



MADE IN
SPAIN



ADVANCED EUROPEAN
TECHNOLOGY



Surgical Technique
Primary Hip Stems



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The new range
of primary stems...



...is a complete system designed to facilitate the surgeon's mission of restoring the patient's original anatomy.



- ✓ **More sizes**
- ✓ **125° y 135° CDA**
- ✓ **Collar & No Collar**
- ✓ **Standard Offset & High Offset**

A wide range of solutions for hip arthroplasty!

INDICATIONS



A hip arthroplasty is recommended for the following hip joint disorders:

- Primary and secondary arthrosis.
- Arthritic processes, such as rheumatoid arthritis.
- Atraumatic avascular necrosis.
- Effects of subluxation or congenital luxation.
- Post-traumatic disorders such as femoral neck or acetabular fractures.
- Unsuccessful reconstruction processes: proximal femoral osteotomy, arthrodesis, painful stent..

CONTRAINDICATIONS



As for CONTRAINDICATIONS, the following are described:

- Patients with allergies to any of the materials that make up the implant. To avoid this situation, patients should be given an allergy test previously.
- Presence of an active infection.
- Mass of proximal femur bone compromised by disease or previous implant preventing proper fixation and stem support.
- Vascular defect in the affected limb.
- Severe osteoporosis.
- Obesity.
- Severe pathologies such as cardiac, pulmonary, metabolic disorders... which can increase the risk of mortality
- Progressive neurological disease.
- Patients with metabolic disorders that may prevent proper bone formation

GENERAL NOTE

The implantation of this implant must be performed by or under the supervision of expert practitioners. They must also be familiar with the instrumentation associated with this surgical technique.

Technical Features:

12/14
Neck Taper

· 12/14 Neck Taper:

Compatible with Surgival CrCo, Stainless Steel and Ceramic femoral heads.

· Triple Taper Design:

The trapezoidal shape in the sagittal and frontal planes offers greater primary stability and prevents prosthetic subsidence. The distal part is progressively subdimensioned to reduce the rigidity of the implant and to improve the contact with the cancellous bone (secondary stability).

· Metaphyseal semicircular macro-structures:

Increase the contact surface, avoiding component subsidence and have antivaro effect.

· HA Coat:

130 micron HA Coating by Air Plasma Spraying.

· Longitudinal Grooves:

Increase the bone-implant contact surface, prevent rotation, decrease distal tightness with respect to the metaphyseal portion and improve the diaphyseal vascularization of the prosthetic femur.

· Small metaphyseal area:

The more contained dimensions of this stem in the metaphyseal area prevent intraoperative breaks.

Note: The Karey HA Size 8 stem could also be used for secondary osteoarthritis in dysplastic hips.



S6 Dysplasia

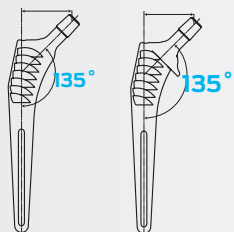
new!



Karey HA stems, **made of titanium alloy Ti6Al4V**, are indicated for total and partial hip arthroplasty.

Variants and sizes:

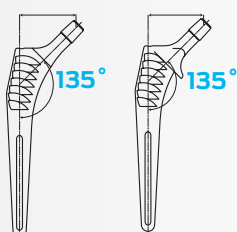
STANDARD OFFSET (SO)



NO COLLAR

COLLAR

HIGH OFFSET (HO)



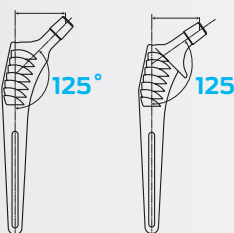
NO COLLAR

COLLAR

135° CDA

		SIZES									
STANDARD OFFSET	NO COLLAR	6	8	9	10	11	12	13	14	15	16
	COLLAR		8	9	10	11	12	13	14	15	16
HIGH OFFSET	NO COLLAR			9	10	11	12	13	14	15	16
	COLLAR			9	10	11	12	13	14	15	16

STANDARD OFFSET (SO)



NO COLLAR

COLLAR

HIGH OFFSET (HO)



COLLAR

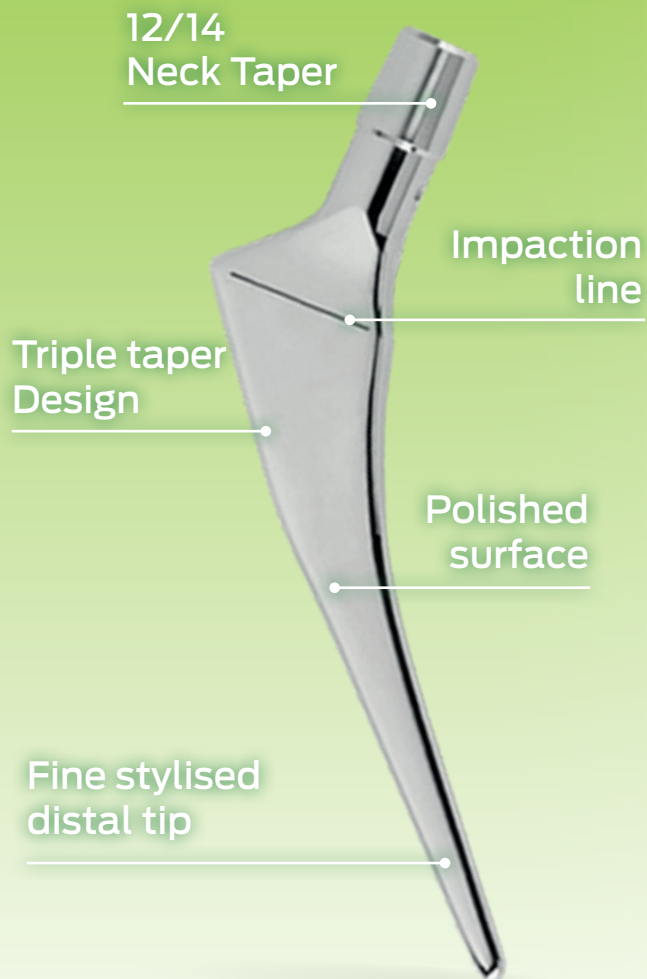
125° CDA

		SIZES									
STANDARD OFFSET	NO COLLAR			9	10						
	COLLAR			9	10	11	12	13	14	15	16
HIGH OFFSET	NO COLLAR										
	COLLAR			9	10	11	12	13	14	15	16

The result is **53 stem variants**
in the new KAREY-HA line



Technical Features:



· 12/14 Neck Taper:

Compatible with Surgival CrCo, Stainless Steel and Ceramic femoral heads.

· Triple Taper Design

The trapezoidal shape in the sagittal and frontal planes offers greater primary stability and prevents prosthetic subsidence.

· Polished surface and rounded edges:

Ensure proper adhesion to the cement, avoiding stress concentration.

· Fine stylised distal tip:

Prevents diaphyseal locking and provides a construction with distal flexibility so as not to compromise cemented fixation.

· Stems with hole for centraliser:

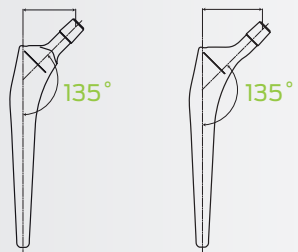
Allows for the use of a PMMA centraliser which guarantees the alignment and distal centralisation of the stem in the femoral diaphysis. (Only for SIZES 11 to 16)



Karey CN stems, **manufactured from nitrogen stainless steel (ISO 5832-9)**, are indicated for cemented use in both total and partial hip arthroplasties.

Variants and sizes

WITHOUT CENTRALISER



SO

HO

135°
(CDA)

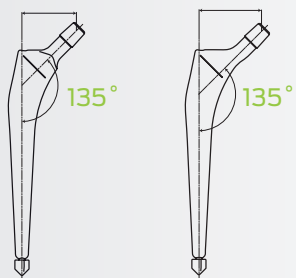
STANDARD OFFSET (SO)

HIGH OFFSET (HO)

SIZES WITHOUT CENTRALISER

8	9	10	11	12	13	14	15	16
	9	10	11	12	13	14	15	16

WITH CENTRALISER



SO

HO

135°
(CDA)

STANDARD OFFSET (SO)

HIGH OFFSET (HO)

SIZES WITH CENTRALISER

			11	12	13	14	15	16
			11	12	13	14	15	16

CENTRALISER DIAMETER

STEM S11 - S13 Ø 10

STEM S14 - S16 Ø 12



The result is **29 stem variants**
in the new Karey CN line.





Summary table of the 82 Karey Primary stem variants

	135 HA NO COLLAR		135 HA COLLAR		135 CN NO COLLAR		135 CN NO COLLAR CENTRALISER		125 HA COLLAR		125 HA NO COLLAR
	SO	HO	SO	HO	SO	HO	SO	HO	SO	HO	SO
Size 6	✓										
Size 8	✓		✓		✓						
Size 9	✓	✓	✓	✓	✓	✓			✓	✓	✓
Size 10	✓	✓	✓	✓	✓	✓			✓	✓	✓
Size 11	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Size 12	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Size 13	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Size 14	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Size 15	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Size 16	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Cementless Stems				Cemented Stems				Cementless Stems		

Surgical Technique · **Karey HA**

This publication contains detailed recommended procedures for using Surgival's devices and instruments and guidelines that you should consider. However, each surgeon should consider the special needs of the individual patient and make appropriate adjustments when necessary and as appropriate.

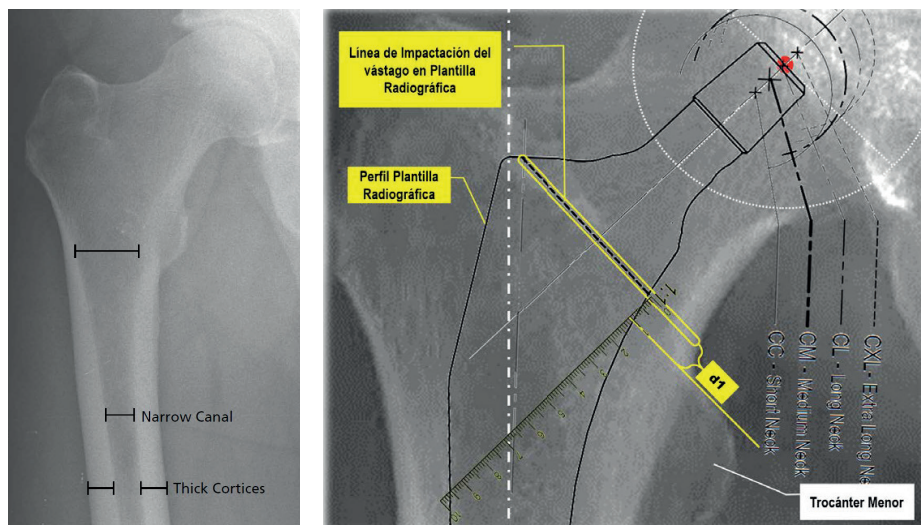


Surgival would like to thank Dr. Lorenzo Robres for his support in the development of the surgical techniques of the KAREY system.

1 Pre-operative planning with templates

The **essential purpose** of total hip arthroplasty is the **ANATOMICAL RECONSTRUCTION of the hip joint**, restoring the functionality and load-bearing capacity of the joint. This is why preoperative planning with templates is of particular importance, as detailed below.

The KAREY femoral stem system features pre-operative templates. The templates should be placed over the AP radiographs to help determine:



- the stem **size**
- the cervical-diaphyseal **angle** of 135° or 125° (Coxa Vara stem)
- the **length** and **offset** of the implant
- the position of the femoral neck **osteotomy** at 45°.
- discrepancy or asymmetry between the lower extremities if necessary.
- Entry point location for initial broaching.

