

MetaCun™ II/DuoMetaCun™ II



**Surgical Technique and
Ordering Information**

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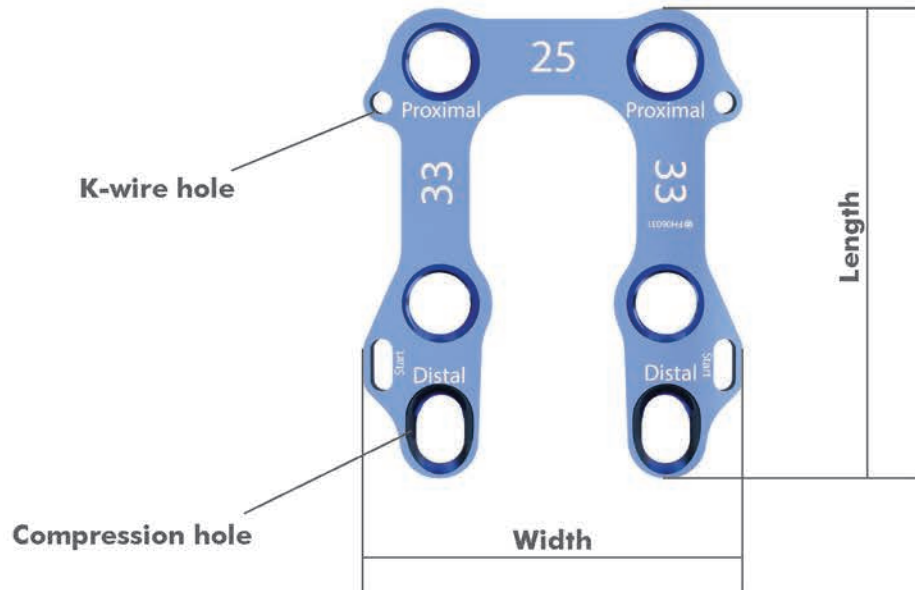
Description

MetaCun™ II and Duo MetaCun™ II are osteosynthesis locking plates for dorsal fixation of mid- and hindfoot arthrodesis. Merete®'s updated system utilizes a novel long-hole compression slot mechanism that compresses the fusion site through the displacement of bone fragments underneath the plate. A DIA. 3.0 mm compression screw that glides along a ramp in the distal long-hole slot during insertion causes the fusion site to compress.

MetaCun™ II



DuoMetaCun™ II



Indications: Painful arthrodesis in mid- and hindfoot, post-traumatic deformities.

Intended use: Fusion of mid- and hindfoot joints. (Lisfranc-Arthrodesis, Navicular-Cuneiform-Arthrodesis, CalcaneoCubid-Arthrodesis)

Contraindications:

- Osteoarthritis
- Primary chronic polyarthritis
- Osteoporotic bone

Surgical Technique

► Incision

Surgeon makes a dorsal incision to gain access to the midfoot after verification, under flouroscope / x-ray of the desired joint(s) for fusion. The surgeon should take care to protect any overlying neurovascular structures. Skin and fatty tissue preparation is performed through a longitudinal (4 cm) incision between the TMT2 and TMT3 joints.

Note: The joint surfaces may be located and marked with cannula needles placed under x-ray control.



Figure 1 Dorsal incision

► Joint exposure

Apply retractors to spread the wound (approx. 5 cm) transversely. Displace the proximal extensor digitorum longus muscle portion laterally to expose the joint surface. Place three to four K-wires to maintain adequate joint exposure throughout the procedure. Present and remove arthritic joint cartilage (e.g., with tweezers). This can be accomplished manually or by using power rongeurs, burrs, sagittal saw or K-wires that penetrate the articular surface. This is strictly the surgeon's choice, but the joint surfaces must be properly prepared before fixation is completed.



Figure 2 Joint exposure

► Osteotomy

Perform a sagittal osteotomy and remove arthritic cartilage to release osseous joints. Remove the dissected portion as well as osteophytes or periarticular bone with a rongeur. Position the fragments manually and validate their arrangement.



