Auxein®

# Surgical Technique

## *Konzept Humerus Nailing System*

www.auxein.com

# about us

Auxein Medical is an integrated, research based, orthopaedic Implants & instruments manufacturing company, producing a wide range of quality, affordable generic implants, trusted by healthcare professionals and patients across geographies. It is the Company's constant endeavor to provide a wide basket of generic and our innovator products that exceed the highest expectations of customers in term of quality and safety. The company has world-class manufacturing unit established in india and serves customers in over 75 countries worldwide.

## Our Achievements

## INTRODUCTION

***AUXEIN'S*** Humerus nailing system Consists of anatomically pre-contoured Compression Intramedullary humerus nail, Reconstruction Nail & Reconstruction intramedullary humerus nail.

## INDICATIONS:

The AUXEIN MEDICAL Humerus Nail System is intended to aid in the alignment and stabilization of humeral fractures which include:

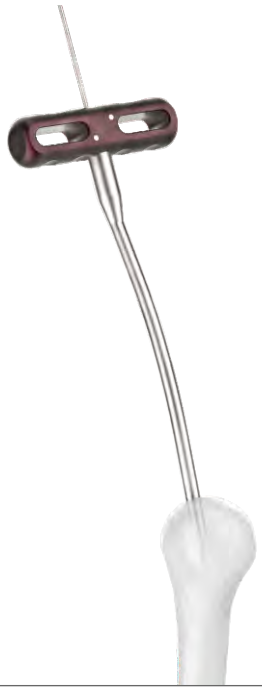
- Diaphyseal fractures of the humeral shaft
- Fractures of the proximal humerus
- Proximal humeral fractures with diaphyseal extension
- Impending pathologic fractures
- Malunions and nonunions

**Patient positioning:** The patient is positioned in the Beach chair position on a shoulder table. Support the shoulder with the pads. The operating table should be radiolucent in shoulder area.
Perform the radiographic imaging of the humeral fracture in AP and lateral view in order to define the fracture type and choose the intramedullary nail diameter. Alternatively the radiographic image of the opposite healthy humerus bone can be used for the same.

**Entry point:** An initial incision is made anterolateral to the clavicle-shoulder joint and split the deltoid muscle longitudinally. The antegrade insertion point for the Humeral Nail is located on the extended axis of the central humeral shaft in the lateral view and at the bone-cartilage transition of the humeral head in the AP view and not on the greater tuberosity, otherwise the tendon attachment of the supraspinatus will be affected.

**Opening Humeral Head:** Insert the Ø2.0mm K wire a bit medial to the greater tuberculum in the axis of intramedullary canal.

Pass the Curved Awl 8.0 **(10-1209.00)** over the pre-inserted wire and open the medullary canal to a depth of approximately 7cm.



**Reaming:** After the reaming has been performed, remove the awl and K wire. Now insert the Ø1.8mm Guide rod **(10-1021.00)** to the required depth as per the selected nail size. In order to aid the easy insertion of nail, ream the medullary canal at successful 0.5mm interval until the diameter reaches 0.5mm larger than the selected nail dia. The proximal part of medullary canal has to be reamed to 11mm dia. with a depth of 7cm.

**Measuring Nail length:** After the reaming is complete, remove the flexible reamer. Now slide the Nail length measure **(10-1207.00)** over the guide rod until it sits on the bone. The end of guide rod on the nail length measure indicates the required nail length. Once the length is determined, remove the nail length measure.

**Nail and Jig Assembly:** Align the tabs on the Humeral target B **(10-1180.00)** to the slots on the compression intramedullary Humeral Nail and fix it in the target B with the help of connecting screw L=101 **(10-1184.00)** using the socket wrench S11 **(10-1199.00)**. The holes on the Target B are marked for different locking options as described below:

**1. STAT:**
There are two STAT marking on the Target B. One is for inserting the locking bolt in proximal round hole of the compression intramedullary Humeral nail while the other one is to insert the locking bolt in the dynamic oblong hole of the compression intramedullary humeral nail in order to provide static locking.

**2. COMPRESSION:**
The compression hole on Target B is used for inserting the locking bolt in the dynamic oblong hole in the compression intramedullary humeral nail to provide dynamic locking.

**3. ANGULAR:**
There are two ANGULAR markings on the Target B for inserting locking bolt in the angular configuration in the dynamic oblong hole of the compression intramedullary nail.

**4. RECONSTRUCTION:**
There are two RECONSTRUCTION markings on the Target B which is used for inserting the locking bolt in the two distal holes of the 150mm Reconstruction Nail.

Unscrew the bolt from the Humeral target B **(10-1180.00)** and attach the Distal Target D **(10-1181.100)** to it and fix it by screwing the bolt on top of the distal target D. Before proceeding with nail inserting procedure, it is important to set the slider on the distal target D so that the holes on the slider are aligned to the distal holes of the compression intramedullary humeral nail.

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Insert the Ø3.5/4.5 set blocks **(10-1185.00)** through the two holes in the slider and slide the slider in Distal target D slot until the holes align with the nail and the set blocks sit perfectly into the distal holes of the nail. At this point, fix the slider by tightening the two bolts in slider with the help of 3.5 Hexagonal screwdriver **(10-1198.00)**. Remove the set block after final fixation of the slider.

**Nail Insertion:** In case of cannulated nail, glide the nail over the pre-inserted guide rod and advance it into the bone. Remove the guide rod using Handle guide rod **(10-1202.00)**. For final seating of the nail in intramedullary canal, attach the impactor-extractor **(10-1195.00)** on top of the humeral target B and apply light blows using Mallet **(10-1196.00)**.

