

Mini Fragment System

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Note:

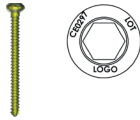
The surgery instructions outlined below reflect the surgical procedure usually chosen by the clinical consultant. However, each surgeon must decide individually which course of action offers the best chance of success in the individual case.

► Introduction

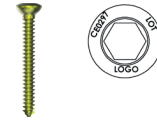
Indication

Mini Plate straight (1.5 / 2.0):	Phalanx fraktures
Mini T-Plate (1.5 / 2.0):	For distal and proximal phalanx fractures
Mini Compression Plate 2.0:	Fractures of the hand and foot
Mini T / L-Plate 2.0; 2/2 holes:	Proximal or distal metacarpal fractures
L-Plate 2.7, 2/3 holes:	To achieve low compression at fractures of the proximal and distal metacarpus
T-Plate 2.7, 2/3 holes:	Proximal and distal metacarpal fractures

1.5 mm Cortical



2.0 mm Cortical



Screw diameter	1.5 mm	2.0 mm
Head diameter	3.0 mm	4.0 mm
Core diameter	1.1 mm	1.3 mm
Pitch	0.5 mm	0.6 mm
Tap	self-tapping / non self-tapping	self-tapping / non self-tapping
Drive	Hex 1.5 mm	Hex 1.5 mm
Material	Steel / Titanium	Steel / Titanium

1.5 Mini Plate, straight



1.5 Mini T-Plate



Plate thickness	0.9 mm	0.9 mm
Plate width	3.80 mm	3.80 mm
Hole distance	5 mm	5 mm
Material	Steel / Titanium	Steel / Titanium

2.0 Mini Plate, straight



2.0 Mini Compression Plate



2.0 Mini T-Plate



2.0 Mini L-Plate 90° / 110°



Plate thickness	1.0 mm	1.0 - 1.5 mm	1.0 mm	1.0 mm
Plate width	5 mm	5 mm	5 mm	5 mm
Hole distance	5 / 6 mm	5 mm	5 / 6 mm	6 mm
Material	Steel / Titanium	Steel / Titanium	Steel / Titanium	Steel / Titanium

2.7 L-Plate 90°



2.7 L-Plate 110°



2.7 T-Plate



Plate thickness	1.20 mm	1.20 mm	1.20 mm
Plate width	7 mm	7 mm	7 mm
Hole distance	8 mm	8 mm	8 mm
Material	Steel / Titanium	Steel / Titanium	Steel / Titanium

► Surgical Technique

Plate Fixation

Preparation

The techniques described below are applicable to the Marquardt Medizintechnik Mini Fragment Plate System. A 2.0 compression plate, straight, was selected as an example.

1. Plate selection

- The plates are available in various lengths and numbers of holes.
- After performing the preoperative radiographic assessment, determine the appropriate plate length.

2. Specify the plate contour

Instruments

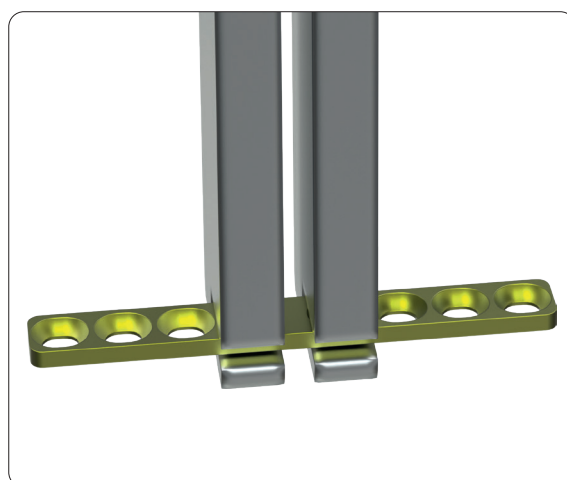
REF 02.20110.005 *Bending Iron for Plates 1.0 up to 2.0 mm*

