

## **TARGON PH TARGON H**

*INTRAMEDULLARY NAIL SYSTEM FOR HUMERAL SHAFT  
AND PROXIMAL HUMERAL FRACTURES*

# TARGON



## THE TARGON FAMILY CREATES STRONG CONNECTION

AESCLAP®

**TARGON**  
INTERLOCKING NAIL SYSTEM  
FOR FEMUR AND TIBIA

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**TARGON**  
INTERLOCKING NAIL SYSTEM  
FOR FEMUR AND TIBIA

**SURGICAL PROCEDURE**  
Priv. Doz. Dr. H.-W. Stadtfeld

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**TARGON PF**  
INTRAMEDULLARY NAIL FOR  
PROXIMAL FEMORAL FRACTURES

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**TARGON RF**  
RETROGRADE FEMORAL NAIL

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0 190 02

*Fractures of the humeral shaft are generally treated conservatively with early functional mobilization with great success. Nevertheless, there are a number of very good or relative indications for surgical treatment. Among the surgical methods involving internal fixation devices, intramedullary nailing has gained in importance. For such procedures, the retrograde approach has proved to be an attractive surgical option, in addition to the traditional antegrade approach, for certain fracture constellations.*

*Some of the therapeutic failures reported in the literature in conjunction with the use of intramedullary nailing to treat humerus shaft fractures are attributable to the non-union of the fracture fragments. The use of compression devices represents a simple method for counteracting the tendency toward fragment displacement.*

*The new line of humeral nails developed by AESCULAP incorporate the above-mentioned features. This product line opens up possibilities for the internal fixation of such fractures with a low rate of complications.*

*The choice of the best fixation method for fractures of the humeral head on the basis of clinical evidence is still highly controversial. The design of the new capitellar fixation system reflects efforts to prevent the most important complications discussed in the literature:*

*– Pseudarthrosis is caused by excess elasticity in the supporting system and by displacement of the metaphyseal fragments relative to each other. To prevent this complication, the capitellar nail was developed; it offers relatively rigid fixation of the capitellar fragments with high angular and displacement stability.*

*– The development of capitellar necrosis is also promoted by the compressing effect of certain fixation techniques on the branches of the circumflex humeral artery, which nourish the capitellum. Insufficient stable fixation most probably also exerts a negative impact. Because the new interlocking screws only penetrate the soft tissue near the capitellum at points, the blood supply is afforded maximum protection. The stable adjusting-screw effect exerted by the nailing technique helps the surgeon to take advantage of the possibilities still available for revascularizing the fragments (even if the patients exercise early in the postoperative period).*

*During the R&D period, the objective was to produce a line of instruments characterized by economy and simple handling, i.e. instruments that could be used for both main indication areas.*

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Nürnberg*

<sup>1</sup> Priv. Doz. = Privatdozent = a university lecturer who has attained the qualifications to be a professor but does not yet have a tenured position.



# TARGON *PH* SOLVES THE PROBLEMS POSED BY FRACTURES OF THE CAPITELLUM

## ★ *Insufficient fixation stability*

*To achieve fracture fixation displaying the utmost stability, the interlocking screws (fixation screws) in the capitellar area are anchored within the nail with angular and sliding stability and placed at various insertion angles congruent with the tubercles in the capitellum. As a result, the position of the fragments relative to each other is maintained (adjusting screw effect) even if the patients start exercising early in the postoperative period.*

## ★ *Damage to the blood supply*

*The blood supply to the capitellary fragments provided by the fine branches of the circumflex humeral artery can be damaged by surface compression, e.g. by a T-plate, and by the constricting effect of cerclage wires. Since the interlocking screws, as the peripheral load-bearing fixation elements, only penetrate the tissue at certain points, damage to the soft-tissue zone near the capitellum is minimized; as a result, the blood supply situation in the fractured capitellum has a maximum chance of recovery.*

## ★ *Subacromial impingement*

*The impingement of implant edges (e.g. spiked wire ends, screw heads, plate edges, etc.) under the scapular roof causes painful irritation and poses an obstacle to postoperative exercising. In the worse case this may result in permanent scarring in the subacromial space and a severe loss of movement in the shoulder. To prevent this complication, the interlocking screw heads have a new threaded design that permits recessed placement in the cortex of the capitellum. This allows the patient to start intensive exercising as soon as the postoperative inflammation subsides and to rapidly regain articular function in the subacromial bursa.*



# TARGON *H* SOLVES THE PROBLEMS POSED BY HUMERAL SHAFT FRACTURES

## ★ *Antegrade or retrograde nail implantation?*

*The selection of a suitable surgical approach is not just a question of the surgeon's personal preferences. The advantage of retrograde nail implantation is obvious: the access is extra-articular. The further toward distal the fracture is located, the more questionable the retrograde approach becomes (e.g. fracture of the broken bone between the edge of the fracture and the nail insertion hole). Even for shaft fractures located far toward proximal, the retrograde implantation of an interlocking nail can be complicated by the unfavourable anchoring of interlocking screws in the metaphysis (e.g. screw loosening in a possibility in osteoporotic bone). The targeting device and the nail drill holes satisfy the requirements of both surgical approaches.*

## ★ *Loosening of proximal interlocking screws*

*In patients with high-grade osteoporosis, there is a danger that the interlocking screws may become loose and migrate into the proximal humerus region. For this reason, a fixation screw possessing sliding and angular stability (dia. 4.5 mm) can be used optimally instead of a normal screw (dia. 3.5 mm). In addition, a long version of the proximal humeral nail is available offering several possibilities of interlocking with fixation screws.*

## ★ *Inadequate contact between fragments (nonunion)*

*In stable traverse fractures and short oblique fractures, in particular, inadequate contact between fragments or nonunion has the effect of delaying or even preventing fracture healing. A compression device creates secure close fragment contact. In addition, the resulting freedom from pain and stability of the arm, even when exercising is instituted early in the postoperative period, promoting rapid fracture healing.*



# TARGON *PH* INDICATION AREAS

*A - Fractures, dislocated*

*B - Fractures, dislocated*

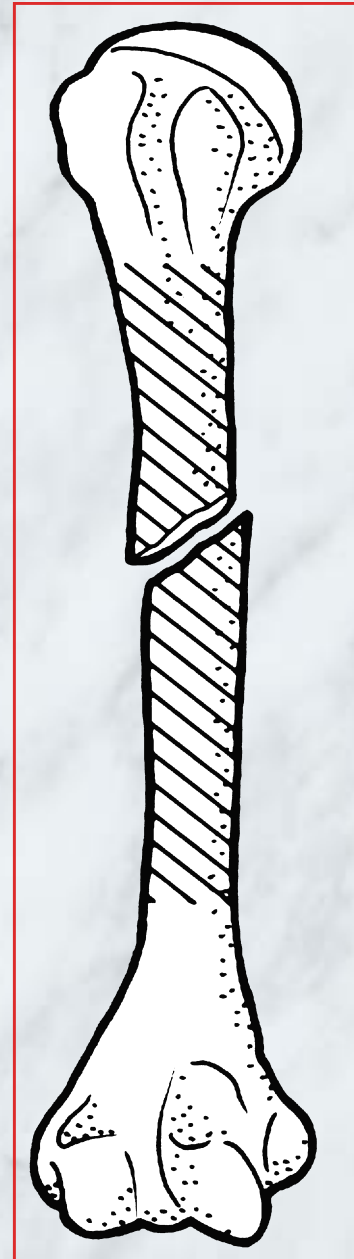
*C - Fractures with intact capitellum*

# TARGON *H*

## INDICATION AREAS

*All types of shaft fractures*

*(for which conservative treatment is not an option or an unsatisfactory option)*



# TARGON PH

## THE IMPLANT

Proximal diameter 10 mm

- ★ Anatomical angular arrangement for placement of the fixation screws (capitellum, lesser and greater tubercle of the humerus)
  - reduced probability of neural lesions
  - right and left versions

- ★ Fixation screws
  - special threaded design for cancellous bone
  - larger thread diameter on the screw head to securely grasp bone fragments
  - extremely slender screw head

- ★ Threaded locking holes
  - resulting in screw seating with angular and sliding stability (fragments)

- ★ Transfixation holes occupied with 3.5 mm interlocking screws with proven thread design (high load-bearing) stabilize distal to the fracture

- ★ Special surface treatment resulting in:
  - simple implantation and explantation
  - no osteointegration
  - reduction of wear debris

- ★ Distal diameter
  - 8 mm / 150 mm in length
  - 7 mm / 220 – 280 mm in length

Implant material:  
Titanium alloy TiAl 6V4

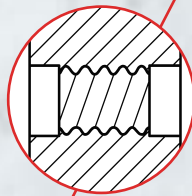


# TARGON *H*

## THE IMPLANT

★ Antegrade or retrograde access possible

★ Threaded locking hole  
- permits the use of fixation screws (e.g. patients with osteoporosis)  
- maintains compression throughout with one screw  
- results in screw seating displaying angular and sliding stability



★ Slot  
Compression of 8 mm possible

★ Angulation of 4°  
- facilitates retrograde implantation of the nail

★ Slender nail with a diameter of 7 or 8 mm

★ Special surface treatment resulting in:  
- simple implantation and explantation  
- no osteointegration  
- reduction of wear debris

★ Four-way locking  
- offers possibilities for departing from standard interlocking procedures  
- enhanced stability in patients with osteoporosis

★ 3.5 mm interlocking screws made of a high-load-bearing titanium alloy with a time-tested design

