acs® knee system

advanced coated system

implantcast

Fixed Bearing Surgical Technique
Distal Femur Cut First
4 in 1 Femur Preparation

Contents

Nota Bene: The herein described surgical technique shows the treatment suggested by the author in uncomplicated surgical procedures. However, it is ultimately the operating surgeon's decision, which approach is the most reasonable and effective for the respective patient.

Introduction

Pronounced destruction and the accompanying loss of function of the knee joint, impair the quality of life of the patient substantially. The implantation of an artificial knee joint leads to the elimination and accordingly relief of pain and a substantial improvement and accordingly recovery of the original joint function. A knee prosthesis with a proven and tested design, very good wear properties and optimal mobility is the best solution for knee arthroplasty. The ACS® Knee System was developed to minimize the risk of material abrasion and to ensure a succesful implantation in the long term.
Due to its wear properties and mechanical properties, the CoCrMo alloy is the best material choice for use in femoral and tibial knee components. The application of the ceramic TiN-Coating on the articulating components reduces the risk of Polyethylene wear and the appearance of allergic reactions to elements of the CoCrMo alloy is eliminated to the greatest possible extent.
Polyethylene wear is scientifically known to be a key factor for implant failure [2, 3, 4, 5]. Tribological studies conducted at the Ludwig-Maximillians-University in Munich (Prof. Dr H.J. Refior and Dipl.-Ing. J. Huber) [1], IMA Dresden [6] and Endolab [7] show that components made from CoCrMo alloy with ceramic TiN-Coating have superior wear properties compared to uncoated components of the same type of prosthesis.
The optimized femorotibial and femoropatellar congruence of the ACS® components contribute to minimzed abrasion and deformation of the Polyethylene for the duration of millions of motion cycles. The high congruence of the articulating components increases the surface contact and minimises the wear of the Polyethylene [1].

Literature

[1] Huber J., Refior H, J. wear test, Ludwig Maximilians-Universität München Labor für Biomechanik und Experimentelle Orthopädie, Germany, 2002 data on file.
[2] Feng E.L., Stulberg S.D., Wixson R.L. Progressive Subluxation and Polyethylene wear in total knee replacements mit flat articular surfaces. Clin. Orthop. and Rel. Res, 299, Feb. 1994.
[3] Eng G.A., Dwyer K.A., Hanes C.K. Polyethylene Wear of Metal Backed Tibial components in Total and Unicompartmental Knee Prostheses. J. Bone Joint Surgery, 74-B;9, 1992.
[4] Lewis P., Rorabeck C.H., Bourne R.B., Devane P, Posteromedial Tibial Polyethylene Failure in Total Knee Replacements. Clin. Orthop. and Rel. Res, 299, Feb. 1994.
[5] Collier J, Mayor, M.B., McNamara, J.L., Suprenant, V. A., Jensen, R.E., Analysis of the failure of 122 Polyethylene Inserts of uncemented tibial knee components, Clin. Orthop and rel research, 273, December 1991.
[6] Dr.Ing habil Franke, Dipl. Ing. Steffen Vater. Institut für Materialforschung und Anwendungstechnik (IMA): Prüfbericht: Untersuchungen zum tribologischen Verhalten an drei unterschiedlichen Kniegelenkendoprothesen (A219/05.1 2006)
[7] Dr.Ing M. Hintner. Endolab Mechanical Engineering GmbH, Thansau/Rosenheim : Prüfbericht: No.59.080804.20.203; 26.11,2008

ACS® FB compatibility

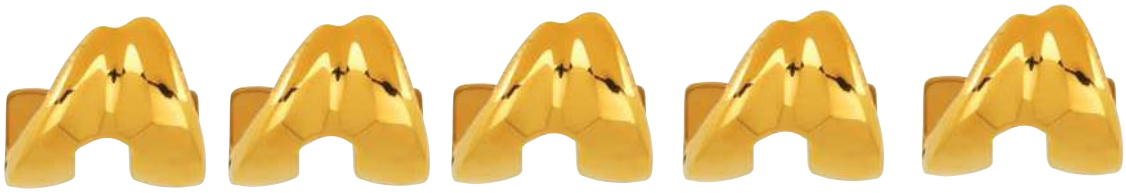
Patella component

PE-Patella

compatible with all femoral sizes

Size : 26 mm 29 mm 32 mm 35 mm

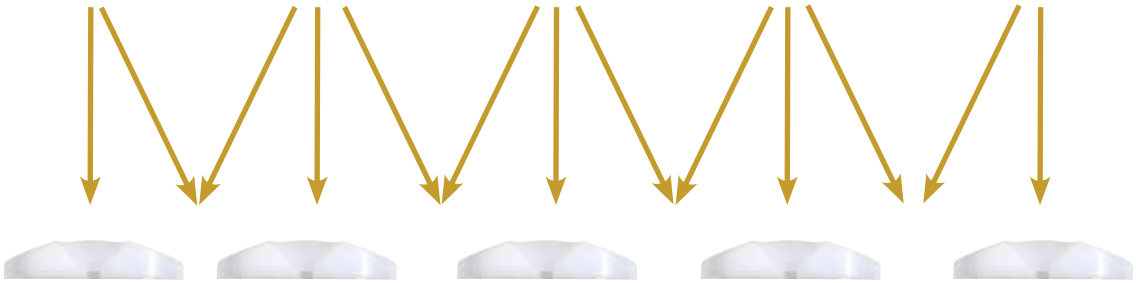
Femoral component*



Size 2 | Size 2,5 / Size 3 | Size 4 | Size 5 | Size 6

* the femoral components are also avaiable in the version PS and slim for selective sizes.

Tibial-PE-insert** symmetrical



Size 2 | Size 3 | Size 4 | Size 5 | Size 6

** all PE-inserts are available in heights 10,0mm, 12,5mm, 15,0mm, 17,5mm and 20,0mm and in versions Standard, hyperflex, ultra and PS.

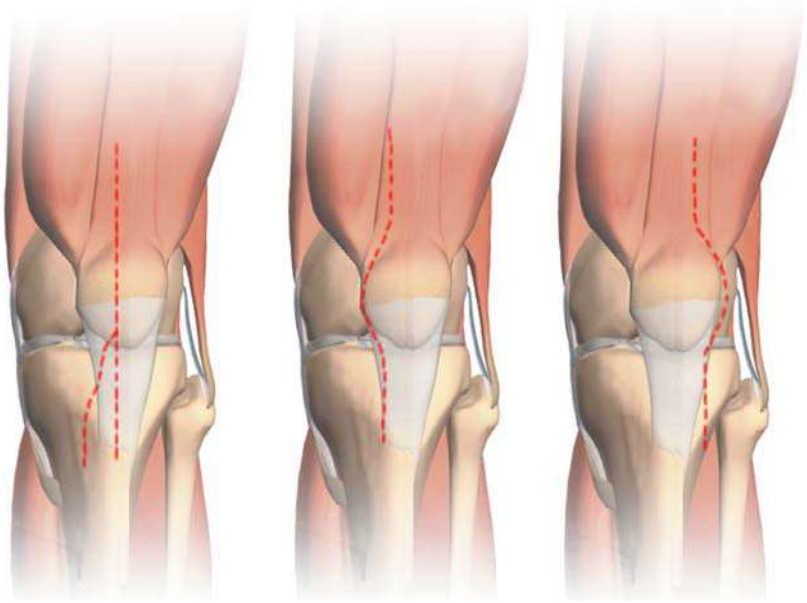
Tibial component assymmetrical

Size 2 | Size 3 / Size 3,5 | Size 4 | Size 5 | Size 6

→ compatible with

Surgical approach

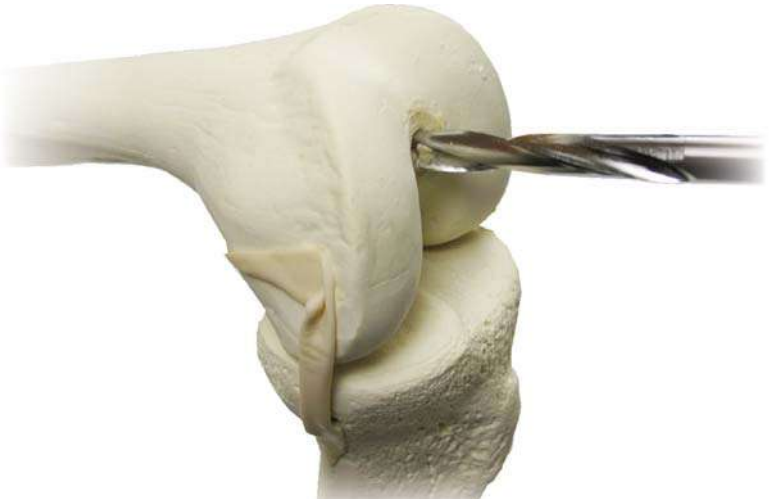
Make a central skin incision across the patella. Than choose the preferred medial or lateral approach, to open the knee joint.



Note:
Within this technique you have the choice of beginning with the femoral or the tibial preparation. The shown technique starts with the femoral preparation.

Femur preparation

Open the femoral medullary canal with the initiator drill 9mm. The entry point should be set 7-10mm anterior to the posterior cruciate ligament.



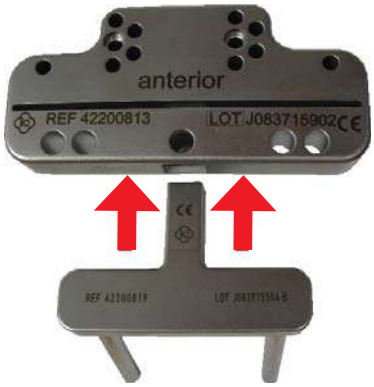
Adjustment of the Valgus Angle

To set the pre-operatively planned valgus angle, push the adjusting lever of the femoral alignment guide to release the locking mechanism. For locking release the adjusting lever at the desired position.

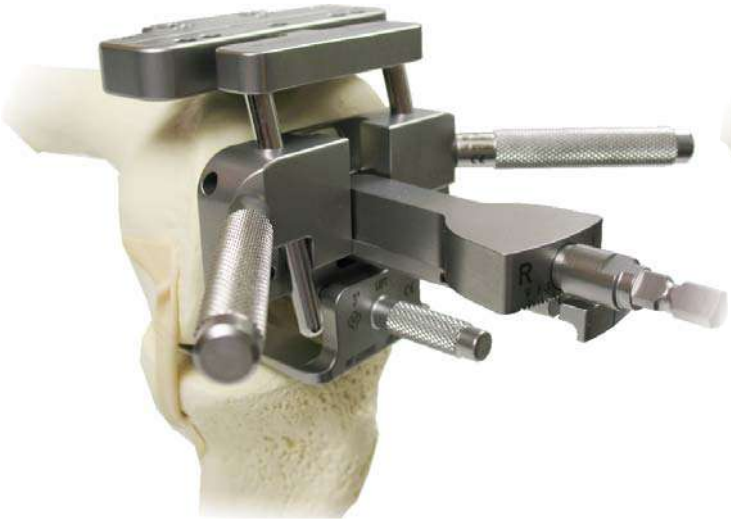
Insert the intramedullary rod through the femoral alignment guide into the opened medullary canal and attach the external rotation guide for the desired external rotation. For correct alignment the rotation guide should touch the posterior condyles.

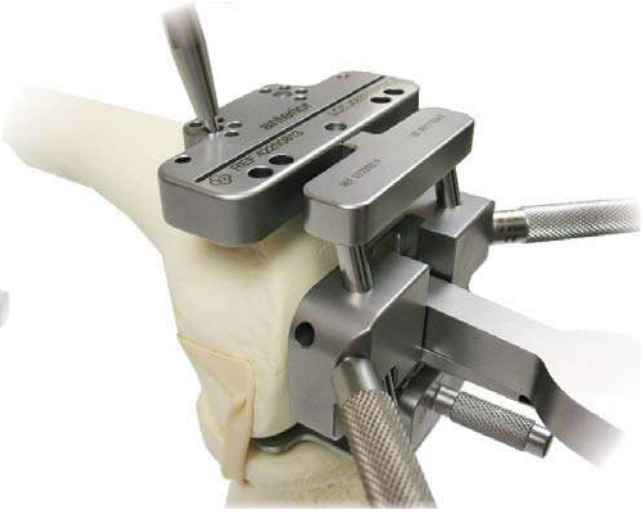
The external rotation guide is available in neutral and 3° external rotation in a right and a left version.

