KNEE

SURGICAL TECHNIQUE

FHK®

Primary total knee prostheses range

GROUPE FH ORTHO™

FHK®

Total knee prosthesis

The installation of a total prosthesis of the knee requires four essential elements to be adhered to:

- Correct alignment of the mechanical axis of the lower limb (Hip Knee Ankle angle at 180°);
- The stability of articulation achieved by careful verification of ligament tensions in flexion and in extension;
- A good level of freedom in functional range of movement
- Restoration of the level of the articular interline.

Reliable instrumentation should enable this outcome to be achieved in the majority of cases. This depends on the implementation of orthogonal cuts on the frontal plane in relation to the mechanical axis of the femur and the tibia, and on the creation of satisfactory ligament balancing in extension and flexion.

SEQUENCE OF OPERATING PHASES

1

Intramedullary tibial alignment

2

Extramedullary tibial alignment

3

Tibial cut

4

• 1 + 4 Techniques •
Distal cut

5

• 1 + 4 Techniques •
Positioning of the cutting guide

6

• 1 + 4 Techniques •
Femoral cuts

4 bis

• 5 in 1 Techniques •
Measurement of the size

5 bis

• 5 in 1 Techniques •
Positioning of the cutting guide

6 bis

• 5 in 1 Techniques •
Femoral cuts

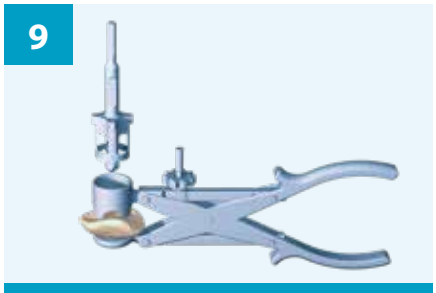
7

Preparation of the trochlea

8

Preparation of the tibia

9



Preparation of the patella

10

Positioning of the tibial base

11

Positioning of the femoral insert

12

Positioning of the polyethylene insert

PRE-OPERATIVE PLANNING

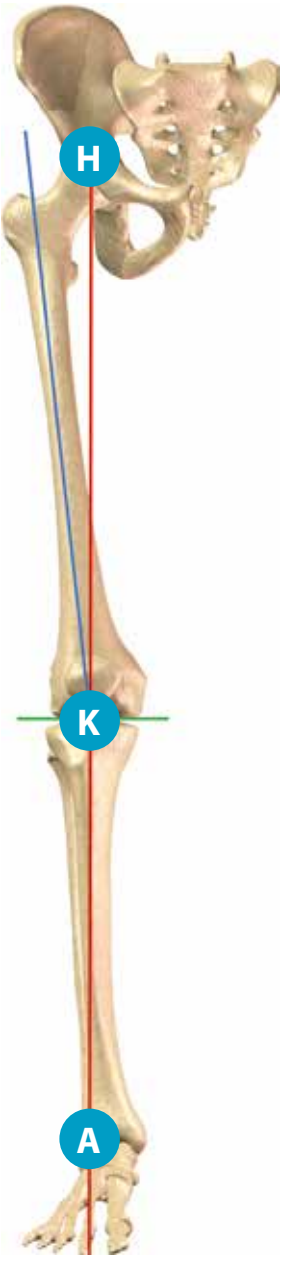
This must consist of:

- front and profile X-rays with monopodal support;
- an axial image of the two knee joints, with the knee bent at 30°;
- a frontal image in stress on the healthy compartment to assess the degree of bone wear in the concavity and the reducibility proportion of the deformation associated with this wear. One can also assess the relative proportions of the deviation due to the actual morphological deformation and to the ligament retraction;
- a goniometry under loading enabling the assessment of the overall mechanical axis of the lower membrane, as well as the angle formed by the diaphyseal axes of the femur and of the tibia with this mechanical axis.

INSTALLATION AND APPROACH

The intervention is generally performed with a mechanical tourniquet, but the choice will depend upon operating practices and upon the existence of any circulatory contraindications. Installation on a table laying down should enable easy movement from full extension to full, stable flexion of the knee.

The approaches will depend upon each individual surgeon, but the instrumentation enables all the known variants to be used.
The small size of the instruments enables an approach to be used in minimally invasive surgery.
In the case of significant valgus deformity, another approach may be selected.



Although the technique was designed to begin with the tibial cut, the instrumentation enables either a tibial cut or a femoral cut to be performed first. While this order is of little significance for arthrosis indications with little or no deformity, although this should not prevent certain stages of validation or verification, it is preferable to perform the tibial cut first in cases of significant deformities and it is highly recommended to do so in the case of the implantation of a posterior stabilised prosthesis.

It should also be specified that the instrumentation is designed in order to achieve either an anterior or a posterior reference.

In this case:

- The posterior cut presents the same thickness as the size of the implant;
- The distal cut (except for a per-operative decision to the contrary) is similar to the posterior cut.

In consequence, the spaces allowed for in flexion and in extension are equivalent, and equal to the thickness of the implants that will be installed. The ligament tension will automatically be correct, so long as it was correct before the cuts.

PPREPARATION OF THE TIBIA

LOCATION OF THE MEDULLARY CANAL

The entry hole of the alignment is located at the tibial insertion of the ACL. In fact this should be more or less lateralised according to the status of the mechanical axis and curve of the tibia, the ideal being to determine this precisely on the preoperative X-ray.

Preoperative location of the precise entry point enables avoidance of axial errors that would lead to an oblique cut (either in the frontal plane or in the sagittal plane). A preliminary hole is made with a square point, then drilling to a diameter of 8 mm *(Fig. 1)*.

The 8 mm diameter intramedullary stem is put in place *(Fig. 2 & 3)*.

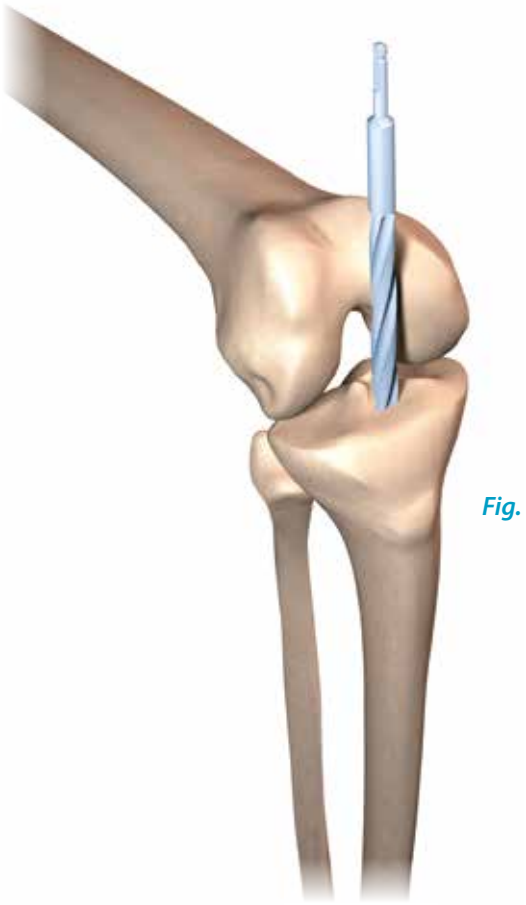


Fig. 1

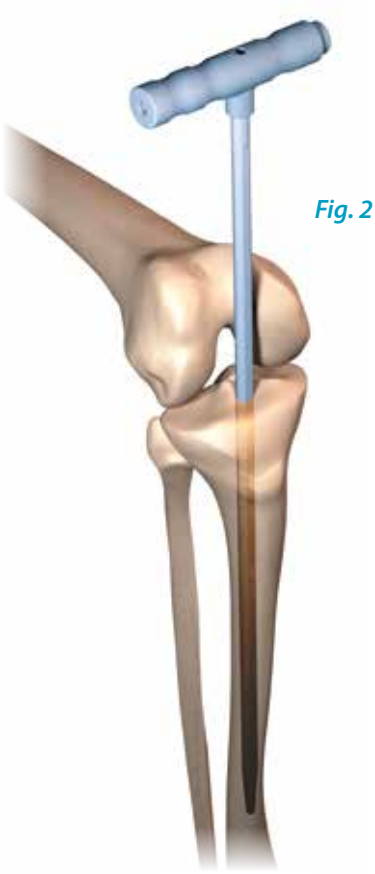


Fig. 2

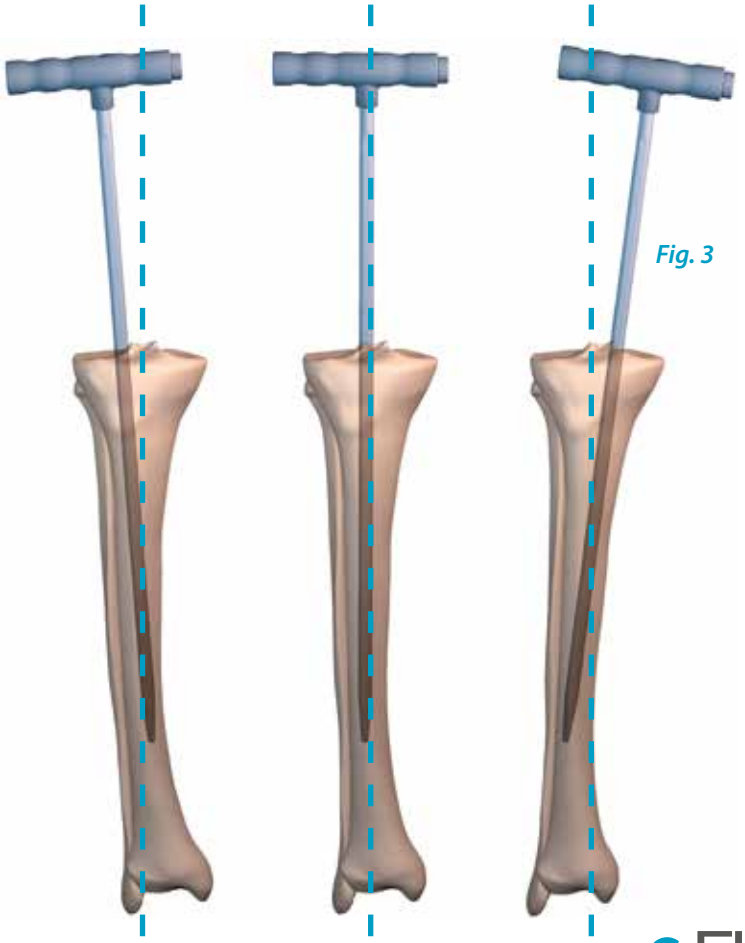


Fig. 3

POSITIONING OF THE TIBIAL CUTTING GUIDE

• Intramedullary alignment

The tibial guide is placed on the centromedullary stem. This consists of an upper frame terminating in two points intended to penetrate the tibia bone, and a proximal extramedullary stem on which the cutting guide slides *(Fig. 4)*.

The points of the frame are lowered as far as possible and inserted in two stages with a hammer into the anterior intercondylar area of the tibial PE insert: the stem of the alignment is carefully positioned at the centre of the pin. This position should bring the proximal stem in line with the internal third of the anterior tibial tuberosity. The rotation of the entire guide is then locked by the impaction of the second point.

• Extramedullary alignment

An extramedullary alignment is also possible (using the same assembly, but without the intramedullary stem), as well as the combined use of both types of alignment.

In any case, the extramedullary stem must be parallel to the axis of the tibia in both planes, to ensure the orthogonality of the cut *(Fig. 5 & 6)*.

Fig. 4

Fig. 5

Fig. 6

The implants have been designed for an orthogonal tibial cut.
The tibial instrumentation does not therefore enable the implementation of a cut with posterior slope.

In the case of pre-existing anatomical deformity of the tibia (valgus), it is recommended that only the extramedullary alignment should be used.

DETERMINATION OF THE LEVEL OF CUT

The probe, marked at 10 mm, is placed on the cutting guide on the clean side and the assembly lowered until it enters into contact with the medial part of the tibia *(Fig. 7)*. A control feeler slid into the opening of the cut will enable verification of the quantity of bone resected. The marked side "2" of the probe can also be used to perform a measurement of the amount of compartment used. In this case the cut will be made 2 mm under the cup.
The cut made will be orthogonal with the axis of the tibia, but this will not, a priori, indicate the thickness of insert to be used.

VALIDATION OF THE LEVEL OF THE TIBIAL CUT

If the verification of the cut shows an insufficient or excessive resection of bone, it is possible to raise or lower the cutting guide as the operator wishes, according to the graduations of the guide (in 2 mm steps). Two parallel pins are put in place at the level of the carved out holes "0", then the alignment guide is delicately removed, having untightened the locking screw, carefully avoiding any movement involving force that could move the pins and the guide. The guide is moved as close as possible to the bone surface and a pin placed in the most lateral hole in order to stabilise the cutting guide.

