METS
Modular Distal Femur
Contents

1.0 Device information 2 — 3
1.1 Product overview
1.2 Indications
1.3 Absolute contra-indications
1.4 Relative contra-indications
1.5 Capabilities and restrictions of use
1.6 Components of the distal femoral implant

2.0 Trial components and instrument overview 4 — 7
2.1 Components of the trial implants
2.2 SMILES knee dimensions
2.2.1 Femoral component
2.2.2 Tibial component
2.3 Special instruments

3.0 Operation instruction and guidelines 8 — 24
3.1 Pre-operative planning
3.2 Recommendations for component selection
3.3 General points to note when using trial components
3.4 Recommendations for assembly of implant
3.5 Bone preparation
3.5.1 Resection levels
3.5.2 Tibial resection levels
3.5.3 Femoral resection levels
3.5.4 Tibial preparation
3.5.5 Tibial preparation
3.6 Short resections < 91mm (small) and < 98mm (standard)
3.6.1 Trial assembly and insertion
3.6.2 Implant assembly and insertion
3.7 Resections > 91mm (small) and > 98mm (standard)
3.7.1 Trial assembly and insertion
3.7.2 Implant assembly and insertion
3.8 Extensive resections > 211mm and > 218mm (standard)
3.8.1 Trial assembly and insertion
3.8.2 Implant assembly and insertion
3.9 The tibial component
3.9.1 Tibial Plateau Plates
3.10 Insertion of axle and circlip
3.10.1 Insertion
3.10.2 Use of circlip pliers
3.11 Disassembly

4.0 Parts and order references 25
1.1 Product overview
The METS distal femoral replacement system is designed as a modular system that can be used to replace diseased or deficient bone in the distal femur. The system consists of a SMILES Knee, a range of shafts in 15mm increments to suit differing lengths of resections, a range of hydroxyapatite coated and uncoated collars of different diameters to match the size of the resected bone and a range of cemented stems to fit the intramedullary canal. Individual components of the femoral shaft are connected using interlocking taper junctions allowing quick and easy assembly.

The SMILES knee has three tibial options in two sizes; rotating hinge polyethylene tibia suitable for routine cases, rotating hinge metal casing tibia with short and long stems suitable for extra-articular resection or difficult revisions and a fixed hinge tibia with short and long stems suitable for knees with marked instability or gross deformity.

1.2 Indications
The METS® Modular Distal Femur is intended for the replacement of diseased or deficient bone in the proximal femur. It is indicated for:

— Limb salvage procedures where radical resection and replacement of bone is required.
— Painful and disabled joint resulting from avascular necrosis osteoarthritis, rheumatoid arthritis or traumatic arthritis.
— Correction of varus, valgus or post traumatic deformity.
— Correction of revision of unsuccessful osteotomy, arthrodesis, or painful joint replacement.
— Ligament deficiencies
— Tumor resections
— Revision of previously failed joint arthroplasty
— Trauma

The Modular Distal Femur and its components are for single use only.

The Modular Distal Femur and its components are for cemented use only.

1.3 Absolute contra-indications
— Infection and sepsis

1.4 Relative contra-indications
— Inadequate or incomplete soft tissue coverage.
— Uncooperative or unwilling patient or patient unable to follow instructions.
— Foreign body sensitivity. Where materials sensitivity occurs, seek advice with respect to testing.
— Obesity
— Vascular disorders, neuromuscular disorders or muscular dystrophy.
— Inadequate tibial bone stock
— Compromised patella