Assembling the distal cutting block and the femoral alignment guide



The distal cutting block and the alignment guide for the distal cutting block are connected. The coupling is correct, when the implantcast logo (ic-cloverleaf) of the alignment guide is visible through the central hole on the anterior side of the distal cutting block.





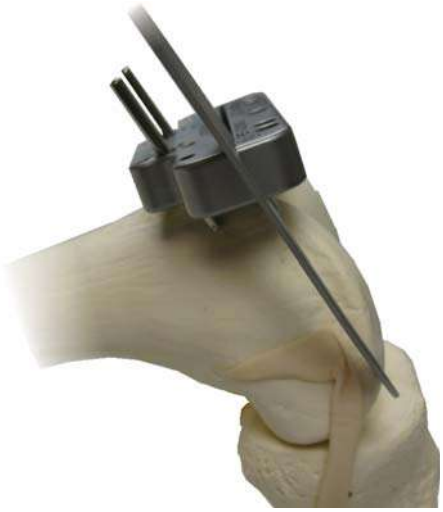
The distal cutting block is pushed in the femoral alignment guide till it contacts the anterior femoral bone. For correct alignment the external rotation guide should touch the posterior condyles before the distal cutting block is fixed with two pre-drilled pins to the femur.

It is recommended to use the two highlighted holes for fixation of the cutting block to allow for shifting of the block in both directions. That facilitates reresection and accordingly decrease of the planned resection.

After fixation of the distal cutting block the intramedullary rod can be removed with the T-handle. Then the femoral alignement guide and the external rotation guide can be disassembled.

Distal femoral resection

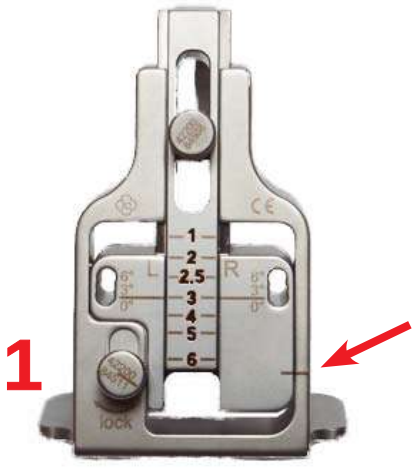
To check the resection level the long resection check can be inserted into the saw guide as indicated.



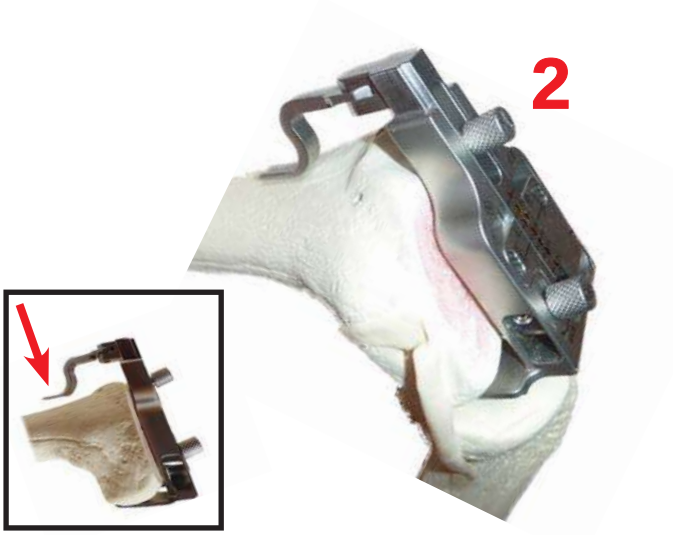
The distal femoral condyles are resected through the saw guide with use of the ACS® saw blade. If more stability of the cutting block is needed an additional pin can be placed through an oblique hole of the distal cutting block.

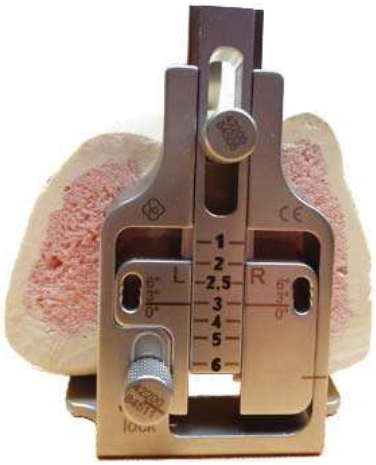
Note: It is recommended to use the ACS®- saw blade of medium size.

Determination of the femoral size

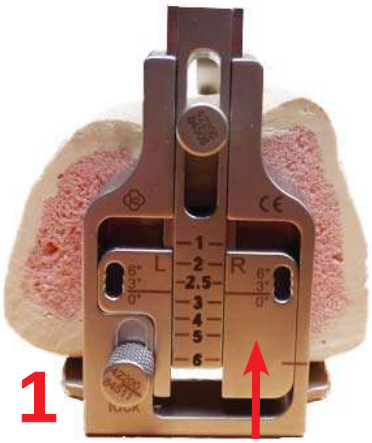


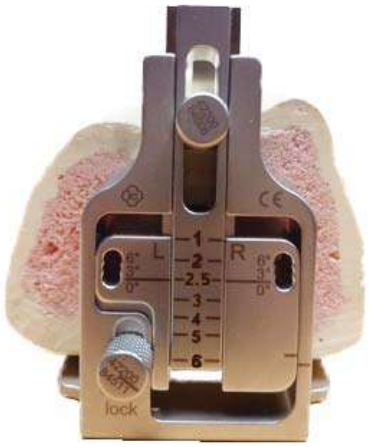
The size of the femoral component is determined via anterior referencing by use of the femoral sizing guide. At first loosen both set screws of the sizing guide and place the guide in neutral position. The markings should be aligned as indicated. Secure the position via the set screw **1**.





Place the sizing guide on the distal resected femur; the sizing guide should touch the posterior condyles. Lower the stylus anteriorly to the femoral bone and lock the set screw **2**. Then the required size of the femoral component is visible on the scale.





If the size is not clearly readable and lies in between two sizes, it is recommended to choose the nearest smaller femoral component size. The sizer can be adjusted to the nearest smaller size by loosening set screw **1**. After loosening of set screw **1**, adjust the sizer to the smaller size and lock the screw **1** in the new position.
Note: If the femoral component of one larger size is selected, the sizer is kept in the found position.

Insert two pins through the holes of the sizing guide to mark the position of the 4-in-1 cutting block of the respective size. Insertion of the pins is done according to the afore used external rotation guide:

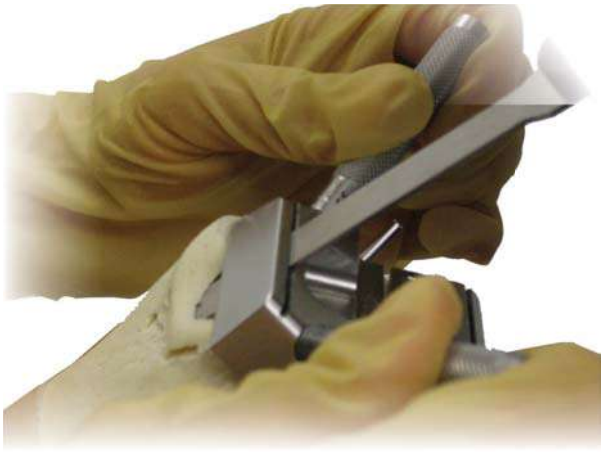
3° external rotation left knee:	3° L and 0° R
3° external roation right knee:	0° L and 3° R
neutral:	0° L and 0° R

Note: If an increased external rotation is desired, insert the pins through the holes with the 6°-marking respectively.

Femoral resection with the 4-in-1 femoral cutting block

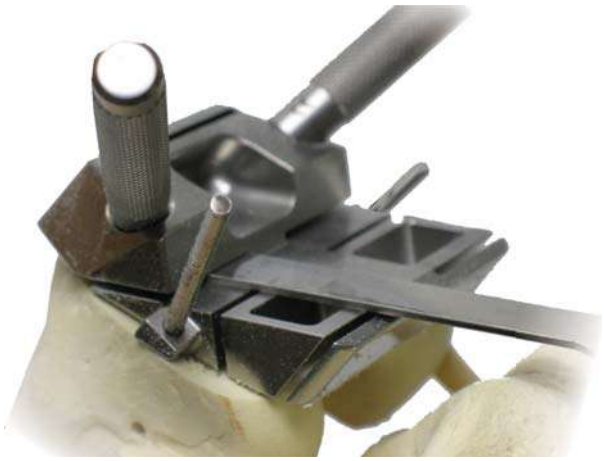
The 4-in-1 femoral cutting block of the determined femoral size is put in the afore prepared holes on the distally resected surface.

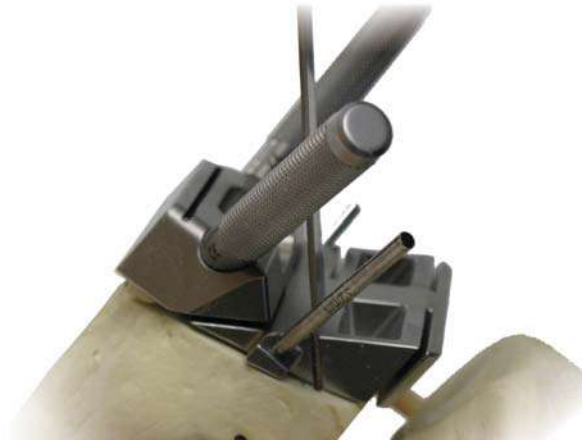
The 4-in-1 cutting block needs to sit flush with the distally resected femur. For increased stability during resection additional pre-drilled oblique pins can be inserted.



Resect the anterior cortical bone through the anterior slot.

Resect the posterior condyles through the posterior slots.

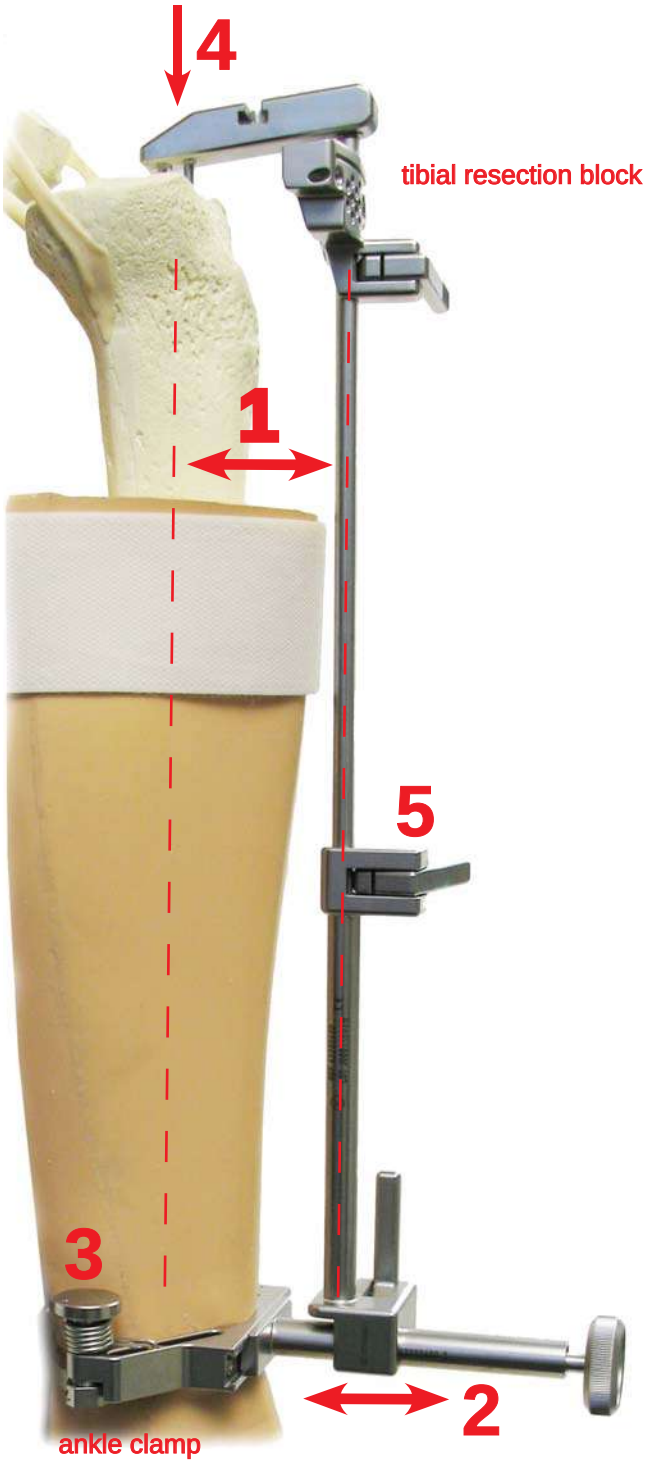




Finally the anterior and posterior chamfer cuts are performed through the corresponding slots.

