B BRAUN
SHARING EXPERTISE

ORTHOPAEDIC JOINT REPLACEMENT

AESCULAP® Prevision®

REVISION ENDOPROSTHESIS – MODULAR

AESCULAP® Prevision® straight & curved

BRIDGING THE DEFECTS. STABLE IMPLANT FIXATION.

The Prevision® Concept

can be realized with straight or curved stems. Following the reverse principle, it aims to revert from temporary stable distal fixation to proximal force transfer.

Every revision operation places its own particular demands on the implant dimensions. The remaining bone, which is frequently minimal, represents the basis for bone regeneration.

The modular implant components are therefore selected with the aim of bone regeneration and not merely of filling the defect.

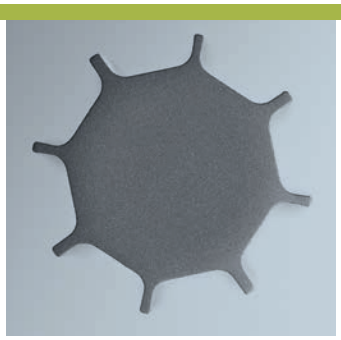
The straight Prevision® modular stem assists in obtaining a stable distal fixation compared to the curved stem with a 2° larger conical angle.

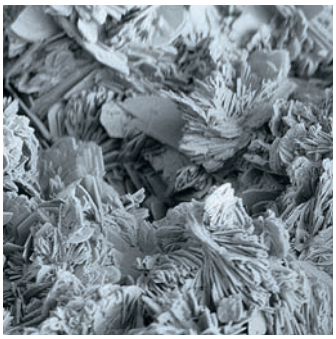
The distal slim and anatomic curved Prevision® modular stem is fixed by its characteristic sub-proximal 4° stem design, plus the possible combination of temporary distal interlocking.

The Plasmapore® – CaP coating

assists bone contact on the proximal component surface through the emission of calcium and phosphate ions.

- Modular revision endoprosthesis with straight and curved stems
- 500 total possible combinations of proximal and distal components
- Proximal component is coated with Plasmapore® µ-CaP surface
- Rotational stability through star shape and distal interlocking option
- Catch-free stability by applied frictional connection
- Multiple opportunities for trial reduction
- Intra- and extraosseous assembly of the implant components





The semicrystalline calcium phosphate (CaP) of high purity is combined in an electrochemical process with the Plasmapore® titanium surface at a layer depth of 20 µm.

Thanks to the osteoconductive properties of the dicalcium phosphate µ-CaP, the bone forms more rapid direct contact with the implant surface.

The Aesculap Scientific Information sheet O51002 contains more information on Plasmapore® µ-CaP.

AESCULAP® Prevision® – THE SYSTEM

ADAPT THE IMPLANT. REGENERATE THE BONE.

The Prevision® revision components

are built up step by step according to a coordinated dimension concept. The variety of proximal components and their total compatibility with the distal stem mean that each individual implant can be adapted to the particular defect situation.

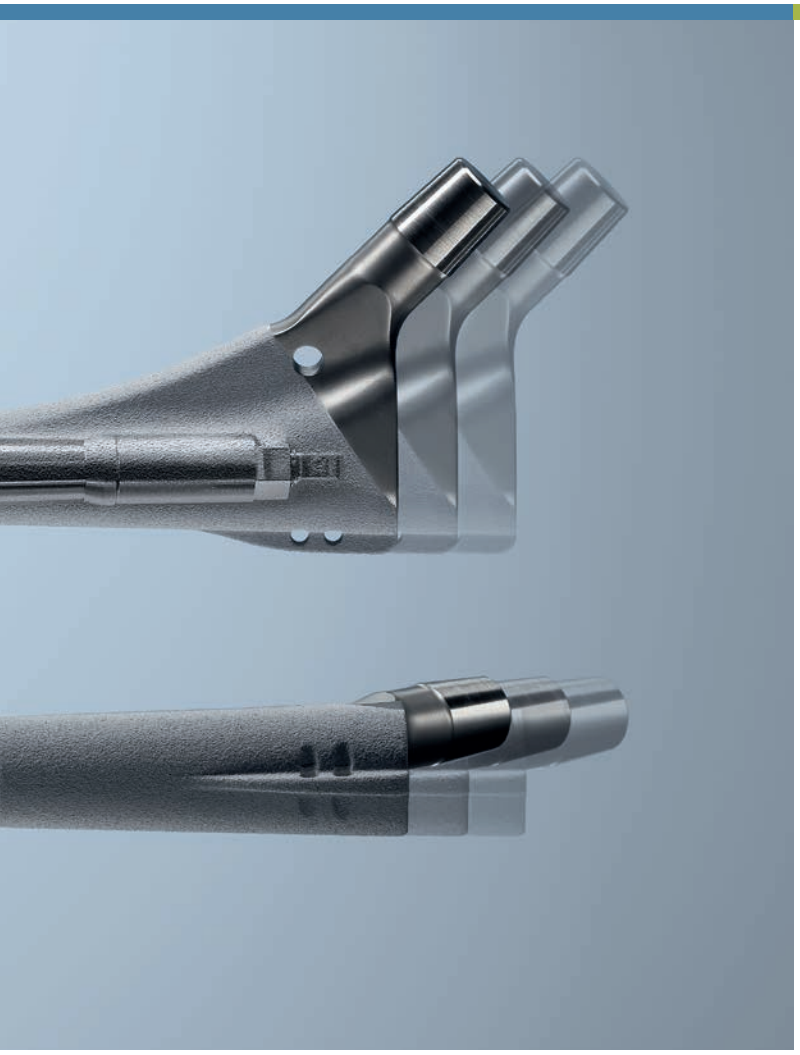
straight 200 – 320 mm

curved 240 – 400 mm

The modular Prevision® revision endoprosthesis is available with distal diameters from 12 mm to 24 mm.

The straight stem comprises implant lengths from 200 mm to 320 mm. The anatomic curved stems are from 240 mm to 400 mm long. The 40 mm length increments of the stem are combined for finer adjustment with proximal Prevision® components which are available in length increments of 0 mm, +10 mm and +20 mm.

Because the implant components can be assembled intraosseous, the leg length can be adjusted at the last possible stage of the implantation procedure.



The assortment of Prevision® implant components

offers a large range of freedom in combining the individual elements to achieve a precise match with the particular bone, defect and joint situation.

The catch-free Prevision® cone coupling

is a reliable connection mechanism enabling a free combination of the modular implant components.

The coupling of the implant components is the central element of any modular endoprosthesis.

Prevision® has a single connection point, which does not restrict the range of combination options.

The Prevision® coupling system is based on a 1:20 conical clamping mechanism with a defined applied frictional connection of 15 Nm.

The catch-free coupling of the implant components permits unrestricted antetorsion adjustment of the proximal implant components.

AESCULAP® Prevision® straight

ANTICIPATING THE OUTCOME. CHOOSING THE CONCEPT.

The Prevision® instruments are designed for both proximal and transfemoral implantation of the prosthesis. The assembling of the implant components can be performed intraosseous or extraosseous.

When choosing Prevision® straight, the femoral implant bed is prepared by hand, using conical reamers. Guided proximal trial rasps allow a reliable trial reduction before implantation of the modular implant.

AESCULAP® Prevision® curved

ASSISTING THE SURGEON. APPLYING THE INTERLOCKING OPTION.

Particularly in difficult situations Prevision® curved

offers additional implant length and optional distal fixation: an extended scope of decision for the experienced surgeon.

The Prevision® instruments offer multiple opportunities for trial reduction and the stable connection of the implant components. A counterholder applied to the distal component minimizes the transfer of torque onto the distal implant site during the intra-osseous assembling.

Using Prevision® curved the femoral implant bed is prepared with flexible reamers and modular distal and proximal trial rasps. The stability of the fixation is achieved by the stem length, the sub-proximal cone and the optional distal interlocking of the anatomical curved modular stem.

AESCULAP® Prevision® – PREOPERATIVE PLANNING

DEFECT CLASSIFICATION ACCORDING TO KATTHAGEN (TYPE 1 – 6) AND PAPROSKY (TYPE I – III)

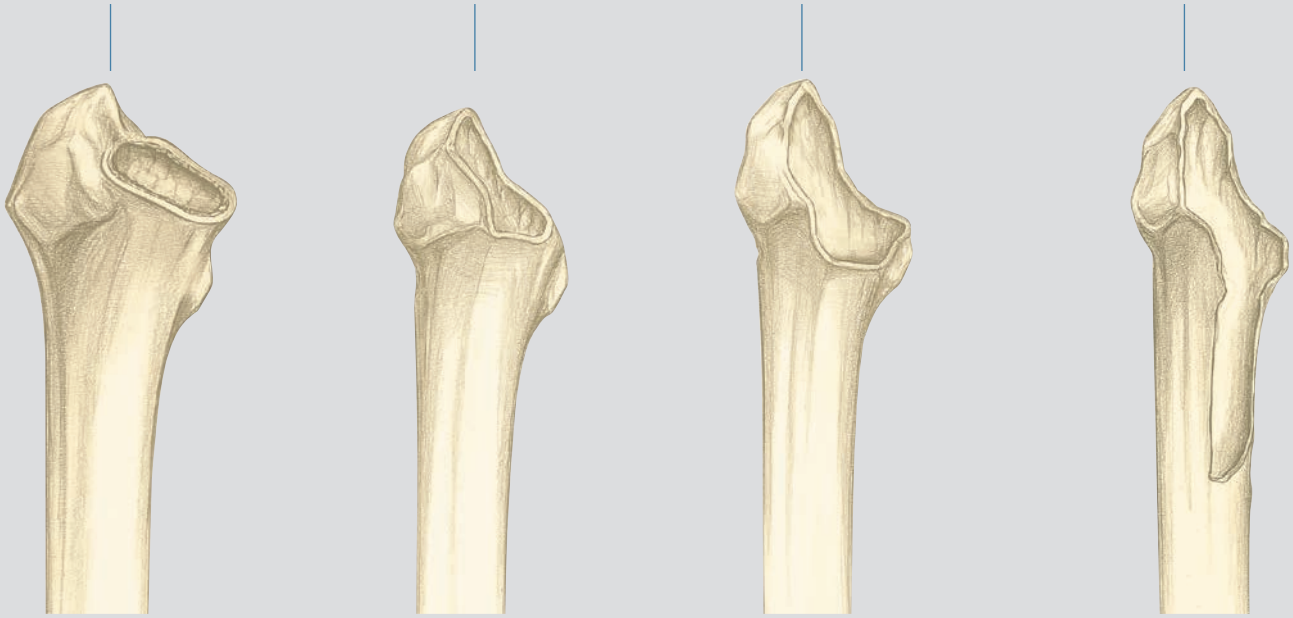
KATTHAGEN

TYPE 1
Intramedullary defects

TYPE 2
Intertrochanteric defects

TYPE 3
Calcar defects

TYPE 4
Medial femur defects



PAPROSKY

TYPE I
Minor metaphyseal bone loss

TYPE II
Medium metaphyseal bone loss with intact diaphysis

TYPE III A
Severe metaphyseal bone loss with intact diaphysis proximal of the femoral isthmus

If the bone defects are only minor (Type 1 to 2/3 Katthagen and Type I and II Paprosky) and the femoral diaphysis is still intact, proximal removal of the prosthesis and bone cement is recommended.

