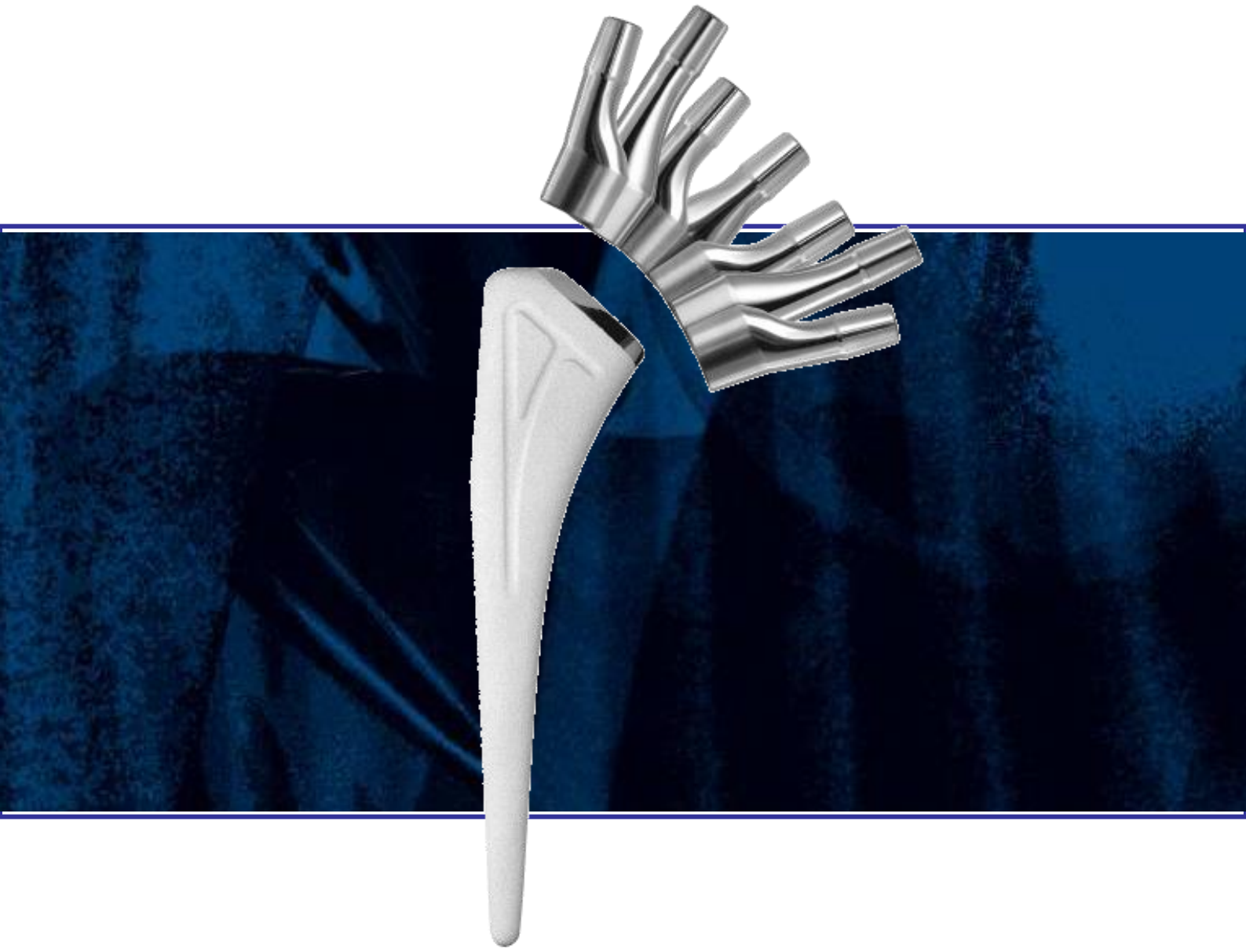
Surgical technique
Mechanical instrumentation



ACOR®
Total hip prosthesis

AMPLITUDE

TO.H.GB.006/2.0

ACOR® femoral stem concept and line

- The ACOR® stem is an anatomical and modular stem.
- It provides an optimal metaphyseal filling in the space (in the frontal and sagittal planes) suited to the left or right femur.
- It enables intra- and extramedullary adjustment independently, in order to:
  - optimise attachment to the bone whatever the morphology of the femur (coxa-vara, coxa-valga), without changing the cut of the femoral neck and the impaction level.
  - obtain the best mobility taper to increase joint stability and reduce cam effects.
  - maintain limb length.
  - optimise the offset.
- The range consists of:
  - 7 left and right femoral sizes (Sizes 1 - 7)
  - 4 reversible modular necks: lateral/medial neck
    lateral/medial +10.5 neck
    lateral plus/medial plus neck
    ante/retro 8° neck.

Important: the lateral/medial neck (and lateral/medial +10.5) in a lateral position provide a cervico-diaphyseal angle of 137°.

Surgical technique

Pre-operation planning

By means of radiological assessment and templates, it is possible to:

- **determine the joint centre chosen by the surgeon**
- **choose the height of the** ACOR® femoral **stem on the femur** (identical or different from the anatomical centre):
- find this height by the distance between the horizontal projection from the centre of the femoral head with a standard neck and an reliable bone landmark. The measurement will be noted and checked throughout the operation with the ancillary component (the horizontal projection or centre of the femoral head with a standard neck corresponds to the blunt pin and to a lateral neck).
- **assess the size of the implant by looking for the maximum metaphyseal filling**
- **assess the modular neck providing the best offset**

