

PRECISION IN FIXATION

INFORMATION ON THE PRODUCT RANGE

Foot

APTUS[®]



APTUS[®] Foot

INTRODUCTION

Injuries and degenerative diseases represent a challenge to modern foot surgery. The complex biomechanical interplay within an extremely limited space of bone structures, joints and soft tissues demand a high degree of skill and precision on the part of the surgeon. There is hardly another discipline in which there are so many surgical methods defined as there are in foot surgery. When developing this system, the goal was therefore to provide the surgeon with a universal range of plates. In this regard, new, precisely dimensioned and biomechanically improved implants, in combination with appropriately matched instruments, facilitate operative procedures and contribute to reliable rehabilitation and preservation of function.

In collaboration with leading specialists, Medartis has developed the unique APTUS Foot osteosynthesis system. The plate design, which has been developed with broad versatility in mind, was adapted to fit the anatomy and biomechanics of the foot. A reduced profile height and an optimized implant surface minimize soft tissue irritation and provide the required stability. With the development of the TriLock locking technology, fractures and osteotomies are stabilized by means of the internal fixator principle.

A new generation of cannulated screws completes the foot portfolio. The patented SpeedTip polygonal geometry and a precision-manufactured thread save the surgeon time and effort during implantation.

Medartis APTUS implants make the daily surgical routine easier and permit early mobilization, as well as active therapy.

Precision in fixation



Medartis AG, headquartered in Basel, Switzerland, specializes in technical high-precision implants 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. These implants allow for patient rehabilitation after surgical reconstruction of fractures, malunions and deformities or skeletal diseases and their adjacent soft tissues. Medartis is represented worldwide through its subsidiaries and a broad distributor network.

Our motto is "Precision in fixation." We place the highest priority on maintaining stringent quality standards, continuous further development and innovation as well as comprehensive service provision for surgeons, OR staff and patients. This enhances long-term customer relations based on partnerships and has formed the foundation for sustainable success since the company's founding in 1997. The goal of Medartis is to continually improve early functional rehabilitation through its high-quality products and exclusively developed technologies. In order to fulfill the growing requirements of medical devices, our development teams engage in intensive knowledge exchange with our customers, partners and leading scientific institutes globally. Medartis' international locations allow us to determine the needs of surgeons and patients directly on site and to incorporate these needs into product development. This is the only way we can efficiently resolve current clinical problems and offer market-oriented products for use in the OR.

Service quality is considerably shaped by our international presence as well as local cooperation. Product quality is maintained by the fact that the entire process chain – from development to aftercare – is in the hands of our internal departments. Medartis can thus exclusively apply the newest technologies during product development for special areas such as small-bone surgery. At the same time, we have the greatest possible control over process quality and flexibility.

28 Bones - a Multitude of Options APTUS Foot

- For fractures of the fore-, mid- and hind foot
- For arthrodeses
- For osteotomies



APTUS FOOT

Trauma

Every fracture is different and must be treated accordingly. The primary objective is functional and pain free restoration of the anatomy and improved range of motion of the foot. With its flexible plate and screw range, Medartis offers repair options for any fracture of the foot. Plate fixation with angular stable treatment solutions based on the principle of internal fixation permit early mobilization and potentially shorten rehabilitation time after surgery.

Arthrodeses and osteotomies

Arthrodeses and osteotomies of the foot represent a frequent problem in medical practice. In addition to freedom from symptoms, aesthetic factors are key for patient satisfaction. The range of treatment options is quite extensive. Thanks to a universal plate design, a low system profile and the multidirectional angular stability of APTUS foot, the surgeon has maximum freedom to decide on which procedure to choose.



- 1 Extra-articular fracture
- 2 MTP 1 arthrodesis
- 3 Lisfranc arthrodesis
- 4 Calcaneus fracture
- 5 Oblique fracture

Anatomical Plate Design APTUS Foot



For further information on the plate range, see the APTUS Ordering Catalog at www.medartis.com/meta/downloads/marketing-materials.

- Low profile
- Multidirectional (±15°) and angular stable fixation
- Universal plate design

PLATE RANGE

Supports the following indications

- All transverse fractures, spiral fractures, periarticular, intraarticular or shaft fractures, comminuted fractures and dislocated fractures of the fore- and midfoot
- Fractures and osteotomies of the calcaneus
- TMT and MTP arthrodeses, as well as arthrodeses of the tarsals
- Osteotomies, especially of the metatarsals





PLATE FEATURES

- Anatomically pre-contoured plate geometries for simple intraoperative application
- Highly rounded edges and flat profile for maximum soft tissue protection
- Offset screw holes provide increased rotational stability, avoid collisions between screws and prevent bone splitting
- All plate holes are compatible with TriLock and cortical screws

Superior Screw Technology APTUS Foot



3 Finite element presentation of torsional behavior

For further information on the screw range, see the APTUS Ordering Catalog at www.medartis.com/meta/downloads/marketing-materials.

