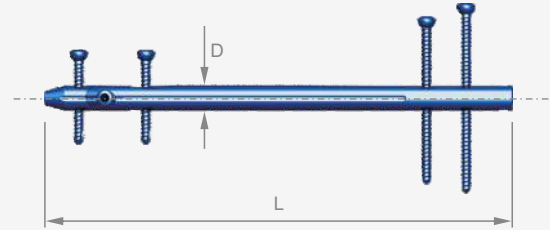
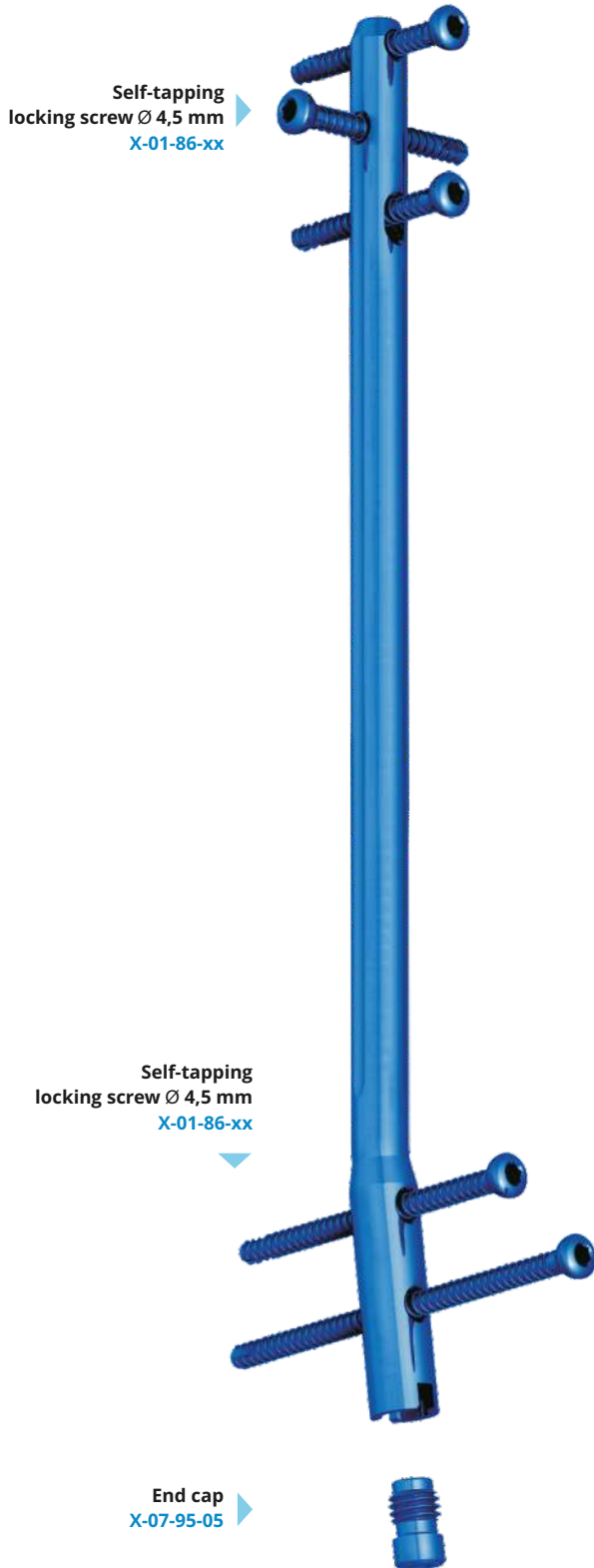
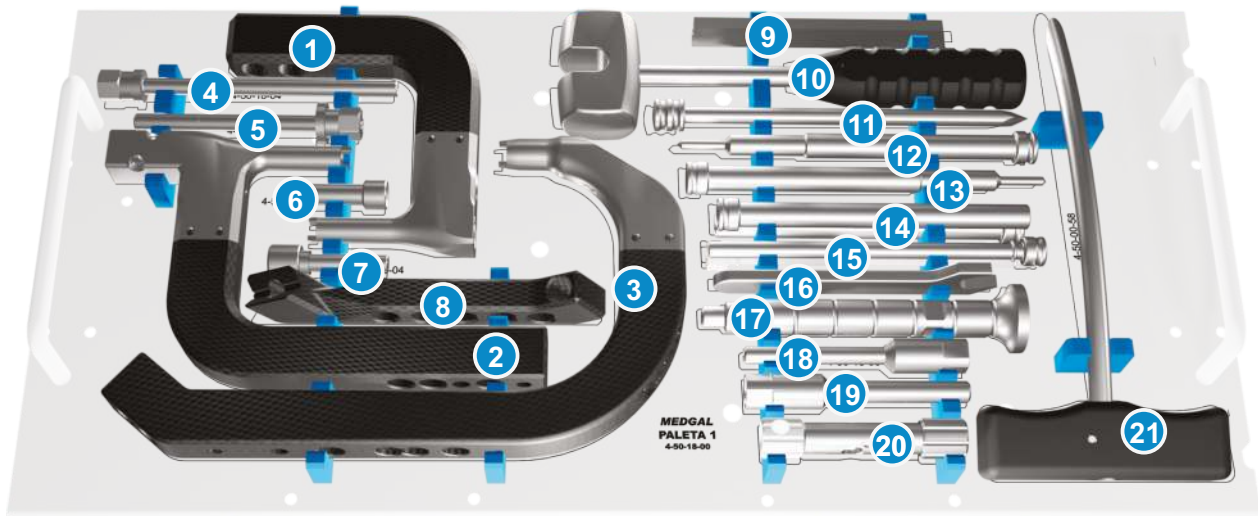


## RETROGRADE FEMORAL NAIL



L (mm)	D=9mm	D=10mm	D=11mm	D=12mm	D=13mm
150	X-07-64-150	X-07-65-150	X-07-66-150	X-07-67-150	X-07-68-150
160	X-07-64-160	X-07-65-160	X-07-66-160	X-07-67-160	X-07-68-160
170	X-07-64-170	X-07-65-170	X-07-66-170	X-07-67-170	X-07-68-170
180	X-07-64-180	X-07-65-180	X-07-66-180	X-07-67-180	X-07-68-180
190	X-07-64-190	X-07-65-190	X-07-66-190	X-07-67-190	X-07-68-190
200	X-07-64-200	X-07-65-200	X-07-66-200	X-07-67-200	X-07-68-200
210	X-07-64-210	X-07-65-210	X-07-66-210	X-07-67-210	X-07-68-210
220	X-07-64-220	X-07-65-220	X-07-66-220	X-07-67-220	X-07-68-220
230	X-07-64-230	X-07-65-230	X-07-66-230	X-07-67-230	X-07-68-230
240	X-07-64-240	X-07-65-240	X-07-66-240	X-07-67-240	X-07-68-240
250	X-07-64-250	X-07-65-250	X-07-66-250	X-07-67-250	X-07-68-250
260	X-07-64-260	X-07-65-260	X-07-66-260	X-07-67-260	X-07-68-260
270	X-07-64-270	X-07-65-270	X-07-66-270	X-07-67-270	X-07-68-270
280	X-07-64-280	X-07-65-280	X-07-66-280	X-07-67-280	X-07-68-280
290	X-07-64-290	X-07-65-290	X-07-66-290	X-07-67-290	X-07-68-290
300	X-07-64-300	X-07-65-300	X-07-66-300	X-07-67-300	X-07-68-300
310	X-07-64-310	X-07-65-310	X-07-66-310	X-07-67-310	X-07-68-310
320	X-07-64-320	X-07-65-320	X-07-66-320	X-07-67-320	X-07-68-320
330	X-07-64-330	X-07-65-330	X-07-66-330	X-07-67-330	X-07-68-330
340	X-07-64-340	X-07-65-340	X-07-66-340	X-07-67-340	X-07-68-340
350	X-07-64-350	X-07-65-350	X-07-66-350	X-07-67-350	X-07-68-350
360	X-07-64-360	X-07-65-360	X-07-66-360	X-07-67-360	X-07-68-360
370	X-07-64-370	X-07-65-370	X-07-66-370	X-07-67-370	X-07-68-370
380	X-07-64-380	X-07-65-380	X-07-66-380	X-07-67-380	X-07-68-380
390	X-07-64-390	X-07-65-390	X-07-66-390	X-07-67-390	X-07-68-390
400	X-07-64-400	X-07-65-400	X-07-66-400	X-07-67-400	X-07-68-400
410	X-07-64-410	X-07-65-410	X-07-66-410	X-07-67-410	X-07-68-410
420	X-07-64-420	X-07-65-420	X-07-66-420	X-07-67-420	X-07-68-420
430	X-07-64-430	X-07-65-430	X-07-66-430	X-07-67-430	X-07-68-430
440	X-07-64-440	X-07-65-440	X-07-66-440	X-07-67-440	X-07-68-440

