Hyperion™
Modular Revision Hip System

Product Information and Operative Technique
The Hyperion Revision Hip System was developed with 3 guiding principles Simplicity, Flexibility & Safety.

Simplicity: A 5 tray system capable of tackling all but the most severe situations encountered during revision hip surgery. Simple transition between stem styles and an in-situ build facility making for easy assessment of a broad range of defects.

Flexibility: The Hyperion system has an impressive array of distal stem lengths, lateralled proximal offsets, extension sleeves and distal locking options giving the practioner the tools to take a uncompromised approach to revision surgery.

Safety: The taper junction and many of the basic design features are taken from the Helios™ hip system of which over 10,000 have been implanted with no reported stem fractures. This ensures that users of the Hyperion™ System can be confident that the system they have chosen is based on proven clinical experience with the advanced features of a modern modular revision system.

At Biomet® we pride ourselves on our innovative use of technology and in the Hyperion System Biomet® has chosen to pair our clinically proven (Titanium alloy) plasma porous coating with Bonemaster™, an electrolytically applied nano-crystalline hydroxyapatite. The super thin nature of the Bonemaster coating enables the porous sprayed proximal bodies to retain their large surface area and scratch fit potential conferring excellent primary fixation and ingrowth with an auto-graft effect.
Contents

The modular Revision Hip System

Introduction ................................................. 4
Indications .................................................. 5
Stem dimensions ........................................ 6
Defect classification - System guide ................. 8

Operation preparation

Pre-operative planning ........................................ 10
Determining implant size .................................... 10
Use of X-ray templates ..................................... 11
Optimum press-fit ......................................... 12

Use of Metaphyseal (fluted tapered) stems

Operative Planning ........................................... 14
Preparation with flexible reamers ...................... 14
Preparation with conical reamers ..................... 14
Rasping of the proximal femur ....................... 15

Use of Diaphyseal (cylindrical / keel type) stems

Operational steps ............................................. 17
Preparation with flexible reamers ...................... 17
Preparation with metaphyseal rasps .................... 18
Final femoral preparation .............................. 19

Assembly and implantation of the Hyperion system

Assembly of the Hyperion system ..................... 20

Option 1:
In situ assembly ............................................. 22
Implanting the Hyperion ................................ 22
Trial assembly and reduction ......................... 23
Use of the proximal mill ................................. 23
Stem assembly and trialling ......................... 24
Shear bolt insertion ..................................... 24
Taper engagement ....................................... 25

Option 2:
On table assembly ........................................... 26
Stem assembly ............................................. 26
Taper engagement - on table ......................... 27
Taper engagement - in-situ ......................... 27

Prosthesis implantation

Hyperion implantation .................................... 28
Trial reduction with definitive implant ............. 28
Head impaction .......................................... 29
Distal locking ............................................. 29

Hyperion – Removal of the prosthesis system

Removal of the Hyperion ................................. 30
Disassembling components ............................ 31

Compatible BIOMET products

Freedom™ .................................................. 32
Regenerex™ .............................................. 33

Order information .......................................... 34
Introduction

Historically total hip replacement was the most common joint replacement performed, in recent years the indication and application for total hip reconstruction has increased dramatically as people are living longer and desiring earlier treatment. As a result the number of patients presenting for revision or presenting early with problems such as septic, aseptic loosening and peri-prosthetic fracture is increasing accordingly.

Biomet® was founded by engineers as a small innovative company back in 1977 and has accrued extensive experience in the field of implant development with development sites and manufacturing plants in Spain, France, UK, USA and Germany. Since 1996 our Berlin facility has focussed on the development of a modular revision hip system and the Hyperion is the culmination of that effort.
Simple -
Well thought out instruments with intuitive work flow & tray layout

Flexible -
Suitable for Paprosky defects type II to IIb - IV

Safe -
Tried and tested quality developed in Germany

Indications

Hip revision
Peri-prosthetic fracture
Aseptic loosening
Infection
Femoral neck fracture
Per-trochanteric femoral fracture
Pathological fracture

The ethos behind the Hyperion system was to deliver a system which enables increased intra-operative flexibility over a broad range of indications without compromising the reliability of the implant.

The Hyperion is a fully modular cementless revision hip system which features two proximal body options with both standard and lateralised variants in either a grit blast or Bonemaster™ and porous coating, enabling their use in a wide range of indications.
Hyperion™ – Modular Revision Hip System

Stem option matrix

All modular components are interchangeable intra-operatively. The Hyperion system can be assembled to provide total stem lengths ranging from 210 mm up to 440 mm.

