EXACTECH | HIP

Operative Technique

AcuMatch
INTEGRATED HIP SYSTEM

M-Series Modular Femoral Stem

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THE ACUMATCH® M-SERIES MODULAR FEMORAL STEM OPERATIVE TECHNIQUE WAS DEVELOPED IN CONSULTATION WITH:

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PRE-OPERATIVE PLANNING

RADIOGRAPHS

An Anterior/Posterior (A/P) radiograph of the pelvis as well as an A/P and true lateral of the operative hip are recommended for proper sizing estimation of the implant based on templating.

TEMPLATING

Templating for primary and revision cases is performed in both the A/P and lateral views to achieve the following goals:

- Predict center of rotation of the femoral head
- Predict level of neck osteotomy
- Determine appropriate limb length adjustment and offset
- Estimate implant size

Tools:

- A/P and medial/lateral radiograph of pelvis centered on the pubic symphysis and lateral radiograph of hip
- Pencil that will not damage radiograph
- Straight edge
- AcuMatch M-Series templates with rule corrected for magnification
- Goniometer/protractor

Step 1: Determine the limb length adjustment necessary, based on clinical and/or radiographic evaluation.

Step 2: Determine the center of rotation of the femoral head using the contralateral hip and/or undisturbed anatomical landmarks of the damaged hip.

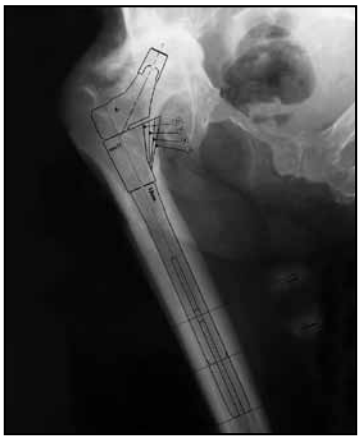
Step 3: Place the metaphyseal template on the A/P and lateral femoral radiographs to approximate cortical fit.

Step 4: Determine the appropriate neck segment by placing the neck segment template on the A/P radiograph in proper relation to the metaphyseal segment template. Establish limb length and offset to balance the soft tissues.

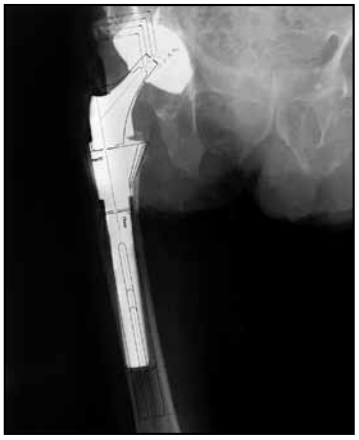
Final adjustments of limb length and offset may be made with various lengths of femoral heads.

Step 5: Determine stem length, diameter and shape (straight or curved) by placing the template over the femoral diaphysis in proper relationship to the metaphyseal segment template.

NOTE: *For digital templating, follow the software manufacturer's instructions for use while following the preceding instructions regarding placement and implant fit.*

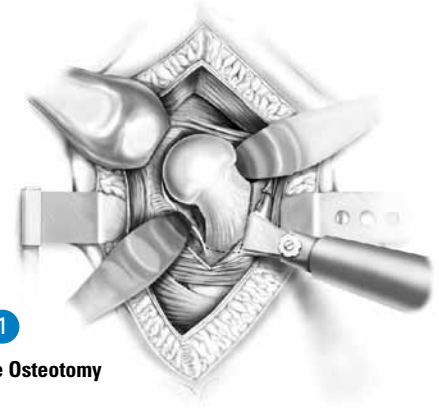


Primary radiograph with templates



Revision radiograph with templates

OPERATIVE TECHNIQUE OVERVIEW



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90-Degree Osteotomy

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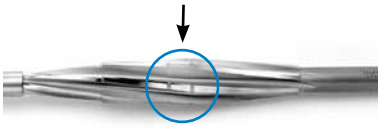
Canal Entry and Lateralization
Using Round Osteotome

Note Depth Markings on Reamers

3
Diaphyseal
Reaming

4
Conical Reaming

Note Depth Markings on Reamers



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Version Adjustment (if necessary) and Reference

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Insertion of Final Stem and Metaphyseal

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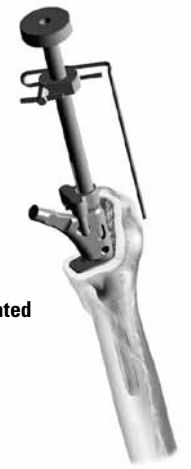

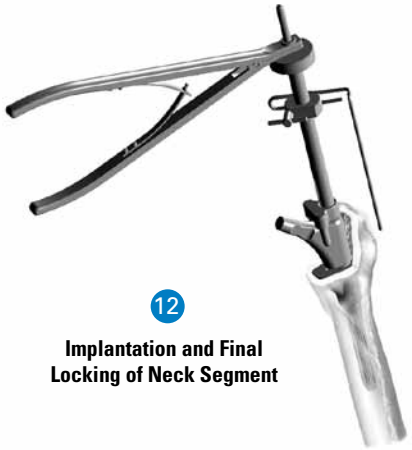

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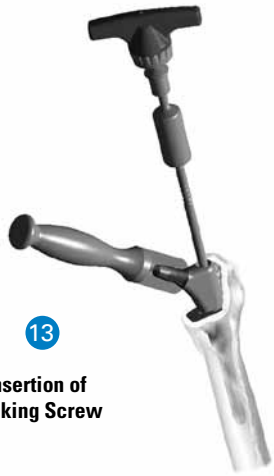
Implantation and Final Locking of Neck Segment



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Insertion of Locking Screw

DETAILED OPERATIVE TECHNIQUE

APPROACH AND EXPOSURE

The AcuMatch M-Series System is compatible with any standard surgical exposure. In this operative technique, the posterolateral approach is described.

DISLOCATION AND OSTEOTOMY

Hip Dislocation

The hip should be dislocated by flexion, adduction and internal rotation. Placing a bone hook around the femoral neck may help in difficult cases. Soft tissues along the intertrochanteric line to the proximal border of the lesser trochanter should be cleared. When tight, the gluteus maximus tendon may be released to improve exposure. The limb should be positioned at 90 degrees internal rotation of the hip *(Figure 1a)*.

The M-Series Ostotomey Guide is aligned with the femur by palpating the femur through the muscles or directing the M-Series Ostotomey Guide toward the center of the popliteal fossa.

Femoral Head Resection

In primary hip surgery, a 90-degree osteotomy is performed at the level as determined during pre-operative planning *(Figure 1b)*. In revision surgery, the existing osteotomy should be converted to the right angle osteotomy to facilitate proper seating of the femoral component.

If additional mobilization of the femur is needed, an anterior capsulotomy may be performed at this point.

FEMORAL PREPARATION

The femoral canal can be accessed by using the **Round Osteotome** *(Figure 2)* to open and lateralize the canal and the **T-Handle** tapered reamer to gain access to the diaphysis *(Figure 3)*.