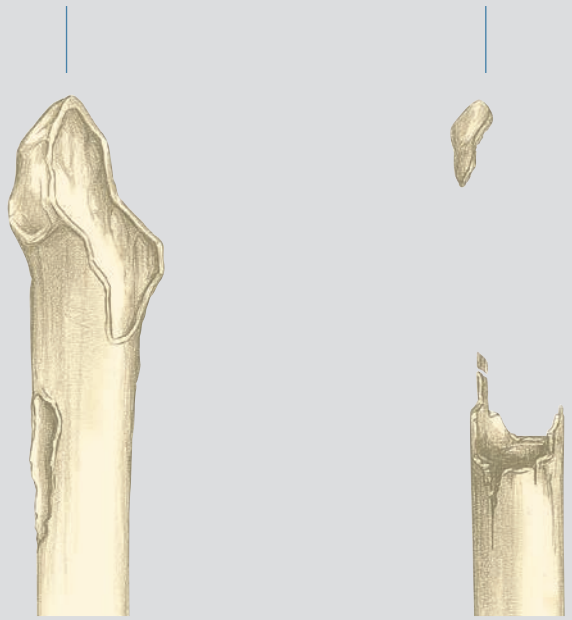
A ventral bone window can also be opened for distal bone cement removal.

In case of minor bone loss (Type 1), defects can frequently be treated and stabilized by primary implants or short revision stems.

The Prevision® straight stems offer complete coverage of these indications.

TYPE 5
Lateral femur defects

TYPE 6
Circular, segmental femur defects



TYPE III B
Very severe segmental bone loss with fixation area distal of the femoral isthmus

Where pronounced bone defects (Type 4 to 6 Katthagen or Type III Paprosky) exist, with partial or complete destruction of the diaphysis, the limited proximal osteotomy or the transfemoral approach is preferred. In this situation proximal removal of the implant would entail the risk of further fragmentation.

Opening of the femoral shaft has a major influence on primary stability, and long stemmed implants are required to maintain adequate load bearing capacity.

Depending on the required implant length, Prevision® straight or curved stem can be used. The curved stems consider the anatomical curvation of the femur.
The option of distal interlocking is available in both stem types.

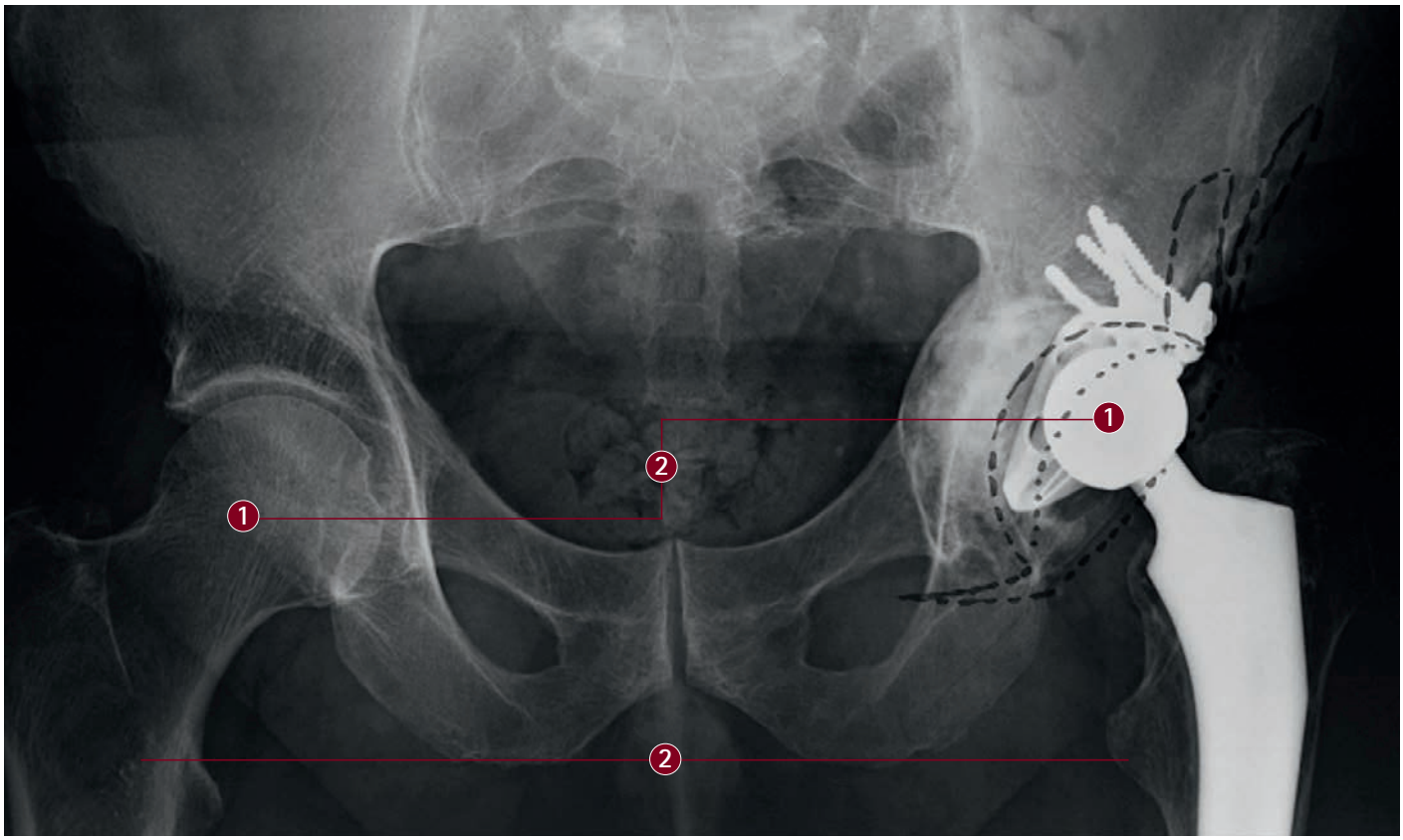
Periprosthetic fractures are not included in the above classification scale. In the case of further distalised fractures within the knee condyles additional measures to stabilise the fracture are required.

AESCULAP® Prevision® – PREOPERATIVE PLANNING

RADIOGRAPH PLANNING

During preoperative planning the various alternatives are considered, potential sources of complications are identified and the optimum treatment outcome is defined.

Planning is carried out using standardized X-rays (full pelvis X-ray, long femoral X-ray in ap and lateral projections).



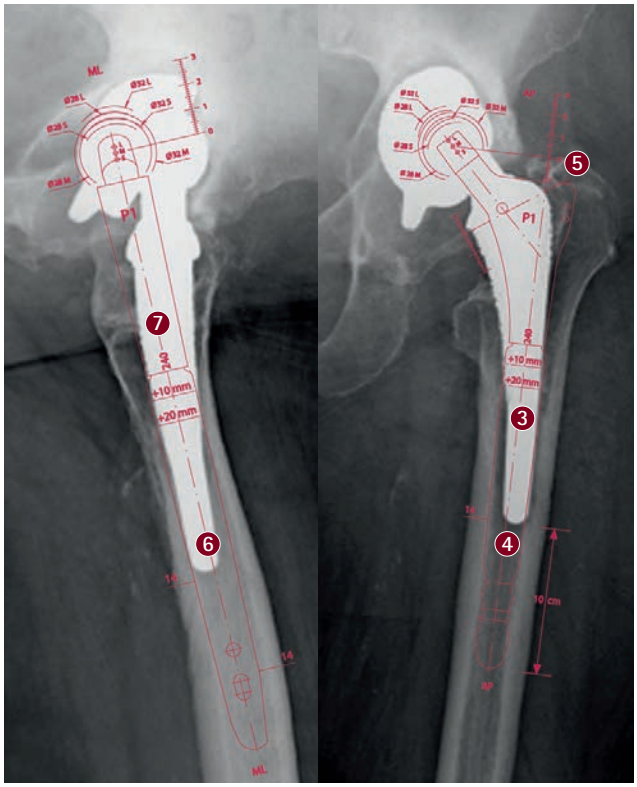
- Establish the X-ray scale
- Identify the existing prosthesis components
- Check whether special explantation insruments or implant components are required

FULL PELVIS X-RAY:

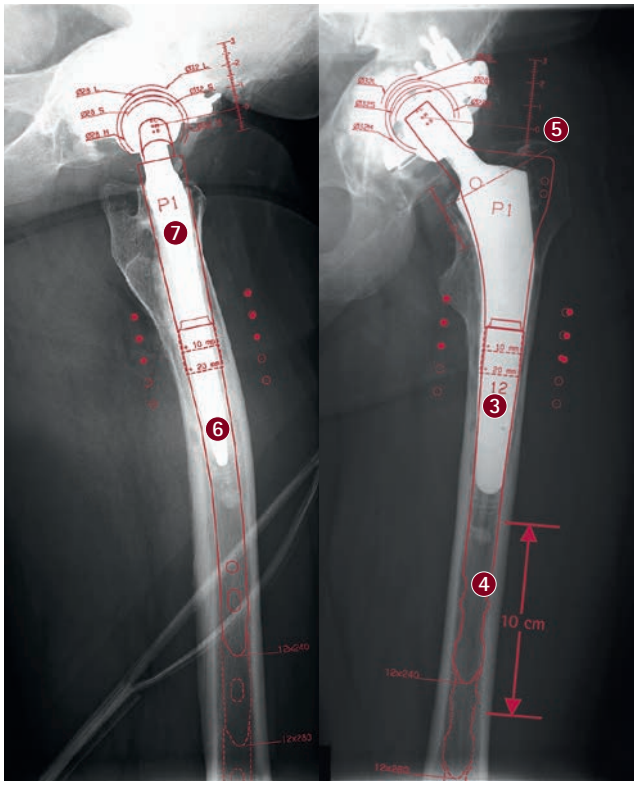
- Plan the treatment of the acetabulum with anticipated joint centre (1)
- Plan the necessary leg length according to the contra-lateral situation (2)

The various conditions that have led to the revision surgery require careful diagnosis and extensive surgical preparation and planning.

straight



curved



LONG AP FEMORAL X-RAY:

- Evaluate the defect situation and the bone quality that is expected at the prosthesis fixation region.
- Plan the fixation of the ventral bone window or of the resection line for the transfemoral approach (3). The length of the resection in the transfemoral approach normally corresponds to the length of the current implant.
- Plan the size and length of the distal implant component (4). The distal component should lie against the inner cortex and have a fixation area of at least 10 cm (below the transfemoral osteotomy). Assess the bone quality in relation to the distal fixation and the possibility of using locking screws.
- Plan the proximal prosthesis components (5) taking account of leg length adjustment (2).
- Use anatomical landmarks (greater and lesser trochanter) for intraoperative orientation of instruments and implants.

LONG LATERAL FEMORAL X-RAY:

- Check the sagittal position of the prosthesis components (6) + (7).

