

Cannulated Screws
Ø 7.0 mm, Ø 7.3mm

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Note:

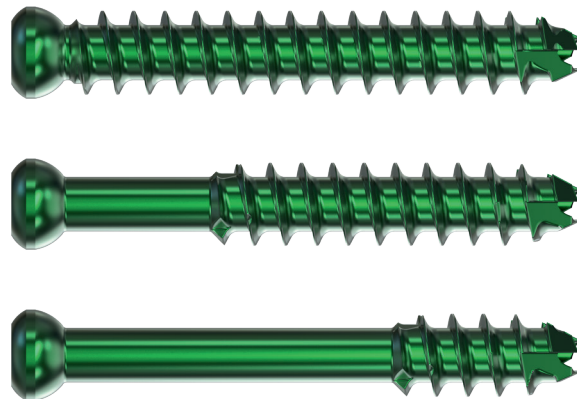
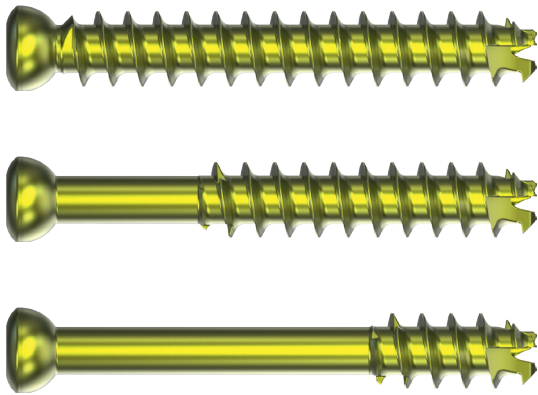
The surgical technique outlined below reflect the surgical procedure usually chosen by the clinical advisor. However, each surgeon must decide which surgical method and which approach is the most successful for his patient.

Cannulated Screws 7.0 and 7.3

► Introduction

Product Specification

- The Marquardt **Cannulated Screw System** offers a wide range of cannulated screws from Ø 7.0 and Ø 7.3mm. Cannulated screws are intended for fracture fixation in large bones. They can also be used in combination with other Marquardt plate systems.



Indication

- For use in metaphyseal or epiphyseal area of large bones. (Cannulated Screws Ø 7.0 and Ø 7.3mm)
- Prevent the head of a screw splitting the cortex and sinking into the bone. (Washer)

► Surgical Technique, percutaneous Ø 7.0 and Ø 7.3mm

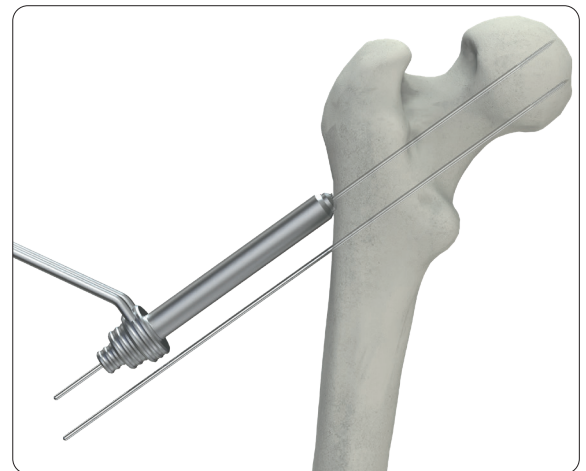
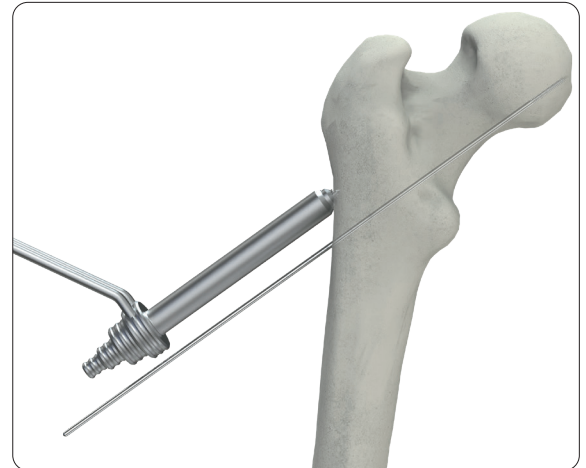
The following operation instructions describe the use of the cannulated screw Ø 7.0 mm. The surgical technique for the cannulated screw Ø 7.3 mm is identical, but performed with different instruments (indicated in brackets).

