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BIOMET[®]



Revision Knee Systems
Product Selection Guide



Vanguard SSK



DA360



OSS



Compress®



Stanmore®
Hinge Knee



RHK®

BIOMET®

Disclaimer

Biomet UK Ltd., as the manufacturer of these devices, 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 prosthesis in each individual patient.

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- For both revision and complex primary indications where a high degree of varus/valgus support is required
- Deformities
- Ligamentous deficiencies
 - Replaces ACL, PCL and LCL
 - MCL does not have to be intact but must provide some stability
- Bone loss
- Multiple revision arthroplasties

VANGUARD Super Stabilized Knee

- A revision implant forming part of the Vanguard Complete Knee System
- For revision cases with limited bone loss on the femoral side
- A fixed bearing constrained condylar
- Distal femoral resurfacing up to 24mm
- Proximal tibial resurfacing up to 40mm with 16mm augment
- Standard range of stems and augments
- Cemented and cementless stems
- Offset tibial adapter available in neutral, 2.5mm and 5.0mm

- For both revision and complex primary indications where hinge constrained is required
- Deformities
- Gross ligamentous deficiencies
 - Replaces ACL, PCL, MCL and LCL
 - If MCL does not provide sufficient stability use the implant regardless of ACL, PCL and LCL condition
- Significant bone loss
- Multiple revision arthroplasties
- Oncological bone replacement – primary or metastatic
- Salvage knee arthroplasty
- Trauma
- Connective tissue disorders (collagen disease)

Stanmore Hinge Knee®

- Hinged articulation
- Basic implant
- Simple instrumentation
- Unique size (left or right)
- 150mm stem length

RHK® - Rotating Hinge Knee

- A stand-alone system
- For complex cases with bone loss and instability, trauma, oncology
- Bi-helical self-centering rotating platform providing:
 - Stability
 - Restoring function
 - Protecting fixation
- Distal femoral resurfacing up to 50mm
- Proximal tibial resurfacing up to 45mm
- Standard range of stems and augments
- Cemented and cementless stems



Severity

DA360

- A stand-alone system
- For revision cases with limited bone loss on the femoral side
- Bi-helical self-centering rotating platform providing:
 - Stability
 - Restoring function
 - Protecting fixation
- Distal femoral resurfacing up to 19mm
- Proximal tibial resurfacing up to 41mm with 15mm augment
- Standard range of stems and augments
- Cemented and cementless stems
- Offset tibial adapter available in 2.5mm and 5.0mm

The RHK Segmental yoke connects the RHK tibial and bearing implants to the OSS femoral implants

Compress®

- A unique patented device that directly links biologically the OSS implant to the end of the bone
- A bone-inducing, biomechanically sound alternative to stems
- The Compress® system allows the surgeon to maintain the patient's own bone stock when faced with major revision joint surgery
- Available for proximal femur, distal femur and proximal tibia

OSS - Orthopaedic Salvage System

- A stand-alone system
- For very complex cases
- One system "does it all" from resurfacing through segmental to total femoral replacement
- Rotating tibial bearing and hinged articulation
- Distal femoral resurfacing up to 70mm, increased modularity allowing total femur reconstruction if required
- Proximal tibial replacement up to 92mm with monoblock tibia
- Increased proximal tibial replacement length with 90mm segmental tibia and diaphyseal segments
- Extensive range of stems and augments
- Cemented and cementless stems

VANGUARD SSK Design Features



Deep Swept Back Trochlear Groove:

- Designed to reduce patella forces in deep flexion

Left and Right Femoral Components:

- Manufactured in cast cobalt chromium alloy
- 55mm and 60mm (small box)
- 65mm, 70mm, 75mm and 80mm (standard box)

Five Degrees Valgus Stem Angle:

- Accepts multiple stem lengths in straight and curved profiles to match the patient's anatomy

Curved Tibial Post:

- Provides stability and continued constraint in deep flexion

Extended Trochlear Groove:

- Allows the patella to maintain full contact with the femur in deep flexion

Deeper Anterior Cut-Out:

- Minimises the potential for patella impingement during high flexion

SSK Tibia:

- Loads are distributed more evenly through a greater tibiofemoral contact area

Splined Titanium Alloy Extensions:

- Designed for cementless use
- Interchangeable between the Vanguard femoral and tibial components
- Stems of 16mm diameter and above have a coronal split in the distal tip to reduce stiffness and the possibility of thigh pain
- 80mm long (dia. 10mm to 24mm in 2mm increments)
- 120mm long (dia. 12mm to 22mm in 2mm increments)
- 160mm long with anterior bow (dia. 12mm to 22mm in 2mm increments)

Titanium Alloy Extensions:

- Designed for cemented use
- Universal for both femoral and tibial components
- 80mm long (dia. 10mm to 16mm in 2mm increments)
- 120mm long (dia. 10mm to 16mm in 2mm increments)

Femoral Augmentation:

- Manufactured in titanium alloy
- Individual posterior and distal augmentation blocks are available in 5mm, 10mm and 15mm (distal only) thicknesses for patients with inadequate bone stock

Interchangeable Constraint Bearings Options:

- SSK PS or Con bearings can be utilised with the Vanguard SSK femur

High Dislocation Height:

- Provides up to 23mm of dislocation resistance

Direct Compression Moulded ArCom® Polyethylene¹:

- Provides proven wear resistance

Increased Post/Box Contact:

- At 90° flexion, 17mm of the tibial post remains in the box

Compressively Loaded Tibial Locking Mechanism:

- Provides proven resistance to tibial micromotion

Stability:

- The Vanguard Con tibial bearing is designed to allow for only +/- 1mm of varus/valgus lift-off and +/- 0.5mm of rotational freedom

Tibial Bearing:

- 59mm for 55/60mm femoral components
- 63/67mm and 71/75mm for all sizes
- 79/83mm and 87/91mm for 65/70/75/80mm femoral components
- All sizes available in 10 to 24mm thickness in 2mm increments

Tibial Augmentation Blocks:

- Manufactured in titanium alloy
- Medial / lateral augmentation spacers mechanically attached to the tibial tray to help restore the joint line and make up defects
- Available in 6mm, 10mm and 16mm blocks

Versatile Sizing Rationale:

- Nine plate sizes (59, 63, 67, 71, 75, 79, 83, 87 and 91mm) provide superior tibial coverage

Offset Tibial Tray:

- Tibial offset is proximal and provides complete rotational freedom for placement of offset
- Available in neutral, 2.5mm and 5.0mm offsets

1. Head, W., et al., "Comparison of Polyethylene Wear in Machined Versus Molded Polyethylene Liners in Ringloc® Acetabular Cups," Texas Center for Joint Replacement, Plano, TX.

DA360 Design Features



Titanium Alloy Extensions:

- Designed for cemented use
- Universal for both femoral and tibial components
- 40mm long (dia. 10mm to 24mm in 2mm increments)
- 80mm long (dia. 10mm to 16mm in 2mm increments)
- 120mm long (dia. 10mm to 16mm in 2mm increments)
- Optional 160mm (straight & bowed) and 200mm (straight & bowed)

Femoral Augmentation:

- Manufactured in titanium alloy
- Individual posterior and distal augmentation blocks are available in 6mm and 10mm thicknesses for patients with bone loss

Anatomic Femoral Component:

- Manufactured in cast cobalt chromium alloy
- Left and right sided components with a deep patella groove
- Full size interchangeability with any of the tibial components

Five Anatomical Femoral Components:

- 55, 60, 65, 70 and 75mm

Direct Compression Moulded ArCom® Polyethylene¹:

- Provides proven wear resistance

Intercondylar Box:

- Provides varus/valgus stability
- Implant allows controlled flexion up to 130°
- Prevents hyper extension

Tibial Component:

- Manufactured in cast cobalt chromium alloy
- Seven plate sizes (59, 63, 67, 71, 75, 79 and 83mm) provide excellent tibial coverage

Splined Titanium Alloy Extensions:

- Designed for cementless use
- Universal for both femoral and tibial components
- Stems of 16mm diameter and above have a coronal split in the distal tip to reduce stiffness and the possibility of thigh pain
- 80mm long (dia. 10mm to 24mm in 2mm increments)
- 120mm long (dia. 12mm to 22mm in 2mm increments)
- Optional 160mm (straight & bowed) and 200mm (straight & bowed)

Seven Degrees Valgus Stem Angle:

- Accepts multiple stem lengths in straight and curved profiles to match the patient's anatomy

