walk with us

ACS® UNI
joint gap referencing

Surgical Technique

implantcast

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joint gap referencing

Surgical Technique

Table of Content

Note: The surgical technique described herein reflects the author's suggested treatment in straightforward interventions. It is ultimately the surgeon's decision which procedure is the most sensible and effective for the patient in question. The treatment described should be implemented according to the current state of the art. The instruments depicted and described with catalog numbers in the surgical technique refer to an example size. Other sizes and instrument variants can be found in the appendix to the surgical technique.

ACS® UNI

The ACS® UNI is a unicondylar knee system that virtually maintains the natural kinematics of the knee joint after complete recovery of the joint line. The system is characterized by a high congruency between the femoral component and the polyethylene insert (PE insert). The PE insert is free to move on the tibial component to maintain the natural kinematics of the knee joint.

The ACS® UNI femoral component is characterized by a symmetrical design and is available in 4 sizes. On the tibial side, symmetrical implants are available in 8 sizes. For the best possible adjustment of joint stability, the PE inserts are available in heights of 4 - 12 mm (in 1 mm increments) per size. Due to the Mobile Bearing design, the size of the PE insert must always match the size of the femoral component.

The femoral and tibial components are made of CoCrMo according to ISO 5832-4. Due to various advantages regarding abrasion behavior and wear, the components are surface-treated with a ceramic TiN coating. Another advantage of the coating allows the implants to be used in patients with sensitization to nickel, chromium or cobalt. The coating reduces metal ion leakage to such an extent that it is below the detectability limit. [1,2]

[1] Wisbey et al. Application of PVD TiN coating to Co-Cr-Mo based surgical implants. Biomaterials 1987, 11.

[2] Baumann A. Keramische Beschichtungen in der KTEP Standardlösung für Allergiker. JATROS Orthopädie & Rheumatologie 2001, 6:16-17

Preoperative planning

Preoperative planning and precise surgical techniques are mandatory to achieve optimal results. The instructions and the procedure given in the surgical technique for the system must be adhered to. Familiarity with the surgical technique recommended for this system and its careful application are essential to achieve the best possible outcome. Before surgery, the surgeon must conduct surgical planning in terms of the dimensions of the prosthetic model and positioning of the implant components in the bone.

Implant templates are made available for this purpose:
Digital templates: The templates are included in the databases of conventional planning tools. If the desired templates are not included in the software, please request them from the planning tool supplier.
Radiographic templates: Alternatively, radiographic templates of various scales are available, which can be obtained from your local sales partner upon request.

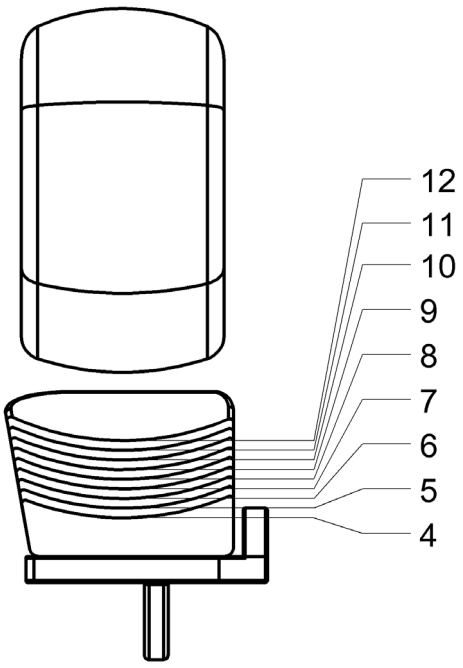
In addition, before surgery it must be ensured that:

- All necessary components are available. An adequate number of all necessary implant sizes should be available during surgery. A decision must be made on whether the prosthesis will be cemented or cementless.
- All instruments necessary are present for surgery. Implants may only be used with the corresponding instrument set of implantcast GmbH. The only exception in this case are the instruments standardized for an operation.
- Correctly sized surgical instruments are used in the operation in order to prevent damage to the implant.

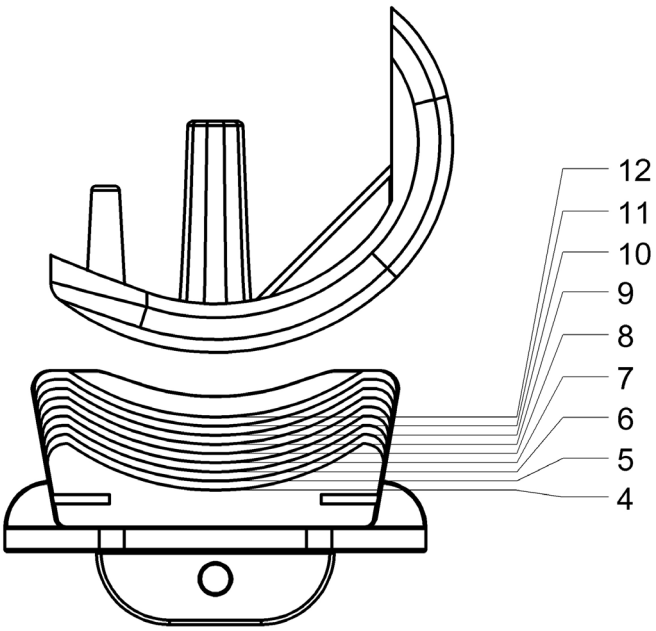
Attention: Please note that the range of implants and instruments in loan sets may differ from the information in the catalog appendix to this surgical technique.

Note: You can find more information in the final section of this surgical technique or in the instructions for use:

09300026GB ACS® Uni / PB Uni Knee System



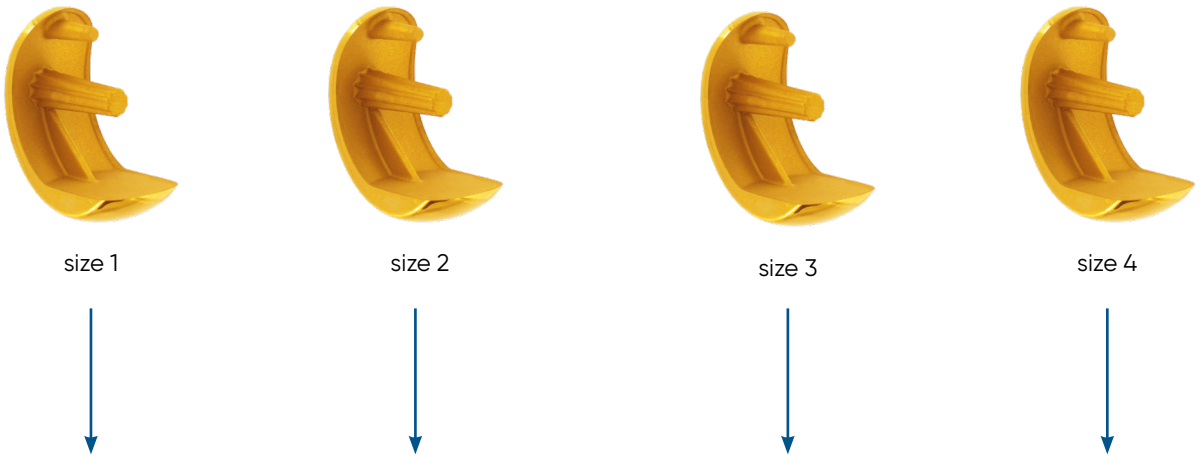
A/P view



M/L view

Compatibility Matrix

femoral component



size 1 | size 2 | size 3 | size 4

PE insert

size 1 | size 2 | size 3 | size 4

All PE-inserts are available in the following heights: 4-12 mm

tibial component

size 1 | size 2 | size 3 | size 4-8

→ compatible with

Surgical Technique

Surgical access

Flex the knee to 90° and perform a medial incision of the skin (Fig. 1). Less experienced surgeons are recommended to choose a larger access opening since this simplifies the operation.

Remove osteophytes to prepare the medial condyle.

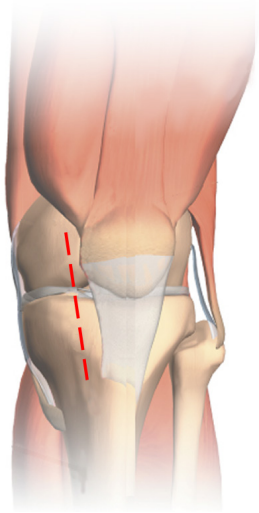


Fig. 1

Determination of femoral size

Once again, flex the knee joint to 90° and check the femur size, measured pre-operation, with the femoral sizing guide[1)] (Fig. 2).

Tibia preparation

Insert the 1-mm joint space feeler[2)] for the corresponding femur size into the joint space (Fig. 3) and assess the ligament tension. If it is not satisfactory, use a thicker joint space feeler (2 mm, 3 mm) until sufficient ligament tension is achieved.

Note: The required tibial resection height is given by the joint space feeler and measured from the condyle of the femur.

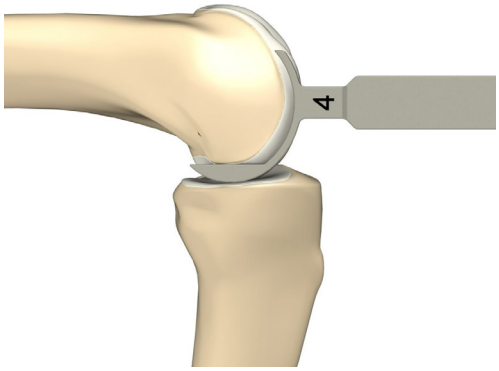


Fig. 2

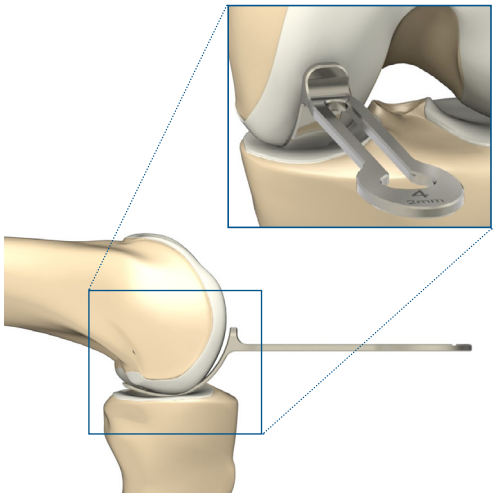


Fig. 3

[1)]42160607: ACS® Uni femoral template; [2)]42161760: ACS® Uni joint gap feeler

Connect the ankle clamp[1], the tibia alignment rod[2] (1) and the tibial resection guide (4) (RL/LM[3] or LL/RM[4]) with each other and attach everything to the tibia (Fig. 4).

Use the cutting block adapter[5] (2) and connect the joint space feeler[6] (3) with the tibial resection guide. There are two different adapters available: "slotted" for a constrained resection through the resection slot, and "unslotted" for an unconstrained resection. The correct resection height is given by the adapter. Make sure that the joint space feeler wraps around the femoral condyle.

The tibial slope and axis are adjusted with the settings on the ankle clamp. The tibia alignment rod should pass over the medial third of the tuberositas tibiae. Set the desired medio-lateral position (5) and fix it with the knurled screw (6).

Orient the tib- ia alignment rod with the intramedullar axis of the tibia. When aligned in parallel, the cutting block generates a posterior slope of 5°. If a larger or smaller slope is desired, it can be adjusted by sliding the alignment rod on the ankle clamp (7).

After setting the desired direction, fix the position by closing the respective connecting clamp.

Fix the tibial resection guide with two fixation pins[7]. Use the holes marked in Fig. 5. Remove the joint space feeler and the adapter and alignment instruments.