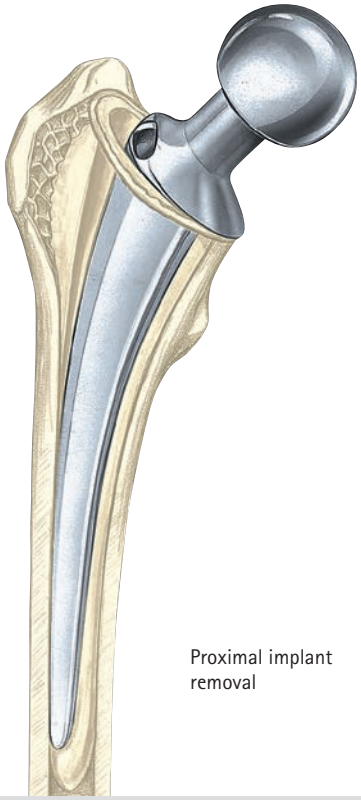
GENERAL:

- Check the action required for bone reconstruction (allogenous, autogenous bone material or bone replacement material)

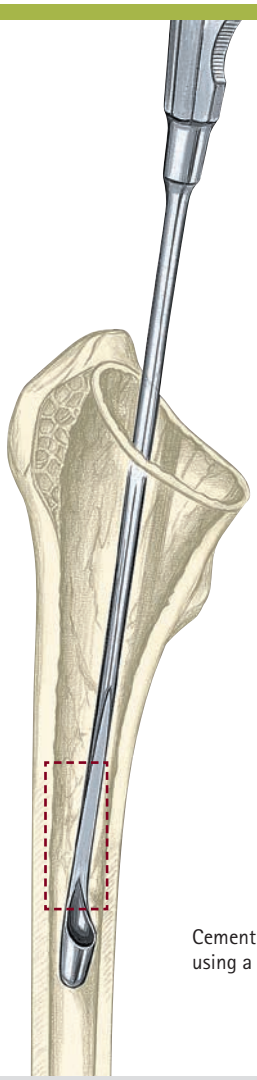
AESCULAP® Prevision® – SURGICAL TECHNIQUE

PROXIMAL APPROACH

Removal of the loose prosthesis stem, preparation of the new implant site and implantation of the prosthesis components depend to a crucial extent on the surgical approach selected (proximal or transfemoral technique) and the existing bone situation.



Proximal implant removal

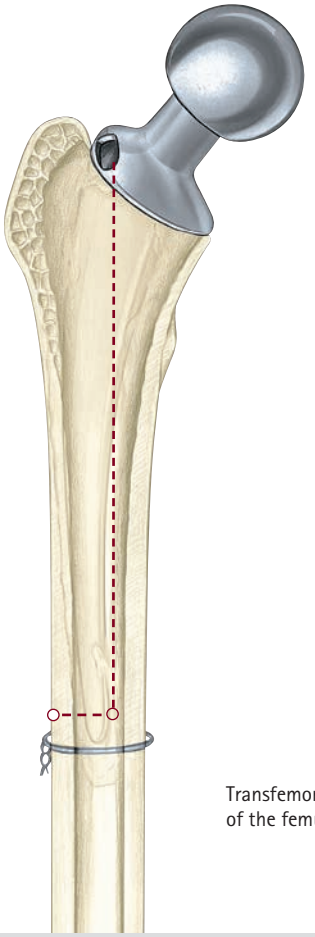


Cement removal with the option of using a bone window

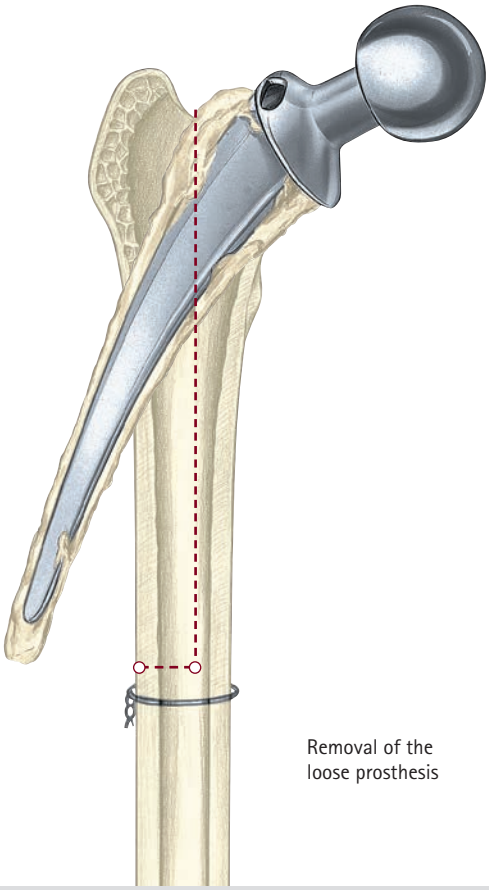
The prosthesis components are exchanged via the existing implantation opening. Any bone cement and granulation tissue found are completely cleared away using special extraction instruments (such as drills, chisels, extractors, hooks, and special scoops).

It may be necessary to create a ventral bone window to remove the bone cement or the implant. This window bone shell should be left within the soft tissue structure.

TRANSFEMORAL APPROACH



Transfemoral opening of the femur



Removal of the loose prosthesis

The longitudinal osteotomy of the femur is performed in accordance with the preoperative planning. First, two distal limitation drill holes are set (ventrally and laterally).
To protect the femoral bone, a cerclage wire is applied below the limitation drill holes.
The lateral osteotomy is performed with an oscillating saw and ends in the limitation drill hole previously set.

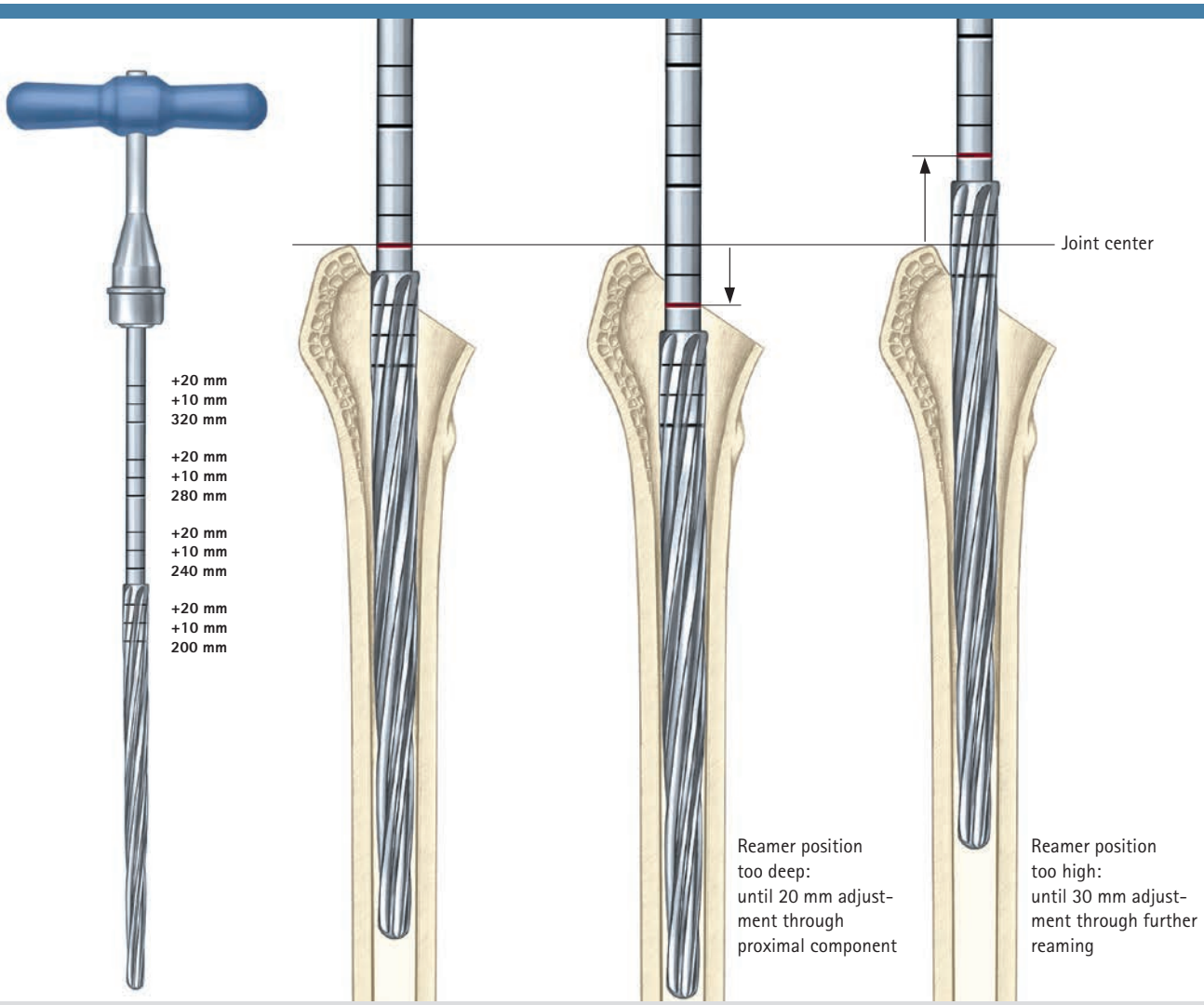
The two drill holes are then connected. The transosseous medial osteotomy is performed with a chisel which reaches via the lateral osteotomy opening to the contralateral cortex and perforates the bone from the inside.

It is essential to leave the osteotomised bone flap in the soft tissue structure. It is opened in a medial direction and carefully fixed with bone levers. All manipulations of the leg must be performed with extreme care, since the periprosthetic bone flaps are usually in a substantially weakened condition.

CORRECTING ORIENTATION:
In the case of a loose prosthesis that has moved in a lateral direction or the existence of intramedullary bone lamellae, a rigid reamer (ø 12 mm) can be used to correct the orientation and set the new implant position in the distal femur.

AESCULAP® Prevision® straight SURGICAL TECHNIQUE

PREPARATION DISTAL IMPLANT SITE



Preparing the distal implant site:
The distal implant site for the Prevision® straight prosthesis is prepared manually, subsequently with the conical distal reamers ø 12, 13, 14 ... 24 mm. The reamer ø 11 mm is only a starter instrument. The reamer sizes ø 21 and 23 mm* are only used for readjustment and to optimize the positioning of the final implant (see page 17).