1.5 Capabilities and restrictions of use
— The components are designed and manufactured and are to be assembled and used only in the manner specified. Any deviation from this may reduce the in-service life of the prosthesis.
— Mixing with unspecified components either from Stanmore Implants or from other manufacturers is not permitted since it may lead to mal-alignment, inadequate assembly, excessive wear and premature failure.
— A fully assembled distal femoral replacement must consist of one of the three optional tibial assemblies with bumper, a femoral component with bushes, an axle and a circlip, a shaft with or without an extension piece, a collar and a stem.
— The collar is not an optional item and must be used. Failure to do so may result in excessive subsidence of the prosthesis. A plain collar is provided if the surgeon determines that the hydroxyapatite coating is not required.
— Should the interlocking surfaces of any of the implant components become damaged, they must not be used.
— The implant components are for SINGLE USE only and they must not be re-used.
— A set of instruments is provided to assist assembly of the prosthesis, which includes a set of trial components. Some trial components are colored to easily distinguish from implant components. Trial shafts, stems, collars and tibial components are anodized blue. Trial femoral components however are not anodized.
— In addition, the trial components cannot be used in combination with implant components.
— This implant is produced from titanium and CoCrMo alloys and, therefore, under no circumstances must it be allowed to contact another stainless steel device since this would induce galvanic corrosion.
1.6 Components of the distal femoral implant

Shaft
45 to 150mm titanium shafts in 15mm increments. Also, a 120mm extension shaft to further increase the length capability giving a total range of 111mm to 349mm from plateau to plateau.

For very short resections integral stem/shafts are available in two lengths 15 and 30mm, with two plateau sizes 38 x 30mm and 44 x 36mm. Stem size: 150mm x Ø13 > Ø8mm. Available with hydroxyapatite coating.

Collar
Ø27, Ø30, Ø33, Ø36mm round and 27 x 30, 30 x 33, 33 x 36, 36 x 39mm oval titanium collars. With hydroxyapatite coated stipples or smooth uncoated.

Femoral component
Cobalt-chromium-molybdenum femoral component, anatomical for left and right sides. Available in two sizes, small and standard.

Cemented stem
Ø10 to Ø15mm curved titanium stems in 1mm increments. 150mm in length suitable for short to medium resection. Ø14 and Ø15mm straight titanium stems, 100mm in length, suitable for very long resections.

SMILES Knee
Knee components are available in small and standard sizes with three different types of tibial components.

Bumper
An UHMWPE bumper available in both sizes providing a secondary bearing surface and a soft hyperextension stop.

Rotating hinge metal cased tibia
A UHMWPE tibial bearing with a Co-Cr-Mo tibial component and titanium casing. Stem lengths 140 or 180mm.

Rotating hinge polyethylene tibia
A Co-Cr-Mo tibial component with UHMWPE tibial bearing. Stem length 114mm for standard and 105mm for small knee.

Fixed hinge tibia
A Co-Cr-Mo tibial component. Stem lengths 140 and 180mm.

Tibial plateau plates
Optional tibial plateau plates (not shown) are available in 5, 10, 15 and 20mm thickness for use with rotating hinge metal cased or fixed hinge tibial components.
2.0 Trial components and instrumentation overview

2.1 Components of the trial implants

Trial shaft
45 to 150mm principal shafts in 15mm increments with a 120mm long extension shaft. 15 and 30mm long integral shaft/stem components.

Trial stem
10 to 15mm diameter curved stems in 1mm increments and 150mm long. 14 and 15mm diameter straight stems, 100mm long.

Trial collar
27 to 36mm diameter round collars and 27 x 30, 30 x 33, 33 x 36, 36 x 39mm oval collars.

Trial femoral component
Small and standard sizes in left hand and right hand versions.

Trial axle
One size axle that can fit both small and standard components and can be inserted from either side of the knee.

Trial tibial mono-blocks
Represents each of the three tibial assemblies.

Rotating hinge metal cased tibia
Stem length 140 and 180mm in both standard and small sizes.

Rotating hinge polyethylene tibia
Stem length 114mm for standard and 105mm small size.

Fixed hinge tibia
Stem length 140 and 180mm in both standard and small sizes.