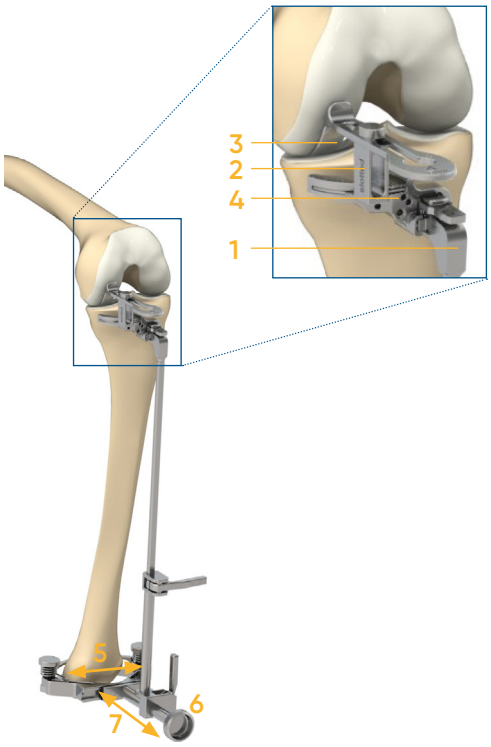


Fig. 4

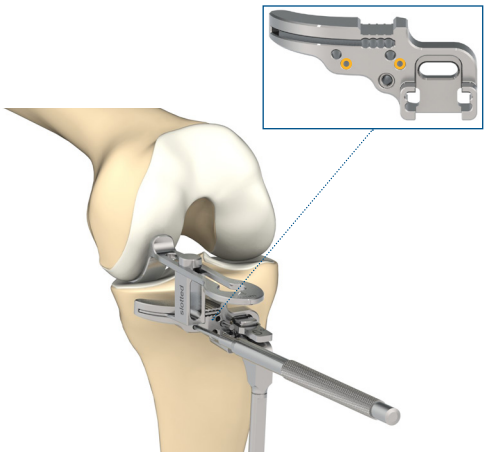


Fig. 5

[1]42200426: ankle clamp easy-fix; [2]42210185: ACS® tibial alignment rod; [3]42161720: ACS® Uni tibial resection guide anatomic; [4]42161721: ACS® Uni tibial resection guide anatomic; [5]42161714: ACS® Uni adapter for slotted tibial resection; [6]42161760: ACS® Uni joint gap feeler; [7]77000118: fixation pin

The resection height can be checked for verification purposes (Fig. 6).

If a correction to the resection height is required, the resection block can be relocated 2.5 mm distally via the pinholes.

Note: The resection should only minimally undercut the defect area. In case of very pronounced defects, the resection plane can also lie above the defect area as long as there is sufficient surface for the tibia component to rest on.

If the position of the cutting block is satisfactory, the block can be secured with an additional oblique pin (Fig. 7).

To prevent undercutting of the eminentia intercondylaris during the resection, an additional pin can be inserted for the slot-guided resection to serve as a stop (Fig. 8).

There are 4 pin positions available. Select the pin position that lies at the most medial position but which does not cause any weakening of the eminentia intercondylaris.

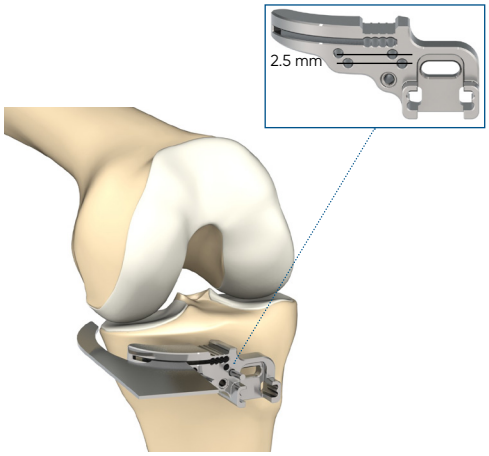


Fig. 6

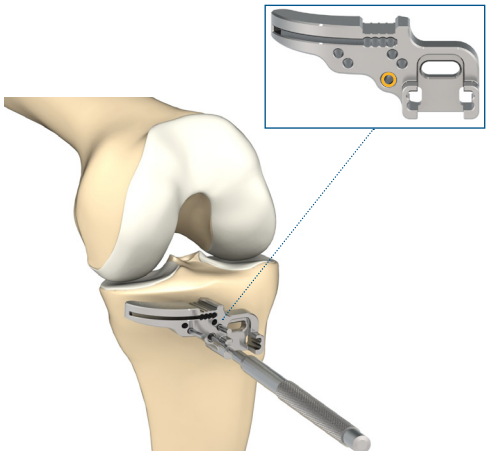


Fig. 7

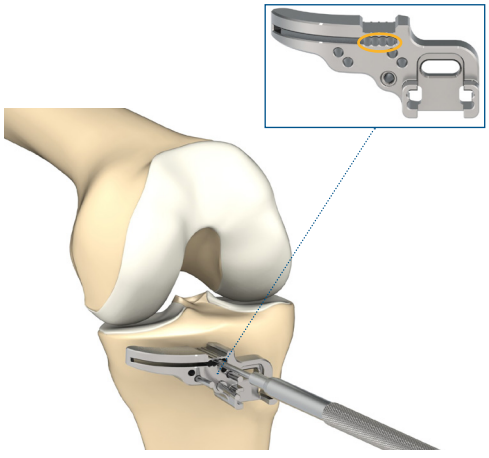


Fig. 8

First, use a jigsaw blade to perform the vertical resection (Fig. 9). Use the markings on the tibial resection guide for orientation in order to perform a vertical resection in the right angle. The eminentia intercondylaris and the base of the cruciate ligament should be retained during the resection.

During the cut, the saw must be constrained parallel to the "stop pin" in order to not weaken the tibial plateau and to avoid the risk of fracture.

Note: Use a stable and sufficiently long jigsaw saw blade for the resection.

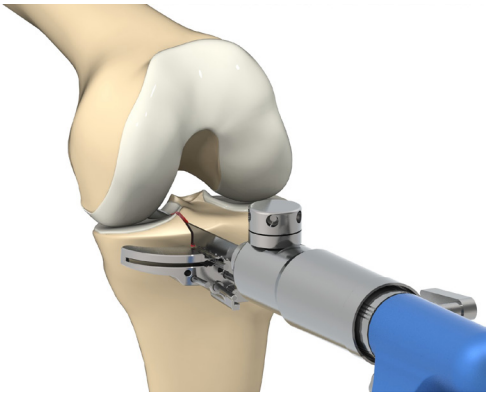


Fig. 9

The horizontal resection can be performed with or without the help of the slot (depending on the previous alignment) (Fig. 10). Make sure to not undercut the eminentia intercondylaris and weaken it!

Note: The jigsaw blade can be left in the bone during the horizontal resection as another way to protect the eminentia intercondylaris.

The two cuts should produce a clean L-resection (Fig. 11).

Now remove the pins and the tibial cutting block.

Note: To check whether enough tibial bone was removed, the 7 mm joint space gauge can be inserted into the joint at this time. If the joint space is too tight for insertion, a follow-up resection is necessary.

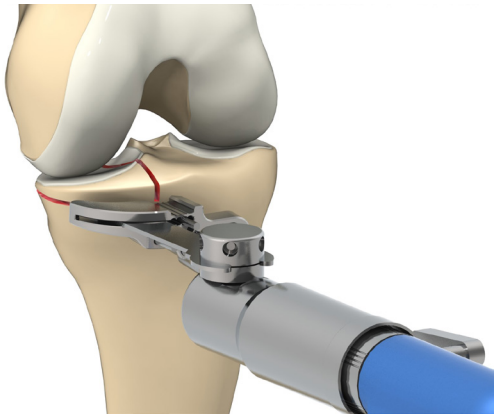


Fig. 10

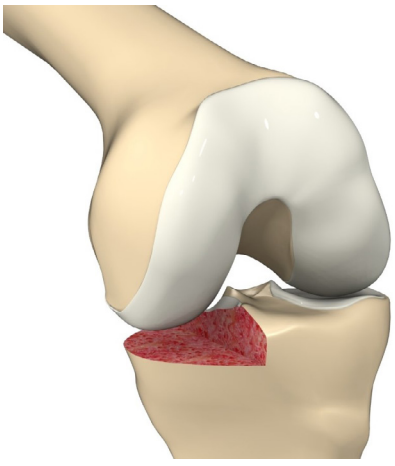


Fig. 11

Femur preparation

Make a final measurement of the femur component size with the femoral size guide[1)]. Flex the knee joint to 90° and make sure that the size guide rest against the posterior condyle such that the axis of the grip makes a 90° angle with the tibial axis. Size 4 is read from the upper edge of the instrument (Fig. 12). All other sizes are read from the slots underneath. Use methylene blue to mark the position of the previously measured femur component. The marking indicates the height of the femur component. Then extend the knee and check the position of the marking. It should still be visible over the anterior tibia edge.

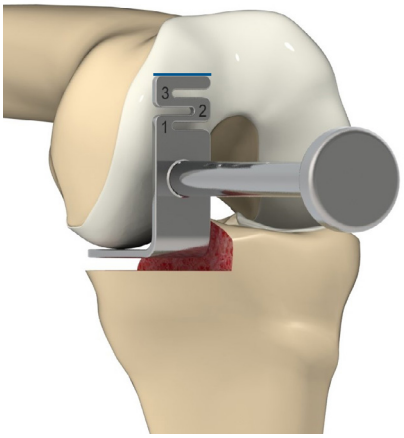


Fig. 12

OPTION 1: Intramedullar alignment

Note: Use the femoral cutting blocks with **REF 4216–1701, -1702, -1703, -1704** for preparation with intramedullar alignment!

Bend the knee again.

Open up the medullary cavity with the 5-mm ic drill[2)] (Fig. 13). The position should be approx. 1 cm anterior of the base of the PCL and 2–3 mm lateral of the medial wall of the intercondylar notch.

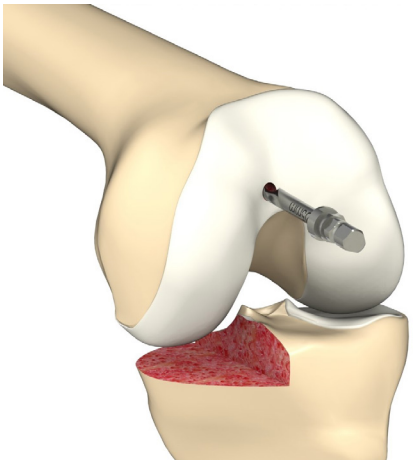


Fig. 13

Make a mark in the middle of the defective femur condyle (Fig. 14). This marking will serve as a guide for aligning the femur component during the rest of the surgical procedure.

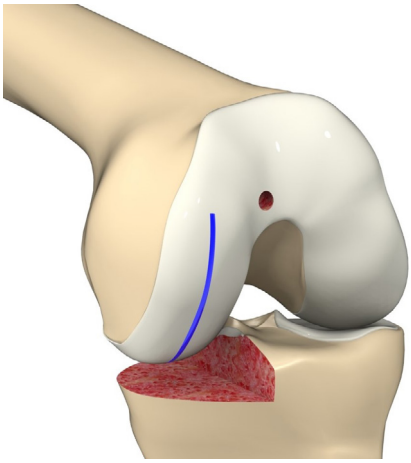


Fig. 14

[1)]42160712: ACS® Uni femoral sizing guide; [2)]42160715: ic-drill

The alignment of the femoral component is made in a 100° bend. Use the handle[1)] to insert the intramedullar alignment rod[2)] into the medullary cavity (Fig. 15).

Note: Allow the IM rod to protrude somewhat from the bone at first. This simplifies assembly of the IM adapter in the next step.

Slide the femoral resection guide[3)] for the size measured earlier, along with the joint space gauge[4)], into the joint space (Fig. 16). Choose the height of the joint space gauge such that it lies flat on the tibial resection, while the femoral resection guide has contact with the distal and posterior bone.

Note: An additional handle can be attached to the femoral resection guide[5)].