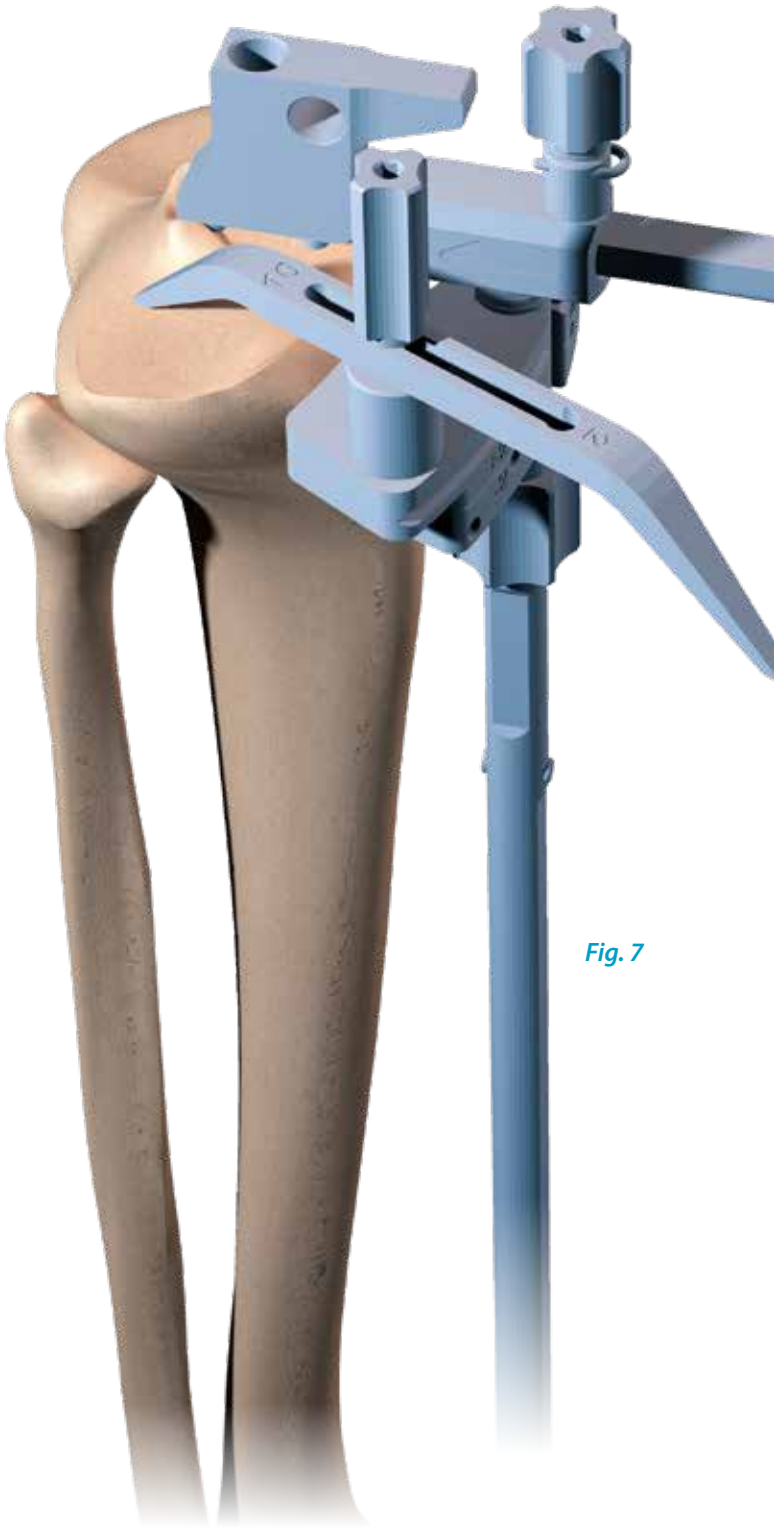


Fig. 7

TIBIAL CUT

The cut is then made with an oscillating saw with a blade of thickness 1.27 mm, taking care, if the decision has been made to conserve it, to preserve the insertion of the posterior cruciate ligament [PCL] (especially if this cut is larger than 10 mm), and at the same time protecting the medial and lateral capsular ligament planes ***(Fig. 8)*** .
The cutting block is provided to produce a cut that is orthogonal with the tibial axis in both planes.
The lateral pin is removed as well as the cutting guide.

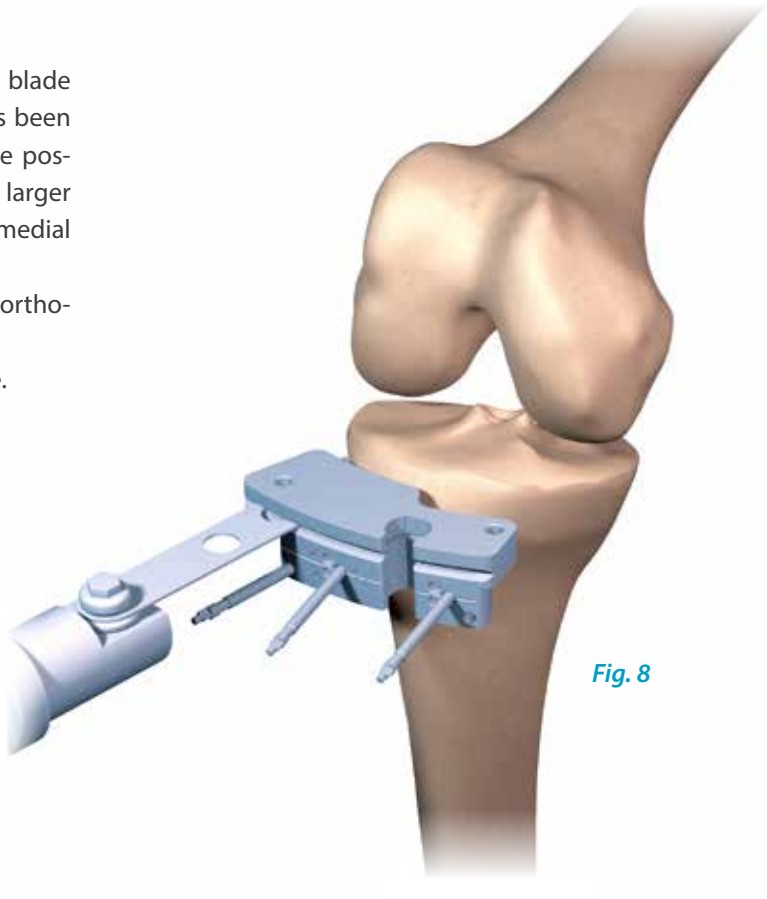
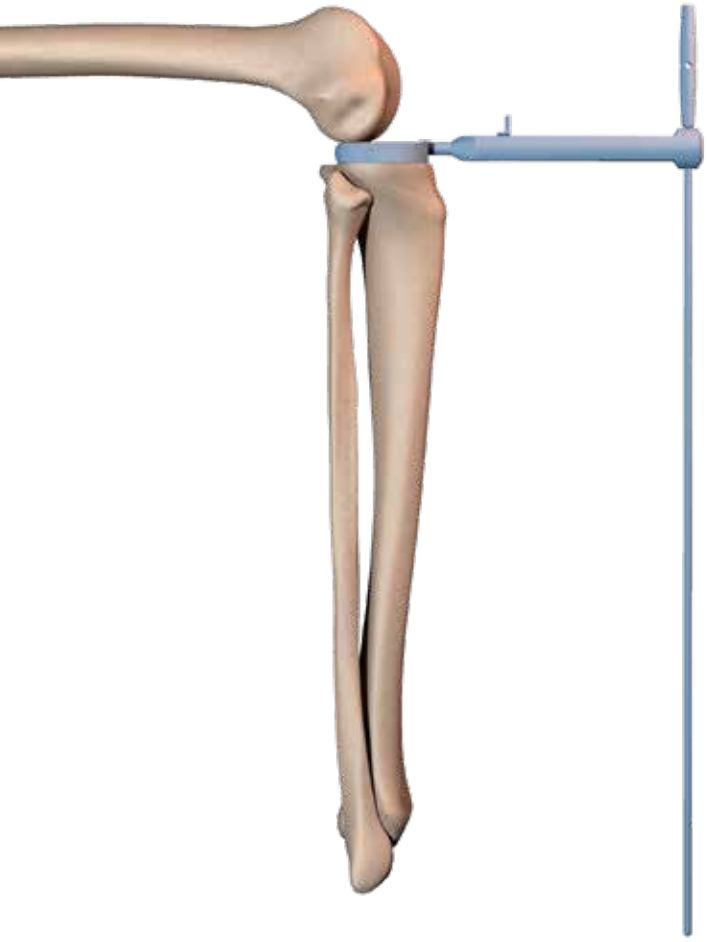


Fig. 8

Fig. 9



VALIDATION OF THE FLEXION SPACE

At this stage one can validate the flexion space using the 10 mm spacer mounted on the handle of the external alignment stem: this must be strictly parallel to the tibia (or better still, to the axis of the fibula which can be viewed using the other extramedullary stem joining the centre of the tibial PE insert to the external malleolus) ***(Fig. 9)***.
The size of the tibia can also be evaluated by positioning tibial Trial.
The size of the base must in general be immediately inferior, equal to or immediately superior to that of the femoral component.

NOTES

PREPARATION OF THE FEMUR

CENTROMEDULLARY PREPARATION

The intercondylar notch is cleaned of any osteophytes *(Fig. 10)*, as is the external part of the condyles.

The posterior cruciate ligament/PCL is retained or sacrificed, depending on the type of prosthesis selected.

The intercondylar point of entry must be located facing and within the medullary canal, a few millimetres above the notch.
In the first place we begin by locating the position of the pilot hole using a square awl. The same care with location must be taken as in the tibial phase in order to avoid piercing the femur too far forward or backwards and causing errors in assessment of the size and positioning of the implants.

The hole is drilled with a diameter of 8 *(Fig. 11)*, with the maximum depth possible.
The centromedullary stem is put in place, and the removable handle is removed.

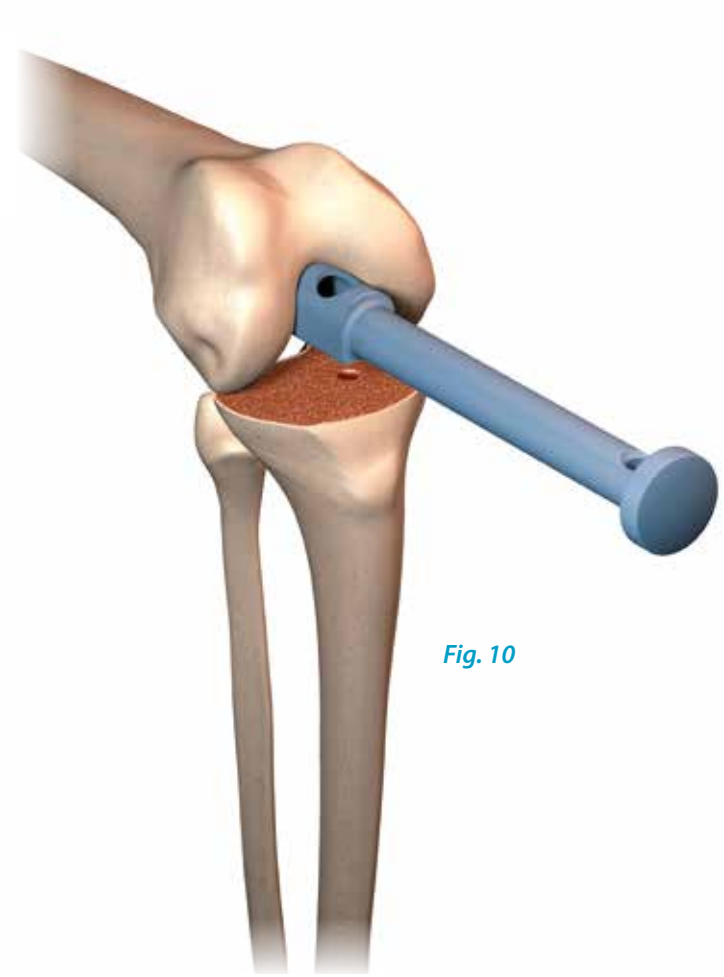


Fig. 10

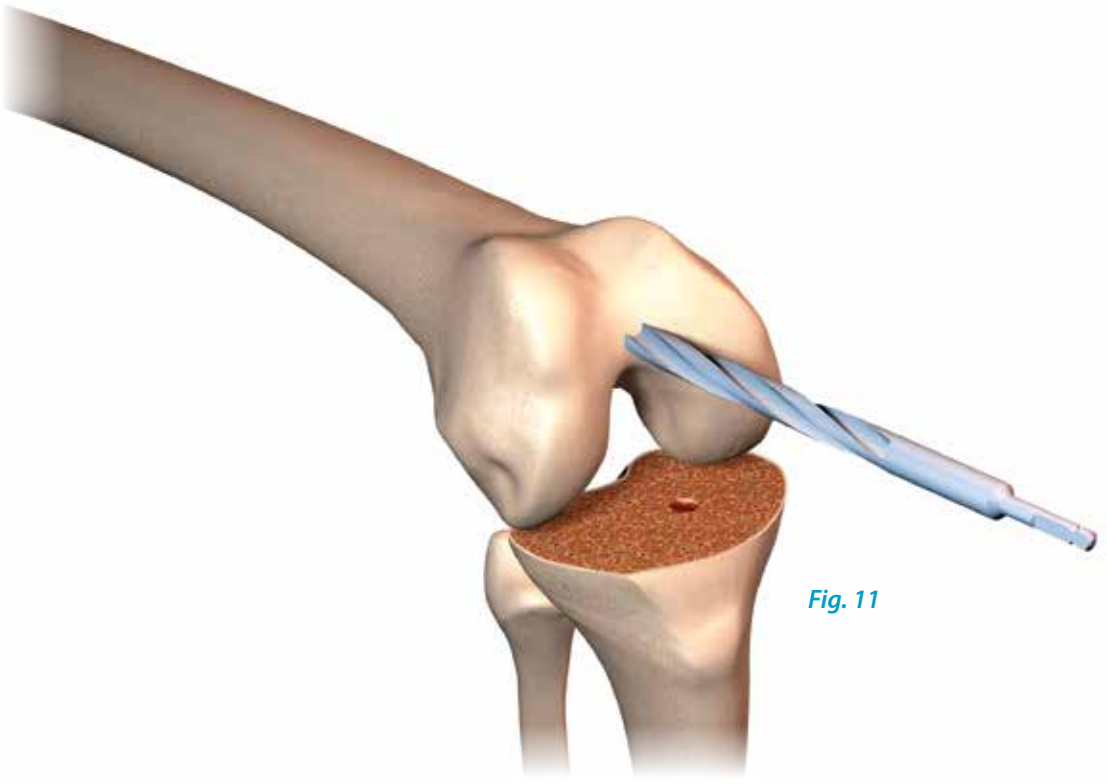


Fig. 11

CHOICE OF FEMORAL CUTS

ACCORDING TO THE 1 + 4 TECHNIQUE

DISTAL FEMORAL CUT

The cutting guide support, the distal cutting guide, and the angle reference trial are assembled.

2 pins are put in place in the holes corresponding to the line marked "0", a third, central, diverging pin can also be put in place to stabilise the assembly *(Fig. 12)*.

