

medartis®

PRECISION IN FIXATION

PRODUCT INFORMATION

# Arthrodesis System 2.0/2.3, 2.5



## APTUS® Hand/Wrist

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For further information regarding the APTUS product line visit:  
[www.medartis.com](http://www.medartis.com)

# A Well-Designed Arthrodesis System for the Carpal Bones and Wrist

Freedom from pain, mobility and stability are basic prerequisites for trouble-free hand function. If “normal functioning” of the hand is no longer possible, for example due to serious post-traumatic or degenerative osteoarthritis or rheumatoid arthritis, this greatly limits the quality of life of the person concerned. As a last resort for enabling this patient to lead a pain-free everyday life with the maximum possible freedom of movement, a partial or total arthrodesis of the affected joints is very often performed.



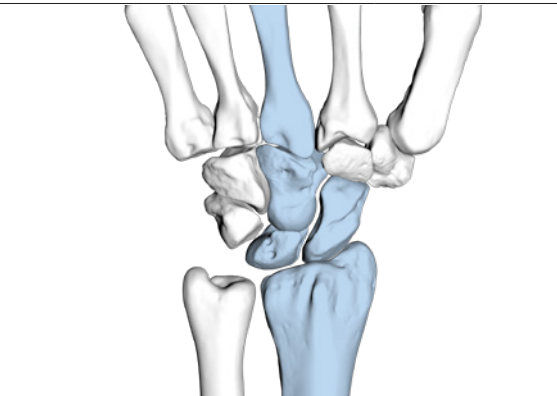










The APTUS Wrist Arthrodesis System 2.0/2.3, 2.5 offers a comprehensive portfolio of plates for meeting the individual needs of patients.

The system includes specifically developed plates for four corner fusion (4CF) and fusion of the scaphoid, trapezium and trapezoid (STT). Plates are also available for radioscapulunate fusion (RSL) and for total wrist fusion (TWF), supplemented

by wrist fusion plates (WF) that avoid fusion of the carpometacarpal joint, thereby allowing the physiological movements in this joint to be preserved.

The APTUS Wrist Arthrodesis System 2.0/2.3, 2.5, with its well-designed plate portfolio in combination with the multidirectional and angular stable TriLock locking technology, enables stable fixation of the required patient specific arthrodesis of the carpal bones and wrist, respectively.



Bones to fixate	 <ul style="list-style-type: none"><li>• Radius</li><li>• Scaphoid</li><li>• Lunate</li><li>• Capitate</li><li>• Trapezoid</li></ul>		 <ul style="list-style-type: none"><li>• Radius</li><li>• Capitate</li></ul>		 <ul style="list-style-type: none"><li>• Radius</li><li>• Scaphoid</li><li>• Lunate</li><li>• Capitate</li><li>• Metacarpal III</li></ul>									
Plates	 A-4760.01		 A-4760.02**		 A-4760.07		 A-4760.08**		 A-4760.04		 A-4760.05		 A-4760.06**	
														
Examples of typical clinical findings in which at the physician's discretion an arthrodesis may be indicated.														
<ul style="list-style-type: none"><li>• Osteoarthritis in the radiocarpal and midcarpal joint; physiological movement in the carpometacarpal joint is maintained</li></ul>				<ul style="list-style-type: none"><li>• Osteoarthritis following proximal row carpectomy</li><li>• Osteoarthritis following failed partial arthrodesis (Four Corner Fusion)</li><li>• Post-traumatic deformity</li></ul>				<ul style="list-style-type: none"><li>• Osteoarthritis in the radiocarpal and midcarpal joint; including complete fusion of the carpometacarpal joint</li><li>• Post-traumatic deformity</li><li>• Rheumatic diseases</li><li>• Spastic deformity</li><li>• Tumor</li></ul>						

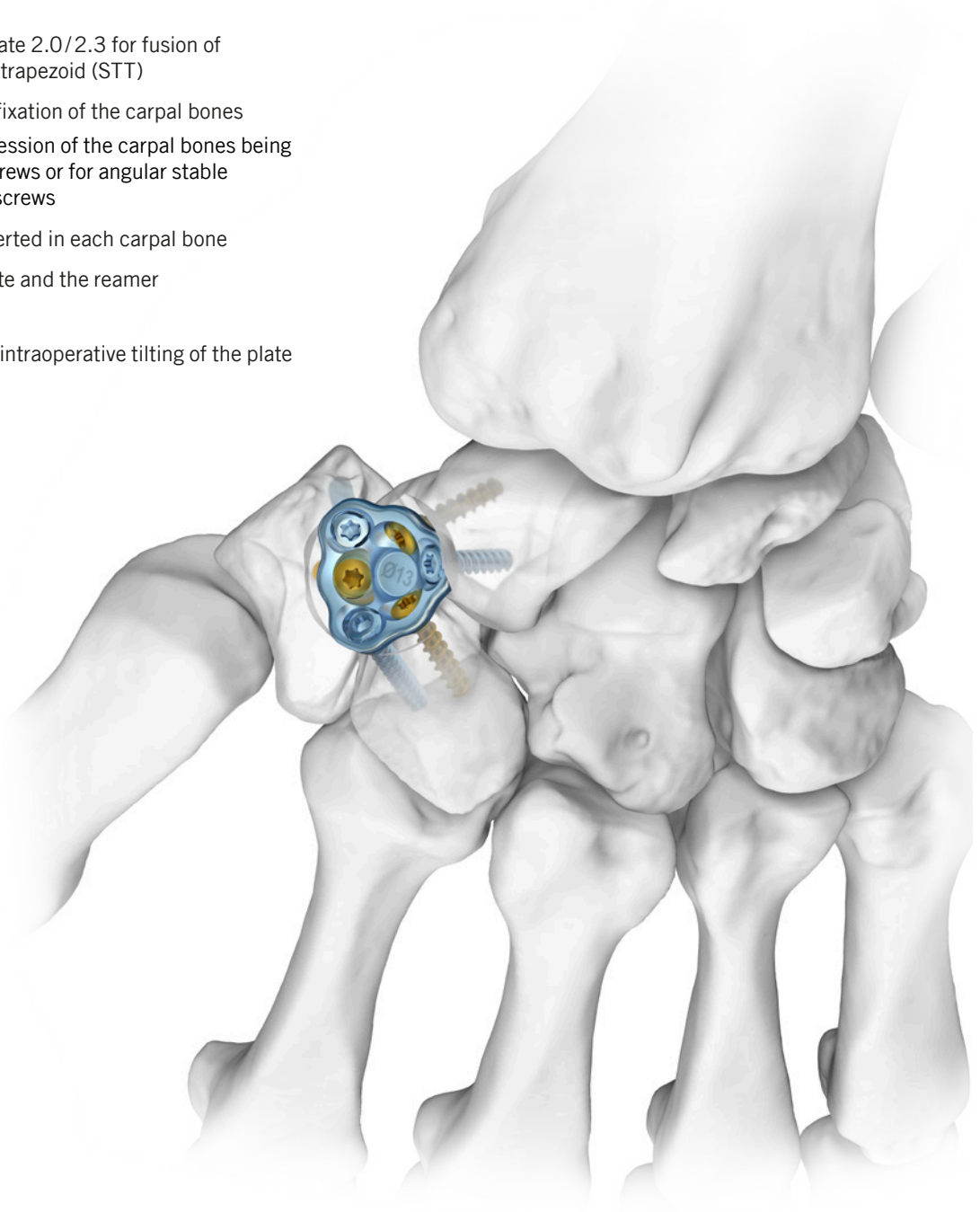
\*\* For small wrists and following proximal row carpectomy

# 2.0/2.3 TriLock STT Fusion Plate

Partial arthrodesis for stabilization of the radial column

## Clinical Benefits

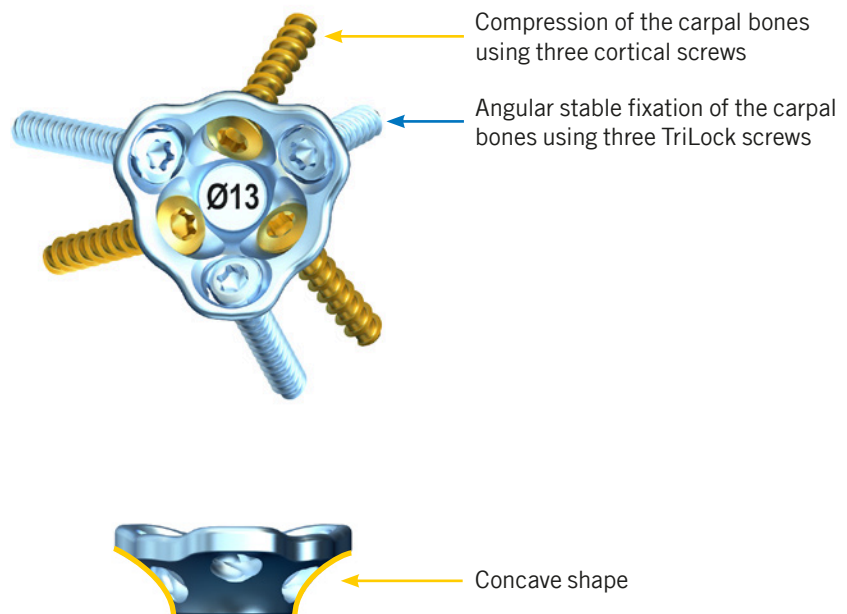
- Specifically developed plate 2.0/2.3 for fusion of scaphoid, trapezium and trapezoid (STT)
- Compression and stable fixation of the carpal bones
  - Screw holes for compression of the carpal bones being fused using cortical screws or for angular stable fixation using TriLock screws
  - Two screws can be inserted in each carpal bone
- Concave shape of the plate and the reamer
  - Minimal bone removal
  - Easy handling without intraoperative tilting of the plate