## TRAY 1



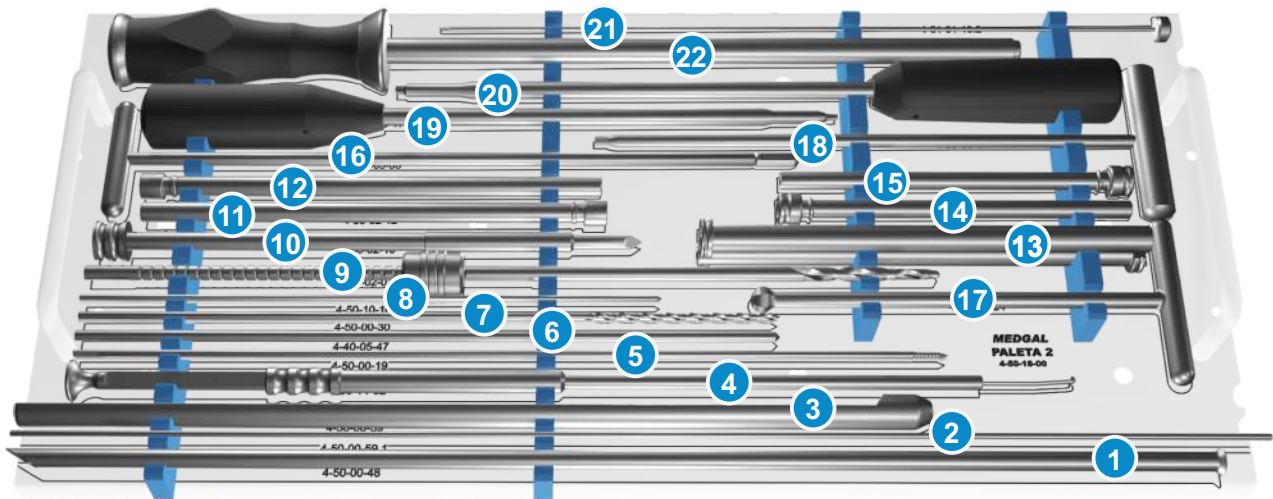
1	Targeting handle for humeral nail	4-50-18-10
2	Targeting handle for tibial nail	4-50-19-01
3	Targeting handle for femoral nail	4-50-17-01
4	Nail holding screw M8 - long	4-50-18-04
5	Nail holding screw M8 - short	4-50-18-05
6	Nail holding screw M10	4-50-17-03
7	Connecting screw	4-50-04-05
8	Targeting adapter for reconstruction holes	4-50-04-04
9	Gauge	4-50-01-12
10	Hammer	4-51-01-16
11	Trocar	4-50-00-07
12	Control Pin Ø 4,6	4-50-00-08
13	Control Pin Ø 4,2	4-50-05-09
14	Protecion sleeve 2 pcs.	4-50-00-06
15	Drill sleeve Ø 3,7 2 pcs.	4-50-00-31
16	Wrench	4-50-00-41
17	Impactor	4-51-01-23
18	Extractor reducer M12/M8	4-50-18-06
19	Extractor reducer M12/M10	4-50-18-07
20	Guide wire handle	4-50-00-18
21	Cannulated awl	4-50-00-58

H = 200 mm  
CONTAINER  
4-99-100-200



Elements used for the selected nail ■  
Not used elements ■

## TRAY 2



1	Tubular slide	4-50-00-48
2	Guide wire for Nail length gauge	4-50-00-59.1
3	Nail length gauge	4-50-00-59
4	Bone thickness gauge	4-50-14-02
5	Kirschner wire Ø 3 -2 pcs	4-50-00-19
6	Drill Ø 4,7	4-40-05-47
7	Drill Ø 3,7	4-50-00-30
8	Drill Ø 2,5	4-50-10-16
9	Step drill 6,5/4,8	4-50-02-07
10	Trocar	4-50-02-10
11	Drill sleeve Ø 6,5x Ø 9x205mm	4-50-02-12
12	Drill sleeve Ø 3,2x Ø 9x205mm	4-50-02-13
13	Drill sleeve Ø 9/ Ø 12x200mm	4-50-02-11
14	Drill sleeve Ø 4,7/ Ø 8x145mm	4-50-05-10
15	Drill sleeve Ø 6,5x Ø 8x155mm	4-50-05-11
16	Locking set pilot	4-50-05-06
17	Ball-tip screwdriver 10mm	4-51-01-24
18	Screwdriver s3.5 T handle	4-50-00-94
19	Screwdriver s2.5	4-50-10-17
20	Cannulated screwdriver s3,5	4-50-05-12
21	Locking screw of 4-50-05-12	4-51-01-19.2
22	Extractor	4-51-01-47

H = 200 mm  
CONTAINER  
4-99-100-200



Elements used  
for the selected nail



Not used elements



## TRAY 3



1	Distal targeting device - femoral nail *	4-50-08-00
2	Distal targeting device - tibial nail *	4-50-25-01
3	Hand targeting device	<b>4-50-00-03</b>
4	Drill sleeve Ø3,7	<b>4-50-00-38</b>
5	Drill sleeve Ø2,5	4-50-10-15
6	Protection sleeve	4-50-00-29
7	Drill sleeve Ø3,7 2 pcs.	4-50-00-371
8	Trocar	4-50-00-57
9	Control pins 2pcs.	4-50-00-22
10	Connecting screw	4-50-18-08



\* Universal distal targeting device - tibial and femoral nail - (4-50-25-01 and 4-50-08-00)

4-50-16-01.M.

H = 200 mm  
CONTAINER  
4-99-100-200



Elements used  
for the selected nail



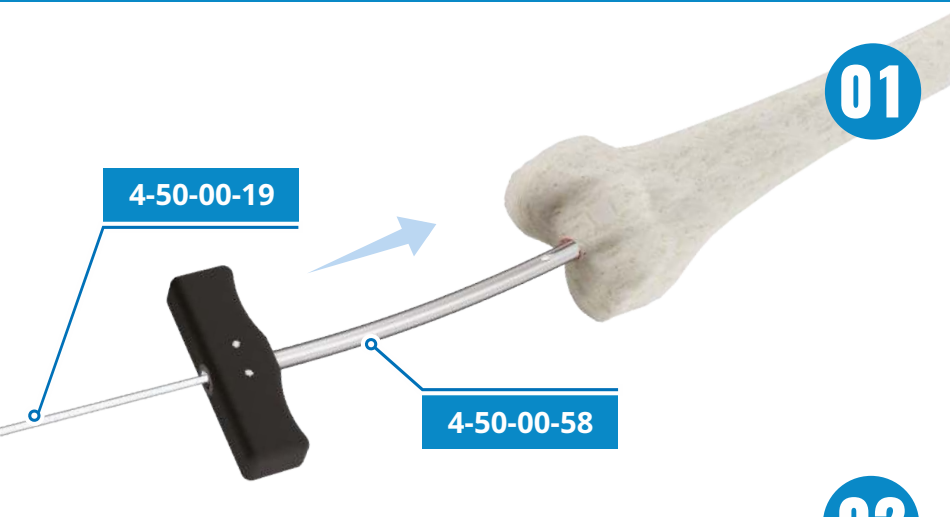
Not used elements





CONTAINED PHRASES ARE NOT DETAILED INSTRUCTION!

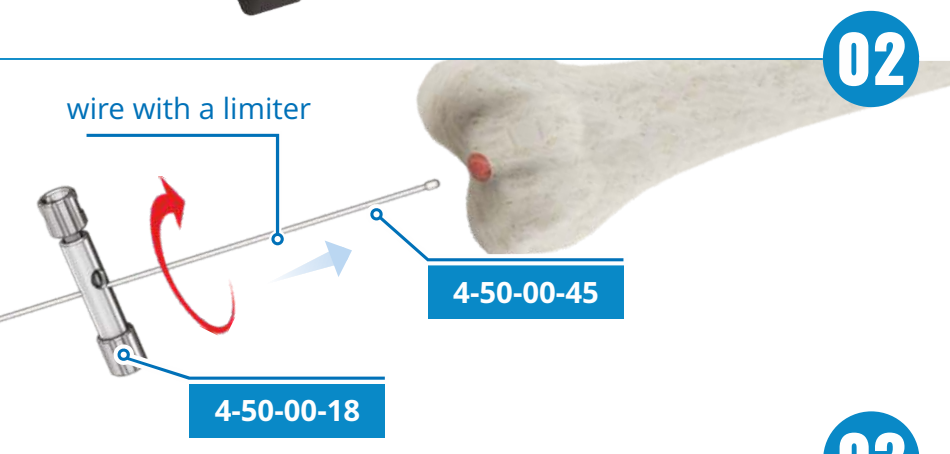
CHOOSING THE RIGHT OPERATIVE TECHNIQUE IS RESPONSIBILITY OF THE DOCTOR.



