ORIGIN® CR

Patient-matched total knee system

Surgical technique

symbios

custom-made for you

INTRODUCTION

ORIGIN® CR total knee system

The ORIGIN® CR total knee system is composed of single-use instruments and an ORIGIN® CR total knee prosthesis including both ORIGIN® patient-matched implants and ORIGIN® implants not specific to the patient. The ORIGIN® CR total knee prosthesis is designed to restore the most natural alignment and kinematics possible for each patient while promoting more reproducible and effective surgery.

Patient-matched alignment, kinematics and geometries

The ORIGIN® design concept is based on the three-dimensional preoperative analysis of the patient's knee morphology using KNEE-PLAN® technology. The ORIGIN® planning aims to determine the pathological wear deformation in order to correct it, but also to identify the constitutional (or native) condylar geometries and alignment of the patient, which can be restored in order to allow better functional results.

1. **Restoration of the native alignment and the native condyles**

   → **More natural function**

2. **Adaptation to prosthetic condylar and trochlear geometries**

   → **Restoring a more natural kinematics**

3. **Reproduction of native condylar and tibial geometries**

   → **Reduced risk of postoperative prosthetic pain**

4. **Minimal bone resections, proportional to the patient**

   → **Preservation of bone capital**

More reproducible and effective surgery

1. **More precision thanks to the preoperative 3D planning**
2. **More reproducibility thanks to the patient-matched cutting guides**
3. **Simplification of technique, equipment and reduction of surgical time**
4. **Removing hospital costs related to ancillary management**

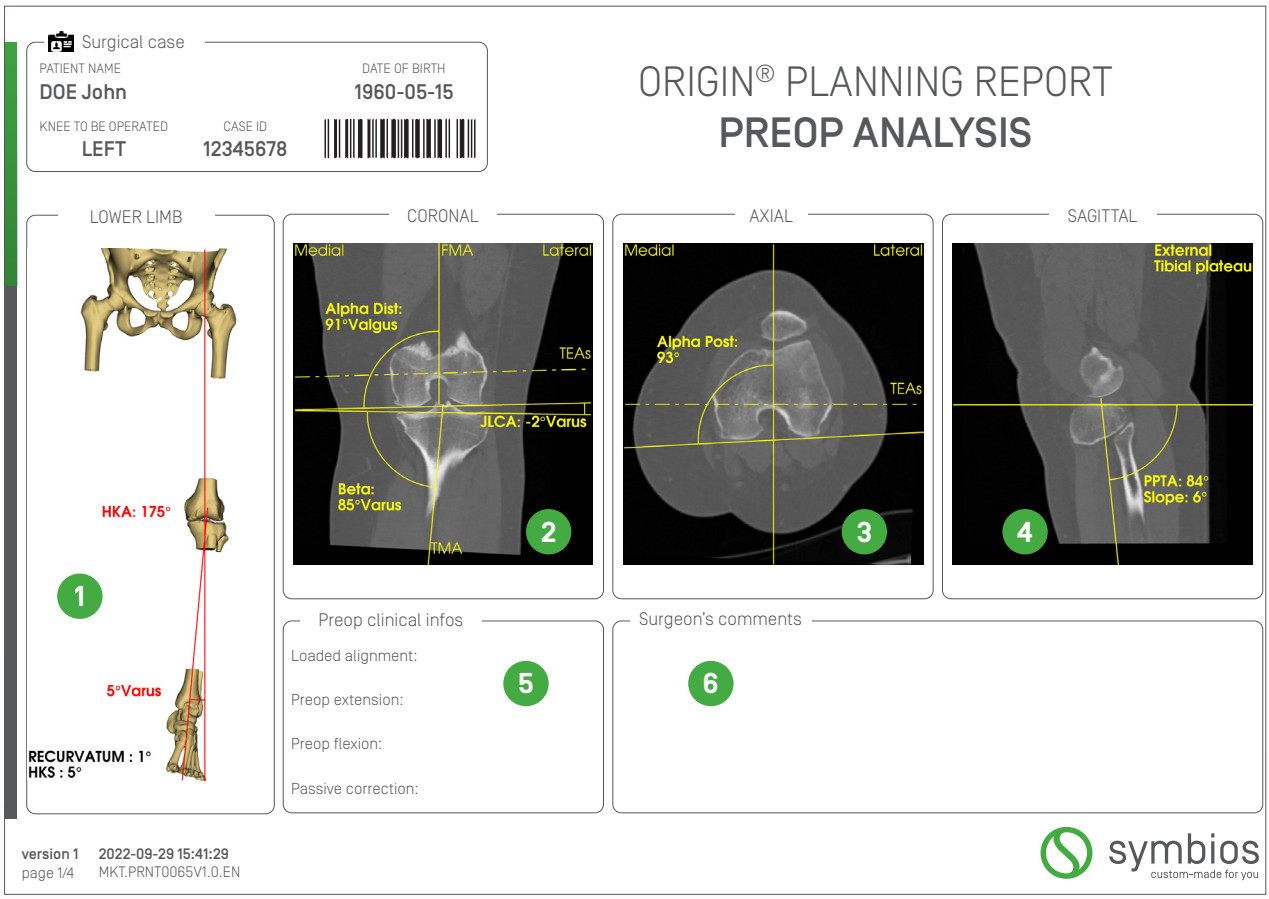
Disclaimer

The surgical technique is for illustrative purposes only. This material does not replace or supersede the instructions for use. It should not be considered the exclusive source of information, and should be used in conjunction with the instructions for use. See the instructions for use for the full list of indications, contraindications, warnings, precautions, and potential undesirable effects. For further information, contact your local Symbios representative.

ORIGIN® is a patient-matched device manufactured with size restriction to fit the anatomy of patients.

ORIGIN® Planning Report

Patient Preoperative Analysis



1 **HKA:** Preoperative "Hip-Knee-Ankle" Angle.
HKS: "Hip-Knee-Shaft" Angle (femoral valgus angle).
Flessum or Recurvatum (ex. FLESSUM : 1°).
Unloaded deformation (ex. 11° Valgus).

2 **JLCA:** "Joint Line Convergence Angle"
Measured angle between the distal femoral and tibial joint spaces.

Preoperative α_{Dist} angle: measured between the distal femoral joint line and the femoral mechanical axis (defined as a straight line from the centre of the distal femur to the centre of the femoral head).

Preoperative β angle: measured between the tibial joint line and the tibial mechanical axis (defined as a straight line from the centre of the proximal tibia to the centre of the ankle).

3 **Preoperative α_{Post} angle:** measured between the femoral mechanical axis and the posterior condylar axis (defined as a line tangent to the posterior condyles).

TEAs: "Trans-Epicondylar-Axis".

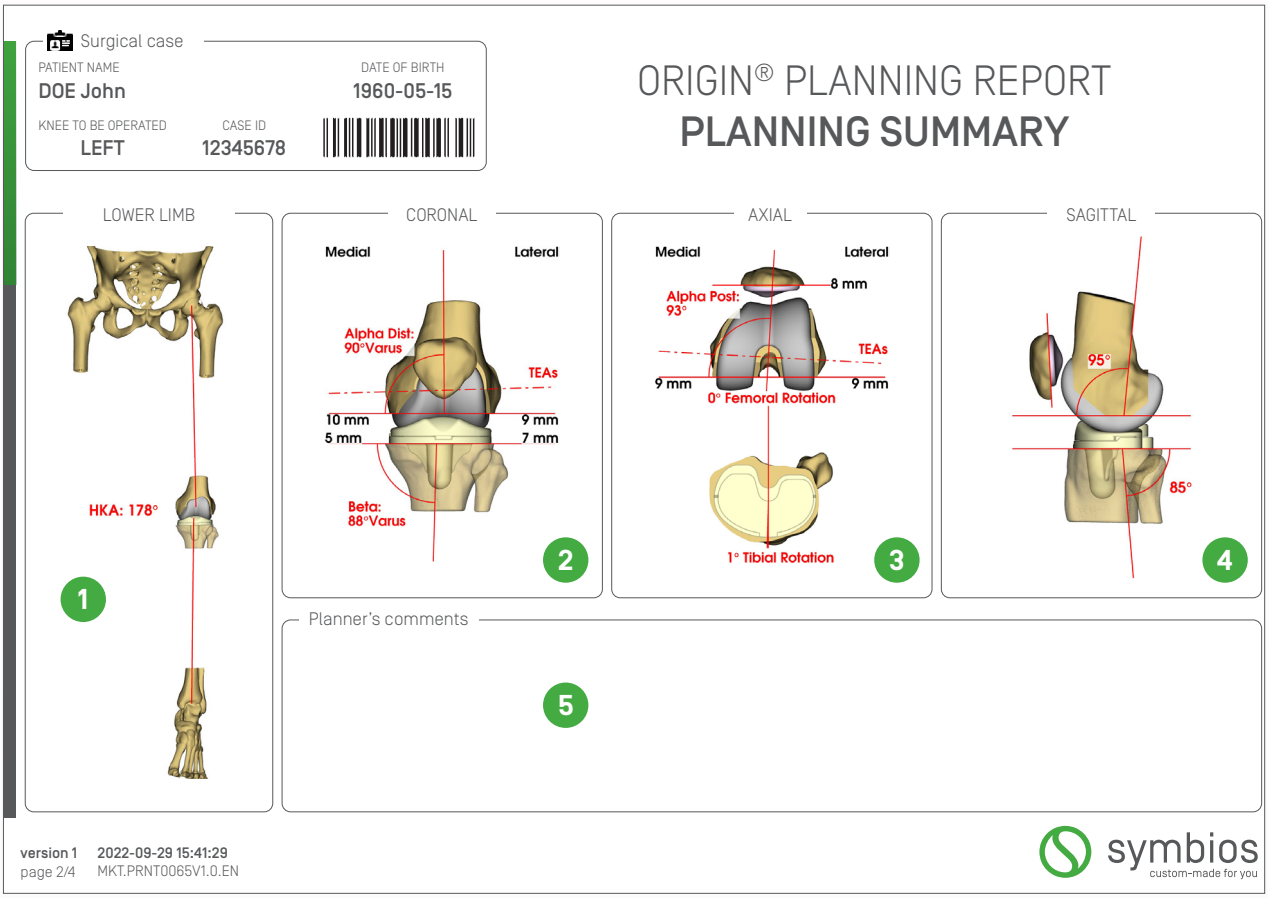
4 **PPTA:** "Posterior-Proximal-Tibial-Angle". Measured angle between the tangent to the healthy tibial compartment and the tibial mechanical axis. It is the posterior tibial slope.

5 **Preoperative clinical information** entered into Symbios Connect by the surgeon, about mobility and reducibility.

6 **Surgeon's comments** entered into Symbios Connect by the surgeon.

Planning Summary: ORIGIN® Implants

- For all views, the articulation is reduced by taking into account the correction provided by the implants according to the planning.
- The implants are in place (femur, tibia, insert, patella) with the insert +0 mm.



1 3D coronal view of the lower limb

- **Postoperative HKA**

2 3D coronal view of the knee + implants

- **Postoperative α_{Dist}**
- **Postoperative β**
- Proximal tibial + distal femoral resection thicknesses

3 3D axial view of the knee + implants

- **Postoperative α_{Post}**
- Postoperative external femoral rotation angle
- Posterior femoral and patella resection thicknesses
- Tibial rotation relative to the tibial A/P axis

4 3D sagittal view of the knee + implants

Flexion angle of femoral implant:
measured angle between the distal surface of the femoral implant and the femoral mechanical axis.

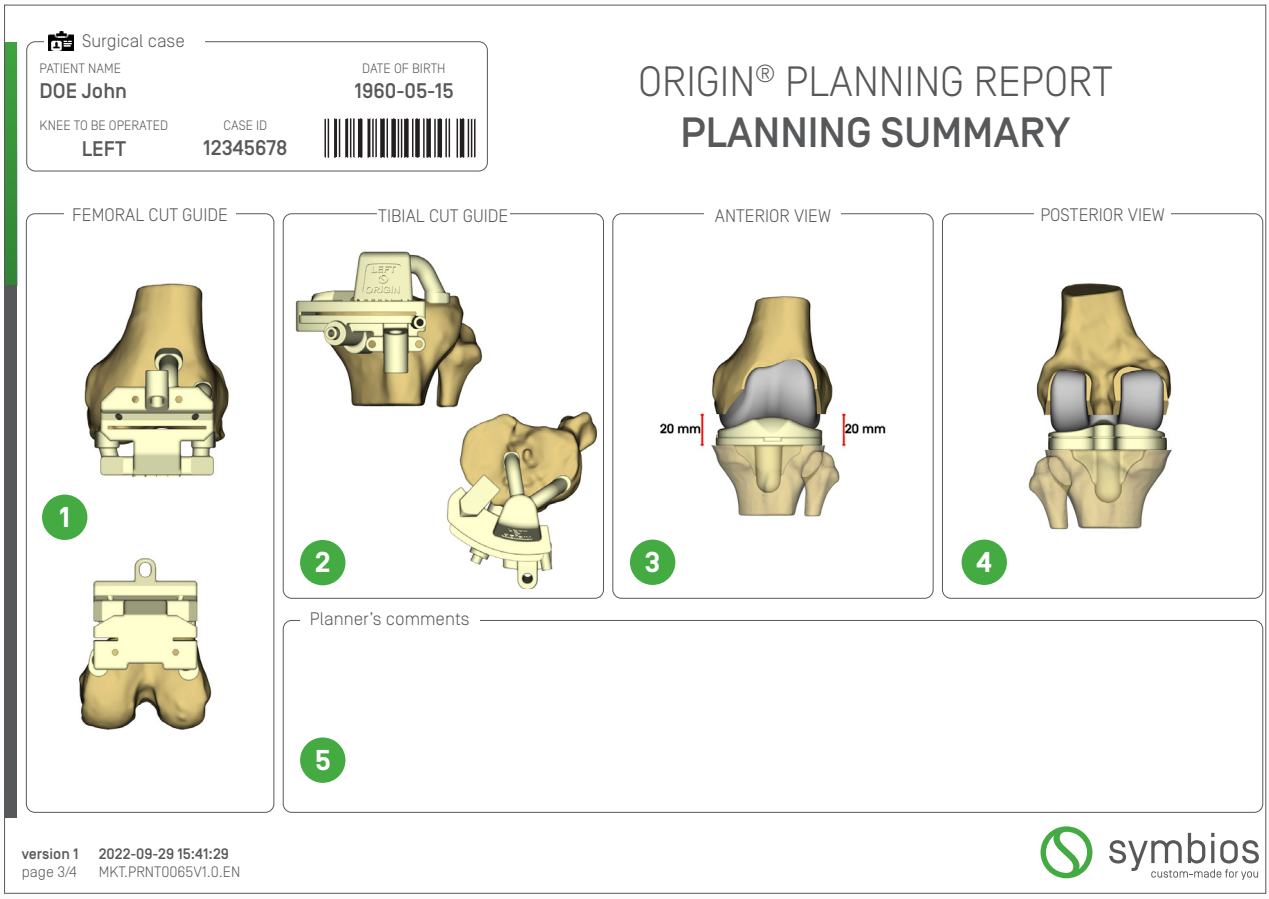
Tibial slope angle of the tibial implant:
difference at 90° of the angle measured between the surface of the tibial implant and the tibial mechanical axis.

