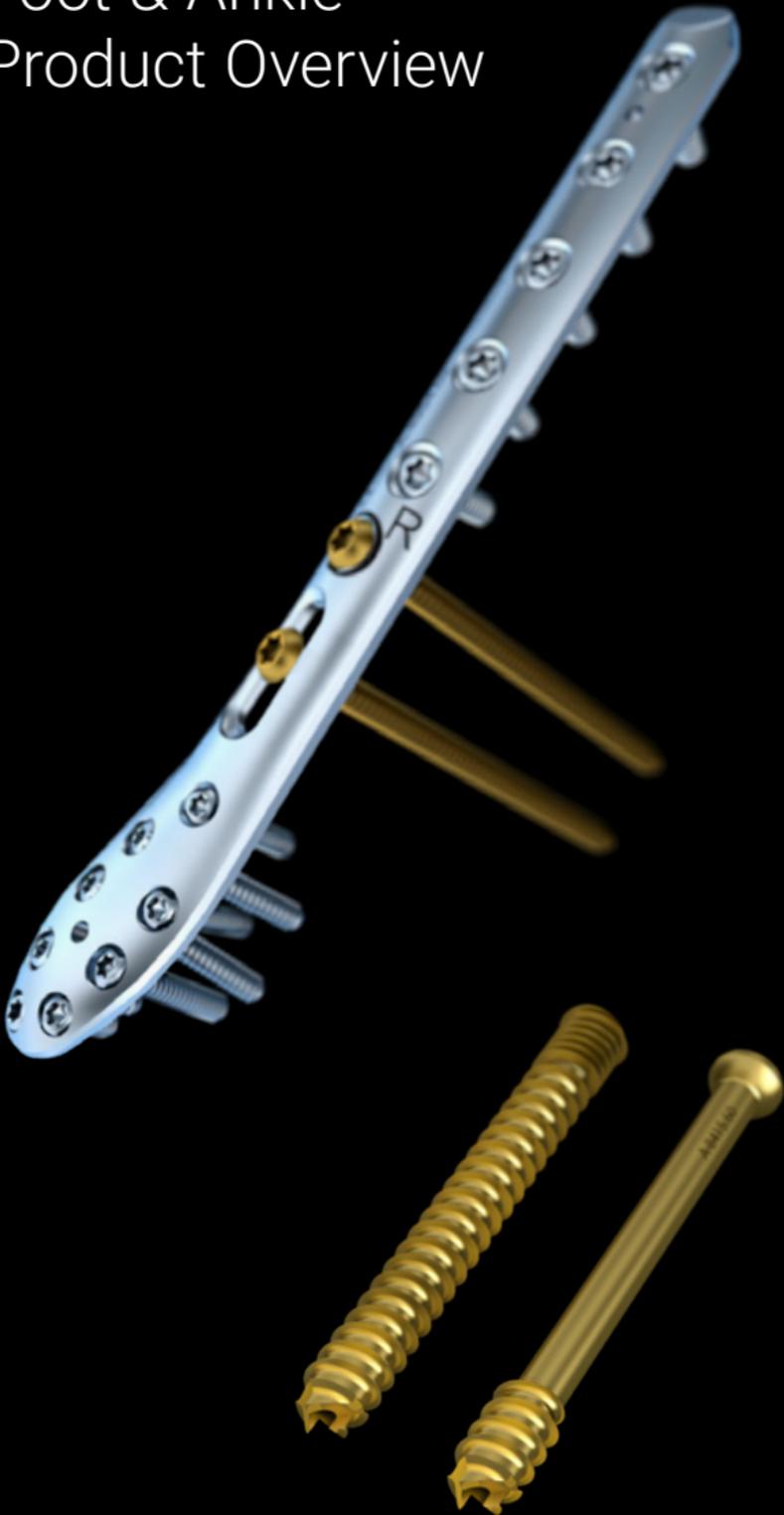


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Foot & Ankle Product Overview