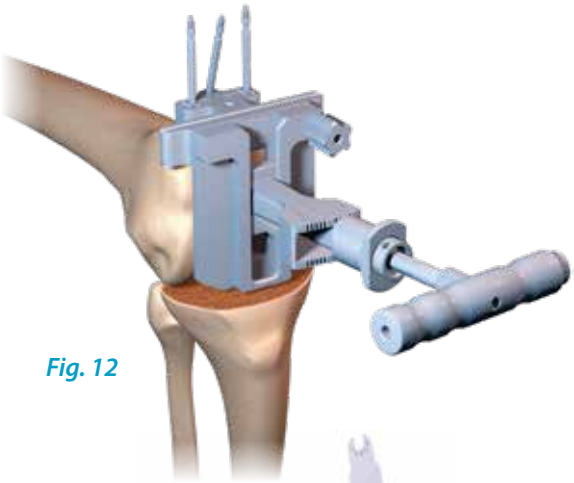


Fig. 12

The centromedullary stem is removed, the angle reference trial is separated from the assembly and the cut made using an oscillating saw *(Fig. 13)*.

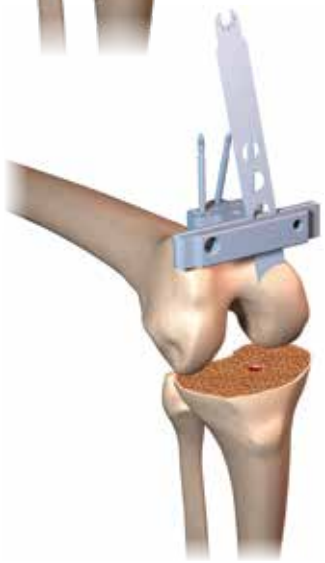


Fig. 13

At this stage, the space in extension can be verified by assembly of the spacer (thickness 8 mm) and the spacer of 10 mm thickness *(Fig. 13b)*.

Fig. 13b

The sizer is put in place, the knee moved back to 90° flexion *(Fig. 14)*. The use of the control probe slid into the opening corresponding to the selected size will enable visualisation of the exit of the saw blade above the trochlea, thereby ensuring the correct selection of size.

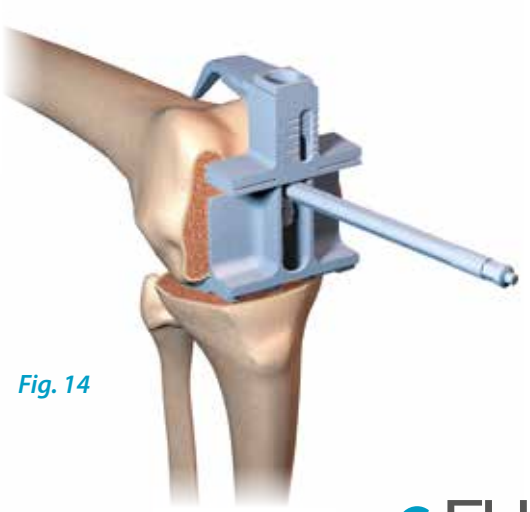


Fig. 14

FEMORAL ANTEROPOSTERIOR AND CHAMFER CUTS

The cutting guide of the determined size and adjustment index are assembled.

The adjustment of the femoral rotation is performed according to the user's choice according to the graduations of the positioning index (from 3° to 11°) respecting the direction (R or L) marked on the instrument *(Fig. 15a & 15b)*.

Fig. 15a

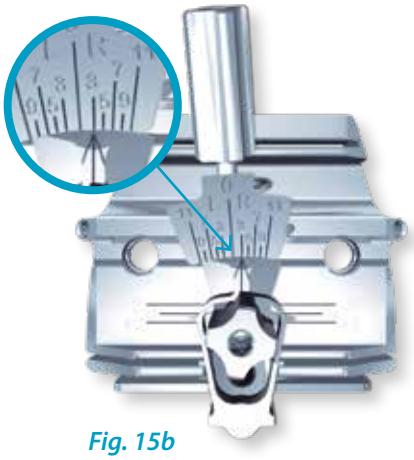


Fig. 15b

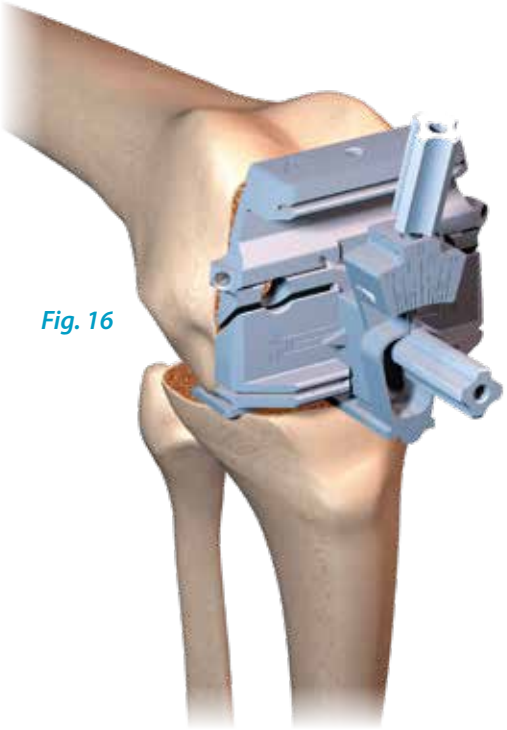


Fig. 16

The positioning index of the posterior pallet is locked on the line "0" (in this case, the posterior cut will correspond to the prosthetic thickness of 8 mm).
In the case where an extension has been measured with a different value (greater or less than 18 mm), this index may be positioned on the line "+2" or "-2" in order to carry out the corresponding posterior cut. The assembly is applied to the bone cut, and the posterior pallets placed in contact with the posterior condyles *(Fig. 16)*.

The fixation of the guide is performed using 6.5 mm diameter cancellous screws, after a centring hole has been made using a centring rod and drilled to a 3.2 mm diameter *(Fig. 17)*.
The choice of a different (or additional) fixation is possible using 3.2 mm pins placed in lateral holes of the cutting guide located on its sides.
The rotation index is unscrewed from the guide, and the cuts performed *(Fig. 18)*.

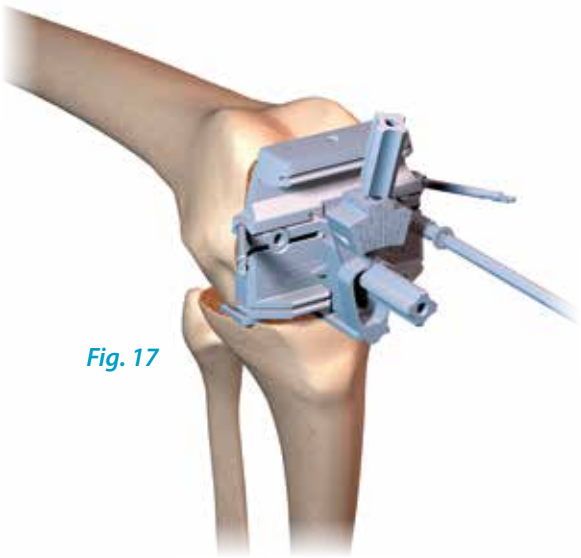


Fig. 17

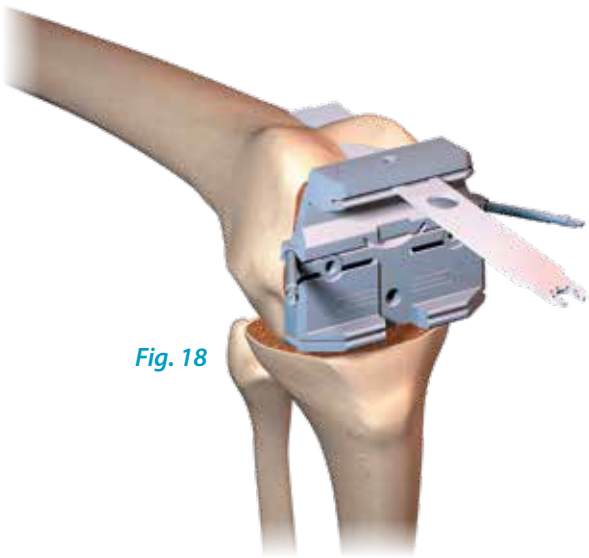


Fig. 18

PREPARATION OF THE TROCHLEA

The cutting guide is left in place, and the trochlea Preparation chisel is presented and introduced into the curved opening. It is carefully driven in with a hammer until complete separation of the bone fragment *(Fig. 19)*.
The guide fixation screws are removed using the motor end piece.

N.B.: it is possible to carry out the preparation of the trochlea at the time of the trial, on the trial condyle *(Fig. 28)*.

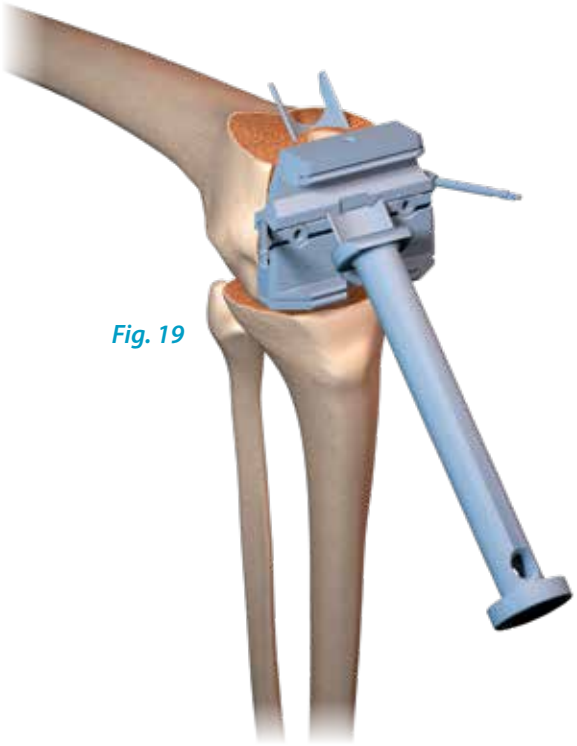


Fig. 19

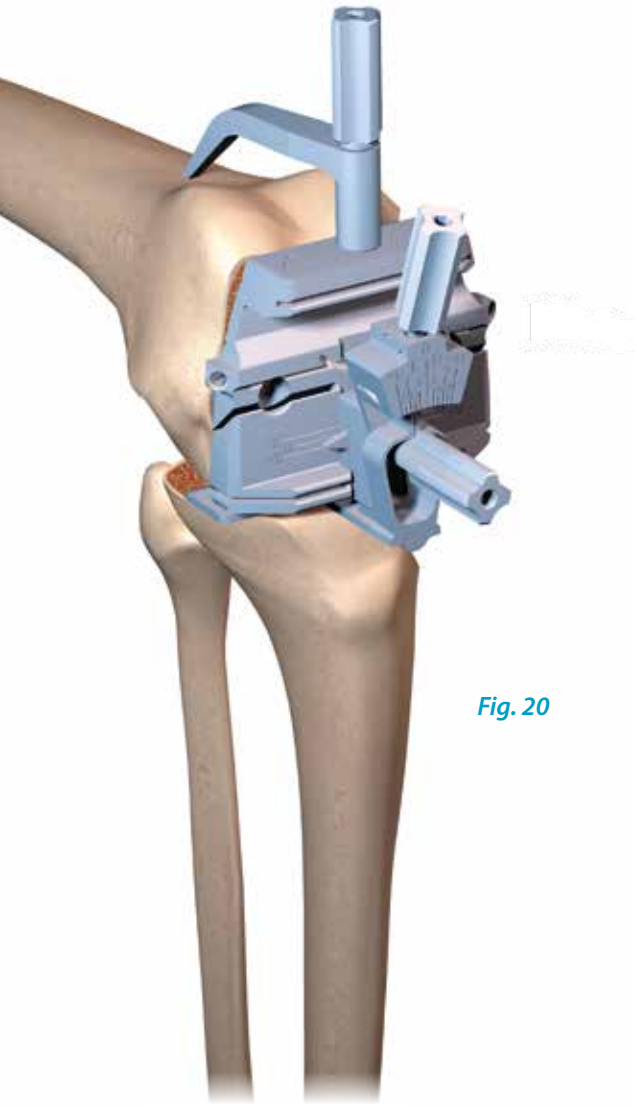


Fig. 20

ANTERIOR FEMORAL REFERENCING OPTION

The instrumentation offers the possibility of performing femoral cuts in anterior referencing.

In this case the anterior probe is screwed to the upper part of the guide, the angle of axial rotation selected, and the screw tightened. The central screw is left free, the cutting guide is placed on the distal cut, with the probe in contact in contact with the anterior cortical, the posterior sliders are brought into contact with the posterior condyles and the central screw tightened.
The guide can then be fixed, and the cuts performed as shown *(Fig. 20)*.

CHOICE OF FEMORAL CUTS

ACCORDING TO THE 5 IN 1 TECHNIQUE

SIZING

Femoral trials will be able to refine this information, especially with indication of the mediolateral dimensions.
Finally it is the actual measurement of the size that will provide the most reliable indication.
The assembly of the sizer enables the option of performing a femoral rotation to be taken into account. 2 rotation blocks of 3° are available (one left and one right); this will be fixed onto the measurer. If the operator prefers not to include rotation, 1 block of 0° is supplied. The block selected will also be used on the 5 in 1 femoral cutting guide.