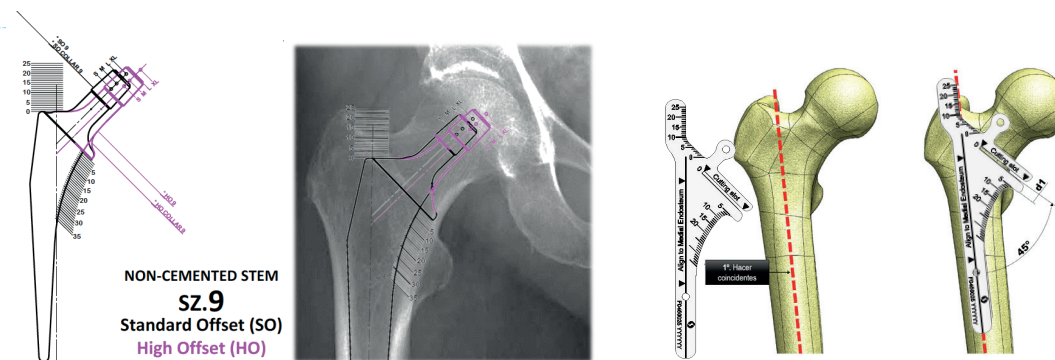
To correctly use the radiographic templates and select the size and model of the stem we plan to implant, we must ensure that the stem does not contact the cortical bone (the implant should be 1 to 2 mm from the cortical bone). The intention is to preserve the cortical bone as a support, avoiding stress-shielding.

1 Pre-operative planning with templates (continued)

The **templates have the same metric references as the Femoral Neck Osteotomy Guide**. This allows positioning of the femoral neck osteotomy in reference to the lesser and/or greater trochanter.

The KAREY stem system is available with the following preoperative templates in 2 versions:

- Stems with and without collar with normal neck angulation (135°).
- Stems coxa vara (125°) (from T9).



TEMPLATES - SIZES

135° (CDA)	STANDARD OFFSET	6	8	9	10	11	12	13	14	15	16
	HIGH OFFSET										
125° (CDA)	STANDARD OFFSET			9	10	11	12	13	14	15	16
	HIGH OFFSET										

Choose the KAREY template in which the stem shows a frontal and mid-lateral fit (without compromising the cortical) in the proximal two thirds of the stem and recreates the desired leg length and lateralisation.

Note: Templates are available in different magnifications. Special attention should be paid to match the magnification of the X-ray and the magnification of the template. To order digital templates, please contact your Surgical sales representative.



2 Approaches

(a) Lateral incision

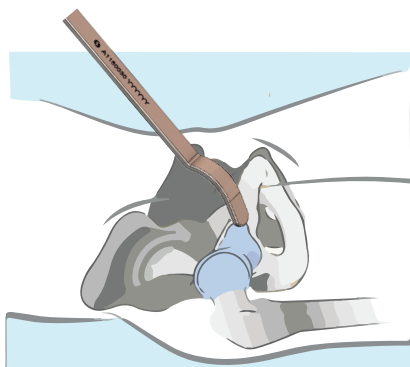


(b) Postero-lateral incision



The objective of any approach is the correct visualisation of the acetabulum and proximal femur.

The choice of approach is at the discretion of the surgeon according to his or her preference. The following figures show some conventional approaches, through a lateral (a) or postero-lateral (b) incision.



After **making the incision, dislocate the femoral head** with the femoral head lever.

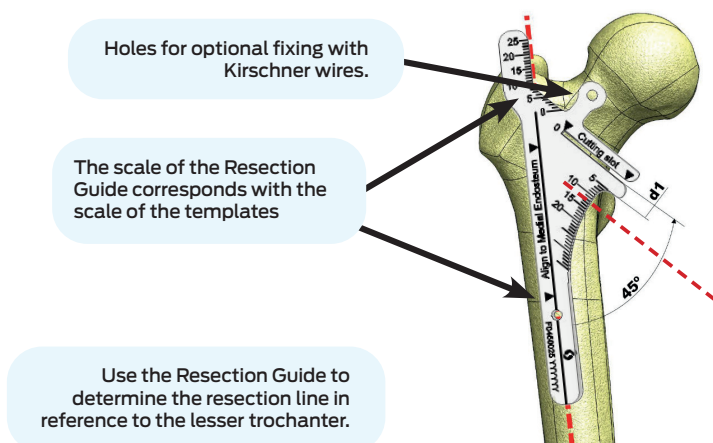
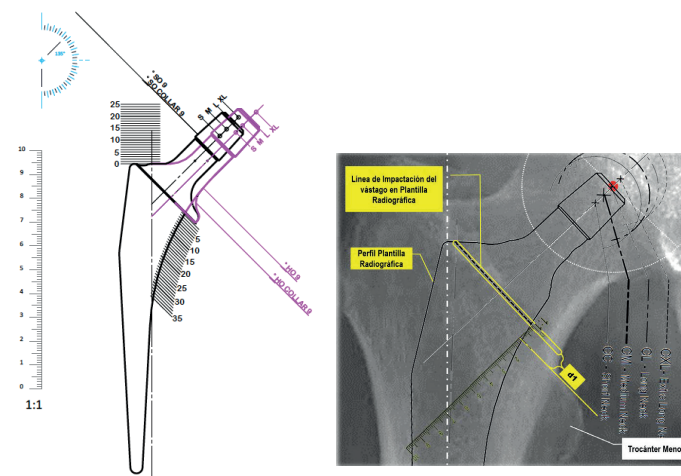
A1150030
Femoral Head Lever for dislocation
(available on demand - see page 60)



3 Femoral Neck Resection

Position the Femoral Neck Osteotomy Guide over the femur, aligned with the femoral axis. The correct alignment of the guide helps to determine the 45° of the femoral neck resection.

The guide has two reference rulers to identify the appropriate cutting height: one with respect to the greater trochanter and one with respect to the lesser trochanter. In this way, the measurement taken on the radiograph during preoperative planning can be reproduced.



Proceed with the osteotomy taking care to maintain the correct angle. The impaction line of the stem should coincide with the line of the femoral resection.

Assemble the modular T-handle with the femoral head modular extractor to remove the femoral head from the cotyloid cavity. In case of femoral neck fracture or anterior approach, perform this step before osteotomy.

Note: Do not use the Femoral Head Modular Extractor with surgical motor.

F0450025
Femoral Neck
Osteotomy Guide



F0450030
Femoral Head Modular Extractor



F0450040
Modular T-handle



4 Femoral Cavity Preparation

4.1. Femoral canal opening

To allow the broach to be inserted, **first chisel the metaphyseal area with the box osteotome**. Position as posteriorly and laterally as possible, parallel to the endomedullary canal. If necessary, the box osteotome can be tapped with a mallet.



F0450050
Box osteotome



4.2. IM canal drilling

Insert the channel finder drill parallel to the femoral axis as lateral as possible. **Drill the femoral canal without exceeding the length of the stem to be implanted.** The channel finder drill has depth markings corresponding to each stem size. The mark of the chosen size should be in line with the resection plane.

Note: Never connect the channel finder drill starter to a surgical motor. Don't impact on the modular T-handle.



F0450040
Modular T-handle



F0450035
Channel finder drill



4 Femoral Cavity Preparation (continued)

4.3. Broaching

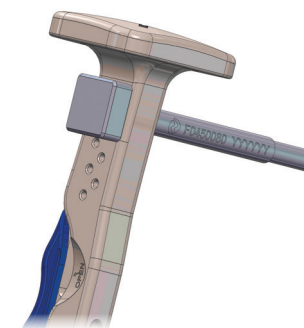
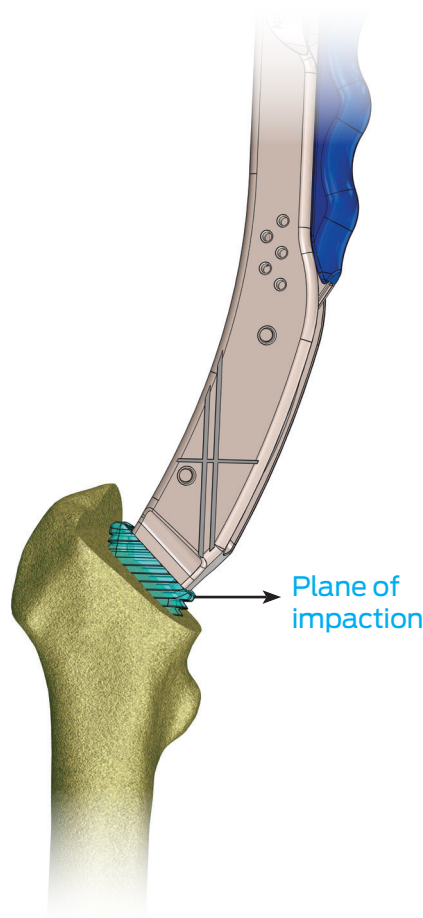
To start the broaching, put the smallest broach in the curved broach handle. Repeat this procedure, progressively increasing the size of the broach until it contacts the endomedullary cortex.

The broach is impacted until its plane of impaction coincides with the femoral resection (at 45°). This line coincides with the impaction line of the definitive stem.

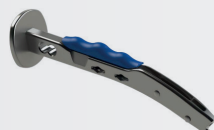
To extract the broach, tap the cap overhang of the curved broach handle or the compactor-anteversion bar, in an ascending direction.

An anatomical anteversion between 10° and 15° should be established during the broaching procedure with the aid of the anteversion bar.

Note: Both insertion and extraction of the broaches must be done with the curved broach handle lever fully closed.



F0450085
Curved
broach
handle



F0450106
Karey modular broach 6 (Dysplasia)

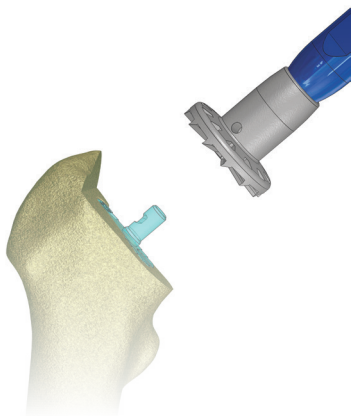
F0450108 - F0450116
Karey modular broaches S8 to S16



F0450080
Compactor-Anteversion bar



5 Calcar Reaming (optional)



To achieve a completely flat resection surface suitable for seating the implant collar, the calcar planer reamer can be used.

Choose the $\varnothing 25$ or $\varnothing 40$ calcar planer reamer depending on the patient's anatomy and the size of the stem to implant. Connect it to the T-handle (manual use) or to the surgical motor.

Insert the calcar reamer on the spike of the broach, which will serve as its axis of rotation.



Note: Small bone areas not reached by the diameter of the calcar planer reamer can easily be revised with a surgical saw, chisel or scalpel.

F0450040
Modular T-handle



F0450615
Calcar planer reamer $\varnothing 25$



F0450605
Calcar planer reamer $\varnothing 40$



6 Trial reduction with broaches

The Karey system has **modular necks** that adjust to the last broach implanted and offer all the possibilities of the definitive stem of the KAREY range.

NECK TRIAL without COLLAR					
CDA 135°	STD OFFSET	NECK S6	NECK S8 to S11	NECK S12 to S14	NECK S15 & S16
	HIGH OFFSET		NECK S9 to S11	NECK S12 to S14	NECK S15 & S16
CDA 125°	STD OFFSET		NECK S9 to S10		

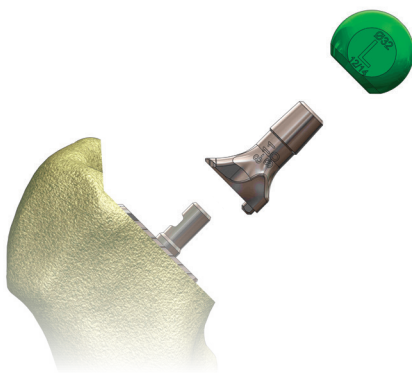


F0450XXX
Neck Trial

NECK TRIAL with COLLAR					
CDA 135°	STD OFFSET		NECK S8 to S11	NECK S12 to S14	NECK S15 & S16
	HIGH OFFSET		NECK S9 to S11	NECK S12 to S14	NECK S15 & S16
CDA 125°	STD OFFSET		NECK S9 & S10	NECK S11 to S13	NECK S14 to S16
	HIGH OFFSET		NECK S9 & S10	NECK S11 to S13	NECK S14 to S16



F0450XXX
Neck Trial COLLAR



Assemble the selected neck on the implanted broach. Test the femoral head selected in the preoperative procedure, with the different neck lengths (S-M-L-XL).

Reduce the joint to **check stability and range of motion**.

Remove the trial femoral head, trial neck and broach.

7 Femoral stem insertion and impaction

Do not irrigate or dry the femoral canal to preserve the trabecular bone compacted by the broach and to increase press-fit and osseointegration of the cementless stem.

