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Setting the Standard Since 1956

For more than 45 years, the Compression Hip Screw from Smith & Nephew has set the standard for treating femoral fractures.

CHS applications include intertrochanteric, subtrochanteric, subcapital, and intracapsular neck fractures. A wide variety of implant sizes extends the CHS versatility, and the unsurpassed instrumentation is the result of years of research and clinical testing.

The CHS is a complete system, offering surgeons many unique design features:

- Keyed and keyless plates
- Cold-forged plates for improved fatigue strength
- Deeper threads in the lag screw for increased bone purchase
- I-beam construct, improving fatigue strength in the lag screw
- Adult, intermediate, and pediatric versions

Maximize your options in surgery and rely on the proven performance and consistent results of the Compression Hip Screw from Smith & Nephew.

Indications

The Smith & Nephew Compression Hip Screw is intended to treat fractures of the proximal femur.

This includes: Intertrochanteric Fractures Subtrochanteric Fractures Intracapsular Neck Fractures Subcapital Fractures







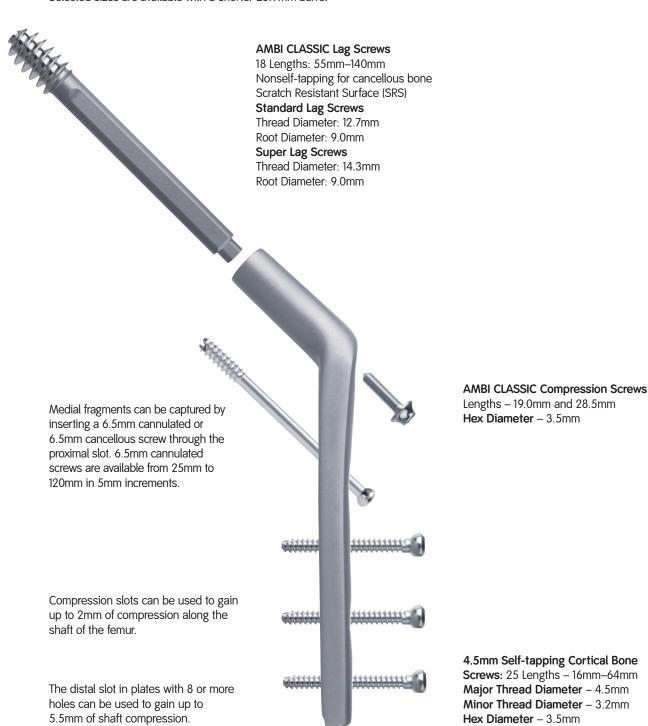
Design Features

CLASSIC Keyed and AMBI° Keyed/Keyless Plates

AMBI Plates: Barrel design is keyless but can be converted to keyed with the insertion of a small keying clip.

CLASSIC Plates: Barrel design is keyed only. Angles: 130° to 150° in 5° increments Lengths: 60mm to 300mm, 2 to 14 slots

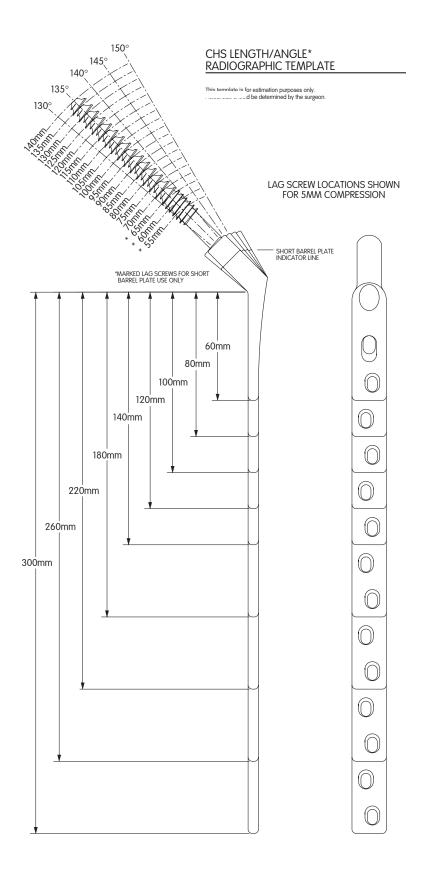
Barrel Lengths: Standard plate barrels are 38.1mm long Selected sizes are available with a shorter 25.9mm barrel



Templating

Smith & Nephew offers preoperative X-ray templates (7118-0454) to ensure selection of the appropriate implant for each fracture. Templating helps determine the proper lag screw length as well as the correct neck angle and size of the plate.