Trial tibial plateau plates
Plateau plates (not shown) in 5, 10, 15 and 20mm thickness for use with rotating hinge metal cased or fixed hinge tibial components in both sizes.
2.0 Trial components and instrumentation overview

2.2 SMILES Knee dimensions

2.2.1 Femoral component

Small: 58mm
Standard: 64mm

Small: 54mm
Standard: 60mm

2.2.2 Tibial component
(Metal cased rotating hinge tibial component shown, but dimensions are the same for all three tibial options)

Small: 62mm
Standard: 68mm

Small: 40.5mm
Standard: 46mm

Tibial plateau

Anterior
2.3 Special instruments

Layer 1
1. Circlip pliers
2. Tibial reamer: Fixed hinge
3. Pins (x2)
4. Positioning plate with holes, Small
5. Positioning plate with slots, Small
6. Positioning plate with holes, Standard
7. Positioning plate with slots, Standard
8. Distraction Tool
9. 6mm Drill
10. Trial Stem Extractor
11. Hammer (with soft ends)
12. Allen/Hex Key 4mm
13. Collar Impactor

Layer 2
14. AR Lug drill
15. Bush compressor, Small
16. Bush reamer, Small
17. Compressor nut
18. Bush reamer, Standard
2.0 Trial components and instrumentation overview

Layer 3

20 Osteotome
21 Tibial reamer metal casing Standard
22 Tibial reamer metal casing Small
23 Tibial cutting guide
24 Tibial cutting guide
25 Tibial cutting guide
26 General impactor
27 Tibial reamer: Poly Small
28 Tibial bearing impactor, Standard
29 Tibial reamer: Poly Standard
30 Tibial bearing impactor, Small

In addition to these tools, it is anticipated that the operating theatre should make available a bone saw, a set of flexible reamers and an appropriate cement application device.
3.0 Operation instructions and guidelines

3.1 Pre-operative planning
It is important to assess the radiographs before the operation to establish approximate size of the components required for the patient. This will help reduce the number of trial components used during surgery. The following points should be considered during assessment:

— The size of the knee (small or standard).
— Choice of tibial component (rotating hinge polyethylene, rotating hinge metal cased, or fixed hinge).
— Length of tibial component (short or long. This only applies to rotating hinge metal cased and fixed hinge tibial components).
— Principal shaft length, and additional option of extension shaft.
— Collar type (with hydroxyapatite coating or plain).
— Stem length and diameter.

3.2 Recommendations for component selection

— **Stem**
  In order to optimize the implant fixation and strength, it is recommended that, where possible, a 150mm stem is used and the largest stem diameter is chosen whilst still maintaining a minimum of 1mm cement mantle.

— **Shaft**
  The prosthetic construct should only have one principal shaft with an extension shaft if required. More than one principal shaft must not be used.

— **Tibial components**
  A rotating hinge polyethylene tibial component should only be used where the surgeon believes that a metal base plate is not required. Rotating hinge metal cased tibial components are more suited for revision cases where the knee has reduced stability and/or where tibial plateau plates are required to maintain the joint line, for instance extra-articular resection. Fixed hinged components should be considered where there is marked instability of the joint.

3.3 General points to consider when using trial components

— Except the collars, trial shafts and stems are assembled with a “push and click” mechanism, where the rotational orientation is controlled by an anti-rotation lug.
— The collar, which is unidirectional, is simply slid over the shaft and is held in position by insertion of a stem. The oval collars are designed to provide 3mm medial/lateral or anterior/posterior ovality over the round collars.
— There is only one size axle for the trial components, which can be used for both small and standard size knees and it can be inserted from either side. It should be noted that a circlip is not required for the trial components.
— The trial components are designed to give a representation of the volume of the actual implant component, and therefore, during trial reduction, they should provide an indication of the degree of soft tissue coverage and the function of the device.
— The trial tibial components represent only the size and shape of the actual tibial construct and therefore do not rotate.

— During removal of the trial implant, if the stem should become lodged in the canal and left behind, use the trial stem extractor to remove it.
3.4 Recommendations for assembly of implant

It is recommended that the following points be considered during assembly of an implant:

— Always fully assemble an implant before exposing it to the body’s environment; failure to do so may result in contamination of the interlocking mechanism, which can impair the performance of the implant.

— Impact each junction as described in sections 3.6.2, 3.7.2 and 3.8.2 in order to provide optimum strength to the joint. This is important since each interface will experience large bending forces that can result in excessive wear and fretting if not correctly assembled.

