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U2™ Revision

Hip Stem

Surgical Protocol

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U2 Revision Hip Stem

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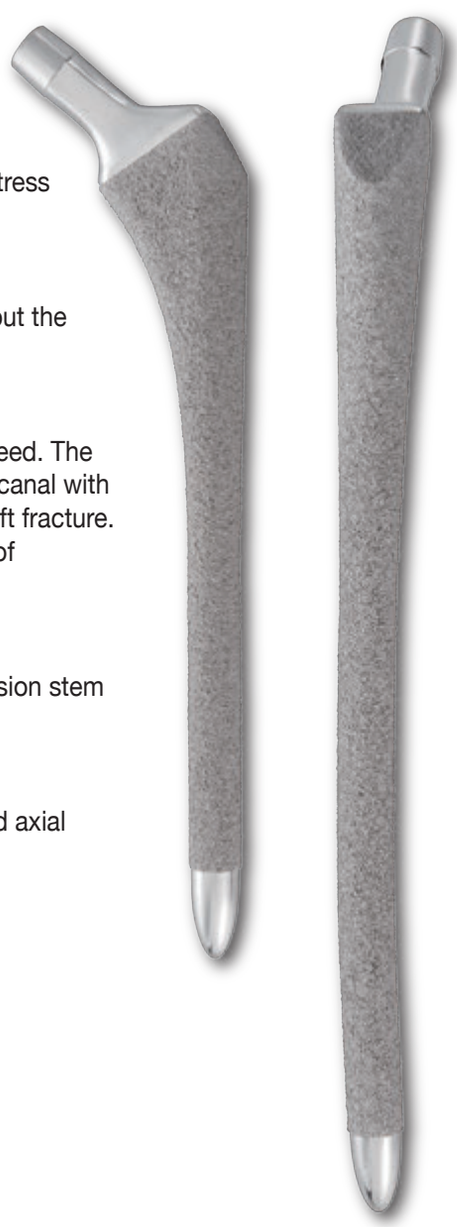
Introduction

Since 1997, the U2 Revision Hip Stem was developed to address metaphyseal bone defect during revision surgery. The versatile size options enable the orthopaedic surgeon to select a proper implant for each patient based on pre- and intraoperative assessment.

The U2 Revision Hip Stem design features as following:



- **Titanium Alloy**
  The elastic modulus of titanium alloy is close to cortical bone, thus decreasing stress shielding effect, bone resorption, and thigh pain.

- **Titanium Plasma Spray**
  Extensively coated stem increases the possibility of osteointegradation throughout the stem, which provides long-term stability of implant.

- **180 mm Straight and 230 mm Curve Stem Options**
  The standard 180 mm length enables diaphyseal fixation to meet most patient need. The curved 230 mm stem addresses more bony deficiency and anatomically fits the canal with an anterior bowed shape to prevent cortical impingement and intraoperative shaft fracture. Distal diameters offered in 11, 12, 13, 14, 15, 16.5, and 18 mm adapts a variety of anatomies.

- **Shortened Stem Offset**
  Due to soft tissue scarring or contracture induced by previous surgeries, U2 revision stem is designed with a short offset than primary implant to facilitate joint reduction.

- **Proximal Tri-Wedge Geometry**
  The three-dimensional tapered profile of U2 revision stem provides rotational and axial stability and benefits load distribution.

- **Polished and teardrop tip**
  The teardrop tip avoids distal cortical impingement and related thigh pain.

Preoperative Planning

The objectives of preoperative planning are to assess the amount of bone loss, to select an appropriate implant size, and to determine leg length and femoral offset. Special needs such as allograft, wire, and plate fixation can be determined through a radiographic review, if necessary. In addition, during radiographic assessment, any acetabular reconstruction may have to be considered. U2 Revision Hip Stem offers 15 percent magnification templates to meet the enlargement from radiography. Although templating helps accomplish preliminary estimation of the proper stem size, the final determination should still be made according to operation conditions.

