

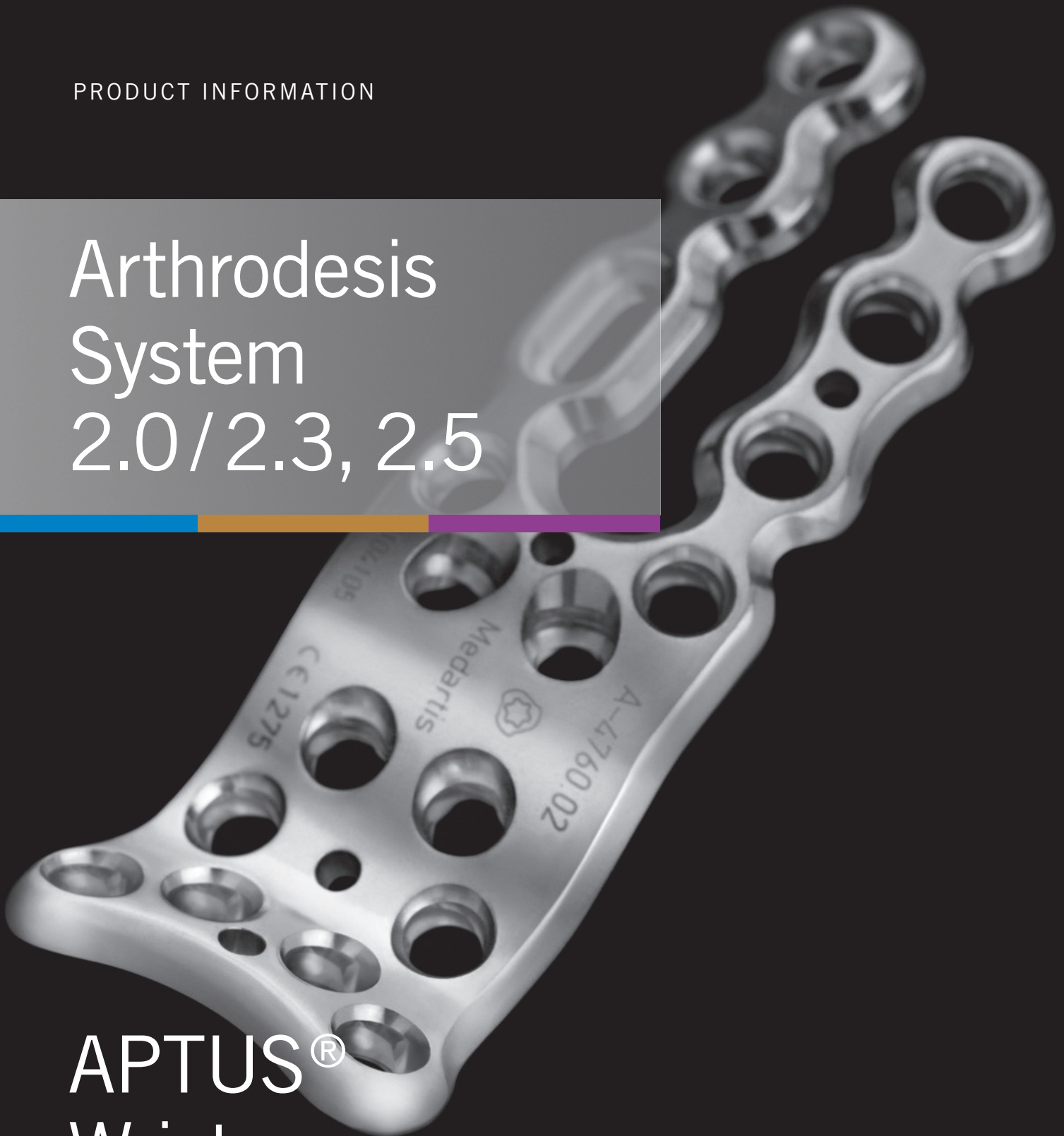
medartis®

PRECISION IN FIXATION

PRODUCT INFORMATION

Arthrodesis System 2.0/2.3, 2.5

APTUS®
Wrist



Arthrodesis System 2.0/2.3, 2.5

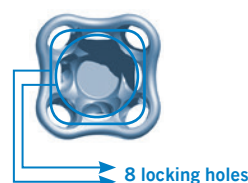
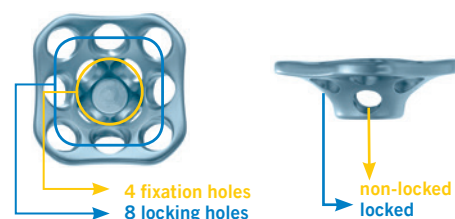
Multidirectional and angular stable partial or total wrist arthrodesis

Painfree mobility and stability are the prerequisites for intact hand function. If «normal hand function» is no longer possible, there is a significant limitation to the quality of life of the affected person.