Guide Wire Insertion

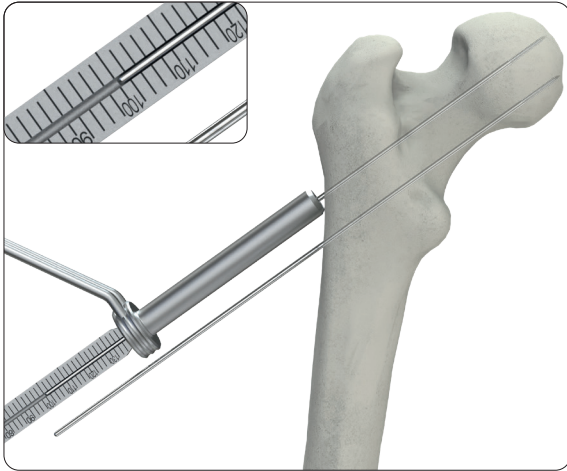
Instruments

| | |
|--|---|
| REF 11.90220.230 (REF 11.90228.300) | Kirschner Wire Ø 2.0 mm, L 230 mm Kirschner Wire Ø 2.8 mm, L 300 mm) |
| REF 08.20120.070 (REF 08.20120.070) | Protection Sleeve 11.0/8.0 Protection Sleeve 11.0/8.0) |
| REF 08.20060.080 (REF 08.20060.173) | Drill Sleeve 8.0/4.5 Drill Sleeve 8.0/5.0) |
| REF 08.20060.045 (REF 08.20060.073) | Centering Sleeve 4.5 for K-Wire 2.0mm Centering Sleeve 5.0 for K-Wire 2.8mm) |
| REF 08.20120.020 (REF 08.20120.073) | Trocar Ø 2.0mm Trocar Ø 2.8mm) |

- After reduction, a K-wire is inserted along the anterior surface of the femoral neck to determine anteversion.
- The position is checked using an image intensifier.
- Through a stab incision, the sleeve assembly (protection sleeve, drill sleeve, centering sleeve and trocar) is advanced to the lateral cortex and held parallel to the anteversion wire (frontal plane)..
- The trocar is then removed and the K-wire is advanced through the centering sleeve into the bone until the required depth is reached.
- The correct position of the K-wire is checked in both planes.



Cannulated Screws 7.0 and 7.3



Screw Length Determination

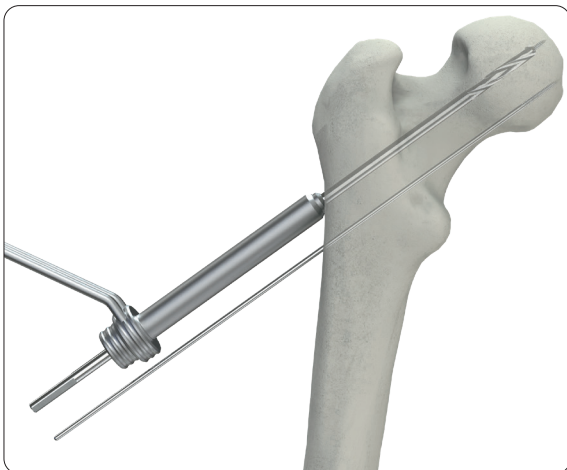
Instruments

REF 08.20100.070 *Length Determination Instrument
for K-Wire Ø 2.0mm*
(REF 08.20100.073 *Length Determination Instrument
for K-Wire Ø 2.8mm*)

- Remove the centering sleeve and the drill sleeve from the protection sleeve.
- Advance the length determination instrument over the K-wire through the protection sleeve up to the bone.
- The required screw length can be read directly from the scale of the length determination instrument (end of the guide wire).

Note:

Screwing through the opposite cortical cortex must be prevented.

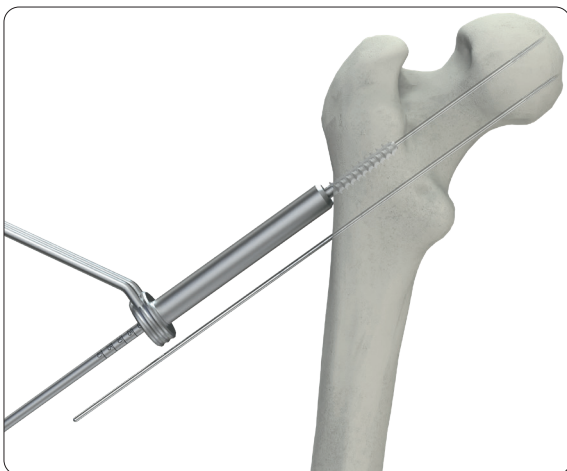


Drilling

Instruments

REF 08.20010.145 *Drill Bit Ø 4.5/2.1mm*
(REF 08.20010.150 *Drill Bit Ø 5.0/2.9mm*)

- Insert the drill sleeve into the protection sleeve.
- The cannulated drill bit is used to predrill through the drill sleeve via the K-wire.