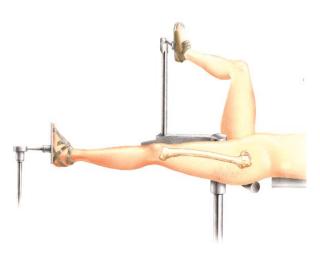
Templates are available at a magnification of 117% of actual size. An anteroposterior pelvic X-ray and a cross table lateral view of the hip are necessary when templating. For best results, templates should be used on X-rays that feature the extremity placed in slight internal rotation with gentle longitudinal traction applied.



Patient Prep

Preoperative Planning

Adequate preoperative assessment of the fracture requires a thorough history, careful physical exam, and adequate radiographic studies. Ambulatory status as well as previous lower extremity fractures and surgeries must be known. Obtain appropriate radiographic images. Note any skin compromise.



Patient Positioning

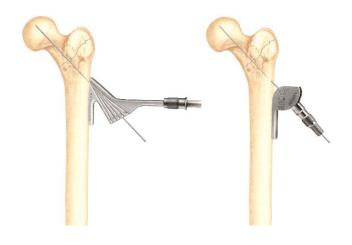
Patient is placed supine on a fracture table with the unaffected leg flexed at the hip and knee, and then abducted and slightly internally rotated.

Surgical Techinque

Multiple Angle Guide

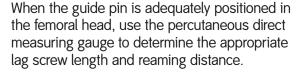
Guide Pin Insertion

Before inserting the guide pin, satisfactory fracture reduction using an open or closed technique should be accomplished. Using the multiple angle guide or the adjustable angle guide, aim the 3.2mm guide pin toward the apex of the femoral head, ensuring that it is parallel to and in the center of the femoral neck. Advance the guide pin to within 10mm of the joint line to prevent joint penetration.





Adjustable Angle Guide



Note: This instrument directly measures the guide pin.



(60)23

Quick Connect Adaptor

Adaptor

Tip Threaded Guide Pin

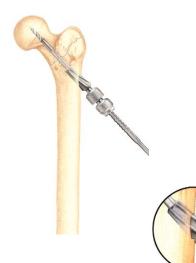
Percutaneous Direct Measuring Gauge



Guide Pin Placement Instrument

The guide pin placement instrument will allow the placement of a parallel guide pin 13mm proximal to the primary guide pin. This will maintain reduction of unstable fractures during reaming.





Reaming

Set the power combination reamer to the lag screw length indicated by the measuring gauge. Ream for lag screw using the combination reamer. Insert the reamer over the guide pin. To minimize the occurrence of guide pin pullout, it is important to avoid reaming over the threaded portion of the guide pin. This can be achieved in two ways.

Short barrel notch indicator to be used when reaming short barrel plates.



Power Combination Reamer



Option 1: Once the guide pin is inserted and measured, advance it an additional 5mm into the subchondral bone and ream according to the exact lag screw length measurement. Choose a lag screw that matches the length measurement.

Option 2: Insert the guide pin into the subchondral bone, measure, and set the reamer 5mm shorter than the length measured. Choose a lag screw that matches the length that was reamed.



Quick-Connect T-Handle

Tapping

Tapping is indicated in younger patients or abnormally dense bone. It is also indicated to avoid excessive torque during insertion of the lag screw. To tap, attach the quick-connect T-handle to the lag screw tap and set it to the appropriate lag screw length. Tap until the advancing portion of the positive stop rests against the cortex guide.



Lag Screw Tap



Lag Screw Length Selection

Lag screw length will determine the amount of compression you can achieve with the compression screw intraoperatively. If the lag screw selected is exactly the same length of the measurement taken from the direct measuring gauge, this will provide 5mm of compression. If more compression is needed, a 5mm shorter lag screw will permit 5mm of additional compression.