1- Position the tips of the external shaft of the inserter in the flats of the stem hole.

2 - Align the inserter with the longitudinal axis of the stem.

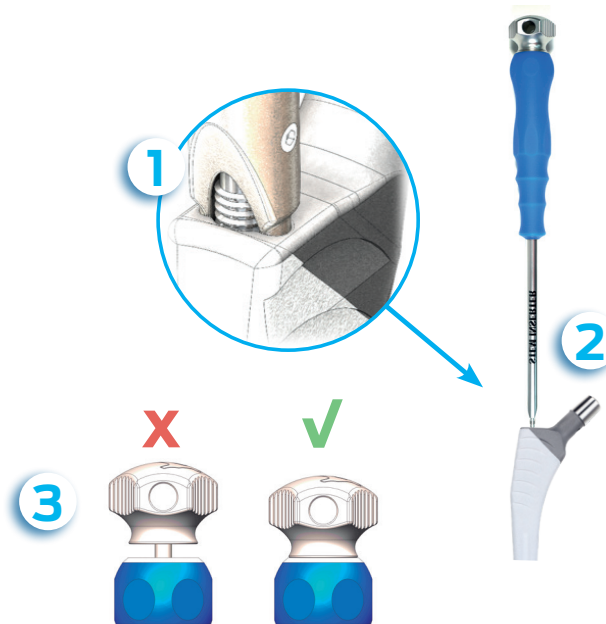
3- Screw the inserter into the stem bore until the upper part contacts the handle

NOTE: Never impact the end cap of the Inserter if it has not made contact with the handle.

4- Tap the end of the inserter to insert the stem into the broached cavity.

5- In case of slight resistance, finish the insertion with the Shoulder Impactor, tapping the inserter until the HA coating line coincides with the femoral resection.

Note: If intraoperative removal of a non-osseointegrated stem is necessary, see ANNEX A (page 46).



F0450610
Stem
inserter-impactor



F0450065
impactor on stem
shoulder

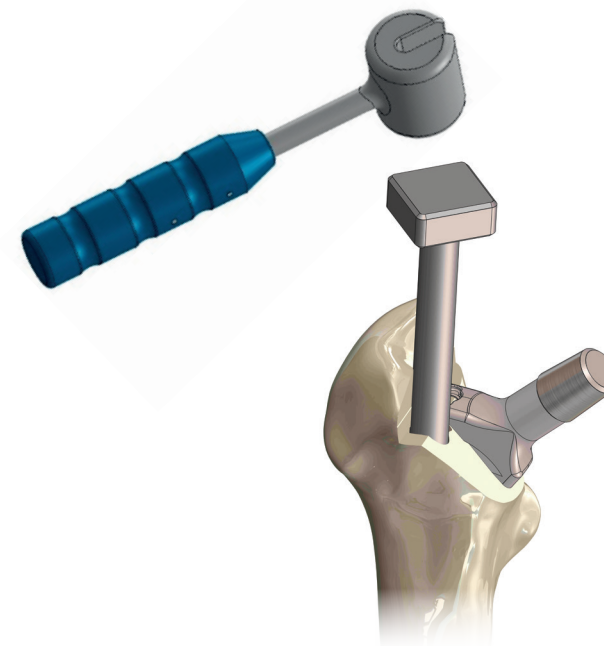


7 Femoral stem insertion and impaction (continued)

Addition of autologous bone graft (optional).

Once the stem has been definitively implanted, it is recommended to add trabecular bone, previously extracted from the femoral head or from the chiselling of the metaphyseal area.

With the help of the compactor-anteversion bar, compact the bone around the stem to seal the femoral canal, provide structural support and promote secondary bone fixation.



F0450080
Compactor-Anteversion bar

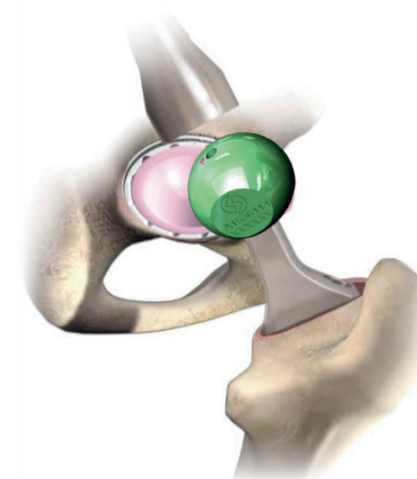


8 Final trial reduction with Karey stem

Do not omit this step. **Only the final stem provides the final neck length.** In trial reduction with broaches, the same neck trial is used for several sizes, while each stem has different dimensions.

With the KAREY stem implanted, **place the trial femoral head** of the appropriate diameter and neck length (S-M-L-XL) and **reduce the joint** to evaluate ligament tension, stability, mobility and length of the extremity.

Extract the trial femoral head.



A1536160 - A1536162
Trial femoral heads Ø22



A1536140 - A1536143
Trial femoral heads Ø28



A1536113 - A1536116
Trial femoral heads Ø32



A1536070 - A1536073
Trial femoral heads Ø36



A1536080 - A1536083
Trial femoral heads Ø40

9 Femoral head implantation



Fully clean the surface of the stem taper before **inserting the femoral head** by hand, especially if a ceramic femoral head is to be implanted.

Impact with the femoral head impactor aligned with the axis of the stem neck and reduce the joint. Finally, check that all articular surfaces (femoral head and cup insert) are clean and **reduce the hip definitively.**

Note: Never use a metal hammer on the femoral head.

F0450070
Femoral Head Impactor



Surgical Technique · **Karey HA S6**

IMPORTANT NOTE:

This Surgical Technique is for KAREY-HA Stem Size 6 only.

This stem is contraindicated for hemiarthroplasty.



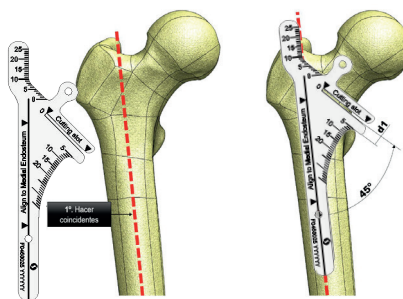
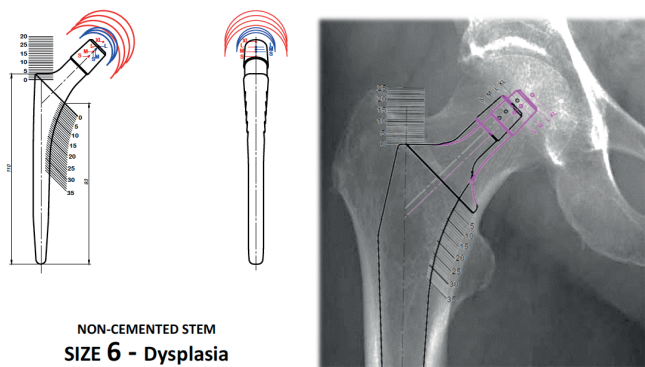
1 Pre-operative planning with templates

The KAREY femoral stem system features pre-operative templates. The templates are placed over the AP radiographs to help determine:

- the stem **size**
- the cervical-diaphyseal **angle** of 135°
- the **length** and **offset** of the implant
- the position of the femoral neck **osteotomy** at 45°.
- discrepancy or asymmetry between the lower extremities if necessary.
- Position of the incision point over the piriform fossa

The KAREY HA system has a **specific template for the SIZE 6 stem**, indicated for dysplasia.

This **template has the same metric references as the Femoral Neck Osteotomy Guide**. This allows positioning of the femoral neck osteotomy in reference to the lesser and/or greater trochanter.

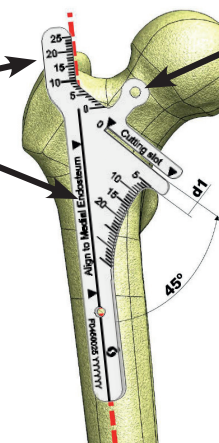


Note:
Templates are available in different magnifications. Special attention should be paid to match the magnification of the X-ray and the magnification of the template. To order digital templates, please contact your Surgival sales representative.

2 Femoral neck resection



The scale of the Resection Guide corresponds with the scale of the templates



Holes for optional fixing with Kirschner wires.

Use the Resection Guide to determine the resection line in reference to the lesser trochanter.

Dislocate the femoral head.

Position the Femoral Neck Osteotomy Guide over the femur, aligned with the femoral axis. The correct alignment of the guide helps to determine the 45° of the femoral neck resection.

Proceed with the osteotomy taking care to maintain the correct angle. The impaction line of the Karey S6 stem should coincide with the line of the femoral resection.

Note: Do not use the Femoral Head Modular Extractor with surgical motor.

F0450025
Femoral Neck
Osteotomy Guide



A1150030
Femoral Head Lever for
dislocation



Available on demande

F0450030
Femoral Head Modular Extractor



F0450040
Modular
T-handle

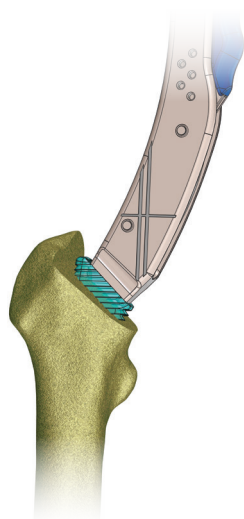


3 Femoral Cavity Preparation

Note: For a stem size 6 (dysplasia), metaphyseal **preparation with the chisel or osteotome should not be performed**. It could compromise the press-fit of the stem fixation in this area. It is recommended to perform the intramedullary femoral canal preparation directly.

Insert the channel finder drill parallel to the femoral axis as lateral as possible. **Drill the femoral canal without exceeding the length of the Karey stem S6 marked on the drill.**

Note: Never connect the channel finder drill starter to a surgical motor. Don't impact on the modular T-handle.



Assemble the size 6 broach into the curved broach handle and impact until its impaction plane coincides with the femoral resection.

To extract the broach, tap the cap overhang of the curved broach handle or the compactor-anteversion bar, in an ascending direction.

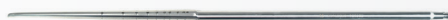
An anatomical anteversion between 10° and 15° should be established during the broaching procedure with the aid of the anteversion bar.



F0450040
Modular
T-handle



F0450035
Channel finder Drill



F0450085
Curved broach
handle



F0450106
Karey modular
broach 6 (Dysplasia)



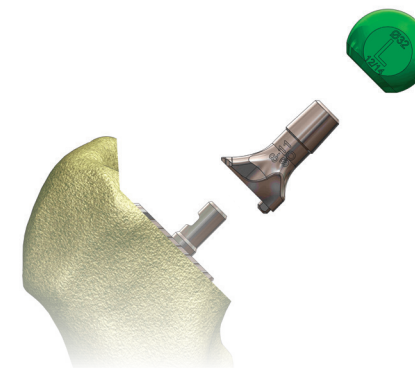
F0450080
Compactor-Anteversion bar



4 Trial reduction with broaches

The Karey system has a **specific modular neck for the Size 6 broach** (standard offset, CDA 135°) and femoral trial heads in different diameters with four possible neck lengths (S-M-L-XL).

Note: Both insertion and extraction of the broaches must be done with the curved broach handle lever fully closed.



Reduce the joint to **check stability and range of motion**.

Remove the trial femoral head, trial neck and broach.

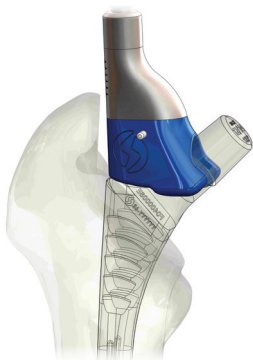
5 Femoral stem insertion and impaction

Do not irrigate or dry the femoral canal to preserve the trabecular bone compacted by the broach and to increase press-fit and osseointegration of the cementless stem.

Insert the stem manually into the broached cavity.

Impact with the stem shoulder impactor until the HA coating line coincides with the femoral resection.

Note: If intraoperative removal of a non-osseointegrated stem is necessary, see ANNEX A (page 46).



F0450206
Neck Trial
S6 (dysplasia)



F0450065
Impactor on
stem shoulder



6 Final trial reduction with Karey HA S6 stem

With the KAREY HA S6 stem implanted, **place the trial femoral head** of the appropriate diameter and neck length (S-M-L-XL) and **reduce the joint** to evaluate ligament tension, stability, mobility and length of the extremity.