5 Planner's comments

Any comments in relation to observations made during planning.
The size of the planned ORIGIN® patella is indicated here.

Planning Summary: ORIGIN® Guides

- Positioning of the femoral and tibial patient-matched cutting guides.
- Visualization of the total resection space and the footprint of the ORIGIN® implants.
- Posterior view with implants in place to identify the presence or absence of osteophytes.



1 Front and axial view of the femoral guide in place

2 Front and axial view of the tibial guide in place

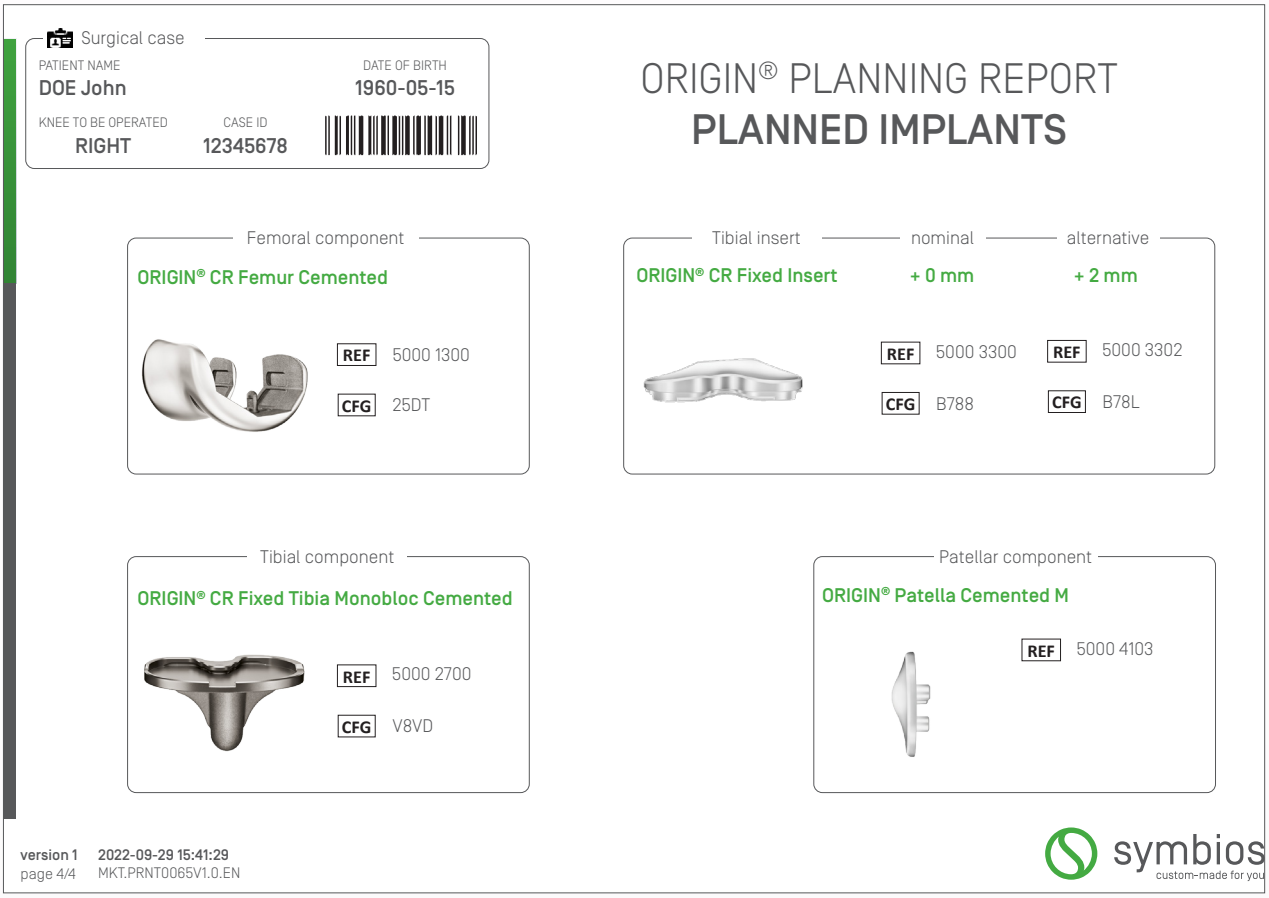
3 View of the gaps
To estimate the medial and lateral gaps between femoral and tibial resections.

4 Posterior view with implants
To identify residual posterior osteophytes.

5 Planner's comments
The planner gives details about the resections, the positioning and the use of the guides.

Planned Implants

Visualization of planned implants (femur, tibia, insert, and patella) that will be delivered.



CASE ID

Each case is identified by a unique ID, indicated on the report and on the labels of patient-matched devices (implants and single-use instruments), proof of the traceability from the order until the implantation. The case ID is also engraved on patient-matched implants.

CFG

The configuration number corresponds to the identifier of the unique shape of the implant for a given patient. It is indicated on the report and on the labels of all ORIGIN® implants (except for the ORIGIN® Patella and ORIGIN® Modular Stem implants). It allows to link what has been validated by the surgeon and what has been delivered.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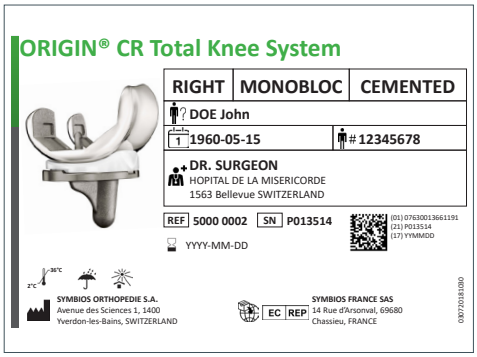
SURGICAL TECHNIQUE

PREPARING THE INSTRUMENTATION

Opening the ORIGIN® packaging

- Before the procedure, cross reference the label on the ORIGIN® packaging with the patient's details.
- Open all the single-use instrument sets and place them on the instrument table. Prepare the reusable ORIGIN® instrumentation which you will need to prepare the patella, for basic drilling and control. Check all instrumentation before use for completeness, functionality and any-potential damage.
- The ORIGIN® planning report is provided in the ORIGIN® packaging, and may be a useful assistance to the operating surgeon intraoperatively.



PREPARING THE INSTRUMENTATION

ORIGIN® KNEE-PLAN® GUIDES	
	ORIGIN® KNEE-PLAN® Femoral Cut Guide
	ORIGIN® KNEE-PLAN® Tibial Cut Guide
	KNEE-PLAN® Femoral Bone Model
	KNEE-PLAN® Tibial Bone Model

ORIGIN® CR FEMUR SET	
	ORIGIN® CR Trial Femur
	ORIGIN® CR Femoral Pegs Drill Guide
	ORIGIN® 4-in-1 Femoral Cuts Guide
	ORIGIN® CR Spacer* +0/+2 mm

ORIGIN® CR TIBIA SET	
	ORIGIN® CR Fixed Trial Tibia
	ORIGIN® CR Fixed Trial Insert +0 mm
	ORIGIN® CR Fixed Trial Insert +2 mm
	ORIGIN® CR Tibial Drill Guide Ø15 mm

*Instrument in option

PREPARING THE INSTRUMENTATION

	ORIGIN® IMPACTION SET
	Single-Use Impaction / Extraction Handle
	Single-Use Tibial Impaction Head
	Single-Use Femoral Impaction Head
	Single-Use Tibial Insert Impaction / Extraction Head
	ORIGIN® Single-Use Tibial Keel Broach
	Single-Use Recut Guide

In case of an ORIGIN® CR Total Knee System Modular, the ORIGIN® CR Tibia Set will include a trial tibial component with a length of stem corresponding to the extension stem that was planned by the surgeon during the preoperative planning.

	ORIGIN® CR TIBIA MODULAR SET
	ORIGIN® CR Fixed Trial Tibia Modular
	ORIGIN® CR Fixed Trial Insert +0 mm
	ORIGIN® CR Fixed Trial Insert +2 mm
	ORIGIN® CR Tibial Drill Guide Ø 15 mm
	ORIGIN® Tibial Drill Guide Adapter

SURGICAL STEPS

The recommended ORIGIN® surgical technique consists in entirely resurfacing the femur, performing the femur trial directly on the native tibia and then the proximal tibial cut, performing the extension and flexion controls with the trial femur and the +2 mm trial insert, corresponding to the thickness of the +0 mm trial insert with the trial tibial base plate. Then decide if a supplementary tibial cut is required to obtain the correct gap.

An alternative optional technique allows to do the conventional technique with a spacer.

Technique without spacer (recommended)

OR

Technique with spacer

Appendices

STEP 1
INCISION AND EXPOSURE

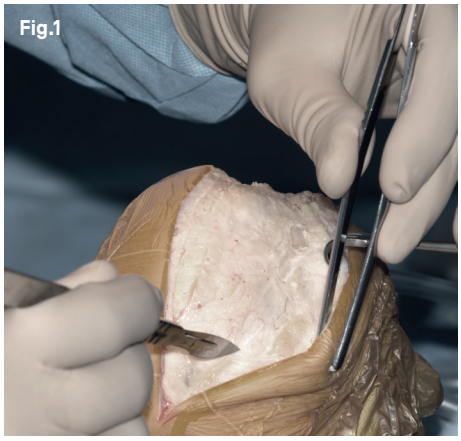


Fig.1

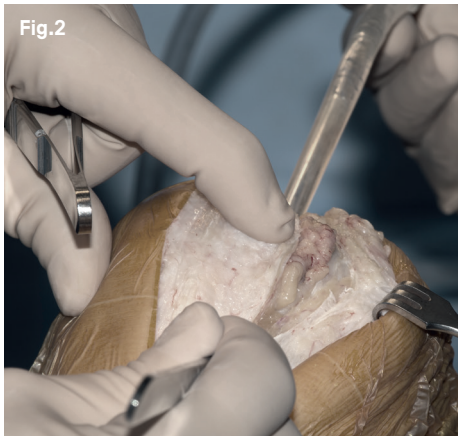


Fig.2

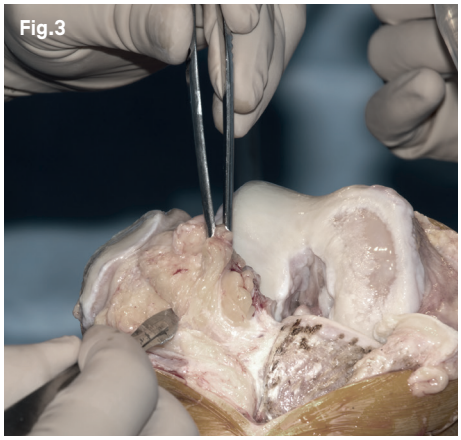


Fig.3

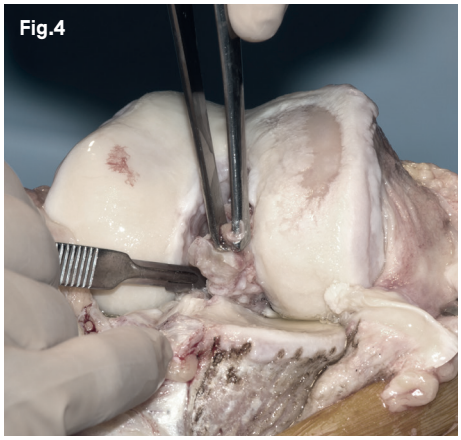


Fig.4

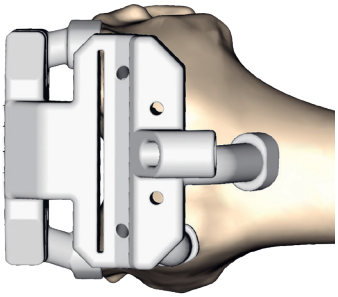
1.1 Surgical approach

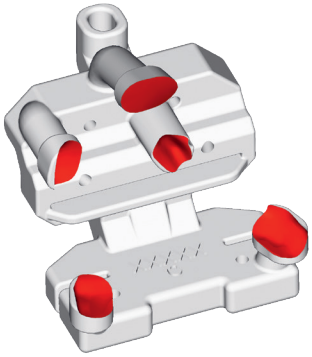
- The incision can be made with the knee in flexion or extension depending on the surgeon's standard practice. **(Fig.1)**
- Determine the approach based on surgical preferences and indications. An internal parapatellar approach is generally perfectly suited to the placement of the ORIGIN® CR total knee. **(Fig.2)**

› **Important:** ORIGIN® KNEE-PLAN® guides design differs according to the surgical approach chosen, which determines the space available to position the guide and perform bone cuts. Consequently, the approach shall be confirmed to Symbios when the order is placed within Symbios Connect.

1.2 Exposure for applying the femoral guide

- Expose the anterior part of the femur to free the osteophyte zones allowing stability of the femur guide. **Be careful not to remove the osteophytes.**





- Excision of the Hoffa's infrapatellar fat pad is performed by the surgeon depending on his technique. **(Fig.3)**

1.3 Anterior cruciate ligament resection

- Resect the entire anterior cruciate ligament (ACL) with the knee in flexion to facilitate the anterior subluxation of the tibia. **(Fig.4)**

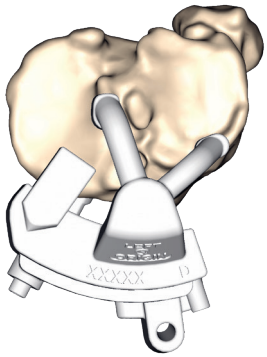
› **Important:** Since the ORIGIN® CR total knee is a posterior cruciate retaining implant, **a complete conservation of the posterior cruciate ligament (PCL) is mandatory.** Special attention shall therefore be paid to completely preserve the PCL in order to maintain the A/P stability of the total knee prosthesis.

