medartis

PRECISION IN FIXATION

Hand
Product Overview

APTUS

Contents

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

Introduction Medartis

Medartis, headquartered in Basel, Switzerland, specializes in technical 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.

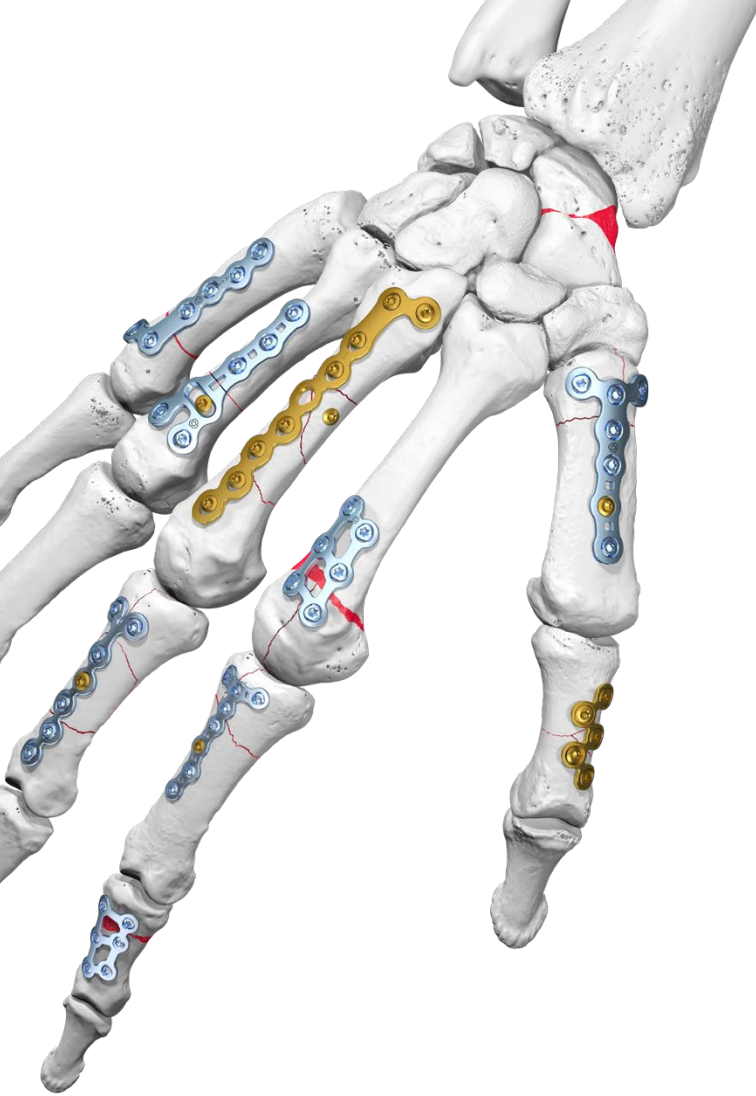
Our motto is «Precision in fixation». Since the company's founding in 1997, we place the highest priority on maintaining stringent quality standards, continuous further development and innovation as well as comprehensive service provision.

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

Comprehensive Solutions for the Hand

APTUS Hand

A broad portfolio of hand plates and screws to support the treatment of all fracture types and corrections.



APTUS Cannulated Compression Screws

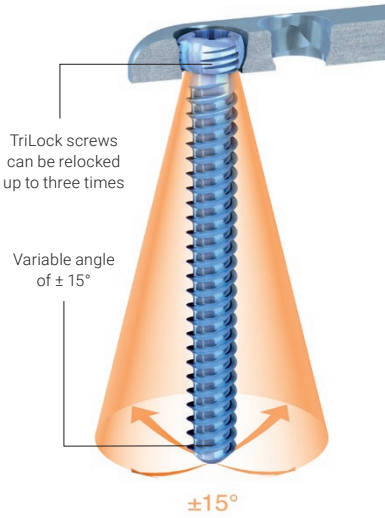
Comprehensive portfolio of cannulated screws and headed cannulated screws available with short thread, long thread or fully threaded in different diameters and lengths.