## Plate Features

- TriLock – multidirectional angular stability of  $\pm 15^\circ$  in all directions
- Rounded edges and a smooth surface for soft tissue protection
- Specifically designed reamer for the plate
- The plate is compatible with the screws and instruments of the APTUS Hand System 2.0/2.3

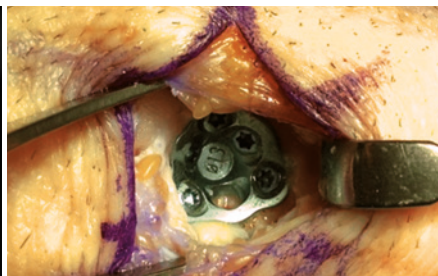


A-4660.15

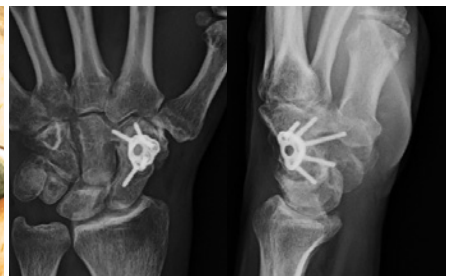
Scale 1:1



Intraoperative X-rays



Result after partial arthrodesis with the STT Fusion plate



Postoperative X-rays

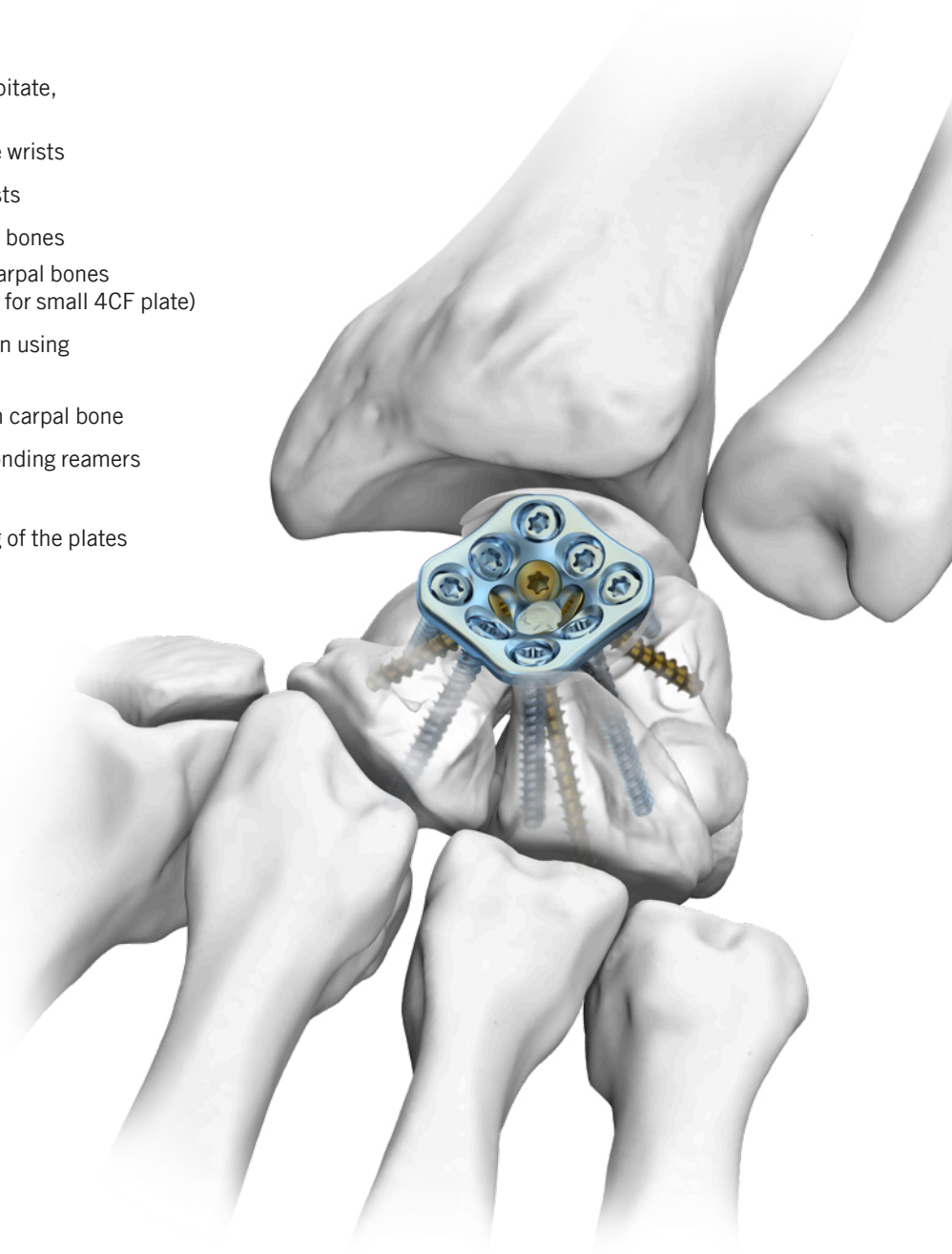
Clinical case published with the kind permission of: Arnold-Peter Weiss, Providence, USA

# 2.0/2.3 TriLock Four Corner Fusion Plates

Midcarpal arthrodesis through compression and angular stable locking

## Clinical Benefits

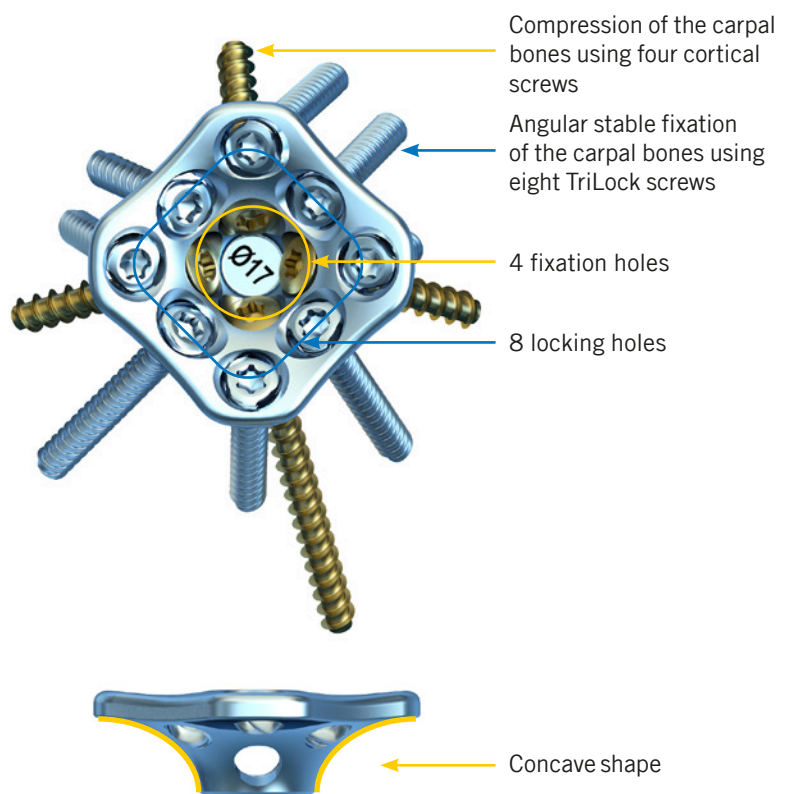
- Specifically developed plates for fusion of capitate, hamate, triquetrum and lunate
  - 4CF plate, for example for medium to large wrists
  - Small 4CF plate, for example for small wrists
- Compression and stable fixation of the carpal bones
  - Inner screw holes for compression of the carpal bones being fused using cortical screws (optional for small 4CF plate)
  - Outer screw holes for angular stable fixation using TriLock screws
  - At least two screws can be inserted in each carpal bone
- Concave shape of the plates and the corresponding reamers
  - Minimal bone removal
  - Easy handling without intraoperative tilting of the plates