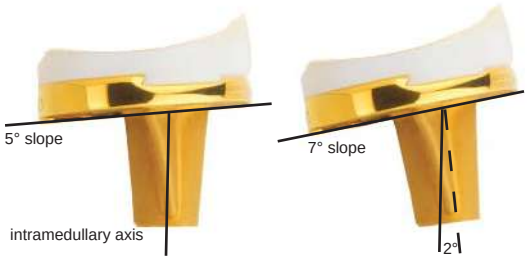
Note: It is recommended to use the ACS® saw blade of medium size!

Tibia preparation

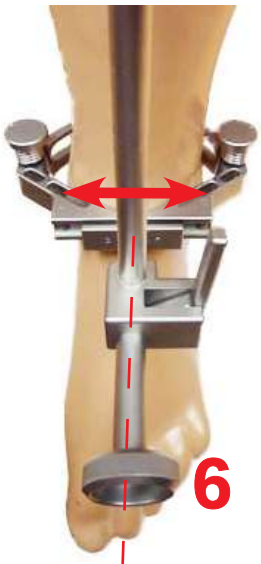


The ankle clamp and the tibial cutting guide are assembled as indicated. After adjustment of the desired alignment the position is fixed by closing the connection clamps respectively.

Align the tibial cutting guide **1** parallel to the intramedullary axis of the tibia. The posterior inclination of the tibial resection block should be parallel to the inclination of the tibia **2**. The ankle clamp **3** is fixed and the second bolt **4** of the cutting guide is introduced. The rod can than be fixated **5**.



Depending on the desired tibial slope the respective tibial resection block is attached (5° or 7°).
Note: A slope of 5° is integrated into the design of the tibial component. Thus the peg of the tibial component is in line with the intramedullary axis when using the 5° resection block. The tibial peg will be tilted 2° anteriorly when using the 7° resection block.



Adjust the medio-lateral position and fix the position by locking the knurled screw **6**. The axis of the screw should be in line with the second toe.

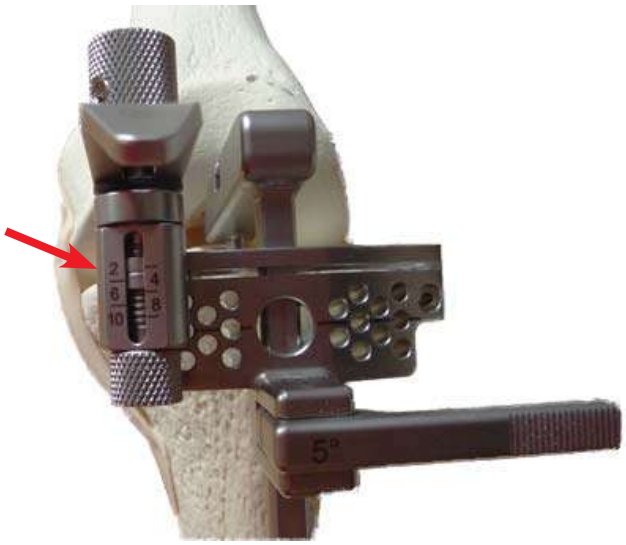
The ankle clamp is positioned around the ankle. Please push the buttons to release the malleolar blades.

Alignment of the tibial resection block

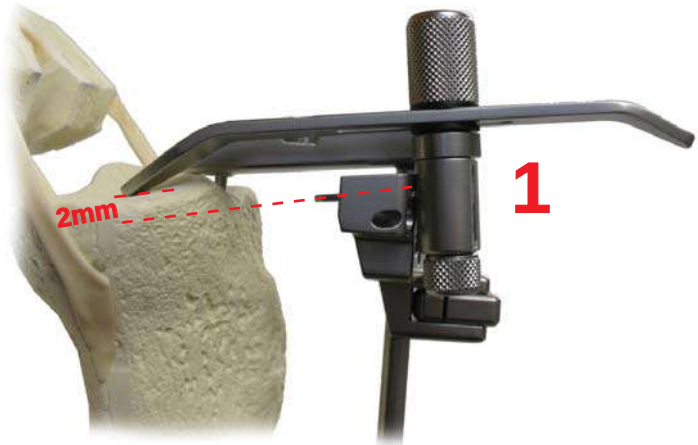
The tibial resection height is adjusted by means of the tibial stylus. By turning the screw the distance **A** is adjusted.
There are the following two options to adjust the tibial resection height.

Option A: lowest contact point as reference

With this technique, the tibial resection block is oriented towards the deepest tibial point on the worn side. Set the stylus to the amount of millimeters you plan to resect below the tibial defect. To resect 2mm below the tibial defect set the stylus to the 2mm marking.

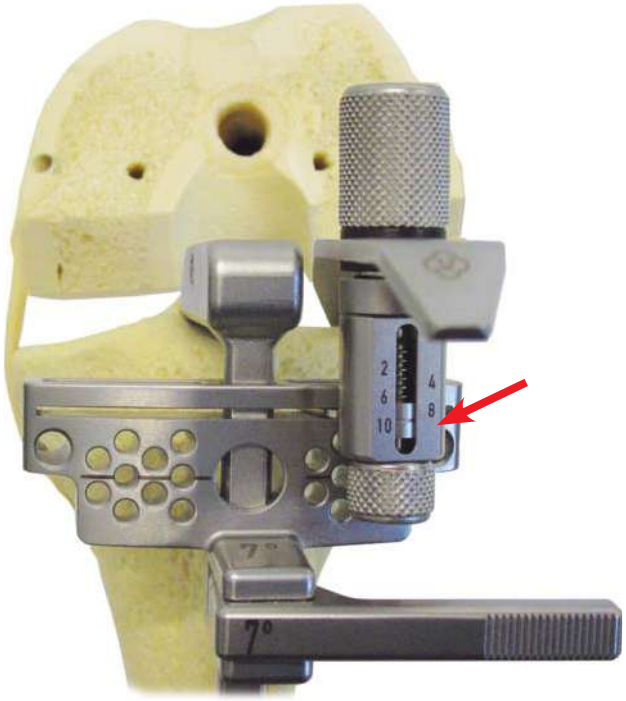


The stylus can either be aligned for resection through the slot **1** or for a non-slotted resection **2**. For gauging the tibial plateau the corresponding end of the stylus needs to be applied.



The stylus and the connected resection block need to be lowered till the tip of the stylus touches the deepest point of the more destructed tibial side, mostly the medial side. The resection block is fixed in this position to the cutting guide.

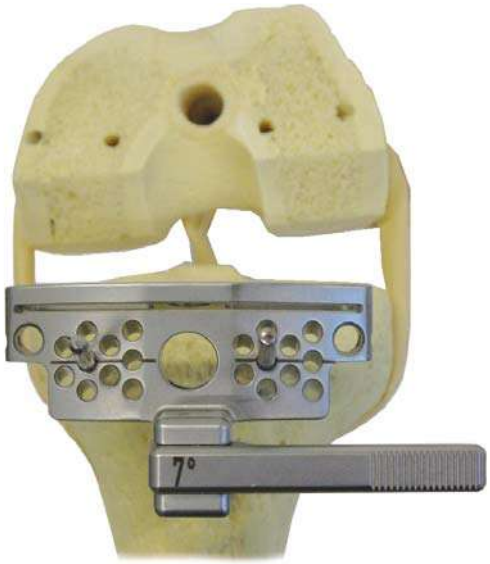
Option B: highest contact point as reference



With this technique, the tibial resection block is oriented towards the highest tibial point on the lesser worn side. Set the stylus to the amount of millimeters you plan to resect below the less worn tibial side. To resect 10mm below the less worn tibial side, set the stylus to the 10mm marking.

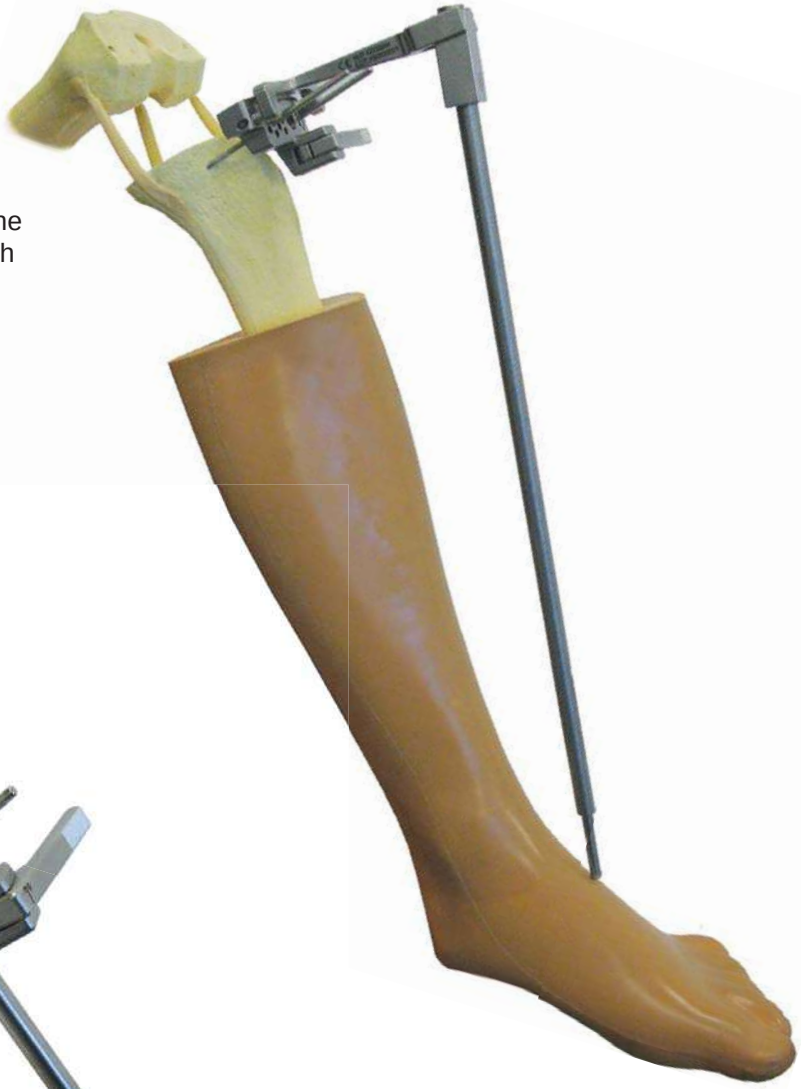
The stylus can either be aligned for resection through the slot **1** or for a non-slotted resection **2**. For gauging the tibial plateau the corresponding end of the stylus needs to be applied.

