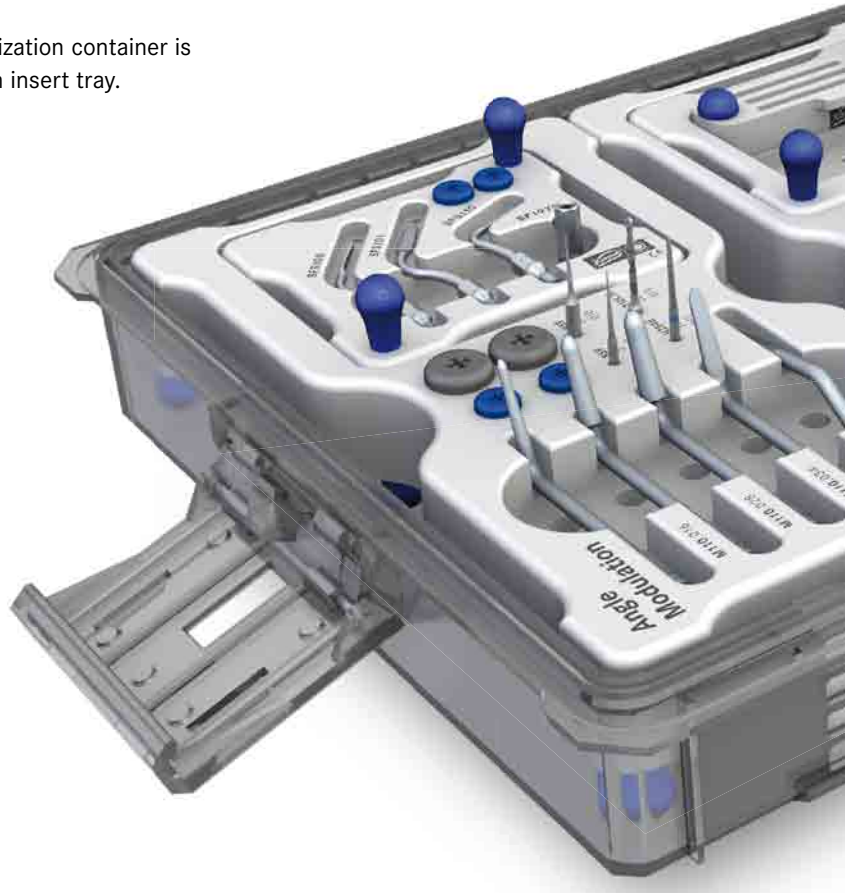
This procedure is particularly gentle on the periosteum and the surrounding soft tissue because it involves an internal vertical osteotomy, i.e. a controlled opening, and it effectively promotes new bone formation.

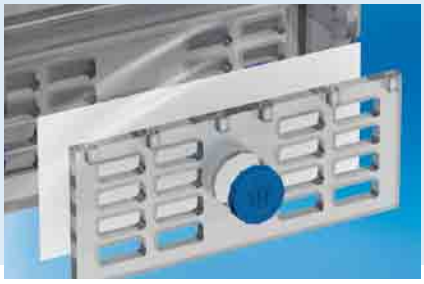
The dentist can choose between open healing by granulation or primary wound closure by mobilizing the mucosa from lingual or buccal direction. For stabilization and splinting of the cortical plate, implants can be incorporated to keep the split open.

Systematic work

The instruments contained in the Angle Modulation System integrate into the large, comprehensive MaxilloPrep set for surgical interventions. This allows a range of different treatment methods to be combined as individually required.

A matching sterilization container is available for each insert tray.