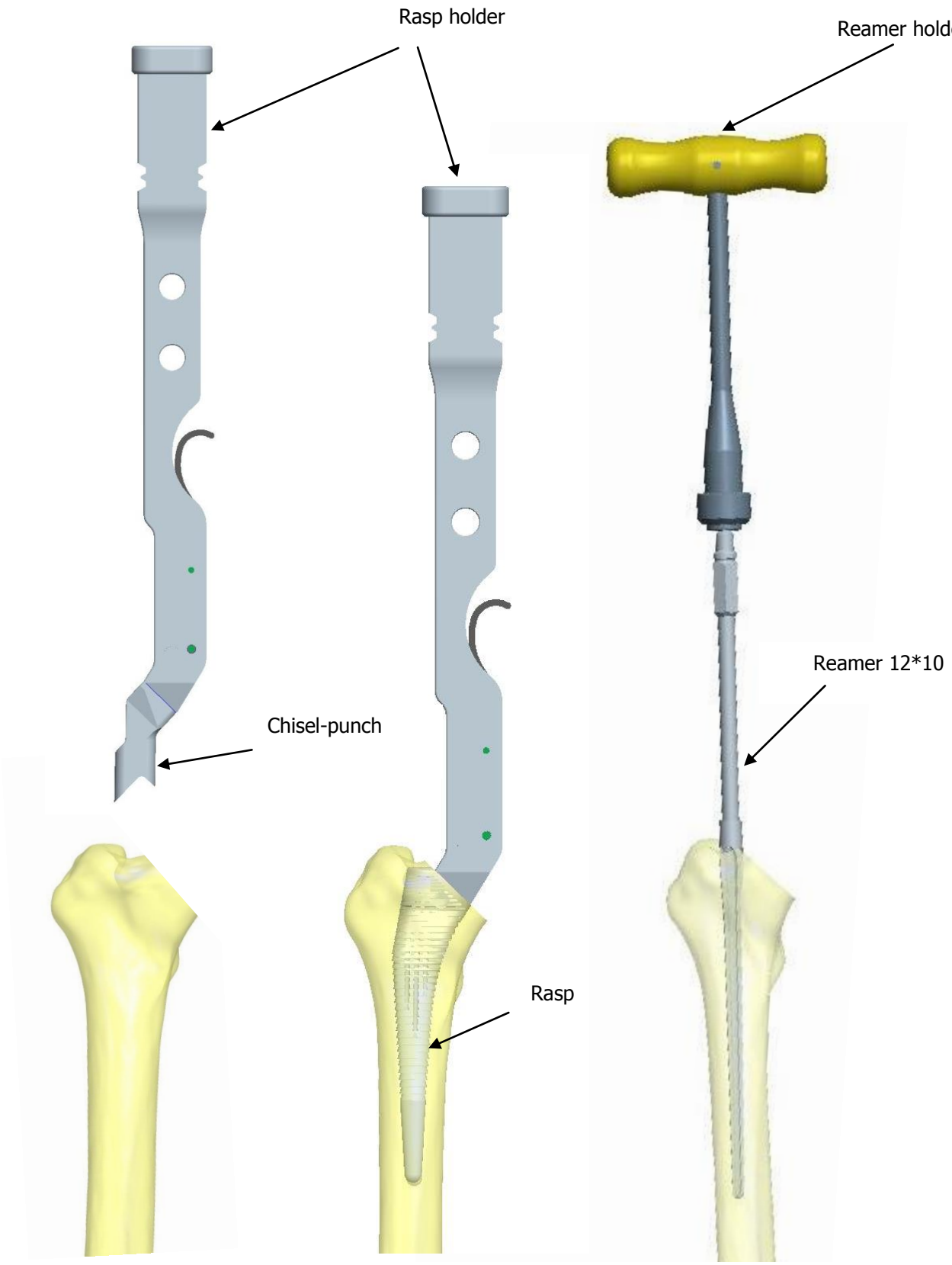
Following recommendations should be respected for modular necks and femoral heads:

		Femoral heads				
		Short neck	**Medium neck**	**Long neck**	**Extra long neck**	**Extra extra long neck**
L/M neck	Lateralised and medialised versions	✓	✓	✓	✗	✗
Ante/retro neck	Anteverted and retroverted versions	✓	✓	✓	✓	✗
L/M+ neck	Lateralised version	Maximum patient weight 90kg	Maximum patient weight 90kg	Maximum patient weight 90kg	✗	✗
	Medialised version	✓	✓	✓	✗	✗
L/M+10.5 neck	Lateralised and medialised versions	Maximum patient weight 90kg	Maximum patient weight 90kg	✗	✗	✗

Reminder: these instructions are intended to ensure the correct use of the ancillary equipment; the surgical approach and technique are the sole responsibility of the surgeon.

