

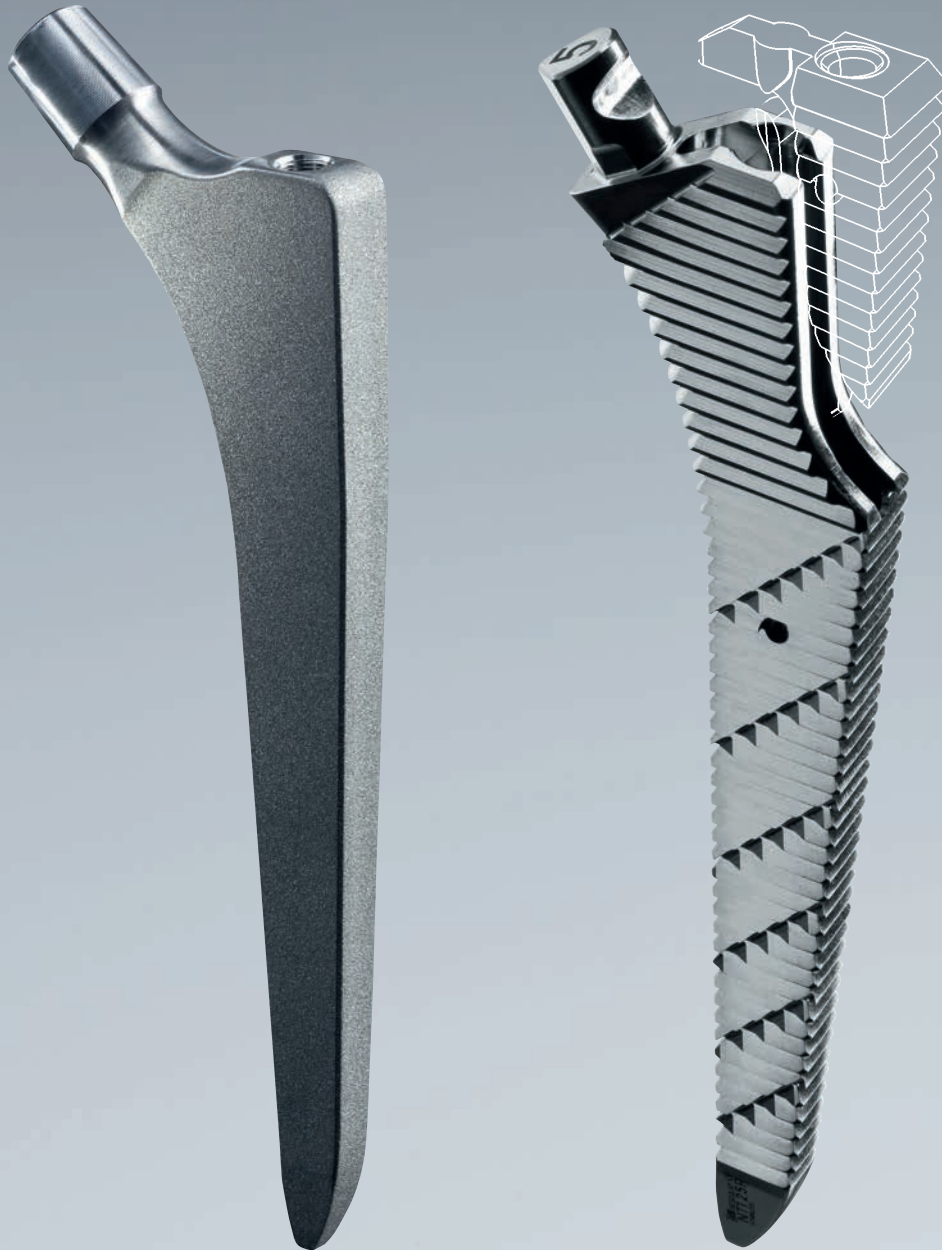
ORTHOPAEDIC
SURGERY

AESCULAP[®] TRJ[®]

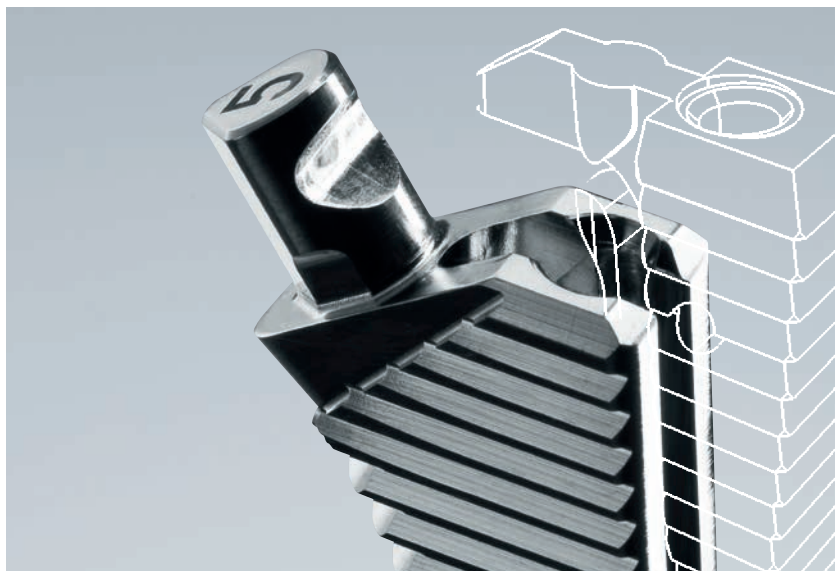
CEMENTLESS HIP ENDOPROSTHESIS STEM
PRESERVING THE TROCHANTER. YES.

AESCULAP® TRJ®

PRESERVING THE TROCHANTER. YES.



