

# Restoration HA

## Revision Hip System



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Surgical Protocol

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**Restoration HA**  
**Femoral Component Using the**  
**Cutting Edge**  
**Instrument System**

# Restoration HA Femoral Component Using the Cutting Edge Instrument System

## Surgical Technique

### System Overview

The Restoration HA Hip system is designed to address the problems of revision surgery where extensive fixation, both distally and proximally, is required for support of the prosthesis. The stem is fabricated of titanium alloy which has been roughened by a chemical etching process. Hydroxylapatite is then plasma-sprayed over the entire length of the stem.

The Restoration Hip Stem System is designed with a large proximal cross-section to provide for improved load distribution over a broad area. Distally, the design incorporates a cylindrical section to more effectively utilize the available bone of the diaphysis. A comprehensive size range mates a variety of proximal cross-sections and lengths with ten distal cylindrical diameters to provide for patient matched sizing in revision circumstances.

The stem design incorporates a physiologic 127° neck-stem angle, neck length ranges, and a C-Taper head to provide the surgeon with the ability to restore near-anatomic head position for proper leg length and biomechanical function.

Restoration HA femoral component accepts C-Taper heads, 22mm, 26mm, 28mm, and 32mm with -5mm to +10mm offsets.

### Indications

For use as a Bipolar Hip Replacement:

- Femoral head/neck fractures or non-unions.
- Aseptic necrosis of the femoral head.
- Osteo, rheumatoid, and post-traumatic arthritis of the hip with minimal acetabular involvement or distortion.

### Other considerations:

- Pathological conditions or age considerations which indicate a more conservative acetabular procedure and an avoidance of the use of bone cement in the acetabulum.
- Salvage of failed total hip arthroplasty.

### For use as a Total Hip Replacement:

- Painful, disabling joint disease of the hip resulting from degenerative arthritis, rheumatoid arthritis, post-traumatic arthritis or late stage avascular necrosis.
- Revision of previous unsuccessful femoral head replacement, cup arthroplasty, or other procedure.
- Clinical management problems where arthrodesis or alternative reconstructive techniques are less likely to achieve satisfactory results.

### Contraindications

- Any active or suspected latent infection in or about the hip joint.
- Any mental or neuromuscular disorder which would create an unacceptable risk of prosthesis instability, prosthesis fixation failure or complications in postoperative care.
- Bone stock compromised by disease, infection or prior implantation which cannot provide adequate support and/or fixation to the prosthesis.
- Skeletal immaturity.
- Obesity. An overweight or obese patient can produce loads on the prosthesis which can lead to failure of the fixation of the device or to failure of the device itself.

Other contraindications for use as a Bipolar Hip Replacement include pathological conditions of the acetabulum which would prevent achieving adequate range of motion, appropriate head stability, and/or a well-seated and supported smooth acetabular articulation of the head.

### C-Taper LFIT Ion Implanted CoCr Heads

Implant Catalog No.	Diameter (mm)	Offset (mm)
06-2200	22	0 offset
S-1400-HH22	22	+2.5 offset
06-2205	22	+5 offset
06-2210	22	+10 offset
06-2600	26	0 offset
S-1400-HH62	26	+2.5 offset
06-2605	26	+5 offset
S-1400-HH64	26	+7.5 offset
06-2610	26	+10 offset
06-2898	28	-2.5
06-2800	28	0
S-1400-HH82	28	+2.5
06-2805	28	+5
S-1400-HH84	28	+7.5
06-2810	28	+10
06-3299	32	-5
S-1400-HH31	32	-2.5
06-3200	32	0
S-1400-HH32	32	+2.5
06-3205	32	+5
S-1400-HH34	32	+7.5
06-3210	32	+10
06-3699	36	-5 offset
06-3600	36	0 offset
06-3605	36	+5 offset
06-3610	36	+10 offset
06-4099	40	-5
06-4097	40	-2.5
06-4000	40	+0
06-4025	40	+2.5
06-4005	40	+5
06-4075	40	+7.5
06-4010	40	+10
06-4499	44	-5
06-4400	44	+0
06-4405	44	+5

### C-Taper Alumina Heads

Implant Catalog No.	Diameter (mm)	Offset (mm)
17-28-3E	28	-2.5
17-2800E	28	+0
17-2805E	28	+5
17-32-3E	32	-2.5
17-3200E	32	+0
17-3205E	32	+5
17-36-5E	36	-5
17-3600E	36	+0
17-3605E	36	+5

### Restoration HA HIP Stem Sizing

Stem Size	Distal Diameters (mm)	Lengths
7	11	155mm
	13	155mm
8	12	155mm, 205*mm, 255*mm
	14	155mm, 205*mm
9	13	155mm, 205*mm, 255*mm
	15	155mm, 205*mm
10	14	155mm, 205*mm, 255*mm
	16	155mm, 205*mm
11	15	155mm, 205*mm, 255*mm
	17	155mm, 205*mm
12	16	155mm, 205*mm, 255*mm
	18	155mm, 205*mm
13	17	205*mm, 255*mm
	19	205*mm
14	18	205*mm, 255*mm
	20	205*mm

\*Bowed stems available in lefts and rights

### Restoration HA Calcar Replacement HIP Stem Sizing

Stem Size	Resection Levels	Distal Diameters (mm)	Lengths
8	15, 30mm	14	205mm
9	15, 30mm	15	205mm
10	15, 30mm	16	205mm
11	15, 30mm	17	205mm
12	15, 30mm	18	205mm
13	15, 30mm	19	205mm
14	15, 30mm	20	205mm

For Reduced Neck Restoration HA, please refer to page 15.

## Preoperative Evaluation And Planning

Preoperative x-ray analysis can aid in selection of the most favorable implant style and size for the patient's hip pathology. Optimal femoral stem fit, prosthetic neck length, and acetabular component sizing can be more closely evaluated with the use of preoperative x-ray analysis. Appropriate distal tip diameter and stem length should be assessed in both and A/P and M/L views. Determination of probable implant style and size can facilitate operating room preparation and assure availability of an appropriate size selection. Intraoperatively, an x-ray with analysis markings can be valuable in identifying and confirming the appropriate neck resection level. Anatomic anomalies that could prevent the intraoperative achievement of the established preoperative goals may also be detected.

Removal of the existing implant and all cement, if present, is necessary to accurately position and utilize the Cutting Edge instruments. Cement may be removed by use of power or hand tools, as dictated by surgeon preference.

## Use of Fully Fluted Cylindrical Reamers for 155 or 205mm Stems

Since the distal and proximal portion of the implant are sized and prepared independently, initial canal preparation begins with the Cylindrical Axial Reamers (Fig. 1a& 1b). Once the distal size has been determined, preparation broaching is performed to fit the most appropriate proximal size for that patient. The chart provides distal/proximal sizing variation information (Fig. 2).

The size of the cylindrical portion of the stem is determined from preoperative templating and is confirmed by intraoperative feel or by intraoperative x-ray.

Positioning of the cylindrical reamers is critical with a straight stem design. It is important to position the cylindrical reamer laterally so that it is not pushed into varus by an overhanging trochanter. It is also undesirable to position the reamer too far anteriorly or posteriorly. In a revision situation, if there is any femoral neck left, the position of the reamer entry generally corresponds to the original insertion of the piriformis tendon. Use of a gauge or similar instrument to remove bone from this area may facilitate true axial alignment of the reamer.