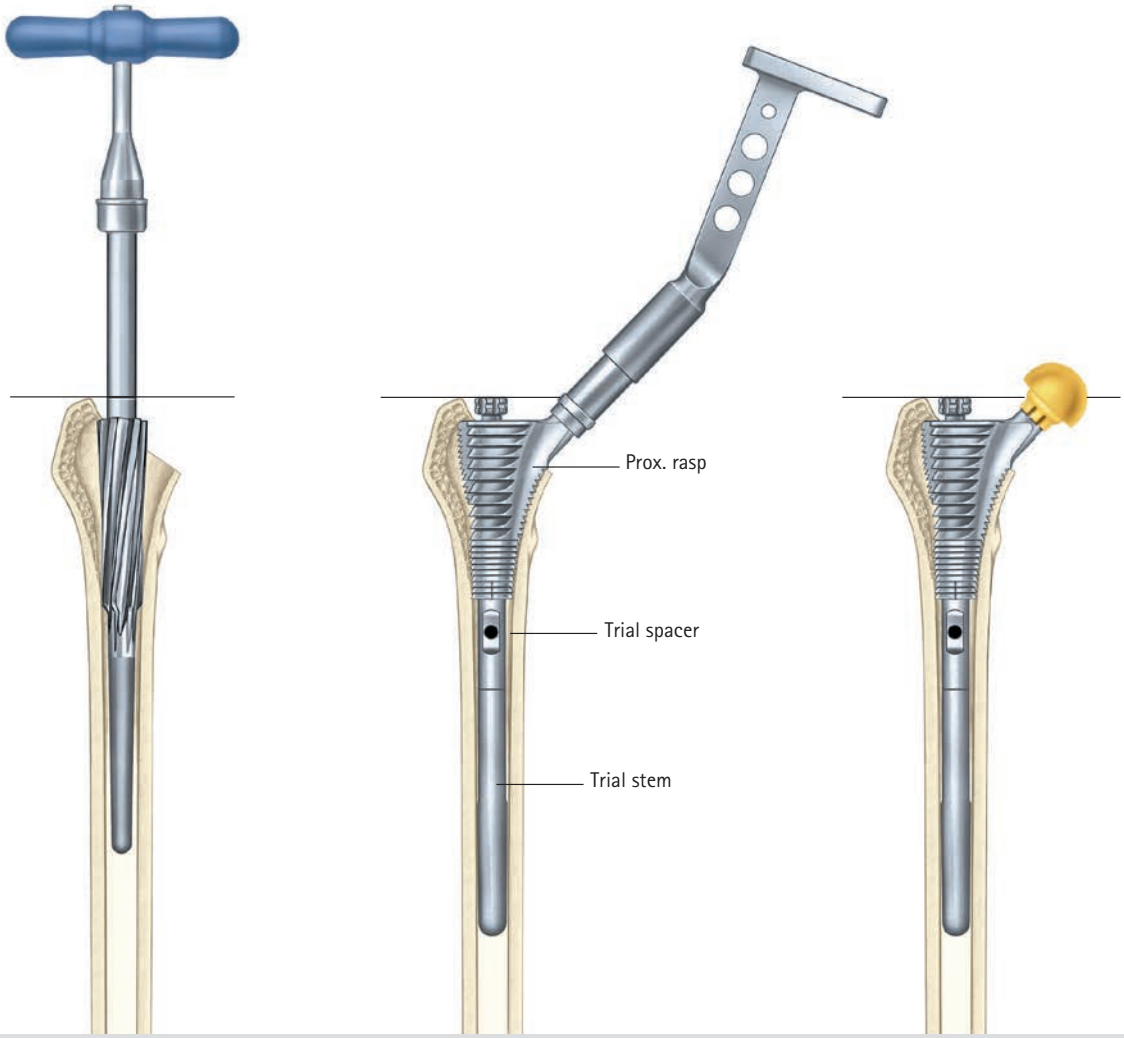
All reamers ø over 13 are modular and have to be assembled. The reaming length is clearly marked on the reamer shaft corresponding to the implant length of the Prevision® straight stems. Additional marks consider the correction elongation of the proximal implant components +10 and +20 mm.
The aim of the intramedullary preparation is achieving a good contact to the cortical bone according with the planned leg length.

Correction of the preparation depth:
Reamer position too deep:
A deeper position of the reamer up to 20 mm can be adjusted trough the prolongation of the proximal component.

Reamer position too high:
The higher position of the reamer can be adjusted through reaming with the same reamer size. The bone loss is hereby 0.15 mm each 10 mm reaming depth. A higher position of the reamer (valid for size 22 or 24 mm) can be adjusted through a 2 mm smaller diameter (⇨20 or 22 mm) and the next bigger length (⇨+40 mm). For this the preparation will be done with the ultimate used reamer (⇨20 or 22 mm) until the new

* There is no equivalent implant.

PREPARATION PROXIMAL IMPLANT SITE



reaming length (⇨+40 mm) is achieved.
Advice: The nominal axial difference of the reamer position is 30 mm for each 1 mm and respectively 60 mm for each 2 mm diameter step.

Preparation with proximal reamer:
The preparation of the proximolateral area is started with proximal reamer (NG890R).

Preparation of the proximal rasps:
To prepare the proximal trial rasps, the locking pins in the proximal rasp components are screwed in slightly.

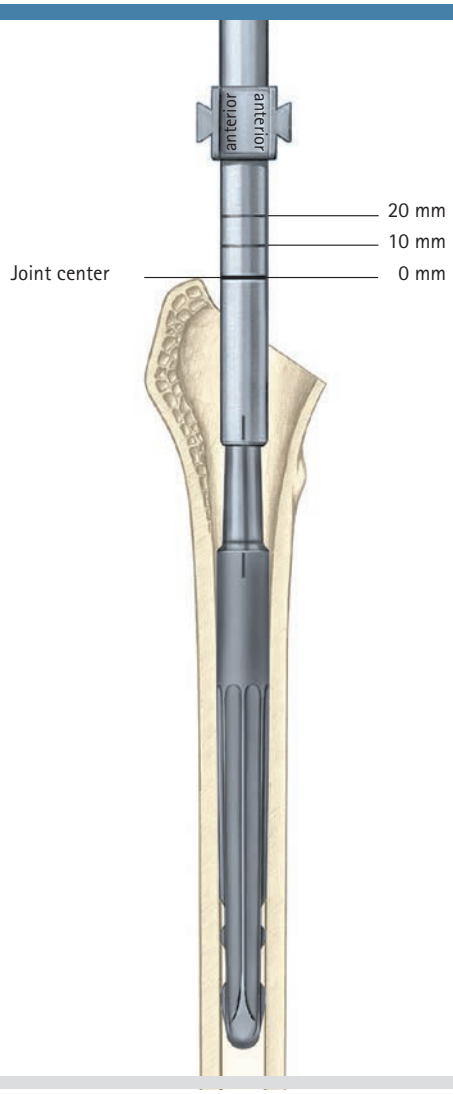
Assembling and using the trial rasps:
The proximal rasps serve for the final preparation of the proximal implant site as well as initial trial reduction.

The rasps P1 until P3 are thereto assembled to trial spacer with the corresponding length and the trial stem with corresponding diameter. Trial spacer and trial stem are fastened tighten using the assembling pins. The trial rasps are driven in with the modular handle according to the proximal implant sizes and the bony defect.

Trial reduction:
Trial reduction can be performed with the final proximal rasp distally guided by the trial stem and spacer. Especially using the extraosseous strategy, the trial reduction is absolutely fundamental before selecting and assembling the implant.

AESCULAP® Prevision® straight SURGICAL TECHNIQUE

IMPLANTING THE DISTAL STEM



Implanting the distal implant component:
The distal and proximal Prevision® implant components can be assembled both extraosseous (see page 26) and intraosseous (see page 22).

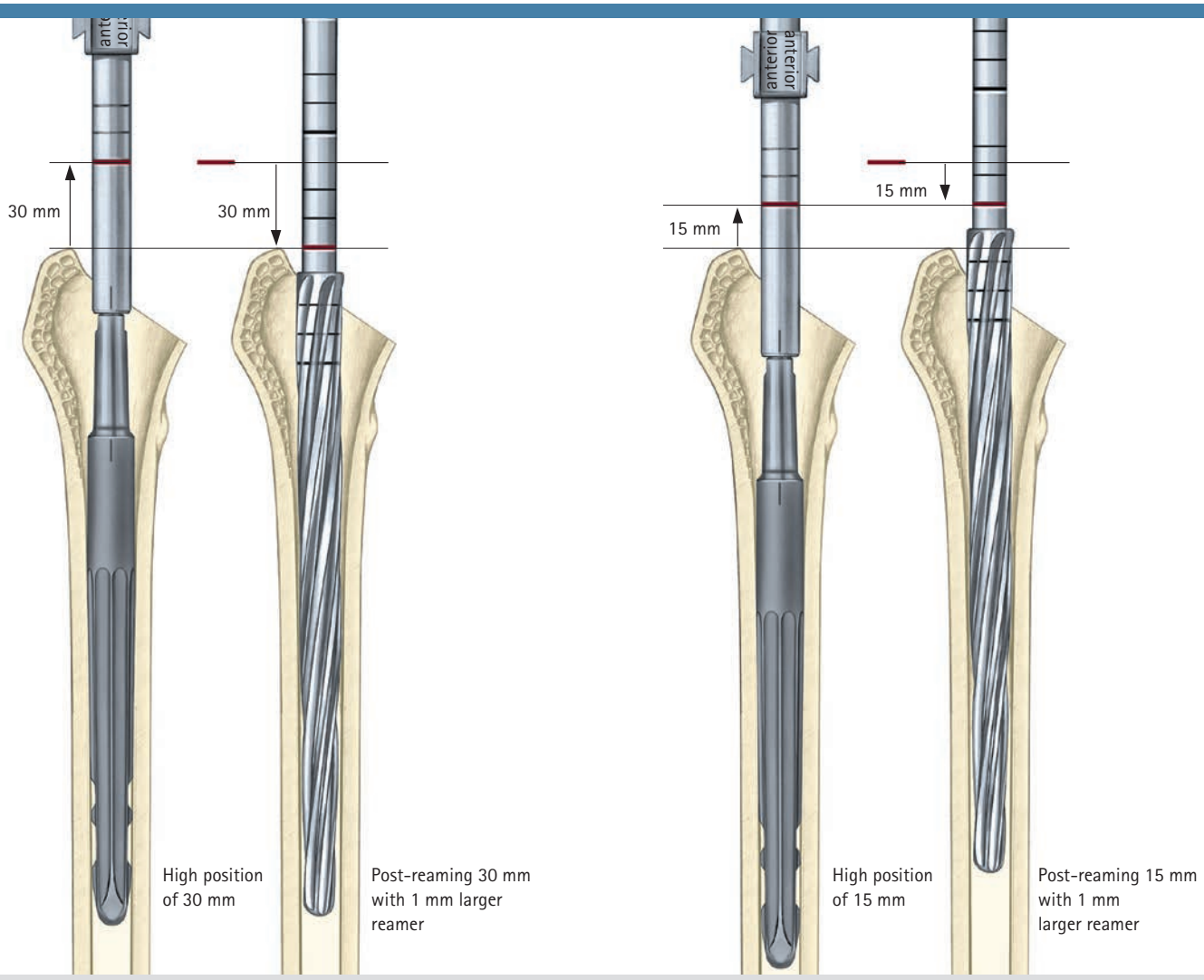
The intraosseous assembly supports best the opportunity of building up the implant components step by step.

The selection of the distal implant component size and length is based on the final distal reamer.

The distal implant component is driven in using the distal implantation instrument (ND563R) under consideration of curvature and the implantation depth.
The marking on the implantation instrument indicates the height of the joint/head center.

The Prevision® straight stems are as a rule not distally interlocked. Nevertheless these stems have adequate holes, to be used in case of inadequate primary stability.
The procedure of distal interlocking during intraosseous assembly is described in the session of Prevision® curved on page 20.

POST-PREPARING THE DISTAL IMPLANT SITE



Preparing the distal implant site:
If the distal implant component can not be driven deep enough into the medullary canal the stem is removed carefully and the implant bed is re-prepared. The additional preparation is done with the reamers at next larger size. Using these reamers the distal pressfit conditions can be adapted.

High position of 30 mm:
This extreme high position can be adjusted with a 1 mm larger reamer. The intermedullary site is thereto prepared until the desired depth, usually until the marking reaches the tip of major trochanter/joint center. In case of such extraordinary situation the implant selection should be controlled by image intensifier in ap and lateral view.

