

# ABG® II Cementless Surgical Technique



Efficacy  
Innovation





This surgical technique has been produced to help surgeons perform a total hip replacement with an ABG®II implant using a standard approach.

Great progress has been made in terms of implants and materials during the last few decades and MIS techniques aimed at soft tissue preservation are currently undergoing scientific scrutiny. The aim of these techniques is to reduce post operative pain, facilitate functional rehabilitation and accelerate the functional restoration of patients undergoing this type of procedure.

It should therefore, be considered prudent when performing MIS techniques to refer to this surgical technique which describes in more detail the characteristics of a standard approach using ABGII implants.

### Use of templates

Pre-operative planning is essential and should be conducted using templates which are placed on a frontal radiograph of the femur and then checked against the enlargement value noted on the template.

Templates are available with a magnification of 10% 15% and 20%.

The enlargement of the femur depends on the focal distance, which is constant and the object-plate distance which is variable.

To calculate the level of magnification a small centimetre ruler is placed in the plane of the greater trochanter. This ruler can then be used to determine the enlargement of the femur shown on the radiograph (Fig. 1).



Fig. 1 Measuring radiograph of the femur with ruler.

The choice of implant is made according to 3 reference points (Fig. 2):

- 1 At the diaphyseal level, the stem of the implant drawn on the template must merge with the shaft of the femoral diaphysis, the prosthesis being centred to avoid either varus or valgus positioning.
- 2 Height is determined by the digital point (D) indicated on the template. The shoulder of the implant must be level with the lower part of the digital fossa (d).
- 3 The inferior-external or trochanteric-diaphyseal point (E). The lower, external part of the prosthesis must come to lean against the infero-external part of the greater trochanter (e) marked on the radiograph, ensuring a minimal 3mm thickness of cancellous bone.

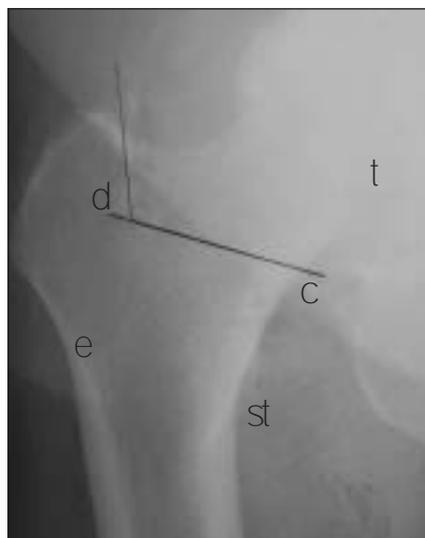


Fig. 2 Radiograph with markers.

Implant sizing is determined during templating (Fig. 3). The chosen implant should fill the metaphysis whilst preserving the femoral calcar (Fig. 4).

Precise pre-operative planning is performed using templates.

Requirements to be checked

Several requirements must be checked:

- Filling of the metaphysis should be optimised. When presented with the option of choosing 2 implants it is suggested that the smaller one be used since this will allow for greater preservation of cancellous bone. This is dependent on intra-operative stability (particularly rotatory) of the broach.
- Head centre (T) shown on the template should be situated on a line perpendicular to the axis of the femur and the tip of the greater trochanter (plus or minus heads can then be used to achieve leg length).
- There must not be any contact at the diaphyseal level between the stem and the cortex of the femur. The template can be used to indicate the minimum drilling diameter to be performed pre-operatively.

Adjustment of femoral neck osteotomy

The cervical point (C) can be found on the template and the line of the femoral neck osteotomy (cervical osteotomy) drawn by linking the digital point (D) to the cervical point (C). This makes an angle of approximately 60° with the axis of the diaphysis.

The vertical osteotomy line is then drawn parallel to the axis of the femoral diaphysis and begins at the trochanteric fossa moving towards the tip of the greater trochanter.

The pre-operative template should then be taken as an indication of the implant to be used. However, this may change based upon stability of the broaches and trial heads.

In addition, certain measurements which can be made on the template will be useful pre-operatively:

1. For the femur:
  - The osteotomy level: Having located the most prominent part of the lesser trochanter (st) using the graduation of the template, the exact distance between the osteotomy level and the lesser trochanter (distance C-st) or between the tip of the femoral head and the osteotomy can be measured.
  - Positioning of the implant: In order to avoid varus or valgus positioning it is often useful to measure the exact distance between the internal edge of the implant and the internal edge of the calcar on the template. This can then be transferred pre-operatively with the enlarged ruler of the template.

2. For the acetabulum:

- Templates are available to determine the correct size and positioning of the acetabular cup as well as the centre of rotation of the hip.
- As there is no spatial reference for a patient in the lateral decubitus position it is necessary to mark correctly the distance and position of the upper edge of the cup on the template and the upper edge of the acetabular roof to ensure correct orientation of the cup.

Templating is also useful to determine both offset and anticipated leg length.

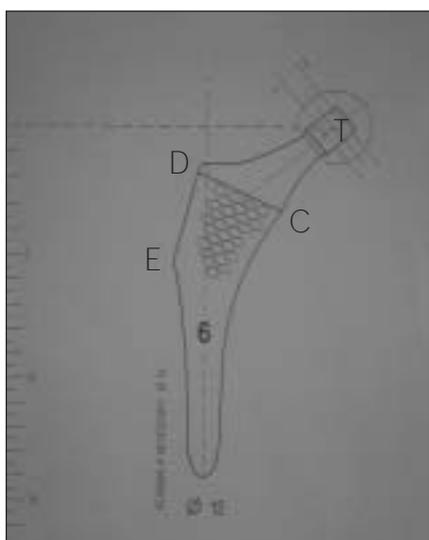


Fig. 3 Cementless ABGII Stem template.

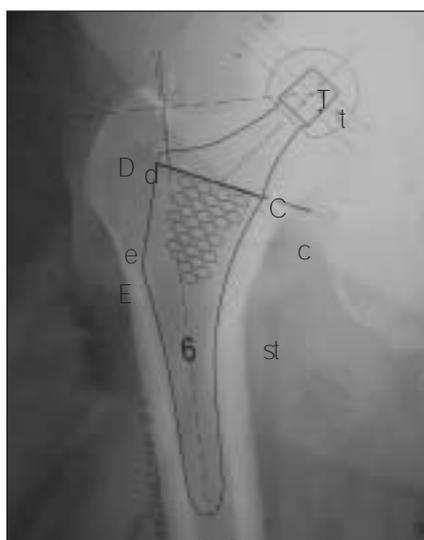


Fig. 4 ABGII Template superimposed on the radiograph.