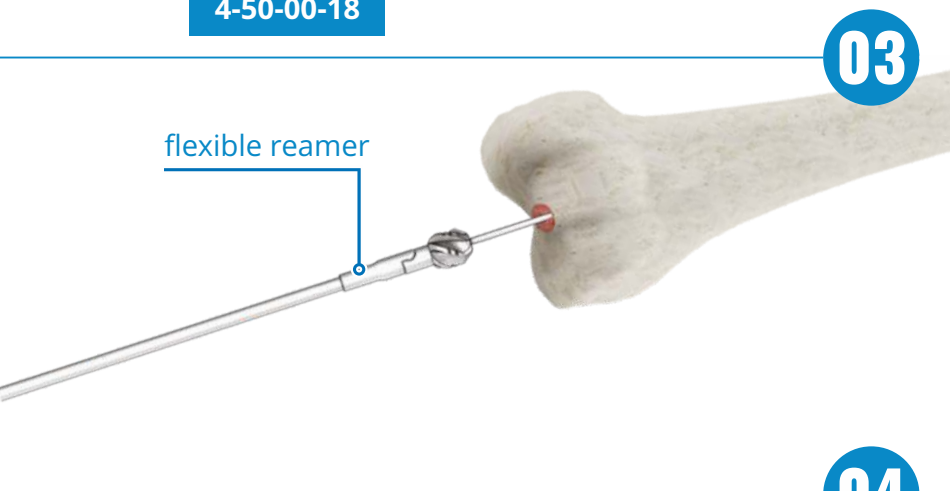
## BONE PREPARATION

Insert guide wire **4-50-00-19**.

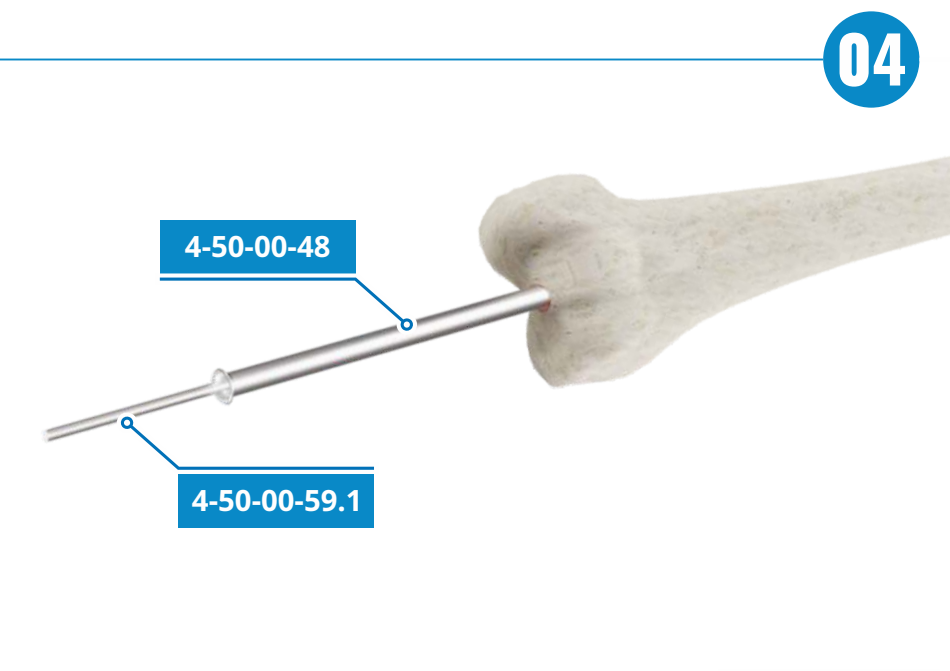
Open the intramedullary canal using cannulated awl **4-50-00-58**.



Insert guide wire with a limiter **4-50-00-45** into the intramedullary canal using handle **4-50-00-18**.

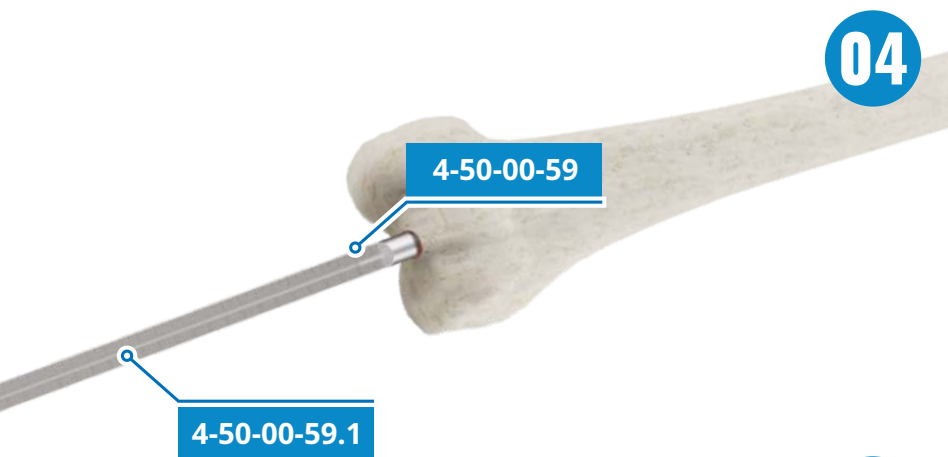


Prepare the intramedullary canal using flexible reamer (starting with the  $\varnothing$  8,0 mm reaming head, ream to a diameter of 1-2 mm greater than the nail diameter. Ream with 0,5 mm increments. Do not force the reamer ).



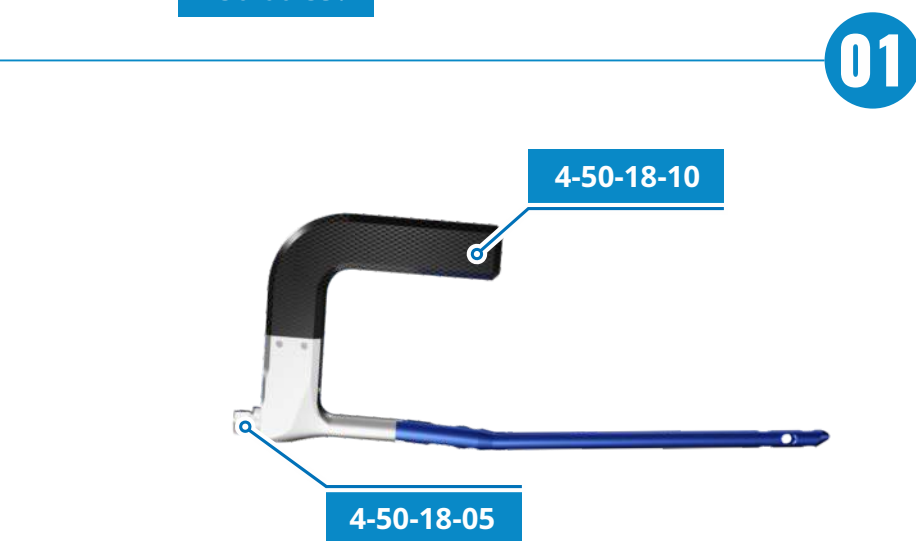
Change guide wire with a limiter **4-50-00-45** to guide wire **4-50-00-59.1** using tubular slide **4-50-00-48**.





Measure the length of the nail trough the drilled hole using gauge **4-50-00-59** and wire **4-50-00-59.1**.

Change guide wire **4-50-00-59.1** to wire **4-50-00-44** using tubular slide **4-50-00-48**.



## NAIL INSERTION

Assembly targeting device **4-50-18-10** and nail using screw **4-50-18-05** and wrench **4-51-01-24**.



Check holes using control pin **4-50-00-08**.

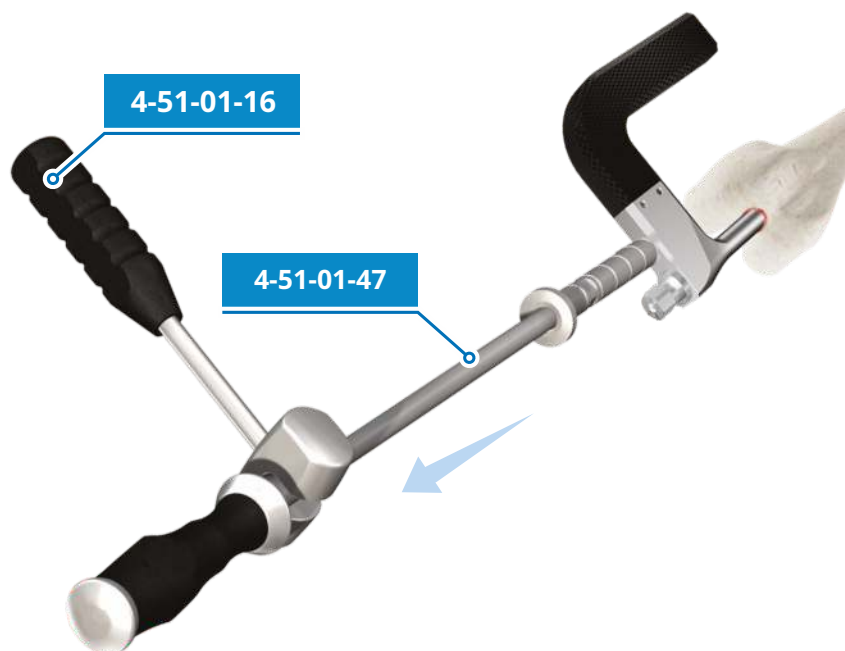
03



Use impactor **4-51-01-23** and hammer **4-51-01-16** to position the nail.