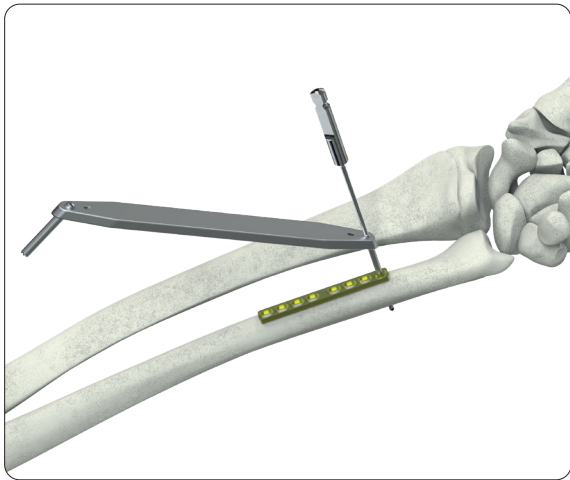
REF 02.20110.015 *Bending Iron for Plates 1.5 up to 2.7 mm*

- Use the bending irons to adapt the plates to the anatomy of the bone.

Note:

- The plate holes are designed to withstand a certain degree of deformity.
- To bend the plate, apply the bending irons to two nearby plate holes to eliminate the deformation of the holes.
- Significant deformation of the plate holes affects the stability of the plate system.
- Multiple bending of the plates reduces the stability of the implant and should be avoided.





3. Reposition and plate fixation

Instruments

REF 02.20010.015

Drill Bit Ø 2.0 mm

REF 02.20060.020

Double Drill Guide 2.0 / 1.5

- The bone is repositioned closed or open.
- During repositioning, care must be taken to reconstruct the correct anatomical position in terms of length and axes.
- The screw hole is predrilled with the drill bit and the double drill guide.

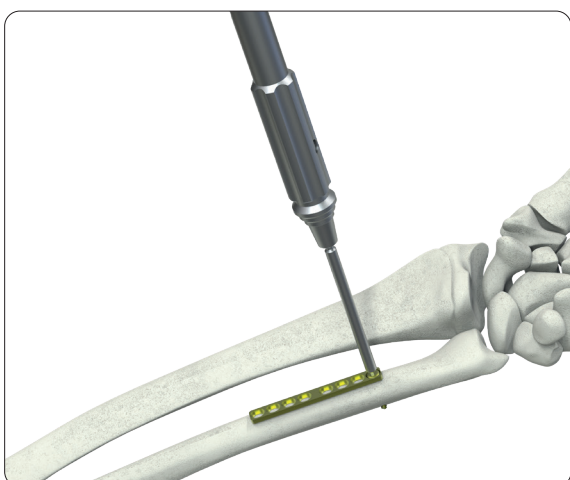


Instruments

REF 02.20100.040

Length Determination Instrument
for Screws up to 40 mm

- The length is measured with the aid of the length determination instrument.
- The hook is hooked into the opposite cortex and the required screw length is read from the scale.
- Care should be taken to ensure that the screws extend through both cortical layers to achieve bicortical fixation.



