Aesculap® Targon® F/T

Interlocking Nail System for Femur and Tibia

Aesculap Orthopaedics

B BRAUN
SHARING EXPERTISE

Aesculap® Targon® F/T

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The Targon® interlocking nail system is the result of years of clinical experience in the application of interlocking nails combined with the high technical competence of Aesculap. The implants are anatomically adapted and easy to implant thanks to simple and logical instrumentation. Quality and modern manufacturing processes enable load-bearing capacity in all relevant dimensions. The drilled implantation technique is supplemented by the drill-free technique for situations with a high degree of soft-parts damage, high blood loss (polytrauma) or severe thoracic trauma.

For the slender nails to withstand alternating flexion loads, the nails and locking screws are made of high-strength titanium alloys – and can still be applied with the same instrument set.

To reduce stock-keeping requirements, for each of the two bones – femur and tibia – implants have been developed that can be used in either the left or the right leg. As a result, the Targon® interlocking nail system combines enhanced anatomic adaptation, easy handling, biomechanical strength and "last not least" economy.

February, 2011

...for

strong

connections

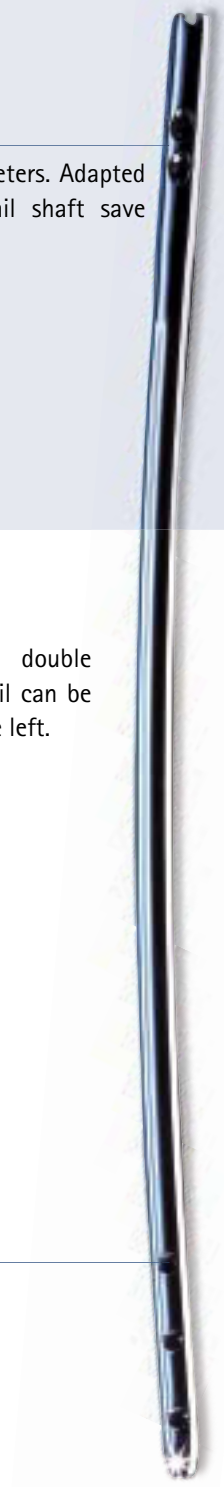
Aesculap® Targon® F/T

Universal Interlocking Nail

Femur

Nail diameter

Only 2 adapters for all nail diameters. Adapted diameters of nail head and nail shaft save subsequent proximal re-drilling.



Wall thickness and profile

The wall thicknesses and profiles permit high strengths and sufficient flexibility with all nail diameters.

Reduced stock-holding through double oblique holes, i.e. the femoral nail can be used both on the right and on the left.

Fixation hole positioning

The position of the lower fixation holes allows effective utilization of the procedure distally. No harm to the extensor tendons and to the anterior vessels through sagittal drilling.

Proximal interlocking

The position of the 3 transverse holes permits good utilization of the procedure proximally. No danger to popliteal vessels through sagittal holes. No danger to harm the tibiofibular joint through diagonal holes.

Tibia

Proximal nail design

No irritation of the patella ligament through bevelled proximal nail design.

Nail curvature

The three anatomical curves at 14°, 6° and 3° enable easy insertion into the medullary canal.

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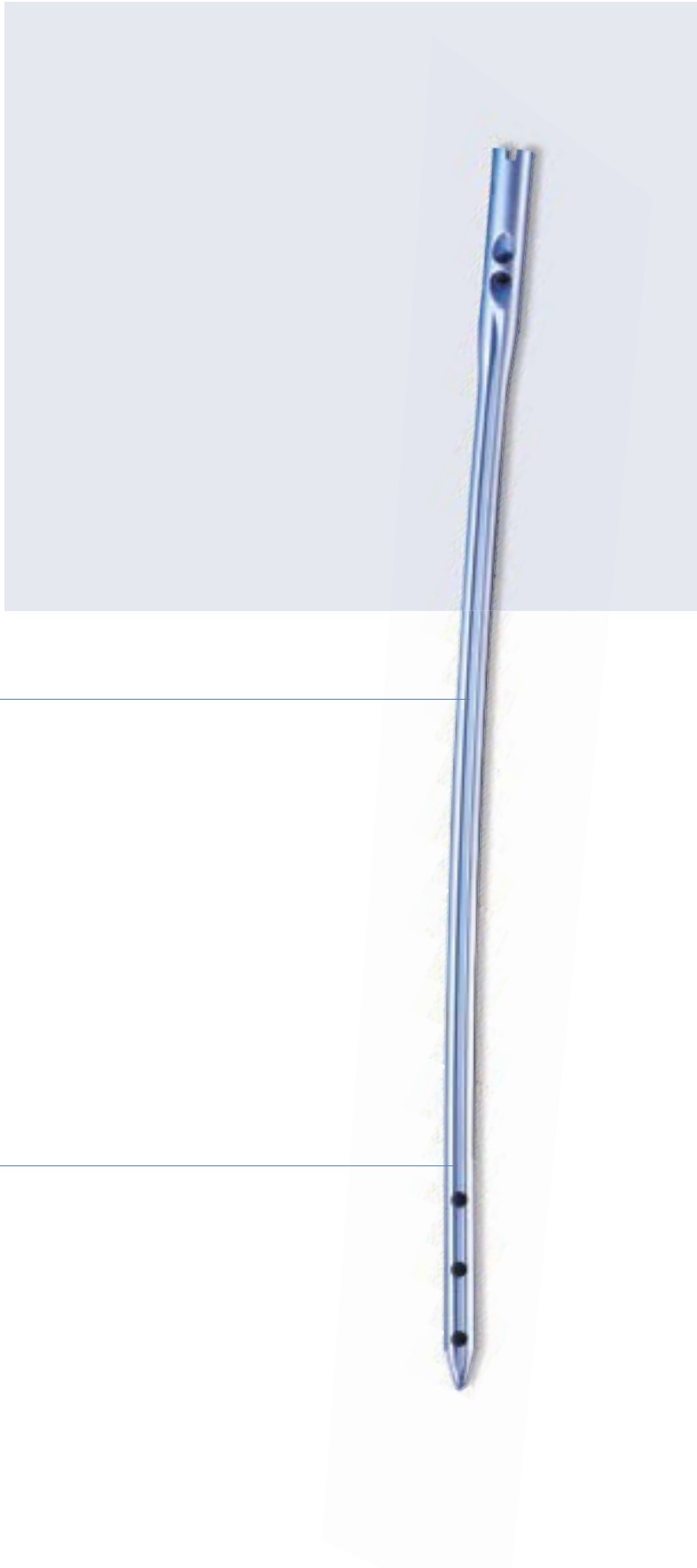
Solid Titanium Interlocking Nail

Femur

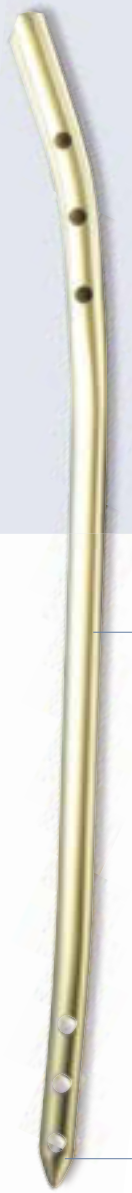


Grooves

Grooves along the nail (drainage effect) reduce the intramedullary pressure during implantation. Better endosteal revascularization.

Solid nail

Solid nail made of titanium alloy (Ti6Al4V) reduces the risk of infection with open fractures.



Tibia

Nail insertion

Good cancellous penetration with pointed nail end (ice breaker effect). Effective dynamization almost always possible.

Nail profile

Polygonal profile of the tibia nail enables high strength with small diameter.

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Closure and Fixation Screw

Targon® Closure Screw

Prevents bony ingrowth

Targon® Fixation Screw

Continuous flat thread facilitates removal of the screw. Nail wedges in flat thread. No lateral migration. Deeper self-tapping thread for opposite cortical layer. Only one drilling process required.

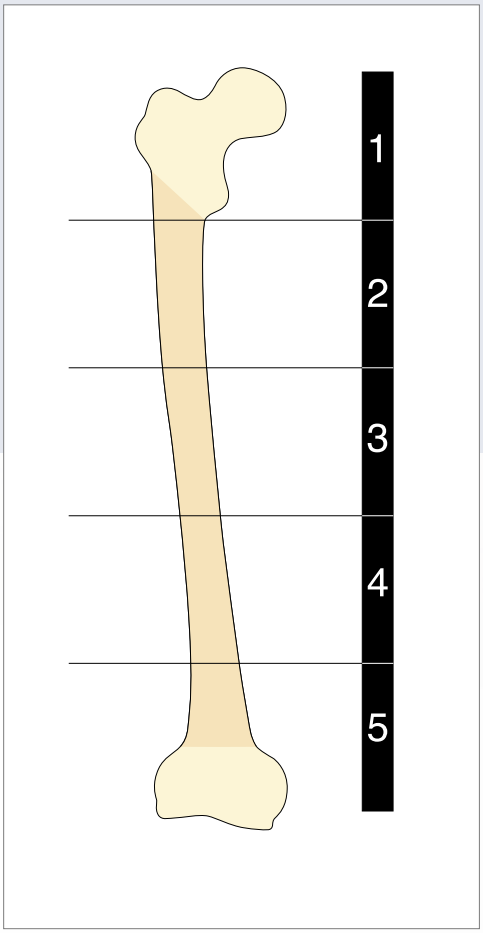
Aesculap® Targon® F/T

Universal

Femur

Reaming of the medullary cavity should be performed with an appropriate reaming system (deep notches in the reaming head) able to reduce the intramedullary pressure. It should be stopped as soon as the reamer gets in contact with the cortex. Enhanced stability of fixation is obtained thanks to the good adaptation of the nail to the anatomy of the femur and to enhanced fitting of the locking screws in the distal holes.

The universal interlocking nail for the femur covers all indications for reamed nailing in the shaft region. The oblique direction of the proximal interlocking hole and the availability of three holes far distally allow use of this standard method for fixation in the femur, even in borderline indications.

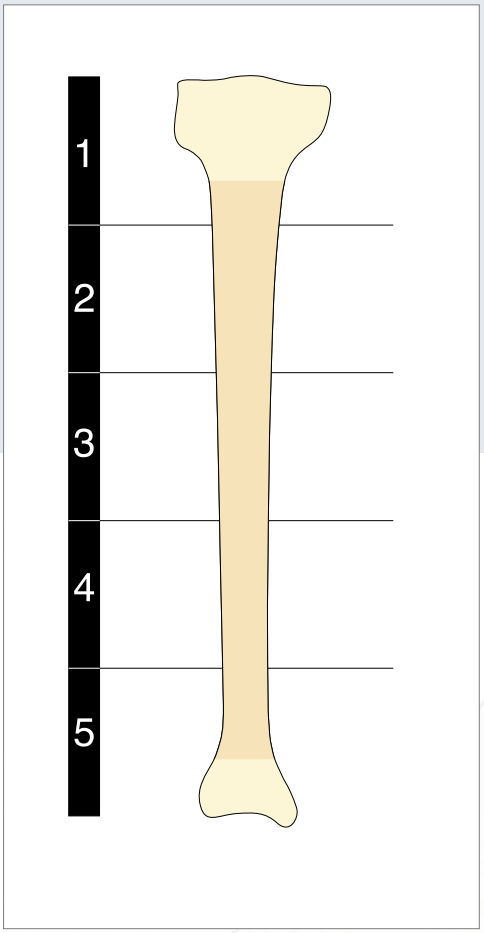


Classification of fracture localisation according to one fifth method. Targon® range of indications shown in dark beige.