## Plate Features

- Four Corner Fusion plates in two sizes to meet individual anatomical requirements
- TriLock – multidirectional angular stability of  $\pm 15^\circ$  in all directions\*
- Rounded edges and a smooth surface for soft tissue protection
- Specifically designed reamers for each plate
- The plates are compatible with the screws and instruments of the APTUS Hand System 2.0/2.3



A-4660.10

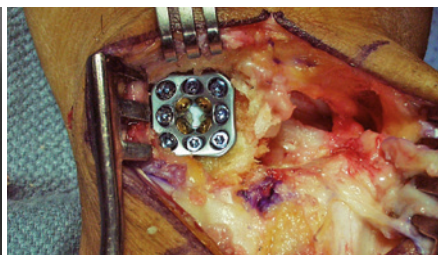


A-4660.11

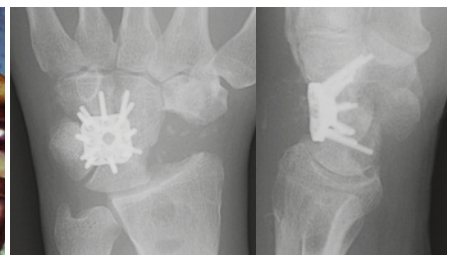
Scale 1:1



Preoperative X-rays



Result after midcarpal arthrodesis with the 4CF plate. Three screws in each of the carpal bones capitate, hamate, triquetrum and lunate (1 x cortical screw, 2 x TriLock screws).



Postoperative X-rays

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

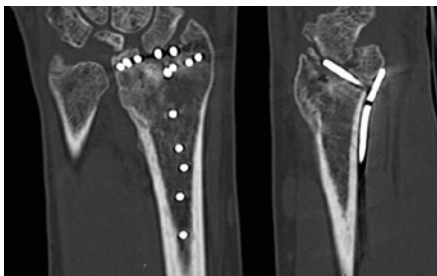
\* Exception: Inner screw holes of the 4CF plate (A-4660.10)

## 2.5 TriLock RSL Fusion Plates

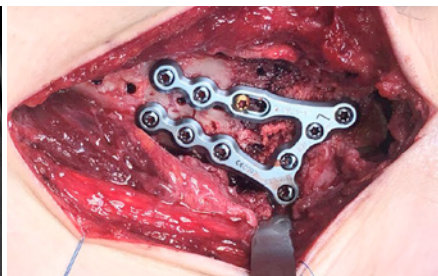
### Radiocarpal arthrodesis from volar or dorsal

#### Clinical Benefits

- Volar and dorsal plates for fusion of radius, scaphoid and lunate (RSL)
- Physiological motion in the midcarpal joint is maintained
- Anatomical plate designs for simple intraoperative use
- Two screws can be inserted in each carpal bone
- Double shaft design provides high rotational stability
- Low plate profile of 1.6 mm



Failed volar fixation with intraarticular screw position, pronounced joint displacement and SL gap widening



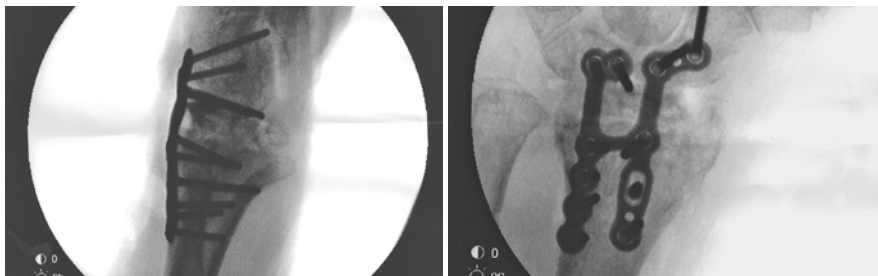
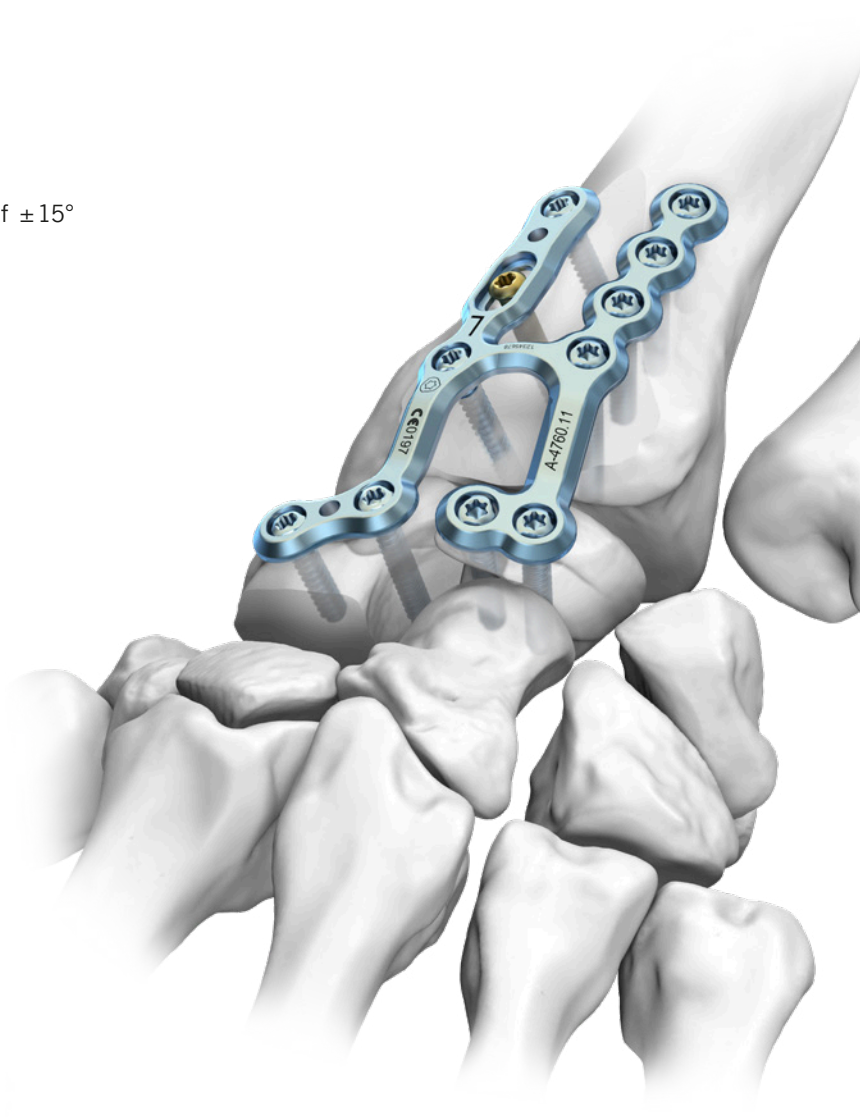
Radiocarpal partial arthrodesis with the volar RSL Fusion plate



Postoperative X-rays with precise positioning of the lunate and removed distal pole of the scaphoid

## Plate Features

- TriLock – multidirectional angular stability of  $\pm 15^\circ$  in all directions and in each screw hole\*
- Minimal screw head protrusion thanks to internal locking contour
- Consistent screw diameter of 2.5 mm for intraoperative simplicity
- Oblong hole for variable plate positioning and to facilitate axial compression
- Rounded edges and a smooth surface for soft tissue protection
- Plates are compatible with the screws and instruments of the APTUS Wrist Radius System 2.5



Intraoperative X-rays of the arthrodesis with the dorsal RSL Fusion plate

Clinical case published with the kind permission of: Alfons Erdmann, Cologne, Germany