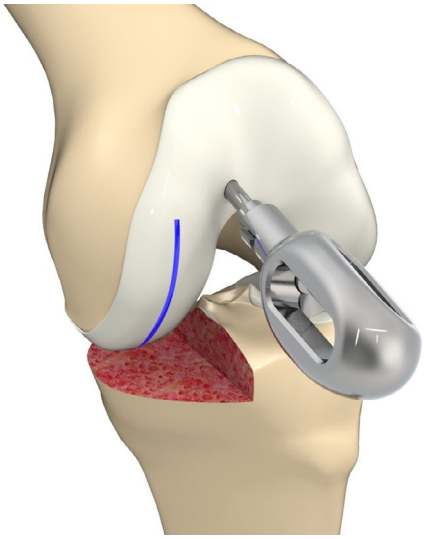


Fig. 15

Then connect the IM adapter[6)] with the IM rod and the femoral resection guide (Fig. 17). Make sure that the IM adapter is inserted in the medial hole of the femoral resection guide! When connecting the three instruments, insert the IM rod into the medullary cavity until the stop is reached.

Align the femoral resection guide with the femur condyle. Make sure that the joint space gauge does not contact the sagittal edge and that the resection guide rests correctly against the joint space gauge.

Note: The marking previously made on the condyle can now be used as an additional orienting mark when aligning. It should be visible through the two drill holes on the resection guide.

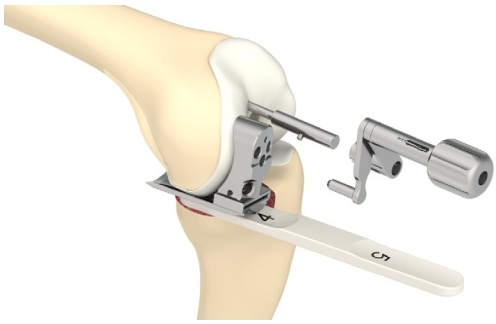


Fig. 16

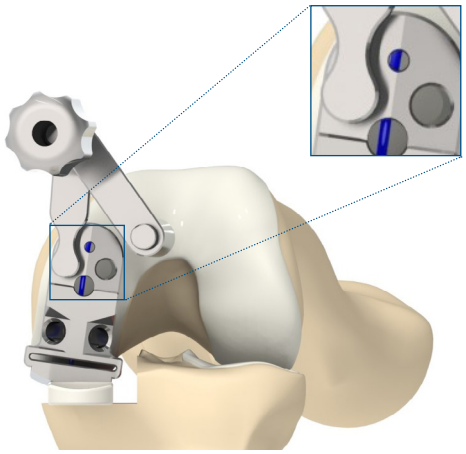


Fig. 17

[1)]42160714: ACS® Uni handle for intramedullary alignment rod; [2)]42160713: ACS® Uni intramedullary alignment rod; [3)]42161704: ACS® Uni femoral resection guide anatomic; [4)]42160267: ACS® Uni joint gap check; [5)]42160710: ACS® Uni handle for femoral resection guide; [6)]42161709: ACS® Uni IM adapter

First fix the femoral resection guide with the 6-mm drill[1)] through the larger (lower) of the two drill holes (Fig. 18). Insert the drill into the bone until it reaches the stop. After that, the drill remains in the bone.

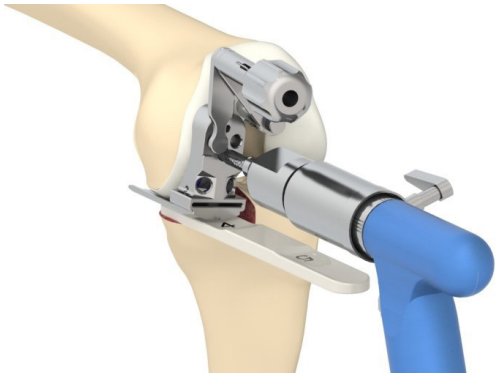


Fig. 18

Then insert the longer 3-mm drill[2)] into the smaller (upper) drill hole (Fig. 19). Leave the drills in the bone to fix the instrumentation and for stability during the resection.

Remove the joint space gauge. The IM adapter can also be removed if needed. The IM rod initially remains in the bone. Resect the posterior condyle with the help of the slot (Fig. 20).

Note: It is recommended to use the narrow saw blade of width 13 mm and thickness 1.37 mm.

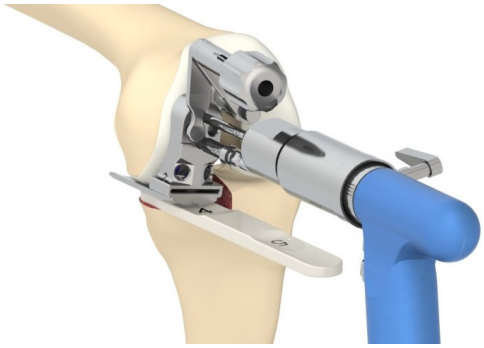


Fig. 19

Then remove all instruments.

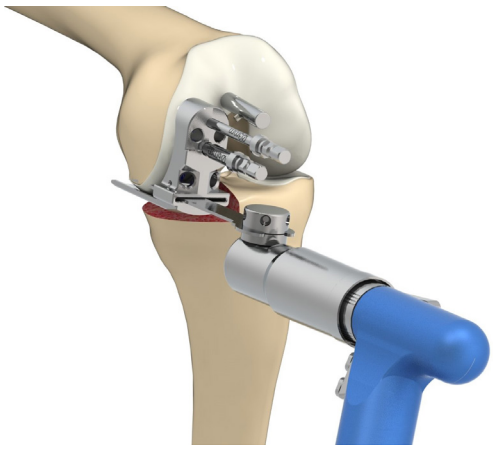


Fig. 20

[1)]42160625: ic-drill; [2)]42160226: ic-drill

Option 2: Extramedullar alignment

Note: Use the femoral cutting blocks with **REF 4216–0701, -0702, -0703, -0704** preparation with extramedullar alignment!

Flex the knee joint to 90–100°.

Make a mark in the middle of the defective femur condyle (Fig. 21). This marking will serve as a guide for aligning the femur component during the rest of the surgical procedure.

For stabilization, first insert the joint space gauge "4/5"[1)] with the side labeled "4 mm" into the bending space. Using the handle[2)], set the femoral resection guide[3)] of the size found earlier between the joint space gauge and the femoral condyle and push it into the joint space until the resection guide contacts the distal condyle (Fig. 22).

If an excessively tight joint space makes it impossible to insert the tibial resection guide, another resection must be made to the tibia. For this, use the tibial alignment guide again together with the tibial resection guide.

On the other hand, if the joint space is so large that the femoral resection guide has too much play when inserted, use a joint space gauge of a larger height.

Use the extramedullar femoral alignment guide[4)] and insert it onto the femoral resection guide in the marked holes (Fig. 23) according to the side being operated on ("RL/LM" or "LL/RM"). Guide the external alignment rod[5)] through the femoral alignment guide and set the correct valgus angle.

Note the following points for the alignment:

- The femur resection guide has both distal as well as posterior contact to the femur.
- The central holes on the femur resection guide should be as centered as possible on the femur condyle (blue mark).
- The extramedullar alignment rod should be pointed towards the femur head.

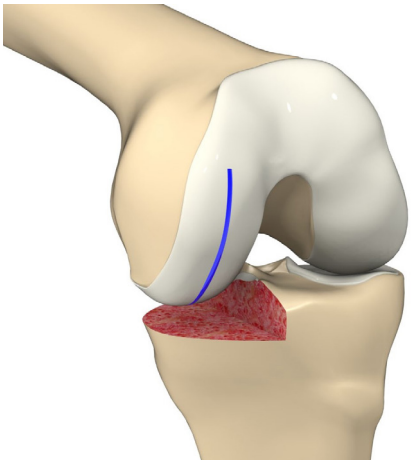


Fig. 21

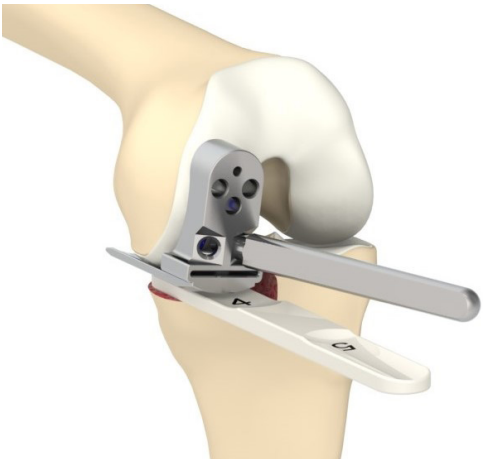


Fig. 22

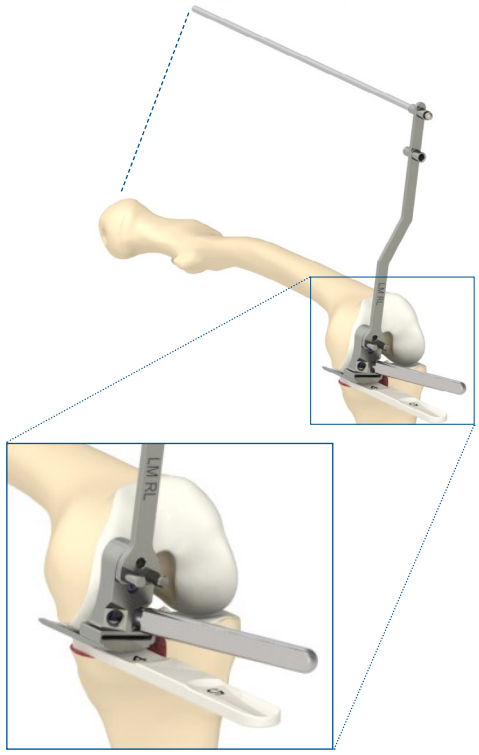


Fig. 23

[1)]42160267: ACS® Uni joint gap check; [2)]42160710: ACS® Uni handle for femoral resection guide; [3)]42161704: ACS® Uni femoral resection guide anatomic; [4)]42160711: ACS® Uni femoral alignment guide extramedullary; [5)]42230035: external alignment rod

First fix the femoral resection guide with the 6-mm drill[1)] through the larger of the two drill holes (Fig. 24). Insert the drill into the bone until it reaches the stop. After that, the drill remains in the bone.

Then insert the longer 3-mm ic drill[2)] (Fig. 25). Leave the drills in the bone to fix the instrumentation and for stability during the resection. The handle can be removed, depending on the femur size (size 3 and 4).

After fixating the femoral resection guide, the joint space gauge can be removed and the posterior femur condyle resected (Fig. 26). Perform the resection through the slot guide on the resection guide.

Note: It is recommended to use the narrow ic saw blade of width 13 mm.

Then remove the femoral resection guide, the alignment guide and both drills.