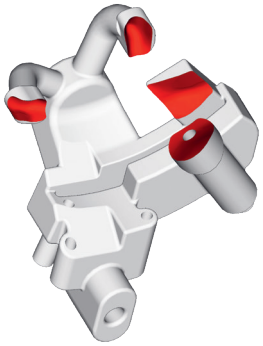
STEP 1
INCISION AND EXPOSURE

1.4 Exposure for applying the tibial guide

- Be sure to create enough space in the area around the tibial plateau and remove any cartilage to facilitate secure placement of the ORIGIN® KNEE-PLAN® guides. **(Fig.5, Fig.6)**

› **Important:** Sufficient exposure is necessary to facilitate the application of the ORIGIN® KNEE-PLAN® tibial guide supports, and more specifically **the antero-lateral support.**





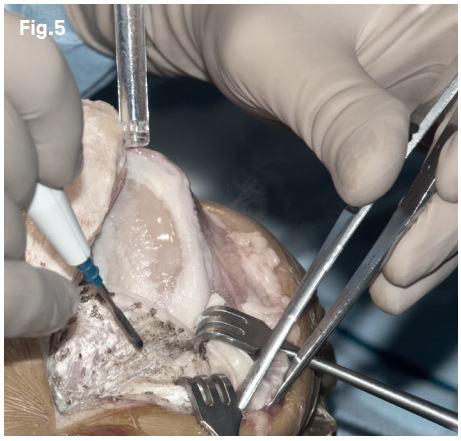


Fig.5

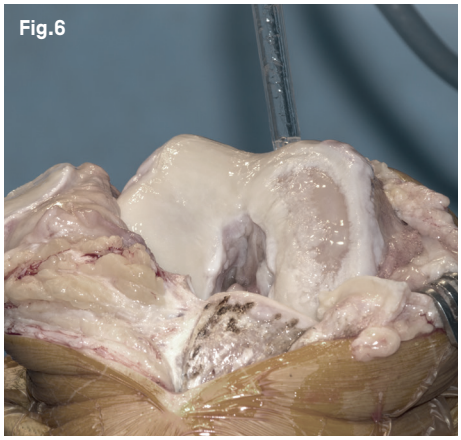


Fig.6

STEP 2
DISTAL FEMORAL CUT

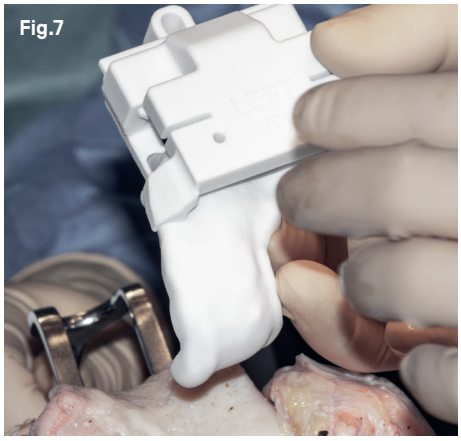


Fig.7

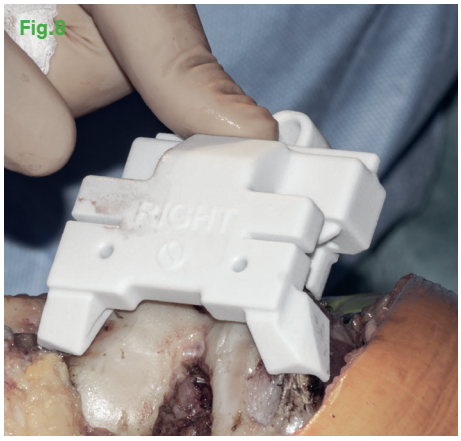


Fig.8


Fig.9

2.1 Examination of femoral bone model and guide

- Begin by examining the femoral cut guide and the corresponding bone model in order to identify the support zones. **(Fig.7)**

2.2 Initial positioning of the guide

- The support zones for the femoral cut guide shall be identified on the patient's host bone.
- Place the ORIGIN® KNEE-PLAN® guide on the femur, carefully following the planned position for support zones. Only one position is possible to obtain optimal stability for the four support zones in contact with the bone. **(Fig.8)**

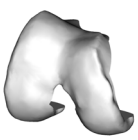
2.3 Marking out the support zones on the patient's bone

- While maintaining the ORIGIN® KNEE PLAN® guide in position, mark out the guide's support zones on the patient's host bone, in order to be able to resect any remaining cartilage. **(Fig.9)**

› **Tip:** After the femoral cut guide has been stabilized on the patient's bone, use the electrocautery or sterile skin marker to mark out the contour of the support zones in contact with the bone.

Instruments ^


ORIGIN® KNEE-PLAN®
Femoral Cut Guide


KNEE-PLAN®
Femoral Bone Model

STEP 2
DISTAL FEMORAL CUT

2.4 Resection of remaining cartilage on the support zones

- A meticulous resection shall be performed of the remaining cartilage on the femoral cut guide support zones. Resect the remaining cartilage using a scalpel or an electrocautery marker. **(Fig.10, Fig.11)**

› **Important :** The ORIGIN® KNEE-PLAN® guides are designed to obtain their mechanical stability essentially on the osteophyte contact zones. It is thus essential to resect the remaining cartilage to guarantee accuracy of the guides and reproducibility of the planning.

› **Important:** In order to prevent deterioration of the femoral cut guide's support zones, the use of a curette or any other aggressive instrument is not recommended.

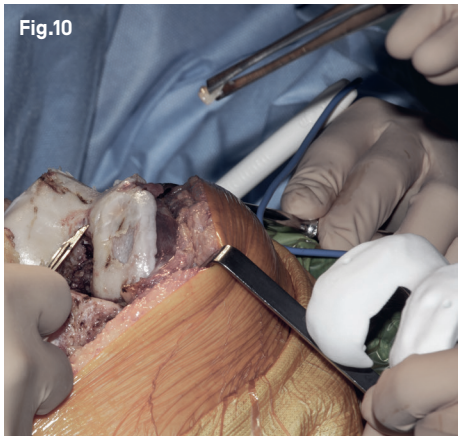


Fig.10

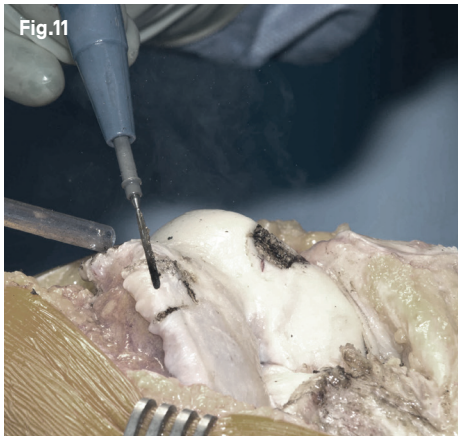


Fig.11

2.5 Controlling guide stability and fixation

- Control the femoral cut guide's mechanical stability on the patient's bone. If there is instability, systematically check the support zones.
- Insert two pins into the holes located above the distal cut slot in order to stabilize the guide. **(Fig.12)**

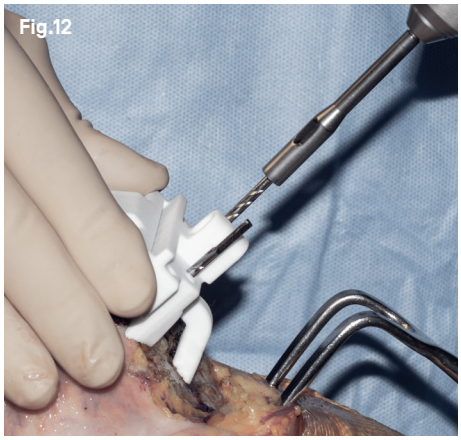


Fig.12

Instruments ^


ORIGIN® KNEE-PLAN®
Femoral Cut Guide


Drill Pin -
Ø 3.2 mm x 70 mm
9000 0031


Drill Pin Adapter
9000 0019

STEP 2
DISTAL FEMORAL CUT

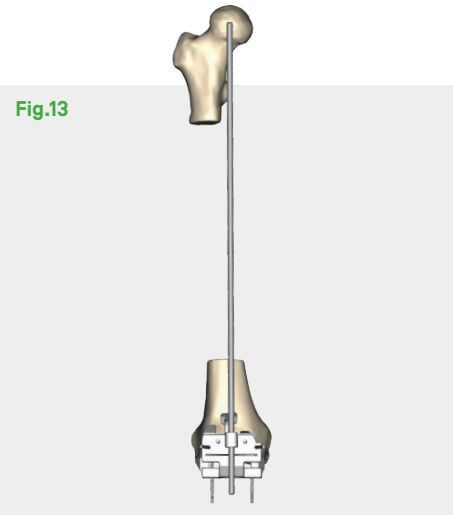


Fig.13

2.6 Controlling the frontal alignment

- Control the alignment obtained on the frontal plane by inserting the extramedullary rod into the housing provided on the anterior part of the femoral cut guide.
- Verify whether the distal end of the rod is centered on the femoral head; this allows confirmation that the femoral cut guide is correctly positioned on the femur. **(Fig.13)**

› **Important:** If the alignment is unsatisfactory, control and modify the femoral cut guide's position until you obtain an optimal stability and alignment by refering to the ORIGIN® planning report.

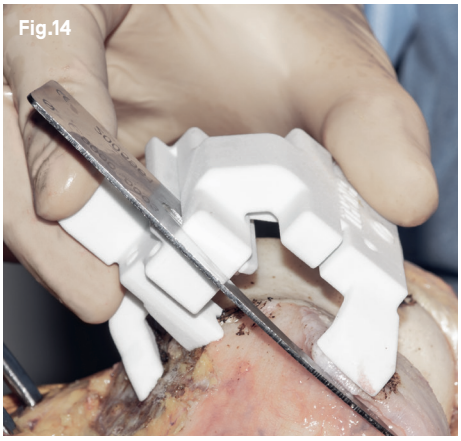


Fig.14

2.7 Controlling the resection level

- Control the distal femoral resection by inserting the resection controller into the slot of the guide. **(Fig.14)**
- Compare the level of the resection with the femoral bone model, as well as with the values of the ORIGIN® planning report. **(Fig.15)**

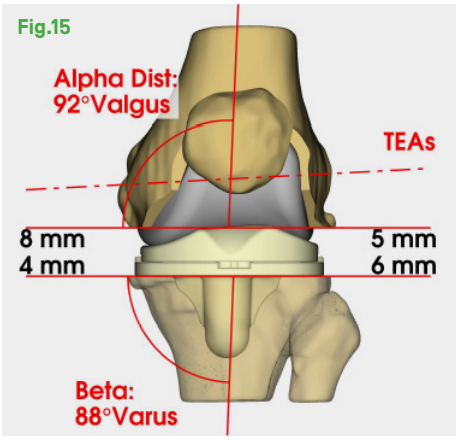
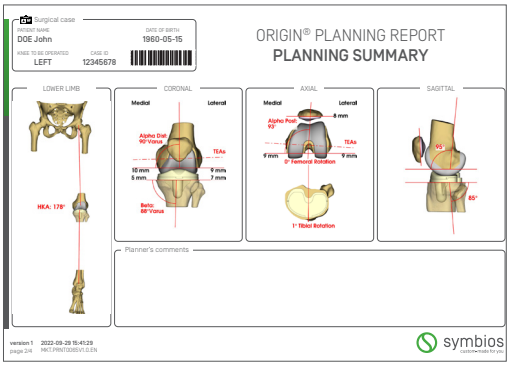
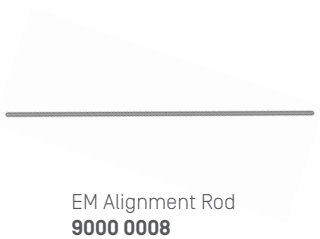


Fig.15



Instrumentation ^

Resection Controller
9000 0003



EM Alignment Rod
9000 0008

STEP 2
DISTAL FEMORAL CUT

2.8 Stabilizing the guide for the distal cut

- Insert two drill pins into the oblique holes above the slot to secure the guide's stability for the distal femoral cut. **(Fig.16)**

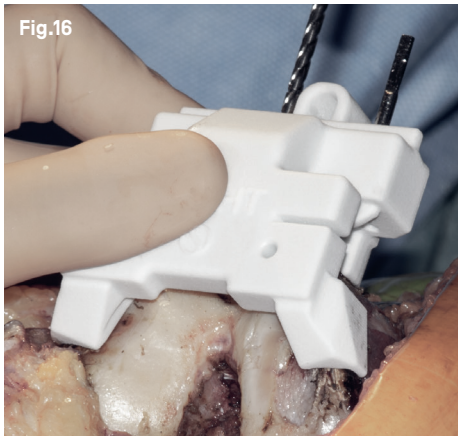


Fig.16

2.9 Mark the holes for the 4-in-1 cuts guide

- Make guide holes for positioning the 4-in-1 femoral cuts guide, using a drill pin successively inserted into and axially withdrawn from the frontal holes of the guide. **(Fig.17)**
- Leave the drill pin in one of the holes in order to stabilize the guide during the distal cut.

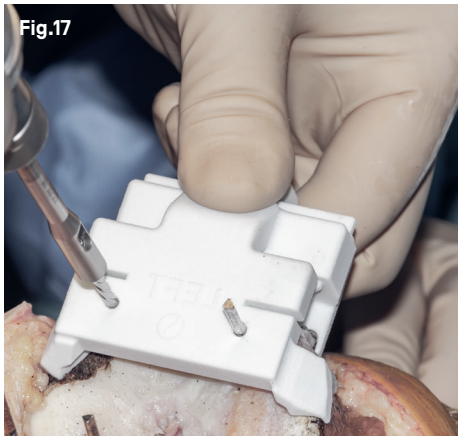


Fig.17

2.10 Distal femoral cut

- Complete the distal femoral cut directly in the ORIGIN® KNEE-PLAN® guide slot, by using a **1.37 mm**-thick oscillating saw blade, and beginning with the distal condyle opposite the drill pin left during the distal cut to stabilize the guide. Alternate the position of the distal drill pin to finalise the cut on the other condyle. **(Fig.18)**

› **Important:** The recommended saw blade thickness for guaranteed precision of the ORIGIN® KNEE-PLAN® guide slot is **1.37 mm.** The saw blade shall touch bone prior to initiation of the saw blade.

- Once the distal cut is completed, axially remove the distal drill pin and the two oblique drill pins using the pin removal forceps, then extract the ORIGIN® KNEE-PLAN® femoral cut guide.
- Keep the two anterior drill pins in place in case a femoral recut is necessary.

› **Important:** If the resected bone is too thin compared to the bone model, a femoral recut is recommended. The bone model integrates the thickness of the saw blade.

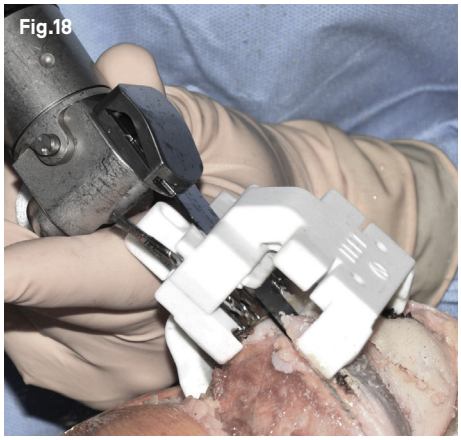


Fig.18

Instrumentation ^


ORIGIN® KNEE-PLAN® Femoral Cut Guide


Drill Pin Adapter
9000 0019


Drill Pin -
Ø 3.2 mm x 70 mm
9000 0031


Pin Removal Forceps
3020

STEP 3
A/P FEMORAL CUTS AND CHAMFER CUTS

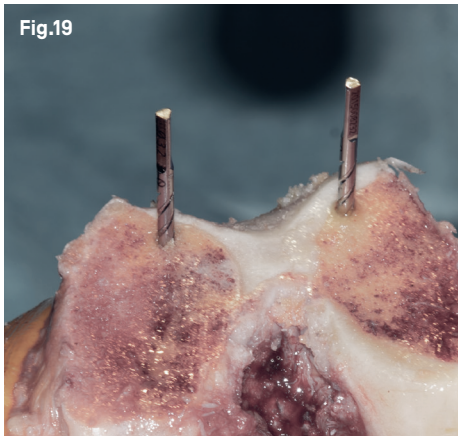


Fig.19

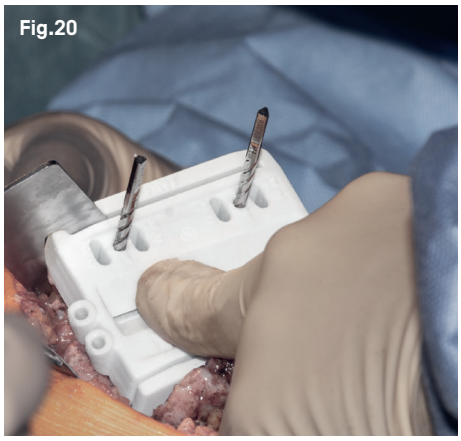


Fig.20

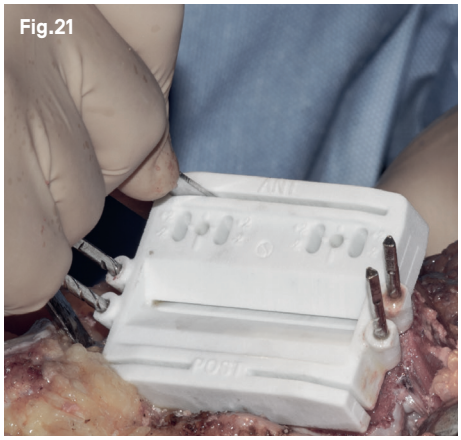


Fig.21

3.1 Positioning of distal drill pins

- Insert two drill pins into the distal holes that were marked out during the initial installation of the ORIGIN® KNEE-PLAN® femoral cut guide (see step 2.9). **(Fig.19)**

3.2 Positioning of the 4-in-1 femoral cuts guide

- Position the single-use 4-in-1 femoral cuts guide on the two parallel drill pins, by using the holes marked "0", then applying it against the distal surface of the femur. **(Fig.20)**

› **Important:** The planned anterior femoral cut is to be reproduced by using the holes marked "0" on the 4-in-1 femoral cuts guide.