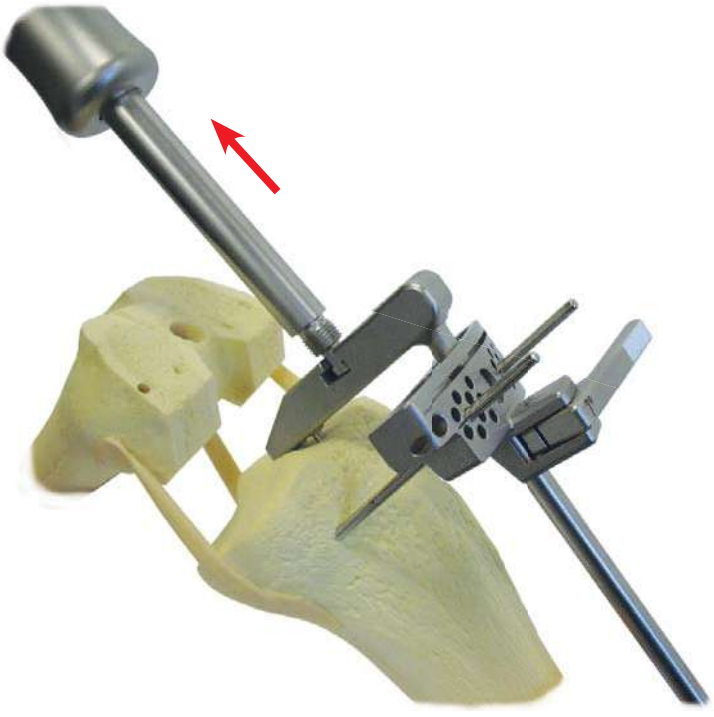
The stylus and the connected resection block need to be lowered till the tip of the stylus touches the highest point of the less destructed tibial side, mostly the lateral side. The resection block is fixed in this position to the cutting guide.



After alignment the resection block is fixed to the tibial bone with two pins. It is recommended to use the two counter-sunk holes in the marked plane of the resection block to allow for shifting of the block in both directions. That facilitates reresection and accordingly decrease of the planned resection.

Optionally you can attach the alignment host to the resection block and check the tibial alignment with the extramedullary rod. The rod should be in line with the second toe.



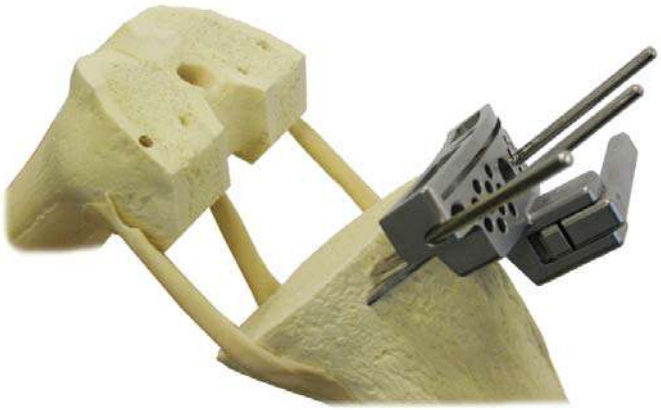


After release of the clamps, the tibial cutting guide is removed by use of the slap hammer.

Tibial resection

The resection plane can be checked with the long resection check. The resection check is applied according to the selected resection technique (guided through slot or non-guided) either through the slot **1** or on the tibial resection block **2**.

If necessary fix the resection block with an additional oblique bone pin to allow for increased stability.

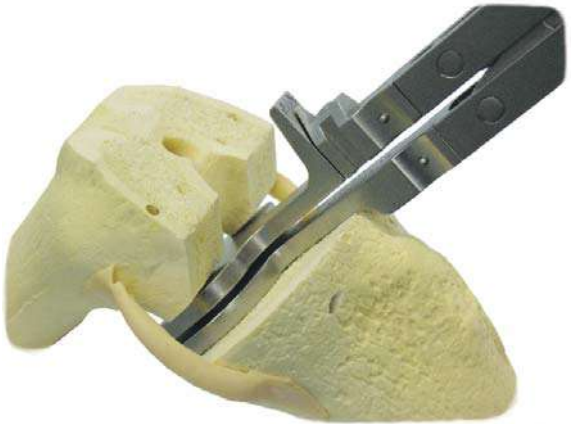


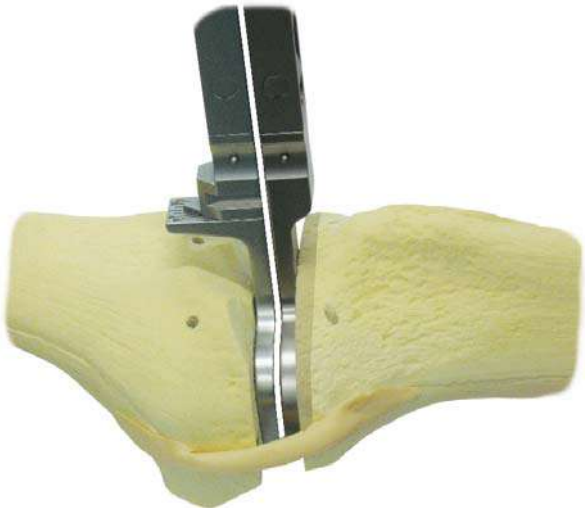
The tibia is resected according to the selected resection technique: guided through slot **1** or non-guided **2**. Afterwards the resection block is removed.

Check of the joint space (optional)

There are the following techniques for checking the joint space:

Use of the ligament spreader:





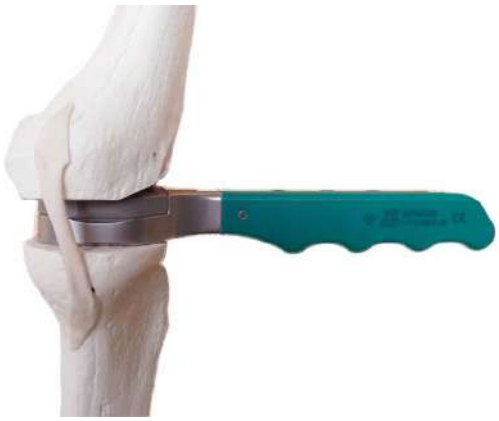
Insert the assembled ligament spreader into the flexion gap and spread the ligaments carefully. As long as the indicator shows a mid position the flexion gap is parallel. Check the ligament tension. If necessary perform a ligament release to achieve a parallel joint space. Insert the spreader into the extension gap and redo the check. To correct the joint gap perform a ligament release as afore described.

Use of the joint space gauger:

1

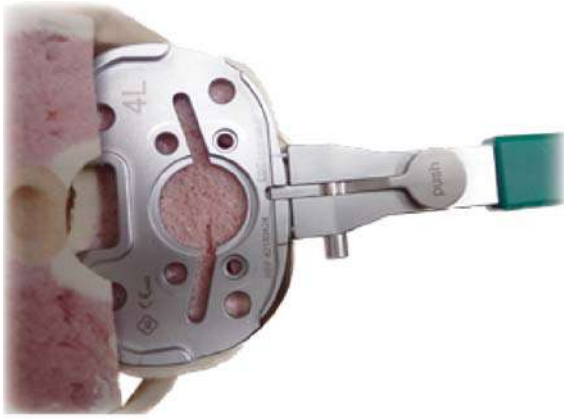
2

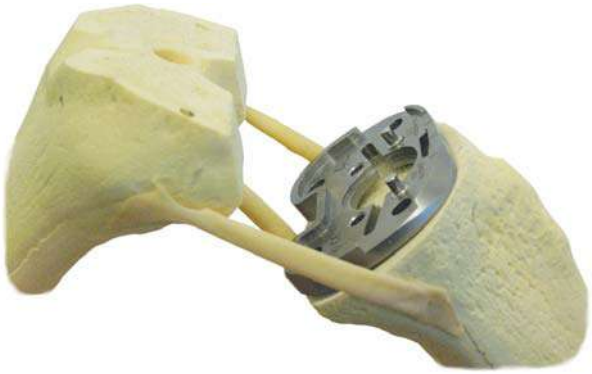
Assemble the adapter and the joint space gauger **1** to check the joint space in case of a resected tibia and a resected femur by using a 10mm PE insert. For simulation of an increased PE thickness a spacer shim of the respective PE thickness can be assembled to the joint space gauger **2**.



Insert the spacer block into the flexion and extension gap to check the ligament situation and to make some corrections if necessary.

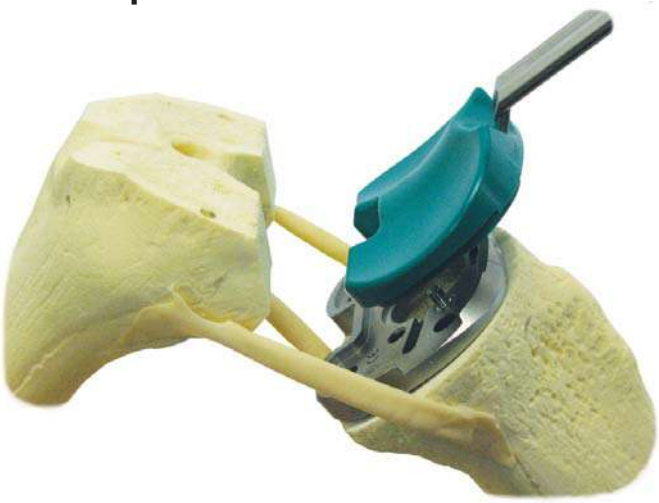
Determination of the size of the tibial component

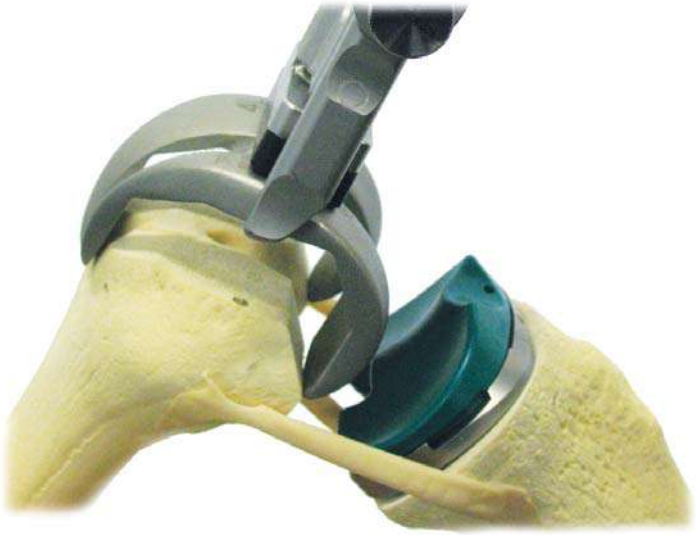




To determine the size of the tibial component, assemble the tibial trial plate of the supposed size to the alignment handle. Apply the trial plate to the resected tibia to check the size and rotational alignment. To check the alignment the alignment rod can be inserted through one of the holes in the handle. The alignment rod should be in line with the second toe. In case of satisfactory size and position, fixate the trial plate with short bone pins with stop to the bone. For PS femoral preparation continue on page 18ff.

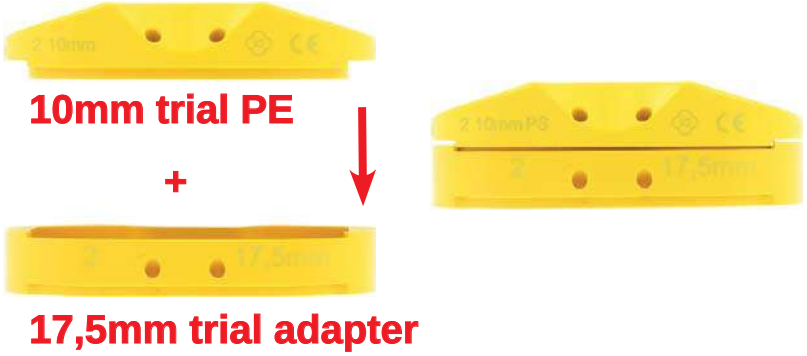
Trial reposition





Attach the trial PE-insert of the correct size (the size corresponds to the size of the tibial component) to the tibial trial plate. There are trial inserts with thicknesses of 10mm and 12,5mm available.

For simulation of PE inserts with increased thickness there are corresponding adapters for 15mm, 17,5mm and 20mm thickness available. They have to be assembled to the 10mm trial insert accordingly.



