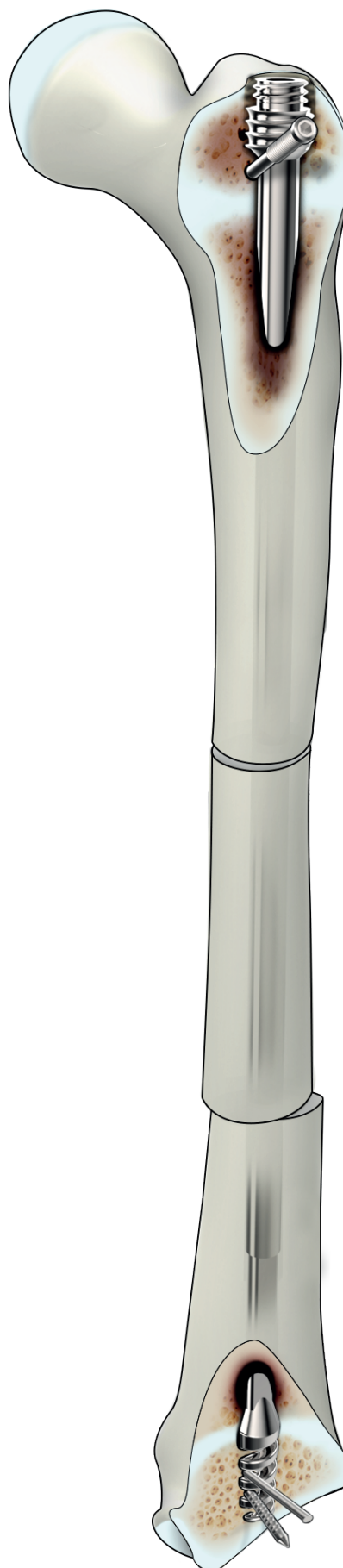


# DSCOPE NAIL



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# Introduction

## Indications

Indicated for children older than 18 months who are diagnosed with osteogenesis imperfecta.

Children's long bone deformity corrections.

Fracture stabilization.

Prevention of bone fracture.

For patients with osteoporotic bone.

## Features

It is made of medical stainless steel.

Consists of 2 parts; D profile Bar (male nail) and suitable D profile tube (female nail) with threaded end.

The male, the female and the angled female nails have five different diameter choices. The male nail has one length choice for each diameter, which could be adjusted to the desired length by cutting the nail. The female nails have 5 different length choices for each diameter and the angled female nails have 3 different length choices for each diameter.

During the growth of the child's bone, the nails grow without any hindering due to the engagement (telescopic) of the male and female nails.

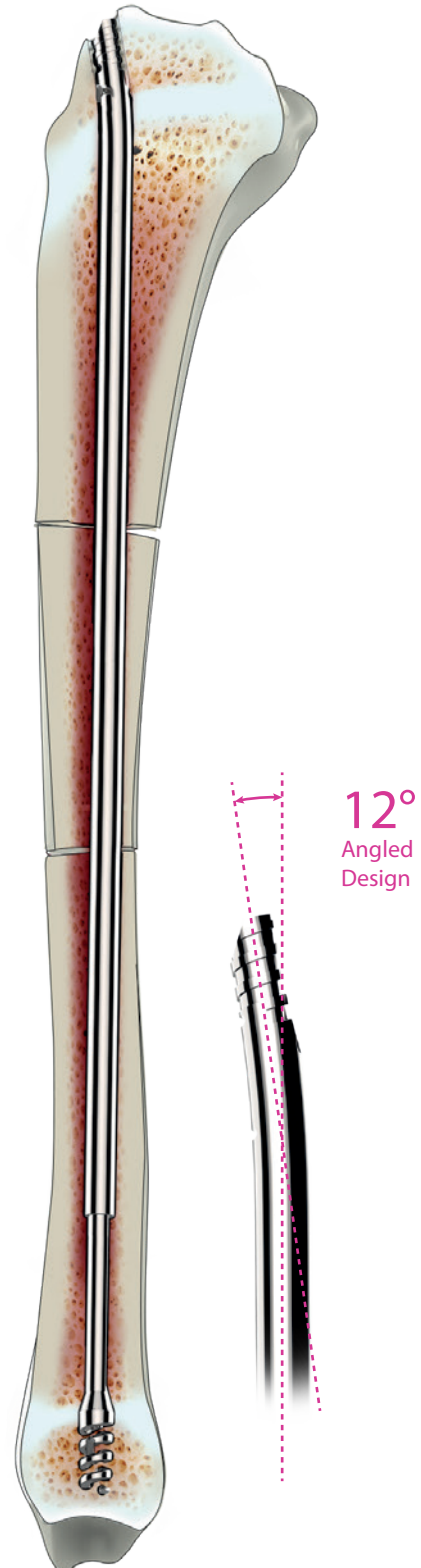
There is a special designed corkscrew end on the distal part of the male nail that holds the bone solidly and gives minimal damage to the growth plate.

Female nail's cancellous proximal threads fix the nail to the bone. Proximal locking screw which is sent to the bottom of the cancellous threads of the female nail, avoids the female nail to move forward.

There is a female D profile nail with 12° Angled proximal part which is *designed for tibia*. The angled part has a gap (opening) on which the male nail can go through. Two slots and a hole, on which Kirschner wire can be used for fixation, are on the angled proximal part. The threads on the proximal part allow the fixation of the end cap and prevent the nail to exceed out of the bone.

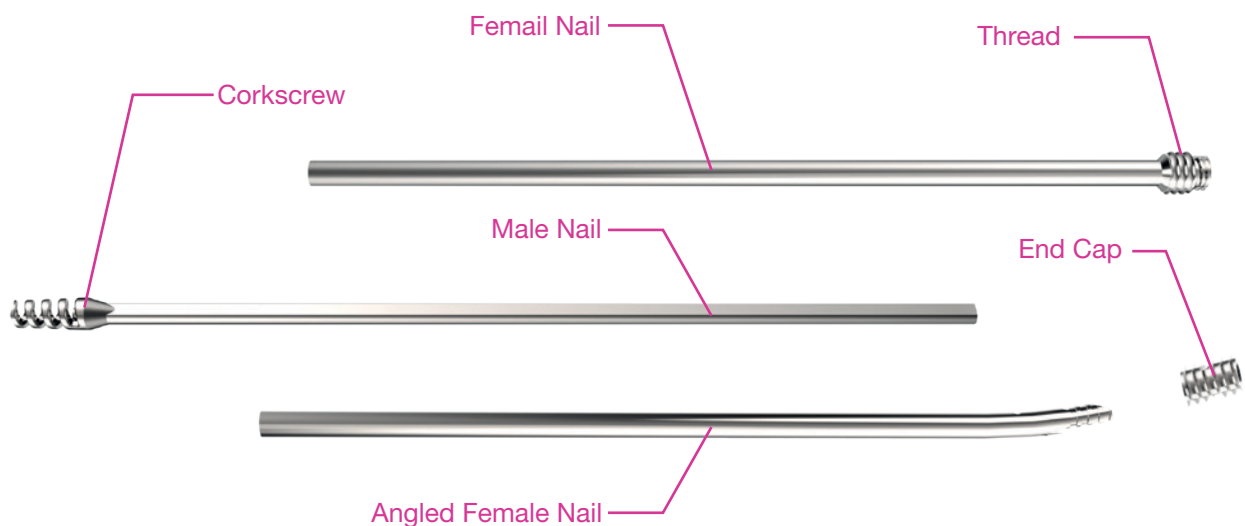
The application of the nail for tibia and humerus is from the proximal part and for femur from proximal and distal part of the bones.

## Special Angled Design For Tibia

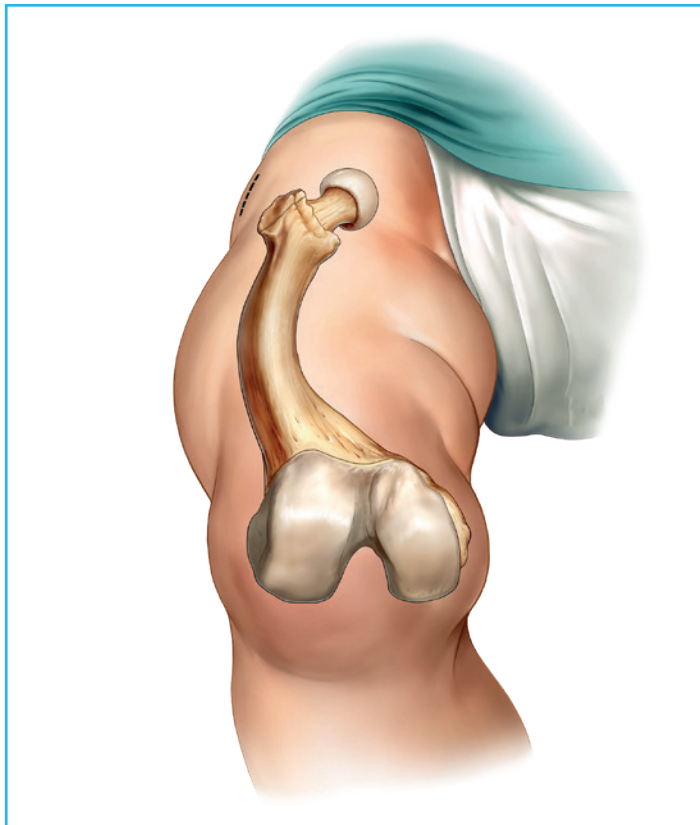


# Implants

FEMALE NAIL DIAMETER	FEMALE NAIL LENGTH CHOICE	ANGLED FEMALE NAIL LENGTH CHOICE	MALE NAIL DIAMETER x LENGTH	THREAD DIAMETER	END CAP DIAMETER (Length 14 mm)
3.5 mm	110 mm 120 mm 130 mm 140 mm 150 mm	110 mm 130 mm 150 mm	2 x 180 mm	7.0 mm (Length 8 mm)	7.0 mm
4.0 mm	150 mm 170 mm 180 mm 190 mm 200 mm	150 mm 180 mm 200 mm	2.5 x 250 mm	7.5 mm (Length 8 mm)	7.5 mm
5.0 mm	150 mm 200 mm 210 mm 230 mm 250 mm	150 mm 210 mm 250 mm	3.5 x 300 mm	9.5 mm (Length 11 mm)	9.5 mm
6.0 mm	250 mm 270 mm 280 mm 290 mm 300 mm	150 mm 210 mm 250 mm	4 x 350 mm	10.0 mm (Length 11 mm)	10.0 mm
6.5 mm	190 mm 200 mm 250 mm 280 mm 300 mm	150 mm 210 mm 250 mm	5 x 350 mm	10.5 mm (Length 11 mm)	10.5 mm



# Surgical Technique



## 1.1 ANTEGRADE TECHNIQUE

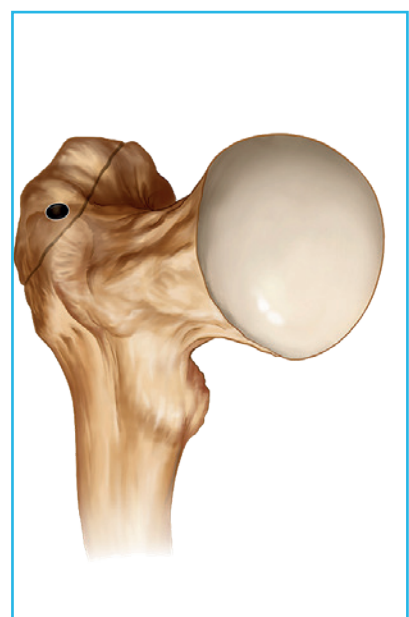
### A ENTRY POINT:

From the tip of the trochanter major at the proximal femur, approximately 2 cm incision is performed.