Partial or total arthrodesis is very frequently performed as a last resort to give this patient a painfree life with as much freedom of motion as possible.

Clinical Benefits and Plate Features Arthrodesis Plates 2.0/2.3

- Specially developed plates for four corner fusions (4CF) and scaphotrapeziotrapezoidal (STT) fusions
- The plates have two different rows:
 - Inner plate holes for compression of the carpal bones, using cortical screws (optional for small 4CF and STT)
 - Outer plate holes for the angular stable fixation, using TriLock screws
- In every carpal bone at least two screws can be inserted
- Concave shape of the reamers and the plates for minimal bone removal
- Easy handling without intraoperative tilting



Cortical screws can be used for locking holes as an alternative

Plate Designs

2.0/2.3 Four Corner Fusion Plate (4CF)

- For fusion of capitate, hamate, triquetrum and lunate
- 12 plate holes, 4 for cortical screws and 8 for TriLock screws
- 4CF plate intended for patients with medium to large wrists



2.0/2.3 Four Corner Fusion Plate Small (4CF small)

- For fusion of capitate, hamate, triquetrum and lunate
- 8 TriLock plate holes
- Small 4CF plate intended for patients with small wrists



2.0/2.3 STT Fusion Plate

- For fusion of scaphoid, trapezium and trapezoid (STT)
- 6 TriLock plate holes

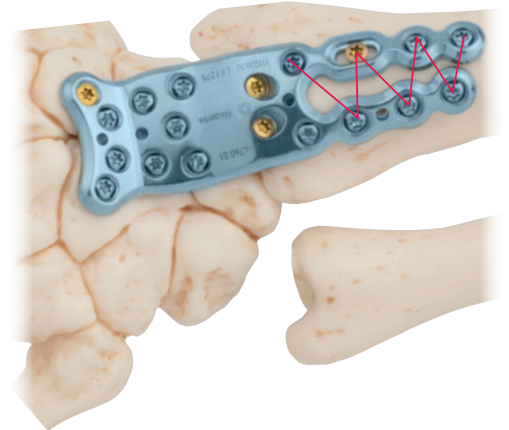


Clinical Benefits and Plate Features Arthrodesis Plates 2.5

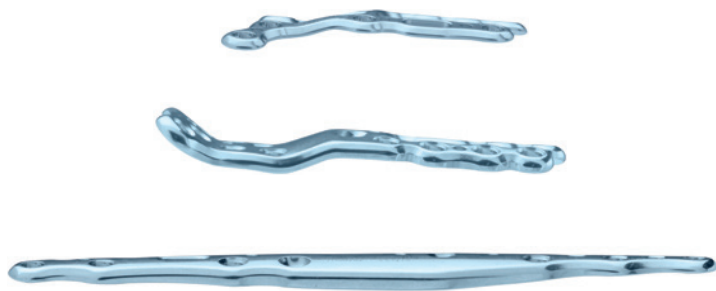
- Specially developed plates for radiocarpal fusion and total wrist arthrodesis
- Anatomical plate geometries for simple intraoperative application
- Offset screw alignment in the shaft area for:
 - Increased rotational stability
 - Prevention of screw collisions
- Well-rounded edges and smooth surface for maximum soft tissue protection
- K-wire holes to assist with temporary plate fixation



Anatomical plate geometries



Offset screw alignment



Low plate profile



Two pre-angled plate holes to fix bone graft

Plate Designs

2.5 RSL Fusion Plates

- Specially developed anatomical plates (left, right) for fusion of radius, scaphoid and lunate (RSL)



2.5 Wrist Fusion Plates (TWF) long and short bend

- The carpometacarpal joint is not fused, therefore maintaining physiological motion in this joint
- Anatomically contoured wrist fusion plates with numerous plate holes to fix various carpal bones
- Two pre-angled plate holes to fix bone graft
- Long bend plate intended for patients with medium to large wrists
- Short bend plate intended for patients with small wrists and for fusion following proximal row carpectomy



2.5 Total Wrist Fusion Plate (TWF), straight

- Two pre-angled plate holes to fix bone graft
- Intended for patients with severely deviant anatomical conditions, such as rheumatic patients