Distal locking holes
Allow for additional stabilisation with 4.5 mm titanium screws for all stems from 200 mm in length & 12mm in diameter.

Hyperion diaphyseal distal stems
The Hyperion system has fluted tapered stems for optimal diaphyseal fixation.
Offset proximal bodies

Hyperion™ metaphyseal distal stems. The Hyperion system has cylindrical grit blast proximal stems for keel fixation and metaphyseal loading.

Bonemaster™ the patented nano-crystalline HA coating ensures optimal bone ingrowth.

Safe taper junctions tried and tested in over 10,000 Helios implantations throughout Europe.

Extension sleeves assist in the flexible adjustment of the overall length of the implant, during the procedure.

Proximal cerclage wire holes provide extra fixation especially in cases of four part fractures.

Anteversion: Can be dialled in to suit individual patient need.

Variable unit lengths up to 440 mm. Modular components allow a potential total stem length of up to 440 mm.

System Canulation: Total canulation of all intramedullary instruments and components for the use of guide wires.
Defect type II according to Paprosky

**Characteristic:** Comprimised Metaphysis: over than 4cm undamaged bone in the diaphysis.

**Recommendation:** Diaphyseal stem type (Fluted)

Defect type IIIa according to Paprosky

**Characteristic:** Extensive metaphyseal defect: over than 4cm undamaged bone in the diaphysis.

**Recommendation:** Diaphyseal stem type (Fluted) - if necessary with distal locking.
Defect type IIb according to Paprosky

Characteristic:
Extensive metaphyseal defect: less than 4 cm of undamaged bone in the diaphysis.

Recommendation:
Diaphyseal stem type (fluted), if necessary with distal locking.

Defect type IV according to Paprosky

Characteristic:
Extensive metaphyseal & diaphyseal bone defects associated with an enlarged femoral canal.

Recommendation:
Diaphyseal stem type (fluted), if necessary with distal locking. Alternative options should be made available such as a salvage device/total femur for in extreme cases. See your local area representative for information on the Biomet® Orthopaedic Salvage System (OSS).
Pre-operative planning

Full leg length radiographs of the femur and the diaphysis allow pre-operative determination of the required stem length for the Hyperion system. The provisional implant sizes for the proximal body, the distal stem length and the stem diameter of the two different distal stem options are determined via the use of X-ray templates.

Determining implant size

The appropriate length of the distal stem is determined during preoperative planning. The stem diameter must be adapted to the condition and the size of the femoral canal. The stem length should bridge the most distal part of the defect by two and a half times the diameter of the canal and ensure optimal circumferential contact along the length of the femur to enable good distal fixation. In order to optimise bone in-growth, load transfer and secondary fixation, please ensure that good metaphyseal contact is achieved where ever possible.
Use of the X-ray templates

Proximal body size, distal stem diameter and length should be gauged via use of the X-ray templates.

Particular emphasis should be paid to the amount of potential cortical contact when using the X-ray templates for the diaphyseal stem.

In order to guarantee primary stability at least 2/3 of the conical section of the diaphyseal stem must be in contact with bone suitable for load-bearing.

When using the metaphyseal distal stems particular emphasis should be paid to the optimum seating of the proximal bodies. For metaphyseal stem implantation please see page 16.
Optimum press-fit

Should further preparation of either the proximal or distal femur be required. Then care should be taken to ensure that an optimal press-fit is achieved by both components.
Relationship between final reamer and final implant position:

As with all revision surgery, to ensure the best possible outcome fixation should be sought in areas with the best quality bone stock. The penetration depth and thus the press-fit of the diaphyseal Hyperion implant in the femoral cortical bone is crucial to its primary stability.

When preparing the intra-medullary canal the implant diameter to reamed diameter is 1:1. For instance, a 12mm ream requires a 12mm diaphyseal Hyperion stem. A theoretical press-fit of 0.0 mm is produced. By driving in of the Hyperion prosthesis stem by a further 5 mm from the neutral position produces an increase of 0.2 mm in section diameter and thus optimises the press-fit. When using bowed stems 3 point cortical contact through the bow of the femur will further augment fixation.