Extract the trial femoral head.



7 Femoral head implantation



Fully clean the surface of the stem taper before **inserting the femoral head** by hand, especially if a ceramic femoral head is to be implanted.

Impact with the femoral head impactor aligned with the axis of the stem neck and reduce the joint. Finally, check that all articular surfaces (femoral head and cup insert) are clean and **reduce the hip definitively**.

Note: Never use a metal hammer on the femoral head.

F0450070
Femoral Head
Impactor



Surgical Technique · **Karey CN**

This publication contains detailed recommended procedures for using Surgival's devices and instruments and guidelines that you should consider. However, each surgeon should consider the special needs of the individual patient and make appropriate adjustments when necessary and as appropriate.

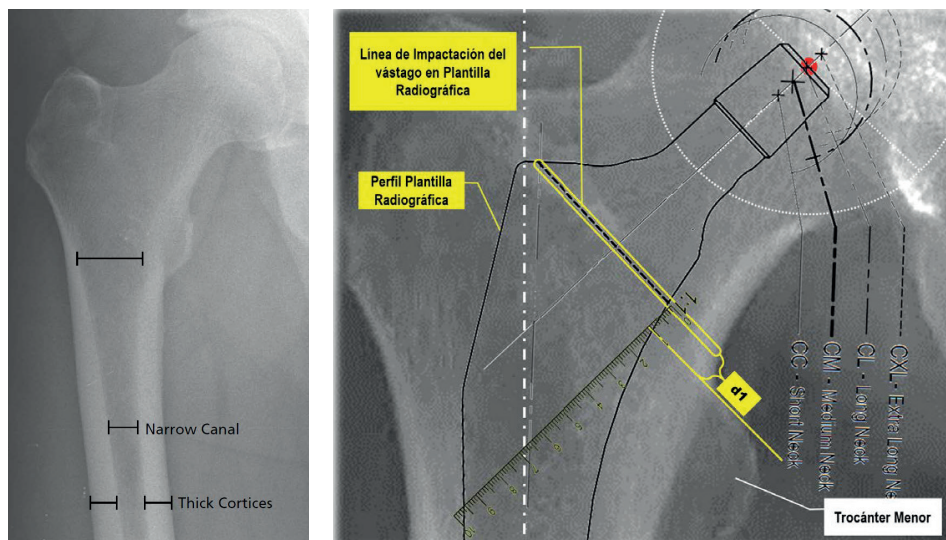


Surgival would like to thank Dr. Lorenzo Robres for his support in the development of the surgical techniques of the KAREY system.

1 Pre-operative planning with templates

The **essential purpose** of total hip arthroplasty is the **ANATOMICAL RECONSTRUCTION of the hip joint**, restoring the functionality and load-bearing capacity of the joint. This is why preoperative planning with templates is of particular importance, as detailed below.

The KAREY femoral stem system features pre-operative templates. The templates should be placed over the AP radiographs to help determine:



- the stem **size**
- the **length** and **offset** of the implant
- the position of the femoral neck **osteotomy** at 45°.
- discrepancy or asymmetry between the lower extremities if necessary.
- The initial incision point to carve the femoral cavity

To correctly use the radiographic templates and select the size and model of the stem we plan to implant, we must ensure that the stem does not contact the cortical bone (the implant should be 1 to 2 mm from the cortical bone). The intention is to preserve the cortical bone as a support, avoiding stress-shielding.

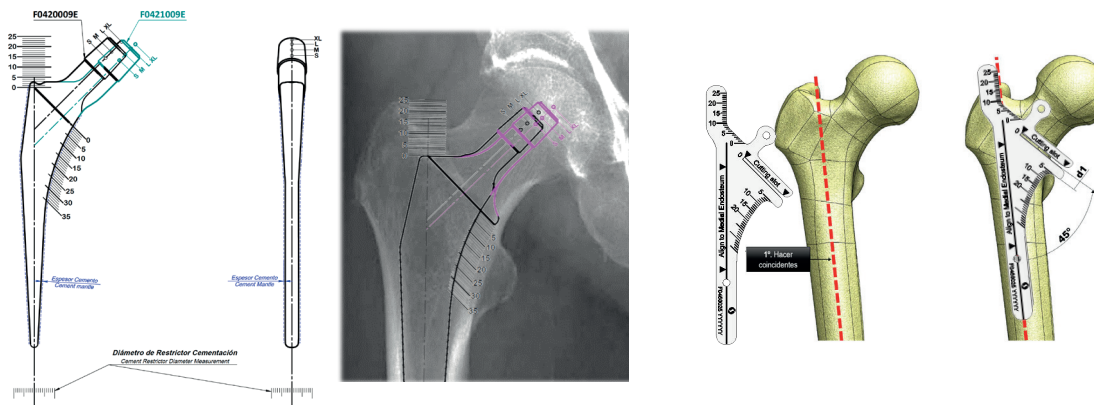
Note: In the case of implanting a stem with a centraliser, check with the surgical template that the centraliser fits into the endomedullary canal. The use of oversized intramedullary drills may damage the internal cortex.



1 Pre-operative planning with templates (continued)

The **templates** have the same metric references as the Femoral Neck Osteotomy Guide.

This allows positioning of the femoral neck osteotomy in reference to the lesser and/or greater trochanter.



The KAREY femoral stem system has the following **pre-operative templates available for both stems with centraliser (sizes 11-16) and without centraliser (sizes 8-16).**

		TEMPLATES - SIZES									
135° (CDA)	STANDARD OFFSET	8	9	10	11	12	13	14	15	16	
	HIGH OFFSET										

Choose the KAREY template in which the stem shows a frontal and mid-lateral fit in the proximal two thirds of the stem and recreates the desired leg length and lateralisation.

Note: Templates are available in different magnifications. Special attention should be paid to match the magnification of the X-ray and the magnification of the template. To order digital templates, please contact your Surgival sales representative.



2 Surgical Approach

(a) Lateral incision



(b) Postero-lateral incision

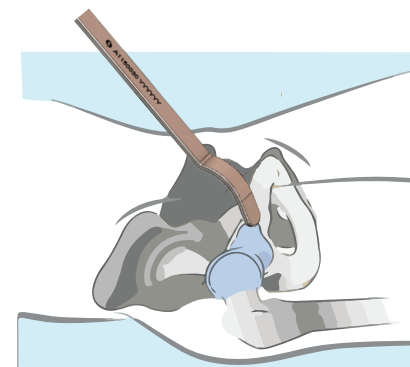


The objective of any approach is the correct visualisation of the acetabulum and proximal femur.

The choice of approach is at the discretion of the surgeon according to his or her preference. The following figures show some conventional approaches, through a lateral (a) or postero-lateral (b) incision..

After **making the incision, dislocate the femoral head** with the femoral head lever.

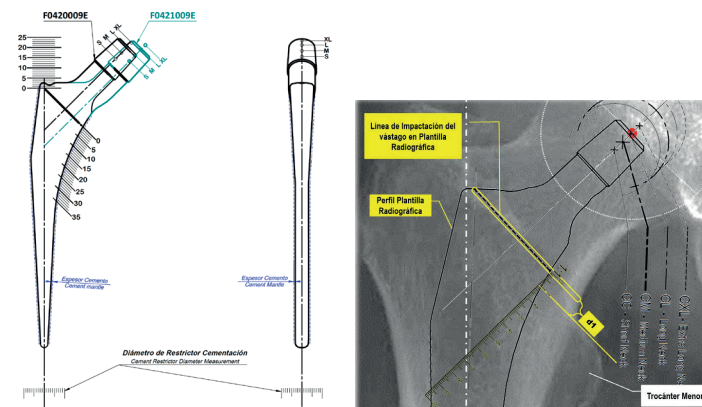
A1150030
Femoral Head Lever for dislocation
(available on demand - see page 61)



3 Femoral neck resection

Position the Femoral Neck Osteotomy Guide over the femur, aligned with the femoral axis. The correct alignment of the guide helps to determine the 45° of the femoral neck resection.

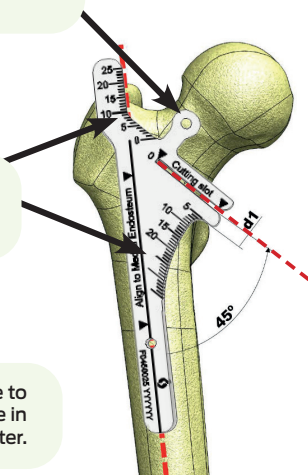
The guide has two reference rulers to identify the appropriate cutting height: one with respect to the greater trochanter and one with respect to the lesser trochanter. In this way, the measurement taken on the radiograph during preoperative planning can be reproduced.



Holes for optional fixing with Kirschner wires.

The scale of the Resection Guide corresponds with the scale of the templates

Use the Resection Guide to determine the resection line in reference to the lesser trochanter.



Proceed with the osteotomy taking care to maintain the correct angle. The impaction line of the stem should coincide with the line of the femoral resection.

Assemble the modular T-handle with the femoral head modular extractor to remove the femoral head from the cotyloid cavity. In case of femoral neck fracture or anterior approach, perform this step before osteotomy.

Note: Do not use the Femoral Head Modular Extractor with surgical motor.

F0450025
Femoral Neck
Osteotomy Guide



F0450030
Femoral Head Modular Extractor



F0450040
Modular T-handle



4 Femoral Cavity Preparation



4.1. Femoral canal opening

To allow the broach to be inserted, **first chisel the metaphyseal area with the box osteotome**. Position as posteriorly and laterally as possible, parallel to the endomedullary canal. If necessary, the box osteotome can be tapped with a mallet.

F0450050
Box osteotome



4.2. IM canal drilling

Insert the channel finder drill parallel to the femoral axis as lateral as possible. **Drill the femoral canal without exceeding the length of the stem to be implanted.** The channel finder drill has depth markings corresponding to each stem size. The mark of the chosen size should be in line with the resection plane.

Note: Never connect the channel finder drill starter to a surgical motor. Don't impact on the modular T-handle.

F0450040
Modular T-handle



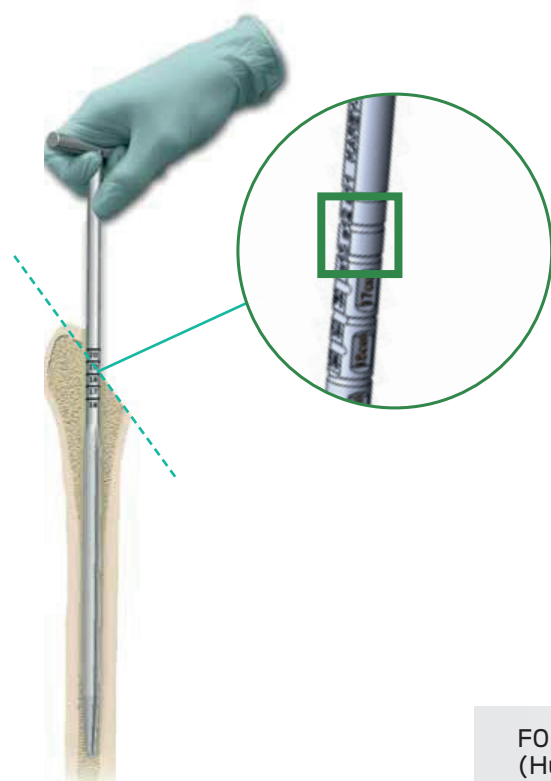
F0450035
Channel finder drill



4 Femoral Cavity Preparation (continued)

4.3. IM canal reaming **ONLY STEMS WITH CENTRALISER**

The Karey intramedullary drills are used to continue the drilling previously performed with the channel finder drill. Attach the drill to the T-handle (manual use) or to the surgical motor.



Drill to the depth corresponding to the size of the stem to be implanted. Start with the smallest drill until you reach the appropriate drill for the diameter of the centraliser corresponding to the stem to be implanted.

CENTRALISER DIAMETER

STEM S11 - S13	Ø 10	→	Drill Ø 10
STEM S14 - S16	Ø 12	→	Drill Ø 12

In this way, the distal end of the stem will be diaphyseally centred after implantation and adapted to the endomedullary canal.