CEMENTLESS HIP ENDOPROSTHESIS STEM

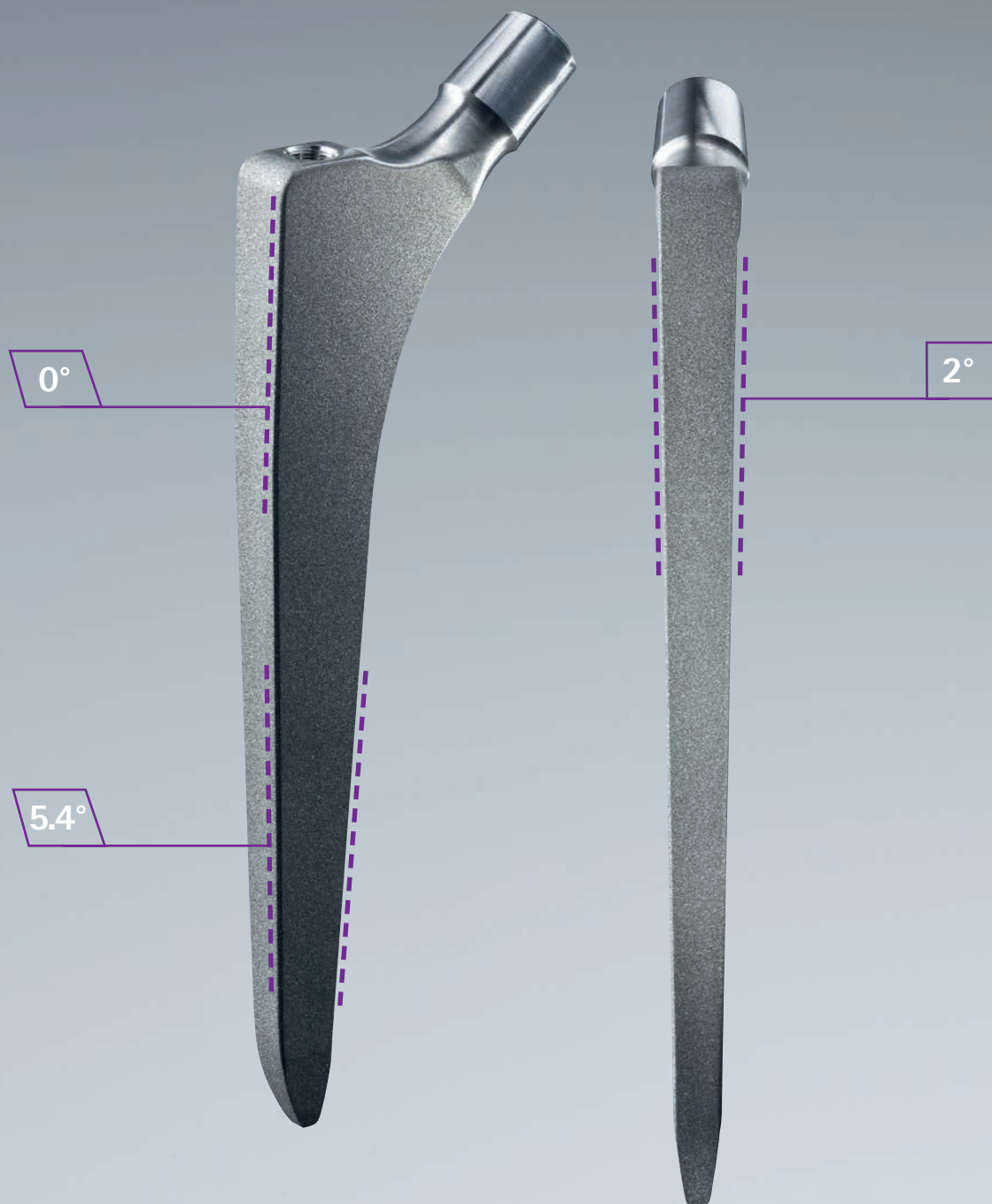


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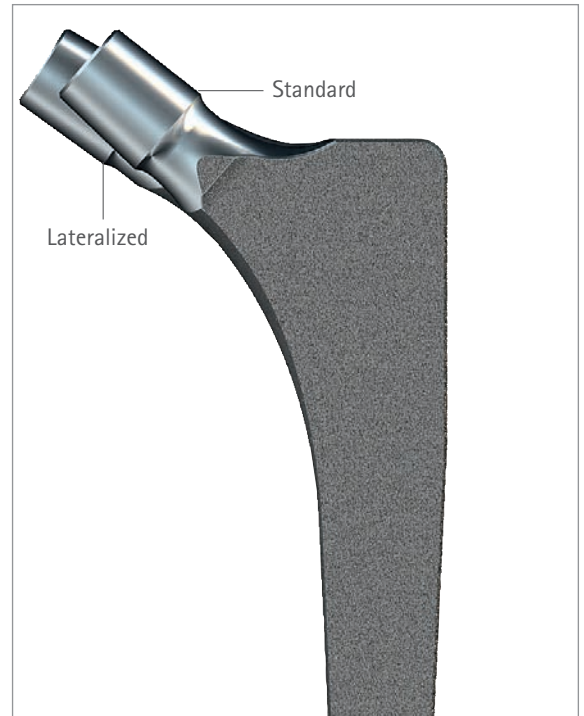
AESCULAP® TRJ®

PRESERVING THE TROCHANTER. YES.



STEM DESIGN

CEMENTLESS HIP ENDOPROTHESIS STEM



The TRJ[®] hip prosthesis stem is implanted without cement. The stem design is based on many years of experience with a conical diaphyseal anchorage in the femur.

The double tapered shape of the uncoated and surface radiated TRJ[®] hip stem straightens at the proximal lateral end so that the greater trochanter is preserved to the greatest possible extent during implantation. The TRJ[®] rasp concept with a modular disconnected trochanter rasp supports a muscle and trochanter preserving bone preparation with a precise diaphyseal stem design.

The eccentric distal TRJ[®] stem tip simplifies the minimally invasive implantation in the femur and prevents the risk of varus stem positioning. The TRJ[®] range of stems is available in a range of sizes for different femur morphologies and correction of pathological joint and leg length anatomies. The TRJ[®] standard stem has a CCD femoral neck angle of 131°. The lateralized TRJ[®] stem has an angle of 123° and an additional offset of 6 mm. The slim TRJ[®] neck design with cone 12/14 allows an optimized range of motion for the implantation of AESCULAP[®] head and cup components.

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IMPLANTS

CEMENTLESS HIP ENDOPROSTHESIS STEM



The TRJ® hip prosthesis stem can be combined with cementless and cemented acetabular implant systems. The offset and length measurements for the standard and lateralized TRJ® hip stems are shown in the table. Stem size 1 is only available in the standard version. The defined stem lengths and offset values refer to the rotational center of a head of medium neck length.