Instruments

REF 02.20040.015

Screwdriver Shaft, hex 1.5 mm

REF 02.20050.005

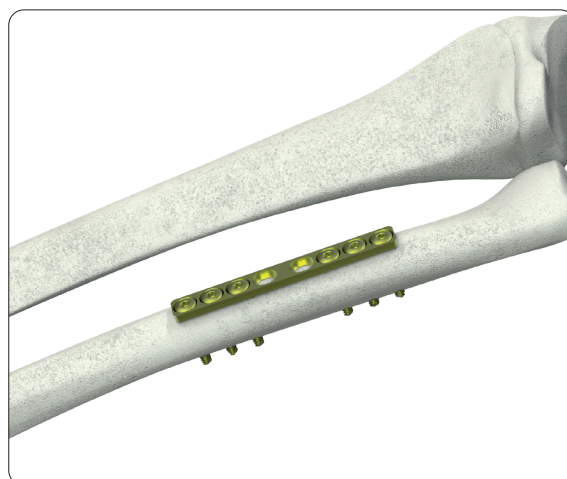
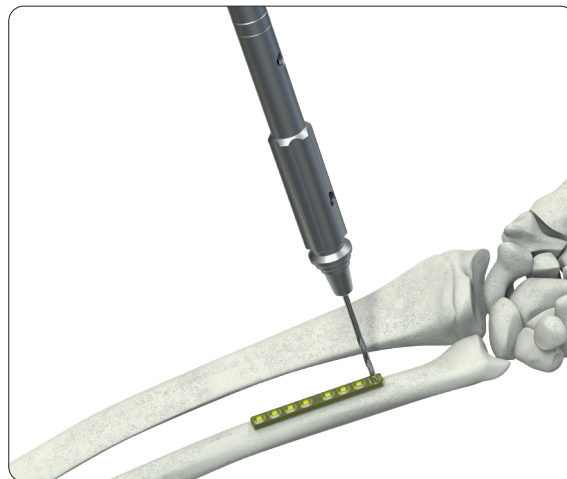
Handle with Mini Quick Coupling

- A screw of measured length is inserted with the screwdriver shaft and handle.
- The length and position of the screw is checked under radiological control and corrections are made if necessary.

Instruments

REF 02.20020.020	Tap Ø 2.0 mm
REF 02.20040.015	Screwdriver Shaft, hex 1.5 mm
REF 02.20050.005	Handle with Mini Quick Coupling

- If a non-self-tapping cortex screw is used, the screw hole must first be predrilled as described above.
 - The thread can then be pre-cut with a tap, depending on the bone density.
 - The selected screw is screwed in with the screwdriver shaft and handle.
-
- After all plate holes to be filled have been fixed with screws, a final radiological check is performed to verify the plate position, the anatomical reposition of the fracture and the lengths of the screws.



Mini Fragment System

▶ Product Information

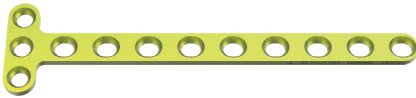
Implants (for Ø 1.5 mm Screws)

Mini Plate 1.5, straight



Article Number Steel	Article Number Titanium	Length	Holes
02.10041.020	02.11041.020	100 mm	20

Mini T-Plate 1.5



Article Number Steel	Article Number Titanium	Length	Holes
02.10121.003	02.11121.003	50 mm	3 / 9
02.10121.004	02.11121.004	50 mm	4 / 9

Article Number Steel	Article Number Titanium	Length	Holes
02.10051.020	02.11051.020	100 mm	20

Mini Plate 2.0, straight, 20 holes



Article Number Steel	Article Number Titanium	Length	Holes
02.10151.003	02.11151.003	50 mm	3 / 9
02.10151.004	02.11151.004	50 mm	4 / 9

Mini T-Plate 2.0



Article Number Steel	Article Number Titanium	Length	Holes
02.10510.003	02.11510.003	17 mm	3
02.10510.004	02.11510.004	23 mm	4
02.10510.005	02.11510.005	29 mm	5
02.10510.006	02.11510.006	35 mm	6

Mini Plate 2.0, straight



Article Number Steel	Article Number Titanium	Length	Holes
02.10515.004	02.11515.004	22 mm	4
02.10515.005	02.11515.005	27 mm	5
02.10515.006	02.11515.006	32 mm	6
02.10515.007	02.11515.007	37 mm	7
02.10515.008	02.11515.008	42 mm	8

Mini Compression Plate 2.0



Mini T-Plate 2.0



Article Number Stainless Steel	Article Number Titanium	Length	Holes
02.10111.002	02.11111.002	22 mm	2 / 2

Mini L-Plate 2.0, 90°



Article Number Stainless Steel	Article Number Titanium	Length	Holes	Orientation
02.10090.002	02.11090.002	22 mm	2 / 2	right
02.10090.102	02.11090.102	22 mm	2 / 2	left