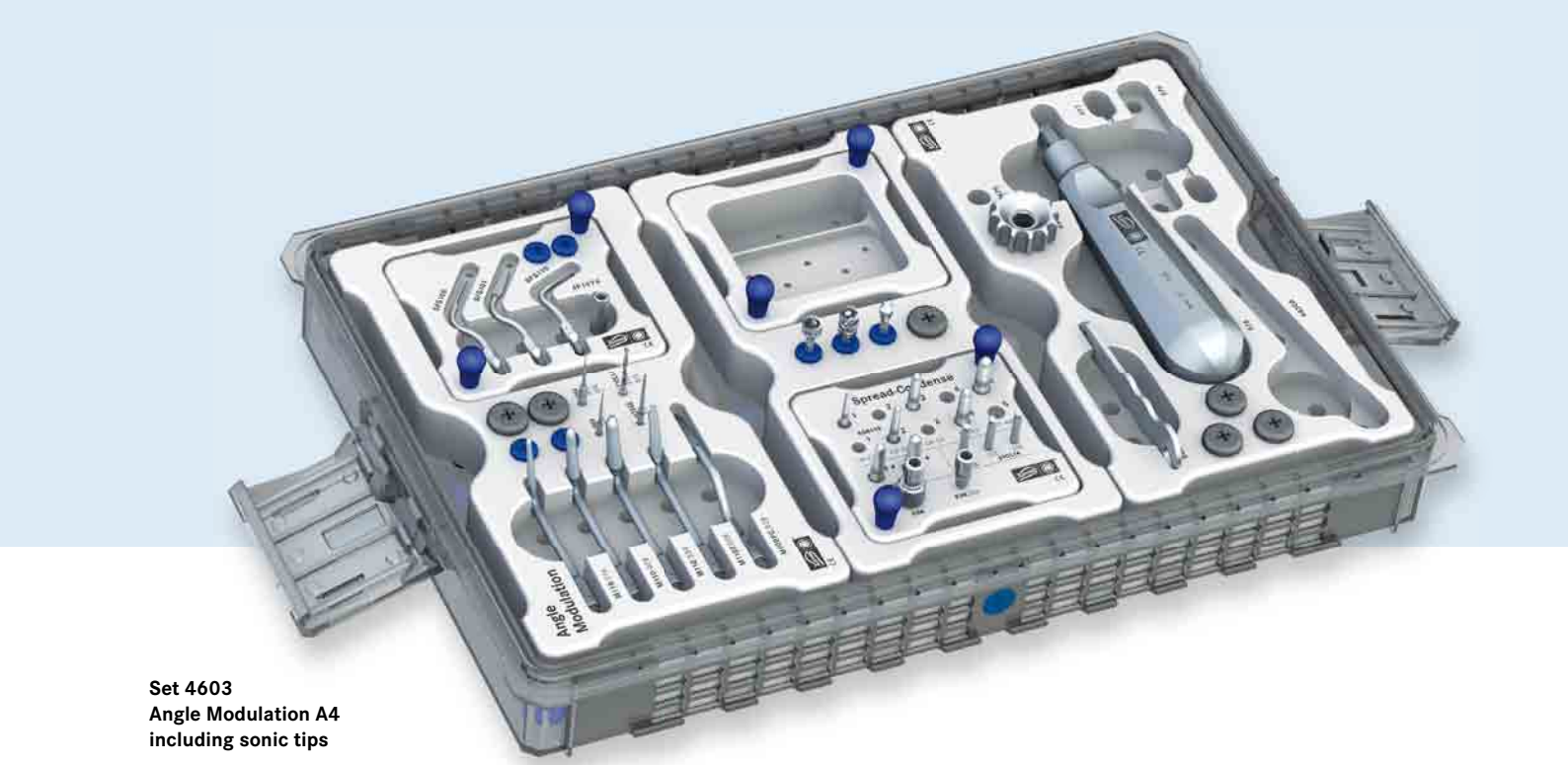
State-of-the-art materials

All MaxilloPrep insert trays and sterilization containers are made of specially chosen high-grade plastics.

Insert tray: PP, antimicrobial effect, continuous release of silver ions, high purity during idle times, no formation of a biofilm on the surface of the material.