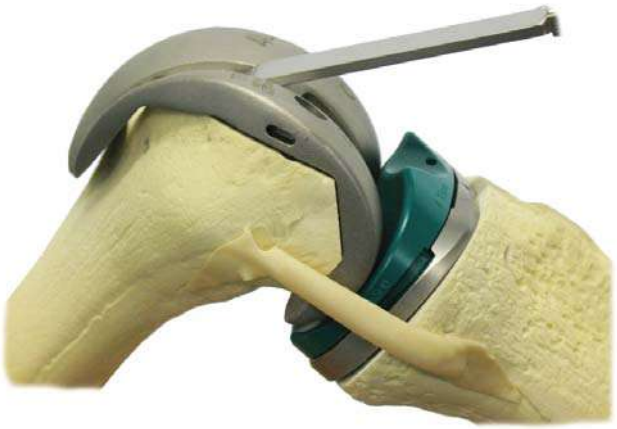
1

2

Attach the femoral trial component of the determined size to the femur. The femoral component can be attached to the femur with the short femoral impactor (non-guided) **1** or guided **2**. The fixation of the components in the femoral impactor guide results from two pegs, which grab laterally in the component by compression. By turning the handle the attachment plate is screwed to the component and the femoral component is hammered to the bone. For removal of the femoral impactor guide firstly release the attachment plate by turning the handle and then push the spring mechanism, which opens the impactor guide.

Check the ligament tension and check the joint stability in flexion and extension. In case of insufficient stability the trial reposition should be redone with a trial insert of increased thickness.
If no sufficient anterio-posterior stability can be achieved by using a trial insert of increased thickness, the use of a posterior stabilised implant should be considered (see page 18ff.).
Note: A final reposition with trial inserts can further be performed after implantation of the final implant components.

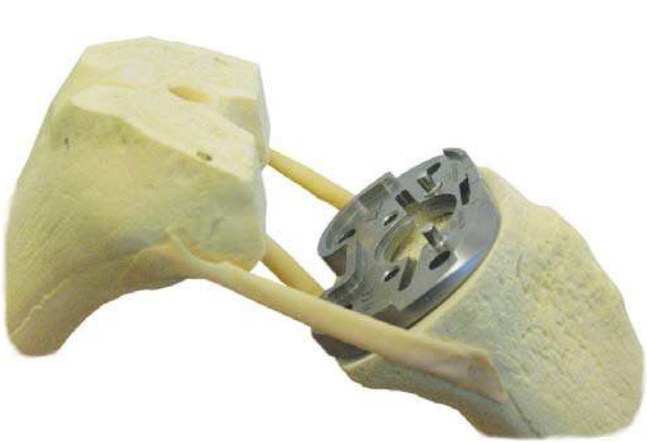
Final femoral preparation

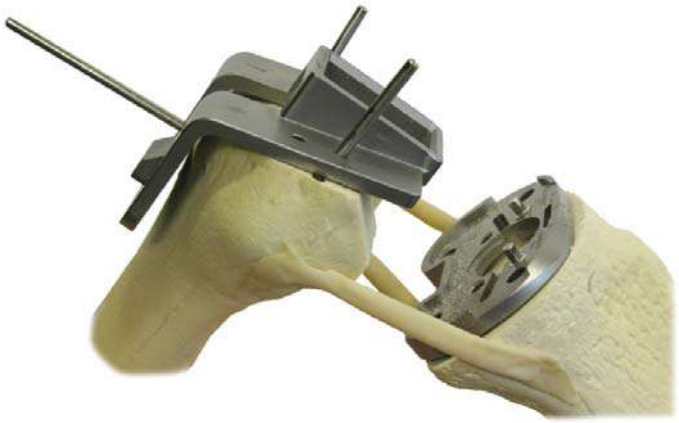


Ensure the appropriate medio-lateral position of the femoral trial component. Pre-drill through the holes of the trial component for the two pegs of the femoral implant component by using the femoral drill with stop. Complete the anterior femoral bone preparation by using a saw blade or the osteotom. The femoral preparation is herewith completed.
Proceed with the final tibial preparation (page 20ff.).
Note: If a component with smaller medio-lateral dimensions is desired (with same antero-posterior dimensions), use the respective slim femoral trial component.

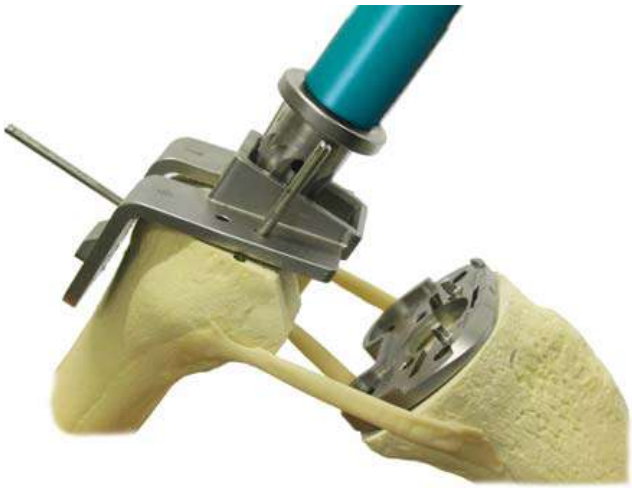
Femoral preparation for PS (posterior stabilised) implant

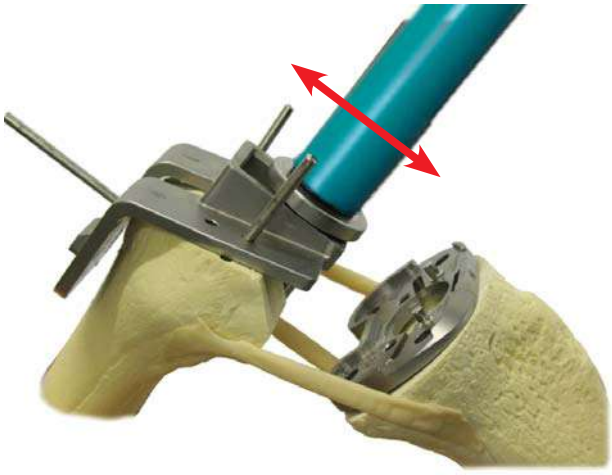
femoral preparation PS



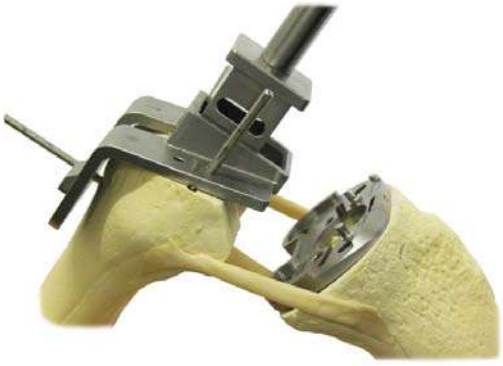


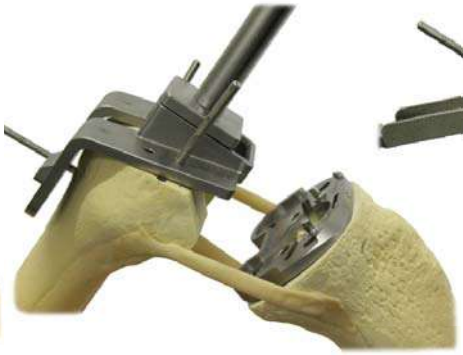
Where required, remove the trial PE insert and the femoral trial component. Attach the PS box chisel guide of the correct size to the femoral bone. Make sure that the guide rests properly on the distal and the anterior resected surfaces. Fixate the guide to the bone with 2 to 3 fixation pins.

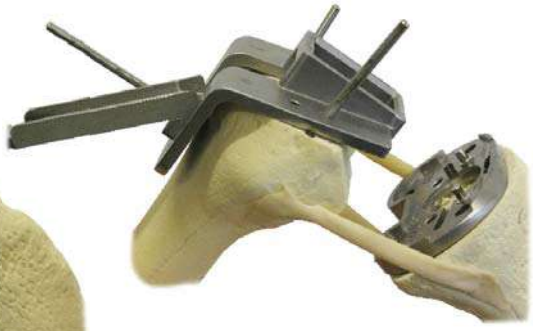




Use the PS box reamer first anterior and then posterior. Ream until the stop of the reamer. Push the rotating reamer to the anterior and the posterior edge in order to complete the reaming.



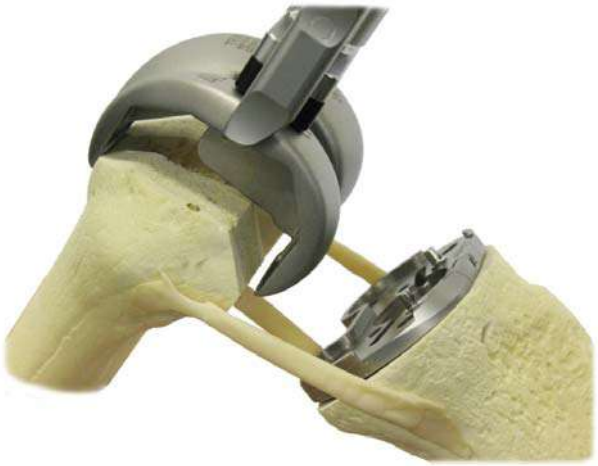


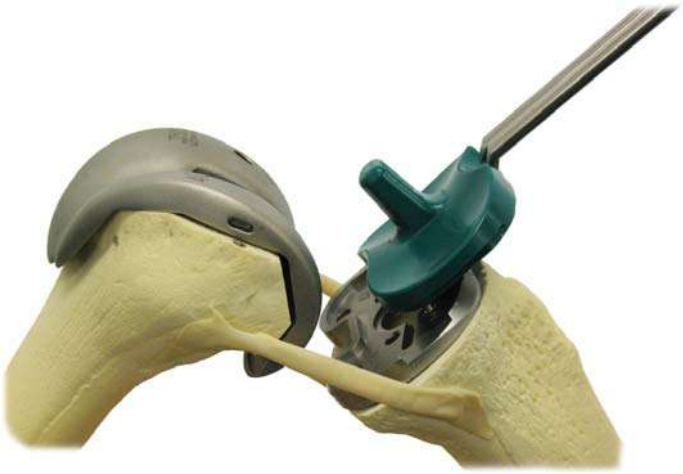


Use the PS box chisel to finalize the bone preparation for the stabilising box. Insert the chisel to the anterior and the posterior edge till the stop. Finally use the PS Osteotom to prepare the anterior notch.

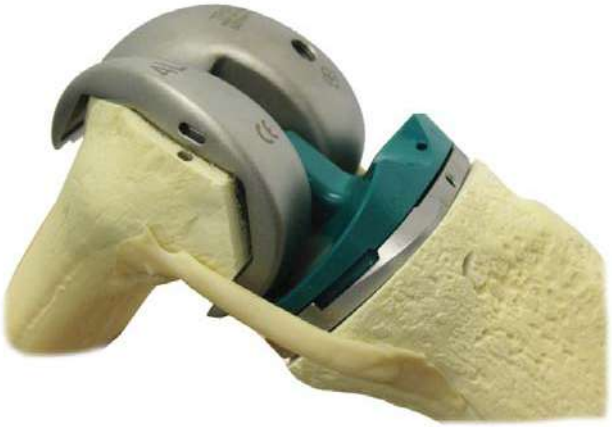
Femoral preparation for PS (posterior stabilised) implant

trial reposition PS

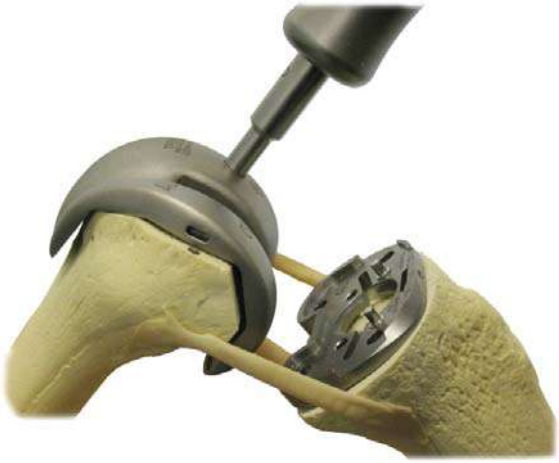


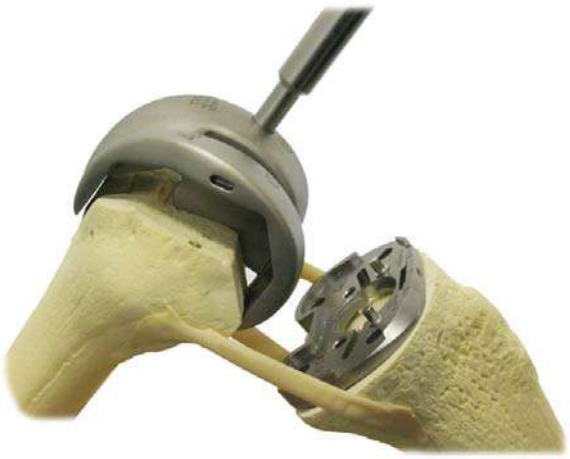


Remove the PS chisel guide and insert the PS femoral trial component of the correct size by using the femoral impactor guide. Insert the PS trial insert of the previously determined tibial size and thickness.