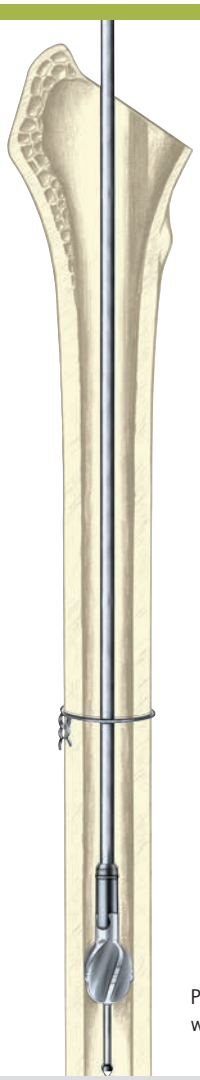
High position of 15 mm:
This high position e.g. in sclerotic bone situation is also prepared with the 1 mm larger reamer. The preparations is done only until the 15 mm deeper marked position.

High position smaller 15 mm:
This small high position is prepared with the previously used reamer. The length of the additional preparation corresponds to the high position value.

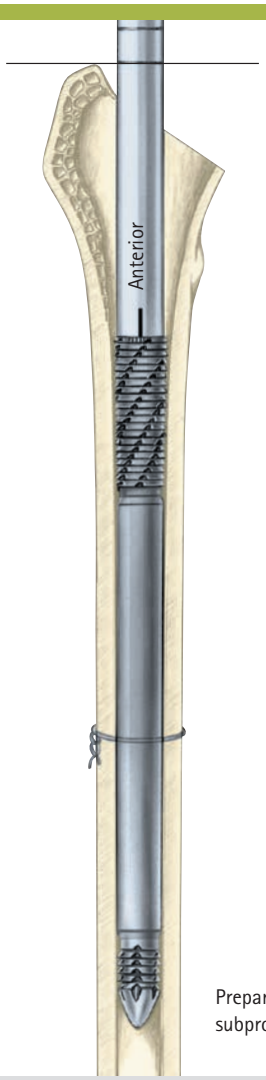
The procedure of trial reduction and inserting the proximal implant component is described up to page 22.

AESCULAP® Prevision® curved SURGICAL TECHNIQUE

PREPARING THE IMPLANT SITE



Preparing the medullary canal with flexible medullary reamers



Preparing the distal and subproximal implant site

Antetorsion scale pictured in 15° AT (10° per line)

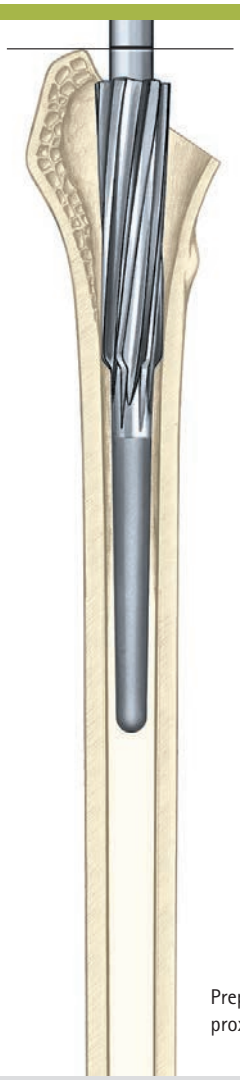
Preparing the implant site:
The distal implant site of the Prevision® curved stem is prepared mechanically using flexible medullary reamers with ø 12 to 24 mm. A guide wire guarantees the intramedullary orientation of the medullary reamer. Preparation is carried out in stages, if necessary subproximal and proximal, and concludes when cortical contact is achieved.

Using the modular rasps:
The curved distal rasp element can be used separately or assembled with the proximal rasp component.

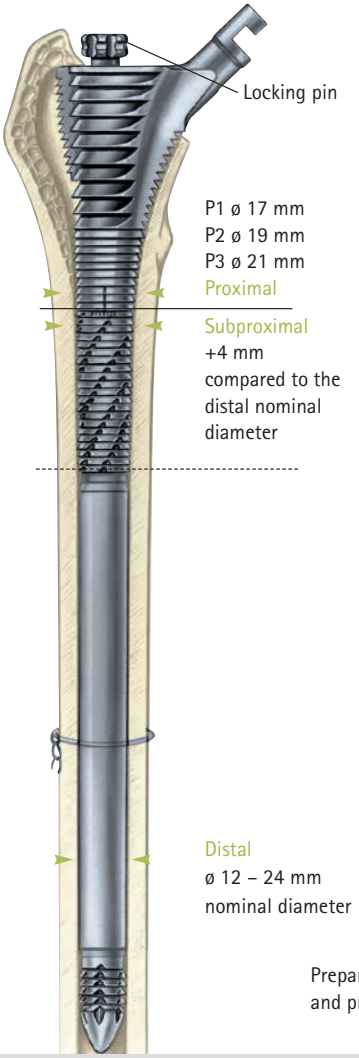
Using the distal rasps:
The separately used distal rasp is fixed by attaching it to the handle for distal rasp (ND568R) after locking in the pre determined antetorsion position.

Using the assembled rasps:
The assembled modular rasp are used to prepare the subproximal and the proximal implant site together. They can also be used for initial trial reduction using distal and proximal rasp components. In selecting the size of the distal rasp component, a smaller diameter is chosen to start with and then each subsequent larger size selected in stages.

The selection of the rasps is based on the proximal size P1 till P3 and the planned distal prosthesis length of 240/280/320/360/400 mm.



Preparation with proximal reamer



Preparation of subproximal and proximal implant site

Antetorsion scale pictured in 15° AT (10° per line)

Preparation with proximal reamer:
The preparation of the proximal-lateral section starts using the proximal reamer (NG890R).

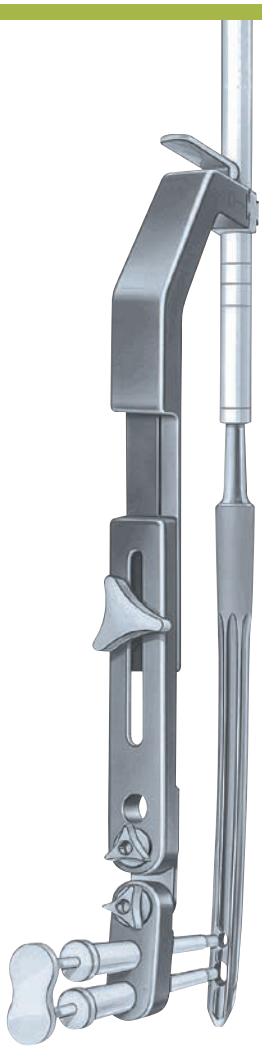
Assembling the modular rasp:
To prepare the modular rasp the locking pins in the proximal rasp components are screwed in slightly (loosening prevention). Distal and proximal rasp components are inserted in to one another and axial fixed by pressing the locking pin. The distal component can be turned and if required locked in rotationally fixed position through the complete screwing in of the locking pin.

Assessing the size requirements:
The medullary reamers can be used to check the medullary cavity and length situation. In this situation it is important to know the diameter and length of the modular instruments and implants distally, sub-proximally and proximally. In complex revision operations, the modular Prevision® rasps are used for step by step determination of implant size and length requirements, rather than for bone preparation.
The use of an image intensifier is an indispensable precondition for correct intraoperative decision making.

Trial reduction with modular rasp:
Trial reduction can be performed with the rasp components. Especially where the implant components are to be assembled extraosseous, trial reduction with the rasp components is absolutely fundamental.

AESCULAP® Prevision® curved SURGICAL TECHNIQUE

DISTAL INTERLOCKING AND INTRAOSSEOUS ASSEMBLY



The distal Prevision® curved stems have a 1000 mm radius

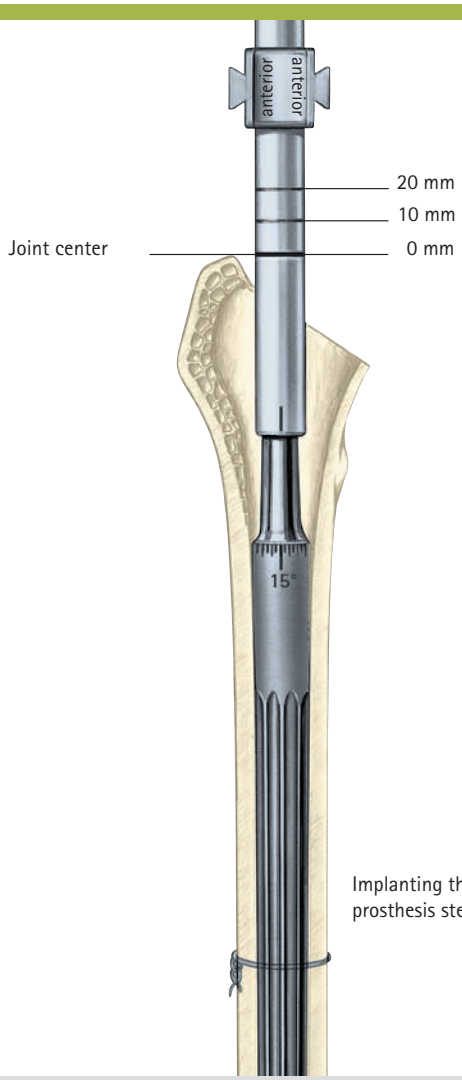
Adjusting the targeting device to the distal prosthesis

Distal interlocking:
Where there is inadequate primary stability, and as a matter of principle when using the transfemoral approach, the prosthesis is locked distally.

This locking can be performed freehand under image intensifier control or using a special target device. If this device is to be used, it is first adjusted to the individual prosthesis before the stem is implanted. To do this, the targeting device is attached to the implantation instrument that is firmly attached to the implant stem and adjusted according to the screw holes on the stem using a targeting guide. The screws of the targeting device are firmly tightened from a proximal to a distal direction.
If the targeting device becomes twisted, all the screws must be loosened and the targeting device re-orientated and re-fixed into the position to guarantee correct function. The targeting device is then removed and stored safely during implantation of the stem, following implantation it is reattached. The tissue protection sleeves serve as the working channel for drilling, measuring and inserting the locking screws.

The screw holes are first of all prepared using the bicortical drill ø 3.5 mm and subsequently enlarged only in the lateral cortical bone with the drill ø 5.0 mm.
The screw gauge indicate the minimal length of the interlocking screws to be used.

IMPLANTING THE DISTAL STEM



Implanting the distal prosthesis stem

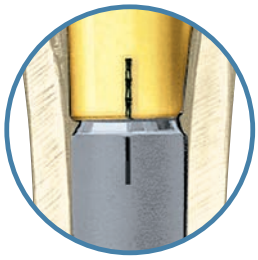
Inserting the distal implant component:
The Prevision® implant components can be assembled both inside and outside the femur. Intraosseous assembly is to be preferred because of the opportunity offered of building the implant components step by step.

The selection of the stem size is based on the final distal rasp used and the stem length required. In the transfemoral approach and in lack of subproximal support, the next larger implant diameter is selected. The distal implant is fixed firmly onto the implantation instrument.