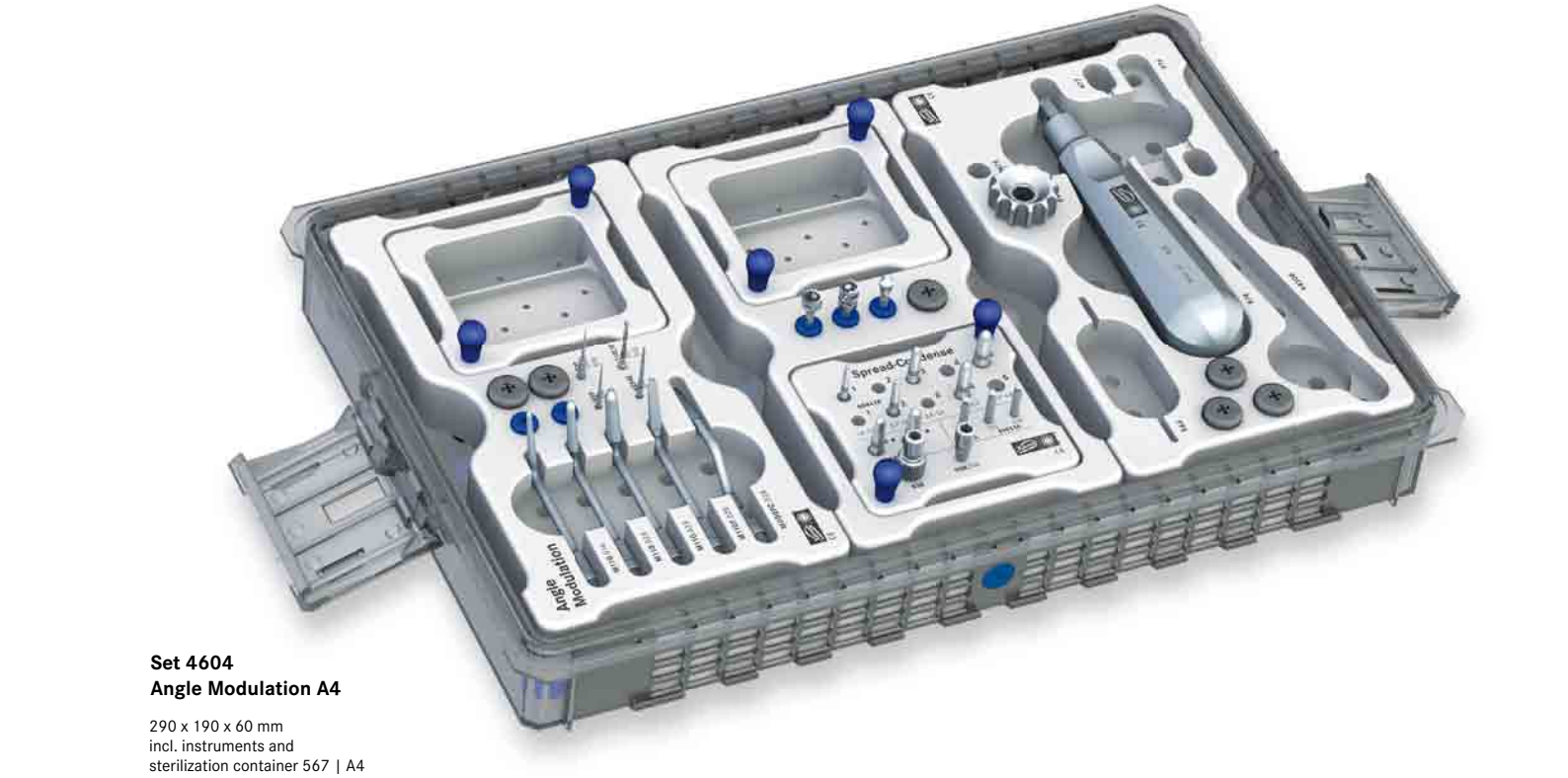
Sterilization container: PPSU, transparent material, the contents are visible from the outside, no seals, no maintenance required for more than 2,000 sterilization cycles, high-performance ePTFE filter for 150 cycles.

The following optional accessories are available for added safety: Sealing label with colour changing indicator to confirm that sterilization has taken place, safety seal to ensure that the container has not been opened during reprocessing. The seal is broken immediately prior to use.