# ABG® II

## Approaches

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All approaches may be used for the implantation of the ABG® prosthesis.

### Patient positioning

The patient is positioned in the lateral decubitus position and the pelvis is then fixed in strict profile using a pubic and buttock support. It is important to ensure that the hip being operated upon is free to move in flexion, adduction and rotation whilst also ensuring the brachial plexus is protected.

## Postero-lateral approach

### Skin incision

The incision is centred on the tip of the greater trochanter, longitudinal for 6cm (at the level of the femoral diaphysis) and slightly oblique above and behind in the direction of the posterosuperior iliac spine, also for 6cm.

### Approach to the joint

After incision of the fascia lata, dissect the gluteus maximus muscle in the axis of its fibres before placing an orthostatic retractor.

The pelvi-trochanteric muscles are severed level with the posterior face of the neck of the femur as is the aponeurotic expansion of the gluteus maximus. Conversely it is extremely important to keep the posterior fascia of the gluteus medius which is retained by a retractor. The articular capsule is then incised.

### Dislocation of the hip

By using flexion, adduction and internal rotation, the head and neck of the femur are then exposed and a lipped retractor is placed under the neck of the femur.

## Antero-lateral approach

### Skin incision

The incision is made vertically, about 15cm long and centred on the tip of the trochanter.

### Approach to the joint

The gluteus medius and the gluteus minimus are severed 1cm from their distal insertion point on the greater trochanter. The gluteus medius is then separated at the top by 2 to 3cm and the articular capsule incised.

### Dislocation of the hip

The hip is dislocated forwards by flexion, external rotation and adduction to expose the femoral head and neck.

### Postero-lateral approach

The trochanteric fossa is identified and an oblique line of  $60^\circ$  in relation to the axis of the femoral diaphysis can then be traced on the neck (Figs. 5 & 6).

The osteotomy can then be performed in two cutting planes using a Stryker oscillating saw:

- The first plane corresponds to the oblique line from the posterior face of the neck without it being necessary to provide any anteversion to the cut.
- The second plane is then made vertically and parallel to the internal face of the greater trochanter, running from the trochanteric fossa upwards.

### Antero-lateral approach

As the trochanteric fossa is not visible, the only reliable marker is the lesser trochanter. Transfer the "C-st" distance (between the middle of the lesser trochanter and the level of the neck osteotomy) from the pre-operative overlay onto the femur.

The neck osteotomy is then performed with a Stryker oscillating saw following an angle of  $60^\circ$  in relation to the axis of the femoral diaphysis. It is extended outwards to the cervico-trochanteric junction, taking care that the saw does not penetrate the greater trochanter. The vertical osteotomy can now be performed.

### Removal of the femoral head

The femoral head is grasped with claw forceps (and the use of a gouge chisel) at the level of the trochanteric fossa to complete the osteotomy.

The femoral head and neck can then be removed by freeing the capsule below and in front of the neck. It can be kept in a dish of normal saline solution in the event that any bone grafting be required during the procedure.



Fig. 5 Femoral Neck Osteotomy.

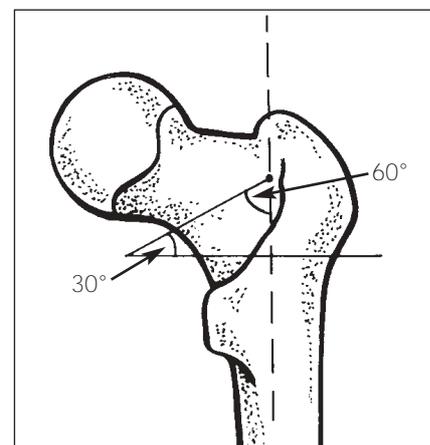


Fig. 6 Orientation of the osteotomy lines.

# ABG® II

## Insertion of the ABGII trial cup

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### Exposure of the acetabulum

Insertion of the cup requires excellent exposure of the bony acetabulum. After practicing an "economic" capsulotomy, the anterior and posterior horns are ablated (Figs. 7 & 8).

The labrum is excised as well as the transverse ligament of the acetabulum.

Any possible osteophytes of the rear fundus are removed. Preliminary hollowing with a gouge chisel makes it possible to find the rear fundus and the upper edge of the obturator foramen in order to open up the areas of bone sclerosis.

The smallest reamer is used vertically to perfect this first hollowing (Fig. 9).



Fig. 7

Preparation of the acetabulum and hemispherical reaming until the exact size of the final implant is reached.



Fig. 8



Fig. 9

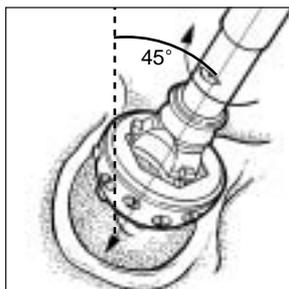


Fig. 10



Fig. 11

### Reaming

Reaming of the acetabulum is performed seeking a subchondral implantation of the cup which is by far the most preferable for good biological fixation.

The bony acetabulum is prepared using reamers the sizing of which increases in 2mm increments. It is suggested that an inclination of between 40-45 degrees and an anteversion of 15 degrees approximately should be achieved. Reaming should continue until good bleeding subchondral bone has been obtained and the trial cup is stable and sufficiently covered by acetabular bone. During the use of the last reamer it is recommended that excessive rotational movements are not made, so as not to produce an oversized or oval shaped cavity (Figs. 10 & 11).

### Insertion of the ABG®II trial cup

The trial cup with a diameter identical to that of the last reamer (line to line) is introduced into the acetabulum by impaction following the same anteversion and inclination as that of the reamer (Fig. 12).

This trial cup should be stable within the acetabulum and the holes make it possible to check if good contact with the bone has been obtained. If both of these points are satisfactory an acetabular shell of corresponding size should be chosen.

If the trial cup is unstable it is necessary to ensure that no soft or capsular tissue is overlapping the edge of the acetabulum making impaction of the trial cup difficult.

Instability may sometimes be due to insufficient reaming. To address this issue use a reamer 2 to 4mm smaller than the size of the trial cup and recheck stability.

Once stability has been achieved the trial cup can then be removed.

If required, any subchondral lesions can be opened, curetted and filled with cancellous bone taken from the remains of the femoral head.