**DISTAL LOCKING**

After the final seating of nail, insert the protective guide **(10-1186.00)** & Trocar **(10-1190.00)** into two holes in the slider. Make a skin incision in line with the trocar and advance both the protection sleeve and trocar through the incision until it sits flush with the bone.

**Drilling:** In the distal end of Compression Intramedullary humeral nail there are two different locking options depending on the dia. of nail.
For Ø6 & Ø7mm Nail, 3.5mm locking bolt will be used in locking at both proximal and the distal end of nail whereas for Ø8 &Ø9mm Nail, 4.5mm locking bolt is used. Following table indicates the Instruments to be used with respect to both 3.5 & 4.5mm Locking bolt:

**(Table-1)**

| Locking Bolt | Instruments |
|---|---|
| Ø3.5mm Locking bolt | Drill guide 6.5/2.8 (10-1188.00)<br>Ø2.8mm Drill bit (10-1204.00) |
| Ø4.5mm Locking bolt | Drill guide 6.5/3.5 (10-1187.00)<br>Ø3.5mm Drill bit (10-205.00) |

Remove the trocar from the protection sleeve and leave the protective guide in slider of the distal target D. Insert the appropriate drill guide into the protective guide as per the size of locking bolt used. Into the drill guide insert the appropriate drill bit as mentioned in the Table-1 and drill the hole through both the cortex and retrieve the drill bit.

Through the protective guide, insert the screw length measure **(10-1200.00)** across the predrilled hole until it reaches the second cortex. Note down the marking on the screw length measure indicating the required locking bolt length.

**Note:** While measuring the length make sure that the protective guide sits flush with the bone for correct measurements.

Select the locking bolt of desired dia. and predetermined length. Using 3.5 Hexagonal screwdriver insert the locking bolt into the predrilled hole.

The freehand technique could also be used for distal locking bolt insertion which is described later on in the technique.

**PROXIMAL LOCKING**

**Dynamic Locking:** As mentioned in the distal locking, Ø3.5mm locking bolt will be used for locking in Ø6 & Ø7mm Compression intramedullary humeral nail while Ø4.5mm locking bolt will be used for locking in Ø8 & Ø9mm Nail. Hence, the same instruments as mentioned in Table 1 will be followed for locking bolt insertion technique. Insert the protective guide **(10-1186.00)** along with the trocar **(10-1190.00)** through the COMPRESSION marked hole in the Humeral Target B **(10-1180.00)**. Make a stab incision and advance both the protective guide and trocar until it sits flush with the bone. Using the trocar mark a point on bone for drilling.

**Drilling:** Remove the trocar and insert the appropriate drill guide as per the nail being used into the protective guide. Through the drill guide insert the appropriate drill bit and drill the bone under image intensifier. Remove the drill bit and drill guide from protective guide.

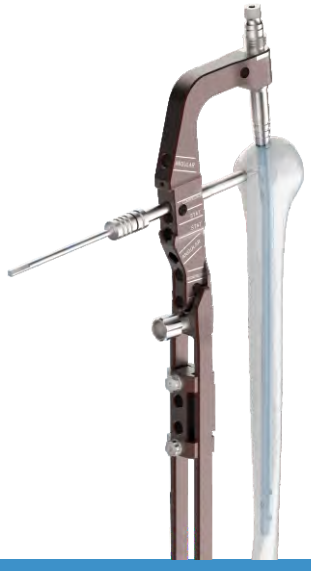
Advance the screw length measure **(10-1200.00)** through the protective guide until it reaches the end of hole and note down the readings for the required locking bolt length.

Using the 3.5 Hexagonal screwdriver **(10-1198.00)** insert the appropriate locking into the predrilled hole.

In case of Ø8 & Ø9mm Compression intramedullary humeral nail, the Ø4.5mm Proximal screw can also be used in the dynamic hole. There is a variation in drilling process as described below:

Insert the protective guide through the COMPRESSION marked hole in the Humeral Target B **(10-1180.00)**. Through the protective guide insert the Drill guide 6.5/3.5 **(10-1187.00)**. Advance the Ø3.5mm Drill bit **(10-1205.00)** through the drill guide and drill the bone under image intensifier to the desired depth of screw insertion. Retrieve back the 3.5mm drill bit and the 6.5/3.5mm drill guide from the protective guide.

Advance the Drill guide 6.5/4.5 **(10-1189.00)** into the protective guide **(10-1186.00)**. Now through the drill guide insert the 4.5mm Drill bit **(10-1206.00)** in order to drill and widen the bone in first cortex. The following steps of measuring and screw insertion would be same as described previously.



**Static Locking:** As mentioned earlier, theØ3.5mm locking bolt will be used for insertion in Ø6 & Ø7mm Nail while Ø4.5mm locking bolt will be used for Ø8 & Ø9mm Nail.

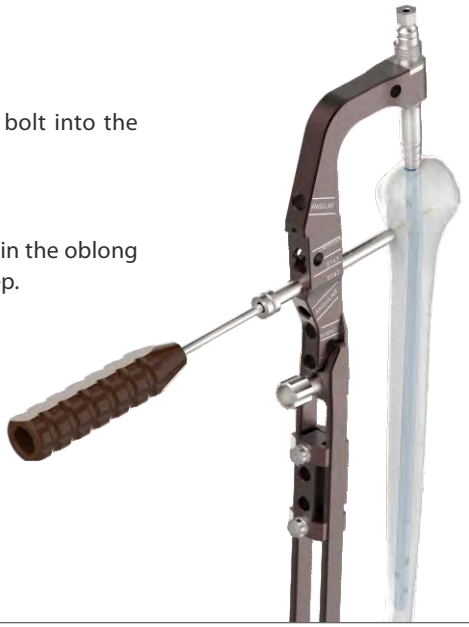
Insert the protective guide **(10-1186.00)** along with Trocar **(10-1190.00)** through either of the STAT marked hole of the Humeral Target B **(10-1102.01)**.