CLASSIC Wrench and Plate Assembly Technique To Be Used with CLASSIC Plates Only.



Slide the CLASSIC insertion wrench through the barrel of the plate and attach the lag screw. **Do Not Use Wrench as a Lever.**





Lag Screw Insertion

Advance the lag screw to the predetermined depth and verify using image intensification. As a guide, the rings are aligned on the AMBI CLASSIC centering sleeve and CLASSIC insertion wrench and these can be used to aid in determining lag screw seating. These marks are calibrated for 135° plates and 150° plates.

When the lag screw is inserted to the desired depth, the wrench handle must be perpendicular to the axis of the femoral shaft for proper keying to the plate barrel. Remove the AMBI CLASSIC centering sleeve and advance the plate onto the lag screw shaft.



CLASSIC Insertion Wrench

Final Seating of the Plate

Use a plate tamper to fully seat the plate.

Unscrew the retaining rod from the lag screw and remove the insertion wrench from the back of the lag screw. Remove the guide pin.

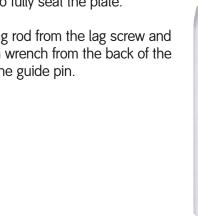






Plate Tamper

Unscrew the retaining rod from the lag screw and remove the insertion wrench. Slide the cannulated plate tamper over the guide pin into the barrel of the plate to fully seat the plate. Remove the guide pin once the plate is fully seated.



Cannulated Plate Tamper

AMBI Wrench, Plate and Clip Assembly Technique To Be Used with AMBI Plates Only.



Assemble the AMBI clip, plate and lag screw onto the AMBI insertion wrench. The AMBI clip may be omitted for a keyless system.

Do Not Use Wrench as a Lever.

Slip the AMBI CLASSIC centering sleeve onto the insertion wrench.







Lag Screw Insertion

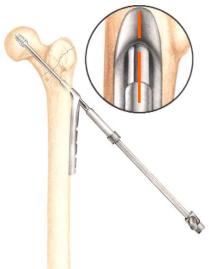
Advance the lag screw to the predetermined depth and verify using image intensification. As a guide, when using the 135° plate, the lag screw should be advanced until the rings on the AMBI insertion wrench are aligned with the 135° marks on the AMBI CLASSIC centering sleeve. This process remains the same for the 150° plate.

When the lag screw is inserted to the desired depth, the wrench handle must be perpendicular to the axis of the femoral shaft for proper keying to the plate barrel. Remove the AMBI CLASSIC centering sleeve and advance the plate onto the lag screw shaft.



AMBI Insertion Wrench





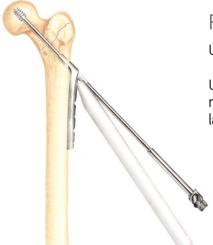
Clip Insertion

For Use with AMBI Plates Only.

Make sure the wrench is perpendicular to the femur and be sure the lines on the plate barrel and AMBI insertion wrench are aligned. Press the AMBI clip inserter down the shaft of the AMBI insertion wrench. Use firm finger pressure until the clip snaps in place.







Final Seating of the Plate

Use a plate tamper to fully seat the plate.

Unscrew the retaining rod from the lag screw and remove the insertion wrench from the back of the lag screw. Remove the guide pin.

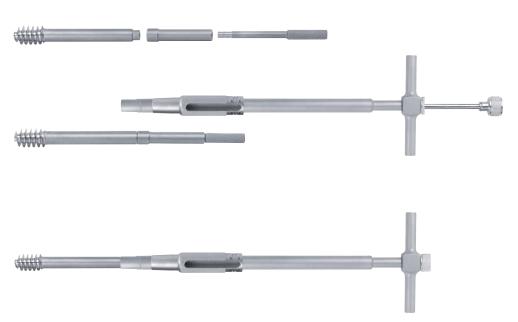


Plate Tamper

Unscrew the retaining rod from the lag screw and remove the insertion wrench. Slide the cannulated plate tamper over the guide pin into the barrel of the plate to fully seat the plate. Remove the guide pin once the plate is fully seated.

Cannulated Barrel Guide and Insertion/Removal Wrench To be Used with both CLASSIC and AMBI Plates.