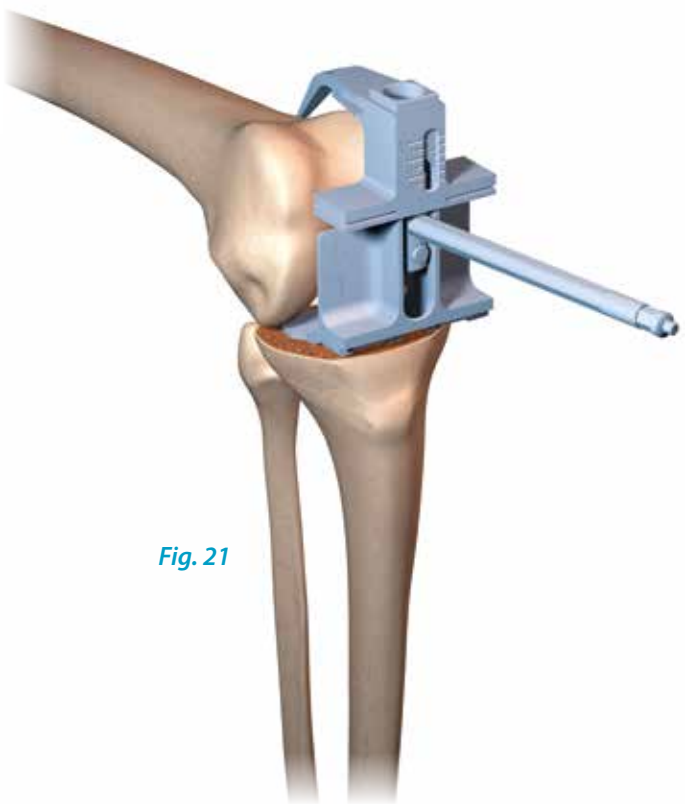


Fig. 21

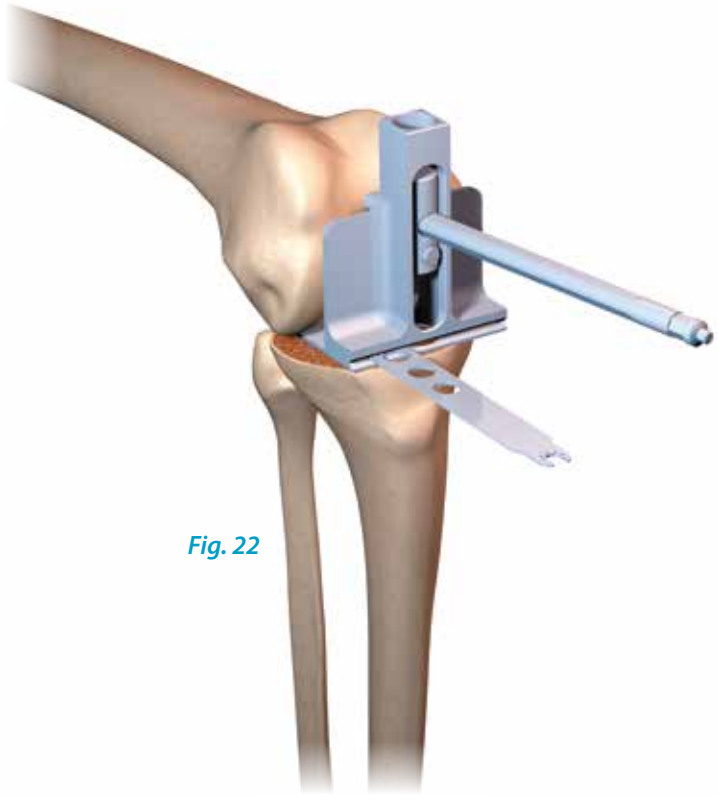


Fig. 22

The sizer is installed, and the knee bent at 90° flexion *(Fig. 21)*. The use of the feeler slid into the opening corresponding to the selected size, will enable visualisation of the exit of the saw blade at the top of the trochlea, and thus ensure the correct choice of size.

When a posterior pre-cut is necessary, either in order to increase the flexion space or because the measurer has indicated a value between 2 sizes, this must be performed through openings in the posterior second cut guide which represents a cut thickness of 1.5 mm *(Fig. 22)*.
In the case of a second cut associated with the size measurement, the inferior size is the one that will be selected.

INSTALLATION OF THE GUIDE AND PERFORMING THE FEMORAL CUTS

The monobloc cutting guide of the appropiate size is assembled with the valgus reference trial and adjusted to the determined angle by selecting the side being operated upon.

The assembly is slid onto the centromedullary stem.

The posterior sliders must come into close contact with the two posterior condyles, whereas its distal part must rest on at least one of the distal condyles. This position will be maintained by an assistant while the assembly is fixed to the femur using 4 long lateral pins ***(Fig. 23)***.

Once the fixation has been completed, the intramedullary stem will be removed, as will the reference trial rod.

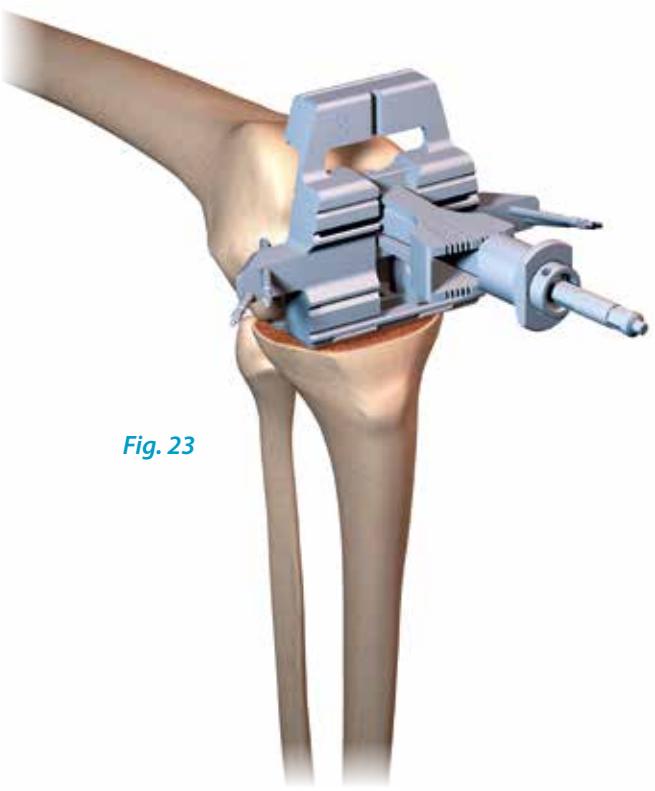


Fig. 23

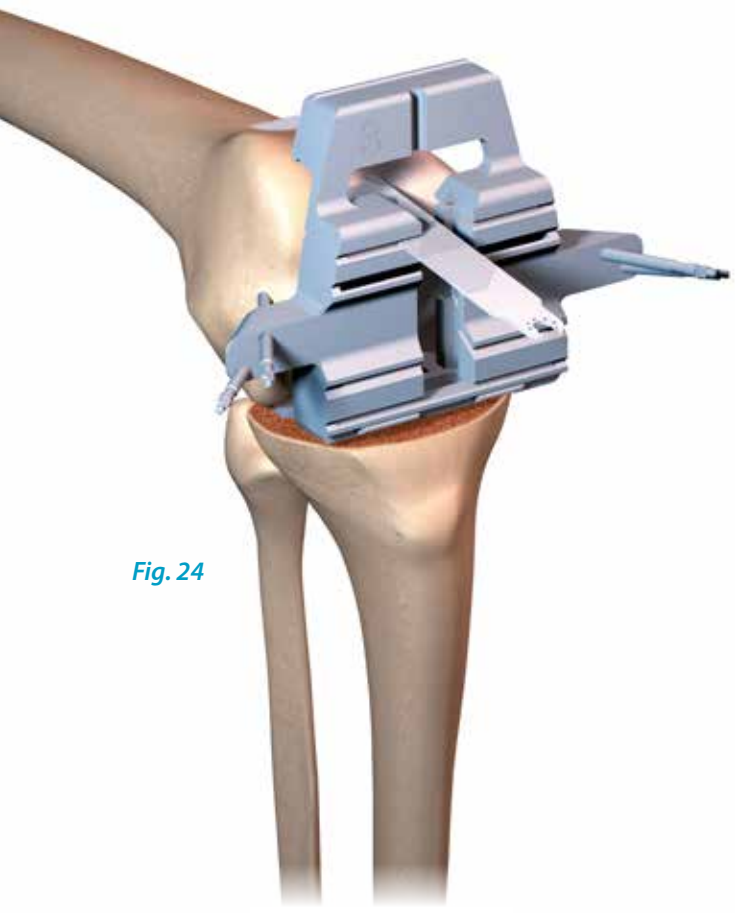


Fig. 24

As all the cut openings are now clear, the femoral cuts will be performed in the order that best suits the surgeon ***(Fig. 24)***. One essential point must be made: retain the distal cut as the last cut in order to maintain maximum stability for the assembly for as long as possible.

The cuts should be continued until the complete detachment of the bone blocks.
The removal of the fixing pins and cutting guide can then be performed.

NB : in case of flessum, the surgeon may decide principle of making a cut to +2 mm, a slot is available on the precut guide.

This cut will be made before the primary cut by bringing the cutting guide closer to the distal femoral cut.

NOTES

TRIALS

ROTATION ADJUSTMENTS AND FINAL PREPARATION

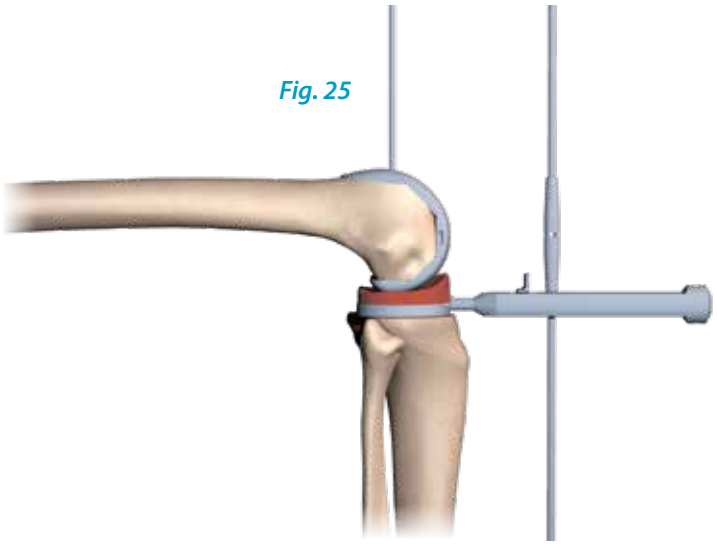


Fig. 25

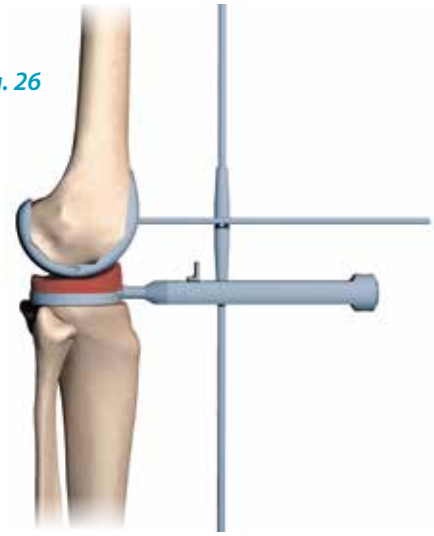


Fig. 26

Fixed bearing

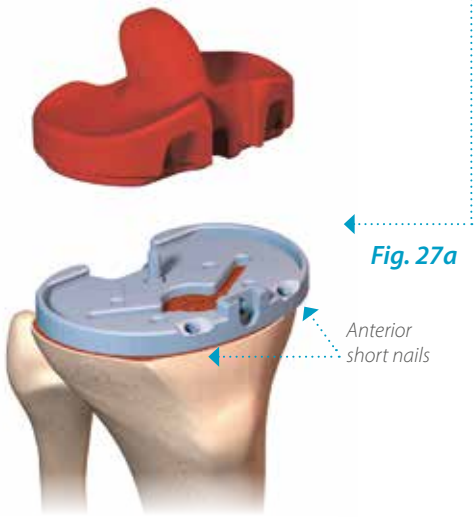


Fig. 27a

Mobile bearing

Fig. 27b

• Fixed bearing

The axes are checked by placing a pin of 3.2 mm diameter in the femoral trial component and the external alignment stems in the shaft for the trial base *(Fig. 25 & 26)*.

When the final positioning of the parts has been completed, the trial base is fixed using short anterior nails *(Fig. 27a)*, and the anchorage studs for the femoral part are drilled with a drill with stop *(Fig. 28)*.

The gap between the femur and the tibia cannot exceed one size.

• Mobile bearing

The tibial trial base for the mobile bearing is introduced into the optimum anteroposterior location, and for the medio-lateral and its rotation evaluated in relation to the standard anatomical reference points (internal third of the anterior tibial tuberosity). It is then locked off by a short nail which allows the possibility of self-positioning in rotation in relation to the femur, which can be achieved by a few flexion/extension movements and knee joint reduced *(Fig. 27b)*.

The size of the base is independent of the femoral size, it can be larger, equal, or smaller by one size.

• Femoral component

A grip extractor facilitates the positioning of the femur. Care must be taken at this point with its mediolateral positioning it is from this position that the centring holes will be drilled.

DRILLING OF PLUGS AND PREPARATION OF THE TROCHLEA (5 IN 1 TECHNIQUE)

The centring of the femoral component is checked, and the stud holes made using the drill with stop ***(Fig. 28)***.

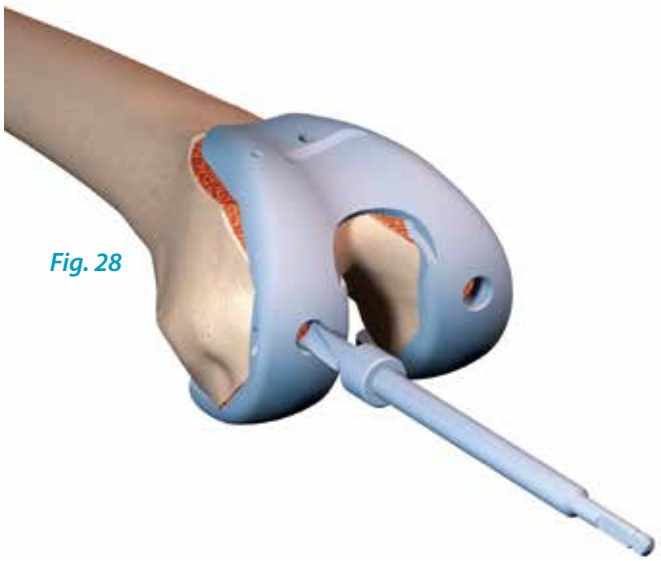


Fig. 28

If the 5 in 1 technique was used, the trochlea must be prepared with a specific chisel introduced into the orifice provided for this purpose and driven in with a hammer ***(Fig. 29)***.

