



APTUS

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For further information regarding the APTUS product line visit www.medartis.com.

About Medartis

Medartis, headquartered in Basel, Switzerland, specializes in high-precision implant systems for surgical fixation of bone fractures and osteotomies.

Medartis develops, manufactures and sells titanium screws and plates, surgical instruments and system solutions for fracture fixation in the facial skull and the extremities.

Our motto is «Precision in fixation». Since the company's founding in 1997, we place the highest priority on maintaining stringent quality standards, continuous further development and innovation as well as comprehensive service provision.

Medartis is represented worldwide through its subsidiaries and a broad distributor network.

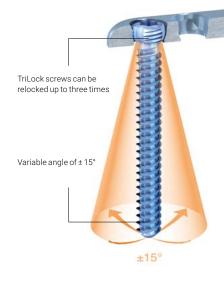


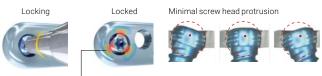
APTUS Technologies

All APTUS systems are based on the multidirectional and angular stable TriLock locking technology.

TriLock locking technology

- TriLock locking technology multidirectional locking of the screw in the plate
 - Spherical three-point wedge-locking
 - Friction locking through radial bracing of the screw head in the plate without additional tensioning components
- TriLockPLUS plate holes combine compression and angular stability in one step
- Screws can pivot freely by ± 15° in all directions for optimal positioning
- Fine-tuning capabilities of fracture fragments
- TriLock screws can be relocked in the same plate hole at individual angles up to three times
- Minimal screw head protrusion thanks to internal locking contour
- No cold welding between plate and screws



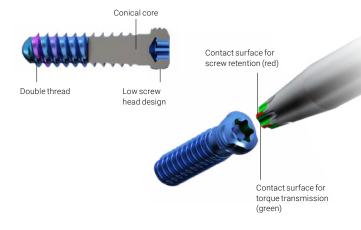


TriLock locking technology – multidirectional locking of the screw in the plate

APTUS Technologies

Screw technology

- HexaDrive screw head design
 - HexaDrive interface with self-holding properties between screw and screwdriver
 - Increased torque transmission
 - Simplified screw pick-up due to patented self-holding technology
- Soft tissue protection due to smooth screw head design
- Atraumatic screw tip offers soft tissue protection when inserting screws bicortically
- Increased torsional, bending and shear stability due to conical core
- Precision-cut thread profile for sharpness and self-tapping properties
- Double-threaded TriLock screws reduce screw insertion time



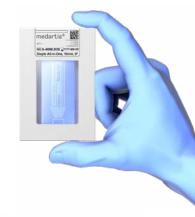
SpeedTip thread design

- Functionally unique cutting with immediate bite¹
- Immediate cutting of the bone with only slight axial pressure
- The triangular tip design permits simultaneous drilling, tapping and compression of the bone tissue during insertion for increased pull-out stability ^{2,3}
- Reduced insertion torque thanks to the polygonal tip and tapered shaft

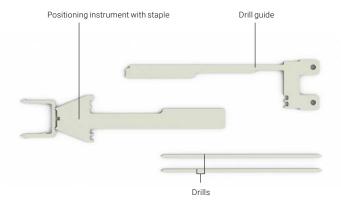


APTUS Foot Fore- and Midfoot Staple All-in-One

- The All-in-One Staple kit includes all implants and specific instruments in one packaging
- Barbed legs can prevent migration of the staple
- Staple and drill guide design allows for compression









Staple All-in-One 8 mm, 0°



Staple All-in-One 8 mm, 26°



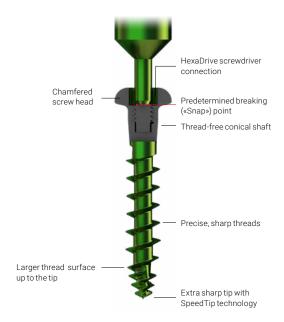
Staple All-in-One 10 mm, 0°



Staple All-in-One 10 mm, 26°

APTUS Foot Fore- and Midfoot 2.0 SpeedTip C-Snap, 2.0, 2.8 SpeedTip C

Features and Benefits



- C-Snap screws can be fully inserted or removed with a conventional screwdriver due to the HexaDrive screwdriver connection after snap off
- Extra sharp tip penetrates the bone exactly where the surgeon puts it
- Effortless insertion: Only the polygonal tip pushes bone material aside
- The triangular tip design permits simultaneous drilling, tapping and compression of the bone tissue during insertion for increased pull-out stability ^{2,3}