Pre-operation X-ray

Post-operation X-ray

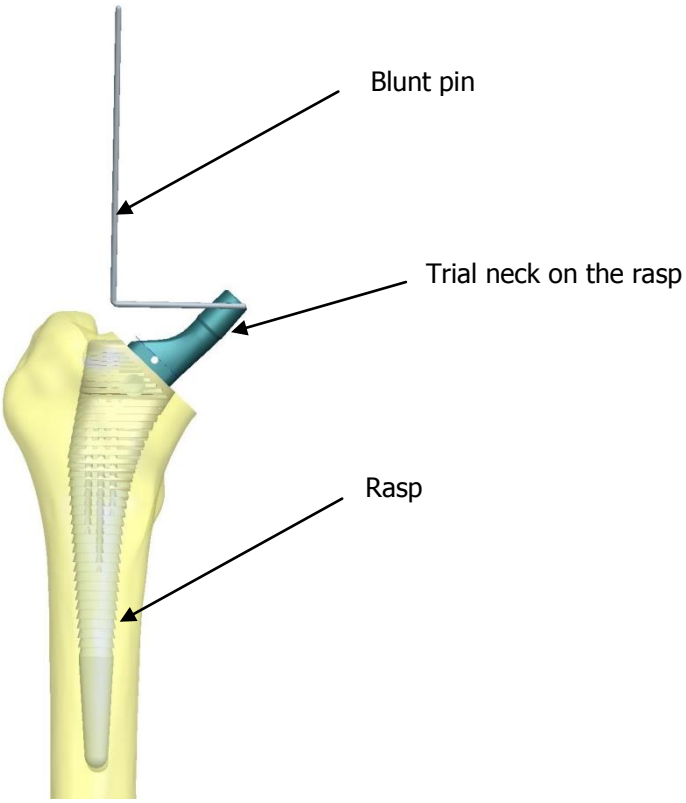

Rasp holder
Reamer holder
Chisel-punch
Reamer 12*10
Rasp

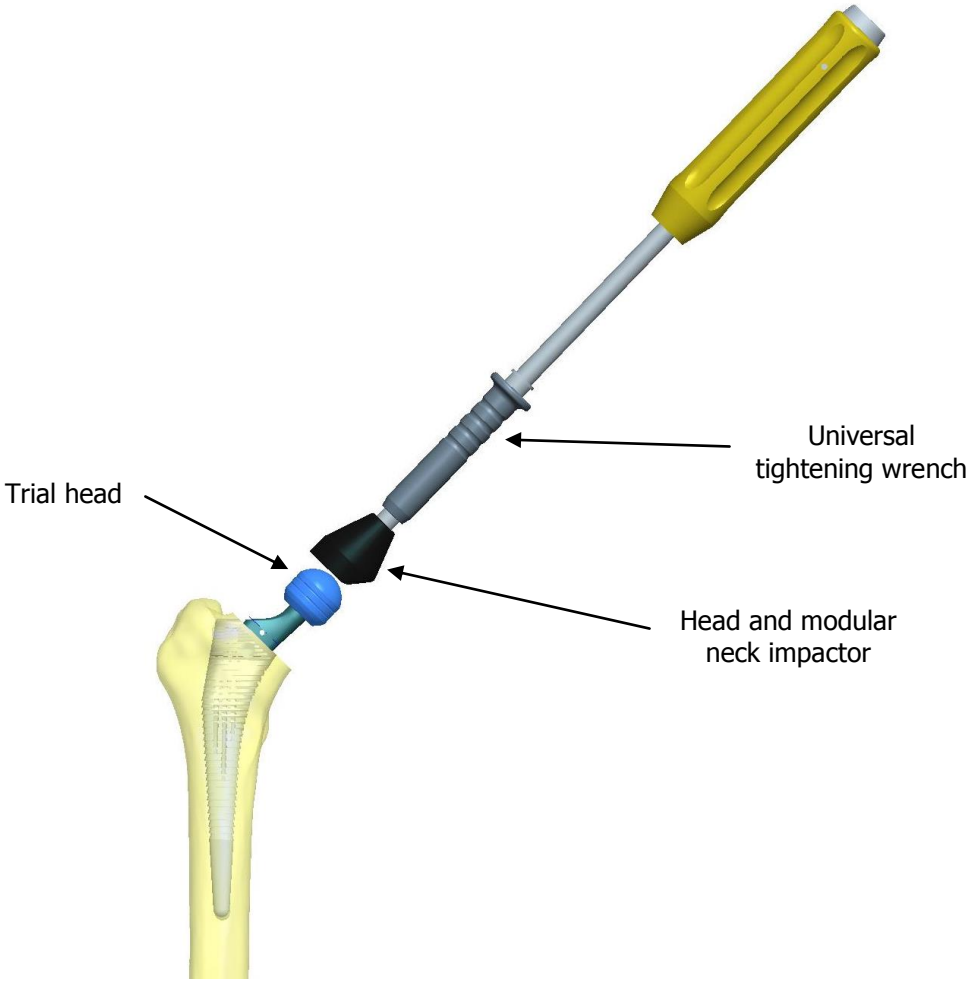
Preparing the medullary canal

- Expose the joint and cut the femoral neck according to your usual procedure.
- Put the chisel-punch on the rasp holder and start to hollow out the trochanter in the diaphyseal axis. This preparation is important to avoid varus positioning.
- Put the 12*10 reamer on the reamer holder and insert all of it into the diaphyseal canal in order to prepare for the entry of the rasps in the diaphyseal axis.

Determining femur size

- Attach the femoral rasp that corresponds to the side that has been operated on to the rasp holder.
- Insert the rasps, starting with size 1 in the femur and increasing the size until the optimal metaphyseal filling is obtained. To check the penetration level, insert the blunt pin in the rasp holder (it represents the horizontal projection from the centre of the prosthetic head with a neck in the lateral position and a neck length of 0 mm).
- Leave the last rasp inserted in the femur in place and unclip the rasp holder.