Size	Offset standard	Offset lateralized	Length of stem
1	32.2 mm	-	130 mm
2	33.3 mm	39.3 mm	135 mm
3	34.4 mm	40.4 mm	140 mm
4	35.6 mm	41.6 mm	145 mm
5	36.8 mm	42.8 mm	150 mm
6	38.0 mm	44.0 mm	153 mm
7	39.3 mm	45.3 mm	158 mm
8	40.5 mm	46.5 mm	163 mm
9	41.8 mm	47.8 mm	168 mm
10	43.2 mm	49.2 mm	172 mm
11	44.6 mm	50.6 mm	177 mm
12	46.0 mm	52.0 mm	182 mm

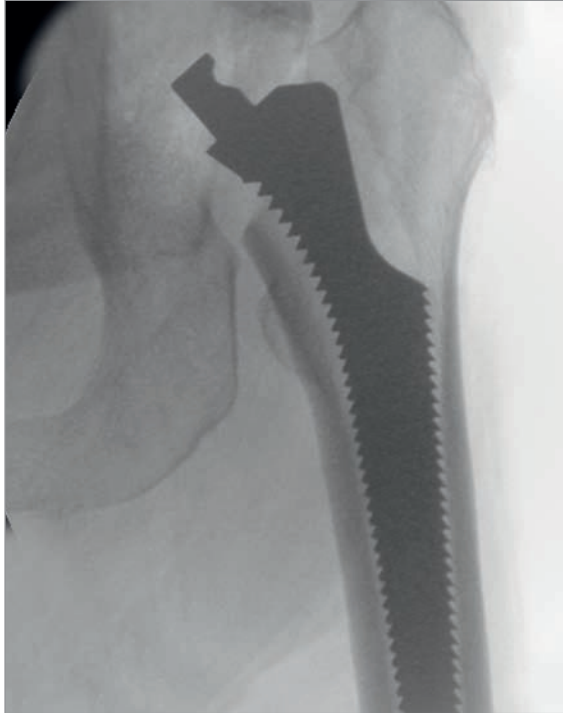
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PRESERVING THE TROCHANTER. YES.



RASP SYSTEM

CEMENTLESS HIP ENDOPROSTHESIS STEM



TRJ® Bone preparation

The TRJ® rasp concept includes a modular disconnected trochanter rasp, so that the main rasp can be 'cut free' in the proximal-lateral section. The femoral rasp preparation is designed to anchor into the region of the distal bearing bone structures.

The proximal-lateral part of the denticulation of the TRJ® main rasp does not come into contact with the greater trochanter and preserves the adjacent abductors. This supports a precise neutral positioning of the rasp in the bone without pressing on the soft tissue or against the greater trochanter.

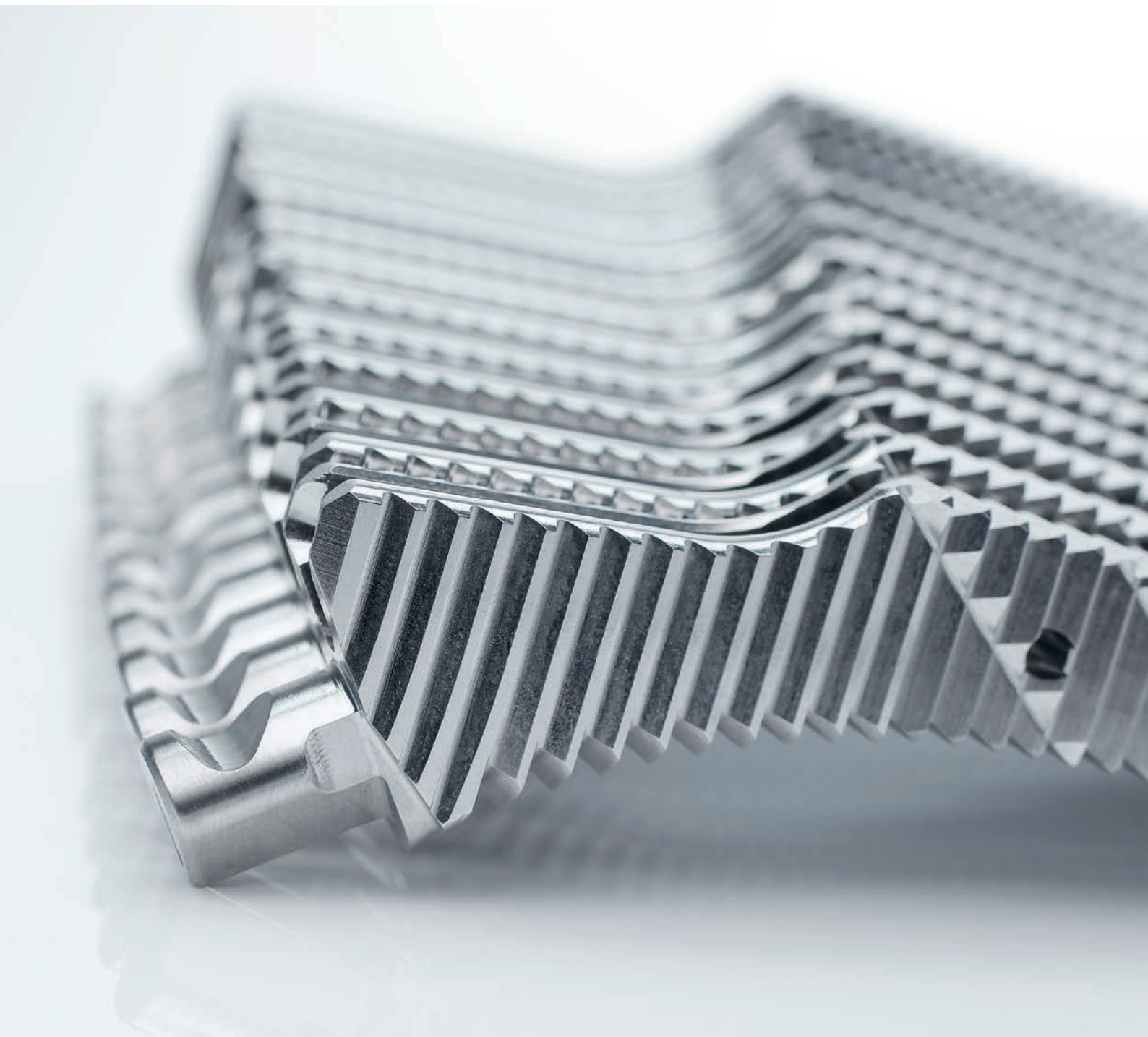
The modular uncoupled TRJ® trochanter rasps are not used until the end, so that the proximal-lateral bone below the trochanter can be accurately prepared with the main rasp in-situ.

The combination of the TRJ® system (Trochanter Retaining Joint Replacement) with the AESCULAP® MIOS® approach instruments (Minimally Invasive Orthopaedic Solutions) ensures gentle and precise implantation techniques for standard minimally invasive surgical approaches to the hip joint.