The AcuMatch M-Series surgical technique consists of three steps to prepare the femur:

1. Diaphyseal reaming
2. Metaphyseal reaming
3. Metaphyseal milling (unless preparing for calcar-replacing segment)

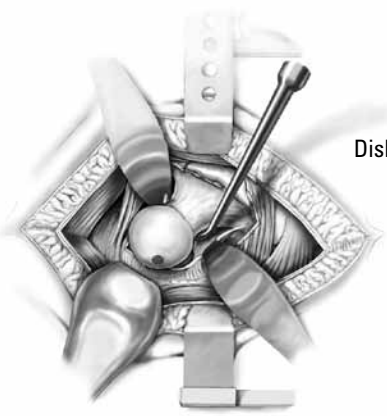


Figure 1a
Dislocation of Hip

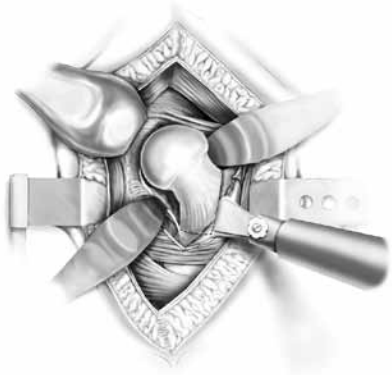


Figure 1b
90-Degree Osteotomy

Figure 2
Canal Entry and Lateralization Using Round Osteotome

Figure 3
Entry into Femoral Canal

Figure 4
Straight Reamer Depth Markings

Figure 5
Diaphyseal Remaing

Figure 6
Full-size band indicates full size (11mm), half-size band indicates full size plus .5mm (11.5mm)

Figure 7
Flexible reaming

Diaphyseal Reaming Straight Stems
The AcuMatch M-Series offers Straight Stems in 135mm (11mm diameter only), 165mm and 200mm. Diaphyseal reaming determines the diameter and length of the final Stem Segment. Reaming is accomplished using the M-Series non-end cutting **Straight Reamers** ranging in diameter from 9mm to 21.5mm in 0.5mm increments. The reference marks on each Straight Reamer indicate the appropriate reaming depth for the corresponding stem length in relation to the femoral osteotomy *(Figure 4)*. Pre-operative templating should assist in determining the appropriate depth to ream.

Ream sequentially, beginning with the smallest diameter Straight Reamer, until cortical contact is achieved *(Figure 5)*. In order to prevent varus placement of the prosthesis, care should be taken to lateralize the Straight Reamers proximally.

The flutes on the Stem Segments add 1.25mm to the diameter of the Straight Stem (example: 13mm stem major diameter is 14.25mm), **so it is recommended to over-ream the canal by 0.5mm relative to the nominal diameter of the stem.** This will allow for 0.75mm of interference fit.

When appropriate cortical contact has been achieved, the color-coded band on the shaft of the Straight Reamer should be noted. The color of this band corresponds to the diameters of the definitive Stem Segments as well as the diaphyseal instrumentation to be used throughout the procedure. If the final Straight Reamer used does not have a colored band and therefore does not correspond with a stem diameter offering, it will be necessary to ream up to the next stopping point annotated by a colored band *(Figure 6)*.

Curved Stems
The AcuMatch M-Series offers Curved Stems in 200mm, 250mm, and 300mm lengths. If a Curved Stem is going to be implanted, it is necessary to prepare the diaphysis with flexible reamers, over-reaming the canal by 1.0-1.5mm *(Figure 7)*.

CONICAL REAMING

Upon completion of diaphyseal preparation, take note of the diameter of the final Straight Reamer and color-coded band. Select a **Conical Reamer Pilot Shaft** that corresponds to the color code established by last Straight Reamer and attach it to the 19mm starter **Conical Reamer** *(Figure 8)*. Conical reaming determines the diameter of the metaphyseal cone of the definitive implant.

There are depth markers on each Conical Reamer *(Figure 9)*.The most distal mark should be referenced when using the Calcar Replacing Metaphyseal Segments. The proximal mark is referenced when preparing the femur for a standard Metaphyseal Segment. Reaming to the appropriate mark provides for a maximum of 0.6mm per side of interference fit.

Conical reaming is conducted in 2mm increments, based on the available Conical Reamers, until cortical contact is achieved *(Figure 10)*. The surgeon may determine appropriate cortical contact by referencing pre-operative templating and through intra-operative judgment.

The Conical Reamers are designed with trialing flutes to lateralize the Conical Reamer in the area of the greater trochanter. While maintaining axial alignment within the femoral canal, continue to run the reamer while withdrawing it to remove bone laterally.

CALCAR REPLACEMENT

When using the Calcar Replacing Metaphyseal Segment, it is necessary to prepare the calcar region of the femur for the placement of the shelf of the prosthesis. This is accomplished by ensuring the transverse osteotomy allows the prosthesis to sit flush within the bone. Metaphyseal milling is not required when using the Calcar Replacing Metaphyseal Segment.

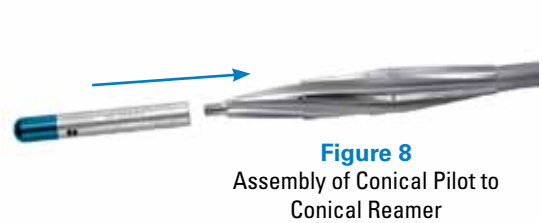


Figure 8
Assembly of Conical Pilot to Conical Reamer

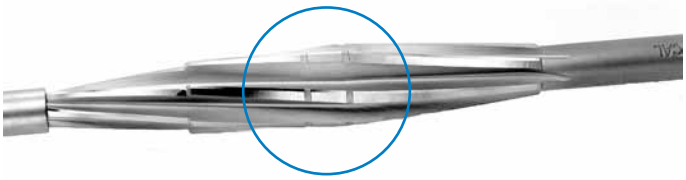


Figure 9
Conical Reamer Depth Markings

Figure 10
Conical Reaming

Figure 11
Metaphyseal Mill Guide Assembly

METAPHYSEAL MILLING

Metaphyseal Mill Guide Assembly
The **Metaphyseal Mill Guide**, **Metaphyseal Mill Guide Pilot Shaft** (corresponding to the final Straight Reamer), **Mill Guide Sizing Pin**, **Handle** and **Mill Guide Orientation Pin** are assembled as shown in *(Figure 11)*.

Metaphyseal Milling
Metaphyseal milling determines the flare size of the final metaphyseal implant. The Metaphyseal Segments are available in flare sizes x-small (21mm, 23mm and 25mm only), small, medium and large.

The Metaphyseal Mill Guide is selected to correspond with the diameter of the last Conical Reamer used.