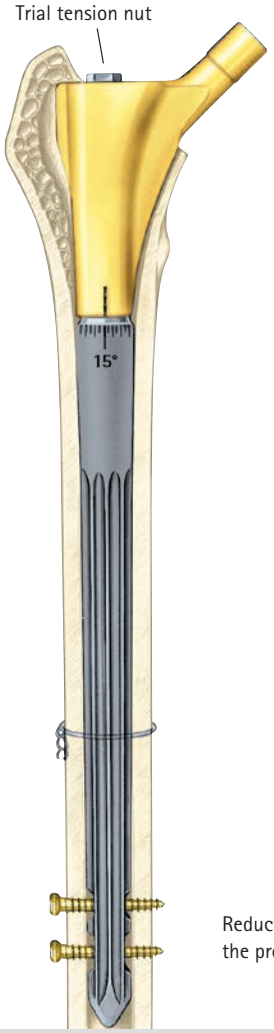
Under consideration of the curvature of the distal implant components, the distal stem is driven in. The marking on the implantation instrument show the height of the joint center of the respective proximal implant components, considering the proximal component without lengthening and with a medium head.

AESCULAP® Prevision® straight & curved

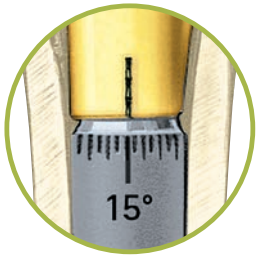
INTRAOSSEOUS ASSEMBLY



Adjusting antetorsion on Prevision® straight pictured in 15° AT



Reduction with the proximal trial component



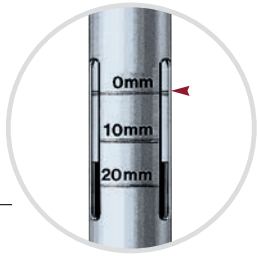
Adjusting antetorsion on Prevision® curved pictured in 15° AT

Reduction with proximal trial component:
The trial components are used to select the proximal implant of Prevision® straight and curved. The required leg length adjustment can be achieved via the various proximal component lengths. For trial reduction, the trial components are placed onto the distal implanted stem and fixed with a trial tension nut.

Adjusting the antetorsion:
The Prevision® proximal components, the proximal rasps and the proximal trial components are marked with a line on the level of the interface to the distal component.

This line is marked in an 15° antetorsion position in the right "R" as well in the left "L" side view. The distal stem of Prevision® straight is marked with a single line because of rotational symmetry. The aligned lines corresponds to 15° antetorsion.

The distal stem of Prevision® curved is marked with a scale, because of the curvature of the stem. The distal implant component is anterior marked with a central line and in addition with a +/- 30° scale.
The central aligned lines of the components corresponds to 15° antetorsion.



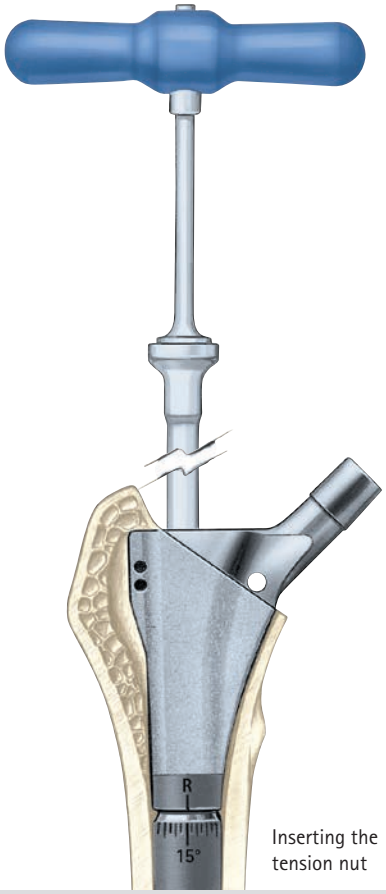
Depth scale pictured a +0 mm proximal implant component

Insertion the proximal implant component

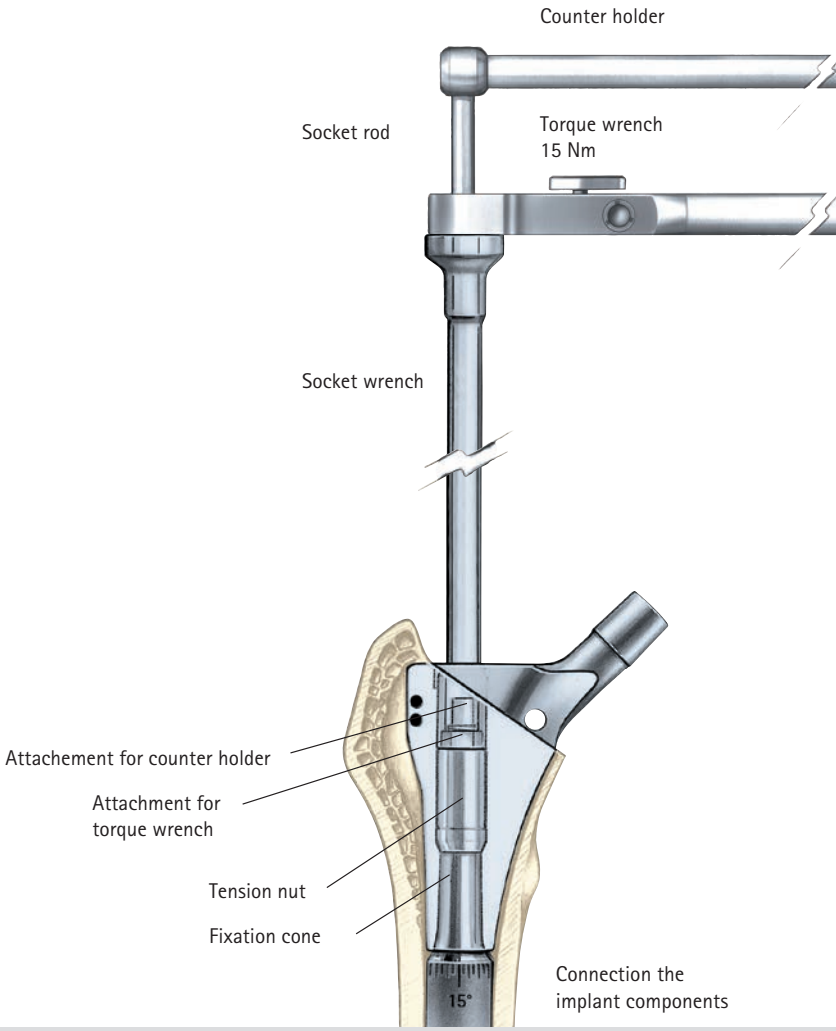
Inserting the proximal implant component:
Before the proximal component is implanted, the fixation cone of the distal stem is thoroughly cleaned. The proximal implant component is attached to the implantation instrument (ND562R) and carefully placed on the distal prosthesis stem. The depth scale of the implantation instrument is read to check that the proximal implant component is positioned correctly depending on the length of the proximal implant component (+0 mm, +10 mm, +20 mm). Thereby observe antetorsion position.

AESCULAP® Prevision® straight & curved

COUPLING THE IMPLANT COMPONENTS



Inserting the tension nut

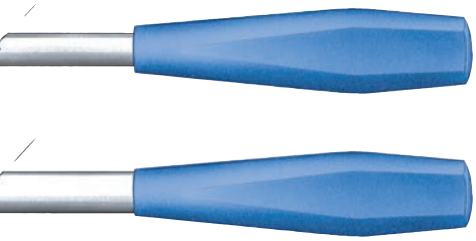


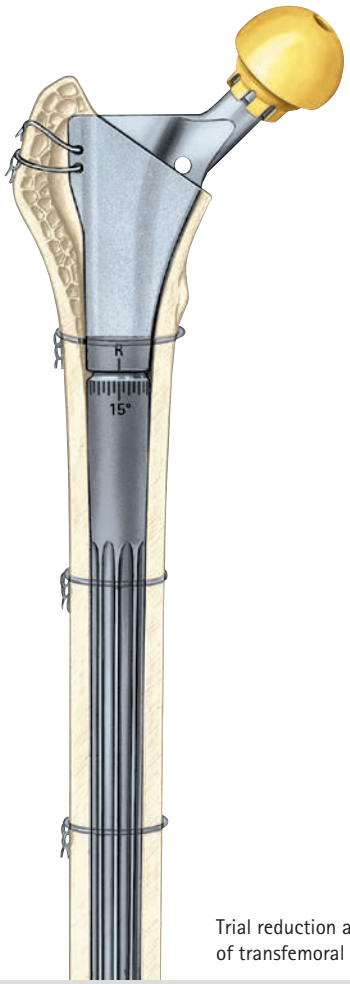
Connection the implant components

Joining the implant components:
The tension nut is removed from the proximal implant packaging, set onto the socket wrench, and manually screwed on the distal implant component. Subsequently, the handle is removed and the adapter rod of the counter holder is inserted through the socket wrench to the connection point of the distal stem so that is engages. Then the torque wrench and the counter holder are attached. For joining the implant components, the counter holder is held firmly and the tension nut is tightened by turning the torque wrench clockwise "close", until it releases. The torque wrench should be released and retightened after a short rest period until the final torque is achieved.

The coupling mechanism is finally sealed with the closing cap supplied with the proximal implant components.

Concluding trial reduction and closure of the osteotomy:
A final check is made on joint movement, muscular tension and leg length. If the transfemoral approach was used, the osteotomy is closed and fixed with cerclage wires. Major gaps in the bone are reduced by adjusting the position of the bone flap or by filling with additional bone material.
The fixation holes in the lateral





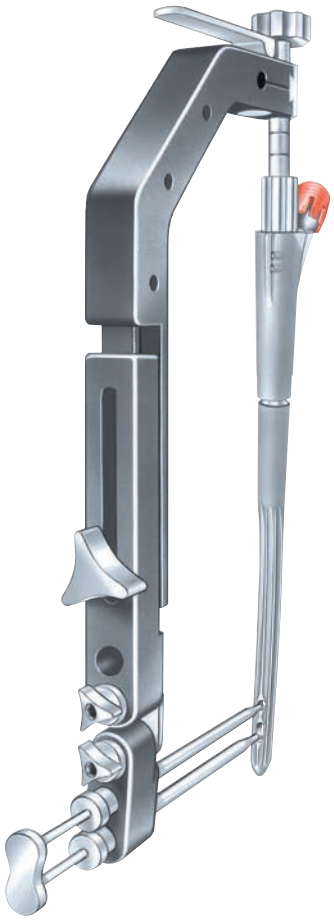
Trial reduction and closure
of transfemoral osteotomy

trochanter wing of the proximal component allow additional fixation of the implant to the trochanter.

Post operative treatment:
Because of the initial situation in revision cases and the use of the transfemoral approach, primary stability is reduced. This must be taken in consideration in post operative treatment. The bone regeneration status must be assessed through regular patient follow-up. The aim of the locking Prevision® revision prosthesis is to return to the proximal force transfer situation. The reconstruction of the bone stock and the sustainable regeneration of the defect are prerequisite for the proximal bone support and a continuous stable fixation of the implant. Load transfers via the locking screws is only possible for a limited period.
When osseous implant stabilization is complete, the locking screws are removed. The decision of when this should take place (usually 1 – 2 years post-op) and the necessity for explanation lies with the surgeon and depends on the individual starting situation and the subsequent history of the treatment.