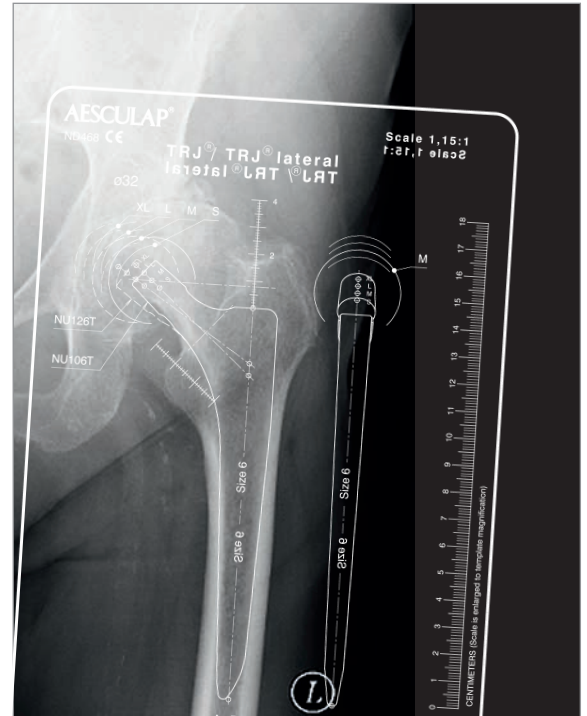
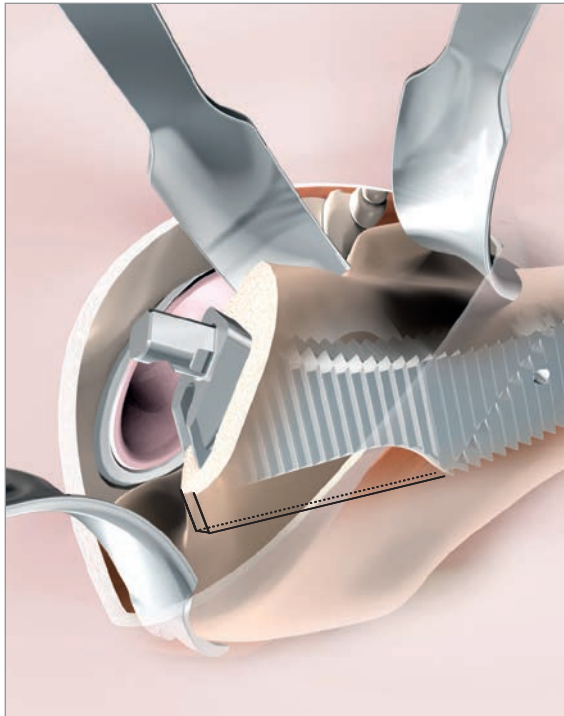
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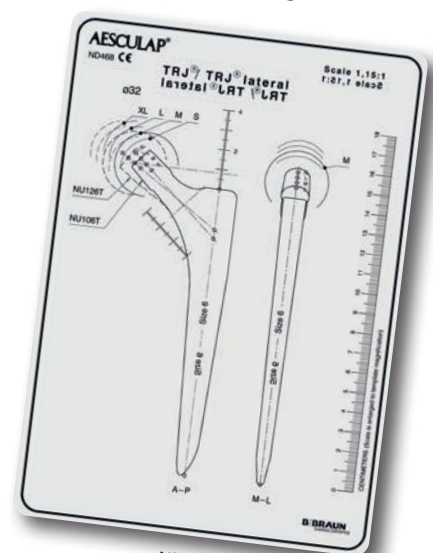
OR-TECHNIQUE

PREOPERATIVE PLANNING



The TRJ[®] prosthesis is a cementless straight stem system. The stem position and stem size are planned essentially by assessing the distal femoral anchorage section. The finely incremented implant range supports precise axial stem positioning by allowing the corresponding rasp size to be selected intraoperatively. The primary range of indications include degenerative and dysplastic osteoarthritis, femoral head necroses and medial hip fractures. Preoperative planning is carried out using X-ray templates or digital planning systems in an antero-posterior and lateral projection.

The TRJ[®] x-ray templates show the standard and lateral stem sizes within a template and include markings to identify the reference points to the greater trochanter, lesser trochanter and position of the osteotomy. During planning it is helpful to ensure that the axial distances of the TRJ[®] prosthesis shoulder is 8 mm to the center head in all stem sizes when using a medium neck length.



ND468

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FEMORAL NECK OSTEOTOMY

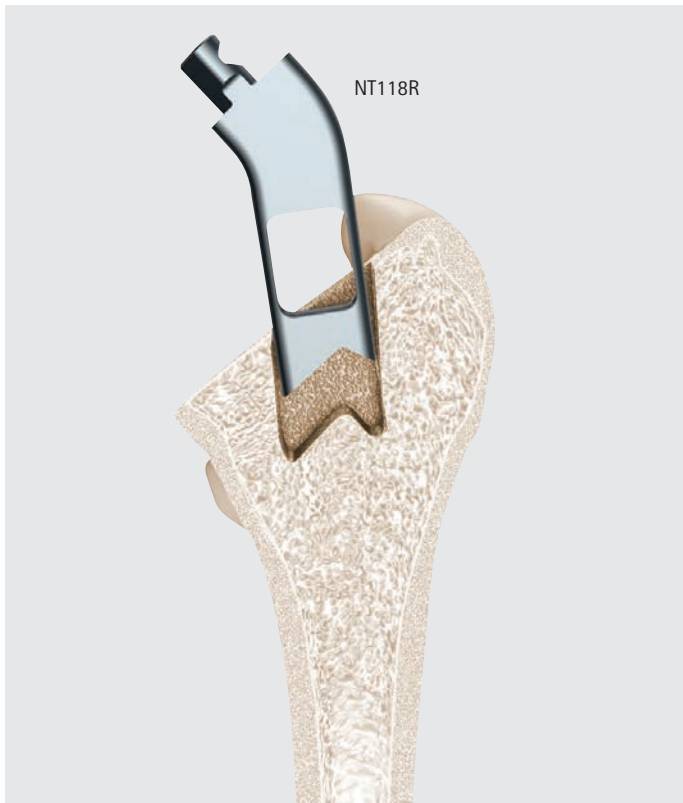


The resection of the femoral neck is in accordance with preoperative planning and follows an osteotomy angle of 45° to the femoral stem axis.