Make a stab incision on skin and advance both until it sits flush with the bone and mark point for drilling on bone. Remove the Trocar and through the protective guide insert the appropriate drill guide and drill the bone using the corresponding drill bit as per the instrument s previously mentioned in Tabe-1.

Remove the drill bit and drill guide from the protective guide. Using the screw length measure **(10-1200.00)** note down the marking for the required screw length.

Using the 3.5 Hexagonal screwdriver **(10-1198.00)** insert the locking bolt into the predrilled hole.

In case of Ø8 & Ø9mm Nail, the Ø4.5mm Proximal screw will be inserted in the oblong hole using the same technique as mentioned in the Dynamic Locking step.



**Oblique locking:** Oblique locking can be achieved through the any of the either ANGULAR marked holes in the Humeral target B **(10-1180.00)**. The oblique locking will take place in oblong hole at the proximal end of the nail. Hence, the Ø6 & Ø7mm Nail will accept the 3.5mm locking bolt while the Ø8 & Ø9mm Nail will accept the Ø4.5mm Locking bolt.

Insert the Protective guide **(10-1186.00)** through the either of the ANGULAR marked holes depending on the configuration in which the Locking bolt has to be inserted. Now through the Protective guide insert the Trocar **(10-1190.00)**. Make a stab incision in the skin and advance both the trocar and protection sleeve through the Humeral target B holes until it sits flush with the bone.

Remove the trocar and insert the appropriate drill guide followed by insertion of corresponding drill bit as per the Table-1 and drill the bone to desired depth under the image intensifier.

Now using the screw length measure **(10-1200.00)** note down the desired Locking bolt length.

Take the 3.5 Hexagonal screwdriver **(10-1198.00)** for final insertion of the Locking bolt in the predrilled hole.

**Jig Removal from the nail:** After the final proximal locking has been achieved, the jig has to be detached from the nail. Use the socket wrench S11 **(10-1199.00)** to remove the connecting screw from the nail and separate the jig from the nail.

**End cap or Compression screw insertion:** There are option for insertion of either End cap or the compression screw at the open end of the nail.

**Alternative 1: Compression screw**

The compression screw will be used during implementation of dynamic locking. With the help of 3.5 Hexagonal Screwdriver **(10-1198.00)** insert the compression screw from the open end of nail which will cause the reduction of the fracture.

**Alternative 2: End Cap**

In order to prevent the bone in-growth in the inner threads of the nail, it is important to cover the open end of nail using end cap. The 3.5 Hexagonal screwdriver **(10-1198.00)** will be used to insert the End cap at the open end of nail.

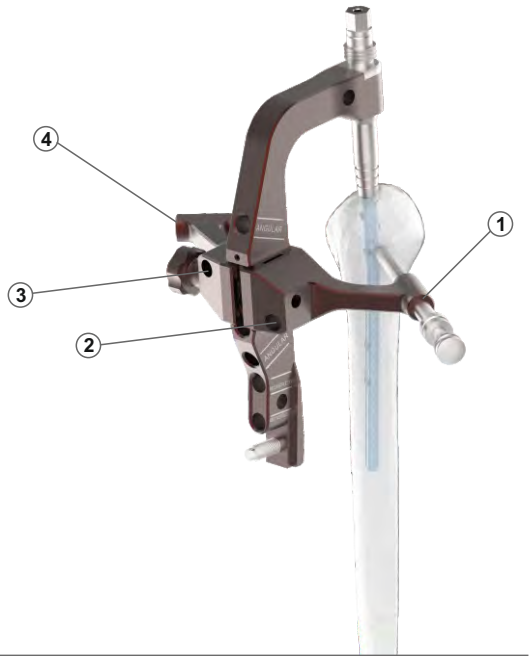
**RECONSTRUCTION NAIL**

**Nail and Jig attachment:** The tabs on Humeral target B **(10-1182.01)** is aligned to the slots in Reconstruction or the Reconstruction Intramedullary Humeral nail. Insert the Connecting screw **(10-1183.00)** through the humeral target B into the nail and screwed in using the socket wrench S11 **(10-1199.00)**.

**Proximal locking:** The Proximal locking technique for both the Reconstruction Nail and Reconstruction intramedullary Humeral Nail are same as described below:

First of all attach the Angular reconstruction Target **(10-1182.00)** to the Humeral target B **(10-1180.00)** as shown in the adjoining figure. Align the holes on humeral target B with the pin on the Angular reconstruction target and fix it in place using the bolt.
As marked in the adjoining figure, there are 4 different holes in the Angular reconstruction target for insertion of all the proximal locking bolt.

The proximal end of the reconstruction as well as the Reconstruction Intramedullary Humeral nail of Ø6 & Ø7mm accepts 3.5mm Locking Bolt. Whereas the Ø8 & Ø9mm Nail accepts the 4.5mm Locking bolt.
Insert the Protective Guide **(10-1186.00)** into one of these holes along with the Trocar **(10-1190.00)**. Make a stab incision on the skin and advance both of them until it sits flush with the bone. Mark a starting point with trocar for drilling and remove the trocar.