Wrench Assembly



Attach the cannulated barrel guide to the lag screw. Slide the centering sleeve onto the insertion/removal wrench. Place the entire assembly over the guide pin and advance.

Do Not Use Wrench as a Lever.



Lag Screw Insertion



Advance the lag screw to the desired length and verify using image intensification. As a guide, the rings are aligned on the centering sleeve and insertion/removal wrench and these can be used to aid in determining lag screw seating. These marks are calibrated for 135° plates and 150° plates. Once final depth is obtained, the handle of the insertion/removal wrench must be perpendicular to the axis of the femoral shaft for proper alignment.





Wrench



Final Seating of the Plate

Use a plate tamper to fully seat the plate.

Unscrew the retaining rod from the lag screw and remove the insertion wrench from the back of the lag screw. Remove the guide pin.



Plate Tamper

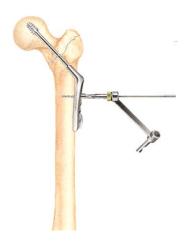
Unscrew the retaining rod from the lag screw and remove the insertion wrench. Slide the cannulated plate tamper over the guide pin into the barrel of the plate to fully seat the plate. Remove the guide pin once the plate is fully seated.

Plate Clamp

Attaching the Plate

Use the plate clamp to secure the plate to the shaft.

Use the 3.5mm twist drill through the combination drill guide to drill the bone plate screw holes. Determine appropriate screw length using the bone screw length gauge.





Secure the plate to the bone using 4.5mm self-tapping bone screws.

Insert the remaining screws into the shaft of the femur. Remove the plate clamp.



Screw Length Gauge

Bone



Inserting the Compression Screw

Two compression screws are available:

19mm Length – allows 5mm of compression intraoperatively.

28.5mm Length – allows up to 10mm of compression when used in combination with a lag screw that is 5mm shorter than the lag screw measurement.

Note: Be sure to always remove the 28.5mm length compression screw and replace with the 19mm length to ensure proper lag screw and plate interface.



Self-Holding Hex Screwdriver



Final tightening of the compression screw can be achieved with a hex screwdriver once all the 4.5mm screws have been inserted into the plate and traction has been released. Fracture compression is accomplished by fully seating the lag screw with the hex screwdriver.

Note: Be sure to take into consideration bone quality and fracture stability while inserting the compression screw to prevent over tightening. Overtightening could cause the lag screw to pull out of the femoral head.



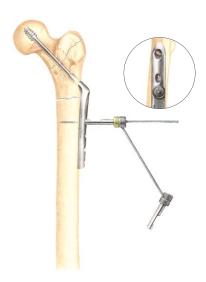
Hex Screwdriver

Special Features of the Plate

The oval autocompression holes of the plate will allow for up to 2mm of fracture line compression for subtrochanteric fractures or osteotomies.

Place the eccentric gold end of the combination drill guide in the first compression slot distal to the fracture with the arrow pointing towards the fracture. Drill with the 3.5mm Twist drill

Place a 4.5mm self-tapping cortical screw in the slot.

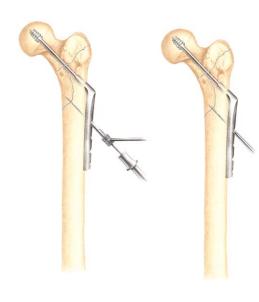


As the screw is seated, it abuts the inclined distal aspect of the slot, forcing the plate and the attached proximal fragment distally until resisted by fracture compression.

For an additional 1mm of compression, repeat this step in the compression slot distal to the first one. Slightly loosen the first eccentrically placed screw after the second screw abuts the slot, but before it is fully seated to allow the additional compression.

Following seating of the second screw, retighten the first screw.





Capturing the Lesser Trochanter and Posterior-Medial Fragments

The most proximal slot in the plate allows for the insertion of a 6.5mm cancellous or cannulated screw.

These screws can be used to capture the lesser trochanter or a large posterior-medial fragment.

The slot allows up to 45° of proximal and 26° of distal angulation in the coronal plane, and 14° of anterior or posterior angulation in the sagittal plane.



Guide

Inserting the Cannulated Screw

Snap the 2.4mm pin guide into the combination drill guide. Place the pin guide into the proximal slot and insert a 2.4mm guide pin.