Deeper Anterior Cut-Out:

- Minimises the potential for patella impingement during high flexion

Tibial Bearing Sizes:

- 59mm, 63/67mm, 71/75mm and 79/83mm
- All sizes available in 8 to 20mm thickness in 2mm increments

High Dislocation Height:

- 27.5mm tall
- Provides up to 21mm of dislocation resistance at 90° flexion

Tibial Augmentation Blocks:

- Manufactured in titanium alloy
- Medial / lateral augmentation spacers mechanically attached to the tibial tray to help restore the joint line and make up for the bone defect
- Available in 5mm, 10mm and 15mm blocks

Centralising Bi-Helical Tibial Tray Bearing Interface:

- Mimics the "screw home" mechanism by centralising under body weight
- Provides the patient with an increased degree of confidence in the stability of their knee replacement

Offset Tibial Adapter:

- Manufactured in titanium alloy
- Provides complete rotational freedom for placement of offset
- Available in 2.5mm and 5.0mm offsets
- Easy dialling for accurate offset selection
- Robust assembly using Morse taper and secondary screw fixation



1. Head, W., et al., "Comparison of Polyethylene Wear in Machined Versus Molded Polyethylene Liners in Ringloc® Acetabular Cups," Texas Center for Joint Replacement, Plano, TX.

STANMORE® Hinge Knee Design Features

stanmore®



Implant:

- Manufactured in cast cobalt chromium alloy

Femoral Plateau Plate:

- Manufactured in titanium alloy
 - Small
 - Medium
 - Large
 - Extra Large

Stem Angle:

- 8° valgus

Stability:

- A mechanical stop at 2° hyper-extension makes the joint stable and self-locking when carrying full load

Bushes:

- Manufactured from ArCom® polyethylene¹

Axle:

- Retained by a titanium 318 stainless steel circlip

Tibial Plateau Plate:

- Manufactured in titanium alloy
 - Small
 - Medium
 - Large
 - Extra Large

Stem Length:

- Both femoral and tibial stems are 150mm

1. Head, W., et al., "Comparison of Polyethylene Wear in Machined Versus Molded Polyethylene Liners in Ringloc® Acetabular Cups," Texas Center for Joint Replacement, Plano, TX.

BIOMET®

RHK® Design Features



Five Degrees Valgus Stem Angle:

- Accepts multiple stem lengths in straight and curved profiles to match the patient's anatomy

Splined Titanium Alloy Extensions:

- Designed for cementless use
- Universal for both femoral and tibial components
- Stems of 16mm diameter and above have a coronal split in the distal tip to reduce stiffness and the possibility of thigh pain
- 80mm long (dia. 10mm to 24mm in 2mm increments)
- 120mm long (dia. 12mm to 22mm in 2mm increments)
- 160mm long with anterior bow (dia. 12mm to 22mm in 2mm increments) – (optional)

Titanium Alloy Extensions:

- Designed for cemented use
- Universal for both femoral and tibial components
- 80mm long (dia. 10mm to 16mm in 2mm increments)
- 120mm long (dia. 10mm to 16mm in 2mm increments)

Femoral Augmentation:

- Manufactured in titanium alloy
- Available in 10mm, 20mm and 30mm thicknesses for significant bone loss

Articulation:

- Both the femur and bearing have large contact areas, with a range of motion up to 155° of flexion

Direct Compression Moulded ArCom® Polyethylene¹:

- Provides proven wear resistance

Tibial Component:

- Manufactured in cast cobalt chromium alloy
- Five modular tray sizes (63, 67, 71, 75 and 79mm)
- Three cemented monoblock tray sizes (63, 67 and 71mm)

Tibial Augmentation Blocks:

- Manufactured in titanium alloy
- Available in 10mm and 15mm straight sided blocks (anatomical medial/lateral)
- Available in 20mm conical blocks
- Augmentation blocks mechanically attached to the tibial tray to help restore the joint line and make up defects

Left and Right Femoral Components:

- Manufactured in cast cobalt chromium alloy
- Anatomical design incorporates a deep patellar groove
- Two sizes: small and standard with full size interchangeability with any of the tibial components

Yoke:

- Short yoke for 12, 14 and 16mm bearings
- Long yoke for 18 and 20mm bearings

Centralising Bi-Helical Tibial Tray Bearing Interface:

- Mimics the "screw home" mechanism by centralising under body weight
- Provides the patient with an increased degree of confidence in the stability of their knee replacement

Tibial Bearing Sizes:

- Both sizes available in 12 to 20mm thickness in 2mm increments

Fins:

- The anti-rotation fins have been designed to minimise the risk of cortical impingement in smaller tibia, maintaining high stability in the cortical shell



1. Head, W., et al., "Comparison of Polyethylene Wear in Machined Versus Molded Polyethylene Liners in Ringloc® Acetabular Cups," Texas Center for Joint Replacement, Plano, TX.

OSS Design Features

OSS

ORTHOPAEDIC SALVAGE SYSTEM

Modularity:

- The OSS offers increased modularity thanks to a Universal Morse type taper that fits with multiple stems and segments
- Individual components can be combined giving the surgeon more options

Segmental Construct:

- Femoral component, diaphyseal segment and stem for increased modularity

Resurfacing Construct:

- Femoral component and stem

Distal Femoral Component:

- Manufactured in cast cobalt chromium alloy
- 7cm elliptical (L/R) segmental (A)
- 7cm (L/R) segmental (B)
- 3cm and 5cm (L/R) resurfacing (C)

Stem Extensions:

- Manufactured in titanium alloy
- 90mm cemented straight (dia. 9, 10, 11, 12, 13, 15 and 17mm)
- 90mm porous straight (dia. 10.5 to 19.5mm in 1mm increment)
- 150mm cemented straight (dia. 9, 11, 13 and 15mm)
- 150mm porous straight (dia. 10.5 to 16.5mm in 2mm increments)
- 150mm cemented bowed (dia. 11 to 18 mm in 1mm increment)
- 150mm porous bowed (dia. 12.5 to 22.5mm in 1mm increment)
- 225mm and 300mm cemented bowed (dia. 11 to 17mm in 2mm increments)
- 225mm and 300mm porous bowed (dia. 12.5 to 18.5mm in 2mm increments)

Tibial Bearing:

- ArCom®
- One size (12 to 22mm thickness in 2mm increments)

Non-Modular Tibial Baseplate - Short:

- Manufactured in cast cobalt chromium alloy
- 63, 67 and 71mm in the M/L plane
- 65mm "boss" stem length
- Tibial augmentation not recommended

Non-Modular Tibial Baseplate - Long:

- Manufactured in cast cobalt chromium alloy
- 63 and 67mm in the M/L plane
- 160mm x 10mm stem
- Tibial sleeve and block augments can be used

Modular Tibial Baseplate:

- Manufactured in cast cobalt chromium alloy
- 67, 71, 75, 79 and 83mm in the M/L plane
- 79mm "boss" stem length

Modular Proximal Femoral Component:

- Manufactured in cast cobalt chromium alloy
- Finn 7cm (L/R) (D)
- Letson 7cm (L/R) (E)

Diaphyseal Segments:

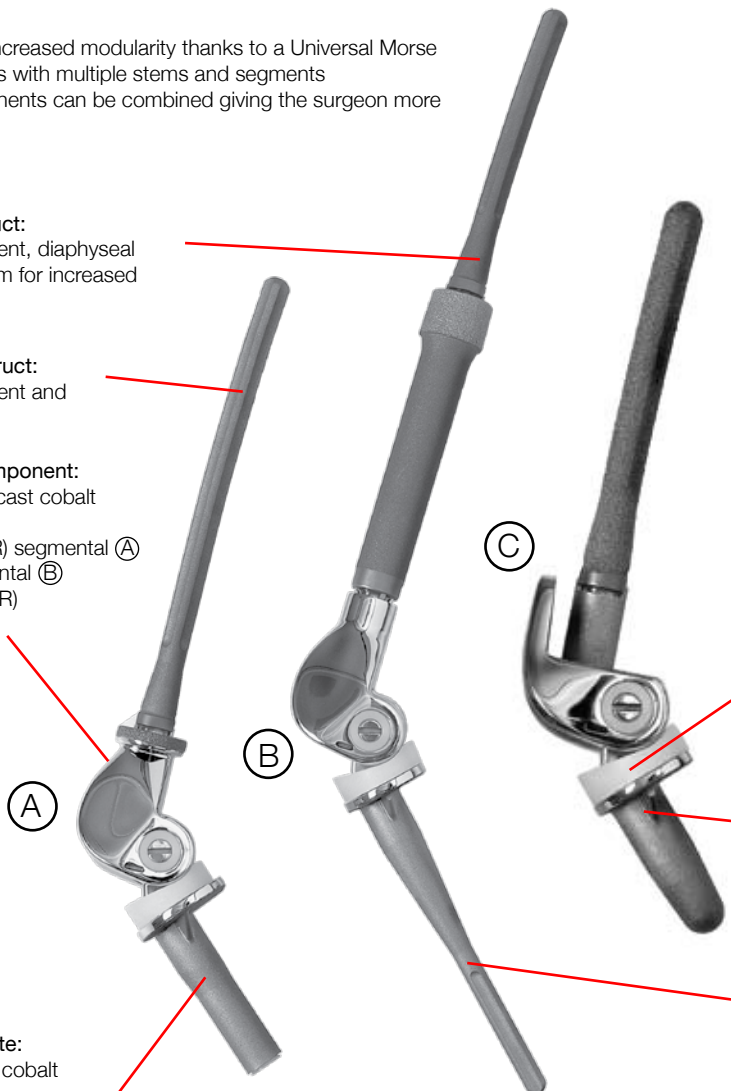
- Manufactured in titanium alloy
- 3 to 23cm in 2cm increments
- 3cm elliptical
- 4cm

Total Femur Diaphyseal Coupler:

- Manufactured in titanium alloy
- 10cm and 30cm in length

Femoral/Tibial Augmentation:

- Manufactured in titanium alloy
- Resurfacing femoral anterior flange augment
- Resurfacing femoral sleeve augment
- 10mm tibial block augment universal
- 20mm side specific tibial block augment
- Small tibial sleeve augment
- Large tibial sleeve augment



(A)

(B)

(C)



9cm Modular Proximal Tibial Component:

- Manufactured in titanium alloy
- May be coupled with any of the diaphyseal segments
- Any of the OSS I/M stems may be used with these configurations
- The 150mm straight I/M stems may provide the most consistent fit

Non-Modular Proximal Tibial Component:

- Manufactured in titanium alloy
- 3cm with dia. 11mm x 240mm stem
- 5cm with dia. 9, 11, 13 and 15mm x 150mm stem
- 7cm with dia. 9, 11, 13 and 15mm x 150mm stem



(D)

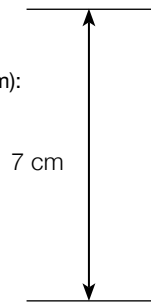
(E)

Compress® Design Features

COMPRESS®
COMPLIANT PRE-STRESS

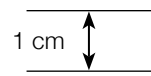
Modular Proximal Femoral Component (7cm):

- Manufactured in cast cobalt chromium alloy



OSS/Compress® Taper Adapter (5cm):

- Manufactured in cast cobalt chromium alloy



Transverse Pin:

- Manufactured in cast cobalt chromium alloy
- 11 sizes, 20mm to 60mm



Compress® Spindle (1cm):

- Manufactured in cast cobalt chromium alloy
- 2 spindles Small & Large available in 400, 600 & 800lb depending on cortical bone thickness
- HA coating



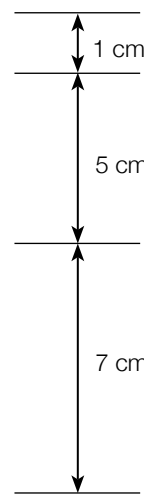
OSS Segmental Distal Femur (7 cm):

- Manufactured in cast cobalt chromium alloy



Design rationale

- The Compress® System is the only device that directly links, biologically, a metallic implant to the end of the bone. It is truly a revolution in orthopaedic implant technology.
- The Compress® allows the surgeon to maintain the patient's own bone stock when faced with major revision bone surgery.
- The Compress® solves the problem of aseptic loosening of stemmed megaprotheses¹.
- The Compress® offers a fixation alternative over cemented stems in patients undergoing limb sparing surgery.



Min 13 cm Replacement:

- Possibility to add on the OSS Diaphyseal Segments for larger bone reconstruction

- Also available for proximal tibial replacement

