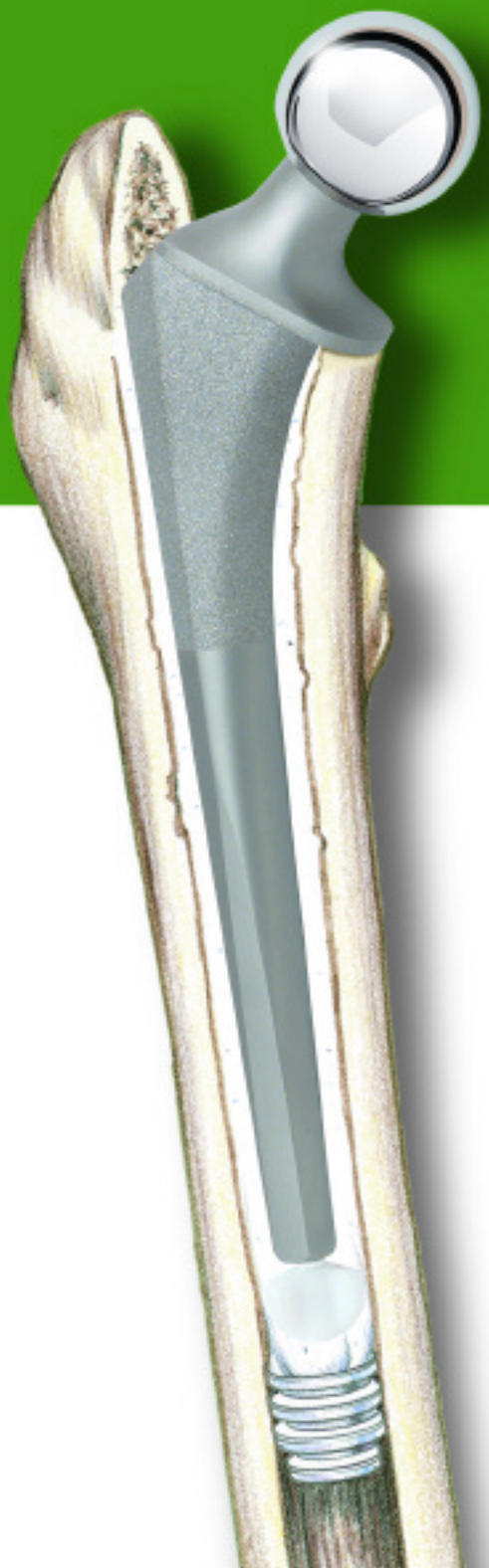
stryker®

Orthopaedics

OmniFit® HFx™ 127° 132°
Surgical Protocol



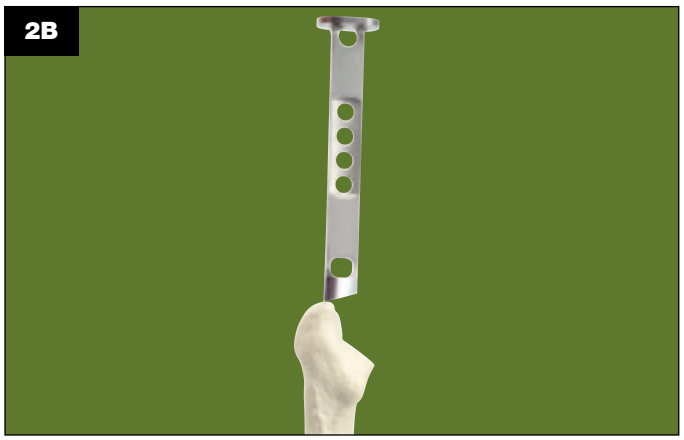
CuttingEdge™ Advantage Hip Instrument System