OR-TECHNIQUE

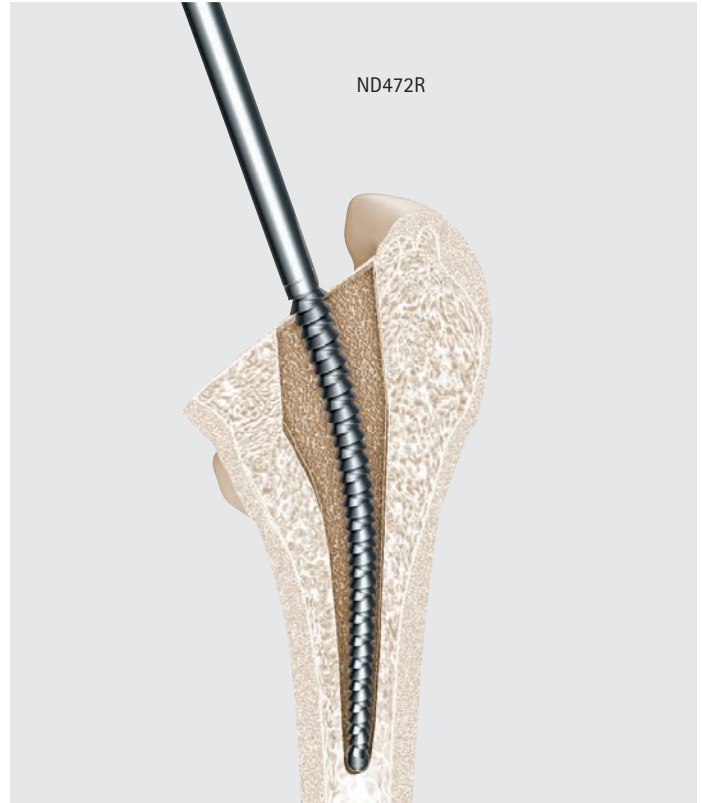
OSTEOTOMY & FEMORAL CANAL OPENING

BOX CHISEL



The intramedullary cavity is opened using a modular box chisel and adapted to whichever rasp handle is used. The box chisel is fitted with a tip at the lateral femoral neck ring which is generally directed from center to medial. This defines the selected ante-torsion angle. The lateral opening point is not within the trochanter, so that this can be preserved in the subsequent intramedullary cavity treatment.

STARTER RASP

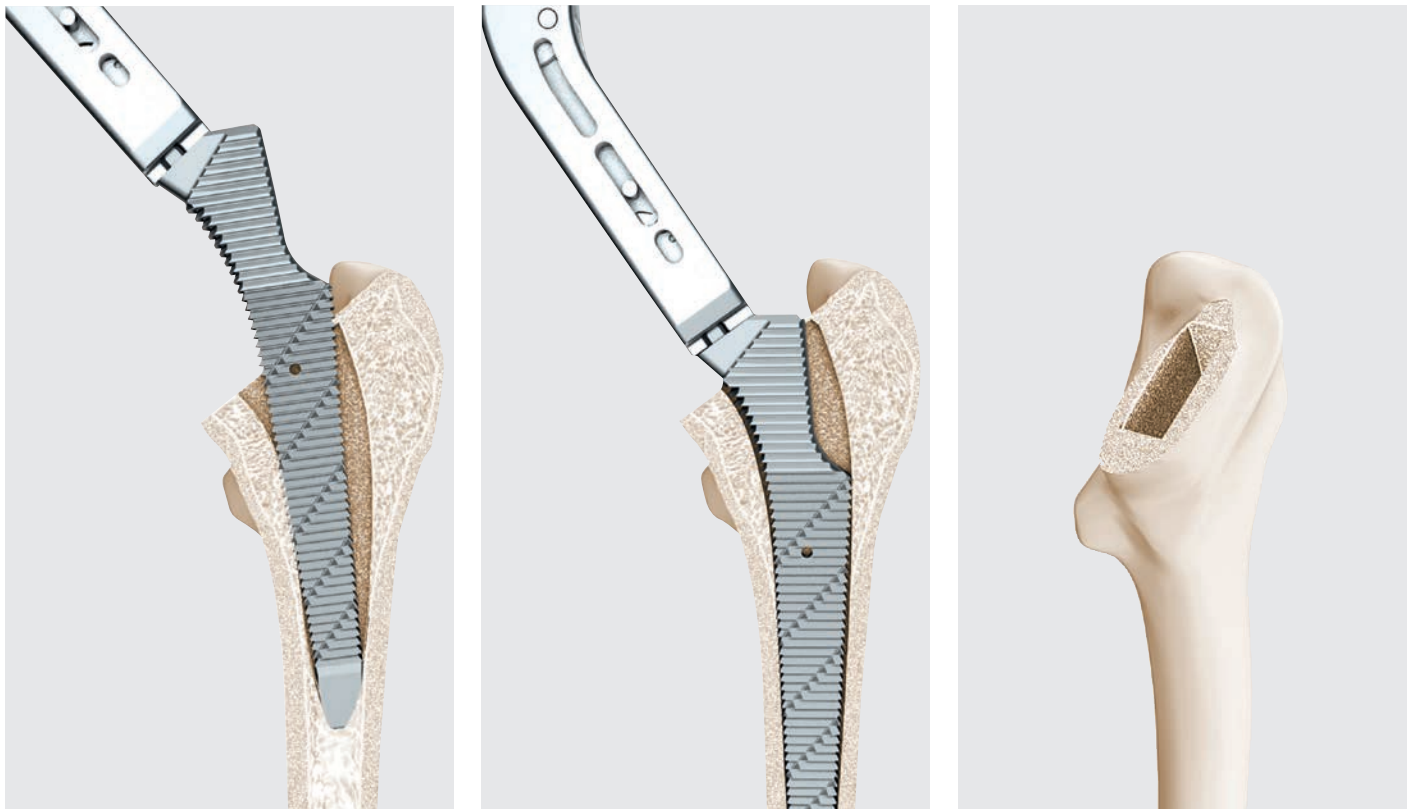


The opening of the intramedullary cavity is completed with a curved starter rasp. It is used manually without the use of a hammer.

AESCULAP® TRJ®

PRESERVING THE TROCHANTER. YES.

FEMUR PREPARATION



The implant bed is prepared step by step, starting with the smallest main rasp.

Various handles are available for the antero-lateral or posterior approach (see page 20).

To preserve the greater trochanter the main rasp is applied in a slightly medial direction so that the rasp teeth do not cut into the medial section of the greater trochanter from a lateral-proximal recess. This procedure supports an ideal insertion curve of the main rasp before this centers into the distal section of the femoral intramedullary cavity.

The proximal-lateral rasp recess is rounded, so that no cutting edges come into contact with soft tissue or the greater trochanter during intramedullary preparation or rasp removal. The intramedullary cavity is prepared until the required size is achieved with the planned depth and necessary stability.