The Orientation Pin on the Metaphyseal Mill Guide is used to reference rotational alignment within the metaphysis in order to place the flare of the Metaphyseal Segment within the best quality bone stock. Mark the position of the Orientation Pin with electrocautery as a reference, should the Metaphyseal Mill Guide need to be reinserted. Gently impact the milling device until the scored mark on the Metaphyseal Guide is at the level of resection *(Figure 12)*. Proper rotational orientation should be established prior to impaction.

NOTE: *The rail of the Mill Guide should not be struck as this could cause instrument deformation.*

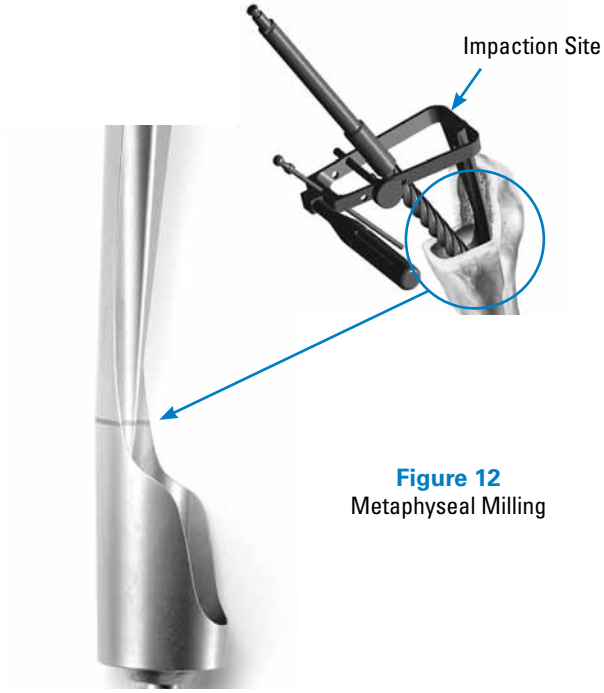


Figure 12
Metaphyseal Milling

Position the **Mill Guide Reamer** in the Metaphyseal Mill Guide. It is recommended to "walk" the Mill Guide Reamer around the perimeter of the metaphysis without power to determine the optimal rotational placement of the Metaphyseal Mill Guide. This provides a good visualization of the amount of bone that will be removed during the milling process.

The Mill Guide Handle is used to help prevent the construct from rotating during the milling process. It is important that the surgeon performing the milling (rather than an assistant) hold the Mill Guide Handle to prevent rotation of the Metaphyseal Mill Guide during the milling process. It is recommended that counterforce be applied in an upward direction *(Figure 13)*, to prevent reaming in varus.

Figure 13
Apply Counterforce in Upward Direction

At this point the surgeon should determine the desired flare size of the metaphyseal implant: x-small (21mm, 23mm and 25mm only), small, medium or large. Begin by inserting the Mill Guide Sizing Pin into the x-small hole (closest to the Mill Guide Pilot Shaft).

Proceed with milling the metaphyseal portion of the femur by "walking" the Mill Guide Reamer around the rail of the Mill Guide, repositioning the Sizing Pin until 1mm of cancellous bone remains. **Note that each successive size advancement of the Sizing Pin removes 4mm of bone in the flare.** Careful attention should be made to achieve contact with all corners of the Metaphyseal Mill Guide rail. It is important that 1mm of cancellous bone remain in the metaphyseal region to allow for bone elasticity when inserting the final metaphyseal implant.

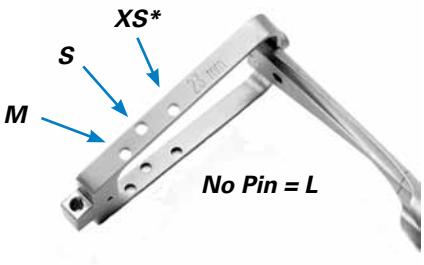


Figure 14
Metaphyseal Mill Guide Sizing Holes

*Available only in 21mm, 23mm and 25mm Metaphyseal Segments

If additional bone must be removed from the medial aspect of the metaphyseal region, the Sizing Pin is moved from the original position to the next pin hole ("x-small" position to the "small" position and so on), until appropriate bone preparation is achieved. When no Sizing Pin is used, milling prepares the bone for a "large" metaphyseal component *(Figure 14)*. Once milling is complete, note the flare size and remove the Metaphyseal Mill Guide using the **Slap Hammer** and **Small Extractor Hook**. For removal, place the Small Extractor Hook into the Metaphyseal Mill Guide extraction hole and extract from the femoral canal *(Figure 15)*.

Figure 15
Metaphyseal Mill Guide Extraction Method

TRIALING

Trial Insertion

Selection of the appropriate **Stem Trial** diameter is achieved by matching the colorcoded instruments used throughout the surgical procedure. Special attention should be given to selecting the appropriate length Stem Trial by referring to the depth-reference point utilized on the last Straight Reamer used.

Figure 16
Free Rotation Between Stem and Metaphyseal Trials

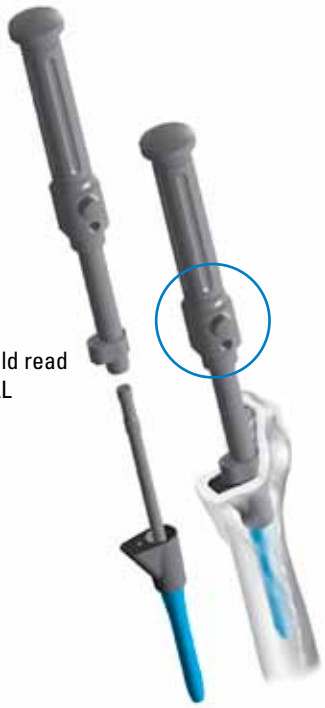


Figure 17
Impact Trials until Flush with Level of Resection

Handle button should read META & TRIAL

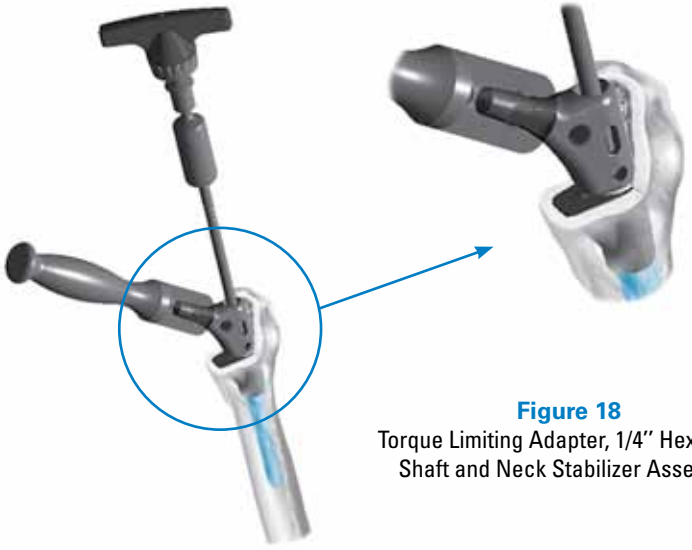


Figure 18
Torque Limiting Adapter, 1/4'' Hex Driver Shaft and Neck Stabilizer Assembly

The Stem Trial is mated with the appropriate size **Metaphyseal Trial** by firmly pressing the two components together. The two trials should spin freely after they have been mated *(Figure 16)*. This allows the Stem Trials, specifically the Curved Stem Trials, to find their natural orientation within the femoral canal.

