



金属髓内固定系统

Metal Intramedullary Fixation System

PFNA





CONTENTS

Why choose Fule?

Our strengths

- The company is a national high-tech enterprise integrating research and development, production and sales of medical devices, with a full intelligent processing equipment production line.
- The establishment of the Academician Expert Studio helps to enhance the R&D capabilities of Fule and further deepen the cooperation between industry, academia, and research; Approved postdoctoral research workstation.
- The hardware facilities are complete, the R&D team is excellent, and we work closely with clinical experts, obtaining more than 100 domestic and foreign patents.
- Based on the agent cooperation model, establish a nationwide sales and service network, supply products to nearly a thousand tertiary hospitals nationwide, and export to more than 20 overseas countries.

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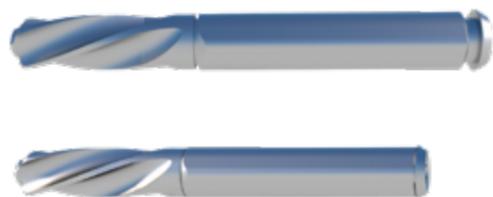
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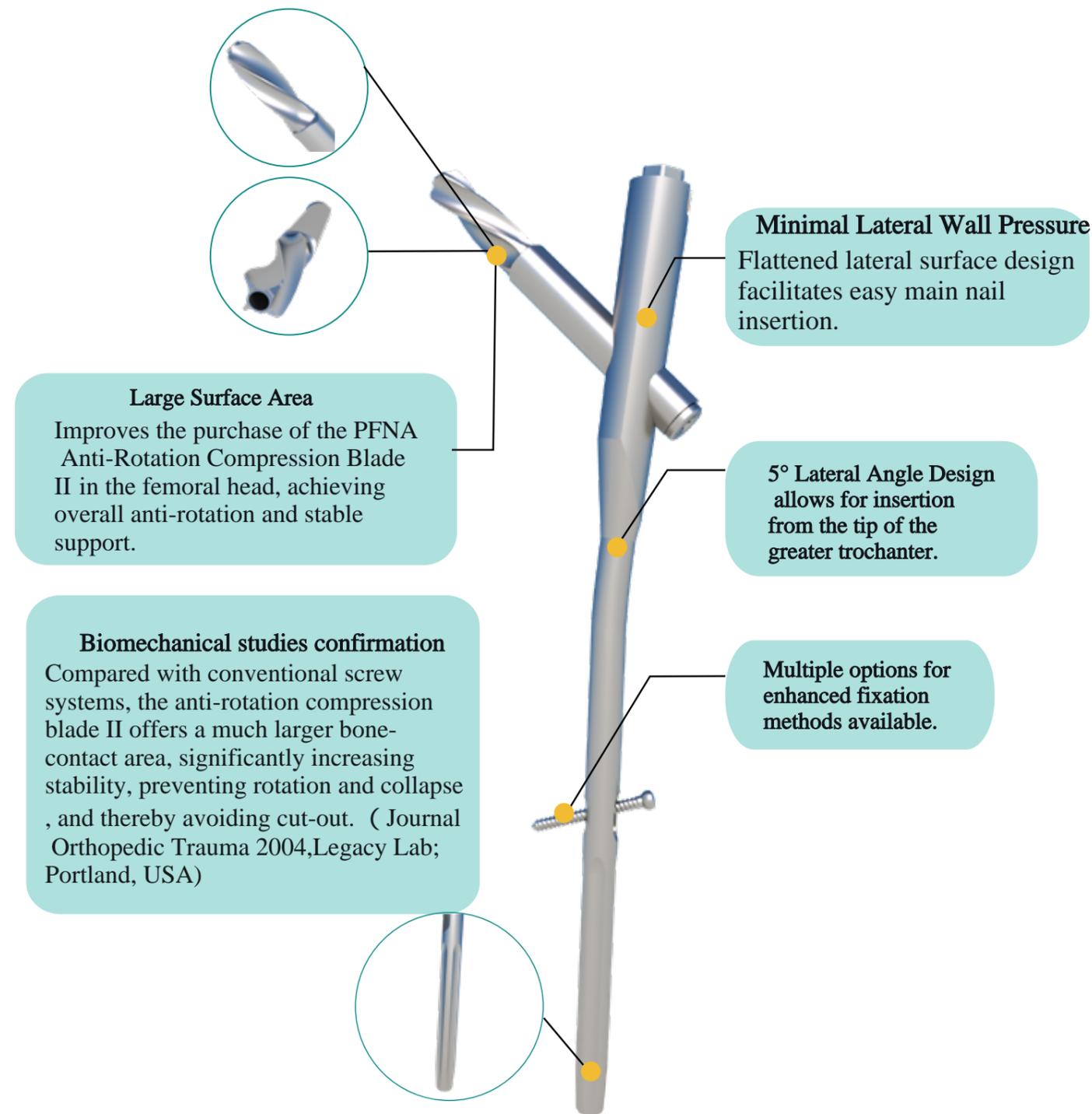
Product Advantages

General Features

- Perfectly matches the anatomical morphology of the Asian femoral canal**
 - Specifically designed for the anatomical structure of the Asian population;
 - Flattened lateral surface design facilitates easy main nail insertion;
 - 5° lateral angle design allows for insertion from the tip of the greater trochanter.
- Anti-Rotation Compression Blade II**
 - One component achieves anti-rotation and stable support;
 - Compresses cancellous bone—ideal for osteoporotic patients;
 - The broad surface area and helical blade enhance purchase in the femoral head;
 - Innovative instrumentation design automatically completes secure locking of the helical blade;
 - Innovative locking mechanism allows for rapid and effective insertion of the helical blade;
 - Only requires a single-step locking of the helical blade through a small lateral incision.
- Status of Anti-Rotation Compression Blade II**
 - Unlocked Status
 - Locked Status