Clinical Example

Weil osteotomy 2-4 - SpeedTip C 2.0 screw







Preoperative X-ray

Postoperative X-rays

Clinical example published with the kind permission of: E. Orthner, Wels, Austria

APTUS Cannulated Compression Screws CCS 2.2, 3.0 and headedCCS 2.2, 3.0

Features and Benefits

Comprehensive portfolio

- CCS and headedCCS
- 5 different diameters
- Short thread, long thread, fully threaded



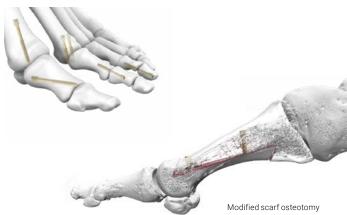
Consistent self-holding across all screw sizes

 HexaDrive for simplified screw pick-up and increased torque transmission



Sharp: SpeedTip thread design of CCS 2.2, 3.0 and headedCCS 2.2, 3.0

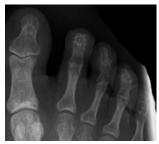
- Functionally unique cutting with immediate bite 1
- Reduced insertion torque due to the polygonal tip



APTUS Cannulated Compression Screws CCS 2.2, 3.0 and headedCCS 2.2, 3.0

Clinical Examples

DIP and PIP arthrodesis - CCS 3.0





Preoperative X-ray

Postoperative X-ray

Clinical example published with the kind permission of: C. Plaass, Hannover, Germany

Akin and Chevron osteotomy - CCS 2.2, CCS 3.0





Preoperative X-ray

Postoperative X-ray (6 weeks)

Clinical example published with the kind permission of: U. Hefti, Bern, Switzerland

Akin and modified scarf osteotomy - CCS 2.2, 2.3 cortical screw







Postoperative X-ray

 ${\bf Clinical\ example\ published\ with\ the\ kind\ permission\ of:\ M.\ Wiewiorski,\ Winterthur,\ Switzerland}$

APTUS Foot Fore- and Midfoot 2.0/2.3, 2.8 Plates



- Increased subchondral stability achieved by a double row of screws in the plate end area
- Offset screw holes in numerous plates avoid screw collisions
- Plates may be cut and bent for a wide range of applications
- Low plate profile with minimal screw head protrusion, rounded edges and a smooth surface for soft tissue protection



Clinical Example

MTP-1 Fusion with grid plate



Intraoperative X-ray



Intraoperative image

APTUS Foot Fore- and Midfoot 2.8 Wing Plates

Features and Benefits



- Well suited for high loads due to superior fatigue resistance ⁴
- K-wire holes for 1.6 mm K-wires to assist with temporary plate fixation and verification of implant position
- Plates may be cut and bent for a wide range of applications
- Low plate profile with minimal screw head protrusion, rounded edges and a smooth surface for soft tissue protection



Clinical Example

Talonavicular arthrodesis



Preoperative X-ray



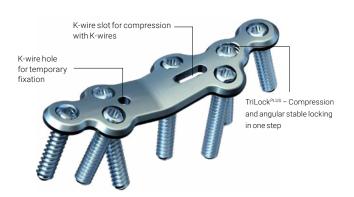
Postoperative X-ray



Postoperative X-ray

APTUS Foot Hallux 2.8 TriLock MTP Fusion Plates

Features and Benefits



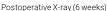
- Crossing lag screw can be placed if needed
- Additional proximal plate hole for increased primary stability in poor bone quality
- Three defined dorsiflexion angles (0°, 5°, 10°)
- Low anatomical plate profile with minimal screw head protrusion, rounded edges and a smooth surface for soft tissue protection