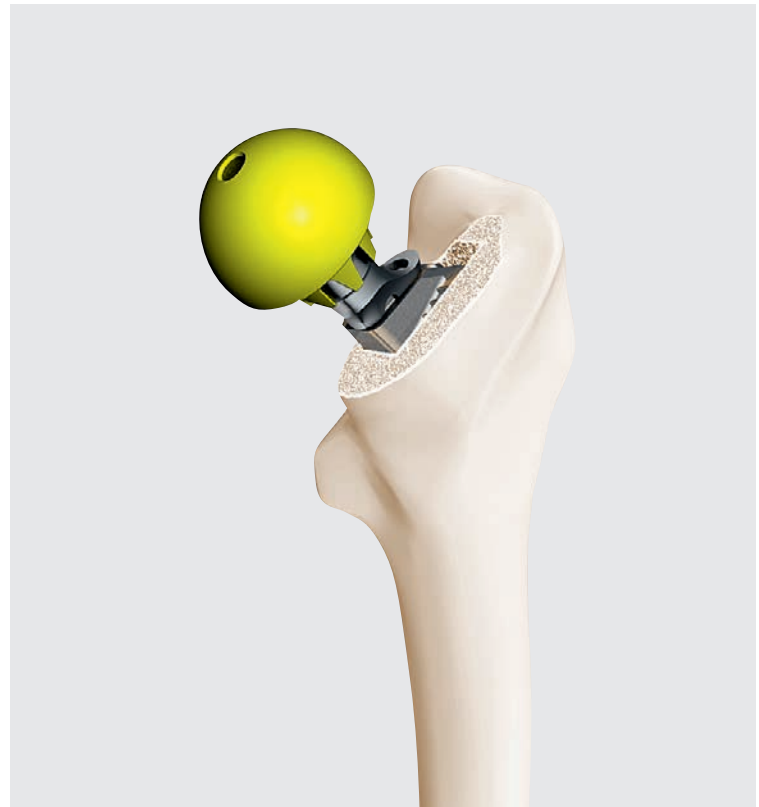
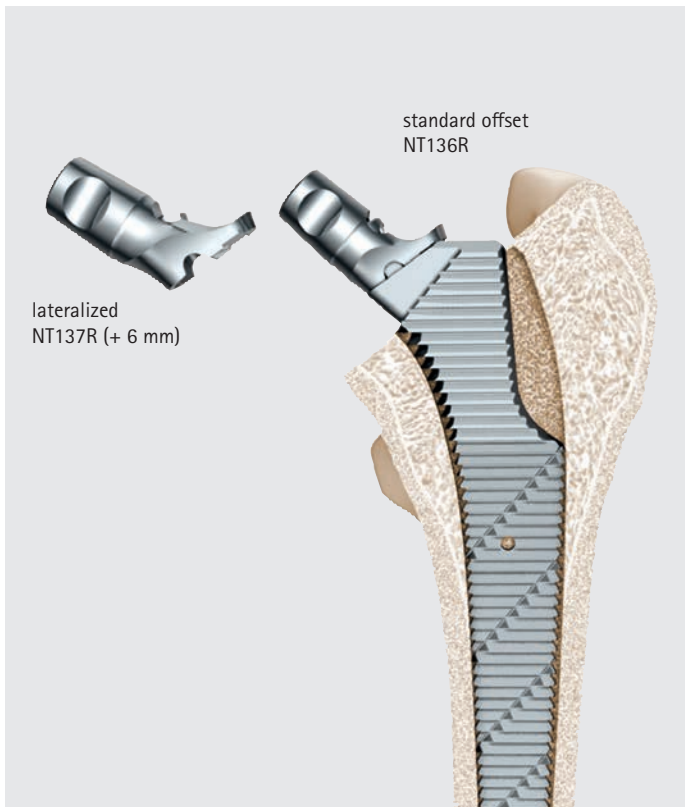
Note

The femur can also be prepared with the pneumatic Specht® hammer ('wood-pecker') for which special rasp adapters are available.

OR-TECHNIQUE

FEMUR PREPARATION

TRIAL REDUCTION



The trial is repositioned with modular trial cone adapters, fitted to the main rasp. A standard offset or lateralized cone adapter is available.

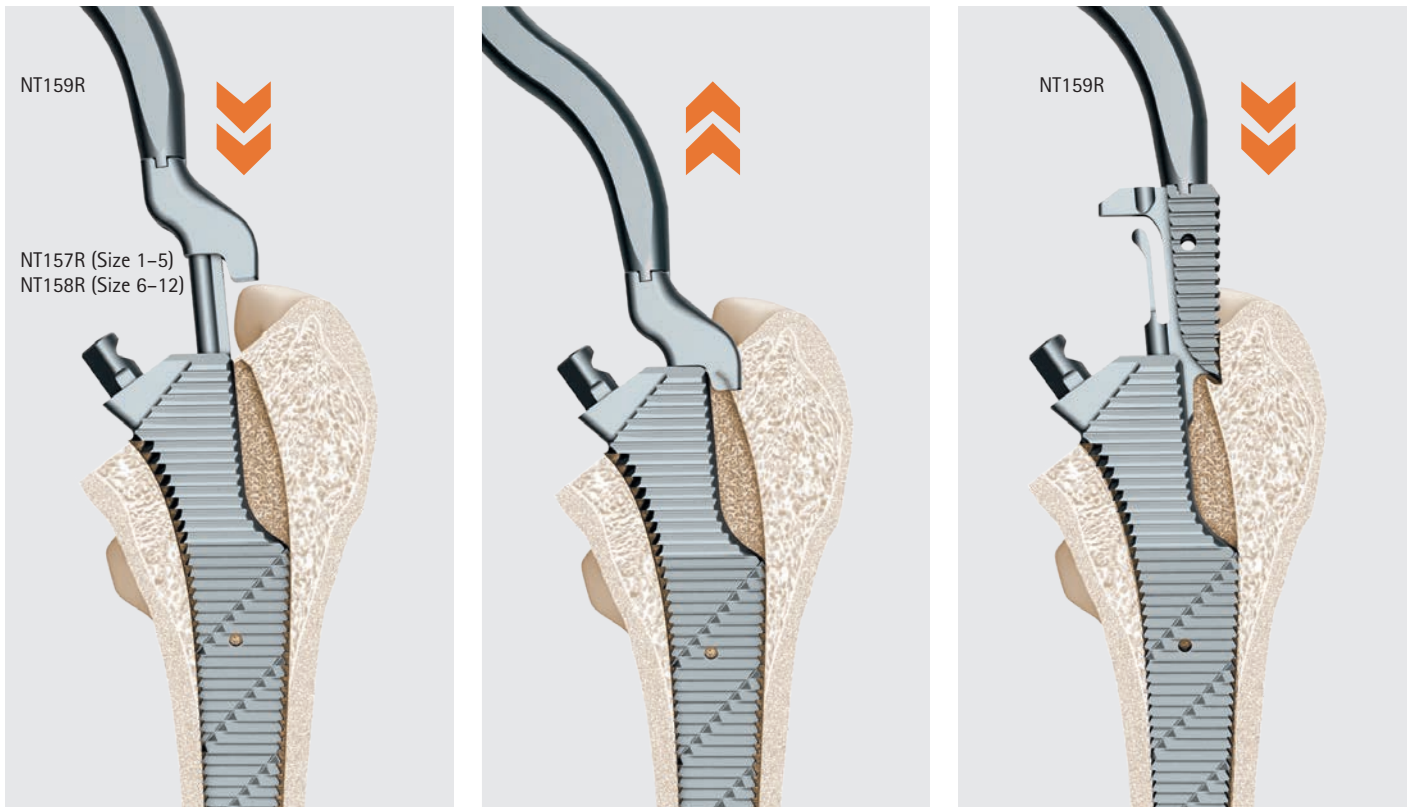
The leg length remains unchanged when the lateralized offset is used. The TRJ[®] standard stems in sizes 1 to 12 have a femoral offset ranging from 32.2 mm to 46.0 mm, and this is an additional 6 mm in the lateralized form.