Instruments

REF 08.20020.070 *Tap Ø 7.0/2.2mm*
(REF 08.20020.073 *Tap Ø 7.3/2.9mm*)

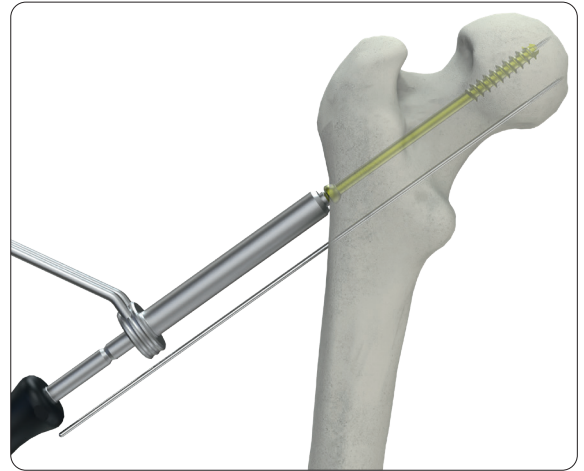
- If necessary, the tap can be used to prepare the thread for the screw.

Screw Insertion

Instruments

REF 08.20040.070 *Screwdriver, hex 3.5, cannulated*
(REF 08.20040.173 *Screwdriver, hex 4.0, cannulated*)

- The cannulated screwdriver is then used to insert the cannulated screw over the guide wire through the protection sleeve.

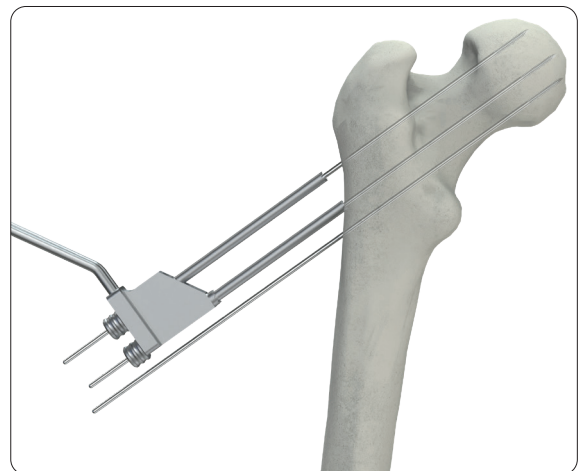


Insertion of Percutaneous Parallel K-wires

Instrumente

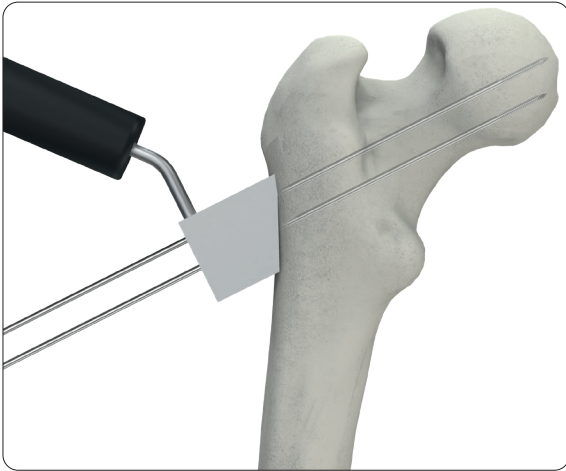
REF 08.20060.145 *Parallel Drill Guide 4.5*
(REF 08.20060.273 *Parallel Drill Guide 5.0*)
REF 08.20060.045 *Centering Sleeve 4.5 for K-Wire 2.0mm*
(REF 08.20060.073 *Centering Sleeve 5.0 for K-Wire 2.8mm*)

- Remove the sleeve assembly completely.
- Insert the centering sleeve into the parallel drill guide and move it over the previously inserted K-wire.
- Then insert the second centering sleeve into the desired position of the parallel drill guide and set the additional K-wire.