**Drilling:** Insert the appropriate Drill guide into the Protective guide followed by insertion of corresponding drill bit as per the Table-1 and drill the bone to desired depth under image intensifier. After drilling has been performed remove drill bit and the drill guide.

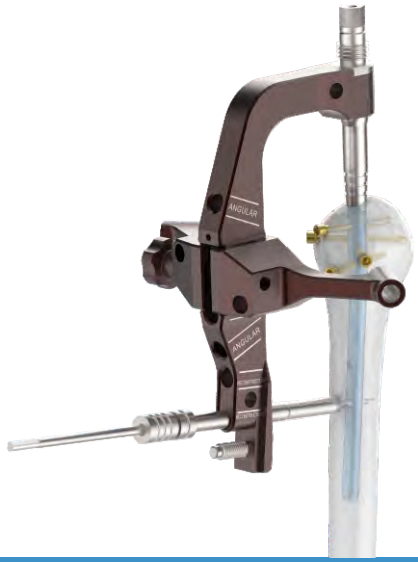
Using Screw Length measure (10-1200.00) note down the desired locking bolt length.

**Locking bolt Insertion:** Fit the Hex head of the Locking bolt into the 3.5 Hexagonal Screwdriver **(10-1198.00)** and insert it into the predrilled hole.
Repeat the Locking bolt insertion for the remaining holes through the holes in the Angular reconstruction target **(10-1182.00)** using the above mentioned same technique.

**Distal Locking for Reconstruction Nail:**
For distal locking in the Reconstruction nail, the holes with RECONSTRUCTION marking on the Humeral Target B **(10-1180.00)** will be used.

The Distal end of the reconstruction nail of Ø6 & Ø7mm accepts 3.5mm locking bolt whereas the Ø8 & Ø9mm nail accepts 4.5mm locking bolt.
Initiate by inserting both Protective guide **(10-1186.00)** and Trocar **(10-1190.00)** throughthe marked holes. Make a stab incision into the skin and advance both until it sits flush with the bone. Mark a starting point with trocar for drilling and remove the trocar.


**Drilling:** Insert the appropriate Drill guide into the Protective guide followed by insertion of corresponding drill bit as per the Table-1 and drill the bone to desired depth under image intensifier. After drilling has been performed remove drill bit and the drill guide.



Using Screw Length measure **(10-1200.00)** note down the desired locking bolt length.

**Locking bolt Insertion:** Fit the Hex head of the Locking bolt into the 3.5 Hexagonal Screwdriver **(10-1198.00)** and insert it into the predrilled hole.

Repeat the same steps for insertion of the remaining Locking bolt at distal end of nail.

**Distal Locking for Reconstruction Intramedullary humeral nail:**
Before performing locking at the distal end, verify the alignment of the holes in nail with the holes in slider in Distal target D **(10-1181.00)** under the image intensifier.

The Distal end of the Reconstruction Intramedullary Humeral Nail of Ø6 & Ø7mm accepts the 3.5mm locking bolt and the Ø8 & Ø9mm accepts 4.5mm locking bolt.
Insert the Protective guide into one of the slider holes of distal target D **(10-1181.00)** along with the Trocar **(10-1190.00)**. Make a stab incision on the skin and advance both of them until it sits flush with the bone. Mark a starting point with trocar for drilling and remove the trocar.

**Drilling:** Insert the appropriate Drill guide into the Protective guide followed by insertion of corresponding drill bit as per the Table-1 and drill the bone to desired depth under image intensifier. After drilling has been performed remove drill bit and the drill guide.

Using Screw Length measure (10-1200.00) note down the desired locking bolt length.

**Locking bolt Insertion:** Fit the Hex head of the Locking bolt into the 3.5 Hexagonal Screwdriver **(10-1198.00)** and insert it into the predrilled hole.
Repeat the same steps for insertion of the remaining Locking bolt at distal end of nail.

**Distal locking of nail using Freehand Technique:**
In this technique, to find the entry points for drilling the image intensifier is used. Hence, it is advised to use the power tool for drilling holes in order to prevent the direct contact of surgeon's hand to the X-rays. After marking points, make skin incisions along the markings.

Under Image intensifier place the Target D **(10-1191.00)** in line to the hole of the nail. After the holes are in alignment, advance the Target D until its teeth sink into the cortex. Through the Target D insert the short Trocar **(10-1192.00)** until it sits into the cortex and mark a point for drilling and remove the trocar.

**Drilling:** There will be two different techniques for insertion of 3.5mm Locking bolt and the 4.5mm locking bolt as describe below:

I) **For 4.5mm locking bolt:** The Ø8 & Ø9mm Nail accepts the 4.5mm locking bolts at the distal end of nail. Firstly, insert the Drill guide short 7/3.5 **(10-1193.00)** through the Target D **(10-1191.00)** and through this drill guide insert the Ø3.5mm Drill bit **(10-1205.00)** and drill across both the cortex.

II) **For 3.5mm locking bolt:** The Ø6 & Ø7mm accepts the 3.5mm locking bolts at the distal end of nail. Firstly, insert the Drill guide short 7/2.8 **(10-1194.00)** through the Target D **(10-1191.00)** and through the drill guide insert the Ø2.8mm Drill bit **(10-1204.00)** and drill across both the cortex. Finally, remove both drill guide and drill bit.

Insert the screw length measure **(10-1200.00)** through the Target D and measure the required locking bolt length. Remove the screw length measure.