Femoral Preparation

Canal Reaming for a Straight Stem:

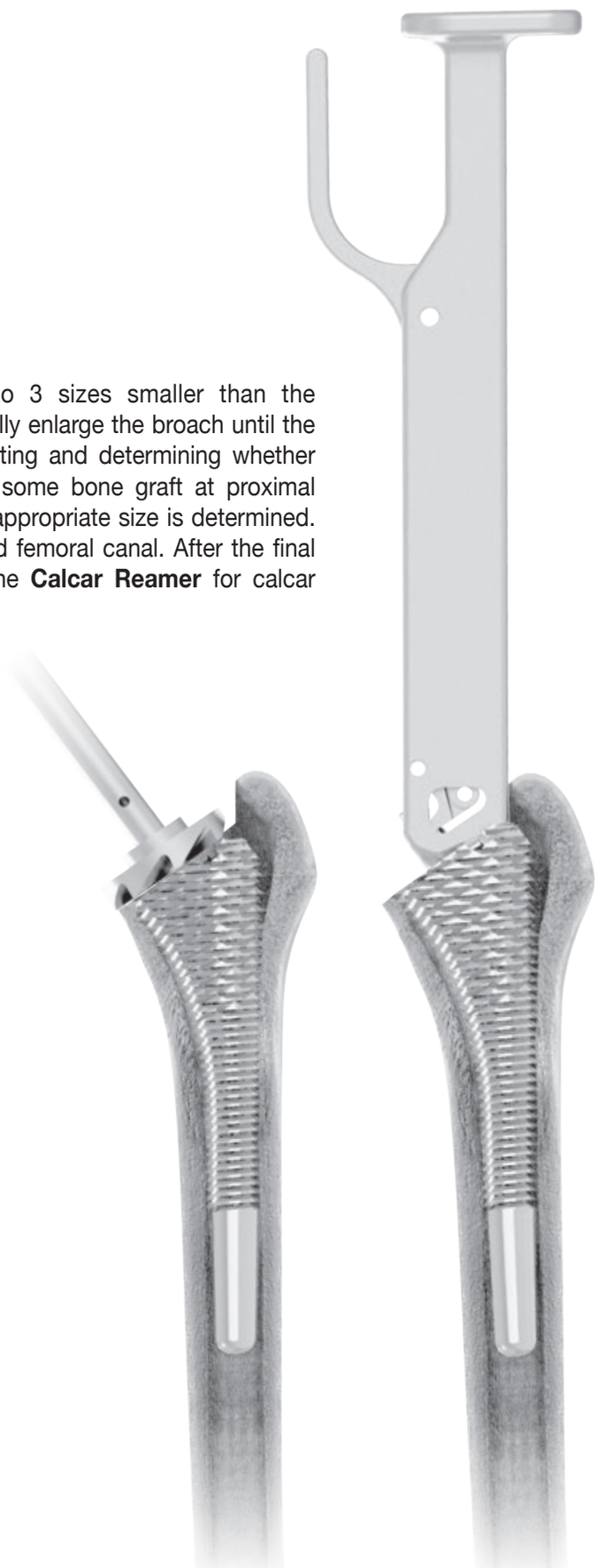
Obtaining a clear access to the femoral canal is essential to ensure proper alignment of revision stem. After careful removal of the previous stem, cement, and debris, the femoral canal is gradually reamed by attaching the **T-handle** or power device to the **Straight Reamer**. Based on the stem size determined preoperatively, start reaming with the smallest size or at least 2 mm smaller than predicted stem size until appropriate depth is obtained. Offered reamer size increment is 0.5 mm in diameter. It is recommended that at least 0.5 mm press-fit for normal bone quality. Occasionally, a line-to-line reaming may be required to treat a hard bone.

Canal Reaming for a Curved Stem:

When preparing the femoral canal for a 230 mm curved stem, utilize the flexible reaming assembly (**Guide Wire, Flexible Reamer Shaft** and **Flexible Reamer Head**) to follow the nature bow of the femur. Advance the flexible reamer into the canal, making sure it passes through diaphysis. Fluoroscopy may be used to ensure the appropriate depth and direction during reaming process. Sequentially reaming by 0.5 mm increment until the anticipated diameter and depth is achieved.

Canal Broaching:

After complete reaming, use the **Broach** that is 2 to 3 sizes smaller than the pre-determined implant size to shape the canal. Sequentially enlarge the broach until the last size is matched with the real implant. Assess the fitting and determining whether broaching and reaming should be continued, or having some bone graft at proximal femur. Continue the reaming and broaching process until appropriate size is determined. It is important that the final broach should fill the prepared femoral canal. After the final broach is properly seated in the femoral canal, utilize the **Calcar Reamer** for calcar preparation if desired.