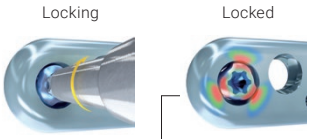
APTUS Technologies

TriLock locking technology

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

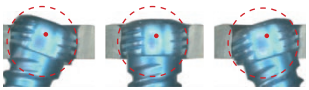
- Patented TriLock locking technology
  - multidirectional locking of the screw in the plate
  - spherical three-point wedge-locking
  - friction locking through radial bracing of the screw head in the plate without additional tensioning components
- Screws can pivot freely by ±15° in all directions 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

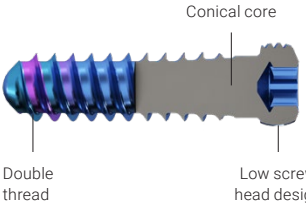




Patented TriLock locking technology – multidirectional locking of the screw in the plate

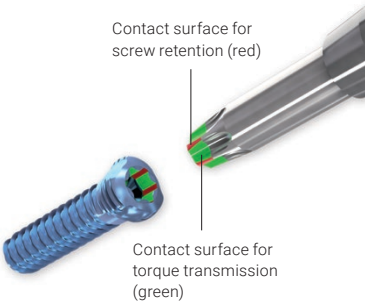
Minimal screw head protrusion





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
– Adapted pitches of the screw thread in cortical screws depending on screw length
– Double-threaded TriLock screws reduce screw insertion time



SpeedTip thread design

– Functionally unique cutting with immediate bite [13]
– 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 [14, 15]
– Reduced insertion torque thanks to the polygonal tip and tapered shaft

Plate Designs

General features and benefits

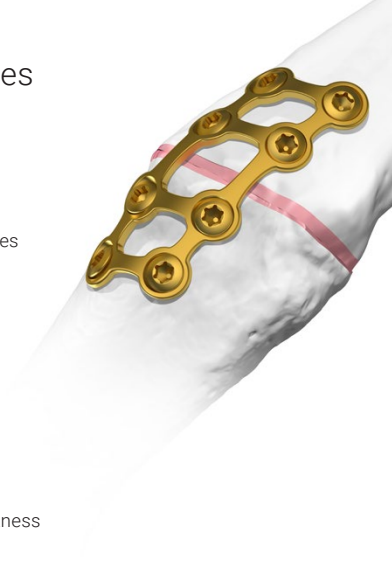
– Anatomically precontoured and fracture-specific implant geometries for less or no intraoperative bending

– Rounded edges and a smooth surface for soft tissue protection

– Offset screw holes in numerous plates avoid screw collisions

– Color-coded implants for easy identification in the operating room:
  – gold = Fixation/compression plates and cortical screws (fixation)
  – blue = TriLock plates and TriLock screws (locking)
– Two screw sizes can be used for each plate thickness:
  – 1.2/1.5 screws for 1.2/1.5 plates with a plate thickness of 0.6 or 0.8 mm
  – 2.0/2.3 screws for 2.0/2.3 plates with a plate thickness of 1.0 or 1.3 mm

1.2 / 1.5 Fixation Plates



Typical clinical findings

– Fractures in phalanges

– Unstable, non-comminuted fractures

– Simple intraarticular and extraarticular fractures

– For PIP arthrodesis

Features and benefits

– Several design options: straight, L-/T-/Y-shape, and grid structure

– Low plate profile with 0.6 mm thickness

– L-, Y- and T-plates

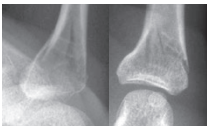
  – reduction of periarticular and intraarticular fractures

– Broader bars in bridging zones

– Grid plates

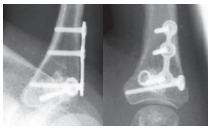
  – increased torsional and bending stability

Clinical Examples



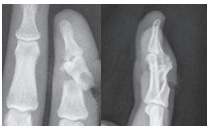
Preoperative X-rays

Intraoperative image



Postoperative X-rays

Clinical example published with the kind permission of: C. Ranft, Kiel, Germany



Preoperative X-rays

Intraoperative image

Postoperative X-rays

Clinical example published with the kind permission of the author

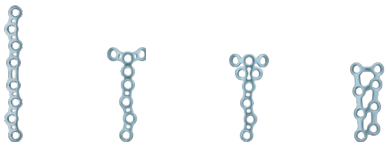
1.2 / 1.5 TriLock Plates

Typical clinical findings

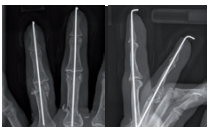
– Fractures in phalanges
– Comminuted fractures
– Simple and complex intraarticular and extraarticular fractures
– Fractures in osteoporotic bone
– For PIP arthrodesis