Clinical Example

MTP-1 fusion with MTP fusion plate 0° and crossing cortical 2.8 screw



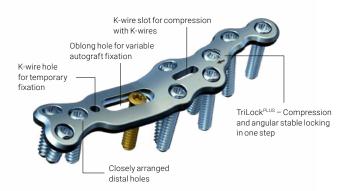




Postoperative X-ray (6 weeks)

APTUS Foot Hallux 2.8 TriLock MTP Revision Plates

Features and Benefits



- Oblong hole allows for graft fixation
- Closely arranged distal holes enable fixation even of small fragments
- Additional proximal TriLock holes add stability and allow for bridging of large bone defects
- Two defined dorsiflexion angles (5°, 10°)
- All plates with 10° valgus angles
- Low plate profile with minimal screw head protrusion, rounded edges and a smooth surface for soft tissue protection



Clinical Example

MTP revision plate after failed total arthroplasty



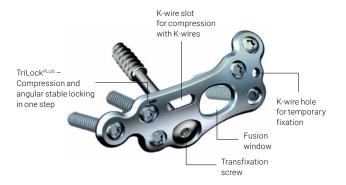




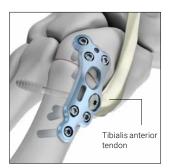
Postoperative X-rays (6 weeks)

APTUS Foot Hallux 2.8 TriLock TMT-1 Medial Fusion Plates

Features and Benefits



- Plate can also be used in a "classic Lapidus" as a 4.0 transfixation screw can be inserted through the plate into the 2nd metatarsal
- Plate design reduces contact with the tibialis anterior tendon



Clinical Example

TMT-1 fusion - Dorsomedial plate with 4.0 transfixation screw





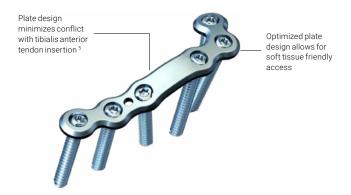


Postoperative X-ray (6 weeks)

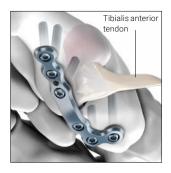
Clinical example published with the kind permission of: V. Valderrabano, Basel, Switzerland

APTUS Foot Hallux 2.8 TriLock TMT-1 Plantar Fusion Plates

Features and Benefits



- Plantar placement of plate takes advantage of the tension band effect increasing compression in the arthrodesis
- Anatomical plate shape 5
- Low plate profile with minimal screw head protrusion, rounded edges and a smooth surface for soft tissue protection



Clinical Example

TMT-1 fusion - with TMT-1 plantar fusion plate and CCS 5.0 screw







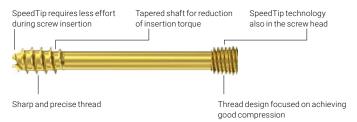
Postoperative X-ray (6 weeks)

Clinical example published with the kind permission of: C. Plaass, Hannover, Germany

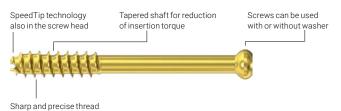
APTUS Cannulated Compression Screws CCS and headedCCS 4.0, 5.0, 7.0

Features and Benefits

ccs



headedCCS



Thread types

- Short and long threaded screws offer compression due to the Herbert principle
- Fully threaded screws*



Large thread surfaces for improved purchase in the bone

^{*} Fully threaded screws do not compress

APTUS Cannulated Compression Screws CCS and headedCCS 4.0, 5.0, 7.0

Clinical Examples

Lisfranc injury and metatarsal IV fracture - CCS 5.0





Preoperative X-rays

Postoperative X-rays

Lateral column lengthening - CCS 4.0, 7.0









Preoperative X-rays

Postoperative X-rays (3 months)

Clinical example published with the kind permission of: C. Plaass, Hannover, Germany

Triple arthrodesis - CCS 5,0, 7.0



Preoperative X-rays (AP, Salzmann and lateral)



Postoperative X-rays (4 months)

APTUS Foot Mid- and Hindfoot 2.8 TriLock C Plates



- Centric hole to fix a wedge or a bone graft
- Plate can be positioned independently over the osteotomy in conjunction with a wedge
- U-shaped wedge design allows for osseous integration
- Can be used with any wedge of the modular wedge system 2.8/3.5
- Ease of use due to uniform instrumentation for plate and wedge