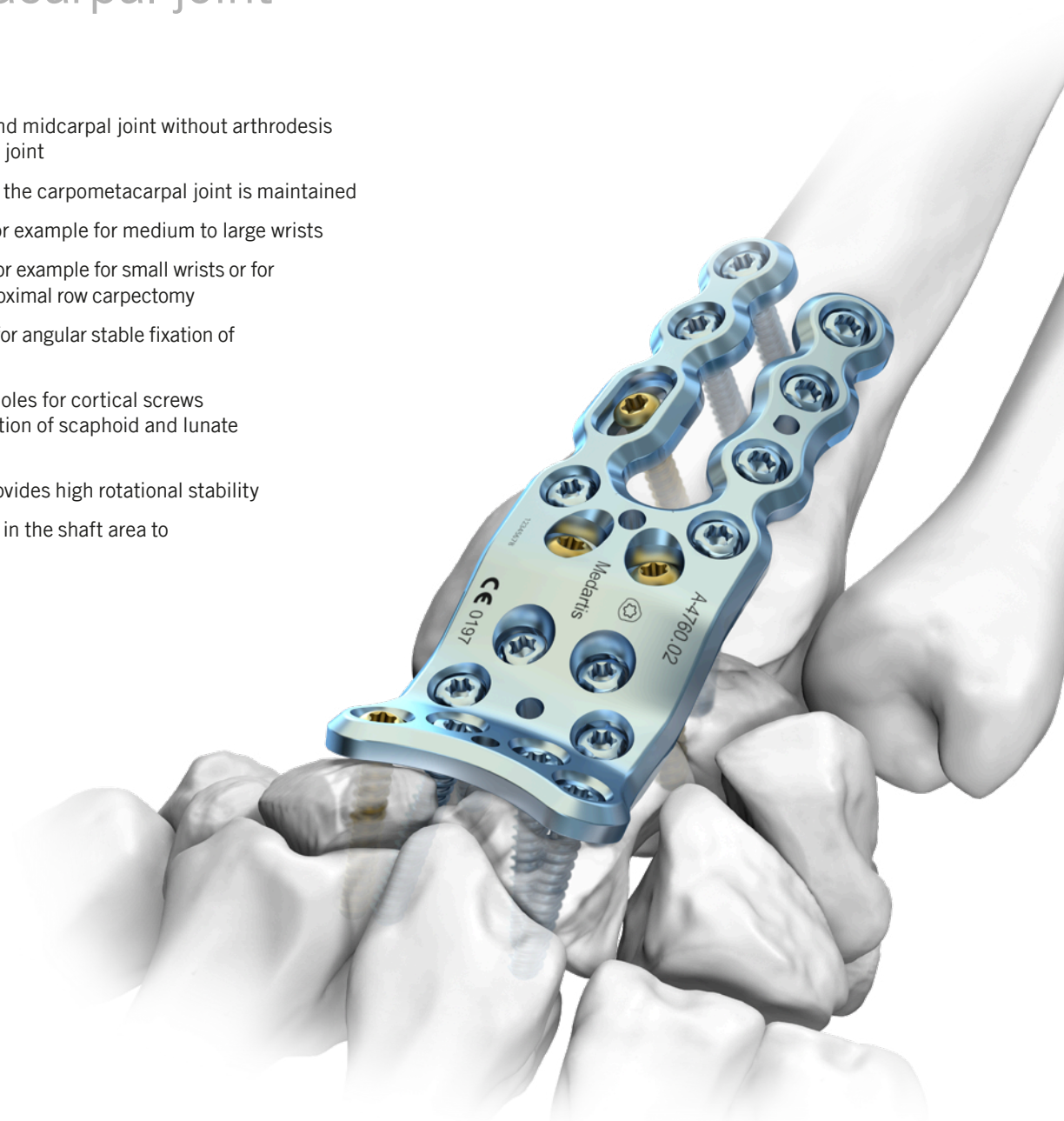
\* Exception: oblong hole

## 2.5 TriLock Wrist Fusion Plates

Fusion without arthrodesis of the  
carpometacarpal joint

### Clinical Benefits

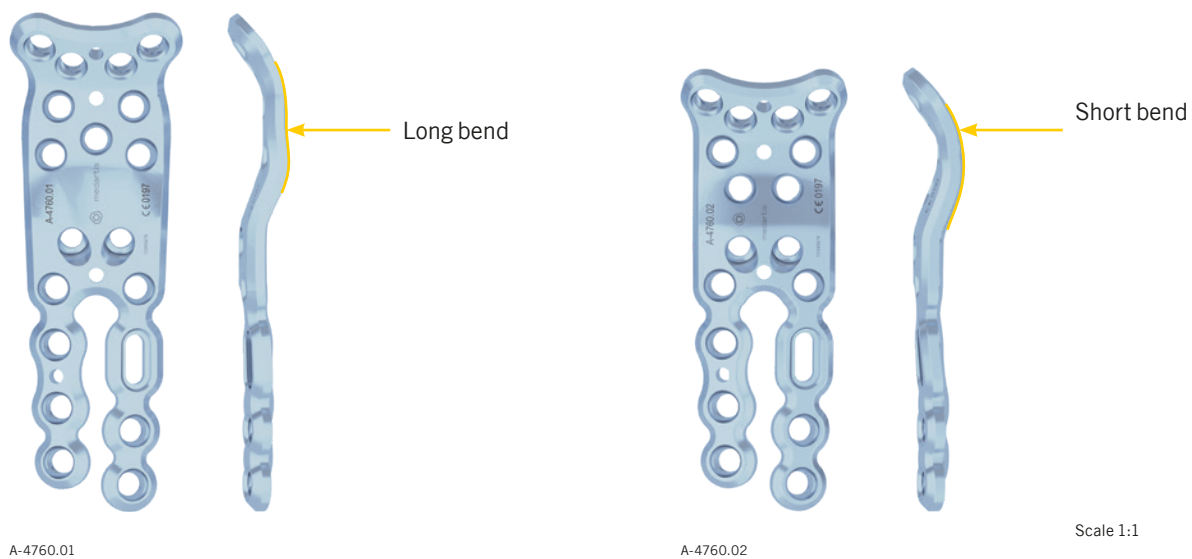
- Fusion of radiocarpal and midcarpal joint without arthrodesis of the carpometacarpal joint
- Physiological motion in the carpometacarpal joint is maintained
- Plate with long bend, for example for medium to large wrists
- Plate with short bend, for example for small wrists or for arthrodesis following proximal row carpectomy
- Numerous screw holes for angular stable fixation of various carpal bones
- Two pre-angled screw holes for cortical screws allow for additional fixation of scaphoid and lunate or bone graft
- Double shaft design provides high rotational stability
- Offset screw alignment in the shaft area to avoid screw collisions



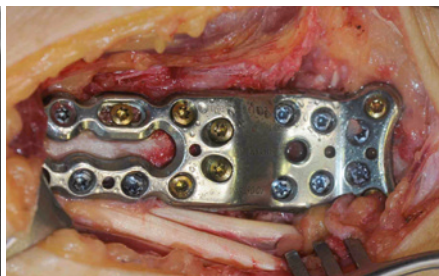


## Plate Features

- TriLock – multidirectional angular stability of  $\pm 15^\circ$  in all directions and in each screw hole\*
- Consistent screw diameter of 2.5 mm for intraoperative simplicity
- Oblong hole for variable plate positioning and to facilitate axial compression
- Rounded edges and a smooth surface for soft tissue protection
- K-wire holes to assist with temporary plate fixation
- Plates are compatible with the screws and instruments of the APTUS Wrist Radius System 2.5



Preoperative X-rays



Result after arthrodesis using the Wrist Fusion plate with long bend



Postoperative X-rays



Clinical case published with the kind permission of: Hermann Krimmer, Ravensburg, Germany

\* Exception: oblong hole and pre-angled screw holes for cortical screws

## 2.5 TriLock Wrist Fusion Plates

### Radiocapitate wrist arthrodesis

#### Clinical Benefits

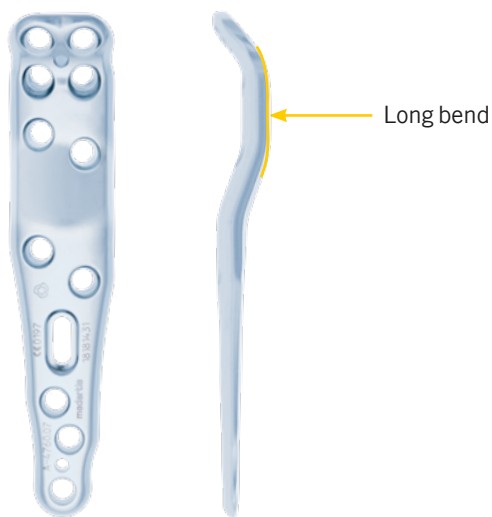
- Fusion of the intermediate column – especially following proximal row carpectomy – without arthrodesis of the carpometacarpal joint
- Physiological motion in the carpometacarpal joint is maintained
- Plate with long bend, for example for medium to large wrists
- Plate with short bend, for example for small wrists



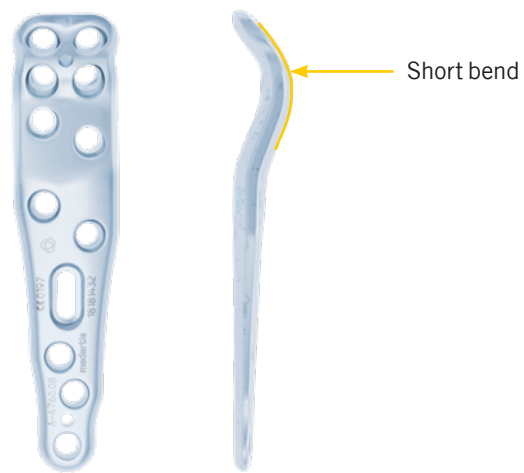


## Plate Features

- TriLock – multidirectional angular stability of  $\pm 15^\circ$  in all directions and in each screw hole\*
- Consistent screw diameter of 2.5 mm for intraoperative simplicity
- Oblong hole for variable plate positioning and to facilitate axial compression
- Chamfered edges and a smooth surface for soft tissue protection
- K-wire holes to assist with temporary plate fixation
- Plates are compatible with the screws and instruments of the APTUS Wrist Radius System 2.5