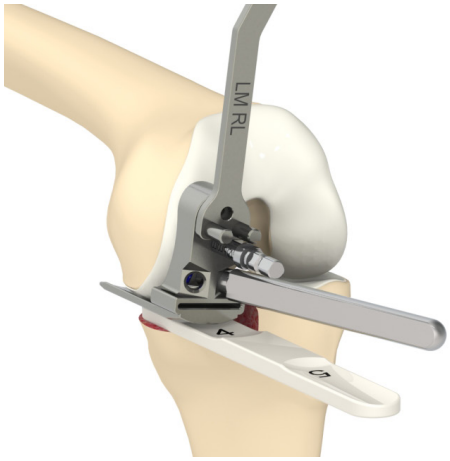


Fig. 24

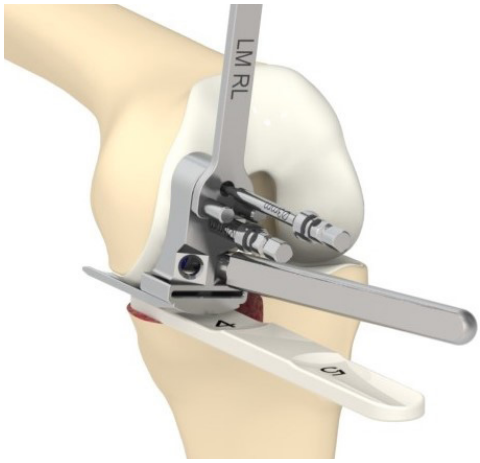


Fig. 25

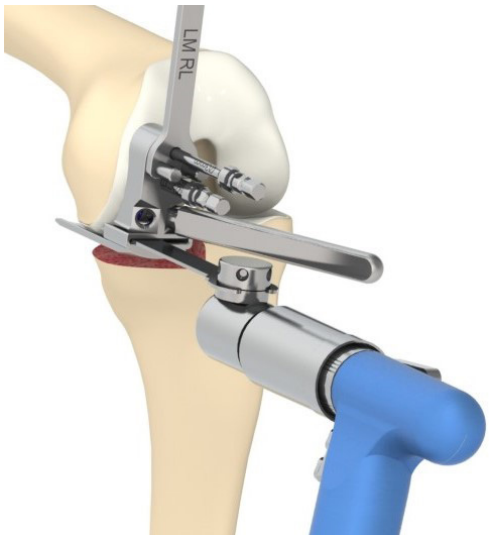


Fig. 26

[1)]42160625: ic-drill; [2)]42160226: ic-drill

Femur preparation, continued

Connect the femur drilling guide[1)] of the correct size with the handle[2)] and bring the two together in the previously prepared holes (Fig. 27). Check the correct seating of the drill guide.

Note: If the drill guide does not make optimal contact with the bone in the area of the lower hole, first continue as described and note the following instructions!

With the 3-mm drill[3)], prepare one hole each anterior and posterior using the drill guide[1)] (Fig. 28). Make sure to insert the drill until the stop each time.

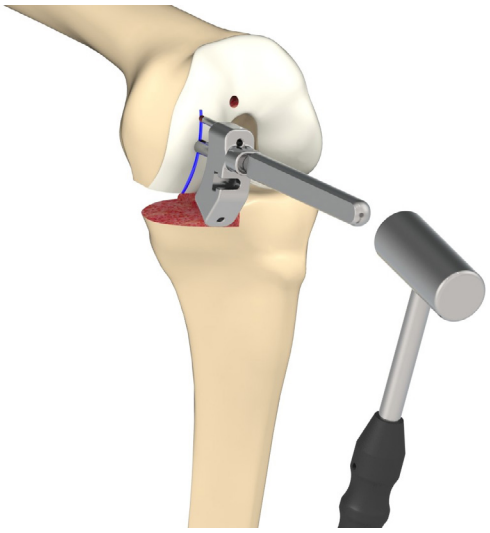


Fig. 27

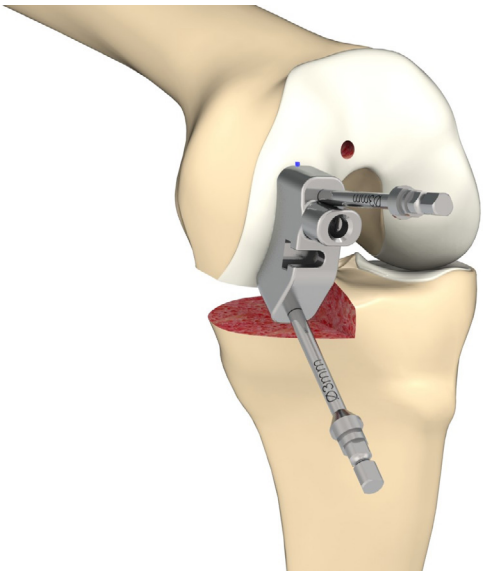


Fig. 28

[1)]42160234: ACS® Uni femoral drill guide; [2)]42160710: ACS® Uni handle for femoral resection guide; [3)]42160226: ic-drill

Remove the femur drill guide with the help of the slide hammer[1)] (Fig. 29).

Set the femur reamer guides[2)] of size 0 into the prepared holes 2 and 4 (see Fig. 30). Make sure that the femur reamer guides are sunk fully into the bone.

Note: Do not insert the femoral reamer guides into the anterior hole!

Begin on the anterior side with the reamer of the correct size[3)] (same as the femur size) to ablate bone material (Fig. 31). Cut cautiously until the reamer reaches the stop. Enough cartilage and bone should be removed such that subchondral bone is exposed.

Note: Always make sure that the reamer is rotating before it makes contact with bone. In addition, the reamer should not be tilted or leave the specified reaming surface.

Now repeat the reaming process on the posterior reamer guide (Fig. 32). Here as well, cut until the reamer reaches the stop.

Note: Do not ream until the stop is reached if a space appeared before between bone and drill guide in the area of the posterior hole! In this case, only ream until a flat surface with the anterior surface is achieved.

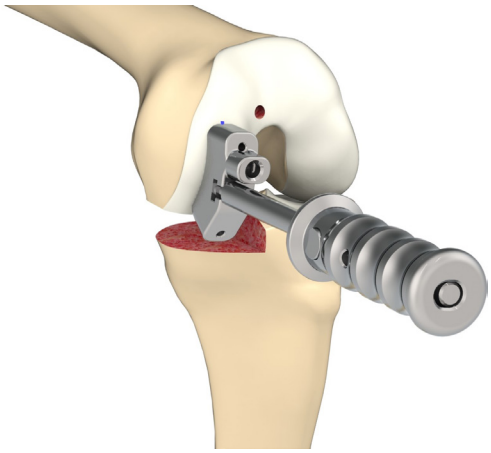


Fig. 29

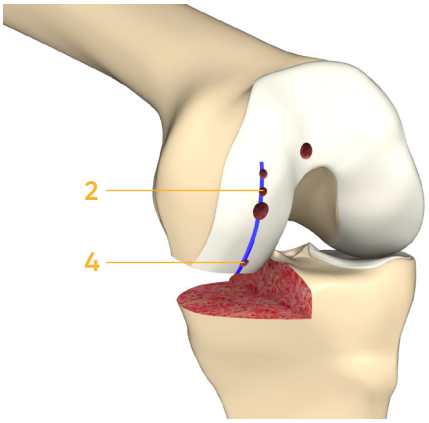


Fig. 30

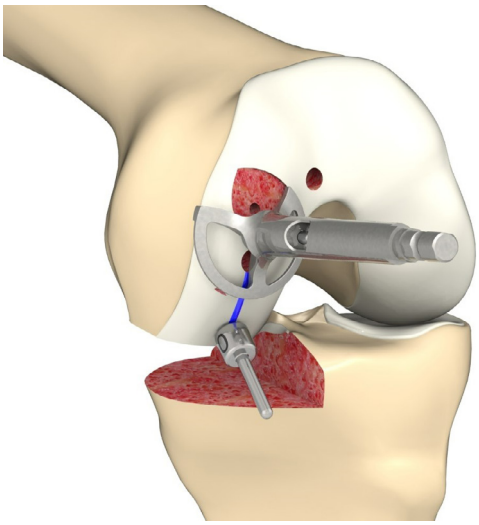


Fig. 31

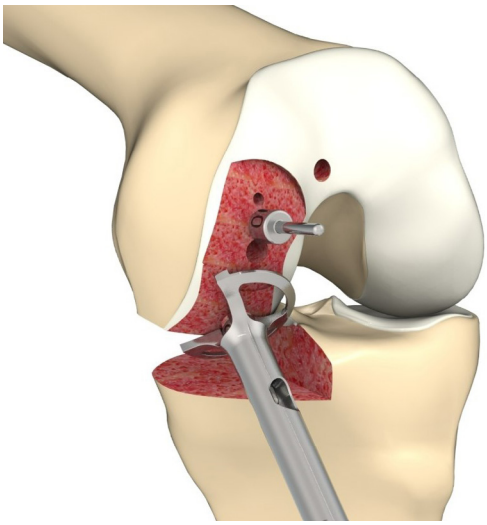


Fig. 32

[1)]42230031: slap hammer; [2)]42160240: ACS® Uni Reamer guide; [3)]42160294: ACS® Uni reamer

Estimate the tibial implant size with the help of the tibia positioner[1)] (Fig. 33). To do this, hook the guide onto the posterior tibia and read the required tibia size from an anterior view.

The final size is based on the optimum covering of the tibia component and is found using trial tibial plateaus.

Put the trial femur component[2)] of the correct size in place and, depending on the desired type of intervention, insert the appropriate trial tibial plateau[3)] (cemented or cementless) of the size found previously and the joint space gauge[4)] of the desired insert height into the joint space (Fig. 34). Check whether sufficient bending stability is achieved with the chosen joint space gauge. If not, use a thicker joint space gauge. Make a note of the thickness of the joint space gauge that produces stability in the bending space.

Then remove the joint space gauge and flex the knee to 20°. Insert the feelers[5)] (1–3 mm) into the extension space (Fig. 35), starting with the thinnest one. Make a note of the size of the feeler that produces stability in the extension space.

The difference between the bending space (joint space gauge) and the extension space (feeler) indicates how much more femoral reaming is necessary. If the 1 mm feeler is too high, the value of the extension space is equal to zero.

Example: If bending produces a joint space of 4 mm and stretching produces 2 mm, use the reamer guides to cut another 2 mm.

4 (joint space gauge) – 2 (feeler) = 2

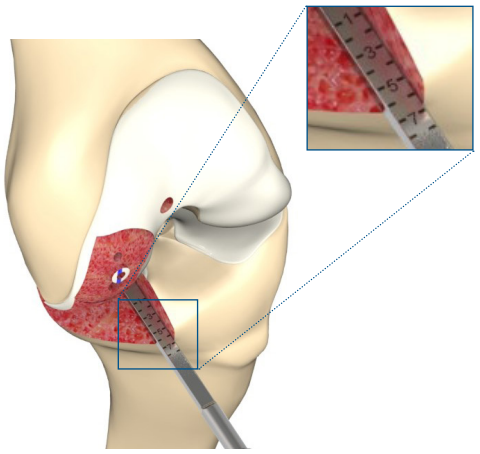


Fig. 33

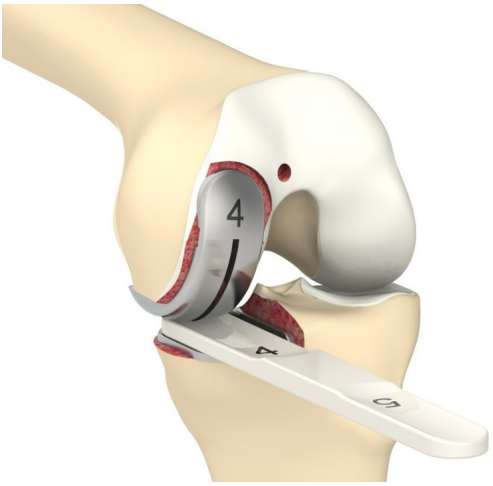


Fig. 34

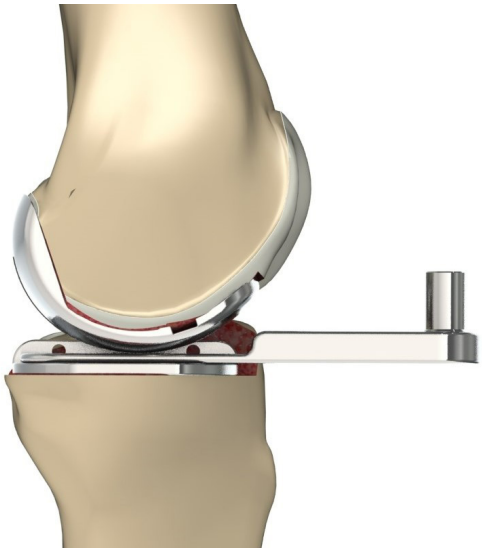


Fig. 35

[1)]42161730: ACS® tibial adjustment instrument; [2)]42160354: ACS® Uni SG trial femoral component; [3)]42160515: ACS® Uni tibial template cemented; [4)]42160267: ACS® Uni joint gap check; [5)]42160621: ACS® Uni metal feeler gauge

Remove all test implants (Fig. 36). A special extractor[1)] is available for the femoral trial component.