Using the 3.5 Hexagonal Screwdriver **(10-1198.00)** insert the locking bolt into the predrilled hole.
Repeat the same steps for the second distal locking bolt insertion.

**Nail Extraction:** Firstly remove the end cap or compression screw using the 3.5 Hexagonal screwdriver (10-1198.00) followed by attaching the connector M7/M16 **(10-1197.00)** using the socket wrench S11 **(10-1199.00)**

Remove all the locking bolts from the nail using 3.5Hexagonal screwdriver **(10-1198.00)**. Attach the impactor-extractor **(10-1195.00)** to the connector M7/M16 **(10-1197.00)** and remove the nail from medullary canal by slight backward taps using the Mallet **(10-1196.00)**.

## Intramedullary Cannulated Humerus Nail

| | Stainless Steel | Titanium | Dia x Length |
|---|---|---|---|
| Ø6mm | 6082-6.0-180 | TI-6082-6.0-180 | Ø6mm x 180mm |
| | 6082-6.0-200 | TI-6082-6.0-200 | Ø6mm x 200mm |
| | 6082-6.0-220 | TI-6082-6.0-220 | Ø6mm x 220mm |
| | 6082-6.0-240 | TI-6082-6.0-240 | Ø6mm x 240mm |
| | 6082-6.0-260 | TI-6082-6.0-260 | Ø6mm x 260mm |
| | 6082-6.0-280 | TI-6082-6.0-280 | Ø6mm x 280mm |
| | 6082-6.0-300 | TI-6082-6.0-300 | Ø6mm x 300mm |
| | 6082-6.0-320 | TI-6082-6.0-320 | Ø6mm x 320mm |
| Ø7mm | 6082-7.0-180 | TI-6082-7.0-180 | Ø7mm x 180mm |
| | 6082-7.0-200 | TI-6082-7.0-200 | Ø7mm x 200mm |
| | 6082-7.0-220 | TI-6082-7.0-220 | Ø7mm x 220mm |
| | 6082-7.0-240 | TI-6082-7.0-240 | Ø7mm x 240mm |
| | 6082-7.0-260 | TI-6082-7.0-260 | Ø7mm x 260mm |
| | 6082-7.0-280 | TI-6082-7.0-280 | Ø7mm x 280mm |
| | 6082-7.0-300 | TI-6082-7.0-300 | Ø7mm x 300mm |
| | 6082-7.0-320 | TI-6082-7.0-320 | Ø7mm x 320mm |
| Ø8mm | 6082-8.0-180 | TI-6082-8.0-180 | Ø8mm x 180mm |
| | 6082-8.0-200 | TI-6082-8.0-200 | Ø8mm x 200mm |
| | 6082-8.0-220 | TI-6082-8.0-220 | Ø8mm x 220mm |
| | 6082-8.0-240 | TI-6082-8.0-240 | Ø8mm x 240mm |
| | 6082-8.0-260 | TI-6082-8.0-260 | Ø8mm x 260mm |
| | 6082-8.0-280 | TI-6082-8.0-280 | Ø8mm x 280mm |
| | 6082-8.0-300 | TI-6082-8.0-300 | Ø8mm x 300mm |
| | 6082-8.0-320 | TI-6082-8.0-320 | Ø8mm x 320mm |
| Ø9mm | 6082-9.0-180 | TI-6082-9.0-180 | Ø9mm x 180mm |
| | 6082-9.0-200 | TI-6082-9.0-200 | Ø9mm x 200mm |
| | 6082-9.0-220 | TI-6082-9.0-220 | Ø9mm x 220mm |
| | 6082-9.0-240 | TI-6082-9.0-240 | Ø9mm x 240mm |
| | 6082-9.0-260 | TI-6082-9.0-260 | Ø9mm x 260mm |
| | 6082-9.0-280 | TI-6082-9.0-280 | Ø9mm x 280mm |
| | 6082-9.0-300 | TI-6082-9.0-300 | Ø9mm x 300mm |
| | 6082-9.0-320 | TI-6082-9.0-320 | Ø9mm x 320mm |

## End Cap For Intramedullary Humerus Nail

| Stainless Steel | Titanium |
|---|---|
| **6083.100** | **TI-6083.100** |

## Compression Screw For Intramedullary Humerus Nail

| Stainless Steel | Titanium |
|---|---|
| **1219.000** | **TI-1219.000** |

## 4.5mm Locking Bolt For Humerus Nail

| Length(mm) | Stainless Steel | Titanium |
|---|---|---|
| 20 | **6001.020** | **TI-6001.020** |
| 24 | **6001.022** | **TI-6001.022** |
| 26 | **6001.024** | **TI-6001.024** |
| 28 | **6001.026** | **TI-6001.026** |
| 30 | **6001.028** | **TI-6001.028** |
| 35 | **6001.030** | **TI-6001.030** |
| 40 | **6001.035** | **TI-6001.035** |
| 45 | **6001.040** | **TI-6001.040** |
| 50 | **6001.045** | **TI-6001.045** |
| 55 | **6001.050** | **TI-6001.050** |
| 60 | **6001.055** | **TI-6001.055** |
| 65 | **6001.060** | **TI-6001.060** |
| 70 | **6001.065** | **TI-6001.065** |
| | **6001.070** | **TI-6001.070** |