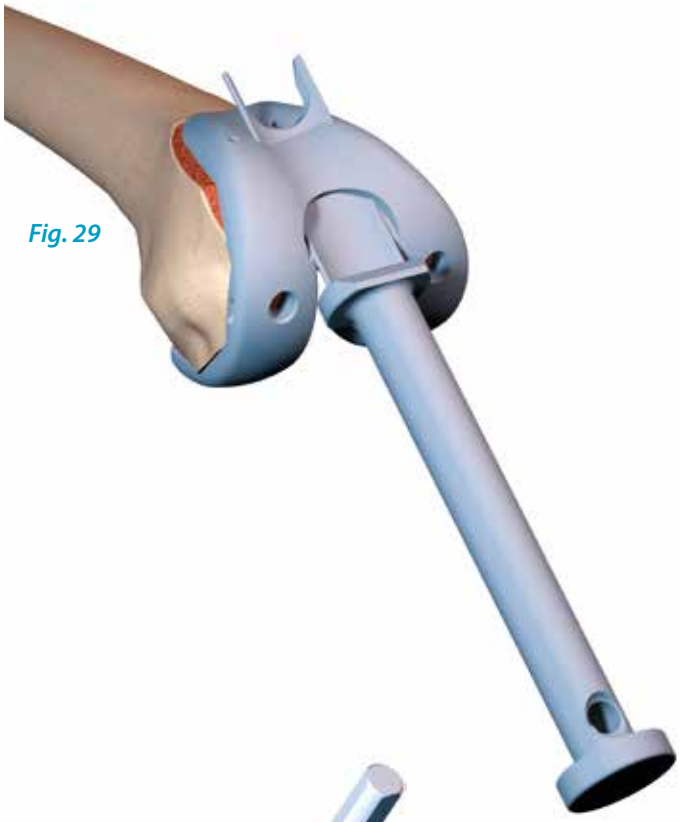


Fig. 29

Preparation of the posterior stabilisation cage for fixed bearing

The milling support is placed in the Preparation opening of the trochlea in the femoral Trial piece, it is fixed by a pin, and the milling tool then used with the motor, driven in to the end stop to create the posterior stabilisation cage ***(Fig. 30)***.

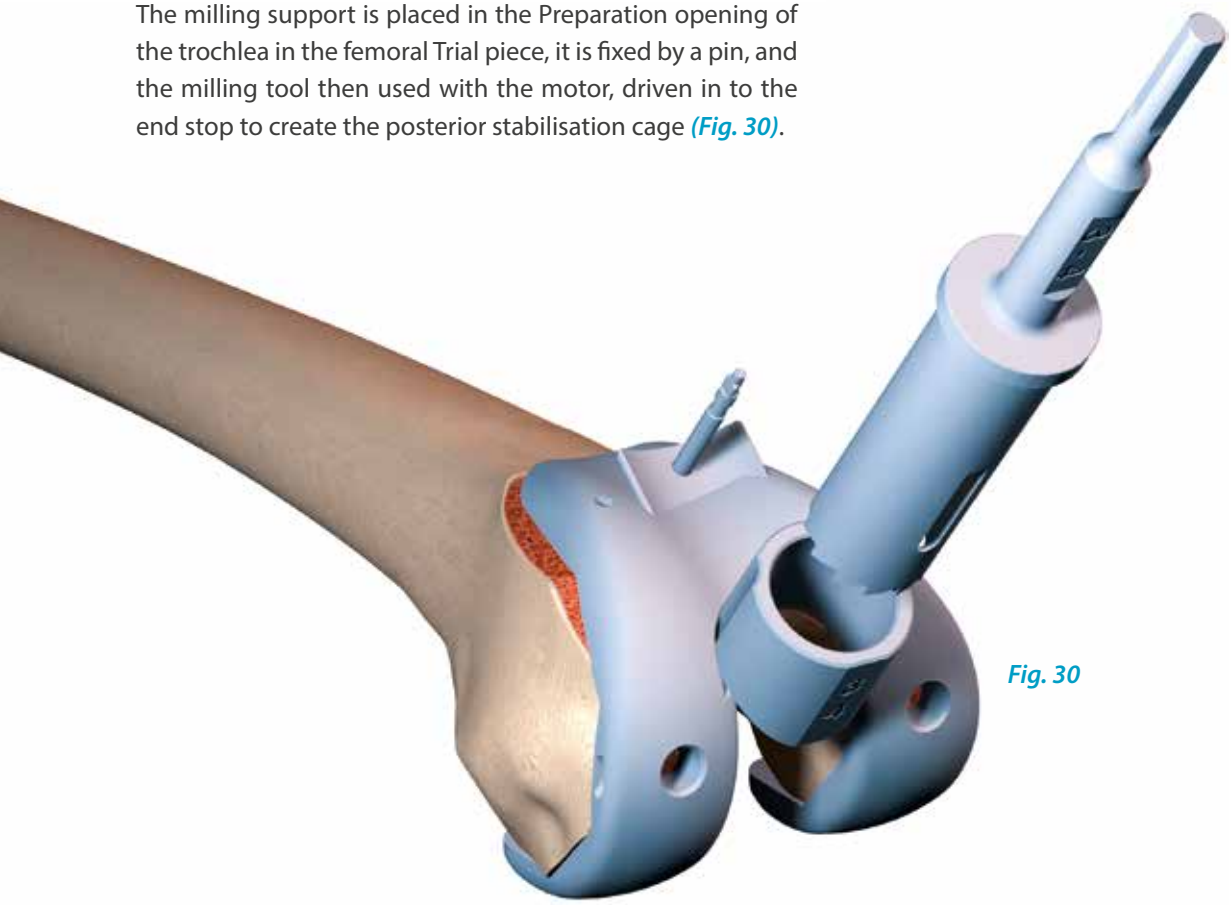


Fig. 30

PREPARATION OF THE TIBIAL STEM

Preparation of the tibial stem is performed by placing the perforation guide on the Trial base and by impacting the perforator of the corresponding size up to the end stop (there is a perforator for two sizes of base) ***(Fig. 31)***.

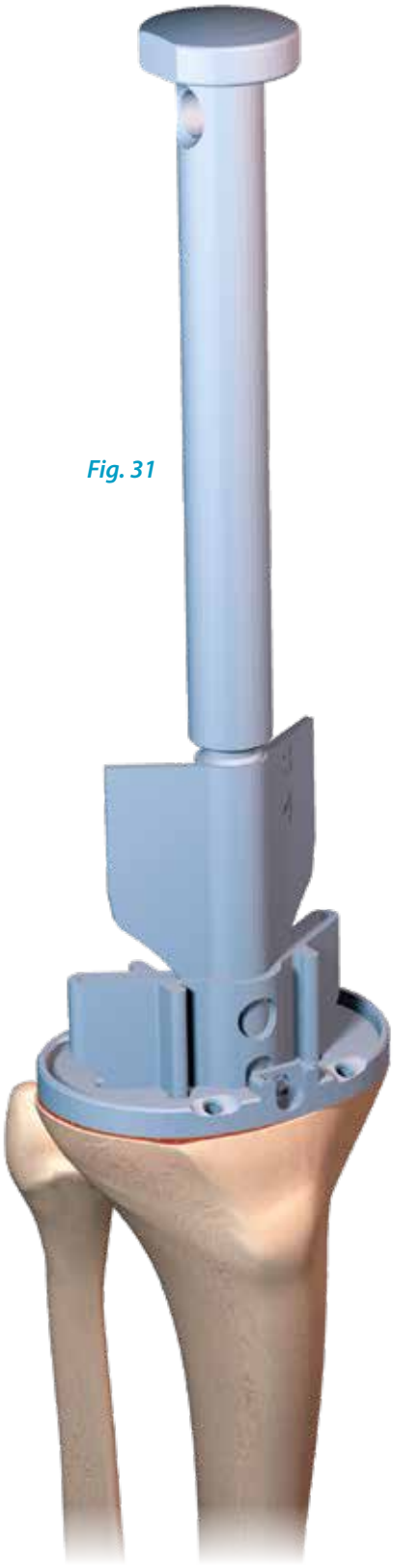


Fig. 31

According to the operator's choice, the perforator enables the recovery of a bone core (which will seal off the entry hole of the femoral alignment) or compaction of the trabecular network ***(Fig. 32)***.

Fig. 32

In the case of preparation in dense bone, it is recommended to begin by using a 3.2 mm drill in the slots of the guide.

PATELLAR STEP

The size of the patellar implant is assessed using the trial.

The patellar cutting guide clamp is put in place taking care to use the probe of the desired thickness (8 or 10 mm) and corresponding to the selected size. The cut is performed using the blade through the slots ***(Fig. 33)***.

The anchorage hole for the patella will be created using the drill with stop passed through a specific stemhead fitting ***(Fig. 34)***.

Medialisation of the final implant is possible simply by off-setting the stemhead fitting.

The calliper trial will enable verification that the patella thickness has indeed been adhered to.

Fig. 33

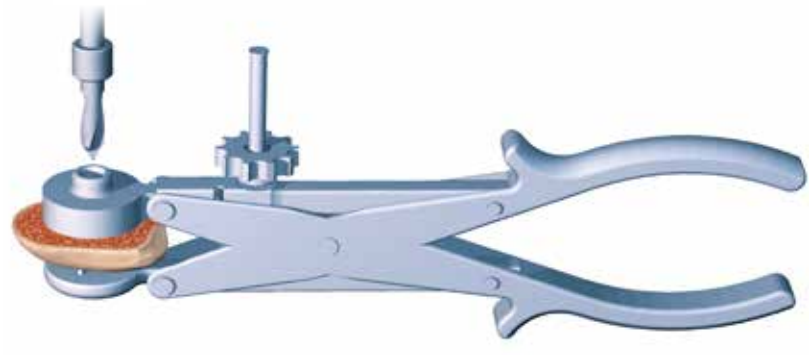


Fig. 34

PATELLA INLAY OPTION

The most suitable implant diameter is selected using the template (22 mm or 25 mm).

Le davier spécifique est placé sur la rotule en s'assurant du centrage, puis la fraise n° 1 de la taille choisie assure la réalisation du plot, la fraise n° 2 de la taille choisie assure la préparation de la surface plane incluse ***(Fig. 35 & 36)***.

WARNING

Preparation of the patella inlay must be performed using the motor at slow speed

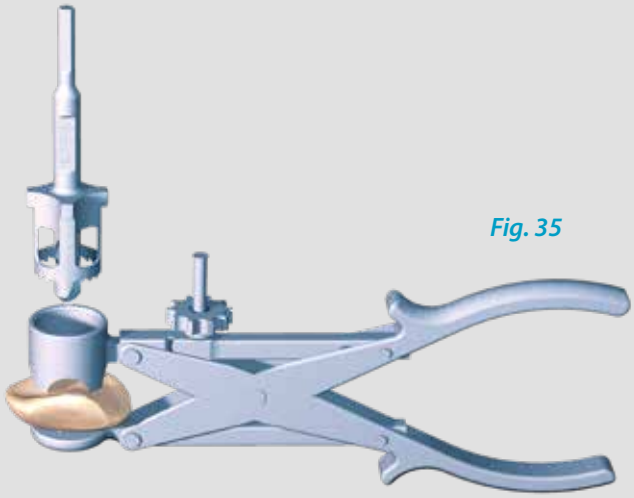


Fig. 35

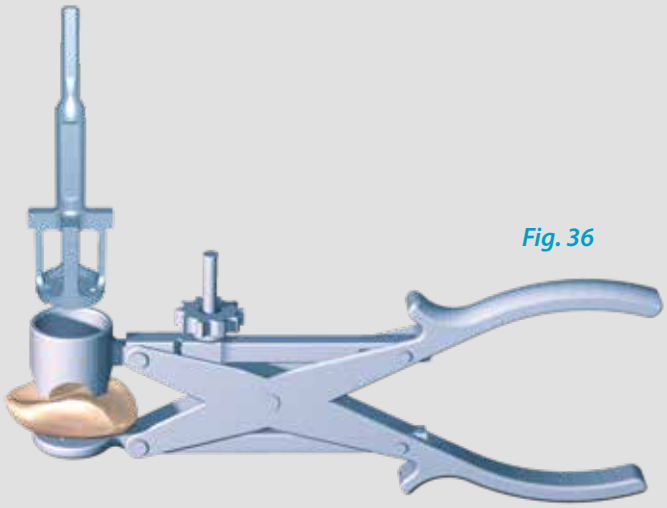


Fig. 36

ORDER OF IMPLANTATION

FOR A PS PROSTHESIS

1. First proceed with the installation of the tibial base.

If the cemented version was chosen, it will be prudent to wait until the cement has totally set.

2. The second phase relates to the femoral implant (with or without cement) *(Fig. 40)*.

3. The polyethylene insert will then be installed and locked off.

The tibia will be dislocated forwards using a retractor to enable correct placement of the polyethylene insert.
Its installation is performed by an oblique front to back and top to bottom movement to enable the posterior rims to engage properly in the throat of the base. Clip contact is achieved with an oblique blow applied with the specific impactor and patella if appropriate *(Fig. 39a)*.

Check that the posterior part is correctly engaged in the base before impaction.

FOR A CR OR MB PROSTHESIS

The polyethylene insert will be installed just after the base, and the femoral component will be installed last *(Fig. 37b, 38b, 39b & 40)*.