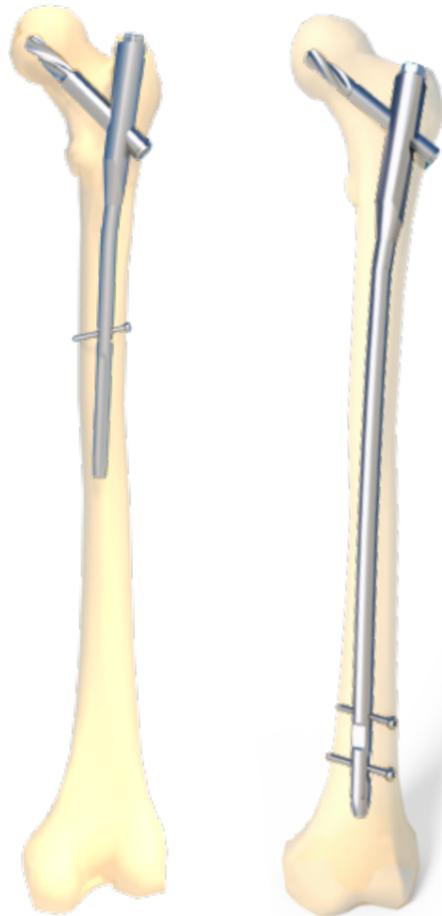
Product Advantages



Product Advantages

● Indications

-PFNA is suitable for stable and unstable proximal femoral fractures in the Asian population.

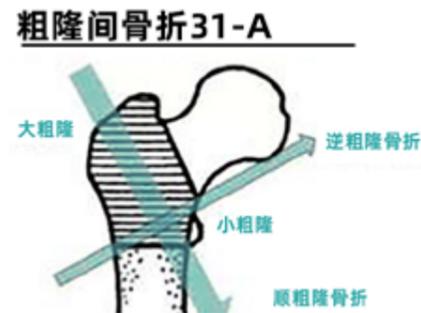


PFNA (standard nail)

PFNA(extended nail)

Intertrochanteric fractures (31-A1 / 31-A2)
Reverse intertrochanteric fractures (31-A3)
High subtrochanteric fractures (32-A1)

Low and extended subtrochanteric fractures
Ipsilateral intertrochanteric plus shaft fractures
Multiple fractures in the proximal femoral region



Instruction For Use

● Contraindications

● PFNA (Standard nail)

- Low subtrochanteric fractures;
- Femoral shaft fractures;
- Isolated or combined mid-femoral neck fractures.

● PFNA (extended nail)

- Isolated femoral shaft fractures;
- Isolated or combined mid-femoral neck fractures;

Surgical Procedures

【Step 1】 Patient Positioning

- Place the patient supine on an orthopedic traction table. Monitor the procedure with a C-arm.



Fig.1a

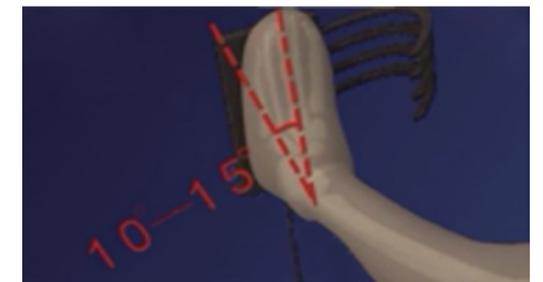


Fig.1b

Surgical Procedures

【Step 2】 Fracture Reduction

- Reduce the fracture. Once a satisfactory reduction is achieved, internally rotate the affected limb by 10-15 degrees (or more if needed) and adduct it by 10-15 degrees. Secure the limb to the traction table.



10°-15° internal rotation

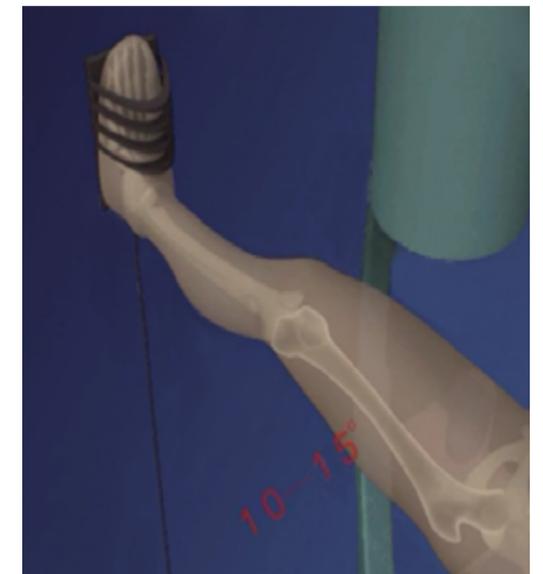


Fig. 2a

Surgical Procedures

【Step 3】 Determining Main Nail Length and Diameter

- Place the X-ray template scale closest to the anterior side, proximally at the main nail entry point, distally at the intended isthmus location. Read the main nail length directly.
- Estimate the main nail diameter based on the measurement from the X-ray template scale.



Fig.3a

Surgical Procedures

【Step 4】 Determining Main Nail Length and Diameter

- Make a 5-6 cm horizontal incision from the tip of the greater trochanter and extending proximally;
- Entry Point: On the lateral view, at the junction of the anterior 1/3 and posterior 2/3 of the tip of the greater trochanter. On the AP view, at the tip of the greater trochanter.



Fig.4a

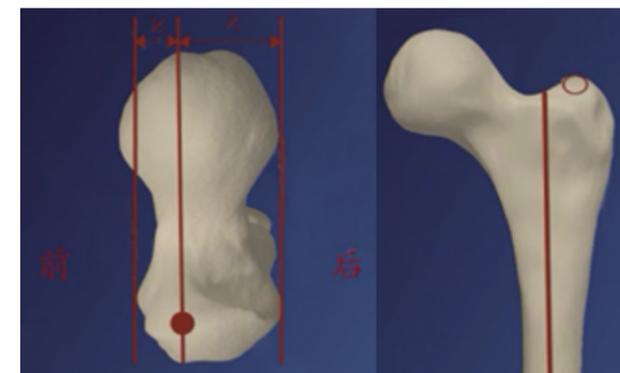


Fig.4b

Surgical Procedures

【Step 5】 Opening the Medullary Canal and Reaming (1)

- Place the 17 sleeve and multi-hole guide at the entry point and insert a guide wire; Subsequently, remove the 17 sleeve;
- When adjusting the guide wire position, insert a second guide wire directly through the multi-hole guide without removing the first guide wire;
- Place the proximal protector over the guide wire (using the 17 sleeve), and use a power tool to open the proximal medullary canal. Remove the proximal protector, the 17 sleeve, and the guide wire.