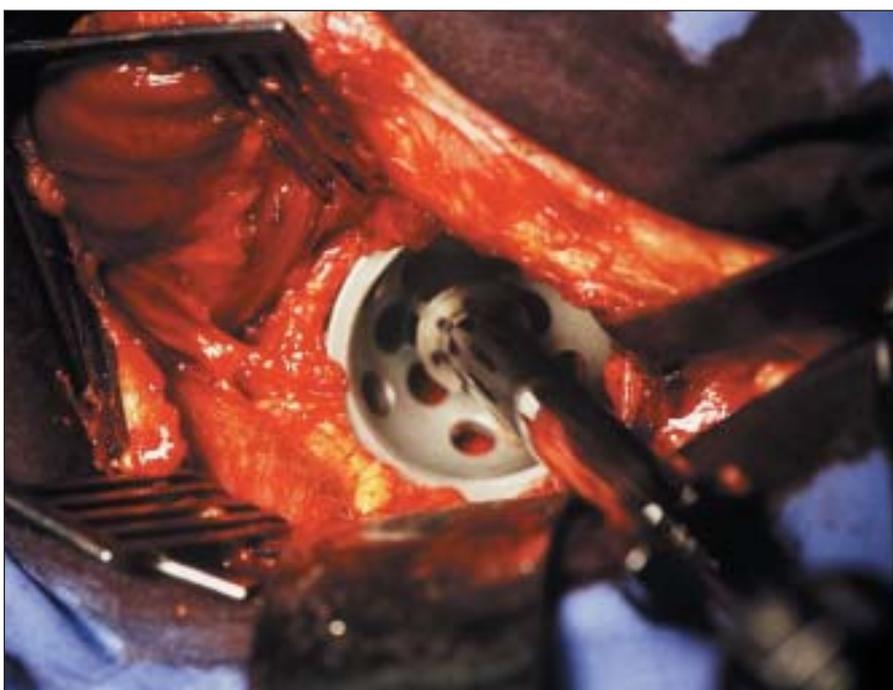


Fig. 12 Insertion of the trial cup in order to check stability, and determine correct sizing of the acetabular component.

# ABG® II

## Insertion of the ABGII no-hole cup

The ABG®II cup is available in 2 options: holed and no-holed.

The ABGII ceramic-ceramic (alumina) cup comes in 3 versions. These are: No-hole / solid back cup, 3 hole cup – for 46mm, 48mm and 50mm cups and 5 hole cup – for 52mm and above.

### The ABG®II no-hole / Solid back cup

For primary surgery.

### Fixing the spikes

After opening the internal packaging, the cup is fixed to the cup-holder screwdriver.

Using a "spikedriver", screw 2 x 8mm spikes into holes adjacent to the row of holes closest to the pole. It is important that the spikes be screwed in as firmly as possible (Fig. 13).

It is possible to use only one spike if the bone quality allows.

### Insertion of the cup

The cup is then fixed on the acetabular impactor and the cup-holder screwdriver removed.

The cup is impacted into the acetabulum following an inclination of 45° and an anteversion of approximately 15°. This is obtained by introducing the cup in such a way that the spikes penetrate the upper part of the acetabulum at 11 and 1 o'clock (Fig. 14).

The cup is then impacted until it penetrates the bony acetabulum correctly (the lower edge of the shell should be flush with the upper edge of the obturator foramen). The stability of the cup is then checked.

If there is not sufficient stability, the cup is removed to ensure that there is no impingement of the capsule or the soft tissue. In some cases stability can be improved by the addition of a third 8mm spike inplaced in a triangular formation and screwed into the most equatorial line. The shell can then be reimplanted and its stability checked.

The acetabular impactor is removed and a trial insert is put in place.



Fig. 13 Fixing the spikes.  
No-hole cup.

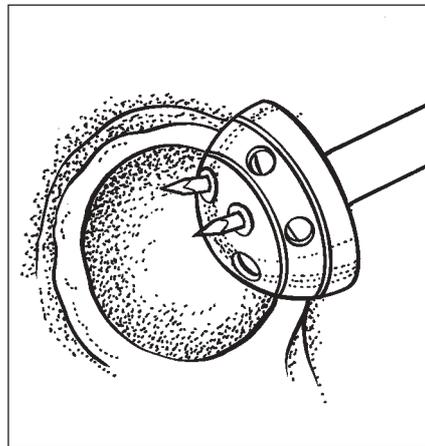


Fig. 14 Insertion of the  
no-hole cup.

### The ABG® II holed cup

This cup is rarely used in primary surgery and is used mainly in revision surgery.

### Fixing the spikes

After opening the internal packaging, the cup is fixed to the cup-holder screwdriver (Fig. 15). Use of two spikes (7mm or 9mm) is recommended. Using a hexagonal screwdriver, the spikes should be screwed to the interior of the cup, in 2 holes adjacent to the row of holes closest to the pole. It is important that the spikes be screwed in as firmly as possible.

### Threaded obturators

One or several obturators may be screwed into the unused holes. They have been designed to reduce the risk of particle migration into surrounding bone.

The obturators must be introduced using the hexagonal socket screwdriver and screwed down fully.

The cup is then fixed on the acetabular impactor and the cup-holder screwdriver withdrawn (Fig. 17).

### Insertion of the cup

The cup is impacted into the acetabulum following an inclination of 45° and an anteversion of approximately 15°. This is obtained by introducing the cup in such a way that the spikes penetrate the upper part of the acetabulum at 11 and 1 o'clock (Fig. 14).

The cup is then impacted until it penetrates the bony acetabulum correctly (the lower edge of the shell should be flush with the upper edge of the obturator foramen). The stability of the cup is then checked, the acetabular impactor removed and a trial liner introduced.

If there is not sufficient stability, the cup is removed to ensure that there is no impingement of the capsule or the soft tissue.

### Insertion of the cancellous bone screws

In some cases of instability, or during revision surgery, the spikes may be replaced by 6mm cancellous bone screws. The drill guide and its end will be screwed into the implantation hole using a socket screwdriver. A mesh of the required length is put in the drill guide in order to drill the cancellous bone. The drill guide is then removed. The gauge makes it possible to measure the length of the screw, which will be inserted with the socket screwdriver. It is important to make sure that the screw, interlocked with the prosthetic acetabulum by means of its double screw thread, is driven in sufficiently and that it does not overlap its housing in order to avoid a conflict with the permanent insert. One or several screws may be used.

The permanent insert is then put in place.



Fig. 15 The 5-hole cup fixed with the cup-holder screwdriver.



Fig. 16 Fixing the spikes.