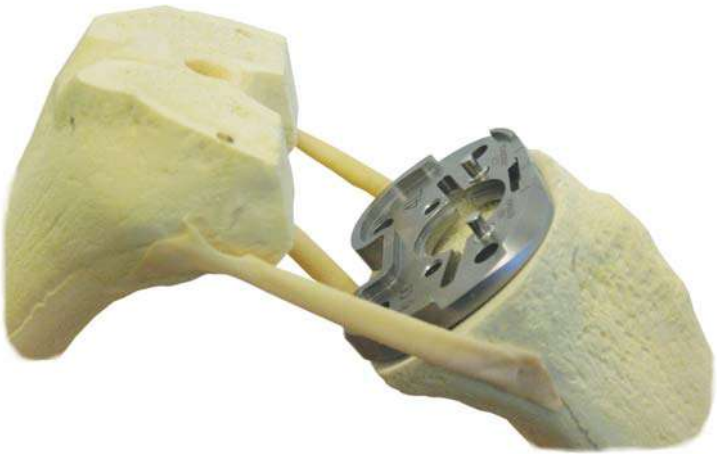
Check the ligament tension and the stability of the joint in flexion and extension. If necessary, increase the thickness of the trial insert until sufficient stability is achieved.

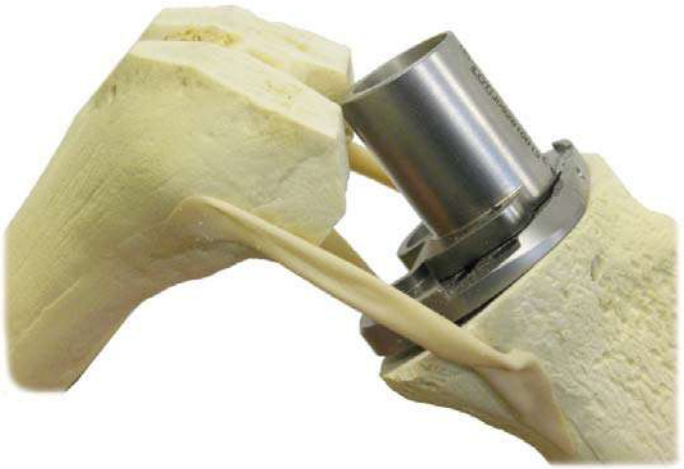




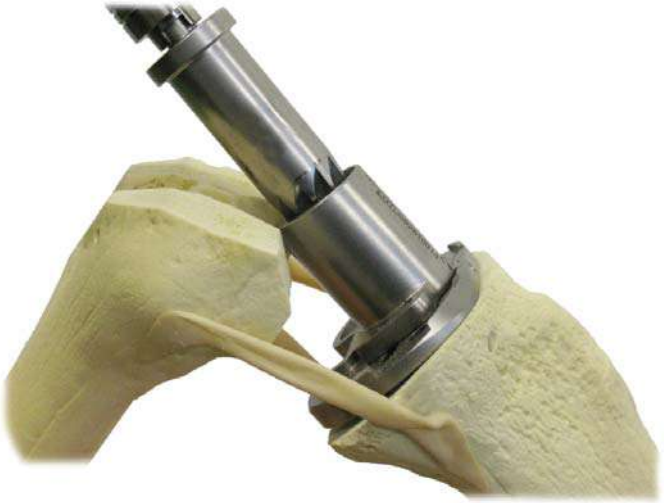
Remove the trial insert and the PS femoral trial component by means of the slap hammer. Leave the tibial trial plate fixated for the subsequent final preparation of the tibia.

Final tibial preparation

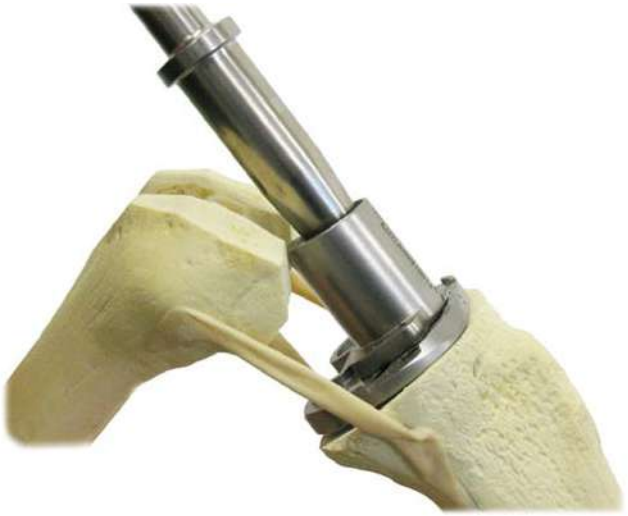


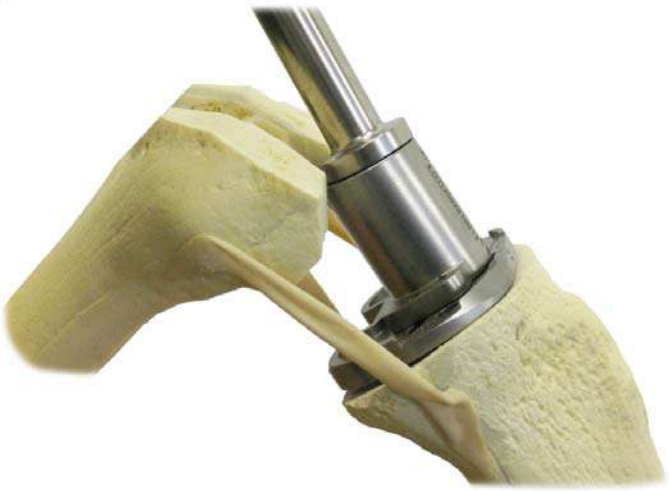


Remove the femoral trial component and the tibial trial insert. Leave the tibia trial plate and the fixation pins. Attach the tibial reamer bushing to the tibial trial plate.



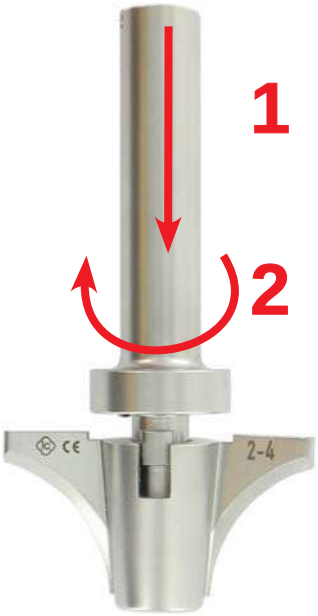
Ream with the tibial reamer till the stop through the reamer bushing. Use the shorter reamer for the cemented tibia component and the longer reamer for the cementless tibia component with extension.

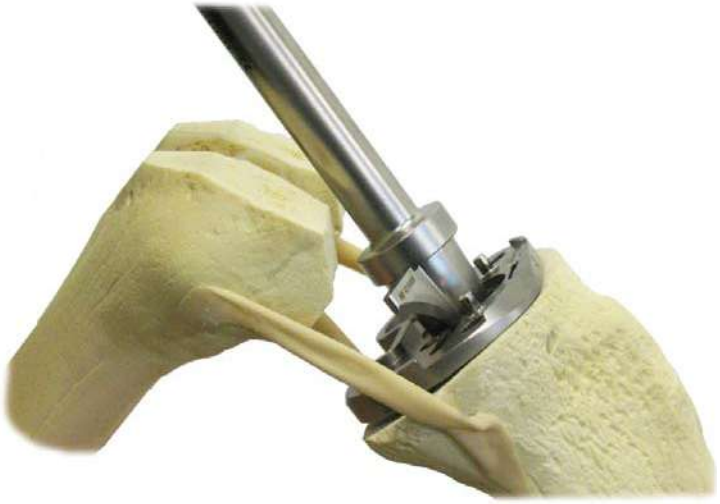


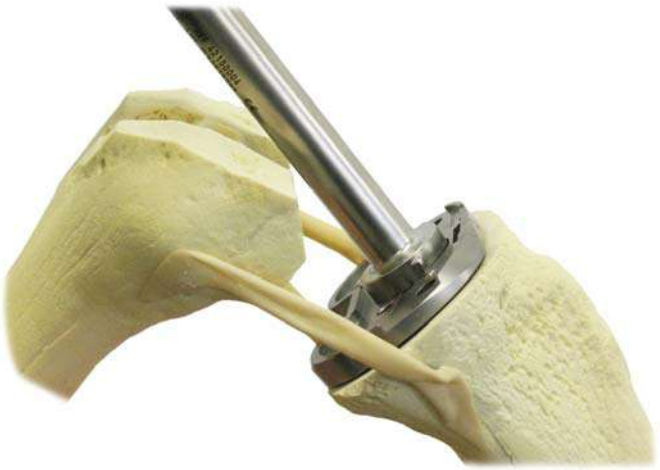


Optionally the tibial punch can be used to compact the cancellous bone.

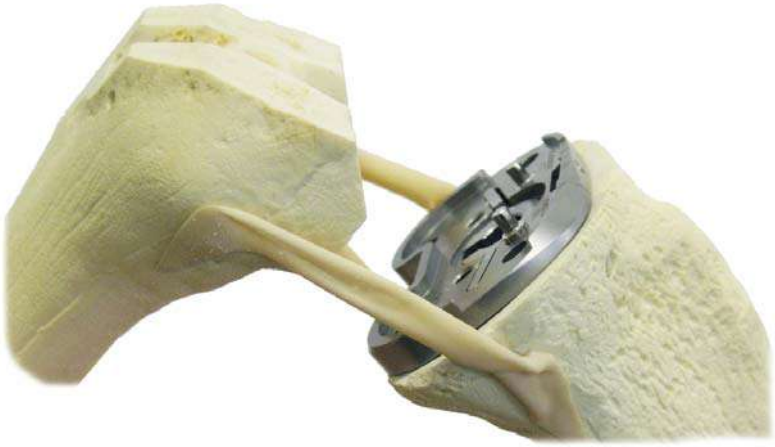
Remove the tibial reamer bushing and attach the tibial fin punch of the determined tibial size (Size 2-4 or 5-6) to the handle for the tibial fin punch.







Impact the tibial fin punch through the tibial trial plate until the stop.



The anterior markings of the tibial trial plate can be used as reference for the rotational alignment. The markings are consistent with the anterior markings of the implant. The rotational alignment can be marked on the anterior edge of the tibia with Methylene Blue.
The bone preparation is herewith completed and all trial components are removed.
Note: If a trial reduction is planned after the final tibial preparation, the tibial fin punch can remain in the bone (remove handle from fin punch by turning) and the trial reduction can be conducted as described on pages 16ff.

Implantation of the components

Depending on the choice of the implant components (cementless or cemented) an adequate amount of bone cement needs to be kept ready for the cemented components.

The tibial component should be implanted first. If an extension stem is used for the cemented component, the PMMA plug needs to be removed by using the taper extractor **1**. Screw the tibial impactor guide onto the tibial component of the determined size and impact with carefully strikes. Unlock and remove the impactor afterwards.

Insert the tibial PE insert of the determined size from anterior into the locking mechanism (dovetail) of the tibial component. Make sure that the insert is fully seated by using the impactor for tibial inserts.
Note: It is also possible to insert the trial PE insert at first.

Insert the femoral component of the determined size with the guided or non-guided femoral impactor.

