SURGICAL TECHNIQUE
LONG HUMERAL NAIL – DISTAL AIMING

MEDIN

Distal aiming of long humeral nail

Intended Use:

Aiming device is used to secure distal holes in long humeral nails.

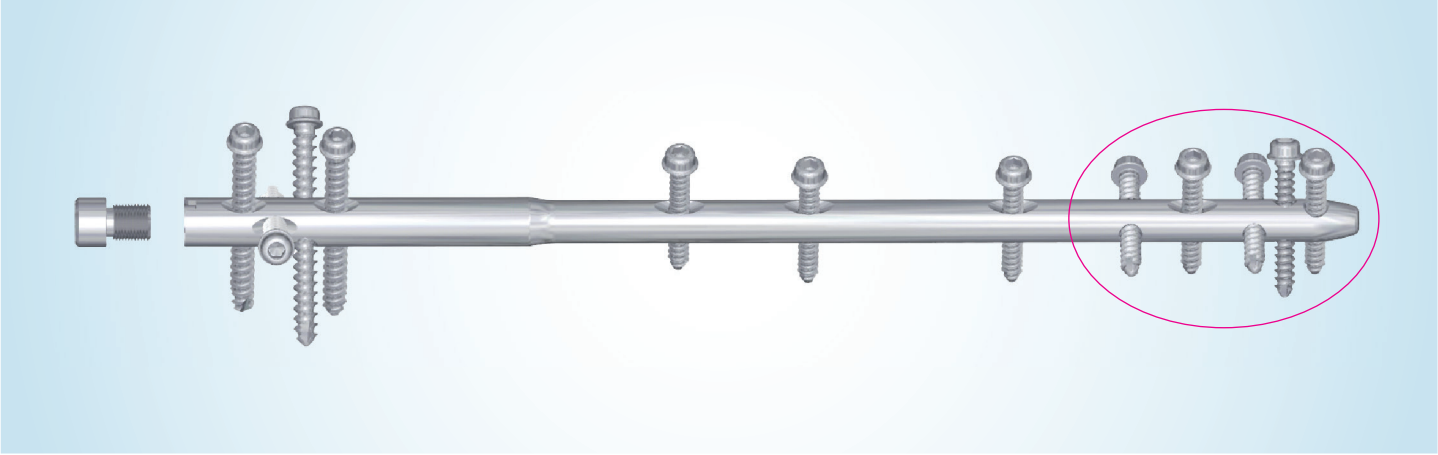
Caution:

⚠ Crossbars of the aiming device are made of X-ray translucent material. Sterilization can only be performed by steam at a temperature of 134 °C! Using higher temperatures may result in permanent deformation and loss of functionality of transoms!

⚠ In distal aiming possible deflection must be taken into account. It is therefore necessary to check the position with an x-ray amplifier. You must not apply excessive force on the aiming device.

Implant:

Humeral long nails can be locked in the distal part using flat-head strengthened locking screws of 3.5 mm × L mm for Ø7 and Ø8 mm nails and 2.7 mm cortical screws for Ø6 mm nails. Locking in the distal part of the nail is performed using the aiming device.