APTUS

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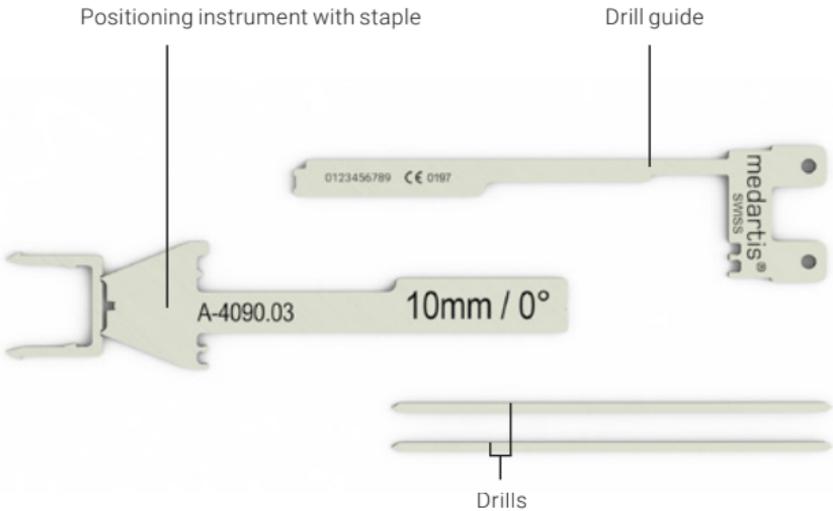
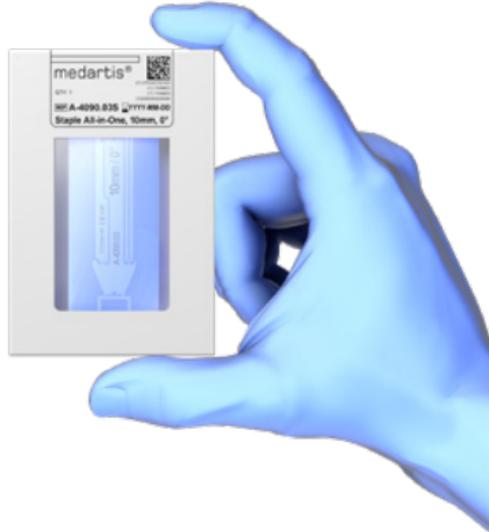
For further information on the APTUS product line, please visit www.medartis.com.

- 1** 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
- 2** Heidemann, W.; Terheyden, H.; Gerlach, K. L.; In-vivo-Untersuchungen zum Schrauben-Knochen-Kontakt von Drill-Free-Schrauben und herkömmlichen selbstschneidenden Schrauben; *Mund Kiefer GesichtsChir* 5 2001: 17–21
- 3** Spiegel, A.; Pochlatko, N.; Zeuner, H.; Lang, A.; Biomechanical Tests of Different Cannulated Compression Screws (on file; Medartis AG, Switzerland)
- 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 Arthrodesis: Anatomical Considerations. *Foot & Ankle International* (2015): 1071100715619607

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

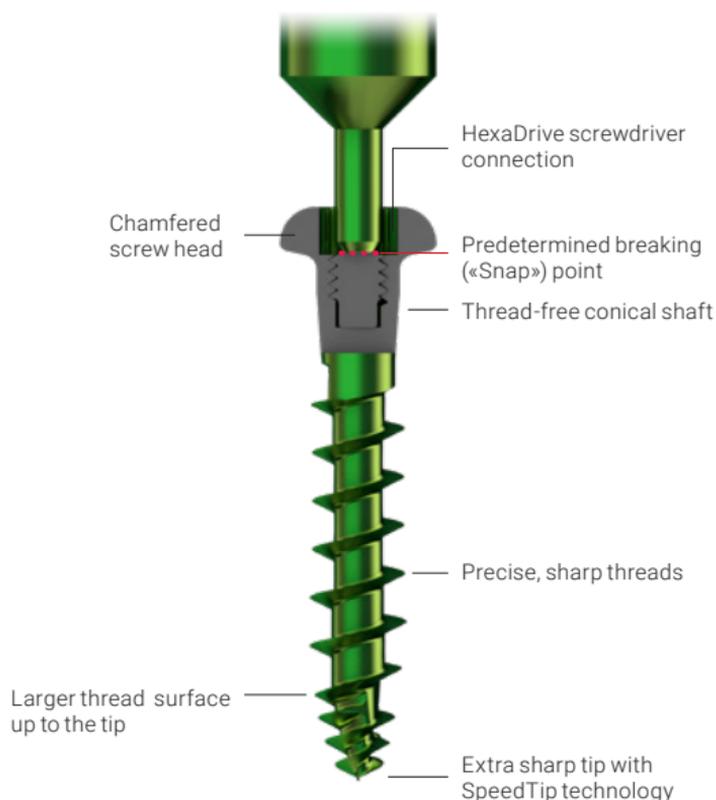
Features and Benefits

- 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



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^{1,2}

Clinical Example



Preoperative X-ray



Postoperative X-ray



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

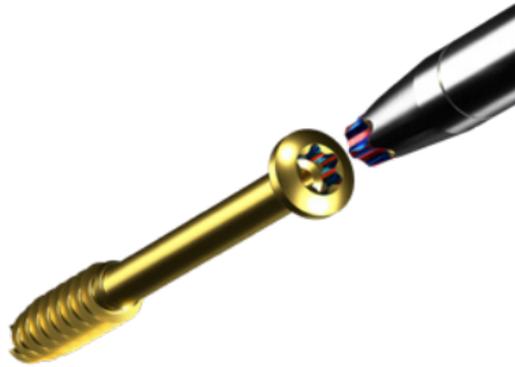
Comprehensive portfolio

- 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 bite³
- Reduced insertion torque due to the polygonal tip