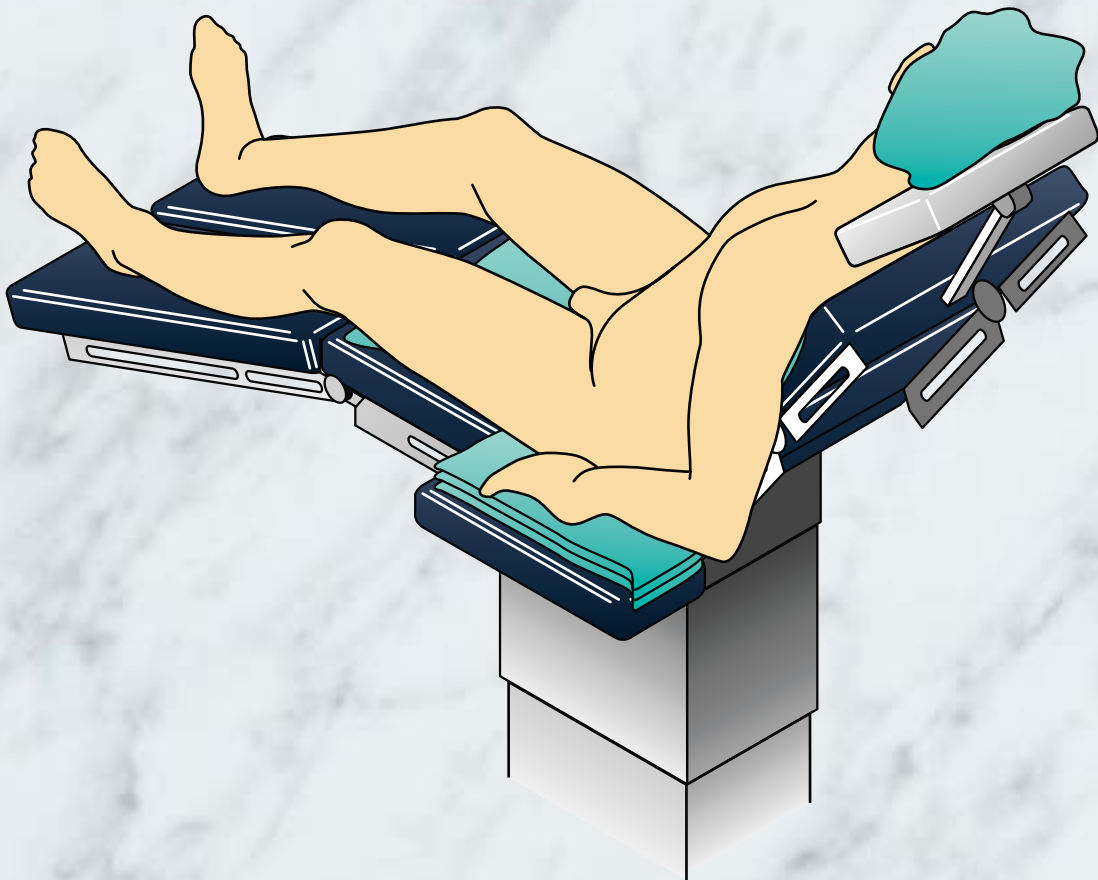
★ Asymmetric sliding tip  
- permits easy implantation



### PREOPERATIVE PLANNING

- Nail sizes required
- Positioning of the fixation screws
- Required assignment of the transfixation holes

### PATIENT POSITIONING



## ACCESS AND PREPARATION OF THE NAIL BED

### ACCESS

*Deltoid-split access on the front of the acromial margin.  
Opening of the subacromial bursa*

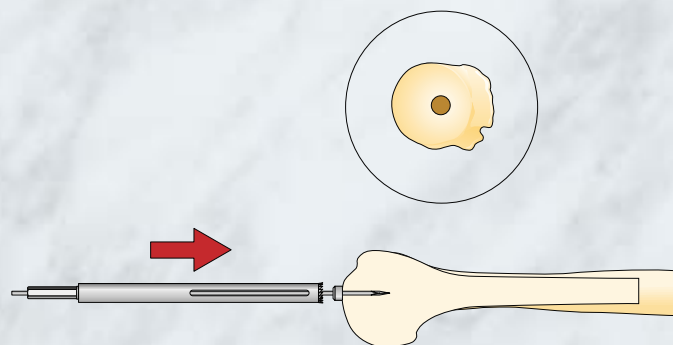
*Patients with an intact rotator cuff: Longitudinal incision of the cuff 1 cm dorsolateral of the palpated bicipital groove in the direction of the fibers toward medial. Looping of the two incision edges and exposures of the capitellum. Repositioning of the capitellum (possibly with a Steinmann pin), monitoring with an image intensifier.*

*Patients with a defect rotator cuff: Dislocated tubercles, enlargement of the tear in the rotator cuff via an incision in the direction of the fibers. Opening and holding back of the tubercles laterally; repositioning of the capitellum with a Steinmann pin ("joystick procedure").*

### 1 OPENING

- Guide pin KH 161 R
- Hollow reamer (dia. 10.5 mm) KH 160 R

*Insertion of the guide pin at the most cranial point of the capitellum and image intensifier control in two planes. Opening of the capitellum with a hollow reamer.*



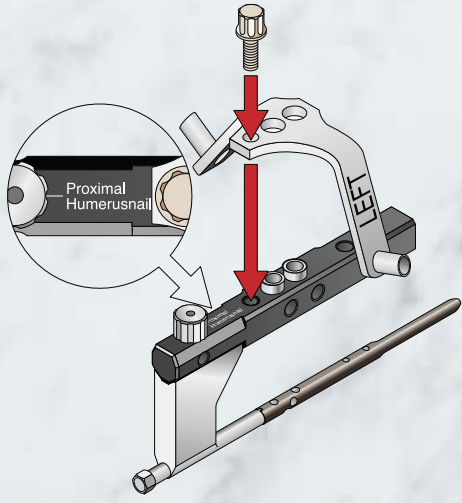
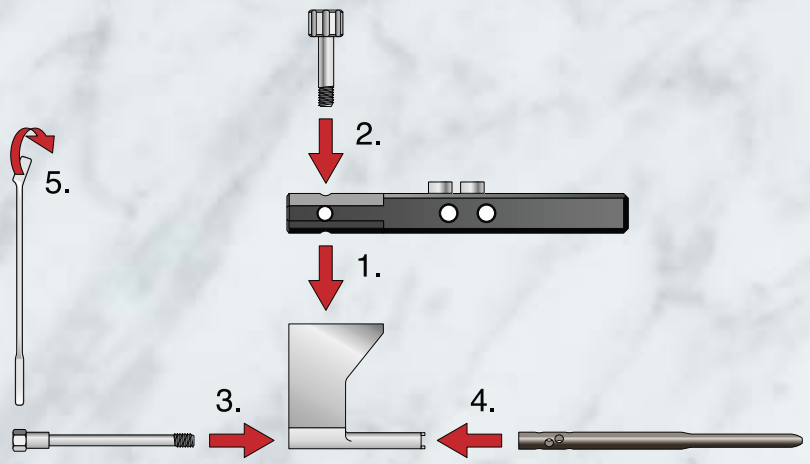
## 2 ATTACHMENT OF THE NAIL TO THE TARGETING DEVICE

- Basic targeting device KH 165 T
- Nail-adapter screw KH 172 R
- Targeting attachment KH 166 P
- Attachment screw KH 167 T
- Targeting bow R/L KH 170 R / KH 171 R
- Tightening sleeve KH 321 R
- Socket key KH 324 C

*Attach the basic targeting device to the targeting attachment with the Attachment screw.*

**Important:**  
*To the right of the fastening screw, you should now be able to read the words proximal humerus nail.*

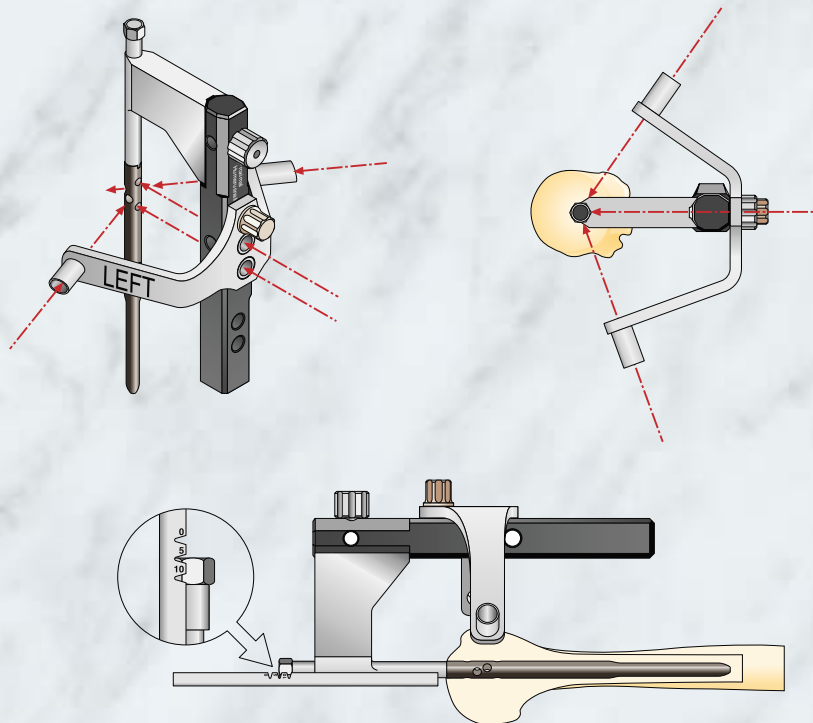
*Push the nail adapter screw through the basic targeting device and tighten the nail slightly by hand.  
 The grooves of different sizes on the nail tip permit only one nail position on the targeting device.  
 Tighten the nail firmly with the tightening sleeve or socket key.  
 The particular right-hand or left-hand targeting bows can be attached either before or after manual insertion of the nail.  
 If only fixation screws are used for placement in the capitellum, it is not necessary to attach the targeting bow. Introduce the nail manually.*



### 3 CHECKING THE NAIL POSITION

- Nail depth scale KH 169 R

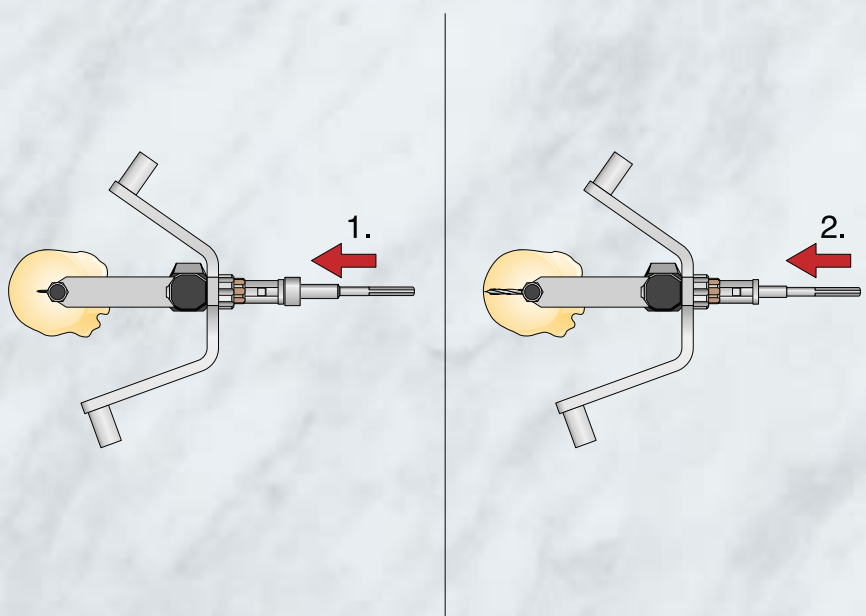
Precise positioning of the greater tubercle and alignment of the targeting bow. Image intensifier control. The nail depth can be checked by sliding the nail depth scale along the targeting device. At the height of the hexagon screw, the nail insertion depth (0, 5, 10) can be read on the nail depth scale. Care should be taken that the nail does not protrude beyond the capitellum.