- Complete
- Simple
- Adaptable

2 Neck Resection

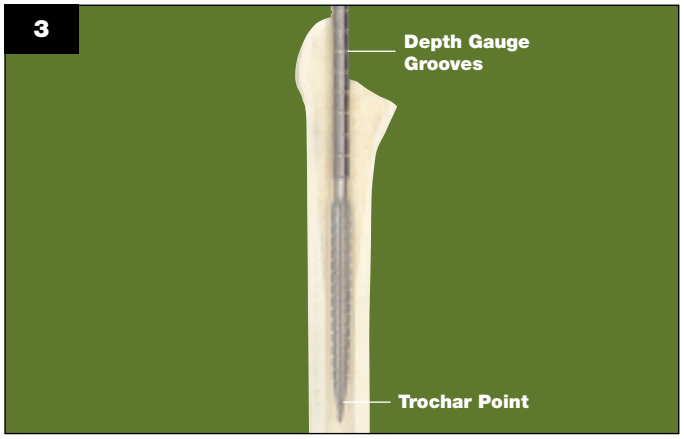
A proper neck resection level directly affects stem fit and placement. The resection should be made at a level determined during templating to restore proximal femoral head/neck length and offset. By using anatomic landmarks identified during templating, the Neck Resection Guide may be utilized for proper resection determination. The Neck Resection Guide is identical in profile to a size #7 OmniFit® implant body, thus providing a means of simulating stem alignment. Care should be taken to align the axis line of the resection guide to the center axis of the femoral shaft; the scales on the lateral flange or medial radius of the guide can be used to reference the greater or lesser trochanter respectively when making the final cut (**Figure 2A**).

Optional Step
Box Chisel
The Box Chisel removes bone from the proximal lateral portion of the resected femoral neck to allow access to the femoral medullary canal (**Figure 2B**).



3 Opening the Femoral Canal: Axial Starter Reamer

The Axial Starter Reamer is used to enter the femoral medullary canal in the region of the trochanteric fossa. The Starter Reamer has a trocar point to facilitate entry. It should be inserted to a depth such that the distal tip of the Starter Reamer is 1cm below the distal end of the final size broach (**Figure 3**). The groove, on the starter reamer shaft, is approximately in line with the intersection point of the femoral axis of the femur and the neck resection line (**Figure 3**).



4 Trochanteric Reaming

Insert the Trochanteric Reamer into the proximal area of the canal and bias the cutting teeth laterally to remove the desired amount of bone (**Figure 4**). Performing this step can help facilitate the axial alignment of the broach so that it is not pushed into varus by an overhanging trochanter. Varus positioning of the implant may result in improper placement or undersizing of the implant.

Optional Step
Tapered Reaming
Starting with a size one or two smaller than the templated size, insert the reamers into the canal such that the most proximal level cutting flutes are 1-2mm below the trochanteric fossa. Ream sequentially up in size until the last tapered reamer achieves good contact with the cortical bone.

5 Broaching the Femur

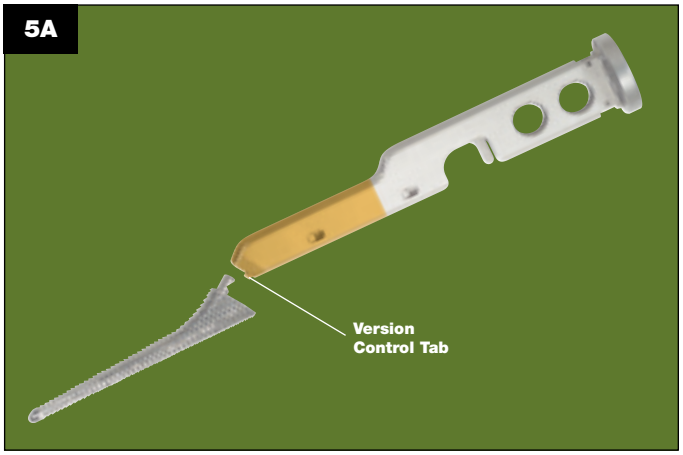
Assemble the Broach Handle to the broach (**Figure 5A**). Starting with the smallest broach*, advance sequentially up in size approaching the templated size until a stable snug-fit is obtained (**Figure 5B**). Care should be taken to lateralize the proximal portion of the broach in order to maintain axial alignment of the broach and implant.