**NOTE :**  
IMPACTOR SHOULD BE  
BLOCKED USING WRENCH **4-50-00-41**  
(to prevent damage).

04



If necessary - use extractor rod **4-51-01-47** to change position of the nail in the bone.

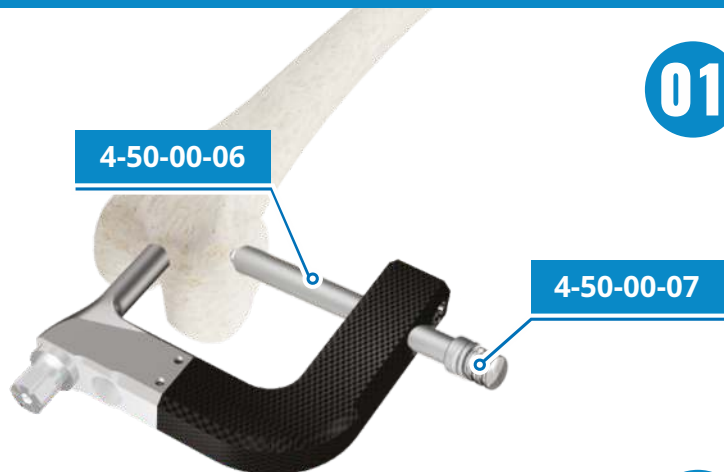
**NOTE:**  
Check the connection between nail  
and handle, especially after  
hammering.



01

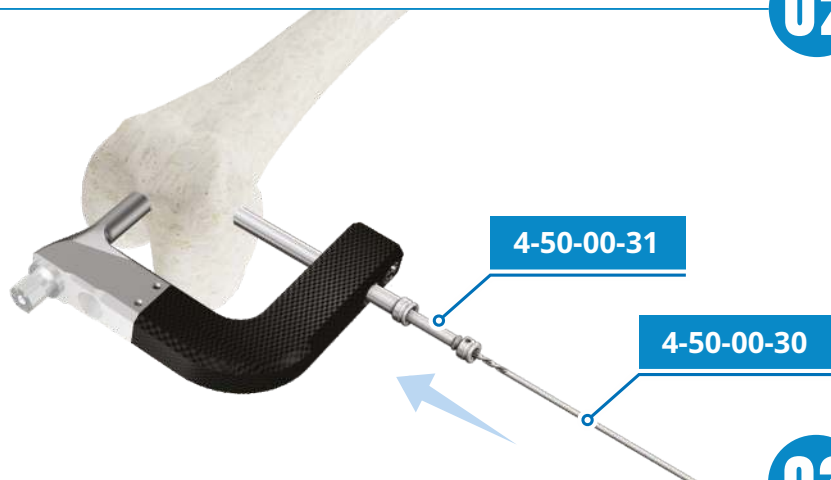
## STATIC METHOD

Prepare the cortical bone using the trocar **4-50-00-07** and sleeve **4-50-00-06**.



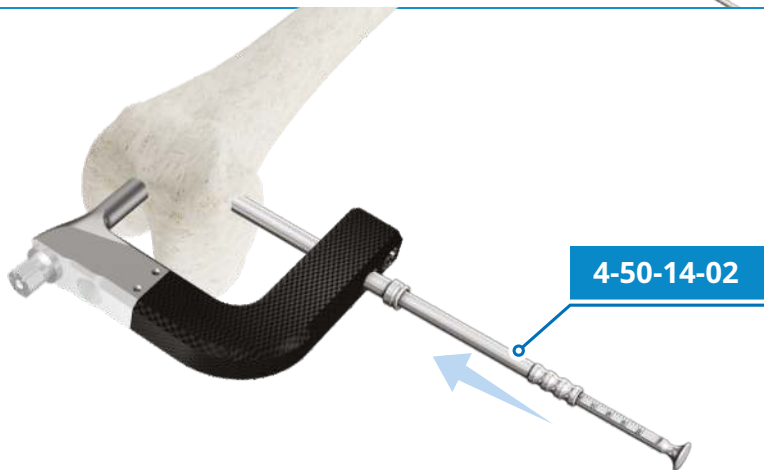
02

Drill through the compression nail hole using drill **4-50-00-30** and drill sleeve **4-50-00-31**.



03

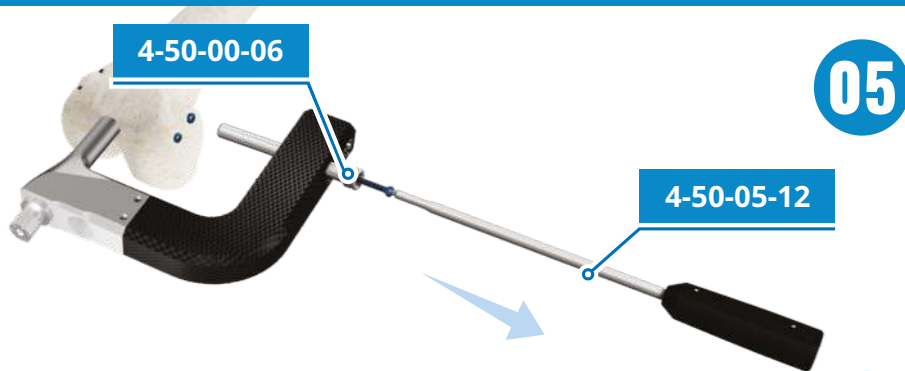
Measure the thickness of the bone through the drilled hole using **4-50-14-02** in order to determine the length of the locking screw.



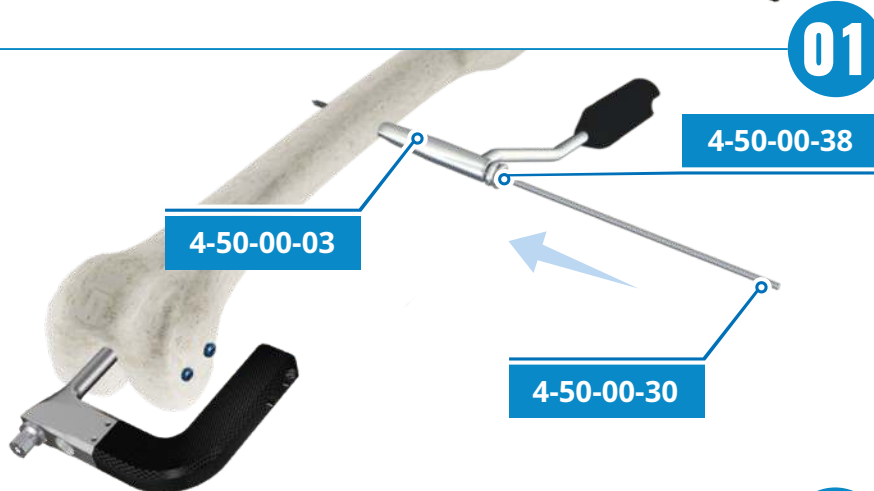
04

Insert the  $\varnothing$  4,5 mm locking screw using screwdriver **4-50-05-12**.



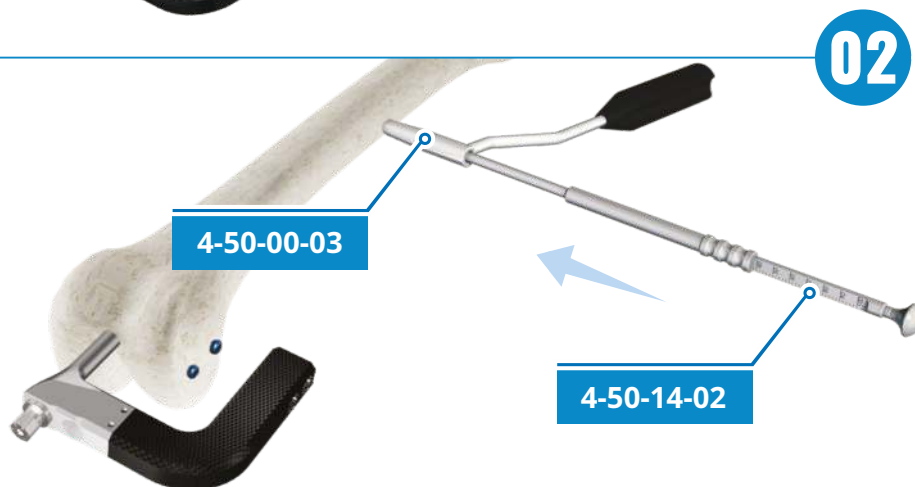


Insert the  $\varnothing 4,5$  mm locking screw into the second hole of nail **in the same way** as in the first hole.