Tibia

Reaming of the medullary cavity damages the blood flow through the inner cortex. Within a short time this damage is compensated by an increased blood supply from the periosteal vessels. Reaming should not make the cortex any thinner but only allow contact between nail and cortex. The product of reaming, containing living bone cells, accumulates in the fracture haematoma and thus promotes the formation of callus.

The universal interlocking nail for the tibia covers all indications for reamed nailing in the shaft region, except for fractures with severe soft tissue damage. The anatomical shape makes the insertion of the nail easy. The arrangement of the interlocking holes both proximally and distally allows use of this standard method for fixation of the tibia, even for borderline indications.

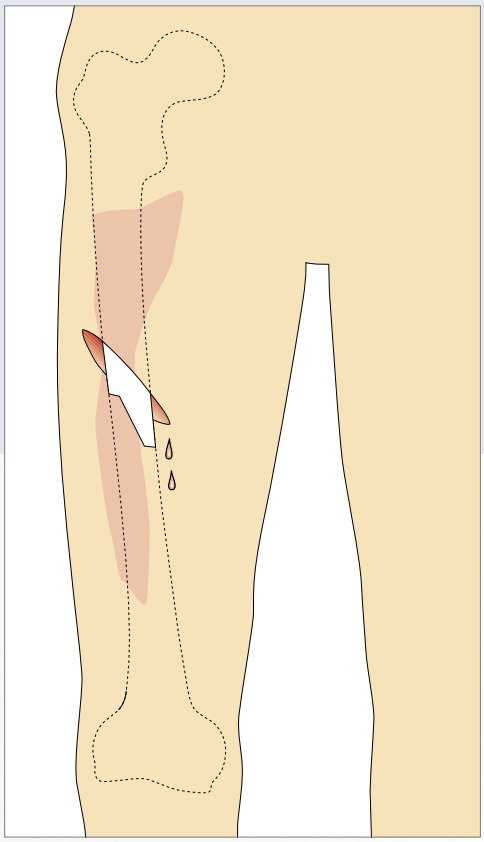


Classification of fracture localisation according to one fifth method. Targon® range of indications shown in dark beige.

Aesculap® Targon® F/T

Solid Titanium

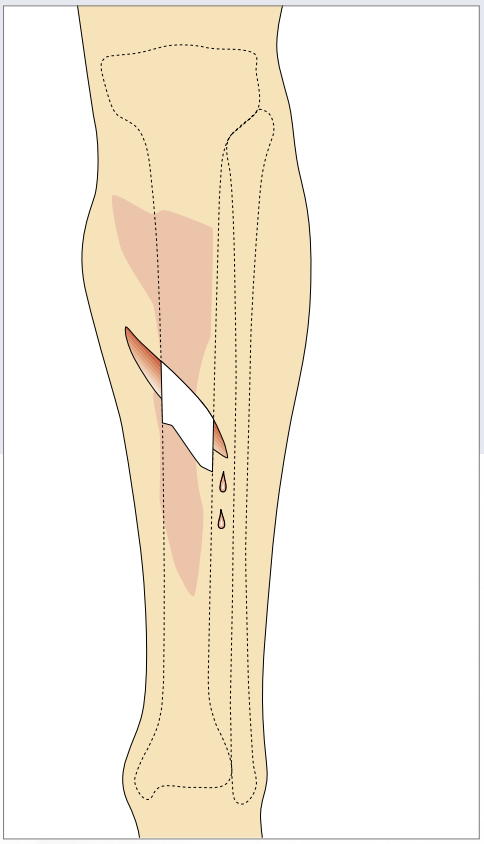
Femur



When the femoral medullary cavity is reamed, bone fat is mobilized and enters the venous blood stream. In most cases this process is neutralized by physiological mechanismus but, after extensive blood loss (polytrauma) and in case of severe chest trauma, such mechanisms may be insufficient and ARDS can occur. The use of an unreamed femoral interlocking nail, with its thinner diameter and less forceful introduction, the raise of the intramedullary pressure and hence the negative pulmonary consequences. As the endosteal vessels are mainly preserved, the unreamed femoral nail is also indicated for fracture stabilization in case of severe soft tissue damage.

The thin solid femoral nail, made of a robust titanium alloy, is mainly recommended for the primary treatment of femoral shaft fractures both in case of polytrauma and severe soft tissue damage. The three gooves along the nail set drainage and thus keep the intramedullary pressure low. In addition, they make the regeneration of the intramedullary vessels possible.

Tibia



Similar to the femur the insertion of a thin nail into the tibia minimizes the destruction of the endosteal blood supply. This aspect is important in case of grade II and III open fractures or in case of grade III closed fractures. In addition, stably fixed fragments which are kept "alive" offer the enhanced protection against multiplying of bacterias in the contaminated area of open fractures. A meticulous soft tissue debridement must precede fracture stabilization.

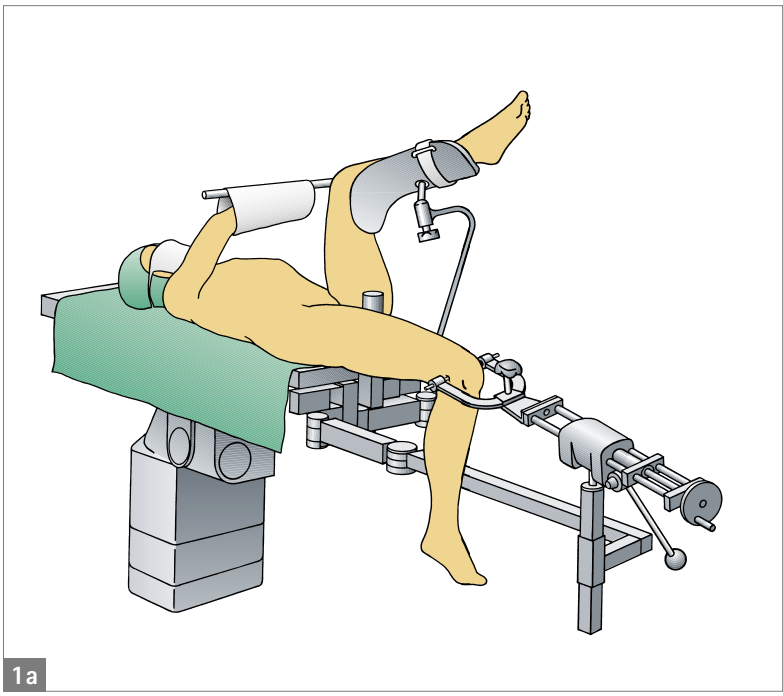
The titanium nail for the tibia covers all indications for unreamed interlocking nailing in the shaft region. The anatomical shape makes insertion of the nail easy. Three interlocking holes both proximally and distally allow appropriate use of this implant. The high capability of the titanium alloy to withstand alternate loads reduces the risk of metal fatigue.

Aesculap® Targon® F/T

OP-Manual Femur

Operation Technique for Targon®
"Femur" Interlocking Nails

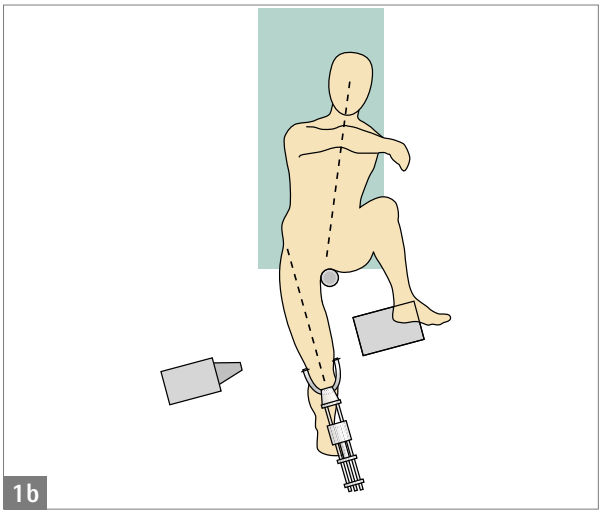
1



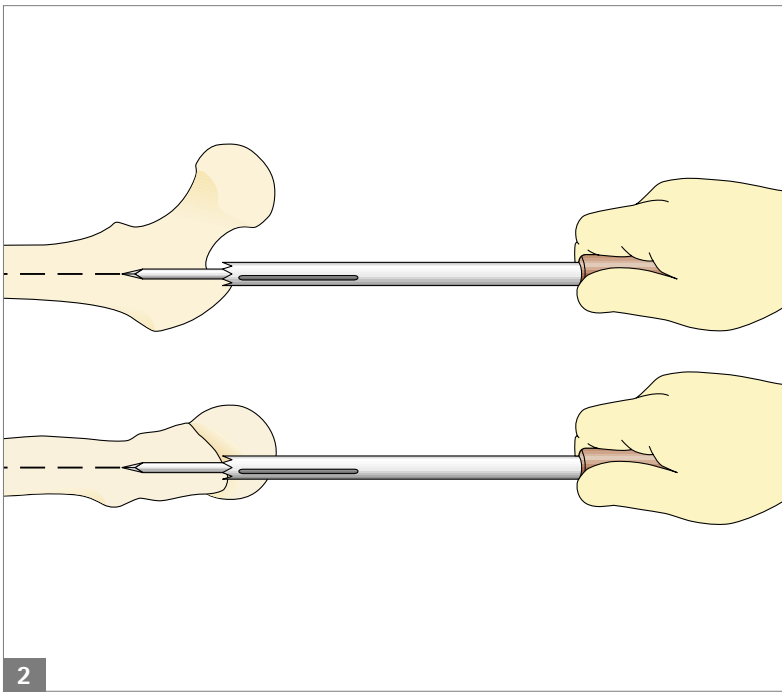
1a

Patient Positioning

The patient is placed on the traction table in a supine position. (Fig. 1) Traction is exerted on the leg through a supra- or transcondylar Steinmann pin extension applied in the OR under sterile conditions. The leg should be extended in abduction or neutral position. By means of a traction device or a thorax brace, the upper part of the body is shifted to the opposite, healthy side. This positioning permits reliable reduction and fixation. The inclination of the upper body towards the opposite side permits easy access to the trochanter major. (Fig. 1b)
In certain cases extension can be achieved with the help of a leather shoe (abduction and inclination!)
It is also possible to perform interlocking nailing without a traction table, if the patient is in a lateral position. This position is recommended in case of open fractures and polytrauma (on a normal operation table), i. e. in cases where an unreamed nail is indicated.



1b



2

Access

The area of the trochanter tip is approached by a 5 cm long skin incision proximally of the trochanter major. The fascia lata and the attachment of the M. gluteus medius are split parallelly to the fibres. Controlled by X-ray, the guide for the reamer is inserted at the medial incline of the trochanter major, in direction of the center of the medullary canal up to the guide plate sitting on the trochanter tip. (Fig. 2) In the axial beam path of the image intensifier the point of entry should be at the transition from the middle to the dorsal third of the trochanter. In the anteroposterior beam path it should be at the mediocranial border of the trochanter tip, so that the guide plate is placed on the trochanter with its half surface lying free. The reamer is now moved over the guide to open the medullary canal. The diameter of the hole of entry corresponds to the proximal outer diameter of the solid titanium nail.