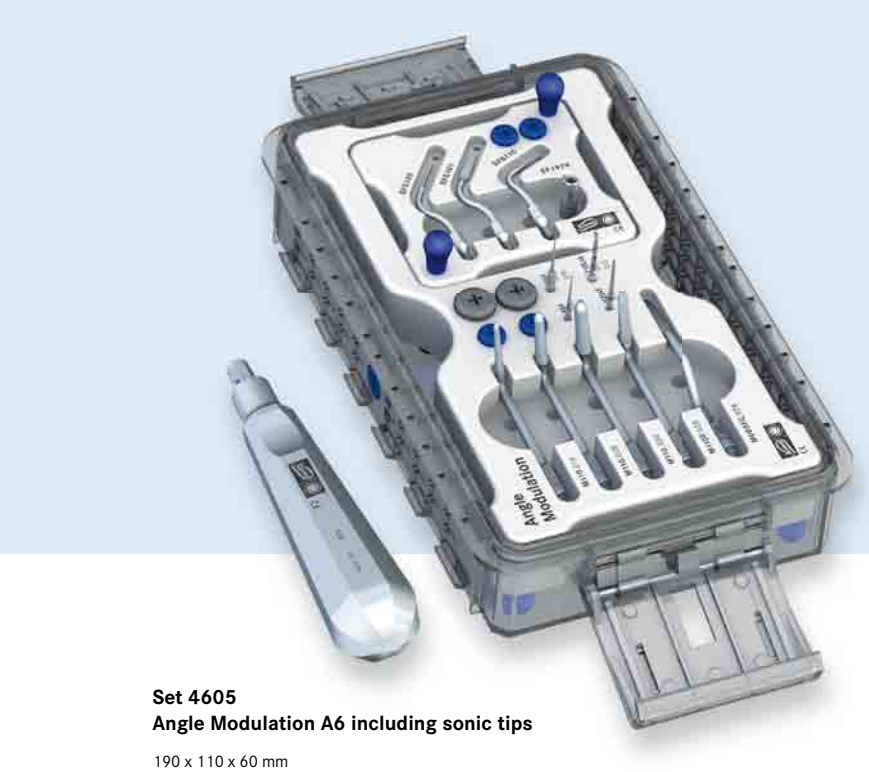
Set 4603
Angle Modulation A4
including sonic tips