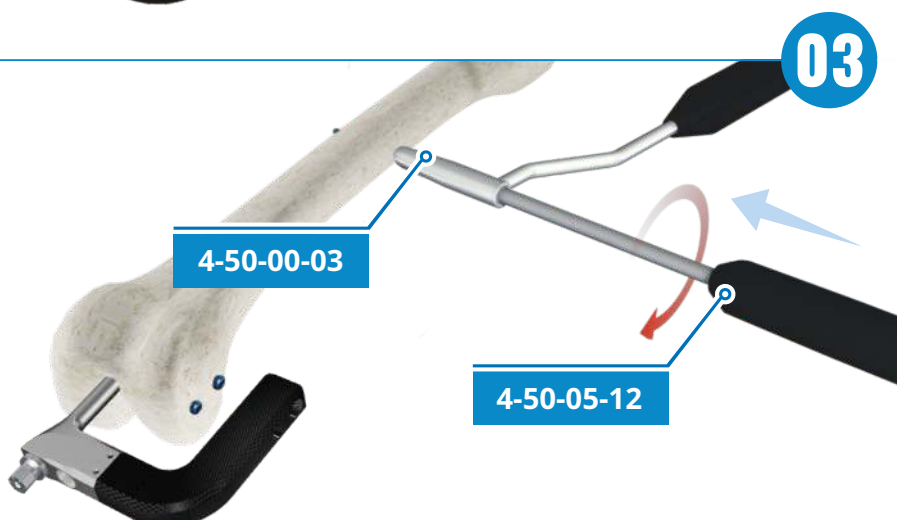


## FREEHAND LOCKING TECHNIQUE

Drill first distal nail hole using hand targeting device **4-50-00-03** sleeve **4-50-00-38** and drill **4-50-00-30**.



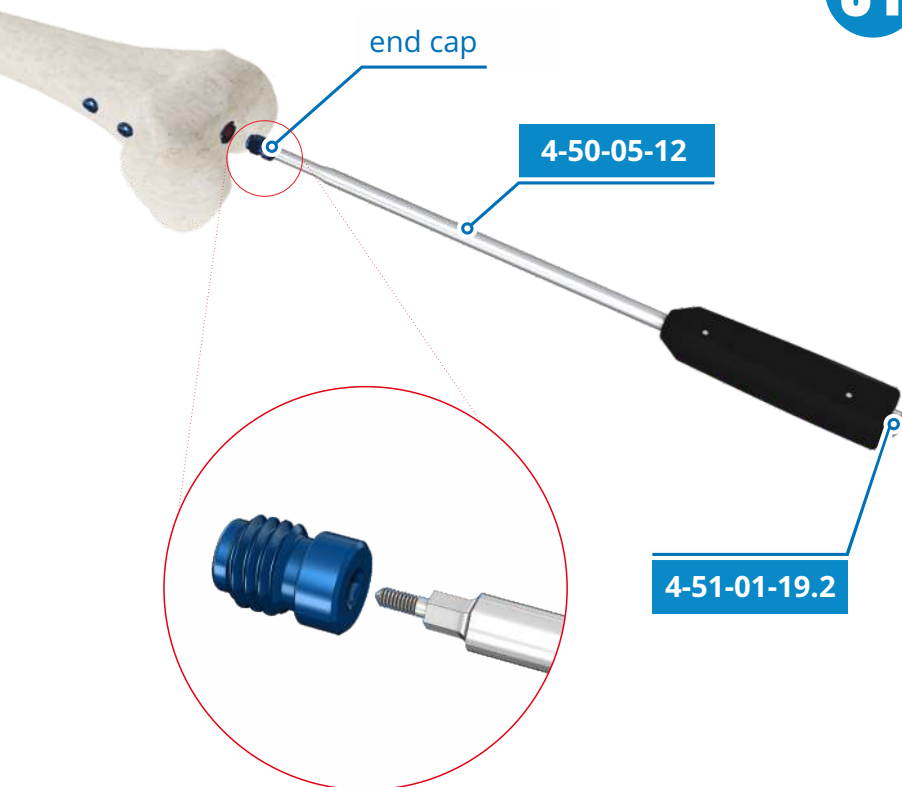
Measure the depth of drilling through the drilled hole, with bone thickness gauge **4-50-14-02** in order to determine the length of locking screw.



Insert  $\varnothing 4,5$  mm locking screw in first drilled hole using screwdriver **4-50-05-12**.

Lock other distal holes **in the same way** like the first proximal hole.

## 01



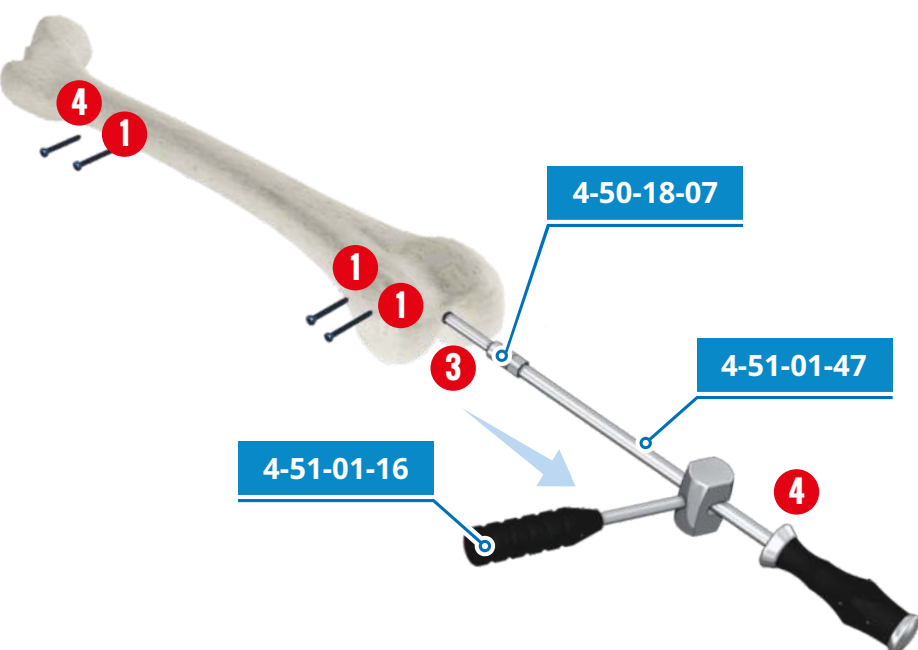
### END CAP INSERTION

Insert locking screw **4-51-01-19.2** into screwdriver **4-50-05-12**.

Lock end cap on screwdriver **4-50-05-12** using locking screw **4-51-01-19.2**.

Insert end cap into the nail.  
Unscrew the end cap from the screwdriver.

## 01



### EXTRACTION OF THE NAIL

Clear sockets of end cap and locking screws from any tissue ingrowth.

**1.** Remove all locking screws except one of the distal locking screw.

**2.** Remove end cap.

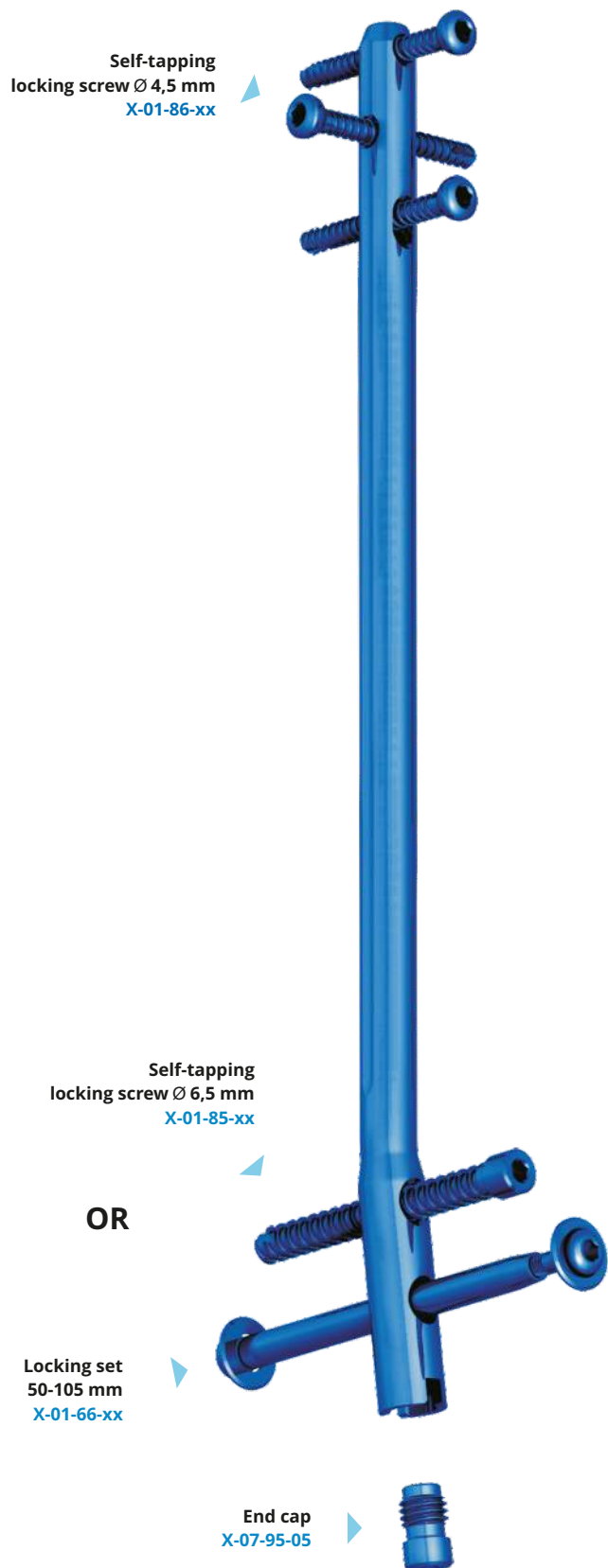
**3.** Insert extractor reducer **4-50-18-07** into extractor **4-51-01-47**.