Figure 3 Osteotomy

► Plate selection

Surgeon may select MetaCun™ II plates from 4 different lengths (2-hole) and DuoMetaCun™ II (Table 1) plates from 4 different sizes (4-holes) depending on the midfoot joints to be fused. When selecting the appropriate size, ensure sufficient locking screw hole clearance from the osteotomy to secure the screws in cuneiform and metatarsal base.

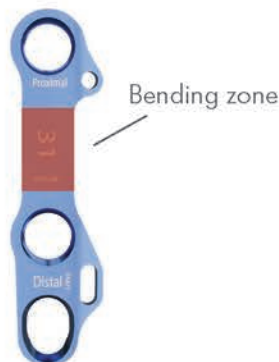
The plate curvatures may be adjusted with the two included bending pliers (FH10905) to achieve a patient-specific anatomical fit. Plate-bending is only to be performed under the following guidelines:

- 1) Only deform plates in bending zones;
- 2) Do not deform the threaded locking screw holes; and
- 3) Do not re-bend plates.



Length (mm)	Ref.
29	FH03029
31	FH03031
33	FH03033
35	FH03035

Table 1



Width (mm)	Length (mm)	Ref.
25	31	FH06031
25	33	FH06033
28	31	FH07031
28	33	FH07033

Table 2

► Plate placement

Place the selected plate across the joint fusion site(s) and fixate the position with K-wires. The surgeon should make both a visual decision of the plate placement and a fluoroscopy / x-ray assessment to ensure that the plate placement and size sufficiently bridge the fusion site(s) and prevent the screw fixation to be in or too close to the joints.

Temporary fixation with a proximal K-wire (Table 2) is executed first. Position the distal K-wire at the start position of the long-hole slot (most distal position). Olive K-wires may also be used to fixate the plates in locking-screw holes. The trocar tip needs to be centrally positioned to avoid plate displacements upon insertion of the olive. The correct position 2 can be marked by placing the included double-drill guide (AC10020) over the locking-screw hole to tap the center with a DIA. 1.0 mm K-wire (CK10207). Upon plate placement, validate and, if necessary, correct the plate position and/or size.

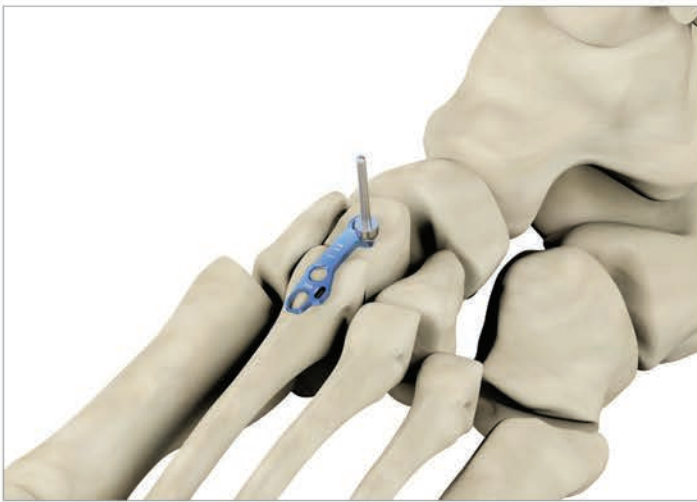


Figure 4 Plate across the joint fusion site

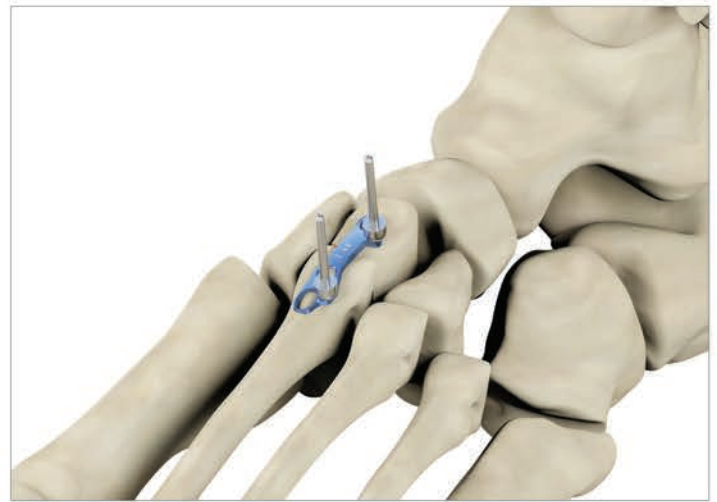


Figure 5 Fixate the position with K-wires

The distal long-hole slot compression mechanism in the plate may displace the bone fragment underneath by approximately 2 mm. The fusion site should be pre-compressed or in-touch at this point to archive optimal compression.