Insert the reamer guides[2)] of the size calculated previously into the bone (Fig. 37). Once again make sure that the reamer guides are sunk fully into the bone.

Note: Make sure that the extra protruding bone around the reamer guides is intact, as they are the reference height for the reaming process.

Repeat the reaming process. First drill the anterior side (Fig. 38) with the femur reamer[3)] of the correct size (same size as the femur). Gently press down on the reamer until it reaches the stop.

Note: Always make sure that the reamer is rotating before it makes contact with bone. In addition, the reamer should not be tilted or leave the specified reaming surface.

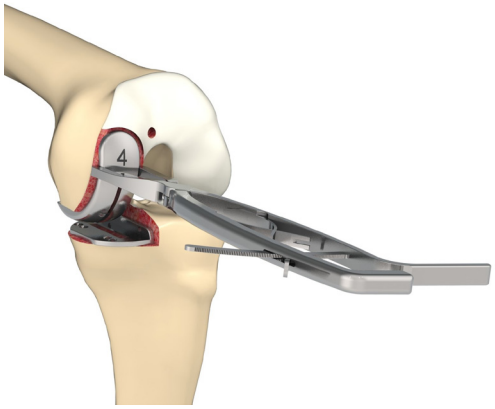


Fig. 36

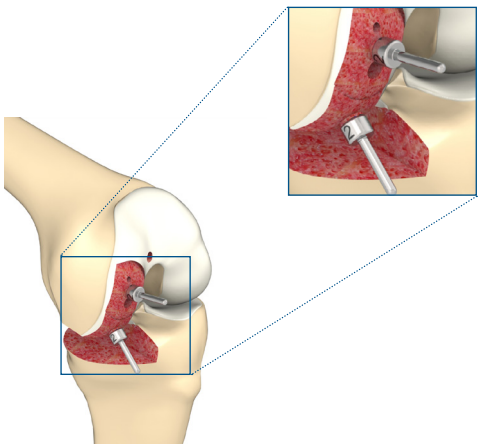


Fig. 37

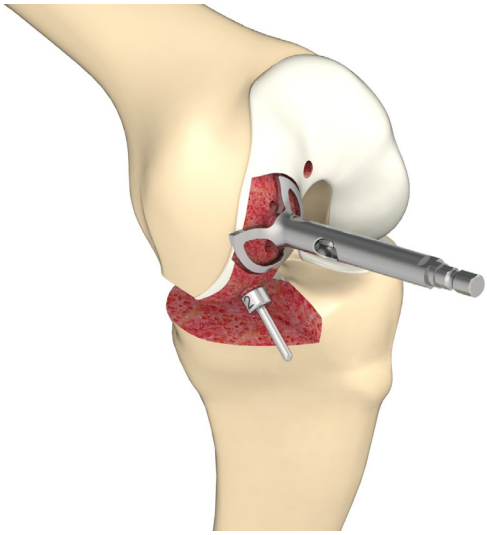


Fig. 38

[1)]42160520: ACS® Uni femoral trial extractor; [2)]42160242: ACS® Uni Reamer guide; [3)]42160294: ACS® Uni reamer

Continue with the posterior reaming process (Fig. 39). Drill until the reamer reaches the stop.

Note: Do not ream until the stop is reached if a space appeared before between bone and drill guide in the area of the posterior hole! In this case, only ream until a flat surface with the anterior surface is achieved.

Remove the reamer guides with the pin extractor[1)] and clean the prepared surface (Fig. 40). The protruding bone remnants are removed with the follow-up reamer[2)] or a luer.

Trial reduction with trial tibial plateau

Remove the reamer guide and place the trial femur component[3)] on the bone. Insert the trial tibial plateau[4)] and the PE trial insert[5)] into the joint space (Fig. 41). Make sure that the PE trial insert does not hit the vertical edge of the trial tibial plateau through the joint's range of motion.

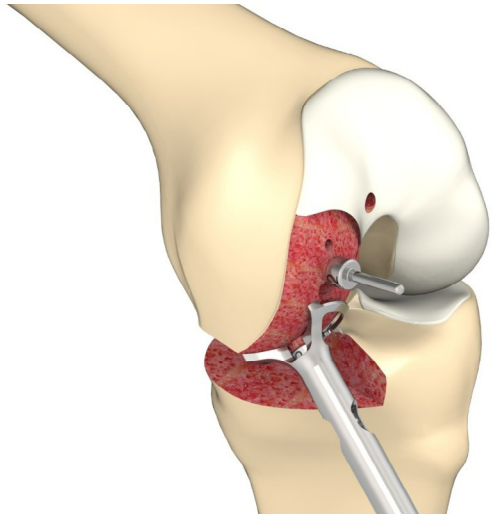


Fig. 39

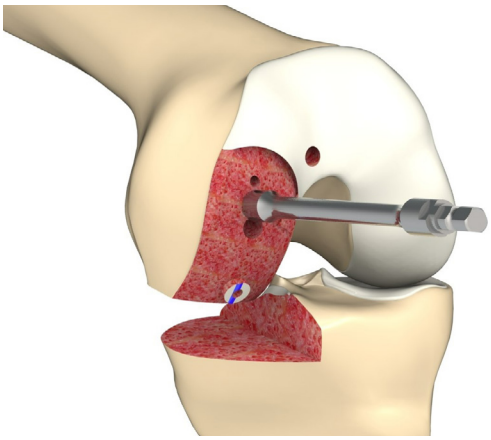


Fig. 40

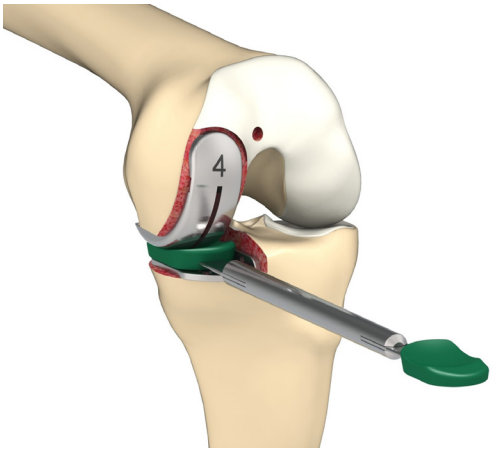


Fig. 41

[1)]75120800: pin extractor; [2)]42160260: ACS® Uni finishing reamer; [3)]42160354: ACS® Uni SG trial femoral component; [4)]42160515: ACS® Uni tibial template cemented; [5)]42160754: ACS® Uni trial PE insert

Tibial end preparation

Ensure the optimum alignment of the trial tibial plateau before beginning with tibial end preparation. For this, place the tibia positioner[1)] on the trial tibial plateau in such a way that the tip grips the posterior side behind the plate (Fig. 42). Pull the trial tibial plateau as far in the anterior direction as necessary until the stylus makes posterior contact with the tibia.

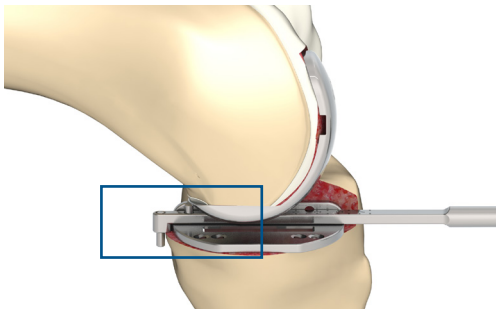


Fig. 42

Affix the trial tibial plateau with a pin[2)] or with a pin with grip (angled[3)] or straight[4)]) on the tibia (Fig. 43).

Prepare the tibial fin with the help of the rasp for the type of intervention chosen (cemented[5)] or cementless[6)]) (Fig. 44). Ensure that the fin is adequately prepared in the anterior region so that the implant is not seated too far posterior later on.

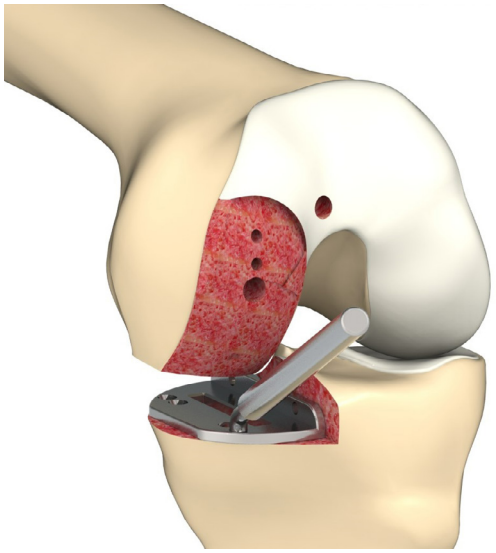


Fig. 43

Note: Alternatively, a jigsaw may also be used to prepare the fin (Fig. 45).

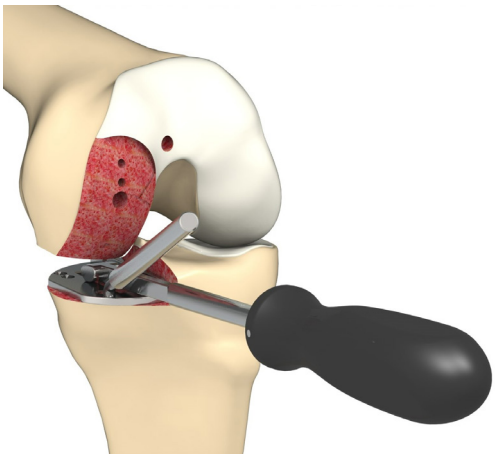


Fig. 44

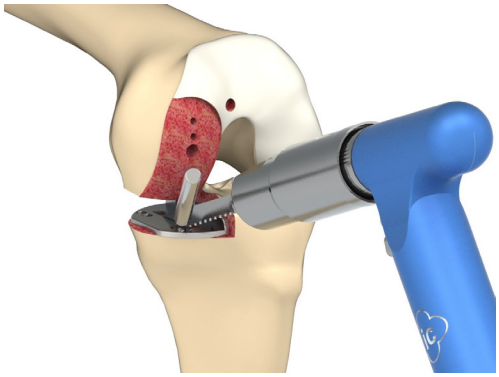


Fig. 45

[1)]42161730: ACS® tibial adjustment instrument; [2)]42160519: fixation pin with stop; [3)]42160541: fixation pin with handle angled; [4)]42160540: fixation pin with handle straight; [5)]42160768: ACS® Uni rasp for cemented tibial preperation; [6)]42160769: ACS® Uni rasp for cementless tibial preperation

Trial reduction with trial tibia component

Place the trial tibia component on the bone and perform another trial reduction (Fig. 46).

Note: Make sure that the PE trial insert does not hit the medial edge of the trial tibial plateau through the joint's range of motion.

To remove the trialtibia component, the short peg of the tibia positioner[1)] can be placed in the hole to lift the component.

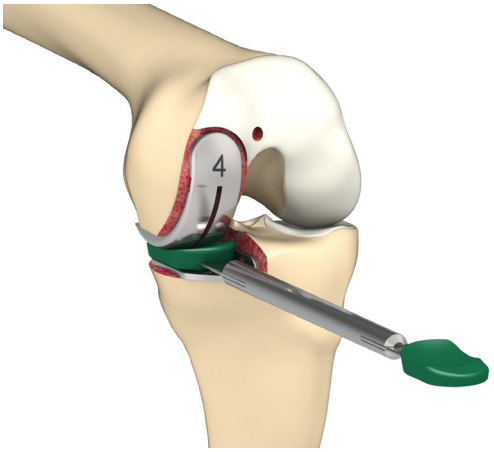


Fig. 46

Femoral end preparation

The femoral fin is prepared through the slot in the trial femur component (Fig. 47). Connect the fin punch[2)] of the correct size with the handle[3)]. Tap the fin punch in until it reaches a stop.