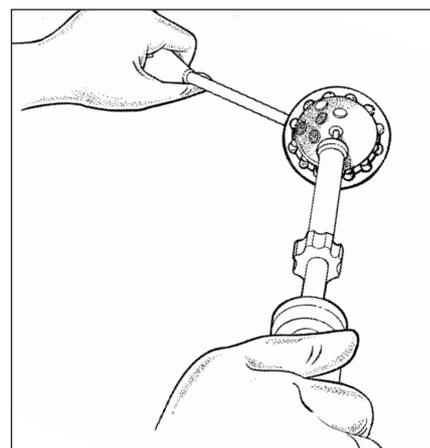


Fig. 17 Fixing the cup on the impactor.

# ABG® II

## Insertion of the ABGII ceramic-ceramic cup

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### Key points of the surgical technique

- ✓ Do not combine components from different manufacturers.
- Do not use ceramic femoral heads from other manufacturers with Stryker ceramic inserts.
- Do not use metallic femoral heads with Stryker ceramic inserts.
- Do not use zirconia femoral heads with Stryker ceramic inserts.
- Make sure that the Stryker ceramic femoral heads are used with approved femoral stems. The instructions contained in the implant packaging must be referred to for information about the approval of the product.
- ✓ Particular points about the use of ceramics
- The implants are sterile when delivered and must never be resterilised.
- All precautions must be taken to avoid any damage including contact with metal or any other abrasive material.
- Never use equipment which shows signs of damage.
- Never reuse a ceramic insert.

### ✓ Main points of the actual surgical technique

- Pre-operative planning is necessary to determine the right size of implant and correct positioning of the acetabular cup and the centre of rotation of the hip.
- Correct assembly of the insert and the ceramic head regarding their respective spigots is fundamental in preserving the integrity of the prosthetic joint.
- Incorrect positioning of the insert or the head may cause a difference in the length of the neck, separation of the implants, or even a fracture of the head.
- All surfaces must be clean, dry and free from debris before assembly.
- Any ceramic implant can only be assembled with its surface matted once. The matting must be light. The stability of the implant is controlled with the finger. The inclination and anteversion of the cup must be chosen to avoid any conflict.
- Some publications indicate that positioning the cup close to 45° would make it possible to obtain optimal results.<sup>1,2</sup>
- A special instrument has been created to extract the insert if necessary.

**Metaphyseal housing**

The leg is dislocated again.

Using a gouge chisel, all the residue of the femoral neck is resected and the metaphyseal housing of the implant is prepared.

<b>Chisels</b>	8 mm	12 mm	16 mm
<b>Stems</b>	1, 2, 3	4, 5, 6	7, 8

**Correspondence**

By using the hollow chisel adapted to the size of the implant and fixed to the broach handle, a cylinder of cancellous bone is removed from the metaphysis taking care to preserve the calcar femorale to the maximum (Fig. 18).

Depending on the side being operated, the smallest broach, left or right, is then introduced to find the medullary canal (Fig. 19).

If the pre-operative planning anticipates a possible conflict between the prosthetic stem and the diaphyseal cortex, it is advisable to ream further with a diameter corresponding to the chosen implant and shown on the template.

The drilling guide and then the flexible reamers are introduced starting with the size corresponding to the diameter of the femoral medullary canal measured during the pre-operative planning.

**Use of broaches/trial prostheses**

**Broaching**

After checking that they correspond to the side being operated, the broaches are fixed to the broach handle. They are introduced beginning with the smallest size up to the size chosen during pre-op planning and favouring external penetration in order to avoid a varus position.

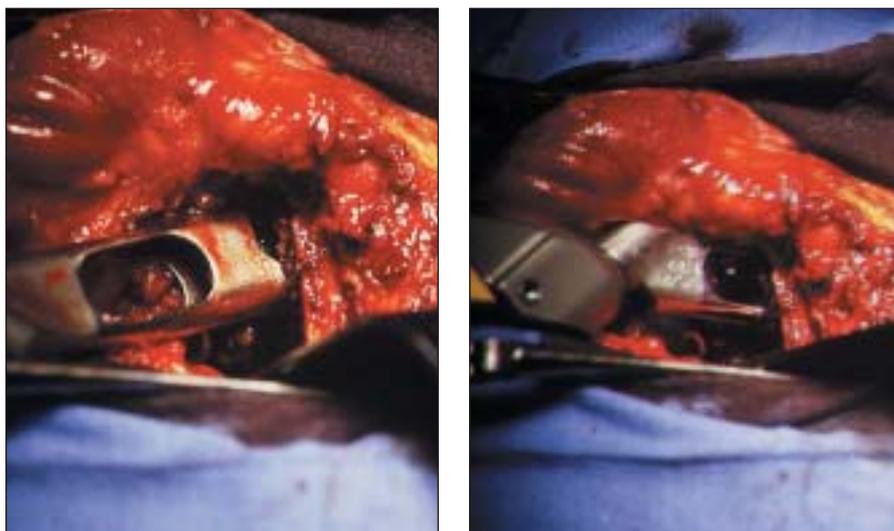


Fig. 18 Opening of the canal with the hollow chisel.

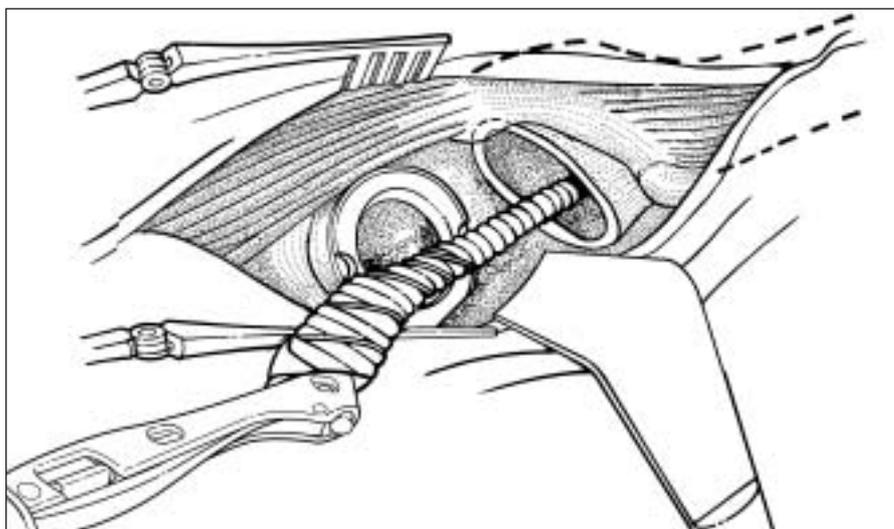


Fig. 19 A broach (size 1 or 2) is inserted to locate the medullary canal.

