FLH167

Biomet Bi-Polar 28/32
Operative Technique

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Disclaimer

Biomet UK Ltd, as the manufacturer of this device, does not practice medicine and does not recommend any particular surgical technique for use on a specific patient. The surgeon who performs any implant procedure is responsible for determining and utilising the appropriate techniques for implanting the prosthesis in each particular patient. Biomet UK Ltd is not responsible for selection of the appropriate surgical technique to be utilised for an individual patient.

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Bi-Polar 28mm & 32mm System - Operative technique

Overview

The Biomet Bi-Polar System is an alternative to a total hip arthroplasty. The aim of the Bi-Polar prosthesis is to reduce wear or erosion of the acetabulum by providing motion between the prosthetic head and the inner articulation bearing whilst also allowing for the possiblilty of extreme range of motion. The Biomet Bi-Polar design also incorporates positive eccentricity favouring valgus acetabular component positioning. The chance of dislocation is therefore reduced and the stress more evenly distributed within the acetabular cartilage.

The Biomet Bi-Polar System component is simple and easy to use. The system comprises of CoCr bi-polar component that can be assembled with any of the Biomet 28mm and 32mm modular femoral heads. The polyethylene circlip is designed for efficiency and ease of use in assisting to provide a secure mechanism against dislocation of the modular head from within the Bi-Polar component.

1. Pre-operative Planning

Selection of the correct femoral component is attained through careful pre-operative planning. This can be achieved manually by means of x-ray templates, or digitally by means of a PAC system.

Manual Pre-operative Planning

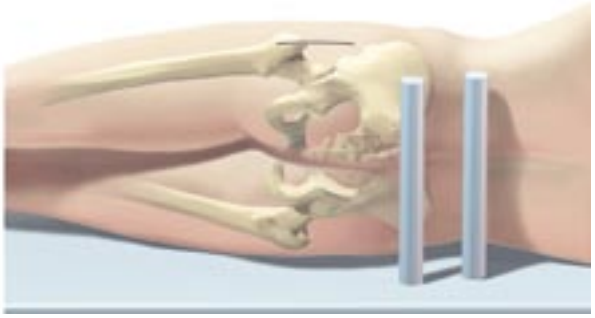
The Biomet Bi-Polar System includes femoral x-ray templates in 115% magnification. These templates are positioned over the AP and Lateral x-rays to best decide the correct implant size and modular head neck length to help restore the patient's natural anatomy.

Digital Pre-operative Planning

The Biomet Bi-Polar System digital templates are available through various digital template providers. When using digital templating for a primary THR, it is necessary to use a magnification marker with a known dimension. This is required in order for the PAC system to calculate the correct magnification. As soon as the correct magnification has been determined, the PAC System can be used to best decide the correct implant size and modular head neck length required to help restore the patient's natural anatomy.

1. Surgical exposure

The Biomet Bi-Polar component can be implanted using any of the standard approaches for total hip replacement. The aim of the approach selected is to provide adequate visualisation of both the acetabulum and proximal femur.



2. Femoral Components

The Biomet Bi-Polar System has been designed to assemble with all Biomet femoral components that utilise a 28mm or 32mm femoral head. Please refer to appropriate femoral prosthesis operative technique for relevant information.

3. Acetabular Sizing

Acetabular sizing can be completed by one of two methods. The first method utilises the resected anatomic femoral head with the head gauges. The resected femoral head is passed through the circular cutouts in the gauges until the correct diameter is determined (Figure 1). The second method utilises the trial bi-polar shells in conjunction with the gauge handle. The trial bi-polar shells of different diameters are inserted into the acetabulum until the most appropriate diameter shell is determined (Figure 2).

figure 1

Warning. The bi-polar component must not be undersized or oversized. Failure to select the correct diameter component will increase the risk of premature failure.

figure 2

4. Trial Reduction

It is possible to complete a trial reduction by using either the femoral rasp as a trial component or the implanted femoral component. Either way, the aim of the trial is to select the most accurate length of femoral head that best restores the patient's natural anatomy.
Once the correct diameter of bi-polar component has been determined, the equivalent diameter trial bi-polar shell is assembled with the appropriate trial femoral head and assembled with either the femoral rasp (Figure 3) or with the femoral component (Figure 4). Trial femoral heads are available in numerous neck lengths so it may be necessary to undertake the trial reduction several times to ensure the correct length modular head has been selected.

figure 3

figure 4

5. Femoral Head Impaction

Once the femoral component has been implanted and a successful trial reduction has taken place, the appropriate diameter/offset modular head must be assembled onto the clean femoral component taper with hand pressure only. Alternatively, a combination of hand pressure and a twisting motion can be used. The modular head is finally seated in position by means of a gentle tap utilising the femoral head impaction device and mallet (Figure 5).