Instrument tray configuration

The layout of the instrument trays follows the operational steps and is designed to be intuitive. Colour coding simplifies the identification of the respective instrument tray intra-operatively.

Markings

Reference - 90 mm proximal body and the reamer position.
Preparation with flexible reamers:

To begin preparation of the distal intra-medullary canal start with the smallest flexible reamer available, this must be at least 2 mm smaller than that of the Hyperion stem pre-operatively indicated by x-ray templating. Flexible reaming should be carried out to a depth corresponding to the length of distal stem again determined pre-operatively.

Flexible reaming with modular reamers should always be performed using a guide wire with an olive tip.

Preparation with conical reamers:

Once distal reaming is complete, diaphyseal preparation can commence. Begin preparation with the smallest reamer, the final reamer corresponds to the diameter of the diaphyseal (fluted) Hyperion stem. Advance the reamer until the mark corresponding to the proximal body size selected is parallel to the tip of the greater trochanter.
Preparing for preparation

Universal handle

Proximal Rasp - Grit blasted body

Trial stem

Preparing for preparation

Rasping of the proximal femur

To perform the proximal femoral preparation connect the smallest proximal rasp to a suitable trial stem and then to the universal handle. Sequentially rasp until to the desired rasp size is reached. Preparation of the proximal femur is completed when the proximal rasp size matches the implant size determined pre-operatively and correct femoral component positioning with respect to version is achieved. The provisional position of the implant and the function of the joint can be trialled at this stage.

Assembly of the Hyperion system

Please read the chapter “Assembly of the Hyperion prosthesis systems” on page 20. Any stem that has already been implanted should not be backed out to perform a leg length correction. Such a stem adjustment is likely to lead to uncontrolled subsidence upon loading.

In order to achieve the appropriate leg length with a trial or definitive stem that upon insertion sank deeper than expected, the next largest proximal body or the next largest stem diameter should be used. Alternatively Hyperion extension sleeves with lengths of 25 and 30 mm are available to offer flexibility in stem length.
**Hyperion™ – metaphyseal fixation**

The principle behind the ‘metaphyseal’ style stem is that the distal stem is used as a keel to confer axial stability to the proximal component, whilst allowing the proximal bone to bear the anatomical load. This enables optimal proximal remodelling in cases where maximising distal fixation is not key to implant survivorship as proximal fixation is sufficient. Metaphyseal stems are often used as an intramedullary nail where such an option maybe beneficial in treating fracture or bridging defects over a considerable length.

**Instrument tray configuration**

The layout of the instrument trays follows the operational steps and is designed to be intuitive. Colour coding simplifies the identification of the respective instrument tray intra-operatively.
Operative Steps

1 Preparation with flexible reamers

Insert the olive tipped guide wire into the femur. Place the reamer over the guide wire and gradually ream the canal with the flexible reamer until slight cortical contact (chatter) is perceptible. The implant diameter is determined by the final reamer diameter, taking into account the general condition of the femur, its anterior bow and the templated stem length. The choice of stem diameter is based crucially on the assessment of an experienced revision surgeon. The objective is to achieve adequate primary stability of the metaphyseal Hyperion prosthesis. Bonemaster proximal bodies are recommended for use with metaphyseal style stems.
Preparation with metaphyseal rasps

Rasping is designed to prepare the medullary canal and the proximal metaphysis independently to known dimensions. These dimensions directly correspond to proximal body and distal stem dimensions in the Hyperion System. Preparation via reaming then rasping ensures that the bone bed upon which the implant fixation will rely is suitable for bearing anatomical loads, primary & secondary implant fixation.

Rasping is performed with the universal handle. Care must be taken that only the strike plate provided on the universal handle is used to impact the rasp to ensure the accuracy of preparation necessary for successful cementless fixation.

Rasping should begin with the smallest proximal body. Care should be taken to ensure that the appropriate amount of version is applied to the angle of rasping, as the first rasp will help set a course along which the consecutive rasps will follow. The first stem rasp selected should be smaller in diameter than the last flexible reamer used. Rasps can be guided with a guide wire with no olive tip, if required. The metaphysis is rasped until there is slight cortical contact.
Correct rasp position

Align the centre of rotation of the proximal rasp with the tip of the greater trochanter.

**Tip:**

It is important to take note of the fact that after preparing the canal, reaming with a flexible reaming system and preparing the prosthesis bed with the stem rasp, the standard olive tipped guide wire should be replaced by one without an olive tip. The diameter of the guide wire should not be greater than 3.6 mm.