3.3 Controlling anterior and posterior resections

- Control the resection level for the anterior femoral cut, by inserting the resection controller into the anterior slot of the cutting guide, to ensure there is no notching of the anterior femoral cortical bone. **(Fig.21)**

Instrumentation ^


Drill Pin -
Ø3.2 mm x 70 mm
9000 0031


Drill Pin Adapter
9000 0019


ORIGIN®
4-in-1 Femoral Cuts Guide

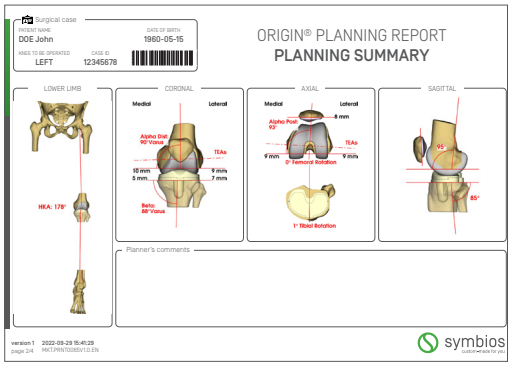

Resection Controller
9000 0003

STEP 3
A/P FEMORAL CUTS AND CHAMFER CUTS

› **Important :** In case of notching, reposition the 4-in-1 femoral cuts guide onto the distal drill pins by using the side holes marked " -2/+2 ", which allow an anterior shift of the anterior femoral cut of 1 to 2 mm. **(Fig.22)**

- Control the posterior cut using the same method.
- Compare the level of the posterior resection with the values of the ORIGIN® planning report.

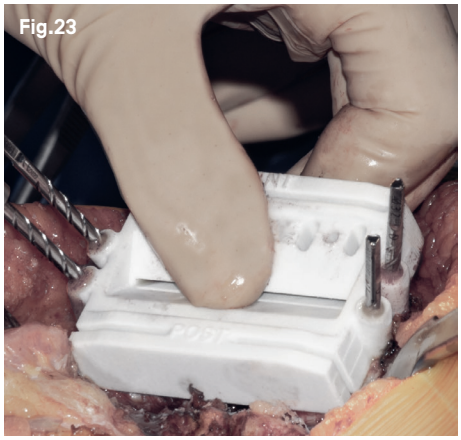
Fig.22



3.4 Stabilization of the guide for A/P cuts

- Insert two drill pins into the oblique holes on each side of the 4-in-1 femoral cuts guide, to secure the guide's stability for anterior and posterior cuts, as well as chamfer cuts. **(Fig.23)**
- Axially remove the two remaining pins into the distal holes with the pin removal forceps.
- Control that the 4-in-1 femoral cuts guide is well applied on the distal surface and that harder bone above the intercondylar notch has been well removed.

Fig.23



Instrumentation ^

Pin Removal Forceps
3020

STEP 3
A/P FEMORAL CUTS AND CHAMFER CUTS

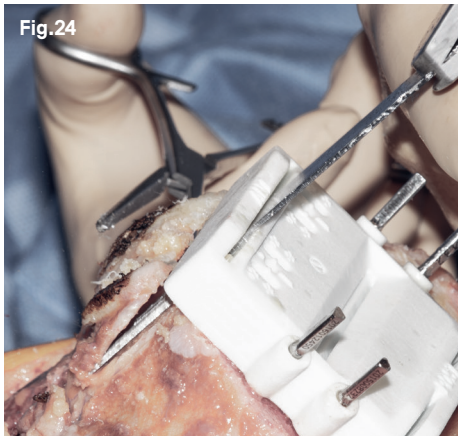


Fig.24

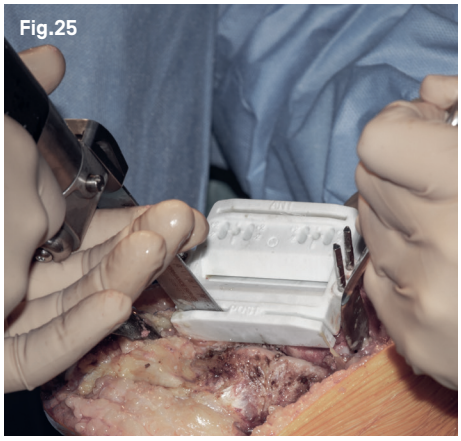


Fig.25

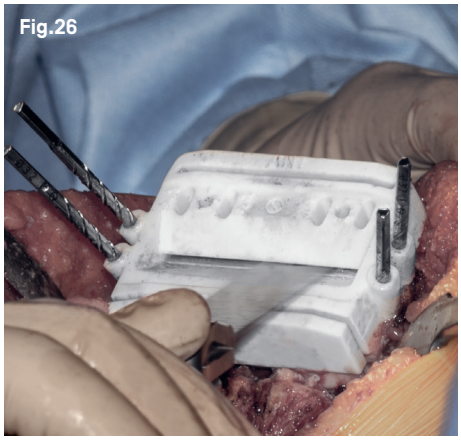


Fig.26

3.5 A/P femoral cuts and chamfer cuts

- Complete the anterior femoral cut **(Fig.24)**, then the posterior cut in the corresponding slots of the 4-in-1 femoral cuts guide. **(Fig.25)**

› **Important:** For a better outcome in the quality of the cuts, it is recommended to mark the anterior and posterior cuts before the chamfer cuts.

› **Important:** The recommended saw blade thickness for guaranteed precision in conducting the single-use guides is **1.37 mm.** Using a thinner blade could compromise guide reliability for the cut. The saw blade shall touch bone prior to initiation of the saw blade.

- Make the anterior and posterior chamfer cuts by using the oblique slots in the 4-in-1 femoral cuts guide. **(Fig.26)**

› **Tip:** Begin with the posterior chamfer cut to maintain better guide stability during the anterior chamfer cut.

› **Important:** In case of very sclerotic bone on the distal and/or posterior condyle(s), it is possible that the cut is insufficient. Check the resected bone by comparing to the bone model.

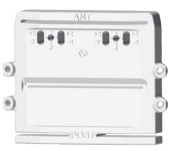
3.6 Finishing steps

- Axially remove the oblique two drill pins by using the pin removal forceps, then remove the cutting guide.
- If necessary, finish the cuts using an electrocautery marker or an osteotome.

Instrumentation ^


Drill Pin -
Ø3.2 mm x 70 mm
9000 0031


Drill Pin Adapter
9000 0019


ORIGIN®
4-in-1 Femoral Cuts Guide


Pin Removal Forceps
3020

STEP 4
FEMORAL PEGS PREPARATION

4.1 Positioning and fixation of the guide

- Position the femoral pegs drill guide on the distal face of the femur, then center it medio-laterally in order to perfectly fit the contour of both condyles and trochlea. **(Fig.27)**
- Insert two drill pins into the anterior holes to fix the guide in the desired position.

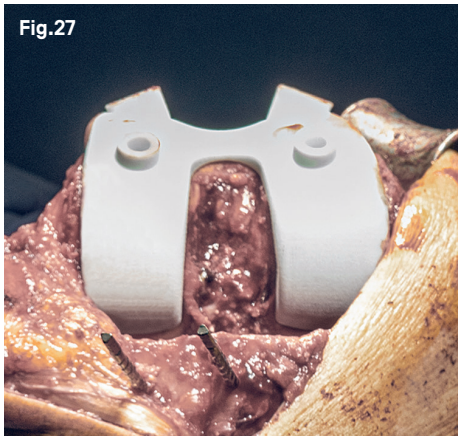


Fig.27

4.2 Preparing the holes for the femoral component pegs

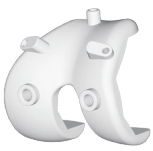
- Drill the holes for the pegs, using the holes in the femoral pegs drill guide.

4.3 Bone cleaning

- Axially remove the two drill pins with the pin removal forceps. Next, remove the femoral pegs drill guide.
- Make sure to remove remaining osteophytes in the posterior part of the notch.

› **Important:** Bone cleaning shall be done carefully to avoid damaging the PCL.

Instrumentation ^


ORIGIN® CR
Femoral Pegs Drill Guide


Drill Pin -
Ø 3.2 mm x 70 mm
9000 0031


Drill Pin Adapter
9000 0019


Stop Drill Bit -
Ø 6 mm x 24 mm
9000 4003


Pin Removal Forceps
3020

STEP 5
FEMUR TRIAL – EVALUATION OF THE DEFORMATION

Fig.28

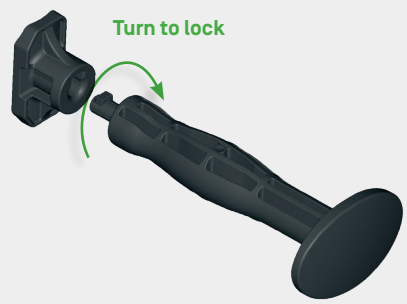
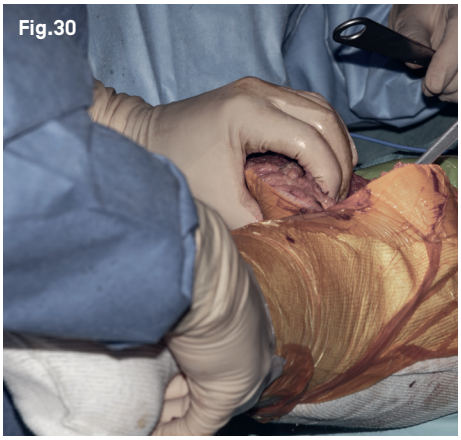


Fig.29

Fig.30



5.1 Placement of the trial femoral component

- Assemble the single-use femoral impaction head onto the single-use impactor handle. **[Fig.28]**
- Position and impact the trial femoral component on the distal surface of the femur, making sure to adjust the position of the anchoring pegs in the holes prepared on the femur. **[Fig.29]**

› **Tip:** To make assembling easier onto the single-use impaction / extraction handle, the single-use impaction head can be lubricated with sterile water.

5.2 Cleaning of soft tissue on the tibial support zones

- Remove the soft tissue such as residues from tibial anterior cruciate ligament (ACL) insertion or remains of anterior and posterior meniscal horns.

5.3 Evaluation of the deformation

- Estimate the space and the stability of the joint. **[Fig.30]**

› **Important:** If abnormal laxity is felt, reduce the thickness of the planned tibial cut by using the single-use recut guide after having introduced the two pins in the anterior holes of the positioned ORIGIN® KNEE-PLAN® tibial cut guide.

Instrumentation ^

ORIGIN® CR
Trial Femur

Single-Use Impaction /
Extraction Handle

Single-Use Femoral
Impaction Head

STEP 6
PROXIMAL TIBIAL CUT

6.1 Examination of tibial bone model and guide

- Begin by examining the tibial guide and the corresponding bone model in order to identify the support zones. **(Fig.31)**

6.2 Cleaning of soft tissue on the tibial support zones

- Remove the soft tissue that could hinder proper application of the guide on the tibia. **(Fig.32)**

› **Important:** Be sure to thoroughly clean **the tibial spines,** and **the antero-medial tibial zone,** which are support zones for the ORIGIN® KNEE-PLAN® tibial guide.

6.3 Initial positioning of the guide

- The support zones for the guide shall be identified on the patient's host bone.
- Place the ORIGIN® KNEE-PLAN® guide onto the tibia, carefully following the planned position for the support zones. Only one position is possible to obtain optimal stability for the support zones in contact with the bone. **(Fig.33)**

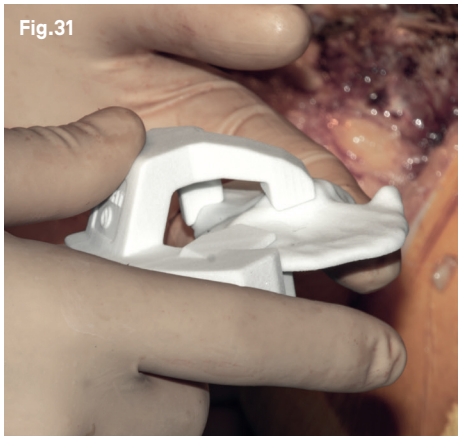


Fig.31

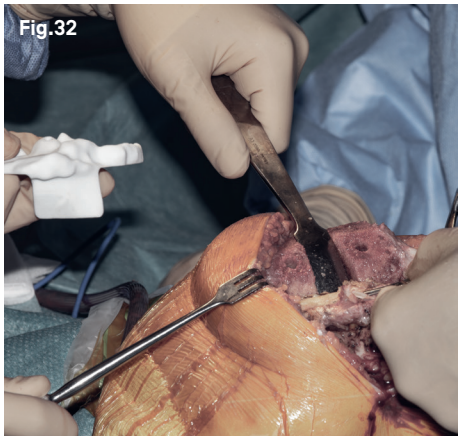


Fig.32

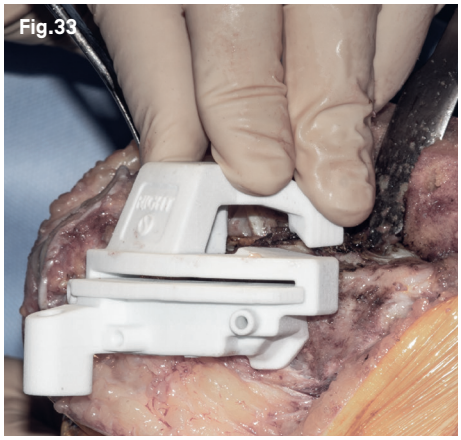
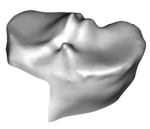