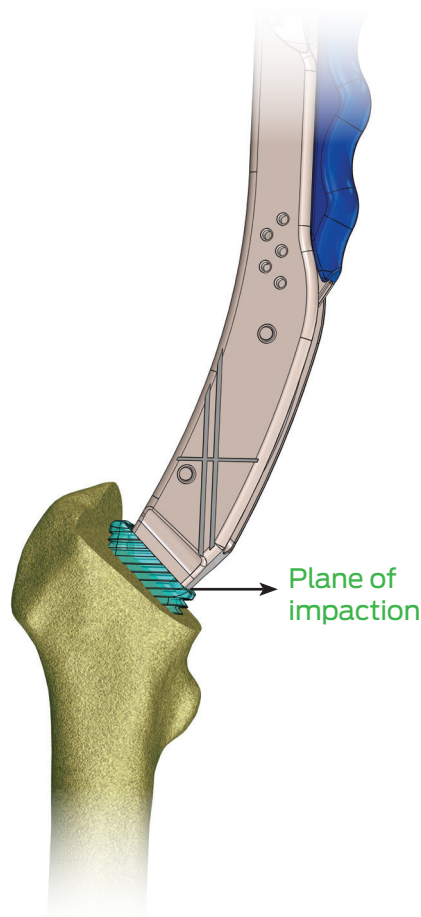
F0550108 - F0550114 Karey Intramedullary Drills Ø8 to Ø14
(Hudson connection)



F0450040
Modular T-handle



4 Femoral Cavity Preparation (continued)



4.4. Broaching

To start the broaching, put the smallest broach in the curved broach handle. Repeat this procedure, **progressively increasing the size of the broach** until it contacts the endomedullary cortex.

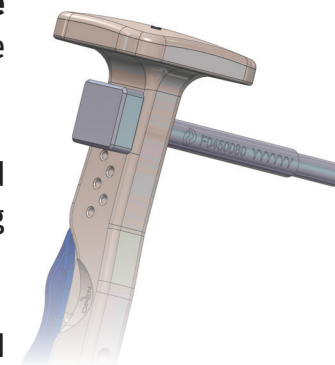
The broach is impacted until its plane of impaction coincides with the femoral resection (at 45°). This line coincides with the impaction line of the definitive stem.

An anatomical anteversion between 10° and 15° should be established during the broaching procedure with the aid of the anteversion bar.

To extract the broach, tap the cap overhang of the curved broach handle or the compactor-anteversion bar, in an ascending direction.

The last broach inserted will define the size of the KAREY CN stem to be implanted.

Note: Both insertion and extraction of the broaches must be done with the curved broach handle lever fully closed.



F0450108 - F0450116
Karey modular broaches S8 to S16



F0450085
Curved
broach
handle

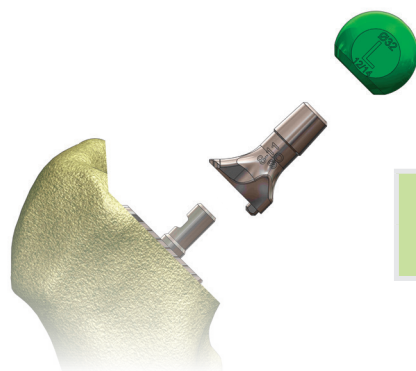


F0450080
Compactor anteversion bar



5 Trial reduction with broaches

The Karey system has **modular necks** that adjust to the last broach implanted and offer all the possibilities of the definitive stem of the KAREY - CN range.



		NECK TRIAL			
CDA 135°	STD OFFSET	NECK S8 to S11		NECK S12 to S14	NECK S15 & S16
	HIGH OFFSET		NECK S9 to S11	NECK S12 to S14	NECK S15 & S16

Assemble the selected neck on the implanted broach. Test the femoral head selected in the preoperative procedure, with the different neck lengths (S-M-L-XL).

Reduce the joint to **check stability and range of motion**.

Remove the trial femoral head, trial neck and broach.

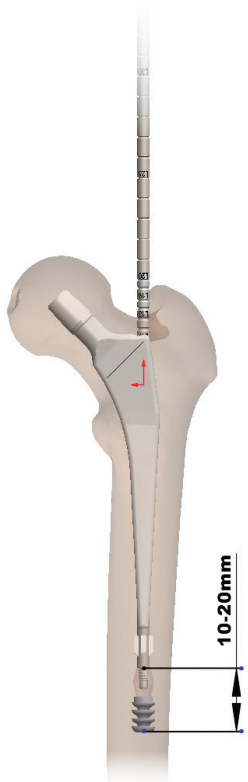
F0450XXX
Neck Trial



⑥ Introduction of C-PLUG cement restrictor

It is recommended to **introduce a cement restrictor 10-20 mm (approx.) from the tip of the stem** to close the intramedullary cavity and ensure good cement pressurisation. In this way, the cement interdigitates between the surrounding bone trabeculae and improves fixation.

- **Connect the cement restrictor sizing and inserter to the T-handle.**
- **Thread the smaller C-PLUG restrictor tester** onto the end of the inserter.
- **Insert**, parallel to the greater trochanter, to the depth of the size (S) of the Karey-CN stem to be implanted. The letter S marking on the inserter must coincide with the osteotomy line.
- **Repeat this step progressively increasing the diameter** of the tester until the one that best matches the diameter of the endomedullary canal at that depth is found.



F0450040
Modular T-handle



F0450705
Cement Restrictor Sizing & Inserter



F0450708 - F0450718
C-plug restrictor tester ø8-18



6 Introduction of C-PLUG cement restrictor (continued)

- Finally, **attach the C-PLUG cement restrictor to the tip of the tester** and insert to the depth determined in the previous step, where it should be fixed in place.



C-PLUG DEPTH (by SIZE)

S 8	S 9	S 10	S 11	S 12	S 13	S 14	S 15	S 16
140 mm.	155 mm.	165 mm.	170 mm.	176 mm.	181 mm.	186 mm.	190 mm.	196 mm.

Note: Size (S) marks are used for Primary Stems and Length (L) marks are used for Revision Stems. These marks are valid for stems implanted with a centraliser as well as for stems implanted without a centraliser.

7 Cavity cleaning



After preparation of the femoral cavity, debris may remain in the femoral canal and should be cleaned.

- The use of the pulsatile lavage gun is recommended** to remove this debris and also to facilitate access to the trabecular space of the bone. Once removed, the femoral cavity should also be aspirated.

F9000805
Pulse lavage drainage system



8 Cementation Technique

Recommendations

previous:

- Use low viscosity cement.
- Use mixers with optimum vacuum level to obtain a uniform cement mixture. This avoids internal bubbling and thermal contraction and minimises the potential for cracking.
- Apply proper compression to the cement to improve cement adhesion to the trabecular bone surface created by the broach.

The loading of the gun for cement pressurisation should be done as follows:



- Add the contents of the bottle (monomer) and the powder content (polymer) into the cement gun syringe with the help of the funnel. Optional: If a vacuum pump is available, connect it to the tip of the syringe and press the on/off switch.
- Place the syringe cap on the syringe and move repeatedly the syringe piston with combined axial sliding and rotational movements for about 40 seconds.
- Check that the cement is correctly mixed and break the handle of the actuating piston. Pull it out as far as it will go and apply a breaking force by pushing in a lateral direction until it breaks off at the tip. Remove the broken part and screw on the dispenser tube.
- Unthread the base that keeps the syringe stable on the operating table and, if necessary, turn off the vacuum pump. Thread the syringe onto the syringe gun with the piston in the open position (pulling out the piston with the toothed part of the shaft facing upwards).

8 Cementation Technique (continued)

Application of cement in the femoral canal:

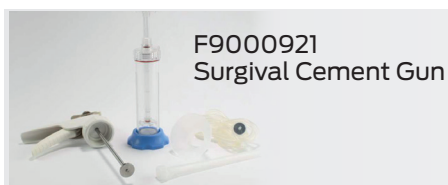
1. Prepare the gun with the cement and pull the trigger until the cement reaches the tip of the nozzle.
2. Insert the nozzle into the femoral canal until it contacts the C-Plug cement restrictor.
3. Inject the cement in a retrograde direction, moving the nozzle back slowly until the canal is completely filled and the distal tip of the nozzle is clearly outside the canal.

To apply more pressure on the cement, the dispensing tube can be cut and the pressuriser coupling can be connected to the tip of the tube. The oval shape of the pressuriser allows the intramedullary canal to be sealed while the cement is being introduced with the gun.

The setting time can vary depending on the temperature.



Note: A special Cement Mixing and Application Kit and various types of Bone Cement are available in the Surgival product portfolio.



F9001001 · Cement ORCEM 1

F9001003 · Cement ORCEM 3

F9001011 · Cement ORCEM 1G

F9001013 · Cement ORCEM 3G

9 Femoral stem insertion and impaction

- 1- Position the tips of the external shaft of the inserter in the slots of the stem hole.
- 2- Align the inserter with the longitudinal axis of the stem.
- 3- Screw the inserter into the stem thread until the upper part contacts the handle
- 4- Introduce the stem into the broached cavity, aligned with the longitudinal axis of the femur and seeking the appropriate anteversion of between 10° and 15° with the aid of the anteversion rod.

Its entry point should be lateral, near the greater trochanter, and should be inserted until the marked impaction line coincides with the resection level of the femoral osteotomy. The KAREY-CN stem should be the same size as the last inserted broach.

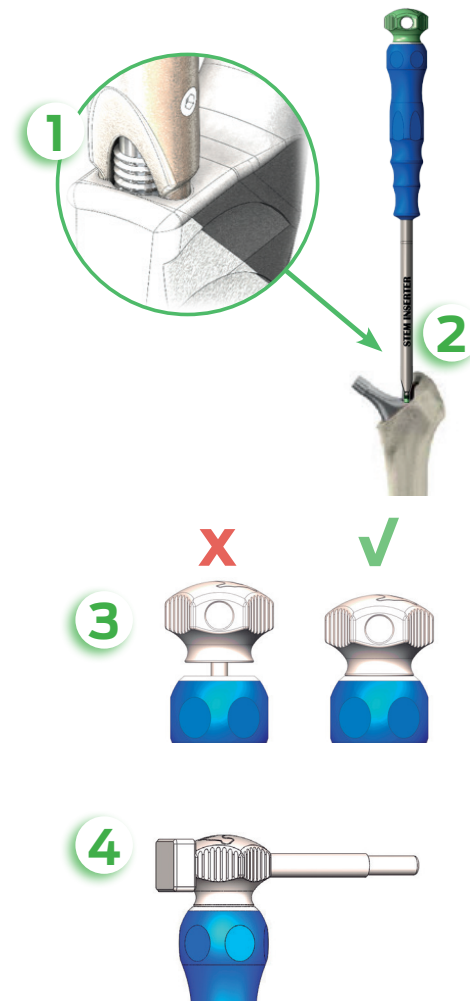
Note: Karey-RCN stems are slightly undersized with respect to the broaches to allow space for the cement.

If necessary, small impacts can be made on the stem inserter to position it correctly, avoiding any collision with the stem taper.

Remove excess cement and maintain pressure on the stem for about 2 minutes until the cement is fully set.

WARNING: An uncemented stem should never be inserted using this cementation technique.

Note: If intra-operative removal of a stem is necessary when the cement has not set, see ANNEX A (page 46).



F0450610
Stem
inserter-impactor



F0450080
Compactor-
anteversion bar

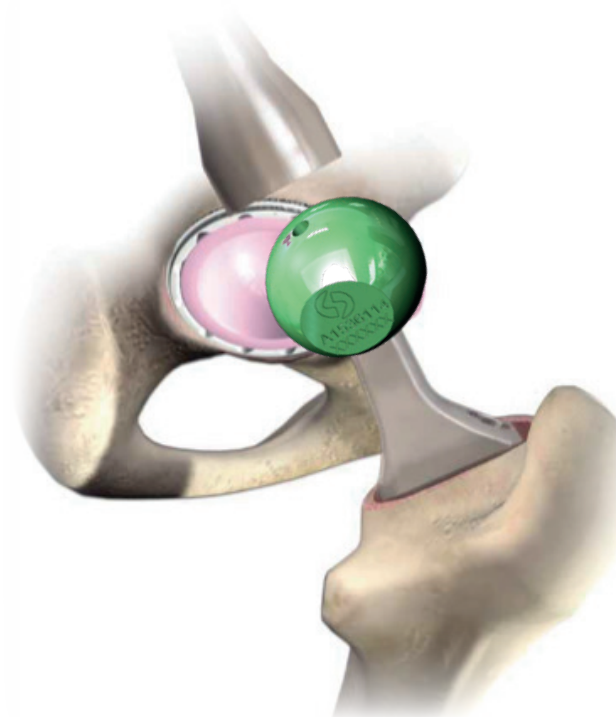


10 Final trial reduction with Karey stem

Do not omit this step. Only the final stem gives the final neck length. In the trial reduction with broaches, the same neck trial is used for several sizes, while each stem has different dimensions.