Cannulated Screws 7.0 and 7.3

► Surgical Technique, open Ø 7.0 and Ø 7.3mm



Insertion of the Guide Wire

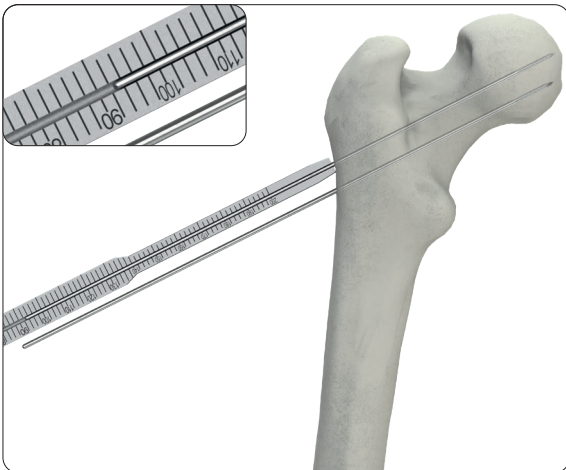
Instruments

REF 08.20060.170 Parallel Guide for K-Wire Ø 2.0mm
(REF 08.20060.373 Parallel Guide for K-Wire Ø 2.8mm)

- The parallel guide is advanced to the bone via one of the central holes over the previously inserted guide wire.
- After the parallel guide has been placed, further parallel K-wires can be placed.

Note:

Triangular placement is recommended as this allows the use of washers with all screws.



Screw Length Determination

Instruments

REF 08.20100.070 Length Determination Instrument
for K-Wire Ø 2.0mm
(REF 08.20100.073 Length Determination Instrument
for K-Wire Ø 2.8mm)

- Advance the length determination instrument over the K-wire up to the bone.
- The required screw length can be read directly from the scale of the length determination instrument (end of the guide wire).

Note:

Screwing through the opposite cortical cortex must be prevented.

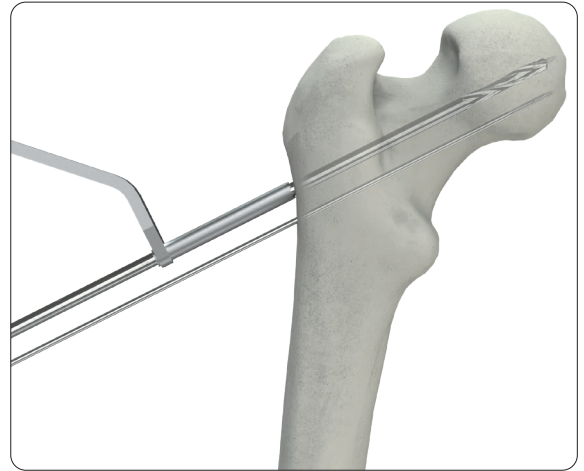
Cannulated Screws 7.0 and 7.3

Drilling

Instruments

REF 08.20010.145 Drill Bit Ø 4.5/2.1mm
(REF 08.20010.150 Drill Bit Ø 5.0/2.9mm)
REF 04.20060.045 Double Drill Guide 4.5/3.2

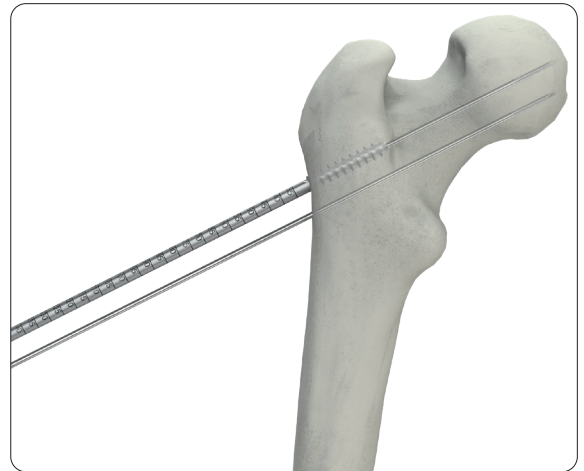
- The cannulated drill bit is used to predrill over the K-wire.



Instruments

REF 08.20020.070 Tap Ø 7.0/2.2mm
(REF 08.20020.073 Tap Ø 7.3/2.9mm)

- If necessary, the tap can be used to prepare the thread for the screw.

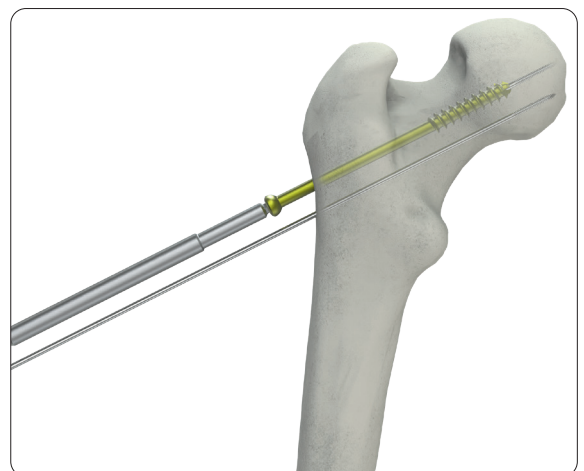


Screw Insertion

Instruments

REF 08.20040.070 Screwdriver, hex 3.5, cannulated
(REF 08.20040.173 Screwdriver, hex 4.0, cannulated)

- The cannulated screwdriver is then used to insert the cannulated screw over the guide wire.