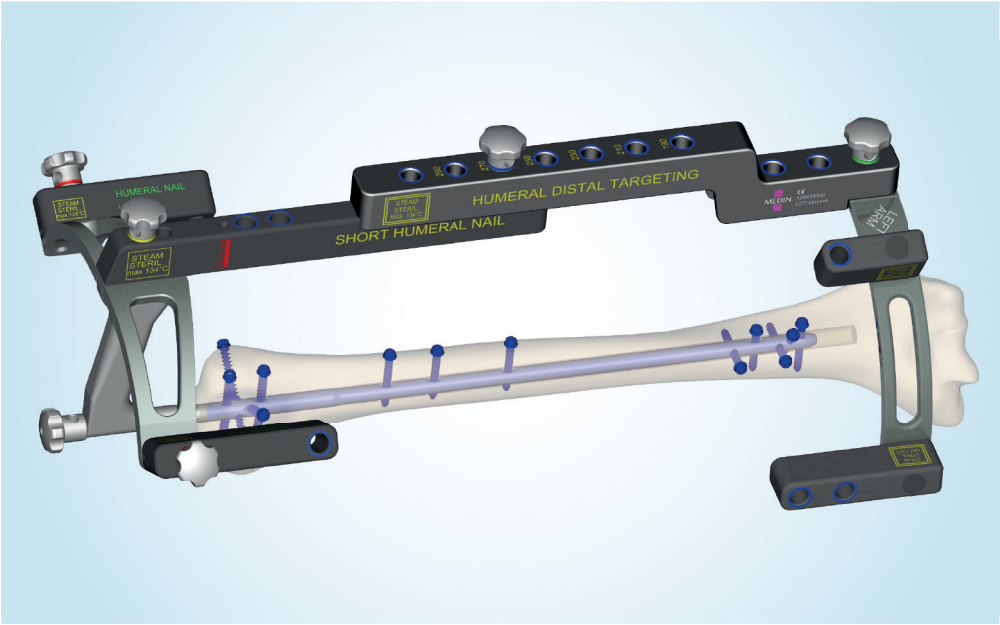
Surgical technique

1. Fixing the aiming device

Distal locking of the nail holes with the screws begins after the nail in the proximal part is locked – see **Surgical technique – Short humeral nail and long humeral nail**

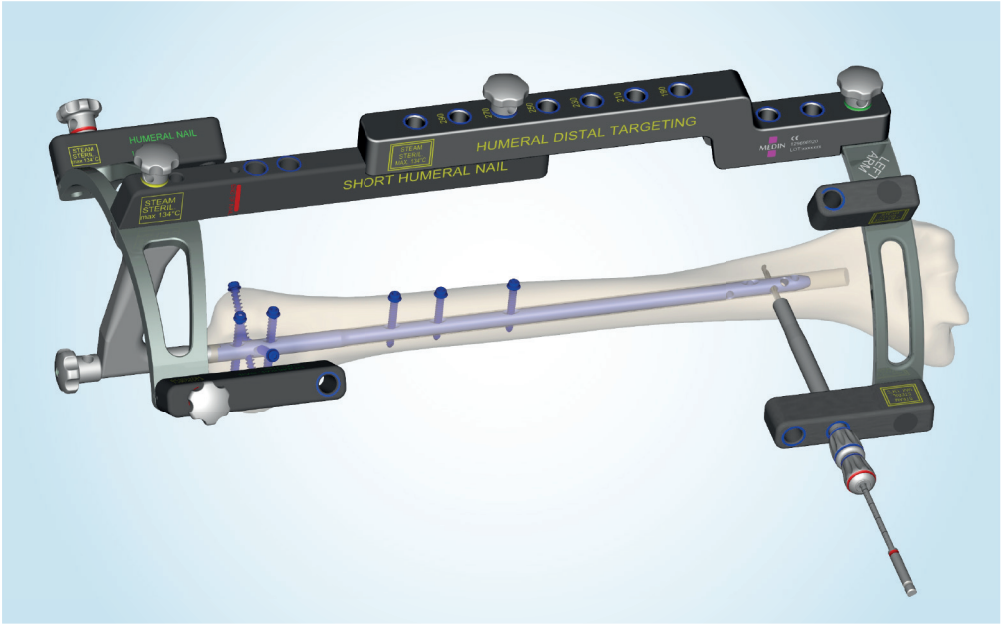
Humeral distal aiming device is attached to the humeral short aiming device. An important step is to test the functionality of the aiming device before the introduction of the nail into the bone. See the chapter **Assembling the aiming device**.

The surgeon positions patient's arm and the assistant keeps it in this position when the distal holes are being locked.