### 4 INSERTING THE FIXATION SCREWS

- Tissue protection sleeve KH 182 R
- Obturator KH 181 R
- Centering drill (dia. 4.5 mm) KH 185 R
- Twist drill (dia. 3.5 mm) KH 184 R
- Screw scale KH 398 R
- Screwdriver LS 013 R

Introduce the obturator with the tissue-protection sleeve up to the bone. Advance the centering drill up to the stop. Drill open the screw hole with the twist drill (dia. 3.5 mm). Subsequently, determine the length of the fixation screw. Insert the first fixation screw. Depending on the particular fracture, repeat this procedure until all four nail holes are occupied by fixation screws. If necessary, use fixation discs (KB 055 T) to fix the individual fragments.



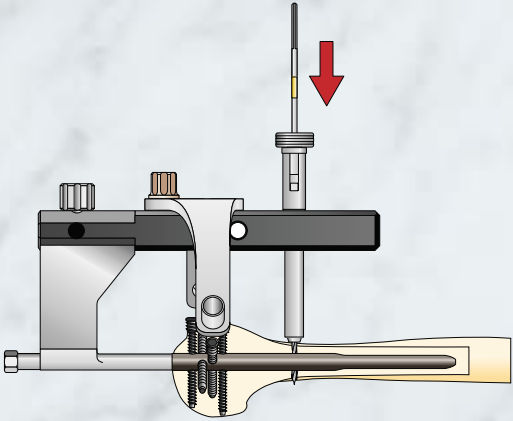
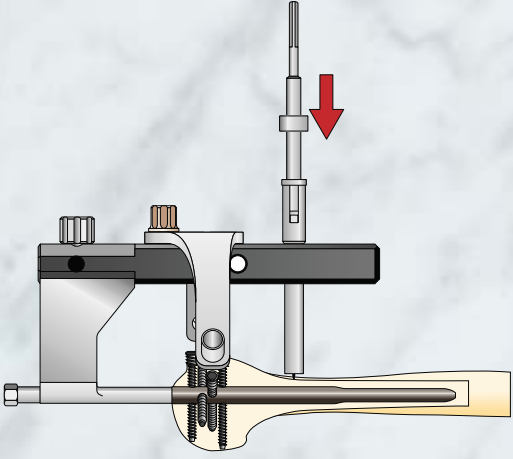
**5** INSERTION OF THE TRANSFIXATION SCREWS

- Tissue-protection sleeve KH 182 R
- Obturator KH 181 R
- Centering drill (dia. 4.5 mm) KH 185 R
- Drilling sleeve (dia. 2.7 mm) KH 186 R
- Twist drill (dia. 2.7 mm) KH 183 R
- Screw scale KH 398 R
- Screwdriver LS 013 R

Advance the tissue-protection sleeve with the obturator until contact is made with bone. Use the centering drill to prepare the entry cortex.

*Important:*  
Do not advance the centering drill up to the stop; only prepare the entry cortex for 1 to 2 mm.

Push the drilling sleeve (dia. 2.7 mm) into the tissue-protection sleeve and drill through both cortical layers with the twist drill (dia. 2.7 mm). Determine the screw length and insert the interlocking screw (dia. 3.5 mm).



**6** DISTAL INTERLOCKING  
(for the long-nail version only)

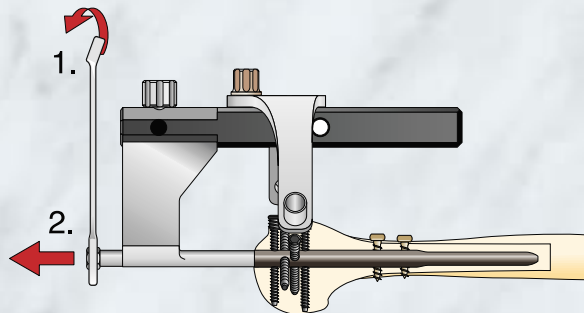
- Twist drill (dia. 2.7 mm) KH 183 R
- Screw scale KH 398 R
- Screwdriver LS 013 R

If the long-nail version is used, the distal locking holes are locked using the free-hand technique. This technique is described in Section 4 of the Surgical Manual for Targon H.

## 7 REMOVAL OF THE TARGETING DEVICE

- Tightening sleeve KH 321 R
- Socket key KH 324 C
- Screwdriver LS 013 R

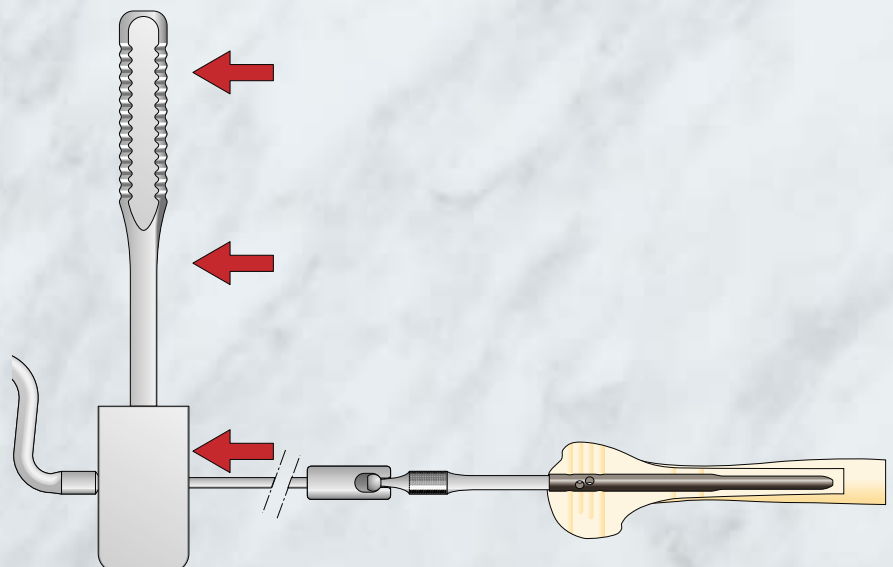
Using the tightening sleeve or socket key, loosen the adapter screw from the nail. Subsequently, disassemble the targeting device into its components.



## 8 METAL REMOVAL

- Screwdriver LS 013 R
- Extractor adapter KH 188 R
- Extractor instrument KH 310 R
- Slotted hammer KH 113 R

Access is via the old scar. Push the guide pin centrally into the nail tip with image intensifier monitoring; carefully predrill it with the hollow reamer. Remove the proximal fixation screws and subsequently screw in the extractor adapter. Remove the interlocking screws that have been inserted and then remove the nail with the extractor instrument and the slotted hammer.

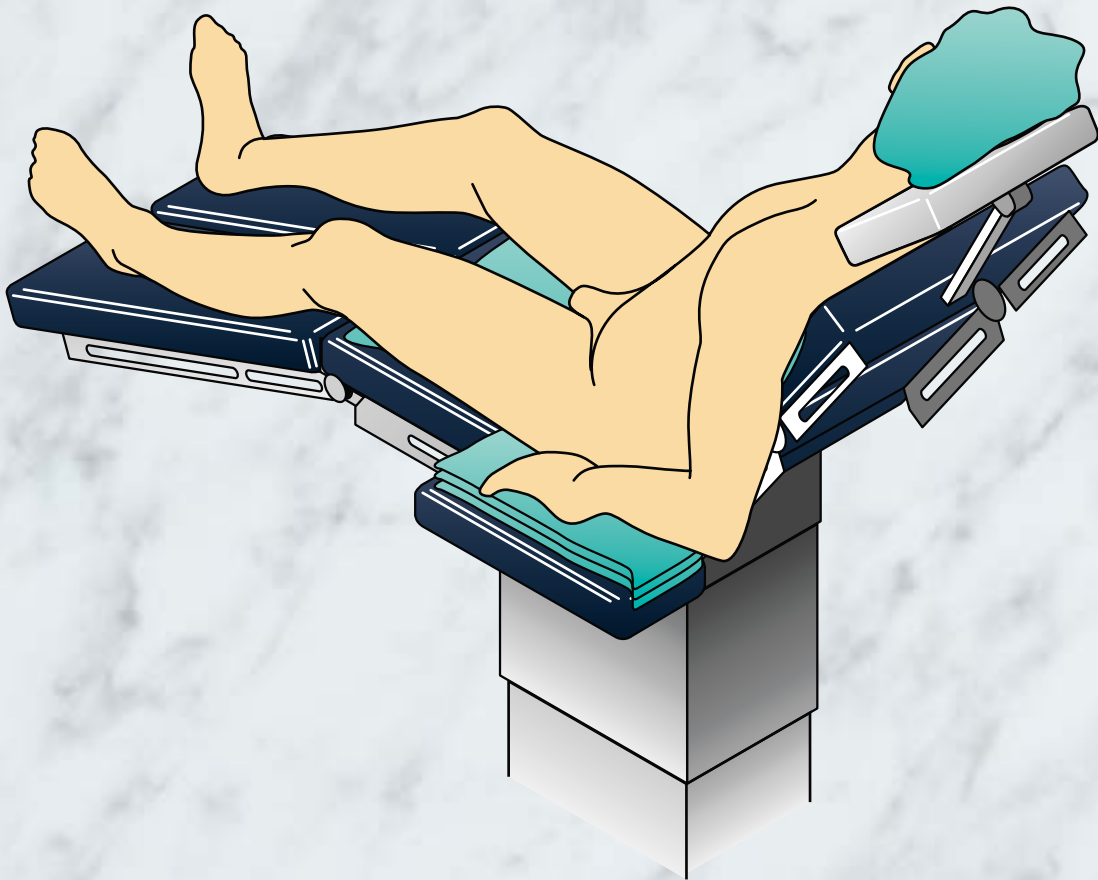


### PREOPERATIVE PLANNING

- Nail lengths required
- Nail diameters required
- Selection of the right type of screw to maintain compression

### ANTEGRADE ACCESS

### PATIENT POSITIONING





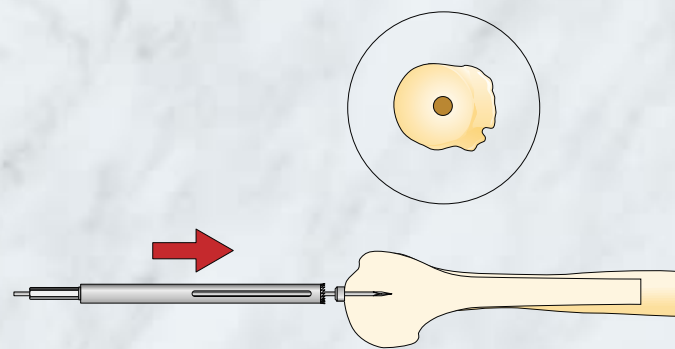
**ANTEGRADE ACCESS**

**ACCESS AND PREPARATION OF THE NAIL BED**

**A1 ACCESS**

- Guide pin KH 159 R
- Hollow reamer (dia. 8.5 mm) KH 158 R

*Deltoid-split access on the front acromial margin. Insertion of the guide pin (dia. 8.5 mm) to the most cranial edge of the capitellum under image intensifier control. Drill open the entry hole with the hollow reamer (dia. 8.5 mm).*