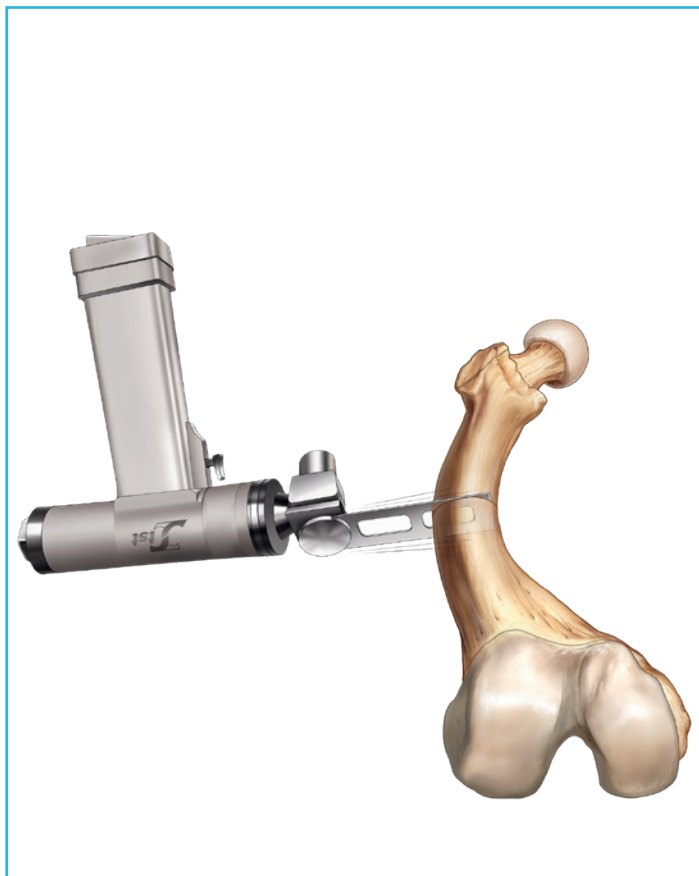
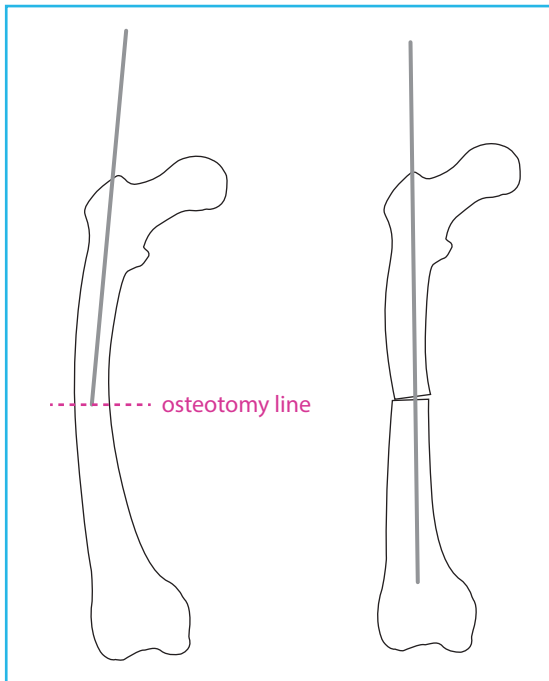
### B GUIDE WIRE INSERTION:

From the tip of the trochanter major at the proximal femur a *Guide Wire* is advanced distally into the medullary canal.



## C OSTEOTOMY:

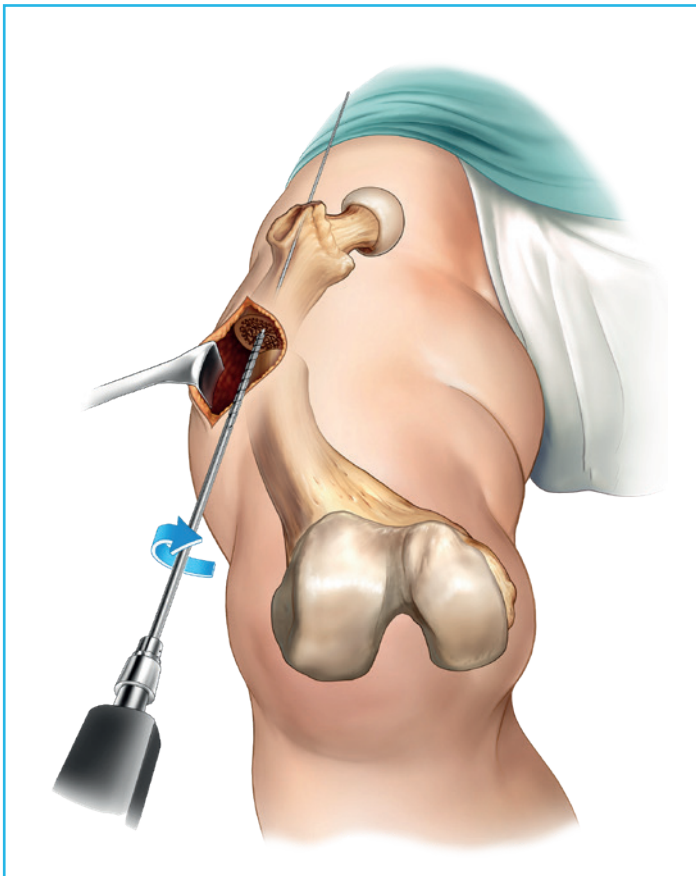
The osteotomy is applied to the center of rotation and angulation (CORA) of deformity and then the *Guide Wire* is advanced distally.



## D DISTAL GUIDE WIRE INSERTION:

The *Guide Wire* is advanced to the distal segment until the epiphyseal line of the bone.

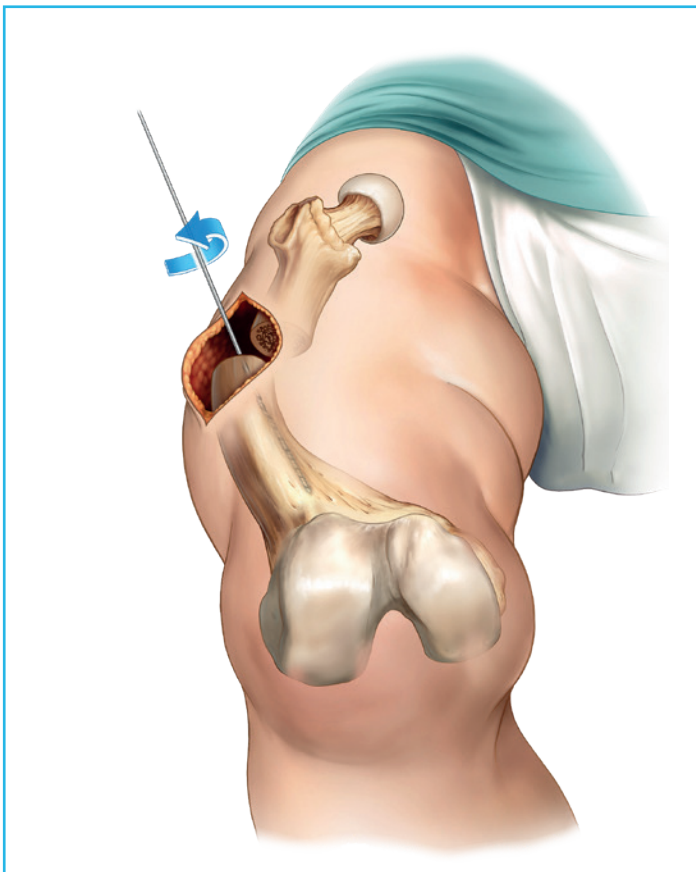
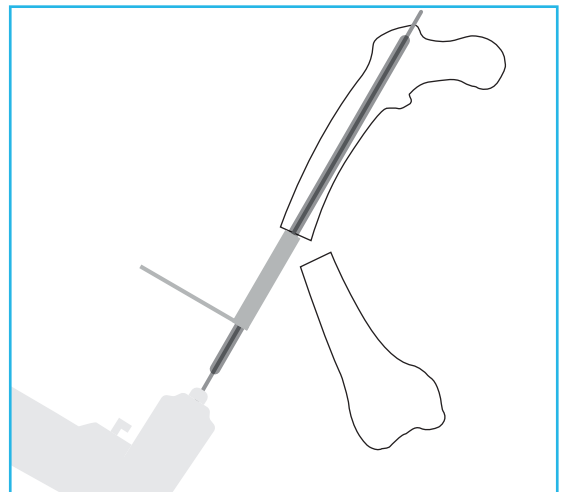




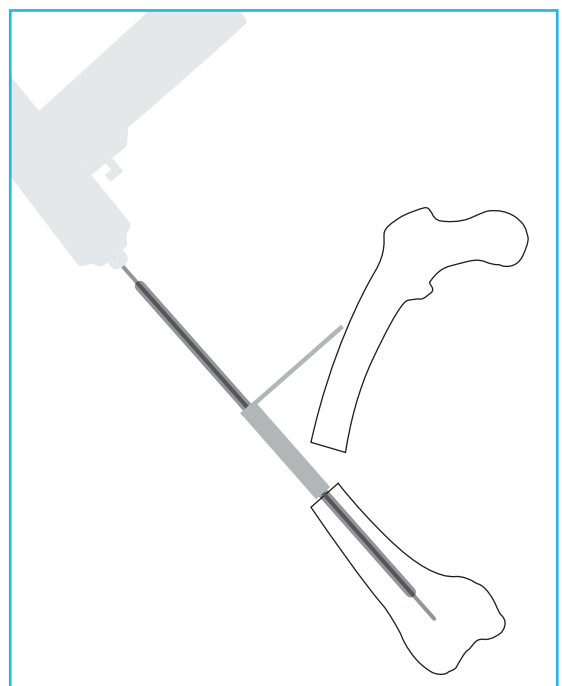
## 1.2 RETROGRADE TECHNIQUE

### GUIDE WIRE INSERTION:

Procedure begins with osteotomy application to the center of deformity rotation and angulation (CORA). After the osteotomy the *Guide Wire* is inserted from the center point of the osteotomy line and advanced proximally. After fluoroscopic control the medullary canal is opened with an appropriate *Reamer*.

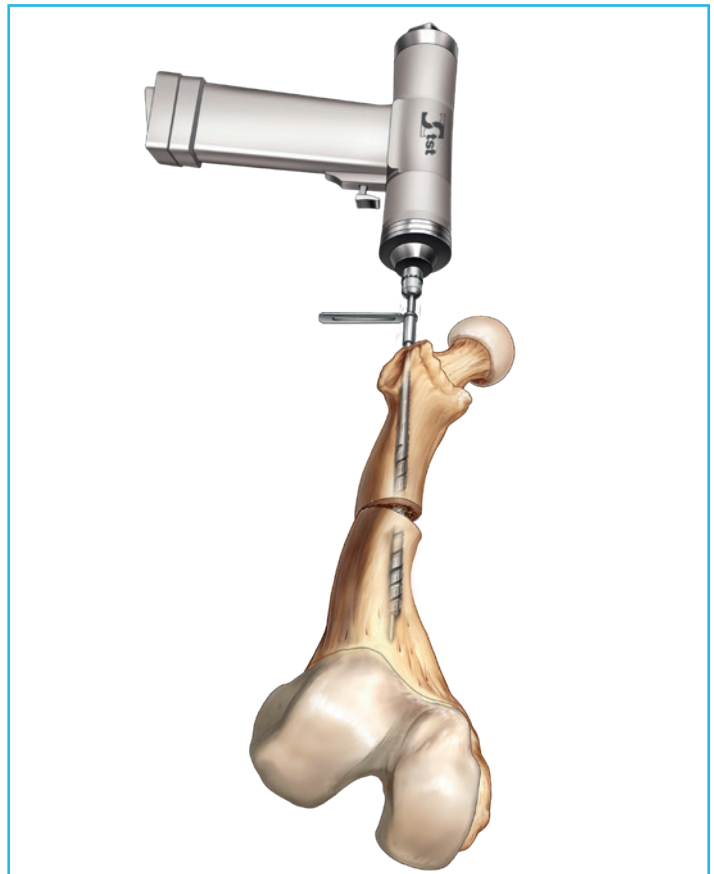


The *Guide Wire* is sent from the osteotomy line to the distal of the bone. The wire end must reach the distal epiphyseal line.



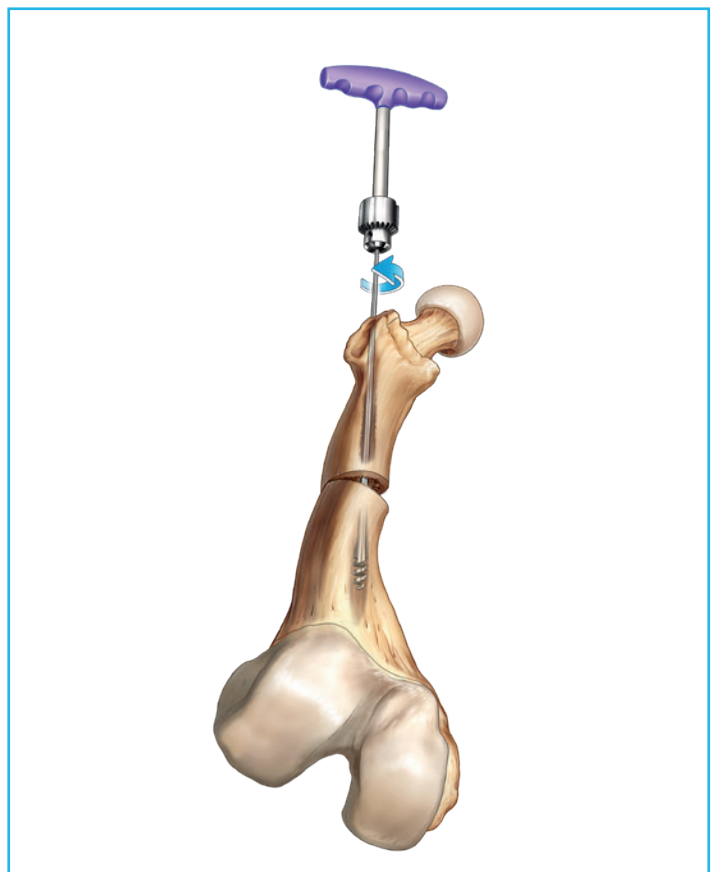
## 2 REAMERIZATION

Reaming begins with the smallest *Cannulated Reamer* over the wire. Reaming process is done until the metaphysis. It should be avoided to perforate the epiphysis.