Note: For implantation of the PS components the order of implantation should be the following: tibial component, femoral component, PE insert.

Patella preparation for PE-Patella implant

Note: The description of the patella preparation is restricted to the preparation of the PE patella implants. The surgical technique for the rotating patella implants is available upon request.

Use the patella resection guide to prepare the patella dome. For preparation of the PE patella implants the resection height should be set to 9mm, the thickness of all PE patella components. Resect the patella dome by using an ACS® Saw blade through the Saw capture of the guide. Remove the patella resection guide and determine the size of the patella implant by application of the patella drill guide.

Apply the patella drill guide to determine the size of the patella implant. If neccessary vary the sizes (all sizes of the PE patella implants are compatible with all sizes of the femoral components) and drill with the patella drill till the stop to prepare the three anchorage holes.

Remove the patella drill guide and insert the trial patella for a trial reposition.

Insert the patella implant of the determined size with cement onto the prepared patella and fixate it with the ic-patella clamp. Leave the clamp fixated till hardening of the cement.

ACS® Femoral component cemented

implavit®, CoCrMo-casting alloy acc. to DIN ISO 5832/4 with TiN Coating

Size	Left	Right
2	4200-3002	4200-3012
2,5	4200-3008	4200-3018
3	4200-3003	4200-3013
4	4200-3004	4200-3014
5	4200-3005	4200-3015
6	4200-3006	4200-3016

(Size 1 available on request)

ACS® Femoral component cementless porous coated

implavit®, CoCrMo-casting alloy acc. to DIN ISO 5832/4 with TiN coating and porous coating

Size	Left	Right
2	4200-3102	4200-3112
3	4200-3103	4200-3113
4	4200-3104	4200-3114
5	4200-3105	4200-3115
6	4200-3106	4200-3116

ACS® Femoral component cementless

implavit®, CoCrMo-casting alloy acc. to DIN ISO 5832/4 with TiN coating and cpTi/TCP coating

Size	Left	Right
2	4200-3202	4200-3212
2,5	4200-3208	4200-3218
3	4200-3203	4200-3213
4	4200-3204	4200-3214
5	4200-3205	4200-3215
6	4200-3206	4200-3216

ACS® LD femoral component cemented

implavit®, CoCrMo-casting alloy acc. to DIN ISO 5832/4 without TiN Coating

Size	Left	Right
2	4200-3802	4200-3812
2,5	4200-3808	4200-3818
3	4200-3803	4200-3813
4	4200-3804	4200-3814
5	4200-3805	4200-3815
6	4200-3806	4200-3816

ACS® LD Femoral component cementless porous coated

implavit®, CoCrMo-casting alloy acc. to DIN ISO 5832/4 withoutTiN coating and with porous coating

Size	Left	Right
2	4200-3902	4200-3912
2,5	4200-3908	4200-3918
3	4200-3903	4200-3913
4	4200-3904	4200-3914
5	4200-3905	4200-3915
6	4200-3906	4200-3916

ACS® PS femoral component cemented

implavit®, CoCrMo-casting alloy acc. to DIN ISO 5832/4 with TiN Coating

size	Left	Right
2	4200-6202	4200-6212
2,5	4200-6208	4200-6218
3	4200-6203	4200-6213
4	4200-6204	4200-6214
5	4200-6205	4200-6215
6	4200-6206	4200-6216

ACS® PS femoral component cementless porous coated

implavit®, CoCrMo-casting alloy acc. to DIN ISO 5832/4 with TiN coating and porous coating

size	Left	Right
2	4200-6602	4200-6612
2,5	4200-6608	4200-6618
3	4200-6603	4200-6613
4	4200-6604	4200-6614
5	4200-6605	4200-6615
6	4200-6606	4200-6616

ACS® LD PS femoral component cemented

implavit®, CoCrMo-casting alloy acc. to DIN ISO 5832/4 without TiN Coating

Size	Left	Right
2	4200-6102	4200-6112
2,5	4200-6108	4200-6118
3	4200-6103	4200-6113
4	4200-6104	4200-6114
5	4200-6105	4200-6115
6	4200-6106	4200-6116

ACS® slim femoral component cemented

implavit®, CoCrMo-casting alloy acc. to DIN ISO 5832/4 with TiN coating

Size	Left	Right
S3	4221-0203	4221-0213
S4	4221-0204	4221-0214
S5	4221-0205	4221-0215

ACS® slim femoral component cementless porous coated

implavit®, CoCrMo-casting alloy acc. to DIN ISO 5832/4 with TiN coating and porous coating

Size	Left	Right
S3	4221-0303	4221-0313
S4	4221-0304	4221-0314
S5	4221-0305	4221-0315

ACS® LD slim femoral component cemented

implavit®, CoCrMo-casting alloy acc. to DIN ISO 5832/4 without TiN Coating

size	Left	Right
S3	4221-0503	4221-0513
S4	4221-0504	4221-0514
S5	4221-0505	4221-0515

ACS® FB PE-insert

UHMW-PE acc. to DIN ISO 5834/2

	implant height				
size	**10,0 mm**	**12,5 mm**	**15,0 mm**	**17,5 mm**	**20,0 mm**
2	4240-0210	4240-0212	4240-0215	4240-0217	4240-0220
3	4240-0310	4240-0312	4240-0315	4240-0317	4240-0320
4	4240-0410	4240-0412	4240-0415	4240-0417	4240-0420
5	4240-0510	4240-0512	4240-0515	4240-0517	4240-0520
6	4240-0610	4240-0612	4240-0615	4240-0617	4240-0620

ACS® FB PE-insert hyperflex

UHMW-PE acc. to DIN ISO 5834/2

	implant height				
size	**10,0 mm**	**12,5 mm**	**15,0 mm**	**17,5 mm**	**20,0 mm**
2	4240-2210	4240-2212	4240-2215	4240-2217	4240-2220
3	4240-2310	4240-2312	4240-2315	4240-2317	4240-2320
4	4240-2410	4240-2412	4240-2415	4240-2417	4240-2420
5	4240-2510	4240-2512	4240-2515	4240-2517	4240-2520
6	4240-2610	4240-2612	4240-2615	4240-2617	4240-2620

ACS® FB PE-insert ultra

UHMW-PE acc. to DIN ISO 5834/2

	implant height				
size	**10,0 mm**	**12,5 mm**	**15,0 mm**	**17,5 mm**	**20,0 mm**
2	4242-2210	4242-2212	4242-2215	4242-2217	4242-2220
3	4242-2310	4242-2312	4242-2315	4242-2317	4242-2320
4	4242-2410	4242-2412	4242-2415	4242-2417	4242-2420
5	4242-2510	4242-2512	4242-2515	4242-2517	4242-2520
6	4242-2610	4242-2612	4242-2615	4242-2617	4242-2620

ACS® FB PS PE-insert hyperflex (posterior-stabilised)

UHMW-PE acc. to DIN ISO 5834/2

	implant height				
size	**10,0 mm**	**12,5 mm**	**15,0 mm**	**17,5 mm**	**20,0 mm**
2	4240-1210	4240-1212	4240-1215	4240-1217	4240-1220
3	4240-1310	4240-1312	4240-1315	4240-1317	4240-1320
4	4240-1410	4240-1412	4240-1415	4240-1417	4240-1420
5	4240-1510	4240-1512	4240-1515	4240-1517	4240-1520
6	4240-1610	4240-1612	4240-1615	4240-1617	4240-1620

ACS® FB tibial component cemented

implavit®, CoCrMo-casting alloy acc. to DIN ISO 5832/4 with TiN Coating

size	Left	Right
2	4201-0422	4201-0432
3	4201-0423	4201-0433
3,5	4201-0429	4201-0439
4	4201-0424	4201-0434
5	4201-0425	4201-0435
6	4201-0426	4201-0436

ACS® FB tibial component cementless porous coated

implavit®, CoCrMo-casting alloy acc. to DIN ISO 5832/4 with TiN Coating and porous coating

size	Left	Right
2	4201-0402	4201-0412
3	4201-0403	4201-0413
3,5	4201-0409	4201-0419
4	4201-0404	4201-0414
5	4201-0405	4201-0415
6	4201-0406	4201-0416

ACS® LD FB tibial component cemented

implavit®, CoCrMo-casting alloy acc. to DIN ISO 5832/4 without TiN Coating

size	Left	Right
2	4201-1002	4201-1012
3	4201-1003	4201-1013
3,5	4201-1009	4201-1019
4	4201-1004	4201-1014
5	4201-1005	4201-1015
6	4201-1006	4201-1016

ACS® LD FB tibial component cementless porous coated

implavit®, CoCrMo-casting alloy acc. to DIN ISO 5832/4 without TiN Coating and with porous coating

size	Left	Right
2	4201-0442	4201-0452
3	4201-0443	4201-0453
3,5	4201-0449	4201-0459
4	4201-0444	4201-0454
5	4201-0445	4201-0455
6	4201-0446	4201-0456

ACS® extension stem male taper

implatan®, $TiAl_6V_4$-forge alloy acc. to DIN ISO 5832/3 with TiN-coating

4201-4225 14/25mm

ACS® LD extension stem male taper

implatan®, $TiAl_6V_4$-forge alloy acc. to DIN ISO 5832/3 without TiN-coating

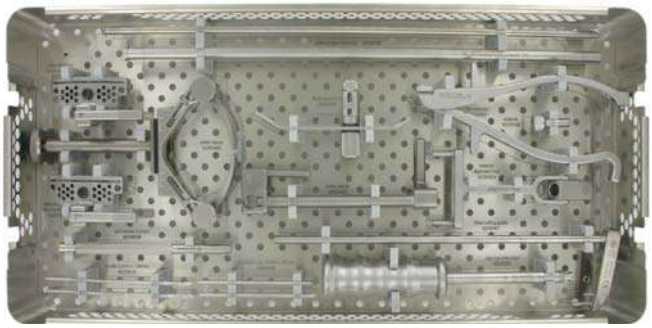
4200-4225 14/25mm

ACS® PE-patella cemented

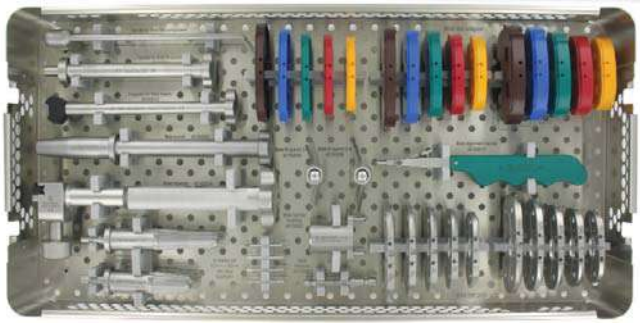
UHMW-PE acc. to DIN ISO 5834/1+2

size	REF
26mm	4203-0326
29mm	4203-0329
32mm	4203-0332
35mm	4203-0335

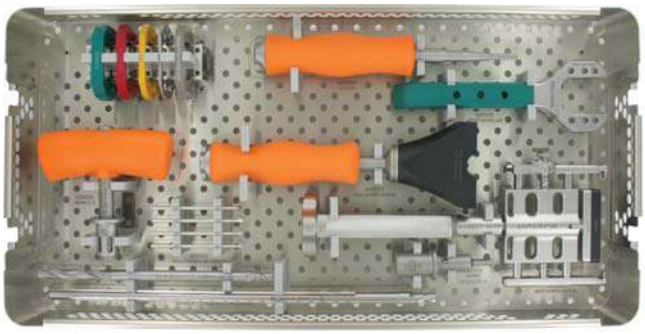
ACS® FB Instruments Container



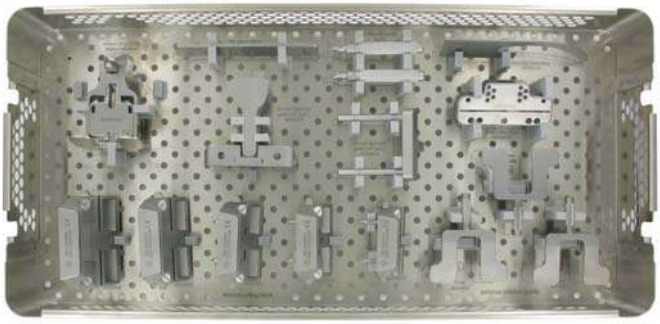
ACS® Basic Tibial Container
4223-0401



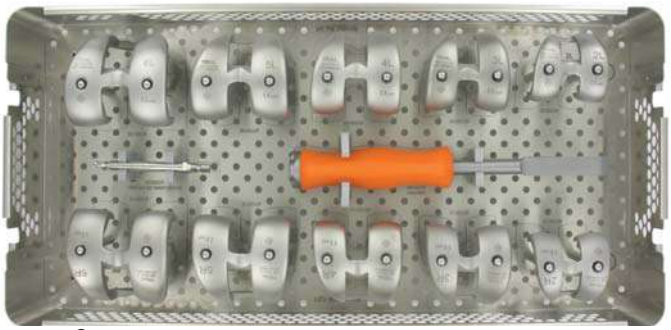
ACS® FB Tibial Container **incl. size 3,5**
4223-0412 4223-0512