Reaming

After reduction, the guide wire for the intramedullary reamer is inserted into the medullary canal. The guide wire is guided past the fracture zone and the thick end is driven centrally between the femoral condyles into the compacted spongiosa above the intercondylar notch. Using the flexible intramedullary reamer, the intramedullary canal is drilled open in steps of 0.5 mm (which is different from the conventional Küntscher nailing) up to the corticalis of the medullary isthmus. With interlocking nailing it is not necessary to guide the nail all along the corticalis of the diaphysis. The required nail diameter equals the diameter of the last reamer used minus 1 mm. With distal fractures, a disproportion can result between the curvature of the nail and the antecurvature of the proximal fragment of the femoral shaft, which causes torsion of the slotted nail. In such situations, one should choose a nail diameter that is 1.5 to 2 mm smaller than the diameter of the last reamer used. Upon completion of the reaming procedure, the teflon tube is applied to replace the guide wire with the spike for the nail. The teflon tube is removed. The exact central positioning of the spike for the nail is checked distally using the image intensifier. The nail length equals to the difference between the total length of the spike (90 cm) and the length of the part which is overlapping of the bone. In case of comminuted fractures, the correct nail length is determined preoperatively on the healthy femur with the help of the image intensifier and a X-ray scale.

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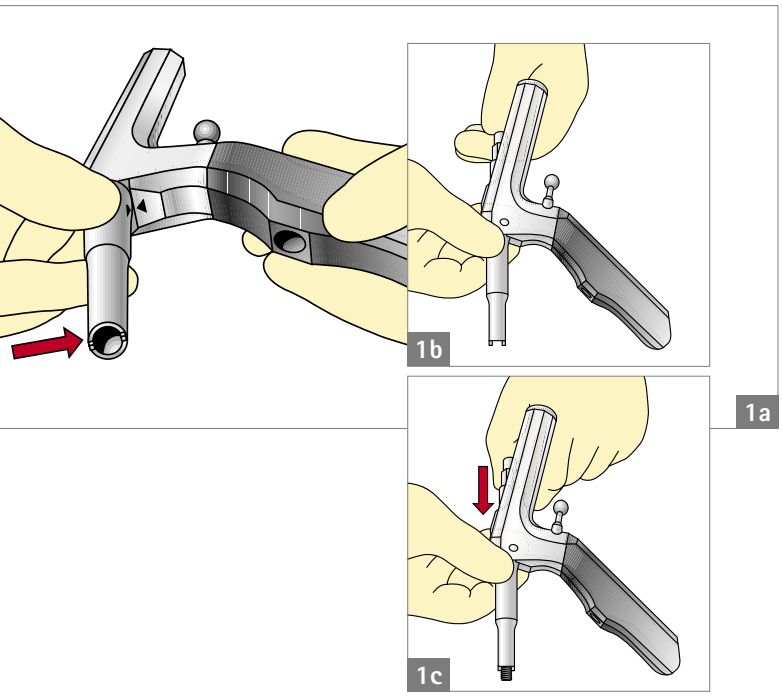
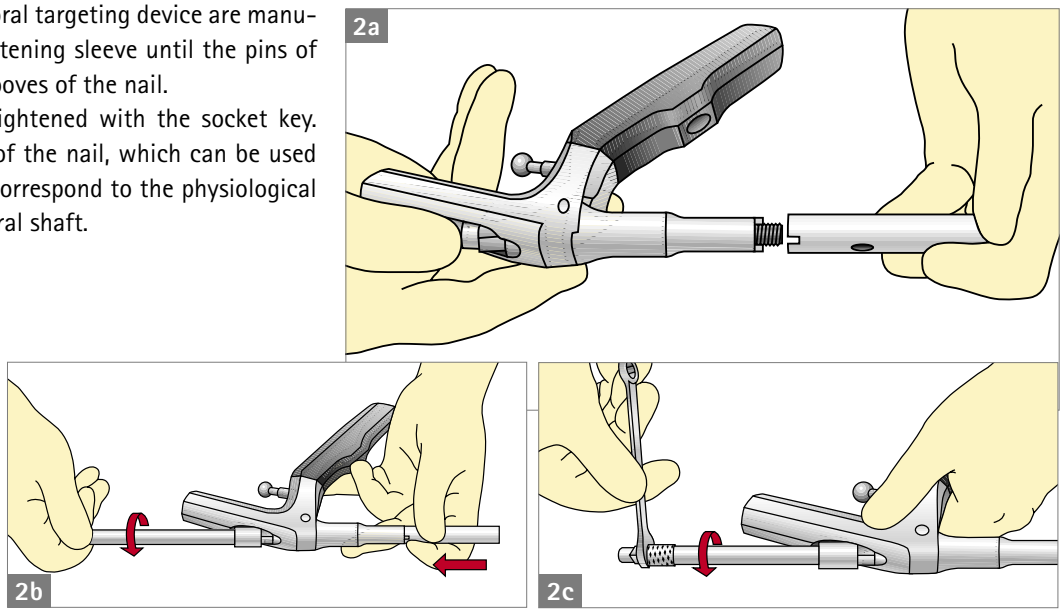
OP-Manual Femur

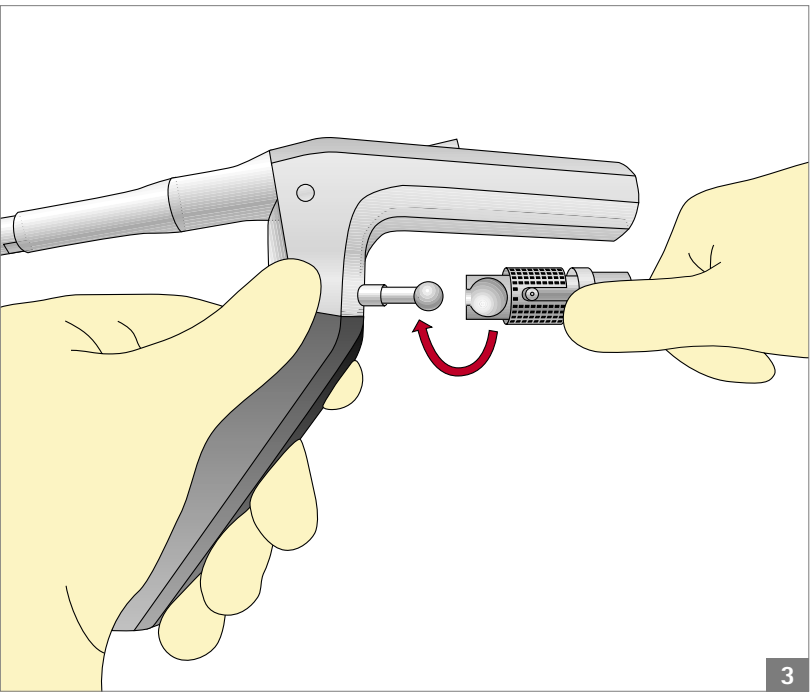


Assembling the targeting and insertion instrument

A nail of the suitable length and diameter is mounted on the combined proximal targeting and insertion instrument. First the appropriate adapter for the nail is selected (A for nail diameters 8 – 11 mm; B for nail diameters 12 – 15 mm).
The adapter is inserted into the targeting instrument so that the arrow on the adapter points to the arrow on the targeting instrument.
Next, the appropriate adapter screw is pushed through the targeting instrument and adapter, thus coupling the system (Fig. 1a-c).

Now, the nail and the femoral targeting device are manually connected with a tightening sleeve until the pins of the adapter fit into the grooves of the nail.
The tightening sleeve is tightened with the socket key. Important: The curvature of the nail, which can be used both right and left, must correspond to the physiological antecurvature of the femoral shaft.





3

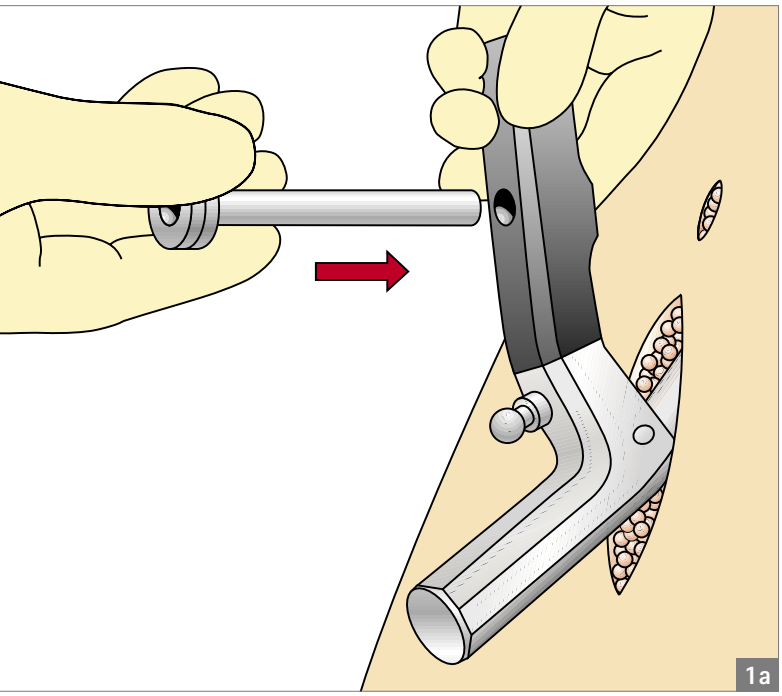
Inserting the nail

The nail is smoothly inserted with the hammer (in case of a reamed hollow nail over the spike).

Important:

The hammer must always hit the inserter boss. It must never hit the targeting instrument because this would cause the targeting instrument to deform plastically and loose accuracy. The same applies should it be necessary to strike back the nail. To do this, always use the knock-out ball next to the inserter boss, applying the knocking out instrument and the slotted hammer. In this case the knocking out instrument is connected with the knock-out ball of the targeting instrument. Never knock out the nail by striking the hammer on the teflon handle of the targeting device.

Tap in the nail until the adapter approaches the entry of the medullary canal up to 1 cm, controlled by image intensifier.

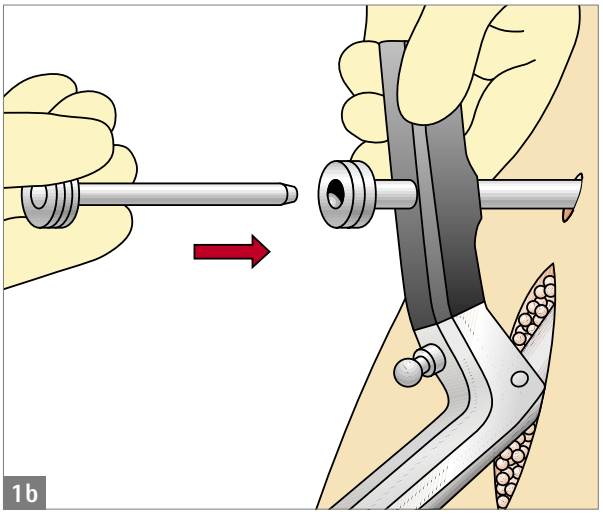


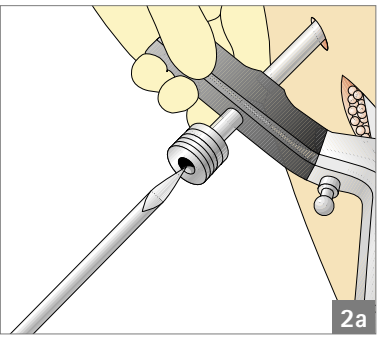
Interlocking

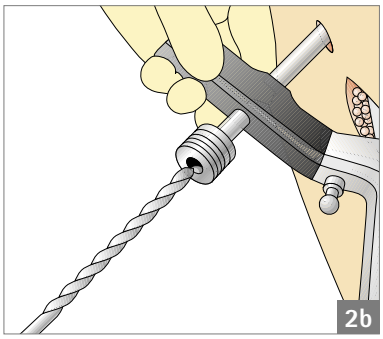
For proximal fixation the tissue protecting sleeve with an inner diameter of 8 mm (1 ring) is inserted into the diagonal hole of the targeting instrument and pushed through the soft tissue until it reaches the lateral side of the trochanter major.