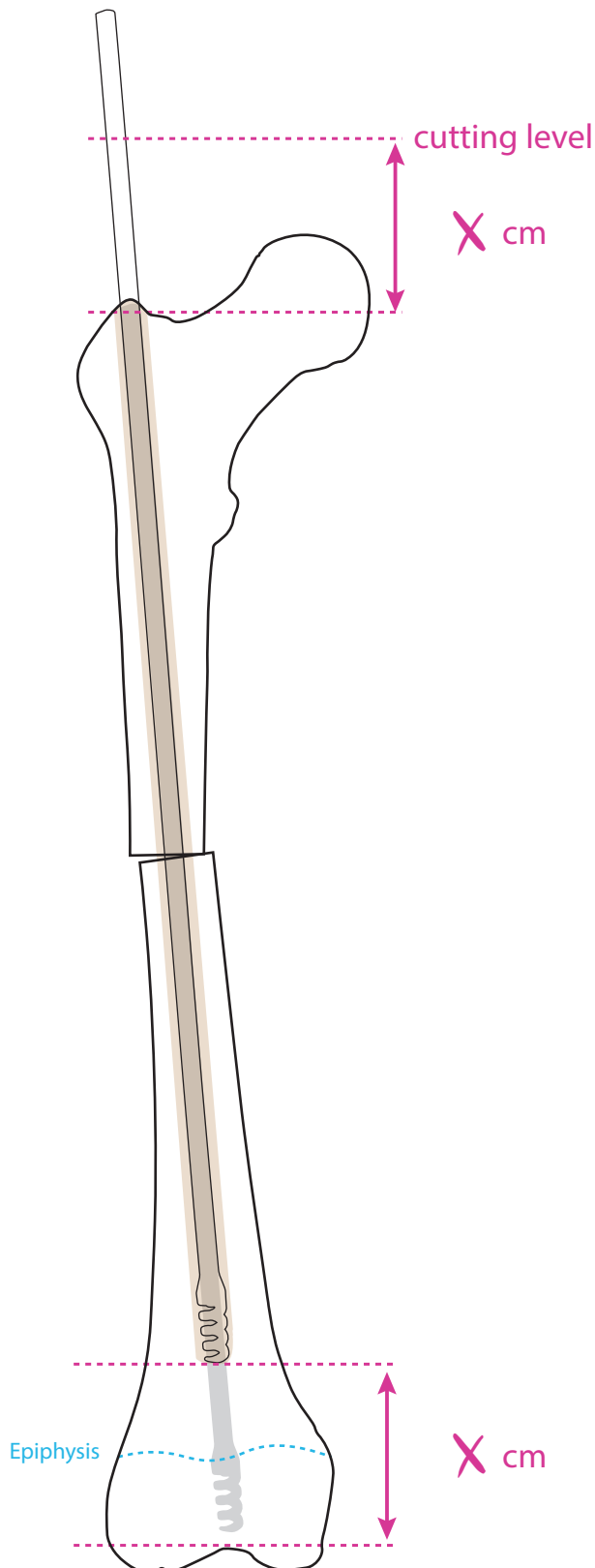
## 3 PLACEMENT OF THE MALE NAIL

The male nail is advanced clockwise rotation through the distal segment with the *T-Handle Male Nail Inserter*.

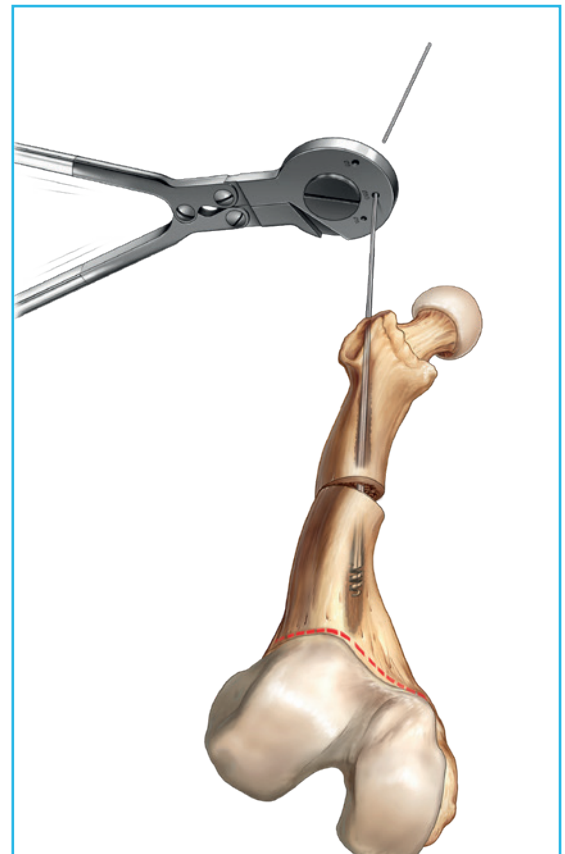


## 4 CUTTING THE MALE NAIL

The length of the outer part of the male nail and the level of trochanterica fossa are controlled by fluoroscopy. The distance between the tip of the male nail and the joint surface which was measured at the previous step are left and the exceeding part is cut.



*The male nail is cut with the Special Rod Cutter according to the diameter of the nail.*



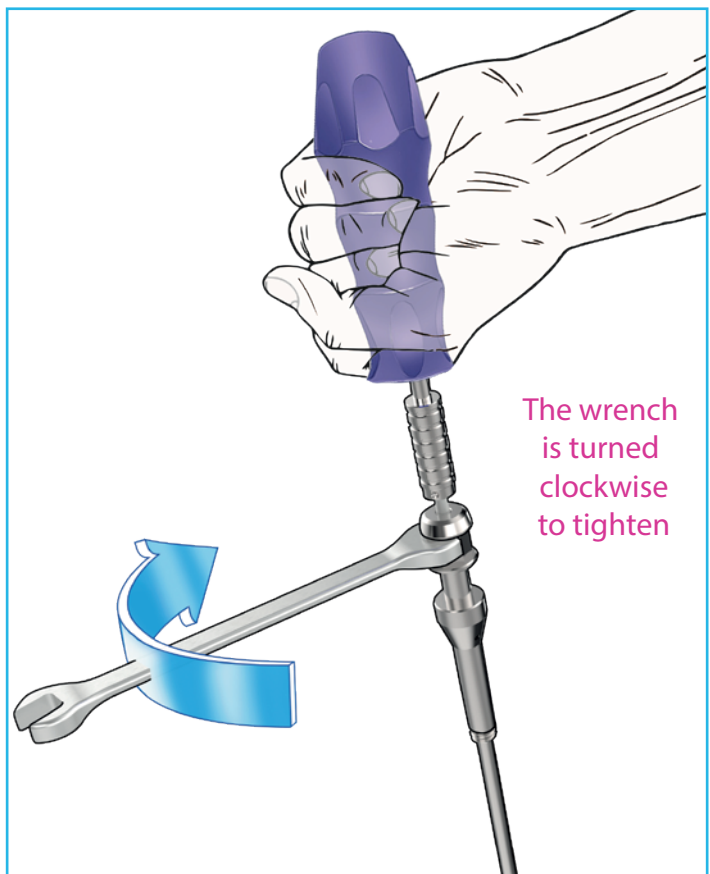
## 5 PREPARATION OF THE FEMALE NAIL

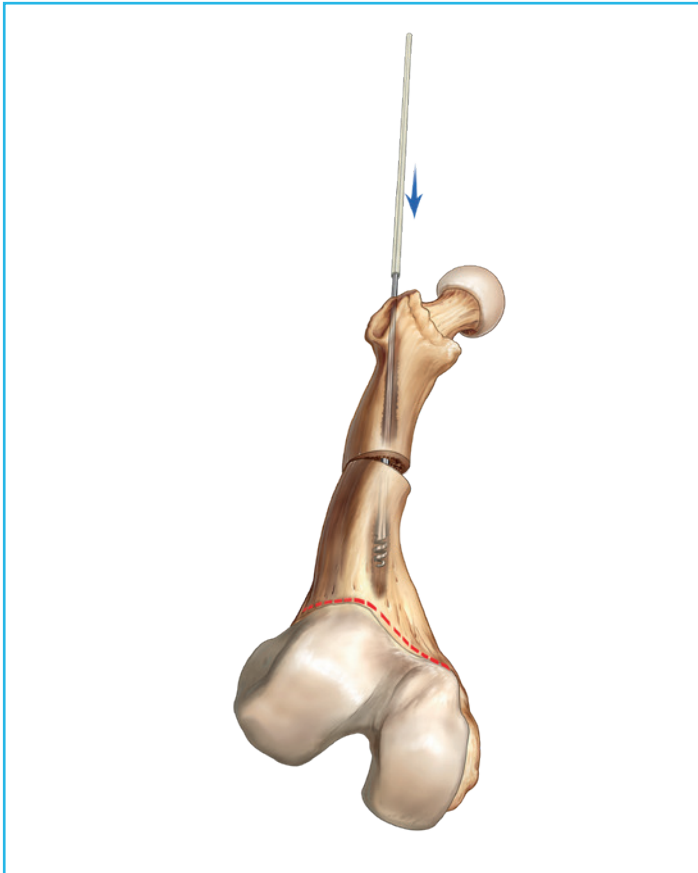
Appropriate size of the *Female Nail* is chosen and connected with *Female Locking Telescopic Nail Driver*.

*It is essential to place the D profile of driver and female nails D tube.*



*The Driver and the Female Nail are fixed with a Wrench by holding the soft handle.*

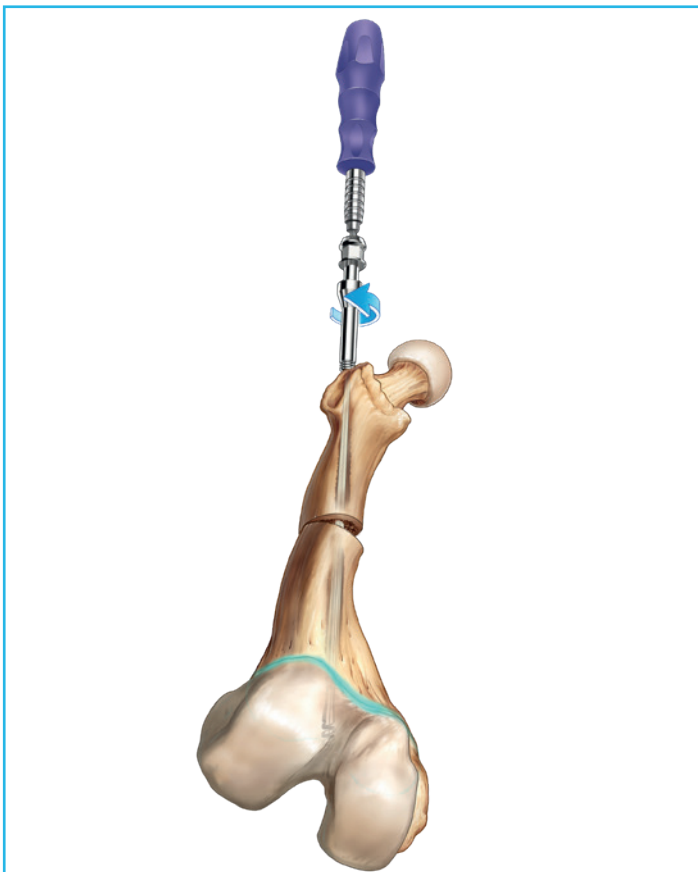
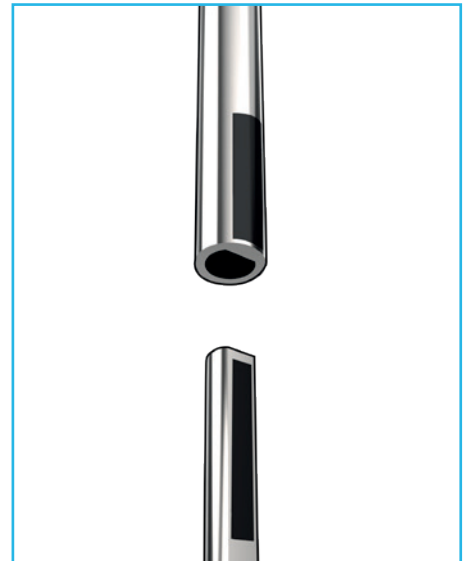




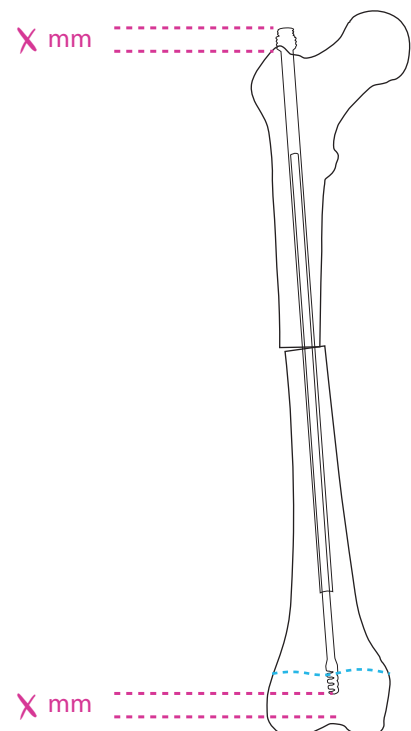
## 6 PLACEMENT OF THE TELESCOPIC NAIL

The *Female Nail* is advanced into the proximal femur by sliding over the *Male Nail*.