The modular trial heads are used to reposition the trial stem to check the range of motion, joint stability and leg length.

AESCULAP® TRJ®

PRESERVING THE TROCHANTER. YES.

FINAL PREPARATION OF THE FEMUR



With the main rasp in place the final proximal-lateral femur preparation is carried out with a guided trochanter chisel (images top left and center) and then with the modular trochanter rasp (image right).

Taking the morphology of the greater trochanter into account, the trochanter chisel is first inserted into the guide of the main rasp to ensure cortical opening. Next, the appropriate handle is screwed onto the trochanter chisel.

Using the same handle, the trochanter rasp to match the main rasp in-situ is then impacted until it engages and is then immediately removed.

Important Information:

If the main rasp were to be removed with the inserted trochanter rasp there would be the risk of fracturing the greater trochanter.

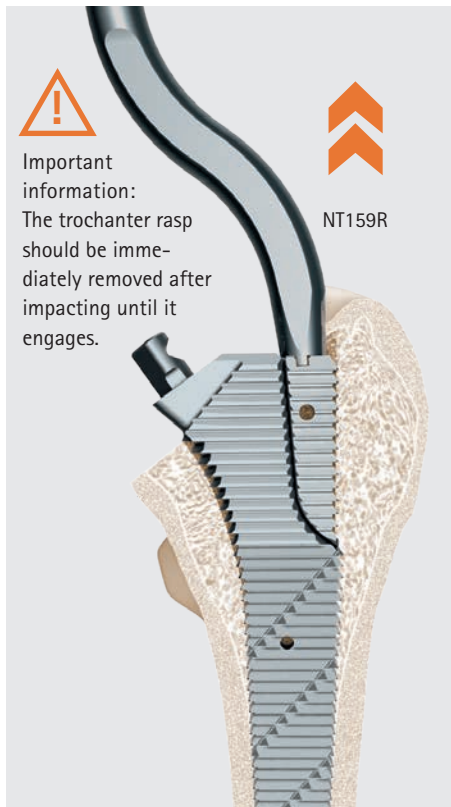
The trochanter guide stabilizes the instrument axially and ensures correct rotational positioning. When the trochanter rasp is used as described, a smaller part of the trochanter bone is prepared at the level of the prosthesis shoulder to ensure that the requirements for stem implantation are met.



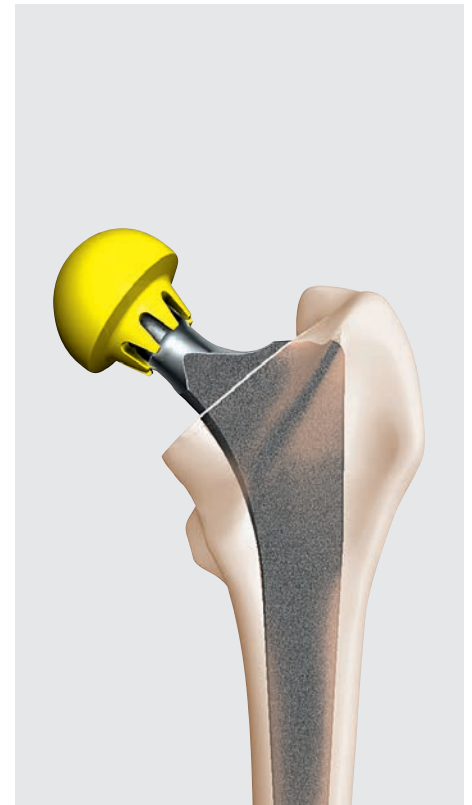
OR-TECHNIQUE

TROCHANTER PREPARATION

INSERTING AND EXTRACTING THE TRJ® STEM



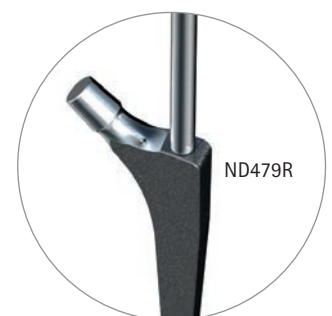
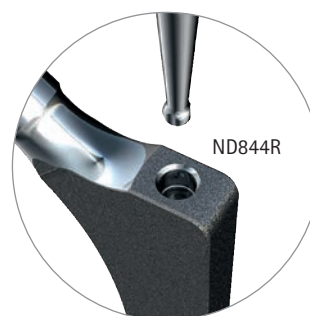
TRIAL REPOSITION



After manual positioning, implantation is carried out using the impactor without restricting rotation.

A screw-fit revision adapter is available for cases where intra-operative extraction is required. Extraction is carried out using a connectable revision rod and a slotted hammer. The prosthesis stem may no longer be used once it has been extracted.

After implantation of the prosthesis stem a final trial reposition is carried out with the color-coded trial heads and a modular prosthesis head with neck lengths S, M, L, XL and XXL is implanted.

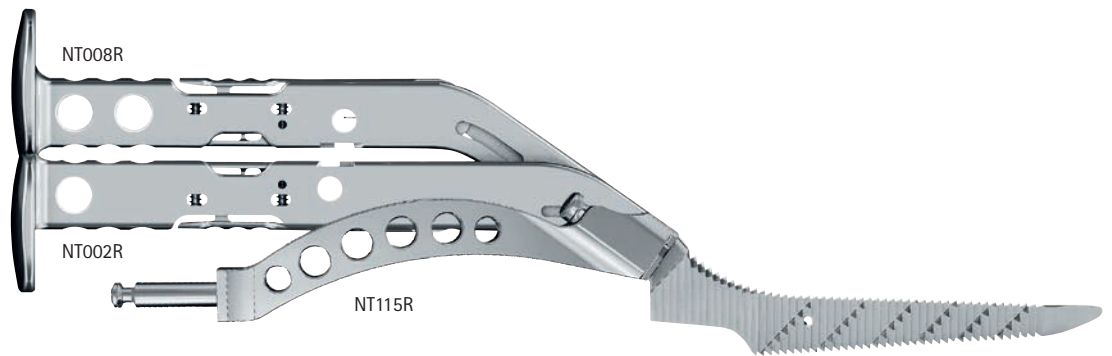


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PRESERVING THE TROCHANTER. YES.



RASP HANDLES



Various rasp handles are available in the TRJ® instrument set, specifically designed in function and shape to support minimally invasive surgical approaches. Straight or angled handles facilitate an antero-lateral or posterior surgical approach. To ensure safe and easy handling, the operating elements of the handles are outside the situ.

The femur can also be prepared with the pneumatic Specht® hammer. Rasp adapters have also been developed for this purpose.