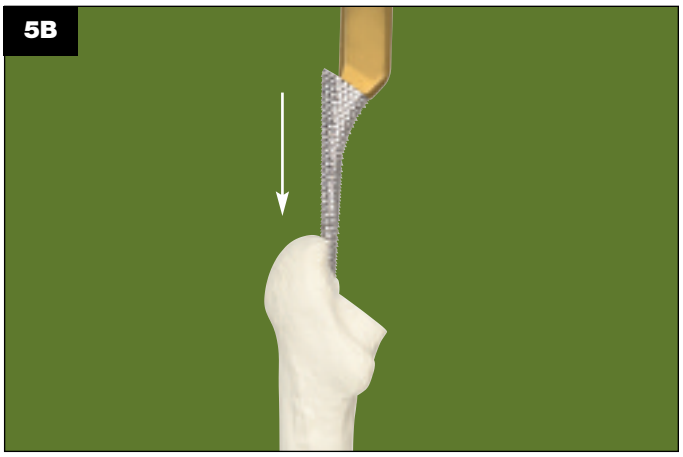
Table 1: Broach to Implant Sizing

Stem Size	132° Neck Length	127° Neck Length	Broach Size For Press-Fitting	Broach Size For Cementing
5	25mm	25mm	PF 5	PF 7/ C5
6	25mm	25mm	PF 6/ C4	PF 8/ C6
7	30mm	30mm	PF 7/ C5	PF 9/ C7
8	30mm	30mm	PF 8/ C6	PF 10/ C8
9	35mm	35mm	PF 9/ C7	PF 11/ C9
10	35mm	35mm	PF 10/ C8	PF 12/ C10
11	40mm	N/A	PF 11/ C9	PF 13/ C11

PF = Press Fit C = Cemented

***Though the broaches may facilitate preparation of the femoral implant without the use of tapered reamers, a narrow/tight diaphyseal (e.g. "Champagne Flute Femurs") shaft may result in broach resistance in the distal canal. If resistance is encountered, tapered reaming is recommended to avoid any distal femoral fractures. The option to skip any reaming steps is at the discretion of the surgeon.**





6 Calcar Planer

Leaving the final broach seated in the femoral canal (**Figure 6A**), gently guide the female bushing over the broach trunnion. The medial calcar should be leveled to improve the stem collar to calcar contact (**Figure 6B**). The planer can be driven by hand or by means of a power tool to achieve a final neck resection level to improve the collar/calcar contact.

7 Trial Reduction

Trial reduction, using the broach, trial neck and trial head, should be used to judge component positioning, leg length and hip stability (range of motion and laxity) before the final components are implanted. Select a CuttingEdge™ Advantage Trial Neck, 132° (Silver) or 127° (Gold), that has the same base neck length as the planned implant size, see **Table 1** and **Figure 7A**.

Next, select the appropriate plastic C-Taper Trial Head. Refer to **Table 2** for head diameters and head offsets combinations (**Figure 7B**).