*Please pay attention to the laser marks while connecting male nail and female nail. They have to be at the same direction.*



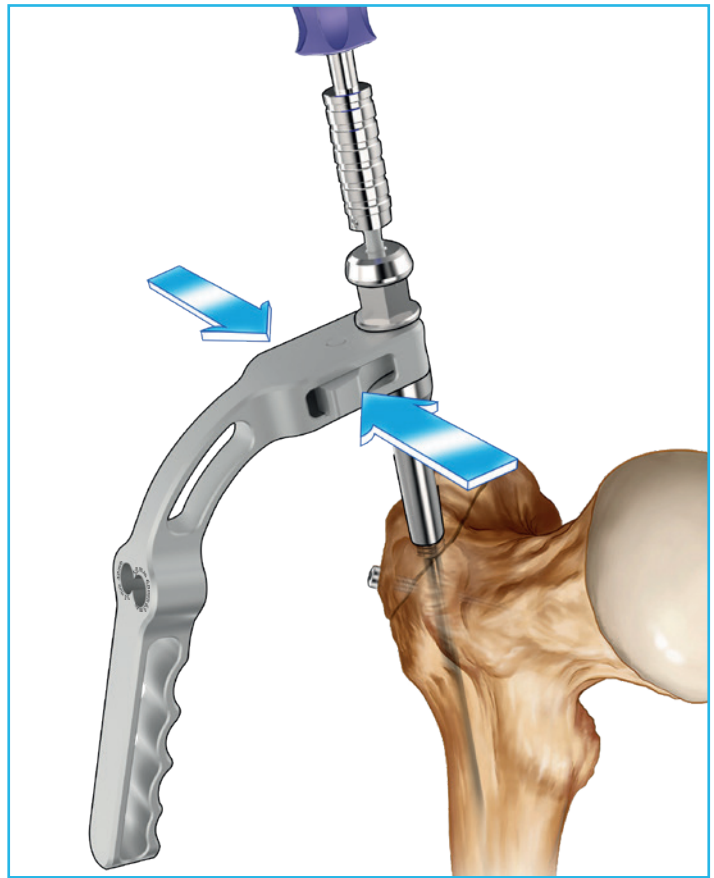
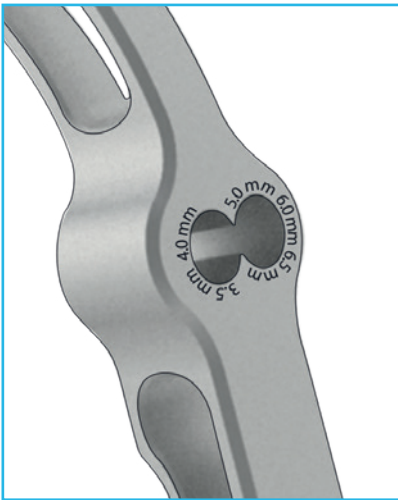
*Soft Handle* is rotated to send the nail until the proximal threads are completely embedded in the bone.



## 7 GUIDE ARM CONNECTION

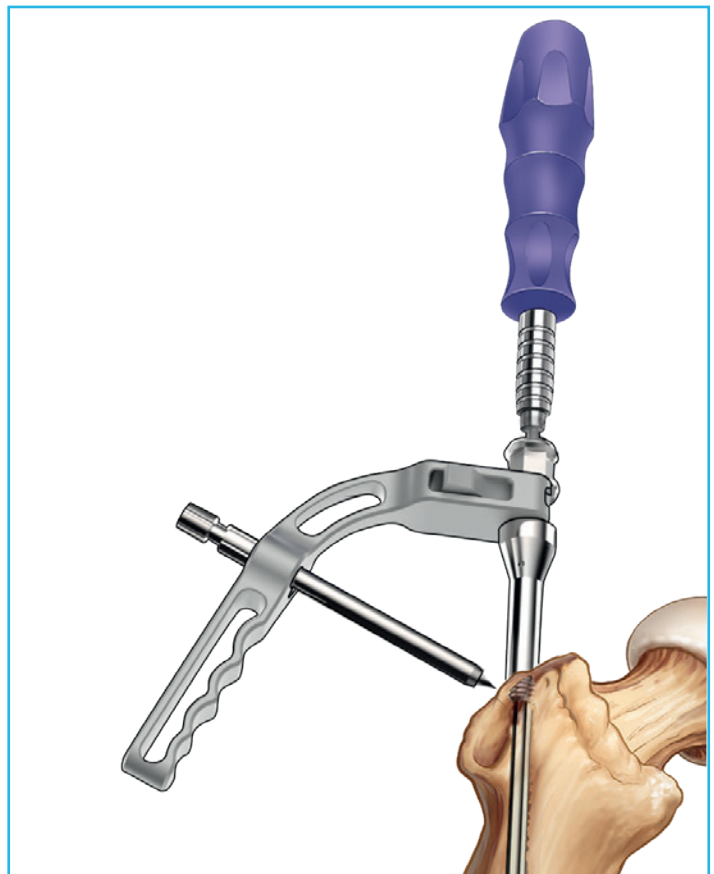
When the nail is in its final position, *Guide Arm* is mounted to the *Female Locking Telescopic Nail Driver*.

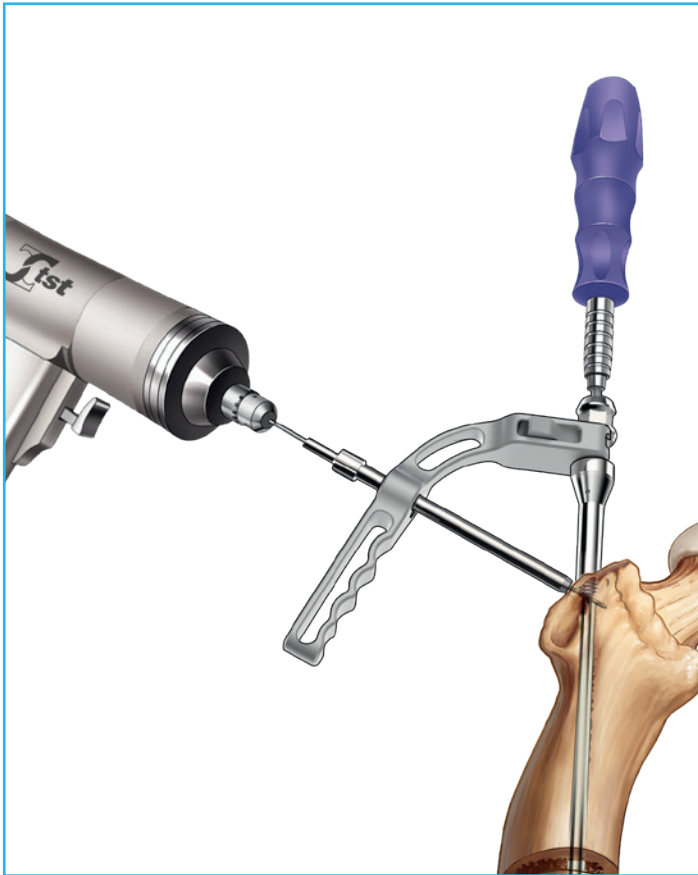
Mind the lasermarks to choose the appropriate hole for locking screw.



## 8 SLEEVE PLACEMENT

After the incision, *Protection Sleeve* and *Trocar* are sent through the proper hole of the *Guide Arm* to pass the soft tissue.

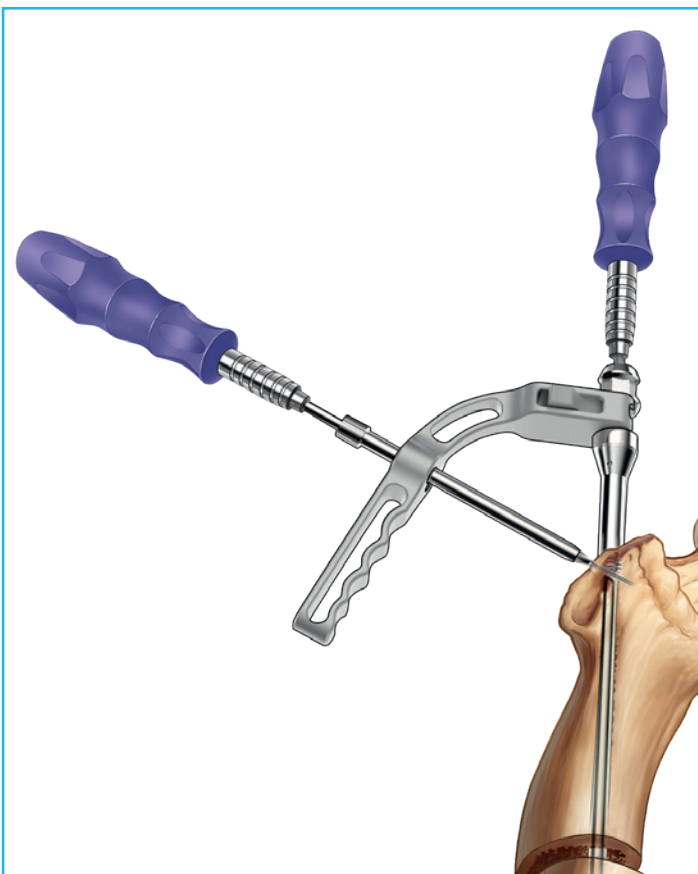
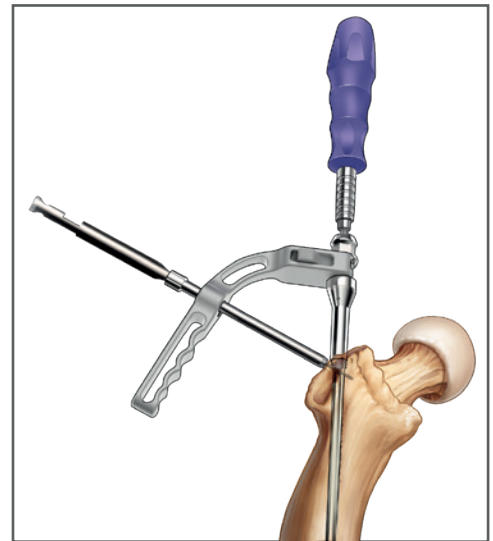




## 9 DRILLING AND DEPTH MEASURING

*Trocar is removed and the Drill Sleeve is sent over the Protection Sleeve to help drilling. Drilling is made with 2.0 mm Drill.*

*The depth is measured with Depth Gauge to choose proper locking screw.*

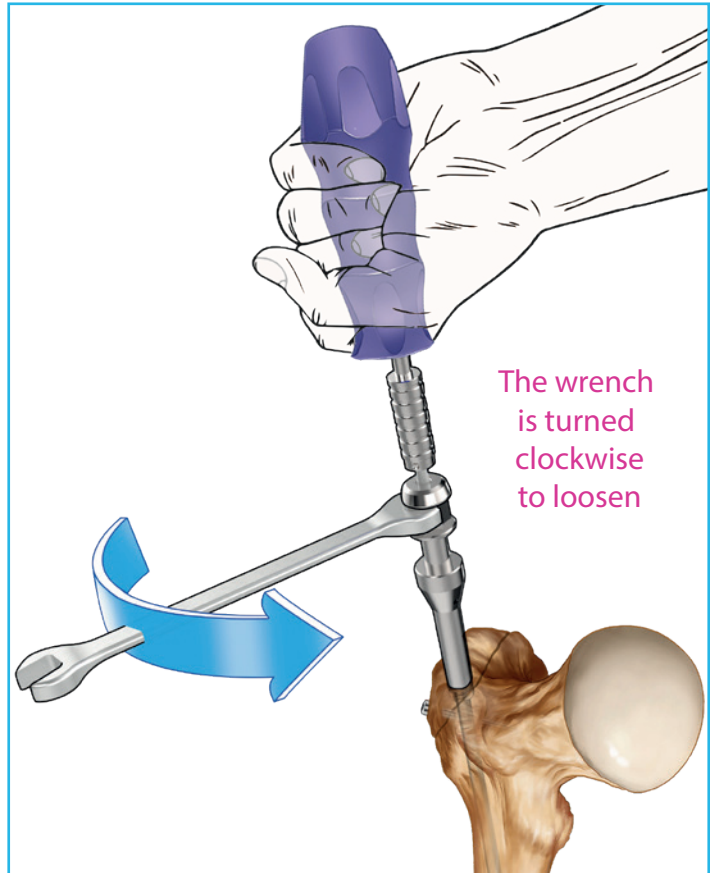
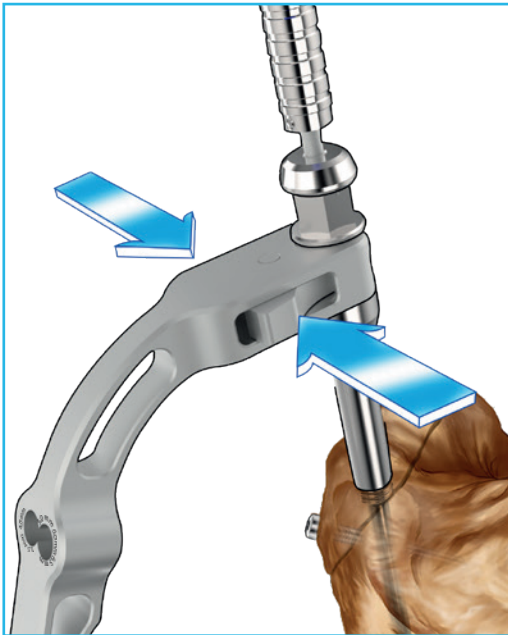