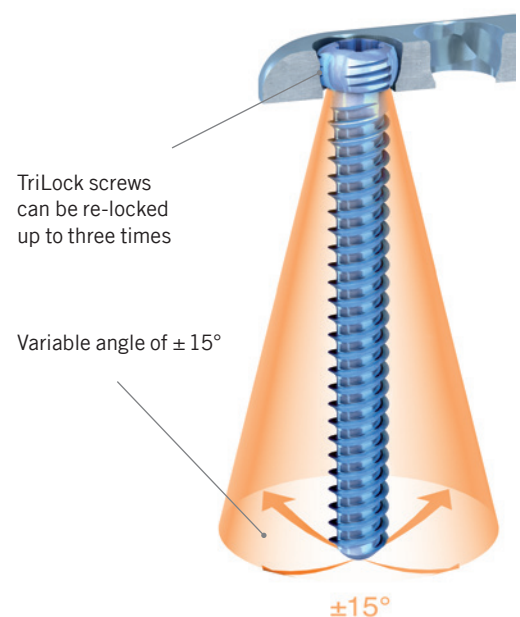
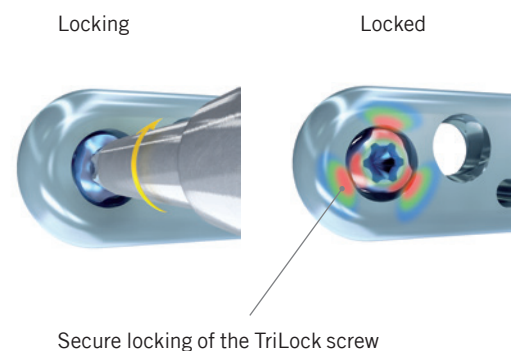


Technology, Biomechanics and Screw Features

Multidirectional and angular stable TriLock locking technology

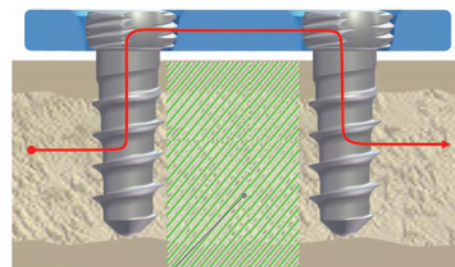
Technology

- TriLock locking technology – secure, angular stable 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
- Intra-operative fine tuning capabilities
- TriLock screws can be re-locked in the same plate hole under individual angles up to three times
- Minimal screw head protrusion thanks to internal locking contour
- No cold welding between plate and screws



Biomechanics

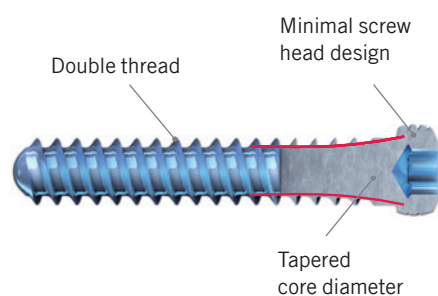
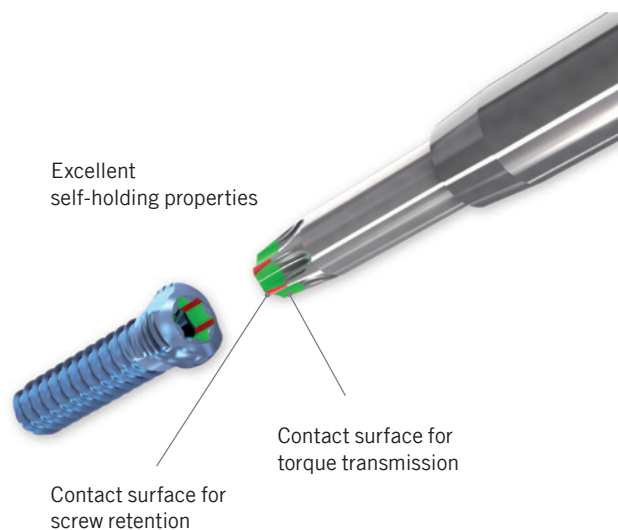
- Internal fixator principle
 - Stable plate – screw construct allows the bridging of unstable zones
 - Improved vascularization of the periosteum due to low contact of the plate