AESCULAP® Prevision® straight & curved

DISTAL INTERLOCKING AND EXTRAOSSEOUS ASSEMBLY



The distal Prevision® curved stems have a 1000 mm radius.

Adjusting the targeting device to extraosseous assembled implant components

Interlocking extraosseous assembled Prevision® implant components:
Where there is inadequate primary stability, especially in proximal and subproximal osseous defects, and as a matter of principle when using the transfemoral approach, the prosthesis is locked distally. This locking can be performed freehand under image intensifier control or using a special targeting device. If this device is to be used, it is first adjusted to the individual prosthesis before the stem is implanted. To do this, the targeting device is attached to the aiming support that is firmly fixed onto the assembled implant and adjusted according to the screw holes on the stem using a targeting guide. The screws of the targeting device are firmly tightened from a proximal to the distal direction.

If the targeting guide becomes twisted, all the screws must be loosened and the targeting device re-orientated and re-fixed into position to guarantee correct function. The targeting device is then removed and stored safely during implantation of the stem, following which it is reattached. The tissue protection sleeves serve as the working channel for drilling, measuring and inserting the locking screws. The screw holes are first of all prepared using the bicortical drill ø 3.5 mm and subsequently enlarged only in the lateral cortical bone with the drill ø 5.0 mm.

The screw gauge indicate the minimal length of the interlocking screws to be used.

Inserting the extraosseous mounted Prevision® implant components:
The Prevision® implant components can be assembled to the already described intraosseous method but extraosseous. The selection of the stem size to be inserted is based on the final used distal and proximal rasps. With transfemoral access and in the lack of subproximal support, the next larger implant diameter in comparison to the final used distal rasp is selected. The implant manually assembled with the torque wrench is screwed on the proximal implantation instrument and under consideration of the antetorsion position carefully inserted in the femur.

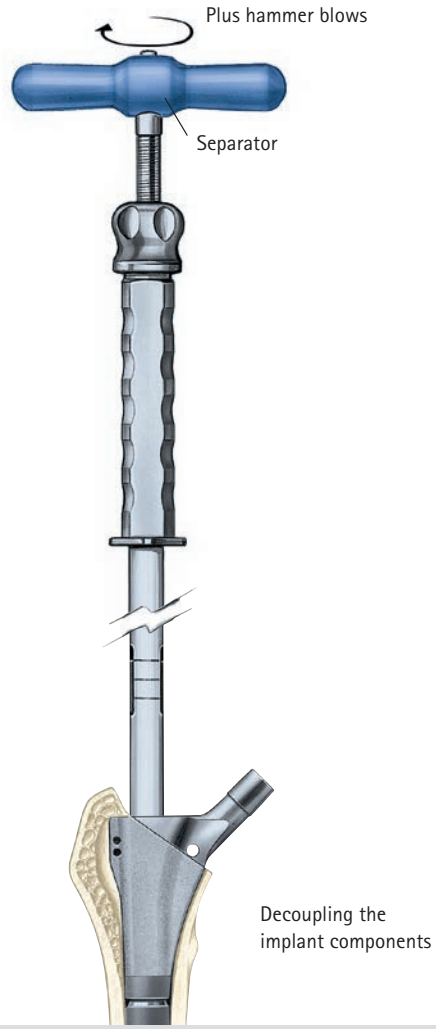
The desired implant position is achieved by hammer stokes on the impaction support which is inserted in the proximal implantation instrument.

⚠ Hammering in of the prosthesis must only be performed with the impaction support in order to prevent irreversible damage to the cone fixation.

After implantation, check the tightness of the implant components once again with the torque wrench.

AESCULAP® Prevision® straight & curved

CORRECTION AND EXPLANTATION POSSIBILITIES



Decoupling the implant components:
If malpositioning occurs when the proximal implant is being attached to the distal component, the connected components can be taken apart using a separating instrument. If the tension nut has already been inserted it is opened and removed. To separate the two components, the proximal implantation instrument is firmly attached to the implant.

The separator is tightened into the implantation instrument. The connection between the two components is loosened with pulsed blows from a hammer. It can be helpful to keep tightening the separator during this process.

Before the position is changed or a new proximal component is connected, the surface of the cone on the distal component should be thoroughly inspected. If the cone surface is damaged, no proximal component may be attached.

⚠ In case of revision of Prevision® prosthesis the change of the proximal component is only allowed if the cone surface is not damaged.

In seldom cases the decoupling of the implant components is not possible because of the consolidated cone junction.

Removing the implant

Removing the distal stem

Removing the implant (proximal and distal components together):
The already inserted locking pins and the closure cap are removed. The proximal implantation instrument is attached to the proximal implant component and thereafter the prosthesis shaft completely hammered out with the slotted hammer.

Removal of the distal prosthesis component:
The already inserted locking pins are removed. The distal implantation instrument is attached to the distal implant component and thereafter the prosthesis shaft completely hammered out with the slotted hammer.

AESCULAP® Prevision® straight

IMPLANT COMPONENTS

PROXIMAL IMPLANT COMPONENTS

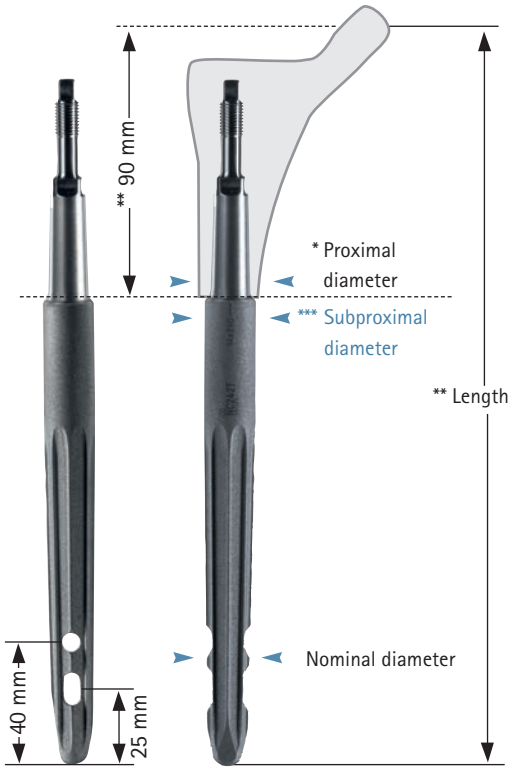
Size	Prox. ø	Offset	Length 90 mm (+0 mm)	100 mm (+10 mm)	110 mm (+20 mm)
P1	17 mm*	44.9 mm	NC091T	NC171T	NC181T
P2	19 mm*	46.3 mm	NC092T	NC172T	NC182T
P3	21 mm*	47.7 mm	NC093T	NC173T	NC183T

ISOTAN®$_F$
Plasmapore® µ-CaP
Closing cap and tension nut are parts of the proximal implant component

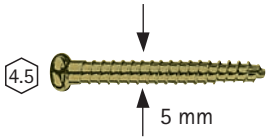
DISTAL IMPLANT COMPONENTS STRAIGHT

Length \ Nominal ø	12 mm	13 mm	14 mm	15 mm	16 mm	17 mm	18 mm	19 mm	20 mm	21 mm	22 mm	23 mm	24 mm
200 mm**	NC231T	NC186T	NC232T	NC187T	NC233T	NC188T	NC234T	NC189T	NC235T	–	NC236T	–	NC237T
240 mm**	NC241T	NC192T	NC242T	NC193T	NC243T	NC194T	NC244T	NC195T	NC245T	–	NC246T	–	NC247T
280 mm**	NC251T	NC198T	NC252T	NC199T	NC253T	NC200T	NC254T	NC201T	NC255T	–	NC256T	–	NC257T
320 mm**	NC261T	–	NC262T	–	NC263T	–	NC264T	–	NC265T	–	NC266T	–	NC267T

ISOTAN®$_F$
*** The largest subproximal diameter is 2.0/2.5/3.0/3.5 mm larger than the nominal diameter of the distal implant component and depends on the corresponding implant length 200/240/280/320 mm.



INTERLOCKING SCREWS



24 mm	28 mm	32 mm	36 mm	40 mm
KB424TS	KB428TS	KB432TS	KB436TS	KB440TS
44 mm	48 mm	52 mm	56 mm	60 mm
KB444TS	KB448TS	KB452TS	KB456TS	KB460TS

ISOTAN®$_F$

X-ray templates Prevision® straight	
Proximal implants, ap/ml projection	ND532
Distal straight implants, ap/ml projection	ND534

AESCULAP® Prevision® curved

IMPLANT COMPONENTS

PROXIMAL IMPLANT COMPONENTS

Size	Prox. ø	Offset	Length 90 mm (+0 mm)	100 mm (+10 mm)	110 mm (+20 mm)
P1	17 mm*	44.9 mm	NC091T	NC171T	NC181T
P2	19 mm*	46.3 mm	NC092T	NC172T	NC182T
P3	21 mm*	47.7 mm	NC093T	NC173T	NC183T

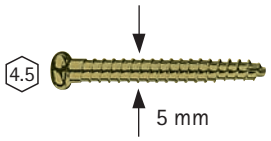
ISOTAN®$_F$
Plasmapore® µ-CaP
Closing cap and tension nut are parts of the proximal implant component

DISTAL IMPLANT COMPONENTS CURVED

Length \ Nominal ø	12 mm	14 mm	16 mm	18 mm	20 mm	22 mm	24 mm
240 mm**	NC041T	NC042T	–	–	–	–	–
280 mm**	NC151T	NC152T	NC153T	NC154T	NC155T	NC156T	NC157T
320 mm**	NC161T	NC162T	NC163T	NC164T	NC165T	NC166T	NC167T
360 mm**	–	NC132T	NC133T	NC134T	NC135T	NC136T	NC137T
400 mm**	–	NC142T	NC143T	NC144T	NC145T	NC146T	NC147T

ISOTAN®$_F$
*** The largest subproximal diameter is 4 mm bigger than the nominal diameter of the distal implant component

INTERLOCKING SCREWS



24 mm	28 mm	32 mm	36 mm	40 mm
KB424TS	KB428TS	KB432TS	KB436TS	KB440TS
44 mm	48 mm	52 mm	56 mm	60 mm
KB444TS	KB448TS	KB452TS	KB456TS	KB460TS

ISOTAN®$_F$

X-ray templates Prevision® curved	
Proximal implants, ap/ml projection	ND532
Distal curved implants, ap projection	ND552
Distal curved implants, ml projection	ND554

AESCULAP® Prevision®

IMPLANT COMPONENTS – PROSTHESIS HEADS AND RECON RING

METAL HEADS

12/14

	22.2 mm	28 mm	32 mm	36 mm
short	–	NK429K	NK529K	NK669K
medium	NK330K	NK430K	NK530K	NK670K
long	NK331K	NK431K	NK531K	NK671K
x-long	–	NK432K	NK532K	NK672K

ISODUR®$_F$

CERAMIC HEADS

12/14

	28 mm	32 mm	36 mm
short	NK460D	NK560D	NK650D
medium	NK461D	NK561D	NK651D
long	NK462D	NK562D	NK652D
x-long	–	NK563D	NK653D

Biolox® delta

Biolox® OPTION HEADS

12/14

	28 mm	32 mm	36 mm
short	NK435	NK535	NK635
medium	NK436	NK536	NK636
long	NK437	NK537	NK637
x-long	NK438	NK538	NK638