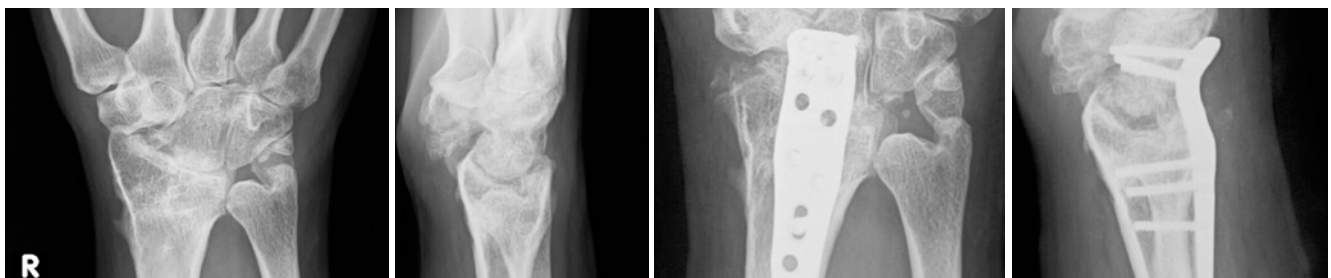


A-4760.07



A-4760.08

Scale 1:1



Painful osteoarthritis 6 years after proximal row carpectomy (PRC)

Postoperative X-rays of the fusion of radius and capitate using the Wrist Fusion plate with short bend

Clinical case published with the kind permission of: Radek Kebrle, Vysoke, Czechia

\*Exception: oblong hole

## 2.5 TriLock Total Wrist Fusion Plates

### Total wrist arthrodesis

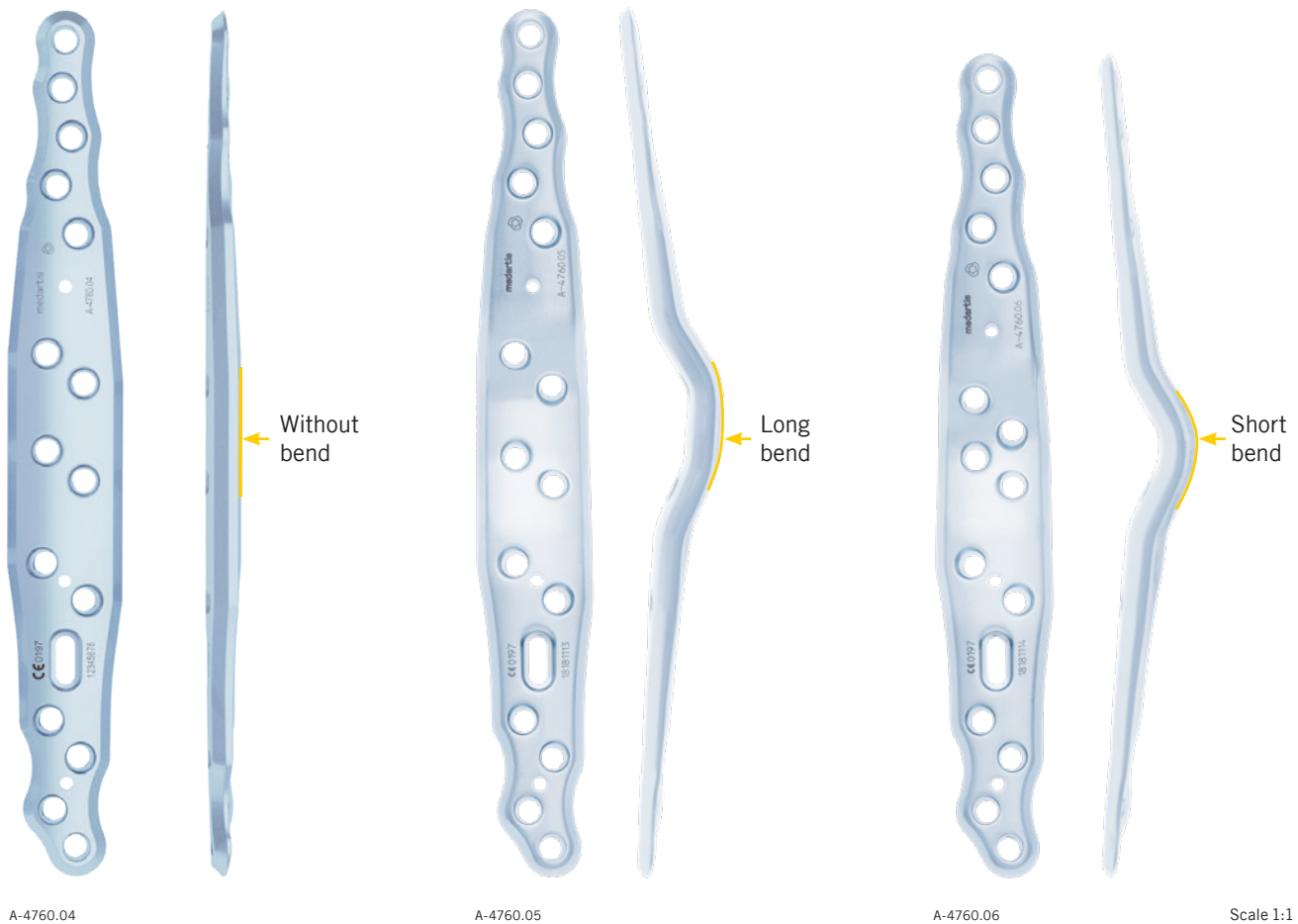
#### Clinical Benefits

- Fusion of radiocarpal, midcarpal and carpometacarpal joint
- Plate with long bend, for example for medium to large wrists
- Plate with short bend, for example for small wrists or for arthrodesis following proximal row carpectomy
- Straight plate for fusion in slight flexion, for example in rheumatoid arthritis
- Offset screw arrangement reduces the risk of axial bone splitting in the metacarpal area
- Multiple screw holes for angular stable fixation of various carpal bones

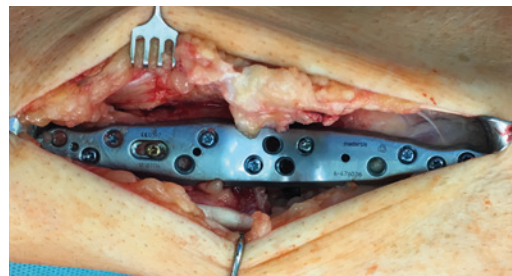


## Plate Features

- TriLock – multidirectional angular stability of  $\pm 15^\circ$  in all directions and in each screw hole\*
- Minimal screw head protrusion – especially in the metacarpal area – thanks to internal locking contour
- Consistent screw diameter of 2.5 mm for intraoperative simplicity
- Oblong hole for variable plate positioning and to facilitate axial compression
- Chamfered edges and a smooth surface for soft tissue protection
- K-wire holes to assist with temporary plate fixation
- Plates are compatible with the screws and instruments of the APTUS Wrist Radius System 2.5



Destroyed wrist and ankylosis following synovitis



Intraoperative image of the plate position



Postoperative X-rays of the fusion using the Total Wrist Fusion plate with short bend

Clinical case published with the kind permission of: Radek Keblre, Vysoke, Czechia

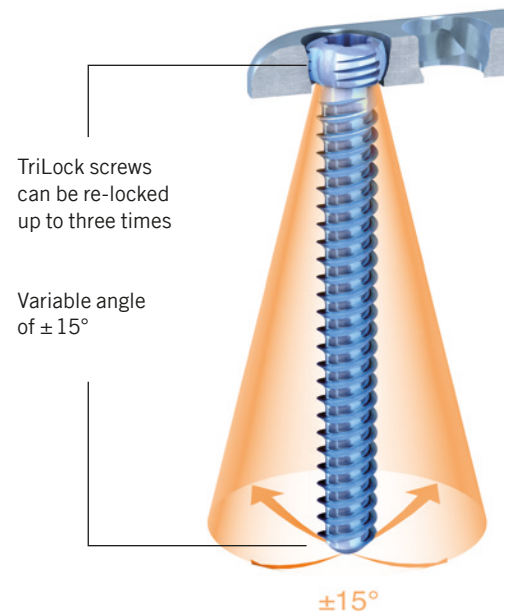
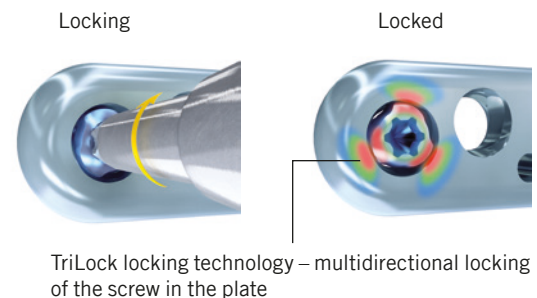
\*Exception: oblong hole