Inserting the 6.5mm Cannulated Screw

Note: You will need the instruments from the cannulated screw set to insert the 6.5mm cannulated screw.



2.4mm Guide Pin

Lag Screw Trephine

Removing the Hip Screw

Remove the compression screw. Next remove the cortical screws from the plate. Lift the plate from the femoral shaft.

Use the lag screw trephine to remove any tissue or bone that may interfere with the lag screw removal.

Connect the insertion/removal wrench to the base of the lag screw via the retaining rod. Using a counterclockwise motion, remove the lag screw.





Insertion/Removal Wrench



Catalog



CLASSIC Compression Hip Screw Standard Barrel Plates

Barrel Le	ength: 1.5"	(38.1mm)	
Cat. No.	Description	Length	Angle
12-4120	2 Slot	60mm	130°
12-4121	2 Slot	60mm	135°
12-4122	2 Slot	60mm	140°
12-4123	2 Slot	60mm	145°
12-4124	2 Slot	60mm	150°
12-4125	3 Slot	80mm	130°
12-4126	3 Slot	80mm	135°
12-4127	3 Slot	80mm	140°
12-4128	3 Slot	80mm	145°
12-4129	3 Slot	80mm	150°
12-4130	4 Slot	100mm	130°
12-4131	4 Slot	100mm	135°
12-4132	4 Slot	100mm	140°
12-4133	4 Slot	100mm	145°
12-4134	4 Slot	100mm	150°
12-4135	5 Slot	120mm	130°
12-4136	5 Slot	120mm	135°
12-4137	5 Slot	120mm	140°
12-4138	5 Slot	120mm	145°
12-4139	5 Slot	120mm	150°
12-4140	6 Slot	140mm	130°
12-4141	6 Slot	140mm	135°
12-4142	6 Slot	140mm	140°
12-4143	6 Slot	140mm	145°
12-4144	6 Slot	140mm	150°
12-4145	8 Slot	180mm	130°
12-4146	8 Slot	180mm	135°
12-4147	8 Slot	180mm	140°
12-4148	8 Slot	180mm	145°
12-4149	8 Slot	180mm	150°
12-4150	10 Slot	220mm	130°
12-4151	10 Slot	220mm	135°
12-4152	10 Slot	220mm	140°
12-4153	10 Slot	220mm	145°
12-4154	10 Slot	220mm	150°
12-4156	12 Slot	260mm	135°
12-4158	12 Slot	260mm	145°
12-4161	14 Slot	300mm	135
12-4163	14 Slot	300mm	145°

CLASSIC Compression Hip Screw Short Barrel Plates

Barrel Length: 1.0" (25.9mm)			
Cat. No.	Description	Length	Angle
12-4176	4 Slot	100mm	130°
12-4177	4 Slot	100mm	135°
12-4178	4 Slot	100mm	140°
12-4179	4 Slot	100mm	145°
12-4180	4 Slot	100mm	150°
12-4165	5 Slot	120mm	130°
12-4166	5 Slot	120mm	135°
12-4167	5 Slot	120mm	140°
12-4168	5 Slot	120mm	145°
12-4169	5 Slot	120mm	150°

AMBI Compression Hip Screw Standard Barrel Plates

Barrel Length: 1.5" (38.1mm)