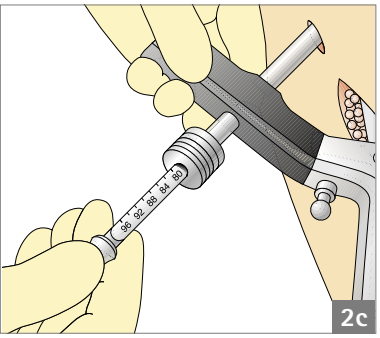
The inner drill sleeve, which has an inner diameter of 6 mm (2 rings), is inserted into the tissue protecting sleeve.

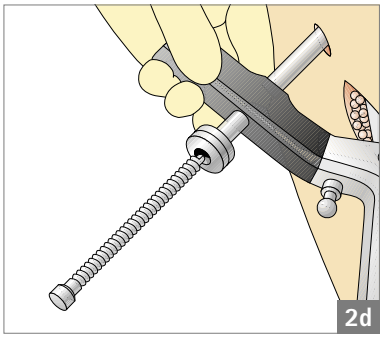
The bone is marked using the trocar. The necessary drilling and the measuring of the length of the screw are both done through the inner drill sleeve. The length is indicated on the screw scale at the edge of the drill sleeve. Precise measurement of length is possible only if the inner drill sleeve touches the bone (verification with image intensifier possible!). After removal of the drill sleeve, the appropriate interlocking screw is inserted through the tissue protecting sleeve.











After removal of the targeting instrument, the proximal end of the nail is closed with the appropriate closure screw to prevent bony ingrowth (Table 1 and 2).

Distal fixation is done free-hand (similar to the lower leg) at the lateral side of the upper leg.

Important:

The image intensifier must be adjusted so that the nail hole through which fixation is to be performed is centered and circular in the image on the monitor.

Nail removal

The patient is placed in a semi-lateral position. The fixation screws are removed first. The access incision is made in the old scar area. The upper end of the nail is exposed and the closure screw removed. To remove the nail, the appropriate adapter is screwed into the proximal nail thread and the nail is extracted with the knocking-out instrument and the slotted hammer.

Unreamed nailing

In case of unreamed nailing, the solid titanium nail and the targeting device are connected in the same way. The length of the nail is measured either with a previously inserted nail spike as explained above or preoperatively with a X-ray scale to be applied on the healthy femur using image intensifier. The interlocking of the solid titanium nail is performed as described above.

Aesculap® Targon® F/T

Ordering Information – Femur

Femur

Femur "Universal"

Description	Technical specifications	
	ø 10 – 11 mm	**ø 12 – 15 mm**
Adapter	A	B
Adapter screw	A	B
Interlocking screw		
prox.	ø 6 mm	ø 6 mm
dist.	ø 5 mm	ø 6 mm
Drill		
prox.	ø 4.5 mm	ø 4.5 mm
dist.	ø 3.5 mm	ø 4.5 mm
Closure screw	ø 8 mm	ø 10 mm
Knock-out adapter	ø 8 mm	ø 10 mm

Table 1

Femur "Solid Titanium"

Description	Technical specifications
	ø 8 – 11 mm
Adapter	A
Adapter screw	A
Interlocking screw	
prox.	ø 6 mm
dist.	ø 4.5 mm
Drill	
prox.	ø 4.5 mm
dist.	ø 3.5 mm
Closure screw	ø 8 mm
Knock-out adapter	ø 8 mm

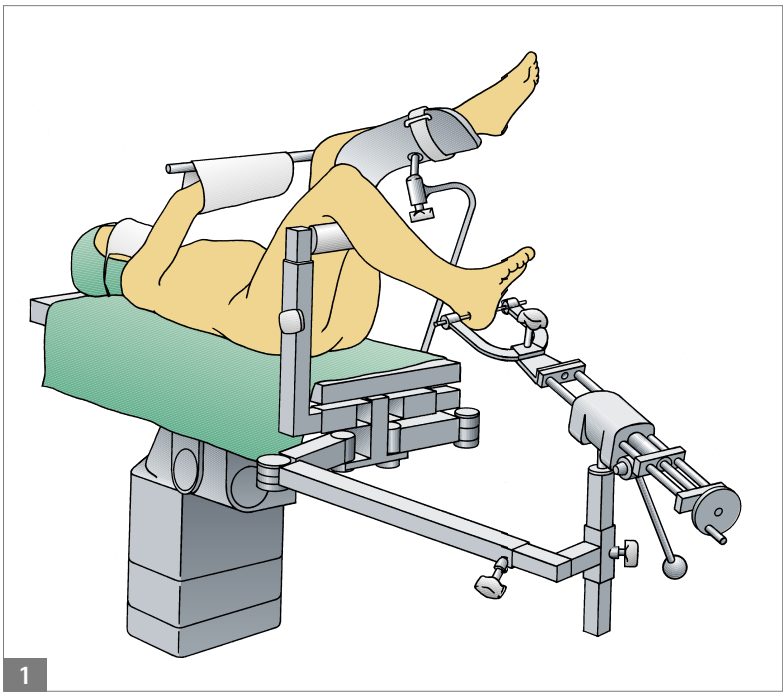
Table 2

Aesculap® Targon® F/T

OP-Manual Tibia

Operation Technique for Targon® "Tibial" Interlocking Nails

2



1

Positioning

The patient is placed on the traction table in supine position. Traction is exerted on the leg by means of a calcaneus extension. The flexion of the knee must be at least 80°.
In order to get a good exposure of the fractured leg under image intensifier, the healthy leg is held upwards (with the help of a leg support), the hip and knee joint being in flexion.

Access

A longitudinal skin incision is made between the tip of the patella and the tuberositas tibiae. The patella tendon is split longitudinally in the medial third. Alternatively, access can be done medially past the patella tendon. After inserting a blunt retractor, the medullary cavity is opened with the opening reamer on the front side of the head of the tibia, after having mobilized Hoffa`s fat pads towards cranial.

Drilling

Once the fracture has been reduced, the guide wire is introduced into the medullary cavity. The guide wire must be precisely centered distally. The insertion of the reamer with rotating reamer head increases too much the entrance hole towards distal (attachment of the patella tendon). Therefore in a first step the reamer head is pushed into the medullary cavity without any rotation.

In a variation from the conventional Küntscher (Kuentscher) nailing procedure, the medullary cavity is drilled only up to the corticalis of the medullary isthmus. Due to interlocking, it is not necessary to guide the nail all along the corticalis of the diaphysis. The required nail diameter equals the diameter of the last reamer used minus 1 mm.

Upon completion of the drilling procedure, the teflon tube is used to replace the guide wire with the nail spike. The required nail length equals the difference between the total length of the nail spike (80 cm) and the length of that part of the spike which projects out of the bone.

Important:

In case of comminuted fractures, the required nail length is determined preoperatively on the healthy tibia, using an image intensifier and a X-ray scale.

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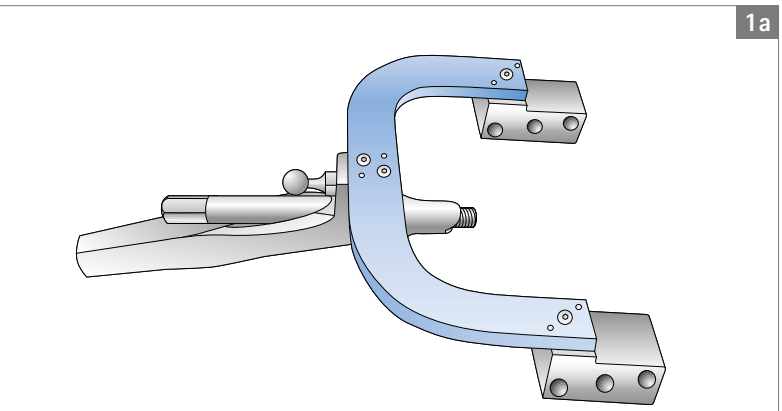
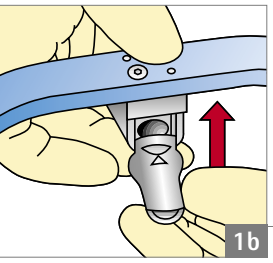
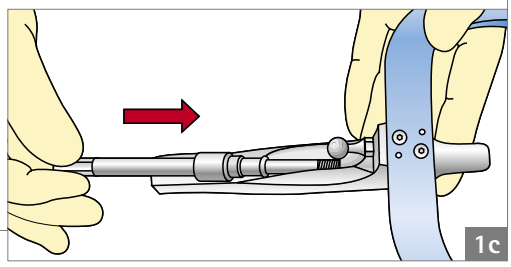
OP-Manual Tibia