Fig. 1a



Fig. 1b

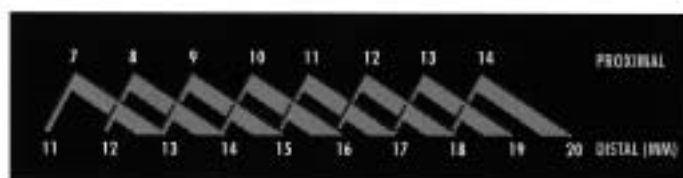


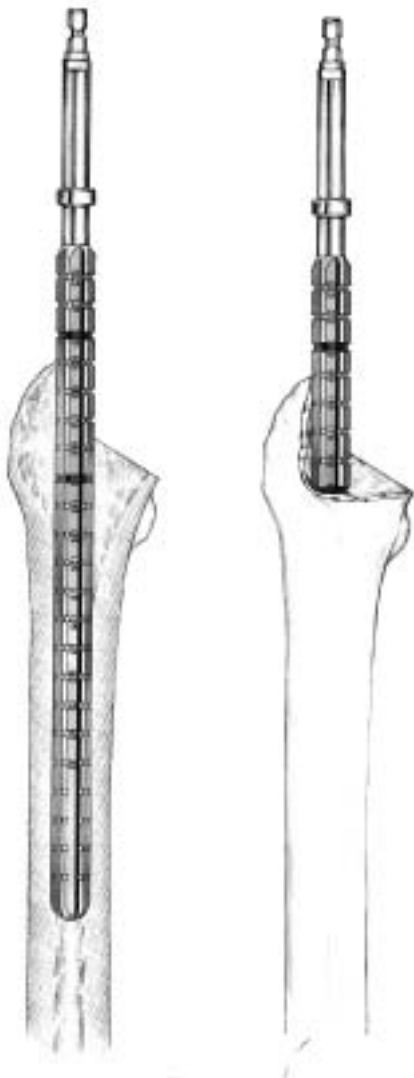
Fig. 2

Utilizing a hand tool, serial cylindrical reaming proceeds in 1mm increments until endosteal contact is felt.

Cylindrical reamers are rigid and fully fluted, and are calibrated for length of the stem in 10mm increments. Depth of reaming will depend on the size of the stem. For example, if preoperative templating indicates a #9 Stem with a 13mm distal diameter, depth of insertion of the cylindrical reamer is 155mm or 205mm. The chart indicates depth of insertion and final sizing of reamers for all stem sizes (Fig. 3). The cylindrical reamers are inserted so that the marking for stem

length intersects the medial calcar resection level (Fig.4). **Failure to insert the reamers to their appropriate depth may result in femoral fracture during stem insertion.**

Once endosteal contact is felt, reaming should progress sequentially in 1/2mm increments, and can be utilized with a power source. An intraoperative x-ray is helpful in determining alignment and fit of the cylindrical reamers. Irrigation of the canal may be helpful during reaming.



**Fig. 4**

Stem Size	Distal Diameters (mm)	Final Cylindrical Reamer (mm)	Cylindrical Reamer Depth of Insertion (mm)
7	11	10 or 10.5	155
7	13	12 or 12.5	155
8	12	11 or 11.5	155, 205
8	14	13 or 13.5	155, 205
9	13	12 or 12.5	155, 205
9	15	14 or 14.5	155, 205
10	14	13 or 13.5	155, 205
10	16	15 or 15.5	155, 205
11	15	14 or 14.5	155, 205
11	17	16 or 16.5	155, 205
12	16	15 or 15.5	155, 205
12	18	17 or 17.5	155, 205
13	17	16 or 16.5	205
13	19	18 or 18.5	205
14	18	17 or 17.5	205
14	20	19 or 19.5	205

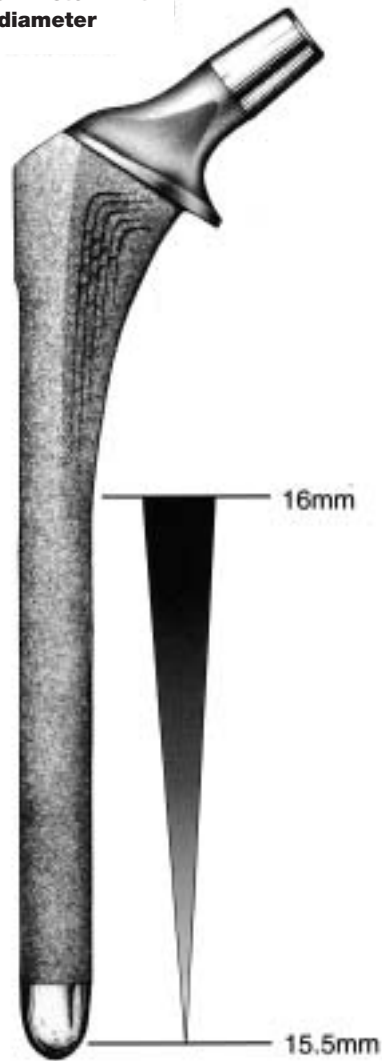
**Fig. 3**

A choice can be made intraoperatively to under-ream by 1.0mm or 0.5mm. For example, for a #9 Stem with a 13mm diameter, a choice may be made intraoperatively to conclude final cylindrical reaming at 12.0 or 12.5mm. This depends on surgeon preference and on bone quality. Once adequate circumferential contact is made distally, the driving attachment is removed. The reamer is left firmly seated in the canal to allow for neck resection. A final stem size determination will be made following broaching, which may require further cylindrical reaming for diameter and depth.

### **0.5MM TAPER**

A 0.5mm taper has been incorporated into the distal segment of the Restoration HA Stems (Fig.5). This 0.5mm taper allows for ease of stem insertion and axial contact of the bone/implant interface while maintaining torsional stability.