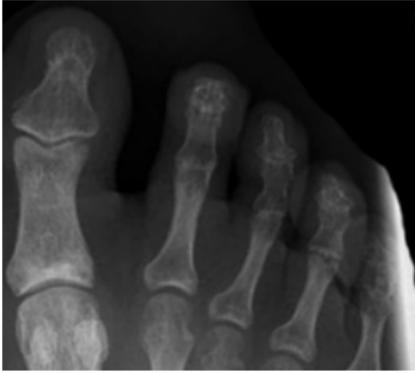


Modified scarf osteotomy

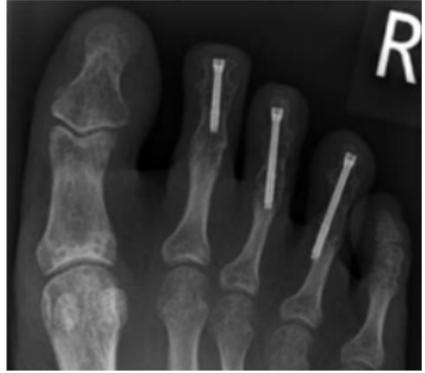
APTUS Cannulated Compression Screws CCS 2.2, 3.0 and headed CCS 2.2, 3.0

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



Preoperative X-ray

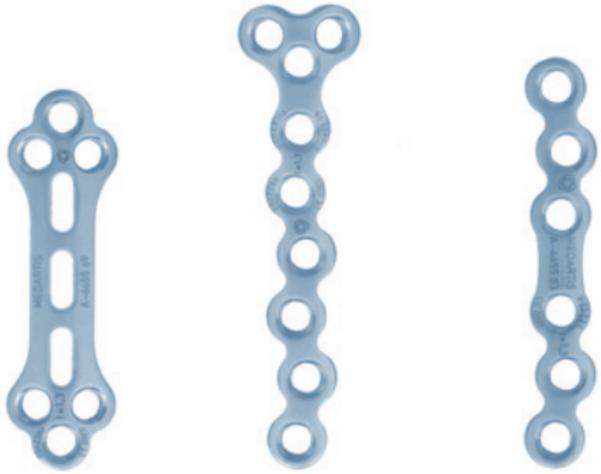


Postoperative X-ray

Clinical example published with the kind permission of: M. Wiewiorski, Winterthur, Switzerland

APTUS Foot Fore- and Midfoot 2.0 / 2.3, 2.8 Grid Plate, T Plate, Straight Plates

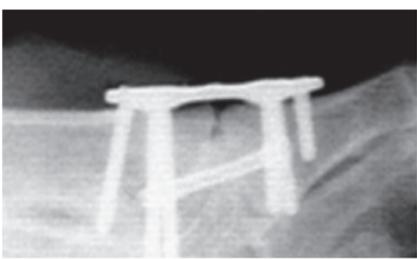
Features and Benefits



- Increased subchondral stability achieved by a double row of screws in the plate end area
- Offset screw holes in numerous plates avoid collisions between screws and prevent fracture propagation during drilling and screw insertion
- 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

Clinical example published with the kind permission of: C. Brumm, Schaffhausen, Switzerland

APTUS Foot Fore- and Midfoot 2.8 Wing Plates

Features and Benefits



- Well suited for high loads due to superior fatigue resistance⁴
- 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

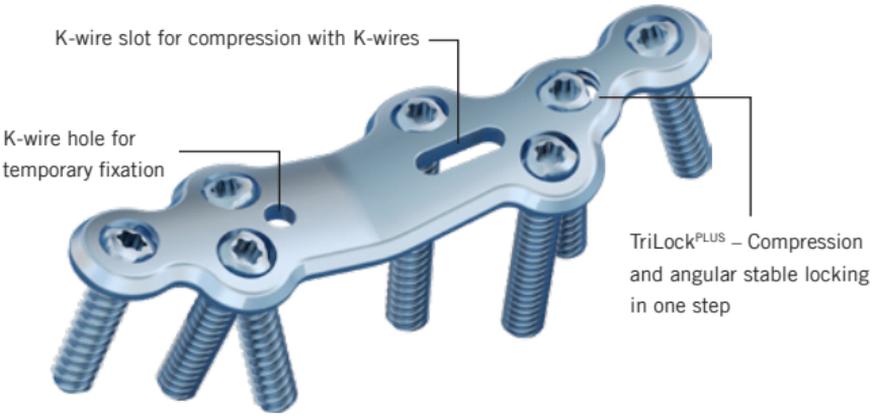


Postoperative X-ray

Clinical example published with the kind permission of: A. Schirm, St. Gallen, Switzerland

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



Postoperative X-ray (6 weeks)