Modular heads <u>should never</u> be heavily impacted onto the trunnion as this may cause damage to highly polished surface of the modular head.

figure 5

6. Bi-Polar Shell Positioning

Before the bi-polar shell can be attached to the femoral component, the polyethylene circlip must first be removed from the bi-polar component. This is accomplished by means of the circlip pliers contained within the instrument set (Figure 6). The polyethylene circlip is then placed around the neck of the femoral component and the femoral head is offered into the bi-polar shell. Once the head is firmly positioned within the shell the circlip can be re-inserted into the shell and locked in position (Figure 7).

Care must be taken to ensure no damage occurs to the articulating surface of the bi-polar shell as any marks or scratches on the surface will result in increased wear.

figure 6

figure 7

7. Reduction

The bi-polar articulation is then finally reduced into the acetabulum and a final check on leg length and tissue tension is completed (Figure 8).

figure 8

Ordering Information

Implants

Biomet CoCrMo Bi-Polar Components

Articulation Diameter (mm)	Internal Diameter (mm)	
	28.0	32.0
41.0	165206	-
42.0	165208	-
43.0	165210	-
44.0	165212	165312
45.0	165214	165314
46.0	165216	165316
47.0	165218	165318
48.0	165220	165320
49.0	165222	165322
50.0	165224	165324
51.0	165226	165326
52.0	165228	165328
53.0	165230	165330
54.0	165232	165332
55.0	165234	165334
58.0	165240	165340
61.0	165246	165346

Biomet CoCrMo Modular Femoral Heads (T1)

Offset (mm)	Articulation Diameter (mm)	
	28.0	32.0
-6.0	163660	163667
-5.0	-	-
-3.0	163661	163668
0	163662	163669
+3.0	163663	163670
+6.0	163664	163671
+9.0	163665	163672
+12.0	163666	163673

Instrumentation

Biomet CoCr Bi-Polar Instrumentation - 28mm

Catalogue No.	Description
31-600305	Biomet CoCr Bi-Polar X-Ray Templates 115% Mag
31-600326	Biomet CoCr Bi-Polar Instrument Set 28mm
	comprising of:
31-600329	Stainless Steel Instrument Tray
31-600223	Trial/Gauge Bi-Polar Shell 28/41mm
31-600224	Trial/Gauge Bi-Polar Shell 28/42mm
31-600225	Trial/Gauge Bi-Polar Shell 28/43mm
31-600226	Trial/Gauge Bi-Polar Shell 28/44mm
31-600227	Trial/Gauge Bi-Polar Shell 28/45mm
31-600228	Trial/Gauge Bi-Polar Shell 28/46mm
31-600229	Trial/Gauge Bi-Polar Shell 28/47mm
31-600230	Trial/Gauge Bi-Polar Shell 28/48mm
31-600231	Trial/Gauge Bi-Polar Shell 28/49mm
31-600232	Trial/Gauge Bi-Polar Shell 28/50mm
31-600233	Trial/Gauge Bi-Polar Shell 28/51mm
31-600234	Trial/Gauge Bi-Polar Shell 28/52mm
31-600235	Trial/Gauge Bi-Polar Shell 28/53mm
31-600236	Trial/Gauge Bi-Polar Shell 28/54mm
31-600237	Trial/Gauge Bi-Polar Shell 28/55mm
31-600238	Trial/Gauge Bi-Polar Shell 28/58mm
31-600241	Trial/Gauge Bi-Polar Shell 28/61mm
506	Judet Extractor
31-600320	Trial/Gauge handle
31-479271	Circlip Forceps
31-600321	Femoral Head Sizer

Biomet CoCr Bi-Polar Instrumentation - 32mm

Catalogue No.	Description
31-600308	Biomet CoCr Bi-Polar X-Ray Templates 115% Mag
31-600327	Biomet CoCr Bi-Polar Instrument Set 32mm
	comprising of:
31-600330	Stainless Steel Instrument Tray
31-600281	Trial/Gauge Bi-Polar Shell 32/44mm
31-600282	Trial/Gauge Bi-Polar Shell 32/45mm
31-600283	Trial/Gauge Bi-Polar Shell 32/46mm
31-600284	Trial/Gauge Bi-Polar Shell 32/47mm
31-600285	Trial/Gauge Bi-Polar Shell 32/48mm
31-600286	Trial/Gauge Bi-Polar Shell 32/49mm
31-600287	Trial/Gauge Bi-Polar Shell 32/50mm
31-600288	Trial/Gauge Bi-Polar Shell 32/51mm
31-600289	Trial/Gauge Bi-Polar Shell 32/52mm
31-600290	Trial/Gauge Bi-Polar Shell 32/53mm
31-600291	Trial/Gauge Bi-Polar Shell 32/54mm
31-600292	Trial/Gauge Bi-Polar Shell 32/55mm
31-600293	Trial/Gauge Bi-Polar Shell 32/58mm
31-600294	Trial/Gauge Bi-Polar Shell 32/61mm
506	Judet Extractor
31-600320	Trial/Gauge handle
31-479271	Circlip Forceps
31-600321	Femoral Head Sizer

Biomet 28mm CoCr Bi-Polar Instrument Set

Biomet 32mm CoCr Bi-Polar Instrument Set

Notes