290 x 190 x 60 mm
incl. instruments and
sterilization container 567 | A4



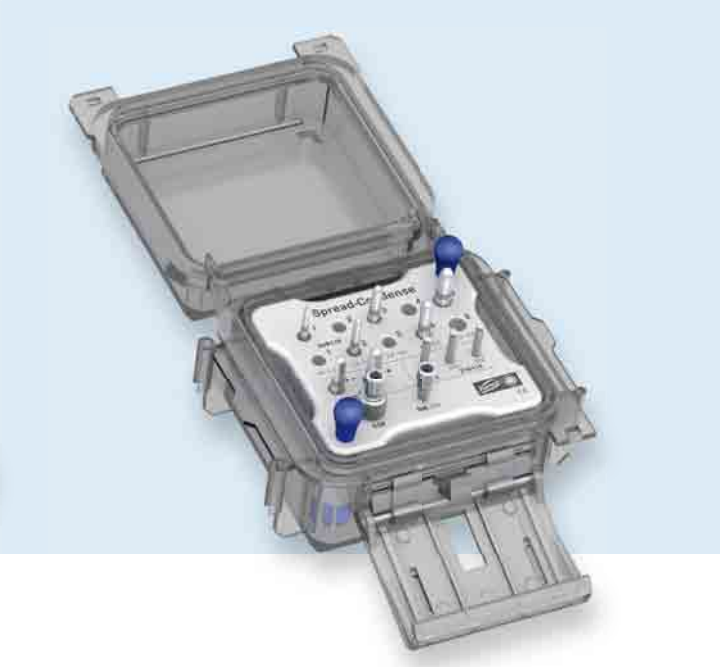
Set 4604
Angle Modulation A4

290 x 190 x 60 mm
incl. instruments and
sterilization container 567 | A4



Set 4605
Angle Modulation A6 including sonic tips

190 x 110 x 60 mm
incl. instruments and
sterilization container 568 | A6

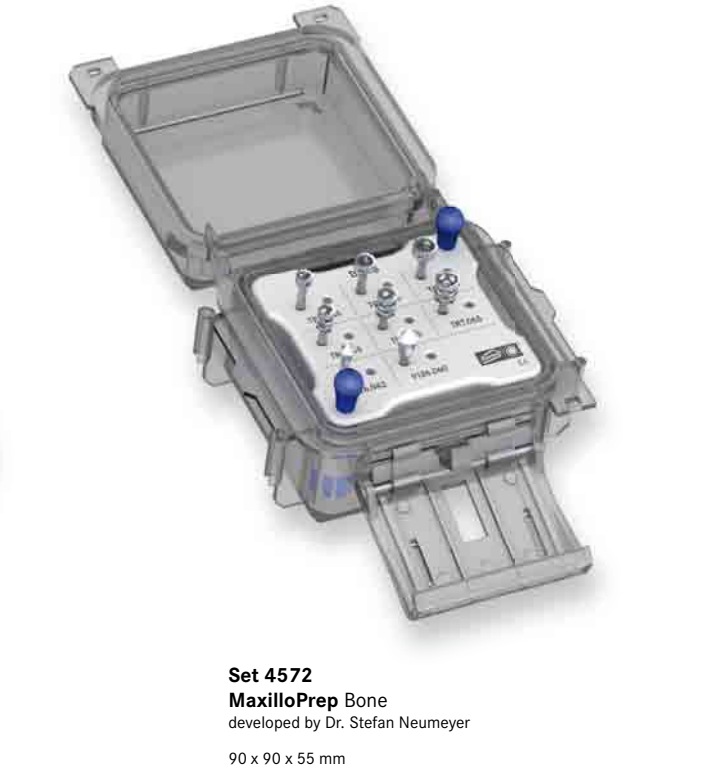


Set 4596
MaxilloPrep Spread-Condense
developed by Dr. Stefan Neumeyer

90 x 90 x 55 mm
incl. instruments and sterilization container 534 | A8

Set 4606
Angle Modulation A6

190 x 110 x 60 mm
incl. instruments and
sterilization container 568 | A6



Set 4572
MaxilloPrep Bone
developed by Dr. Stefan Neumeyer

90 x 90 x 55 mm
incl. instruments and sterilization container 534 | A8




859.314.010

Diamond, tapered pointed
max. 300 000 rpm, opt. 160 000 rpm

859.204.010

Diamond, tapered pointed
max. 100 000 rpm, opt. 40 000 rpm

● **H254E**.314.012

TC bone cutter, length, L = 6 mm
max. 100 000 rpm, opt. 80 000 rpm

210L16.205.013

Pilot drill, stainless steel
max. 6 000 rpm, opt. 1 000 rpm

SFS100

Sonosurgery® sonic tip | sagittal
cutting width 0,25 mm / Cutting depth 10,7 mm

SFS101

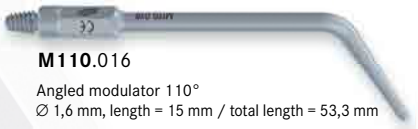
Sonosurgery® sonic tip | axial
Cutting width 0,25 mm / Cutting depth 10,7 mm

SFS110

Sonic tip | diamond coated,
tapered
∅ 1,5 mm, length = 10 mm

SF1979

Cooling adapter for external supply of
a sterile cooling agent (set 4602 with
mounting wrench 566)

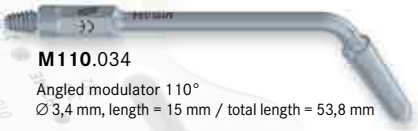


M110.016

Angled modulator 110°
∅ 1,6 mm, length = 15 mm / total length = 53,3 mm

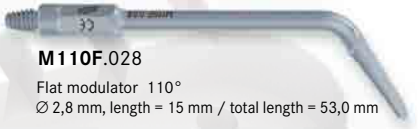
M110.028

Angled modulator 110°
∅ 2,8 mm, length = 15 mm / total length = 53,5 mm



M110.034

Angled modulator 110°
∅ 3,4 mm, length = 15 mm / total length = 53,8 mm



M110F.028

Flat modulator 110°
∅ 2,8 mm, length = 15 mm / total length = 53,0 mm

M000FC.028

Flat modulator, straight
∅ 2,8 mm, length = 15 mm / total length = 62,4 mm

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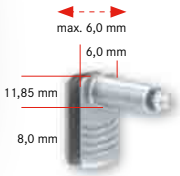
trademark of Dr. Ivo Agabiti, Italy
www.sonosurgery.it