Fig.33

Instrumentation ^


ORIGIN® KNEE-PLAN®
Tibial Cut Guide


KNEE-PLAN®
Tibial Bone Model

STEP 6
PROXIMAL TIBIAL CUT

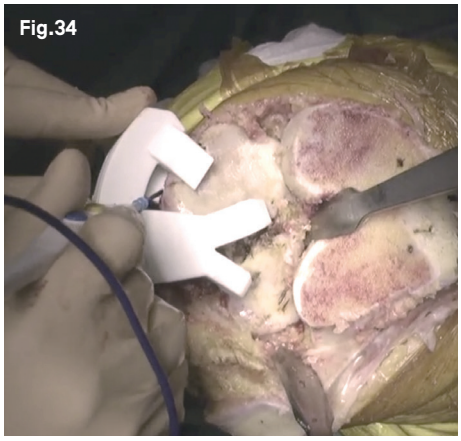


Fig.34

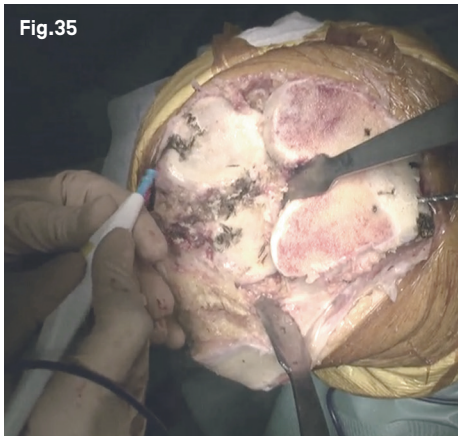


Fig.35

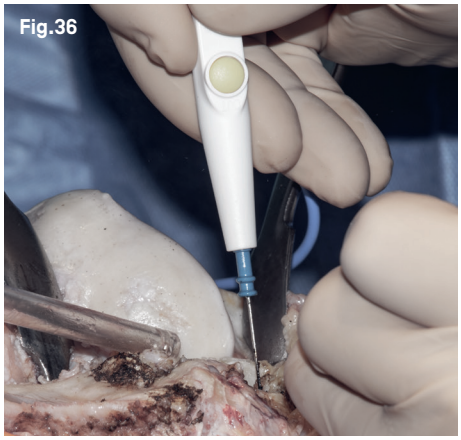


Fig.36

6.4 Marking out the support zones on the patient's bone

- While maintaining the guide in position, mark out the guide's support zones on the patient's host bone, in order to be able to resect any remaining cartilage. **(Fig.34)**

› **Tip:** After the tibial guide has been stabilized on the patient's bone, use the electrocautery or sterile skin marker to mark out the contour of the support zones in contact with the bone.

6.5 Resection of remaining cartilage on the support zones

- A meticulous resection shall be performed on the remaining cartilage on the tibial guide support zones. Resect the remaining cartilage using a scalpel or an electrocautery marker. **(Fig.35, Fig.36)**

› **Important:** The ORIGIN® KNEE-PLAN® guides are designed to obtain their mechanical stability essentially on the osteophyte contact zones. It is thus essential to resect the remaining cartilage to guarantee accuracy of the guides and reproducibility of the planning.

› **Important:** In order to prevent deterioration of the guide's support zones, the use of a curette or any other aggressive instrument is not recommended.

STEP 6
PROXIMAL TIBIAL CUT

6.6 Controlling guide stability and fixation

- Control the guide's mechanical stability on the patient's bone. If there is instability, systematically check the support zones and compare with the bone model.
- Insert two drill pins into the holes located below the distal cut slot in order to stabilize the guide. **(Fig.37)**

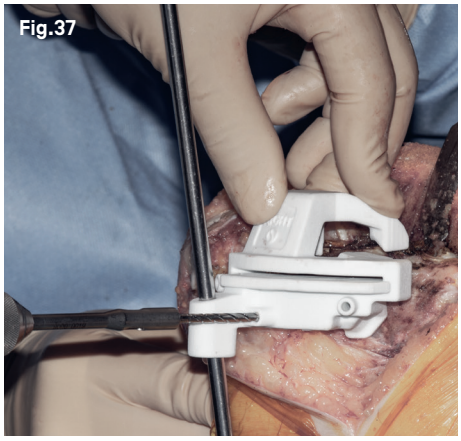


Fig.37

6.7 Controlling the frontal alignment

- Control the alignment obtained on the frontal plane by inserting the extramedullary rod into the housing provided on the anterior part of the guide.
- Verify whether the distal end of the rod is centered on the middle of the ankle; this allows confirmation that the guide is correctly positioned on the tibia. **(Fig.38)**

› **Important:** The hole on the anterior part of the guide is **personalized in order to always guide the EM alignment rod to the middle of the ankle,** this is reproducing the coronal and sagittal alignments that have been validated during the preoperative planning step. In the case of "up-slope" of few degrees on the sagittal plane, the consequence will be that the EM alignment rod will point few centimetres above the centre of the ankle (which is determined during preoperative planning).

› **Important:** If the alignment is unsatisfactory, control and modify the guide's position until the EM alignment rod is centered on the middle of the ankle, so that the obtained alignment is consistent to the preoperative planning.

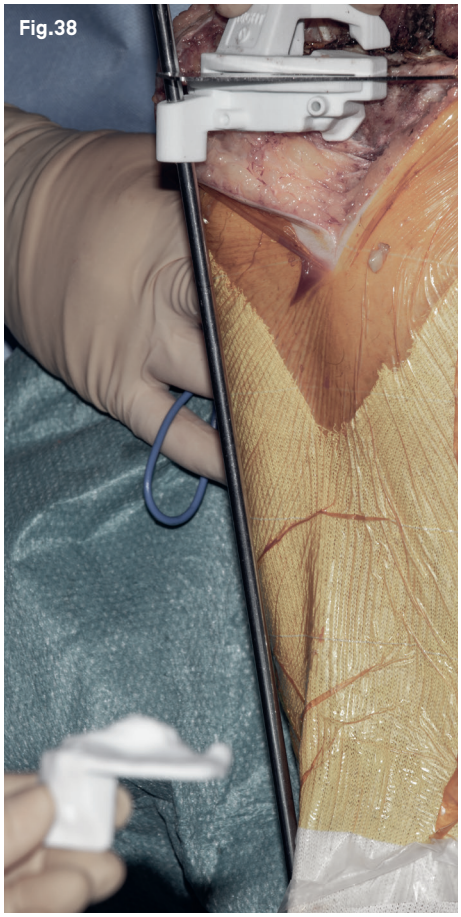
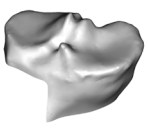
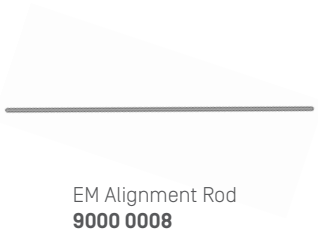


Fig.38

Instrumentation ^


ORIGIN® KNEE-PLAN®
Tibial Cut Guide


KNEE-PLAN®
Tibial Bone Model


EM Alignment Rod
9000 0008


Resection Controller
9000 0003

STEP 6
PROXIMAL TIBIAL CUT

Fig.39

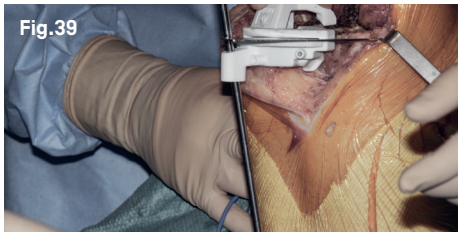


Fig.40

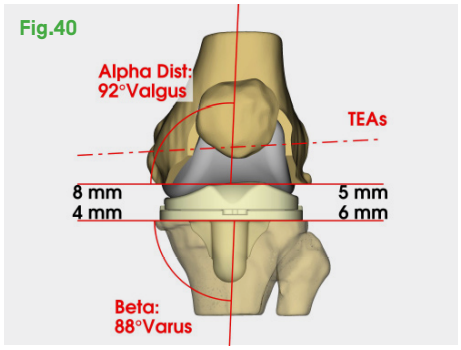


Fig.41

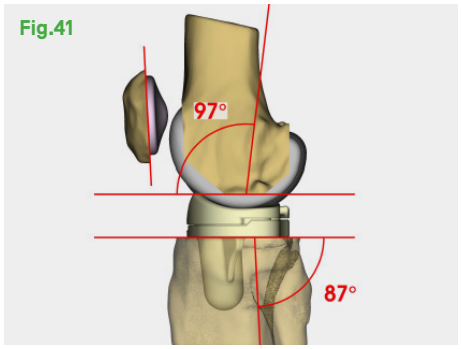
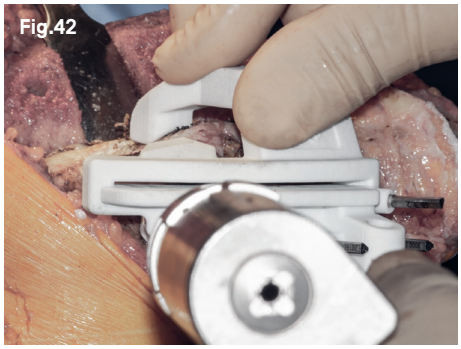
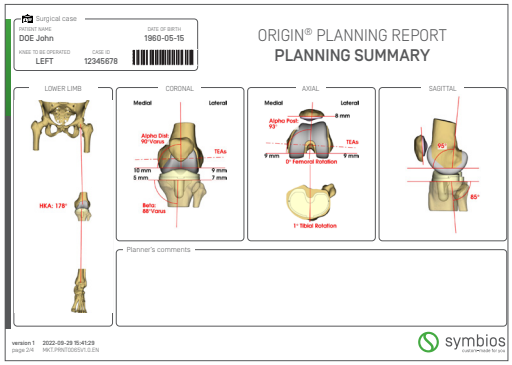


Fig.42



6.8 Controlling the resection level

- Control the tibial resection by inserting the resection controller into the slot of the guide. **(Fig.39)**
- Compare the level of the resection observed with the tibial bone model, as well as with the values of the ORIGIN® planning report. **(Fig.40)**



- The tibial slope can also be controlled using the same method. **(Fig.41)**

6.9 Stabilizing the guide

- Insert a third drill pin into the oblique hole below the slot to secure the guide's stability during the tibial cut. **(Fig.42)**

Instrumentation

Drill Pin -
Ø3.2 mm x 70 mm
9000 0031

Drill Pin Adapter
9000 0019

STEP 6
PROXIMAL TIBIAL CUT

6.10 Tibial cut

- Make the tibial cut directly in the slot of the ORIGIN® KNEE-PLAN® guide. **(Fig.43)**
- Once the tibial cut is completed, axially remove the oblique drill pin using the pin removal forceps, then extract the ORIGIN® KNEE-PLAN® tibial guide.
- Mark the planned tibial rotation by making a mark in the middle of the two drill pins with the electrocautery marker.
- Keep the two drill pins in place in case of tibial recut.
- Finish the posterior tibial resection, usually using an osteotome or an electrocautery marker. **(Fig.44)**

› **Important:** Care shall be taken not to damage the PCL during the tibial cut. **(Fig.45)**

› **Important:** During ORIGIN® planning, the prosthetic joint line is always planned based on the constitutional femoral joint line (reproduction of the best match of patient's anatomy).

In case on knee laxity before tibial resection, it is possible to reduce the tibial resection by 2 to 4 mm.Position the single-use recut guide on the two frontal drill pins by inserting the drill pins into the holes marked " +2 " or " +4 " which respectively correspond to -2 mm and -4 mm of resection compared to the initial cut. **(Fig.52)**

› **Important:** The recommended saw blade thickness for guaranteed precision with the ORIGIN® KNEE-PLAN® guide slot is **1.37 mm.** Using a thinner saw blade could compromise guide reliability. The saw blade shall touch bone prior to initiation of the saw blade.

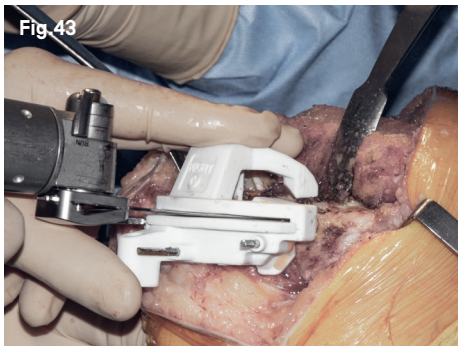


Fig.43

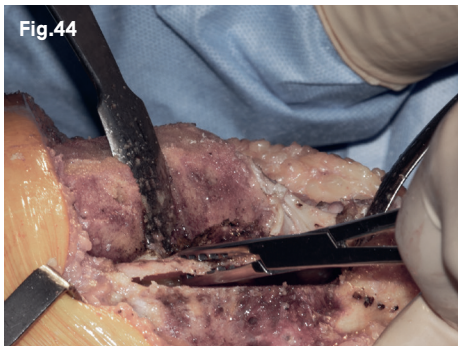


Fig.44


Fig.45

6.11 Comparing the resection with the bone model

- Compare the completed tibial resection with the bone model in order to control the accuracy of the cut. **(Fig.46)**
- If the thickness of the resection is too conservative compared to the bone model, an additional tibial cut is to be performed (see step 7.4).

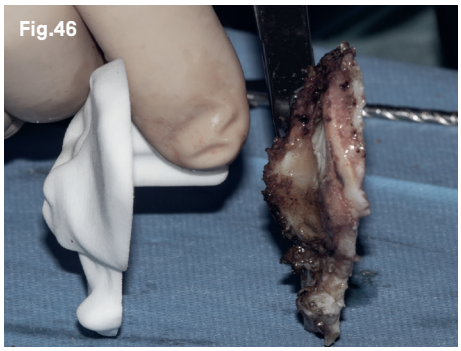
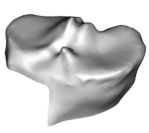


Fig.46

Instrumentation ^


ORIGIN® KNEE-PLAN®
Tibial Cut Guide


KNEE-PLAN®
Tibial Bone Model


Drill Pin -
Ø 3.2 mm x 70 mm
9000 0031


Drill Pin Adapter
9000 0019


Pin Removal Forceps
3020

STEP 7
TRIALS

Fig.47

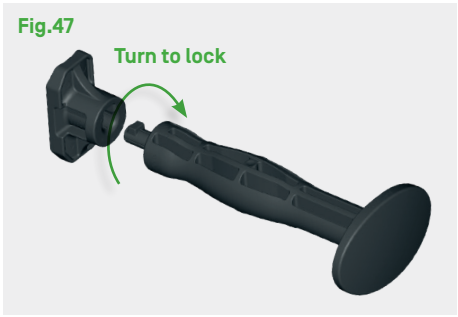


Fig.48

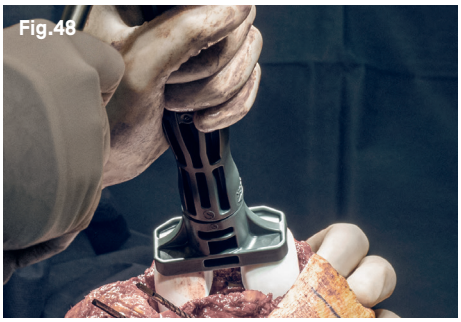


Fig.49

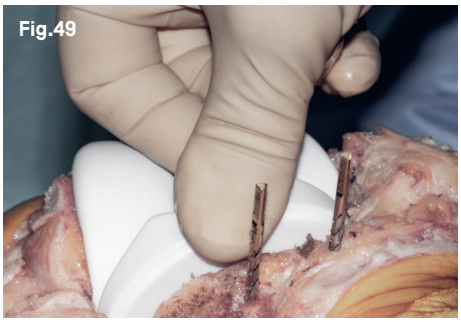
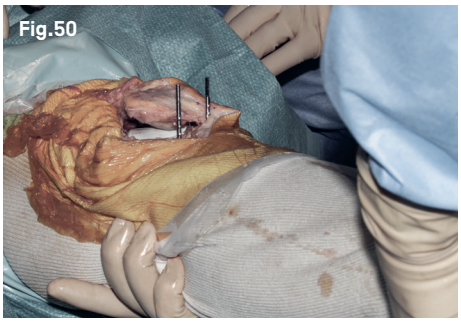


Fig.50



7.1 Placement of the trial femoral component

- Assemble the single-use femoral impaction head onto the single-use impaction / extraction handle. **[Fig.47]**
- Position and impact the trial femoral component on the distal surface of the femur, making sure to adjust the position of the anchoring pegs in the holes prepared on the femur. **[Fig.48]**

7.2 Placement of the trial tibial insert +2 mm

- Position the +2 mm trial tibial insert directly on the tibial cut surface, in order to evaluate the level of resections. **[Fig.49]**

› **Important:** The fixed trial insert +2 mm is equivalent to the thickness of +0 mm trial insert and trial tibial base plate.