The broach/trial prosthesis will determine the size of the permanent implant if two conditions are fulfilled:

- The broach must be pushed down to the correct level: the shoulder of the broach must be at the level of the trochanteric fossa.
- The broach must be perfectly stable in the transverse direction (varus-valgus) and particularly in rotation.
- It is often useful to check the correct positioning of the broach by measuring the distance between the internal edge of the broach and the external cortex of the calcar femorale.

# ABG® II

## Use of broaches/ trial prostheses

If, despite correct reaming, a broach/trial prosthesis smaller than the size anticipated in planning is perfectly stable in rotation (perhaps due to an anteroposterior narrowing of the neck), the use of a larger size must not be attempted because of the risk of a metaphyseal fissure or fracture.

Conversely, if the broach/trial prosthesis is unstable, the following solutions may be considered:

- Use of a larger broach on condition that the reamer is put in previously following the data given on the template.
- Stabilise the planned implant with a cortico-cancellous bone graft taken from the remains of the resected part (Please note however that stability of the implant should rarely be entrusted to bone graft).
- Seal an ABG®II femoral stem in Vitallium® (not compatible with alumina heads) with cement. (If available in your area).

### Reduction trial

With the broach left in place, a trial head of a length corresponding to the planned length is placed onto the spigot (Fig. 20).

The hip is reduced and the following can be checked (Fig. 21):

- Leg length – this can be adjusted using plus or minus trial heads and of the diameter corresponding to that of the insert.
- Stability of the hip.
- Absence of impingement.

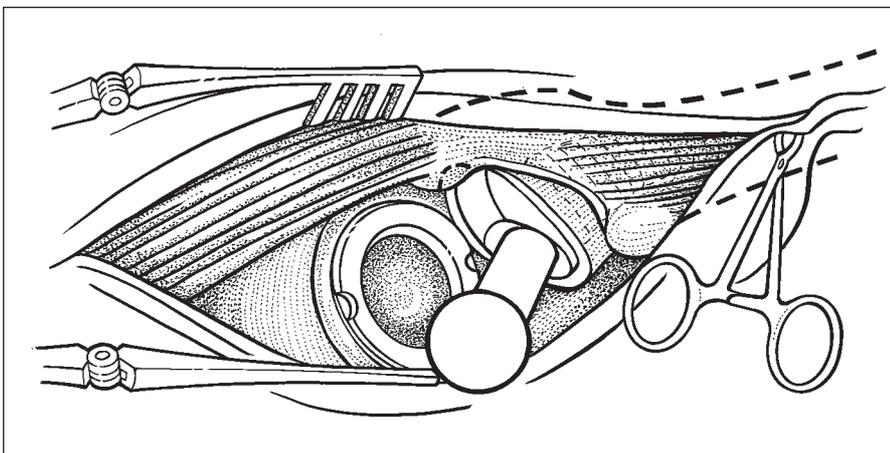


Fig. 20



Fig. 21

### Placement of the permanent polyethylene insert

The hip is again dislocated and the trial head and then the broach/trial prosthesis are removed along with the trial insert.

The interior of the cup is cleaned and it should be made sure that there are no overlapping posterior and antero-superior osteophytes present. The permanent insert, standard or hooded, is placed into position and impacted using the insert impactor.

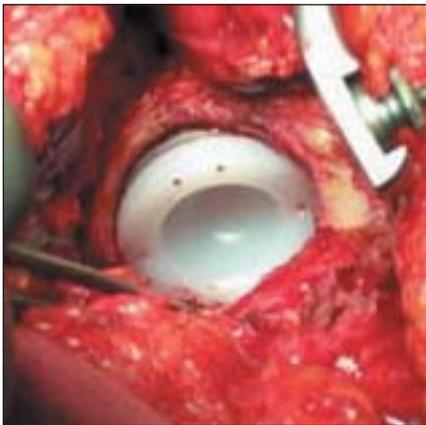


Fig. 22 Placement of the polyethylene insert.

### Placement of a ceramic insert

The hip is dislocated again, the broach removed, the trial insert is taken out of the cup and the ceramic insert put in place. It is essential that the internal surface of the ABG®II cup is clean, dry and free from any debris as this may impede the correct locking of the insert in the cup.

The insert-holder vacuum extractor is mounted on the ABGII impactor/orientator (Fig. 24).



Fig. 23 Placement of the ceramic insert.

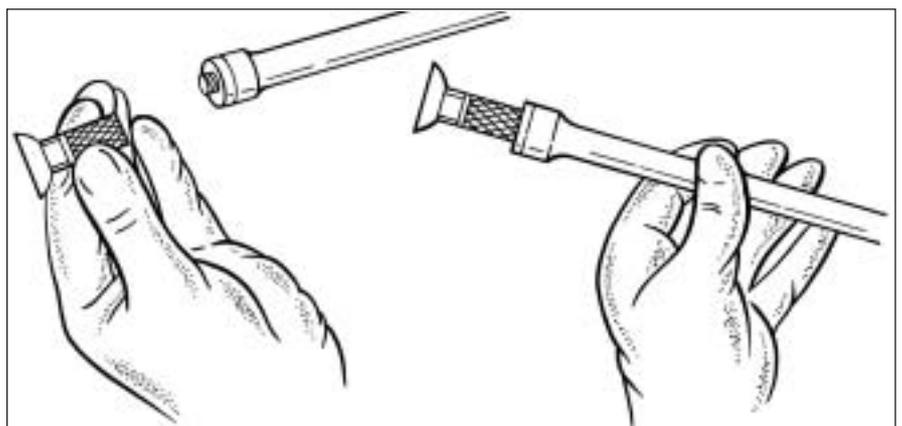


Fig. 24 Use of the insert-holder vacuum extractor.

# ABG® II

## Ceramic-Ceramic

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The ceramic insert is taken out of its packaging using the impactor/insert-holder vacuum extractor unit (Fig. 25). It is then placed correctly in the previously cleaned ABG®II cup (Fig. 26).