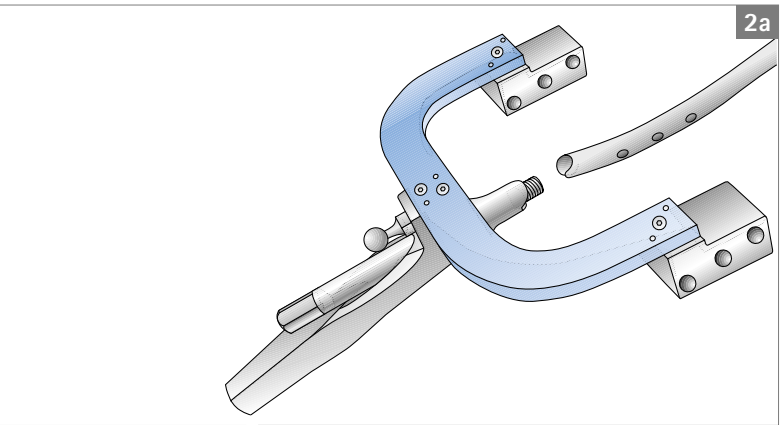


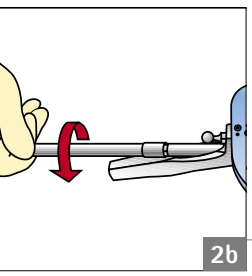


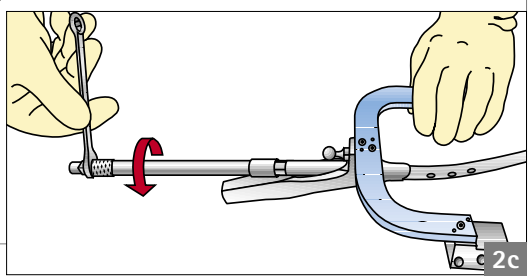


Assembling the targeting and insertion instrument

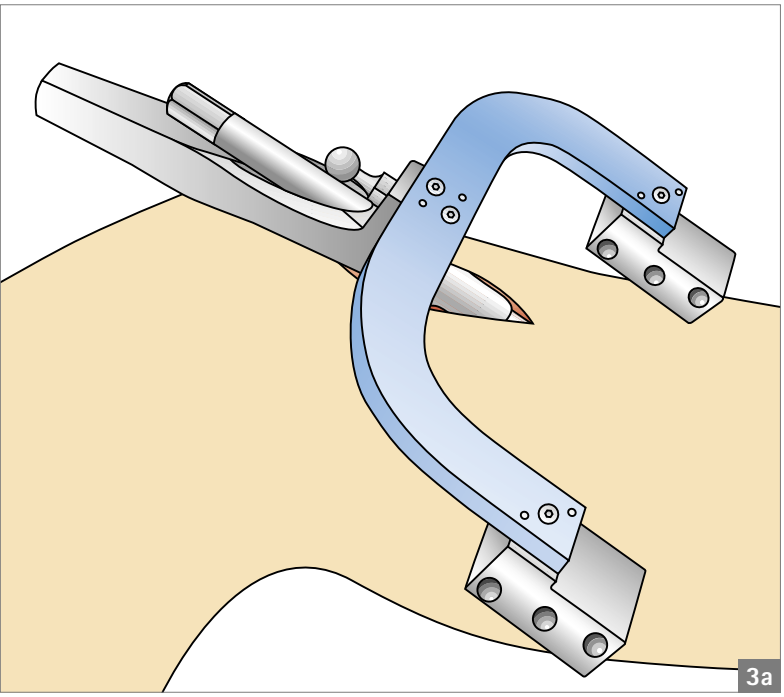
First the appropriate adapter is selected (A for nail diameters 8 – 11 mm, B for nail diameters 12 – 14 mm). The adapter is inserted into the targeting instrument so that the arrow on the adapter points to the arrow on the targeting instrument. Next, the appropriate adapter screw is pushed through the targeting instrument and the adapter, thus coupling the system (Fig. 1a-c).





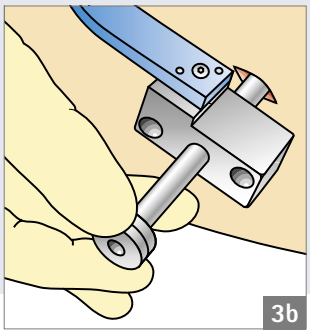


Now a nail of appropriate length and diameter is connected with the targeting device. The cambered, bevelled, proximal end of nail fits in the fish-jaw-type groove of the adapter. Afterwards, the adapter screw is tightened with the tightening sleeve using the socked key. Only in this case targeting accuracy for proximal interlocking can be enabled.

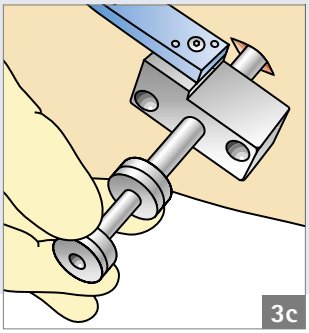


3a

For proximal interlocking the tissue protecting sleeve with an inner diameter of 8 mm (1 ring) is inserted into the hole of the targeting instrument and pushed through the soft tissue via a 1.5 cm long skin incision until it reaches the medial corticalis of the tibia head. The inner drill sleeve, which has an inner diameter of 6 mm (2 rings), is inserted into the tissue protecting sleeve and pushed forward to the bone (Fig. 3c).



3b



3c

Inserting the nail

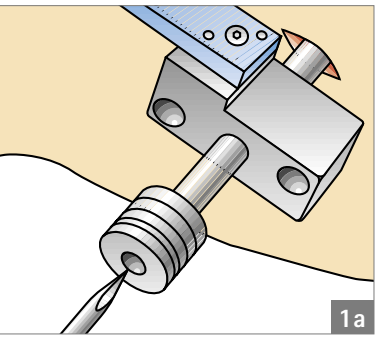
Important:

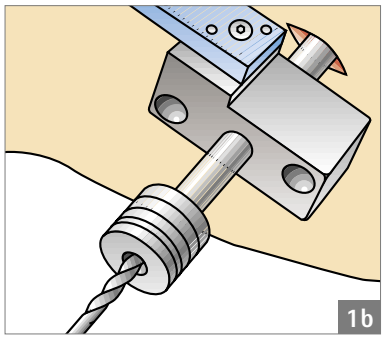
The hammer must always hit the inserter boss. It must never hit the targeting instrument, because this would cause the targeting instrument to deform plastically and loose accuracy. The same applies should it prove necessary to knock out the nail. To do this, always use the knock-out ball next to the inserter boss, the knocking out instrument, and a slotted hammer. The knocking out instrument is coupled to the knock-out ball at the bottom of the targeting instrument (as shown in Fig. F3, page 17). Never knock out the nail by striking the hammer on the teflon handle of the targeting device!

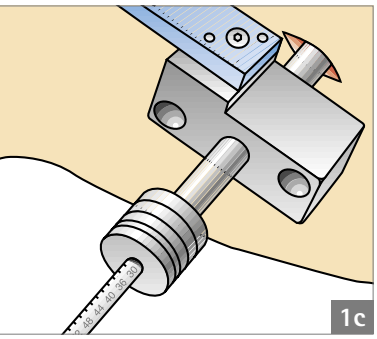
Tap in the nail under image intensifier, until the proximal nailend is at the same height as the corticalis of the tibia head.

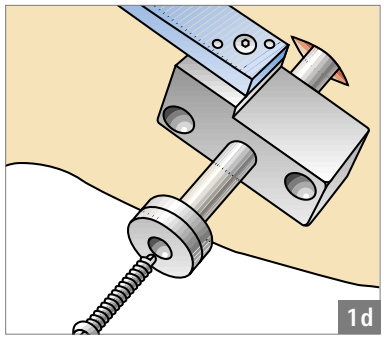
Aesculap® Targon® F/T

OP-Manual Tibia





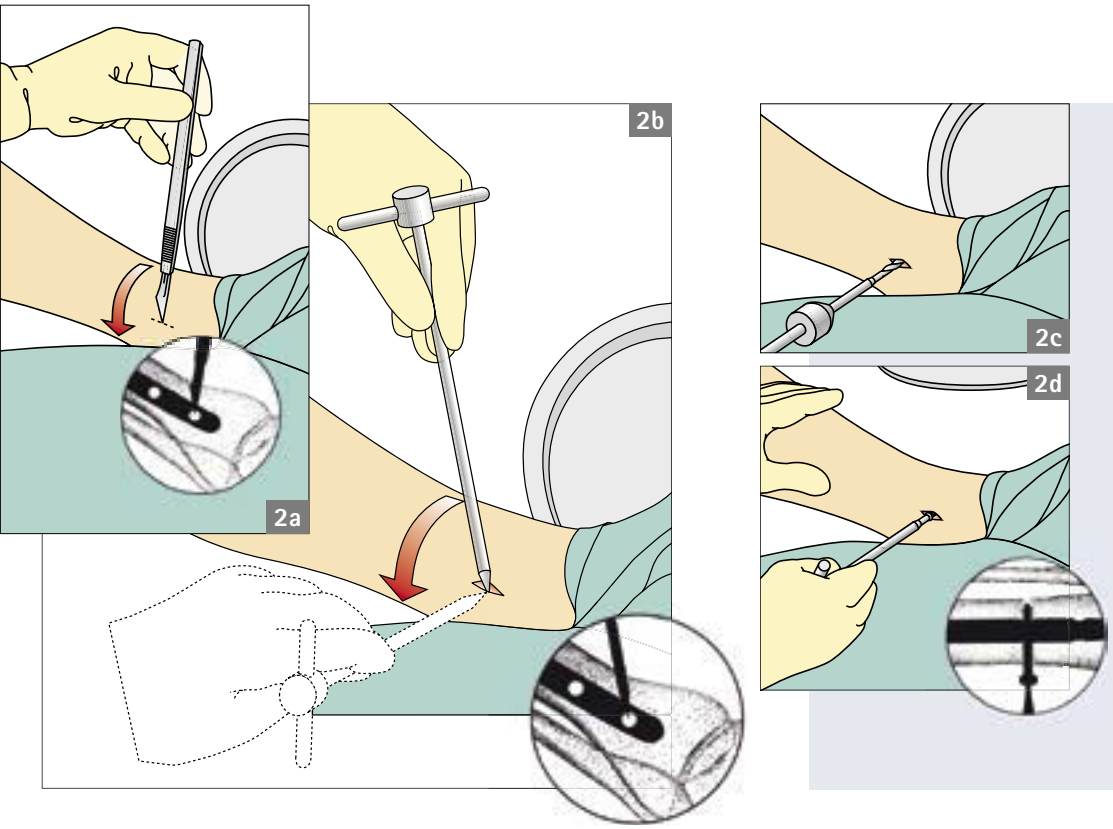




Interlocking

The corticalis is marked with the trocar and the interlocking hole drilled. The screw is measured through the inner drill sleeve. The inner drill sleeve is removed and the appropriate interlocking screw is inserted through the tissue protecting sleeve (Fig. 1a-d).

After removal of the targeting instrument the proximal end of the nail is closed with the appropriate closure screw to avoid bony ingrowth (Table 3 and 4).



Interlocking is done free-hand at the medial side of the lower leg. The image intensifier must be adjusted so that the nail hole through which interlocking is done appears centered and circular in the image on the monitor. The scalpel with the long handle is held with its tip in the beam path until the X-ray shadow of the tip appears in the middle of the interlocking hole. Thus, the point for incision is localised. Make a 1.5 cm long skin incision. The subcutaneous tissue is split bluntly down to the bone with scissors.

Under X-ray beam, the tip of the trocar is guided to the point where it is in the middle of the interlocking hole. The tip is then pressed firmly against the bone and the trocar is straightened so that it points to the middle of the camera housing. The bone is thoroughly marked by slightly rotating the trocar while gently tapping it with the hammer. The tip of the twist drill is held against the marked hole (repeat check with image intensifier) and is drilled forward through both corticalia and the nail hole. When drilling has been done properly, the interlocking hole should appear considerably brighter in the X-ray image than before. Measuring of the screw length and insertion of the appropriate screw complete the distal interlocking procedure. The screw is placed correctly if its X-ray shadow disappears in the shadow of the nail. Afterwards, the proper fit and correct length of the interlocking screw should always be verified in the a.p. beam path. To reduce the amount of radiation, this well-tried freehand technique with trocar and drill can be made safer with the help of a targeting trocar and a radiolucent drill attachment.

Nail removal

The interlocking screws are removed first. The longitudinal incision and splitting of the patella tendon are carried out in the old position. The proximal nail end is exposed and the closure screw removed. To remove the nail, the appropriate knock-out adapter is screwed into the proximal nail thread and removed with the attached extraction instrument and the slotted hammer.

Unreamed nailing

In case of unreamed nailing, the solid titanium nail and the targeting instrument are connected in the same way. The length of the nail is determined either with a previously inserted nail spike as explained above, or preoperatively, by applying a X-ray scale on the healthy tibia under image intensifier. The solid titanium nail is interlocked as described above.