**Example: Size 12 stem with  
16mm distal diameter**

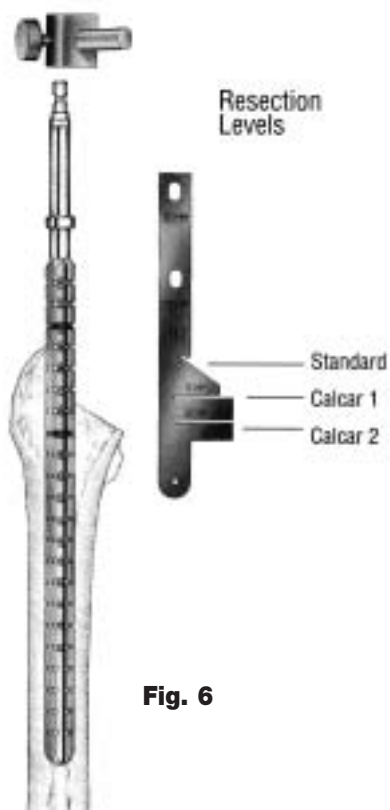


**Fig. 5**

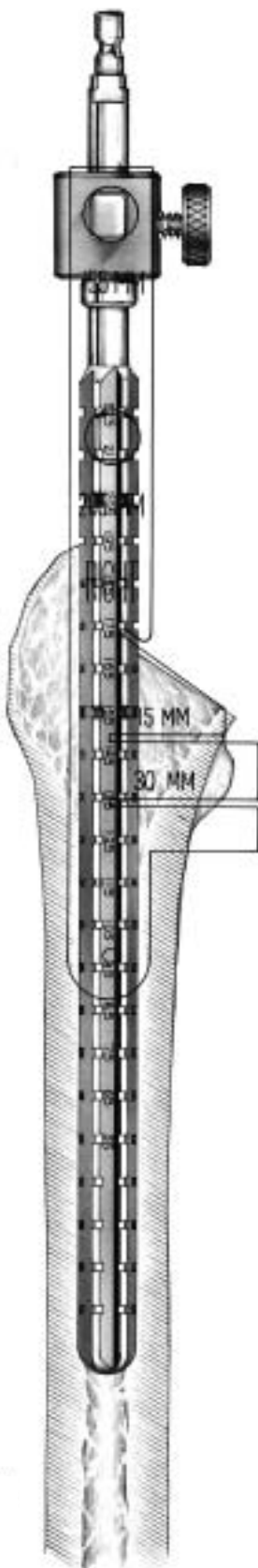
## Neck Resection

Upon seating of the final cylindrical reamer in the canal, slide the resection guide assembly over the shaft of the reamer until it stops (Fig. 6). Align in the proper orientation and tighten down with the thumb screw. The Cutting Guide is then slid over the post. If the 155mm length stem is selected, use the proximal hole on the resection guide (Fig.7). Likewise, if the 205mm length stem is selected, use the distal hole (Fig. 8). The resection guide can be turned around for use on the right or left leg. A hole has been provided on the resection guide to allow for enhanced fixation to the femur using a 1/8" diameter pin if desired. The top slot marks the collar level for the standard stems. Collar Level II is used when implanting the Restoration HA Calcar Stem with a 15mm collar level. The Collar III Slot is used for the Restoration HA Calcar Stem with a 30mm collar level. After determining the collar resection level, cut to the depth of the cylindrical reamer with an oscillating or reciprocal saw. The resection guide and reamer are then removed. The initial neck resection is then completed.

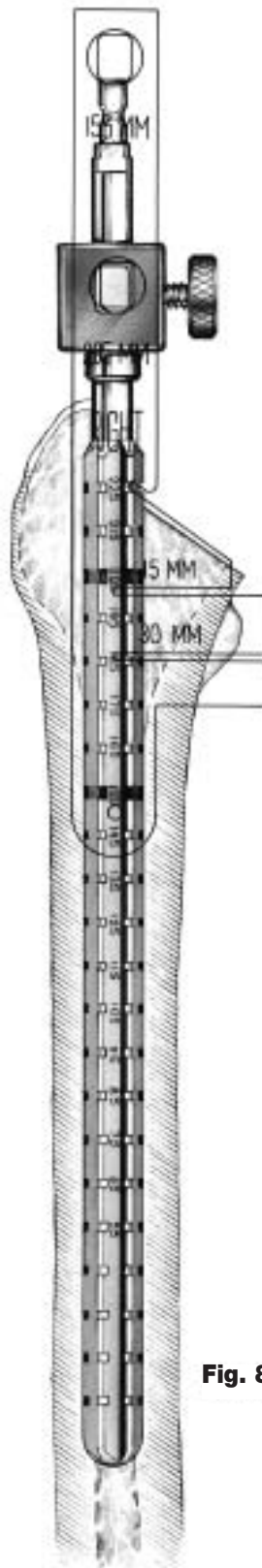
The femoral Broach/Trial is used to contour the proximal femur.



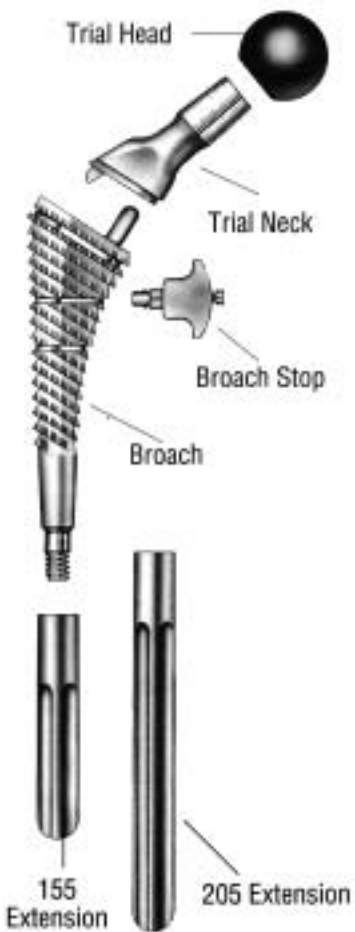
**Fig. 6**



**Fig. 7**



**Fig. 8**



**Fig. 9**

### Use of The Broach/Trial

The Cylindrical Distal Extension, which matches both the final cylindrical reamer diameter and the stem length (155mm or 205mm), is threaded onto the distal end of the broach (Fig. 9). The Broach/Distal Extension combination reflects the true length of the implant.

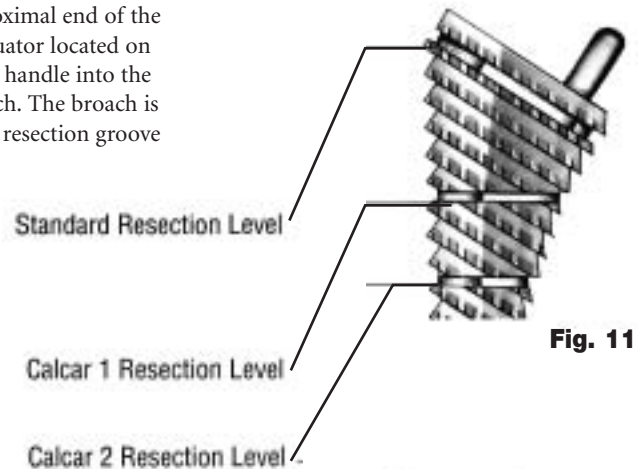
This Broach/Distal Extension combination should mimic the smallest of the stem proximal/distal combination (Fig.10). For example, if the final Cylindrical Reamer used is 15mm, broaching should begin with a #9 P/F broach. Depending on bone quality, a broach two sizes below may also be chosen. The handle to match the appropriate press-fit size broach is attached to the proximal end of the broach by retracting the actuator located on the handle and inserting the handle into the proper location on the broach. The broach is inserted to the proper collar resection groove on the broach (Fig. 11).

A stop for the broach is available to ensure proper seating of collar against bone (Fig. 12). Once the broach is seated, the stop can be inserted into appropriate collar hole. It is not recommended to impact the broach with the stop on.

If a larger broach is required, further cylindrical reaming will be necessary.

Once the appropriate press-fit size broach has been seated to the appropriate level in the canal, the handle is detached to allow for trial reduction.

Care should be taken to not seat the broach past the appropriate resection groove, as that will affect the fit of the implant.



**Fig. 11**



**Fig. 12**

Stem Size	Stem Size	Final Cylindrical Reamer (mm)	Distal Cylindrical Extension (mm)	Final Cylindrical Reamer (mm)	Distal Cylindrical Extension (mm)
7	11	10	9.5	10.5	10.5
7	13	12	11.5	12.5	12.5
8	12	11	10.5	11.5	11.5
8	14	13	12.5	13.5	13.5
9	13	12	11.5	12.5	12.5
9	15	14	13.5	14.5	14.5
10	14	13	12.5	13.5	13.5
10	16	15	14.5	15.5	15.5
11	15	14	13.5	14.5	14.5
11	17	16	15.5	16.5	16.5
12	16	15	14.5	15.5	15.5
12	18	17	16.5	17.5	17.5
13	17	16	15.5	16.5	16.5
13	19	18	17.5	18.5	18.5
14	18	17	16.5	17.5	17.5
14	20	19	18.5	19.5	19.5

**Fig. 10**



## Trial Reduction

Choose the C-Taper trial 127° Neck which has the same base neck length and place it over the post on the seated broach (Fig. 13).

The plastic C-taper stem trial heads may be used with the trial necks that correspond to the neck length capabilities for the femoral component (Figs. 14a & b). The broach/trial assembly allows thorough evaluation of hip mechanics during trial reduction.

The assembled trial provides an approximation of leg length, stability and offset.