## Ø4.5mm Proximal Screw

| Length(mm) | Stainless Steel | Titanium |
|---|---|---|
| 25 | **1221.025** | **TI-1221.025** |
| 30 | **1221.030** | **TI-1221.030** |
| 35 | **1221.035** | **TI-1221.035** |
| 40 | **1221.040** | **TI-1221.040** |
| 45 | **1221.045** | **TI-1221.045** |
| 50 | **1221.050** | **TI-1221.050** |
| 55 | **1221.055** | **TI-1221.055** |
| 60 | **1221.060** | **TI-1221.060** |
| 65 | **1221.065** | **TI-1221.065** |
| 70 | **1221.070** | **TI-1221.070** |

## Reconstruction Nail, Cannulated

| Stainless Steel | Titanium | Dia x Length |
|---|---|---|
| **6092-6.0-150** | **TI-6092-6.0-150** | Ø6mm x 150mm |
| **6092-7.0-150** | **TI-6092-7.0-150** | Ø7mm x 150mm |
| **6092-8.0-150** | **TI-6092-8.0-150** | Ø8mm x 150mm |
| **6092-9.0-150** | **TI-6092-9.0-150** | Ø9mm x 150mm |

## Reconstruction Cannulated Intramedullary Humerus Nail

| | Stainless Steel | Titanium | Dia x Length |
|---|---|---|---|
| Ø6mm | **6092-6.0-200** | **TI-6092-6.0-200** | Ø6mm x 200mm |
| | **6092-6.0-220** | **TI-6092-6.0-220** | Ø6mm x 220mm |
| | **6092-6.0-240** | **TI-6092-6.0-240** | Ø6mm x 240mm |
| | **6092-6.0-260** | **TI-6092-6.0-260** | Ø6mm x 260mm |
| | **6092-6.0-280** | **TI-6092-6.0-280** | Ø6mm x 280mm |
| | **6092-6.0-300** | **TI-6092-6.0-300** | Ø6mm x 300mm |
| | **6092-6.0-320** | **TI-6092-6.0-320** | Ø6mm x 320mm |
| Ø7mm | **6092-7.0-200** | **TI-6092-7.0-200** | Ø7mm x 200mm |
| | **6092-7.0-220** | **TI-6092-7.0-220** | Ø7mm x 220mm |
| | **6092-7.0-240** | **TI-6092-7.0-240** | Ø7mm x 240mm |
| | **6092-7.0-260** | **TI-6092-7.0-260** | Ø7mm x 260mm |
| | **6092-7.0-280** | **TI-6092-7.0-280** | Ø7mm x 280mm |
| | **6092-7.0-300** | **TI-6092-7.0-300** | Ø7mm x 300mm |
| | **6092-7.0-320** | **TI-6092-7.0-320** | Ø7mm x 320mm |
| Ø8mm | **6092-8.0-200** | **TI-6092-8.0-200** | Ø8mm x 200mm |
| | **6092-8.0-220** | **TI-6092-8.0-220** | Ø8mm x 220mm |
| | **6092-8.0-240** | **TI-6092-8.0-240** | Ø8mm x 240mm |
| | **6092-8.0-260** | **TI-6092-8.0-260** | Ø8mm x 260mm |
| | **6092-8.0-280** | **TI-6092-8.0-280** | Ø8mm x 280mm |
| | **6092-8.0-300** | **TI-6092-8.0-300** | Ø8mm x 300mm |
| | **6092-8.0-320** | **TI-6092-8.0-320** | Ø8mm x 320mm |
| Ø9mm | **6092-9.0-200** | **TI-6092-9.0-200** | Ø9mm x 200mm |
| | **6092-9.0-220** | **TI-6092-9.0-220** | Ø9mm x 220mm |
| | **6092-9.0-240** | **TI-6092-9.0-240** | Ø9mm x 240mm |
| | **6092-9.0-260** | **TI-6092-9.0-260** | Ø9mm x 260mm |
| | **6092-9.0-280** | **TI-6092-9.0-280** | Ø9mm x 280mm |
| | **6092-9.0-300** | **TI-6092-9.0-300** | Ø9mm x 300mm |
| | **6092-9.0-320** | **TI-6092-9.0-320** | Ø9mm x 320mm |

## End Cap For Reconstruction Cannulated Instramedullary Nail

| Stainless Steel | Titanium |
|---|---|
| **6084.00** | **TI-6084.00** |

## Ø3.5mm Locking Bolt For Humerus Nail

| Length(mm) | Stainless Steel | Titanium |
|---|---|---|
| 20 | **1222.020** | **TI-1222.020** |
| 22 | **1222.022** | **TI-1222.022** |
| 24 | **1222.024** | **TI-1222.024** |
| 26 | **1222.026** | **TI-1222.026** |
| 28 | **1222.028** | **TI-1222.028** |
| 30 | **1222.030** | **TI-1222.030** |
| 35 | **1222.035** | **TI-1222.035** |
| 40 | **1222.040** | **TI-1222.040** |
| 45 | **1222.045** | **TI-1222.045** |
| 50 | **1222.050** | **TI-1222.050** |
| 55 | **1222.055** | **TI-1222.055** |
| 60 | **1222.060** | **TI-1222.060** |
| 65 | **1222.065** | **TI-1222.065** |
| 70 | **1222.070** | **TI-1222.070** |

## Ø4.5mm Locking Bolt For Humerus Nail

| Length(mm) | Stainless Steel | Titanium |
|---|---|---|
| 20 | **6001.020** | **TI-6001.020** |
| 22 | **6001.022** | **TI-6001.022** |
| 24 | **6001.024** | **TI-6001.024** |
| 26 | **6001.026** | **TI-6001.026** |
| 28 | **6001.028** | **TI-6001.028** |
| 30 | **6001.030** | **TI-6001.030** |
| 35 | **6001.035** | **TI-6001.035** |
| 40 | **6001.040** | **TI-6001.040** |
| 45 | **6001.045** | **TI-6001.045** |
| 50 | **6001.050** | **TI-6001.050** |
| 55 | **6001.055** | **TI-6001.055** |
| 60 | **6001.060** | **TI-6001.060** |
| 65 | **6001.065** | **TI-6001.065** |
| 70 | **6001.070** | **TI-6001.070** |