574

Ergonomic handle with
short thread
115 x 24 mm

Patent:
DE 102 12815
EP 1489 979



591

Extender

Set 4612

2 x **591 Extender**
1 x **575 Hand wrench**
1 x **576 Adapter**

575

Hand wrench
for Extender

576

Extender Adapter
for handle 574

454

Hand wheel for
manual wrench
Spread-Condense

566

Mounting wrench for cooling
adapter SF 1979
(Set 4602 with cooling
adapter SF 1979)

9820A

Torque ratchet
10 - 35 Ncm
for manual wrench
Spread-Condense

Insertray 569 | Angle Modulators

162 x 90 x 32 mm → Sterilization containers A4 oder A6

Insertray 572 | Module frame

162 x 82 x 32 mm → Sterilization containers A4 oder A6

Insertray 570 | Handles and wrenches

162 x 90 x 32 mm → Sterilization containers A4 oder A6

Insertray 573 | Sonic tips

64 x 59 x 32 mm → Sterilization containers A8

Insertray 571 | with recesses

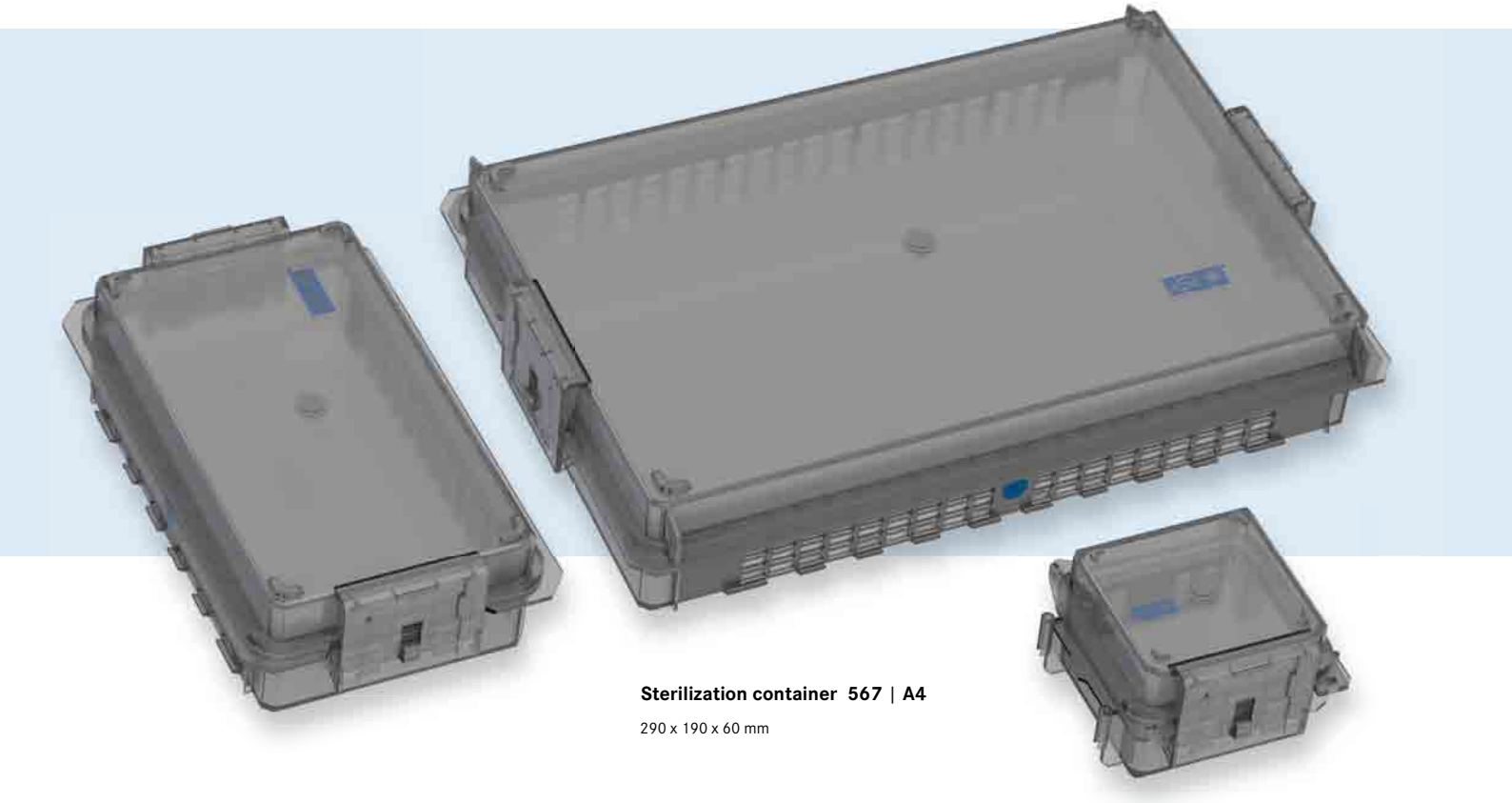
64 x 59 x 32 mm → Sterilization containers A8
(without container for bone screws)