Blunt pin
Trial neck on the rasp
Rasp


Universal
tightening wrench
Trial head
Head and modular
neck impactor

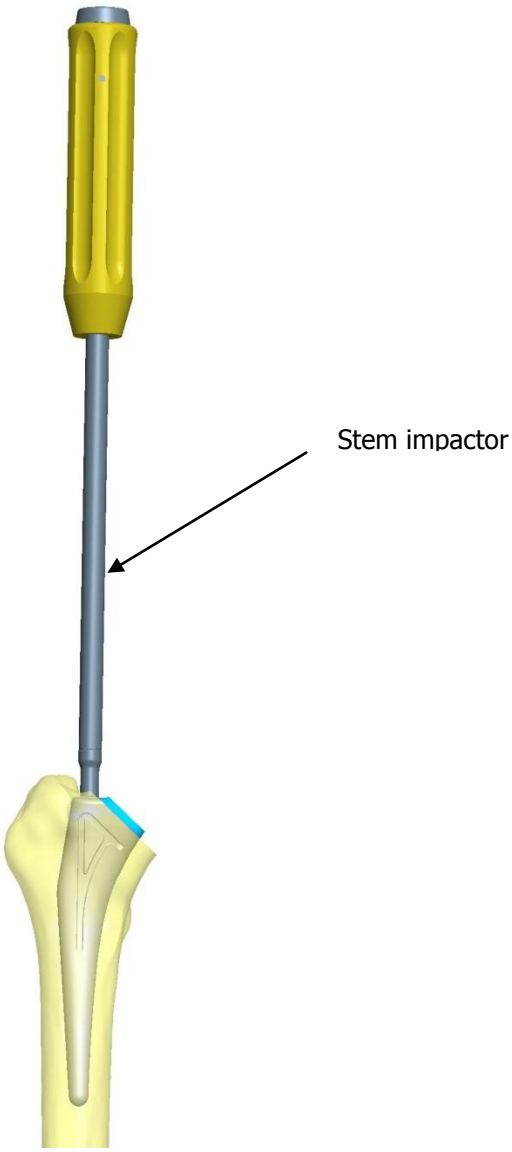
Trials with the rasp

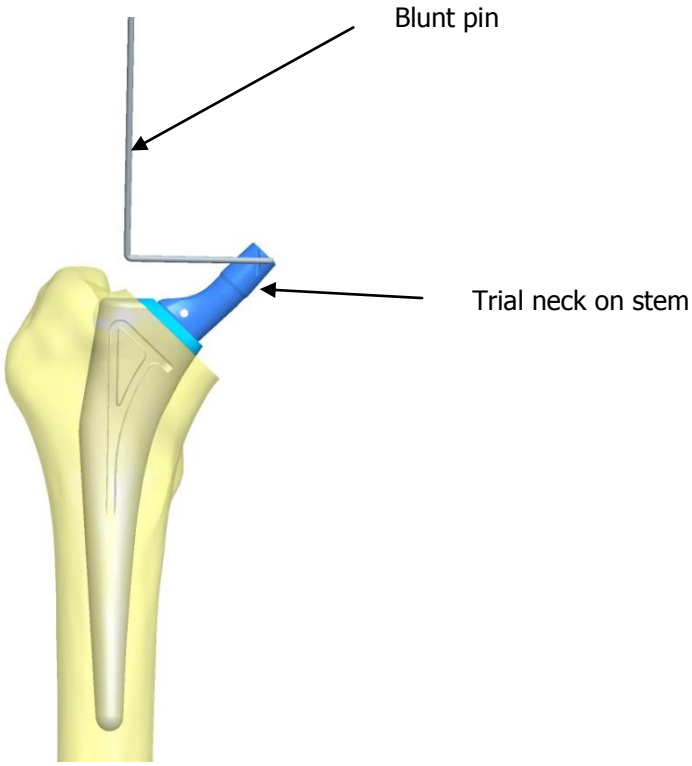
- Place the lateral modular trial neck on the rasp (blue neck).
- Check the height from the centre of the prosthetic head in relation to the anatomical landmark with the blunt pin placed in the groove of the trial neck (the horizontal projection from the centre of the femoral head corresponds to the blunt pin and to a standard neck in a lateral position).
- Choose a trial head of the desired diameter and length and place it on the neck.
- Perform a reduction with the modular neck and head impactor attached to the universal tightening wrench.
- Test the full range of movements and joint stability in order to check the extramedullary adjustments.
- If the full range of movement or joint stability are not achieved, choose from among the modular trial necks one that will provide the necessary correction.
- Restart the tests until you have determined which neck offers the best stability and mobility for the limb.

N.B.:

- Remove the femoral head and the modular trial neck on the selected rasp.
- Extract the femoral rasp with the rasp holder.
- Keep the rasp assembly, from the modular trial neck on the rasp and the femoral head, which has been validated for definitive assembly, on the table.

Important: Please keep in mind associations between modular necks and femoral heads presented on page 5.