Description	Ref.
Olive K-wire, DIA. 1.4 mm XL: 40mm, trocar tip	AI14104
Olive K-wire, DIA. 1.4 mm, L: 40mm, threaded	AI14105
Step K-wire, DIA. 1.4 mm XL: 40mm, trocar tip	AI14106
K-wire, DIA. 1.0 X 70 mm, trocar tip	CK10207
K-wire, DIA. 1.4 X 70 mm, trocar tip	CK14207
K-wire, DIA. 1.0 X 150 mm, trocar tip	CK10215
K-wire, DIA. 1.4 X 150 mm, trocar tip	CK14215

Table 3

► Insertion of the proximal locking screw

Start by threading the drill guide for a DIA. 2.9 mm drill (Ref. FH10046) in the proximal thread of the plate. Prepare the bone with a DIA. 2.9 mm drill (Ref. FH10009) bicortically. Perforate the plantar cortex. Remove the drill guide.

Determine the screw length with the sliding depth gauge (AI00301). Pass the measuring rod through the bone and secure the tip to the plantar cortex before reading the scale on the housing of the depths gauge. For screw length measurements indicated with odd numbers, round to the nearest even number to ensure bicortical placement of the locking screw.

Insert the proximal locking screw with the hexalobe (T10) screwdriver (Ref. AI14327) by and align between screw head and plate thread axis to facilitate insertion.

The locking screws should easily thread and lock into the plate. Do not use excessive force when tightening the screws. Back out slightly and realign the screw if resistance is met before the head of the screw is fully flush with the plate.



Figure 6 Threading the drill guide



Figure 7 Preparing the bone with a drill



Figure 8 Determine the screw length



Figure 9 Inserting the proximal locking screw

► Fusion site compression

The osteotomy surfaces are compressed by displacing the metatarsal bone underneath the plate. Displacement is achieved through the insertion of a headed Merete CS screw into the distal long-hole slot.

Position the self-tapping DIA. 3.0 mm screw at the distal most position of the compression-hole slot (Position 1). The screw glides through the plate in proximal direction while the metatarsal bone is compressed against the fusion site. Insert the screw until the fusion site is compressed sufficiently (Position 2).