Aesculap® Targon® F/T

Ordering Information – Tibia

Tibia

Tibia "Universal"

Description	Technical specifications		
	ø 9 mm	ø 10 – 11 mm	ø 12 – 14 mm
Adapter	A	A	B
Adapter screw	A	A	B
Interlocking screw			
prox.	ø 4.5 mm	ø 5 mm	ø 5 mm
dist.	ø 4.5 mm	ø 5 mm	ø 5 mm
Drill			
prox.	ø 3.5 mm	ø 3.5 mm	ø 3.5 mm
dist.	ø 3.5 mm	ø 3.5 mm	ø 3.5 mm
Closure screw	ø 8 mm	ø 8 mm	ø 10 mm
Knock-out adapter	ø 8 mm	ø 8 mm	ø 10 mm

Table 3

Tibia "Solid Titanium"

Description	Technical specifications
	ø 8 – 10 mm
Adapter	A
Adapter screw	A
Interlocking screw	
prox.	ø 4.5 mm
dist.	ø 4.5 mm
Drill	
prox.	ø 3.5 mm
dist.	ø 3.5 mm
Closure screw	ø 8 mm
Knock-out adapter	ø 8 mm

Table 4

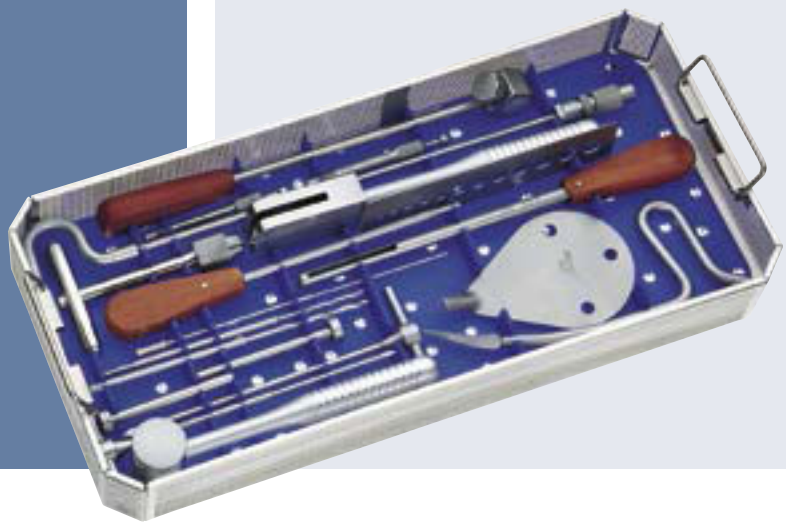
Ordering Information

Instruments

KH200

Basic-Instrument-Set

3



Article no.	Description	Pieces
KH099R	Drill and nail gauge	1
KH301R	Screw scale	1
KH320S	Guide wire for tibia nail 2.5 mm x 80 cm	1
KH304S	Guide wire for femur nail 4 mm x 90 cm	1
KH305P	Teflon tube	1
KH322R	Screw driver SW 4.5 mm	1
KH310R	Knocking-out instrument	1
KH311R	Knock-out adapter for nail 8 – 11 mm	1
KH312R	Knock-out adapter for nail 12 – 15 mm	1
KH314R	Targeting trocar f. distal targeting instr., 3 mm	1
KH317R	Opening reamer	1
KH318R	Hollow reamer	1
KH323R	Guide pin	1
KH113R	Slotted hammer for knock-out instr.	1

Article no.	Description	Pieces
FL066R	Hammer 550 g	1
LX202S	Handle with three jaw chuck ø 6.3 mm	1
AA809	Plastic X-ray scale	1
KH265R	Trocar 6 mm	1
KH285R	Trocar 4.5 mm	1
KH266S	Drill sleeve 6 mm	1
KH271R	Tissue protecting sleeve	1
KH267R	Twist drill 3.5 mm	1
KH268R	Twist drill 4.5 mm	1
KH201R	Wire basket with silicon storage	1
JF511	Wrapping cloth	1
JG645B	Identification plate	1
JG646B	Identification plate	1

KH202

Targeting Instruments

4

Article no.	Description	Pieces
KH210R	Femur targeting device	1
KH211R	Adapter for femur nail 8 – 11 mm	1
KH213R	Adapter for femur nail 12 – 15 mm	1
KH280R	Tibia targeting device	1
KH281R	Adapter for tibia nail 8 – 11 mm	1
KH283R	Adapter for tibia nail 12 – 14 mm	1
KH262R	Adapter screw for tibia nail 8 – 11 mm	1
KH264R	Adapter screw for tibia nail 12 – 14 mm	1
KH212R	Adapter screw for femur nail 8 – 11 mm	1
KH214R	Adapter screw for femur nail 12 – 15 mm	1
KH324R	Socket key SW 10	1
KH308R	Tightening sleeve SW 10	1
KH203R	Wire basket with storage	1
JF511	Wrapping cloth	1
JG645B	Identification plate	1

recommended container for KH202 (storage KH203): JK442 (tray) + JK489 (lid)

recommended container for KH200 + KH202 (storage KH203 + KH201R): JK444 (tray) + JK489 (lid)

Ordering Information

Implants

Basic-Sets Universal Nail

5

KH220 Femur

ø	Article no.	Length	Pieces
	KA464S	360	1
	KA466S	380	1
11	KA468S	400	1
	KA470S	420	1
	KA472S	440	1

ø	Article no.	Length	Pieces
	KA564S	360	1
	KA566S	380	1
12	KA568S	400	1
	KA570S	420	1
	KA572S	440	1

ø	Article no.	Length	Pieces
	KA664S	360	1
	KA666S	380	1
13	KA668S	400	1
	KA670S	420	1
	KA672S	440	1

Includes tray KH221R

KH222 Tibia

ø	Article no.	Length	Pieces
	KC356S	285	1
	KC358S	300	1
10	KC359S	315	1
	KC361S	330	1
	KC362S	345	1

ø	Article no.	Length	Pieces
	KC456S	285	1
	KC458S	300	1
11	KC459S	315	1
	KC461S	330	1
	KC462S	345	1

ø	Article no.	Length	Pieces
	KC556S	285	1
	KC558S	300	1
12	KC559S	315	1
	KC561S	330	1
	KC562S	345	1

Includes tray KH223R

Ordering Information

Implants

Basic-Sets Solid Titanium

6

KH224 Femur

ø	Article no.	Length	Pieces
	KD264T	360	1
	KD266T	380	1
9	KD268T	400	1
	KD270T	420	1
	KD272T	440	1

ø	Article no.	Length	Pieces
	KD364T	360	1
	KD366T	380	1
10	KD368T	400	1
	KD370T	420	1
	KD372T	440	1

Includes tray KH225R

KH226 Tibia

ø	Article no.	Length	Pieces
8	KE156T	285	1
	KE158T	300	1
	KE159T	315	1
	KE161T	330	1
	KE162T	345	1

ø	Article no.	Length	Pieces
9	KE256T	285	1
	KE258T	300	1
	KE259T	315	1
	KE261T	330	1
	KE262T	345	1

Includes tray KH227R

recommended container for storage of the basic implant sets: JK442 (tray) + JK489 (lid)

Ordering Information

Implants

Interlocking Screws

7

includes tray KH209R

ø	Special lengths	
Titanium 4.5	KB364T	64
	KB368T	68
	KB372T	72
	KB376T	76
	KB380T	80
Steel 5	KB464S	64
	KB468S	68
	KB472S	72
	KB476S	76
	KB480S	80

to be ordered separately

recommended container for KH208 (storage KH209R):
JK441 (tray) + JK489 (lid)

KH208

ø	Steel Article no.	Length	Pieces	Titanium Article no.
4.5	KB720S	20	2	KB320T
	KB724S	24	2	KB324T
	KB728S	28	2	KB328T
	KB732S	32	2	KB332T
	KB736S	36	4	KB336T
	KB740S	40	4	KB340T
	KB744S	44	4	KB344T
	KB748S	48	4	KB348T
	KB752S	52	4	KB352T
	KB756S	56	2	KB356T
	KB760S	60	2	KB360T
5	KB420S	20	2	
	KB424S	24	2	
	KB428S	28	2	
	KB432S	32	2	
	KB436S	36	4	
	KB440S	40	4	
	KB444S	44	4	
	KB448S	48	4	
	KB452S	52	4	
	KB456S	56	2	
	KB460S	60	2	

ø	Steel Article no.	Length	Pieces	Titanium Article no.
6	KB236S	36	2	KB636T
	KB240S	40	2	KB640T
	KB244S	44	2	KB644T
	KB248S	48	4	KB648T
	KB252S	52	4	KB652T
	KB256S	56	4	KB656T
	KB260S	60	4	KB660T
	KB264S	64	4	KB664T
	KB268S	68	4	KB668T
	KB272S	72	2	KB672T
	KB276S	76	2	KB676T
	KB280S	80	2	KB680T
	KB284S	84	2	KB684T
	KB288S	88	2	KB688T
	KB292S	92	2	KB692T
	KB296S	96	2	KB696T

	Closure screws		
To be used with	for nail ø	Article no.	Pieces
Solid Titanium nail	8 – 11	KB200T	2
Universal nail	9 – 11	KB201S	2
	12 – 15	KB202S	2

Interlocking Nails

Femur

8

Femur Universal

ø	Article no.	Length
10	KA351S	240
	KA354S	260
	KA356S	280
	KA358S	300
	KA360S	320
	KA362S	340
	KA364S	360
	KA366S	380
	KA368S	400
	KA370S	420
	KA372S	440
	KA374S	460
11	KA458S	300
	KA460S	320
	KA462S	340
	KA464S	360
	KA466S	380
	KA468S	400
	KA470S	420
	KA472S	440
	KA474S	460
12	KA558S	300
	KA560S	320
	KA562S	340
	KA564S	360
	KA566S	380
	KA568S	400
	KA570S	420
	KA572S	440
	KA574S	460
	KA576S	480
	Special lengths	
12	KA500S	max. 600 mm for arthrodesis
13	KA600S	

ø	Article no.	Length
13	KA662S	340
	KA664S	360
	KA666S	380
	KA668S	400
	KA670S	420
	KA672S	440
	KA674S	460
	KA676S	480
14	KA764S	360
	KA766S	380
	KA768S	400
	KA770S	420
	KA772S	440
	KA774S	460
	KA776S	480
15	KA864S	360
	KA866S	380
	KA868S	400
	KA870S	420
	KA872S	440
	KA874S	460
	KA876S	480

Femur Solid Titanium

ø	Article no.	Length
8	KD152T	240
	KD154T	260
	KD156T	280
	KD158T	300
	KD160T	320
	KD162T	340
	KD164T	360
	KD166T	380
9	KD252T	240
	KD254T	260
	KD256T	280
	KD258T	300
	KD260T	320
	KD262T	340
	KD264T	360
	KD266T	380
	KD268T	400
	KD270T	420
	KD272T	440
	KD274T	460
	KD276T	480

ø	Article no.	Length
10	KD362T	340
	KD364T	360
	KD366T	380
	KD368T	400
	KD370T	420
	KD372T	440
	KD374T	460
	KD376T	480
11	KD462T	340
	KD464T	360
	KD466T	380
	KD468T	400
	KD470T	420
	KD472T	440
	KD474T	460
	KD476T	480

Ordering Information

Implants

Interlocking Nails

Tibia

9

Tibia Universal

ø	Article no.	Length
9	KC255S	270
	KC256S	285
	KC258S	300
	KC259S	315
	KC261S	330
	KC262S	345
	KC264S	360
	KC265S	375
	KC267S	390
	KC268S	405
10	KC352S	240
	KC353S	255
	KC355S	270
	KC356S	285
	KC358S	300
	KC359S	315
	KC361S	330
	KC362S	345
	KC364S	360
	KC365S	375
	KC367S	390
	KC368	405
11	KC455S	370
	KC456S	285
	KC458S	300
	KC459S	315
	KC461S	330
	KC462S	345
	KC464S	360
	KC465S	375
	KC467S	390
	KC468S	405