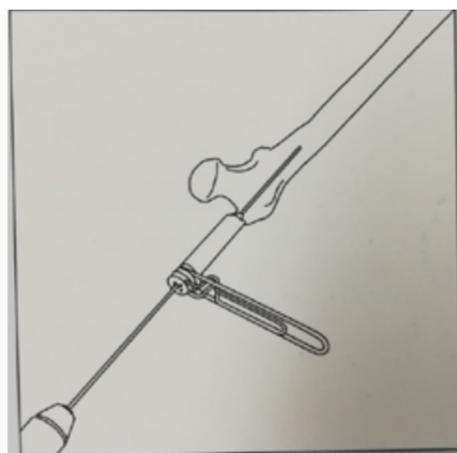


Fig.5a

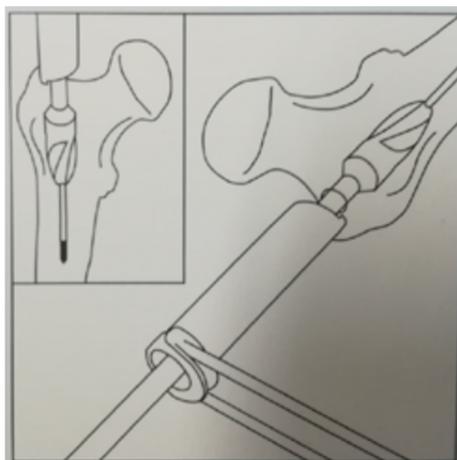


Fig.5b

Surgical Procedures

【Step 6】 Opening the Medullary Canal and Reaming (2)

- Advance the cannulated awl over the guide wire at the entry point with controlled force to access the medullary canal.
- Use the reduction rod (guide wire introducer) to assist in reducing the fracture fragments.
- Insert the ball-tipped guide wire through the end of the reduction rod. Once the ball-tip reaches the predetermined depth, remove the reduction rod, leaving the ball-tipped guide wire in place.

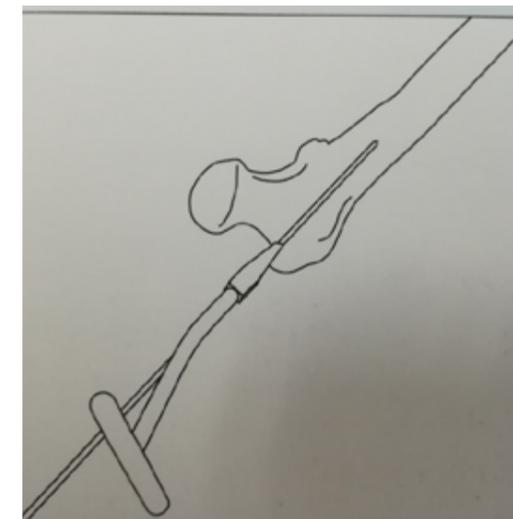


Fig. 6a

Surgical Procedures

【Step 7】 Opening the Medullary Canal and Reaming (3)

- Assemble the medullary reamer. Perform sequential reaming over the bone guide wire (flat tip) using flexible reamers. Begin with an 8.5 mm diameter reamer and increase in 0.5 mm increments. The final reamed diameter should be 0.5-1.5 mm larger than the selected main nail diameter.
- Note: Always advance and retreat the reamers in a clockwise direction.



Fig.7a

Surgical Procedures

【Step 8】 Inserting the Main Nail (1)

- Attach the prepared PFNA main nail to the insertion handle using the connecting bolt. Secure it by tightening with the connecting bolt direction wrench.



Fig 8a

Surgical Procedures

【Step 9】 Inserting the Main Nail (2)

- Insert the bone guide wire (ball-tipped), gently slide and insert by hand; if tapping is required for insertion, first install the insertion rod onto the handle and tighten it with the open-end wrench;



Fig.9a

Surgical Procedures

【Step 10】 Inserting the Main Nail (3)

- Connect the main nail insertion/extraction rod to the insertion rod. Gently tap the sliding hammer to fully seat the main nail to the desired depth. remove the entire insertion assembly and the ball-tipped guide wire.

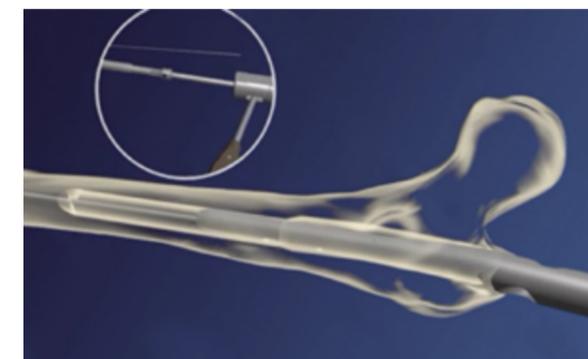


Fig.10a

Surgical Procedures

【Step 11】 Proximal Locking (1)

PFNA Standard nail

- Mount and secure the proximal targeting barrel onto the handle.
- Assemble the spiral blade assembly (proximal locking sleeve, sleeve, guide wire) and insert it into the spiral blade hole of the proximal targeting barrel. Advance it through the soft tissue until it touches the skin. Make a approximately 1 cm incision directly beneath it. Continue advancing the assembly until it rests firmly on the bone cortex, then lock it into the proximal targeting barrel.