**A2 MOUNTING THE NAIL TO THE TARGETING DEVICE**

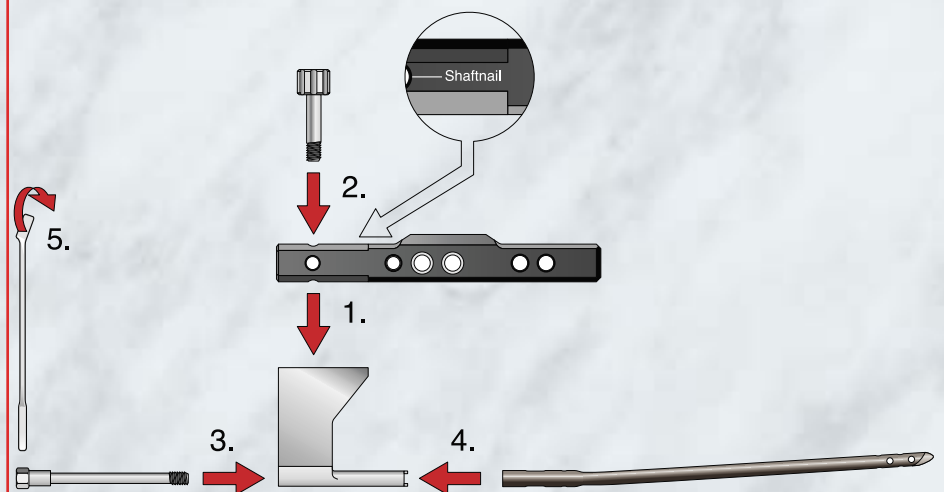
- Basic targeting device KH 165 T
- Targeting attachment KH 166 P
- Fixation screw KH 167 T
- Nail adapter screw KH 172 R
- Tightening sleeve KH 321 R
- Socket key KH 324 C

*Fasten the targeting attachment to the basic targeting device with the fixation screw.*

**Important:**

*To the right of the screw, you should now be able to read the words shaft nail.*

*Insert the nail adapter screw through the targeting device and turn the nail slightly by hand; subsequently tighten it firmly with the tightening sleeve or socket key. The grooves of different sizes on the nail tip allow only one nail position.*



**ANTEGRADE ACCESS**

**A3 INSERTION OF THE NAIL AND LOCKING OF THE COMPRESSION HOLE**

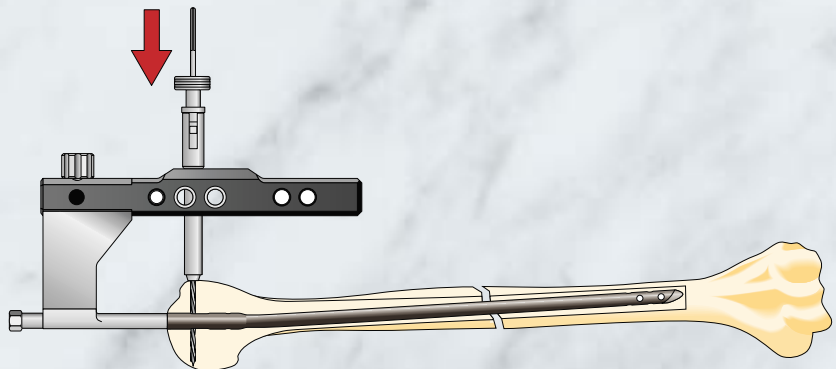
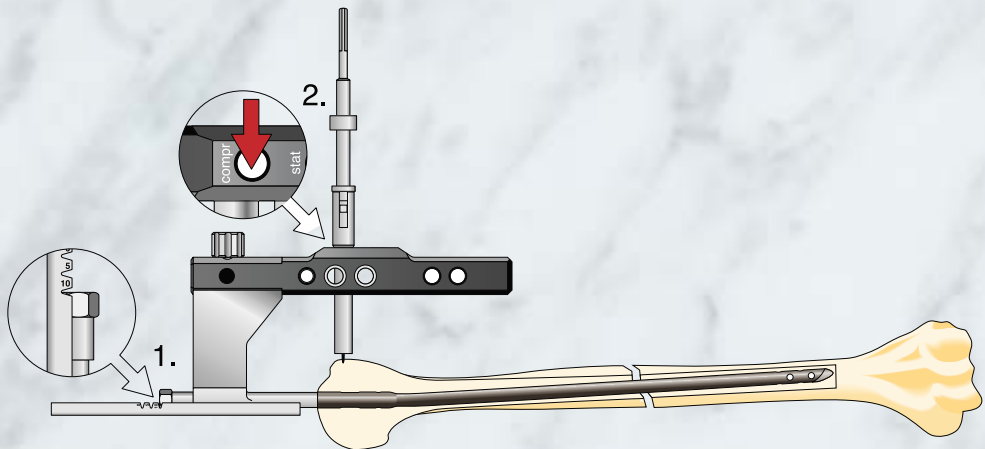
- Nail depth scale KH 169 R
- Tissue protection sleeve KH 182 R
- Obturator KH 181 R
- Twist drill (dia. 2.7 mm) KH 183 R
- Centering drill (dia. 4.5 mm) KH 185 R

**Important:**  
If fracture compression is necessary, the nail must be inserted deeper by the length of the compression required.

Following manual insertion of the nail, check its position on the image intensifier. The nail insertion depth can be checked with the nail depth scale, which is slid along the targeting device up to the capitellum. At the upper edge of the hexagon nut, the insertion depth can now be read on the scale (0, 5, 10). To prevent protrusion of the nail the displayed value should be between 5 and 10 mm. Using the obturator, push the tissue-protection sleeve up to the bone in the hole marked with the word *compr.* Prepare the entry cortex with the centering drill.

**Important:**  
Do not advance the centering drill up to the stop. Prepare the cortex only slightly.

Subsequently, insert the twist drill (dia. 2.7 mm) through the corresponding drilling sleeve to drill open the screw hole. Determine the screw length and insert the interlocking screw (dia. 3.5 mm).

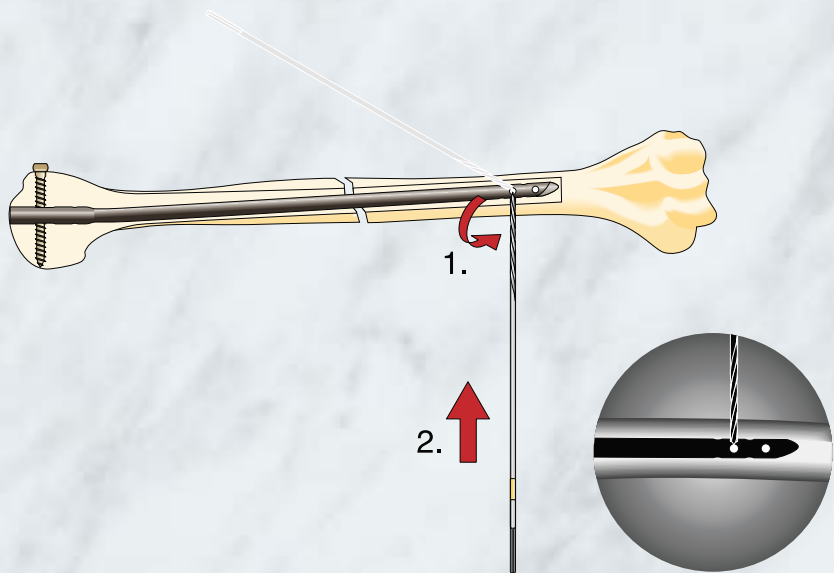
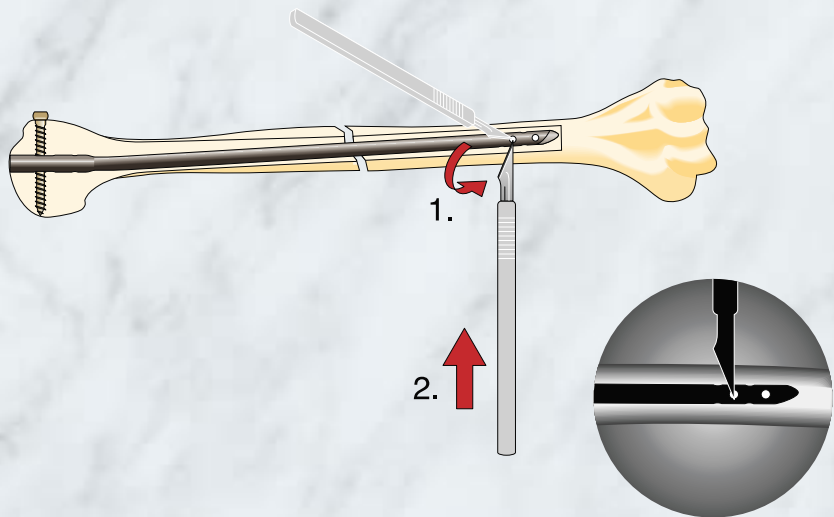


**ANTEGRADE ACCESS**

**A4 COMPRESSION OF THE FRACTURE**

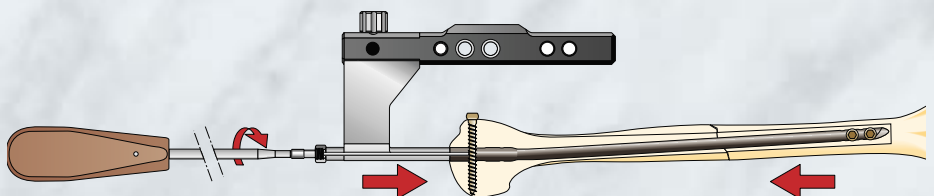
- Twist drill (dia. 2.7 mm) KH 183 R

The first step is the freehand locking of the distal portion with the twist drill (dia. 2.7 mm) and insertion of the screws (dia. 3.5 mm) into the selected locking holes.



- Compression screw KH 173 R
- Screwdriver LS 013 R

Screw in the compression screw via the targeting device. Turn the compression screw in the opposite direction to the interlocking screw with the screwdriver until contact is made with bone in the fracture area. The compression screw is left in this position.



## ANTEGRADE ACCESS

### A4 COMPRESSION OF THE FRACTURE

- Twist drill (dia. 2.7 mm) KH 183 R
- Drilling sleeve (dia. 2.7 mm) KH 186 R
- Tissue-protection sleeve KH 182 R
- Obturator KH 181 R
- Screw scale KH 398 R
- Centering drill (dia. 4.5 mm) KH 185 R
- Variant of the fixation screw
- Twist drill (dia. 3.5 mm) KH 184 R

Using the obturator, advance the tissue-protection sleeve through the hole in the targeting bow marked with Stat. Using the centering drill, prepare the cortex.

**Important:**

Do not advance the centering drill up to the stop. Prepare the cortex only slightly.

Insert the drilling sleeve (dia. 2.7 mm). Drill open the screw hole with the twist drill (dia. 2.7 mm). Measure the screw length and then screw in the interlocking screw (dia. 3.5 mm).