Load-free zone

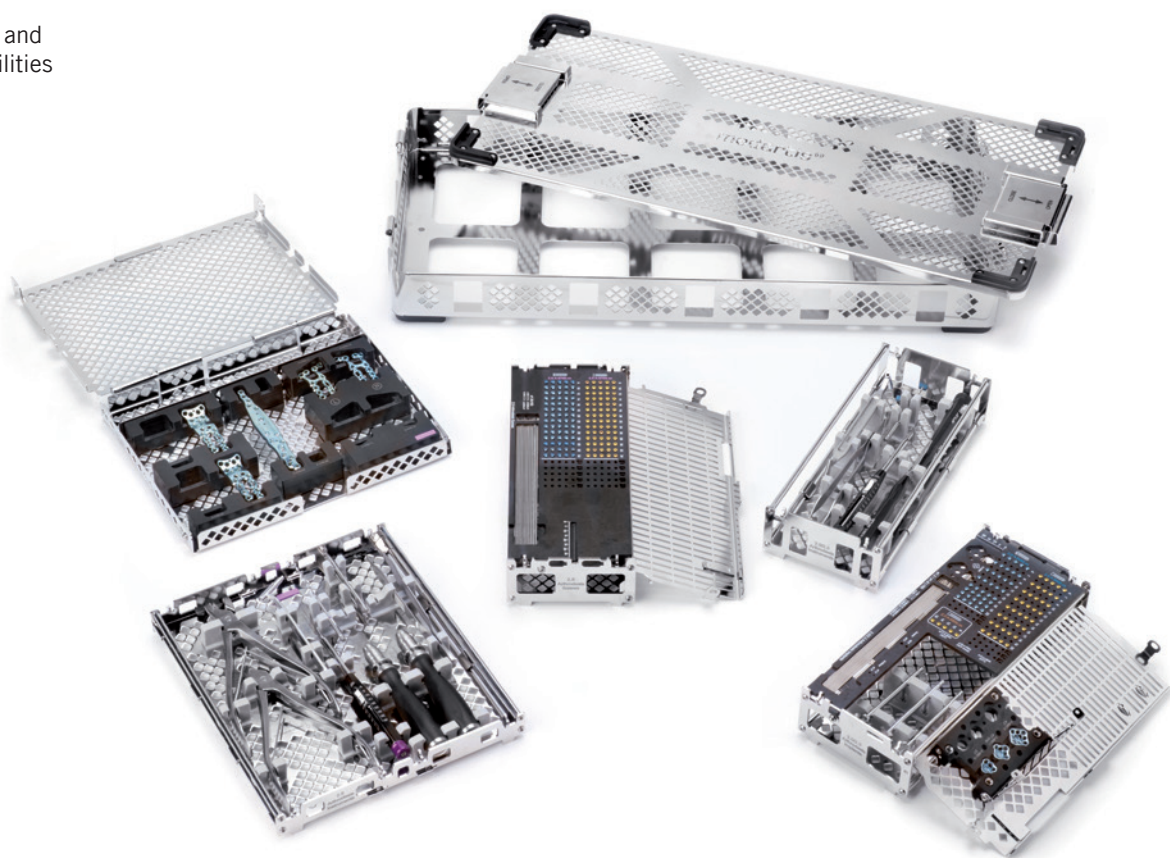
Screw Features

- HexaDrive screw head design
 - Secure connection between screw and screwdriver
 - Increased torque transmission
 - Optimal self-retaining mechanism
- Atraumatic tip prevents soft tissue irritation when inserting screws bicortically
- Tapered core diameter for increased torsional and tensile strength
- Precision cut thread profile for improved sharpness and self-tapping properties
- Double threaded TriLock screws for faster insertion
- Titanium Alloy (TiAl6V4) for improved strength

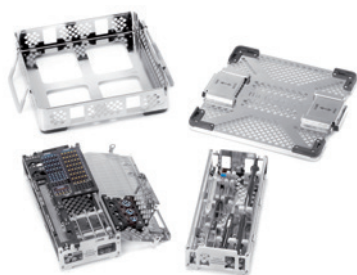


Storage in Perfection

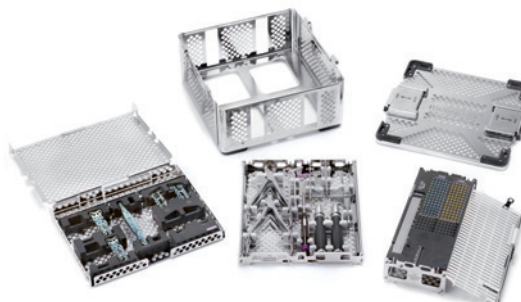
- Modular concept
- Economic and compact system
- Easy to handle
- Intuitive storage for implants and instruments
- Improved cleaning and sterilization capabilities



Also available separately:



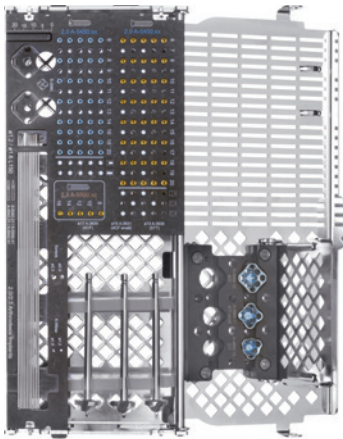
APTUS Arthrodesis Set 2.0/2.3



APTUS Arthrodesis Set 2.5

Equipped 1 / 5 Implant Module 2.0/2.3

Art. No. A-6570 (empty)