Removal of the final broach/trial requires removal of the trial neck and stem trial

head and reassembly of the modular handle. The Slotted Mallet aids in removal of the broach/trial without endangering the integrity of the handle or locking mechanism by applying only axial loads to the handle-broach locking mechanism (Fig. 15). Application of bending loads to any such mechanism significantly endangers the mechanism to failure.

It is recommended that the cylindrical distal extension be disassembled from the broach prior to cleaning/sterilization. The extension can be loosened from the broach by placing it in the proper hole in the counter wrench and turning.

Stem Size	7	8	9	10	11	12	13	14
Base Neck Length (mm)	35	35	40	40	45	45	45	45
Corresponding C-Taper 127° Trial Neck (mm)	35	35	40	40	45	45	45	45

Fig. 14a

Stem Size	5	6	7	8	9	10	11	12	13	14
Base Neck Length (mm) for Reduced Neck (-5mm) Restoration HA	25	25	30	30	35	35	40	40	40	40
Corresponding C-Taper 127° Trial Neck (mm)	25	25	30	30	35	35	40	40	40	40

Fig. 14b



Fig. 13

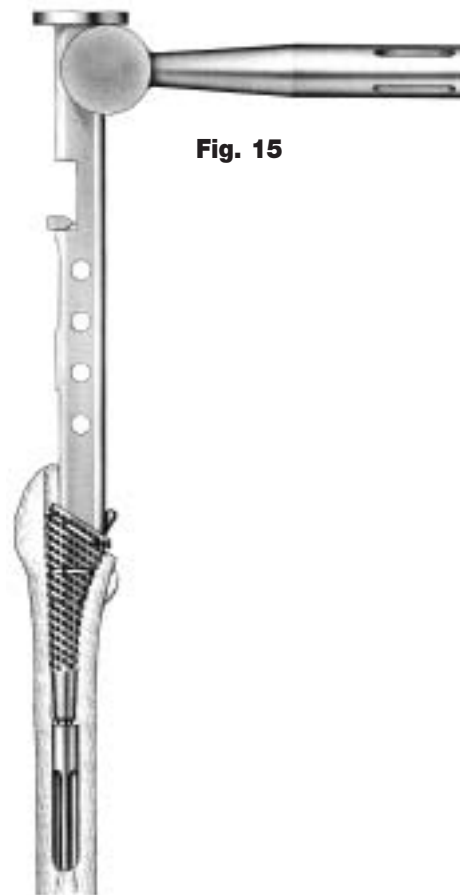


Fig. 15

## Base Lateral Offset

Cat. #	Description	Restoration HA	Reduced Neck Restoration HA
0509	Size 5/9mm Distal Dia.	-	33
0511	Size 5/11mm Distal Dia.	-	34
0610	Size 6/10mm Distal Dia.	-	39
0612	Size 6/12mm Distal Dia.	44	40
0711	Size 7/11mm Distal Dia.	45	45
0713	Size 7/13mm Distal Dia.	50	46
0812	Size 8/12mm Distal Dia.	51	51
0814	Size 8/14mm Distal Dia.	56	52
0913	Size 9/13mm Distal Dia.	57	53
0915	Size 9/15mm Distal Dia.	58	54
1014	Size 10/14mm Distal Dia.	59	54
1016	Size 10/16mm Distal Dia.	59	54
1115	Size 11/15mm Distal Dia.		
1117	Size 11/17mm Distal Dia.		
1216	Size 12/16mm Distal Dia.		
1218	Size 12/18mm Distal Dia.		
1317	Size 13/17mm Distal Dia.		
1319	Size 13/19mm Distal Dia.		
1418	Size 14/18mm Distal Dia.		
1420	Size 14/20mm Distal Dia.		
1422	Size 14/22mm Distal Dia.		

Fig. 14c

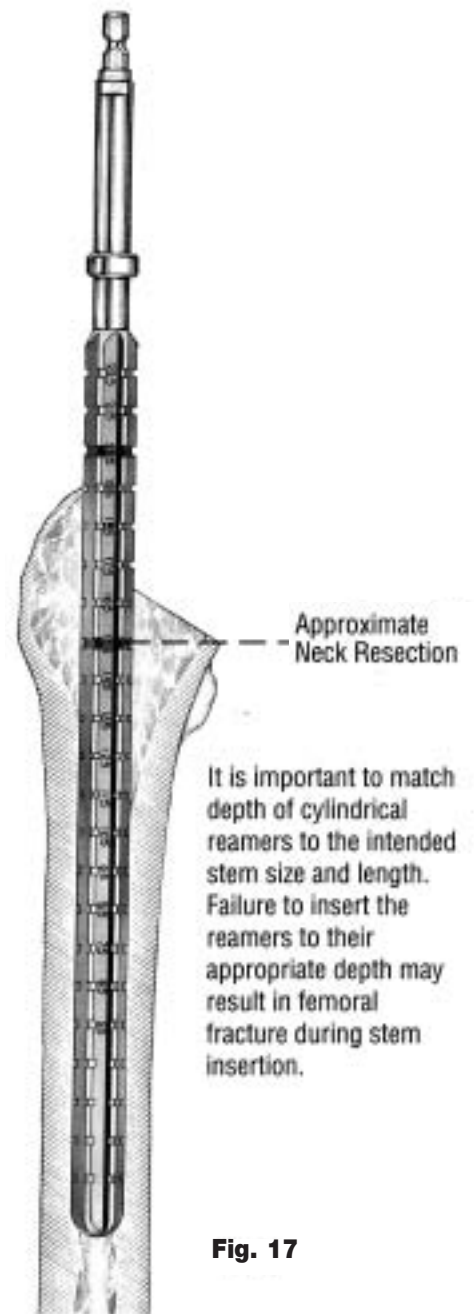
### Depth Confirmation

Once the final stem size determination is made, it is critical to ensure that the cylindrical reaming is made to a length sufficient for the chosen stem size.

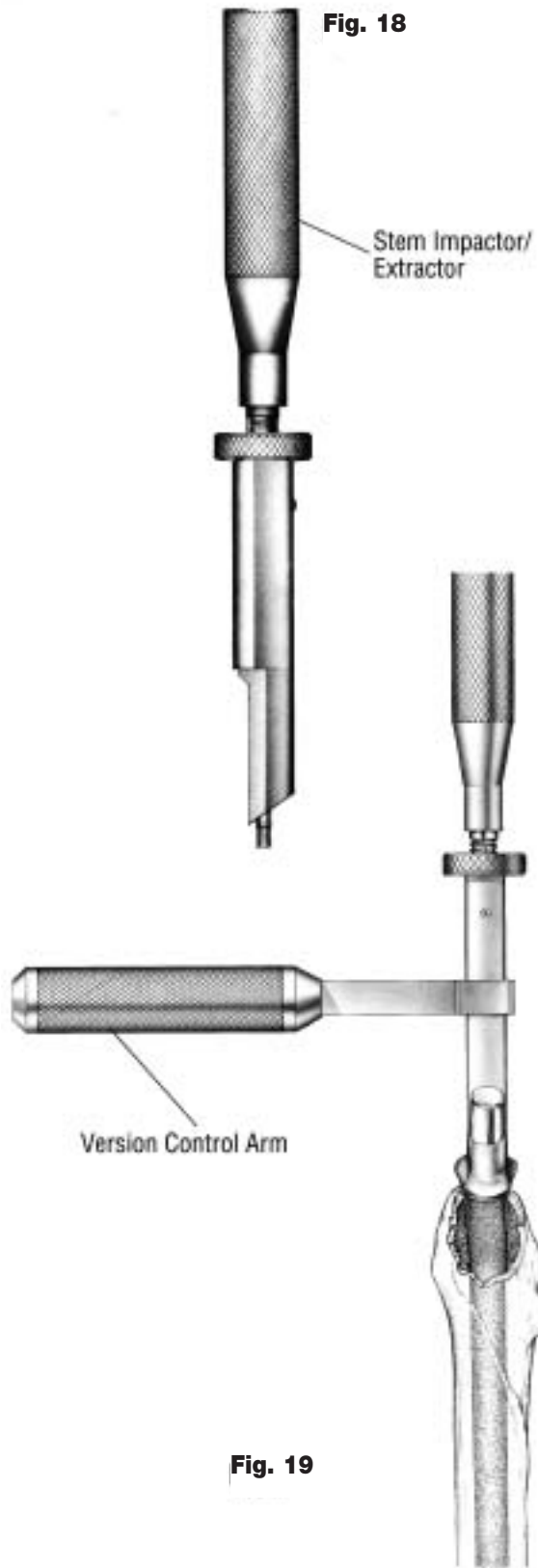
The final cylindrical reamer utilized is reinserted into the canal to the appropriate stem length marking as a final depth check (Fig. 16). For example, if the final stem size is #9 with a 13mm diameter, the 12mm or 12.5mm cylindrical reamer is inserted to the level indicating either 155 or 205. If the reamer cannot be inserted to the appropriate stem length level, further cylindrical reaming to achieve appropriate depth may be required (Fig. 17).