Mini L-Plate 2.0, 110°



Article Number Stainless Steel	Article Number Titanium	Length	Holes	Orientation
02.10110.002	02.11110.002	22 mm	2 / 2	right
02.10110.102	02.11110.102	22 mm	2 / 2	left

Implants (for Ø 2.7 mm Screws)

Article Number Stainless Steel	Article Number Titanium	Length	Holes	Orientation
03.10090.003	03.11090.003	32 mm	2 / 3	right
03.10090.103	03.11090.103	32 mm	2 / 3	left

L-Plate 2.7, 90°



Article Number Stainless Steel	Article Number Titanium	Length	Holes	Orientation
03.10110.003	03.11110.003	32 mm	2 / 3	right
03.10110.103	03.11110.103	32 mm	2 / 3	left

L-Plate 2.7, 110°



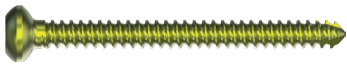
Article Number Stainless Steel	Article Number Titanium	Length	Holes
03.10131.003	03.11131.003	32 mm	2 / 3

T-Plate 2.7



Mini Fragment System

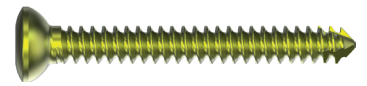
Cortical Screw Ø 1.5, self-tapping



Article Numer Stainless Steel	Article Number Titanium	Article Number Stainless Steel self-tapping	Article Number Titanium self-tapping	Length
02.00315.006	02.01315.006	02.02315.006	02.03315.006	6 mm
02.00315.007	02.01315.007	02.02315.007	02.03315.007	7 mm
02.00315.008	02.01315.008	02.02315.008	02.03315.008	8 mm
02.00315.009	02.01315.009	02.02315.009	02.03315.009	9 mm
02.00315.010	02.01315.010	02.02315.010	02.03315.010	10 mm
02.00315.011	02.01315.011	02.02315.011	02.03315.011	11 mm
02.00315.012	02.01315.012	02.02315.012	02.03315.012	12 mm
02.00315.014	02.01315.014	02.02315.014	02.03315.014	14 mm
02.00315.016	02.01315.016	02.02315.016	02.03315.016	16 mm
02.00315.018	02.01315.018	02.02315.018	02.03315.018	18 mm
02.00315.020	02.01315.020	02.02315.020	02.03315.020	20 mm
02.00315.022	02.01315.022	02.02315.022	02.03315.022	22 mm
02.00315.024	02.01315.024	02.02315.024	02.03315.024	24 mm

Article Numer Stainless Steel	Article Number Titanium	Article Number Stainless Steel self-tapping	Article Number Titanium * self-tapping	Length
02.00420.006	02.01420.006	02.02420.006	02.03420.006	6 mm
02.00420.008	02.01420.008	02.02420.008	02.03420.008	8 mm
02.00420.010	02.01420.010	02.02420.010	02.03420.010	10 mm
02.00420.012	02.01420.012	02.02420.012	02.03420.012	12 mm
02.00420.014	02.01420.014	02.02420.014	02.03420.014	14 mm
02.00420.016	02.01420.016	02.02420.016	02.03420.016	16 mm
02.00420.018	02.01420.018	02.02420.018	02.03420.018	18 mm
02.00420.020	02.01420.020	02.02420.020	02.03420.020	20 mm
02.00420.022	02.01420.022	02.02420.022	02.03420.022	22 mm
02.00420.024	02.01420.024	02.02420.024	02.03420.024	24 mm
02.00420.026	02.01420.026	02.02420.026	02.03420.026	26 mm
02.00420.028	02.01420.028	02.02420.028	02.03420.028	28 mm
02.00420.030	02.01420.030	02.02420.030	02.03420.030	30 mm
02.00420.032	02.01420.032	02.02420.032	02.03420.032	32 mm
02.00420.034	02.01420.034	02.02420.034	02.03420.034	34 mm
02.00420.036	02.01420.036	02.02420.036	02.03420.036	36 mm
02.00420.038	02.01420.038	02.02420.038	02.03420.038	38 mm

**Cortical Screw Ø 2.0,
self-tapping**



Article Number Steel	Article Number Titanium	Outer Diameter	Thickness
02.90000.045	02.91000.045	4.5 mm	0.6 mm

**Washer Ø 4.5 mm,
for Screws Ø 1.5 up to 2.0 mm**



* All implants are also available in sterile. Therefore, add suffix "S" to article number.