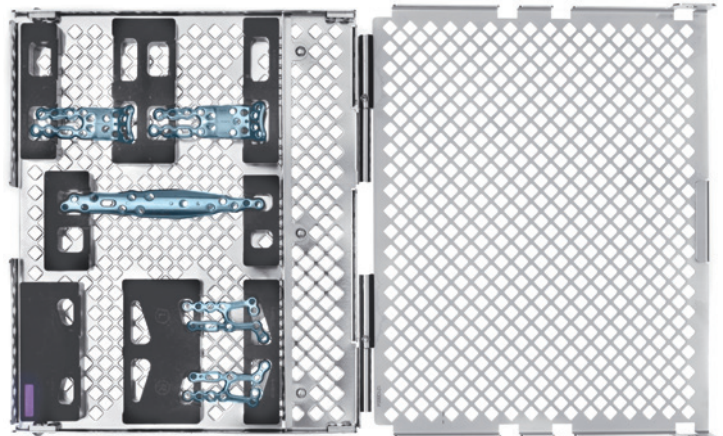
Equipped 1 / 5 Screw Module 2.5

Art. No. A-6573 (empty)



Equipped 2 / 5 Plate Module 2.5

Art. No. A-6572 (empty)



Equipped 1 / 5 Instrument Module 2.0/2.3

Art. No. A-6571 (empty)



Equipped 2 / 5 Instrument Module 2.5

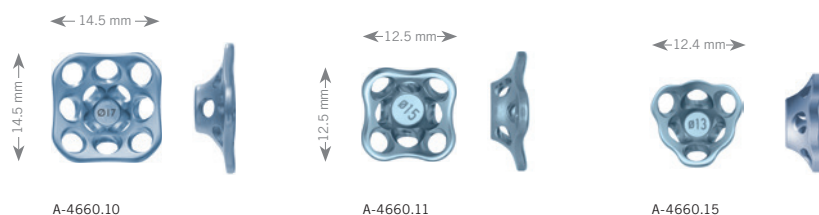
Art. No. A-6574 (empty)



Ordering Information

2.0/2.3 TriLock Arthrodesis Plates

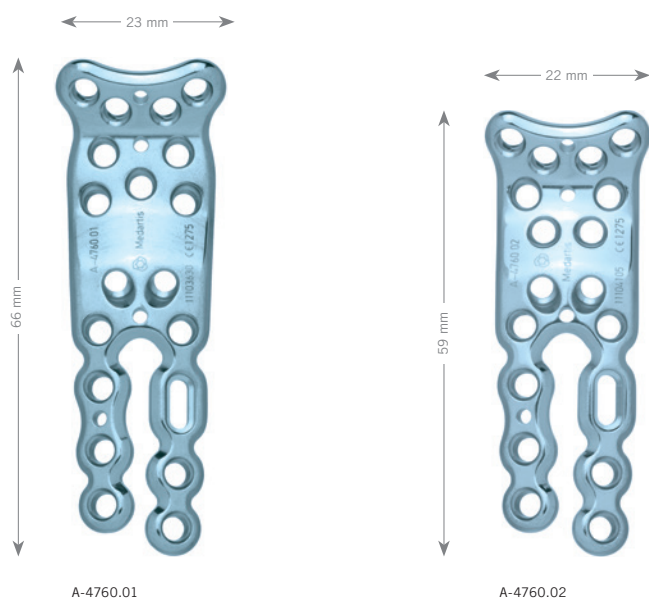
Material: Titanium (ASTM F67)
Plate thickness: 1.4 mm



Art. No.	Description	Holes	Pieces/Pkg
A-4660.10	Four Corner Fusion Plate, Fixation and TriLock	12 (4+8)	1
A-4660.11	Four Corner Fusion Plate, small	8 (4+4)	1
A-4660.15	STT Fusion Plate	6 (3+3)	1

2.5 TriLock Wrist Fusion Plates

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



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

2.5 TriLock Total Wrist Fusion Plate

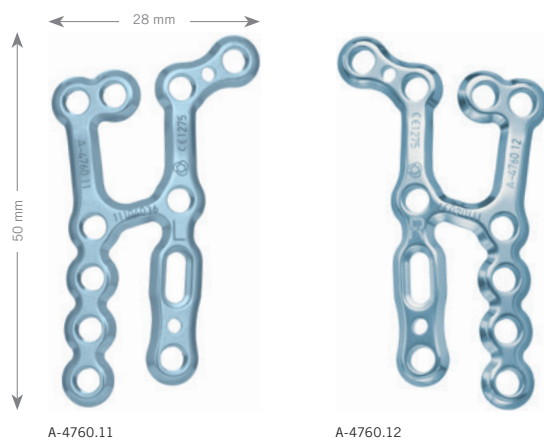
Material: Titanium (ASTM F67)
Plate thickness: 1.8–2.6 mm



Art. No.	Description	Holes	Pieces/Pkg
A-4760.03	straight, dorsal	15	1

2.5 TriLock RSL Fusion Plates

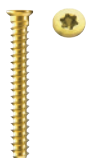
Material: Titanium (ASTM F67)
Plate thickness: 1.6 mm



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

2.0 Cortical Screws, HexaDrive 6

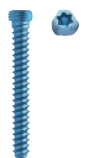
Material: Titanium (ASTM F136)