**10-1180-00** Humeral Target B for Konzept Humerus Nail

**10-1181-00** Distal Target D for Konzept Humerus Nail

**10-1182-00** Angular Reconstruction Target for Konzept Humerus Nail

**10-1183-00** Connecting Screw M7x1spec. Length 95mm, for Konzept Humerus Nail


**10-1184-00** Connecting Screw M7x1spec. Length 101mm, for Konzept Humerus Nail


**10-1185-00** Set Block Ø3.5/4.5mm for Konzept Humerus Nail

**10-1186-00** Protective Guide Ø6.5/9mm for Konzept Humerus Nail


**10-1187-00** Drill Guide Ø6.5/3.5mm for Konzept Humerus Nail


**10-1188-00** Drill Guide Ø6.5/2.8mm for Konzept Humerus Nail


**10-1189-00** Drill Guide Ø6.5/4.5mm for Konzept Humerus Nail


**10-1190-00** Trocar Ø6.5mm for Konzept Humerus Nail

**10-1191-00** Target D for Konzept Humerus Nail

**10-1192-00** Short Trocar Ø7mm for Konzept Humerus Nail


**10-1193-00** Drill Guide Short Ø7/3.5mm for Konzept Humerus Nail


**10-1194-00** Drill Guide Ø7/2.8mm for Konzept Humerus Nail


**10-1195-00** Impactor-Extractor Rod for Konzept Humerus Nail

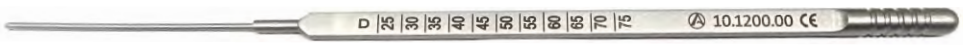
**10-1196-00** Mallet for Konzept Humerus Nail

**10-1197-00** Connector M7/M16 for Konzept Humerus Nail

**10-1198-00** Screwdriver, Hex 3.5mm, for Konzept Humerus Nail

**10-1199-00** Socket Wrench, Hex 11mm for Konzept Humerus Nail


**10-1200-00** Screw Length Measuring Device for Konzept Humerus Nail




**10-1201-00** Guide Rod Ø1.8mm x Length 500mm for Konzept Humerus Nail



**10-1202-00** Handle Guide Rod for Konzept Humerus Nail

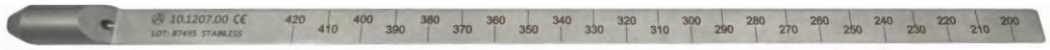

**10-1203-00** Teflon Pipe Guide for Konzept Humerus Nail

**10-1204-00** Drill with Scale Ø2.8mm x Length 240mm, for Konzept Humerus Nail

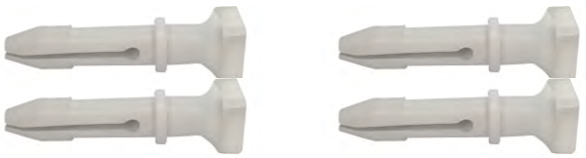
**10-1205-00** Drill with Scale Ø3.5mm x Length 240mm, for Konzept Humerus Nail

**10-1206-00** Drill with Scale Ø4.5mm x Length 240mm, for Konzept Humerus Nail

**10-1207-00** Nail Length Measuring Device for Konzept Humerus Nail

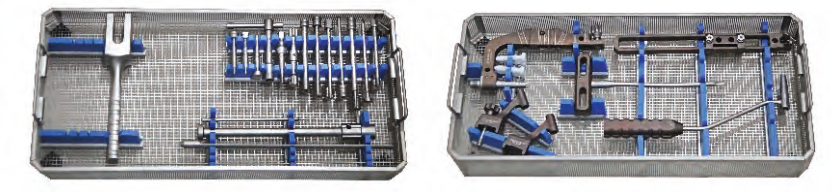



**10-1208-00** Insertion Target Ø9.0mm for Konzept Humerus Nail



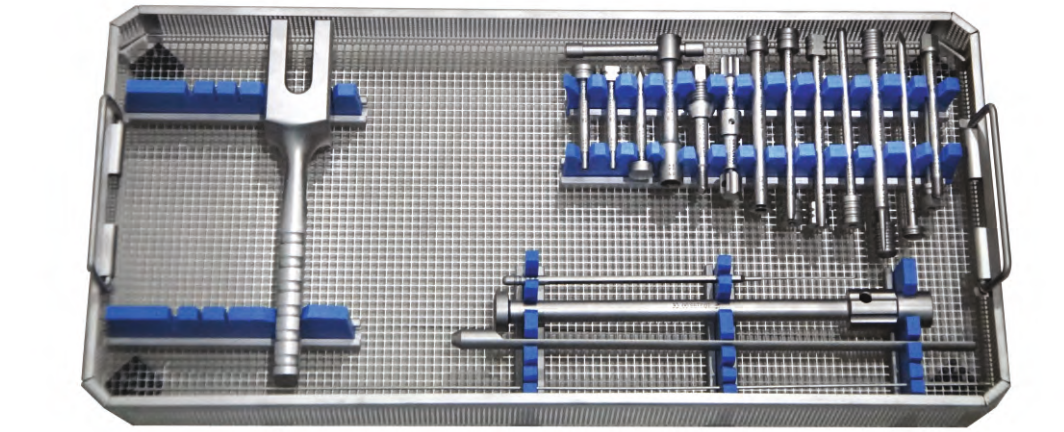
**10-1209-00** Curved Awl Ø8.0mm for Konzept Humerus Nail