Then remove the trial femur component.

If desired, the Ø 6 mm peg hole can be further compacted with the help of the punch[4)] (Fig. 48).

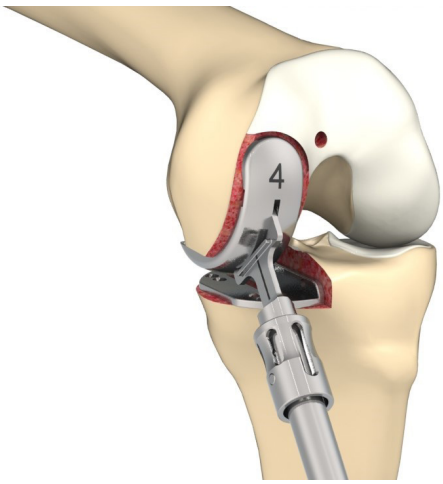


Fig. 47

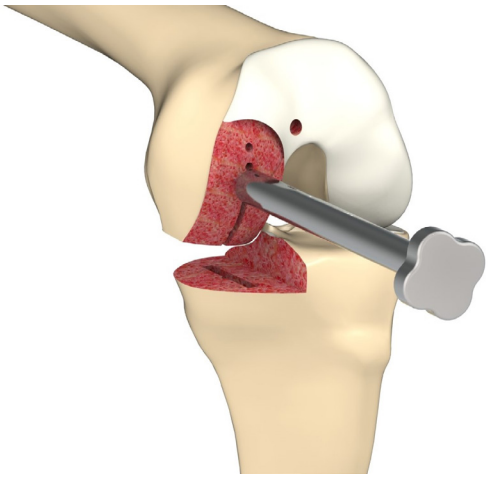


Fig. 48

[1)]42161730: ACS® tibial adjustment instrument; [2)]42160527: ACS® Uni femoral fin punch; [3)]42210047: handle for tibial trial cone with fins; [4)]42160505: ACS® Uni punch for femoral stem

End preparation for cemented treatments

For a cemented treatment, prepare small holes in the tibial bone using the ic impactor[1)] and the impactor plate for cemented tibia[2)] (Fig. 49). These will later take up bone cement and thus increase the stability of the implant. Connect the two instruments by placing the impactor plate on the impactor and rotating it by 90°.

Prepare small holes in the femur with the 2.5-mm drill[3)] (Fig. 50). These will later take up cement during the implant process and thus increase the stability of the implant.

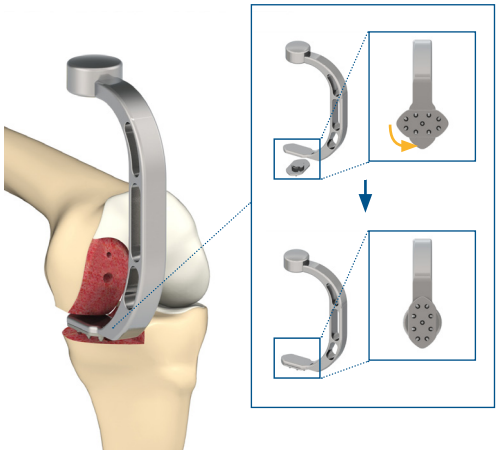


Fig. 49

Implantation

The implant components and bone cement should be kept ready in sufficient quantity, depending on the choice of implant components (cementless or cemented).

Begin implanting the tibia component. For this, use the ic impactor[1)] and the tibia impactor plate[4)] (Fig. 51). Connect the two instruments by placing the impactor plate on the impactor and rotating it by 90°.

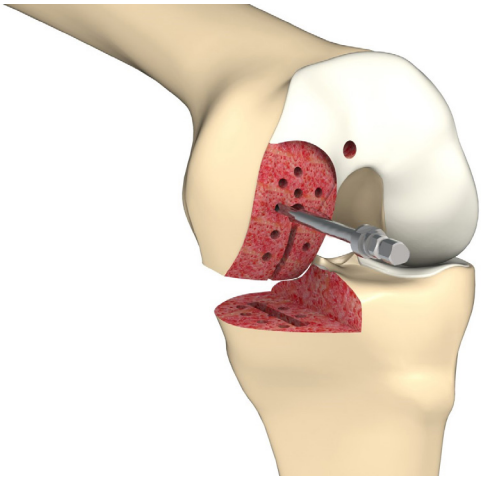


Fig. 50

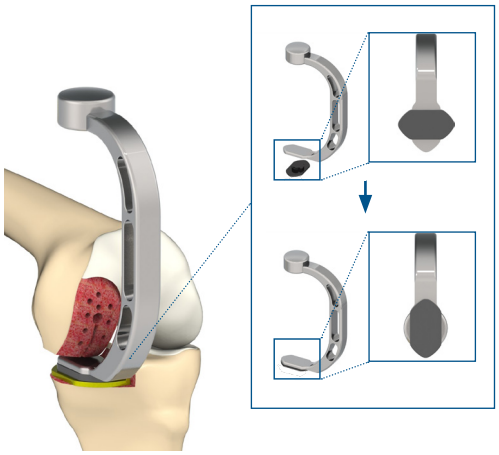


Fig. 51

[1)]42160522: ic-impactor; [2)]42160722: ACS® Uni impactor plate for cemented tibia; [3)]42240135: drill with stop; [4)]42160523: ACS® Uni tibial impactor plate

Then implant the femur component using the femur impactor[1)] (Fig. 52). Insert the PE insert. This is most easily accomplished when the knee joint is extended with simultaneous valgus stress.

Note: It is possible to insert the femur component and the PE insert together. In this case, make sure that only a small amount of cement is applied in the posterior region of the femur component, since it will no longer be possible to dorsally remove excess bone cement afterwards.

Note: The components must be immobilized while the cement hardens.

This completes the implantation (Fig. 53 and Fig. 54).

It is recommended to check the positioning of the implants with an X-ray image.

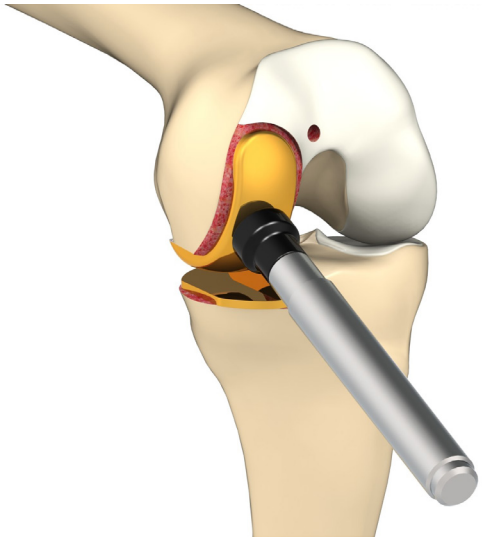


Fig. 52

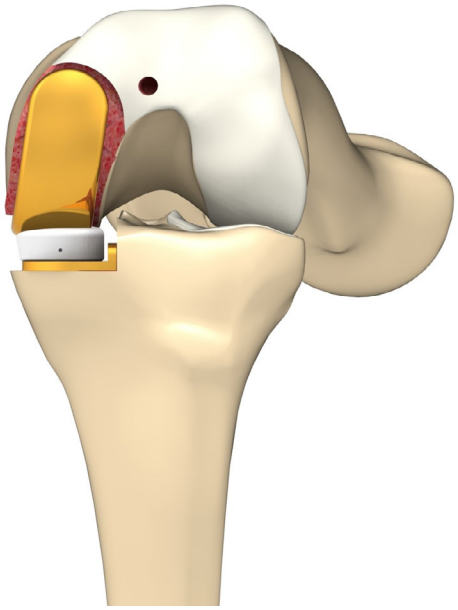


Fig. 53

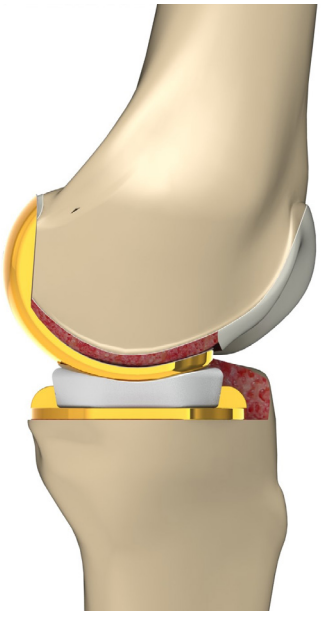


Fig. 54

[1)]42160506: ACS® Uni femoral impactor

Implants

ACS® UNI femoral component cemented
Material: implavit®; CoCrMo acc. to ISO 5832-4
Coating: TiN-coating

article number	*size*
42060001	1
42060002	2
42060003	3
42060004	4

ACS® UNI femoral component cementless
Material: implavit®; CoCrMo acc. to ISO 5832-4
Coating: TiN-coating / implaFix®; cpTi-coating

article number	*size*
42061001	1
42061002	2
42061003	3
42061004	4

ACS® UNI tibial component cemented
Material: implavit®; CoCrMo acc. to ISO 5832-4
Coating: TiN-coating

article number	*size*
42060011	1
42060012	2
42060013	3
42060014	4
42060015	5
42060016	6
42060017	7
42060018	8

ACS® UNI tibial component cementless
Material: implavit®; CoCrMo acc. to ISO 5832-4
Coating: TiN-coating / implaFix®; cpTi-coating

article number	*size*
42061011	1
42061012	2
42061013	3
42061014	4
42061015	5
42061016	6
42061017	7
42061018	8

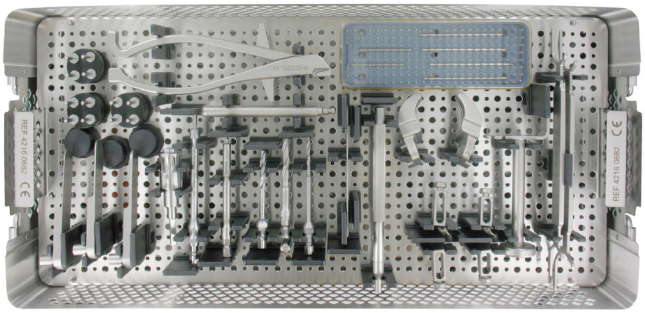
ACS® UNI PE-insert

Material: UHMW-PE acc. to ISO 5834-2

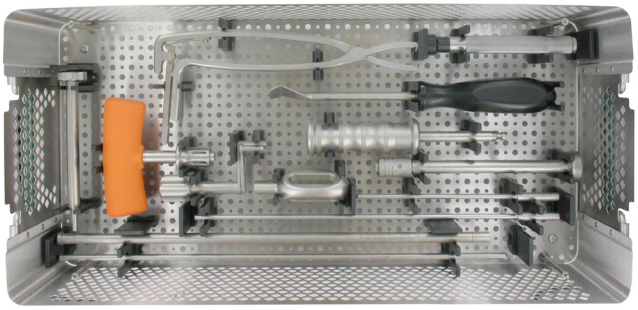
article number	*size*	*height*
42060104	1	4 mm
42060105	1	5 mm
42060106	1	6 mm
42060107	1	7 mm
42060108	1	8 mm
42060109	1	9 mm
42060110	1	10 mm
42060111	1	11 mm
42060112	1	12 mm
42060204	2	4 mm
42060205	2	5 mm
42060206	2	6 mm
42060207	2	7 mm
42060208	2	8 mm
42060209	2	9 mm
42060210	2	10 mm
42060211	2	11 mm
42060212	2	12 mm
42060304	3	4 mm
42060305	3	5 mm
42060306	3	6 mm
42060307	3	7 mm
42060308	3	8 mm
42060309	3	9 mm
42060310	3	10 mm
42060311	3	11 mm
42060312	3	12 mm
42060404	4	4 mm
42060405	4	5 mm
42060406	4	6 mm
42060407	4	7 mm
42060408	4	8 mm
42060409	4	9 mm
42060410	4	10 mm
42060411	4	11 mm
42060412	4	12 mm