AESCULAP® TRJ®

PRESERVING THE TROCHANTER. YES.

NT110

TRJ® Instrument set 1: Rasps and Handles

NT111R	Tray for TRJ® instrument set 1 (489x253x74 mm)
TE991	Packing template for TRJ® instrument set 1
JH217R	Lid
NT118R	Box chisel, modular
NT136R	Trial neck adapter, standard
NT137R	Trial neck adapter, lateralized
NT157R	Trochanter chisel Sz. 1-5
NT158R	Trochanter chisel Sz. 6-12

RASPS HANDLES

NT002R*	Rasp handle, posteriorer approach, straight
NT008R*	Rasp handle, lateral approach, straight
NT009R*	Rasp handle, lateral approach, with offset, left
NT010R*	Rasp handle, lateral approach, with offset, right

RASP ADAPTER FOR PNEUMATIC HAMMER

NT115R*	Woodpecker adapter, straight
NT116R*	Woodpecker adapter, with offset, left
NT117R*	Woodpecker adapter, with offset, right

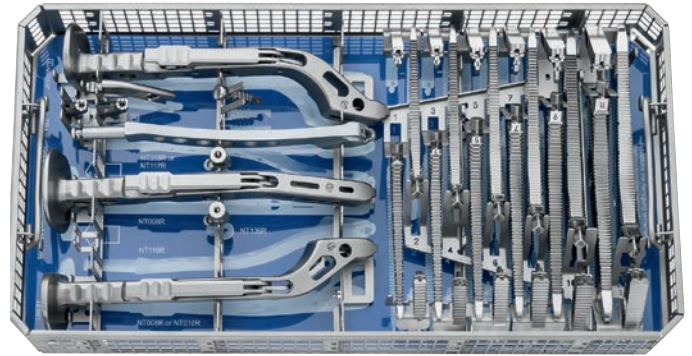
Following rasp handles can be stored in the TRJ® instrument set in 5 positions:

1. Standard handle (offset left or straight)
2. Woodpecker* adapter (offset left or straight)
3. Standard handle straight
4. Woodpecker* adapter (offset right or straight)
5. Standard handle (offset right or straight)

*Specht®

Note: Specht® is a registered trademark of IMT, Luzern, Switzerland.

Please order items marked with * separately.



TRJ® RASPS

Size	Main Rasp	Trochanter Rasp
1	NT121R	NT161R
2	NT122R	NT162R
3	NT123R	NT163R
4	NT124R	NT164R
5	NT125R	NT165R
6	NT126R	NT166R
7	NT127R	NT167R
8	NT128R	NT168R
9	NT129R	NT169R
10	NT130R	NT170R
11	NT131R	NT171R
12	NT132R	NT172R

ORDERING INFORMATION

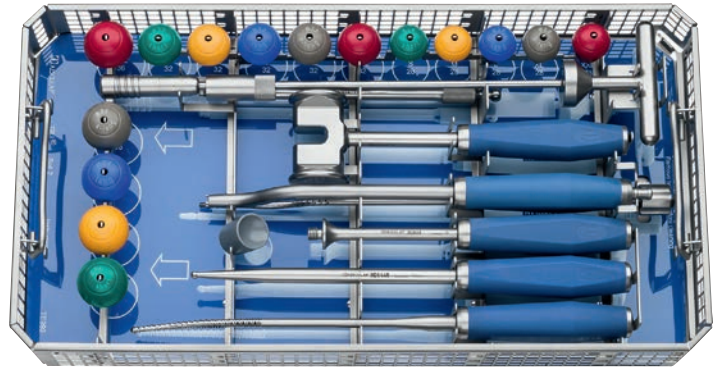
NT112

TRJ® Instrument set 2:
Instruments and Trial Prosthesis Heads

- NT113R Tray for TRJ® instrument set 2 (489x253x74 mm)
- TE992 Packing template for TRJ® instrument set 2
- JH217R Lid
- ND472R Starter rasp
- ND060 Head impactor
- ND844R Stem impactor
- NT159R Handle for trochanter rasps and chisels
- ND476R Slotted hammer
- ND479R Revision adapter
- ND478R Revision rod
- ND017R Cross bar for osteoprofiler

- ND468 TRJ® x-ray templates

Recommended container for NT110 and NT112:
AESCULAP® basic container 592 x 274 x 187 mm.



TRIAL PROSTHESIS HEADS 12/14

Neck length	28 mm	32 mm	36 mm
S	NT356	NT366	NT376*
M	NT357	NT367	NT377*
L	NT358	NT368	NT378*
XL	NT359	NT369	NT379*
XXL	NT360	NT370	NT380*

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PRESERVING THE TROCHANTER. YES.

Isocer® CERAMIC PROSTHESIS HEADS



Diameter	Article No.			
	ø 22.2 mm	ø 28 mm	ø 32 mm	ø 36 mm
S	-	NK324	NK424	NK524
M	-	NK325	NK425	NK525
L	-	NK326	NK426	NK526
XL	-	-	NK427	NK527

Isocer® ceramic (Al_2O_3/ZrO_2 /ISO 6474-2)

BioloX® delta CERAMIC PROSTHESIS HEADS



Diameter	Article No.			
	ø 22.2 mm	ø 28 mm	ø 32 mm	ø 36 mm
S	-	NK460D	NK560D	NK650D
M	-	NK461D	NK561D	NK651D
L	-	NK462D	NK562D	NK652D
XL	-	-	NK563D	NK653D

BioloX® delta ceramic (Al_2O_3/ZrO_2 /ISO 6474-2)

METAL HEADS



Diameter	Article No.			
	ø 22.2 mm	ø 28 mm	ø 32 mm	ø 36 mm
S	-	NK429K	NK529K	NK669K
M	NK330K	NK430K	NK530K	NK670K
L	NK331K	NK431K	NK531K	NK671K
XL	-	NK432K	NK532K	NK672K
XXL	-	NK433K	NK533K	NK673K

ISODUR®_F Cobalt-chromium forged alloy (CoCrMo/ISO 5832-12)

ORDERING INFORMATION



TRJ® PROSTHESIS STEMS

Size	Offset standard	Offset lateralized
1	NU101T	–
2	NU102T	NU122T
3	NU103T	NU123T
4	NU104T	NU124T
5	NU105T	NU125T
6	NU106T	NU126T
7	NU107T	NU127T
8	NU108T	NU128T
9	NU109T	NU129T
10	NU110T	NU130T
11	NU111T	NU131T
12	NU112T	NU132T

ISOTAN®_F Titanium forged alloy (Ti6Al4V/ISO 5832-3)

The lateralized TRJ® prosthesis stems have a higher offset of +6 mm compared to the standard TRJ® prosthesis stems.

AESCULAP® – a B. Braun brand

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