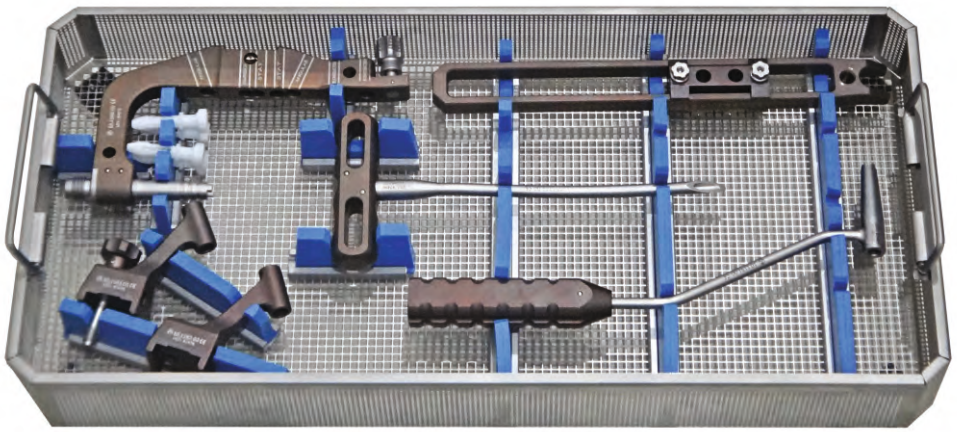
**10-1210-00** Instrument Trays for Konzept Humerus Nailing Instrument Set



**7-106-01** Aluminium Sterilization Container, 560mm x 270mm x 150mm

## 40-5020-000 Konzept Humerus Nailing Instrument Set





## 40-5020-000 Konzept Humerus Nailing Instrument Set

| Code | Set Consisting of | Units |
|---|---|---|
| **10-1180-00** | Humeral Target B for Konzept Humerus Nail | 1 |
| **10-1181-00** | Distal Target D for Konzept Humerus Nail | 1 |
| **10-1182-00** | Angular Reconstruction Target for Konzept Humerus Nail | 2 |
| **10-1183-00** | Connecting Screw M7x1spec. Length 95mm, for Konzept Humerus Nail | 1 |
| **10-1184-00** | Connecting Screw M7x1spec. Length 101mm, for Konzept Humerus Nail | 1 |
| **10-1185-00** | Set Block Ø3.5/4.5mm for Konzept Humerus Nail | 2 |
| **10-1186-00** | Protective Guide Ø6.5/9mm for Konzept Humerus Nail | 2 |
| **10-1187-00** | Drill Guide Ø6.5/3.5mm for Konzept Humerus Nail | 2 |
| **10-1188-00** | Drill Guide Ø6.5/2.8mm for Konzept Humerus Nail | 2 |
| **10-1189-00** | Drill Guide Ø6.5/4.5mm for Konzept Humerus Nail | 1 |
| **10-1190-00** | Trocar Ø6.5mm for Konzept Humerus Nail | 1 |
| **10-1191-00** | Target D for Konzept Humerus Nail | 1 |
| **10-1192-00** | Short Trocar Ø7mm for Konzept Humerus Nail | 1 |
| **10-1193-00** | Drill Guide Short Ø7/3.5mm for Konzept Humerus Nail | 1 |
| **10-1194-00** | Drill Guide Ø7/2.8mm for Konzept Humerus Nail | 1 |
| **10-1195-00** | Impactor-Extractor Rod for Konzept Humerus Nail | 1 |
| **10-1196-00** | Mallet for Konzept Humerus Nail | 1 |
| **10-1197-00** | Connector M7/M16 for Konzept Humerus Nail | 1 |
| **10-1198-00** | Screwdriver, Hex 3.5mm, for Konzept Humerus Nail | 1 |
| **10-1199-00** | Socket Wrench, Hex 11mm for Konzept Humerus Nail | 1 |
| **10-1200-00** | Screw Length Measuring Device for Konzept Humerus Nail | 1 |
| **10-1201-00** | Guide Rod Ø1.8mm x Length 500mm for Konzept Humerus Nail | 1 |
| **10-1202-00** | Handle Guide Rod for Konzept Humerus Nail | 1 |
| **10-1203-00** | Teflon Pipe Guide for Konzept Humerus Nail | 1 |
| **10-1204-00** | Drill with Scale Ø2.8mm x Length 240mm, for Konzept Humerus Nail | 2 |
| **10-1205-00** | Drill with Scale Ø3.5mm x Length 240mm, for Konzept Humerus Nail | 2 |
| **10-1206-00** | Drill with Scale Ø4.5mm x Length 240mm, for Konzept Humerus Nail | 1 |
| **10-1207-00** | Nail Length Measuring Device for Konzept Humerus Nail | 1 |
| **10-1208-00** | Insertion Target Ø9.0mm for Konzept Humerus Nail | 4 |
| **10-1209-00** | Curved Awl Ø8.0mm for Konzept Humerus Nail | 1 |
| **10-1210-00** | Instrument Trays for Konzept Humerus Nailing Instrument Set | 2 |
| **7-106-01** | Aluminium Sterilization Container, 560mm x 270mm x 150mm | 1 |

Auxein®

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