	0	(30.111111)	A mala
Cat. No.	Description		Angle
12-1120	2 Slot	60mm	130°
12-1121	2 Slot	60mm	135°
12-1122	2 Slot	60mm	140°
12-1123	2 Slot	60mm	145°
12-1124	2 Slot	60mm	150°
12-1125	3 Slot	80mm	130°
12-1126	3 Slot	80mm	135°
12-1127	3 Slot	80mm	140°
12-1128	3 Slot	80mm	145°
12-1129	3 Slot	80mm	150°
12-1130	4 Slot	100mm	130°
12-1131	4 Slot	100mm	135°
12-1132	4 Slot	100mm	140°
12-1133	4 Slot	100mm	145°
12-1134	4 Slot	100mm	150°
12-1135	5 Slot	120mm	130°
12-1136	5 Slot	120mm	135°
12-1137	5 Slot	120mm	140°
12-1138	5 Slot	120mm	145°
12-1139	5 Slot	120mm	150°
12-1140	6 Slot	140mm	130°
12-1141	6 Slot	140mm	135°
12-1142	6 Slot	140mm	140°
12-1143	6 Slot	140mm	145°
12-1144	6 Slot	140mm	150°
12-1145	8 Slot	180mm	130°
12-1146	8 Slot	180mm	135°
12-1147	8 Slot	180mm	140°
12-1148	8 Slot	180mm	145°
12-1149	8 Slot	180mm	150°
12-1150	10 Slot	220mm	130°
12-1151	10 Slot	220mm	135°
12-1152	10 Slot	220mm	140°
12-1153	10 Slot	220mm	145°
12-1154	10 Slot	220mm	150°
12-1156	12 Slot	260mm	135°
12-1158	12 Slot	260mm	145°
12-1161	14 Slot	300mm	135°
12-1163	14 Slot	300mm	145°









Barrel Length: 1.0" (25.4mm)

Cat. No.	Description	Length	Angle
12-1198	4 Slot	100mm	130°
12-1199	4 Slot	100mm	135°
12-1200	4 Slot	100mm	140°
12-1201	4 Slot	100mm	145°
12-1202	4 Slot	100mm	150°
12-1165	5 Slot	120mm	130°
12-1166	5 Slot	120mm	135°
12-1167	5 Slot	120mm	140°
12-1168	5 Slot	120mm	145°
12-1169	5 Slot	120mm	150°

AMBI CLASSIC/IMHS Standard Lag Screws

Thread Diameter: 1/2" (12.7mm)

Thread Length: 21.0mm Root Diameter: 9.0mm

Cat. No.	Length	Cat. No.	Length
12-1100	55mm	12-1109	100mm
12-1101	60mm	12-1110	105mm
12-1102	65mm	12-1111	110mm
12-1103	70mm	12-1112	115mm
12-1104	75mm	12-1113	120mm
12-1105	80mm	12-1114	125mm
12-1106	85mm	12-1176	130mm
12-1107	90mm	12-1177	135mm
12-1108	95mm	12-1178	140mm

NOTE: Do not use AMBI/CLASSIC 55, 60, or 65mm lag screws with IMHS. These sizes are too short to work effectively with this device.



AMBI Clip Cat. No. 12-1115

AMBI CLASSIC Super Lag Screws

Thread Diameter: 9/16" (14.3mm)

Thread Length: 21.0mm Root Diameter: 9.0mm

Cat. No.	Length	Cat. No.	Length
12-1180	55mm	12-1189	100mm
12-1181	60mm	12-1190	105mm
12-1182	65mm	12-1191	110mm
12-1183	70mm	12-1192	115mm
12-1184	75mm	12-1193	120mm
12-1185	80mm	12-1194	125mm
12-1186	85mm	12-1195	130mm
12-1187	90mm	12-1196	135mm
12-1188	95mm	12-1197	140mm



NOTE: Not compatable with IMHS nail.

6.5mm Cannulated Screws

Cat. No.	Length	Cat. No.	Length
12-1625	25mm	12-1635	75mm
12-1626	30mm	12-1636	80mm
12-1627	35mm	12-1637	85mm
12-1628	40mm	12-1638	90mm
12-1629	45mm	12-1639	95mm
12-1630	50mm	12-1640	100mm
12-1631	55mm	12-1641	105mm
12-1632	60mm	12-1642	110mm
12-1633	65mm	12-1643	115mm
12-1634	70mm	12-1644	120mm



Compression Screws

Cat. No.	Length	Cat. No.	Length
12-1116	19mm	12-1117	28.5mm



4.5mm Self-Tapping Cortical Bone Screws

Head Diameter: 8.0mm Major Thread Diameter: 4.5mm

Root Diameter: 3.2mm

Cat. No. Len	gth	Cat. No.	Length
7112-9216 16m	nm	7112-9242	42mm
7112-9218 18m	nm	7112-9244	44mm
7112-9220 20n	nm	7112-9246	46mm
7112-9222 22n	nm	7112-9248	48mm
7112-9224 24n	nm	7112-9250	50mm
7112-9226 26n	nm	7112-9252	52mm
7112-9228 28n	nm	7112-9254	54mm
7112-9230 30n	nm	7112-9256	56mm
7112-9232 32n	nm	7112-9258	58mm
7112-9234 34n	nm	7112-9260	60mm
7112-9236 36n	nm	7112-9262	62mm
7112-9238 38n	nm	7112-9264	64mm
7112-9240 40n	nm		