— Care must also be exercised when assembling components with hydroxyapatite coating, as it is brittle and can easily be damaged.

— As the tibial canal preparation will vary according to the type of tibial component selected, it is advised that the correct trial tibial component is chosen, i.e. rotating hinge polyethylene, rotating hinge metal cased, or fixed hinge before any preparation of the tibia is undertaken.

Note:
These dimensions are for guidance only. Due to degeneration and laxity of the knee, more bone may need to be trimmed if necessary.

3.5 Bone preparation

It should be noted that there is no prescribed order as to which bone (the femur or the tibia) is prepared first.

3.5.1 Resection levels

3.5.2 Tibial Resection level

<table>
<thead>
<tr>
<th>Rotating hinge polyethylene</th>
<th>Rotating hinge metal cased</th>
<th>Fixed hinge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small 8mm</td>
<td>Standard 11mm</td>
<td>Small 5mm</td>
</tr>
<tr>
<td>Standard 11mm</td>
<td>Standard 13mm</td>
<td>Standard 15mm</td>
</tr>
</tbody>
</table>
3.5.3 Femoral resection levels

**SMILES Knee size: Small**

**Please Note**
For very high resections where a 150mm long stem is unsuitable, a stem made to your requirements may be custom manufactured. Please contact Stanmore Implants.

It should be noted that collar lengths are included in the resection values.

The length of the femoral resection must be considered with the tibial resection to recreate leg length and establish optimal patellar tracking. A trial reduction is recommended to confirm satisfactory bone resection.
SMILES Knee size: Standard

Please Note
For very high resections where a 150mm long stem is unsuitable, a stem made to your requirements may be custom manufactured. Please contact Stanmore Implants.

It should be noted that collar lengths are included in the resection values.

The length of the femoral resection must be considered with the tibial resection to recreate leg length and establish optimal patellar tracking. A trial reduction is recommended to confirm satisfactory bone resection.

**Shaft Component(s)**
- Extension shaft (120mm) + Principal shaft 75mm
- Extension shaft (120mm) + Principal shaft 60mm
- Extension shaft (120mm) + Principal shaft 45mm
  - Principal shaft 150mm
  - Principal shaft 135mm
  - Principal shaft 120mm
  - Principal shaft 105mm
  - Principal shaft 90mm
  - Principal shaft 75mm
  - Principal shaft 60mm
  - Principal shaft 45mm
- Integral shaft and stem 30mm
- Integral shaft and stem 15mm

**Standard sized knee resections**
- Rotating hinge assembly (polyethylene and metal cased)
- Fixed hinge assembly

<table>
<thead>
<tr>
<th>Length (mm)</th>
<th>Rotating hinge assembly</th>
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</thead>
<tbody>
<tr>
<td>267mm*</td>
<td>263mm*</td>
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<td>102mm</td>
<td>98mm</td>
</tr>
<tr>
<td>87mm</td>
<td>83mm</td>
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</table>

**NB:** Longer resection can be achieved by using the next principal shaft with the extension shaft.
3.5.4 Tibial Preparation

- Resect top of the tibia using the tibial cutting guide provided. Adjust the prongs of the tibial guide so that they sit into the condyles of the tibia. It is recommended that 8mm is resected for rotating hinge polyethylene tibial components, 11mm for rotating hinge metal cased tibias and 5mm for fixed hinge tibial components.

- Based on the type of tibial composition to be used, place a tibial positioning plate onto the cut surface of the tibia ensuring the straight edge of the plate is on the posterior side. Also, since the straight edge of the plate corresponds to the axis of the knee joint, rotate it so that the foot is correctly orientated before fixing it using the pins provided.

- For a rotating hinge polyethylene tibial component use, the plate with slots.

- For rotating hinge metal cased and fixed hinge tibias, use the plate with holes.
3.0 Operation instructions and guidelines

Modular Distal Femur

3.5.5 Femoral preparation

- Prepare the femur according to the resection levels indicated in section 3.5.3.

- Ream the femoral canal using an appropriate sized flexible reamer to the required depth and diameter to accommodate the femoral stem, leaving a minimum of 1mm for the cement mantle.