## 10 PROXIMAL LOCKING

*After detection of the length of the screw with the help of Depth Gauge, the screw is sent with 1.7 mm Hexagonal Tip.*

## 11 REMOVING THE GUIDE ARM

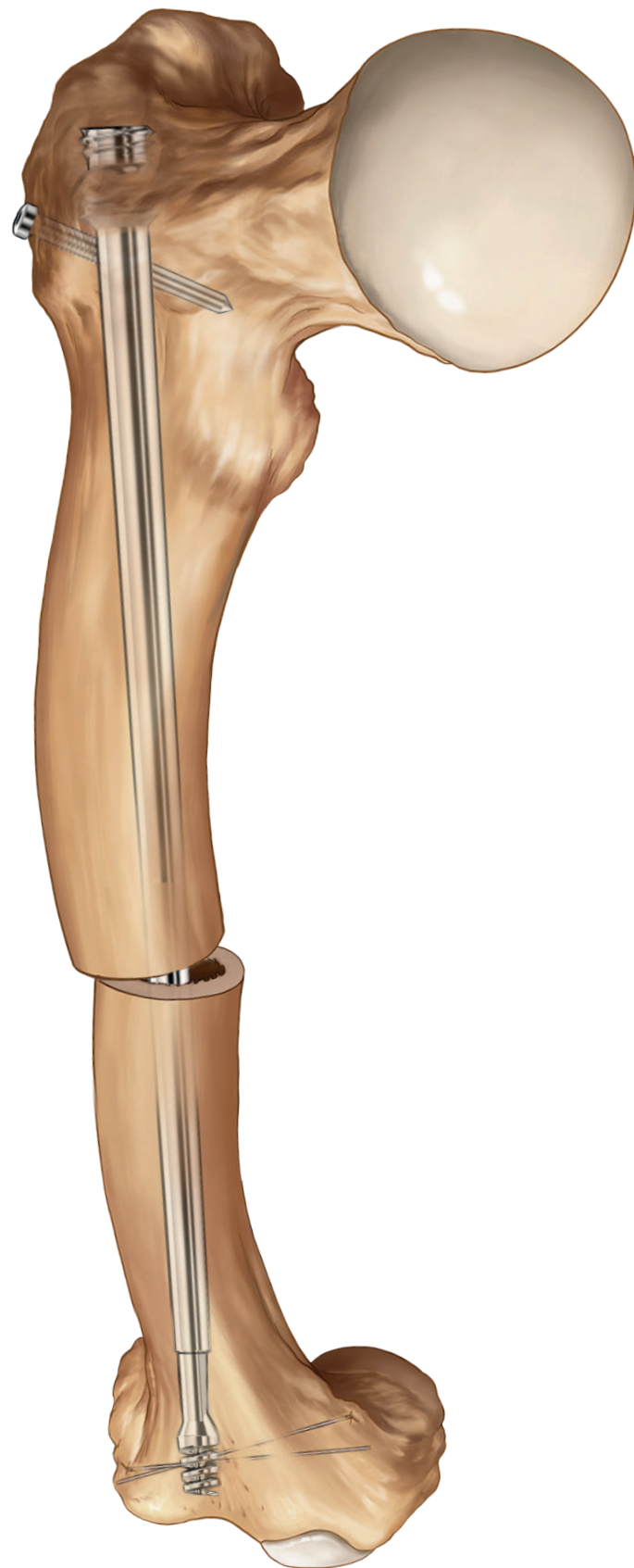
After removing the *Guide Arm*, the *Female Nail Driver* is loosened with the *Wrench* by holding the *Soft Handle* and then separated.



## 12 DISTAL LOCKING

Fixation to the distal epiphysis is increased by sending two *Threaded Kirschner Wires* into the corkscrew tip. The outer part is cut with the *Wire Cutter* then the rest of the wire is forwarded into the bone with a *Pin Impactor*.

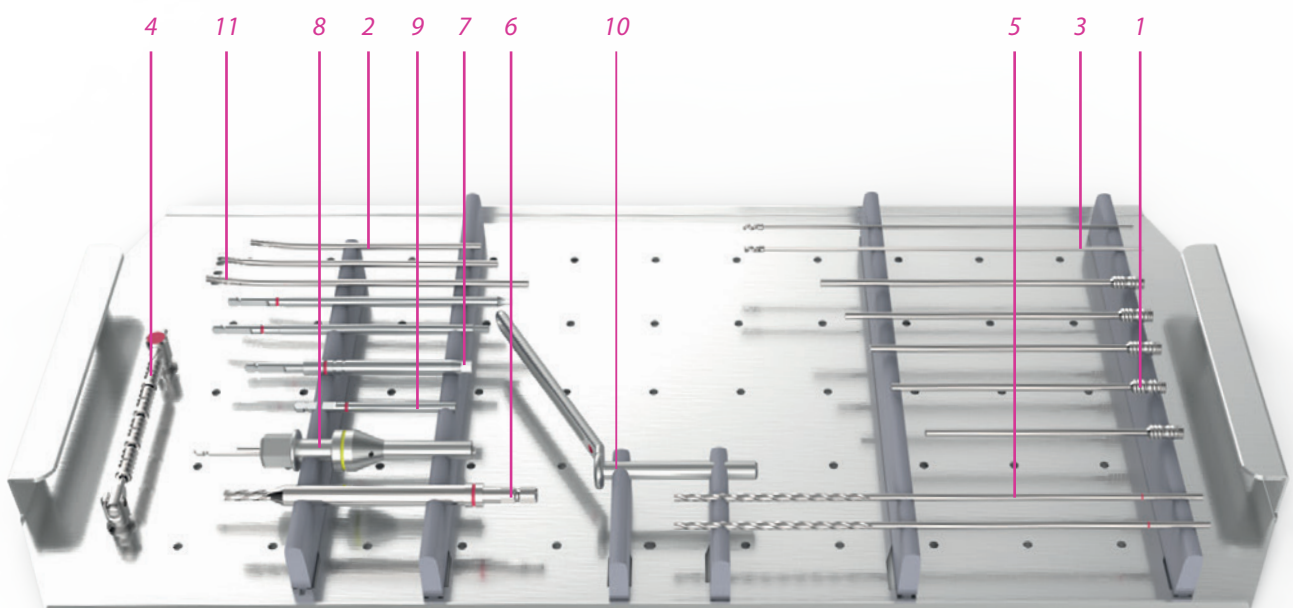




# Set Details

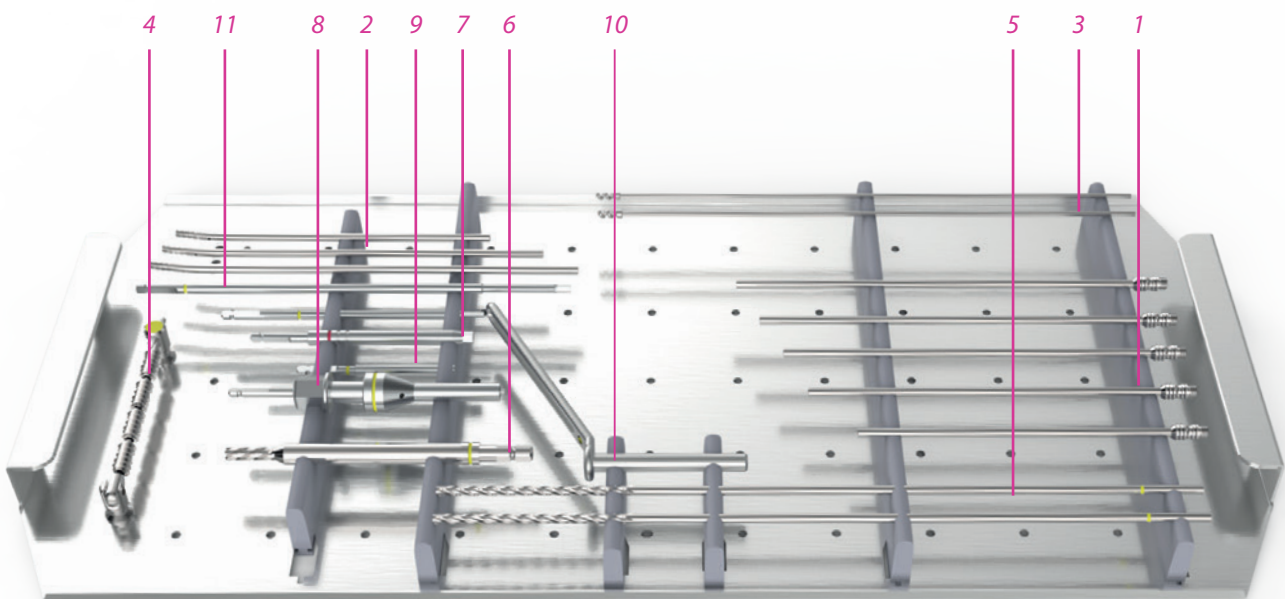
## Tray 1 (3.5 mm)

	code	barcode	description	qty
1	80717011035	8680858424818	TELESCOPIC INTRAMED. FEMALE NAIL- LOCKING SS Ø3.5X110 MM	2
	80717012035	8680858424825	TELESCOPIC INTRAMED. FEMALE NAIL- LOCKING SS Ø3.5X120 MM	2
	80717013035	8680858424832	TELESCOPIC INTRAMED. FEMALE NAIL- LOCKING SS Ø3.5X130 MM	2
	80717014035	8680858424849	TELESCOPIC INTRAMED. FEMALE NAIL- LOCKING SS Ø3.5X140 MM	2
	80717015035	8680858424856	TELESCOPIC INTRAMED. FEMALE NAIL- LOCKING SS Ø3.5X150 MM	2
2	80510350110	8680858408726	TELESCOPIC INTRAMED.ANGLED NAIL-FEMALE SSØ3.5X110M	2
	80510350130	8680858408733	TELESCOPIC INTRAMED.ANGLED NAIL-FEMALE SSØ3.5X130M	2
	80510350150	8680858408740	TELESCOPIC INTRAMED.ANGLED NAIL-FEMALE SSØ3.5X150M	2
3	80711200180	8699931033229	TELESCOPIC INTRAMED. NAIL-MALE SS Ø2.0X180 MM	4
4	80710000035	8699931033328	TELESCOPIC I.M. NAIL END CAP SS 3.5 MM	2
5	02010000350	8680858400065	CANNULATED DRILL FOR Ø3.5 MM NAIL	2
6	04010000035	8680858400157	DRILL FOR END CAP Ø3.5 MM	1
7	08757000035	8680858425112	Ø 3.5 MM FEMALE LOCKING TELESCOPIC NAIL DRIVER	1
8	02010010035	8680858400126	SCREW DRIVER QUICK TIP HEGZAGONAL Ø3.5x100 MM	1
9	08750000035	8699931033373	FEMALE NAIL DRIVER 3.5 MM	1
10	02010030035	8680858408887	Ø 3.5 MM DRILL GUIDE (TELES)	1
11	02010003035	8680858408894	Ø 3.5 MM FEMALE NAIL TURNING TIP	1
12	02020103025	8699931010930	SCREW DRIVER QUICK TIP 2.5XØ5X130 MM	1
	0801001	8680858420162	TELESCOPIC NAIL DESIGN TRAY 1	1