To place the mated trials onto the **Combined Impactor**, select the appropriate size **Combined Impactor Shaft**. The size of the Combined Impator Shaft corresponds to the metaphyseal or calcar size (i.e., a 21mm Metaphyseal Trial would require a 21mm Shaft while a 31mm Metaphyseal Trial will require a 31mm Shaft). Slide the end of the Combined Shaft through the Metaphyseal Trial and thread into the Stem Trial *(Figure 17)*. Set the **Combined Impactor Handle** button to the Metaphyseal Trials mode (i.e., the black marking on the proximal surface of the button should read **META & TRIAL**). Verify that the small peg protruding from the Combined Impactor handle face engages in the small hole on the top of the Metaphyseal Trial. This peg provides rotational control over the Metaphyseal Trial, while allowing the captured Stem Trial to rotate freely. Impact the Stem and Metaphyseal Trials until the proximal surface of the Metaphyseal Trial segment is flush with the level of resection. When removing the Combined Impactor, it is recommended to stabilize the Metaphyseal Segment with a finger to prevent the Metaphyseal Trial from moving while disengaging the Combined Impactor Handle. Once the Combined Impactor Handle is removed, unthread the Shaft from the Stem Trial.

Trials may also be placed by hand into the canal and impacted utilizing the Combined Impactor Handle.

Neck Segment Trialing

The appropriate **Neck Trial** is determined using pre-operative templating and clinical judgment. The desired anteversion is set and the appropriate **Trial Screw**, specific to the metaphyseal diameter, is selected, inserted and tightened. In order to prevent rotation of the neck segment during trial reduction, the Trial Screw should be tightened using the **Torque Limiting Adapter** on the **Ratcheting T-Handle Driver** in conjunction with the **12/14 Femoral Head Impactor** *(Figure 18)*. The Torque Limiting Adapter may be omitted if additional rotational resistance is required. A **Femoral Head Trial** is selected and trial reductions are performed.

Figure 19
Neck Version Guide on Implant Assembler Body

The **Implant Assembler Body** with **Neck Version Guide** can be used to help replicate the neck version on the final implant. After the desired neck version has been determined, insert the Implant Assembler Body into the Neck Trial. Ensure the angled pegs firmly contact the neck on both sides. With the Implant Assembler Body in place and in axial alignment with the femur, rotate and lock the version pin in relation to a landmark on the greater trochanter *(Figure 19)*. Make a mark on the greater trochanter with a marking pen or electrocautery as a reference once the final implant is inserted.

Intra-operative Radiographs
In order to confirm fit and overall alignment, it may be necessary to take a radiograph once the trials are in place. If using a Long Curved Stem, a lateral view of the femur should be taken to ensure the proper placement of the stem in the diaphysis.

Trial Removal
Remove the trials by threading the **Large Extractor Hook** onto the Slap Hammer and inserting the Large Hook through the hole on the NeckTrial *(Figure 20a)*. Removal can also be achieved by using the Slap Hammer and Small Hook. In this situation, remove the Trial Screw and NeckTrial. Then insert the Small Hook into the extraction hole in the Metaphyseal Trial and extract. This process is recommended for Curved Stems *(Figure 20b)*.

Figure 20a
Straight Trial Removal

Figure 20b
Long, Curved Trial Removal

IMPLANT INSERTION

Implantation of Stem and **Metaphyseal Implant Segments** Select the final metaphyseal and stem implants.

NOTE: *The Locking Screw is packaged with the metaphyseal segment. Care should be taken not to misplace it.*

Set the Combined Impactor Handle button to the stem mode (i.e., the black marking on the proximal surface should read **STEM**). According to the diameter of the definitive metaphyseal segment, select the proper Combined Impactor Shaft. Thread the Shaft into the final stem segment, ensuring that

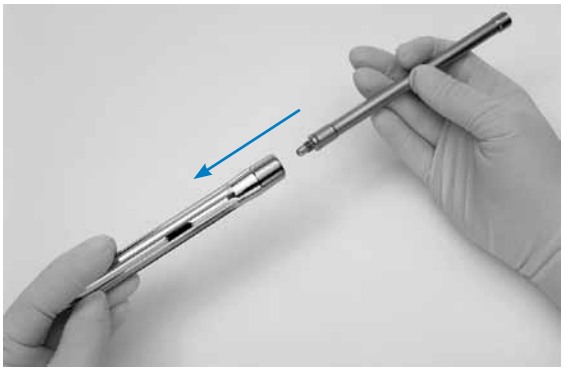


Figure 21a
Assembling Stem Segment & Combined Impactor Shaft

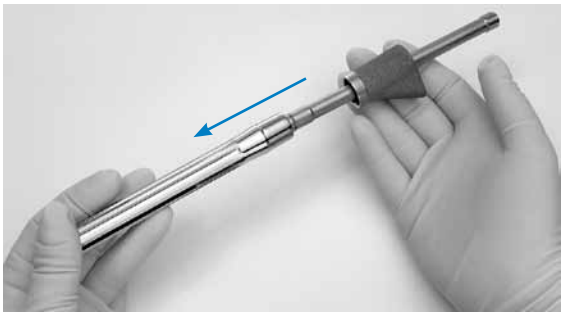


Figure 21b
Adding Metaphyseal Segment to Assembled "Construct"

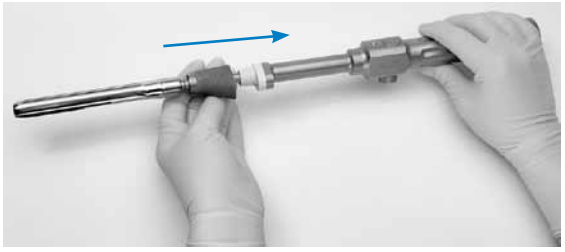


Figure 21c
Combined Impactor Handle

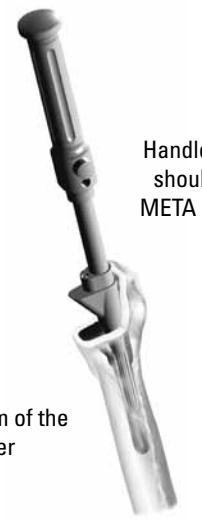


Figure 22
Insertion to the Distal Rim of the Stem Segment Taper

the shoulder above the threads on the Shaft tip is fully seated on the stem surface *(Figure 21a)*. The threads should be snug, but not over tightened. Clean and dry the tapers of any fluid or debris. Slide the metaphyseal segment over the top of the Shaft *(Figure 21b)*.