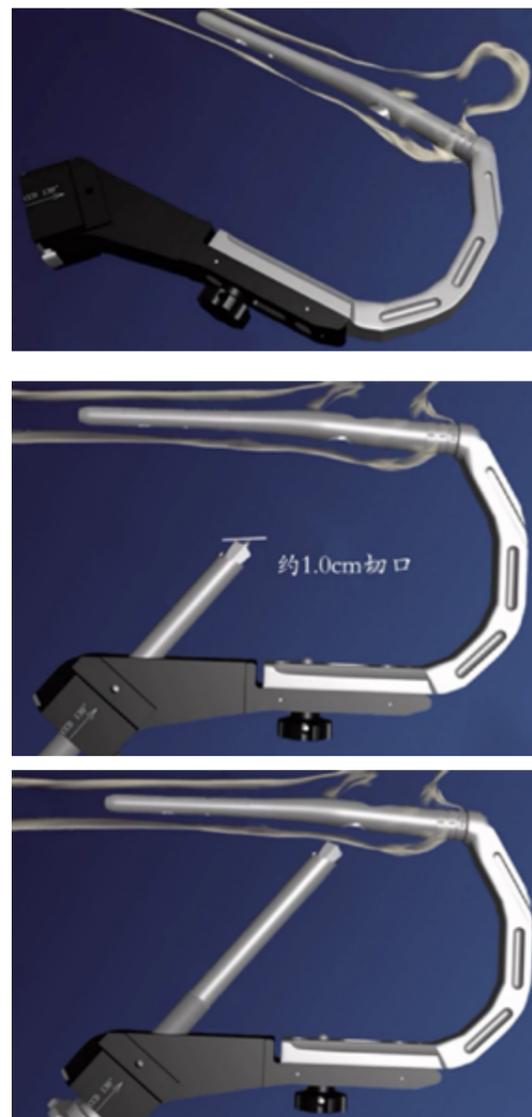


Fig. 11b

Surgical Procedures

【Step 12】 Proximal Locking (2)

- Remove the 3.2 mm guide pin. Insert the 3.2 mm threaded guide wire. Verify its position under fluoroscopy. Use the guide wire depth gauge to measure the intraosseous length of the guide wire. On the lateral view, ensure the guide wire is positioned in the center of the femoral neck.

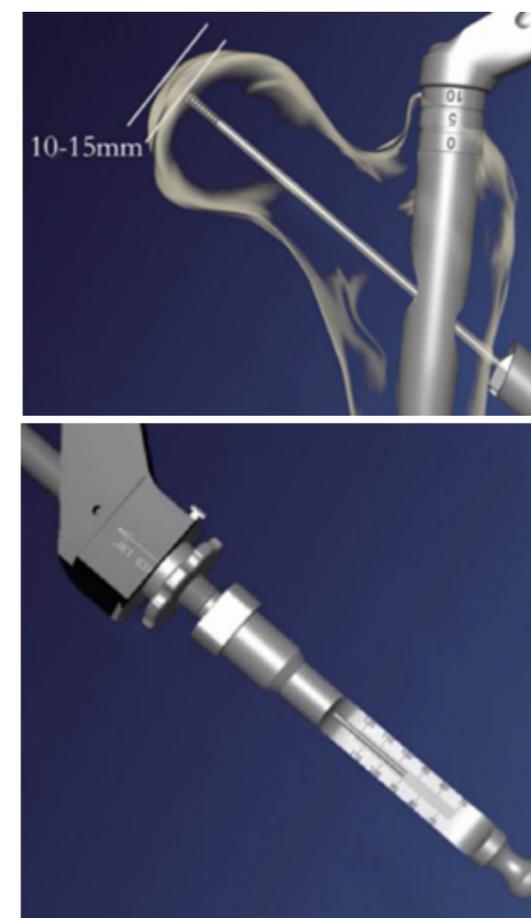


Fig.12a

Surgical Procedures

【Step 13】 Proximal Locking (3)

- Optional Anti-Rotation Pin Technique:
- For highly unstable fractures, an additional anti-rotation guide wire can be inserted. Keep the spiral blade assembly sleeve in place. After inserting the guide wire into the femoral head, attach the guide wire anti-migration device either above or below the proximal guide wire. Tighten the hexagonal nut to secure the anti-rotation pin's position. Insert the 3.2/5.6 mm anti-rotation pin sleeve through the skin down to the femoral cortex to facilitate insertion of the anti-rotation pin.

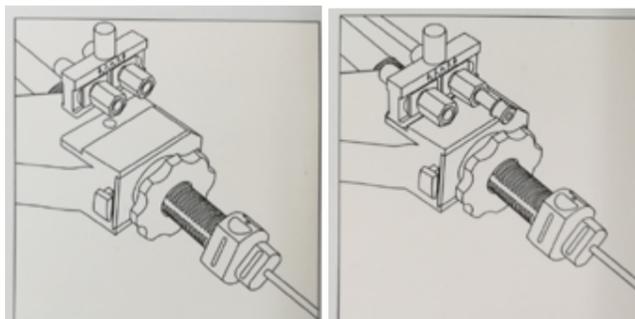


Fig.13a



Fig.13b

- Note: On the AP view, the anti-rotation pin should be close to, but not touching, the tip of the spiral blade. This pin provides temporary fixation for the femoral head and must be removed after the spiral blade is inserted.

Surgical Procedures

【Step 14】 Proximal Locking (4)

- Remove the guide wire depth gauge and the 3.2 mm guide wire sleeve. First, use the hollow drill to penetrate the proximal cortex. Then, use the proximal step drill to complete the channel preparation.



Fig.14a

Surgical Procedures

【Step 15】 Proximal Locking (5)

- Attach the PFNA spiral blade to the spiral blade insertion/locking driver by turning it counterclockwise.
- Place the assembly over the 3.2 mm guide wire. Gently tap the driver with the sliding hammer to advance the spiral blade to the predetermined depth. Confirm the position under fluoroscopy. If the position is correct, rotate the driver clockwise to lock the spiral blade. The closure of any visible gap indicates that the PFNA spiral blade is securely locked.