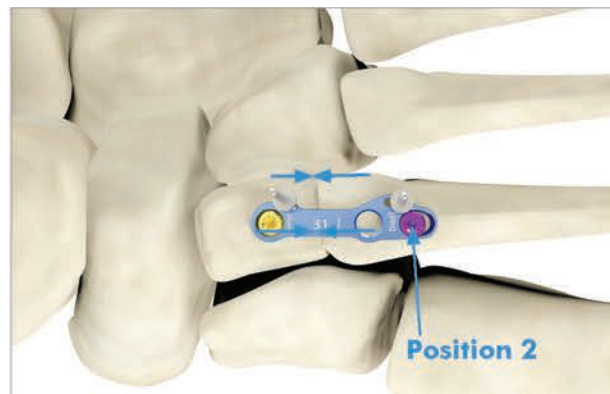
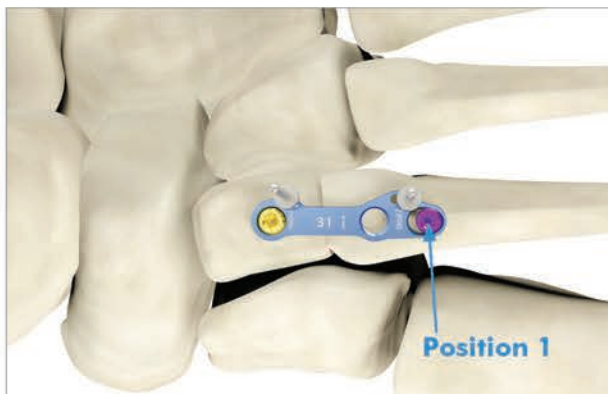
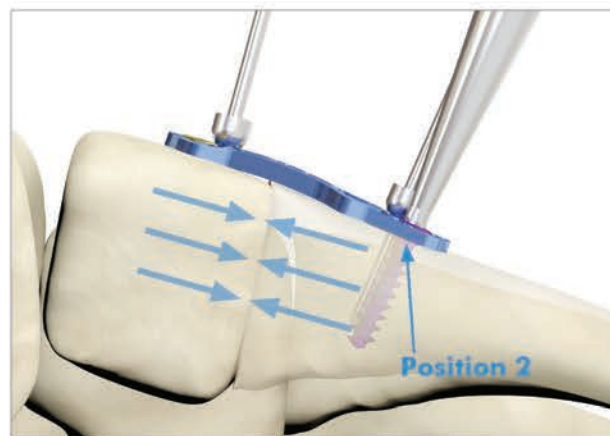
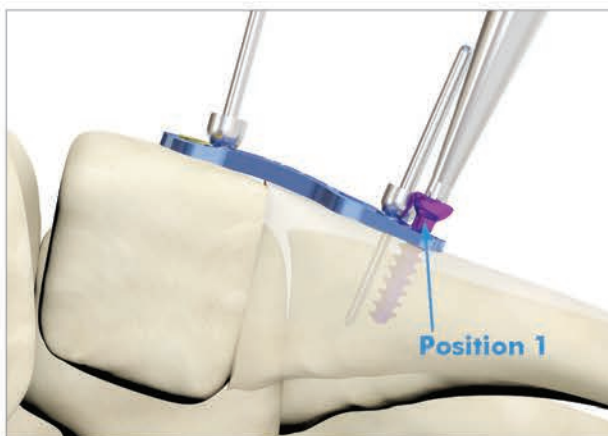


Figure 10 Inserting the compression screw.

Figure 11 Compression of the bone

► Insertion of the distal locking screw

Place the drill guide for a DIA. 2.9 mm drill (Ref. FH10046) in the distal locking hole of the plate. Prepare the bone with a DIA. 2.9 mm drill (Ref. FH10009) bicortically. Remove the drill guide. Determine the screw length with the sliding depth gauge (AI00301) by securing the tip to the plantar surface of the bone while reading the scale. For screw length measurements indicated with odd numbers, round to the nearest even number to ensure bicortical placement of the locking screw. Insert the distal locking screw with the hexalobe (T10) screw driver (Ref. AI14327) by ensuring aligning the screw head and plate thread axis to facilitate insertion.

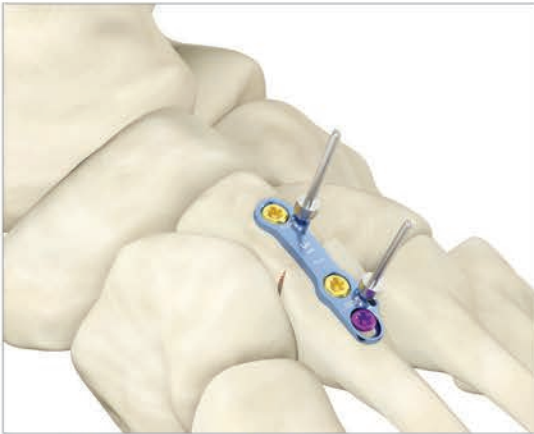


Figure 12 Compression of the bone

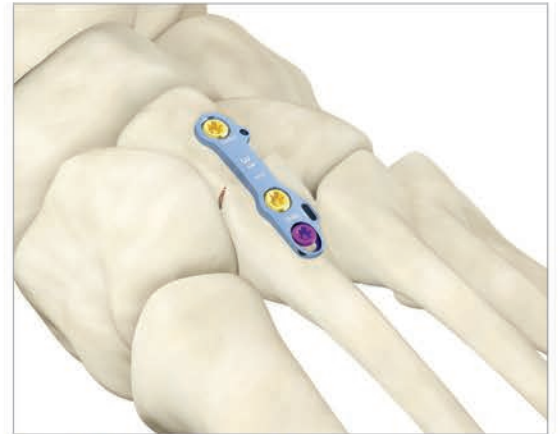


Figure 13 Compression of the bone

► K-wire removal

Remove the K-wires. We recommend removing the headed screw from the compression-hole slot by unscrewing it completely. The headed screw has no functional post-operative purpose.