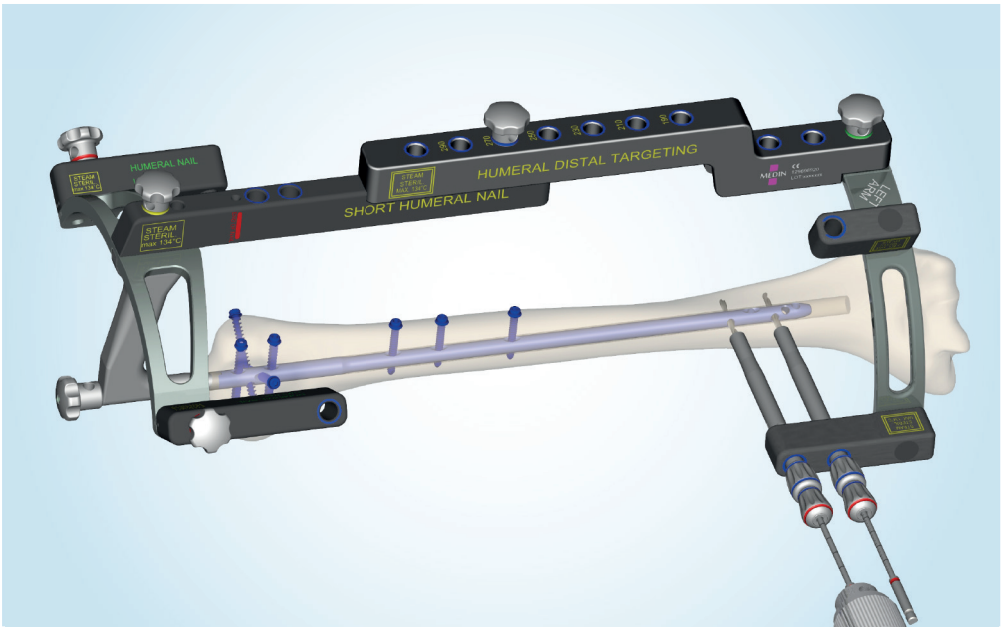
2. Locking the first hole

In order to achieve more precise aiming and solid construction, it is recommended that the ventrodorsal hole is locked first. Insert the sleeve marked in blue (sleeve Ø 8 / 6.1) into the aiming device. Push the sleeve to the skin in order to create an incision. Insert a centre punch into the sleeve and slide it to the bone. Press the centre punch lightly to create a mark in the bone for better management of the drill. Then remove the centre punch and insert the blue- and red -labelled sleeve (Ø 6 / 2.7) or the blue and green-coloured sleeve (Ø 6 / 2.7). The surgeon decides on the drill to be used. Drill a hole into the bone through this sleeve. The drill is equipped with a scale to determine the necessary length of the screw. A feeler can also be used to determine the screw length. This sleeve is used for the introduced nail of Ø 7 and Ø 8 mm. Drill Ø6 mm nails with an Ø 2 mm yellow-marked wire using a blue- and yellow-marked sleeve (6.1 / 2.1 sleeve).
Remove the sleeves with the drill from the driller and keep them! Within this step the X-ray amplifier control is absolutely vital.

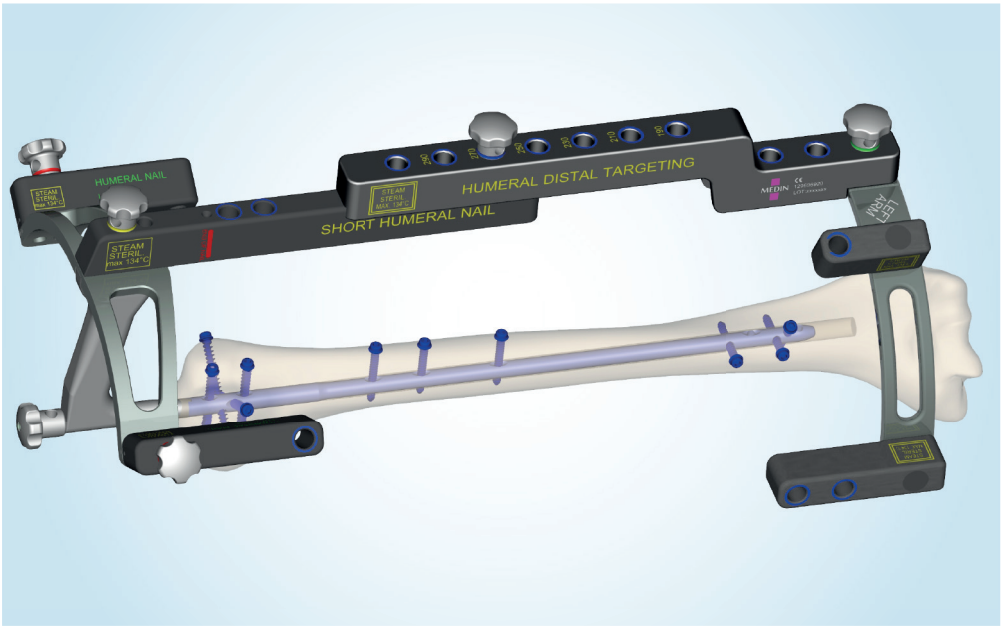


3. Locking other distal holes

After ensuring the stability of the aiming device, you can lock other holes in the nail. It is recommended that the hole next to the drill sleeves is locked, which secure the stability of the aiming device.



After locking the hole is angled opportunity locking hole, or provides better stability nail hole through which we pledge stability aimer.