Features and benefits

– Internal fixator principle for early mobilization
– Several design options: straight, T-shape, and grid structure
– Low plate profile with 0.8 mm thickness
– Double bars between screw holes for increased torsional stability
– Double row T-plate:
  – more screw options for support in the subchondral area
  – reduction of articular fracture fragments and fractures close to the joint
– Grid plates:
  – increased torsional and bending stability
  – for comminuted fractures in the metaphyseal and diaphyseal region
  – straight hole arrangement on one end of the plate to position the plate as close to the joint as possible

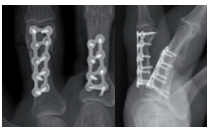


Clinical Example



Preoperative X-rays

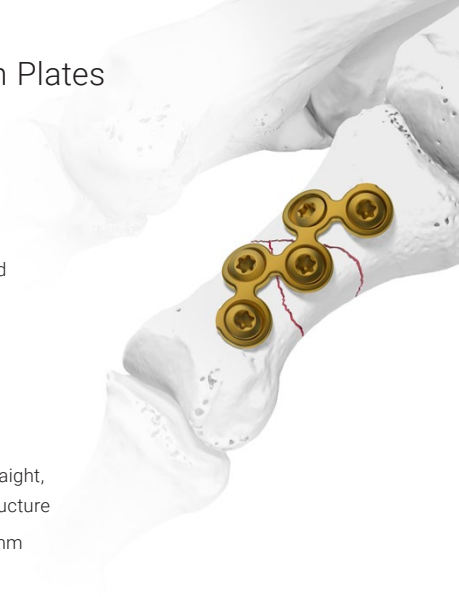
Intraoperative image



Postoperative X-rays

Clinical example published with the kind permission of: D. Schäfer, Basel, Switzerland

2.0 / 2.3 Fixation Plates



Typical clinical findings

– Fractures in metacarpals and proximal phalanges
– Unstable, non-comminuted fractures
– Simple intraarticular and extraarticular fractures

Features and benefits

– Several design options: straight, L-/T-/Y-shape, and grid structure
– Low plate profile with 1.0 mm thickness
– L-, Y- and T-plates
  – reduction of periarticular and intraarticular fractures
– Broader bars in bridging zones
– Grid plates
  – increased torsional and bending stability

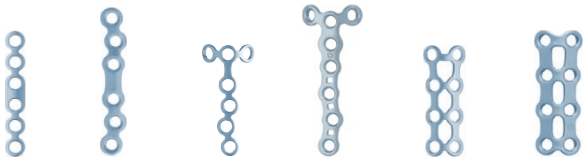
2.0 / 2.3 TriLock Plates

Typical clinical findings

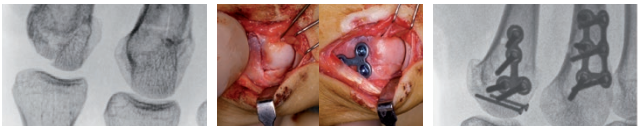
– Fractures in metacarpals and proximal phalanges
– Comminuted fractures
– Simple and complex intraarticular and extraarticular fractures
– Fractures in osteoporotic bone

Features and benefits

– Internal fixator principle for early mobilization
– Several design options: straight, L-/T-/Y-shape, and grid structure
– Low plate profile with either 1.0 or 1.3 mm thickness
  – choice of construct stability
– L-, Y- and T-plates:
  – reduction of articular fracture fragments and fractures close to the joint
  – broader bars in bridging zones
– Grid plates:
  – increased torsional and bending stability
  – for comminuted fractures in the metaphyseal and diaphyseal region
  – straight and offset hole arrangements