The metaphyseal segment should be allowed to rotate around the taper of the stem segment so that the stem and metaphyseal components may independently seek appropriate placement in the prepared femur. Push the top of the Combined Impactor Shaft into the Combined Impactor handle until the Shaft slides past the capture detent *(Figure 22c)*.

Ensure the stem longitudinal slot is positioned properly in the coronal plane. Maneuver the implant distally into the canal by gently impacting the handle. Insert the implant until the stem-metaphyseal interface is at the horizontal level of resection *(Figure 22)*. At this point, the taper of the metaphyseal segment is not locked with the stem segment taper. Position the metaphyseal segment to fit the bony metaphysis precisely. Slide the button on the Combined Impactor Shaft to place the instrument into metaphyseal impaction mode (i.e., the black marking on the top surface of the button should read **META & TRIAL**). After the button is pressed, the Shaft may slide slightly proximal, or the handle may move slightly distal. After proper alignment of the metaphyseal segment is established, the surgeon should administer a sharp mallet blow to the Combined Impactor Handle. The surgeon should continue to impact the handle until the implant is fully seated flush with the horizontal level of resection. The handle is removed from the metaphyseal segment and the Combined Impactor Shaft unthreaded from the stem.

Trial Reduction with Neck Trial on Implanted Stem/Metaphyseal Segments

Once the stem and metaphyseal implants are seated, final trial reductions can be performed. The Neck Trial is designed with a protective covering over the male taper for use with the final metaphyseal segment. This covering protects the metaphyseal taper from damage during trial reduction.

Select the same NeckTrial that was used during the previous trial reductions. Placement of the Neck Trial can follow the operative technique described above.

NOTE: *It is recommended to trial again, as the final implants may seat differently than the trials.*

Figure 23
Trialing neck version on final stem and metaphyseal implants using implant assembler body with Neck Version Guide

To re-establish the desired neck version, use the cauterized mark on the bone as a reference. Insert the Implant Assembler Body with Neck Version Guide Neck Stabilizer into the Neck Trial. Make sure the angled pegs firmly contact the neck on both sides. With the Implant Assembler Body coaxial with the neck, replicate the version using the Neck Version Guide on the Implant Assembler Body *(Figure 23)*. Insert the appropriate Trial Screw and tighten. As before, the Locking Screw should be adequately tightened using the Torque Limiting Adapter on the Ratcheting T-Handle and Neck Stabilizer to prevent any rotation of the neck segment during trial reduction. The Femoral Head Trial may now be selected and trial reductions performed. If version needs to be adjusted, it is important to adjust Neck Version Guide so it may be used as a reference for the final implant.

Insertion of Neck Segment Implant
After the stem and metaphyseal segments have been implanted, thread the **Assembler Rod** into the stem segment *(Figure 24)*. The threads should be snug but not over-tightened. Clean and dry the tapers. Place the definitive neck segment over the rod, taking care not to lock the tapers. Insert the Implant Assembler Body over the Assembler Rod and into the neck. Ensure the Neck Version Guide is pointing to the cauterized mark on the bone *(Figure 25)* and the angled pegs firmly contact the neck on both sides. As the tapers are engaging, verify that the version pin remains pointed to the mark on the bone.

Place the **Assembler Pliers** over the Assembler Rod, flush against the proximal surface of the Implant Assembler Body *(Figure 26)*. Squeeze the Assembly Pliers until there is about an inch of clearance between the handle tips. The neck taper is now tight within the metaphyseal taper. Verify that the neck version is correct. If final version adjustments are needed at this point, the neck can be easily removed with the **Neck Separating Wedge**.

With the Assembly Pliers engaged, place the **Impact Adapter** over the Assembler Rod and

Figure 24
Final neck segment placed over Assembler Rod

Figure 25
Implant assembler body with neck version guide placed through Assembler Rod

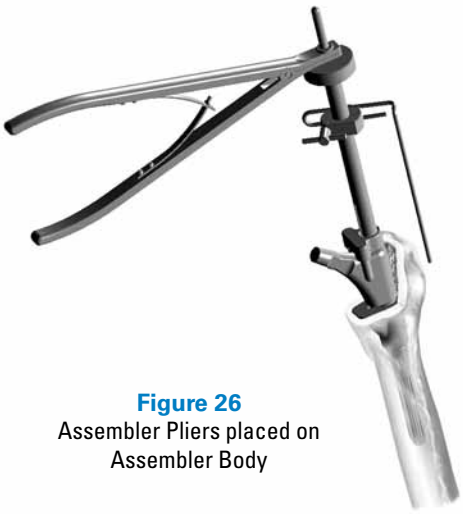


Figure 26
Assembler Pliers placed on Assembler Body

Figure 27
Assembly of Impactor Adapter

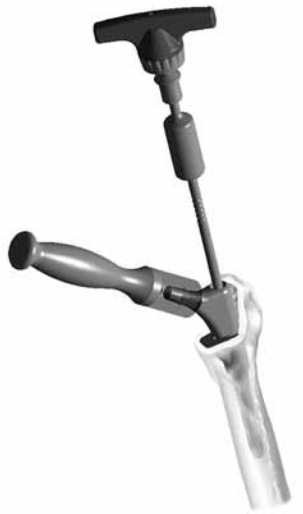


Figure 28
Screw is tightened using the Neck Stabilizer

Figure 29
Neck Segment Separating Wedge placement

the Neck Assembler Body and impact with sharp mallet blows *(Figure 27)*. Engaging the Assembly Pliers will avoid the possibility of disengaging the stem segment while impacting.

NOTE: *If the Assembler Rod cannot be removed by hand, it can be removed with the Assembly Pliers. Place the Assembly Pliers over the Assembly Rod, squeez, and rotate counter-clockwise.*

Insertion of Modular Stem Screw
To provide counter-torque while tightening the screw, the 12/14 Femoral **Head Impactor** instrument is placed over the neck segment taper *(Figure 28)*. Insert the implant Locking Screw with care to exclude any foreign material. Tighten the Locking Screw with the Torque Limiting Driver until theTorque Limiting Adapter creates an audible confirmation. At this point, further trial reductions can be performed using trial heads to determine the appropriate femoral head length. The final femoral head may now be assembled and the hip reduced.

SEPARATION OF NECK/METAPHYSEAL SEGMENTS

If version adjustments are needed after the implants have been assembled, a removal wedge is provided.

The Neck Separating Wedge can separate impacted and/or physiologically loaded necks, but the procedure may require considerably more impact force.

Place the Neck Separating Wedge tip into the gap between the neck and metaphyseal segments *(Figure 29)*. Do not point the Wedge tip at the taper junction. Impacting the Wedge towards the taper junction could result in damage to the neck taper area and may stop forward travel of the instrument, which will likely prevent the Wedge from separating the neck. Do not pry on the instrument when it is in the neck/ metaphyseal gap. Prying may cause the Wedge tip to fracture.

With the Neck Separating Wedge oriented in the position previously described, tap the end of the Wedge using small, sharp impacts until the neck separates from the metaphyseal segment. Sharp impacts are recommended to minimize trauma to the femur and facilitate successful taper separation.