- Large and small wedge sizes from 4-12 mm
- All wedges are compatible with the APTUS Foot plating systems 2.8/3.5

APTUS Foot Mid- and Hindfoot 2.8 and 3.5 TriLock Calcaneus LCL Plates



2.8 TriLock Calcaneus LCL Plates



3.5 TriLock Calcaneus LCL Plates



Independent positioning of the plate allows for high navigation adjustability

The plate can be slided and rotated around the wedge screw for fine-tuning

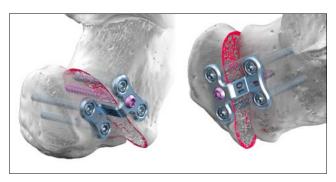
- Available in two sizes with a plate thickness of 1.6 mm and 2.0 mm
- Anatomical design and low plate profile for soft tissue protection
- Can be used with any wedge of the modular wedge system 2.8/3.5
- Ease of use due to uniform instrumentation for plate and wedge



- Large and small wedge sizes from 4-12 mm
- All wedges are compatible with the APTUS Foot plating systems 2.8/3.5

APTUS Foot Mid- and Hindfoot 3.5 TriLock Calcaneus Step Plates

Features and Benefits

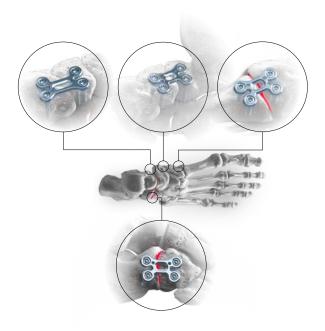


- The middle hole is used as a counter bearing with a cortical or cancellous screw to shift the tuber laterally or medially
- Defined and controlled shift of the calcaneal sliding osteotomy
- Position of screw holes allows bicortical screw placement



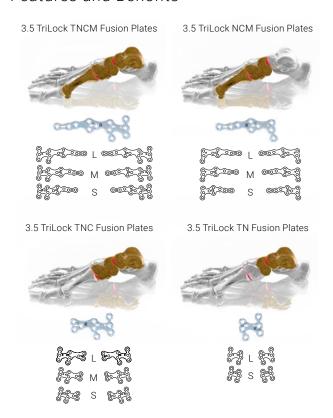
Five steps available: 6 mm, 8 mm, 10 mm, 12 mm, 14 mm

APTUS Foot Mid- and Hindfoot 3.5 TriLock Butterfly Plates



- Multifaceted solution for a wide range of applications
- Available in three sizes, 2.0 mm plate thickness
- Plate can be cut and bent to adapt for treatment of different indications and anatomical shape
- 2.0 mm K-wire holes for temporary plate fixation and verification of implant position

APTUS Foot Mid- and Hindfoot 3.5 TriLock TNCM, NCM, TNC, TN Fusion Plates



APTUS Foot Mid- and Hindfoot 3.5 TriLock TNCM, NCM, TNC, TN Fusion Plates



- Available in multiple plate sizes with a plate profile of 2.0 mm and 2.5 mm
- Various plates offer the option to treat and compress multiple and single joints of the medial column
- Three screws in each bone to be fused for high stability
- Precontoured plate design follows the anatomical foot shape
- Easy to bend and cut for the desired fit
- Arrangement of screw holes and multidirectional locking of the screws allow for easy insertion of an intramedullary fixation device for added medial column support

APTUS Foot Mid- and Hindfoot 3.5 TriLock Wing Plates



- Versatile plates that may be bent and cut as necessary to meet the patient's needs
- Available in two sizes, 2.0 mm plate thickness
- 2.0 mm K-wire holes for temporary plate fixation and verification of implant position

APTUS Foot Calcaneus 3.5 TriLock Calcaneus Plates

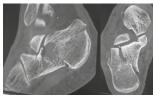
Features and Benefits



- Frame design distributes stresses uniformly across the plate
- Plate coverage of the calcaneus makes it possible to anchor the screws in dense bone structures
- The reduced subtalar joint can be kept in the alignment with up to five screws aiming towards the sustentaculum tali
- The alignment of the plate holes, which are based on the force direction, gives the plate a high degree of strength despite its low profile