Once the cemented KAREY - CN stem has been implanted and the bone cement has set, **place the trial femoral head** of the appropriate diameter and neck length (S-M-L-XL) and **reduce the joint** to check ligament tension, stability, mobility and length of the extremity.

Extract the trial femoral head.



A1536160 - A1536162
Trial femoral heads Ø22



A1536140 - A1536143
Trial femoral heads Ø28



A1536113 - A1536116
Trial femoral heads Ø32



A1536070 - A1536073
Trial femoral heads Ø36



A1536080 - A1536083
Trial femoral heads Ø40

11 Femoral head implantation



Fully clean the surface of the stem taper before **inserting the femoral head** by hand.

Impact with the femoral head impactor aligned with the axis of the stem neck and reduce the joint.

Finally, check that all articular surfaces (femoral head and cup insert) are clean and **reduce the hip definitively.**

Note: Never use a metal hammer on the femoral head.

F0450070
Femoral head impactor



Annexes · **A and B**

This publication contains detailed recommended procedures for using Surgival's devices and instruments and guidelines that you should consider. However, each surgeon should consider the special needs of the individual patient and make appropriate adjustments when necessary and as appropriate.



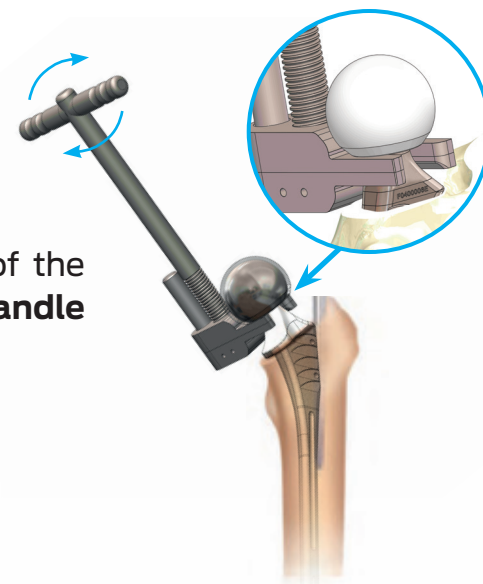
Surgival would like to thank Dr. Lorenzo Robres for his support in the development of the surgical techniques of the KAREY system.

A Annex: Intra-operative extraction of implants (in case of wrong implantation)

A.1 Femoral Head Extraction

With the joint dislocated, **expose the stem taper and the neck of the head** to be removed.

Insert the two U-shaped jaws of the prosthetic femoral head extractor over the neck of the stem (with the upper and lower pieces closed and in contact). **Manually twist the upper handle clockwise** until the head is completely disassembled and can be removed from the stem.



A.2 Femoral stem extraction

To remove a newly implanted, non-osseointegrated stem or when the cement has not yet set, insert the pin of the Stem Extractor through the neck of the stem. Turn the extractor roller clockwise until the stem is locked in place.

If necessary, a mallet can be used to impact the extractor on the "T" cap overhang.

NOTE: To extract a dysplasia stem (Size 6) use the Universal Stem Extractor and the Stem Extractor Neck Grip (available in the extraction box).

F0450090
Prosthetic
Femoral Head
Extractor



F0450095
Stem
Extractor



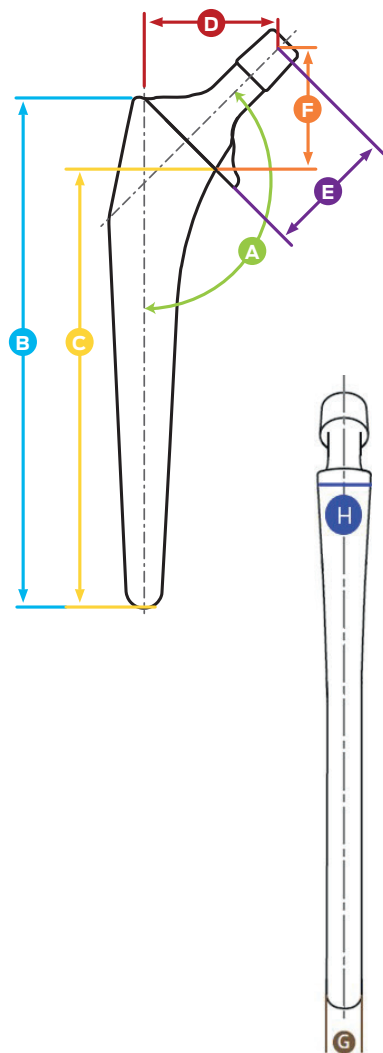
F0550155
Universal Stem Extractor



F0550165
Stem Extractor Neck
Press



B Annex: Size tables new Karey Primary Stem



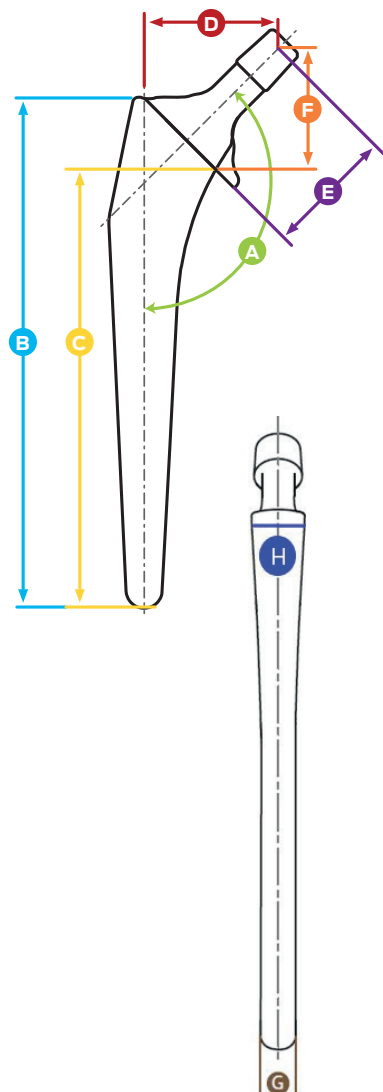
KAREY - HA SO 135° T6 DYSPLASIA

Size	Neck Shaft Angle (A)	Stem Length (B)	Stem Length (C)	Offset (D)	Neck Length (E)	Neck Height (F)	Distal Width (G)	Proximal Width (H)
6	135°	110	93	31	33	30	9	14

KAREY - HA SO 135° COLLAR & NO COLLAR

Size	Neck Shaft Angle (A)	Stem Length (B)	Stem Length (C)	Offset (D)	Neck Length (E)	Neck Height (F)	Distal Width (G)	Proximal Width (H)
8	135°	115	93	38	38	36	7	13
9	135°	130	109	38	38	36	8	13
10	135°	140	119	39	38	36	9	14
11	135°	145	123	40	39	37	10	14
12	135°	150	128	41	40	38	10	15
13	135°	155	133	42	41	39	10	15
14	135°	160	138	43	41	39	10	16
15	135°	165	142	44	42	39	10	16
16	135°	170	146	44	43	40	10	17

B Annex: Size tables new Karey Primary Stem



KAREY - HA HO 135° COLLAR & NO COLLAR

Size	Neck Shaft Angle (A)	Stem Length (B)	Stem Length (C)	Offset (D)	Neck Length (E)	Neck Height (F)	Distal Width (G)	Proximal Width (H)
9	135°	130	109	45	43	37	8	13
10	135°	140	119	46	44	38	9	14
11	135°	145	123	47	45	39	10	14
12	135°	150	128	48	46	39	10	15
13	135°	155	133	50	47	39	10	15
14	135°	160	138	50	48	40	10	16
15	135°	165	142	51	49	40	10	16
16	135°	170	146	51	49	42	10	17

B Annex: Size tables new Karey Primary Stem

KAREY - HA SO 125° NO COLLAR

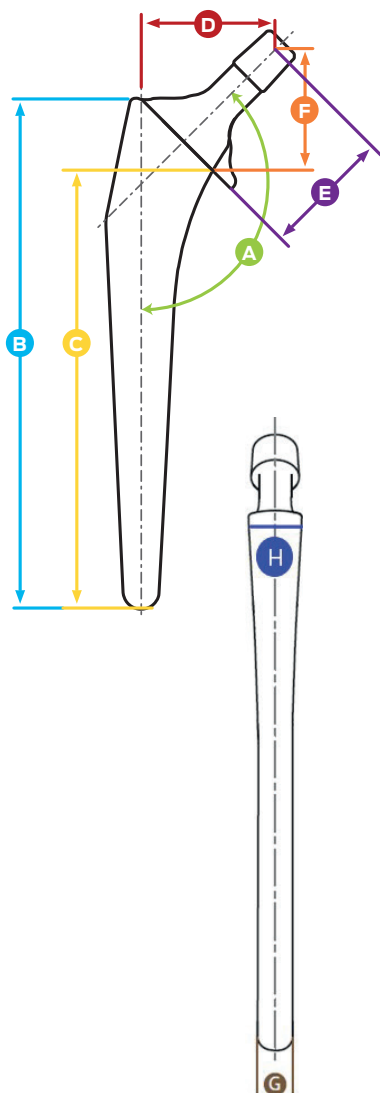
Size	Neck Shaft Angle (A)	Stem Length (B)	Stem Length (C)	Offset (D)	Neck Length (E)	Neck Height (F)	Distal Width (G)	Proximal Width (H)
9	125°	130	109	39	36	31	8	13
10	125°	140	119	40	37	32	9	14

KAREY - HA SO 125° COLLAR

Size	Neck Shaft Angle (A)	Stem Length (B)	Stem Length (C)	Offset (D)	Neck Length (E)	Neck Height (F)	Distal Width (G)	Proximal Width (H)
9	125°	130	109	39	36	31	8	13
10	125°	140	119	40	37	32	9	14
11	125°	145	123	40	38	34	10	14
12	125°	150	128	41	38	35	10	15
13	125°	155	133	41	39	35	10	15
14	125°	160	138	42	39	36	10	16
15	125°	165	142	42	40	36	10	16
16	125°	170	146	43	40	37	10	17

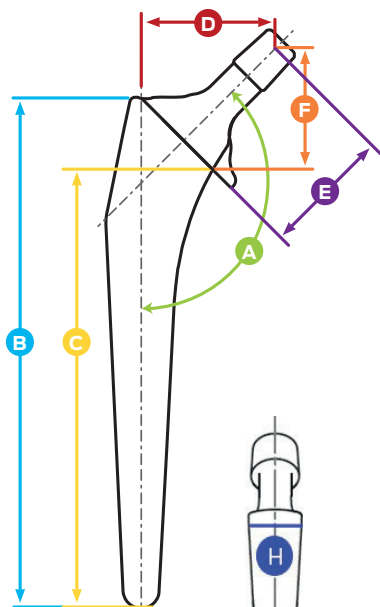
KAREY - HA HO 125° COLLAR

Size	Neck Shaft Angle (A)	Stem Length (B)	Stem Length (C)	Offset (D)	Neck Length (E)	Neck Height (F)	Distal Width (G)	Proximal Width (H)
9	125°	130	109	45	43	35	8	13
10	125°	140	119	46	44	37	9	14
11	125°	145	123	47	46	39	10	14
12	125°	150	128	48	47	39	10	15
13	125°	155	133	48	47	40	10	15
14	125°	160	138	50	49	41	10	16
15	125°	165	142	50	49	42	10	16
16	125°	170	146	51	50	42	10	17



B Annex: Size tables new Karey Primary Stem

KAREY - CN SO 135°



Size	Neck Shaft Angle (A)	Stem Length (B)	Stem Length (C)	Offset (D)	Neck Length (E)	Neck Height (F)	Distal Width (G)	Proximal Width (H)
8	135°	114	94	38	38	35	6	12
9	135°	130	108	38	39	36	7	12
10	135°	140	118	39	40	37	8	12
11	135°	145	122	40	41	38	8	13
12	135°	150	126	41	42	39	8	13
13	135°	155	130	42	43	40	8	14
14	135°	160	134	43	43	41	8	14
15	135°	165	139	43	43	41	8	15
16	135°	170	144	44	44	41	8	15