Install the set in the nail and remove distal locking screw **(4)**.

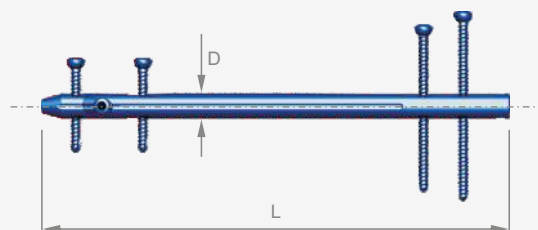
Remove the nail using hammer **4-51-01-16**.

## RETROGRADE FEMORAL NAIL

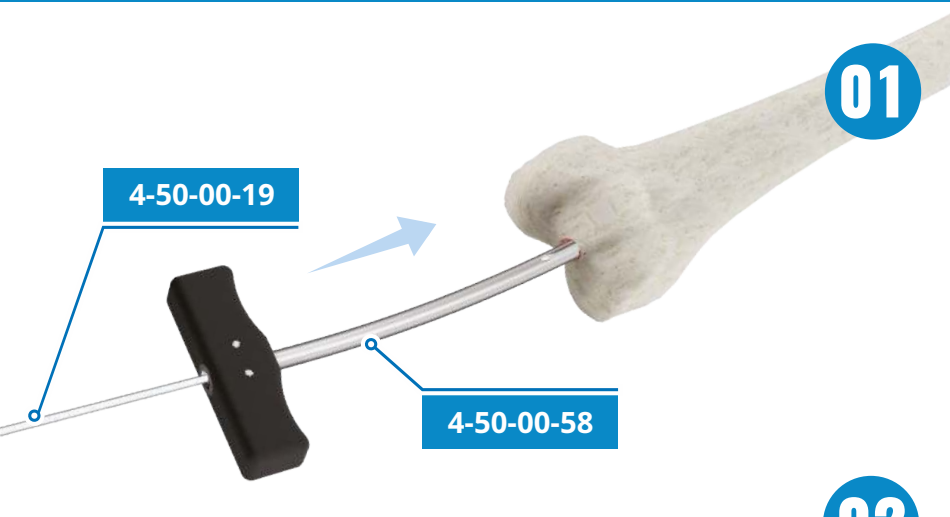
with the proximal holes for the Ø 6,5 or for the locking sets.



RANGE (mm)	REF
50-60	X-01-66-50
60-75	X-01-66-60
70-85	X-01-66-70
80-95	X-01-66-80
90-105	X-01-66-90



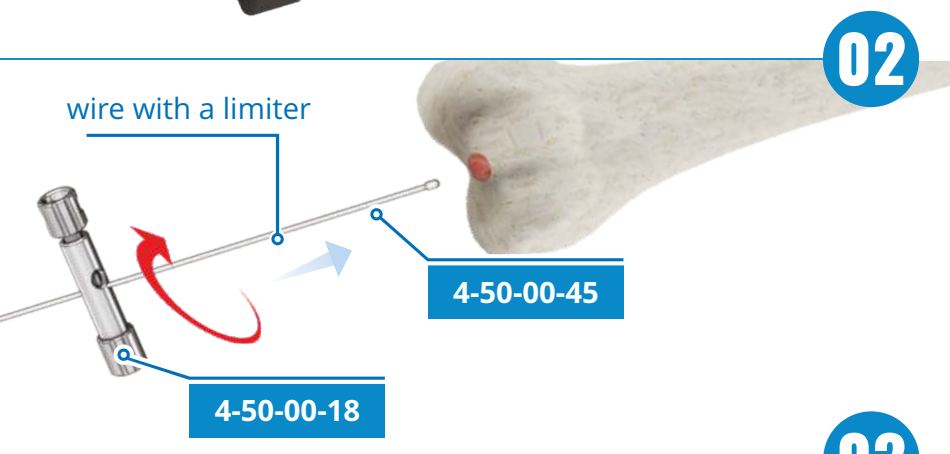
L mm	D=8mm	D=9mm	D=10mm	D=11mm	D=12mm	D=13mm
140	X-07-100-140	X-07-101-140	X-07-102-140	X-07-103-140	X-07-104-140	X-07-105-140
150	X-07-100-150	X-07-101-150	X-07-102-150	X-07-103-150	X-07-104-150	X-07-105-150
160	X-07-100-160	X-07-101-160	X-07-102-160	X-07-103-160	X-07-104-160	X-07-105-160
170	X-07-100-170	X-07-101-170	X-07-102-170	X-07-103-170	X-07-104-170	X-07-105-170
180	X-07-100-180	X-07-101-180	X-07-102-180	X-07-103-180	X-07-104-180	X-07-105-180
190	X-07-100-190	X-07-101-190	X-07-102-190	X-07-103-190	X-07-104-190	X-07-105-190
200	X-07-100-200	X-07-101-200	X-07-102-200	X-07-103-200	X-07-104-200	X-07-105-200
210	X-07-100-210	X-07-101-210	X-07-102-210	X-07-103-210	X-07-104-210	X-07-105-210
220	X-07-100-220	X-07-101-220	X-07-102-220	X-07-103-220	X-07-104-220	X-07-105-220
230	X-07-100-230	X-07-101-230	X-07-102-230	X-07-103-230	X-07-104-230	X-07-105-230
240	X-07-100-240	X-07-101-240	X-07-102-240	X-07-103-240	X-07-104-240	X-07-105-240
250	X-07-100-250	X-07-101-250	X-07-102-250	X-07-103-250	X-07-104-250	X-07-105-250
260	X-07-100-260	X-07-101-260	X-07-102-260	X-07-103-260	X-07-104-260	X-07-105-260
270	X-07-100-270	X-07-101-270	X-07-102-270	X-07-103-270	X-07-104-270	X-07-105-270
280	X-07-100-280	X-07-101-280	X-07-102-280	X-07-103-280	X-07-104-280	X-07-105-280
290	X-07-100-290	X-07-101-290	X-07-102-290	X-07-103-290	X-07-104-290	X-07-105-290
300	X-07-100-300	X-07-101-300	X-07-102-300	X-07-103-300	X-07-104-300	X-07-105-300
310	X-07-100-310	X-07-101-310	X-07-102-310	X-07-103-310	X-07-104-310	X-07-105-310
320	X-07-100-320	X-07-101-320	X-07-102-320	X-07-103-320	X-07-104-320	X-07-105-320
330	X-07-100-330	X-07-101-330	X-07-102-330	X-07-103-330	X-07-104-330	X-07-105-330
340	X-07-100-340	X-07-101-340	X-07-102-340	X-07-103-340	X-07-104-340	X-07-105-340
350	X-07-100-350	X-07-101-350	X-07-102-350	X-07-103-350	X-07-104-350	X-07-105-350
360	X-07-100-360	X-07-101-360	X-07-102-360	X-07-103-360	X-07-104-360	X-07-105-360
370	X-07-100-370	X-07-101-370	X-07-102-370	X-07-103-370	X-07-104-370	X-07-105-370
380	X-07-100-380	X-07-101-380	X-07-102-380	X-07-103-380	X-07-104-380	X-07-105-380
390	X-07-100-390	X-07-101-390	X-07-102-390	X-07-103-390	X-07-104-390	X-07-105-390
400	X-07-100-400	X-07-101-400	X-07-102-400	X-07-103-400	X-07-104-400	X-07-105-400
410	X-07-100-410	X-07-101-410	X-07-102-410	X-07-103-410	X-07-104-410	X-07-105-410
420	X-07-100-420	X-07-101-420	X-07-102-420	X-07-103-420	X-07-104-420	X-07-105-420
430	X-07-100-430	X-07-101-430	X-07-102-430	X-07-103-430	X-07-104-430	X-07-105-430
440	X-07-100-440	X-07-101-440	X-07-102-440	X-07-103-440	X-07-104-440	X-07-105-440



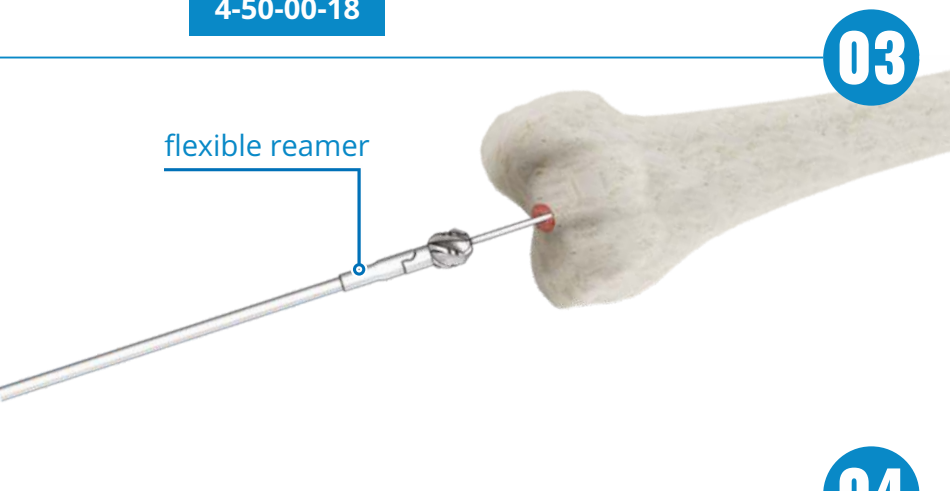
## BONE PREPARATION

Insert guide wire **4-50-00-19**.