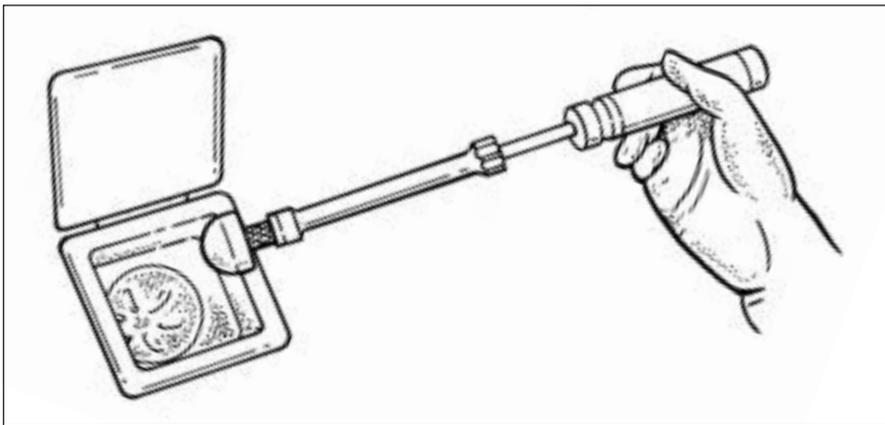


Fig. 25



Fig. 26

Check that the insert is correctly positioned and is perfectly symmetrical with the interior of the cup.



Fig. 27

If the insert is correctly positioned, it should only require one finger to fix it in place (Fig. 27). However, if the insert is slightly inclined in the cup it must be taken out to check for a possible interposition of tissues causing this deviation. Perfect congruence between the insert and the implant must be obtained.

### Impaction of the ceramic insert

The impaction flange is mounted on the ABG®II impactor/orientator, and the insert is impacted into the ABGII cup by applying a light tap with the mallet in the axis of the cup (Fig. 28).

### Amplitude of movement and conflict with the prosthetic neck

At the time of the femoral implant reduction trial, it is essential to test the mobility of the hip throughout the amplitude of movement, to ensure that the prosthetic neck does not come into contact with the edge of the cup. If there is contact, a "click" can be clearly heard and felt.

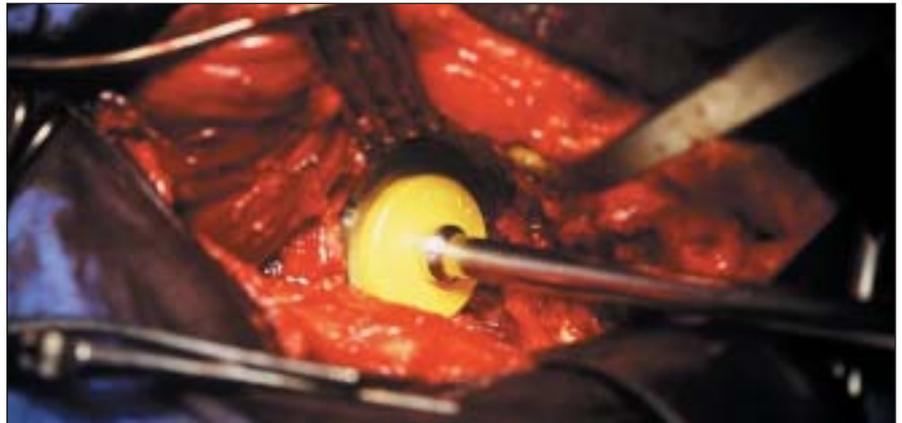


Fig. 28 Impaction of the insert.

### Extraction of the ceramic insert

In certain cases of revision, or if there is conflict with the stem, it may be necessary to remove the ceramic insert from the ABGII cup. The extraction flange (4930-9-12X) is screwed onto the ABGII impactor/orientator and placed against the titanium edge of the ABGII cup. A tap of the mallet applied to the metallic cup, well into the axis, will make it possible to free the ceramic insert, which can then be grasped with the insert-holder vacuum extractor (Fig. 29). Under the pressure of the insert-holder vacuum extractor, the insert may get stuck in the cup again; a gentle rotation of the impactor/orientator will then make it possible to release the insert.



Fig. 29 Extraction of the insert.

# ABG® II

## Implantation of the femoral unit

### Implantation of the femoral unit

Insertion of the Cementless ABG®II stem must be performed whilst taking care to avoid touching the hydroxyapatite with gloves. The distal part of the stem is introduced manually until the stem starts to become wedged (generally at the last centimetre). Then it is necessary to hammer gently and repeatedly until the stem stops. Before impaction it is often useful to place part of the cylinder of cancellous bone removed with the hollow chisel between the calcar femorale and internal edge of the prosthesis in order to avoid a varus position.

Using the femoral impactor, the prosthesis is introduced into the femur, tapping it carefully until the shoulder of the prosthesis is flush with the trochanteric fossa (Fig. 30).

Using the trial heads and following trial reduction, leg length can again be checked (Figs. 31 & 32).

### Insertion of the permanent head

It is essential to wash and then dry the Morse taper before the insertion of the permanent head.

Whether it is in cobalt chrome or in alumina, the head should never be struck but rather pushed onto the tapered cone.

### V40™ Heads

The ABGII HA implant (with hydroxyapatite coating) is only compatible with the range of Stryker® V40™ femoral heads. These heads have a taper of 5°40' with an entry diameter of 11.3mm and are available in Vitallium® (alloy of cobalt-chrome) and in alumina.

The +8mm heads must only be used with stems sizes 2 to 8. They are not suitable with size 1 stems.

#### Table of heads

Heads in Vitallium® (CoCr) V40™			
Diameter	22.2mm	28mm	32mm
Short necks	-	-4	-4
Standard necks	0	0	0
Long necks	+3	+4 +6 +8	+4 +8
Heads in Ceramic (Alumina) V40™			
Diameter	28mm	32mm	36mm*
Short necks	-2.7	-4	-5
Standard necks	0	0	0
Long necks	+4	+4	+5

(\*For Trident acetabulum)

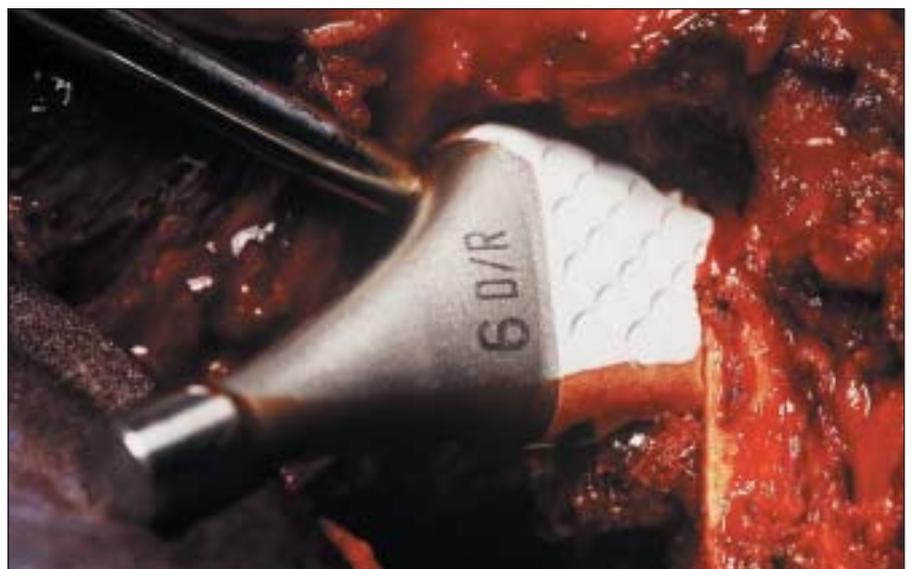


Fig. 30 Insertion of the permanent implant.