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

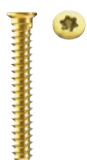
Material: Titanium (ASTM F136)



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 (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

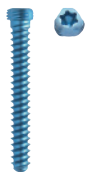
Material: Titanium (ASTM F136)



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
12 mm	A-5700.12/1	1	A-5700.12	5
14 mm	A-5700.14/1	1	A-5700.14	5
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 (ASTM F136)

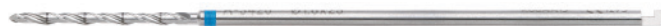


Length	Art. No.	Pieces/Pkg	Art. No.	Pieces/Pkg
8 mm	A-5750.08/1	1	A-5750.08	5
10 mm	A-5750.10/1	1	A-5750.10	5
12 mm	A-5750.12/1	1	A-5750.12	5
14 mm	A-5750.14/1	1	A-5750.14	5
16 mm	A-5750.16/1	1	A-5750.16	5
18 mm	A-5750.18/1	1	A-5750.18	5
20 mm	A-5750.20/1	1	A-5750.20	5
22 mm	A-5750.22/1	1	A-5750.22	5
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



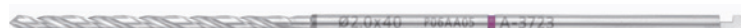
A-3430

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



A-3631



A-3635

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

K-Wires, Stainless Steel



Trocar



Lancet

Art. No.	Ø	Description	Length	Pieces/Pkg
A-5040.21	1.2 mm	Trocar	150 mm	10
A-5040.41	1.6 mm	Trocar	150 mm	10
A-5042.21	1.2 mm	Lancet	150 mm	10
A-5042.41	1.6 mm	Lancet	150 mm	10

Screwdrivers, Self-Holding



A-2610



A-2710

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.	Length	for Shaft End	Pieces/Pkg
A-2070	119 mm	AO Quick Coupling	1

Screwdriver Blade, Self-Holding, HexaDrive 7



Art. No.	System Size	Length	Shaft End	Pieces/Pkg
A-2013	2.5/2.8	75 mm	AO Quick Coupling	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	149 mm	1
A-2730	2.5		151 mm	1
A-2730.1	2.5	caliper	149 mm	1

Plate Bending Pliers



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

Plate and Screw Holding Forceps



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

Cases



A-6506



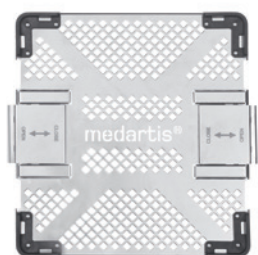
A-6508



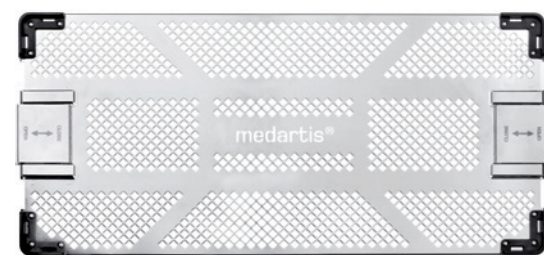
A-6507

Art. No.	Description	Effective Height	Pieces/Pkg
A-6506	2/5 case	96 mm	1
A-6507	5/5 case	48 mm	1
A-6508	2/5 case	48 mm	1

Lids for Cases



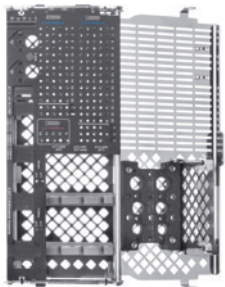
A-6500



A-6501

Art. No.	Description	Pieces/Pkg
A-6500	for 2/5 case	1
A-6501	for 5/5 case	1

Modules for Arthrodesis Set 2.0/2.3



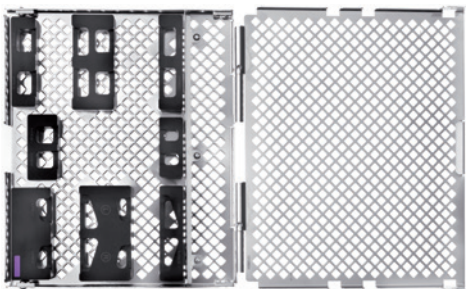
A-6570



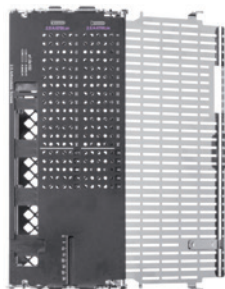
A-6571

Art. No.	Description	Effective Height	Pieces/Pkg
A-6570	1/5 implant module	48 mm	1
A-6571	1/5 instrument module	48 mm	1

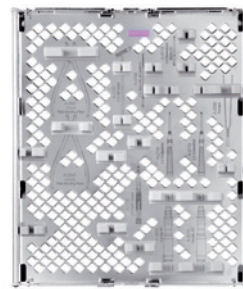
Modules for Arthrodesis Set 2.5



A-6572



A-6573



A-6574

Art. No.	Description	Effective Height	Pieces/Pkg
A-6572	2/5 plate module	24 mm	1
A-6573	1/5 screw module	48 mm	1
A-6574	2/5 instrument module	24 mm	1