Stem impactor

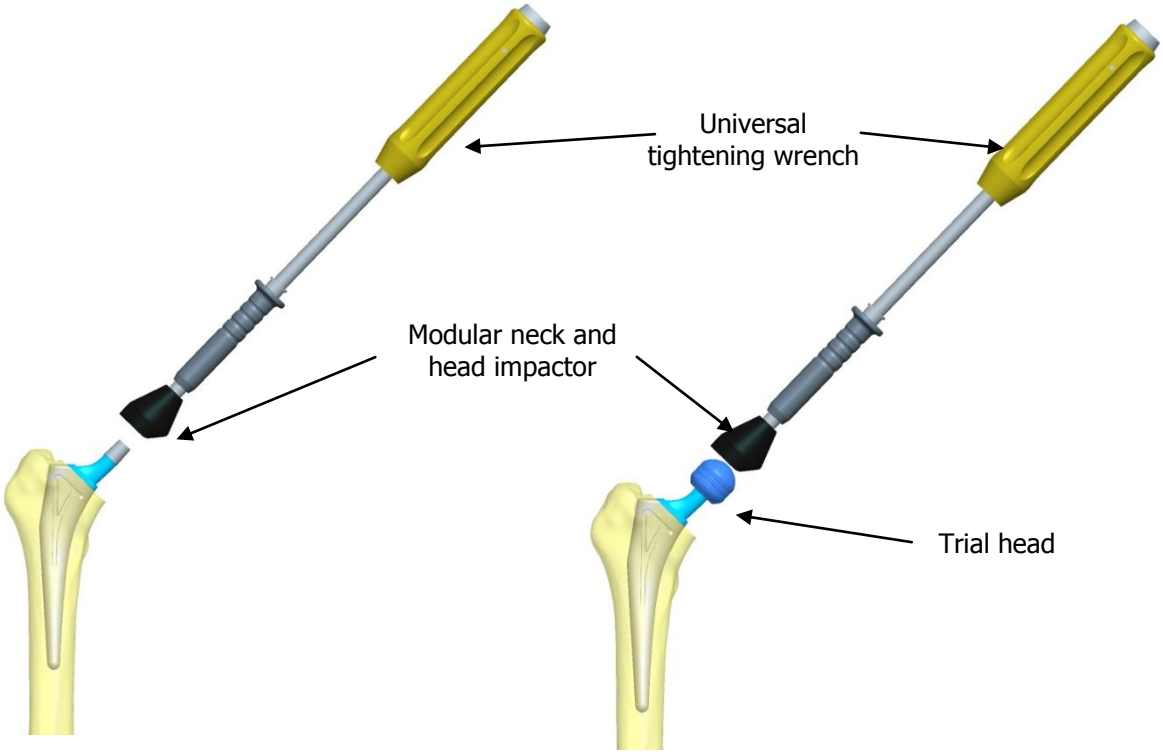

Blunt pin
Trial neck on stem

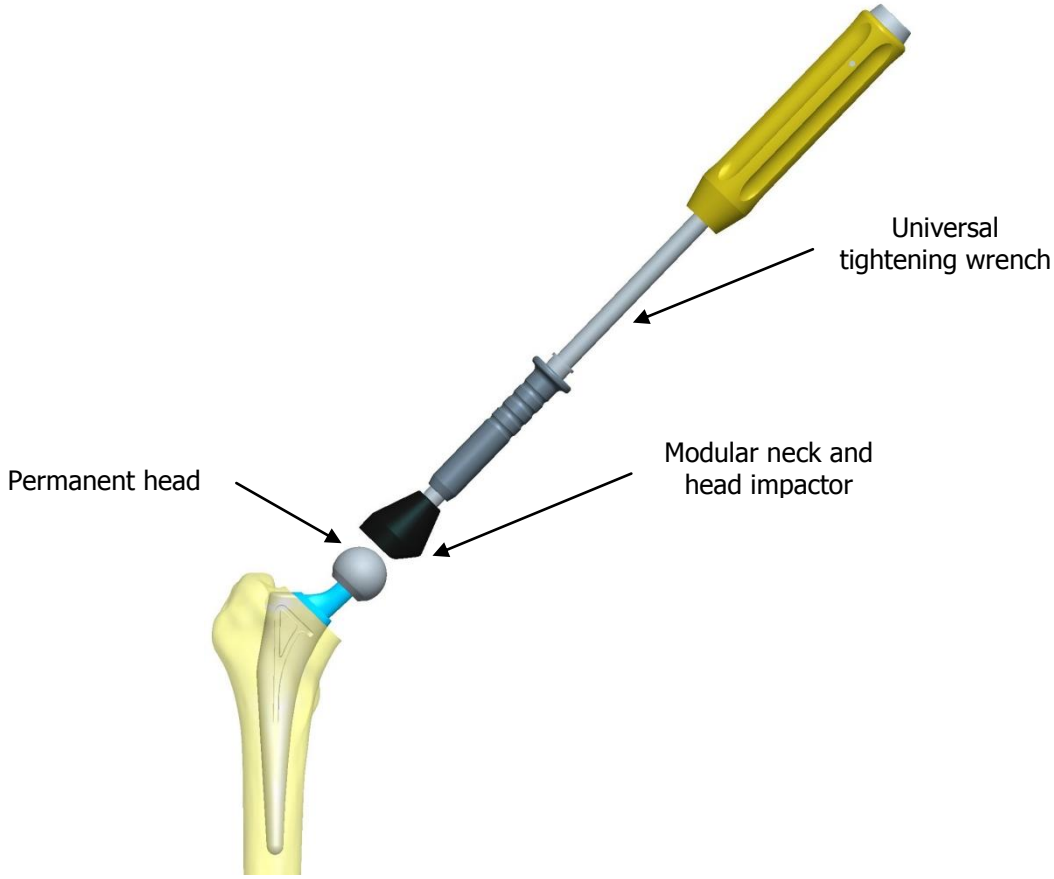
Installing the permanent implants

Installing the stem

- Place the ACOR® stem in the femur with the modular femoral stem impactor (the impaction limit corresponds to the HAP limit).
- Remove the elastomer cap (Santopreme® rubber) which is in the oblong hole.

- Place the trial modular neck on the stem to validate stability and joint mobility, if this has not been done previously. Check the height from the centre of the prosthetic head in relation to the anatomical landmark with the blunt pin in the groove of the trial neck (the horizontal projection from the centre of the femoral head corresponds to the blunt pin and to a lateral neck).


Universal
tightening wrench
Modular neck and
head impactor
Trial head


Universal
tightening wrench
Permanent head
Modular neck and
head impactor

Installing the permanent implants
Installing the modular neck

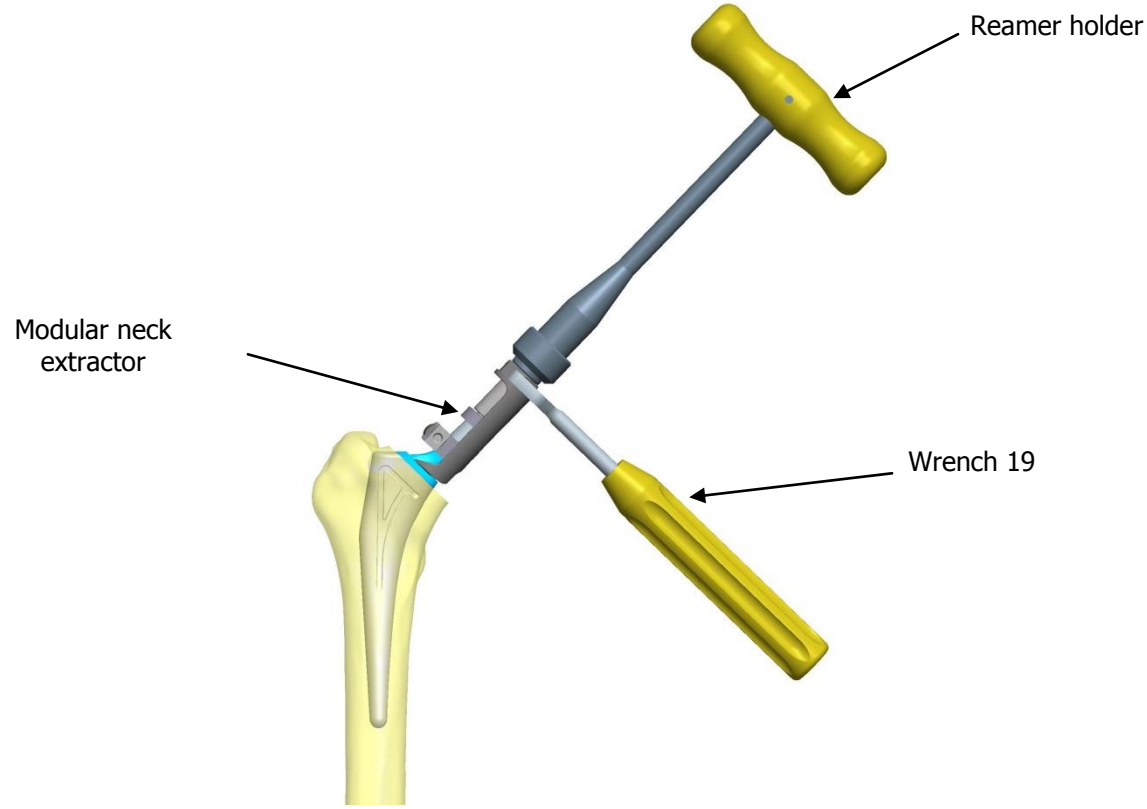
- Place the permanent modular neck in the oblong hole in the position validated during tests and conforming to the trial implants kept on the table.