### Reduction

After copious washing of the joint cavity with normal saline solution (avoiding solutions with acid pH), the hip is reduced.

The capsulo-ligamentary plane is closed carefully in order to reduce the risk of post-operative dislocation. Care should be taken to avoid shortening of posterior capsular plane, which could create a risk of anterior stability.

### Post-operative period

24 to 48 hours after the operation, the patient can begin walking with complete support on elbow crutches for the first month post-operatively.

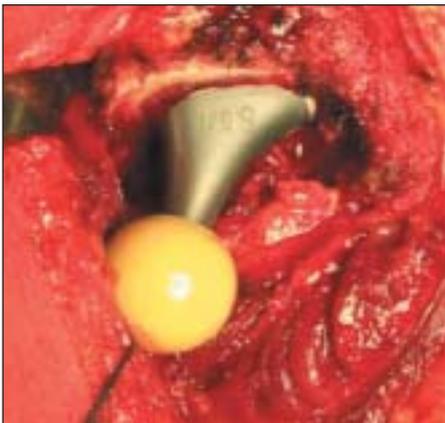


Fig. 31



Fig. 32

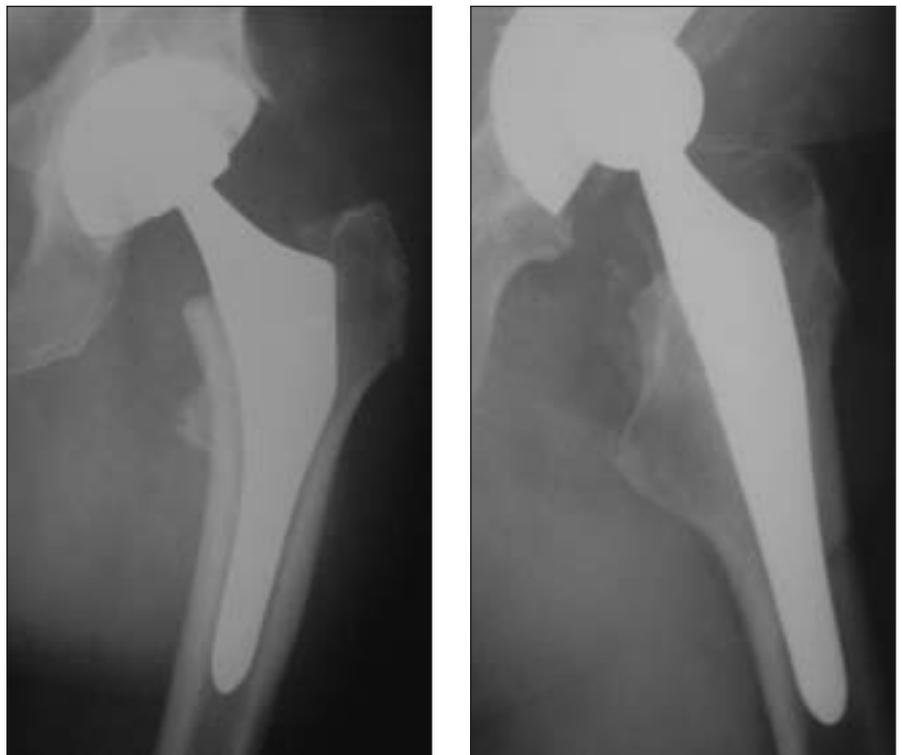


Fig. 33 Radiograph of an ABGII HA stem with ABGII cup (3 months post-operatively).

# Acetabular instrumentation for ABG®II cup

## ABG®II Ceramic-Ceramic instrumentation



### 4930-9-100\*

28mm Alumina insert-holder vacuum extractor



### 4930-9-110\*

Impaction flanges for 28mm alumina inserts

EXTRACTION FLANGES FOR ALUMINA INSERT\*

ITEM	SIZE (MM)
4930-9-121	FOR ED 46, 48, 50
4930-9-122	FOR ED 52, 54
4930-9-123	FOR ED 56, 58
4930-9-124	FOR ED 60, 62
4930-9-125	FOR ED 64, 66



\* The insert-holder vacuum extractor, the impaction flange and the extraction flange are provided for use with the ABGII impactor/orientator



### 4930-9-200

Box for ABGII ceramic-ceramic instrumentation



The instruments in the box highlighted in orange are specific to ceramic implants.

## Pre-operative templates

### ABGTP04E01

ABGII Ceramic Cup  
100% Magnification

### ABGTP08E02

ABGII Ceramic Cup  
110% Magnification

### ABGTP012E02

ABGII Ceramic Cup  
115% Magnification

### ABGTP016E02

ABGII Ceramic Cup  
120% Magnification

## To be used with ABG®II cups

### Pre-operative templates

#### ABGTP02E02

ABGII Standard PE Cup  
100% Magnification

#### ABGTP06E02

ABGII Standard PE Cup  
110% Magnification

#### ABGTP10E02

ABGII Standard PE Cup  
115% Magnification

#### ABGTP14E02

ABGII Standard PE Cup  
120% Magnification

#### ABGTP03E02

ABGII Hooded PE Cup  
100% Magnification

#### ABGTP07E02

ABGII Hooded PE Cup  
110% Magnification

#### ABGTP11E02

ABGII Hooded PE Cup  
115% Magnification

#### ABGTP15E02

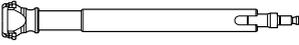
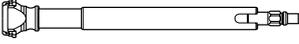
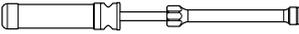
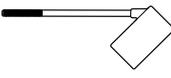
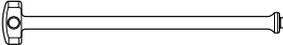
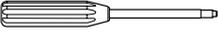
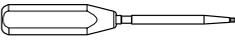
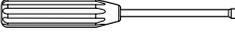
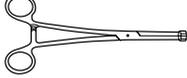
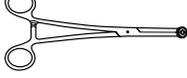
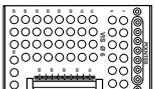
ABGII Hooded PE Cup  
120% Magnification