Stem Size	Distal Diameters (mm)	Final Cylindrical Reamer (mm)	Cylindrical Reamer Depth of Insertion (mm)
5	9	8	145, 175
5	11	10 or 10.5	145, 175
6	10	9	145, 175
6	12	11 or 11.5	145, 175
7	11	10 or 10.5	155
7	13	12 or 12.5	155
8	12	11 or 11.5	155, 205
8	14	13 or 13.5	155, 205
9	13	12 or 12.5	155, 205
9	15	14 or 14.5	155, 205
10	14	13 or 13.5	155, 205
10	16	15 or 15.5	155, 205
11	15	14 or 14.5	155, 205
11	17	16 or 16.5	155, 205
12	16	15 or 15.5	155, 205
12	18	17 or 17.5	155, 205
13	17	16 or 16.5	205
13	19	18 or 18.5	205
14	18	17 or 17.5	205
14	20	19 or 19.5	205

**Fig. 16**



**Fig. 17**



## Implant Seating

Implantation of the stem is performed following trial reduction. Because the Restoration HA Stem engages the reamed diaphysis distally, it is critical that stem version be correct and maintained in the appropriate orientation throughout the impaction process.

**Impaction of the implant can result in a fracture of either the anterior or posterior metaphysis if the axial alignment is not correct.**

The Stem Impactor/Extractor (Fig. 18) is threaded into the recess on the lateral side of the femoral stem. The Stem Driver is designed to seat on the shoulder of the threaded impaction hole so that the threads remain viable for use if extraction is required. The Version Control Arm fixes onto the lateral aspect of the stem impactor and enables precise control of axial rotation of the implant during impaction (Fig. 19).

The stem is carefully placed in the intramedullary canal, making certain that rotational alignment is appropriate. The assistant manages the version control arm, and impaction begins while maintaining the proper amount of version. The Version Control Arm should be torqued slightly with each impaction blow. Anteversion can be checked by placing a reference mark on the medial cortex and aligning it with the medial aspect of the stem. The stem should advance slightly with each impaction blow. When the proximal segment of the stem begins to engage and stem rotation is determined, the Version Control Arm is removed. Final seating of the stem is performed with no further adjustments to rotation. Stem seating level may vary due to variables in preparation and implant seating.

### Trial Reduction and C-Taper Head Assembly

Following implant seating, neck length selection may be confirmed using the C-Taper Stem Trial Heads. A subsequent trial reduction may be performed to ensure that hip mechanics have not been altered by variables in implant seating.

The C-Taper Head, which creates the desired neck length, is placed on the femoral stem. The head is impacted with two moderate blows using the Stem Head Impactor to securely lock the head on the taper of the stem (Fig. 20).

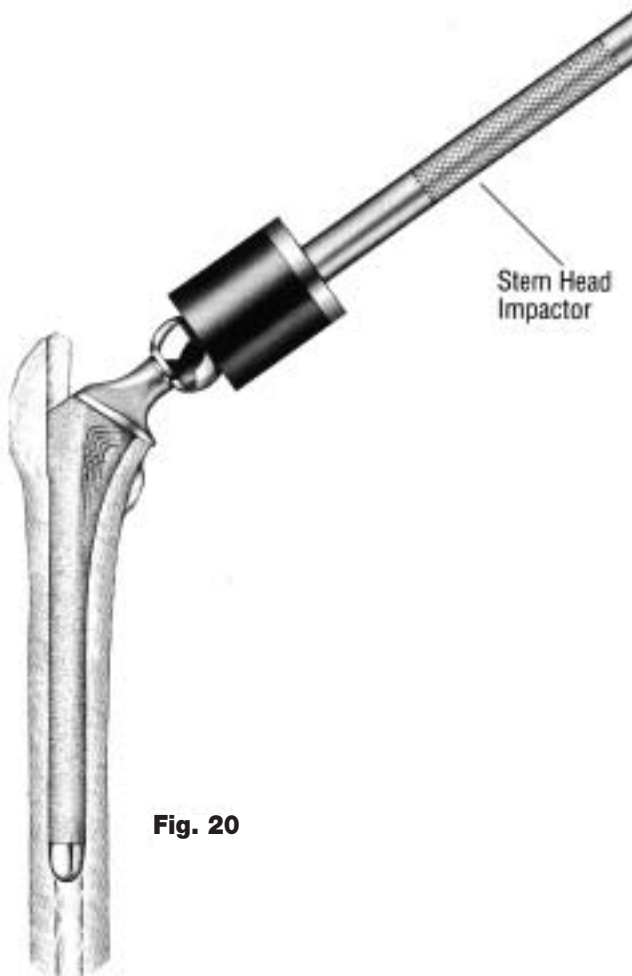
### C-Taper Head Disassembly

Disassembly of the C-Taper Head from the stem may be accomplished with use of the Head Disassembly Instrument. This may be necessary in revision surgery or in a number of intraoperative situations (head size alterations, neck length adjustments, replacement of a damaged femoral head, etc.).