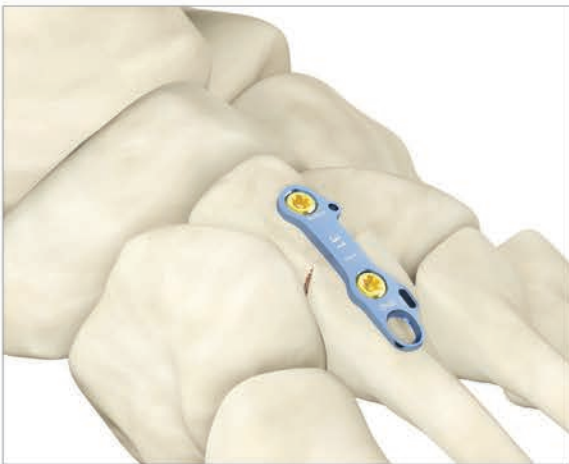


Figure 14 Compression of the bone



Figure 15 Compression of the bone

► Wound closure

Subcutaneous and skin suture are applied to seal the wound. Wrap the foot with redression bandages after the wound is sealed.

Ordering information

► Implants

MetaCun™ II

Length (mm)	Ref.
29	FH03029
31	FH03031
33	FH03033
35	FH03035




DuoMetaCun™ II

Width (mm)	Length (mm)	Ref.
25	31	FH06031
25	33	FH06033
28	31	FH07031
28	33	FH07033




MetaFix™ LS

Hexalobe T10, non-sterile

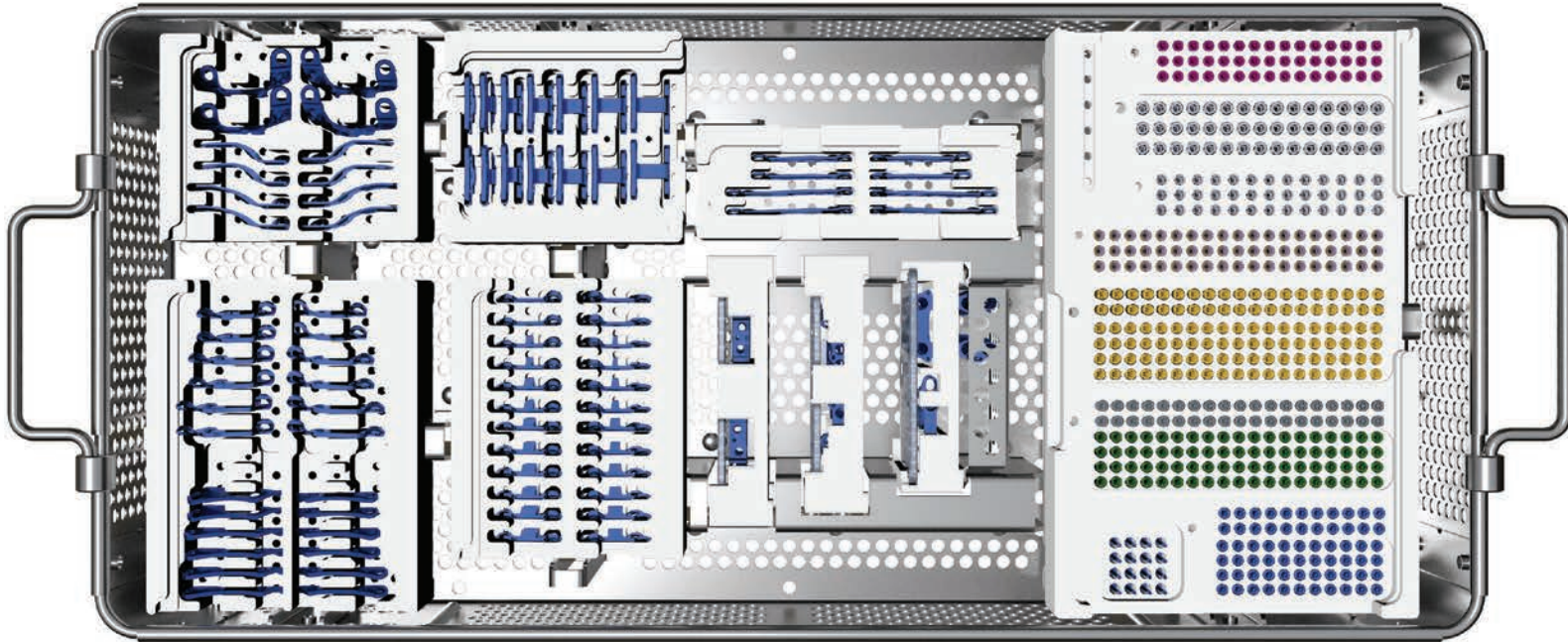
Length	
	DIA. 3.8
12 mm	FH38012
14 mm	FH38014
16 mm	FH38016
18 mm	FH38018
20 mm	FH38020
22 mm	FH38022
24 mm	FH38024
26 mm	FH38026
28 mm	FH38028
30 mm	FH38030
32 mm	FH38032
34 mm	FH38034
36 mm	FH38036
38 mm	FH38038
40 mm	FH38040
42 mm	FH38042
44 mm	FH38044
46 mm	FH38046
48 mm	FH38048