Table 2: Head Diameters and Offsets

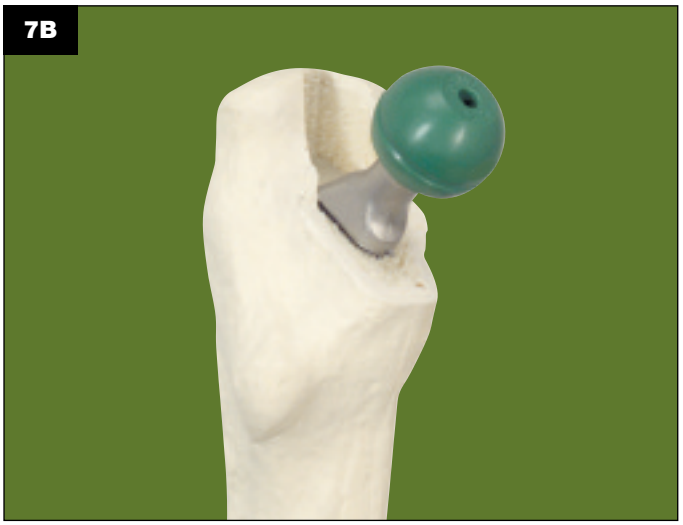
	C-Taper Trial Head Diameters				
Trial Head Offsets	22mm	26mm	28mm	32mm	36mm
-5mm				X[2]	X[2]
-2.5mm			X[1]	X	
0mm	X	X	X	X	X
+2.5mm	X	X	X	X	
+5mm	X	X	X	X	X
+7.5mm		X	X	X	
+10mm	X	X	X	X	X

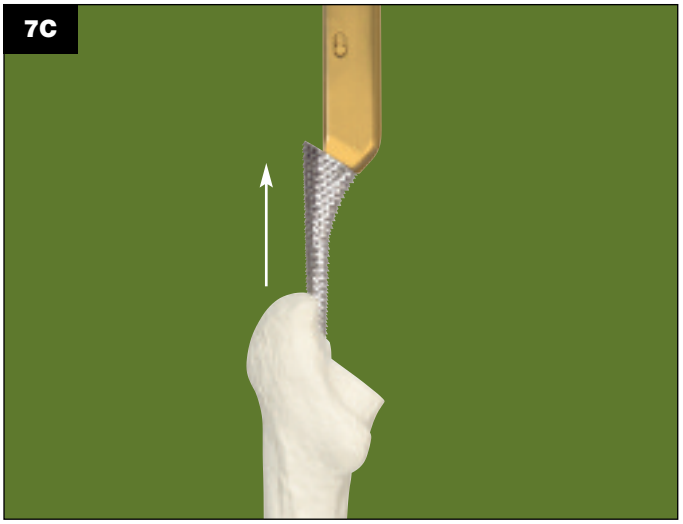
1) -2.5mm C-Taper Head is available in 28mm and 32mm head diameters for use with stem size #7 or larger, with neck lengths of at least 30mm.

2) -5mm C-Taper Head is available in 32mm and 36mm head diameters for use with stem size #9 or larger, with neck lengths of at least 35mm.

Head offset is adjusted until leg lengths are equal. Joint stability can be checked by telescoping the leg and performing a full range of motion. If the hip is unstable or dislocates, the option of using either an OmniFit® HFx™ 127° or 132° hip stem can be considered to achieve adequate offset. Upon confirmation of the selected component, remove the trial head and trial neck, and reassemble the broach handle. Remove the broach with the help of the slotted mallet to preserve the integrity of the established cavity (**Figure 7C**).


7A

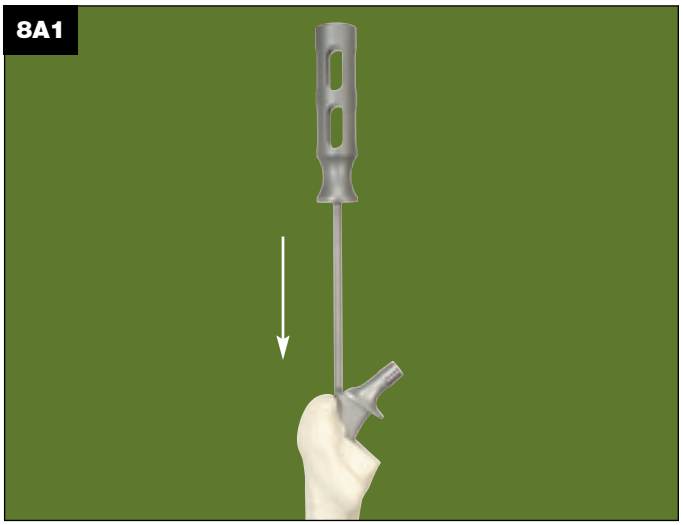

7B


7C

8A Femoral Stem Insertion

The stem is introduced into the femoral canal manually with an axial force until resistance is encountered. In order to assist in aligning and seating the stem, the OmniFit® HFx™ inserter/pusher (1020-2300) should be used. A mallet is then used to seat the hip stem into the canal (**Figure 8A1**) until a stable snug-fit is attained. (**Figure 8A2**).