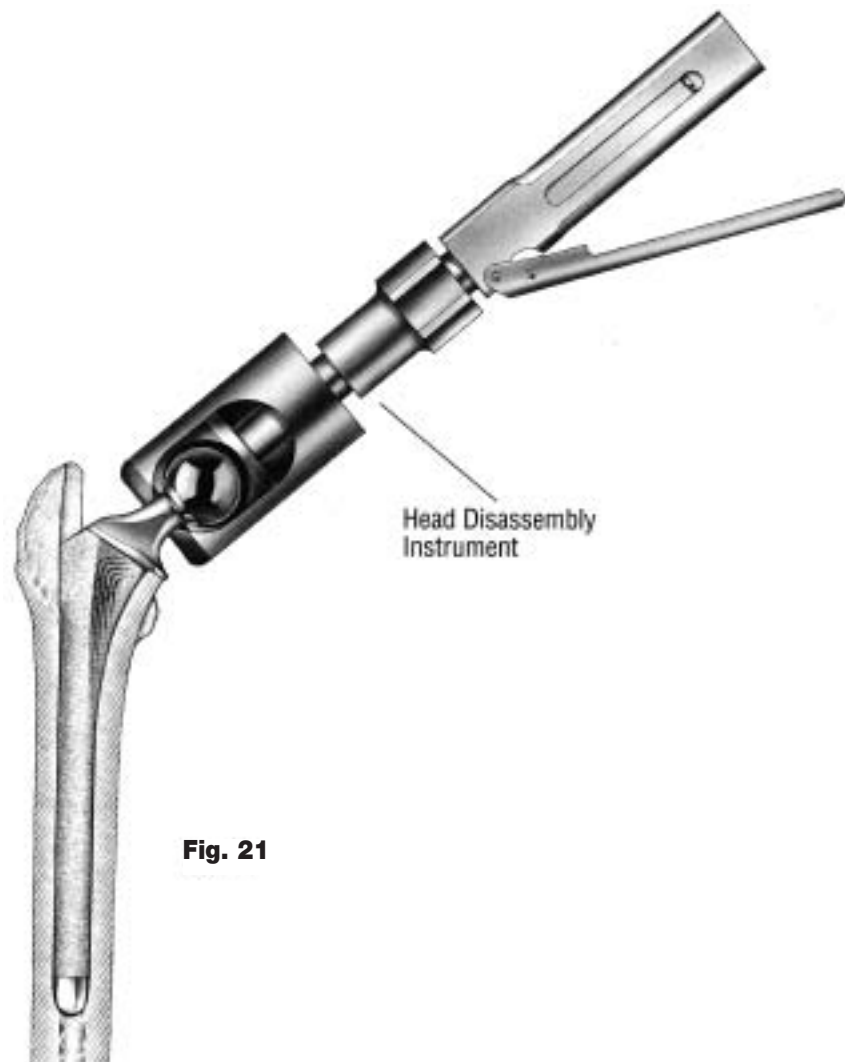
With the handles open, the tightening nut is threaded so that the clamp rests against the end of the housing. The head is placed inside the housing so that the end of the housing rests against the implant neck. The tightening nut is threaded until tight. Squeezing the handle removes the head from the stem with the head retained in the housing (Fig. 21).

A replacement C-Taper Head of the desired head diameter and neck extension may be attached to the implanted femoral component's tapered neck and secured using the Stem Head Impactor.

Care should be taken not to damage the femoral component neck or stem when using the Head Disassembly Instrument.



**Fig. 20**



**Fig. 21**

**Implant Removal**

Once the C-Taper Head is removed, the stem may be removed. The Stem Extractor is threaded into the recess located on the proximal lateral stem. The Slide Hammer threads into the Stem Extractor to aid in removal of the stem (Fig. 22).



**Fig. 22**

## Preparation For Bowed Stems (205MM & 255MM)

### Flexible Reaming For Bowed Stems (205MM & 255MM)

The Restoration HA Bowed Stem is designed with an anatomic anterior bow.

Consequently, 15° of anteversion of the proximal femur is incorporated to enable optimal biomechanical restoration. Restoration HA Bowed Stems are available in right and left configurations.

Following the preparation of the proximal femur for the femoral stem, flexible reamers are used to prepare the distal canal to accept the anteriorly bowed long stem.

To determine the appropriate size flexible reamer, it is necessary to know the distal stem diameter (Fig. 23). Reaming should progress sequentially from the smallest size reamer to the closest reamer size corresponding with the stem size indicated for the patient. However, if the curvature of the prepared canal prevents the prosthesis from seating properly, the surgeon may choose to additionally flexibly ream 1 to 2mm greater than the distal diameter of the intended stem. Aggressive reaming may damage the flexible shaft.

The flexible reamers must be driven by means of a low speed power source and always in a forward (clockwise) motion. Use of the reamers in reverse or with aggressive forward motion will damage the flexible shaft. Flexible reamers should always be used with a guide wire for guidance and removal in the the event the reamer becomes lodged (Fig. 24).

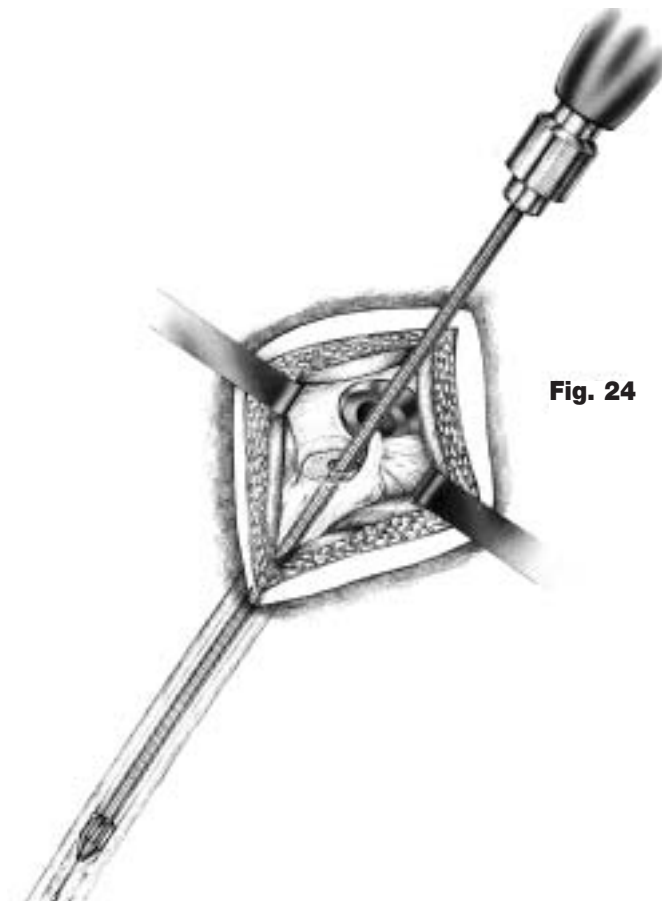
Size	Trial Size	Distal Diameters (mm)	Lengths (mm)
8	8	12	255
		14	205
9	9	13	255
		15	205
10	10	14	255
		16	205
11	11	15	255
		17	205
12	12	16	255
		18	205
13	13	17	255
		19	205
14	14	18	255
		20	205

**Fig. 23**

## Trial Reduction For Restoration HA Bowed Stems

The Broach/Trial is available to evaluate proximal prosthetic stem size, biomechanical function, and proximal stability prior to final insertion of the Bowed Stem prosthesis. Optional Bowed Stem Trials are also available to approximate distal, as well as proximal prosthetic stem size and biomechanical function. However, these Bowed Stem Trials cannot be identical in size and shape to the intended prosthesis and thus can offer only insights into distal fit of the intended stem. The femoral bow, as prepared by the flexible reamer, may be slightly mismatched to the prosthetic bow. The Bowed Stem Trial is inserted with the use of the Threaded Impactor/Extractor.

After the trial reduction has been completed, the appropriate Restoration HA Bowed Stem should be selected for insertion. It is essential that the HA Bowed Stem prosthesis be carefully inserted. At this point, the surgeon should be aware of the orientation of the femur so that the appropriate anteversion is achieved.



**Fig. 24**

## Restoration HA Implant System

### Restoration HA Hip System

Catalog #	(155mm Length)
6012-0711	Size 7/11mm Distal Dia.
6012-0713	Size 7/13mm Distal Dia.
6012-0812	Size 8/12mm Distal Dia.
6012-0814	Size 8/14mm Distal Dia.
6012-0913	Size 9/13mm Distal Dia.
6012-0915	Size 9/15mm Distal Dia.
6012-1014	Size 10/14mm Distal Dia.
6012-1016	Size 10/16mm Distal Dia.
6012-1115	Size 11/15mm Distal Dia.
6012-1117	Size 11/17mm Distal Dia.
6012-1216	Size 12/16mm Distal Dia.
6012-1218	Size 12/18mm Distal Dia.