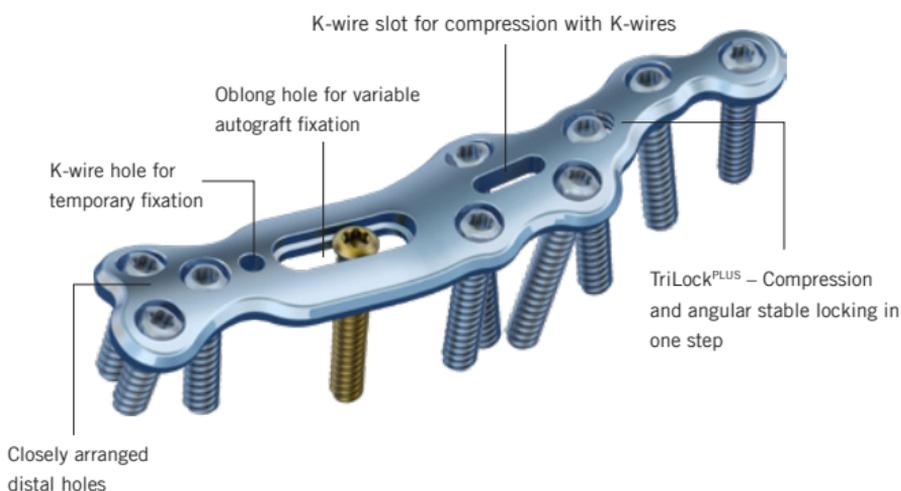


Postoperative X-ray (6 weeks)

Clinical example published with the kind permission of: L. Drittenbass, Geneva, Switzerland

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



Preoperative X-ray

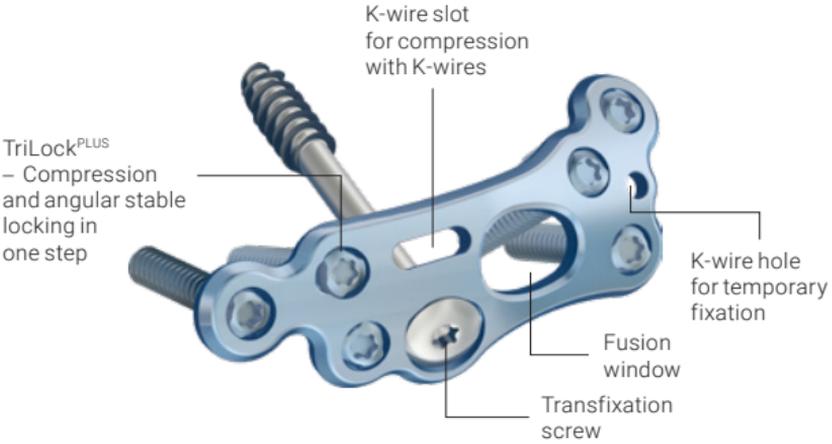


Postoperative X-rays (6 weeks)

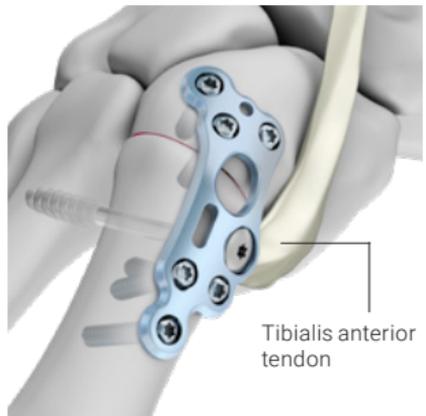
Clinical example published with the kind permission of: T. Schneider, Melbourne, Australia

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 mm transfixation screw can be inserted through the plate into the 2nd metatarsal
- Plate design reduces contact with the tibialis anterior tendon



Clinical Example



Preoperative X-ray



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

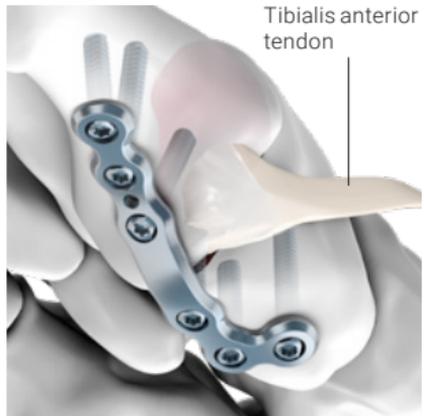
Features and Benefits

Plate design minimizes conflict with tibialis anterior tendon insertion⁵

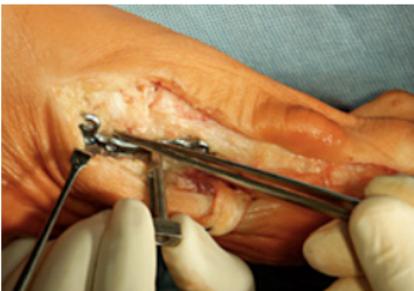


Optimized plate design allows for soft tissue friendly access

- Plantar placement of plate takes advantage of the tension band effect increasing compression in the arthrodesis
- Anatomical plate shape⁵
- Low plate profile with minimal screw head protrusion, rounded edges and a smooth surface for soft tissue protection



Clinical Example



Intraoperative image



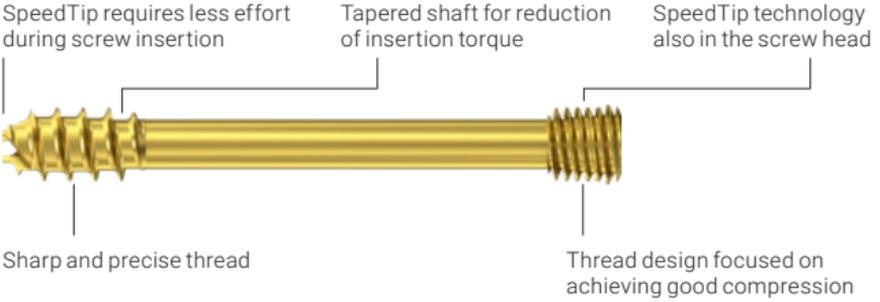
Postoperative X-ray (6 weeks)