Clinical Example



Preoperative X-ray | Intraoperative images | Postoperative X-ray

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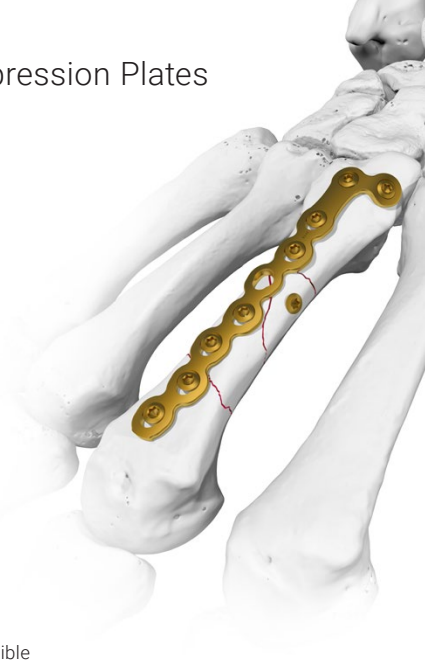
2.0 / 2.3 MC Compression Plates



Typical clinical findings

– Fractures in metacarpals only

– Extraarticular fractures

– Not for comminuted fractures

– Transverse fractures (compression plating)

– Oblique and spiral fractures (neutral plating)

Features and benefits

– Several design options: straight, L-/Y-shape

– Low plate profile with 1.3 mm thickness

– Up to 2 mm compression possible

– Y- and T-plates

  – reduction of periarticular and intraarticular fractures

– Broader bars in bridging zones

Clinical Example

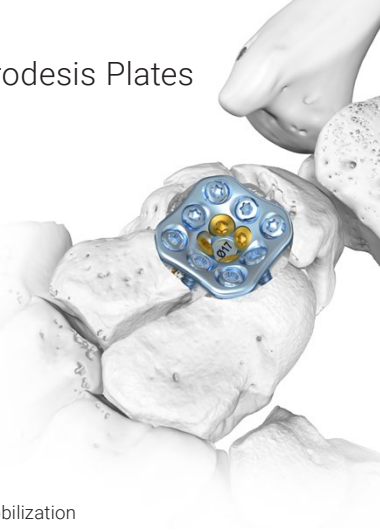
Preoperative X-rays

Intraoperative image

Postoperative X-rays

Clinical example published with the kind permission of the author

2.0 / 2.3 TriLock Arthrodesis Plates

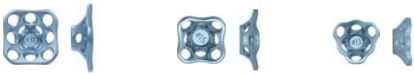


Typical clinical findings

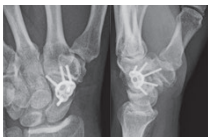
– 4CF plates
  – Osteoarthritis between radius, scaphoid and potentially midcarpal joint
– STT plate
  – Osteoarthritis between scaphoid, trapezium and trapezoid

Features and benefits

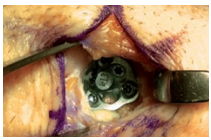
– Internal fixator principle for early mobilization
– Options for compression and stable fixation of the carpal bones
  – compression using cortical screws
  – angular stable fixation using TriLock screws
– Concave shape of plates and corresponding reamers
  – minimal bone removal
  – simple handling without intraoperative tilting of the plates
  – at least two screws can be inserted in each carpal bone
– 4CF-plates
  – two sizes to meet individual anatomical requirements
  – straight and offset hole arrangements



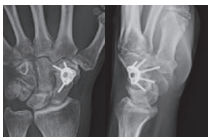
Clinical Examples



Intraoperative X-rays



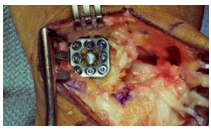
Intraoperative image



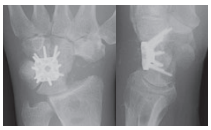
Postoperative X-rays

Clinical example published with the kind permission of: Arnold-Peter Weiss, Providence, USA

Preoperative X-rays



Intraoperative image



Postoperative X-rays

Clinical case published with the kind permission of: Arnold-Peter Weiss, Providence, USA

Special Plates

Hook plate

Typical clinical findings

– Bony avulsions (e.g. mallet fractures)

Features and benefits

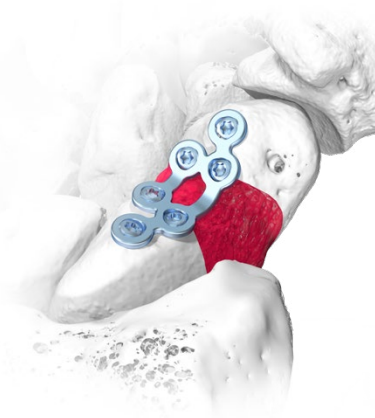
– Tap on plate for supported fragment reduction with holding instrument