---

**Final femoral preparation**

Preparation of the proximal femur is completed when the proximal rasp size matches the desired implant size and the desired implant position are realised.

**Assembly of the Hyperion prosthesis system**

Please read the chapter “Assembly of the Hyperion Prosthesis systems” on page 20.

---

**Proximal Bodies**

Size 50mm and 60mm proximal bodies are available in standard offset only. 70mm and above proximal bodies are available in standard and lateralised variants.
Assembly of the Hyperion System

Instruments and components required for assembly of the Hyperion.

It is possible to engage the proximal body taper (if necessary with the extension sleeve) with either stem variant on the instrument table. Engagement of components can also be achieved in-situ.
**Torque sleeve**
The torque sleeve is a cannulated spacer which bridges the gap between the prosthesis and the torque nut when engaging the tapers with the ratchet.

**Retaining wrench**
The retaining wrench provides rotational stability applying torque to the shear bolt with the ratchet.

**Standard and lateral locking bar**
The corresponding locking bar is used depending on whether a standard or lateralised Hyperion proximal body is selected.

**Threaded shear bolt**
When using an extension sleeve, the longer of the two shear bolts available must be used for assembling the Hyperion. The gold portion should remain outside the prosthesis.

**Torque nut**
The torque nut (gold) is screwed onto the gold coloured end of the shear bolt.

**Ratchet**
Applies torque to the Hyperion components via the shear bolt until the shear bolt fractures.

**Threaded shear bolt**
When using an extension sleeve, the longer of the two shear bolts available must be used for assembling the Hyperion. The gold portion should remain outside the prosthesis.
Alternative 1: In-situ assembly and taper engagement:

Implanting the Hyperion

Firstly remove any guide wires still in situ and commence insertion of the metaphyseal or diaphyseal Hyperion stem with the slide hammer. Note: The distal stem should not be impacted to its final position at this stage. The distal stem should only be introduced so that the stem is in contact with the bone bed to such a degree that the surgeon is confident that once the Hyperion stem is assembled, it can then be fully seated to its final position by use of the stem impactor. See figure 1 page 28. Attention should be paid to the fact that the taper connection is still visible in the canal to allow assembly of the system.

Marking on the slide hammer

It is important to note that the markings slide hammer shaft can be used as a visual indication as to where the proximal body will sit when assembled with a distal stem. Markings on the slide hammer are referenced with the tip of the greater trochanter.

Assembly

Of the slide hammer and trial or definitive component.

The position of the implant and the function of the joint can be assessed via a trial reduction. This is achieved by the use of a trial proximal body, trial modular head and a trial sleeve where appropriate. These parts are temporarily fixed on to the implanted stem with the aid of the corresponding screw and screw driver (outlined above).
Trial assembly and reduction

The position of the implant and the function of the joint can be assessed via a trial reduction. This is achieved by the use of a trial proximal body, trial modular head and a trial sleeve where appropriate. These parts are temporarily fixed on to the implanted stem with the aid of the corresponding screw and screw driver (outlined above).

Use of the proximal mill

The proximal metaphysis can be milled to clear any obstructing bone to aid in accessing the metaphysis or to help orientate the proximal body in the correct version. The proximal mill is assembled by screwing it into the implanted stem.

Choice of screws

The screws are marked to correspond to the size of the proximal trial (e.g. 50, 60, etc). If an extension sleeve is to be used, the screws marked with a plus symbol and the number of the relevant proximal body trial (50+, 60+, etc).

Optional:

If upon impaction the stem sinks significantly deeper than expected into the canal, an extension sleeve may be used to correct this. In such circumstances the trial sleeve should be employed when trialling.
Stem assembly and trialling

Care must be taken to ensure that the taper is free of tissue and blood. **Before assembly the taper must be checked for its integrity and that the surface is not damaged.** Attach the proximal body in the desired position (angle of version) on the distal stem and push on firmly.

Shear bolt insertion

Slide the shear bolt through the proximal body into the distal stem as far as the stop and then importantly screw back by two turns. Slide the tapered end of the torque sleeve (see figure) over the shear bolt so that it rests inside the recess on the proximal body. The gold threaded end of the shear bolt must be protruding from the assembled taper engagement unit.
It is possible to disassemble and re-assemble an already engaged prosthesis. However, each taper may only be engaged twice before the cold weld strength is compromised.