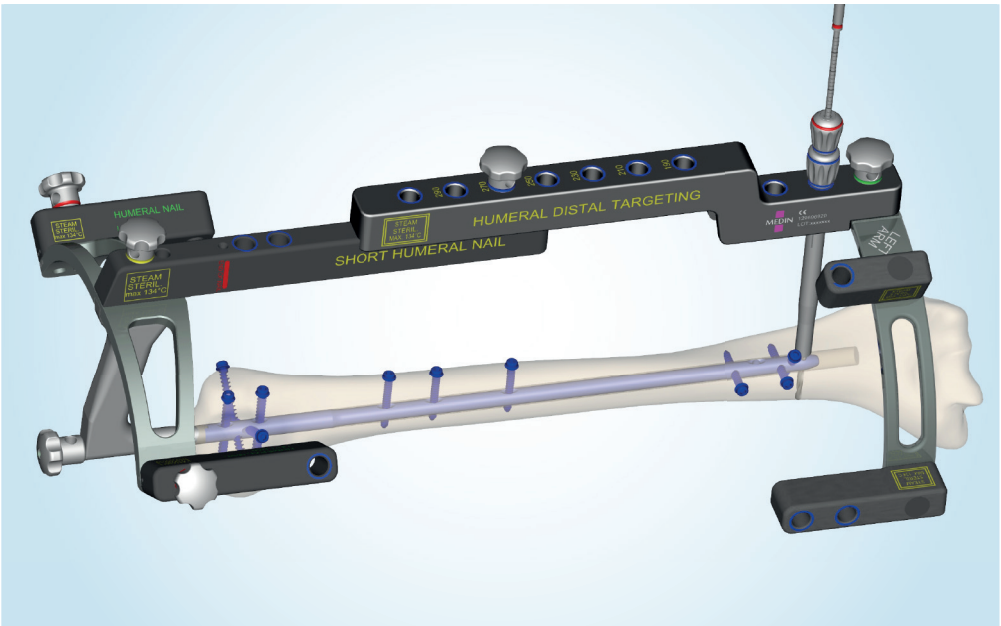


4. Lateromedial locking

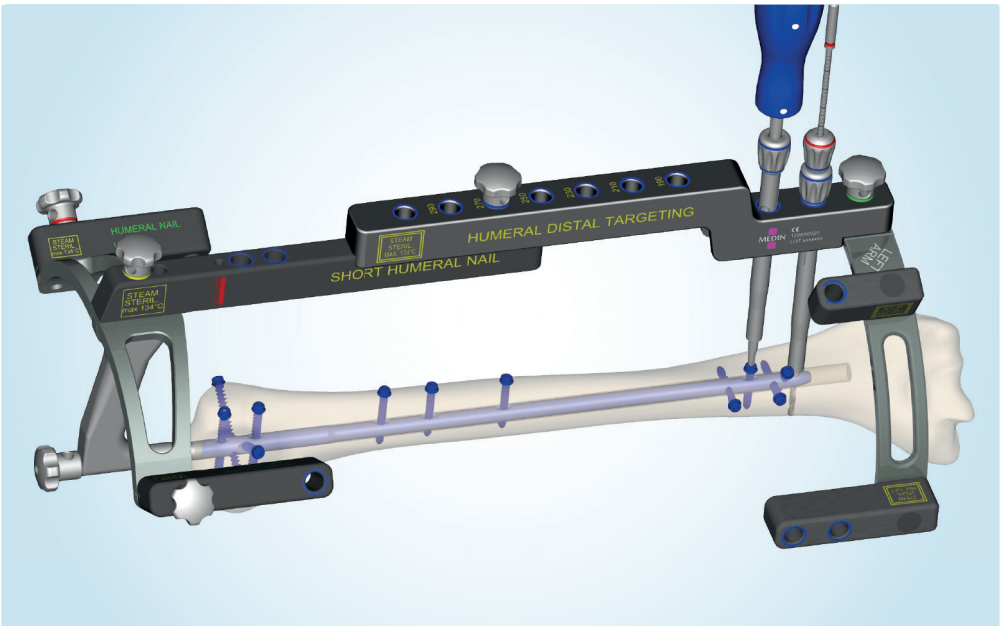
Lateromedial locking is only possible in exceptional indications, bearing the risk of radial nerve damage.