– Compression hole

Scaphoid plate

Typical clinical findings

– Non-unions and multifragmentary fractures of the scaphoid



Features and benefits

– High degree of stability due to grid structure and up to three TriLock screws on each side of the non-union

– Anatomically preshaped to correct humpback deformity

– Two middle bars to keep the bone graft in place

Rotation correction plates

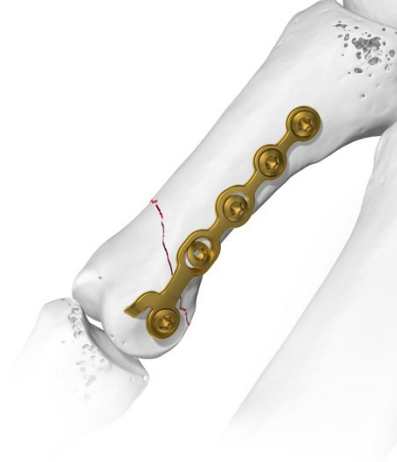
Typical clinical findings

– For rotational corrections in phalanges and metacarpals

Features and benefits

– Transversal oblong hole allows up to ± 25° of rotational correction and is close to the joint to perform the osteotomy near the metaphyseal area

– Separate screw holes ("frog design") simplify contouring in the periarticular area



Condylar plates

Typical clinical findings

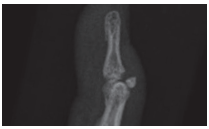
– For lateral reduction of simple intraarticular fractures

Features and benefits

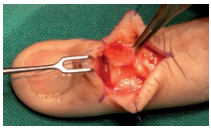
– Lateral reduction of simple intraarticular fractures

– Compression holes

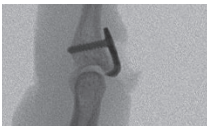
Clinical Examples



Preoperative X-ray

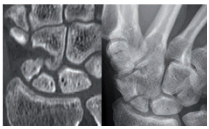


Intraoperative image

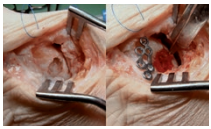


Postoperative X-ray

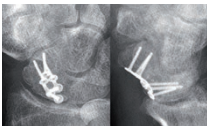
Clinical example published with the kind permission of: M. Aerni, Münsterlingen, Switzerland



Preoperative X-rays



Intraoperative images



Postoperative X-rays

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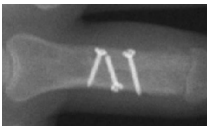
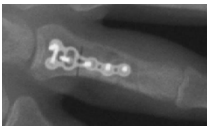


Preoperative X-ray

Intraoperative image



Postoperative X-ray

Clinical example published with the kind permission of the author

Screws and Washers

Screws

– Choice of different screw diameter for each plate type:

	Cortical Screws				**TriLock Screws**	
Diameter (mm)	1.2	1.5	2.0	2.3	1.5	2.0
Plate types	1.2/1.5 Fixation Plates 1.2/1.5 TriLock Plates		2.0/2.3 Fixation Plates 2.0/2.3 TriLock Plates 2.0/2.3 MC Compression Plates 2.0/2.3 TriLock Arthrodesis Plates		1.2/1.5 TriLock Plates	2.0/2.3 TriLock Plates 2.0/2.3 TriLock Arthrodesis Plates

– Intraoperative adjustability of screw angle and fine-tuning capabilities

– Cortical screw for "screw-only" fracture fixation

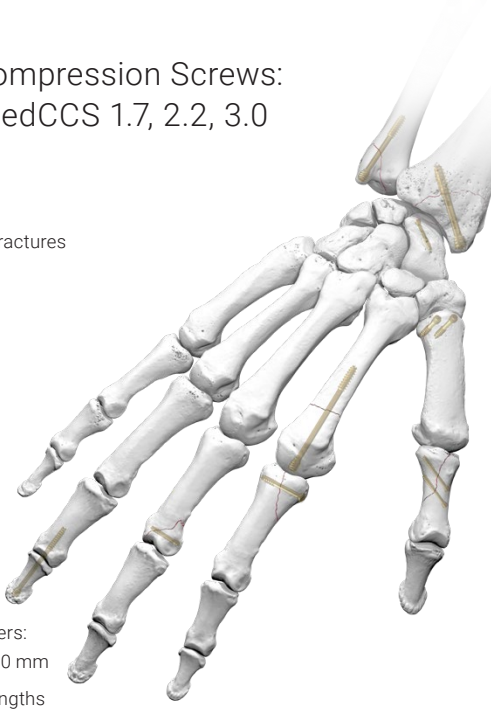
– Emergency (cortical) screws available

Washers

– Biconcave design

– For force distribution over a larger bone surface around the screw head.