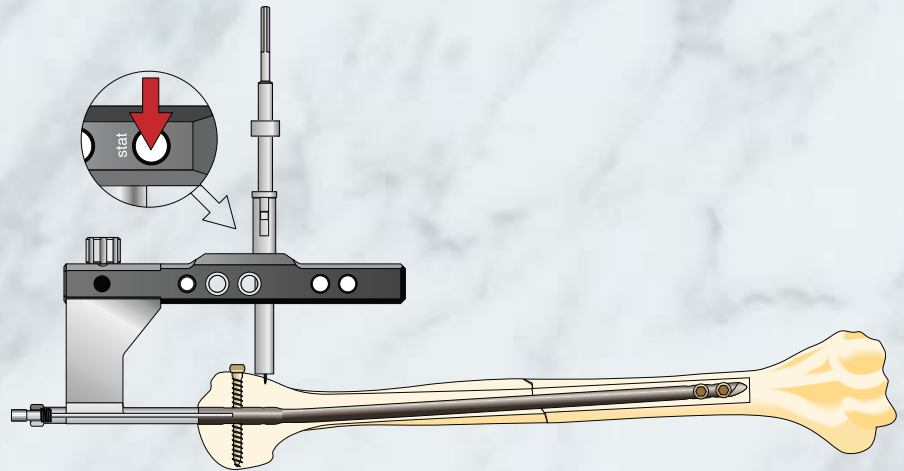
Modification for patients with osteoporosis:

Using the obturator, advance the tissue-protection sleeve through the hole in the targeting bow marked with Stat. Predrill the screw canal with the centering drill.

**Important:**

Advance the centering drill up to the stop.

Open the screw hole by drilling with the twist drill (dia. 3.5 mm). Determine the screw length and insert the selected fixation screw (dia. 4.5 mm).

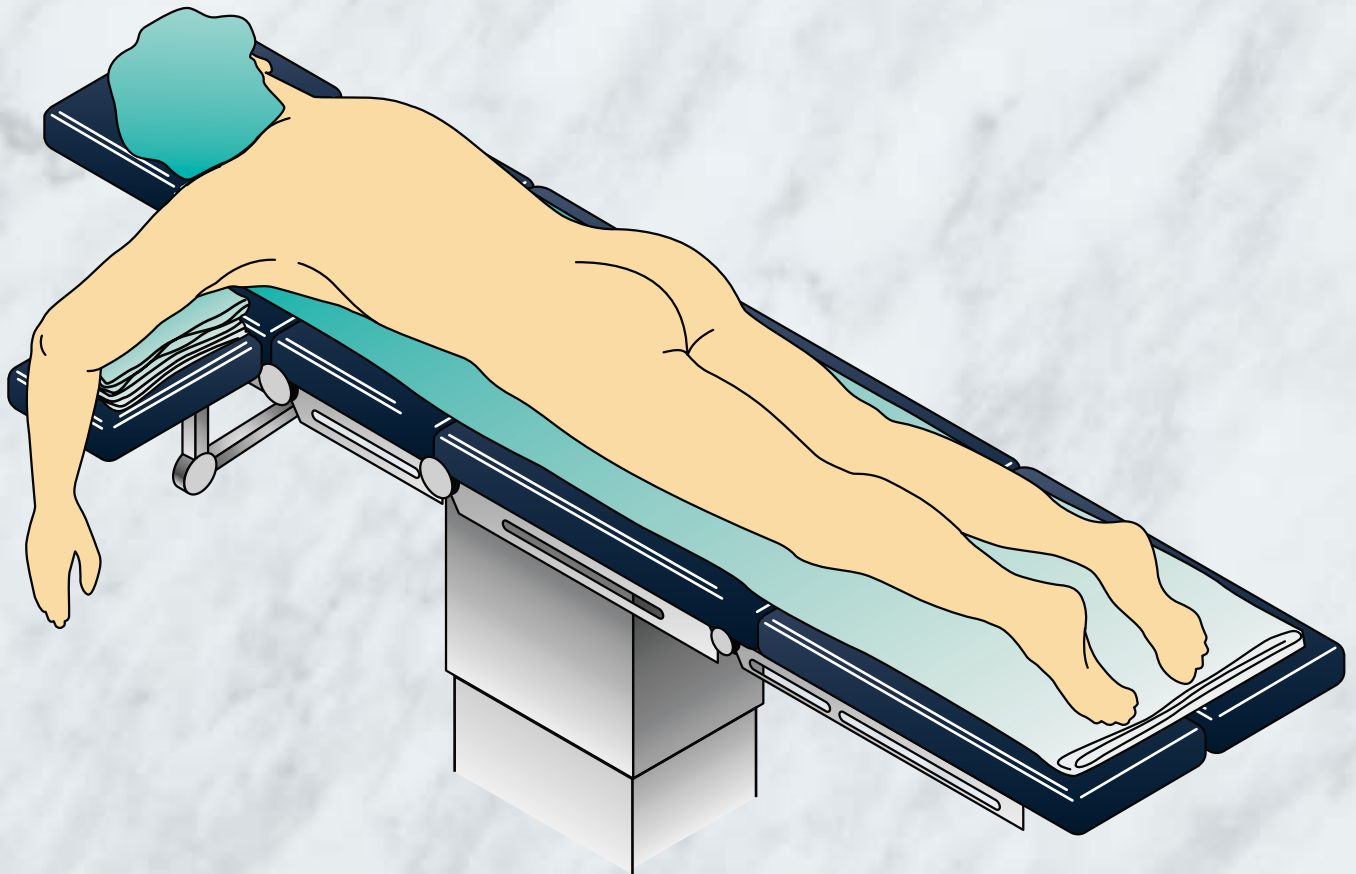


### *PREOPERATIVE PLANNING*

- *Nail lengths required*
- *Nail diameters required*
- *Selection of the right type of screw for maintenance of compression*

### *RETROGRADE ACCESS*

### *PATIENT POSITIONING*



**RETROGRADE ACCESS**

**ACCESS AND PREPARATION OF THE NAIL BED**

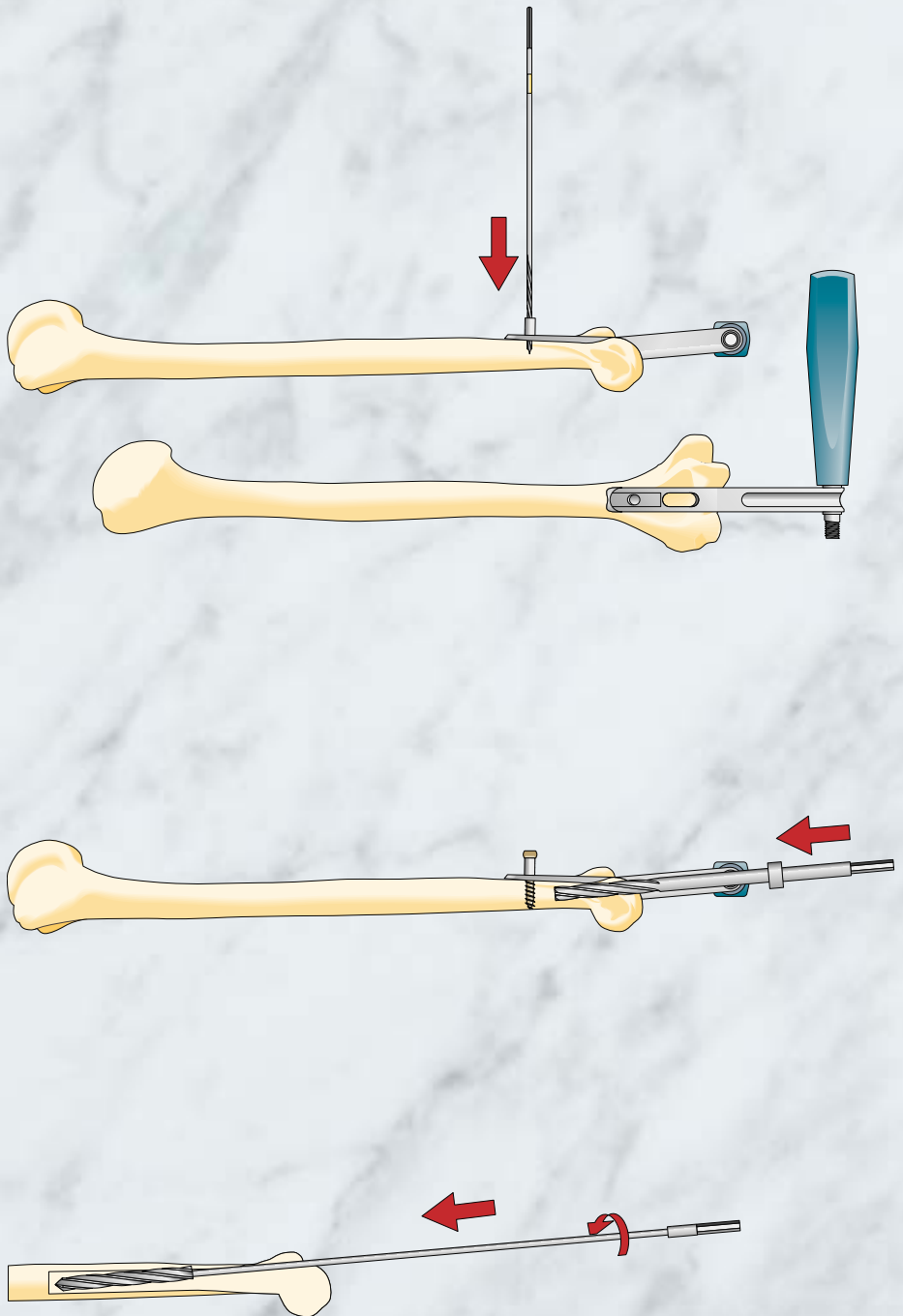
**R1 ACCESS**

- Guide instrument KH 163 R
- Access reamer KH 162 R
- Twist drill (dia. 2.7 mm) KH 183 R
- Screw scale KH 398 R
- Screwdriver LS 013 R
- Reamer (dia. 8 mm) KH 177 R /
- Reamer (dia. 9 mm) KH 178 R

*Splitting of the triceps tendon and exposure of the olecranon. The guide instrument for the access reamer is placed on the olecranon until the nail tip marked on the guide instrument corresponds to the planned nail tip. Using the twist drill (dia. 2.7 mm), drill through the end of the guide instrument and screw the guide instrument to the bone with a fixation screw (dia. 3.5 mm). The drilled hole can be used later as a locking hole for compression. Prepare the entry portal by advancing the motor-driven access reamer on the guide instrument up to the stop. Remove the guide instrument.*

**Important:**  
*The access reamer cannot come into contact with the fixation screw.*

*To guarantee easy insertion of the nail, rework the entry portal with the reamers after removing the guide instrument.*



## RETROGRADE ACCESS

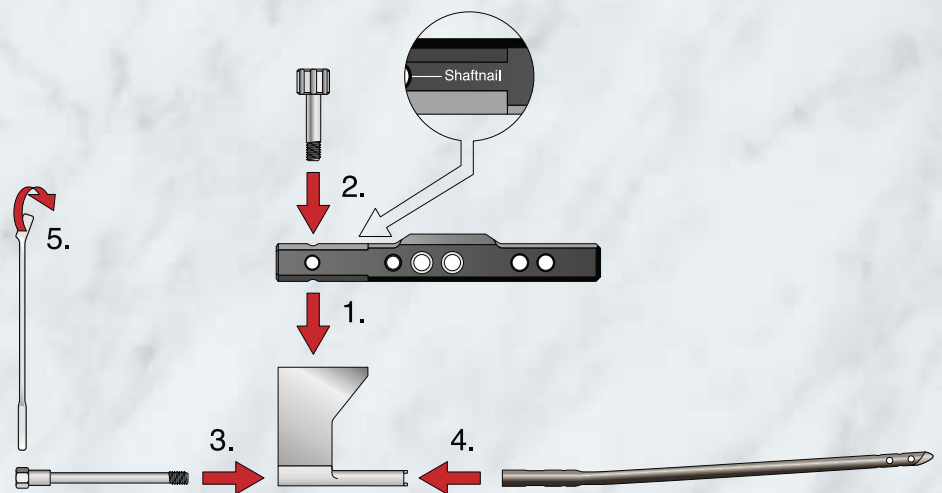
### R2 ATTACHING THE NAIL TO THE TARGETING DEVICE

- Basic targeting device KH 165 T
- Targeting attachment KH 166 P
- Attachment screw KH 167 T
- Nail adapter screw KH 172 R
- Tightening sleeve KH 321 R
- Socket key KH 324 C

Attach the target attachment to the body of the targeting device with the attachment screw.