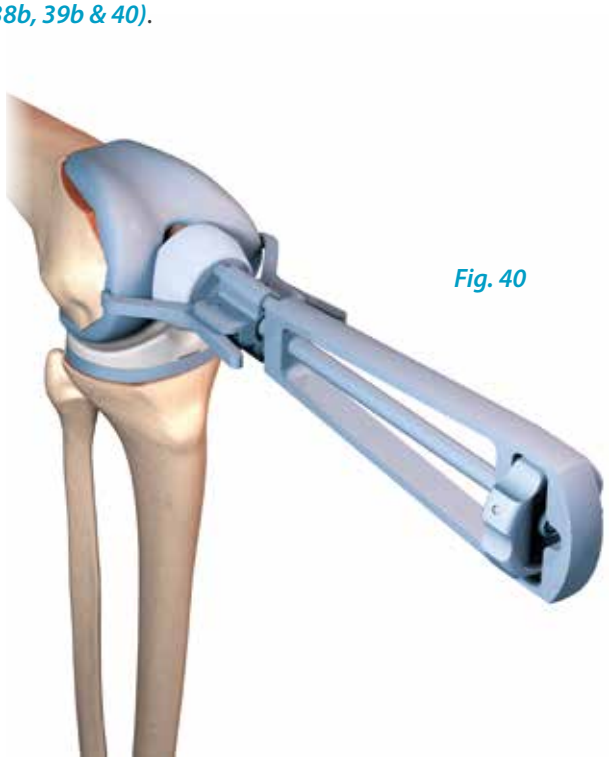


Fig. 40

Optional tibial stems could be added on all tibial trays. Pay attention to obtain an efficient screwing between the tibial stem and the tibial tray using these specific instruments: tightening support and multifunction trial. To improve stability of cementless tibial trays, a tibial stem is required. *(Fig. 37a & 37b)*

TIBIAL COMPONENT PS

Fig. 37a *Fig. 38a* *Fig. 39a*

TIBIAL COMPONENT MB

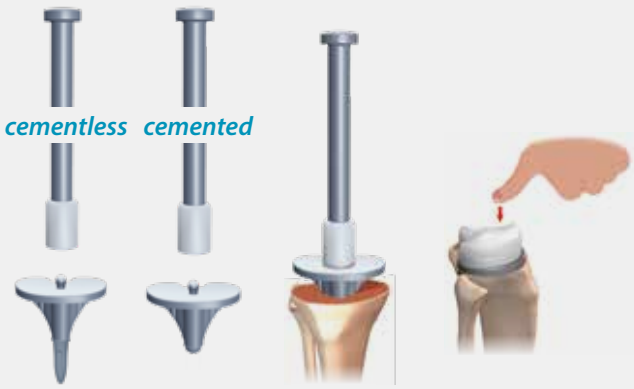
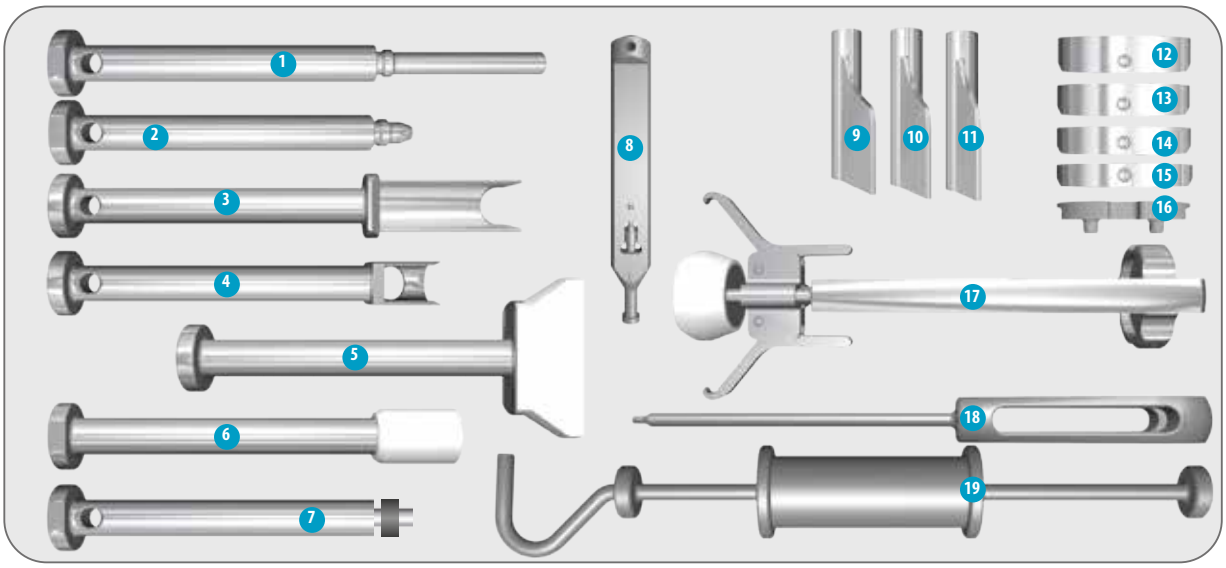


Fig. 37b *Fig. 38b* *Fig. 39b*

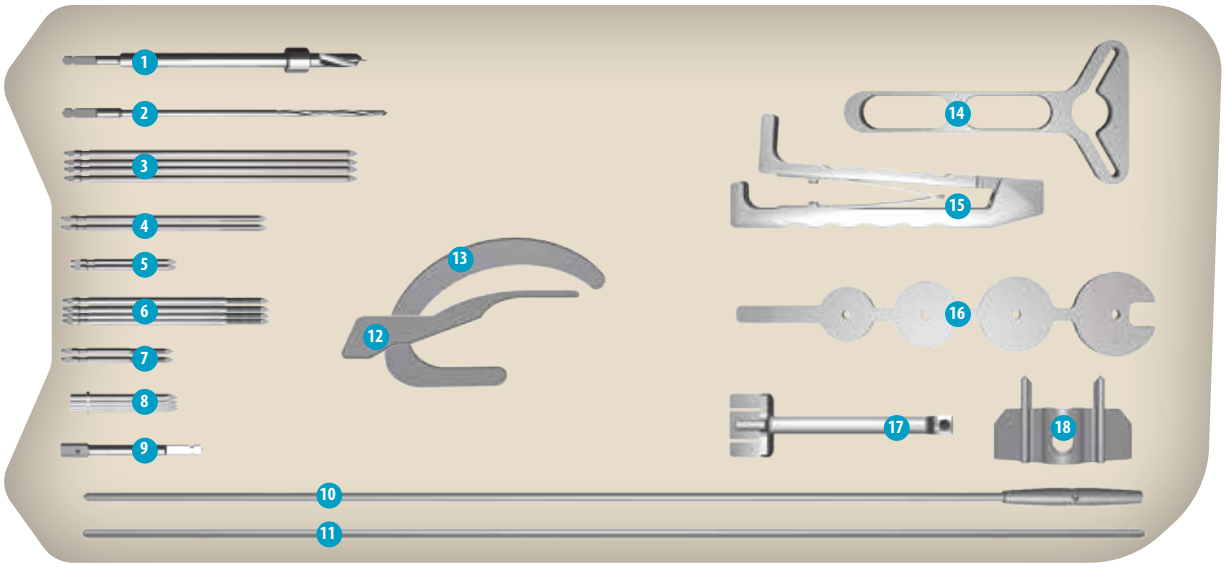
INSTRUMENTATION

COMMON TRAY (1/2)



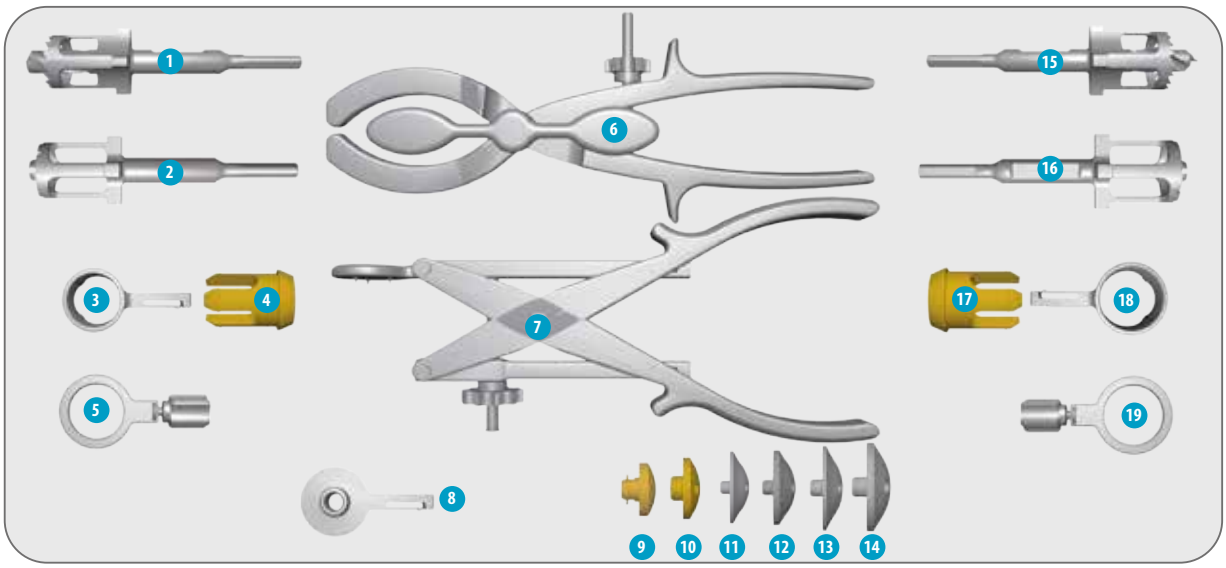
1. Full keel perforator handle ..... ref. 264670
2. Keel perforator handle ..... ref. 264671
3. Chisel for trochlea ..... ref. 264696
4. Section removal chisel ..... ref. 264687
5. Femoral impactor ..... ref. 264756
6. Base impactor ..... ref. 264924
7. Base impactor FB ..... ref. 264783
8. Removable handle ..... ref. 264663
9. Awl S1 & S2 ..... ref. 264679
10. Awl S3 & S4 ..... ref. 264680
11. Awl S5, S6 & S7 ..... ref. 264681
12. Spacer th. 16 ..... ref. 264667
13. Spacer th. 14 ..... ref. 264666
14. Spacer th. 12 ..... ref. 264665
15. Spacer th. 10 ..... ref. 264664
16. Prosthetic block ..... ref. 264668
17. Femoral grip ..... ref. 264755
18. Screwdriver Ø 3.5 ..... ref. 264683
19. Stub-ended extractor ..... ref. 264669

COMMON TRAY (2/2)



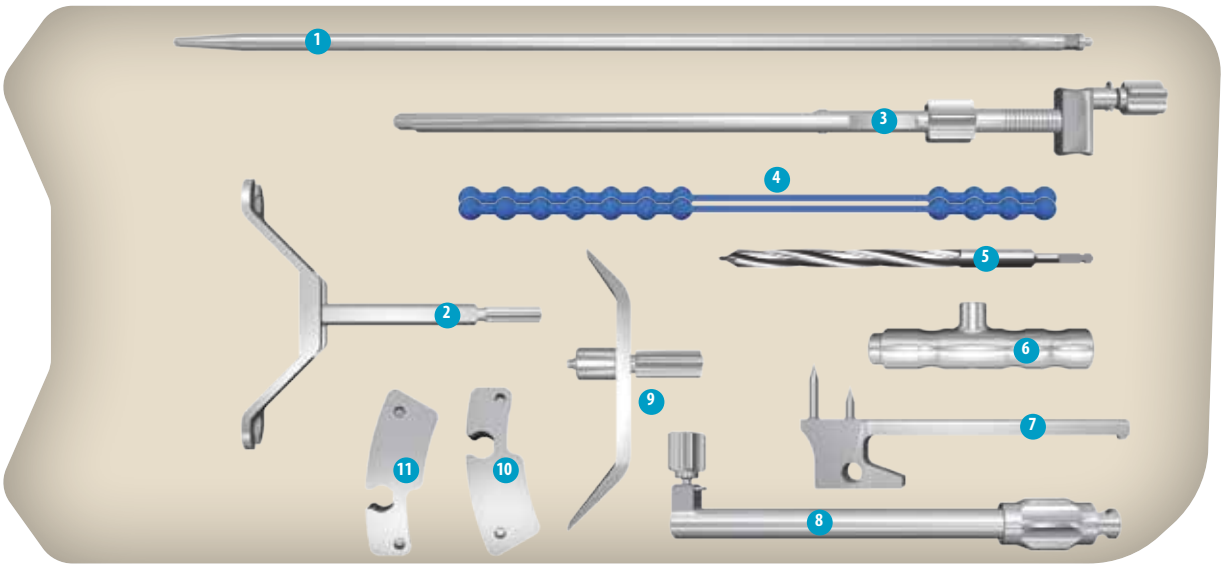
1. Drill with stop Ø 7 ..... ref. 236630
2. Drill Ø 3.2 ..... ref. 236649
3. Pin Ø 3.2 lg 130 (x4) ..... ref. 263086
4. Pin Ø 3.2 lg 90 (x2) ..... ref. 263085
5. Pin Ø 3.2 threaded lg 50 (x2) ..... ref. 264658
6. Pin Ø 3.2 threaded lg 90 (x4) ..... ref. 264659
7. Pin Ø 3.2 lg 50 (x2) ..... ref. 263084
8. Tibial nail trial (x4) ..... ref. 264689
9. AO pin grip ..... ref. 255712
10. Ringed alignment stem ..... ref. 236627
11. Alignment stem ..... ref. 236620
12. Offset feeler ..... ref. 264662
13. Curved feeler ..... ref. 255715
14. Base tightening support ..... ref. 236673
15. Pin remover ..... ref. 264657
16. Multifunction trial ..... ref. 264688
17. External alignment support ..... ref. 264925
18. Awl guide ..... ref. 264682

TIBIA PATELLA TRAY (1/2)



1. Patella inlay drill bit Ø 22 n°1 ..... ref. 265953
2. Patella inlay drill bit Ø 22 NG n°2 ..... ref. 268032
3. Patella inlay drill bit guide Ø 22 ..... ref. 265973
4. Patella impaction tip Ø 22 ..... ref. 265974
5. Inlay patella bit ring Ø 22 ..... ref. 265975
6. Patella cut stemhead fitting ..... ref. 264728
7. Clamp for patella ..... ref. 264729
8. Patella drilling guide ..... ref. 264733
9. Trial patella Ø 22 th. 7 ..... ref. 265952
10. Trial patella Ø 25 th. 7 ..... ref. 264740
11. Trial patella Ø 38 th. 10 ..... ref. 264739
12. Trial patella Ø 34 th. 10 ..... ref. 264738
13. Trial patella Ø 34 th. 8 ..... ref. 264737
14. Trial patella Ø 30 th. 8 ..... ref. 264736
15. Patella inlay bit Ø 25 n°1 ..... ref. 264730
16. Patella inlay bit Ø 25 NG n°2 ..... ref. 268031
17. Patella impaction tip Ø 25 ..... ref. 264734
18. Patella inlay bit guide Ø 25 ..... ref. 264732
19. Patella inlay bit ring Ø 25 ..... ref. 265976