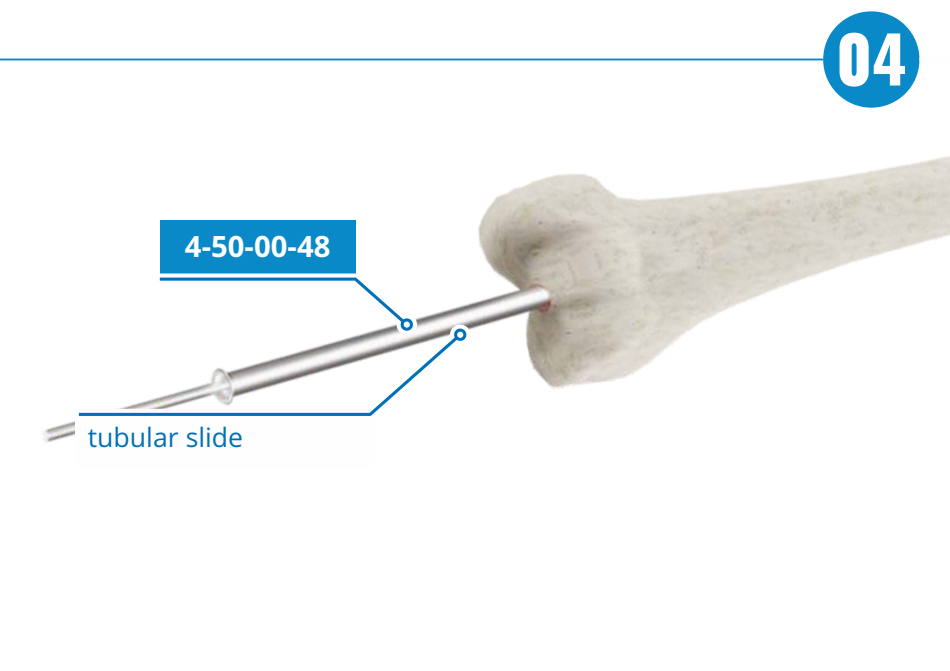
Open the intramedullary canal using cannulated awl **4-50-00-58**.



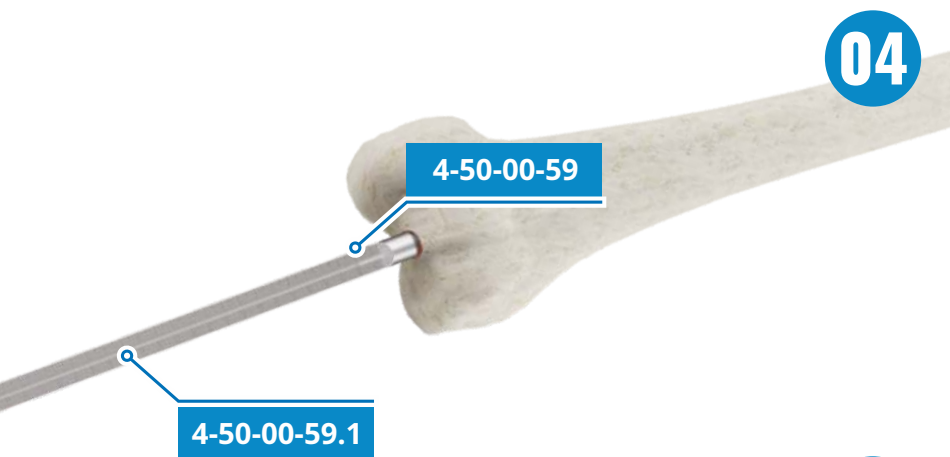
Insert guide wire with a limiter **4-50-00-45** into the intramedullary canal using handle **4-50-00-18**.



Prepare the intramedullary canal using flexible reamer (starting with the Ø 8,0 mm reaming head, ream to a diameter of 1-2 mm greater than the nail diameter. Ream with 0,5 mm increments. Do not force the reamer ).

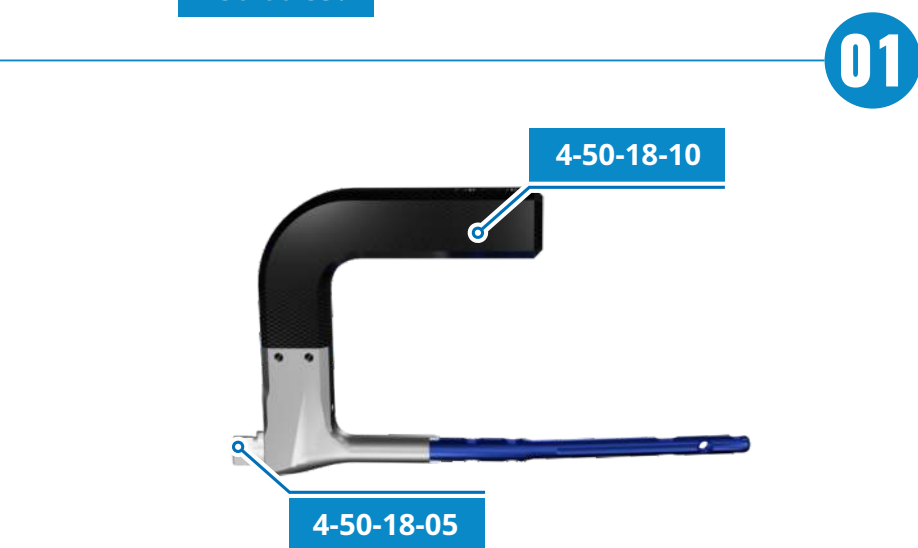


Change guide wire with a limiter **4-50-00-45** to guide wire **4-50-00-59.1** using tubular slide **4-50-00-48**.



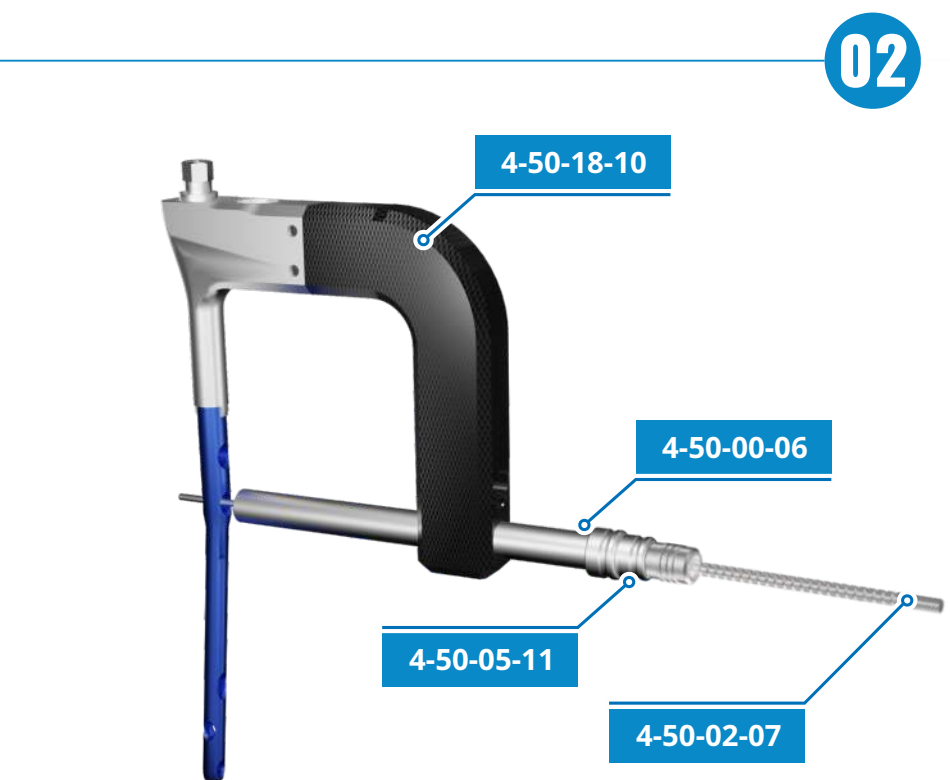
Measure the length of the nail trough the drilled hole using gauge **4-50-00-59** and wire **4-50-00-59.1**.

Change guide wire **4-50-00-59.1** to wire **4-50-00-44** using tubular slide **4-50-00-48**.