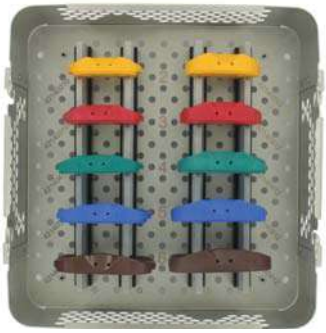
ACS® Basic Femoral Container
4223-0403



ACS® 4in1 Femoral Container **incl. size 2,5**
4223-0414 4223-0514



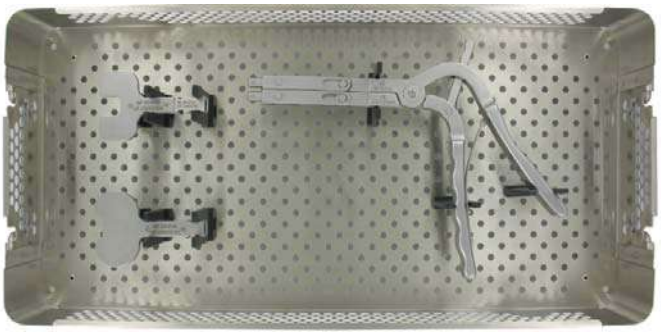
ACS® Femoral Trial Container **incl. size 2,5**
4223-0406 4223-0506



Hyperflex
4223-0415Hy

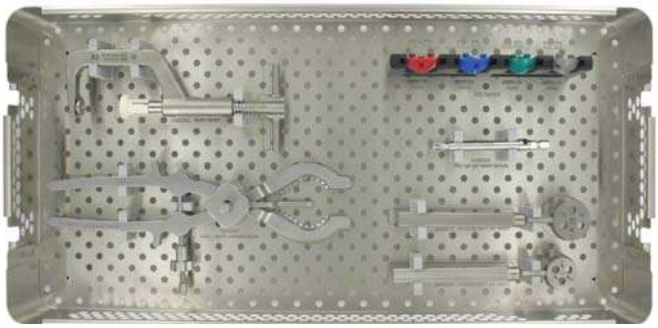
Ultra
4223-0415U

ACS® FB Trial PE-insert Container
4223-0415



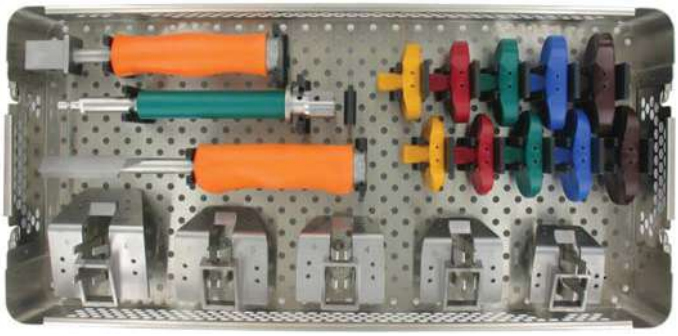
ACS® Ligament Spreader Container
4223-0407

ACS® Instrument Container Patella



ACS® PE Patella Resection Container
4223-0410

ACS® Instrument Container PS



ACS® FB PS Container **incl. size 2,5**
4223-0418 4223-0518

ACS® PS Femoral Trial Container **incl. size 2,5**
4223-0409 4223-0509

ACS® Instrument Container slim

ACS® Femoral Slim Trial Container
4223-0416

ACS® FB Tibial Instruments

Basic Tibial Container 4223-0401

4220-0400
ankle clamp

4220-0401
tibial cutting guide

4220-0402
tibial stylus 2/10mm

tibial resection block
4220-0405 5°
4220-0407 7°

4221-0019
drill 126x3,2mm

4223-0004
external alignment host

4223-0006
pin inserter 3,2mm

4223-0008
fixation pin 3,2x97mm

4223-0031
slap hammer short

4223-0032
adapter M8 for slap hammer

4223-0035
external alignment rod 6x400mm

7512-0800
pin extractor

FB Tibial Container 4223-0412/0512

4011-0029
handle for tibial trial component

4210-2213
ACS® FB impactor for tibial inserts

4210-2214
ACS® FB tibial impactor

4210-2215
ACS® tibial alignment handle

4212-2021
ACS® taper extractor

4215-0001
ACS® FB tibial reamer bushing

4215-0002
ACS® FB tibial punch

4215-0007
ACS® FB tibial reamer

4215-0003
ACS® FB tibial reamer

4215-0004
ACS® FB handle for tibial fin punch

ACS® FB tibial fin punch
4215-0005 size 2-4
4215-0006 size 5-6

4223-0257
fixation pin 3,2x32mm with stop

ACS® FB Tibial Instruments

FB Tibial Container 4223-0412/0512

ACS® FB tibial trial adapter
4215-0152 size 2 15mm
4215-0153 size 3 15mm
4215-0154 size 4 15mm
4215-0155 size 5 15mm
4215-0156 size 6 15mm

4215-0172 size 2 17,5mm
4215-0173 size 3 17,5mm
4215-0174 size 4 17,5mm
4215-0175 size 5 17,5mm
4215-0176 size 6 17,5mm

4215-0202 size 2 20mm
4215-0203 size 3 20mm
4215-0204 size 4 20mm
4215-0205 size 5 20mm
4215-0206 size 6 20mm

ACS® FB tibial trial plate
4215-0422 size 2L
4215-0423 size 3L
4215-0424 size 4L
4215-0425 size 5L
4215-0426 size 6L
4215-0429 size 3,5L

4215-0432 size 2R
4215-0433 size 3R
4215-0434 size 4R
4215-0435 size 5R
4215-0436 size 6R
4215-0439 size 3,5R

FB Trial PE-insert Container 4223-0415

ACS® FB trial PE-insert
4214-0210 size 2/10mm
4214-0212 size 2/12,5mm
4214-0310 size 3/10mm
4214-0312 size 3/12,5mm
4214-0410 size 4/10mm
4214-0412 size 4/12,5mm
4214-0510 size 5/10mm
4214-0512 size 5/12,5mm
4214-0610 size 6/10mm
4214-0612 size 6/12,5mm

FB Trial PE-insert Container hyperflex 4223-0415Hy

ACS® FB trial PE-insert hyperflex
4214-2210 size 2/10mm
4214-2212 size 2/12,5mm
4214-2310 size 3/10mm
4214-2312 size 3/12,5mm
4214-2410 size 4/10mm
4214-2412 size 4/12,5mm
4214-2510 size 5/10mm
4214-2512 size 5/12,5mm
2414-2610 size 6/10mm
4214-2612 size 6/12,5mm

FB Trial PE-insert Container ultra 4223-0415U

ACS® FB trial PE-insert ultra
4215-5210 size 2/10mm
4215-5212 size 2/12,5mm
4215-5310 size 3/10mm
4215-5312 size 3/12,5mm
4215-5410 size 4/10mm
4215-5412 size 4/12,5mm
4215-5510 size 5/10mm
4215-5512 size 5/12,5mm
4215-5610 size 6/10mm
4215-5612 size 6/12,5mm

ACS® FB Femoral Instruments

Basic Femoral Container 4223-0403

4223-0020
femoral impactor guide

4223-0068
ic- quick chuck adapter

4223-0044
ACS® femoral impactor short

4210-4300
ACS® joint space gauger

4223-0036
femoral/tibial extractor

4220-0028
femoral alignment guide

4220-0014
initiator drill 9mm

4223-0029
fixation pin 3,2mm x 77mm

4223-0023
ic- T-handle Zimmer-Jakobs

4210-4301
ACS® adapter for joint space gauger

ACS® spacer shim
4210-4312 12,5mm
4210-4315 15mm
4210-4317 17,5mm
4210-4320 20mm

4in1 Femoral Container 4223-0414/0514

4220-0318
ACS® resection check long

4220-0813
distal cutting block

4220-0818
femoral alignment guide 0 - 9° part 1

4220-0819
femoral alignment guide 0 - 9° part 2

external rotation guide
4220-0820 neutral
4220-0824 3° right
4220-0825 3° left

4in1 femoral cutting block GIS
4220-0832 size 2
4220-0833 size 3
4220-0834 size 4
4220-0835 size 5
4220-0836 size 6
4220-0838 size 2,5

4220-0845
femoral sizing guide anterior reference

4223-0017
modular handle “fast fix”

4223-0019
M/L sizing caliper

ACS® Instruments

Femoral Trial Container 4223-0406/0506

ACS® femoral trial component
4210-3102 size 2 left
4210-3103 size 3 left
4210-3104 size 4 left
4210-3105 size 5 left
4210-3106 size 6 left
4210-3108 size 2,5 left

4210-3112 size 2 right
4210-3113 size 3 right
4210-3114 size 4 right
4210-3115 size 5 right
4210-3116 size 6 right
4210-3118 size 2,5 right

4223-0024
femoral patella drill with stop

4223-0060
Osteotom size 2-6

ACS® Ligament Spreader Container 4223-0407

4221-0140
gripper for traction

4221-0134
knee joint-balancer tibial paddle

4221-0135
knee joint-balancer femoral paddle

ACS® Patella Instruments

ACS® PE Patella Resection Container 4223-0410

ACS® PE patella trial
4213-0326 size 26mm
4213-0329 size 29mm
4213-0332 size 32mm
4213-0335 size 35mm

4222-0002
patella resection guide1,5mm

ACS® patella drill guide
4222-0004 26/29mm
4222-0005 32/35mm

4223-0024
femoral patella drill with stop

7352-0001
ic- patella clamp

ACS® Slim Instruments

ACS® Femoral Slim Trial Container 4223-0416

ACS® femoral trial component
4201-2203 S3 left
4201-2204 S4 left
4201-2205 S5 left

4201-2213 S3 right
4201-2214 S4 right
4201-2215 S5 right

ACS® FB PS Instruments

ACS® FB PS Container 4223-0418/0518

4210-2210
ACS® PS box chisel

4210-2211
ACS® PS box reamer

4210-2212
ACS® PS U-chisel

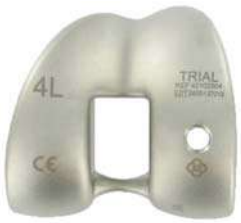
ACS® PS box chisel guide
4210-2202 size 2
4210-2203 size 3
4210-2204 size 4
4210-2205 size 5
4210-2206 size 6
4210-2208 size 2,5

ACS® FB trial PE-insert PS
4214-1210 size 2/10mm
4214-1310 size 3/10mm
4214-1410 size 4/10mm
4214-1510 size 5/10mm
4214-1610 size 6/10mm

4214-1212 size 2/12,5mm
4214-1312 size 3/12,5mm
4214-1412 size 4/12,5mm
4214-1512 size 5/12,5mm
4214-1612 size 6/12,5mm

ACS® PS Femoral Trial Container 4223-0409/0509

ACS® PS femoral trial component
4210-2502 size 2 left
4210-2503 size 3 left
4210-2504 size 4 left
4210-2505 size 5 left
4210-2506 size 6 left
4210-2508 size 2,5 left



4210-2512 size 2 right
4210-2513 size 3 right
4210-2514 size 4 right
4210-2515 size 5 right
4210-2516 size 6 right
4210-2518 size 2,5 right

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