Clinical Examples

Arthrodesis Set 2.0/2.3

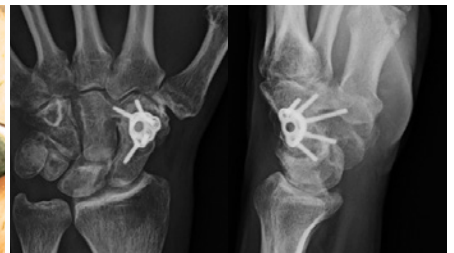
Case 1 – STT Arthrosis



Intraoperative X-rays



Result after STT fusion with STT fusion plate

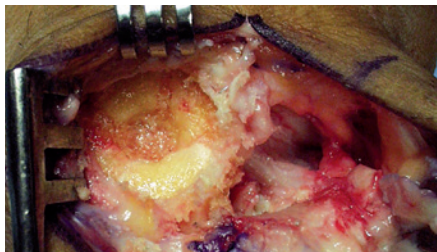


Postoperative X-rays

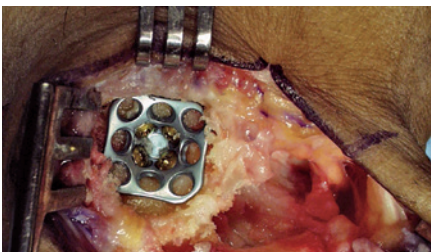
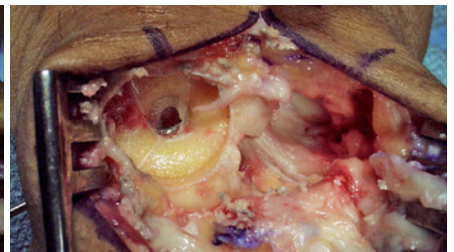
Case 2 – SNAC Wrist



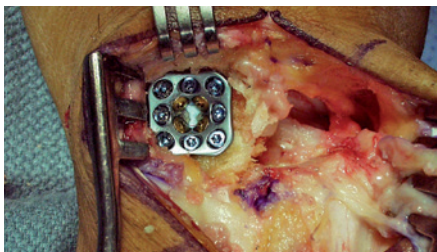
Preoperative X-rays



Creating a recess



Compression of the carpal bones to be fused, using cortical screws

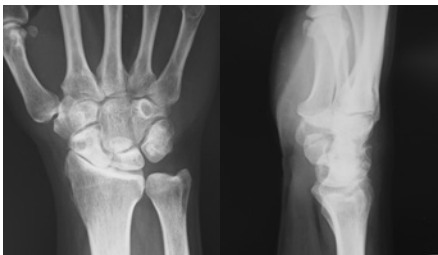


Result after mediocarpal partial arthrodesis with 4CF plate. Per carpal bone capitate, hamate, triquetrum and lunate three screws (1 x cortical screw, 2 x TriLock screws) are inserted

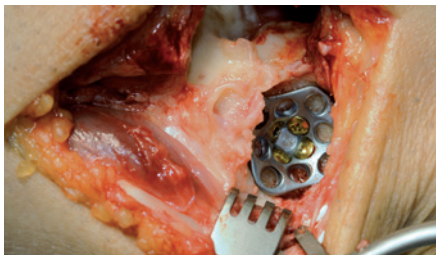


Postoperative X-rays

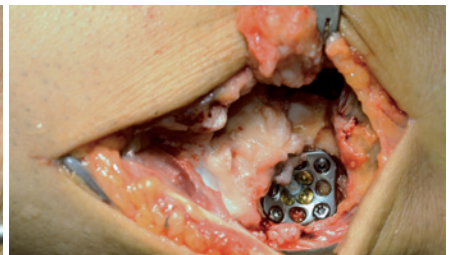
Case 3 – SLAC Wrist



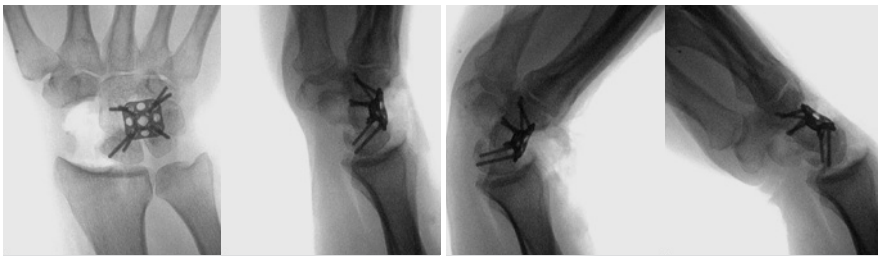
Preoperative X-rays



Compression of the carpal bones to be fused, using cortical screws



Result after mediocarpal partial arthrodesis. The inner plate holes are filled with 4 cortical screws, the outer plate holes are filled with 4 TriLock screws