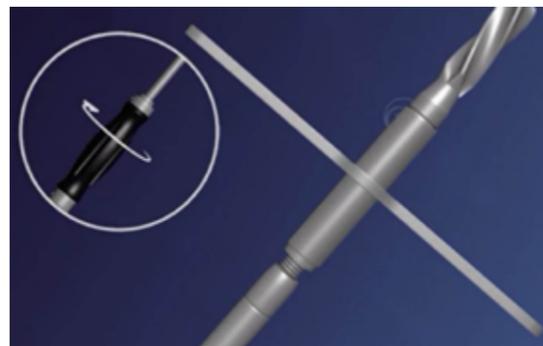


Fig.15a



图 15b

Surgical Procedures

【Step 16】 Proximal Locking (6)

- Optional Blade Compression Technique: If compression is desired, after inserting the blade, connect the compression rod to the blade via its threads.
- Rotate the nut on the proximal locking sleeve counterclockwise to apply interfragmentary compression.
- Note: Use the compression technique judiciously, based on the patient's specific condition.



Fig.16a

Surgical Procedures

【Step 17】 Proximal Locking (7)

- Remove the proximal insertion assembly, but keep the handle and connecting bolt attached to the nail.



Fig. 17a

Surgical Procedures

【Step 18】 Distal Locking - Static Locking (1)

- Mount the distal targeting barrel (for distal static locking, code 425-270) onto the handle and secure it. Insert the distal locking screw assembly sleeve (comprising the 11/8 protection sleeve, 8/4 drill sleeve, and trocar) into the distal static locking hole. Make a 0.5 cm incision directly below it and advance the assembly until it contacts the bone cortex.
- Use the trocar to create a starting dimple on the bone surface. Then, replace the trocar with the 4.0 mm drill bit.

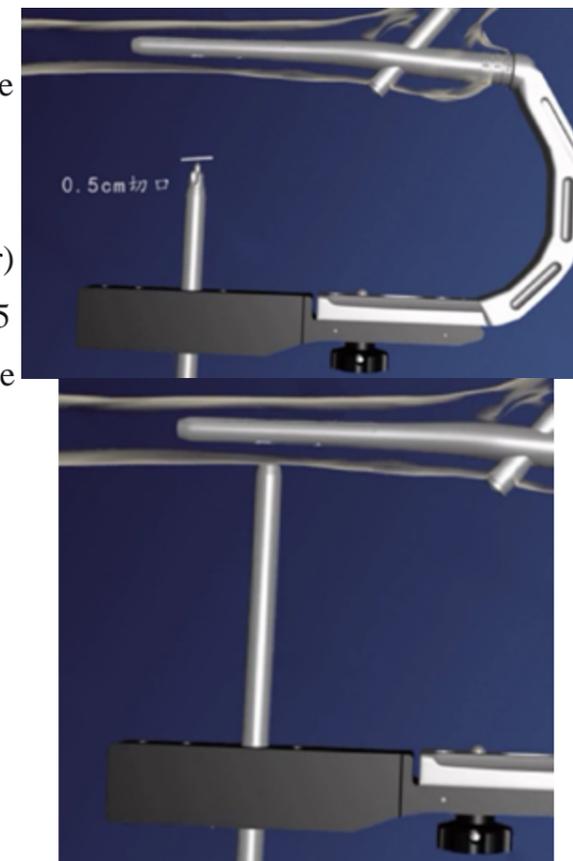


Fig. 18a



Fig. 18b

Surgical Procedures

【Step 19】 Distal Locking - Static Locking (2)

- Drill through the first cortex with the 4.0 mm bone drill. Once the drill bit reaches the medullary cavity, use the small L-wrench to adjust the distance between the depth stop on the drill and the 8/4 drill sleeve to approximately 1 cm. Continue drilling carefully through the opposite cortex.
- Maintain firm contact between the 11/8 protection sleeve and the bone cortex. Use the diameter gauge to measure the required screw length.



Fig. 19a



Fig. 19b

Surgical Procedures

【Step 20】 Distal Locking - Static Locking (3)

- Use the 3.5 mm locking wrench to insert the distally locking screw to the measured length. Avoid overtightening. Perform a final check of the screw position under fluoroscopy.

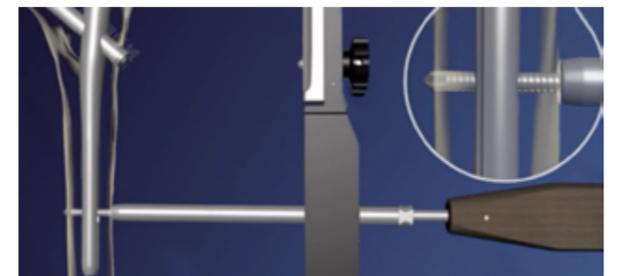


Fig. 20a

Surgical Procedures

【Step 21】 Inserting the End Cap

- Remove all non-implant devices.
- First, use the guide wire for the end cap along with the hollow end cap driver to place the appropriate end cap. Start by turning counterclockwise until engaged, then tighten clockwise. Finally, use the end cap angle wrench for final seating. Do not overtighten.



Fig.21a

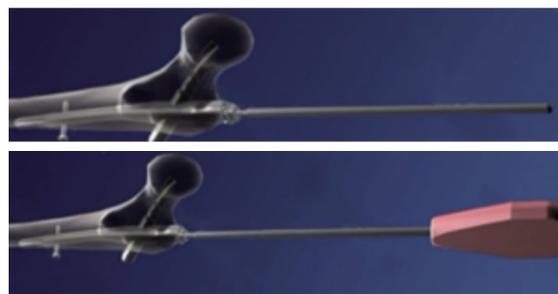


Fig.21b

Surgical Procedures

【Step 22】 Removing Implant (1)

- Insert the 3.2 mm threaded guide wire into the central hole of the spiral blade. Place the spiral blade extractor over the guide wire. Rotate the extractor counterclockwise to engage and secure the PFNA spiral blade, then remove it.



Fig.22a

Surgical Procedures

【Step 23】 Removing Implant (2)

- Use the 3.5 mm locking wrench to remove the distal interlocking screws, leaving one screw in place. Attach the end cap angle wrench and rotate counterclockwise to loosen and remove the end cap. Use the bone guide wire for the end cap with the hollow end cap driver if necessary.
- Attach the main nail extraction rod. Use the 3.5 mm locking wrench to remove the final distal interlocking screw.