Locking procedure:

To achieve better stability, lock the more distal hole first. It is necessary to check the accuracy of the X-ray drilling. Drill can slip on the bone and thus miss the hole in the nail. If the check is OK, remove the driller and keep the drill again in the sleeves in the aiming device and nail.

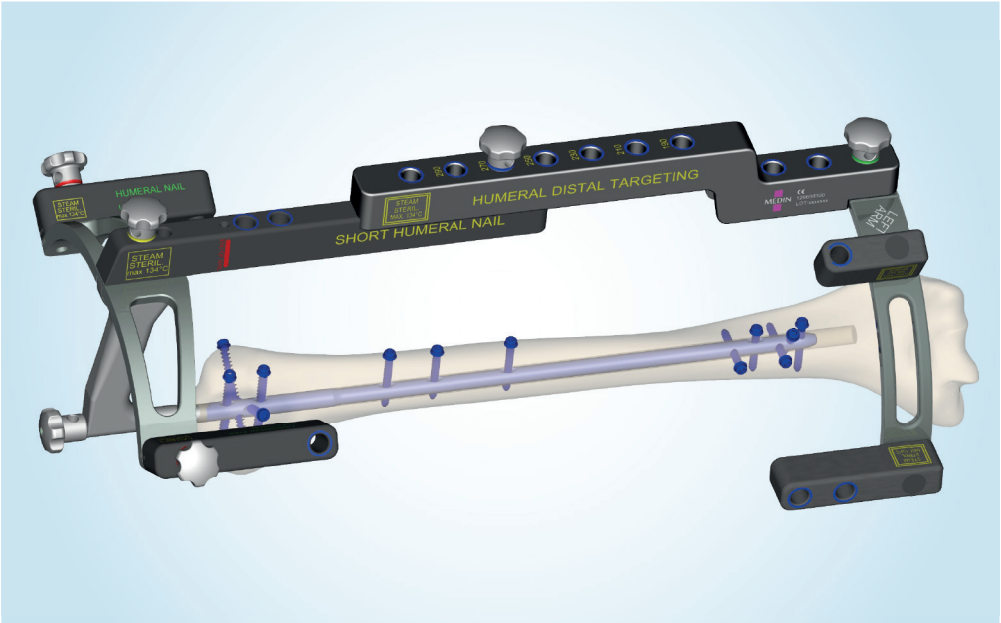


Then lock the more proximal hole.



5. Concluding remarks

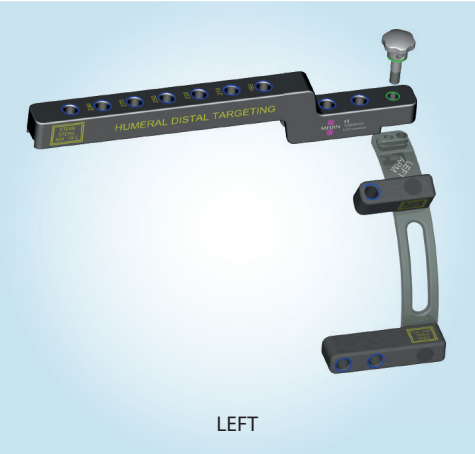
- Before the introduction of the nail you must check after the assembly of the nail and aiming device whether all the holes into which screws are introduced, match the holes in the nail and aiming device.
- To facilitate inserting of the sleeves, drilling and the introduction of screws, appropriate instrumentation tools are color-coded.
- Implants can be ordered in two versions, either steel or titanium alloy. When used in one patient, they must never be combined.
- To guarantee the safe use of the implant, the MEDIN Company requires using only implants supplied by them. There must be no combination with implants by other companies.



Assembly of the aiming device

1. Assembly of distal aiming device

Assembly of distal aiming device adjusted for right or left hand. Use the screw marked in green to tighten the arms. Screw can be tightened by hand or with a locking bar.