ø	Article no.	Length
12	KC556S	285
	KC558S	300
	KC559S	315
	KC561S	330
	KC562S	345
	KC564S	360
	KC565S	375
	KC567S	390
	KC568S	405
13	KC656S	285
	KC658S	300
	KC659S	315
	KC661S	330
	KC662S	345
	KC664S	360
	KC665S	375
	KC667S	390
	KC668S	405
14	KC756S	385
	KC758S	300
	KC759S	315
	KC761S	330
	KC762S	345
	KC764S	360
	KC765S	375
	KC767S	390
	KC768S	405
Special lengths		
10	KC300S	max. 420 mm
11	KC400S	
12	KC500S	
13	KC600S	

Tibia Solid Titanium

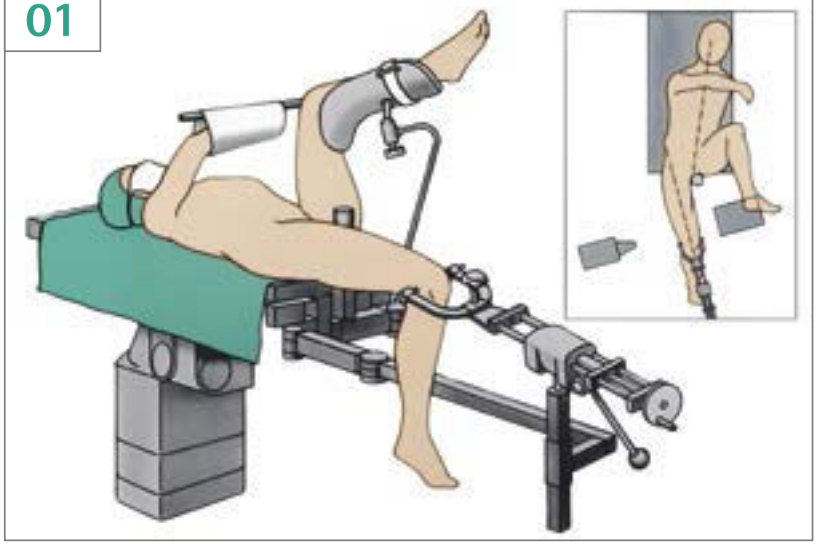
ø	Article no.	Length
8	KE152T	240
	KE153T	255
	KE155T	270
	KE156T	285
	KE158T	300
	KE159T	315
	KE161T	330
	KE162T	345
	KE164T	360
	KE165T	375
	KE167T	390
	KE168T	405
9	KE252T	240
	KE253T	255
	KE255T	270
	KE256T	285
	KE258T	300
	KE259T	315
	KE261T	330
	KE262T	345
	KE264T	360
	KE265T	375
	KE267T	390
	KE268T	405
10	KE355T	270
	KE356T	285
	KE358T	300
	KE359T	315
	KE361T	330
	KE362T	345
	KE364T	360
	KE365T	375
	KE367T	390
	KE368T	405

ø	Article no.	Length
Special lengths		
8	KE100T	max. 420 mm
9	KE200T	

Aesculap® Targon® F/T

Interlocking Nail System »Femur«

01



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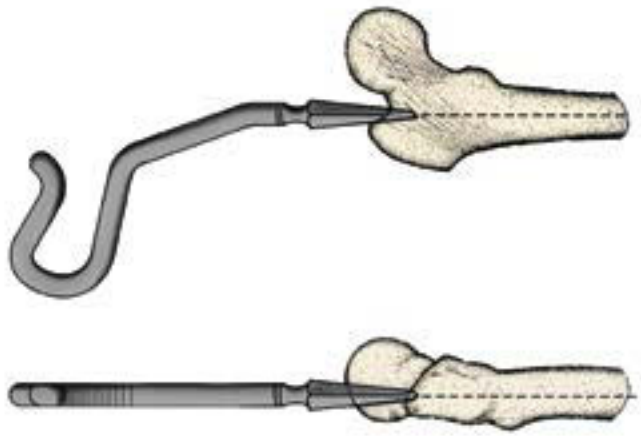

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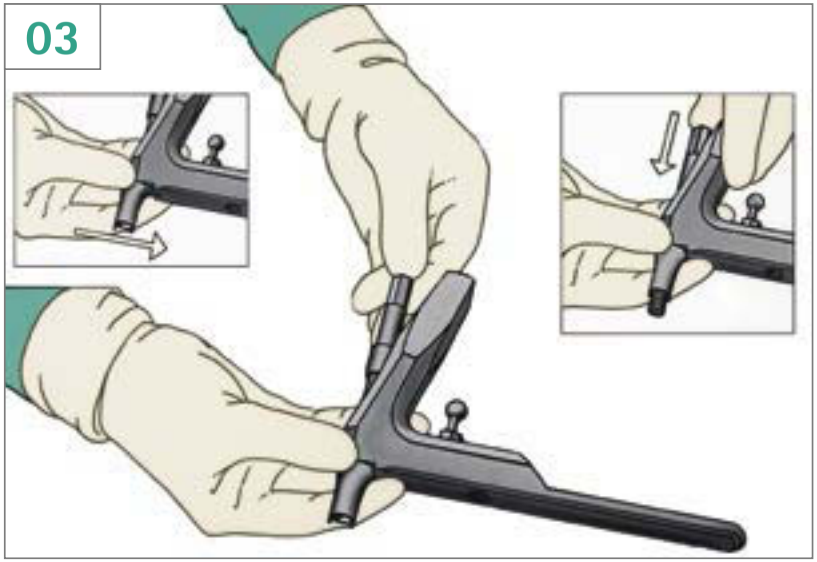

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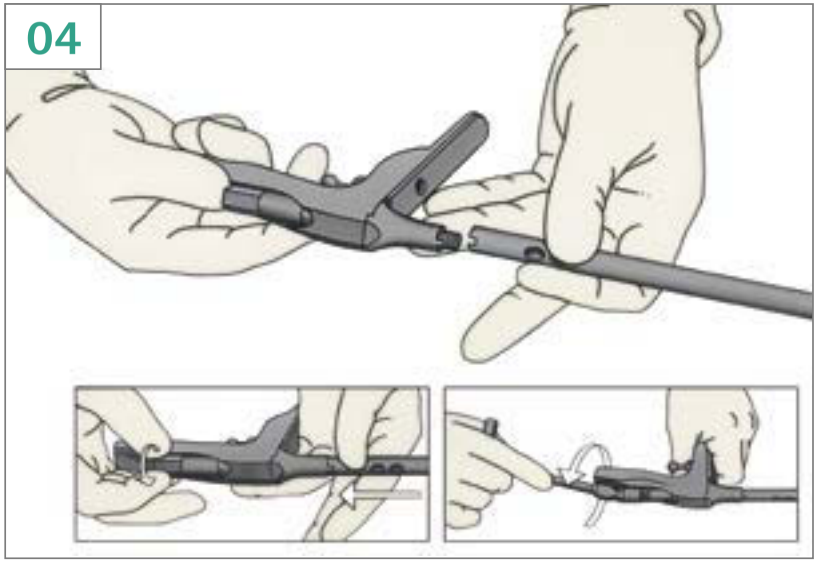

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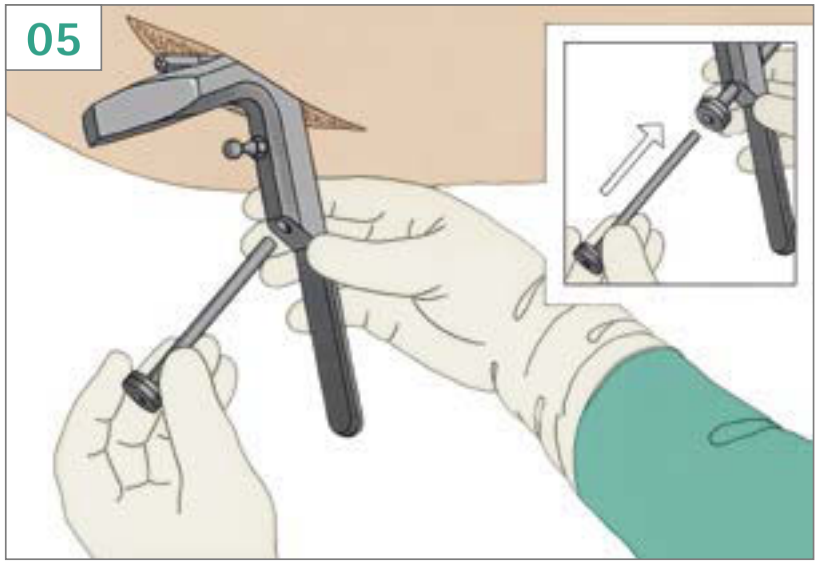

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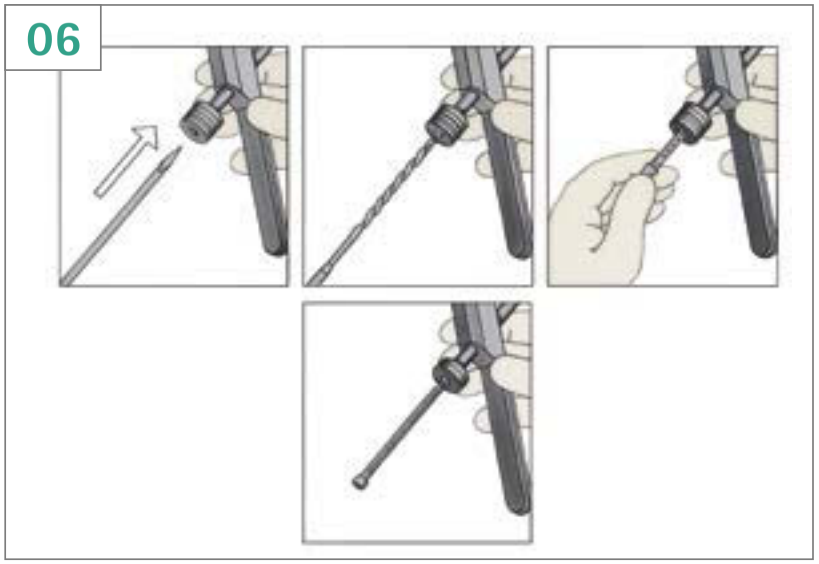

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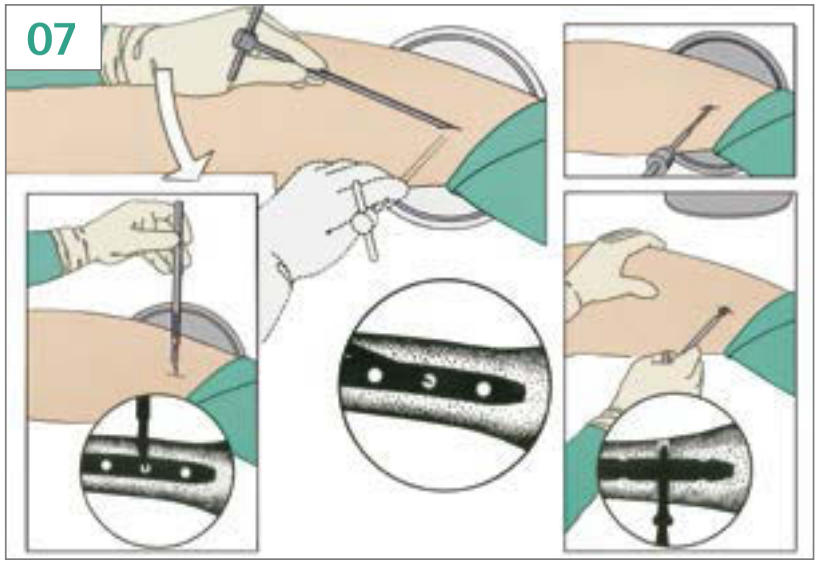