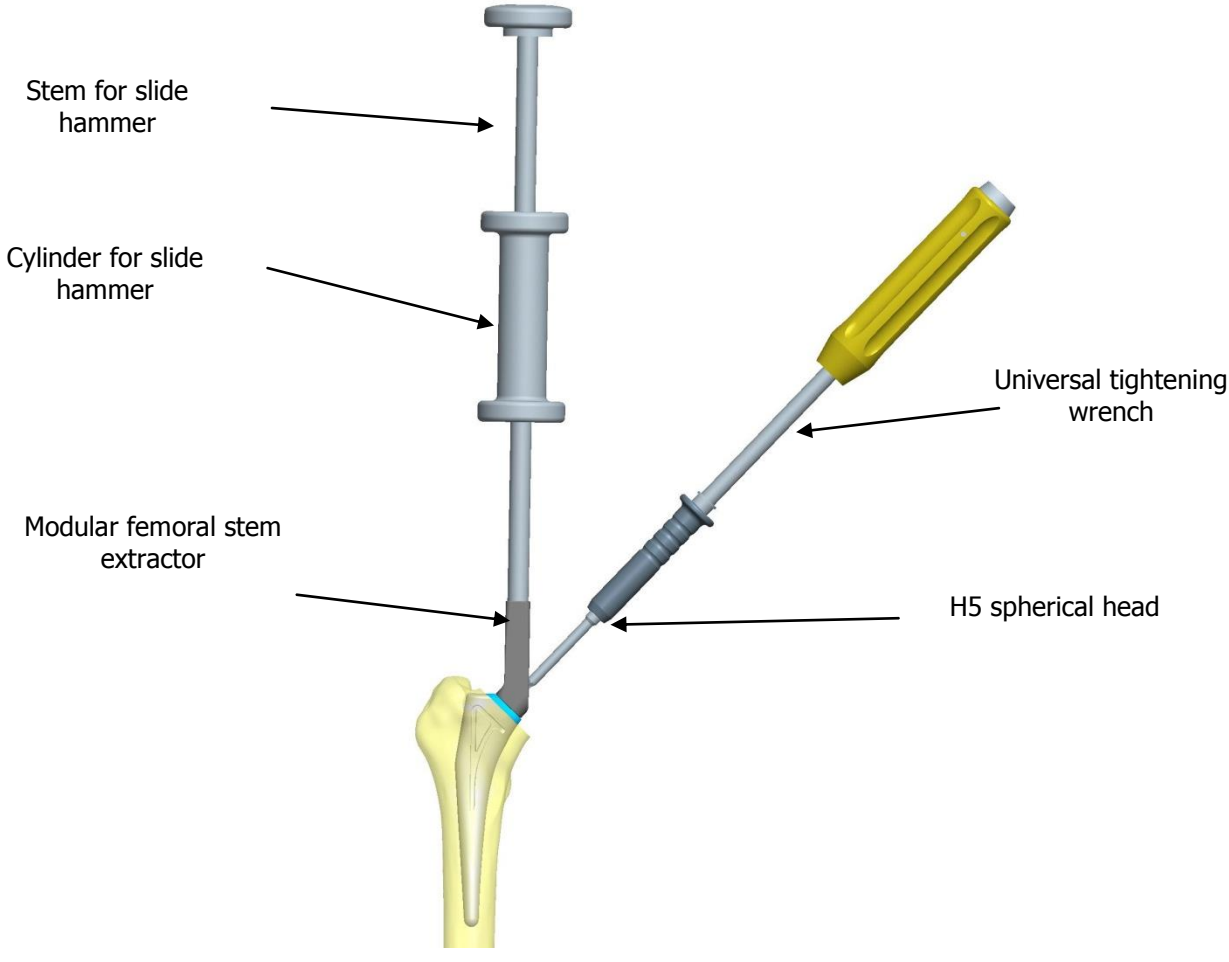
Important: the surgeon should ensure that the junction between the stem and the modular neck is perfectly clean and dry.

- Impact the modular neck with the neck and head impactor mounted on the universal tightening wrench. The impactor has a cavity which the proximal portion of the modular neck fits into.

Installing the permanent implants
Installing the head

- Install the permanent head with the tightening tip, then impact it with the head and neck impactor attached to the universal tightening wrench and reduce it.


Reamer holder
Modular neck extractor
Wrench 19


Stem for slide hammer
Cylinder for slide hammer
Universal tightening wrench
Modular femoral stem extractor
H5 spherical head

Extracting the implants
Extracting the modular neck

- Extract the femoral head (tap all the peripheral area around the head).
- Place the modular neck in the neck extractor in such a way that the extractor's mobile pin is just below the taper of the femoral head.
- Tighten the mobile pin with the H5 spherical head attached to the universal tightening wrench.
- Attach the reamer holder to the top of the extractor.
- With wrench 19, hold the extractor in position and screw down with the reamer holder until the neck is extracted.