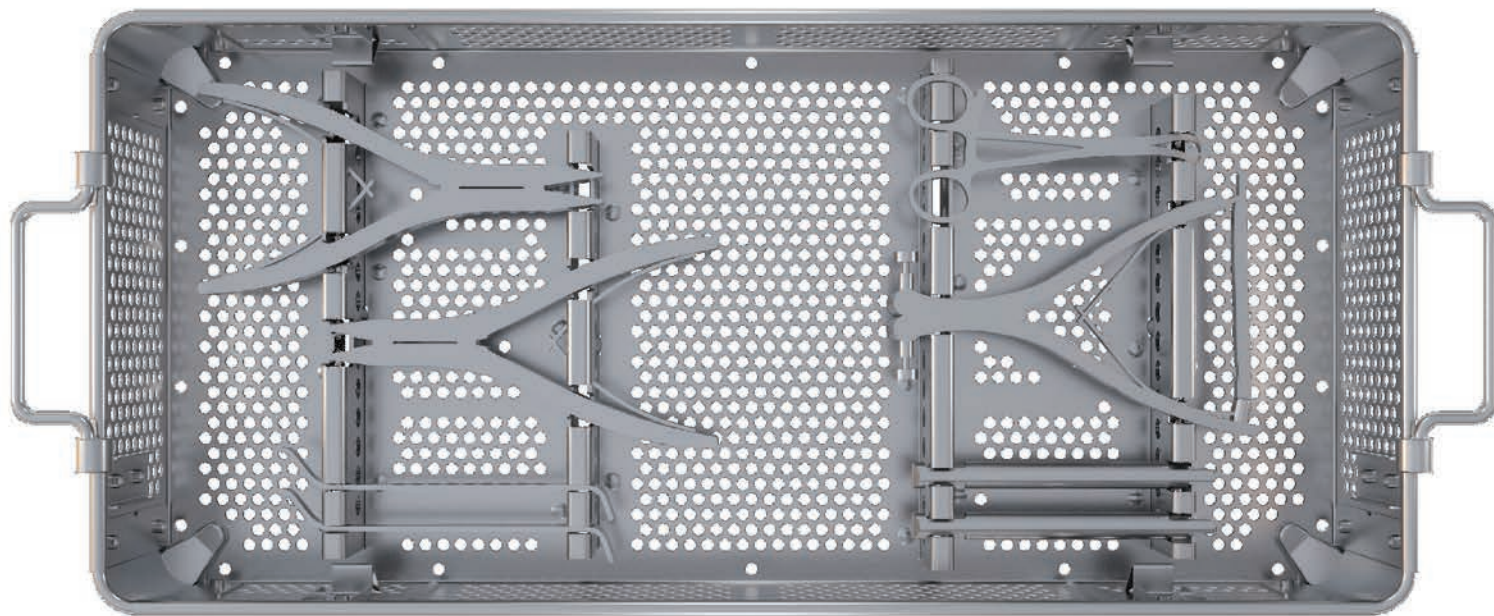
Merete® CS DIA. 3.0 mm

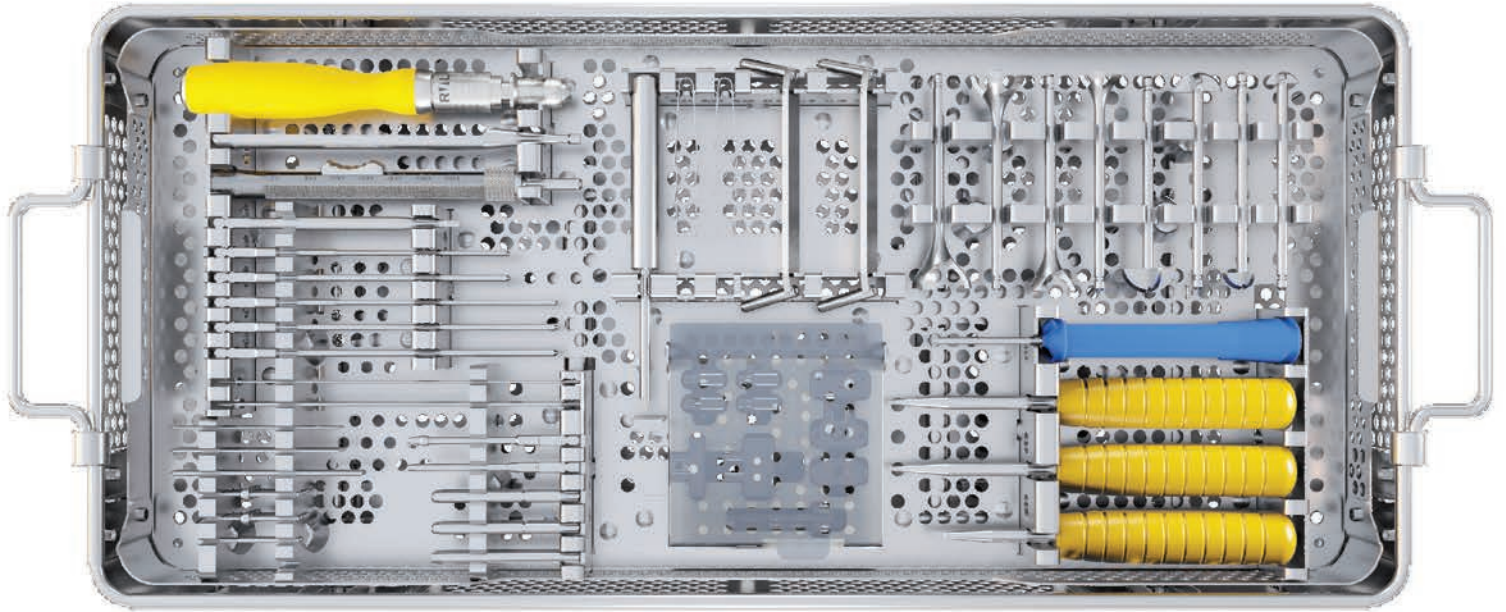
Hexalobe T10, non-sterile

Length	
	DIA. 3.0
10 mm	CR30310S
12 mm	CR30312S
14 mm	CR30314S
16 mm	CR30316S
18 mm	CR30318S
20 mm	CR30320S
22 mm	CR30322S
24 mm	CR30324S
26 mm	CR30326S
28 mm	CR30328S
30 mm	CR30330S
32 mm	CR30332S
34 mm	CR30334S
36 mm	CR30336S
38 mm	CR30338S
40 mm	CR30340S

► Instruments







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