### Restoration HA Long Stem Hip System

Catalog #	(255mm Length)
6014-0812L	Size 8/12mm Distal Dia. –Left
6014-0812R	Size 8/12mm Distal Dia. –Right
6014-0913L	Size 9/13mm Distal Dia. –Left
6014-0913R	Size 9/13mm Distal Dia. –Right
6014-1014L	Size 10/14mm Distal Dia. –Left
6014-1014R	Size 10/14mm Distal Dia. –Right
6014-1115L	Size 11/15mm Distal Dia. –Left
6014-1115R	Size 11/15mm Distal Dia. –Right
6014-1216L	Size 12/16mm Distal Dia. –Left
6014-1216R	Size 12/16mm Distal Dia. –Right
6014-1317L	Size 13/17mm Distal Dia. –Left
6014-1317R	Size 13/17mm Distal Dia. –Right
6014-1418L	Size 14/18mm Distal Dia. –Left
6014-1418R	Size 14/18mm Distal Dia. –Right

### Restoration HA Hip System

Catalog #	(205mm Length)
6013-0812	Size 8/12mm Distal Dia.
6013-0814	Size 8/14mm Distal Dia.
6013-0913	Size 9/13mm Distal Dia.
6013-0915	Size 9/15mm Distal Dia.
6013-1014	Size 10/14mm Distal Dia.
6013-1016	Size 10/16mm Distal Dia.
6013-1115	Size 11/15mm Distal Dia.
6013-1117	Size 11/17mm Distal Dia.
6013-1216	Size 12/16mm Distal Dia.
6013-1218	Size 12/18mm Distal Dia.
6013-1317	Size 13/17mm Distal Dia.
6013-1319	Size 13/19mm Distal Dia.
6013-1418	Size 14/18mm Distal Dia.
6013-1420	Size 14/20mm Distal Dia.

### Restoration HA Bowed Stem Hip System

Catalog #	(205mm Length)
6015-0814L	Size 8/14mm Distal Dia. –Left
6015-0814R	Size 8/14mm Distal Dia. –Right
6015-0915L	Size 9/15mm Distal Dia. –Left
6015-0915R	Size 9/15mm Distal Dia. –Right
6015-1016L	Size 10/16mm Distal Dia. –Left
6015-1016R	Size 10/16mm Distal Dia. –Right
6015-1117L	Size 11/17mm Distal Dia. –Left
6015-1117R	Size 11/17mm Distal Dia. –Right
6015-1218L	Size 12/18mm Distal Dia. –Left
6015-1218R	Size 12/18mm Distal Dia. –Right
6015-1319L	Size 13/19mm Distal Dia. –Left
6015-1319R	Size 13/19mm Distal Dia. –Right
6015-1420L	Size 14/20mm Distal Dia. –Left
6015-1420R	Size 14/20mm Distal Dia. –Right

### Restoration HA Calcar Replacement Hip System - 15MM

Catalog #	(205mm Length)
6018-0814	Size 8/14mm Distal Dia.
6018-0915	Size 9/15mm Distal Dia.
6018-1016	Size 10/16mm Distal Dia.
6018-1117	Size 11/17mm Distal Dia.
6018-1218	Size 12/18mm Distal Dia.
6018-1319	Size 13/19mm Distal Dia.
6018-1420	Size 14/20mm Distal Dia.

### Restoration HA Calcar Replacement Hip System - 30MM

Catalog #	(205mm Length)
6019-0814	Size 8/14mm Distal Dia.
6019-0915	Size 9/15mm Distal Dia.
6019-1016	Size 10/16mm Distal Dia.
6019-1117	Size 11/17mm Distal Dia.
6019-1218	Size 12/18mm Distal Dia.
6019-1319	Size 13/19mm Distal Dia.
6019-1420	Size 14/20mm Distal Dia.

**Restoration HA Reduced Neck (-5mm) Hip System**

Reduced Neck (-5mm)	Description
<b>145mm Straight (5.7 inch)</b>	
6522-0509	Size 5/9mm Distal Dia.
6522-0511	Size 5/11mm Distal Dia.
6522-0610	Size 6/10mm Distal Dia.
6522-0612	Size 6/12mm Distal Dia.
<b>175mm Straight (6.9 inch)</b>	
6523-0509	Size 5/9mm Distal Dia.
6523-0511	Size 5/11mm Distal Dia.
6523-0610	Size 6/10mm Distal Dia.
6523-0612	Size 6/12mm Distal Dia.
<b>155mm Straight (6 inch)</b>	
S-2651-0711	Size 7/11mm Distal Dia.
S-2651-0713	Size 7/13mm Distal Dia.
S-2651-0812	Size 8/12mm Distal Dia.
S-2651-0814	Size 8/14mm Distal Dia.
S-2651-0913	Size 9/13mm Distal Dia.
S-2651-0915	Size 9/15mm Distal Dia.
S-2651-1014	Size 10/14mm Distal Dia.
S-2651-1016	Size 10/16mm Distal Dia.
S-2651-1115	Size 11/15mm Distal Dia.
S-2651-1117	Size 11/17mm Distal Dia.
S-2651-1216	Size 12/16mm Distal Dia.
S-2651-1218	Size 12/18mm Distal Dia.

Reduced Neck (-5mm)	Description
<b>205mm Straight (8 inch)</b>	
S-2652-0812	Size 8/12mm Distal Dia.
S-2652-0814	Size 8/14mm Distal Dia.
S-2652-0913	Size 9/13mm Distal Dia.
S-2652-0915	Size 9/15mm Distal Dia.
S-2652-1014	Size 10/14mm Distal Dia.
S-2652-1016	Size 10/16mm Distal Dia.
S-2652-1115	Size 11/15mm Distal Dia.
S-2652-1117	Size 11/17mm Distal Dia.
S-2652-1216	Size 12/16mm Distal Dia.
S-2652-1218	Size 12/18mm Distal Dia.
S-2652-1317	Size 13/17mm Distal Dia.
S-2652-1319	Size 13/19mm Distal Dia.
S-2652-1418	Size 14/18mm Distal Dia.
S-2652-1420	Size 14/20mm Distal Dia.
S-2652-1422	Size 14/22mm Distal Dia.
<b>205mm Bowed (8 inch)</b>	
6515-0814L 6515-0814R	Size 8/14mm Distal Dia.
6515-0915L 6515-0915R	Size 9/15mm Distal Dia.
6515-1016L 6515-1016R	Size 10/16mm Distal Dia.
6515-1117L 6515-1117R	Size 11/17mm Distal Dia.
6515-1218L 6515-1218R	Size 12/18mm Distal Dia.
6515-1319L 6515-1319R	Size 13/19mm Distal Dia.
6515-1420L 6515-1420R	Size 14/20mm Distal Dia.
6515-1422L 6515-1422R	Size 14/22mm Distal Dia.