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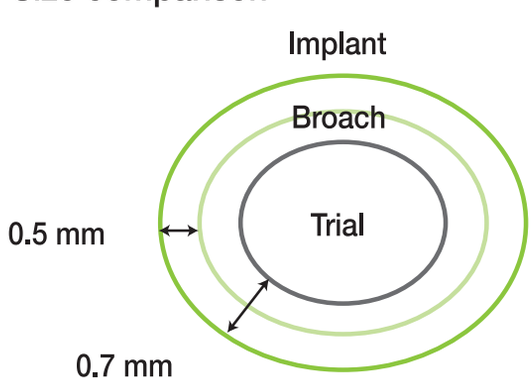
Trial Reduction

Based on the final reamer and broach size, select an appropriate **Stem Trial** for the preparation of femoral canal. If any resistance is felt as stem trial insertion, there may be a need for additional reaming or broaching to remove obstructing bone until the stem trial can be fully seated. Perform the trial reduction by using the femoral head trial with desired diameter and neck length.
Any correct of selected implant size can be made during the assessment of leg length and joint biomechanics.
Optionally, if a straight stem is selected, the surgeon may leave the final broach for trial reduction.

Note: To prevent destruction of the press-fit mechanism, the dimension of stem trial is reduced by 0.2 mm in diameter when compared with the size matched broach. As shown below, the U2 revision hip instrumentation design provides a 0.5 mm interference between the real implant and the broach to obtain a stable initial fixation.