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Ream the tibial canal through the central hole using the appropriate reamer (specific for the type of tibial component chosen).

- For the rotating hinge metal cased and fixed hinge tibial components, in addition to the proximal reamer and if required, ream the distal canal to a depth of 140mm for short stems and 180mm for the long stems using a 12mm flexible reamer.

- For rotating hinge polyethylene tibial component, use the osteotome to cut the slots to a depth of 8 to 10mm.

- For rotating hinge metal cased and fixed hinge tibial components, use Ø10mm drill piece to cut 10mm deep holes for the anti-rotational lugs.

The tibia is now prepared.
3.0 Operation instructions and guidelines

3.6 Short resections
≤ 91mm (small) and ≤ 98mm (standard)

For very short resections, integral stem/shaft constructs are available in two shaft lengths 15mm and 30mm with two plateau sizes 38 x 30mm and 44 x 36mm and a stem length of 150mm tapering 13>8mm. Available with hydroxyapatite coating.

3.6.1 Trial assembly and insertion
- Select the required size and type of trial tibial mono-block and insert into the tibial canal.
- Select appropriate size femoral component and integral shaft/stem construct to replace the resected length of the femur and assemble them as described in section 3.3. The assembly sequence should be femoral component onto the shaft/stem construct. Insert the femoral assembly into the femur.
- The trial components should now be in place.
- Join the two components together by insertion of the trial axle ensuring that it is correctly seated before performing a trial reduction.
- If the joint is too tight or too loose between shaft increments, it may be necessary to resect extra bone from the femur and repeat the trial.
- Once satisfied, remove all trial components and select corresponding implant components.
- During removal of the trial implant, if the stem should become lodged within the canal and left behind, the trial stem extractor should be used to remove it as shown on page 8.
3.6.2 Implant assembly and insertion

— To ensure that the alignment lugs are correctly positioned, for right sided components the alignment lug is located medially and for left side components the alignment lug is located laterally.

— Hold the integral shaft/stem construct with the spigot pointing upwards; insert the femoral component ensuring that the alignment lug is properly engaged. With multiple sharp blows using the soft hammer provided, impact the flat of the femoral component as shown. This should lock the taper securely in place.

— The femoral component is now assembled and ready for insertion.
— Insert the femoral component and cement securely into place ensuring correct rotational alignment.
3.0 Operation instructions and guidelines

3.7 Resections > 91mm (small) and > 98mm (standard)

3.7.1 Trial assembly and insertion

- Select the required size and type of trial tibial mono-block and insert into the tibial canal.
- Select appropriate size femoral component, shaft, collar and stem to replace the resected length of the femur and assemble them as described in section 3.3. The assembly sequence should be femoral component onto the shaft followed by collar and then stem respectively. Insert the femoral assembly into the femur and reduce the joint.
- The trial components should now be in place.
- Join the two components together by insertion of the trial axle ensuring that it is correctly seated before performing a trial reduction. Replace shaft/stem/collar as required until satisfactory assembly is produced.
- If the joint is too tight or too loose between shaft increments, it may be necessary to resect extra bone from the femur and repeat the trial.
- Once satisfied, remove all trial components and select corresponding implant components.
- During removal of the trial implant, if the stem should become lodged within the canal and left behind, the trial stem extractor should be used to remove it as shown on page 8.
3.0 Operation instructions and guidelines

3.7.2 Implant assembly and insertion

- To ensure that the alignment lugs are correctly positioned, for right sided components the alignment lug is located medially and for left side components the alignment lug is located laterally.

- Hold the principal shaft with the spigot pointing upwards with two hands, and insert the femoral component ensuring that the alignment lug is properly engaged. With multiple sharp blows using the soft hammer provided, impact the flat of the femoral component as shown. This should lock the taper securely in place.

- Then, place the selected collar onto the proximal end of the shaft ensuring once again the alignment lugs are correctly aligned. If an oval collar is chosen, check the ovality is correctly orientated. Holding the collar impactor over the collar, impact with multiple hammer blows as shown taking care not to damage the bore or hydroxyapatite coating.