**Important:**  
To the right of the attachment screw, you should now be able to read the words shaft nail.

Insert the nail adapter screw through the targeting device, turn the nail lightly by hand and subsequently tighten it firmly with the tightening sleeve or socket key. The grooves of different sizes on the nail tip permit only one nail position.



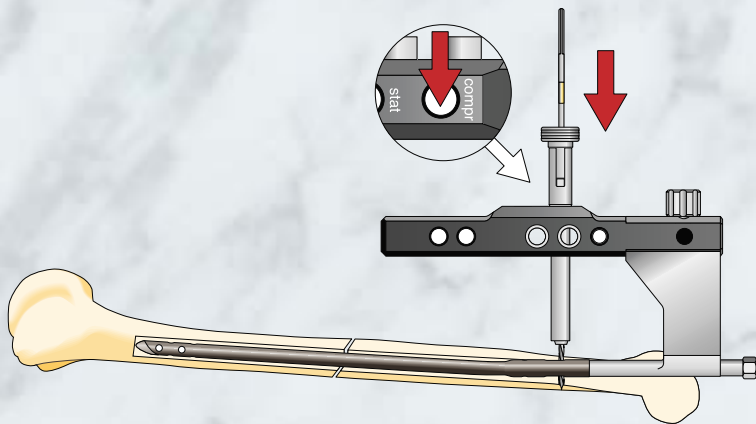
RETROGRADE ACCESS

**R3** INSERTION OF THE NAIL AND LOCKING OF THE COMPRESSION HOLE

- Tissue-protection sleeve KH 182 R
- Centering drill (dia. 4.5 mm) KH 185 R
- Twist drill (dia. 2.7 mm) KH 183 R
- Screw scale KH 398 R
- Screwdriver LS 013 R

**Important:**  
If fracture compression is necessary, the nail must be inserted deeper by the length of the compression required.

Following manual insertion of the nail, check the position of the implant. The drilled hole through which the guide instrument is fixed can be used to lock the compression hole. To locate this hole, push the centering drill or the twist drill (dia. 2.7 mm) through the tissue-protection sleeve with the drilling sleeve. After the hole is located, the screw length is determined and the corresponding interlocking screw (dia. 3.5 mm) is inserted.





RETROGRADE ACCESS

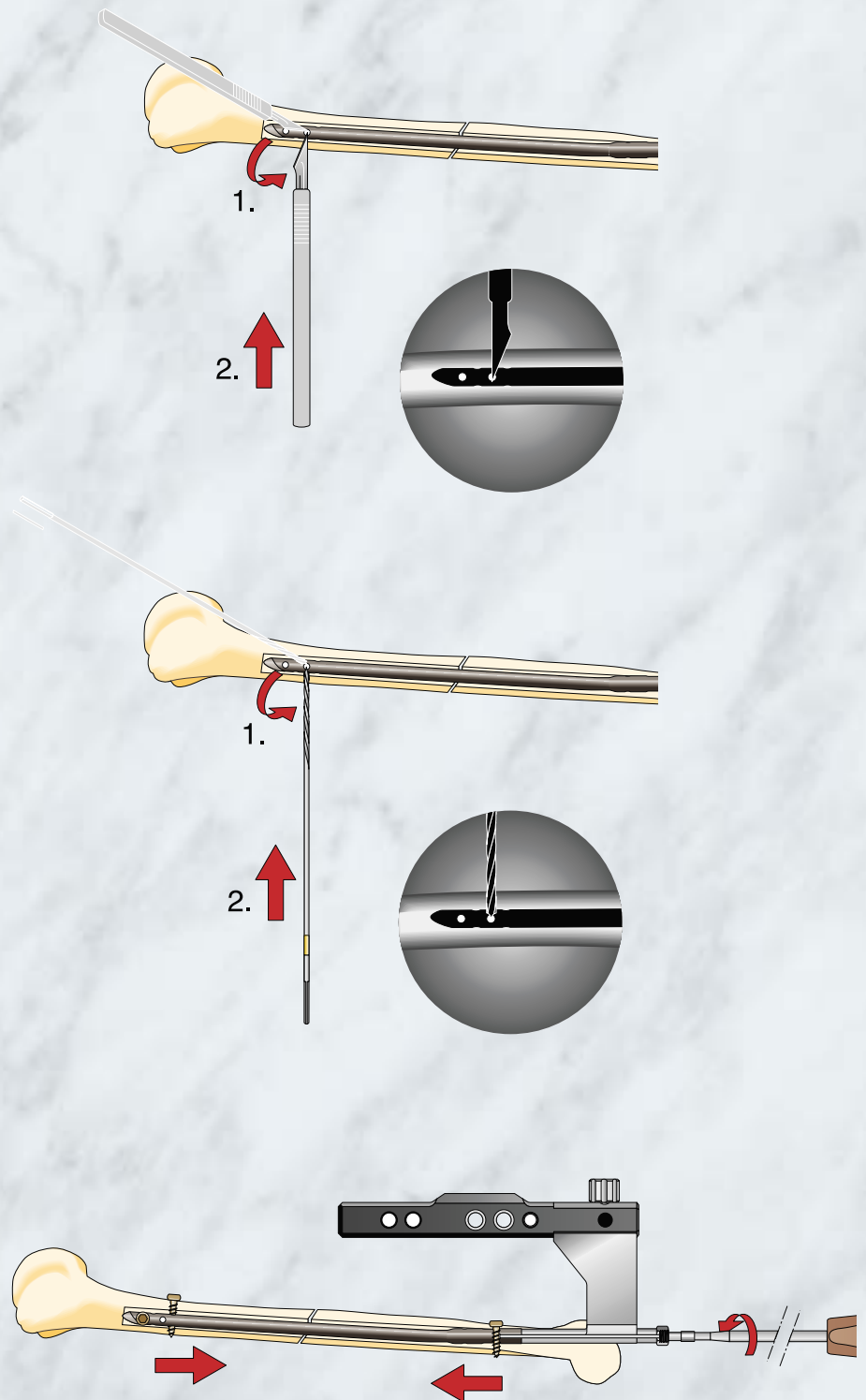
**R4** COMPRESSION OF THE FRACTURE

- Twist drill (dia. 2.7 mm) KH 183 R

The first step is the freehand interlocking of the proximal area with the twist drill (dia. 2.7 mm) and insertion of the screws (dia. 3.5 mm) into the selected locking holes.

- Compression screw KH 173 R
- Screwdriver LS 013 R

Screw in the compression screw through the targeting device. The compression screw is turned opposite to the interlocking screw with the screwdriver until contact is made with bone in the fracture area. The compression screw is left in this position.



## RETROGRADE ACCESS

### R4 COMPRESSION OF THE FRACTURE

- Twist drill (dia. 2.7 mm) KH 183 R
- Drilling sleeve (dia. 2.7 mm) KH 186 R
- Tissue-protection sleeve KH 182 R
- Obturator KH 181 R
- Screw scale KH 398 R
- Centering drill (dia. 4.5 mm) KH 185 R
- Variant of the fixation screw
- Twist drill (dia. 3.5 mm) KH 184 R

Advance the tissue-protection sleeve with the obturator through the hole marked with Stat. in the targeting bow. Prepare the cortical layer only slightly with the centering drill.

**Important:**

Do not advance the centering drill up to the stop. Prepare the cortex only slightly.

Insert the drilling sleeve (dia. 2.7 mm). Open the screw hole with the twist drill (dia. 2.7 mm). Measure the screw length and screw in the interlocking screw (dia. 3.5 mm).

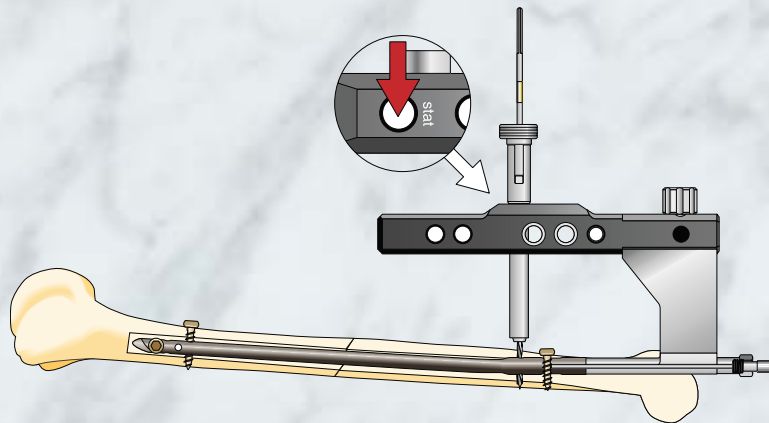
Modification for patients with osteoporosis:

Advance the tissue-protection sleeve with the obturator through the hole marked with Stat. in the targeting bow. Predrill the screw canal with the centering drill.

**Important:**

Advance the centering drill up to the stop.

Open the screw hole by drilling with the twist drill (dia. 3.5 mm). Determine the fixation screw length and insert the selected fixation screw (dia. 4.5 mm).