Reduced Neck (-5mm)	Description
<b>255mm Straight (10 inch)</b>	
S-2653-0812-L S-2653-0812-R	Size 8/12mm Distal Dia. with Distal Slot
6516-0814L 6516-0814R	Size 8/14mm Distal Dia. No Distal Slot
S-2653-0913-L S-2653-0913-R	Size 9/13mm Distal Dia. with Distal Slot
6516-0915L 6516-0915R	Size 9/15mm Distal Dia. No Distal Slot
S-2653-1014-L S-2653-1014-R	Size 10/14mm Distal Dia. with Distal Slot
6516-1016L 6516-1016R	Size 10/16mm Distal Dia. No Distal Slot
S-2653-1115-L S-2653-1115-R	Size 11/15mm Distal Dia. with Distal Slot
6516-1117L 6516-1117R	Size 11/17mm Distal Dia. No Distal Slot
S-2653-1216-L S-2653-1216-R	Size 12/16mm Distal Dia. with Distal Slot
6516-1218L 6516-1218R	Size 12/18mm Distal Dia. No Distal Slot
S-2653-1317-L S-2653-1317-R	Size 13/17mm Distal Dia. with Distal Slot
6516-1319L 6516-1319R	Size 13/19mm Distal Dia. No Distal Slot
S-2653-1418-L S-2653-1418-R	Size 14/18mm Distal Dia. with Distal Slot
6516-1420L 6516-1420R	Size 14/20mm Distal Dia. No Distal Slot
6516-1422L 6516-1422R	Size 14/22mm Distal Dia. No Distal Slot



## Restoration HA Instrument System

### Cylindrical Reamers

Catalog #	Description	Catalog #	Description
1111-3100	10.0mm	1111-3170	17.0mm
1111-3105	10.5mm	1111-3175	17.5mm
1111-3110	11.0mm	1111-3180	18.0mm
1111-3115	11.5mm	1111-3185	18.5mm
1111-3120	12.0mm	1111-3190	19.0mm
1111-3125	12.5mm	1111-3195	19.5mm
1111-3130	13.0 mm	1111-3200	20.0mm
1111-3135	13.5mm	1111-3205	20.5mm
1111-3140	14.0mm	1111-3210	21.0mm
1111-3145	14.5mm	1126-0010 Tray #1(10.0mm – 16.0mm) 1126-0011 Tray #2 (16.5mm – 21.0mm)	
1111-3150	15.0mm		
1111-3155	15.5mm		
1111-3160	16.0mm		
1111-3165	16.5mm		

### Restoration HA Long Stem Trials (255mm Length)

Catalog #	Description
6114-0812L	Size 8/12mm/Left
6114-0812R	Size 8/12mm/Right
6114-0913L	Size 9/13mm/Left
6114-0913R	Size 9/13mm/Right
6114-1014L	Size 10/14mm/Left
6114-1014R	Size 10/14mm/Right
6114-1115L	Size 11/15mm/Left
6114-1115R	Size 11/15mm/Right
6114-1216L	Size 12/16mm/Left
6114-1216R	Size 12/16mm/Right
6114-1317L	Size 13/17mm/Left
6114-1317R	Size 13/17mm/Right
6114-1418L	Size 14/18mm/Left
6114-1418R	Size 14/18mm/Right
1126-0020	Long Stem Trial Tray #1 (Left)
1126-0021	Long Stem Trial Tray #2 (Right)

### Cylindrical Distal Extension

Catalog #	Description
1212-2095	9.5 x155mm
1212-2105	10.5 x 155mm
1212-2115	11.5 x 155mm
1212-2125	12.5 x 155mm
1212-2135	13.5 x 155mm
1212-2145	14.5 x 155mm
1212-2155	15.5 x 155mm
1212-2165	16.5 x 155mm
1212-2175	17.5 x 155mm
1212-3105	10.5 x 205mm
1212-3115	11.5 x 205mm
1212-3125	12.5 x 205mm
1212-3135	13.5 x 205mm
1212-3145	14.5 x 205mm
1212-3155	15.5 x 205mm
1212-3165	16.5 x 205mm
1212-3175	17.5 x 205mm
1212-3185	18.50 x 205mm
1212-3195	19.5 x 205mm

### Cylindrical Reamers for Restoration HA Reduced Neck -5mm Sizes 5 and 6

Catalog #	Description
5900-6007	7.0mm
5900-6008	8.0mm
5900-6009	9.0mm

### Broaches for Restoration HA Reduced Neck -5mm Sizes 5 and 6

Catalog #	Description
1112-0204M	Machined Broach C2/PF4
1112-0305M	Machined Broach C3/PF5
1112-0406M	Machined Broach C4/PF6

### Restoration HA Bowed Stem Trials (205mm Length)

Catalog #	Description
6115-0814L	Size 8/14mm/Left
6115-0814R	Size 8/14mm/Right
6115-0915L	Size 9/15mm/Left
6115-0915R	Size 9/15mm/Right
6115-1016L	Size 10/16mm/Left
6115-1016R	Size 10/16mm/Right
6115-1117L	Size 11/17mm/Left
6115-1117R	Size 11/17mm/Right
6115-1218L	Size 12/18mm/Left
6115-1218R	Size 12/18mm/Right
6115-1319L	Size 13/19mm/Left
6115-1319R	Size 13/19mm/Right
6115-1420L	Size 14/20mm/Left
6115-1420R	Size 14/20mm/Right
1126-0023	205mm Bowed Long Stem Trial Tray-Right
1126-0024	205mm Bowed Long Stem Trial Tray-Left

**Broach Instrumentation**

Catalog #	Description
1126-0012	Modular Broach Trial Tray #1
1126-0022	Modular Broach Trial Tray #2
1126-0507	Proximal Broach Trial Body C5/PF7
1126-0608	Proximal Broach Trial Body C6/PF8
1126-0709	Proximal Broach Trial Body C7/PF9
1126-0810	Proximal Broach Trial Body C8/PF10
1126-0911	Proximal Broach Trial Body C9/PF11
1126-1012	Proximal Broach Trial Body C10/PF12
1126-1113	Proximal Broach Trial Body C11/PF13
1126-1214	Proximal Broach Trial Body C12/PF14
1126-0001	Broach Stop
6282-0035	127° Trial Neck 35mm
6282-0040	127° Trial Neck 40mm
6282-0045	127° Trial Neck 45mm
1113-0711	Broach Handle – Standard

**Ancillary Instruments**

Catalog #	Description
1126-0002	Neck Resection Guide
1119-2000	Stem Impactor/Extractor
1216-1000	Handle - Version Control

**Flexible Reamers**

Catalog #	Description
1108-0080	Flexible Reamer – 8mm
1108-0085	Flexible Reamer – 8.5mm
1108-0090	Flexible Reamer – 9mm
1108-0095	Flexible Reamer – 9.5mm
1108-0100	Flexible Reamer – 10mm
1108-0105	Flexible Reamer – 10.5mm
1108-0110	Flexible Reamer – 11mm
1108-0115	Flexible Reamer – 11.5mm
1108-0120	Flexible Reamer – 12mm
1108-0125	Flexible Reamer – 12.5mm
1108-0130	Flexible Reamer – 13mm
1108-0135	Flexible Reamer – 13.5mm
1108-0140	Flexible Reamer – 14mm
1108-0145	Flexible Reamer – 14.5mm
1108-0150	Flexible Reamer – 15mm
1108-0155	Flexible Reamer – 15.5mm
1108-0160	Flexible Reamer – 16mm
1108-0165	Flexible Reamer – 16.5mm
1108-0170	Flexible Reamer – 17mm
1108-0175	Flexible Reamer – 17.5mm
1108-0180	Flexible Reamer – 18mm
1108-0185	Flexible Reamer – 18.5mm
1108-0190	Flexible Reamer – 19mm
1108-0195	Flexible Reamer – 19.5mm
1108-0200	Flexible Reamer – 20mm
1108-0205	Flexible Reamer – 20.5mm
1108-0210	Flexible Reamer – 21.0mm
GIGR-3	Guide Rod
1126-0030	Flexible Ramer Tray #1 (8.0mm – 15.0mm)
1126-0031	Flexible Reamer Tray #2 (15.5mm – 21.0mm)

# Restoration HA

## Revision Hip System

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