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

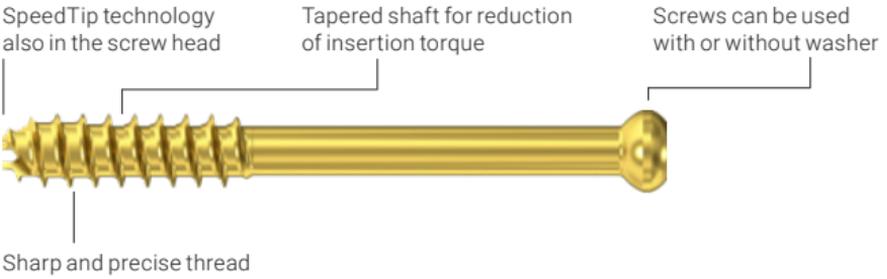
APTUS Cannulated Compression Screws CCS and headedCCS 4.0, 5.0, 7.0

Features and Benefits

CCS



headedCCS

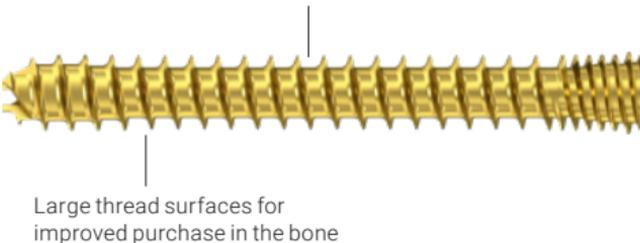


Thread Types

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



Fully threaded screw for additional purchase in the bone without the effect of compression



APTUS Cannulated Compression Screws CCS and headed CCS 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, Salzman and lateral)



Postoperative X-rays (4 months)

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

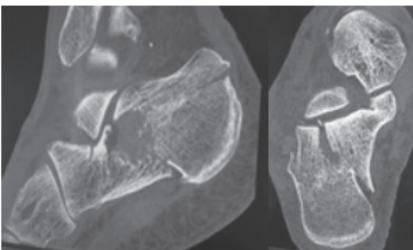
Features and Benefits



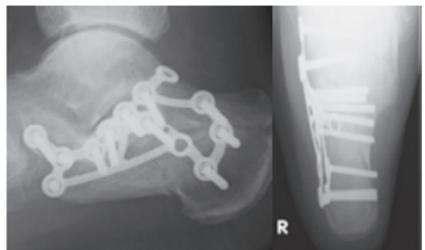
- Frame design distributes stresses uniformly across the plate
- Plate coverage of the calcaneus makes it possible to anchor the screws in dense bone structures
- The reduced subtalar joint can be kept in the alignment with up to five screws aiming towards the sustentaculum tali
- The alignment of the 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



Preoperative X-rays

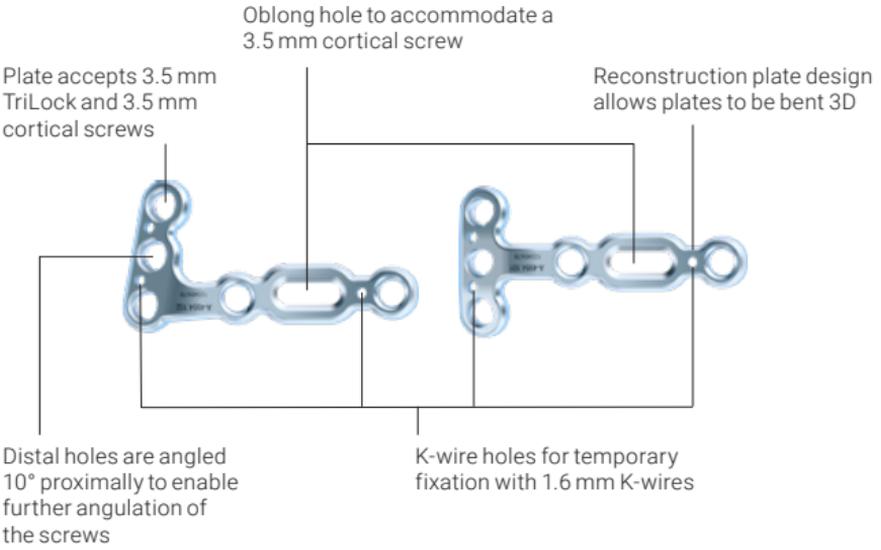


Postoperative X-rays

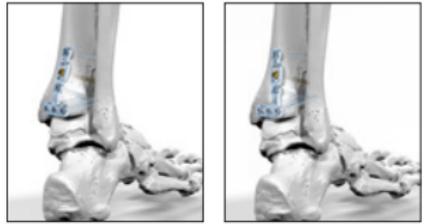
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APTUS Ankle 3.5 Distal Tibia T and L Plates