### ABG Acetabular reamers

ITEM	OUTER		ITEM	OUTER	
	DIA			DIA	
48390038	38mm		48390058	58mm	
48390040	40mm		48390060	60mm	
48390042	42mm		48390062	62mm	
48390044	44mm		48390064	64mm	
48390046	46mm		48390066	66mm	
48390048	48mm		48390068	68mm	
48390050	50mm		48390070	70mm	
48390052	52mm		48390072	72mm	
48390054	54mm		48390074	74mm	
48390056	56mm		48390076	76mm	



# Acetabular Instrumentation for ABG®II Cup

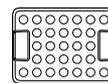
	<b>48390100</b> NBG Reamer Handle with Hudson Connection
	<b>48390110</b> NBG Reamer Handle with AO Connection
	<b>02881010</b> Hudson female / Jacobs male Adaptor
	<b>48496060</b> ABGII Cup Impactor/Orientator
	<b>48496080</b> ABGII Orientator Ring
	<b>48491000</b> Cup Extractor
	<b>48496070</b> Cup Holder Screwdriver
	<b>48498353</b> ABGII Hexagonal Socket Screwdriver
	<b>1826350</b> Standard Hexagonal Screwdriver
	<b>48496010</b> "Spikedriver" for 8mm Spikes
	<b>48492013</b> Standard Screw-holding Forceps
	<b>48492014</b> Curved Screw-holding Forceps
	<b>48493000</b> Double Drill Guide
	<b>48493015</b> Flexible Drill Diameter 3.2mm, Active Length 15mm
	<b>48493030</b> Flexible Drill Diameter 3.2mm, Active Length 30mm
	<b>48492012</b> Screw Depth Gauge
	<b>48496050</b> ABGII Spike, Screw and Obturator Sterilisation Case

To be used with ABG®II inserts

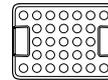
## ABGII Impactor Flanges

	<b>48494222</b> For Standard Inserts ID 22.2mm
	<b>48494228</b> For Standard Inserts ID 28mm
	<b>48494232</b> For Standard Inserts ID 32mm
	<b>48494322</b> For Hooded Inserts ID 22.2mm
	<b>48494328</b> For Hooded Inserts ID 28mm
	<b>48494332</b> For Hooded Inserts ID 32mm

ABG®II Acetabular instruments storage



**48496200**  
ABGII Acetabular Instrumentation  
Box (empty)



**48496100**  
Tray for Reamers, Trial Cups, Spikes  
(empty)  
Tray for Reamer Handles/Cup-  
holder Screwdriver/Cup  
Impactor/Screwdriver (empty)

# Femoral Instrumentation for ABG®II Stems

## Pre-operative Templates

### ABGTP01E02

ABGII Stem  
100% Magnification

### ABGTP05E02

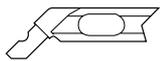
ABGII Stem  
110% Magnification

### ABGTP09E02

ABGII Stem  
115% Magnification

### ABGTP13E02

ABGII Stem  
120% Magnification



## Modular Hollow Chisels for Broach-holder Handle

ITEM	SIZE
48498008	8mm
48498012	12mm
48498016	16mm

## ABG Flexible Reamers Length 400mm

ITEM	DIAMETER
02224006	8mm
02224008	9mm
02224010	10mm
02224012	11mm
02224014	12mm
02224016	13mm
02224018	14mm
02224020	15mm
02224022	16mm
02224024	17mm
02224026	18mm

### 49001530

Flexible Reamer Guide ø3.2mm,  
L 520mm

### 0252-0-010

Trinkle female/Jacobs male Adaptor

### 44000420

Trinkle female/AO male Adaptor

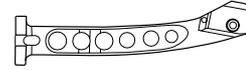
### 48424002

Diameter Gauge for ABGII Broaches  
and Flexible Reamers



### 49011600

New Posterior Approach ABGII  
Broach (V40™ Spigot)



### 49011540

Anterior Approach ABGII Broach  
Holder Handle (V40™ Spigot)



### 7300001

Hexagonal Screwdriver for ABGII  
Broach Holder (Anterior)



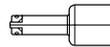
### 48421000

Femoral Impactor



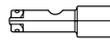
### 48422000

Reduction Guide



### 48498001

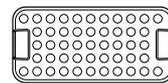
Plastic Modular Femoral Extractor  
for V40™ Spigot



### 48498002

Metal Modular Femoral Extractor  
for V40™ Spigot

## ABG®II Femoral Instrumentation Storage Box



### 48496300

ABGII Femoral Instrumentation Box  
(empty)

## "Classic" Broaches

Left	Size	Length (mm)	Right
4845-0-921	1	103	4845-0-911
4845-0-922	2	103	4845-0-912
4845-0-923	3	113	4845-0-913
4845-0-924	4	118	4845-0-914
4845-0-925	5	123	4845-0-915
4845-0-926	6	128	4845-0-916
4845-0-927	7	138	4845-0-917
4845-0-928	8	148	4845-0-918

## Modified "anti-varus" Broaches

Left	Size	Length (mm)	Right
4845-2-921	1	121	4845-2-911
4845-2-922	2	121	4845-2-912
4845-2-923	3	131	4845-2-913
4845-2-924	4	141	4845-2-914
4845-2-925	5	146	4845-2-915
4845-2-926	6	151	4845-2-916
4845-2-927	7	166	4845-2-917
4845-2-928	8	176	4845-2-918



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Joint Replacements

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Trauma

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Spine

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Micro Implants

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Orthobiologics

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Instruments

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Interventional Pain

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Navigation

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Endoscopy

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Communications

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Patient Handling Equipment

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EMS Equipment

## References

1. On the Material and Tribology of Alumina-Alumina Coupling for Hip Joint Prostheses - A. Walter - Clinical Orthopaedics and Related Research 282 p31-46, 1992.
2. Role of Ceramic Implants Design & Clinical Success with Total Hip Prosthetic Ceramic-to-Ceramic Bearings - I.C. Clarke - Clinical Orthopaedics and Related Research 282 p. 19-30, September 1992.

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