KAREY - CN HO 135°

Size	Neck Shaft Angle (A)	Stem Length (B)	Stem Length (C)	Offset (D)	Neck Length (E)	Neck Height (F)	Distal Width (G)	Proximal Width (H)
9	135°	130	108	45	39	35	7	12
10	135°	140	118	46	40	36	8	12
11	135°	145	122	47	41	37	8	13
12	135°	150	126	48	42	37	8	13
13	135°	155	130	49	43	38	8	14
14	135°	160	134	50	43	38	8	14
15	135°	165	139	51	44	39	8	15
16	135°	170	144	51	44	40	8	15

Catalogue of References · **Karey**



NO COLLAR 135° CDA

Standard Offset

	REFERENCE
SIZE 6	F0400006E
SIZE 8	F0400008E
SIZE 9	F0400009E
SIZE 10	F0400010E
SIZE 11	F0400011E
SIZE 12	F0400012E
SIZE 13	F0400013E
SIZE 14	F0400014E
SIZE 15	F0400015E
SIZE 16	F0400016E

High Offset

	REFERENCE
SIZE 9	F0401009E
SIZE 10	F0401010E
SIZE 11	F0401011E
SIZE 12	F0401012E
SIZE 13	F0401013E
SIZE 14	F0401014E
SIZE 15	F0401015E
SIZE 16	F0401016E

NO COLLAR 125° CDA

Standard Offset

	REFERENCE
SIZE 9	F0410009E
SIZE 10	F0410010E



COLLAR 135° CDA

Standard Offset

	REFERENCE
SIZE 8	F0400108E
SIZE 9	F0400109E
SIZE 10	F0400110E
SIZE 11	F0400111E
SIZE 12	F0400112E
SIZE 13	F0400113E
SIZE 14	F0400114E
SIZE 15	F0400115E
SIZE 16	F0400116E

High Offset

	REFERENCE
SIZE 9	F0401109E
SIZE 10	F0401110E
SIZE 11	F0401111E
SIZE 12	F0401112E
SIZE 13	F0401113E
SIZE 14	F0401114E
SIZE 15	F0401115E
SIZE 16	F0401116E

COLLAR 125° CDA

Standard Offset

	REFERENCE
SIZE 9	F0410109E
SIZE 10	F0410110E
SIZE 11	F0410111E
SIZE 12	F0410112E
SIZE 13	F0410113E
SIZE 14	F0410114E
SIZE 15	F0410115E
SIZE 16	F0410116E

High Offset

	REFERENCE
SIZE 9	F0411109E
SIZE 10	F0411110E
SIZE 11	F0411111E
SIZE 12	F0411112E
SIZE 13	F0411113E
SIZE 14	F0411114E
SIZE 15	F0411115E
SIZE 16	F0411116E



WITHOUT CENTRALISER HOLE 135° CDA
Standard Offset

	REFERENCE
SIZE 8	F0420008E
SIZE 9	F0420009E
SIZE 10	F0420010E
SIZE 11	F0420011E
SIZE 12	F0420012E
SIZE 13	F0420013E
SIZE 14	F0420014E
SIZE 15	F0420015E
SIZE 16	F0420016E

High Offset

	REFERENCE
SIZE 9	F0421009E
SIZE 10	F0421010E
SIZE 11	F0421011E
SIZE 12	F0421012E
SIZE 13	F0421013E
SIZE 14	F0421014E
SIZE 15	F0421015E
SIZE 16	F0421016E

WITH CENTRALISER HOLE 135° CDA
Standard Offset

	REFERENCE
SIZE 11	F0420511E
SIZE 12	F0420512E
SIZE 13	F0420513E
SIZE 14	F0420514E
SIZE 15	F0420515E
SIZE 16	F0420516E

High Offset

	REFERENCE
SIZE 11	F0421511E
SIZE 12	F0421512E
SIZE 13	F0421513E
SIZE 14	F0421514E
SIZE 15	F0421515E
SIZE 16	F0421516E


SIZE CENTRALISER

STEM S11 - S13	Ø 10
STEM S14 - S16	Ø 12


C-PLUG Implant

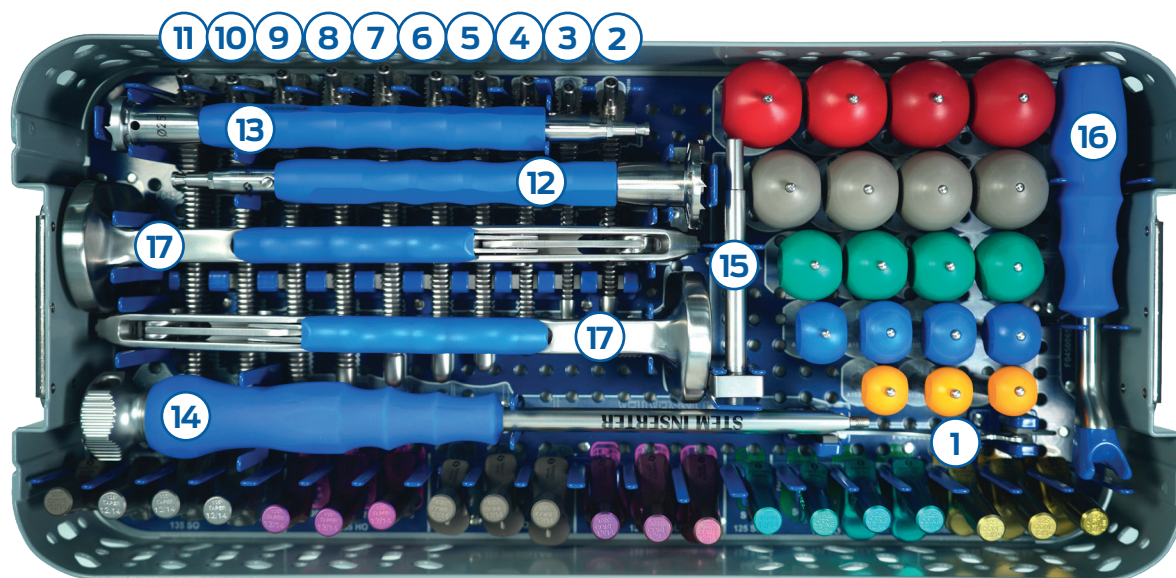
DESCRIPTION	REFERENCE
C-Plug Ø8	F9000108
C-Plug Ø10	F9000110
C-Plug Ø12	F9000112
C-Plug Ø14	F9000114
C-Plug Ø16	F9000116
C-Plug Ø18	F9000118





INSTRUMENTS

KAREY System · **F0450000**

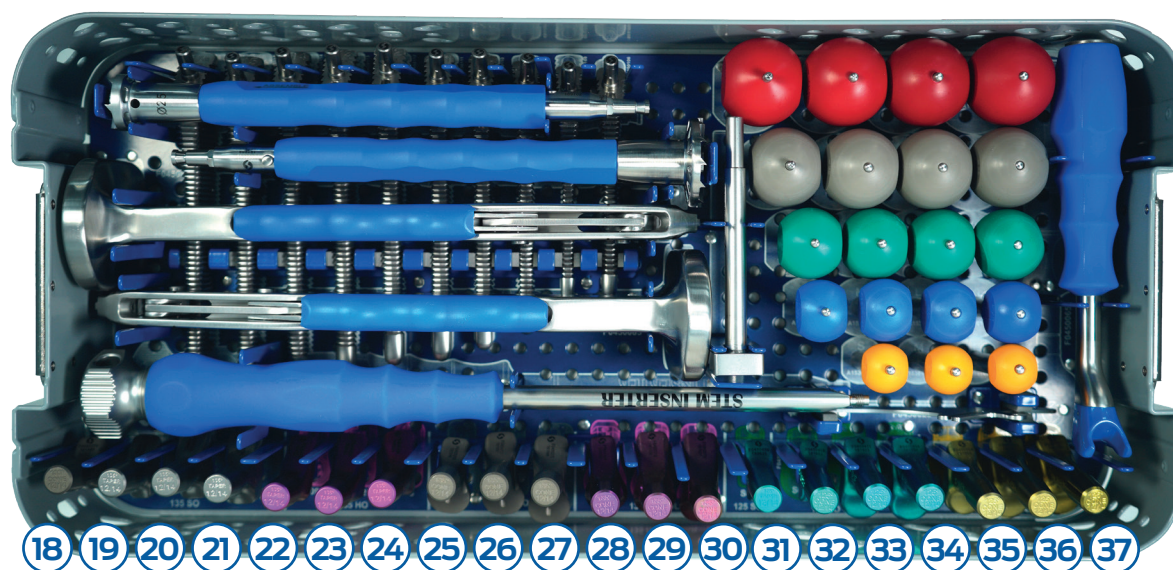


Box 1 Karey Instrumental
F0450005

(It continues on the next page)

	DESCRIPTION	REF.
①	Femoral Neck Osteotomy Guide	F0450025
②	Karey Modular Broach - Size 6	F0450106
③	Karey Modular Broach - Size 8	F0450108
④	Karey Modular Broach - Size 9	F0450109
⑤	Karey Modular Broach - Size 10	F0450110
⑥	Karey Modular Broach - Size 11	F0450111
⑦	Karey Modular Broach - Size 12	F0450112
⑧	Karey Modular Broach - Size 13	F0450113
⑨	Karey Modular Broach - Size 14	F0450114

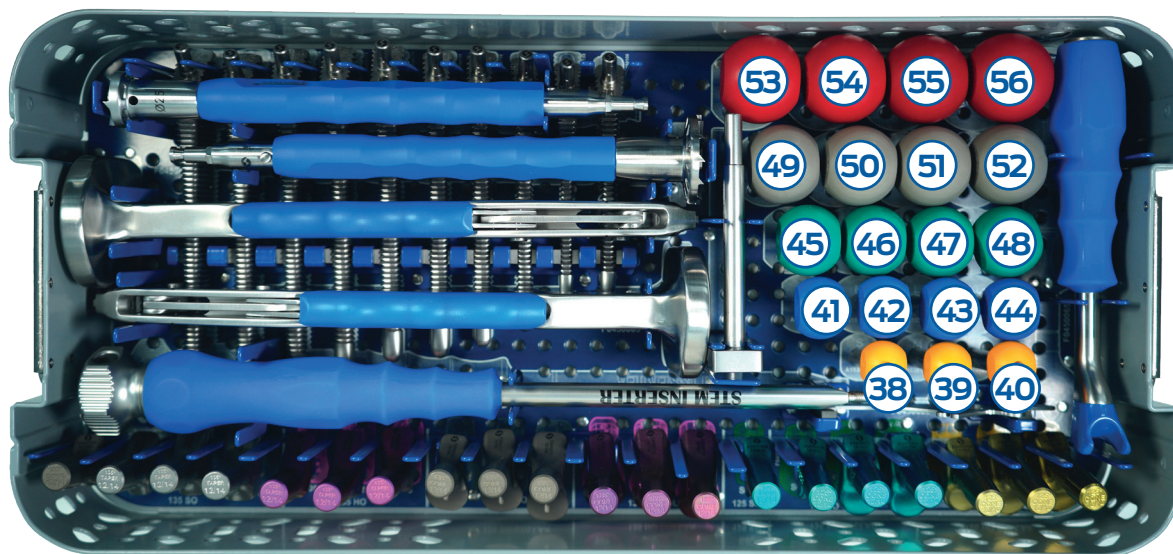
	DESCRIPTION	REF.
⑩	Karey Modular Broach - Size 15	F0450115
⑪	Karey Modular Broach - Size 16	F0450116
⑫	Calcar Planer Reamer Ø40	F0450605
⑬	Calcar Planer Reamer Ø25	F0450615
⑭	Stem Inserter-Impactor	F0450610
⑮	Compactor-Anteversion Bar	F0450080
⑯	Impactor on stem shoulder	F0450065
⑰	Curved Broach Handle (2 u.)	F0450085



Box 1 Karey Instrumental
F0450005
(It continues on the next page)