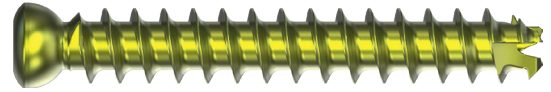


Cannulated Screws 7.0 and 7.3

► Product Information

Implants

| Article Number Stainless Steel | Article Number * Titanium | Screw Length |
|-----------------------------------|------------------------------|-----------------|
| 08.02800.025 | 08.03800.025 | 25mm |
| 08.02800.030 | 08.03800.030 | 30mm |
| 08.02800.035 | 08.03800.035 | 35mm |
| 08.02800.040 | 08.03800.040 | 40mm |
| 08.02800.045 | 08.03800.045 | 45mm |
| 08.02800.050 | 08.03800.050 | 50mm |
| 08.02800.055 | 08.03800.055 | 55mm |
| 08.02800.060 | 08.03800.060 | 60mm |
| 08.02800.065 | 08.03800.065 | 65mm |
| 08.02800.070 | 08.03800.070 | 70mm |
| 08.02800.075 | 08.03800.075 | 75mm |
| 08.02800.080 | 08.03800.080 | 80mm |
| 08.02800.085 | 08.03800.085 | 85mm |
| 08.02800.090 | 08.03800.090 | 90mm |
| 08.02800.095 | 08.03800.095 | 95mm |
| 08.02800.100 | 08.03800.100 | 100mm |
| 08.02800.105 | 08.03800.105 | 105mm |
| 08.02800.110 | 08.03800.110 | 110mm |
| 08.02800.115 | 08.03800.115 | 115mm |
| 08.02800.120 | 08.03800.120 | 120mm |
| 08.02800.125 | 08.03800.125 | 125mm |
| 08.02800.130 | 08.03800.130 | 130mm |



Cannulated Screw Ø 7.0mm, fully threaded, self-drilling

- Thread diameter: 7.0mm
- Head diameter: 8.0mm
- Hexagon Socket: 3.5mm
- Cannulation: 2.20mm

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

Cannulated Screws 7.0 and 7.3



Cannulated Screw Ø 7.0mm, short threaded 16mm, self-drilling

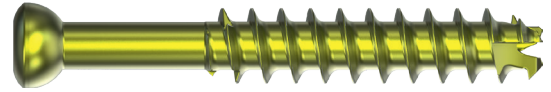
- Thread diameter: 7.0mm
- Shaft diameter: 4.5mm
- Head diameter: 8.0mm
- Hexagon socket: 3.5mm
- Cannulation: 2.20mm

| Article Number Stainless Steel | Article Number * Titanium | Screw Length |
|-----------------------------------|------------------------------|-----------------|
| 08.02816.025 | 08.03816.025 | 25mm |
| 08.02816.030 | 08.03816.030 | 30mm |
| 08.02816.035 | 08.03816.035 | 35mm |
| 08.02816.040 | 08.03816.040 | 40mm |
| 08.02816.045 | 08.03816.045 | 45mm |
| 08.02816.050 | 08.03816.050 | 50mm |
| 08.02816.055 | 08.03816.055 | 55mm |
| 08.02816.060 | 08.03816.060 | 60mm |
| 08.02816.065 | 08.03816.065 | 65mm |
| 08.02816.070 | 08.03816.070 | 70mm |
| 08.02816.075 | 08.03816.075 | 75mm |
| 08.02816.080 | 08.03816.080 | 80mm |
| 08.02816.085 | 08.03816.085 | 85mm |
| 08.02816.090 | 08.03816.090 | 90mm |
| 08.02816.095 | 08.03816.095 | 95mm |
| 08.02816.100 | 08.03816.100 | 100mm |
| 08.02816.105 | 08.03816.105 | 105mm |
| 08.02816.110 | 08.03816.110 | 110mm |
| 08.02816.115 | 08.03816.115 | 115mm |
| 08.02816.120 | 08.03816.120 | 120mm |
| 08.02816.125 | 08.03816.125 | 125mm |
| 08.02816.130 | 08.03816.130 | 130mm |