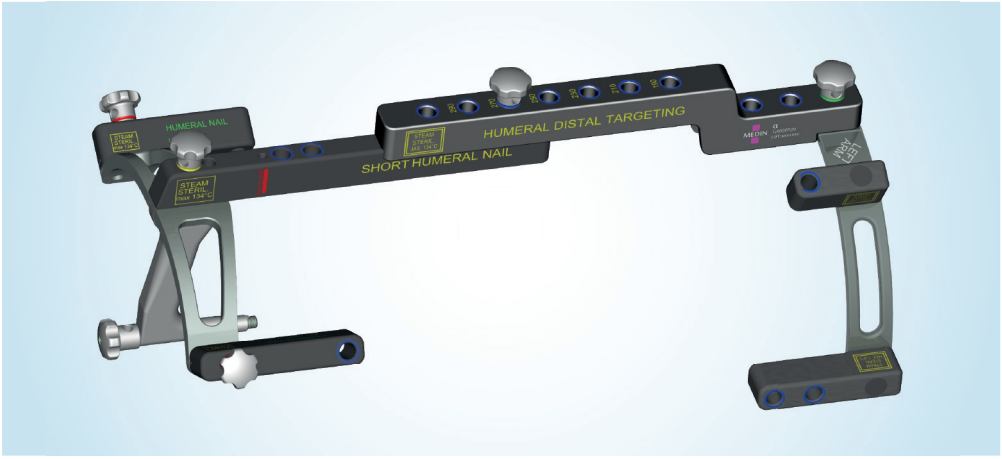


LEFT

RIGHT

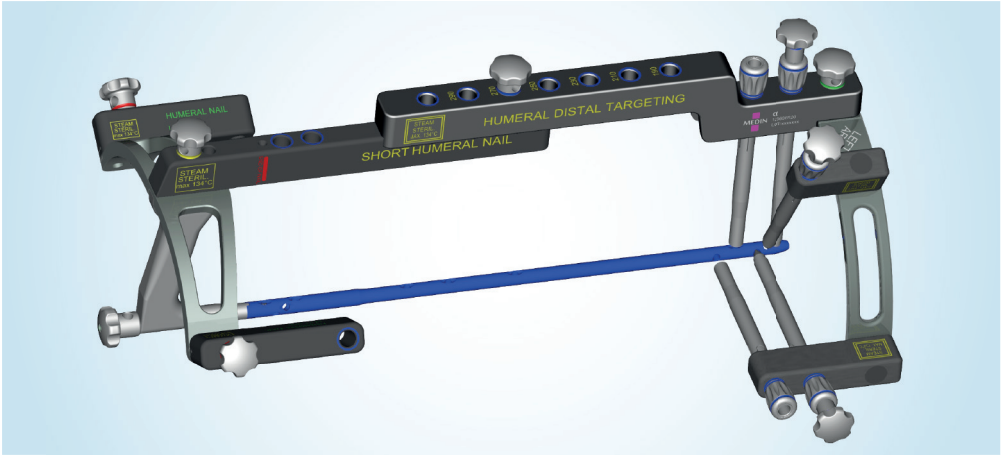
2. Assembly of distal aiming device with a short humeral aiming device

The length of assembled aiming device depends on the length of the nail used in surgery. If the nail is for example 270 mm long, aiming device is locked using a blue screw in the hole marked with the same value. To secure the screw, use a steel insert in the arm of the short humeral aiming device.



3. Checking the aiming device with nail

Place the sleeves into the aiming device and check all distal holes in the nail. Ø8 / 6.1 sleeve and Ø6 punch are suitable for checking.



INSTRUMENTS FOR DISTAL HUMERAL AIMING

Right arm of the aiming device

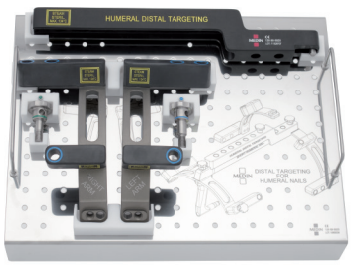
Crossbar bolt

Crossbar bolt

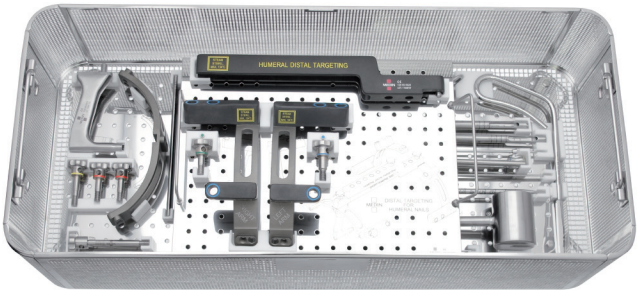
Adjustable arm

Left arm of the aiming device

AIMING DEVICE FOR DISTAL HUMERUS
129 69 6920



SET OF INSTRUMENTS FOR DISTAL HUMERUS
139 09 0620
with instruments



SET OF INSTRUMENTS FOR HUMERAL NAILS
139 09 0630
540 × 240 × 70 mm
without instruments

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