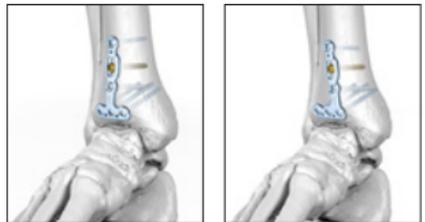
Features and Benefits



- 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



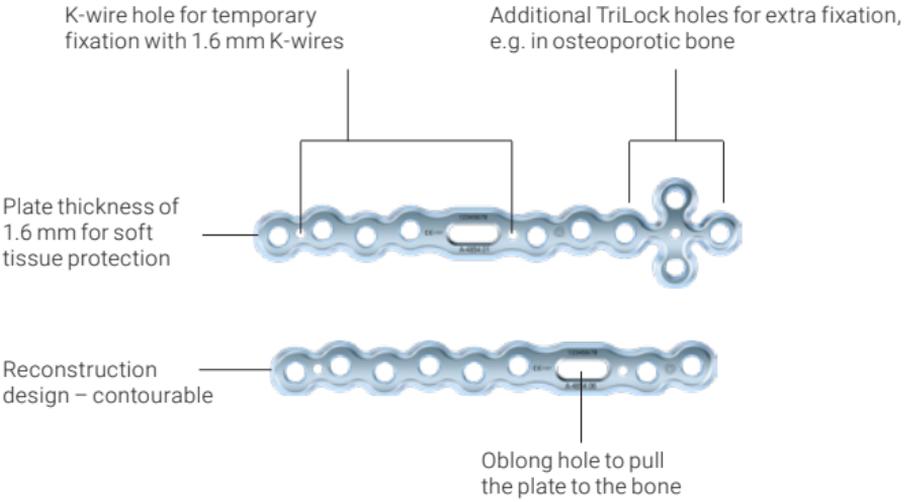
Preoperative X-rays



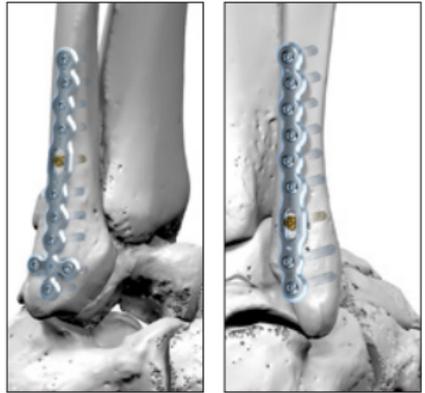
Postoperative X-rays (6 months)

Clinical example published with the kind permission of: T. Schepers, Amsterdam, Netherlands

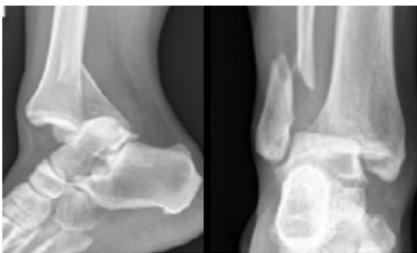
Features and Benefits



- 1.6 mm low profile plates
- Staggered screw hole geometry reduces the chance of screw collision
- Three screw holes in the distal plate end for extra fixation in osteoporotic bone



Clinical Example



Preoperative X-rays



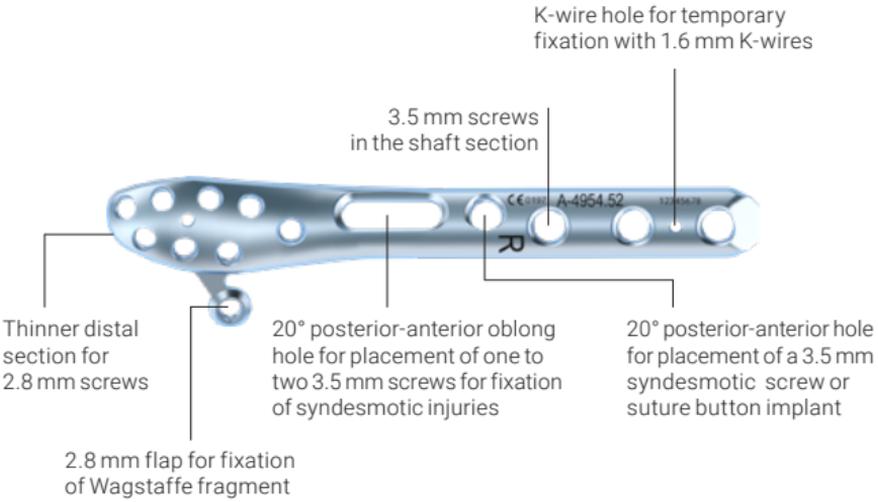
Postoperative X-rays (9 months)

Clinical example published with the kind permission of: J. Chow, Sydney, Australia