Size comparison

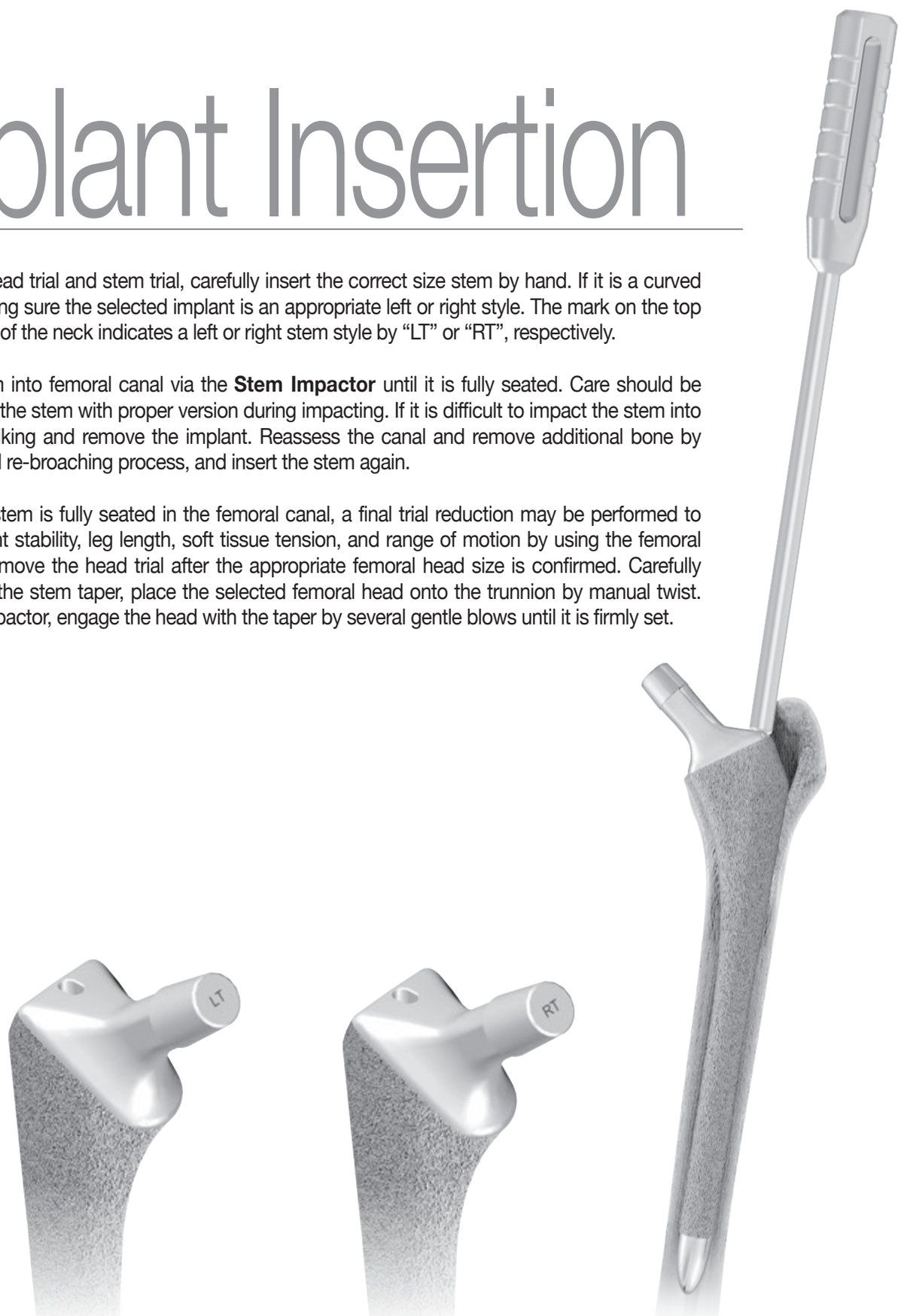


Implant Insertion

Remove the head trial and stem trial, carefully insert the correct size stem by hand. If it is a curved hip stem, making sure the selected implant is an appropriate left or right style. The mark on the top of the trunnion of the neck indicates a left or right stem style by “LT” or “RT”, respectively.

Strike the stem into femoral canal via the **Stem Impactor** until it is fully seated. Care should be taken to orient the stem with proper version during impacting. If it is difficult to impact the stem into canal, stop striking and remove the implant. Reassess the canal and remove additional bone by re-reaming and re-broaching process, and insert the stem again.

Once the hip stem is fully seated in the femoral canal, a final trial reduction may be performed to re-evaluate joint stability, leg length, soft tissue tension, and range of motion by using the femoral head trials. Remove the head trial after the appropriate femoral head size is confirmed. Carefully clean and dry the stem taper, place the selected femoral head onto the trunnion by manual twist. Using head impactor, engage the head with the taper by several gentle blows until it is firmly set.



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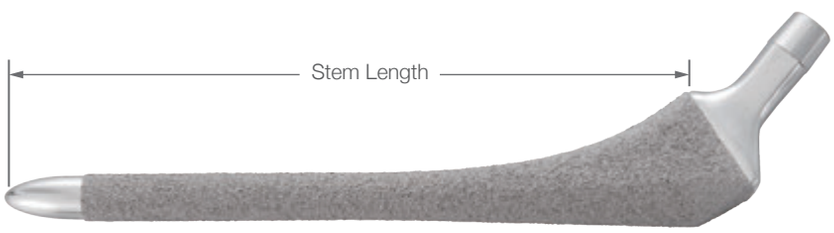
Ordering Information



Catalog Number	Description (Diameter x Stem Length)			
1104 - 1611	straight,	ø11	X	180 mm
1104 - 1612	straight,	ø12	X	180 mm
1104 - 1613	straight,	ø13	X	180 mm
1104 - 1614	straight,	ø14	X	180 mm
1104 - 1615	straight,	ø15	X	180 mm
1104 - 1616	straight,	ø16.5	X	180 mm
1104 - 1618	straight,	ø18	X	180 mm
1104 - 1711	curved, left,	ø11	X	230 mm
1104 - 1712	curved, left,	ø12	X	230 mm
1104 - 1713	curved, left,	ø13	X	230 mm
1104 - 1714	curved, left,	ø14	X	230 mm
1104 - 1715	curved, left,	ø15	X	230 mm
1104 - 1716	curved, left,	ø16.5	X	230 mm
1104 - 1718	curved, left,	ø18	X	230 mm
1104 - 1811	curved, right,	ø11	X	230 mm
1104 - 1812	curved, right,	ø12	X	230 mm
1104 - 1813	curved, right,	ø13	X	230 mm
1104 - 1814	curved, right,	ø14	X	230 mm
1104 - 1815	curved, right,	ø15	X	230 mm
1104 - 1816	curved, right,	ø16.5	X	230 mm
1104 - 1818	curved, right,	ø18	X	230 mm