- HexaDrive interface with excellent self-holding properties
- Threads have outstanding self-tapping characteristics
- Variable shaft geometry reduces insertion effort

SCREW OPTIONS

- 2.0, 2.8, 3.5 TriLock screws (locking)
- 2.3, 2.8, 3.5 cortical screws (fixation)



- TriLock locking technology secure, angular stable locking of the screw in the plate:
 - o Spherical three-point wedge-locking
 - Friction locking through radial bracing of the screw head in the plate – without additional tensioning components
- HexaDrive screw head design for increased torque transmission and optimal self-retaining mechanism between the screw head and screwdriver blade
- Excellent self-tapping properties (without cutting flutes) and easy screw insertion due to precision cut thread profile
- Double threaded TriLock screws for faster insertion

SPEEDTIP CCS CANNULATED COMPRESSION SCREW

- Screws can be inserted directly without pre-drilling
- Reduced risk of loss of reduction thanks to excellent self-tapping properties
- Effortless insertion the polygonal tip pushes bone material aside



Technology, Material and Biomechanics APTUS Foot



- TriLock locking technology
- High-grade materials
- Highest quality standard

INNOVATIVE TRILOCK LOCKING TECHNOLOGY

TriLock is a unique, multidirectional and angular stable locking technology

- High stability through frictional bracing of the screw head in the plate (spherical three-point wedge-locking)
- Variable angle of ± 15° in all directions enables optimal positioning of the screw
- The special locking contour of the screw head and plate hole permits precise intraoperative adjustability



Internal fixator principle

INTERNAL FIXATOR PRINCIPLE

The TriLock plate-screw connection functions according to the principle of internal fixation and thus allows the bridging of unstable zones. In addition, it improves vascularization of the periosteum, since it is not necessary for the plate to be in direct contact with the bone surface.

MATERIAL

Plates and screws are made from pure titanium (ASTM F67, ISO 5832-2) or from titanium alloy (ASTM F136, ISO 5832-3). Titanium is a safe and reliable material, which is biocompatible and corrosion-resistant, does not trigger any allergic reactions and, according to current understanding, can remain in the body indefinitely.

BIOMECHANICS

Computer-optimized plate geometries ensure that the implants can withstand high mechanical stress with minimal plate thickness.



Bridging of an unstable zone



Instruments APTUS Foot



- Reduced instrument kit
- Intuitive application due to clear color coding
- Easy to use

SIMPLE INSTRUMENT KIT

The Medartis instruments are compact, ergonomically designed and easy to use.

- Depth gauges for single-handed use
- Screwdriver features the patented HexaDrive self-holding system.
- Plate bending pliers for fore- and midfoot plates, as well as for calcaneal plates
- Cutting pliers for all plate sizes



CLEARLY DESIGNED COLOR-CODING CONCEPT

Twist drills and instruments have a consistent and clear color code which allows for intuitive use within the different system sizes.

APTUS 2.0 = blue

APTUS 2.3 = brown

APTUS 2.8 = orange

APTUS 3.5 = green



Storage in Perfection APTUS Foot



For further information on fore- and midfoot system 2.0/2.3, 2.8, calcaneus system 3.5 and SpeedTip CCS 2.2/3.0 cannulated compression screws, please visit www.medartis.com/meta/downloads/marketing-materials.

- Economic, compact
- Easy to handle
- Clear and consistent color coding

MODULAR

In the fore- and midfoot system, the base frame in the 16/16 grid can be freely combined with screw and plate modules of different sizes, allowing the customer to configure an individual APTUS Foot system customized to their needs.

- 16/16 Base frame
- 1/16 Twist drill module
- 2/16 Screw modules
- 3/16 6/16 Plate modules

SPEEDTIP CCS CANNULATED COMPRESSION SCREWS AND CALCANEUS SYSTEM

The container concept for the calcaneus system and the cannulated compression screws is an effective advance on the proven APTUS container system. In addition to the usual ease of use and compactness, all of the modules can be identified from outside the closed container.

FLEXIBLE COLOR CODING AND LABELING CONCEPT

The use of colored stickers in the implant container permits consistent and clear color coding of the individual implants and system sizes, ensuring clear identification of the plates and screws.







Clinical Examples APTUS Foot

Case 1 – Chevron-Akin osteotomy (hallux valgus)



Preoperative X-ray



Intraoperative X-rays Treatment with a 2.2 and 3.0 cannulated compression screw



X-ray, 6 weeks after surgery

Case 2 – Charcot foot



Preoperative 3D reconstruction from CT images



Postoperative lateral X-ray Repair with two winged plates, one T plate and a grid plate



Postoperative A/P X-ray

Case 3 – Navicular fracture



Preoperative X-ray

Postoperative lateral X-ray Repair with a T plate Postoperative A/P X-ray

 $\label{eq:case 1-Dr. Hefti, Langenthal, Switzerland / Case 2 - Prof. Kinner, Stuttgart, Germany / Case 3 - Dr. Kratter, Lachen, Switzerland / Case 4 - Dr. Tanner, Heidelberg, Germany / Case 5 - Dr. Brumm, Schaffhausen, Switzerland / Case 6 - Dr. Kalotai, Scuol, Switzerland - Dr. Kalotai, Scuol, Scuol, Switzerland - Dr. Kalotai, Scuol, Switzer$

Case 4 – Calcaneus fracture with a Zwipp score of 9



Preoperative sagittal CT



Plate placement Repair with a calcaneus plate

Postoperative X-ray (three screws in the sustentaculum tali)

Case 5 – Great toe MTP arthrodesis (hallux rigidus)



Preoperative X-ray

Placement of the cannulated 3.0 compression screw followed by positioning of the grid plate



Postoperative X-ray

Case 6 – Interpositional arthrodesis



Preoperative X-ray



Plate placement Repair with a winged plate and a grid plate



Postoperative X-ray

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HEADQUARTERS

Medartis AG | Hochbergerstrasse 60E | 4057 Basel/Switzerland P +41 61 633 34 34 | F +41 61 633 34 00 | www.medartis.com

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