APTUS Ankle

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

Features and Benefits



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



Clinical Example



Preoperative X-rays

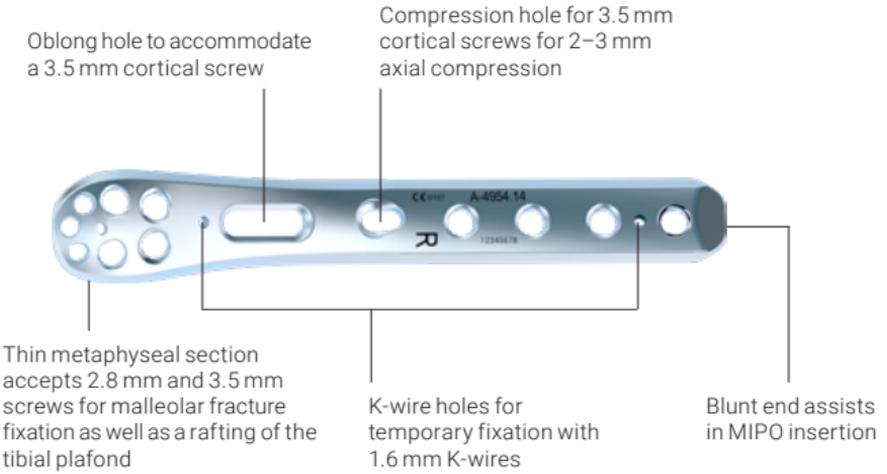


Postoperative X-rays (6 months)

Clinical example published with the kind permission of: J. Sebag, Port Saint Lucie, FL, USA

APTUS Ankle 2.8/3.5 Distal Tibia Plates, Medial

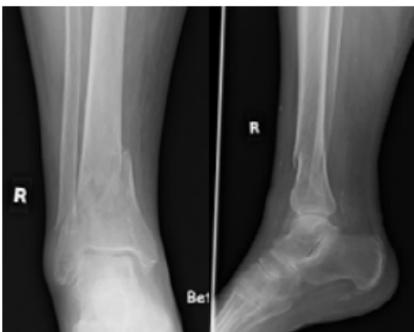
Features and Benefits



- Screw combination in the head 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 mm screws in the head capture the malleolar fragments in Weber fractures



Clinical Example



Preoperative X-rays

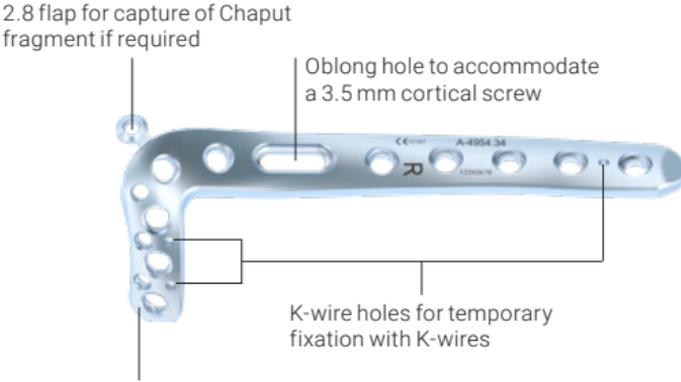


Postoperative X-rays

Clinical example published with the kind permission of: M. Schädel-Höpfner, Neuss, Germany

APTUS Ankle 2.8/3.5 Distal Tibia Plates, Anterolateral

Features and Benefits



The thin metaphyseal section accepts 2.8 mm and 3.5 mm 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 head allows for reconstruction and realignment of the plafond (rafting effect)



Clinical Example



Preoperative X-rays



Postoperative X-rays

Clinical example published with the kind permission of: K. Genelin, Department of Orthopaedics and Traumatology, Medical University, Innsbruck, Austria

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



Reaming of
cone reamer



Reaming of
cup reamer



Postoperative
X-ray

Clinical example published with the kind permission of: P. Rice, Melbourne, Australia