Revision hip stem trial

Catalog Number	Description			
1104 - 2211 - RB	straight,	ø11	X	180 mm
1104 - 2212 - RB	straight,	ø12	X	180 mm
1104 - 2213 - RB	straight,	ø13	X	180 mm
1104 - 2214 - RB	straight,	ø14	X	180 mm
1104 - 2215 - RB	straight,	ø15	X	180 mm
1104 - 2216 - RB	straight,	ø16.5	X	180 mm
1104 - 2218 - RB	straight,	ø18	X	180 mm
1104 - 2311 - RB	curved, left,	ø11	X	230 mm
1104 - 2312 - RB	curved, left,	ø12	X	230 mm
1104 - 2313 - RB	curved, left,	ø13	X	230 mm
1104 - 2314 - RB	curved, left,	ø14	X	230 mm
1104 - 2315 - RB	curved, left,	ø15	X	230 mm
1104 - 2316 - RB	curved, left,	ø16.5	X	230 mm
1104 - 2318 - RB	curved, left,	ø18	X	230 mm
1104 - 2411 - RB	curved, right,	ø11	X	230 mm
1104 - 2412 - RB	curved, right,	ø12	X	230 mm
1104 - 2413 - RB	curved, right,	ø13	X	230 mm
1104 - 2414 - RB	curved, right,	ø14	X	230 mm
1104 - 2415 - RB	curved, right,	ø15	X	230 mm
1104 - 2416 - RB	curved, right,	ø16.5	X	230 mm
1104 - 2418 - RB	curved, right,	ø18	X	230 mm

Catalog Number	Description
9104 - 1001	Flexible reamer shaft, ø5x470 mm

Catalog Number	Description
9104 - 1202 - RA	Stem extractor

Catalog Number	Description
9104 - 1213 -RA	Stem impactor

Catalog Number	Description
9104 - 1214	U2 Stem quick connect holder

Catalog Number	Description
9104 - 2001	Guide wire, ø3 mm, 820 mm

Catalog Number	Description
9104 - 3109	Revision hip stem straight reamer, ø9 mm
9104 - 3209	Revision hip stem straight reamer, ø9.5 mm
9104 - 3110	Revision hip stem straight reamer, ø10 mm
9104 - 3210	Revision hip stem straight reamer, ø10.5 mm
9104 - 3111	Revision hip stem straight reamer, ø11 mm
9104 - 3211	Revision hip stem straight reamer, ø11.5 mm
9104 - 3112	Revision hip stem straight reamer, ø12 mm
9104 - 3212	Revision hip stem straight reamer, ø12.5 mm
9104 - 3113	Revision hip stem straight reamer, ø13 mm
9104 - 3213	Revision hip stem straight reamer, ø13.5 mm
9104 - 3114	Revision hip stem straight reamer, ø14 mm
9104 - 3214	Revision hip stem straight reamer, ø14.5 mm
9104 - 3115	Revision hip stem straight reamer, ø15 mm
9104 - 3215	Revision hip stem straight reamer, ø15.5 mm
9104 - 3116	Revision hip stem straight reamer, ø16 mm
9104 - 3216	Revision hip stem straight reamer, ø16.5 mm
9104 - 3117	Revision hip stem straight reamer, ø17 mm
9104 - 3217	Revision hip stem straight reamer, ø17.5 mm
9104 - 3118	Revision hip stem straight reamer, ø18 mm

Instruments

Special Order Items

Catalog Number	Description
9104 - 3509	Flexible reamer head, ø9 mm
9104 - 3609	Flexible reamer head, ø9.5 mm
9104 - 3510	Flexible reamer head, ø10 mm
9104 - 3610	Flexible reamer head, ø10.5 mm
9104 - 3511	Flexible reamer head, ø11 mm
9104 - 3611	Flexible reamer head, ø11.5 mm
9104 - 3512	Flexible reamer head, ø12 mm
9104 - 3612	Flexible reamer head, ø12.5 mm
9104 - 3513	Flexible reamer head, ø13 mm
9104 - 3613	Flexible reamer head, ø13.5 mm
9104 - 3514	Flexible reamer head, ø14 mm
9104 - 3614	Flexible reamer head, ø14.5 mm
9104 - 3515	Flexible reamer head, ø15 mm
9104 - 3615	Flexible reamer head, ø15.5 mm
9104 - 3516	Flexible reamer head, ø16 mm
9104 - 3616	Flexible reamer head, ø16.5 mm
9104 - 3517	Flexible reamer head, ø17 mm
9104 - 3617	Flexible reamer head, ø17.5 mm
9104 - 3518	Flexible reamer head, ø18 mm
9104 - 3618	Flexible reamer head, ø18.5 mm
9104 - 3519	Flexible reamer head, ø19 mm
9104 - 3619	Flexible reamer head, ø19.5 mm
9104 - 3520	Flexible reamer head, ø20 mm