If needed, verify correct neck version using the Neck Trial, Trial Screw and Implant Assembler Body with Neck Version Guide. If the neck was removed prior to impaction and tightening of the Locking Screw, reassemble the neck in the correct version. If the neck taper has been damaged, a new neck must be used.

An impacted and/or physiologically loaded neck must always be replaced with a new neck and assembly screw.

Aggressive impaction techniques and forceful assembly methods may damage femoral head components and lead to device failure. Repeated assembly and disassembly of modular components could compromise the strength of taper locking mechanisms.

Other Suggestions
In revision cases or in complex primary cases with compromised bone stock, the surgeon may elect to place one or more cerclage wires around the proximal femur to reduce risk of femoral fractures.

SYSTEM SPECIFICATIONS

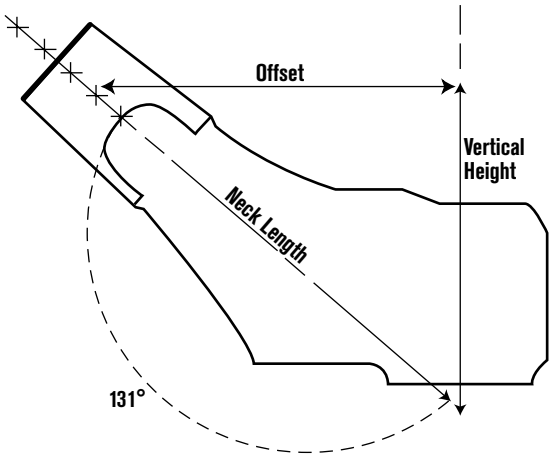
Metaphyseal Segment
The metaphyseal segments are measured in two dimensions, diameter and flare size. The trapezoidal shape and 5 degree proximal-to-distal taper provide for initial fixation. Circumferential plasma spray provides a scratch-fit for stable biologic fixation.[1]

NECK LENGTHS* (mm)

-3.5 Head		+0 Head		+3.5 Head		+7 Head		+10 Head	
Low Offset	High Offset	Low Offset	High Offset	Low Offset	High Offset	Low Offset	High Offset	Low Offset	High Offset
45	51	48	55	52	58	55	62	58	65

OFFSETS* (mm)

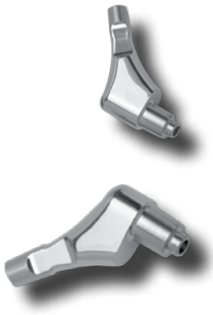
-3.5 Head		+0 Head		+3.5 Head		+7 Head		+10 Head	
Low Offset	High Offset	Low Offset	High Offset	Low Offset	High Offset	Low Offset	High Offset	Low Offset	High Offset
34	39	36	41	39	44	42	47	44	49



VERTICAL HEIGHTS* (mm)

Femoral Head	Segments				
	-5	+0	+10	+20**	+30**
-3.5	31	36	46	56	66
+0	33	38	48	58	68
+3.5	35	40	50	60	70
+7	38	43	53	63	73
+10	40	45	55	65	75

SYSTEM COMPONENTS



Neck Segments

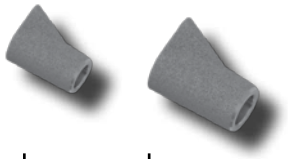
Vertical Height	High Offset	Low Offset
-5mm	158-02-95	158-02-05
+0mm	158-02-01	158-02-06
+10mm	158-02-02	158-02-07
+20mm	158-02-03	N/A
+30mm	158-02-04	N/A

Calcar Replacing Metaphyseal Segments

Diameter	Catalog No.	Diameter	Catalog No.
21mm	150-32-21	27mm	150-32-27
23mm	150-32-23	29mm	150-32-29
25mm	150-32-25	31mm	150-32-31

**Values are rounded up to the next whole number. **Available in high offset only.*
1. Data on file at Exactech. 711-12-80 Titanium Plasma Spray Technical Profile.

SYSTEM COMPONENTS (cont)



Metaphyseal Segments

Diameter	Flare	Catalog No.	Diameter	Flare	Catalog No.
21mm	X-Small	150-21-00	N/A	N/A	N/A
21mm	Small	150-21-01	27mm	Small	150-27-01
21mm	Medium	150-21-02	27mm	Medium	150-27-02
21mm	Large	150-21-03	27mm	Large	150-27-03
23mm	X-Small	150-23-00	N/A	N/A	N/A
23mm	Small	150-23-01	29mm	Small	150-29-01
23mm	Medium	150-23-02	29mm	Medium	150-29-02
23mm	Large	150-23-03	29mm	Large	150-29-03
25mm	X-Small	150-25-00	N/A	N/A	N/A
25mm	Small	150-25-01	31mm	Small	150-31-01
25mm	Medium	150-25-02	31mm	Medium	150-31-02
25mm	Large	150-25-03	31mm	Large	150-31-03

Femoral Heads

*skirted

		Cobalt Chrome	Biolox®*Forte* Alumina	Ziramic® Zirconia	Biolox®Delta
28mm	-3.5mm	142-28-93	140-28-93	148-28-93	170-28-93
	+0mm	142-28-00	140-28-00	148-28-00	170-28-00
	+3.5mm	142-28-03	140-28-03	148-28-03	170-28-03
	+7mm	142-28-07	N/A	148-28-07*	170-28-50 & 170-50-07†
	+10mm	142-28-10*	N/A	148-28-10*	N/A
32mm	-3.5mm	142-32-93	140-32-93	148-32-93	170-32-93
	+0mm	142-32-00	140-32-00	148-32-00	170-32-00
	+3.5mm	142-32-03	140-32-03	148-32-03	170-32-03
	+7mm	142-32-07	N/A	148-32-07*	170-32-07
	+10mm	142-32-10*	N/A	148-32-10*	N/A
36mm	-3.5mm	142-36-93	142-36-93	148-36-93	170-36-93
	+0mm	142-36-00	142-36-00	148-36-00	170-36-00
	+3.5mm	142-36-03	142-36-03	148-36-03	170-36-03
	+7mm	142-36-07	N/A	148-36-07*	170-36-07
	+10mm	142-36-10	N/A	148-36-10*	N/A

Stem Segments

Straight Stem Diameter	Straight Stem Length	Catalog No.
11mm	135mm	150-07-13
11mm	165mm	150-07-14
11mm	200mm	150-07-15
13mm	165mm	150-07-16
13mm	200mm	150-07-17
15mm	165mm	150-07-18
15mm	200mm	150-07-19
17mm	165mm	150-07-20
17mm	200mm	150-07-21
19mm	165mm	150-07-22
19mm	200mm	150-07-23
21mm	165mm	150-07-24
21mm	200mm	150-07-25