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

Cannulated Screws 7.0 and 7.3

| Article Number Stainless Steel | Article Number * Titanium | Screw Length |
|-----------------------------------|------------------------------|-----------------|
| 08.02832.045 | 08.03832.045 | 45mm |
| 08.02832.050 | 08.03832.050 | 50mm |
| 08.02832.055 | 08.03832.055 | 55mm |
| 08.02832.060 | 08.03832.060 | 60mm |
| 08.02832.065 | 08.03832.065 | 65mm |
| 08.02832.070 | 08.03832.070 | 70mm |
| 08.02832.075 | 08.03832.075 | 75mm |
| 08.02832.080 | 08.03832.080 | 80mm |
| 08.02832.085 | 08.03832.085 | 85mm |
| 08.02832.090 | 08.03832.090 | 90mm |
| 08.02832.095 | 08.03832.095 | 95mm |
| 08.02832.100 | 08.03832.100 | 100mm |
| 08.02832.105 | 08.03832.105 | 105mm |
| 08.02832.110 | 08.03832.110 | 110mm |
| 08.02832.115 | 08.03832.115 | 115mm |
| 08.02832.120 | 08.03832.120 | 120mm |
| 08.02832.125 | 08.03832.125 | 125mm |
| 08.02832.130 | 08.03832.130 | 130mm |



Cannulated Screw Ø 7.0mm, short threaded 32mm, self-drilling

- Thread diameter: 7.0mm
- Shaft diameter: 4.5mm
- Head diameter: 8.0mm
- Hexagon Socket: 3.5mm
- Cannulation: 2.20mm

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

Cannulated Screws 7.0 and 7.3



Cannulated Screw Ø 7.3mm, fully threaded, self-drilling

- Thread diameter: 7.3mm
- Head diameter: 8.0mm
- Hexagon socket: 3.5mm
- Cannulation: 2.90mm

| Article Number Stainless Steel | Article Number * Titanium | Screw Length |
|-----------------------------------|------------------------------|-----------------|
| 08.02900.025 | 08.03900.025 | 25mm |
| 08.02900.030 | 08.03900.030 | 30mm |
| 08.02900.035 | 08.03900.035 | 35mm |
| 08.02900.040 | 08.03900.040 | 40mm |
| 08.02900.045 | 08.03900.045 | 45mm |
| 08.02900.050 | 08.03900.050 | 50mm |
| 08.02900.055 | 08.03900.055 | 55mm |
| 08.02900.060 | 08.03900.060 | 60mm |
| 08.02900.065 | 08.03900.065 | 65mm |
| 08.02900.070 | 08.03900.070 | 70mm |
| 08.02900.075 | 08.03900.075 | 75mm |
| 08.02900.080 | 08.03900.080 | 80mm |
| 08.02900.085 | 08.03900.085 | 85mm |
| 08.02900.090 | 08.03900.090 | 90mm |
| 08.02900.095 | 08.03900.095 | 95mm |
| 08.02900.100 | 08.03900.100 | 100mm |
| 08.02900.105 | 08.03900.105 | 105mm |
| 08.02900.110 | 08.03900.110 | 110mm |
| 08.02900.115 | 08.03900.115 | 115mm |
| 08.02900.120 | 08.03900.120 | 120mm |
| 08.02900.125 | 08.03900.125 | 125mm |
| 08.02900.130 | 08.03900.130 | 130mm |

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

Cannulated Screws 7.0 and 7.3

| Article Number Stainless Steel | Article Number * Titanium | Screw Length |
|-----------------------------------|------------------------------|-----------------|
| 08.02916.030 | 08.03916.030 | 30mm |
| 08.02916.035 | 08.03916.035 | 35mm |
| 08.02916.040 | 08.03916.040 | 40mm |
| 08.02916.045 | 08.03916.045 | 45mm |
| 08.02916.050 | 08.03916.050 | 50mm |
| 08.02916.055 | 08.03916.055 | 55mm |
| 08.02916.060 | 08.03916.060 | 60mm |
| 08.02916.065 | 08.03916.065 | 65mm |
| 08.02916.070 | 08.03916.070 | 70mm |
| 08.02916.075 | 08.03916.075 | 75mm |
| 08.02916.080 | 08.03916.080 | 80mm |
| 08.02916.085 | 08.03916.085 | 85mm |
| 08.02916.090 | 08.03916.090 | 90mm |
| 08.02916.095 | 08.03916.095 | 95mm |
| 08.02916.100 | 08.03916.100 | 100mm |
| 08.02916.105 | 08.03916.105 | 105mm |
| 08.02916.110 | 08.03916.110 | 110mm |
| 08.02916.115 | 08.03916.115 | 115mm |
| 08.02916.120 | 08.03916.120 | 120mm |
| 08.02916.125 | 08.03916.125 | 125mm |
| 08.02916.130 | 08.03916.130 | 130mm |
| 08.02916.135 | 08.03916.135 | 135mm |
| 08.02916.140 | 08.03916.140 | 140mm |
| 08.02916.145 | 08.03916.145 | 145mm |
| 08.02916.150 | 08.03916.150 | 150mm |