Note: The surgeon should NOT attempt to continue impacting the femoral component if visual and auditory clues indicate that the resting position of the femoral component has been reached. This is true even if the femoral component is proud in reference to the level of the broach trial.



Continue to step 11 for head assembly.

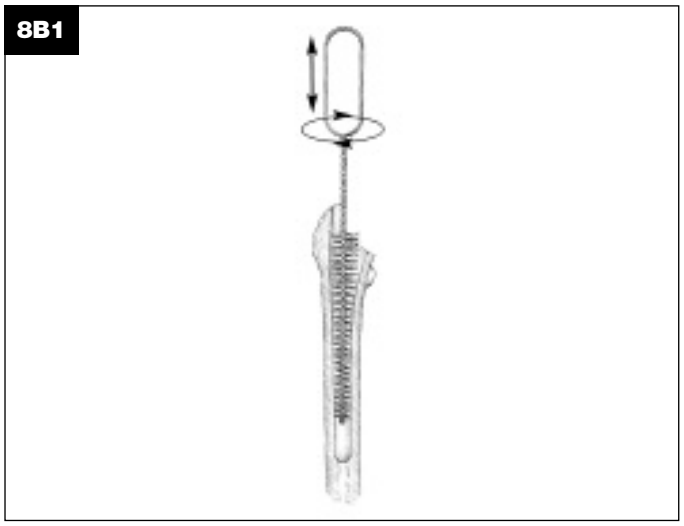
For Cemented Application Only (Steps 8B through 11)

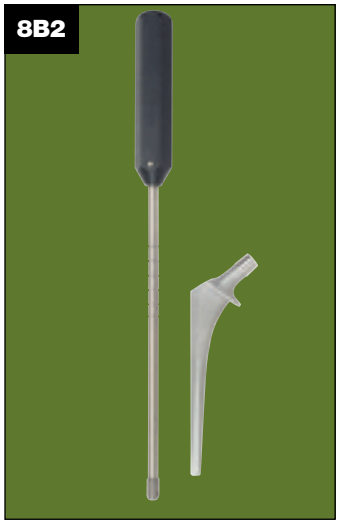
8B Cleaning the Canal and Cement-Plug™ Insertion

The established principles and methods for preparing the intermedullary canal for cementing should be meticulously applied. The practice of bristle brushing followed by pulsatile lavage provides an effective method for cleaning the canal of loose cancellous bone and trapped debris prior to Cement-Plug™ insertion (**Figure 8B1**). An optional Universal Cement-Plug™ and a sized Cement-Plug™ are available. The Cement-Plug™ Inserter is placed alongside the stem to determine the desired distance, beyond the stem tip, for the Cement-Plug™ to be inserted. The distance will be used as a reference for insertion depth of the sized or universal plug (**Figure 8B2**). The Cement-Plug™ must be fully threaded onto the inserter prior to test insertion. Proper fit is determined by the trial, which fits snugly in the canal when inserted to the desired depth or until mild resistance is encountered based on surgeon preference (**Figure 8B3**).