Rupture of the shear bolt

The tapers are engaged by the level of torque applied by the ratchet. At a defined force the shear bolt ruptures and thus ensures an even and defined compression of the components so engaging the taper.

Protection of the implant

Place the retaining wrench on the implant taper with the locking bar on the proximal body. Tighten the torque nut with gradual turning movements of the ratchet until the shear bolt ruptures. Remove the part of the tension bolt remaining in the stem the flat spanner can be used if the shear bolt has jammed during this step.

Taper engagement

Protect the implant from mechanical damage in the on table holding device with a swab. Place additional swabs folded several times on the instrument table in order to prevent any perforation of the sterile cover.
femur respectively. When the markings on the proximal body and distal stem are aligned they correspond to an anatomical angle of 15 degrees of anteversion. The appropriate version can thus be freely chosen to best suit an individual patient’s need.

Alternative 2:
On table assembly of the Hyperion components.

1 Assembly of the Hyperion stem and the proximal body.

The proximal body and the stem are assembled. Care must be taken that the taper is free of tissue and blood. Prior to assembly the tapers integrity must be checked. In curved stems, over 200 mm in length, markings indicate the correct alignment for the left (L) and right (R) femur respectively. When the markings on the proximal body and distal stem are aligned they correspond to an anatomical angle of 15 degrees of anteversion. The appropriate version must always be screwed onto the likewise gold end of the shear bolt.
Rupture of the shear bolt

The tapers are compressed via the torque applied by the ratchet. At a defined force the shear bolt ruptures and thus ensures an even compression of the components.

2 Tensioning on the instrument table

Screw the non-golden end of the shear bolt through the proximal body if necessary with extension sleeve into the stem as far as the stop and unscrew by two turns. Then slide the torque sleeve with the tapered end first over the shear bolt. The gold end of the shear bolt must protrude out of the torque unit.

Note: Please make sure that there are no sharp items below the ratchet in order to avoid injuries during ratchet action.

3 The retaining instrument

Place the retaining ratchet on the prosthesis taper and support the locking bar on the implant. Tighten the torque nut using the ratchet with gradual movements until the shear bolt ruptures. Remove the part of the shear bolt remaining in the stem. The flat spanner can be used if the shear bolt has jammed when tensioning in the stem taper.
**Hyperion™ – Implantation of the prosthesis system**

1. **Final fixation**

   Final seating of the Hyperion stem is achieved by using the impactor handle.

2. **Final trialling**

   A final trial can be performed with the trial head previously selected using the definitive prosthesis in order to determine the ideal neck length for the head.

---

**Trial positioning using a trial head**

To determine the appropriate neck length and head size.

---
Clean and dry taper

The taper must be dried before the head is attached.

Screw on the head

Turning while fitting the head ensures that the head is centred properly prior to impaction.

3 Impacting the head

The taper must be dried without fail before the definitive head is impacted. The head is impacted onto the undamaged stem taper with a slight turning motion. Screwing on the head ensures that it is centred properly prior to impaction. To engage the head on trunion a light hammer tap using the head impactor is advised.

4 Distal locking

Hyperion distal stems over 200mm in length & 12mm in diameter allow for additional distal locking with 4.5 mm titanium screws. Distal locking is intended to counter prosthesis rotational instability or stabilize a distal femoral fragment such as in cases of peri-prosthetic fracture. Whilst screws will augment fixation screws are not designed as load bearing devices. Minor post-operative subsidence commonly seen in un-cemented prosthesis and which subsequently enhances over all fixation is enabled by the use of the dynamic screw hole.
Removal of the Hyperion prosthesis system

1 Extraction of the complete implant

If necessary, a Hyperion femoral stem can be extracted by use of the slide hammer. To achieve this, the slide hammer should be screwed into the central hole of the proximal body. Extraction via the universal introducer handle is likewise possible.
In-situ disassociation of Hyperion modular components

An assembled Hyperion can be dismantled by using the dissociation screw assembly and the T-handle. If an extension sleeve is used, the long version of the dissociation screw assembly must be used. Each taper should only be tensioned / engaged a maximum of twice.