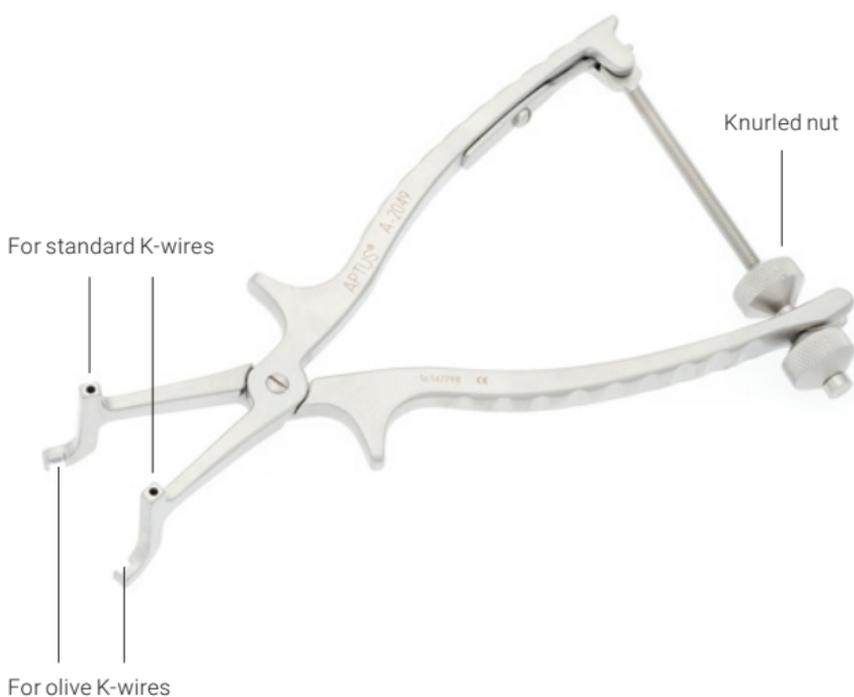
Self-Holding Drill Sleeve

- 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



Large Reduction Forceps



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



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

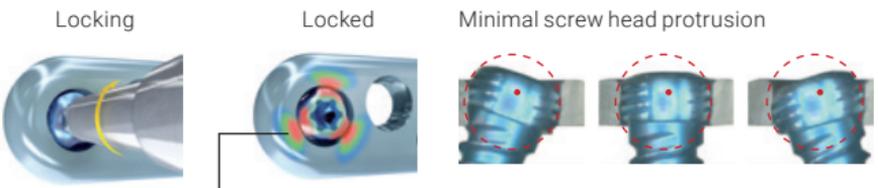
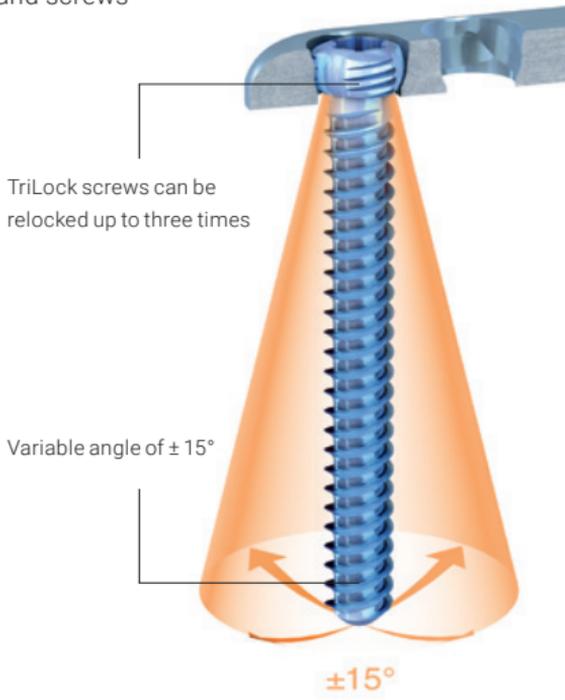


APTUS Technologies

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

TriLock Locking Technology

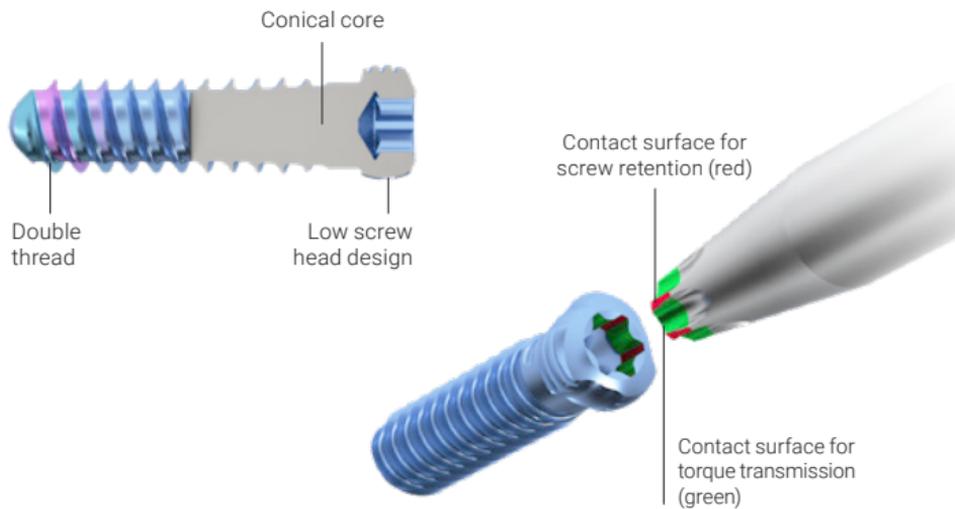
- Patented TriLock locking technology – multidirectional locking of the screw in the plate
 - Spherical three-point wedge-locking
 - Friction locking through radial bracing of the screw head in the plate without additional tensioning components
- TriLock^{PLUS} plate holes combine compression and angular stability in one step
- Screws can pivot freely by $\pm 15^\circ$ 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

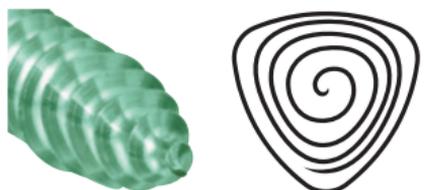
Screw Technology

- Patented 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 bite³
- 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^{1,2}
- Reduced insertion torque thanks to the polygonal tip and tapered shaft





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All technical data subject to alteration.

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