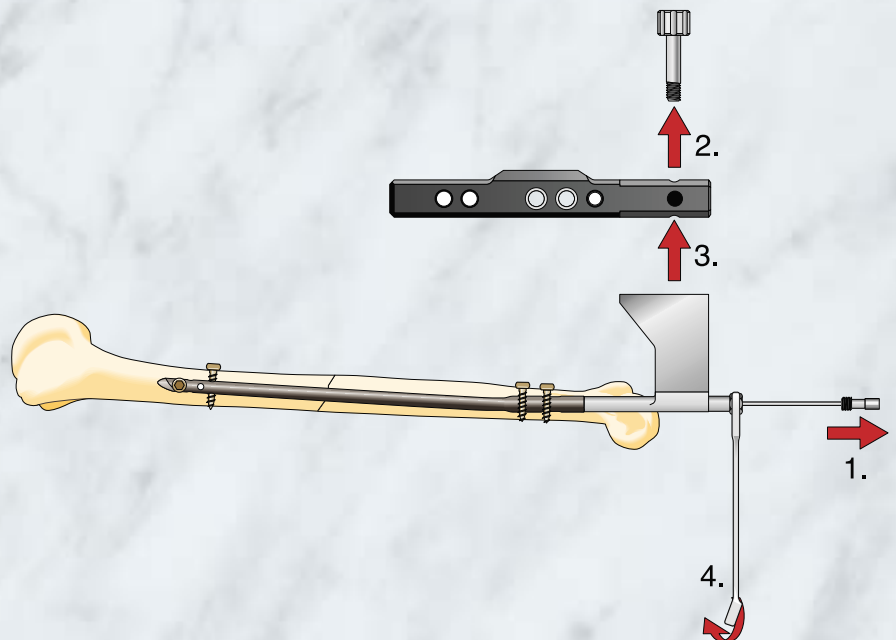


**ANTEGRADE ACCESS**  
**RETROGRADE ACCESS**

**5** REMOVAL OF THE  
TARGETING DEVICE

- Screwdriver LS 013 R
- Tightening sleeve KH 321 R
- Socket key KH 324 C

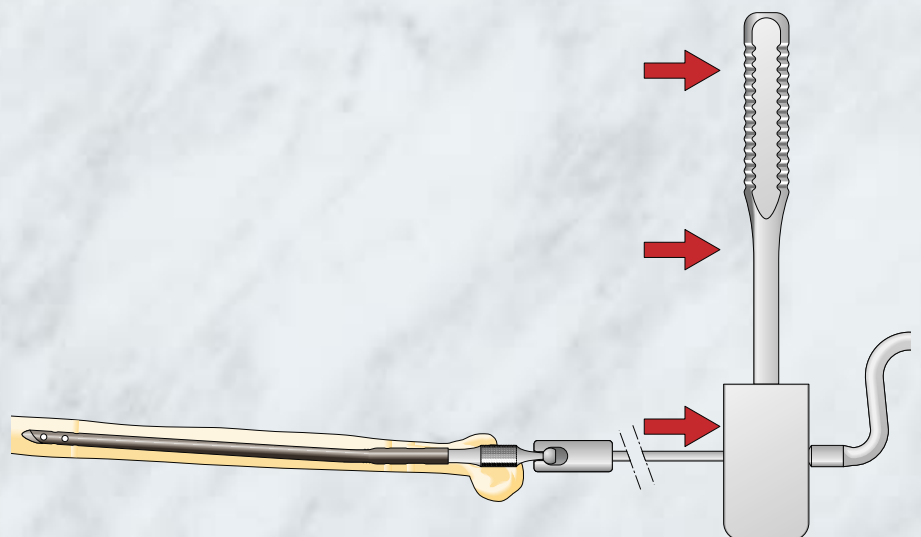
Removal of the compression screw, detachment of the connection between the targeting bow and the basic targeting device.  
Loosen the nail adapter screw with the tightening sleeve or socket key.



**6** REMOVAL  
OF METAL

- Screwdriver LS 013 R
- Extractor adapter KH 188 R
- Extractor instrument KH 310 R
- Slotted hammer KH 113 R

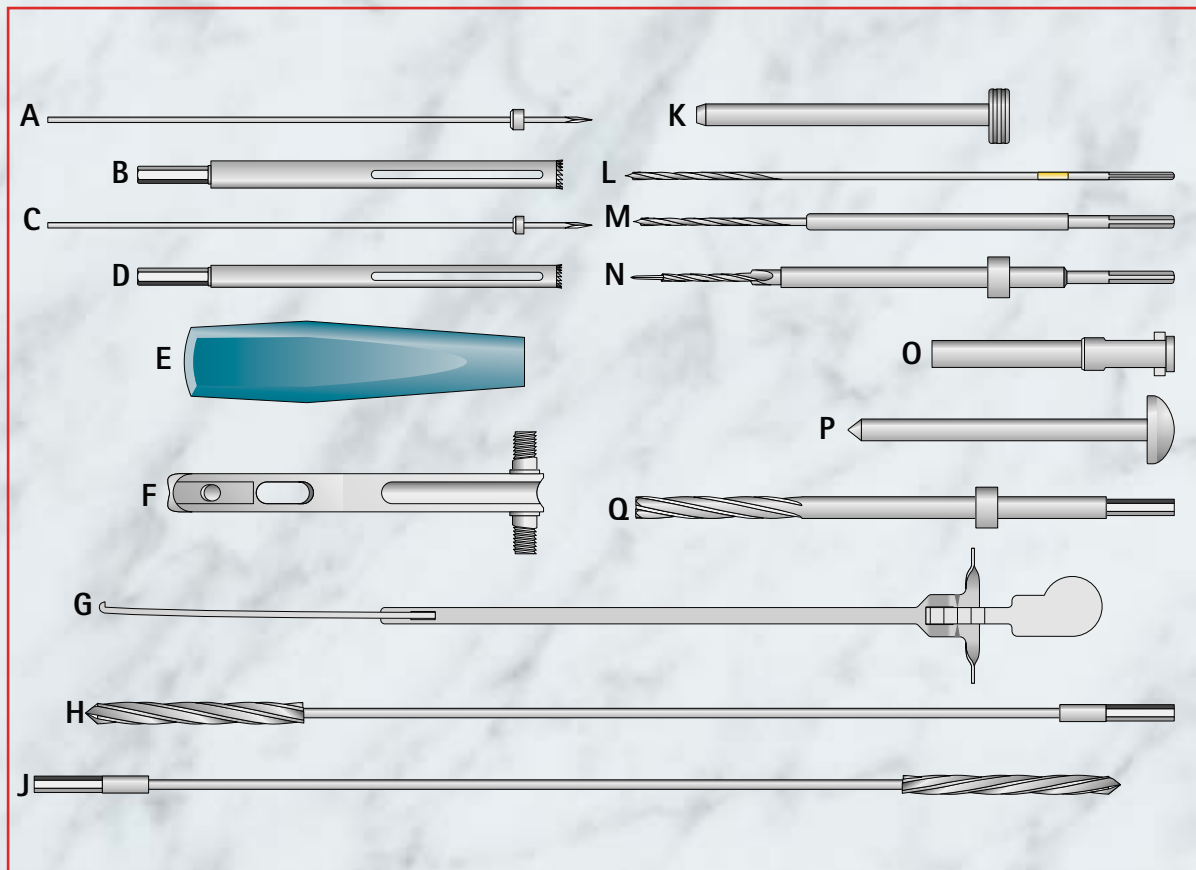
Following removal of the interlocking screws, the extractor adapter is screwed in and the nail is removed with the extractor instrument and the slotted hammer.



# TARGON *PH / H*

## INSTRUMENT - OVERVIEW

### Set 1

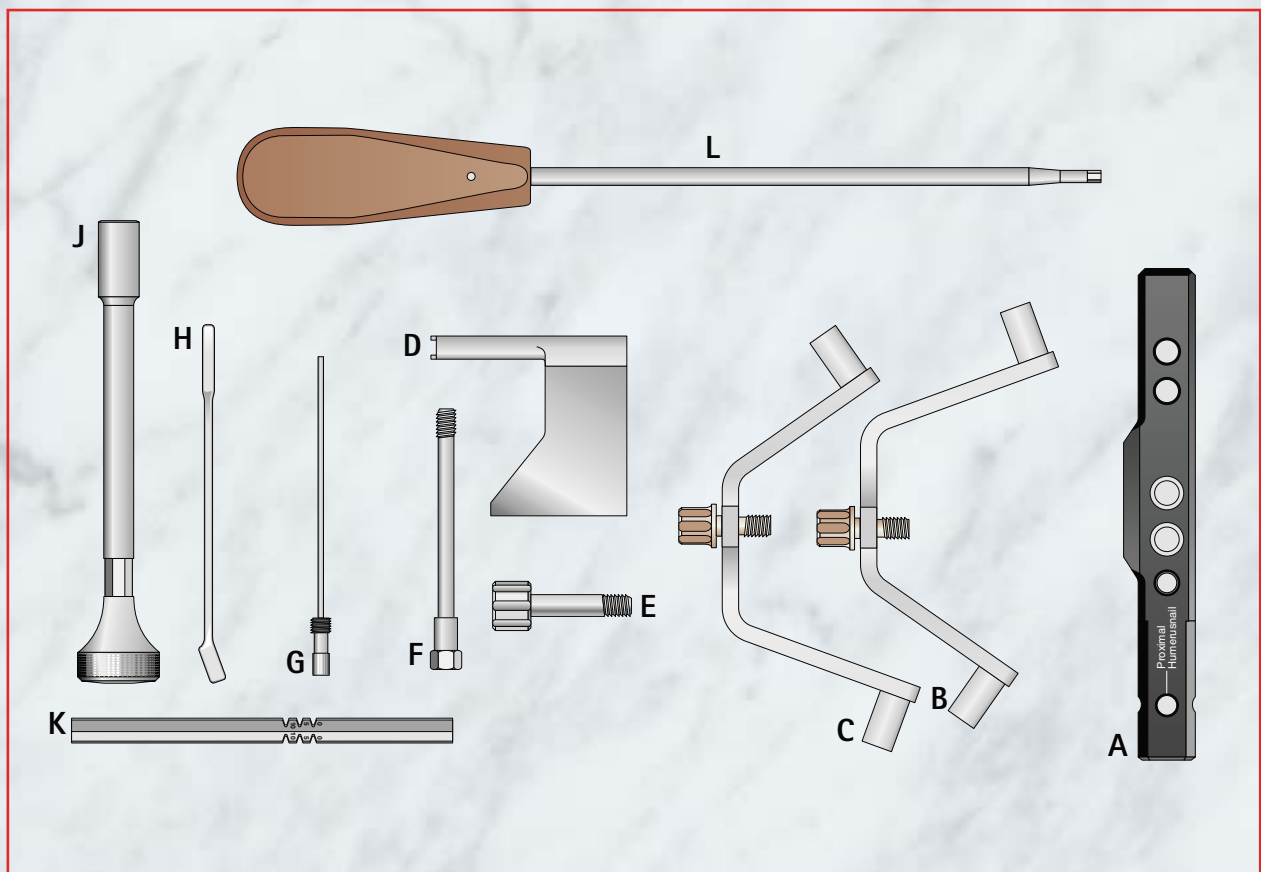


	Code No.	Description
A	KH 161 R	Guide pin Ø 10,5 mm
B	KH 160 R	Hollow reamer Ø 10,5 mm
C	KH 159 R	Guide pin Ø 8,5 mm
D	KH 158 R	Hollow reamer Ø 8,5 mm
E		Handle of guide instrument KH 163 R
F	KH 163 R	Guide instrument
G	KH 398 R	Screw scale
H	KH 178 R	Reamer Ø 9 mm