Table 3: Cement Spacer Sizing

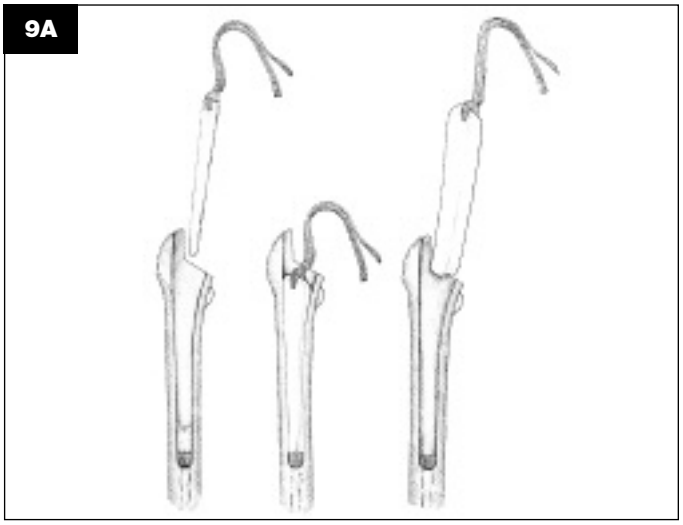
Stem size	Minimum Size PMMA Cement Centralizer
5	8mm
6	9mm
7	10mm
8	11mm
9	11mm
10	12mm
11	13mm





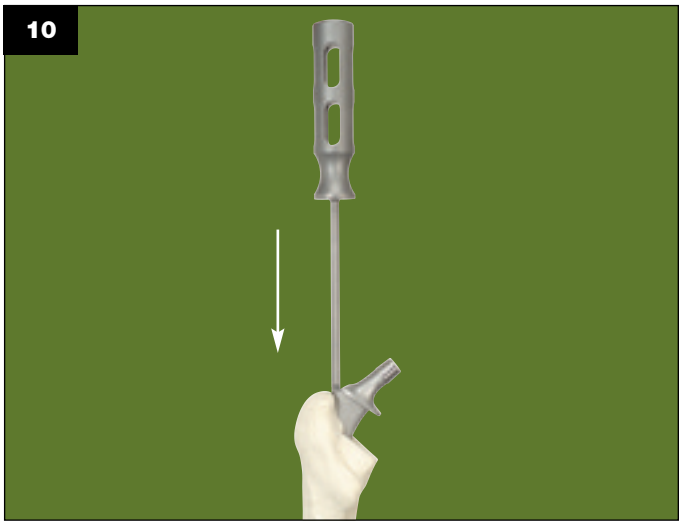
9 Final Canal Preparation and Cement Delivery

The medullary canal is thoroughly lavaged and dried prior to cement delivery (**Figure 9A**). A cement gun is employed to introduce doughy cement in a retrograde manner (**Figure 9B**). The distal portion of the nozzle is broken away below the conical pressurizer and the cement is pressurized with the cement gun through the pressurizer (**Figure 9C**).



10 Femoral Stem Insertion

The proximal portion of the stem can be coated with doughy cement to ensure that blood and fat do not come in contact with the stem. To assist in aligning and seating the stem, the OmniFit® HFx™ stem inserter should be used. The stem is introduced into the femoral canal with a combination of axially and laterally directed forces (**Figure 10**). The goal is to introduce the stem in neutral position with an adequate cement mantle. Excess cement is removed. At final seating, the collar of the prosthesis should rest in intimate contact with the prepared neck cut.