Clinical Example

Fracture: Sanders type II A



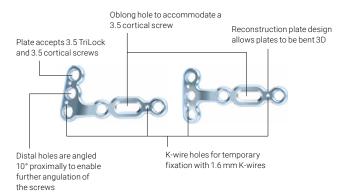




Postoperative X-rays

APTUS Ankle 3.5 Distal Tibia T and L Plates

Features and Benefits



- Plates can be applied anteriorly or posteriorly with minimal bending
- Distal holes are angled at 10° to help avoid intraarticular penetration
- The oblong hole allows for plate positioning and pulling of the plate to the bone





Posterior fixation with T and L plates





Anterior fixation with T and L plates

Clinical Example

Supination external rotation type 4 ankle fracture with a dislocation of the ankle joint



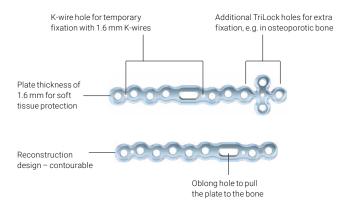




Postoperative X-rays (6 months)

APTUS Ankle 2.8 Distal Fibula Plates (Standard and Straight)

Features and Benefits



- 1.6 mm low profile plates
- Offset screw holes to prevent screw collision
- Three screw holes in the distal plate end for extra fixation in osteoporotic bone





Clinical Example

Weber C fracture with syndesmotic instability



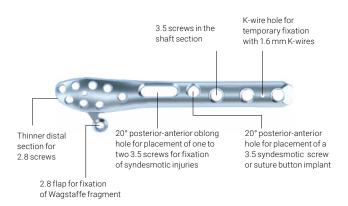




Postoperative X-rays (9 months)

APTUS Ankle 2.8 / 3.5 Distal Fibula Plates, Lateral with and without Flap

Features and Benefits



- -2.8 screws in the distal end of the plate capture small comminuted fractures while
 3.5 screws provide strength in the shaft
- Oblong and single syndesmotic screw hole
- Wagstaffe fragment fixation with flap

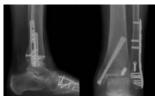


Clinical Example

Trimalleolar fracture including a Wagstaffe fragment



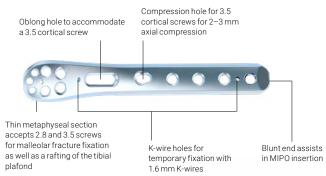




Postoperative X-rays (6 months)

APTUS Ankle 2.8 / 3.5 Distal Tibia Plates, Medial

Features and Benefits



- Screw combination in the distal end of the plate allows for the capture of small comminuted as well as large fragments
- Compression hole for compression of 2–3 mm in a distal tibia osteotomy
- Three 2.8 screws in the distal end of the plate capture the malleolar fragments in Weber fractures



Clinical Example

AO/OTA extraarticular 43-A3 fracture with a Weber C fibula fracture



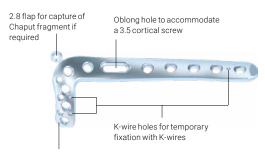




Postoperative X-rays

APTUS Ankle 2.8 / 3.5 Distal Tibia Plates, Anterolateral

Features and Benefits



The thin metaphyseal section accepts 2.8 and 3.5 screws for rafting of the tibial plafond

- Lateral flap for more lateral coverage and the ability to capture Chaput fragment
- Double row of screws in the distal end of the plate allows for reconstruction and realignment of the plafond (rafting effect)



Clinical Example

AO/OTA complete articular 43-C fracture with a Weber C fibula fracture







Postoperative X-rays

APTUS Foot MTP Reamers

Cannulated MTP Reamers



- Five pairs of reamers to fit any MTP -1 joint
- Sharp cutting edges for precise bone shape
- Ring on cone reamers ensures even removal of metatarsal osteophytes
- Perfect add-on to the APTUS Foot portfolio