# Technology, Biomechanics, Screw Features

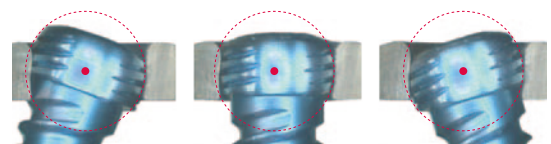
## Multidirectional and angular stable TriLock<sup>®</sup> locking technology

### TriLock 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  $\pm 15^\circ$  in all directions for optimal positioning
- Intraoperative fine-tuning capabilities
- TriLock screws can be re-locked in the same screw hole at individual angles up to three times
- Minimal screw head protrusion thanks to internal locking contour
- No cold welding between plate and screws

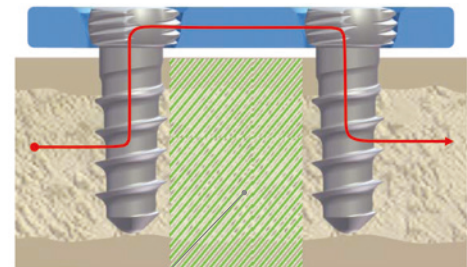


Minimal screw head protrusion



## Biomechanics

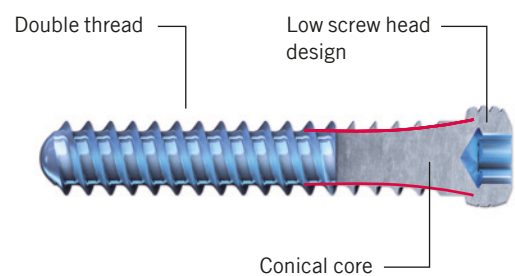
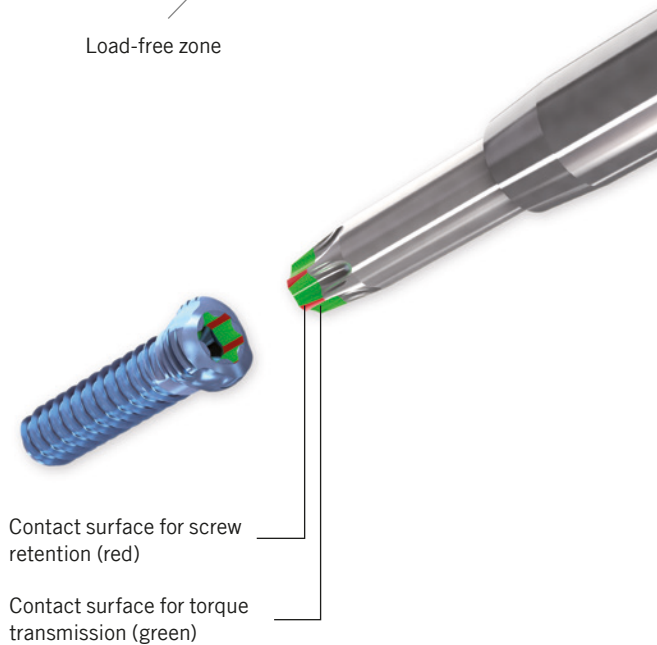
- Internal fixator principle
  - Stable plate-screw construct allows for the bridging of unstable zones



Load-free zone

## Screw Features

- 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

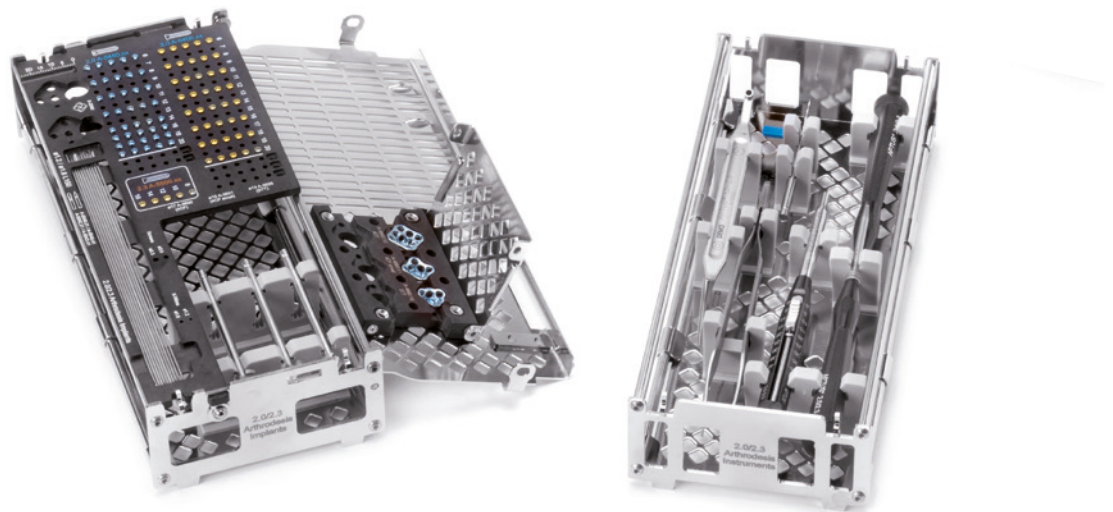




# Storage

- Modular concept
- Compact system and clear configuration
- Easy to use
- Lightweight components
- Validated cleaning and sterilization of the implants

## APTUS Arthrodesis Set 2.0/2.3



## APTUS Arthrodesis Set 2.5

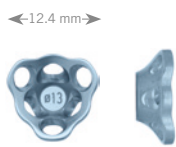




# Ordering Information

## 2.0/2.3 TriLock STT Fusion Plate, Dorsal

Material: Titanium (ASTM F67)  
Plate thickness: 1.4 mm

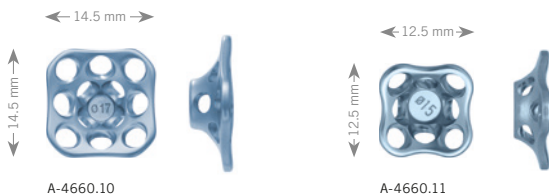


A-4660.15

Art. No.	Holes	Pieces/Pkg
A-4660.15	6 (3+3)	1

## 2.0/2.3 TriLock Four Corner Fusion Plates, Dorsal

Material: Titanium (ASTM F67)  
Plate thickness: 1.4 mm



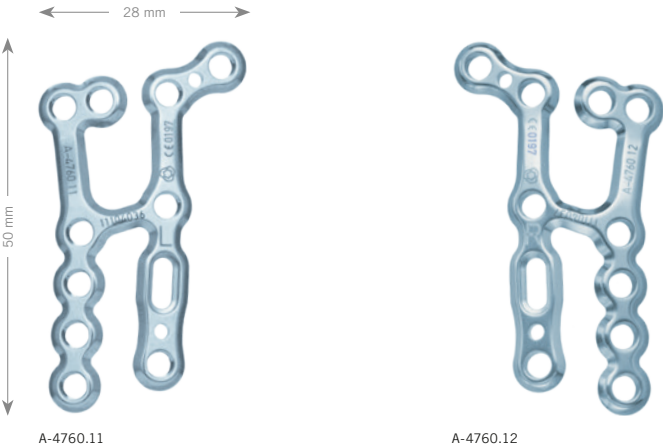
A-4660.10

A-4660.11

Art. No.	Description	Holes	Pieces/Pkg
A-4660.10		12 (4+8)	1
A-4660.11	small	8 (4+4)	1

2.5 TriLock RSL Fusion Plates, Dorsal

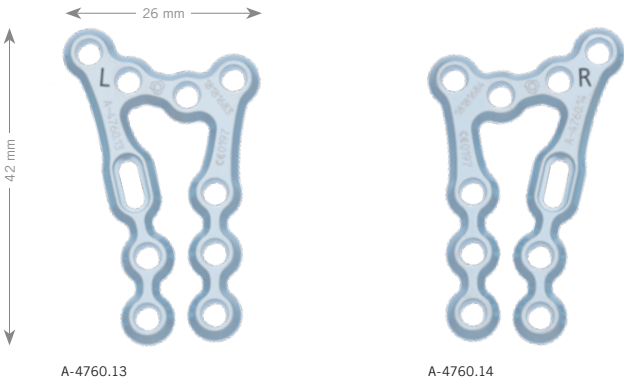
Material: Titanium (ASTM F67)  
Plate thickness: 1.6 mm