Container

ACS® Uni femur basic container
42160682

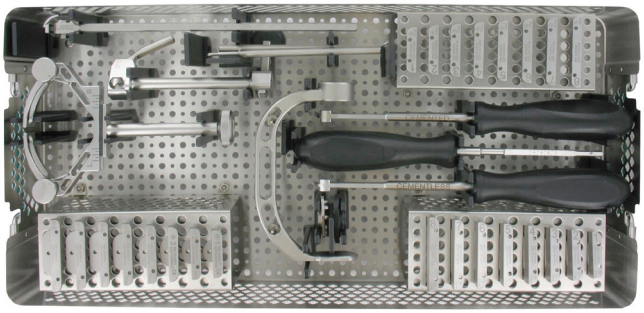


upper tray

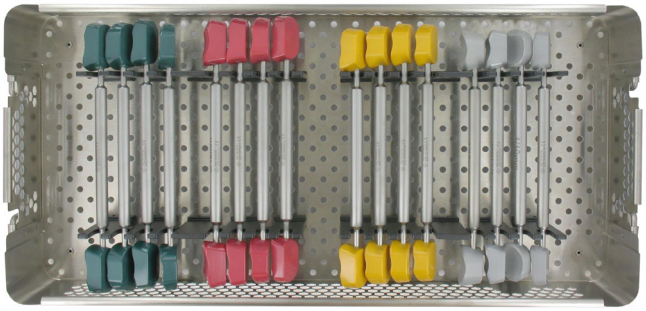


lower tray

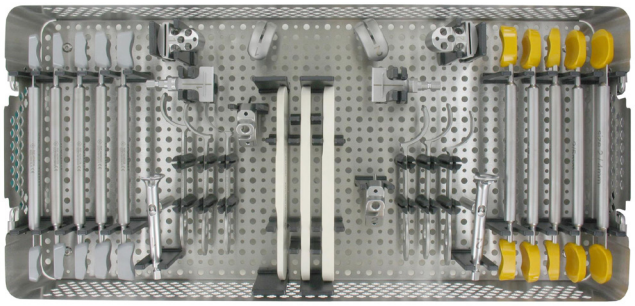
ACS® Uni 5° tibia container
42160681



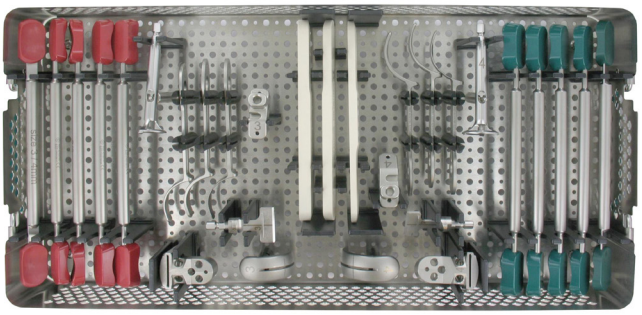
ACS® Uni trial PE container 1
42160675



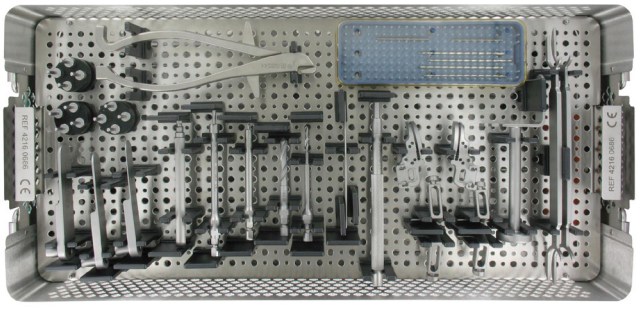
ACS® Uni femur sz. 1+2 container
42160683



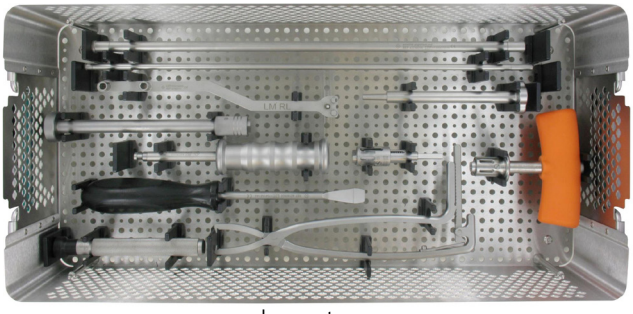
ACS® Uni femur sz. 3+4 container
42160684



ACS® Uni EM femoral basic container
42160686

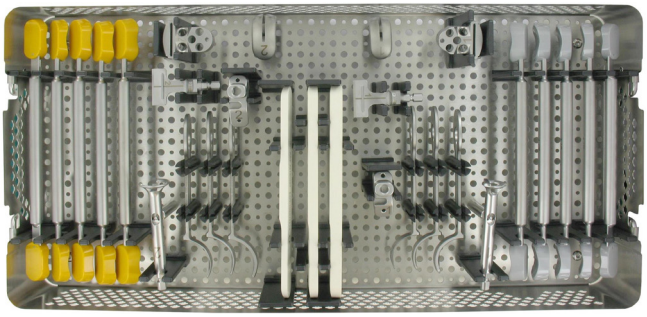


upper tray

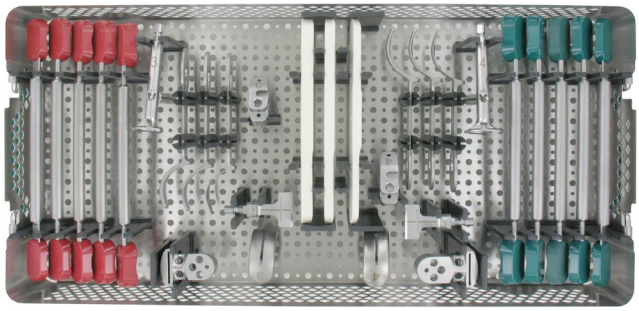


lower tray

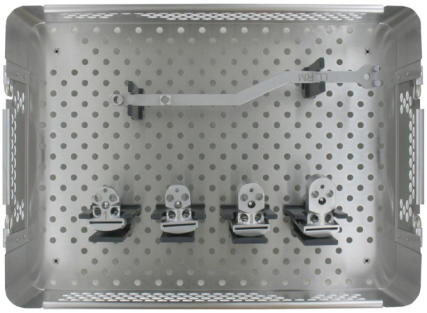
ACS® Uni EM femoral sz. 1+2 container
42160687



ACS® Uni EM femoral sz. 3+4 container
42160688



ACS® Uni femur additional container
42160685



Attention: Instruments are delivered non-sterile. The relevant information on processing must be observed.

Instruments

ACS® Uni femur basic container

42160682

ic-drill

article number	diameter
42160226	3 mm
42160625	6 mm
42160715	5 mm

drill with stop

article number	diameter
42240135	2,5 mm

ACS® Uni Reamer guide

article number	length	quantity
42160240	0 mm	2
42160241	1 mm	2
42160242	2 mm	2
42160243	3 mm	2
42160244	4 mm	2
42160245	5 mm	2

ACS® Uni finishing reamer

42160260

fixation pin with stop

article number	length	diameter	quantity
42160519	45 mm	2.5 mm	2

fixation pin

article number	length	diameter	quantity
77000118	75 mm	2.5 mm	4

ACS® Uni femoral template

article number	size
42160606	1/2
42160607	3/4

ACS® Uni metal feeler gauge

article number	height
42160621	1 mm
42160622	2 mm
42160623	3 mm

ACS® Uni handle for femoral resection guide

42160710

ACS® Uni femoral sizing guide

42160712

ACS® Uni adapter for slotted tibial resection

article number	side
42161712	right
42161714	left

ACS® Uni adapter for nonslotted tibial resection

article number	side
42161713	right
42161715	left

ACS® Uni tibial resection guide anatomic

article number	angle	side
42161720	5°	rl/lm
42161721	5°	ll/rm

resection check

42230009

ic-adapter

42230022

pin extractor

75120800

Pin inserter

article number	diameter
77000108	2.5 mm

ACS® Uni femoral impactor

42160506

ACS® Uni femoral trial extractor

42160520

Chisel angled

42160605

ACS® Uni intramedullary alignment rod

article number	length	diameter
42160713	300 mm	5 mm
42161708	150 mm	5 mm

ACS® Uni handle for intramedullary alignment rod

42160714

ACS® Uni IM adapter

42161709

handle for tibial trial cone with fins

42210047

ic-T-handle Zimmer-Jakobs

42230023

slap hammer

article number	size
42230031	short

external alignment rod

article number	length	diameter
42230035	400 mm	6 mm

ACS® Uni punch for femoral stem

42160505

ACS® Uni femur additional container

42160685

ACS® Uni femoral resection guide

article number	size
42160701	1
42160702	2
42160703	3
42160704	4

ACS® Uni femoral alignment guide extramedullary

42160711

ACS® Uni 5° tibia container

42160681

ACS® Uni trial tibial component

article number	size
42160011	1
42160012	2
42160013	3
42160014	4
42160015	5
42160016	6
42160017	7
42160018	8

ACS® Uni tibial template cemented

article number	size
42160511	1
42160512	2
42160513	3
42160514	4
42160515	5
42160516	6
42160517	7
42160518	8

ic-impactor

42160522

ACS® Uni tibial impactor plate

42160523

ACS® Uni tibial template cementless

article number	size
42160531	1
42160532	2
42160533	3
42160534	4
42160535	5
42160536	6
42160537	7
42160538	8

fixation pin with handle straight

42160540

fixation pin with handle angled

42160541

ACS® Uni impactor plate for cemented tibia

42160722

ACS® Uni rasp for cemented tibial preperation

42160768

ACS® Uni rasp for cementless tibial preperation
42160769

ACS® tibial adjustment instrument
42161730

ankle clamp easy-fix
42200426

ACS® tibial alignment rod

article number	angle
42210185	5°

ACS® Uni trial PE container 1
42160675

ACS® Uni trial PE insert

article number	size	height
42160729	1	9 mm
42160730	1	10 mm
42160731	1	11 mm
42160732	1	12 mm
42160739	2	9 mm
42160740	2	10 mm
42160741	2	11 mm
42160742	2	12 mm
42160749	3	9 mm
42160750	3	10 mm
42160751	3	11 mm
42160752	3	12 mm
42160759	4	9 mm
42160760	4	10 mm
42160761	4	11 mm
42160762	4	12 mm

ACS® Uni femur sz. 1+2 container
42160683

ACS® Uni trial femoral component

article number	size
42160001	1
42160002	2

ACS® Uni femoral drill guide

article number	size
42160231	1
42160232	2

ACS® Uni joint gap check

article number	height
42160267	4/5 mm
42160268	6/7 mm
42160269	8/9 mm

ACS® Uni reamer

article number	size
42160291	1
42160292	2

ACS® Uni femoral fin punch

article number	size
42160524	1
42160525	2

ACS® Uni trial PE insert

article number	size	height
42160724	1	4 mm
42160725	1	5 mm
42160726	1	6 mm
42160727	1	7 mm
42160728	1	8 mm
42160734	2	4 mm
42160735	2	5 mm
42160736	2	6 mm
42160737	2	7 mm
42160738	2	8 mm

ACS® Uni femoral resection guide anatomic

article number	size
42161701	1
42161702	2

ACS® Uni joint gap feeler

article number	size	height
42161751	1	1 mm
42161752	1	2 mm
42161753	1	3 mm
42161754	2	1 mm
42161755	2	2 mm
42161756	2	3 mm