Clinical Example

MTP-1 fusion with grid plate and crossing CCS 3.0 screw







Reaming of cup reamer



Postoperative X-ray

APTUS Foot Instruments

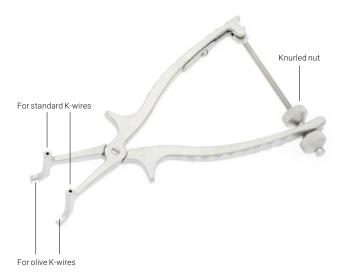
Self-holding drill sleeve

- Enables single-handed drilling
- Can be locked in the TriLock contour of the plate at the selected angle
- Multidirectional ±15



Compression and distraction forceps

- For compression, e. g. during MTP-1 fusion, with 1.6 mm olive K-wires or 1.6 mm standard K-wires
- For distraction, e. g. during TMT-1 cartilage removal, with 1.6 mm standard K-wires
- Fine adjustment and fixation via knurled nut and a threaded spindle



APTUS Ankle Instruments

Large Reduction Forceps



- Sized for distal tibia reduction and syndesmotic repair
- Pointed ball tips for grip in bone
- Ratchet handles for small incremental adjustments



APTUS Ankle Instruments

MIPO Instrument for Tunnel Preparation



- Used to prepare the path for a plate next to the periosteal tissue
- AO coupling fits either the large screwdriver handle or the T-handle

Drill Guide for Compression

- Specific 3.5 drill guide for compression in the compression hole of the 2.8 / 3.5 medial distal tibia plates
- In a supramalleolar tibial osteotomy, compression of up to 3 mm can be achieved
- Golden twist drill matches the 3.5 golden cortical screws for easy recognition



APTUS Foot & Ankle Storage

- Completely modular
- Compact system
- Easy to use
- Validated cleaning and sterilization

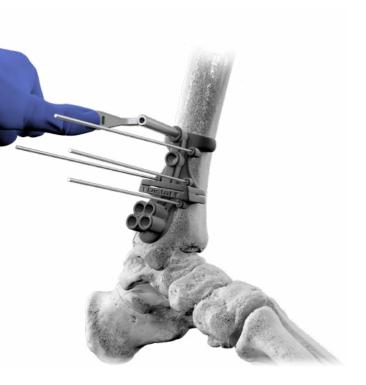


Example of an APTUS Hallux System 2.8

CMX Ankle*

CMX Ankle offers custom-made devices such as surgical guides and 3D bone models as part of the CMX service.

CMX Ankle custom-made devices are used with the implants of the proven system APTUS Ankle Trauma System 2.8 / 3.5.



^{*} Not available in all countries

CMX Workflow

Registration and Login

Single registration and activation of the account

Login with 2- factor authentication before each session



Case Initiation and Data Upload

Case initiation
Upload the patient's image files
(CT)*



Design Phase

The CMX designer develops proposals for guides and bone models**

Communication via chat function or comments on the 3D visualization



Design Approval and Binding Order

The CMX designer creates a release document with all important case information (Design Freeze) The customer releases the design

The customer releases the design by digitally signing the document Production is started



Delivery

The products and documentation are shipped within 5–10 working days

The delivery information is available in the CMX Portal



^{*} Image file requirements are compiled in a scan protocol and are available online at www.medartis.com.

^{**} Scope of delivery can vary depending on customer requirements

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- 1 Spiegel, A.; Pochlatko, N.; Zeuner, H.; Lang, A.; Biomechanical Tests of Different Cannulated Compression Screws (on file; Medartis AG, Switzerland)
- 2 Heidemann, W.; Terheyden, H.; Gerlach, K. L.; Analysis of the osseous / metal interface of drill free screws and self-tapping screws; Journal of Cranio-Maxillofacial Surgery (2001) 29, 69–74
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- **4** A. Spiegel, PhD, B. Langer, Medartis AG, Switzerland; S. Fabbri, Prof. M. de Wild, FHNW, Switzerland: Fatigue Testing of the Medartis APTUS Wing Plate (on file; Medartis AG, Switzerland)
- 5 Plaass et al.; Placement of Plantar Plates for Lapidus Arthrodsis: Anatomical Considerations. Foot & Ankle International (2015): 1071100715619607

Medartis Loan Service and Contact Addresses

All APTUS systems are also available as a loan set:

24 hrs service (Monday-Friday): order today for delivery on the next working day*

Contact addresses

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^{*} May vary by country

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