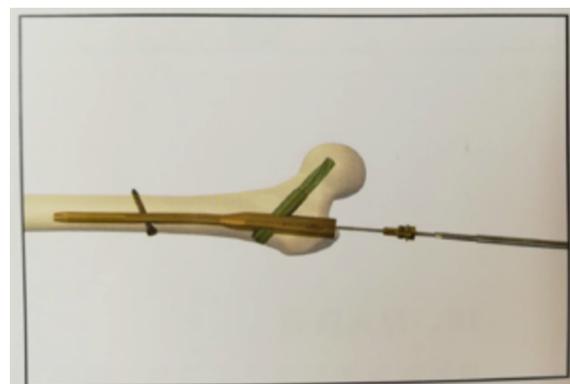


Fig. 23a



Fig. 23b

Surgical Procedures

【Step 24】 Removing Implant (3)

- Use the sliding hammer on the main nail extraction rod to remove the main nail.

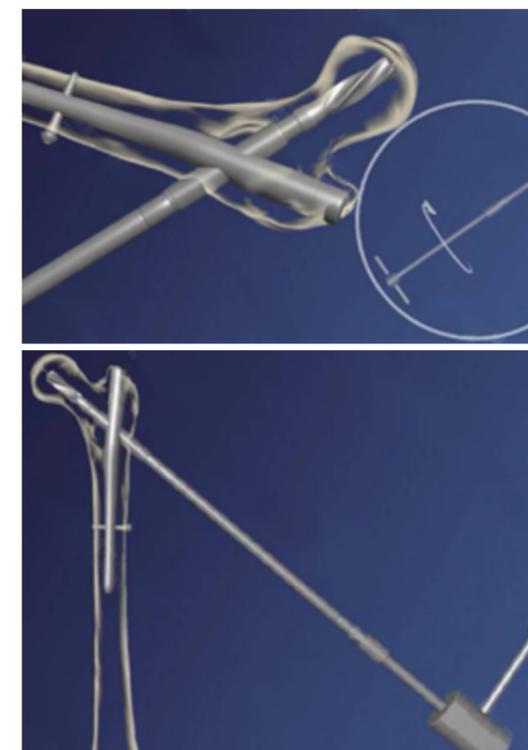


Fig. 24a

Surgical Procedures

【Step 25】 Distal Locking - Dynamic Locking (1)

- Mount the distal targeting barrel (for distal dynamic locking, code 425-260) onto the handle and secure it.
- Insert the distal locking screw assembly sleeve (1 1/8 protection sleeve, 8/4 drill sleeve, trocar) into the distal dynamic locking slot. Make a 0.5 cm incision directly below and advance the assembly until it contacts the bone cortex.



Fig.25a

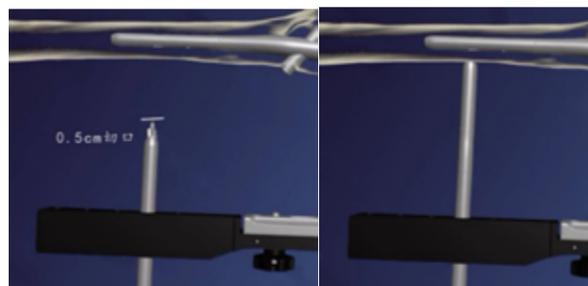


Fig.25b

Surgical Procedures

【Step 26】 Distal Locking - Dynamic Locking (2)

- Use the trocar to create a starting dimple on the bone surface. Then, switch to the 4.0 mm angle drill to begin the hole.
- Drill through the near cortex with the 4.0 mm drill bit. When the drill tip reaches the medullary cavity, use the small L-wrench to set the distance between the depth locator and the 8/4 drill sleeve to about 1 cm to protect the far side soft tissues. Proceed to drill through the far cortex.



Fig.26a



Fig.26b

Surgical Procedures

【Step 27】 Distal Locking - Dynamic Locking (3)

- Keep the 1 1/8 protection sleeve firmly against the bone cortex. Use the diameter gauge to determine the screw length.
- Insert the appropriate length dynamic locking screw using the 3.5 mm locking wrench. Avoid overtightening. Confirm the final position under fluoroscopy.



Fig.27a



Fig.27b

Surgical Procedures

【Step 28】 Distal Locking - Dynamic Locking (4)

- After distal locking is completed, the remaining steps are identical to the static locking protocol;



Fig.28a

Surgical Procedures

【Step 29】 Distal Targeting (1)

PFNA -Extended Nail

- For PFNA extended nails, select the correct distal targeting barrel position based on the nail length. Use the lock wheel to fix the distal targeting barrel onto the handle and tighten it with the lock wheel wrench.



Fig. 29a

Surgical Procedures

【Step 30】 Distal Targeting (2)

- At the corresponding position on the distal targeting barrel, use the lock wheel to install the distal targeting frame and tighten it with the lock wheel wrench.
- Insert the targeting rod pin into the targeting hole of the distal targeting barrel. Make a 0.5 cm incision directly below, and insert the assembly until it contacts the bone.



Fig.30a

Surgical Procedures

【Step 31】 Distal Targeting (3)

- Remove the targeting rod pin. Insert the 5.2 mm targeting rod drill bit and drill the hole.



Fig.31a

Surgical Procedures

【Step 32】 Distal Targeting (4)

- After drilling, insert the 5.2 mm targeting rod flat drill to clear any debris. A metallic sound indicates contact with the targeting platform. Remove the targeting rod flat drill and the targeting rod drill sleeve.