Extracting the implants
Extracting the stem

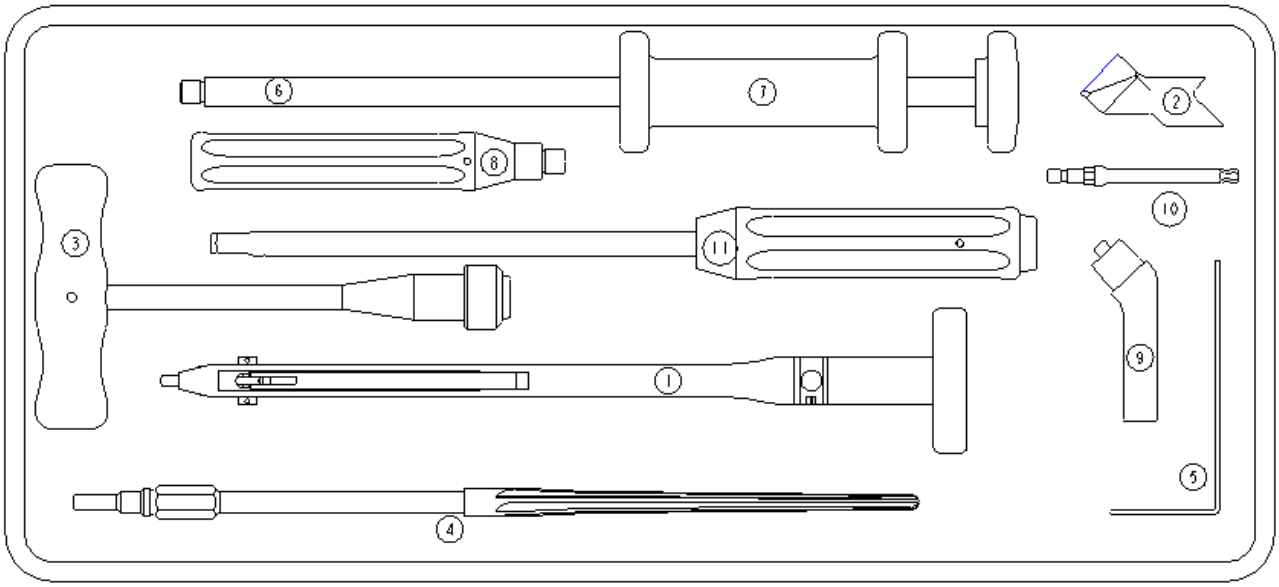
- When the modular neck is extracted, screw the modular femoral stem extractor in the oblong hole on the stem with the H5 spherical tip attached to the universal tightening wrench.
- Attach the slide hammer stem and cylinder to the femoral stem extractor and proceed with the stem extraction. The extraction is performed in the axis of the prosthesis.

The ancillary component set

The ACOR® ancillary component set consists of 3 trays:

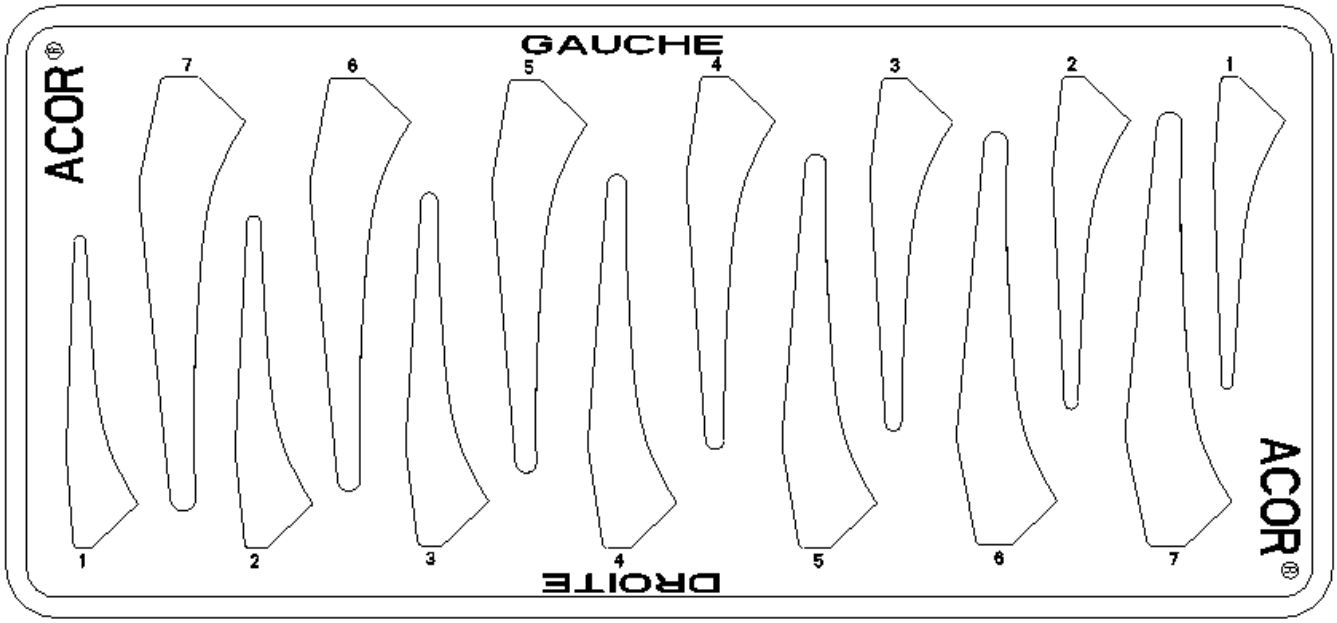
- A femur impactor/extractor set (tray 1)
- A set of left and right rasps (tray 2)
- A trial set (tray 3)

Femur impactor/extractor set (tray 1)