- Finally, insert the appropriate sized stem, ensuring the alignment lug is correctly located and impact with multiple sharp blows on the end of the stem.

- The femoral component is now assembled and ready for insertion.

- Insert the femoral component and cement securely into place ensuring correct rotational alignment.
3.8 Resections > 211mm (small) and > 218mm (standard)

For extensive resections, a 120mm extension shaft is available to further increase the length capability. Extension shafts can only be used in conjunction with a principle shaft.

3.8.1 Trial assembly and insertion

- Select the required size and type of trial tibial mono-block and insert into the tibial canal.
- Select appropriate size femoral component, extension shaft and principle shaft, collar and stem to replace the resected length of the femur and assemble them as described in section 3.3. The assembly sequence should be femoral component onto the extension shaft, then the principle shaft followed by the collar and then stem respectively. Insert the femoral assembly into the femur and reduce the joint.
- The trial components should now be in place.
- Join the two components together by insertion of the trial axle ensuring that it is correctly seated before performing a trial reduction. Replace shaft/stem/collar as required until satisfactory assembly is produced.
- If the joint is too tight or too loose between shaft increments, it may be necessary to resect extra bone from the femur and repeat the trial.
- Once satisfied, remove all trial components and select corresponding implant components.
- During removal of the trial implant, if the stem should become lodged within the canal and left behind, the trial stem extractor should be used to remove it as shown on page 8.
3.0 Operation instructions and guidelines

3.8.2 Implant assembly and insertion

— To ensure that the alignment lugs are correctly positioned, for right sided components the alignment lug is located medially and for left side components the alignment lug is located laterally.

— Hold the extension shaft with the spigot pointing upwards with two hands, and insert the femoral component ensuring that the alignment lug is properly engaged. Apply multiple sharp blows using the soft hammer provided and impact the flat of the femoral component as shown. This should lock the taper securely in place.

— Insert the principle shaft into the extension shaft ensuring that the alignment lug is properly engaged. Apply multiple sharp blows to the flat of the femoral component using the soft hammer provided.

— Place the selected collar onto the proximal end of the principle shaft ensuring once again the alignment lugs are correctly aligned. If an oval collar is chosen, check the ovality is correctly orientated. Holding the collar impactor over the collar, impact with multiple sharp hammer blows as shown taking care not to damage the bore or hydroxyapatite coating.

— Finally, insert the appropriate sized stem, ensuring the alignment lug is correctly located and impact with multiple sharp blows on the end of the stem.

— The femoral component is now assembled and ready for insertion.

— Insert the femoral component and cement securely into place ensuring correct rotational alignment.
3.9 The tibial component

— Remove the outer tibial component from the specific tibial assembly chosen.

— For the rotating hinge arrangements, cement the appropriate tibial component into the tibial canal, i.e. for rotating hinge polyethylene assembly, cement the long plastic tibial component; and for the rotating hinged metal cased tibial arrangement, cement the outer metal tibial casing.

— Impact using the plastic impactor.

— Once cemented securely in place, reposition the tibial bearing components into the cemented tibia.

— For the fixed hinge tibial arrangement, simply cement the component into the canal and impact using the general impactor.
3.9.1 Tibial plateau plates

- Optional tibial plateau plates are available in 5, 10, 15 and 20mm thicknesses for use with the rotating hinge metal cased or fixed hinge tibial components.

- Using a small amount of bone cement, secure the plateau plate onto the tibial component by sliding it over the tibial stem until the anti-rotation lugs on the tibial component are located within the holes in the tibial plateau plate.

- The tibial component can then be inserted as described in section 3.9.

- It should be noted that only one tibial plateau plate can be used, multiple plates cannot be stacked onto one another.
3.10 Insertion of the axle and circlip

3.10.1 Insertion

A Align the femoral and tibial components and insert the axle into position as shown. It should be noted that the axle can be inserted from either side of the knee joint.

B Using the pronged end of the circlip pliers handle, push the axle in place. If required, rotate the axle to engage the axle head into the offset recess in the femoral component.