Art. No.	Description	Holes	Pieces/Pkg
A-4760.11	left	11	1
A-4760.12	right	11	1

2.5 TriLock RSL Fusion Plates, Volar

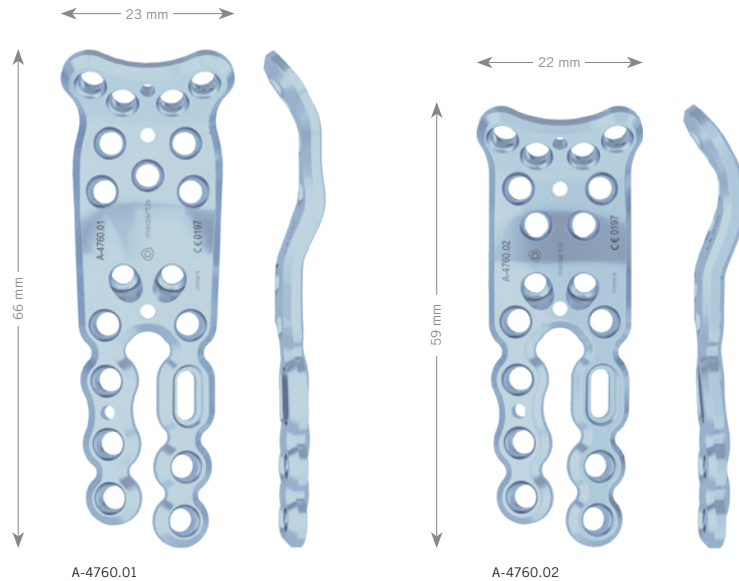
Material: Titanium (ASTM F67)  
Plate thickness: 1.6 mm



Art. No.	Description	Holes	Pieces/Pkg
A-4760.13	left	10	1
A-4760.14	right	10	1

## 2.5 TriLock Wrist Fusion Plates, Dorsal

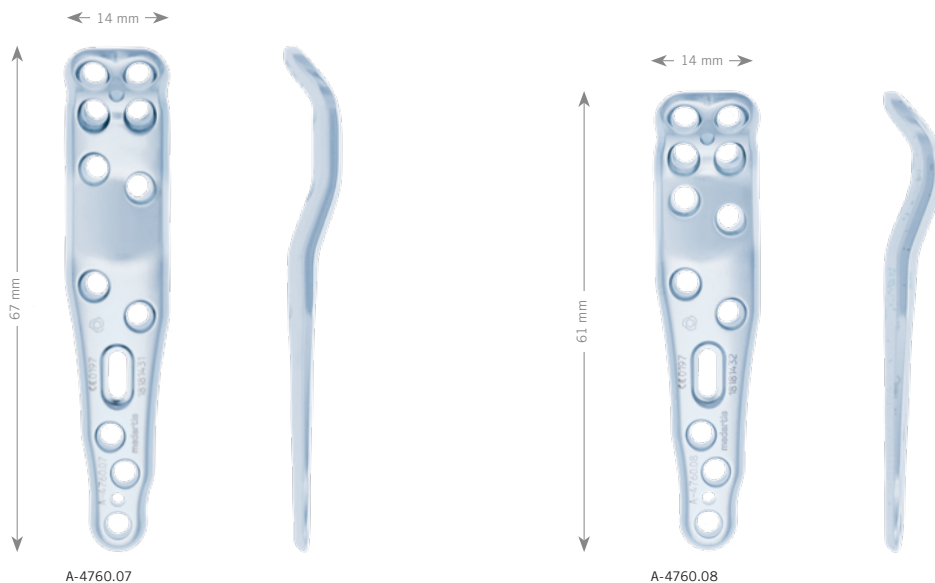
Material: Titanium (ASTM F67)  
Plate thickness: 2.4 mm



Art. No.	Description	Holes	Pieces/Pkg
A-4760.01	long bend	19	1
A-4760.02	short bend	18	1

## 2.5 TriLock Wrist Fusion Plates, Dorsal, Radiocapitate

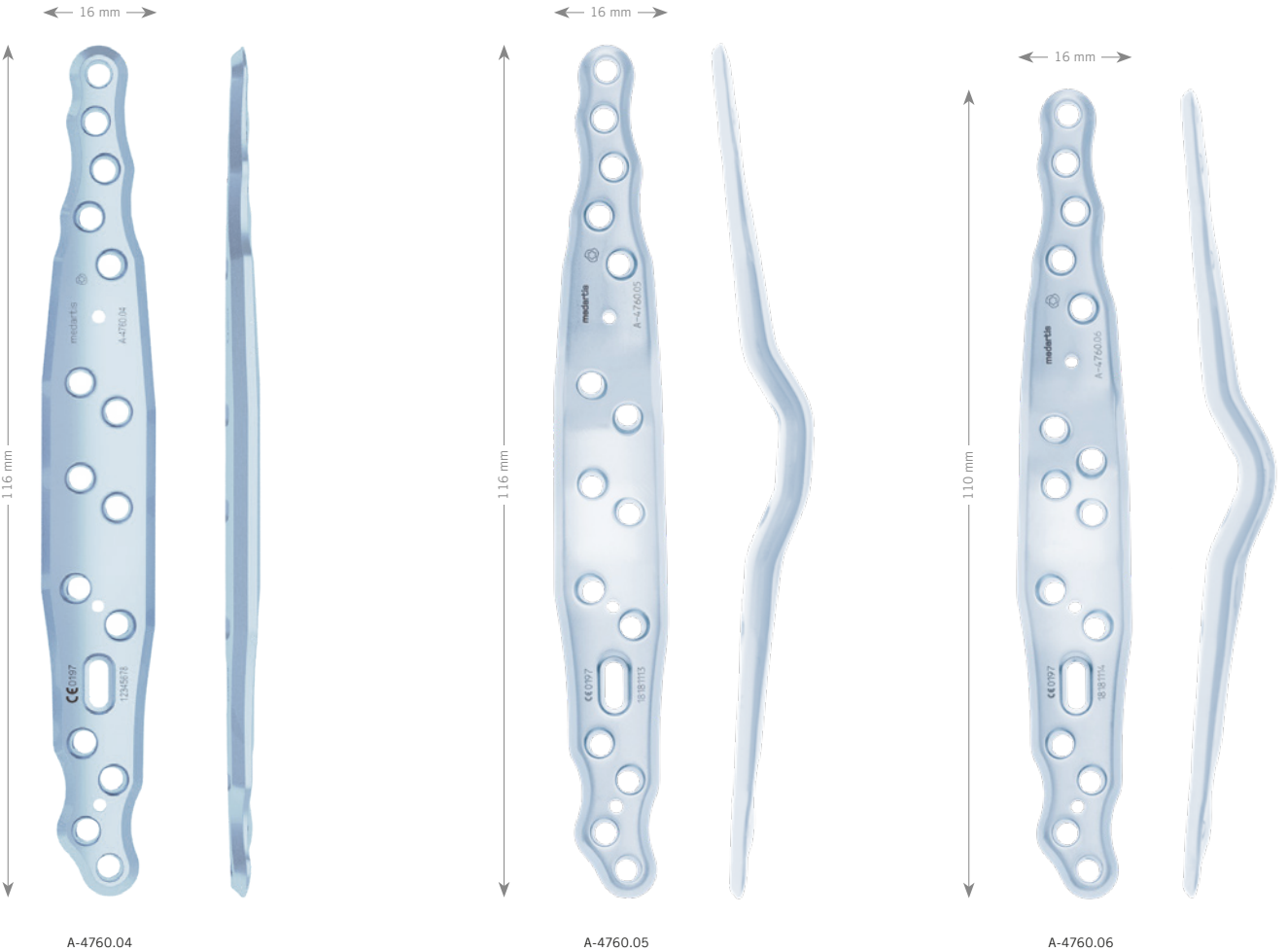
Material: Titanium (ASTM F67)  
Plate thickness: 1.8–2.6 mm



Art. No.	Description	Holes	Pieces/Pkg
A-4760.07	long bend	12	1
A-4760.08	short bend	12	1

2.5 TriLock Total Wrist Fusion Plates, Dorsal

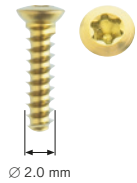
Material: Titanium (ASTM F67)  
Plate thickness: 1.8–2.6 mm



Art. No.	Description	Holes	Pieces/Pkg
A-4760.04	straight	16	1
A-4760.05	long bend	16	1
A-4760.06	short bend	16	1

## 2.0 Cortical Screws, HexaDrive 6

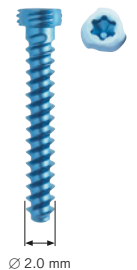
Material: Titanium alloy (ASTM F136)