	Code No.	Description
J	KH 177 R	Reamer Ø 8 mm
K	KH 186 R	Drilling sleeve Ø 2,7 mm
L	KH 183 R	Twist drill Ø 2,7 mm
M	KH 184 R	Twist drill Ø 3,5 mm
N	KH 185 R	Centering drill Ø 4,5 mm
O	KH 182 R	Tissue protecting sleeve
P	KH 181 R	Obturator
Q	KH 162 R	Access reamer

# TARGON *PH / H* INSTRUMENT - OVERVIEW

## Set 2

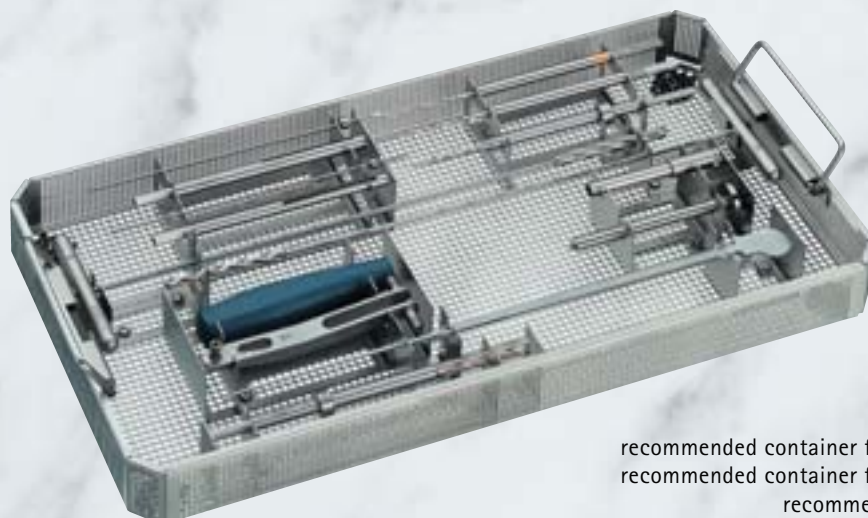


	Code No.	Description
A	KH 166 P	Targetingattachment
B	KH 171 R	Targeting bow
C	KH 170 R	Targeting bow
D	KH 165 T	Basic targeting device
E	KH 167 T	Attachment screw
F	KH 172 R	Nail adapter screw
G	KH 173 R	Compression screw
H	KH 324 C	Socket key
J	KH 321 R	Tightening sleeve
K	KH 169 R	Nail depth scale
L	LS 013 R	Screw driver

# TARGON *PH / H* INSTRUMENT SET

## KH 146

BASIC INSTRUMENT SET 1		
Quant.	Code No.	Description
1	KH 158 R	Hollow reamer Ø 8,5 mm
1	KH 159 R	Guide pin Ø 8,5 mm
1	KH 160 R	Hollow reamer Ø 10,5 mm
1	KH 161 R	Guide pin Ø 10,5 mm
1	KH 162 R	Access reamer
1	KH 163 R	Guide instrument for KH 162 R
1	KH 177 R	Reamer 8 mm
1	KH 178 R	Reamer 9 mm
1	KH 182 R	Tissue protecting sleeve
1	KH 183 R	Twist drill Ø 2,7 mm
1	KH 186 R	Drilling sleeve Ø 2,7 mm
1	KH 184 R	Twist drill Ø 3,5 mm
1	KH 185 R	Centering drill Ø 4,5 mm
1	KH 398 R	Screw scale
1	KH 181 R	Obturator
1	KH 151 R	Mesh tray with storage
1	TE 820	Packing template



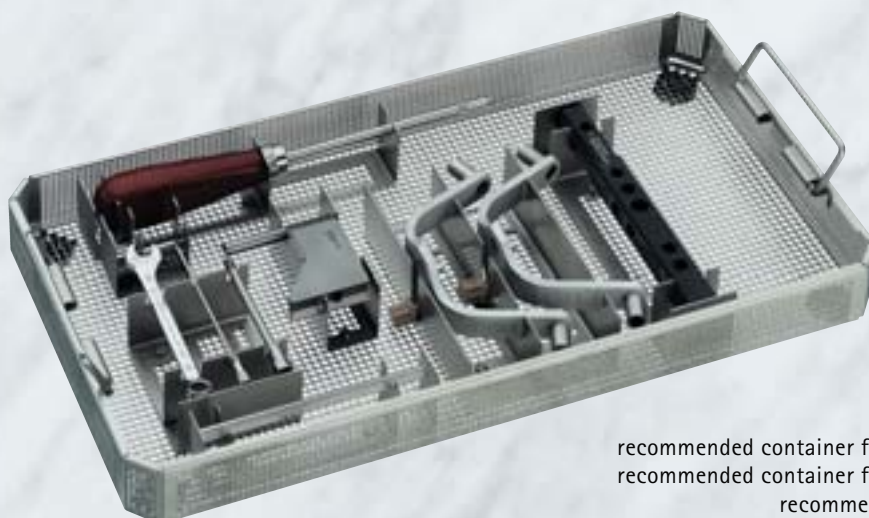
recommended container for KH 146 without lid: JK 401 P  
 recommended container for KH 146 without lid: JK 402 P  
 recommended lid for Mesh Tray: JF 217 R

## BASIC INSTRUMENT SET 2

Quant.	Code No.	Description
1	KH 165 T	Basic targeting device
1	KH 166 P	Targeting attachment for humerusnail
2	KH 167 T	Attachment screw
1	KH 169 R	Nail depth scale
1	KH 170 R	Targeting bow
1	KH 171 R	Targeting bow
1	KH 172 R	Nail adapter screw
1	KH 173 R	Compression screw
1	KH 321 R	Tightening sleeve SW 10
1	KH 324 C	Socket key
1	LS 013 R	Screw driver
1	KH 153 R	Mesh tray with storage
1	TE 823	Packing template
1	KH 164	X-Ray template

## EXTRACTION INSTRUMENTS

Quant.	Code No.	Description
1	KH 310 R	Extractor instrument
1	KH 188 R	Extractor adapter
1	KH 113 R	Slotted hammer
		please order seperately



**KH 152**  
**TARGON PH**  
 Instrument - Set

**KH 150**  
**TARGON H**  
 Instrument - Set

recommended container for KH 146 without lid: JK 401 P  
 recommended container for KH 146 without lid: JK 402 P  
 recommended lid for Mesh Tray: JF 217 R

# TARGON PH / H IMPLANT - SET

## KH 156

SET FOR TARGON PH NAILS		
Quant.	Code No.	Description / mm
1	KE 055 T	Prox. H.-Nail left 150
1	KE 072 T	Prox. H.-Nail left 220
1	KE 075 T	Prox. H.-Nail left 250
1	KE 005 T	Prox. H.-Nail right 150
1	KE 022 T	Prox. H.-Nail right 220
1	KE 025 T	Prox. H.-Nail right 250
1	KH 157 R	Mesh Tray with storage
1	TE 819 T	Packaging template

for storing additional nails  
please call our technical service  
++49 (74 61) 95-27 00  
one piece for each nail

- PL 950218 Silikonpad Ø 5 mm
- PL 950220 Silikonpad Ø 8,5 mm



## KH 154

SET FOR TARGON H NAILS		
Quant.	Code No.	Description / mm
1	KE 206 T	Shaft nail 7 x 180
1	KE 208 T	Shaft nail 7 x 200
1	KE 210 T	Shaft nail 7 x 220
1	KE 212 T	Shaft nail 7 x 240
1	KE 214 T	Shaft nail 7 x 260
1	KE 306 T	Shaft nail 8 x 180
1	KE 308 T	Shaft nail 8 x 200
1	KE 310 T	Shaft nail 8 x 220
1	KE 312 T	Shaft nail 8 x 240
1	KE 314 T	Shaft nail 8 x 260
1	KH 155 R	Mesh Tray with storage
1	TE 818	Packaging template

recommended container for KH 156 or KH 154: JK 400 P  
recommended lid for Mesh Tray: JF 217 R





# KH 148

SCREWSET TARGON PH / H										
Locking screw			Fixation screw							
	3,5	Ø / mm	Quant.	Code No.		4,5	Ø / mm	Quant.	Code No.	Length/mm
		4	KB 518 T	18			2	KB 070 T	30	
		4	KB 521 T	21			2	KB 072 T	32	
		4	KB 524 T	24			2	KB 074 T	34	
		4	KB 527 T	27			2	KB 076 T	36	
		4	KB 530 T	30			2	KB 078 T	38	
		4	KB 533 T	33			2	KB 080 T	40	
		4	KB 536 T	36			2	KB 082 T	42	
		4	KB 539 T	39			2	KB 084 T	44	
		4	KB 542 T	42			2	KB 086 T	46	
		4	KB 545 T	45			2	KB 088 T	48	
		4	KB 548 T	48			2	KB 090 T	50	
		2	KB 551 T	51			2	KB 092 T	52	
		2	KB 554 T	54			2	KB 094 T	54	
		2	KB 557 T	57			2	KB 096 T	56	
2	KB 560 T	60	2	KB 098 T	58					
2			2	KB 100 T	60					
Storage					All screws sizes are listed					
1 KH 149 R Mesh Tray with storage/lid										

Fixation disc 16 x 11 mm	
	Code No.
	KB 055 T
please order separately	

recommended container for KH 148: JK 400 P

# TARGON *PH* IMPLANT - PROGRAM

## NAILTYPE RIGHT

diam. prox./distal mm	Length / mm	Code No.
10 / 8	150 mm	KE 005 T
10 / 7	220 mm	KE 022 T
10 / 7	250 mm	KE 025 T
10 / 7	280 mm	KE 028 T

## NAILTYPE LEFT

diam. prox./distal mm	Length / mm	Code No.
10 / 8	150 mm	KE 055 T
10 / 7	220 mm	KE 072 T
10 / 7	250 mm	KE 075 T
10 / 7	280 mm	KE 078 T



# TARGON *H*

## IMPLANT - PROGRAM

NAIL diam. 7 MM

Länge / mm	Art. Nr.
180	KE 206 T
200	KE 208 T
220	KE 210 T
240	KE 212 T
260	KE 214 T
280	KE 216 T
300	KE 218 T

NAIL diam. 8 MM

Länge / mm	Art. Nr.
180	KE 306 T
200	KE 308 T
220	KE 310 T
240	KE 312 T
260	KE 314 T
280	KE 316 T
300	KE 318 T



# TARGON

*CREATES  
STRONG  
CONNECTION*

**B | BRAUN**

**AESULAP AG & CO. KG**

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D-78532 Tuttlingen

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Fax +49 (74 61) 95-26 00

<http://www.aesculap.de>

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Brochure No. 0 189 02

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