Tip Threaded Guide Pin, 3.2mm

Cat. No. Description

7111-0056 Sterile Package, Single 11-0016 Nonsterile Package, Single



(for use with Hall, Jacobs, or Stryker power)

Cat. No. 7111-0020

Quick-Connect Adaptor

(for use with Synthes power)

Cat. No. 7111-0022

Perforation Drill

Cat. No. 11-0021

NOTE: Used to make opening in lateral cortex guide pin.

Multiple Angle Guide

Cat. No. 7111-0028

Quick-Connect T-Handle

Cat. No. 7111-5045

Adjustable Angle Guide

Cat. No. 11-0925

Percutaneous Direct Measuring Gauge

Cat. No. 11-0026















Guide Pin Placement Instrument Cat. No. 11-5036



Power Combination Reamer Cat. No. 11-0023



Trial Handle Cat. No. 11-0047



Trial Plates

Cat. No.	Angle
11-0042	130°
11-0043	135°
11-0044	140°
11-0045	145°
11-0046	150°



Lag Screw Tap Cat. No. 7111-0014



CLASSIC Insertion Wrench

Cat. No. 11-0054



AMBI Insertion Wrench Cat. No. 11-0022

Replacement Retaining Rod for AMBI and CLASSIC Insertion Wrenches



Cat. No. 7111-0024



Cat. No. 11-0029





Plate Tamper Cat. No. 11-0020

Insertion/Removal Wrench Cat. No. 11-5061

Replacement Retaining Rod for Insertion/Removal Wrench Cat. No. 7111-5062

Cannulated Barrel Guide Cat. No. 7111-0060

Insertion/Removal Wrench Centering Sleeve Cat. No. 7111-0030

Cannulated Plate Tamper Cat. No. 11-0903

Plate Clamp Cat. No. 21-0204

Combination Drill Guide, 3.5mm Cat. No. 11-0075

Pin Guide, 2.4mm Cat. No. 7111-0105 Guide Pin, 2.4mm Cat. No. 41-0236 Twist Drill, 3.5mm Cat. No. 7111-0045 Bone Screw Tap for 4.5mm **Self-Tapping Screws** Cat. No. 11-0077 Bone Screw Tap for 4.5mm Nonself-Tapping Screws Cat. No. 7111-0070 Bone Screw Length Gauge Cat. No. 41-3500 Screw Pickup Cat. No. 7111-5085 Self-Holding Hex Screwdriver Cat. No. 7111-0026 Hex Screwdriver Cat. No. 11-5035 Cannulated Plate Tamper Cat. No. 7111-0038





Long Slot Drill Guide Cat. No. 11-5043

Drill Sleeve 3.5 mm Cat. No. 7111-0123

Twist Drill 4.5 mm Cat. No. 7111-0027

Obturator Cat. No. 11-6500



Supracondylar Pin Guides

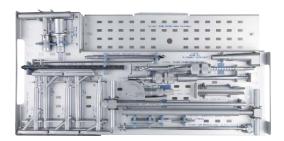
Cat. No.	Angle
11-0018	90°
11-0019	95°

CLASSIC and AMBI Template Cat. No. 7118-0454

(Not Shown)



Sterilization Tray Cat. No. 7111-5090



Standard Tray Insert Cat. No. 7111-5070



AMBI CLASSIC Instrument Tray Cat. No. 7111-5091



Screw Caddy Cat. No. 7111-5097



Bone Screw Caddy (optional) Cat. No. 7111-0137



Trial Tray (optional) Cat. No. 7111-5032

Orthopaedics Smith & Nephew, Inc. 1450 Brooks Road Memphis, TN 38116 USA

Telephone 901-396-2121 Information 1-800-821-5700 Orders/Inquiries 1-800-238-7538 www.smith-nephew.com

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