ACS® Uni femur sz. 3+4 container

42160684

ACS® Uni trial femoral component

article number	size
42160003	3
42160004	4

ACS® Uni femoral drill guide

article number	size
42160233	3
42160234	4

ACS® Uni joint gap check

article number	height
42160267	4/5 mm
42160268	6/7 mm
42160269	8/9 mm

ACS® Uni reamer

article number	size
42160293	3
42160294	4

ACS® Uni femoral fin punch

article number	size
42160526	3
42160527	4

ACS® Uni trial PE insert

article number	size	height
42160744	3	4 mm
42160745	3	5 mm
42160746	3	6 mm
42160747	3	7 mm
42160748	3	8 mm
42160754	4	4 mm
42160755	4	5 mm
42160756	4	6 mm
42160757	4	7 mm
42160758	4	8 mm

ACS® Uni femoral resection guide anatomic

article number	size
42161703	3
42161704	4

ACS® Uni joint gap feeler

article number	size	height
42161757	3	1 mm
42161758	3	2 mm
42161759	3	3 mm
42161760	4	1 mm
42161761	4	2 mm
42161762	4	3 mm

ACS® Uni EM femoral basic container

42160686

ic-drill

article number	diameter
42160226	3 mm
42160625	6 mm

fixation pin with stop

article number	length	diameter	quantity
42160519	45 mm	2.5 mm	2

ACS® Uni femoral template

article number	size
42160606	1/2
42160607	3/4

ACS® Uni handle for femoral resection guide

42160710

ACS® Uni femoral sizing guide

42160712

resection check

42230009

drill with stop

article number	diameter
42240135	2.5 mm

pin extractor

75120800

Pin inserter

article number	diameter
77000108	2.5 mm

ACS® Uni finishing reamer
42160260

fixation pin

article number	length	diameter	quantity
77000118	75 mm	2.5 mm	4

ACS® Uni Reamer guide

article number	length	quantity
42160240	0 mm	2
42160241	1 mm	2
42160242	2 mm	2
42160243	3 mm	2
42160244	4 mm	2
42160245	5 mm	2

ACS® Uni metal feeler gauge

article number	height
42160621	1 mm
42160622	2 mm
42160623	3 mm

ACS® Uni adapter for slotted tibial resection

article number	side
42161712	right
42161714	left

ACS® Uni adapter for nonslotted tibial resection

article number	side
42161713	right
42161715	left

ACS® Uni tibial resection guide anatomic

article number	angle	side
42161720	5°	rl/lm
42161721	5°	ll/rm

ACS® Uni punch for femoral stem
42160505

ACS® Uni femoral impactor
42160506

ACS® Uni femoral trial extractor
42160520

Chisel angled
42160605

handle for tibial trial cone with fins
42210047

ic-adapter
42230022

ic-T-handle Zimmer-Jakobs
42230023

external alignment rod

article number	length	diameter
42230035	400 mm	6 mm

ACS® Uni femoral alignment guide extramedullary
42160711

slap hammer

article number	size
42230031	short

ACS® Uni EM femoral sz. 1+2 container
42160687

ACS® Uni trial femoral component

article number	size
42160001	1
42160002	2

ACS® Uni femoral drill guide

article number	size
42160231	1
42160232	2

ACS® Uni joint gap check

article number	height
42160267	4/5 mm
42160268	6/7 mm
42160269	8/9 mm

ACS® Uni reamer

article number	size
42160291	1
42160292	2

ACS® Uni femoral fin punch

article number	size
42160524	1
42160525	2

ACS® Uni femoral resection guide

article number	size
42160701	1
42160702	2

ACS® Uni trial PE insert

article number	size	height
42160724	1	4 mm
42160725	1	5 mm
42160726	1	6 mm
42160727	1	7 mm
42160728	1	8 mm
42160734	2	4 mm
42160735	2	5 mm
42160736	2	6 mm
42160737	2	7 mm
42160738	2	8 mm

ACS® Uni joint gap feeler

article number	size	height
42161751	1	1 mm
42161752	1	2 mm
42161753	1	3 mm
42161754	2	1 mm
42161755	2	2 mm
42161756	2	3 mm

ACS® Uni EM Femoral sz. 3+4 container

42160688

ACS® Uni trial femoral component

article number	size
42160003	3
42160004	4

ACS® Uni femoral drill guide

article number	size
42160233	3
42160234	4

ACS® Uni joint gap check

article number	height
42160267	4/5 mm
42160268	6/7 mm
42160269	8/9 mm

ACS® Uni reamer

article number	size
42160293	3
42160294	4

ACS® Uni femoral fin punch

article number	size
42160526	3
42160527	4

ACS® Uni femoral resection guide

article number	size
42160703	3
42160704	4

ACS® Uni trial PE insert

article number	size	height
42160744	3	4 mm
42160745	3	5 mm
42160746	3	6 mm
42160747	3	7 mm
42160748	3	8 mm
42160754	4	4 mm
42160755	4	5 mm
42160756	4	6 mm
42160757	4	7 mm
42160758	4	8 mm

ACS® Uni joint gap feeler

article number	size	height
42161757	3	1 mm
42161758	3	2 mm
42161759	3	3 mm
42161760	4	1 mm
42161761	4	2 mm
42161762	4	3 mm

Instructions for use

Intended Purpose and Product Description

The ACS® UNI Knee System is a unicondylar knee system. It is intended to replace the bearing surface of only one femoral condyle and the corresponding tibial condyle of the knee during primary or revision-related knee replacement surgery.
The ACS® UNI femoral component is a femoral component for cemented or non-cemented anchorage; it is intended for use in resurfacing a femoral condyle.
The ACS® UNI tibial component is a mobile-bearing tibial component for cemented or non-cemented anchorage; it is intended for use in resurfacing a tibial condyle.
The ACS® UNI PE-insert is a tibial mobile-bearing insert intended for articulation with a femoral component.

Pre-Operative Instructions

A pre-operative planning is mandatory for optimal results. Before surgery, a surgical planning with regard to the dimensions of the prosthetic model and the positioning of the implant components in the bone has to be carried out by the surgeon.
For this purpose, x-ray templates of the implants are available:
Digital templates: Digital templates are included in the databases of the common planning systems. For missing templates, please contact the provider of the planning software and request these templates.
Radiographic templates: Alternatively, radiographic templates are available in various scale factors, which can be obtained from your local representative.
The surgeon must ensure that:

- all needed components are available. A sufficiently large range of implant sizes should be available for each operation. It must be determined whether the implantation should be done cemented or cementless.
- all instruments necessary will be present for surgery and that they match the implants being used. Only instruments designed for use with the implant system by implantcast GmbH may be used. An exception are exclusively the standardized instruments used during surgery.
- the correct sized instruments are used during surgery to prevent damage to the implants.

Operative Instructions

Before use, the implant must be checked to ensure that the product reference number, lot number and size correspond with the data on the labelling (REF, LOT and size).
Use appropriate aseptic technique when removing the implant from the packaging. The user is taking full responsibility for this. Implants should be implanted immediately after removal from the original packaging.
The surfaces of the implants are extremely sensitive. Implants must not come into contact with objects that could damage the surfaces. Before implantation, the implant must be visually inspected by the user for possible damage. Damaged implants must not be used.
The implant must not be modified in any way! Modifications to the implant may lead to impairment of its function and early failure of the prosthesis. In case of changes or manipulation, the regulatory responsibility is transferred to the person changing or manipulating the components and the manufacturer is no longer liable for the product.
When bone cement is used, the instruction for use of the respective cement manufacturer should be followed.
Bone cement must not come or remain in contact with the articulating surfaces of the implant during or after the surgery. Bone cement residues that could dislodge over time and get between the articulation surfaces must be removed. Bone cement fragments and residues may lead to increased wear and damage of the implant components.
In cementless applications, a firm fixation of the implant at the time of surgery is essential for the success of the implantation. The cementless components are seated in the bone by pressfit which requires to perform precise surgery and the use of the instruments provided for this purpose.
Prior to wound closure, the surgical area including the articulation surfaces of the implant must be thoroughly cleaned to remove any foreign bodies such as bone splinters, bone cement residues and any remaining fragments of a previously revised component or instrument.
It is also recommended to take an intraoperative X-ray image and examine it for remaining particles and remove them before wound closure.

Post-Operative Instructions

Post-operative patient care, patient instructions and warnings from the attending surgeon are of the utmost importance.
The use of an external support of the operated extremity to promote healing is recommended for a limited period.
Active and passive movements of the operated extremity should be monitored.
The post-operative regime should be aimed at the prevention of overloading of the operated extremity and stimulation of the healing process.
Regular monitoring of the position and condition of the prosthetic components and the surrounding bone is recommended.

Indications and target group

The decision for joint replacement should be based on careful evaluation. The indication for this type of surgery should only be made when all other conservative or surgical alternatives are less promising than artificial joint replacement.
Risk of postoperative complications can be limited by careful evaluation of the individual anatomical and load conditions, the condition of the soft tissues, and the condition of the bone bed for the implants.
Treatment with the ACS® Uni Knee System is generally only indicated for patients with mature skeletons.
The necessary preoperative examinations should be performed by the attending medical doctor before intervention. The examinations depend on the patient's medical history.
In consideration of these principles, the following indications apply for the ACS® Uni Knee System:

- unicompartmental joint failure with considerable functional impairment when other therapeutic measures have no greater promise of success,
- postoperative conditions following prior surgeries with or without use of implants,
- non-inflammatory degenerative joint disease including osteoarthrosis and avascular necrosis,
- post-traumatic osteoarthrosis,
- treatment of fractures that cannot be treated using other surgical techniques, and
- rheumatoid arthritis.

ATTENTION: It is also imperative that:

- **the ligamentous apparatus is intact (lig. CA and CP as well as collateral ligaments),**
- **the joint cartilage and the meniscal cartilage of the opposing compartment are intact, and**
- **no major dislocations or flexion contractures are present.**

the target group is patients that meet the indications given in these instructions for use and for whom the insert of the ACS® Uni Knee System is a suitable therapy option. The attending doctor will decide whether the product is suitable for the individual patient, and which implant is to be used. This decision depends on several factors, such

as the patient's age and weight, bone quality, shape of the bone and deformation of the joint.

Contraindications

The durability of an implant can be limited by biological, material, and biomechanical factors. Therefore, a careful examination of the indications is recommended in overweight patients, in patients with very high joint loads due to high physical activity, and in patients who are younger than 60 years of age.
The ACS® Uni Knee System is contraindicated in the following cases:

- allergy to one of the implant materials (The label on the secondary packaging of the respective component indicated the materials used. It is strongly recommended that an allergy test be performed.),
- current infections,
- physiological or anatomical conditions which preclude or are not expected to maintain an adequate bony support of the implant, or which do not allow the implantation of a sufficiently large prosthesis,
- bone tumors in the implant anchorage area,
- untreated vascular diseases of the affected extremity,
- metabolic disorders that may impair bone formation. In case of insufficient quantity and quality of bone stock, an alternative prosthetic treatment allowing for sufficient bony anchorage should be considered.
- severe axis deviation, and
- ligament instability.

Risk factors

The following risk factors can interfere with the success of the ACS® Uni Knee System:

- excessive strain on the joint due to strenuous manual labor and/or unsuitable physical activities,
- severe deformities that interfere with the anchorage or with the exact positioning or function of the implant,
- therapies that degrade bone quality,
- muscular insufficiency,
- neuromuscular diseases in the affected extremity,
- conditions which interfere with the patient's ability or willingness to follow the physician's instructions, especially during the healing phase,
- obesity,
- nicotine and/or drug abuse,
- alcoholism,
- prior surgeries on the affected extremity,
- diabetes, and
- psoriasis.

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