## NAIL INSERTION

Assembly targeting device **4-50-18-10** and nail using screw **4-50-18-05** and wrench **4-51-01-24**.



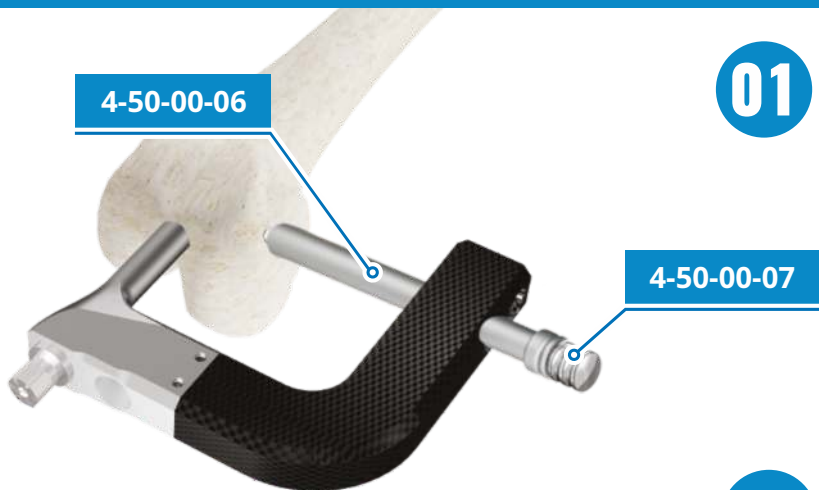
Check holes using sleeve **4-50-00-06**, **4-50-05-11** and drill **4-50-02-07**.



01

## STATIC METHOD

Prepare the cortical bone using the trocar **4-50-00-07** and sleeve **4-50-00-06**.



02

Drill through the first nail hole using step drill **4-50-02-07**, sleeve **4-50-00-06** and drill sleeve **4-50-05-11**.



03

Insert the pilot of the locking set **4-50-05-06** through drill sleeve **4-50-05-11**.





04

Remove ending of the locking set pilot.



05

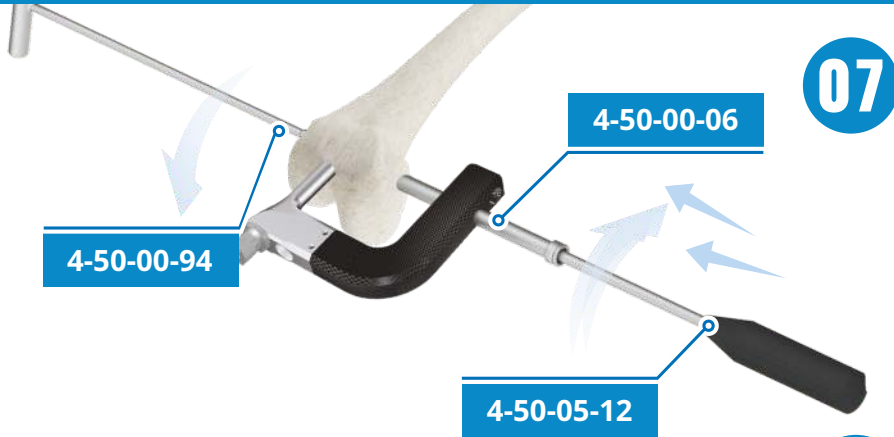
Fix the pivot **X-01-66-XX** on the pilot **4-50-05-06**.

Implicate the pivot into the drilled hole.



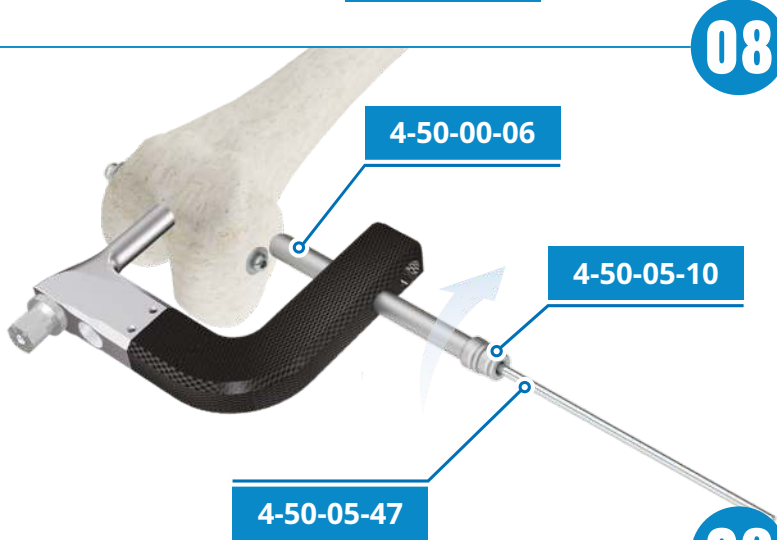
06

Remove the pilot from the locking set pivot. To fix rotation movement of the pilot, use the T-handle screwdriver **4-50-00-94**.



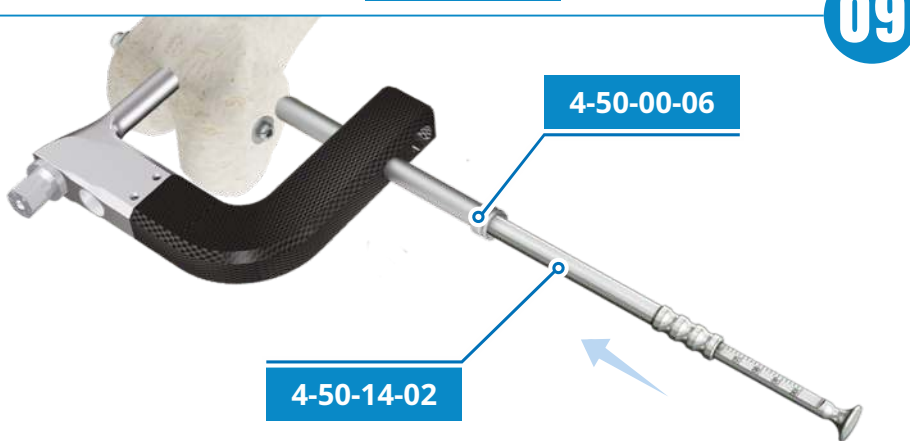
07

Insert screw of the locking set into the pivot using the s 3,5 screwdriver **4-50-05-12** and T- handle screwdriver **4-50-00-94**.



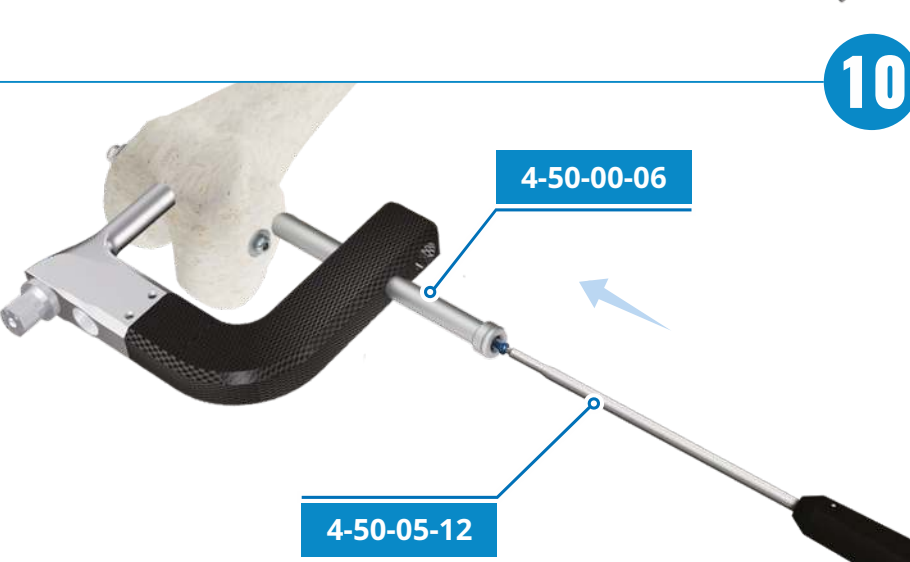
08

Drill through the second nail hole using the Ø 4,7 drill **4-50-05-47**.



09

Measure the thickness of the bone through the drilled hole, in order to determine the length of the locking screw using **4-50-14-02**.



10

Insert the Ø 6,5 molar locking screw using screwdriver **4-50-05-12**.

## FREEHAND LOCKING TECHNIQUE

Drill first distal nail hole using hand targeting device **4-50-00-03** sleeve **4-50-00-38** and drill **4-50-00-30**.

Measure the depth of drilling through the drilled hole, with bone thickness gauge **4-50-14-02** in order to determine the length of locking screw.

Insert  $\varnothing$  4,5 mm locking screw in first drilled hole using screwdriver **4-50-05-12**.

## EXTRACTION OF THE NAIL

Remove end cup.

Insert extractor reducer **4-50-18-07** into extractor **4-51-01-47**.

Install the set in the nail and remove distal locking screw.

Remove the nail using hammer **4-51-01-16**