7.3 Controlling knee stability and mobility

- Proceed with verifying joint stability and ligament balancing in flexion and extension. **[Fig.50]**
- Control joint mobility by verifying achievement of a complete extension, as well as flexion of at least 130°. **[Fig.51]**

› **Tip:** In case the knee joint seems too tight, test with the trial insert +0 mm that simulates a 2 mm tibial recut.

Instrumentation

Single-Use Impaction / Extraction Handle

Single-Use Femoral Impaction Head

ORIGIN® CR Trial Femur

ORIGIN® CR Fixed Trial Insert +2 mm

STEP 7
TRIALS

7.4 Proceed to tibial recut

- In case of the knee is tight in flexion and extension, proceed to a millimetric tibial recut from 1 to 4 mm. **[Fig.52]**
- Finish the tibial resection, usually using an osteotome or an electrocautery marker. **[Fig.53]**
- Remove the two drill pins with the pin removal forceps.

› **Important:** Care shall be taken not to damage the PCL during the tibial recut.


Fig.51

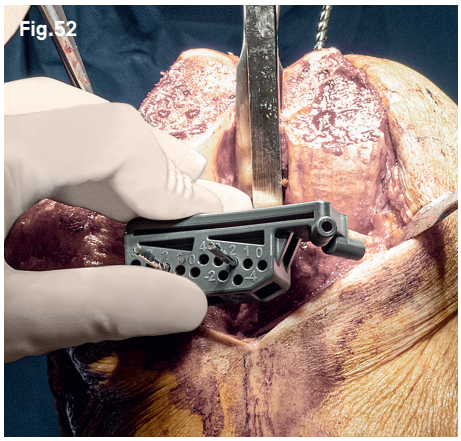


Fig.52

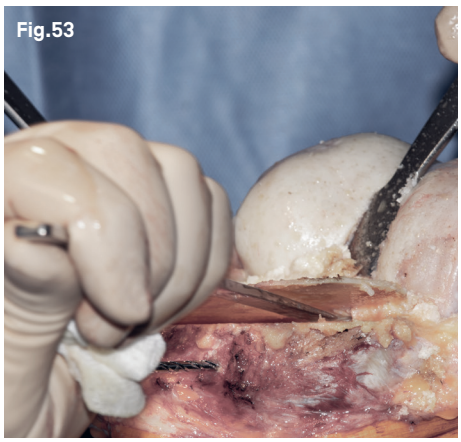


Fig.53

Instrumentation ^


Single-Use Recut Guide


Pin Removal Forceps
3020

STEP 8
TIBIAL BASE PLATE PREPARATION


Fig.54

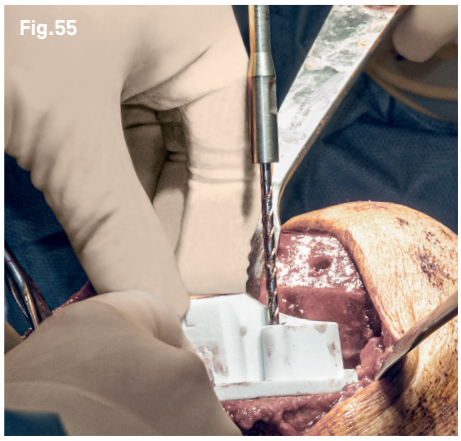


Fig.55

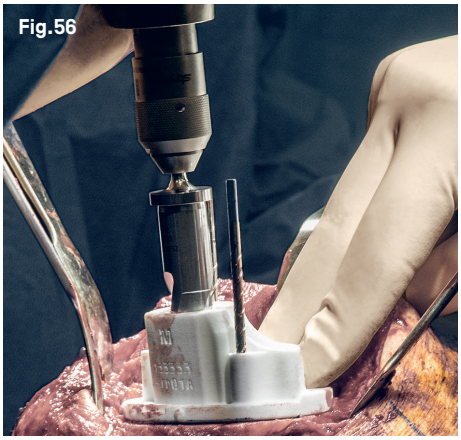


Fig.56

8.1 Placement of the tibial drill guide with the planned rotation

- Position the tibial drill guide on the proximal tibial surface. Adjust the rotation of the tibial drill guide by centering it on the marker made beforehand with the electrocautery marker on the anterior tibia (see step 6), corresponding to the centre of the two tibial drill pins. Medio-lateral and antero-posterior coverage shall be good and shall not overhang. **(Fig.54)**

8.2 Fixation of the tibial drill guide

- Insert two drill pins into the holes around the central keel hole to secure the guide's stability for tibial preparation. **(Fig.55)**

8.3 Preparatory drilling for the tibial keel

- Drill into the guide's central hole using the large stop drill bit (15 mm) to prepare the housing of the tibial component keel. **(Fig.56)**

Instrumentation


ORIGIN® CR Tibial Drill Guide Ø15 mm


Drill Pin -
Ø3.2 mm x 70 mm
9000 0031


Drill Pin Adapter
9000 0019


Stop Drill Bit -
Ø15 mm x 69 mm
9000 4005

STEP 8
TIBIAL BASE PLATE PREPARATION

8.4 Preparation of tibial fins

- Assemble the single-use tibial keel broach onto the single-use impaction/extraction handle. **(Fig.57)**
- Prepare the housing by inserting the single-use tibial keel broach into the preparation guide and by firmly impacting it. **(Fig.58)**

› **Tip:** If the proximal tibia bone is sclerotic, it is then recommended to initiate the preparation of the fins with a narrow saw blade or a straight chisel through the two preparation slots. This will prevent bony cracks to happen when hard bone is directly impacted with the single-use tibial keel broach.

- Axially remove the two drill pins with the pin removal forceps. Next, remove the tibial drill guide.

Fig.57

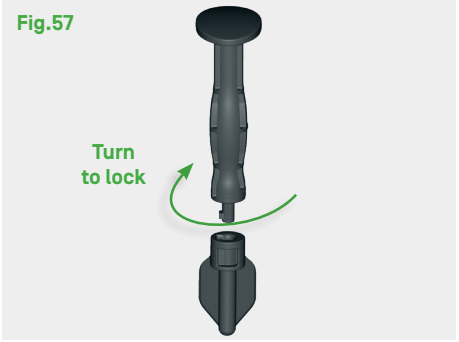
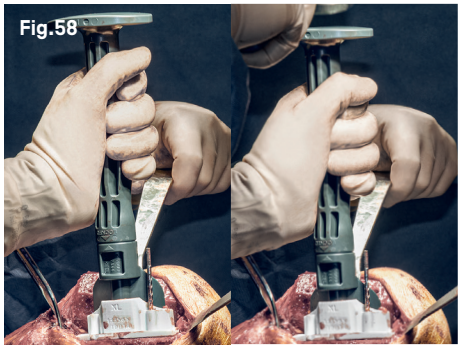


Fig.58



FOR MODULAR TIBIA ONLY

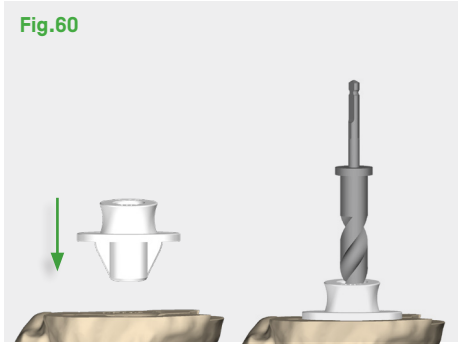
8.5 Preparatory drilling for the extension stem

- **20 to 40 mm extension stems**: Assemble the tibial drill guide adapter onto the tibial drill guide. **(Fig.59)**
- **70 mm extension stem**: Remove the tibial drill guide and place the drill guide adapter of 70 mm in the tibial central hole. **(Fig.60)**
- Drill into the drill guide adapter's central hole using the 11 mm stop drill bit until reaching the stop corresponding to the length of the extension stem, to prepare the housing of the tibial extension component. **(Fig.59, Fig. 60)**
- Axially remove the two drill pins with the pin removal forceps. Next, remove the tibial drill guide.

Fig.59

Or

Fig.60



Instrumentation ^

Single-Use Impaction/ Extraction Handle

ORIGIN® Single-Use Tibial Keel Broach

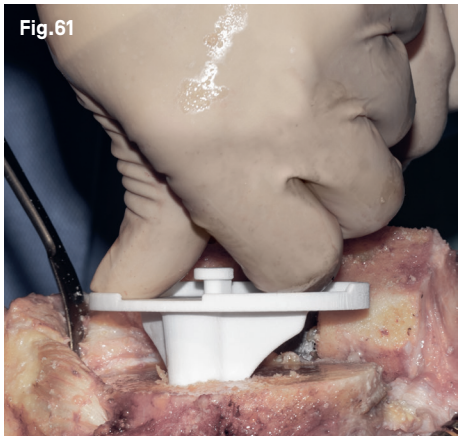
ORIGIN® Drill Guide Adapter

Stop Drill Bit - Ø 11 mm x 124 mm
9000 4004

Pin Removal Forceps
3020

STEP 9
FINAL TRIALS

Fig.61



9.1 Placement of the trial tibial base plate

- Position the trial tibial base plate on the prepared tibial surface. **(Fig.61)**
- Assemble the single-use tibial impaction head with the single-use impaction / extraction handle. **(Fig.62)**
- Proceed with the impaction of the trial tibial base plate until it is fully impacted and in contact with the proximal tibial surface. **(Fig.63)**

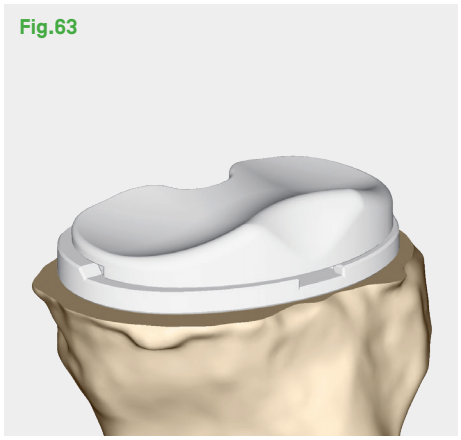
› **Important:** In the case of a modular tibial base plate, the trial tibia modular includes the planned stem length.

Fig.62

9.2 Placement of the trial tibial insert

- Position the trial tibial insert (+0 or +2 mm) on the tibial base plate. **(Fig.63)**

Fig.63



Instrumentation ^

ORIGIN® CR
Fixed Trial Tibia

or

ORIGIN® CR
Fixed Trial Tibia Modular

Single-Use Impaction / Extraction Handle

Single-Use
Tibial Impaction Head

Single-Use Tibial Insert Impaction / Extraction Head

ORIGIN® CR
Fixed Trial Insert +0 mm

STEP 9
FINAL TRIALS

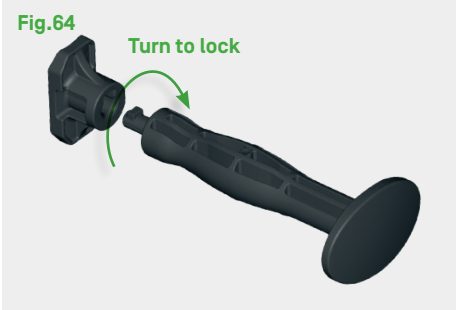
9.3 Placement of the trial femoral component

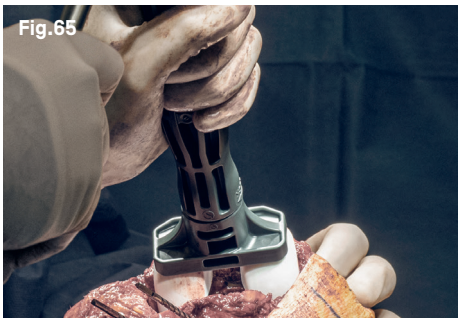
- Assemble the sinlge-use femoral impaction head onto the single-use impaction / extraction handle. **(Fig.64)**
- Position the trial femoral component on the distal surface of the femur, making sure to adjust the position of the anchoring pegs in the holes prepared on the femur.
- Impact firmly, using the single-use impaction / extraction handle until the trial component is perfectly anchored on the distal femur. **(Fig.65)**

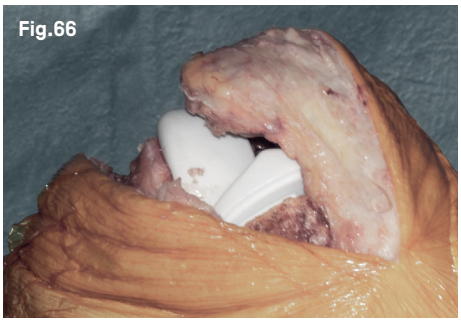
9.4 Controlling knee stability and mobility

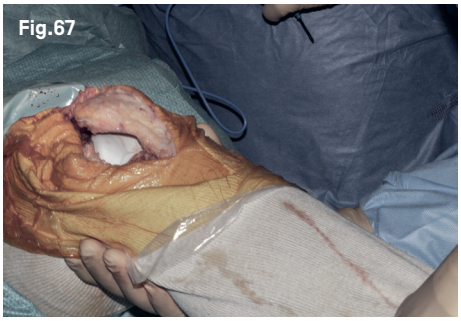
- Proceed with controlling the position of the trial implants. **(Fig.66, Fig.67)**
- Proceed with verifying joint stability and ligament balancing in flexion, midflexion and extension with varus / valgus and A / P stresses. **(Fig.66, Fig.67)**
- Control joint mobility by verifying the achievement of a complete extension, as well as flexion of at least 130°.
- Control that the patella tracks correctly along the patella groove without dislocating laterally. **(Fig.67)**

› **Important:** Even though the ORIGIN® Patella Cemeted is systematically planned during the ORIGIN® planning, the decision of resurfacing the patella is left intraoperatively to the surgeon.