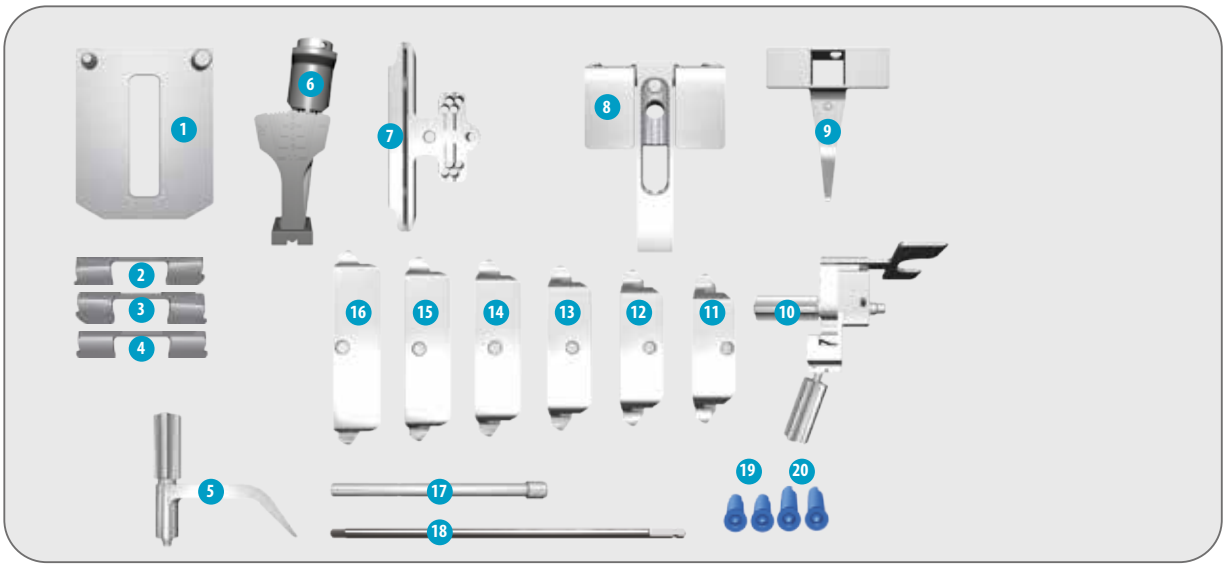
TIBIA PATELLA TRAY (2/2)



1. Centromedullary stem Ø 8 ..... ref. 255707
2. Malleolus tongs ..... ref. 264675
3. Tibial guide support ..... ref. 264673
4. Malleolus strap (x2) ..... ref. 236646
5. Drill Ø 8.5 ..... ref. 255714
6. Removable handle ..... ref. 264656
7. Tibial frame ..... ref. 264672
8. Tibial alignment tube ..... ref. 264674
9. Tibial MBobe ..... ref. 264676
10. Right hand tibial cutting guide ..... ref. 264678
11. Left hand tibial cutting guide ..... ref. 264677

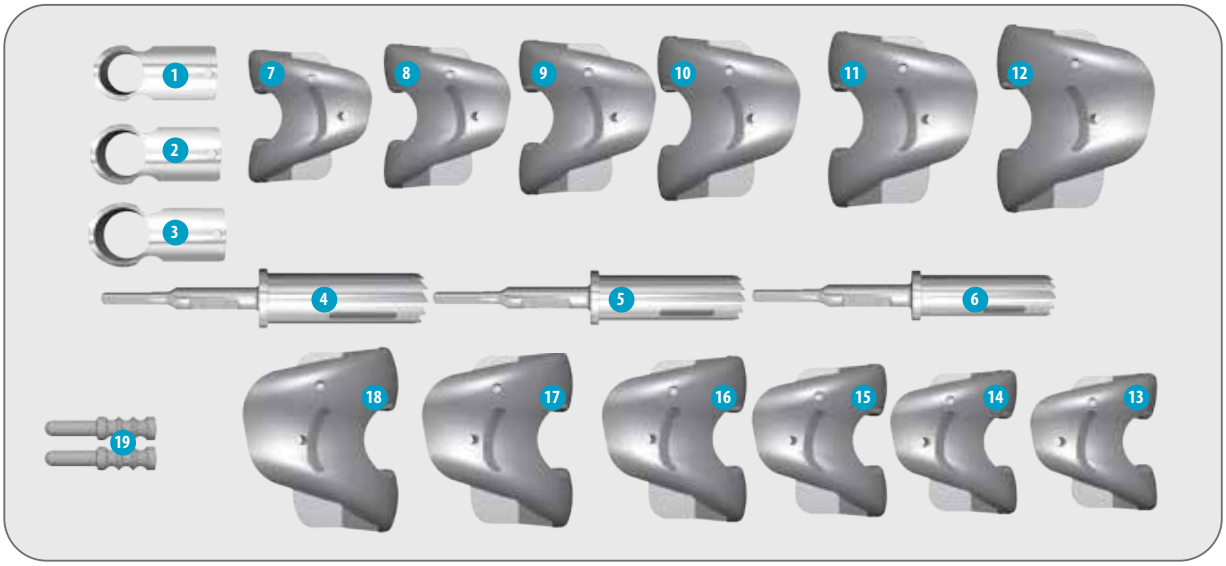
INSTRUMENTATION (SUITE)

1+4 TRAY



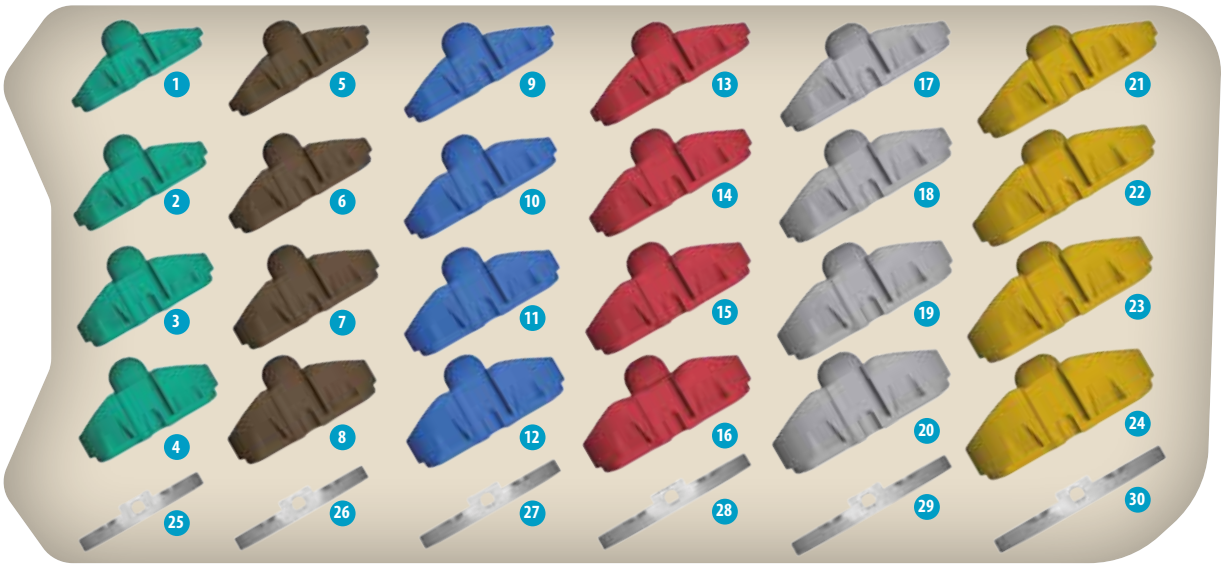
1. Distal cutting guide support ..... ref. 264712
2. Posterior pallet 3° left ..... ref. 264709
3. Posterior pallet 3° right ..... ref. 264708
4. Posterior pallet 0° ..... ref. 264707
5. 4 cuts anterior sensor guide ..... ref. 264724
6. Adjustable trial rod ..... ref. 264685
7. Distal cutting guide ..... ref. 264713
8. 4 + 1 measurer ..... ref. 264725
9. Measurer probe ..... ref. 264706
10. Femoral indexation guide ..... ref. 264723
11. 4 cuts femoral guide S1 ..... ref. 264714
12. 4 cuts femoral guide S2 ..... ref. 264715
13. 4 cuts femoral guide S3 ..... ref. 264716
14. 4 cuts femoral guide S4 ..... ref. 264717
15. 4 cuts femoral guide S5 ..... ref. 264718
16. 4 cuts femoral guide S6 ..... ref. 264719
17. Drill centring tube Ø 3.2 ..... ref. 264722
18. 3.5 screwdriver AO chuck ..... ref. 263639
19. Fixing screw lg 35 (x2) ..... ref. 264720
20. Fixing screw lg 45 (x2) ..... ref. 264721

TRIAL TRAY (1/2)



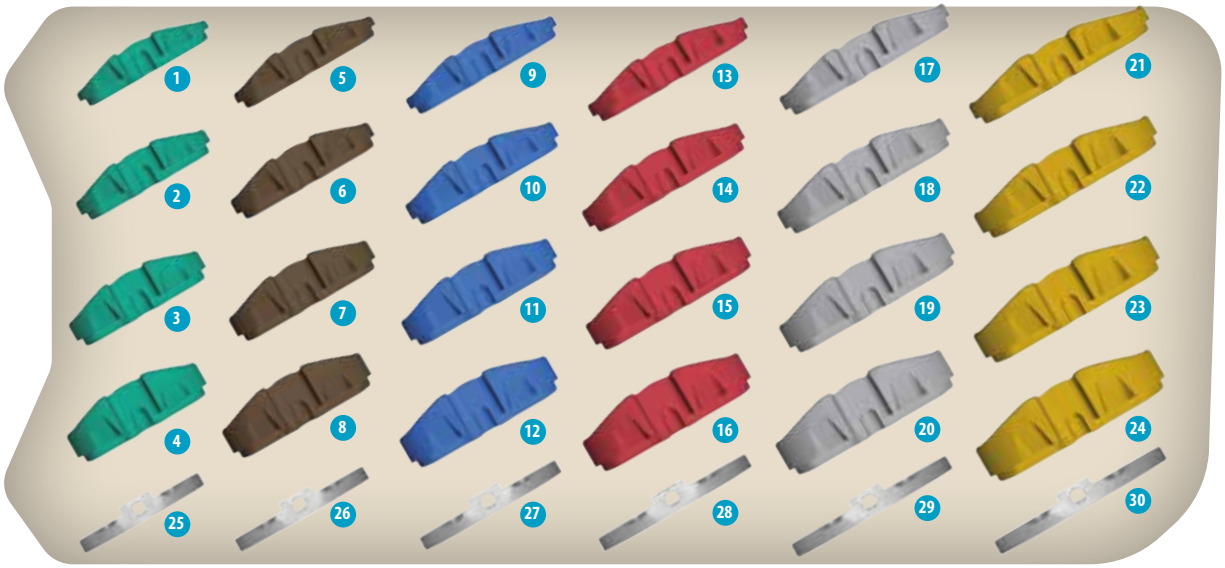
1. Cage preparation guide PS S1 & S2 ..... ref. 264813
2. Cage preparation guide PS S3 & S4 ..... ref. 264814
3. Cage preparation guide PS S5 & S6 ..... ref. 264815
4. Cage trephine PS S5 & S6 ..... ref. 264812
5. Cage trephine PS S3 & S4 ..... ref. 264811
6. Cage trephine PS S1 & S2 ..... ref. 264810
7. Trial femur S1 right ..... ref. 264743
8. Trial femur S2 right ..... ref. 264744
9. Trial femur S3 right ..... ref. 264745
10. Trial femur S4 right ..... ref. 264746
11. Trial femur S5 right ..... ref. 264747
12. Trial femur S6 right ..... ref. 264748
13. Trial femur S1 left ..... ref. 264749
14. Trial femur S2 left ..... ref. 264750
15. Trial femur S3 left ..... ref. 264751
16. Trial femur S4 left ..... ref. 264752
17. Trial femur S5 left ..... ref. 264753
18. Trial femur S6 left ..... ref. 264754
19. Locking rods ..... ref. 264986

PS TRIAL TRAY (2/2)



1. Trial PE insert PS - S1 - th. 10 ..... ref. 264786
2. Trial PE insert PS - S1 - th. 12 ..... ref. 264787
3. Trial PE insert PS - S1 - th. 14 ..... ref. 264788
4. Trial PE insert PS - S1 - th. 16 ..... ref. 264789
5. Trial PE insert PS - S2 - th. 10 ..... ref. 264790
6. Trial PE insert PS - S2 - th. 12 ..... ref. 264791
7. Trial PE insert PS - S2 - th. 14 ..... ref. 264792
8. Trial PE insert PS - S2 - th. 16 ..... ref. 264793
9. Trial PE insert PS - S3 - th. 10 ..... ref. 264794
10. Trial PE insert PS - S3 - th. 12 ..... ref. 264795
11. Trial PE insert PS - S3 - th. 14 ..... ref. 264796
12. Trial PE insert PS - S3 - th. 16 ..... ref. 264797
13. Trial PE insert PS - S4 - th. 10 ..... ref. 264798
14. Trial PE insert PS - S4 - th. 12 ..... ref. 264799
15. Trial PE insert PS - S4 - th. 14 ..... ref. 264800
16. Trial PE insert PS - S4 - th. 16 ..... ref. 264801
17. Trial PE insert PS - S5 - th. 10 ..... ref. 264802
18. Trial PE insert PS - S5 - th. 12 ..... ref. 264803
19. Trial PE insert PS - S5 - th. 14 ..... ref. 264804
20. Trial PE insert PS - S5 - th. 16 ..... ref. 264805
21. Trial PE insert PS - S6 - th. 10 ..... ref. 264806
22. Trial PE insert PS - S6 - th. 12 ..... ref. 264807
23. Trial PE insert PS - S6 - th. 14 ..... ref. 264808
24. Trial PE insert PS - S6 - th. 16 ..... ref. 264809
25. Tibial trial FB S1 ..... ref. 264690
26. Tibial trial FB S2 ..... ref. 264691
27. Tibial trial FB S3 ..... ref. 264692
28. Tibial trial FB S4 ..... ref. 264693
29. Tibial trial FB S5 ..... ref. 264694
30. Tibial trial FB S6 ..... ref. 264695