Insertray 537 | Spread-Condense

64 x 59 x 32 mm → Sterilization containers A8

Insertray 535 | Bone

64 x 59 x 32 mm → Sterilization containers A8



Sterilization container 567 | A4

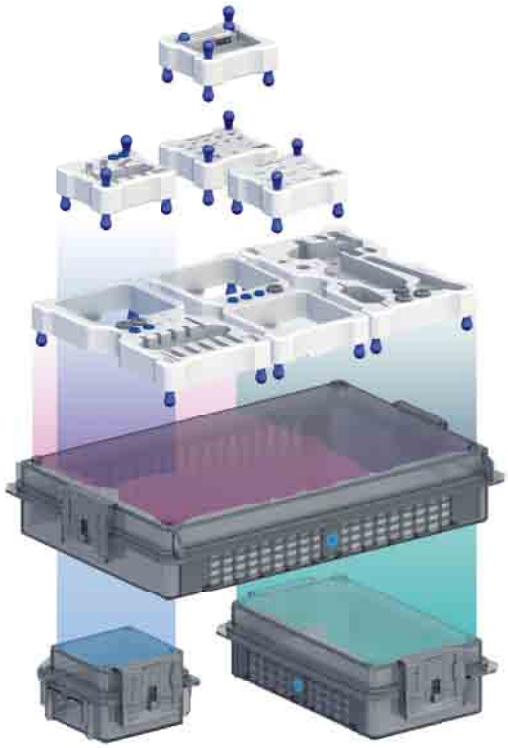
290 x 190 x 60 mm

Sterilization container 568 | A6

190 x 110 x 60 mm

Sterilization container 556 | A8

90 x 90 x 55 mm



Accessories
Sterilization containers and insert trays:

9934
Sterilization filter (A8) | 25 x 61 mm

9877
Sterilization filter (A6) | 25 x 143 mm

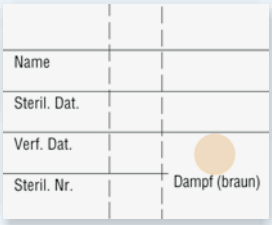
9950
Sterilization filter (A4) | 25 x 255 mm

9891.1
Blue silicone plug

9948
Grey silicone plug

9880
Date insert for sterilization container

9879
Safety seal



9878
Sealing label

Sonic handpiece SF1LM

(MULTIflex® connection)

sonic tip

SFS100

Sonosurgery® sonic tip | sagittal
cutting width 0,25 mm/cutting depth 10,7 mm

SFS101

Sonosurgery® sonic tip | axial
cutting width 0,25 mm/cutting depth 10,7 mm

SFS110

Sonic tip | diamond coated,
tapered
∅ 1,5 mm, length = 10 mm

Accessories
Sonic handpiece:

SF1975

Tip changer
with torque

SF1978

Rinse adapter for
sonic tips

(For reprocessing
in a Miele washer/
disinfector)

SF1977

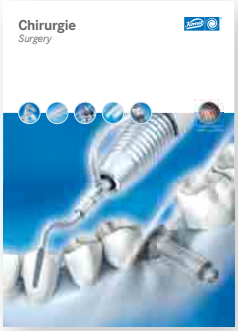
Rinse adapter for
cooling adapter SF 1979

(For reprocessing
in a Miele washer/
disinfector)

Set 4602

Cooling adapter SF1979 for
external supply of a sterile
cooling agent, with mounting
wrench 566

MULTIflex® is a registered trademark of
the co. KaVo Dental GmbH, Biberach,
Germany



For further information on instruments and systems for oral surgery, please refer to our surgical brochure: 403665

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