Catalog Number	Description
9104 - 4040	Calcar reamer, ø40 mm

Catalog Number	Description
9104 - 5301 - RB	Neck trial #11 / 12
9104 - 5302 - RB	Neck trial #13 / 14 / 15
9104 - 5303 - RB	Neck trial #16.5 / 18

Catalog Number	Description
9104 - 6103 - RA	Broach handle

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Special Order Items

Catalog Number	Description	
9104 - 6330	Revision hip stem broach,	ø11 mm
9104 - 6340	Revision hip stem broach,	ø12 mm
9104 - 6350	Revision hip stem broach,	ø13 mm
9104 - 6360	Revision hip stem broach,	ø14 mm
9104 - 6370	Revision hip stem broach,	ø15 mm
9104 - 6380	Revision hip stem broach,	ø16.5 mm
9104 - 6390	Revision hip stem broach,	ø18 mm

Catalog Number	Description
9104 - 8040 - RA	U2 Revision Hip, Case #1
9104 - 8050 - RA	U2 Revision Hip, Case #2
9104 - 8060	Flexible reamer set case
9104 - 8110	U2 Hip basic case

Catalog Number	Description
9104 - 9001 - RA	Femoral Head Remover

Catalog Number	Description
9106 - 5001	Hammer

Catalog Number	Description
9106 - 5101	Sliding Rod

Catalog Number	Description
9303 - 1300	T-handle

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Each Step **We Care**

Safety Statement

INDICATIONS

1. Non-inflammatory degenerative joint disease such as osteoarthritis, avascular necrosis, ankylosis, protrusio acetabuli, and painful hip dysplasia.
2. Inflammatory degenerative joint disease such as rheumatoid arthritis.
3. Correction of function deformity.
4. Revision procedures where other treatments or devices have failed.
5. Treatment of nonunion, femoral neck and trochanteric fractures of the proximal femur with head involvement that is unmanageable using other techniques.

This device is a single use implant and intended for cementless use only except cemented stem which is designed for cemented use only.

Please refer to the product-specific package inserts for important information, including indications, contraindications, warnings, precautions, and potential adverse effects.
For Reprocessing Instructions for Reusable Surgical Instruments, please check at www.uoc.com.tw

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Contact Us

- **Taiwan**
  United Orthopedic Corporation
  12F, No.80, Sec.1, Chenggong Rd., Yonghe Dist.,
  New Taipei City 23452, Taiwan
  Tel: +886 2 2929 4567 Fax: +886 2 2922 4567

- **China**
  United Medical Instrument Co., Ltd.
  Room 402, Building 7, No.697, Ling Shi Road,
  ShangHai 200072, China
  Tel: +86 21 3661 8055 Fax: +86 21 6628 3031

- **Japan**
  United Biomech Japan Inc.
  Ginyo Bldg 4th floor, 2-9-40 Kitasaiwai, Nishi-Ku
  Yokohama City, Kanagawa, 220-0004, Japan
  Tel: +81 45 620 0741 Fax: +81 45 620 0742

- **USA**
  UOC USA Inc.
  20, Fairbanks, Suite 173, Irvine 92618, CA
  Tel: +1 949 328 3366 Fax: +1 949 328 3367

- **EU Representative**
  mdi Europa GmbH
  Langenhagener Strasse 71, Langenhagen 30855 , Germany
  Tel: +49 511 3908 9530 Fax: +49 511 3908 9539

- **Europe**
  UOC (Suisse) SA
  Avenue Général Guisan 60A, Pully 1009, Switzerland
  Tel: +41 21 634 70 70 Fax: +41 21 634 70 76
  UOC (France)
  21, Rue de la Ravinelle, Nancy 54000, France
  Tel: +33 3 83 23 39 72 Fax: +33 3 83 23 39 10

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UOC-UM-UN-00015 Rev.1 JAN. 2018