Removal tool

With the aid of the removal tool (not shown) the ratchet can be used to dismantle the components instead of the T-handle. The surgeon thus has a larger lever arm available. To this end slide the removal aid onto the hexagonal bolt of the removal head until it stops.
Additional BIOMET® Products

**Freedom™ constrained liner system**

The first generation of constrained liners relied almost exclusively on a metal constraining ring to provide stability and prevent dislocation. Biomet’s Freedom Constrained Liner System takes this design two steps further to a new level of tri-mode stabilization in order to improve performance and enhance functional range of motion.

Average Lever-out Force: 198 lbs.
Range of Motion: 110°
Available in 12/14 & Type 1 tapers.

**MODE ONE: MODULAR HEAD EQUATORIAL FLATS**

Circumferential flats along the Freedom Liner’s 36mm head permit easier reduction and provide an extremely strong construct that actively counters the distractive forces that can lead to hip dislocation.

**MODE TWO: TITANIUM CONSTRAINT RING**

This traditional titanium constraint ring supplements the Freedom Liner’s inherent stability by increasing resistance to lever-out under high demand conditions.

**MODE THREE: HYDRAULIC STABILIZATION**

Tightly controlled manufacturing tolerances on the Freedom Liner recreate a natural fluid membrane between the head and liner, resulting in a “suction effect” that further minimizes the possibility of joint dislocation. (2)
Regenerex™ Porous Titanium Construct combines the tried and tested clinical history of Biomet’s® titanium alloy with a unique fully porous structure for enhanced scratch fit, true ingrowth and osteo-conduction.(3, 4)
### Proximal Body

<table>
<thead>
<tr>
<th>Product</th>
<th>Angle</th>
<th>Height</th>
<th>Coating</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Std, CCD 135°</td>
<td>50 mm</td>
<td>99A722.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Std, CCD 135°</td>
<td>60 mm</td>
<td>99A722.06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Std, CCD 135°</td>
<td>70 mm</td>
<td>99A722.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Std, CCD 135°</td>
<td>80 mm</td>
<td>99A722.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Std, CCD 135°</td>
<td>90 mm</td>
<td>99A722.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Std, CCD 135° BoneMaster</td>
<td>50 mm</td>
<td>99A722.05B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Std, CCD 135° BoneMaster</td>
<td>60 mm</td>
<td>99A722.06B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Std, CCD 135° BoneMaster</td>
<td>70 mm</td>
<td>99A722.07B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Std, CCD 135° BoneMaster</td>
<td>80 mm</td>
<td>99A722.08B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Std, CCD 135° BoneMaster</td>
<td>90 mm</td>
<td>99A722.10B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lat, CCD 128°</td>
<td>70 mm</td>
<td>99A760.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lat, CCD 128°</td>
<td>80 mm</td>
<td>99A760.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lat, CCD 128°</td>
<td>90 mm</td>
<td>99A760.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lat, CCD 128° BoneMaster</td>
<td>70 mm</td>
<td>99A760.07B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lat, CCD 128° BoneMaster</td>
<td>80 mm</td>
<td>99A760.08B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lat, CCD 128° BoneMaster</td>
<td>90 mm</td>
<td>99A760.10B</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Fluted and Cylindrical Distal Stem