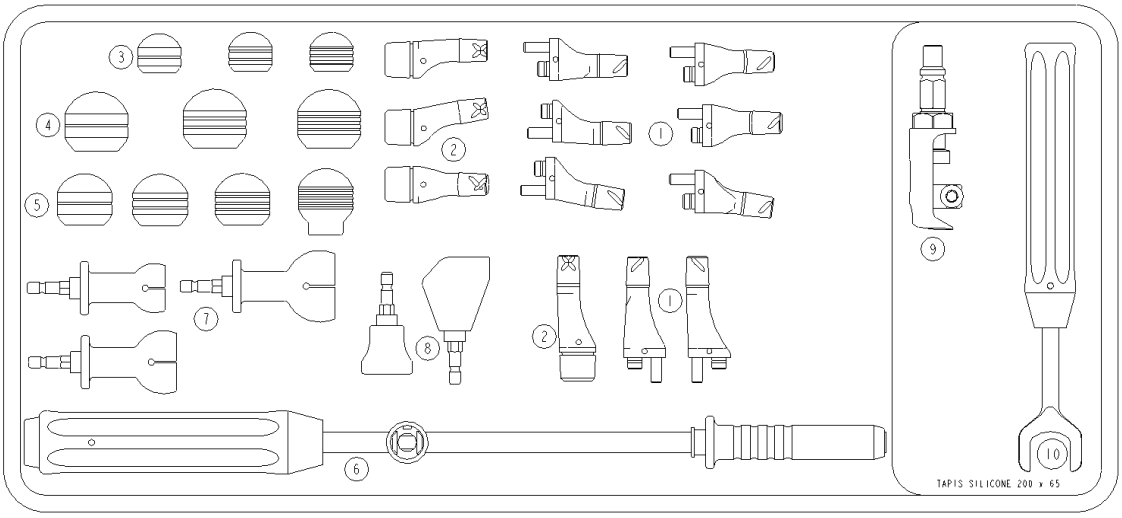
No.	Name	Ref	Qty
1	Straight mechanical/navigated rasp holder	2-0116900	1
2	Chisel-punch	2-0116300	1
3	Reamer holder	2-0103500	1
4	12 x 10 Reamer	2-0103612	1
5	Blunt pin Ø 2 A/P	2-0114000	1
6	Stem for slide hammer	2-0102900	1
7	Cylinder for slide hammer	2-0103300	1
8	Handle	2-0104200	1
9	Modular femoral stem extractor	2-0116000	1
10	H.5 spherical head	2-0115700	1
11	Modular femoral stem impactor	2-0115900	1

Set of left and right rasps (tray 2)



No.	Name	Ref	Qty
1	Rasp T1 L for modular anatomical femoral stem	2-01156G1	1
2	Rasp T2 L for modular anatomical femoral stem	2-01156G2	1
3	Rasp T3 L for modular anatomical femoral stem	2-01156G3	1
4	Rasp T4 L for modular anatomical femoral stem	2-01156G4	1
5	Rasp T5 L for modular anatomical femoral stem	2-01156G5	1
6	Rasp T6 L for modular anatomical femoral stem	2-01156G6	1
7	Rasp T7 L for modular anatomical femoral stem	2-01156G7	1
1	Rasp T1 R for modular anatomical femoral stem	2-01156D1	1
2	Rasp T2 R for modular anatomical femoral stem	2-01156D2	1
3	Rasp T3 R for modular anatomical femoral stem	2-01156D3	1
4	Rasp T4 R for modular anatomical femoral stem	2-01156D4	1
5	Rasp T5 R for modular anatomical femoral stem	2-01156D5	1
6	Rasp T6 R for modular anatomical femoral stem	2-01156D6	1
7	Rasp T7 R for modular anatomical femoral stem	2-01156D7	1

Trial set (tray 3)



No.	Name	Ref	Qty
1	Modular trial neck on rasp LATERAL	2-0116401	1
1	Modular trial neck on rasp MEDIAL	2-0116402	1
1	Modular trial neck on rasp LATERAL PLUS	2-0116403	1
1	Modular trial neck on rasp MEDIAL PLUS	2-0116404	1
1	Modular trial neck on rasp ANTE L/RETRO R 8°	2-0116405	1
1	Modular trial neck on rasp ANTE R/RETRO L 8°	2-0116406	1
1	Modular trial neck on rasp LATERAL +10.5	2-0116409	1
1	Modular trial neck on rasp MEDIAL +10.5	2-0116410	1
2	Modular trial neck on stem LATERAL/MEDIAL	2-0116101	1
2	Modular trial neck on stem ANT/RETRO 8°	2-0116102	1
2	Modular trial neck on stem LATERAL+/MEDIAL+	2-0116103	1
2	Modular trial neck on stem LATERAL/MEDIAL +10.5	2-0116105	1
3	Trial head on stem Ø 22.2 short neck	2-0100405	1
3	Trial head on stem Ø 22.2 standard neck	2-0100406	1
3	Trial head on stem Ø 22.2 long neck	2-0100407	1
4	Trial head on stem Ø 28 short neck	2-0100401	1
4	Trial head on stem Ø 28 standard neck	2-0100402	1
4	Trial head on stem Ø 28 long neck	2-0100403	1
4	Trial head on stem Ø 28 extra-long neck	2-0100404	1
5	Trial head on stem Ø 32 short neck	2-0100408	1
5	Trial head on stem Ø 32 standard neck	2-0100409	1
5	Trial head on stem Ø 32 long neck	2-0100410	1
6	Navigated/mechanical universal tightening wrench	2-0117600	1
7	Tightening tip for Ø22.2 head	2-0104322	1
7	Tightening tip for Ø28 head	2-0104328	1
7	Tightening tip for Ø32 head	2-0104332	1
8	Modular neck and head impactor	2-0115800	1
8	Impactor for Ø22.2 head	2-0101400	1
9	Modular neck extractor	2-0116200	1
10	Wrench 19	2-0118400	1