Curved Stem Diameter	Curved Stem Length	Catalog No.
11mm	200mm	150-07-29
11mm	250mm	150-07-30
11mm	300mm	150-07-31
13mm	200mm	150-07-32
13mm	250mm	150-07-33
13mm	300mm	150-07-34
15mm	200mm	150-07-35
15mm	250mm	150-07-36
15mm	300mm	150-07-37
17mm	200mm	150-07-38
17mm	250mm	150-07-39
17mm	300mm	150-07-40
19mm	200mm	150-07-41
19mm	250mm	150-07-42
19mm	300mm	150-07-43
21mm	200mm	150-07-44
21mm	250mm	150-07-45
21mm	300mm	150-07-46

†*Size 28 + 7mm requires BIOLOX®Option*

INSTRUMENT LISTING

Catalog Number	Part Description
151-51-00	Straight Reamers, 9mm, 17.5–Case 1
151-51-01	Straight Reamers, 18mm, 21.5–Case 2
151-51-02	Conical Reamers, Mill Guides & Pilots - Case 3
151-51-03	Metaphyseal and Calcar Trials–Case 4
151-51-04	Stem Trials–Case 5
151-51-05	Head, Neck Trials & Misc. Instruments–Case 6
151-00-00	M-Series Osteotomy Guide
151-00-01	Round Osteotome
113-03-04	T-Handle Starter Reamer
101-14-00	Quick Release T-Handle
151-10-01	Straight End Cutting Starter Reamer, 8mm
151-10-02	AcuMatch M-Series Straight Reamer, 9mm
151-10-03	AcuMatch M-Series Straight Reamer, 9.5mm
151-10-04	AcuMatch M-Series Straight Reamer, 10mm
151-10-21	AcuMatch M-Series Straight Reamer, 10.5mm
151-10-05	AcuMatch M-Series Straight Reamer, 11mm
151-10-06	AcuMatch M-Series Straight Reamer, 11.5mm
151-10-07	AcuMatch M-Series Straight Reamer, 12mm
151-10-22	AcuMatch M-Series Straight Reamer, 12.5mm
151-10-08	AcuMatch M-Series Straight Reamer, 13mm
151-10-09	AcuMatch M-Series Straight Reamer, 13.5mm
151-10-10	AcuMatch M-Series Straight Reamer, 14mm
151-10-23	AcuMatch M-Series Straight Reamer, 14.5mm
151-10-11	AcuMatch M-Series Straight Reamer, 15mm
151-10-12	AcuMatch M-Series Straight Reamer, 15.5mm
151-10-13	AcuMatch M-Series Straight Reamer, 16mm
151-10-24	AcuMatch M-Series Straight Reamer, 16.5mm
151-10-14	AcuMatch M-Series Straight Reamer, 17mm
151-10-15	AcuMatch M-Series Straight Reamer, 17.5mm
151-10-16	AcuMatch M-Series Straight Reamer, 18mm
151-10-25	AcuMatch M-Series Straight Reamer, 18.5mm
151-10-17	AcuMatch M-Series Straight Reamer, 19mm
151-10-18	AcuMatch M-Series Straight Reamer, 19.5mm
151-10-19	AcuMatch M-Series Straight Reamer, 20mm
151-10-26	AcuMatch M-Series Straight Reamer, 20.5mm
151-10-20	AcuMatch M-Series Straight Reamer, 21mm
151-10-27	AcuMatch M-Series Straight Reamer, 21.5mm

Catalog Number	Part Description
151-05-19	AcuMatch M-Series Conical Reamer, 19mm
151-05-21	AcuMatch M-Series Conical Reamer, 21mm
151-05-23	AcuMatch M-Series Conical Reamer, 23mm
151-05-25	AcuMatch M-Series Conical Reamer, 25mm
151-05-27	AcuMatch M-Series Conical Reamer, 27mm
151-05-29	AcuMatch M-Series Conical Reamer, 29mm
151-05-31	AcuMatch M-Series Conical Reamer, 31mm

151-06-11	AcuMatch M-Series Conical Reamer Pilot Shaft, 11x135mm
151-06-12	AcuMatch M-Series Conical Reamer Pilot Shaft, 11x165mm
151-06-13	AcuMatch M-Series Conical Reamer Pilot Shaft, 13x165mm
151-06-15	AcuMatch M-Series Conical Reamer Pilot Shaft, 15x165mm
151-06-17	AcuMatch M-Series Conical Reamer Pilot Shaft, 17x165mm
151-06-19	AcuMatch M-Series Conical Reamer Pilot Shaft, 19x165mm
151-06-21	AcuMatch M-Series Conical Reamer Pilot Shaft, 21x165mm

151-13-00	Mill Guide Sizing Pin

151-13-01	Mill Guide Handle

151-13-02	Mill Guide Orientation Pin

151-13-21	Metaphyseal Mill Guide, 21mm
151-13-23	Metaphyseal Mill Guide, 23mm
151-13-25	Metaphyseal Mill Guide, 25mm
151-13-27	Metaphyseal Mill Guide, 27mm
151-13-29	Metaphyseal Mill Guide, 29mm
151-13-31	Metaphyseal Mill Guide, 31mm

151-14-11	Metaphyseal Mill Guide Pilot Shaft, 11x135mm
151-14-12	Metaphyseal Mill Guide Pilot Shaft, 11x165mm
151-14-13	Metaphyseal Mill Guide Pilot Shaft, 13x165mm
151-14-15	Metaphyseal Mill Guide Pilot Shaft, 15x165mm
151-14-17	Metaphyseal Mill Guide Pilot Shaft, 17x165mm
151-14-19	Metaphyseal Mill Guide Pilot Shaft, 19x165mm
151-14-21	Metaphyseal Mill Guide Pilot Shaft, 21x165mm

INSTRUMENT LISTING

Catalog Number	Part Description
151-15-00	Mill Guide Reamer
151-21-00	Metaphyseal Trial, 21mm, XS
151-21-01	Metaphyseal Trial, 21mm, S
151-21-02	Metaphyseal Trial, 21mm, M
151-21-03	Metaphyseal Trial, 21mm, L
151-23-00	Metaphyseal Trial, 23mm, XS
151-23-01	Metaphyseal Trial, 23mm, S
151-23-02	Metaphyseal Trial, 23mm, M
151-23-03	Metaphyseal Trial, 23mm, L
151-25-00	Metaphyseal Trial, 25mm, XS
151-25-01	Metaphyseal Trial, 25mm, S
151-25-02	Metaphyseal Trial, 25mm, M
151-25-03	Metaphyseal Trial, 25mm, L
151-27-01	Metaphyseal Trial, 27mm, S
151-27-02	Metaphyseal Trial, 27mm, M
151-27-03	Metaphyseal Trial, 27mm, L
151-29-01	Metaphyseal Trial, 29mm, S
151-29-02	Metaphyseal Trial, 29mm, M
151-29-03	Metaphyseal Trial, 29mm, L
151-31-01	Metaphyseal Trial, 31mm, S
151-31-02	Metaphyseal Trial, 31mm, M
151-31-03	Metaphyseal Trial, 31mm, L
151-32-21	Calcar Replacement Trial, 21mm
151-32-23	Calcar Replacement Trial, 23mm
151-32-25	Calcar Replacement Trial, 25mm
151-32-27	Calcar Replacement Trial, 27mm
151-32-29	Calcar Replacement Trial, 29mm
151-32-31	Calcar Replacement Trial, 31mm
151-50-00	Combined Impactor Handle
151-50-21	Combined Impactor Shaft, 21mm
151-50-23	Combined Impactor Shaft, 23mm
151-50-25	Combined Impactor Shaft, 25mm
151-50-27	Combined Impactor Shaft, 27mm
151-50-29	Combined Impactor Shaft, 29mm
151-50-31	Combined Impactor Shaft, 31mm
151-00-07	Large Extractor Hook