<table>
<thead>
<tr>
<th>Product</th>
<th>Size</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metaphyseal Fixation</td>
<td>10 x 160 mm</td>
<td>99A725.14</td>
</tr>
<tr>
<td></td>
<td>10 x 200 mm</td>
<td>99A725.15</td>
</tr>
<tr>
<td></td>
<td>10 x 240 mm</td>
<td>99A725.16</td>
</tr>
<tr>
<td></td>
<td>10 x 280 mm</td>
<td>99A725.17</td>
</tr>
<tr>
<td></td>
<td>12 x 160 mm</td>
<td>99A725.24</td>
</tr>
<tr>
<td></td>
<td>12 x 200 mm</td>
<td>99A725.25</td>
</tr>
<tr>
<td></td>
<td>12 x 240 mm</td>
<td>99A725.26</td>
</tr>
<tr>
<td></td>
<td>12 x 280 mm</td>
<td>99A725.27</td>
</tr>
<tr>
<td></td>
<td>14 x 160 mm</td>
<td>99A725.44</td>
</tr>
<tr>
<td></td>
<td>14 x 200 mm</td>
<td>99A725.45</td>
</tr>
<tr>
<td></td>
<td>14 x 240 mm</td>
<td>99A725.46</td>
</tr>
<tr>
<td></td>
<td>14 x 280 mm</td>
<td>99A725.47</td>
</tr>
<tr>
<td></td>
<td>14 x 320 mm</td>
<td>99A725.48</td>
</tr>
<tr>
<td></td>
<td>16 x 160 mm</td>
<td>99A725.64</td>
</tr>
<tr>
<td></td>
<td>16 x 200 mm</td>
<td>99A725.65</td>
</tr>
<tr>
<td></td>
<td>16 x 240 mm</td>
<td>99A725.66</td>
</tr>
<tr>
<td>Product</td>
<td>Size</td>
<td>Order Number</td>
</tr>
<tr>
<td>---------</td>
<td>--------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Metaphyseal Fixation</td>
<td>16 x 280 mm</td>
<td>99A725.67</td>
</tr>
<tr>
<td></td>
<td>16 x 320 mm</td>
<td>99A725.68</td>
</tr>
<tr>
<td></td>
<td>18 x 160 mm</td>
<td>99A725.84</td>
</tr>
<tr>
<td></td>
<td>18 x 200 mm</td>
<td>99A725.85</td>
</tr>
<tr>
<td></td>
<td>18 x 240 mm</td>
<td>99A725.86</td>
</tr>
<tr>
<td></td>
<td>18 x 280 mm</td>
<td>99A725.87</td>
</tr>
<tr>
<td></td>
<td>18 x 320 mm</td>
<td>99A725.88</td>
</tr>
<tr>
<td></td>
<td>20 x 160 mm</td>
<td>99A725.94</td>
</tr>
<tr>
<td></td>
<td>20 x 200 mm</td>
<td>99A725.95</td>
</tr>
<tr>
<td></td>
<td>20 x 240 mm</td>
<td>99A725.96</td>
</tr>
<tr>
<td></td>
<td>20 x 280 mm</td>
<td>99A725.97</td>
</tr>
<tr>
<td>diaphyseal fixation</td>
<td>12 x 160 mm</td>
<td>99A750.24</td>
</tr>
<tr>
<td></td>
<td>12 x 200 mm</td>
<td>99A750.25</td>
</tr>
<tr>
<td></td>
<td>12 x 240 mm</td>
<td>99A750.26</td>
</tr>
<tr>
<td></td>
<td>14 x 160 mm</td>
<td>99A750.44</td>
</tr>
<tr>
<td></td>
<td>14 x 200 mm</td>
<td>99A750.45</td>
</tr>
<tr>
<td></td>
<td>14 x 240 mm</td>
<td>99A750.46</td>
</tr>
<tr>
<td></td>
<td>16 x 160 mm</td>
<td>99A750.64</td>
</tr>
<tr>
<td></td>
<td>16 x 200 mm</td>
<td>99A750.65</td>
</tr>
<tr>
<td></td>
<td>16 x 240 mm</td>
<td>99A750.66</td>
</tr>
<tr>
<td></td>
<td>18 x 160 mm</td>
<td>99A750.84</td>
</tr>
<tr>
<td></td>
<td>18 x 200 mm</td>
<td>99A750.85</td>
</tr>
<tr>
<td></td>
<td>18 x 240 mm</td>
<td>99A750.86</td>
</tr>
<tr>
<td></td>
<td>20 x 160 mm</td>
<td>99A751.04</td>
</tr>
<tr>
<td></td>
<td>20 x 200 mm</td>
<td>99A751.05</td>
</tr>
<tr>
<td></td>
<td>20 x 240 mm</td>
<td>99A751.06</td>
</tr>
<tr>
<td></td>
<td>22 x 200 mm</td>
<td>99A751.25</td>
</tr>
<tr>
<td></td>
<td>22 x 240 mm</td>
<td>99A751.26</td>
</tr>
</tbody>
</table>

Shear Bolt and Extension Sleeve

<table>
<thead>
<tr>
<th>Product</th>
<th>Product Description</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyperion</td>
<td>extension sleeve 25 mm</td>
<td>99A770.02</td>
</tr>
<tr>
<td>Hyperion</td>
<td>extension sleeve 30 mm</td>
<td>99A770.03</td>
</tr>
<tr>
<td>Hyperion</td>
<td>shear bolt short</td>
<td>99I319.10</td>
</tr>
<tr>
<td>Hyperion</td>
<td>shear bolt long</td>
<td>99I319.20</td>
</tr>
</tbody>
</table>
### Modular prosthesis heads - 12/14th taper, CoCrMo