Cannulated Screw Ø 7.3mm, short threaded 16mm, self-drilling

- Thread diameter: 7.3mm
- Shaft diameter: 4.8mm
- Head diameter: 8.0mm
- Hexagon socket: 3.5mm
- Cannulation: 2.90mm

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

Cannulated Screws 7.0 and 7.3



Cannulated Screw Ø 7.3mm, short threaded 32mm, self-drilling

- Thread diameter: 7.3mm
- Shaft diameter: 4.8mm
- Head diameter: 8.0mm
- Hexagon socket: 3.5mm
- Cannulation: 2.90mm

| Article Number Stainless Steel | Article Number * Titanium | Screw Length |
|-----------------------------------|------------------------------|-----------------|
| 08.02932.045 | 08.03932.045 | 45mm |
| 08.02932.050 | 08.03932.050 | 50mm |
| 08.02932.055 | 08.03932.055 | 55mm |
| 08.02932.060 | 08.03932.060 | 60mm |
| 08.02932.065 | 08.03932.065 | 65mm |
| 08.02932.070 | 08.03932.070 | 70mm |
| 08.02932.075 | 08.03932.075 | 75mm |
| 08.02932.080 | 08.03932.080 | 80mm |
| 08.02932.085 | 08.03932.085 | 85mm |
| 08.02932.090 | 08.03932.090 | 90mm |
| 08.02932.095 | 08.03932.095 | 95mm |
| 08.02932.100 | 08.03932.100 | 100mm |
| 08.02932.105 | 08.03932.105 | 105mm |
| 08.02932.110 | 08.03932.110 | 110mm |
| 08.02932.115 | 08.03932.115 | 115mm |
| 08.02932.120 | 08.03932.120 | 120mm |
| 08.02932.125 | 08.03932.125 | 125mm |
| 08.02932.130 | 08.03932.130 | 130mm |
| 08.02932.135 | 08.03932.135 | 135mm |
| 08.02932.140 | 08.03932.140 | 140mm |
| 08.02932.145 | 08.03932.145 | 145mm |
| 08.02932.150 | 08.03932.150 | 150mm |



Washer Ø 13.0mm, for Screws Ø 4.5 to 7.3mm

| Article Number Stainless Steel | Article Number Titanium | Thickness |
|-----------------------------------|----------------------------|-----------|
| 04.90000.130 | 04.91000.130 | 1.50mm |

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

Cannulated Screws 7.0 and 7.3

Instruments

Cannulated Screws Ø 7.0

11.90220.230 Kirschner Wire Ø 2.0mm, threaded tip, L 230mm

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



08.20010.145 Drill Bit Ø 4.5/2.1mm, cannulated, scaled, Jacobs Chuck, L 230/200mm



08.20020.070 Tap Ø 7.0/2.2mm, cannulated, scaled, T-Handle, L 212/30mm



08.20030.070 Countersink, cannulated, for Cannulated Screws Ø 7.0mm, T-Handle, L 180mm



04.20060.045 Double Drill Guide 4.5/3.2



08.20120.070 Protection Sleeve 11.0/8.0



08.20060.080 Drill Sleeve 8.0/4.5



08.20060.045 Centering Sleeve 4.5 for Kirschner Wire Ø 2.0mm



08.20120.020 Trocar Ø 2.0mm



08.20100.070 Length Determination Instrument for Kirschner Wire Ø 2.0mm x 230mm



04.20040.035 Screwdriver, hex 3.5mm, L 247/137mm



08.20040.070 Screwdriver, hex 3.5mm, cannulated, L 244/214mm



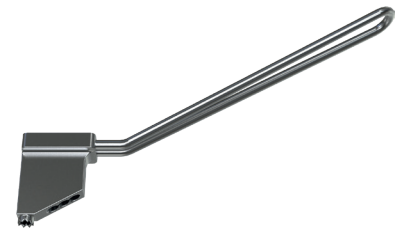
08.20040.170 Screwdriver Shaft, hex 3.5mm, cannulated, Quick-Coupling, L 244/214mm



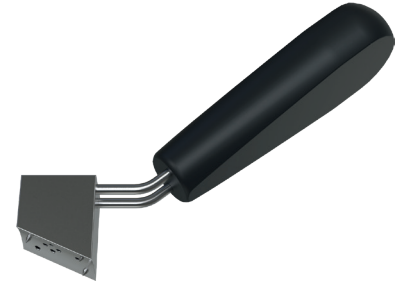
08.20040.270 Screwdriver Shaft, hex 3.5mm, Quick-Coupling, L 225/195mm