Mini Fragment System

Instruments

02.20010.011 Drill Bit Ø 1.1mm, AO Coupling,
L 60/30 mm



02.20010.015 Drill Bit Ø 1.5mm, AO Coupling,
L 85/55 mm



02.20010.020 Drill Bit Ø 2.0mm, AO Coupling,
L 100/70 mm



02.20010.027 Drill Bit Ø 2.7mm, AO Coupling,
L 100/70 mm



02.20020.015 Tap Ø 1.5mm, Mini Quick Coupling,
L 50/20 mm



02.20020.020 Tap Ø 2.0mm, Mini Quick Coupling,
L 53/25 mm



02.20020.027 Tap Ø 2.7mm, AO Coupling,
L 100/33 mm



02.20030.015 Countersink 1.5/2.0, Mini Quick Coupling



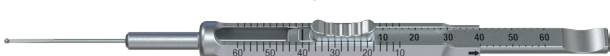
02.20030.027 Countersink 2.7/ 3.5/4.0, AO Coupling



02.20100.040 Length Determination Instrument,
for Screws up to 40mm



03.20100.060 Length Determination Instrument,
for Screws up to 60mm



02.20050.005 Handle with Mini Quick Coupling



02.20050.010 Handle with AO Coupling



03.20040.025 Screwdriver, hex 2.5, L 200/85 mm



02.20040.015 Screwdriver Shaft, hex 1.5mm,
Mini Quick Coupling, L 64/49 mm



03.20040.125 Screwdriver Shaft, hex 2.5mm, AO Coupling,
L 100/70 mm



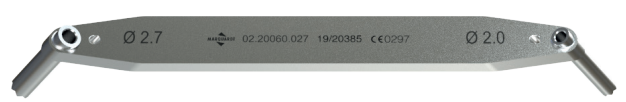
02.20060.015 Double Drill Guide 1.5/1.1



02.20060.020 Double Drill Guide 2.0/1.5



02.20060.027 Double Drill Guide 2.7/2.0



02.20110.005 Bending Iron for Plates 1.5 up to 2.0mm



02.20110.020 Bending Iron for Kirschner Wires
Ø 0.8 to 1.25mm



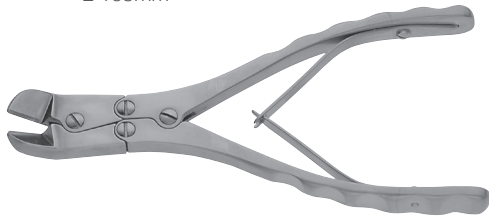
02.20110.160

Wire Bending Pliers for Wires
up to Ø 1.25mm, L 160mm



11.20130.165

Wire Cutter for Wires up to Ø 1.6mm,
L 165mm



02.20110.015

Bending Pliers for Plates 1.5 up to 2.7mm



02.20080.003

Periosteal Elevator, curved blade,
straight edge, width 3mm



02.20120.005

Sharp Hook, L 150mm



02.20120.015

Screw Forceps, self-holding



02.20090.006

Bone Lever, narrow tip, width 6mm,
L 160mm



02.20090.008

Bone Lever, narrow tip, width 8mm,
L 160mm



02.20090.015

Bone Lever, width 15mm, L 160mm



03.20070.130

Reduction Forceps with Points, narrow,
Ratchet Lock, L 130mm



03.20070.131

Reduction Forceps with Points, wide,
Ratchet Lock, L 130mm



02.20070.132

Holding Forceps for Small Plates,
Ratchet Lock, L 135mm





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