Length	Art. No.	Pieces/Pkg	Art. No.	Pieces/Pkg
6 mm	A-5400.06/1	1	A-5400.06	5
7 mm	A-5400.07/1	1	A-5400.07	5
8 mm	A-5400.08/1	1	A-5400.08	5
9 mm	A-5400.09/1	1	A-5400.09	5
10 mm	A-5400.10/1	1	A-5400.10	5
11 mm	A-5400.11/1	1	A-5400.11	5
12 mm	A-5400.12/1	1	A-5400.12	5
13 mm	A-5400.13/1	1	A-5400.13	5
14 mm	A-5400.14/1	1	A-5400.14	5
15 mm	A-5400.15/1	1	A-5400.15	5
16 mm	A-5400.16/1	1	A-5400.16	5
17 mm	A-5400.17/1	1	A-5400.17	5
18 mm	A-5400.18/1	1	A-5400.18	5
19 mm	A-5400.19/1	1	A-5400.19	5
20 mm	A-5400.20/1	1	A-5400.20	5

## 2.0 TriLock Screws, HexaDrive 6

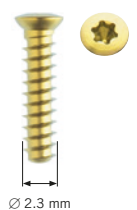
Material: Titanium alloy (ASTM F136)



Length	Art. No.	Pieces/Pkg	Art. No.	Pieces/Pkg
6 mm	A-5450.06/1	1	A-5450.06	5
7 mm	A-5450.07/1	1	A-5450.07	5
8 mm	A-5450.08/1	1	A-5450.08	5
9 mm	A-5450.09/1	1	A-5450.09	5
10 mm	A-5450.10/1	1	A-5450.10	5
11 mm	A-5450.11/1	1	A-5450.11	5
12 mm	A-5450.12/1	1	A-5450.12	5
13 mm	A-5450.13/1	1	A-5450.13	5
14 mm	A-5450.14/1	1	A-5450.14	5
16 mm	A-5450.16/1	1	A-5450.16	5
18 mm	A-5450.18/1	1	A-5450.18	5
20 mm	A-5450.20/1	1	A-5450.20	5

## 2.3 Cortical Screws, HexaDrive 6

Material: Titanium alloy (ASTM F136)



Length	Art. No.	Pieces/Pkg	Art. No.	Pieces/Pkg
8 mm	A-5500.08/1	1	A-5500.08	5
10 mm	A-5500.10/1	1	A-5500.10	5
12 mm	A-5500.12/1	1	A-5500.12	5
14 mm	A-5500.14/1	1	A-5500.14	5
16 mm	A-5500.16/1	1	A-5500.16	5

## 2.5 Cortical Screws, HexaDrive 7

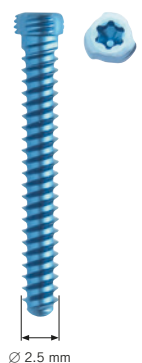
Material: Titanium alloy (ASTM F136)



Length	Art. No.	Pieces/Pkg	Art. No.	Pieces/Pkg
8 mm	A-5700.08/1	1	A-5700.08	5
10 mm	A-5700.10/1	1	A-5700.10	5
11 mm	A-5700.11/1	1		
12 mm	A-5700.12/1	1	A-5700.12	5
13 mm	A-5700.13/1	1		
14 mm	A-5700.14/1	1	A-5700.14	5
15 mm	A-5700.15/1	1		
16 mm	A-5700.16/1	1	A-5700.16	5
18 mm	A-5700.18/1	1	A-5700.18	5
20 mm	A-5700.20/1	1	A-5700.20	5
22 mm	A-5700.22/1	1	A-5700.22	5
24 mm	A-5700.24/1	1	A-5700.24	5
26 mm	A-5700.26/1	1	A-5700.26	5
28 mm	A-5700.28/1	1	A-5700.28	5
30 mm	A-5700.30/1	1	A-5700.30	5
32 mm	A-5700.32/1	1	A-5700.32	5
34 mm	A-5700.34/1	1	A-5700.34	5

## 2.5 TriLock Screws, HexaDrive 7

Material: Titanium alloy (ASTM F136)



Length	Art. No.	Pieces/Pkg	Art. No.	Pieces/Pkg
8 mm	A-5750.08/1	1	A-5750.08	5
10 mm	A-5750.10/1	1	A-5750.10	5
12 mm	A-5750.12/1	1	A-5750.12	5
14 mm	A-5750.14/1	1	A-5750.14	5
16 mm	A-5750.16/1	1	A-5750.16	5
18 mm	A-5750.18/1	1	A-5750.18	5
20 mm	A-5750.20/1	1	A-5750.20	5
22 mm	A-5750.22/1	1	A-5750.22	5
24 mm	A-5750.24/1	1	A-5750.24	5
26 mm	A-5750.26/1	1	A-5750.26	5
28 mm	A-5750.28/1	1	A-5750.28	5
30 mm	A-5750.30/1	1	A-5750.30	5
32 mm	A-5750.32/1	1	A-5750.32	5
34 mm	A-5750.34/1	1	A-5750.34	5



## Twist Drills Ø 1.6 mm



A-3410



A-3420



A-3430

Art. No.	System Size	Stop	Length	Drill Shaft End	Pieces/Pkg
A-3410	2.0	25 mm	87 mm	Dental	1
A-3420	2.0	25 mm	87 mm	Stryker J-Latch	1
A-3430	2.0	25 mm	81 mm	AO Quick Coupling	1

## Twist Drills Ø 2.0 mm



A-3713



A-3723



A-3733

Art. No.	System Size	Stop	Length	Drill Shaft End	Pieces/Pkg
A-3713	2.5	40 mm	97 mm	Dental	1
A-3723	2.5	40 mm	97 mm	Stryker J-Latch	1
A-3733	2.5	40 mm	91 mm	AO Quick Coupling	1

## 2.0/2.3 Reamers



A-3630

for A-4660.10



A-3631

for A-4660.11



A-3635

for A-4660.15

Art. No.	Ø	Description	Length	Shaft End	Pieces/Pkg
A-3630	17 mm	for Four Corner Fusion Plate (A-4660.10)	87 mm	AO Quick Coupling	1
A-3631	15 mm	for Four Corner Fusion Plate, small (A-4660.11)	80.5 mm	AO Quick Coupling	1
A-3635	13 mm	for STT Fusion Plate (A-4660.15)	80.5 mm	AO Quick Coupling	1

# K-Wires, Stainless Steel



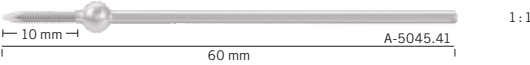
Art. No.	Ø	Description	Length	Pieces/Pkg
A-5040.21	1.2 mm	trocár	150 mm	10
A-5040.41	1.6 mm	trocár	150 mm	10

# K-Wires, Stainless Steel



Art. No.	Ø	Description	Length	Pieces/Pkg
A-5042.21	1.2 mm	lancet	150 mm	10
A-5042.41	1.6 mm	lancet	150 mm	10

# Olive K-Wires, Stainless Steel



Art. No.	Ø	Length	Thread Length	Pieces/Pkg
A-5045.41/1	1.6 mm	60 mm	10 mm	1
A-5045.41/4	1.6 mm	60 mm	10 mm	4

# K-Wire Dispenser



Art. No.	System Size	Length	Pieces/Pkg
A-6010.16	1.6	185 mm	1

## Drill Guides



A-2020



A-2722

Art. No.	System Size	Description	Length	Pieces/Pkg
A-2020	2.0/2.3	centric, excentric	149 mm	1
A-2722	2.5	scaled	114 mm	1

## Drill Sleeve



Art. No.	System Size	Description	Length	Pieces/Pkg
A-2726	2.5	self-holding, scaled	34 mm	1

## Depth Gauges



A-2032



A-2730

Art. No.	System Size	Description	Length	Pieces/Pkg
A-2032	2.0/2.3		151 mm	1
A-2032.1	2.0/2.3	caliper (spare part)	149 mm	1
A-2730	2.5		151 mm	1
A-2730.1	2.5	caliper (spare part)	149 mm	1

## Screwdrivers, Self-Holding



A-2610 HD6



A-2710 HD7

Art. No.	System Size	Interface	Length	Pieces/Pkg
A-2610	2.0/2.3	HD6	153 mm	1
A-2710	2.5	HD7	166 mm	1

Handle with Quick Connector



Art. No.	Description	For Shaft End	Length	Pieces/Pkg
A-2073	with twist cap	AO Quick Coupling	124 mm	1

Screwdriver Blade, Self-Holding



Art. No.	System Size	Interface	Shaft End	Length	Pieces/Pkg
A-2013	2.5/2.8	HD7	AO Quick Coupling	75 mm	1

Plate and Screw Holding Forceps



Art. No.	Description	Length	Pieces/Pkg
A-2060	angled	148 mm	1

Plate Bending Pliers



Art. No.	System Size	Description	Length	Pieces/Pkg
A-2047	2.0–2.8	with pins	158 mm	1

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