Instrumentation ^

ORIGIN® CR
Fixed Trial Insert +2 mm

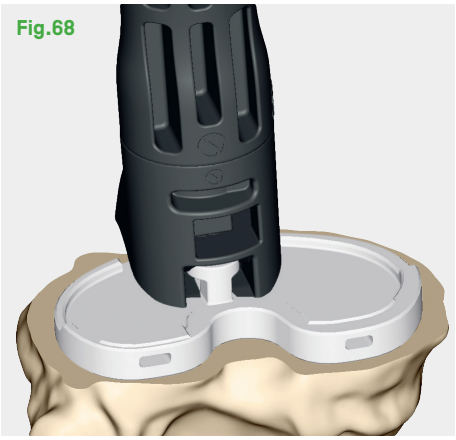
Single-Use Impaction / Extraction Handle

Single-Use Femoral Impaction Head

ORIGIN® CR
Trial Femur

STEP 9
FINAL TRIALS

Fig.68



9.5 Extraction of trial components

- Manually remove the trial femoral component.
- Assemble the single-use tibial insert extraction head with the single-use impaction / extraction handle.
- After removing the tibial insert, proceed to the extraction of the tibial base plate using the handle assembled with the tibial insert extraction head. **(Fig.68)**

› **Tip:** In order to ease the extraction of the tibial base plate, it is advised to anteriorly subluxate the tibia and check that the patella is well everted.

Instrumentation ^

Single-Use Impaction / Extraction Handle

Single-Use Tibial Insert Impaction / Extraction Head

ORIGIN® CR Fixed Trial Tibia

or

ORIGIN® CR Fixed Trial Tibia Modular

STEP 10
PATELLAR PREPARATION

10.1 Exposing the patella

› **Important:** A patella that is too thin after resection (thickness inferior to 12 mm) should not be resurfaced.

- Place the leg in complete extension, then turn over the patella to prepare the patellar cut.
- Mark out the edges of the patella, resect the peripheral osteophytes and expose the quadricipital tendon and the patellar tendon.

10.2 Placement of the patella cutting clamp

- Unscrew the lateral nut of the patella cutting clamp to adjust it to the medio-lateral dimensions of the patella.
- Insert the patella into the cutting clamp. Then, tighten the lateral nut until the patella is perfectly held in place and stabilized for the cut. **(Fig.69)**

10.3 Adjusting the resection height

- Adjust the height of the patellar cut using the central thumb screw to make a cut leaving at least 12 mm of patellar thickness. **(Fig.70)**

› **Important:** The cutting clamp's central thumb screw enables to adapt the height of the patellar resection to ensure bone thickness between 12 mm and 18 mm depending on adjustments. **(Fig.71)**

Fig.69

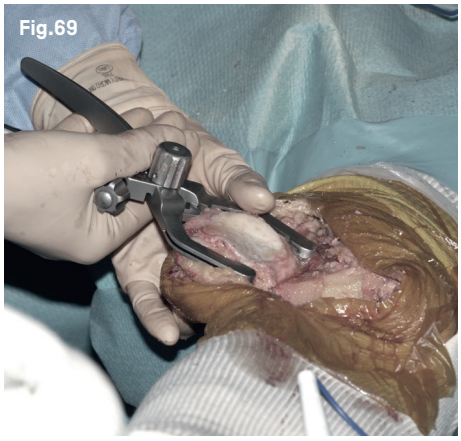


Fig.70

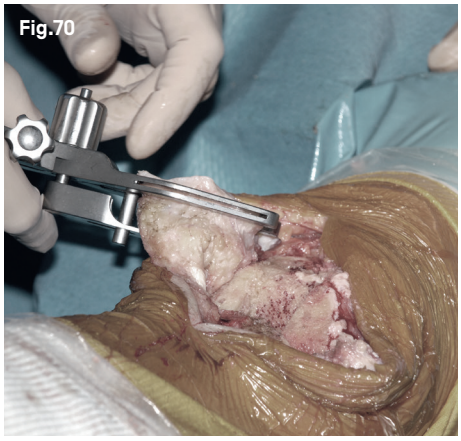
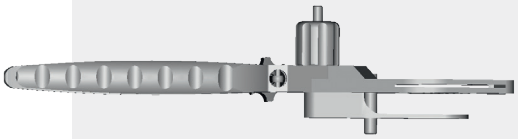
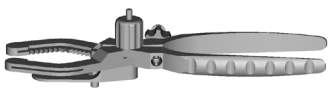


Fig.71



Max. 12 to 18 mm of bone remaining

Instrumentation ^

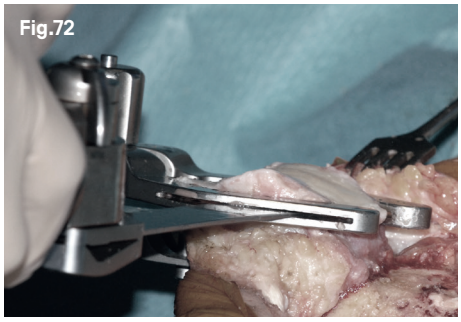


Patella
Cutting Clamp
9400 0001

Drill Pin -
Ø3.2 mm x 70 mm
9000 0031

STEP 10
PATELLAR PREPARATION

Fig.72

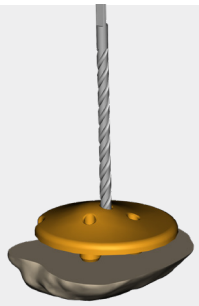


10.4 Patellar cut

- Direct the patellar cut so that it is parallel to the anterior cortical bone to obtain a resection larger on the inside than on the outside.
- Make the cut with a **1.37 mm**-thick oscillating saw, holding the cutting clamp firmly. **(Fig.72)**

› **Important:** The saw blade shall touch bone prior to initiation of the saw blade.

Fig.73



10.5 Determining the patella size

- The size of the planned ORIGIN® patella is indicated in the ORIGIN® planning report. Otherwise, determine it by placing the various trial components onto the resected surface.

› **Important:** As the ORIGIN® patella cemented is asymmetric, orientate the trial patella with the sulcus being on the medial facet of the patella. **(Fig.74)**

- Drill a central hole through the most suitably-sized trial patella to facilitate the positioning of the compression clamp. Pre-drill the three holes for the patella pegs. **(Fig.73)**

Fig.74

10.6 Placement of the clamp and drilling

- Select the size of the drill guide based on the size of the ORIGIN® patella cemented and assemble it onto the compression clamp. Place the compression clamp onto the patella and stabilize it for drilling by tightening the thumb screw located on the clamp.
- Adjust the rotation of the drill guide in order to retrieve the position of pre-drilled holes **(Fig.74)**. Drill anchoring pin holes using the small drill bit (Ø 6 mm). **(Fig.75)**

Fig.75

Instrumentation ^

ORIGIN®
Patella Trial
9000 780x

Drill Pin -
Ø 3.2 mm x 70 mm
9000 0031

ORIGIN®
Patella Drill Tip
9400 200x

Patella
Compression Clamp
9400 0002

Stop Drill Bit -
Ø 6 mm x 24 mm
9000 4003

STEP 11
IMPLANTATION

11.1 Tibial base plate

Cemented implant

- Wash and dry the surface of the proximal tibial bone.

› **Tip:** The use of jet lavage allows a better surface preparation for the cementation.

- Prepare the cement mixture in accordance with the manufacturer's instructions.
- Apply a layer of cement to the underside of the tibial base plate, around the tibial keel as well as on the surface of the proximal tibial bone, in the central hole and in the preparations of the fins.

› **Important:** In the case of a modular tibial base plate, apply a cement layer around the extension stem.

- Position the tibial base plate by hand. Then, firmly impact with the single-use impaction / extration handle assembled with the single-use tibial impaction head, until perfectly stable. **(Fig.76, Fig.77)**

› **Tip:** In order to ease the impaction of the modular tibial base plate, it is recommended to anteriorly subluxate the tibia and check that the patella is well everted.

- Carefully remove the excess cement from the periphery of the tibial base plate. **(Fig.78)**

› **Important:** Apply pressure on the tibial base plate while avoiding positioning the knee in hyperextension during polymerization of the cement.

- Allow the cement to polymerize completely before proceeding to the trials with definitive implants.

› **Important:** In the case of a modular tibial base plate, the choice of the extension length is done during the planning. The implant is delivered assembled with the planned stem. Therefore, there is no need to assemble the two implants.

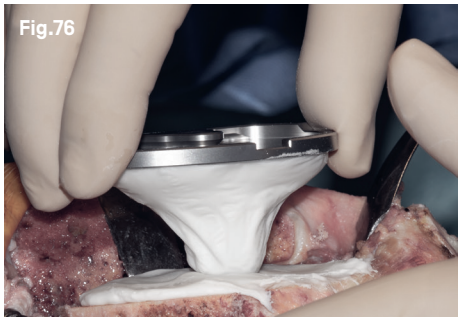


Fig.76

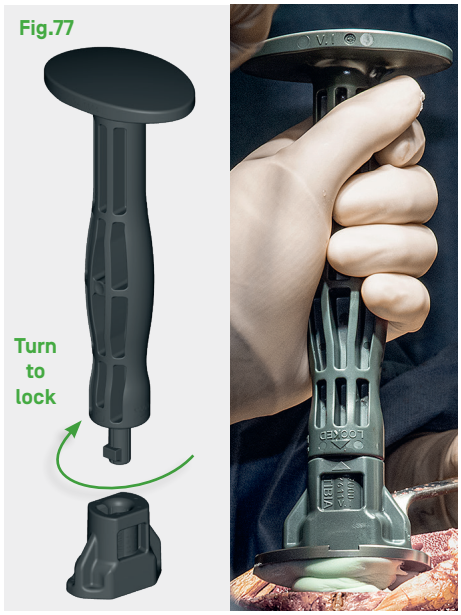


Fig.77

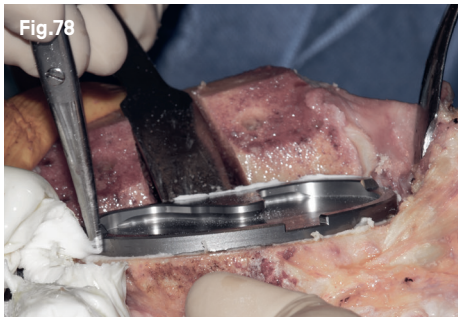


Fig.78

Instrumentation ^


Single-Use Impaction / Extraction Handle


Single-Use Tibial Impaction Head

STEP 11
IMPLANTATION

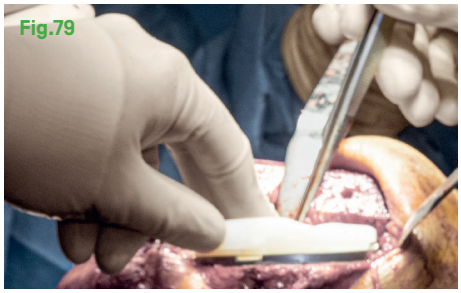


Fig.79


Fig.80

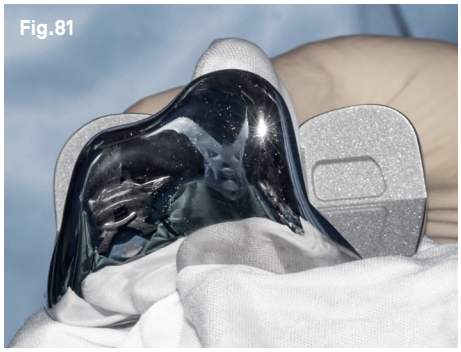


Fig.81

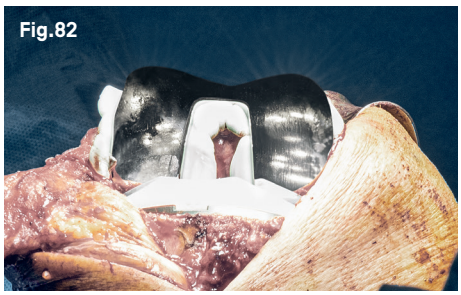


Fig.82

11.2 Tibial insert

› **Tip:** Check that there is no soft tissues blocking the posterior locking mechanism.

- Position the fixed tibial insert by hand, sliding it until reaching the stop on the lock mechanism. **(Fig.79)**
- Apply light impaction on the anterior lip of the fixed insert, using the single-use impactor at a 45-60° angle. It produces a snap sensation as the fixed insert locks into place. **(Fig.80)**
- Check that the insert is fully lying anteriorly and medially on the tibial base plate and that there is no gap between the tibial base plate and the insert.

11.3 Femoral implant

Cemented implant

- Prepare the cement mixture in accordance with the manufacturer's instructions.
- Apply a layer of cement to the posterior surfaces of the prosthetic condyles and on all the resected bone surfaces (excepted posterior surface). Also apply cement to the pre-prepared holes for the femoral implant pegs. **(Fig.81)**
- Position the femoral implant by hand **(Fig.82)** and place a sterile gauze pad in order to protect the implant from any scratch or damage during impaction.

Instrumentation ^


Single-Use Impaction / Extraction Handle


Single-Use Tibial Insert Impaction / Extraction Head

STEP 11
IMPLANTATION

- Assemble the single-use impaction /extraction handle with the impaction pad in " femur mode ". Position the single-use femoral impaction head centrally and in a way that it conforms to the shape of the femoral implant.
- Firmly impact it until perfectly stable. **(Fig.83)**
- Carefully remove the excess cement from the periphery of the femoral implant. **(Fig.84)**
- Allow the cement to polymerize completely before proceeding to the trials with definitive implants. Keep the joint in slight flexion and avoid any position in hyperextension during polymerization of cement ; this helps add additional pressure to the cement.


Fig.83

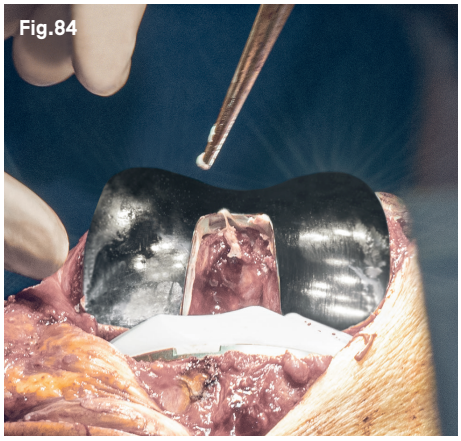


Fig.84

11.4 Patellar implant

- Prepare the cement mixture in accordance with the manufacturer's instructions.
- Insert the compression pad into the patella compression clamp.
- Apply a layer of cement on the resected patellar surface, in the prepared holes and onto the patellar implant.
- Position the implant on the patella, aligning the pins with the pre-prepared holes. **(Fig.85)**
- Maintain sufficient pressure to guarantee stability and support using the patella compression clamp while the cement polymerizes. **(Fig.86)**
- Carefully remove the excess cement from the periphery of the patellar implant.
- Allow the cement to polymerize completely before proceeding to the trials with definitive implants.