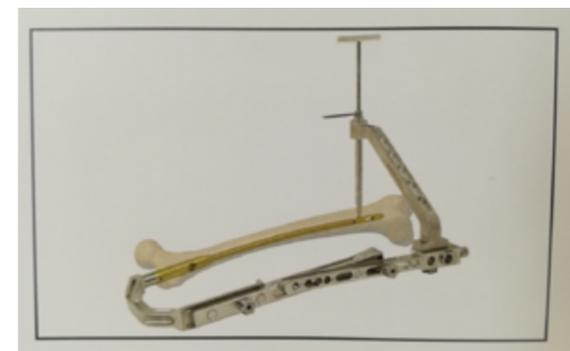


Fig.32a

Surgical Procedures

【Step 33】 Distal Targeting (5)

- Insert the targeting rod into the prepared channel.



Fig. 33a

Surgical Procedure

【Step 34】 Distal Targeting (6)

- Insert the distal locking screw assembly sleeve (1 1/8 protection sleeve, 8/4 drill sleeve, trocar) into the desired targeting hole of the targeting block. Make a 0.5 cm incision below and advance to the bone.
- Remove the trocar. Use the 4.0 mm bone drill to create the screw hole.
- After drilling through the near cortex, adjust the depth stop on the drill to be approximately 1 cm from the 8/4 protection sleeve to protect far side structures, then drill through the far cortex.



Fig. 34a



Fig.34b

Surgical Procedures

【Step 35】 Distal Targeting (7)

- Remove the bone drill and the 8/4 drill sleeve, keeping the 11/8 protection sleeve against the bone. Insert the diameter gauge to measure the screw length.
- Use the SW 3.5 locking wrench to insert the interlocking screw and tighten it securely. Remove the SW 3.5 locking wrench and the 11/8 protection sleeve.



Fig.35a

Surgical Procedures

【Step 36】 Distal Targeting (8)

- Verify the final implant and screw position under fluoroscopy. A probe can be used to confirm locking. Repeat the previous steps to insert any additional distal interlocking screws.

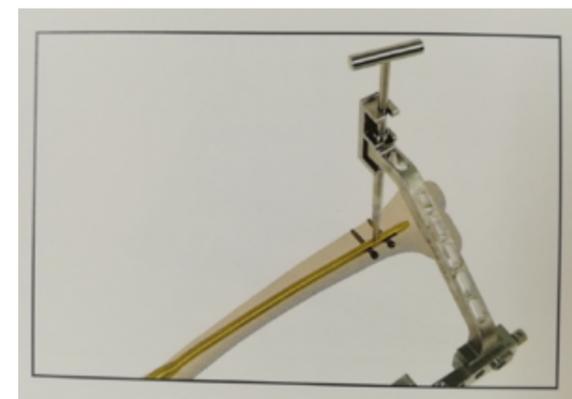


Fig.36a

Product Information

● 【 PFNA Extended Nail 】



Product Code (Left)	Diameter	Length	Product Code (Left)	Diameter	Length	Product Code (Right)	Diameter	Length	Product Code (Right)	Diameter	Length
9204109300	Φ9	300	9204111300	Φ11	300	9204209300	Φ9	300	9204211300	Φ11	300
9213109320	Φ9	320	9213111320	Φ11	320	9213209320	Φ9	320	9213211320	Φ11	320
9204109340	Φ9	340	9204111340	Φ11	340	9204209340	Φ9	340	9204211340	Φ11	340
9213109360	Φ9	360	9213111360	Φ11	360	9213209360	Φ9	360	9213211360	Φ11	360
9204109380	Φ9	380	9204111380	Φ11	380	9204209380	Φ9	380	9204211380	Φ11	380
9213109400	Φ9	400	9213111400	Φ11	400	9213209400	Φ9	400	9213211400	Φ11	400
9204109420	Φ9	420	9204111420	Φ11	420	9204209420	Φ9	420	9204211420	Φ11	420
9204110300	Φ10	300	9213112300	Φ12	300	9204210300	Φ10	300	9213212300	Φ12	300
9213110320	Φ10	320	9213112320	Φ12	320	9213210320	Φ10	320	9213212320	Φ12	320
9204110340	Φ10	340	9213112340	Φ12	340	9204210340	Φ10	340	9213212340	Φ12	340
9213110360	Φ10	360	9213112360	Φ12	360	9213210360	Φ10	360	9213212360	Φ12	360
9204110380	Φ10	380	9213112380	Φ12	380	9204210380	Φ10	380	9213212380	Φ12	380
9213110400	Φ10	400	9213112400	Φ12	400	9213210400	Φ10	400	9213212400	Φ12	400
9204110420	Φ10	420	9213112420	Φ12	420	9204210420	Φ10	420	9213212420	Φ12	420

● 【 PFNA Standard Nail 】



Product Code	Diameter	Length	Product Code	Diameter	Length	Product Code	Diameter	Length
9203009170	Φ9	170	9203010200	Φ10	200	9203011240	Φ11	240
9203009200	Φ9	200	9203010240	Φ10	240	9203012170	Φ12	170
9203009240	Φ9	240	9203011170	Φ11	170	9203012200	Φ12	200
9203010170	Φ10	170	9203011200	Φ11	200	9203012240	Φ12	240

Product Information

● 【 Anti-Rotation Compression Blade II 】



Product Code	Length						
9202010070	70	9202010085	85	9202010100	100	9202010115	115
9202010075	75	9202010090	90	9202010105	105	9207010115	120
9202010080	80	9202010095	95	9202010110	110		

● 【 LHC Cannulated Screw 】



Product Code	Description	Remark	Product Code	Description	Remark
3133012028	0	Φ12×28	3133012038	10	Φ12×38
3133012033	5	Φ12×33	3133012043	15	Φ12×43