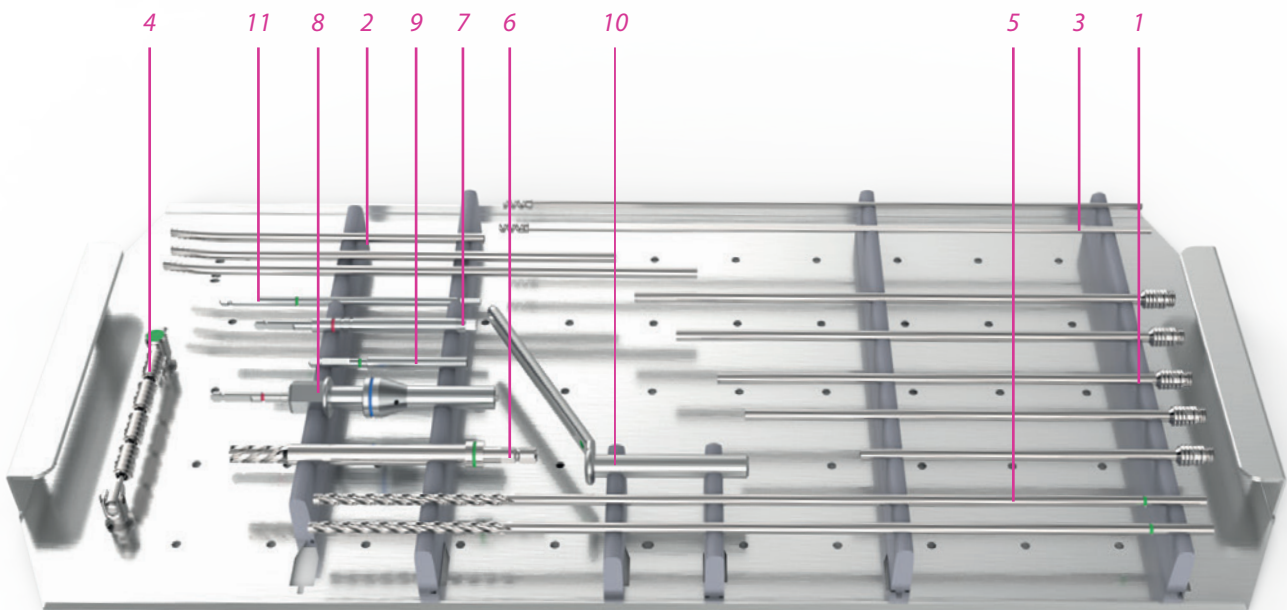
## Tray 2 (4.0 mm)

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1	80717015040	8680858424863	TELESCOPIC INTRAMED. FEMALE NAIL- LOCKING SS Ø4.0X150 MM	2
	80717017040	8680858424887	TELESCOPIC INTRAMED. FEMALE NAIL- LOCKING SS Ø4.0X170 MM	2
	80717018040	8680858424894	TELESCOPIC INTRAMED. FEMALE NAIL- LOCKING SS Ø4.0X180 MM	2
	80717019040	8680858424900	TELESCOPIC INTRAMED. FEMALE NAIL- LOCKING SS Ø4.0X190 MM	2
	80717020040	8680858424924	TELESCOPIC INTRAMED. FEMALE NAIL- LOCKING SS Ø4.0X200 MM	2
2	80510400150	8680858408764	TELESCOPIC INTRAMED.ANGLED NAIL-FEMALE SSØ4.0X150M	2
	80510400180	8680858408757	TELESCOPIC INTRAMED.ANGLED NAIL-FEMALE SSØ4.0X180M	2
	80510400200	8680858408771	TELESCOPIC INTRAMED.ANGLED NAIL-FEMALE SSØ4.0X200M	2
3	80711250250	8699931033236	TELESCOPIC INTRAMED. NAIL-MALE SS Ø2.5X250 MM	4
4	80710000040	8699931033335	TELESCOPIC I.M. NAIL END CAP SS 4.0 MM	2
5	02010000040	8680858400072	CANNULATED DRILL FOR Ø4.0 MM NAIL	2
6	04010000040	8680858400164	DRILL FOR END CAP Ø4.0 MM	1
7	08750000040	8699931033380	FEMALE NAIL DRIVER 4.0 MM	1
8	08757000040	8680858425129	Ø 4.0 MM FEMALE LOCKING TELESCOPIC NAIL DRIVER	1
9	02010010040	8680858400133	SCREW DRIVER QUICK TIP HEGZAGONAL Ø4.0x100 MM	1
10	02010040040	8680858408900	Ø 4 MM DRILL GUIDE (TELES)	1
11	02010003040	8680858408917	Ø 4 MM FEMALE NAIL TURNING TIP	1
12	01610020030	8680858424115	SCREW DRIVER QUICK TIP Ø3X200 MM	1
	0801002	8680858420179	TELESCOPIC NAIL DESIGN TRAY 2	1



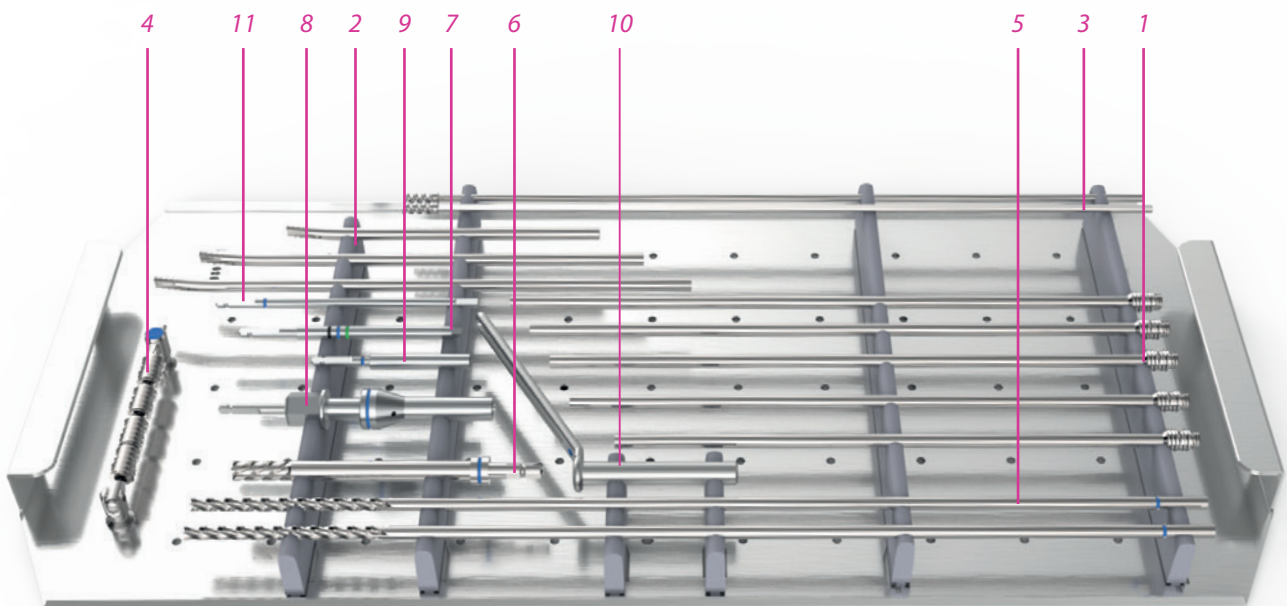
## Tray 3 (5.0 mm)

	code	barcode	description	qty
1	80717015050	8680858424870	TELESCOPIC INTRAMED. FEMALE NAIL- LOCKING SS Ø5.0X150 MM	2
	80717020050	8680858424931	TELESCOPIC INTRAMED. FEMALE NAIL- LOCKING SS Ø5.0X200 MM	2
	80717021050	8680858424955	TELESCOPIC INTRAMED. FEMALE NAIL- LOCKING SS Ø5.0X210 MM	2
	80717023050	8680858424962	TELESCOPIC INTRAMED. FEMALE NAIL- LOCKING SS Ø5.0X230 MM	2
	80717025050	8680858424979	TELESCOPIC INTRAMED. FEMALE NAIL- LOCKING SS Ø5.0X250 MM	2
2	80510500150	8680858408788	TELESCOPIC INTRAMED.ANGLED NAIL-FEMALE SSØ5.0X150M	2
	80510500210	8680858408795	TELESCOPIC INTRAMED.ANGLED NAIL-FEMALE SSØ5.0X210M	2
	80510500250	8680858408801	TELESCOPIC INTRAMED.ANGLED NAIL-FEMALE SSØ5.0X250M	2
3	80711350300	8699931033243	TELESCOPIC INTRAMED. NAIL-MALE SS Ø3.5X300 MM	4
4	80710000050	8699931033342	TELESCOPIC I.M. NAIL END CAP SS 5.0 MM	2
5	02010000050	8680858400089	CANNULATED DRILL FOR Ø5.0 MM NAIL	2
6	04010000050	8680858400171	DRILL FOR END CAP Ø5.0 MM	1
7	08750000050	8699931033397	FEMALE NAIL DRIVER 5.0 MM	1
8	08757000050	8680858425136	Ø 5.0 MM FEMALE LOCKING TELESCOPIC NAIL DRIVER	1
9	02010010050	8680858400140	SCREW DRIVER QUICK TIP HEGZAGONAL Ø5.0x100 MM	1
10	02010050050	8680858408924	Ø 5 MM DRILL GUIDE (TELES)	1
11	02010003050	8680858408931	Ø 5 MM FEMALE NAIL TURNING TIP	1
	0801003	8680858420186	TELESCOPIC NAIL DESIGN TRAY 3	1



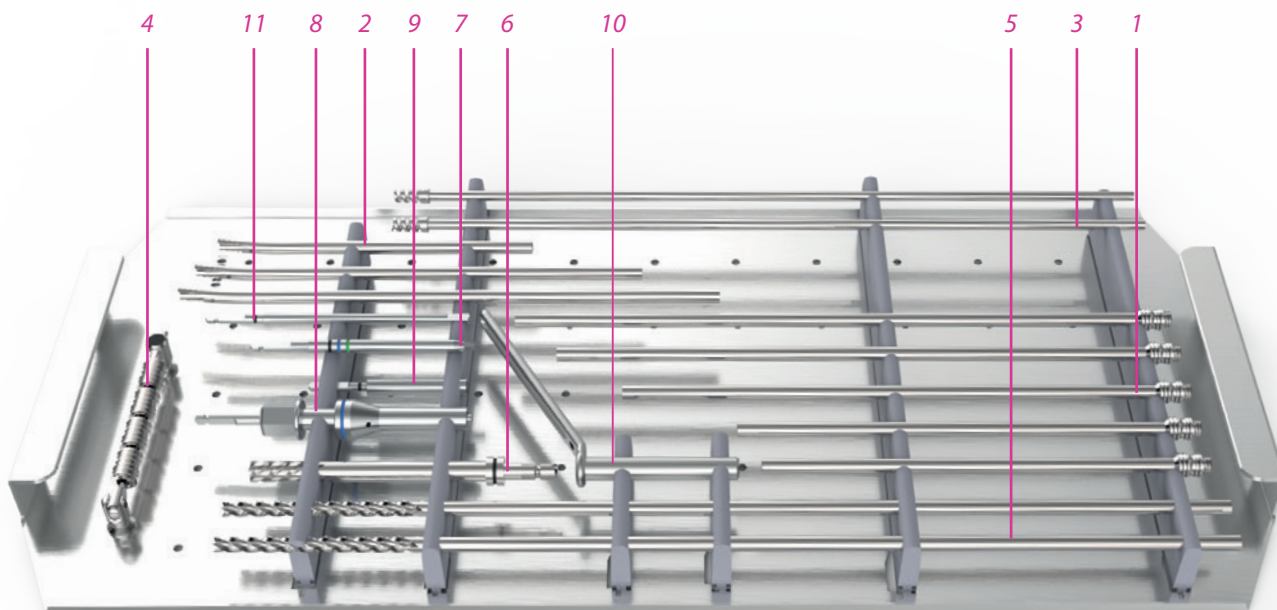
## Tray 4 (6.0 mm)

	code	barcode	description	qty
1	80717025060	8680858424986	TELESCOPIC INTRAMED. FEMALE NAIL- LOCKING SS Ø6.0X250 MM	2
	80717027060	8680858425006	TELESCOPIC INTRAMED. FEMALE NAIL- LOCKING SS Ø6.0X270 MM	2
	80717028060	8680858425013	TELESCOPIC INTRAMED. FEMALE NAIL- LOCKING SS Ø6.0X280 MM	2
	80717029060	8680858425037	TELESCOPIC INTRAMED. FEMALE NAIL- LOCKING SS Ø6.0X290 MM	2
	80717030060	8680858425044	TELESCOPIC INTRAMED. FEMALE NAIL- LOCKING SS Ø6.0X300 MM	2
2	80510600150	8680858408818	TELESCOPIC INTRAMED.ANGLED NAIL-FEMALE SSØ6.0X150M	2
	80510600210	8680858408825	TELESCOPIC INTRAMED.ANGLED NAIL-FEMALE SSØ6.0X210M	2
	80510600250	8680858408832	TELESCOPIC INTRAMED.ANGLED NAIL-FEMALE SSØ6.0X250M	2
3	80711400350	8699931033250	TELESCOPIC INTRAMED. NAIL-MALE SS Ø4.0X350 MM	4
4	80710000060	8699931033359	TELESCOPIC I.M. NAIL END CAP SS 6.0 MM	2
5	02010000060	8680858400096	CANNULATED DRILL FOR Ø6.0 MM NAIL	2
6	04010000060	8680858400188	DRILL FOR END CAP Ø6.0 MM	1
7	08750000060	8699931033403	FEMALE NAIL DRIVER 6.0 MM	1
8	08757000060	8680858425143	Ø 6.0 MM FEMALE LOCKING TELESCOPIC NAIL DRIVER	1
9	02010010050	8680858400140	SCREW DRIVER QUICK TIP HEGZAGONAL Ø5.0x100 MM	1
10	02010060060	8680858408948	Ø 6 MM DRILL GUIDE (TELES)	1
11	02010003060	8680858408955	Ø 6 MM FEMALE NAIL TURNING TIP	1
	0801004	8680858420193	TELESCOPIC NAIL DESIGN TRAY 4	1