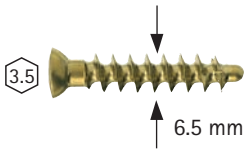
Biolox® delta with sleeve Ti6Al4V

RECON RING

X-ray template: ap projection NG340

	right	left	recommended PE cup
52 (48)	NH212T	NH222T	ø 46 mm
58 (54)	NH233T	NH243T	ø 52 mm
64 (60)	NH254T	NH264T	ø 58 mm

ISOTAN®$_P$



FIXATION SCREWS FOR RECON RING

16 mm	NA766T	44 mm	NA794T
20 mm	NA770T	48 mm	NA798T
24 mm	NA774T	52 mm	NA802T
28 mm	NA778T	56 mm	NA806T
32 mm	NA782T	60 mm	NA810T
36 mm	NA786T	64 mm	NA814T
40 mm	NA790T	68 mm	NA818T

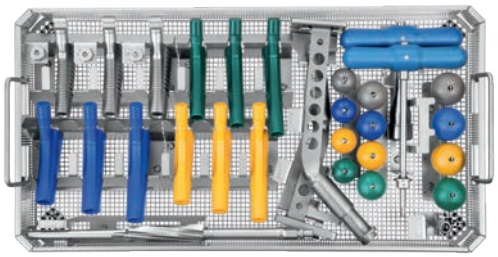
ISOTAN®$_F$

Implant materials:

ISOTAN®$_F$	Titanium forged alloy (Ti6Al4V/ISO 5832-3)
ISOTAN®$_P$	Pure titanium (Ti/ISO 5832-2)
Plasmapore® µ-CaP	Pure titanium surface with 20 µm layer dicalcium phosphate dihydrate ($CaHPO_4x2H_2O$)
ISODUR®$_F$	Cobalt-chromium forged alloy (CoCrMo/ISO 5832-12)
Biolox® delta	Aluminium oxide matrix ceramic (Al_2O_3/ZiO_2/ISO 6474-2)

AESCULAP® Prevision®

BASIC INSTRUMENTS SETS

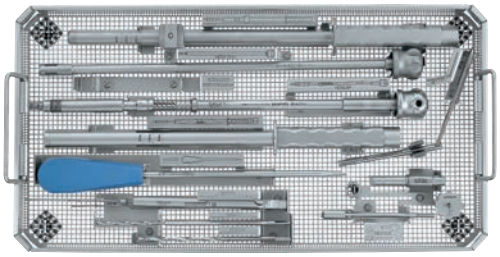


NG852 Prevision® set – proximal raps comprising:				
Perforated tray with lid 485 x 254 x 70 mm				NG853R
Proximal trial implant		+0 mm	+10 mm	+20 mm
P1 (green)		NF791P	NF801P	NF821P
P2 (yellow)		NF792P	NF802P	NF822P
P3 (blue)		NF793P	NF803P	NF823P
Proximal rasps		P1	P2	P3
P1 – P3		NG801R	NG802R	NG803R
Trial head	S	M	L	XL
ø 28 mm	NG296	NG297	NG298	NG299
T-handle, canulated, AO adaptor				ND134R
Proximal reamer, AO adaptor				NG890R
Screwdriver				ND566R
Trial tension nut				NG599R

Please order separately:

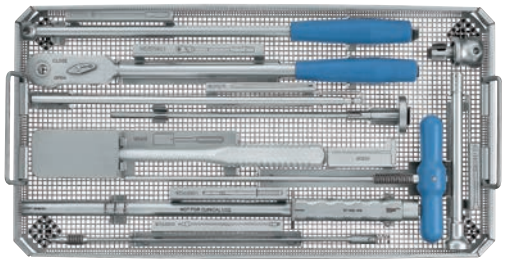
Trial head	S	M	L	XL
ø 32 mm	NG306	NG307	NG308	NG309
ø 36 mm	NG326	NG327	NG328	NG329
Modular handle, posterior approach				NG114R
Modular handle, lateral approach				NG115R

Recommended container
for NG852, NG866 and NG868
Aesculap Basis container 592 x 285 x 205 mm
for NG854, NG856, NG858, NG860, NG862, NG864 and NF510
Aesculap Basis container 592 x 285 x 138 mm



NG856 Prevision® set – implantation instruments 1 comprising:	
Perforated tray 485 x 254 x 50 mm	NG857R
Proximal implantation instrument	ND562R
Distal implantation instrument	ND563R
Drilling sleeve	LS110R
Screwdriver SW 4.5	KH322R
Screw gauge	ND574R
Twist drill ø 3.5 mm	KH287R
Twist drill ø 5.0 mm	KH288R

Please order separately:
Aiming support ND582R

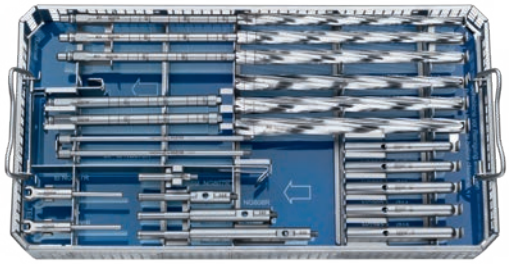


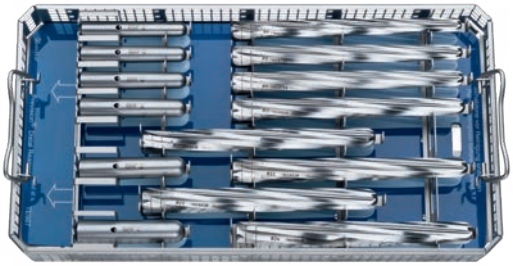
NG858 Prevision® set – implantation instruments 2 comprising:	
Perforated tray 485 x 254 x 50 mm	NG859R
Slotted hammer	ND565R
Separator	ND564R
Insertion instrument for distal rasps	ND568R
Torque wrench with socket wrench	ND570R
Counter holder with socket rod	ND572R
Impaction support	ND583R

Not illustrated: Target device NF510
See Aesculap brochure O10702 for description
Note: Extension NF503R for stem length of the targeting device 360 – 400 mm should be ordered separately.

AESCULAP® Prevision® straight

INSTRUMENTS SETS





NG866 Prevision® set – distal reamers 1 comprising:	
Perforated tray with lid 485 x 253 x 76 mm	NG867R
Lid	JH217R
Graphic template	TE964
Reamer ø 11 mm	NG871R
Reamer ø 12 mm	NG872R
Reamer ø 13 mm	NG873R
Reamer ø 14 mm	NG874R
Reamer ø 15 mm	NG875R
Reamer ø 16 mm	NG876R
Rod for distal reamers	NG870R
Assembling pin	NG888R

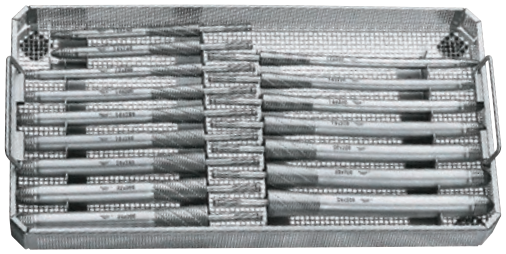
Trial components ø	12 mm	13 mm	14 mm	15 mm	16 mm
	NG891R	NG782R	NG892R	NG783R	NG893R
Trial spacer length	200 mm	240 mm	280 mm	320 mm	
	NG807R	NG808R	NG809R	NG810R	

NG868 Prevision® set – distal reamers 2 comprising:	
Perforated tray with lid 485 x 253 x 76 mm	NG869R
Lid	JH217R
Graphic template	TE987
Reamer ø 17 mm	NG877R
Reamer ø 18 mm	NG878R
Reamer ø 19 mm	NG879R
Reamer ø 20 mm	NG880R
Reamer ø 21 mm	NG881R
Reamer ø 22 mm	NG882R
Reamer ø 23 mm	NG883R
Reamer ø 24 mm	NG884R

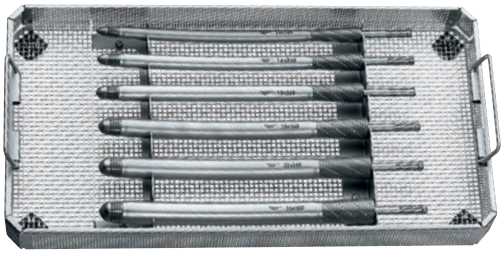
Trial components ø	17 mm	18 mm	19 mm	20 mm	22 mm	24 mm
	NG784R	NG894R	NG785R	NG895R	NG896R	NG897R

AESCULAP® Prevision® curved

INSTRUMENTS SETS

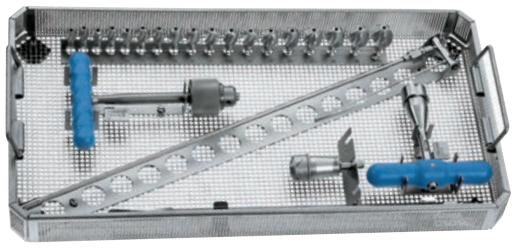


NG854 Prevision® set – distal rasps 240 – 320 mm comprising:				
Perforated tray 485 x 254 x 50 mm				NG855R
Distal rasp ø	12 mm	14 mm	16 mm	18 mm
Length 240 mm	NG595R	NG596R		
Length 280 mm	NG811R	NG812R	NG813R	NG814R
Length 320 mm	NG821R	NG822R	NG823R	NG824R
Distal rasp ø	20 mm	22 mm	24 mm	
Length 280 mm	NG815R	NG816R	NG817R	
Length 320 mm	NG825R	NG826R	NG827R	



NG860 Prevision® set – distal rasps 360 mm comprising:			
Perforated tray 485 x 254 x 50 mm			NG861R
Distal rasp ø	14 mm	16 mm	18 mm
Length 360 mm	NG832R	NG833R	NG834R
Distal rasp ø	20 mm	22 mm	24 mm
Length 360 mm	NG835R	NG836R	NG837R

NG862 Prevision® set – distal rasps 400 mm comprising:			
Perforated tray 485 x 254 x 50 mm			NG863R
Distal rasp ø	14 mm	16 mm	18 mm
Length 400 mm	NG842R	NG843R	NG844R
Distal rasp ø	20 mm	22 mm	24 mm
Length 400 mm	NG845R	NG846R	NG847R



NG864 Prevision® set – MFR medullary canal reamers comprising:					
Perforated tray 485 x 254 x 50 mm					NG865R
Reamer head ø	10 mm	11 mm	12 mm	13 mm	14 mm
	GE670R	GE672R	GE674R	GE676R	GE678R
Reamer head ø	15 mm	16 mm	17 mm	18 mm	19 mm
	GE680R	GE682R	GE684R	GE686R	GE688R
Reamer head ø	20 mm	21 mm	22 mm	23 mm	24 mm
	GE690R	GE691R	GE692R	GE693R	GE694R
MFR guide wire ø 2.5 mm L800 mm					GE663S
MFR Nitinol drill shaft, AO large shank					GE666R
T-handle, canulated, AO large chuck					ND134R
T-handle, canulated, universal, AO large chuck					KH319R
Rigid reamer ø 12 mm, AO large shank					ND567R

Please order separately:

AO large chuck with Harris shank	GB422R

AESCULAP® – a B. Braun brand

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