02.20120.015 Screw Forceps, self-holding



08.20060.145 Parallel Drill Guide 4.5



08.20060.170 Parallel Guide for Kirschner Wires Ø 2.0mm



08.20120.170 Cleaning Wire Ø 2.0mm, L 250mm



Cannulated Screws 7.0 and 7.3

Cannulated Screws Ø 7.3mm

11.90228.300 Kirschner Wire Ø 2.8mm, threaded tip, L 300mm



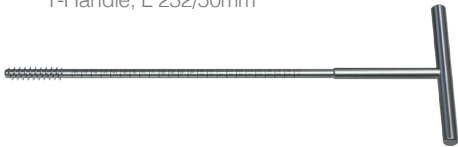
03.20010.425 Drill Bit Ø 2.5mm, AO Coupling, L 160/130mm



08.20010.150 Drill Bit Ø 5.0/2.9mm, cannulated, scaled, Jacobs Chuck, L 295/265mm



08.20020.073 Tap Ø 7.3/2.9mm, cannulated, scaled, T-Handle, L 232/50mm



08.20030.073 Countersink, cannulated, for Cannulated Screws Ø 7.3mm, T-Handle



08.20120.070 Protection Sleeve 11.0/8.0



08.20060.173 Drill Sleeve 8.0/5.0



08.20060.073 Centering Sleeve 5.0 for Kirschner Wires Ø 2.8mm



08.20120.073 Trocar Ø 2.8mm



08.20100.073 Length Determination Instrument for Kirschner Wires Ø 2.8mm x 300mm



08.20040.073 Screwdriver, hex 4.0mm, L 244/134mm



08.20040.173 Screwdriver, hex 4.0mm, cannulated, L 295/185mm



08.20040.373 Screwdriver Shaft, hex 4.0mm, cannulated, Quick Coupling, L 295/265mm



08.20040.273 Screwdriver Shaft, hex 4.0mm, Quick Coupling, L 295/265mm



08.20060.273 Parallel Drill Guide 5.0



08.20060.373 Parallel Guide for Kirschner Wires Ø 2.8mm



02.20120.015 Screw Forceps, self-holding



08.20120.173 Cleaning Wire Ø 2.8mm, L 270mm





MRI Safety Information

Non-clinical testing has demonstrated that the screw range from Marquardt Medizintechnik is MR Conditional in accordance with the ASTM F2503-20 standard definitions. A patient with this device can be safely scanned in an MR system meeting the following conditions:

- Cylindrical-bore
- Horizontal magnetic field (B_0)
- Spatial field gradient lower than or equal to
 - **1.5 T:** 23.45 T/m (2345 G/cm)
 - **3.0 T:** 11.75 T/m (1175 G/cm)
- Radiofrequency (RF) field exposure:
 - RF excitation: Circularly Polarized (CP)
 - RF transmit coil: whole-body transmit coil
 - RF receive coil type: whole-body receive coil
 - Maximum permitted whole-body averaged specific absorption rate (SAR):
Normal Operating Mode, 2 W/kg.
 - Scan duration and wait time:
 - 1.5 T:** 2 W/kg whole-body average SAR for **10min and 55s** of continuous RF (a sequence or back-to-back series/scan without breaks) followed by a wait time of **10min and 55s** if this limit is reached.
 - 3.0 T:** 2 W/kg whole-body average SAR for **7min and 54s** of continuous RF (a sequence or back-to-back series/scan without breaks) followed by a wait time of **7min and 54s** if this limit is reached.
- The screws are expected to produce a maximum temperature rise of 6.2 °C at 1.5 T and 6.5 °C at 3 T both after the scanning periods presented above.
- The presence of this implant may produce an image artifact. Some manipulation of scan parameters may be needed to compensate for the artifact. In non-clinical testing, the image artifact caused by the device extends approximately 83 mm from the device edge when imaged with a spin echo pulse sequence and 65 mm with a gradient echo, both at 1.5 T.
- Patients with uncompromised thermoregulation and under uncontrolled conditions or patients with compromised thermoregulation (all persons with impaired systemic or reduced local thermoregulation) and under controlled conditions (a medical doctor or a dedicated trained person can respond instantly to heat induced physiological stress).

Note:

Undergoing an MRI scan, there is a potential risk for patients with a metallic implant. The electromagnetic field created by an MRI scanner can interact with the metallic implant, resulting in displacement of the implant, heating of the tissue near the implant, or other undesirable effects.



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