	DESCRIPTION	REF.
18	Neck Trial 135° SO S6	F0450206
19	Neck Trial 135° SO S8, S9, S10, S11	F0450258
20	Neck Trial 135° SO S12, S13, S14	F0450262
21	Neck Trial 135° SO S15, S16	F0450265
22	Neck Trial 135° HO S9, S10, S11	F0450359
23	Neck Trial 135° HO S12, S13, S14	F0450362
24	Neck Trial 135° HO S15, S16	F0450365
25	Neck Trial 135° SO COLLAR S8, S9, S10, S11	F0450208
26	Neck Trial 135° SO COLLAR S12, S13, S14	F0450212
27	Neck Trial 135° SO COLLAR S15, S16, S18, S20	F0450215

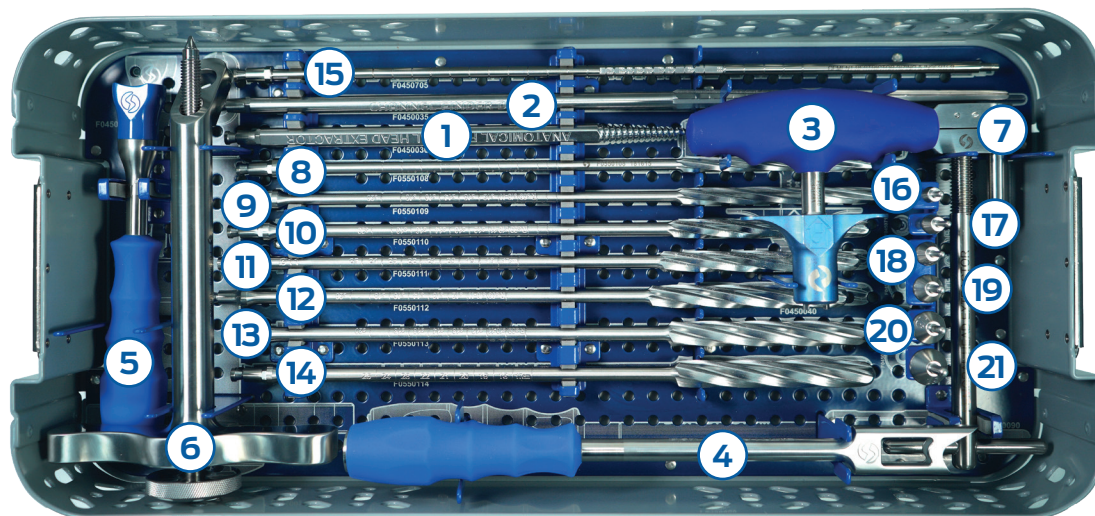
	DESCRIPTION	REF.
28	Neck Trial 135° HO COLLAR S9, S10, S11	F0450309
29	Neck Trial 135° HO COLLAR S12, S13, S14	F0450312
30	Neck Trial 135° HO COLLAR S15, S16, S18, S20	F0450315
31	Neck Trial 125° SO S9, S10	F0450459
32	Neck Trial 125° SO COLLAR S9, S10	F0450409
33	Neck Trial 125° SO COLLAR S11, S12, S13	F0450411
34	Neck Trial 125° SO COLLAR S14, S15, S16	F0450414
35	Neck Trial 125° HO COLLAR S9, S10	F0450509
36	Neck Trial 125° HO COLLAR S11, S12, S13	F0450511
37	Neck Trial 125° HO COLLAR S14, S15, S16	F0450514



Box 1 Karey Instrumental
F0450005

	DESCRIPTION	REF.
38	Trial Femoral Head Ø22,2 SHORT NECK	A1536160
39	Trial Femoral Head Ø22,2 MEDIUM NECK	A1536161
40	Trial Femoral Head Ø22,2 LONG NECK	A1536162
41	Trial Femoral Head Ø28 SHORT NECK	A1536140
42	Trial Femoral Head Ø28 MEDIUM NECK	A1536141
43	Trial Femoral Head Ø28 LONG NECK	A1536142
44	Trial Femoral Head Ø28 EXTRA-LONG NECK	A1536143
45	Trial Femoral Head Ø32 SHORT NECK	A1536113
46	Trial Femoral Head Ø32 MEDIUM NECK	A1536114
47	Trial Femoral Head Ø32 LONG NECK	A1536115

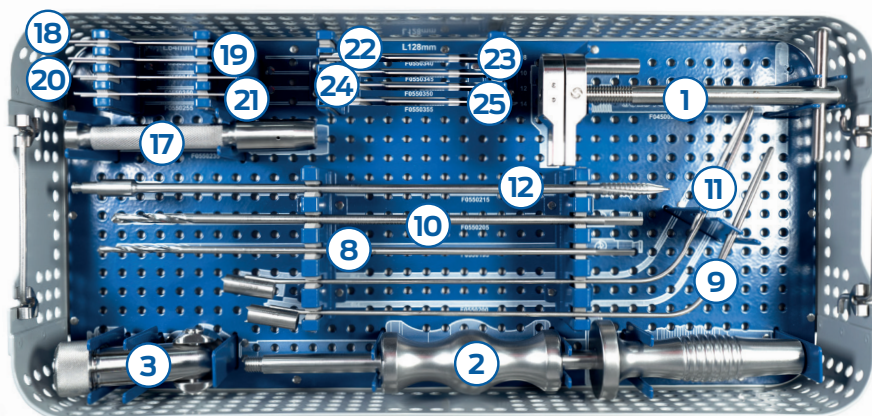
	DESCRIPTION	REF.
48	Trial Femoral Head Ø32 EXTRA-LONG NECK	A1536116
49	Trial Femoral Head Ø36 SHORT NECK	A1536070
50	Trial Femoral Head Ø36 MEDIUM NECK	A1536071
51	Trial Femoral Head Ø36 LONG NECK	A1536072
52	Trial Femoral Head Ø36 EXTRA-LONG NECK	A1536073
53	Trial Femoral Head Ø40 SHORT NECK	A1536080
54	Trial Femoral Head Ø40 MEDIUM NECK	A1536081
55	Trial Femoral Head Ø40 LONG NECK	A1536082
56	Trial Femoral Head Ø40 EXTRA-LONG NECK	A1536083



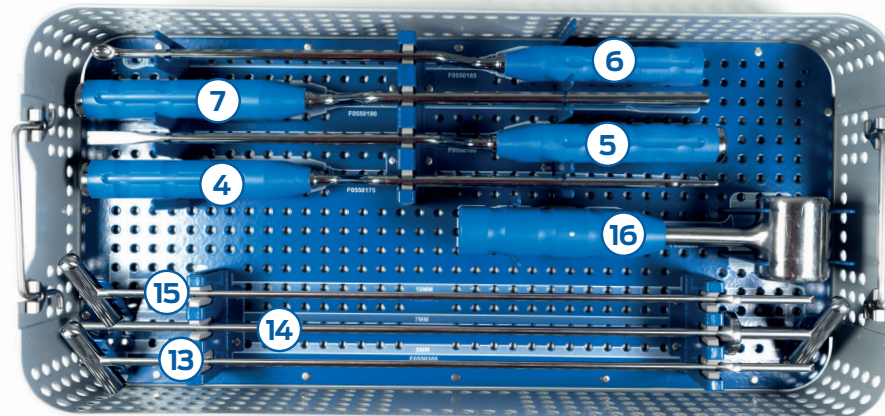
Box 2 Karey Instrumental
F0450015

	DESCRIPTION	REF.
①	Femoral Head Modular Extractor	F0450030
②	Channel finder Drill	F0450035
③	Modular T-handle	F0450040
④	Box osteotome	F0450050
⑤	Femoral Head Impactor	F0450070
⑥	Stem Extractor	F0450095
⑦	Prosthetic Femoral Head Extractor	F0450090
⑧	Karey Intramedular Drill Ø8	F0550108
⑨	Karey Intramedular Drill Ø9	F0550109
⑩	Karey Intramedular Drill Ø10	F0550110
⑪	Karey Intramedular Drill Ø11	F0550111

	DESCRIPTION	REF.
⑫	Karey Intramedular Drill Ø12	F0550112
⑬	Karey Intramedular Drill Ø13	F0550113
⑭	Karey Intramedular Drill Ø14	F0550114
⑮	Cement Restrictor Sizing & Inserter	F0450705
⑯	C-Plug Restrictor Tester Ø8	F0450708
⑰	C-Plug Restrictor Tester Ø10	F0450710
⑱	C-Plug Restrictor Tester Ø12	F0450712
⑲	C-Plug Restrictor Tester Ø14	F0450714
⑳	C-Plug Restrictor Tester Ø16	F0450716
㉑	C-Plug Restrictor Tester Ø18	F0450718



	DESCRIPTION	REF.
①	Prosthetic Femoral Head Extractor	F0450090
②	Universal Stem Extractor	F0550155
③	Stem Extractor Neck Press	F0550165
④	Cement Splitting Osteotome	F0550175
⑤	Flat Osteotome	F0550180
⑥	15° Angled Gouge	F0550185
⑦	Wide gouge	F0550190
⑧	Ø4,4 mm. Drill	F0550195
⑨	Drill Guide Ø4,4 mm	F0550200
⑩	Ø6,4 mm Drill	F0550205
⑪	Drill Guide Ø6,4 mm	F0550210
⑫	Ø8 mm Drill	F0550215
⑬	Straight Cement Removal Hook 5	F0550305



	DESCRIPTION	REF.
⑭	Straight Cement Removal Hook 7	F0550225
⑮	Straight Cement Removal Hook 10	F0550310
⑯	Slotted Mallet	F0550230
⑰	Osteotome handle with Quick-Coupling End	F0550235
⑱	Modular Osteotome L64 x 8mm	F0550240
⑲	Modular Osteotome L64 x 10mm	F0550245
⑳	Modular Osteotome L64 x 12mm	F0550250
㉑	Modular Osteotome L64 x 14mm	F0550255
㉒	Modular Osteotome L128 x 8mm	F0550340
㉓	Modular Osteotome L128 x 10mm	F0550345
㉔	Modular Osteotome L128 x 12mm	F0550350
㉕	Modular Osteotome L128 x 14mm	F0550355

INSTRUMENTATION ON DEMAND



	DESCRIPTION	REF.
①	Broach Handle For Anterior Approach Right	F0550275
②	Broach Handle For Anterior Approach Left	F0550280
③	Broach Handle For Deep Anterior Approach Right	F0550285
④	Broach Handle For Deep Anterior Approach Left	F0550290
⑤	Femoral Head Lever for dislocation	A1150030
⑥	Curve Stem Impactor Anterior Approach	F0450620

Instrumental **Karey** Essential HIP STEMS SYSTEM

**New instrumentation
more versatile, intuitive and user-friendly!**

The new Karey system instrumentation is designed with ease of use and intraoperative flexibility in mind.

*The instruments are designed to **optimize surgery times** and the **number of boxes** required.*

*The result is a significant reduction in the weight to be handled **and the investment required.***

only 2 boxes!



+
Primary
& Revision*

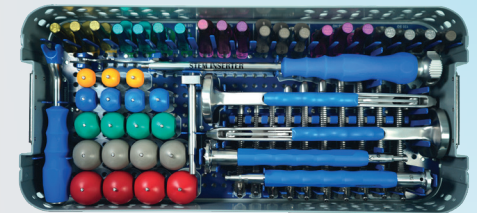


Instrumental
Karey·R
HIP STEMS SYSTEM

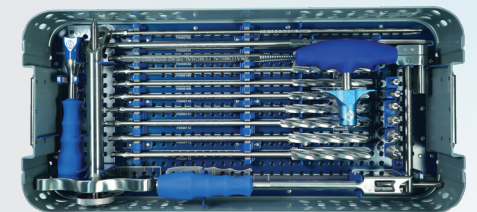
**By simply adding the Karey Revision broaches box you can also implant KAREY-R stems!*



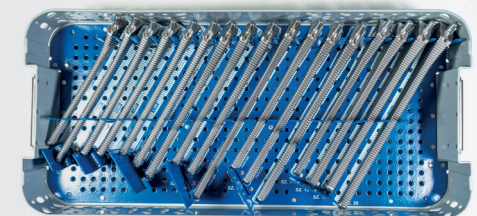
BOX 1



BOX 2



BOX REVISION BROACHES





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