Cannulated Compression Screws: CCS and headedCCS 1.7, 2.2, 3.0



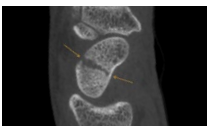
Typical clinical findings

– Head / base / oblique fractures in phalanges
– DIP joint arthritis
– Transverse fracture in metacarpals
– Bennett fracture
– Scaphoid fracture
– Ulnar styloid fracture
– Radial styloid fracture

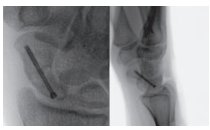
Features and benefits

– Three different diameters: 1.7 mm, 2.2 mm and 3.0 mm
– Two different thread lengths
– Headed and headless screws
– Covering numerous areas of use in the hand
– Patented SpeedTip thread design
  – functionally unique cutting with immediate bite [13]
  – 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 [14, 15]
– Reduced insertion torque thanks to the polygonal tip and tapered shaft

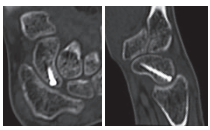
Clinical Examples



Preoperative X-ray



Intraoperative images



Postoperative X-rays

Clinical example published with the kind permission of: N. Schelhorn, R. Fricker, Switzerland

Instruments

– Simple and easy to use

– Intuitive application

– Consistent and distinct color coding:

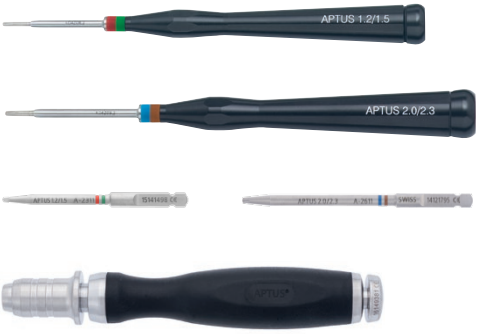
APTUS 1.2 = red 1.2 APTUS 1.5 = green 1.5

APTUS 2.0 = blue 2.0 APTUS 2.3 = brown 2.3

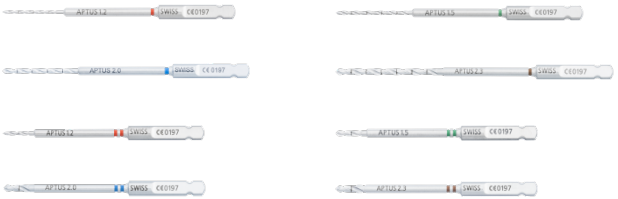
Ergonomically designed and compact instrument kit

One plate holding and positioning instrument for each of the systems 1.2/1.5 and 2.0/2.3

One screwdriver/handle with screwdriver blade for each of the systems 1.2/1.5 and 2.0/2.3



Twist drills for core and gliding hole for all screw sizes 1.2, 1.5, 2.0 and 2.3



One drill guide for each of the systems 1.2/1.5 and 2.0/2.3

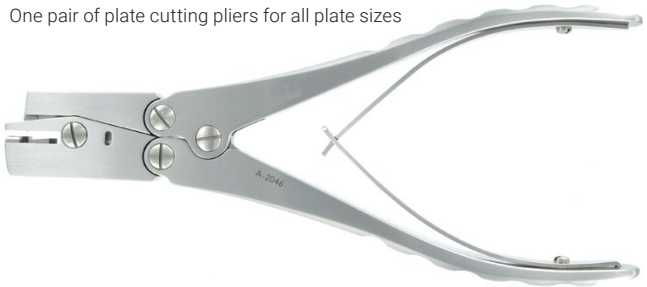
Specific drill guides for lag screw technique

Countersinks for 1.2/1.5 and 2.0/2.3 screws

Depth gauge for one-handed use

One pair of plate bending pliers for all plate sizes

One pair of plate cutting pliers for all plate sizes



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