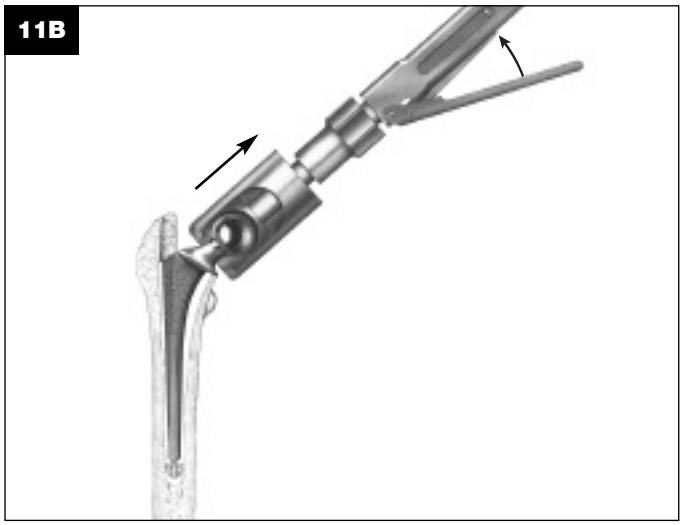


11 Head Assembly

Prior to head assembly, neck length selection may be re-evaluated using the Stryker® C-Taper Trial Head. Place the C-Taper Trial Head onto the stem neck taper and reduce the hip to verify that the mechanics have not been altered due to implant seating.

Dry trunnion with a laparatomy sponge or sterile towel.

Select the appropriate Cobalt Chrome C-Taper Head size and place it onto the dry trunnion of the femoral stem with a slight twist. Impact the head with two moderate blows using the Stem Head Impactor (1104-1000) (**Figure 11A**). If necessary, the head can be removed utilizing the head disassembly instrument (**Figure 11B**).



Catalog Information

CuttingEdge™ Advantage General Instruments (1100-1400)

Catalog Number	Part Description
1100-1225	127° C-Taper Trial Neck – 25mm
1100-1230	127° C-Taper Trial Neck – 30mm
1100-1235	127° C-Taper Trial Neck – 35mm
1100-1240	127° C-Taper Trial Neck – 40mm
1100-1325	132° C-Taper Trial Neck – 25mm
1100-1330	132° C-Taper Trial Neck – 30mm
1100-1335	132° C-Taper Trial Neck – 35mm
1100-1340	132° C-Taper Trial Neck – 40mm
1100-2200	C-Taper 22mm Trial Head +0mm
1100-2225	C-Taper 22mm Trial Head +2.5mm
1100-2205	C-Taper 22mm Trial Head +5mm
1100-2210	C-Taper 22mm Trial Head +10mm
1100-2600	C-Taper 26mm Trial Head +0mm
1100-2625	C-Taper 26mm Trial Head +2.5mm
1100-2605	C-Taper 26mm Trial Head +5mm
1100-2675	C-Taper 26mm Trial Head +7.5mm
1100-2610	C-Taper 26mm Trial Head +10mm
1100-2897	C-Taper 28mm Trial Head –2.5mm
1100-2800	C-Taper 28mm Trial Head +0mm
1100-2825	C-Taper 28mm Trial Head +2.5mm
1100-2805	C-Taper 28mm Trial Head +5mm
1100-2875	C-Taper 28mm Trial Head +7.5mm
1100-2810	C-Taper 28mm Trial Head +10mm
1100-3299	C-Taper 32mm Trial Head –5mm
1100-3297	C-Taper 32mm Trial Head –2.5mm
1100-3200	C-Taper 32mm Trial Head +0mm
1100-3225	C-Taper 32mm Trial Head +2.5mm
1100-3205	C-Taper 32mm Trial Head +5mm
1100-3275	C-Taper 32mm Trial Head +7.5mm
1100-3210	C-Taper 32mm Trial Head +10mm
1100-3699	C-Taper 36mm Trial Head -5mm
1100-3697	C-Taper 36mm Trial Head -2.5mm
1100-3600	C-Taper 36mm Trial Head +0mm
1100-3625	C-Taper 36mm Trial Head +2.5mm
1100-3605	C-Taper 36mm Trial Head +5mm
1100-3675	C-Taper 36mm Trial Head +7.5mm
1100-3610	C-Taper 36mm Trial Head +10mm
1020-2700	Accolade® Calcar Planar
1104-1000	Femoral Head Impactor
1100-1000	CuttingEdge™ Advantage Broach Handle
1120-1000	Slotted Mallet
1101-2100	T-Handle - Trigger Release
5900-0050	T-Handle - Small Trigger Release (Optional)
1113-1002	Medium Box Chisel
1100-1500	CuttingEdge™ Advantage Neck Resection Guide