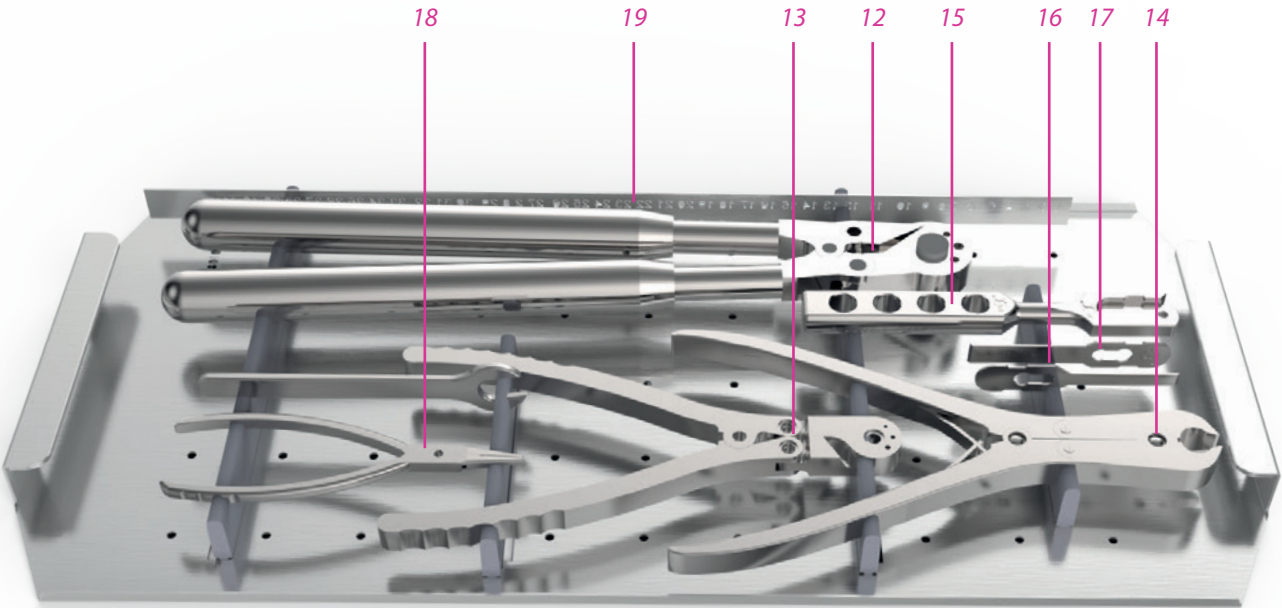
## Tray 5 (6.5 mm)

	code	barcode	description	qty
1	80717019065	8680858424917	TELESCOPIC INTRAMED. FEMALE NAIL- LOCKING SS Ø6.5X190 MM	2
	80717020065	8680858424948	TELESCOPIC INTRAMED. FEMALE NAIL- LOCKING SS Ø6.5X200 MM	2
	80717025065	8680858424993	TELESCOPIC INTRAMED. FEMALE NAIL- LOCKING SS Ø6.5X250 MM	2
	80717028065	8680858425020	TELESCOPIC INTRAMED. FEMALE NAIL- LOCKING SS Ø6.5X280 MM	2
	80717030065	8680858425051	TELESCOPIC INTRAMED. FEMALE NAIL- LOCKING SS Ø6.5X300 MM	2
2	80510650150	8680858408856	TELESCOPIC INTRAMED.ANGLED NAIL-FEMALE SSØ6.5X150M	2
	80510650210	8680858408863	TELESCOPIC INTRAMED.ANGLED NAIL-FEMALE SSØ6.5X210M	2
	80510650250	8680858408849	TELESCOPIC INTRAMED.ANGLED NAIL-FEMALE SSØ6.5X250M	2
3	80711500350	8699931033267	TELESCOPIC INTRAMED. NAIL-MALE SS Ø5.0X350 MM	4
4	80710000065	8699931033366	TELESCOPIC I.M. NAIL END CAP SS 6.5 MM	2
5	02010000065	8680858400102	CANNULATED DRILL FOR Ø6.5 MM NAIL	2
6	04010000065	8680858400195	DRILL FOR END CAP Ø6.5 MM	1
7	08750000065	8699931033410	FEMALE NAIL DRIVER 6.5 MM	1
8	08757000065	8680858425150	Ø 6.5 MM FEMALE LOCKING TELESCOPIC NAIL DRIVER	1
9	02010010050	8680858400140	SCREW DRIVER QUICK TIP HEGZAGONAL Ø5.0x100 MM	1
10	02010060065	8680858408962	Ø 6.5 MM DRILL GUIDE (TELES)	1
11	02010003065	8680858408979	Ø 6.5 MM FEMALE NAIL TURNING TIP	1
	0801005	8680858408870	TELESCOPIC NAIL DESIGN TRAY 5	1



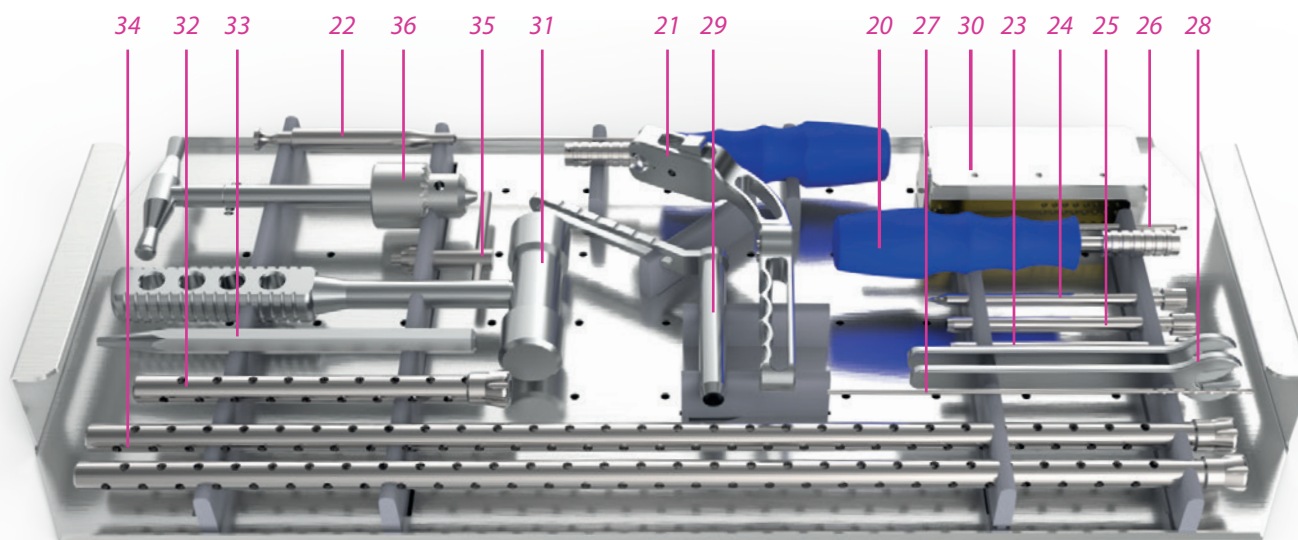
# Tray 6 (Instruments I)

code	barcode	description	qty
12 03210004050	8680858408993	SPECIAL ROD CUTTER FOR Ø 4.0,5.0 MM	1
13 03210202535	8680858408986	SPECIAL ROD CUTTER FOR Ø 2.0,2.5,3.5 MM	1
14 02345020000	8698673493506	PLATE WIRE CUTTER UP TO 3MM	1
15 03381000001	8699931023770	CHISEL HANDLE	1
16 03381016030	8699931023800	CHISEL BLADE 16x30mm Straight	1
17 03381011030	8699931023794	CHISEL BLADE 11x30mm Straight	1
18 08201000004	8698673495036	LOCKING PLIERS	1
19 08050000011	8698673496507	RADIOGRAPHIC RULER 400 MM	1
0801006	8680858420216	TELESCOPIC NAIL DESIGN TRAY 6	1



## Tray 7 (Instruments II)

code	barcode	description	qty	
20	02010101002	8698673493308	SOFT SCREW DRIVER QUICK LARGE	2
21	08051000012	8680858425167	TELESCOPIC NAIL GUIDE ARM	1
22	08004000100	8680858425174	TELESCOPIC NAIL DEPTH GAUGE FOR PROXIMAL SCREW	1
23	08051000010	8680858425099	TELESCOPIC NAIL SLEEVE FOR PROXIMAL SCREW	1
24	03665010006	8680858427437	TROCAR Ø6 x 100 MM	1
25	08051000011	8680858425105	TELESCOPIC NAIL DRILL GUIDE	1
26	02000015017	8680858425082	SCREW DRIVER QUICK HEX. TIP Ø 1.7X150 MM	2
27	00222045206	8699931030617	QUICK DRILL Ø 2X4.5X206 MM	2
28	08044000014	8699931015737	WRENCH Ø 13 MM	2
29	08750009010	0087500090106	PROTECTION SLEEVE (END CUP DRILL)	1
30	802700	8680858427444	TELESCOPIC NAIL SCREW BOX	1
	80717027010	8680858426454	TELESCOPIC NAIL LOCKING SCREW Ø2.7 x 10 MM	4
	80717027012	8680858426461	TELESCOPIC NAIL LOCKING SCREW Ø2.7 x 12 MM	4
	80717027014	8680858426478	TELESCOPIC NAIL LOCKING SCREW Ø2.7 x 14 MM	4
	80717027016	8680858426485	TELESCOPIC NAIL LOCKING SCREW Ø2.7 x 16 MM	4
	80717027018	8680858426492	TELESCOPIC NAIL LOCKING SCREW Ø2.7 x 18 MM	4
	80717027020	8680858426508	TELESCOPIC NAIL LOCKING SCREW Ø2.7 x 20 MM	4
	80717027022	8680858426515	TELESCOPIC NAIL LOCKING SCREW Ø2.7 x 22 MM	4
	80717027024	8680858426522	TELESCOPIC NAIL LOCKING SCREW Ø2.7 x 24 MM	4
	80717027026	8680858426539	TELESCOPIC NAIL LOCKING SCREW Ø2.7 x 26 MM	4
	80717027028	8680858426546	TELESCOPIC NAIL LOCKING SCREW Ø2.7 x 28 MM	4
	80717027030	8680858426553	TELESCOPIC NAIL LOCKING SCREW Ø2.7 x 30 MM	4
	80717027032	8680858426560	TELESCOPIC NAIL LOCKING SCREW Ø2.7 x 32 MM	4
	80717027034	8680858426577	TELESCOPIC NAIL LOCKING SCREW Ø2.7 x 34 MM	4
	80717027036	8680858426584	TELESCOPIC NAIL LOCKING SCREW Ø2.7 x 36 MM	4
	80717027038	8680858426591	TELESCOPIC NAIL LOCKING SCREW Ø2.7 x 38 MM	4
	80717027040	8680858426607	TELESCOPIC NAIL LOCKING SCREW Ø2.7 x 40 MM	4
31	01193003009	8699931028133	BONE HAMMER SMALL	1
32	04551006160	8699931029796	K-WIRE TUBE Ø10XØ6X160 MM	1
	23412150015	8698673452626	KIRSCHNER WIRE TREADED POINT 1.5X150 MM	10
	23410120150	8698673452978	KIRSCHNER WIRE TROCAR POINT 1.5X120 MM	2
33	02271000003	8699931000139	PIN IMPACTOR	1
34	04551008460	8699931029796	K-WIRE TUBE Ø10XØ8X460 MM	2
	23410450115	8698673457935	KIRSCHNER WIRE TROCAR POINT 1.5X450 MM	6
	23410450120	8698673457928	KIRSCHNER WIRE TROCAR POINT 2X450 MM	6
35	03310000001	8680858400201	T-HANDLE JACOBS CHUCK-KEY	1
36	08050000200	8680858409181	T-HANDLE MALE NAIL INSERTER	1
	0801007	8680858420223	TELESCOPIC NAIL DESIGN TRAY 7	1
	00543260180	8680858419265	KONTEYNER 543x260x180 MM	2