C Check to ensure the axle head is correctly sitting inside the recess and that it is not trapped within the circlip groove. The axle is secured by inserting the circlip as described in section 3.10.2.
3.0 Operation instructions and guidelines

3.10.2 Use of circlip pliers

A The circlip and the pliers are designed to clip together for ease of use. The best way to place the circlip onto the pliers is by holding the circlip on your finger tip and then pushing the pliers into it ensuring the central pin locates in the centre of the circlip and the two moving jaws are either side of the central strips of the circlip as shown.

B A correctly inserted circlip is shown on the left with the jaws of the circlip pliers in the correct position.

C This picture on the left shows an incorrectly inserted circlip. This would not function and the circlip needs reinserting. (Requires rotating 180º)

D The circlip is best inserted into the knee by holding the circlip at an angle, then placing the circular part of the circlip into the groove in the tibial component and then straightening and pushing the circlip into position as shown.

E Release circlip pliers and pull to unclip from the circlip.

Ensure that the circlip is seated inside the groove in the tibial component and then using a pointed implement, rotate it to ensure it turns inside the groove. Rotation of the circlip ensures the circlip is fully engaged in the groove.
3.11 Disassembly

During revision surgery, it may be necessary to disassemble the implant. This is achieved by inserting the distraction tool into the anterior hole of the shaft and impacting with a hammer. The distraction tool has a flat, which should locate on the end of the inner spigot. Parts are for SINGLE USE only and cannot be reused.
## Stems

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<th>11 &gt; 9.5mm</th>
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<tr>
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<tr>
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<td>HA coated</td>
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<th>ø30x33</th>
<th>ø33x36</th>
<th>ø36x39</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smooth</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Un coated</td>
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<table>
<thead>
<tr>
<th>Collars, oval</th>
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<th>ø36x39</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stippled</td>
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<tr>
<td>HA coated</td>
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## Principal shafts

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<tr>
<th>45mm</th>
<th>60mm</th>
<th>75mm</th>
<th>90mm</th>
<th>105mm</th>
<th>120mm</th>
<th>135mm</th>
<th>150mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>mssft/45</td>
<td>mssft/60</td>
<td>mssft/75</td>
<td>mssft/90</td>
<td>mssft/105</td>
<td>mssft/120</td>
<td>mssft/135</td>
<td>mssft/150</td>
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## Extension shaft

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<td>mssext/120</td>
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## Integral shafts & stems

### Femoral knees

<table>
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<th>Small Left</th>
<th>Small Right</th>
<th>Standard Left</th>
<th>Standard Right</th>
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</thead>
<tbody>
<tr>
<td>mskfe/LSm</td>
<td>mskfe/RSm</td>
<td>mskfe/LSd</td>
<td>mskfe/RSd</td>
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</tbody>
</table>

### Tibial: rotating hinges

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<tr>
<th>Small</th>
<th>Polyethylene</th>
<th>Tibial: rotating hinges</th>
<th>Polyethylene</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Standard Long Stem</td>
<td>mskhrn/SmLg</td>
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<tr>
<td></td>
<td></td>
<td>Standard Short Stem</td>
<td>mskhrn/SmSh</td>
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</tbody>
</table>

### Tibial: fixed hinges

<table>
<thead>
<tr>
<th>Small</th>
<th>Standard Long Stem</th>
<th>mskfr/SmLg</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Standard Short Stem</td>
<td>mskfr/SmSh</td>
</tr>
</tbody>
</table>

### Tibial: plateau plates

<table>
<thead>
<tr>
<th>Small</th>
<th>Standard Long Stem</th>
<th>msktp/SmLg</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Standard Short Stem</td>
<td>msktp/SmSh</td>
</tr>
</tbody>
</table>

## Principal references

- Modular Distal Femur
- Parts and reorder references
In the costly design and manufacture of individualized bone and joint replacements the accuracy of measurement radiographs is vital in order to achieve optimum function for the patient in the long term.

The following notes should be read completely before undertaking radiography. Should these notes not be clear, or the patient present a unique problem, advice should be sought from:

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www.stanmoreimplants.com