CuttingEdge™ Advantage Hip Fracture Instrument Tray (1100-1401)

Catalog Number	Part Description
1100-0305	OmniFit® HFx™ Broach PF5
1100-0406	OmniFit® HFx™ Broach PF6/C4
1100-0507	OmniFit® HFx™ Broach PF7/C5
1100-0608	OmniFit® HFx™ Broach PF8/C6
1100-0709	OmniFit® HFx™ Broach PF9/C7
1100-0810	OmniFit® HFx™ Broach PF10/C8
1100-0911	OmniFit® HFx™ Broach PF11/C9
1100-1012	OmniFit® HFx™ Broach PF12/C10
1100-1113	OmniFit® HFx™ Broach PF13/C11
1020-2300	OmniFit® HFx™ Stem Inserter
1212-0000	Depth Gauge Handle
1212-00XX	Omniflex™ Trial Distal Tips (XX=08-14)
1111-100X	Trochanteric Reamer
1101-0304	Tapered Starter Reamer

OmniFit® HFx™ Hip Stems

127° Neck Angle

Catalog Number	Stem Size	Stem Length	Neck Length	Offset (+0mm)
6076-0525A	5	110mm	25mm	35mm
6076-0625A	6	120mm	25mm	36mm
6076-0730A	7	130mm	30mm	41mm
6076-0830A	8	140mm	30mm	42mm
6076-0935A	9	150mm	35mm	46mm
6076-1035A	10	160mm	35mm	47mm

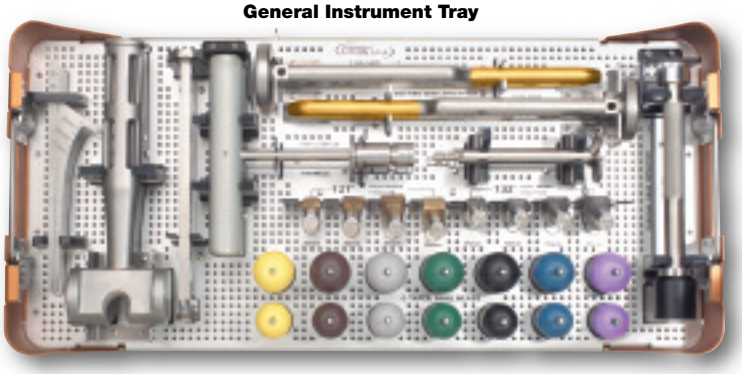
132° Neck Angle

Catalog Number	Stem Size	Stem Length	Neck Length	Offset (+0mm)
6070-0525A	5	110mm	25mm	29mm
6070-0625A	6	120mm	25mm	30mm
6070-0730A	7	130mm	30mm	35mm
6070-0830A	8	140mm	30mm	36mm
6070-0935A	9	150mm	35mm	41mm
6070-1035A	10	160mm	35mm	42mm
6070-1140A	11	170mm	40mm	46mm

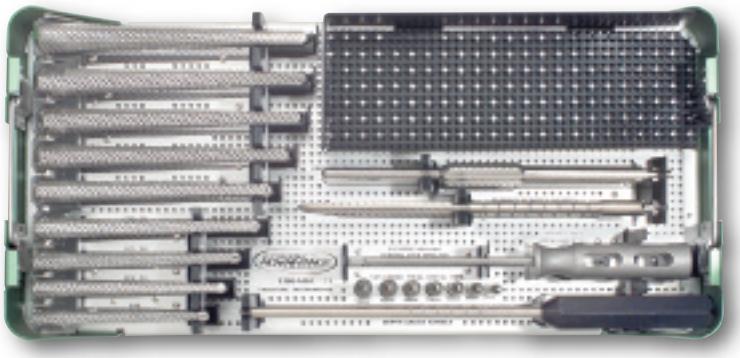
Instrument Case

Catalog Number	Part Description
1440-0001	Single Layer Case

General Instrument Tray



Hip Fracture Instrument Tray



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