Catalog Number	Part Description
151-00-18	Small Extractor Hook
113-03-03	Slap Hammer
151-00-16	Slap Hammer Adapter
151-50-04	Implant Assembler Body with Neck Version Guide
151-07-13	AcuMatch M-Series Straight Stem Trial, 11x135mm
151-07-14	AcuMatch M-Series Straight Stem Trial, 11x165mm
151-07-15	AcuMatch M-Series Straight Stem Trial, 11x200mm
151-07-16	AcuMatch M-Series Straight Stem Trial, 13x165mm
151-07-17	AcuMatch M-Series Straight Stem Trial, 13x200mm
151-07-18	AcuMatch M-Series Straight Stem Trial, 15x165mm
151-07-19	AcuMatch M-Series Straight Stem Trial, 15x200mm
151-07-20	AcuMatch M-Series Straight Stem Trial, 17x165mm
151-07-21	AcuMatch M-Series Straight Stem Trial, 17x200mm
151-07-22	AcuMatch M-Series Straight Stem Trial, 19x165mm
151-07-23	AcuMatch M-Series Straight Stem Trial, 19x200mm
151-07-24	AcuMatch M-Series Straight Stem Trial, 21x165mm
151-07-25	AcuMatch M-Series Straight Stem Trial, 21x200mm
151-07-29	AcuMatch M-Series Curved Stem Trial, 11x200mm
151-07-30	AcuMatch M-Series Curved Stem Trial, 11x250mm
151-07-31	AcuMatch M-Series Curved Stem Trial, 11x300mm
151-07-32	AcuMatch M-Series Curved Stem Trial, 13x200mm
151-07-33	AcuMatch M-Series Curved Stem Trial, 13x250mm
151-07-34	AcuMatch M-Series Curved Stem Trial, 13x300mm
151-07-35	AcuMatch M-Series Curved Stem Trial, 15x200mm
151-07-36	AcuMatch M-Series Curved Stem Trial, 15x250mm
151-07-37	AcuMatch M-Series Curved Stem Trial, 15x300mm
151-07-38	AcuMatch M-Series Curved Stem Trial, 17x200mm
151-07-39	AcuMatch M-Series Curved Stem Trial, 17x250mm
151-07-40	AcuMatch M-Series Curved Stem Trial, 17x300mm
151-07-41	AcuMatch M-Series Curved Stem Trial, 19x200mm
151-07-42	AcuMatch M-Series Curved Stem Trial, 19x250mm
151-07-43	AcuMatch M-Series Curved Stem Trial, 19x300mm
151-07-44	AcuMatch M-Series Curved Stem Trial, 21x200mm
151-07-45	AcuMatch M-Series Curved Stem Trial, 21x250mm
151-07-46	AcuMatch M-Series Curved Stem Trial, 21x300mm

INSTRUMENT LISTING

Catalog Number	Part Description
153-01-95	M-Series High Offset Neck Trial, 12/14, -5mm
153-01-01	M-Series High Offset Neck Trial, 12/14, +0mm
153-01-02	M-Series High Offset Neck Trial, 12/14, +10mm
153-01-03	M-Series High Offset Neck Trial, 12/14, +20mm,
153-01-04	M-Series High Offset Neck Trial, 12/14, +30mm,
153-01-05	M-Series High Offset Neck Trial, 12/14, -5mm
153-01-06	M-Series High Offset Neck Trial, 12/14, +0mm
153-01-07	M-Series High Offset Neck Trial, 12/14, +10mm,

151-50-01	Neck Separating Wedge

151-50-02	Assembler Rod

151-50-03	Assembly Pliers

151-50-05	Assembler Impact Adapter Block

151-00-09	Torque Limiting Adapter

151-00-03	M-Series Neck Impactor

109-00-00	Femoral Stem Extractor

151-00-23	1/4" Hex Driver Shaft, Long

Catalog Number	Part Description
101-31-06	Ratcheting T-Handle

151-01-15	Screw, 21mm/23mm
151-01-16	Screw, 25mm/27mm
151-01-17	Screw, 29mm/31mm

143-28-93	28mm Femoral Head Trial, 12/14, O-Ring, -3.5mm
143-28-00	28mm Femoral Head Trial, 12/14, O-Ring, +0mm
143-28-03	28mm Femoral Head Trial, 12/14, O-Ring, +3.5mm
143-28-07	28mm Femoral Head Trial, 12/14, O-Ring, +7mm
143-28-10	28mm Femoral Head Trial, 12/14, O-Ring, +10mm
143-32-93	32mm Femoral Head Trial, 12/14, O-Ring, -3.5mm
143-32-00	32mm Femoral Head Trial, 12/14, O-Ring, +0mm
143-32-03	32mm Femoral Head Trial, 12/14, O-Ring, +3.5mm
143-32-07	32mm Femoral Head Trial, 12/14, O-Ring, +7mm
143-32-10	32mm Femoral Head Trial, 12/14, O-Ring, +10mm
143-36-93	36mm Femoral Head Trial, 12/14, O-Ring, -3.5mm
143-36-00	36mm Femoral Head Trial, 12/14, O-Ring, +0mm
143-36-03	36mm Femoral Head Trial, 12/14, O-Ring, +3.5mm
143-36-07	36mm Femoral Head Trial, 12/14, O-Ring, +7mm
143-36-10	36mm Femoral Head Trial, 12/14, O-Ring, +10mm

153-00-02	12/14 Femoral Head Impactor

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For additional device information, refer to the Exactech AcuMatch® Hip System–Instructions for Use for a device description, indications, contraindications, precautions and warnings. For further product information, please contact Customer Service, Exactech, 2320 NW 66th Court, Gainesville, Florida 32653-1630, USA. (352) 377-1140, (800) 392-2832 or FAX (352) 378-2617.

Exactech, as the manufacturer of this device, does not practice medicine, and is not responsible for recommending the appropriate surgical technique for use on a particular patient. These guidelines are intended to be solely informational and each surgeon must evaluate the appropriateness of these guidelines based on his or her personal medical training and experience. Prior to use of this system, the surgeon should refer to the product package insert for comprehensive warnings, precautions, indications for use, contraindications and adverse effects.

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