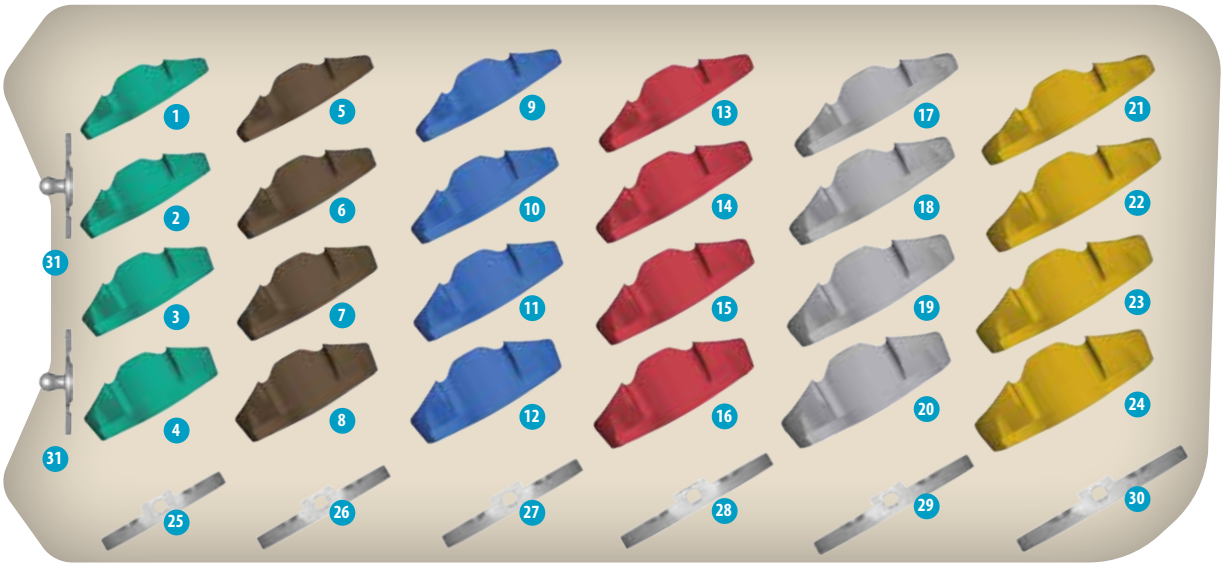
CR TRIAL TRAY (2/2)



1. Trial PE insert CR - S1 - th. 10 ..... ref. 264759
2. Trial PE insert CR - S1 - th. 12 ..... ref. 264760
3. Trial PE insert CR - S1 - th. 14 ..... ref. 264761
4. Trial PE insert CR - S1 - th. 16 ..... ref. 264762
5. Trial PE insert CR - S2 - th. 10 ..... ref. 264763
6. Trial PE insert CR - S2 - th. 12 ..... ref. 264764
7. Trial PE insert CR - S2 - th. 14 ..... ref. 264765
8. Trial PE insert CR - S2 - th. 16 ..... ref. 264766
9. Trial PE insert CR - S3 - th. 10 ..... ref. 264767
10. Trial PE insert CR - S3 - th. 12 ..... ref. 264768
11. Trial PE insert CR - S3 - th. 14 ..... ref. 264769
12. Trial PE insert CR - S3 - th. 16 ..... ref. 264770
13. Trial PE insert CR - S4 - th. 10 ..... ref. 264771
14. Trial PE insert CR - S4 - th. 12 ..... ref. 264772
15. Trial PE insert CR - S4 - th. 14 ..... ref. 264773
16. Trial PE insert CR - S4 - th. 16 ..... ref. 264774
17. Trial PE insert CR - S5 - th. 10 ..... ref. 264775
18. Trial PE insert CR - S5 - th. 12 ..... ref. 264776
19. Trial PE insert CR - S5 - th. 14 ..... ref. 264777
20. Trial PE insert CR - S5 - th. 16 ..... ref. 264778
21. Trial PE insert CR - S6 - th. 10 ..... ref. 264779
22. Trial PE insert CR - S6 - th. 12 ..... ref. 264780
23. Trial PE insert CR - S6 - th. 14 ..... ref. 264781
24. Trial PE insert CR - S6 - th. 16 ..... ref. 264782
25. Tibial trial FB S1 ..... ref. 264690
26. Tibial trial FB S2 ..... ref. 264691
27. Tibial trial FB S3 ..... ref. 264692
28. Tibial trial FB S4 ..... ref. 264693
29. Tibial trial FB S5 ..... ref. 264694
30. Tibial trial FB S6 ..... ref. 264695

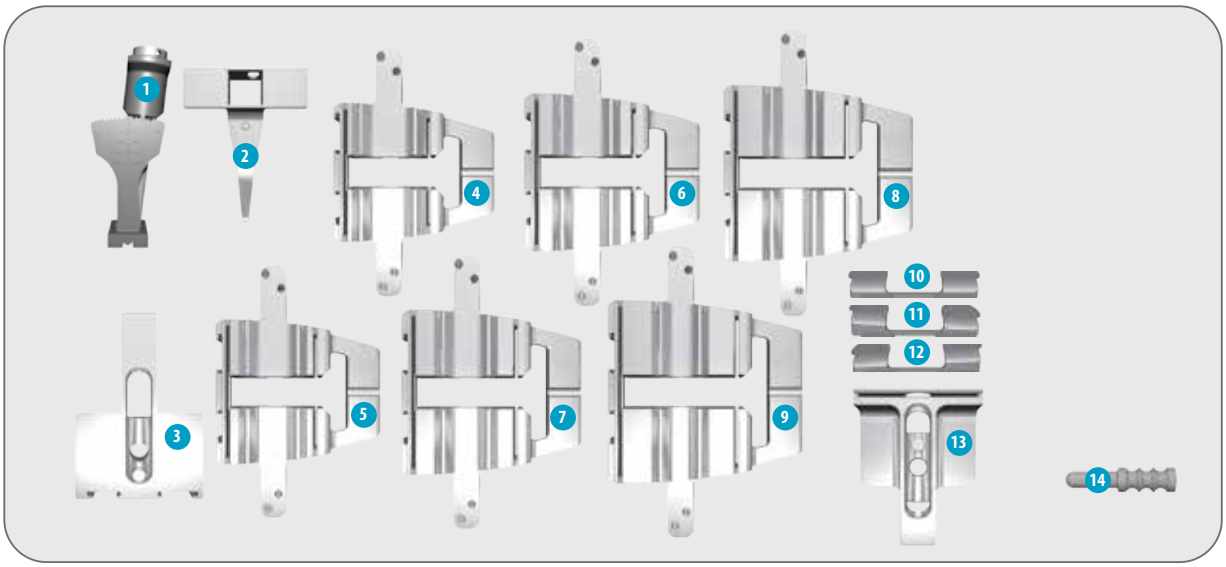
INSTRUMENTATION (SUITE)

MB TRIAL TRAY (2/2)



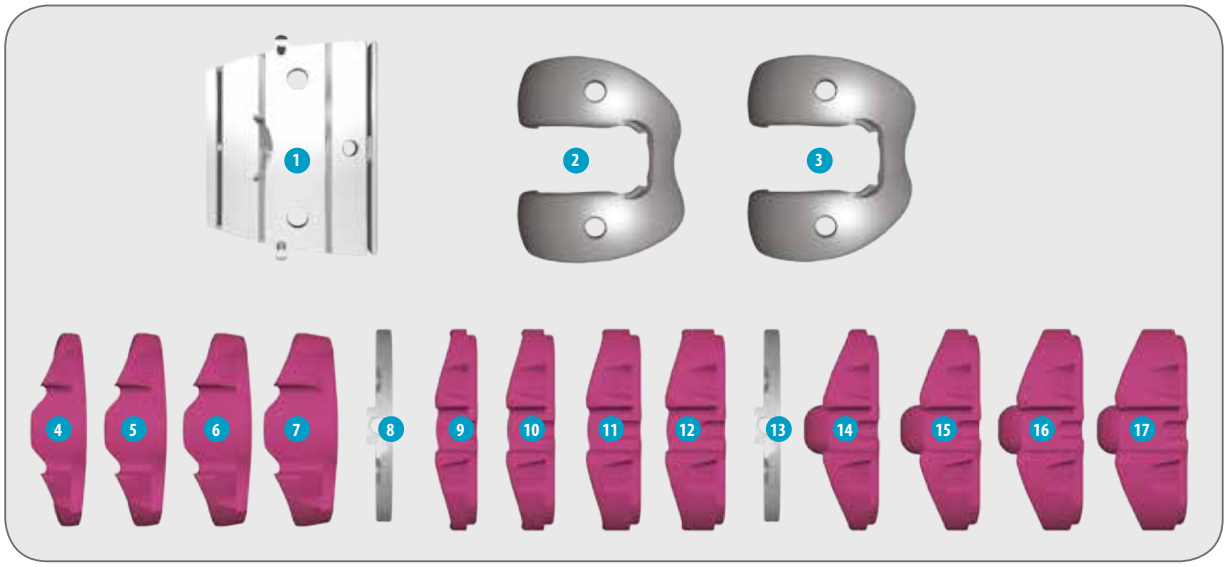
1. Trial PE insert MB - S1 - th. 10 ..... ref. 264824
2. Trial PE insert MB - S1 - th. 12 ..... ref. 264825
3. Trial PE insert MB - S1 - th. 14 ..... ref. 264826
4. Trial PE insert MB - S1 - th. 16 ..... ref. 264827
5. Trial PE insert MB - S2 - th. 10 ..... ref. 264828
6. Trial PE insert MB - S2 - th. 12 ..... ref. 264829
7. Trial PE insert MB - S2 - th. 14 ..... ref. 264830
8. Trial PE insert MB - S2 - th. 16 ..... ref. 264831
9. Trial PE insert MB - S3 - th. 10 ..... ref. 264832
10. Trial PE insert MB - S3 - th. 12 ..... ref. 264833
11. Trial PE insert MB - S3 - th. 14 ..... ref. 264834
12. Trial PE insert MB - S3 - th. 16 ..... ref. 264835
13. Trial PE insert MB - S4 - th. 10 ..... ref. 264836
14. Trial PE insert MB - S4 - th. 12 ..... ref. 264837
15. Trial PE insert MB - S4 - th. 14 ..... ref. 264838
16. Trial PE insert MB - S4 - th. 16 ..... ref. 264839
17. Trial PE insert MB - S5 - th. 10 ..... ref. 264840
18. Trial PE insert MB - S5 - th. 12 ..... ref. 264841
19. Trial PE insert MB - S5 - th. 14 ..... ref. 264842
20. Trial PE insert MB - S5 - th. 16 ..... ref. 264843
21. Trial PE insert MB - S6 - th. 10 ..... ref. 264844
22. Trial PE insert MB - S6 - th. 12 ..... ref. 264845
23. Trial PE insert MB - S6 - th. 14 ..... ref. 264846
24. Trial PE insert MB - S6 - th. 16 ..... ref. 264847
25. Tibial trial MB S1 ..... ref. 265258
26. Tibial trial MB S2 ..... ref. 265259
27. Tibial trial MB S3 ..... ref. 265260
28. Tibial trial MB S4 ..... ref. 265261
29. Tibial trial MB S5 ..... ref. 265262
30. Tibial trial MB S6 ..... ref. 265263
31. Removable nipple MB (x2) ..... ref. 265339

5 IN 1 TRAY (OPTIONAL)



1. Adjustable trial rod ..... ref. 264685
2. Measurer probe ..... ref. 264706
3. 5 in 1 measurer ..... ref. 264705
4. 5 cut femoral guide S1 ..... ref. 264699
5. 5 cut femoral guide S2 ..... ref. 264700
6. 5 cut femoral guide S3 ..... ref. 264701
7. 5 cut femoral guide S4 ..... ref. 264702
8. 5 cut femoral guide S5 ..... ref. 264703
9. 5 cut femoral guide S6 ..... ref. 264704
10. Posterior pallet 0° ..... ref. 264707
11. Posterior pallet 3° right ..... ref. 264708
12. Posterior pallet 3° left ..... ref. 264709
13. Second cut pallet 1.5 ..... ref. 264686
14. Locking rod ..... ref. 264986

SIZE 7 TRAY (OPTIONAL)



1. 4 cuts femoral guide S7 ..... ref. 266770
2. Trial femur S7 left ..... ref. 266767
3. Trial femur S7 right ..... ref. 266766
4. Trial PE insert MB - S7 - th. 10 ..... ref. 266780
5. Trial PE insert MB - S7 - th. 12 ..... ref. 266781
6. Trial PE insert MB - S7 - th. 14 ..... ref. 266782
7. Trial PE insert MB - S7 - th. 16 ..... ref. 266783
8. Tibial trial MB S7 ..... ref. 266769
9. Trial PE insert CR - S7 - th. 10 ..... ref. 266772
10. Trial PE insert CR - S7 - th. 12 ..... ref. 266773
11. Trial PE insert CR - S7 - th. 14 ..... ref. 266774
12. Trial PE insert CR - S7 - th. 16 ..... ref. 266775
13. Tibial trial FB S7 ..... ref. 266768
14. Trial PE insert PS - S7 - th. 10 ..... ref. 266776
15. Trial PE insert PS - S7 - th. 12 ..... ref. 266777
16. Trial PE insert PS - S7 - th. 14 ..... ref. 266778
17. Trial PE insert PS - S7 - th. 16 ..... ref. 266779

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