Fig.85

Instrumentation ^


Single-Use Impaction / Extraction Handle


Single-Use Femoral Impaction Head


Patella Compression Clamp
9400 0002


Patella Compression Tip
PD000 069

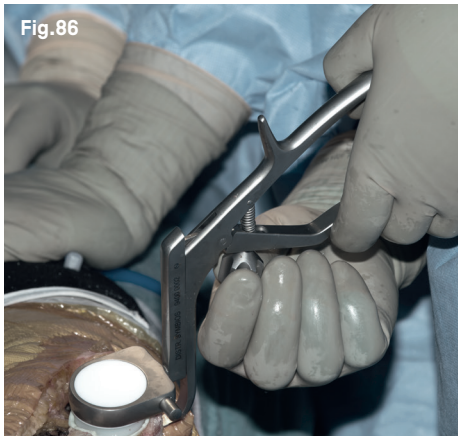


Fig.86

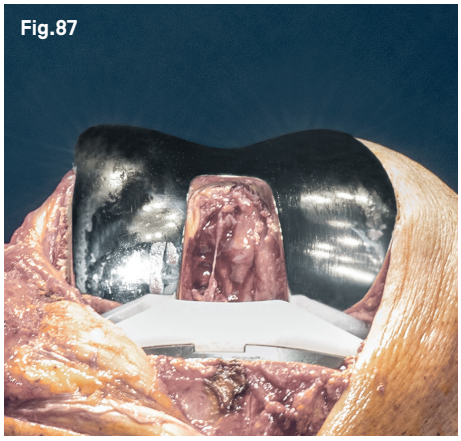


Fig.87

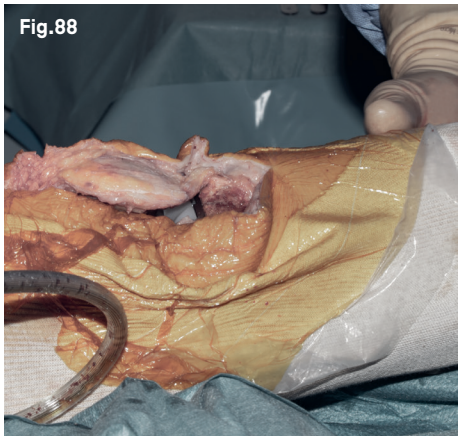


Fig.88

11.5 Trials on definitive implants and closure

- Check that the knee is correctly balanced, that the patella is tracking well during the whole flexion, and that full extension as well as deep flexion can be reached intraoperatively. **[Fig.87, Fig.88]**
- The patella should track without subluxing or tilting in the absence of a restraining thumb. If unstable, a release of the lateral femoro-patellar ligament may be necessary.
- Clean the joint thoroughly with a solution of your choice to prevent any residual debris. An intracapsular drain tube can be put in place.
- Close the joint and the wound following standard procedure.

APPENDICES

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APPENDIX 1
EXTENSION AND FLEXION CONTROLS WITH SPACER

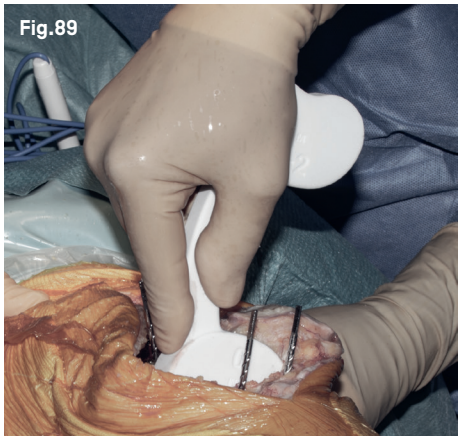


Fig.89

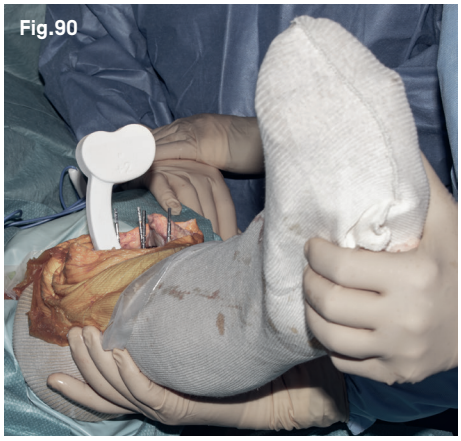


Fig.90

Controlling the extension gap

- Control the gap in extension using the ORIGIN® CR Spacer, which allows to test +0/+2 mm thicknesses. The +0 side corresponds to the prosthetic dimensions of the ORIGIN® CR total knee prosthesis with a +0 mm insert, which corresponds to the planned resection. **(Fig.89)**
- Ligament balance can be assessed by applying varus/valgus stresses. **(Fig.90)**
- In case of laxity with the +0 mm spacer, test the extension gap by using the +2 mm side of the ORIGIN® CR Spacer. Ensure that there is no flessum (flexum) or recurvatum (excessive extension).
- In case of insufficient gap, proceed to a 2 mm tibial recut with the recut guide (use described in step 7) to increase the extension gap.

Controlling the flexion gap

- Control the gap at 90° flexion by using the ORIGIN® CR Spacer which allows to test +0/+2 mm thicknesses. The +0 mm side corresponds to the prosthetic dimensions of the ORIGIN® CR total knee prosthesis with a +0 mm insert, which corresponds to the planned resection. **(Fig.91)**
- Ligament balance can be assessed by applying varus/valgus stresses. **(Fig.92)**
- In case of laxity with the +0 mm spacer, test the flexion gap by using the +2 mm side of the ORIGIN® CR Spacer.

› **Important:** Meticulously debride the posterior and lateral compartments before controlling ligament balance in flexion. It is especially recommended to remove any posterior and lateral osteophytes that can limit flexion, and to remove the remaining menisci which may have been posteriorly dislocated.

ORIGIN® CR Spacer
+0/+2 mm

APPENDIX 1
EXTENSION AND FLEXION CONTROLS WITH SPACER

- If the knee is appropriately balanced and aligned, proceed to the next step. If required, the following steps can be taken:
  - **Extension and flexion too tight:** proceed to a millimetric tibial recut from 1 to 4 mm with the recut guide (see step 7) to increase the extension and flexion gaps.
  - **Extension too tight:** proceed to a millimetric distal femoral recut with a minimum of 2 mm with the recut guide to increase the extension gap. Then, the A/P femoral cuts and chamfer cuts shall be repeated (see step 3).

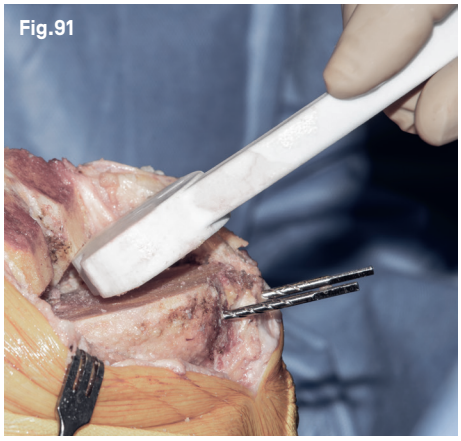


Fig.91

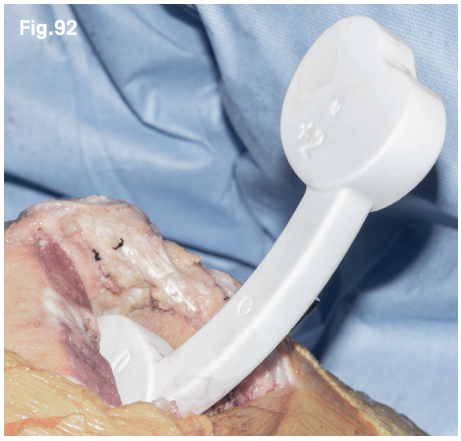


Fig.92

Instrumentation ^

ORIGIN® CR Spacer
+0/+2 mm

APPENDIX 2
IMPLANT REFERENCES

symbios

ORIGIN® CR Total Knee System **REF 5000 0002**

or

ORIGIN® CR Total Knee System Modular **REF 5000 0003**

	Description	Reference	
	ORIGIN® CR Femur Cemented Patient-matched cemented femoral implant. Cobalt-chrome (CrCoMo-ISO 5832-4).	5000 1300	
MONOBLOC	**ORIGIN® CR Fixed Tibia Monobloc Cemented** Patient-matched cemented tibial implant for fixed platform. Titanium alloy (Ti6Al4V-ISO 5832-3).	5000 2700	
or			
MODULAR	**ORIGIN® CR Fixed Tibia Modular Cemented** Patient-matched cemented tibial implant for fixed platform with pre-assembled stem. Titanium alloy (Ti6Al4V-ISO 5832-3).	5000 2800 + 5000 370x	
	ORIGIN® CR Fixed Insert +0 mm Tibial fixed insert. 6 mm-thickness. Polyethylene (UHMWPE-ISO 5834-2).	5000 3300	
	ORIGIN® CR Fixed Insert +2 mm Tibial fixed insert. 8 mm-thickness. Polyethylene (UHMWPE-ISO 5834-2).	5000 3302	

ORIGIN® Patella Cemented

Cemented patella implant with medialized dome.
Polyethylene (UHMWPE-ISO 5834-2).

Sizes	Reference
XS	5000 4101
S	5000 4102
M	5000 4103
L	5000 4104
XL	5000 4105

APPENDIX 3
INSTRUMENT REFERENCES

ORIGIN® CR Total Knee System — REF 5000 0002
or
ORIGIN® CR Total Knee System Modular — REF 5000 0003

ORIGIN® KNEE-PLAN® Guides — REF 9005 0000

Description	Quantity
ORIGIN® KNEE-PLAN® Femoral Cut Guide	1
ORIGIN® KNEE-PLAN® Tibial Cut Guide	1
KNEE-PLAN® Femoral Bone Model	1
KNEE-PLAN® Tibial Bone Model	1

ORIGIN® CR Femur Set — REF 9005 0014

Description	Quantity
ORIGIN® CR Trial Femur	1
ORIGIN® CR Femoral Pegs Drill Guide	1
ORIGIN® 4-in-1 Femoral Cuts Guide	1
ORIGIN® CR Spacer* +0/+2 mm	1

ORIGIN® CR Tibia Set — REF 9005 0015

Description	Quantity
ORIGIN® CR Fixed Trial Tibia	1
ORIGIN® CR Fixed Trial Insert +0 mm	1
ORIGIN® CR Fixed Trial Insert +2 mm	1
ORIGIN® CR Tibial Drill Guide Ø15 mm	1

or

In case of an ORIGIN® CR Total Knee System Modular, the ORIGIN® CR Tibia Modular Set will include a trial tibial component with a length of stem corresponding to the extension stem that was planned by the surgeon during the preoperative planning.

ORIGIN® CR Tibia Modular Set — REF 9005 0016

Description	Quantity
ORIGIN® CR Fixed Trial Tibia Modular	1
ORIGIN® CR Fixed Trial Insert +0 mm	1
ORIGIN® CR Fixed Trial Insert +2 mm	1
ORIGIN® CR Tibial Drill Guide Ø15 mm	1
ORIGIN® Tibial Drill Guide Adapter	1

ORIGIN® Impaction Set — REF 9005 00XX

Description	Quantity
Single-Use Impaction/Extraction Handle	1
Single-Use Tibial Impaction Head	1
Single-Use Femoral Impaction Head	1
Single-Use Tibial Insert Impaction/Extraction Head	1
ORIGIN® Single-Use Tibial Keel Broach	1
Single-Use Recut Guide	1

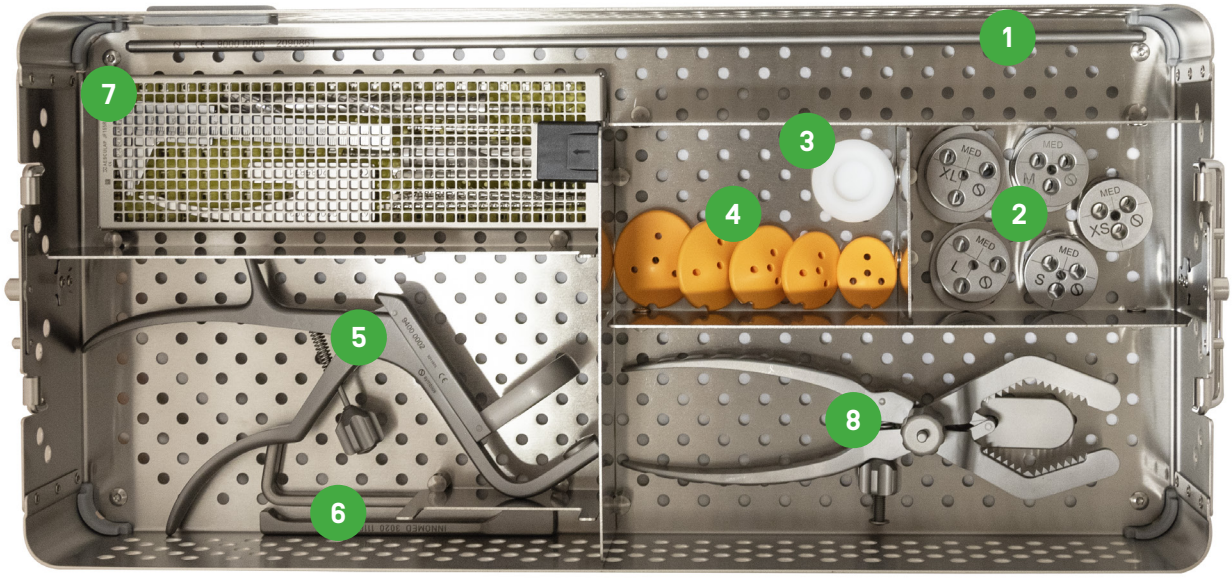
*Instrument in option

APPENDIX 3
INSTRUMENT REFERENCES

symbios

ORIGIN® Instrumentation

REF 9509 0000



	Description	Reference	Quantity
-	Case	9000 1009	1
	Lid	7001 2010	1
1	EM alignment rod	9000 0008	1
2	ORIGIN® drill tip XS	9400 2001	1
	ORIGIN® drill tip S	9400 2002	1
	ORIGIN® drill tip M	9400 2003	1
	ORIGIN® drill tip L	9400 2004	1
	ORIGIN® drill tip XL	9400 2005	1
3	Patella compression tip	PD000 069	1
4	ORIGIN® trial patella XS	9000 7801	1
	ORIGIN® trial patella S	9000 7802	1
	ORIGIN® trial patella M	9000 7803	1
	ORIGIN® trial patella L	9000 7804	1
	ORIGIN® trial patella XL	9000 7805	1
5	Patella compression clamp	9400 0002	1
6	Pin removal forceps*	3020*	1
7	Micropak container*	JF55R*	1
	Resection controller	9000 0003	1
	Drill pin adapter*	9000 0019 or 1205-MOD*	1
	Drill pin - Ø3.2 mm x 70 mm	9000 0031	7
	Stop drill bit - Ø11 mm x 124 mm	9000 4004	1
	Stop drill bit - Ø15 mm x 69 mm	9000 4005	1
	Stop drill bit - Ø6 mm x 24 mm	9000 4003	1
	Slide callipers*	AA847R*	1
8	Patella cutting clamp	9400 0001	1

*CE mark held by another manufacturer

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 Ref: BRCH0041V1.0.EN 08/2023