FEMUR
Universal

	ø 10–11 mm	slotted ø 12–15 mm
adapter	A	B
adapter bolt	A	B
locking screw, proximal	ø 6,0 mm	ø 6,0 mm
drill, proximal	ø 4,5 mm	ø 4,5 mm
locking screw, distal	ø 5,0 mm	ø 6,0 mm
drill, distal	ø 3,5 mm	ø 4,5 mm
sealing screw	ø 8,0 mm	ø 10,0 mm
extractor bolt	ø 8,0 mm	ø 10,0 mm

061002

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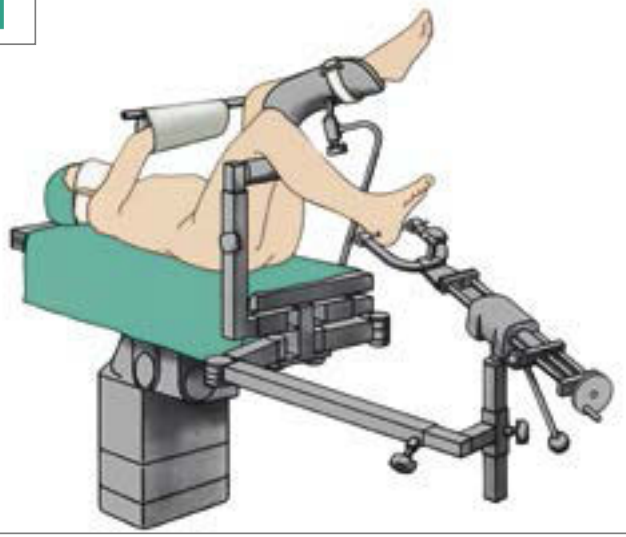
Aesculap® Targon® F/T

Interlocking Nail System »Tibia«

01



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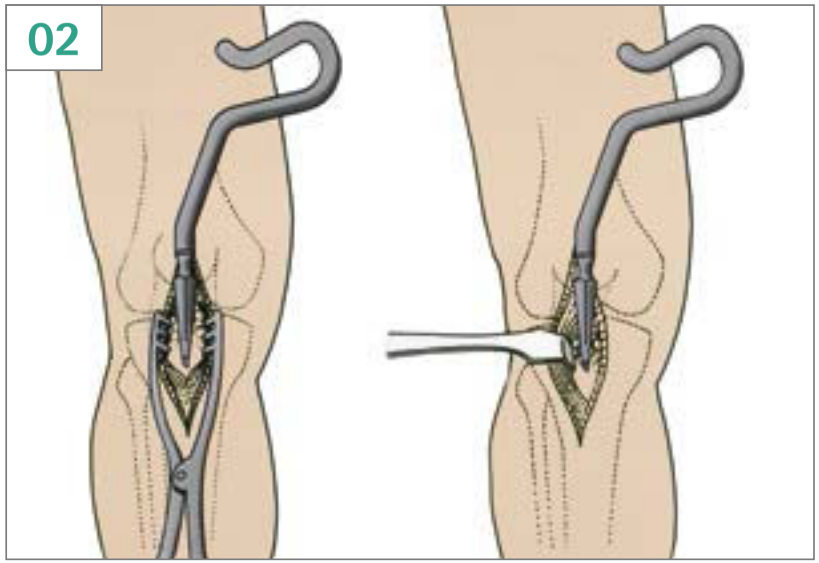

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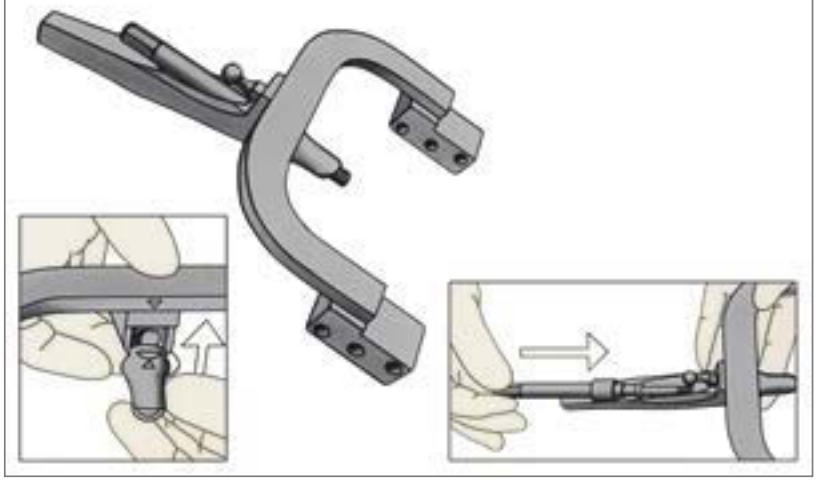

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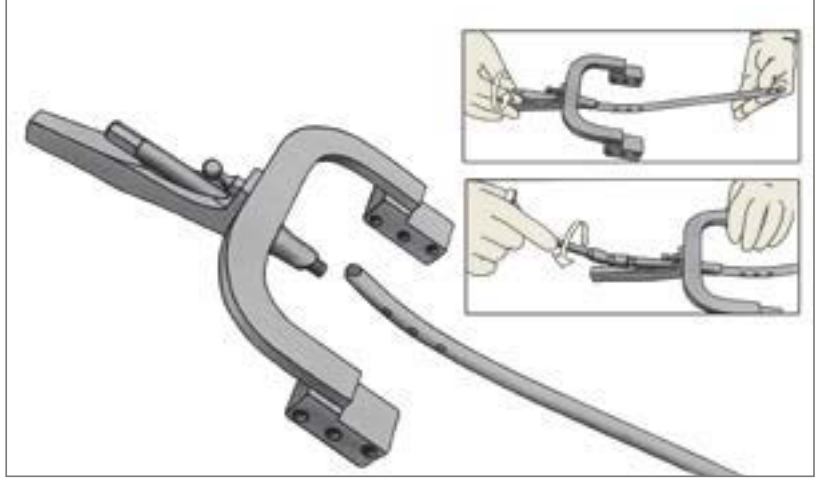

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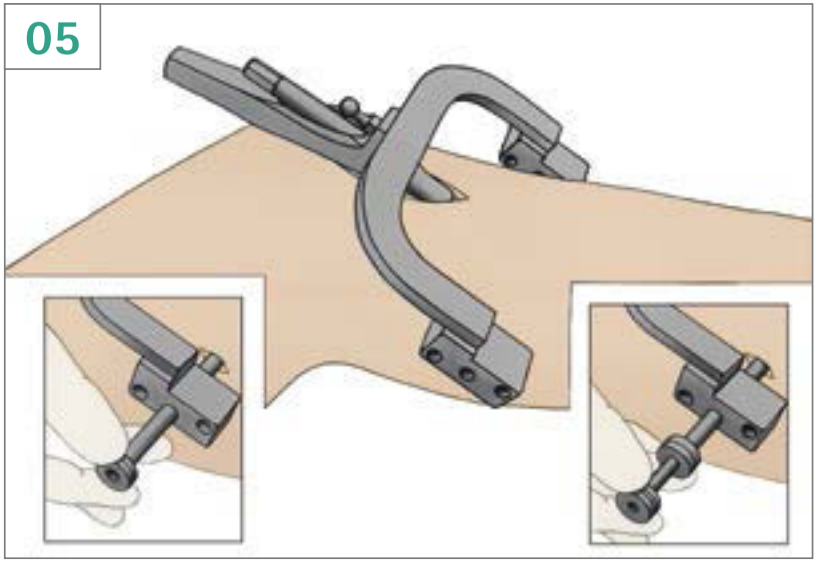

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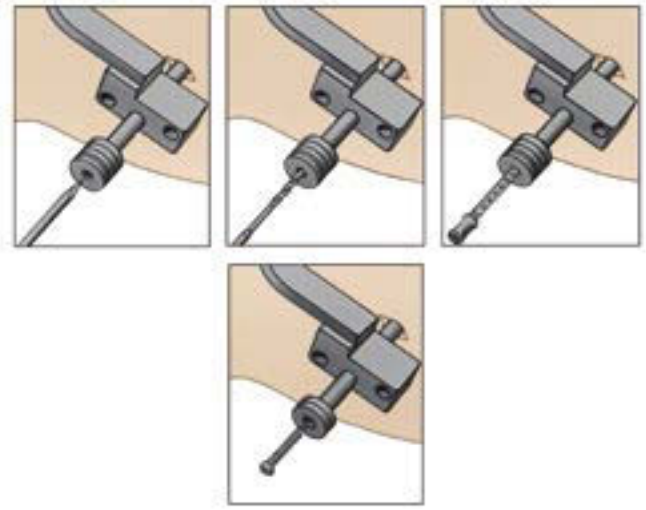

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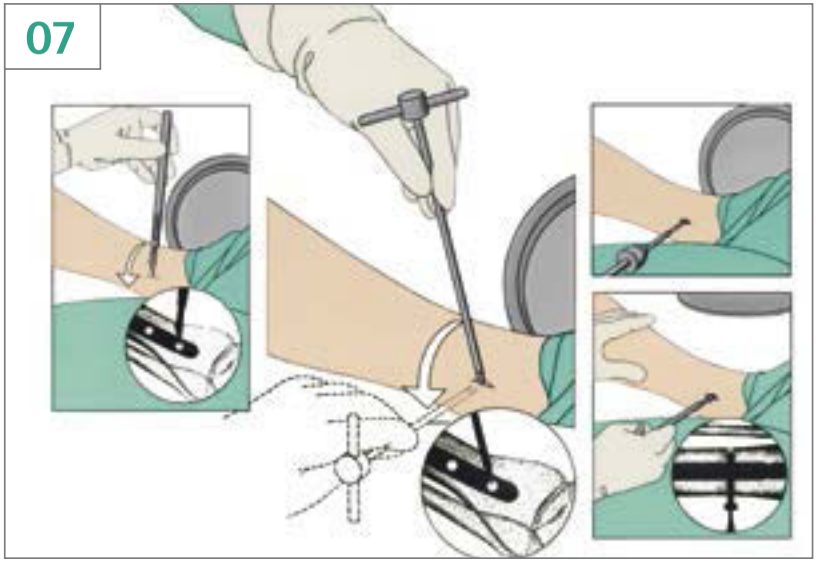

	TIBIA Universal slotted		TIBIA Titanium sdid
	ø 10–11 mm	ø 12–14 mm	ø 8–9 mm
adapter	A	B	A
adapter bolt	A	B	A
locking screw, dist./prox.	ø 5,0 mm	ø 5,0 mm	ø 4,5 mm
drill	ø 3,5 mm	ø 3,5 mm	ø 3,5 mm
sealing screw	ø 8,0 mm	ø 10,0 mm	ø 8,0 mm
extractor bolt	ø 8,0 mm	ø 10,0 mm	ø 8,0 mm

061002

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