<table>
<thead>
<tr>
<th>Neck Length</th>
<th>22,22 mm</th>
<th>28 mm</th>
<th>32 mm</th>
<th>36 mm</th>
<th>40 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>- 4,0 mm</td>
<td>-</td>
<td>-</td>
<td>P0206C32</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>- 3,5 mm</td>
<td>-</td>
<td>P0206C28</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>- 2,0 mm</td>
<td>P0206C22</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>- 0,0 mm</td>
<td>P0206M22</td>
<td>P0206M28</td>
<td>P0206M32</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>+ 2,0 mm</td>
<td>P0206L22</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>+ 3,5 mm</td>
<td>-</td>
<td>P0206L28</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>+ 4,0 mm</td>
<td>-</td>
<td>-</td>
<td>P0206L32</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>+ 7,0 mm</td>
<td>-</td>
<td>P0206E28</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>+ 8,0 mm</td>
<td>-</td>
<td>-</td>
<td>P0206E32</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>+ 10,5 mm</td>
<td>-</td>
<td>P0206228</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>+ 12,0 mm</td>
<td>-</td>
<td>-</td>
<td>P0206232</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### Modular prosthesis heads - 12/14th taper, M2A CoCrMo

<table>
<thead>
<tr>
<th>Neck Length</th>
<th>22,22 mm</th>
<th>28 mm</th>
<th>32 mm</th>
<th>36 mm</th>
<th>40 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>- 4,0 mm</td>
<td>-</td>
<td>-</td>
<td>650-0882</td>
<td>650-0887</td>
<td>650-1020</td>
</tr>
<tr>
<td>- 3,5 mm</td>
<td>-</td>
<td>650-877</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>- 2,0 mm</td>
<td>164131</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>- 0,0 mm</td>
<td>164132</td>
<td>650-0878</td>
<td>650-0883</td>
<td>650-0888</td>
<td>650-1021</td>
</tr>
<tr>
<td>+ 2,0 mm</td>
<td>164133</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>+ 3,5 mm</td>
<td>-</td>
<td>650-0879</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>+ 4,0 mm</td>
<td>-</td>
<td>-</td>
<td>650-0884</td>
<td>650-0889</td>
<td>650-1022</td>
</tr>
<tr>
<td>+ 7,0 mm</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>+ 8,0 mm</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>650-0890</td>
<td>650-1023</td>
</tr>
<tr>
<td>+ 10,5 mm</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>+ 12,0 mm</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>650-1024</td>
</tr>
</tbody>
</table>

* M2A CoCr heads must only be combined with M2a inlays
Modular prosthesis heads - 12/14th taper, C" delta ceramic

<table>
<thead>
<tr>
<th>Neck Length</th>
<th>22,22 mm</th>
<th>28 mm</th>
<th>32 mm</th>
<th>36 mm</th>
<th>40 mm (Delta Option)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- 4,0 mm</td>
<td>-</td>
<td>-</td>
<td>650-0833</td>
<td>650-0836</td>
<td>-</td>
</tr>
<tr>
<td>- 3,5 mm</td>
<td>-</td>
<td>650-830</td>
<td>-</td>
<td>-</td>
<td>650-106 + 650-1058</td>
</tr>
<tr>
<td>- 2,0 mm</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>- 0,0 mm</td>
<td>-</td>
<td>650-0831</td>
<td>650-0834</td>
<td>650-0837</td>
<td>650-1061 + 650-1058</td>
</tr>
<tr>
<td>+ 2,0 mm</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>+ 3,5 mm</td>
<td>-</td>
<td>650-0832</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>+ 4,0 mm</td>
<td>-</td>
<td>-</td>
<td>650-0835</td>
<td>650-0838</td>
<td>650-1062 + 650-1058</td>
</tr>
<tr>
<td>+ 7,0 mm</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>650-1063 + 650-1058</td>
</tr>
<tr>
<td>+ 8,0 mm</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>650-0667</td>
<td>-</td>
</tr>
<tr>
<td>+ 10,5 mm</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>+ 12,0 mm</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
In this instance a colour coding simplifies the identification of the respective instrument tray intra-operatively, in the course of which the coding of the trays corresponds to the index composition of these operating procedure instructions.
References


3. Data on file at Biomet, Inc. Bench test results are not necessarily indicative of clinical performance

4. Testing done on animal models