● 【 Connecting Bolt (10) 】



Product Code	Description
3926065043	Φ6.5 Hex

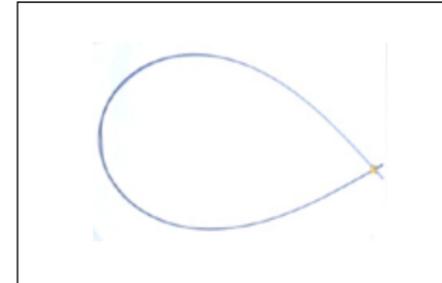
Product Information

【 Titanium Bone Screw (Single Lead) 】



Product Code	Description						
3529050026	φ5.0×26	3529050042	φ5.0×42	3529050058	φ5.0×58	3529050074	φ5.0×74
3529050028	φ5.0×28	3529050044	φ5.0×44	3529050060	φ5.0×60	3529050076	φ5.0×76
3529050030	φ5.0×30	3529050046	φ5.0×46	3529050062	φ5.0×62	3529050078	φ5.0×78
3529050032	φ5.0×32	3529050048	φ5.0×48	3529050064	φ5.0×64	3529050080	φ5.0×80
3529050034	φ5.0×34	3529050050	φ5.0×50	3529050066	φ5.0×66	3529050085	φ5.0×85
3529050036	φ5.0×36	3529050052	φ5.0×52	3529050068	φ5.0×68	3529050090	φ5.0×90
3529050038	φ5.0×38	3529050054	φ5.0×54	3529050070	φ5.0×70	3529050095	φ5.0×95
3529050040	φ5.0×40	3529050056	φ5.0×56	3529050072	φ5.0×72	3529050100	φ5.0×100

Surgical Instruments



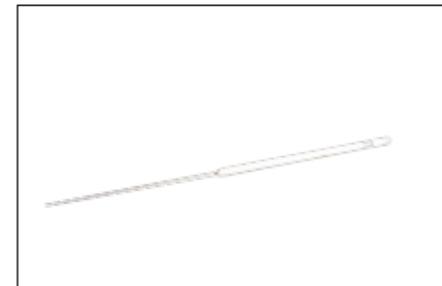
● 425-010

Bone Guide Wire (Ball Tip)



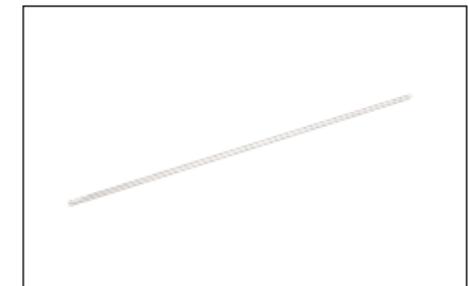
● 425-020

Awl



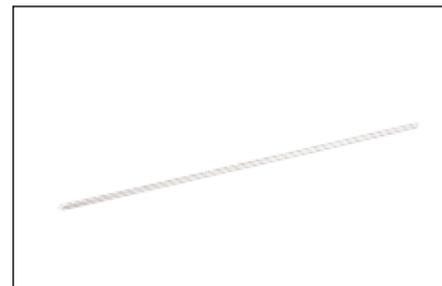
● 425-030

Depth Gauge (II)



● 425-040

Bone Positioning Pin (Threaded)



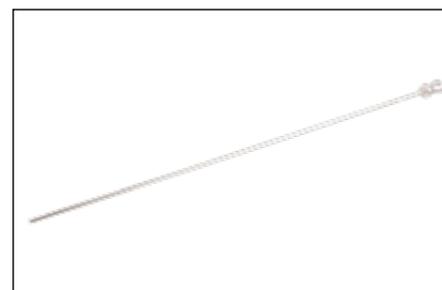
● 425-050

Bone Positioning Needle (Polish Rod)



● 425-060

Sleeve (Anti-Rotation Pin)



● 425-070

Bone Guide Wire (Clean)



● 425-080

Orthopedic Drill Bit

Surgical Instruments



● 425-130
Sleeve (II)



● 425-310
Femoral Medullary Cavity
Alignment Handle Sleeve ()



● 425-350
Impactor (Guide Pin I)



● 425-370
Depth Gauge(I)



● 425-100
Orthopedic Wrench (Hexagon II)



● 425-140
Orthopedic Drill Bit



● 425-361
Bone Hammer (I)



● 425-380
Impactor (Pressurized)

Surgical Instruments



● 425-170
Orthopedic Drill Bit (Flat Bit)



● 425-200
Orthopedic Wrench (Hex, universal)



● 425-220
Bone Guide Pin (Hook tip)



● 425-231
Orthopedic Wrench (Tail-cap universal)



● 425-191
Quick-change Handle (Straight)



● 425-210
Quick-change Handle (T-type)



● 2070099
Orthopedic Wrench
(Hex, universal, quick-change)



● 425-240
Orthopedic Wrench (Hexagonal tail cap)

Surgical Instruments



● 425-460
Puller (Spiral blade)



● 425-471
Orthopedic Wrench (Open)



● 425-490
Template



● 425-340
Lock Needle Pressure (I)



● 425-510
Cavity Reamer(I)



● 425-511~514
Cavity Reamer(II)



● 425-515~519
Cavity Reamer(II)



● 425-520
Cavity Augmentation Drill(Proximal)

Surgical Instruments



● 425-390
Impeller



● 425-400
Cavity Augmentation Drill



● 425-410
Drill Guide



● 425-420
Orthopedic Drill Sight (Multi-hole)



● 425-430
Nail Remover



● 425-440
Orthopedic Wrench (Spiral blade)



● 425-441
Orthopedic Wrench



● 425-451
Orthopedic Wrench (Locking)

Surgical Instruments



● 425-610

Orthopedic Wrench(Rod type)



● 425-620

Retractor



● 425-660

Sleeve (Tail tap)



● 425-670

Impactor (Spiral blade)



● 425-681

Positioning Needle (I)



● 425-685

Orthopedic Locator (Distal guide rod)



● 425-683

Orthopedic Locator (Distal)



● 425-687

Orthopedic Locator (Handle)

Surgical Instruments



● 425-530

Bone Lever



● 425-540

Bone Reamer



● 425-560

Quick Connecting Rod (Handle)



● 425-570

Quick Connecting Rod (Proximal Nail End)



● 425-580

Orthopedic Wrench(Hex)



● 425-590

Quick Connecting Rod (Distal Nail End)



● 425-600

Quick Connecting Rod (Targeting-Frame Locking Knob)



● 425-686

Orthopedic Locator (Proximal guide rod)

Surgical Instruments



425-688

Sheath (Orthopedic Positioning Frame)

Surgical Instruments