Postoperative X-rays

Clinical cases presented with permission from:

Cases 1 & 2: Dr. Arnold-Peter C. Weiss, Providence, USA | Case 3: Prof. Dr. Hermann Krimmer, Ravensburg, Germany

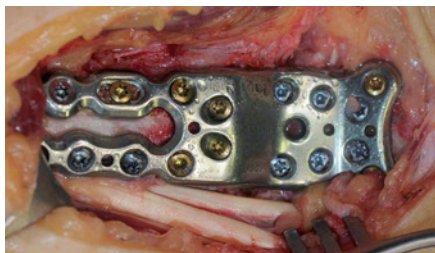
Clinical Examples

Arthrodesis Set 2.5

Case 1 – Advanced radial and mediocarpal arthrosis



Preoperative X-rays



Result after wrist fusion with wrist fusion plate, long bend

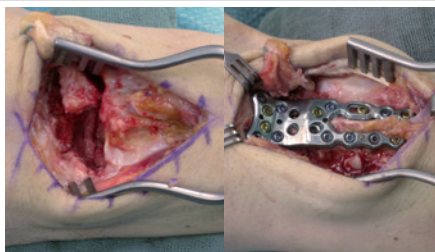


Postoperative X-rays

Case 2 – Arthrosis in the left wrist, necrotic lunate



Preoperative X-ray



Complete removal of the lunate and triquetrum
Result after wrist fusion with wrist fusion plate, short bend



Postoperative X-rays

Case 3 – Chondrocalcinosis, big cyst in the distal radius



Preoperative X-Ray

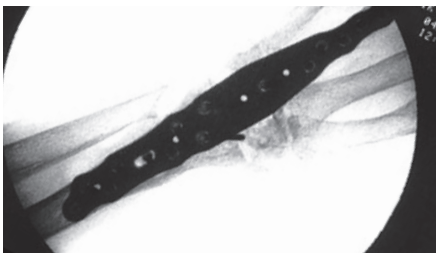


Postoperative X-Rays:
Result after wrist fusion with wrist fusion plate, long bend

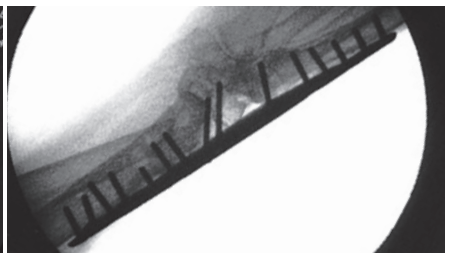
Case 4 – Rheumatoid arthritis



Intraoperative image with TWF plate

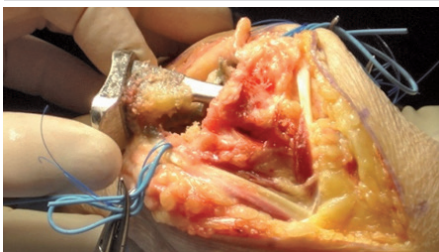


Intraoperative X-ray

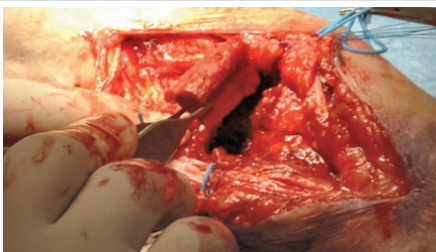


The iliac graft was pulled to the plate and fixated with two lag screws inserted in the pre-contoured plate holes

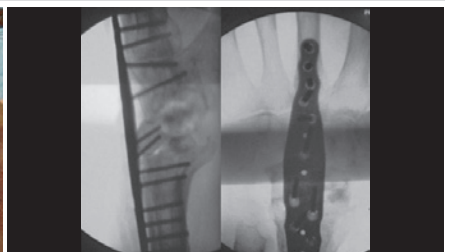
Case 5 – Removal of wrist prosthesis approximately 3 years after surgery



Intraoperative images:
Removal of the wrist prosthesis



Insertion of a bone graft



Result after wrist fusion with TWF plate,
straight

Case 6 – Fusion with interpositioned cortico-spongious iliac crest graft



Intraoperative images with RSL fusion plate



Clinical cases presented with permission from:

Case 1: Prof. Dr. Hermann Krimmer, Ravensburg, Germany | Case 2: Prof. Dr. Michael Sauerbier, Bad Soden, Germany | Cases 3 & 4: Dr. Nicola Borisch, Baden-Baden, Germany | Case 5: Dr. Christoph Eicker, Essen, Germany | Case 6: Dr. Alfons Erdmann, Cologne, Germany



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