# Sample Cases

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## Case 1

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pre-op

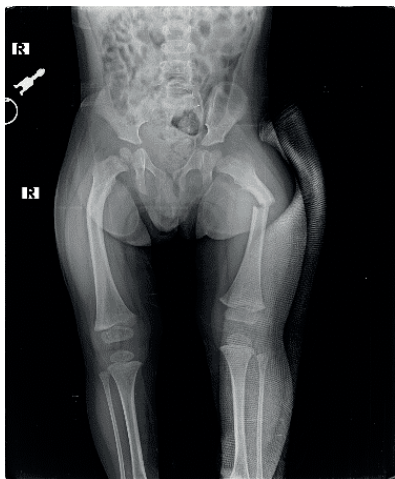


post-op

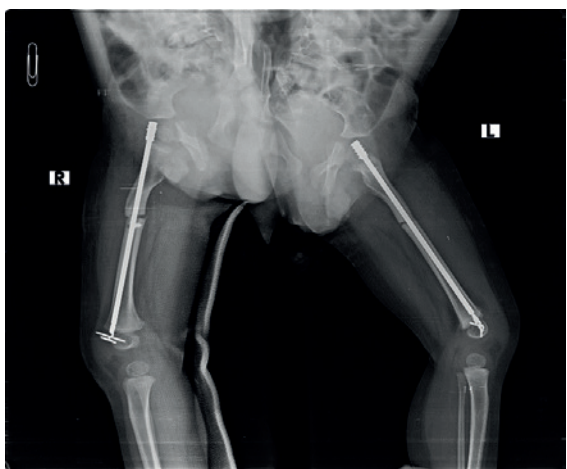
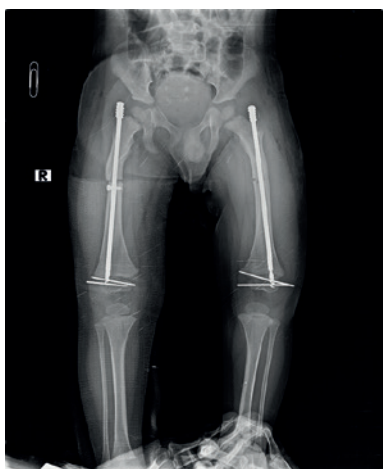


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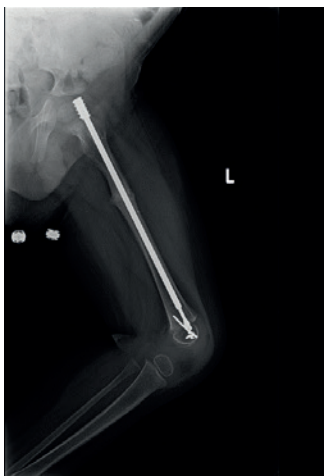
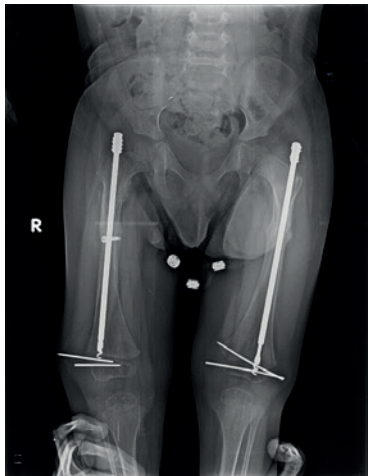
pre-op



post-op

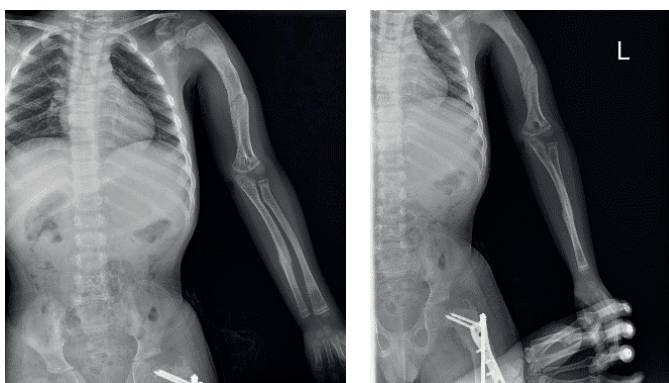


follow-up



## Case 3

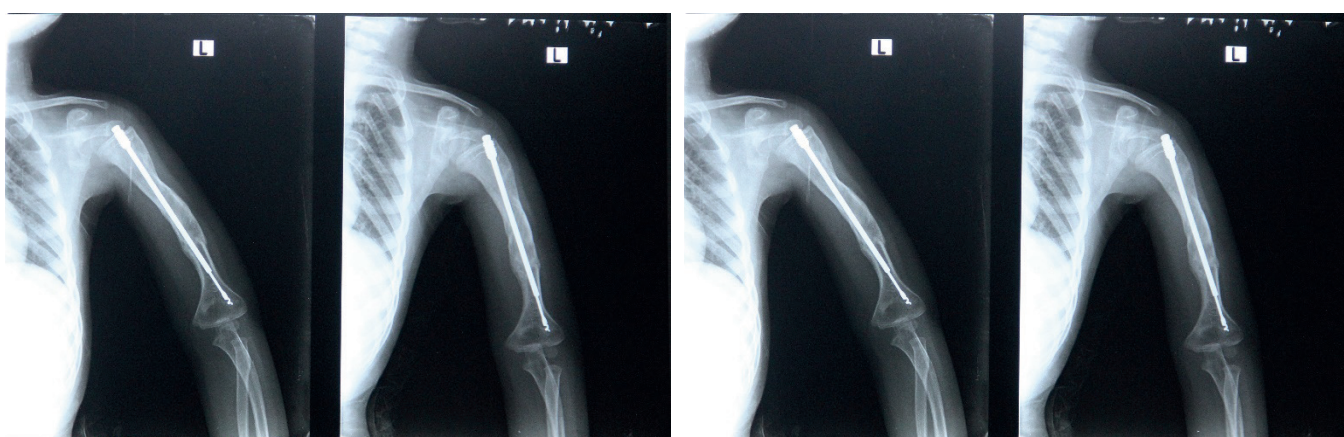
pre-op



post-op

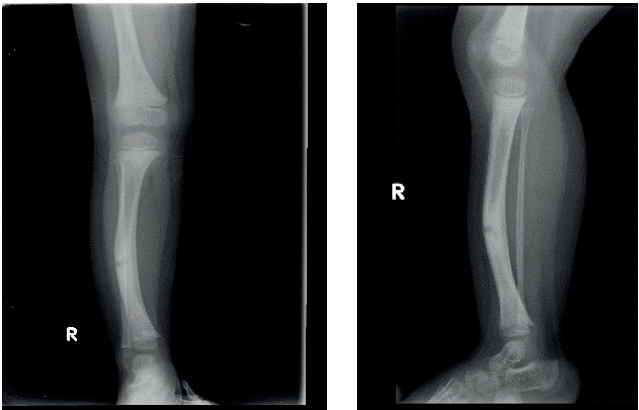


follow-up

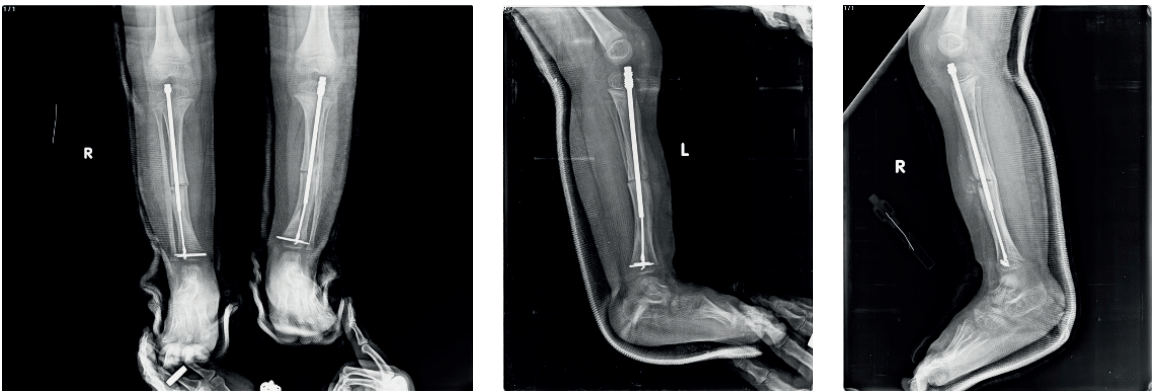


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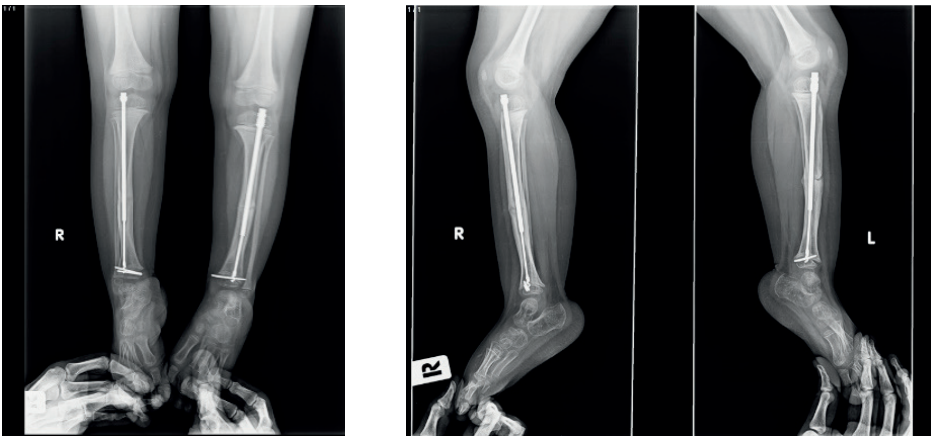
pre-op



post-op

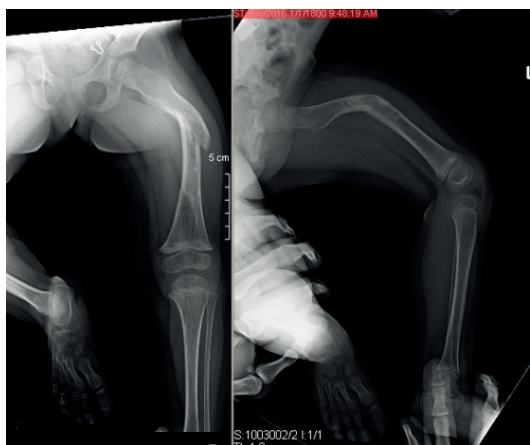


follow-up

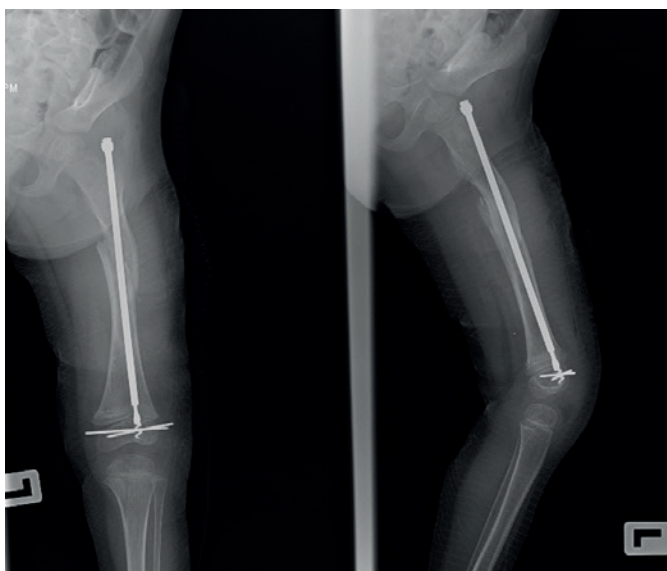


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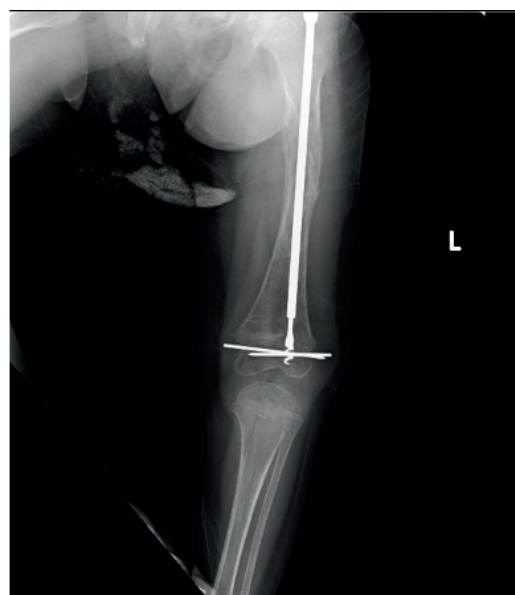
pre-op



post-op



follow-up



### Warning:

This description is not sufficient by itself for direct and proper use of the instrument set intraoperatively. Instruction by a surgeon who is thoroughly trained and experienced in handling these instruments and in doing the procedure are highly recommended.

