P.F.C.® SIGMA

Patella Planing System

REFERENCE GUIDE
AND
SURGICAL TECHNIQUE

SPECIALIST 2 INSTRUMENTS

AN ONLAY
PATELLA PREPARATION
SYSTEM

DePuy
a Johnson & Johnson company

Technique for Primary Patellar Resurfacing

The Specialist® 2 Patellar Planer System Instruments offer a simple, reproducible and accurate approach to patellar resurfacing. The instrumentation is designed to accurately reproduce preoperative patellar thickness without time-intensive measuring and recutting of patellar bone.

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Scripps Clinic, La Jolla, Calif.

Accurate, Reproducible Resection

Designed to minimize bone removal and restore preoperative patellar height precisely through a series of reproducible steps.

Modular Instruments

Completely modular, offering maximum intraoperative flexibility in choosing sizes and patellar configurations.

Full Compatibility with all Resurfaced P.F.C. Sigma Patellar Implants

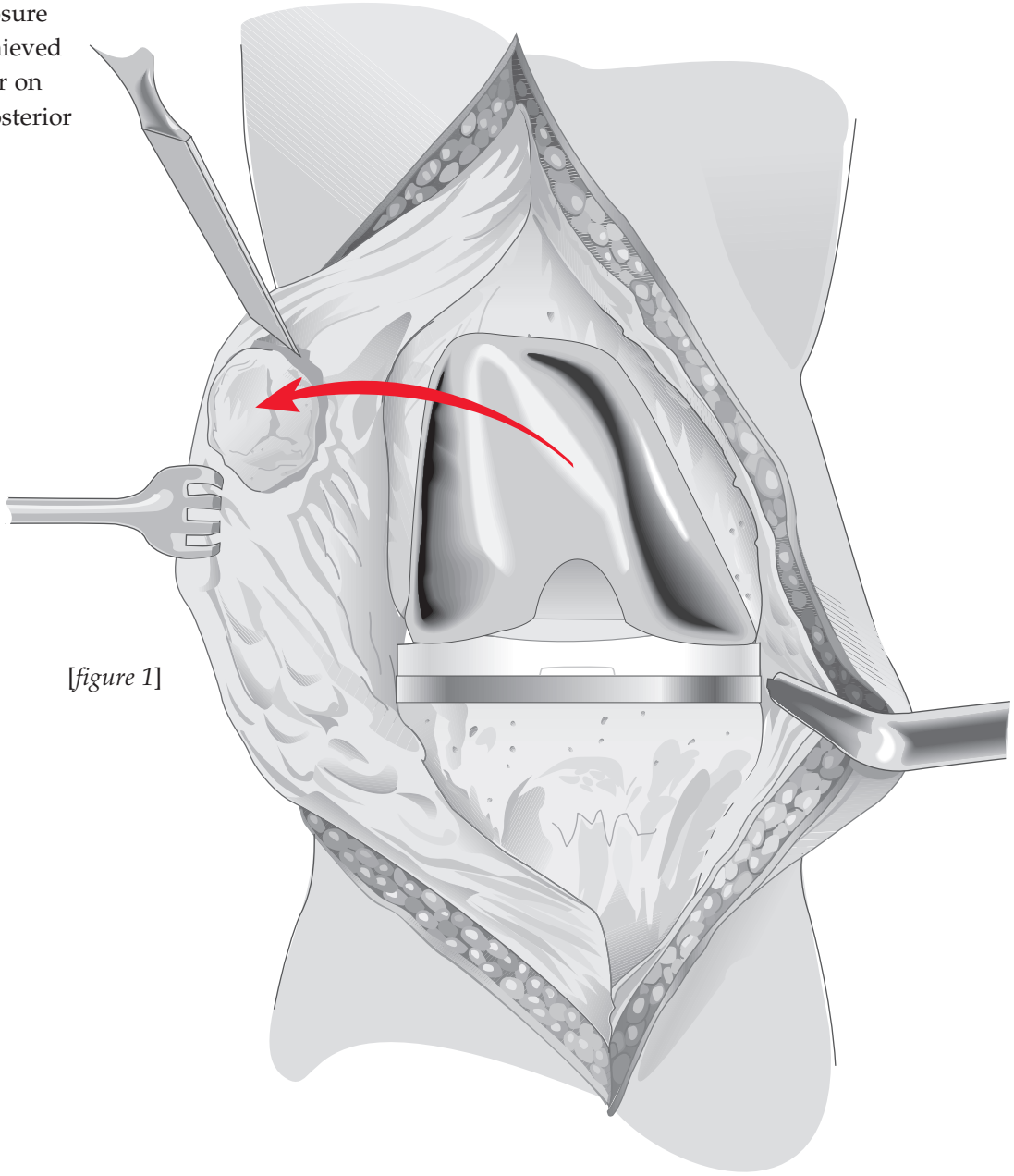
Fully compatible with all single-peg, three-peg, oval and dome P.F.C.® Sigma Patellar implants, offering a maximum number of intraoperative choices.

Single-Use Planer Blades and Drill Bits

Designed for single-patient use, the disposable planer blades and drill bits offer consistently sharp cutting surfaces that facilitate bone cut reproducibility, reduce bone trauma caused by dull planers or sawblades and minimize the need for manual completion of patellar resurfacing.

Exposing the Patella

Following completion of all femoral and tibial cuts, and with trials in position, place the knee in full extension and evert the patella laterally. Remove peripheral osteophytes. Expose the anterior or prepatellar surface to ensure that the patellar clamp can grasp the ventral patellar surface without interposition of skin. It is important that sufficient exposure of the patella is achieved to position a caliper on the anterior and posterior surfaces. [*fig. 1*]

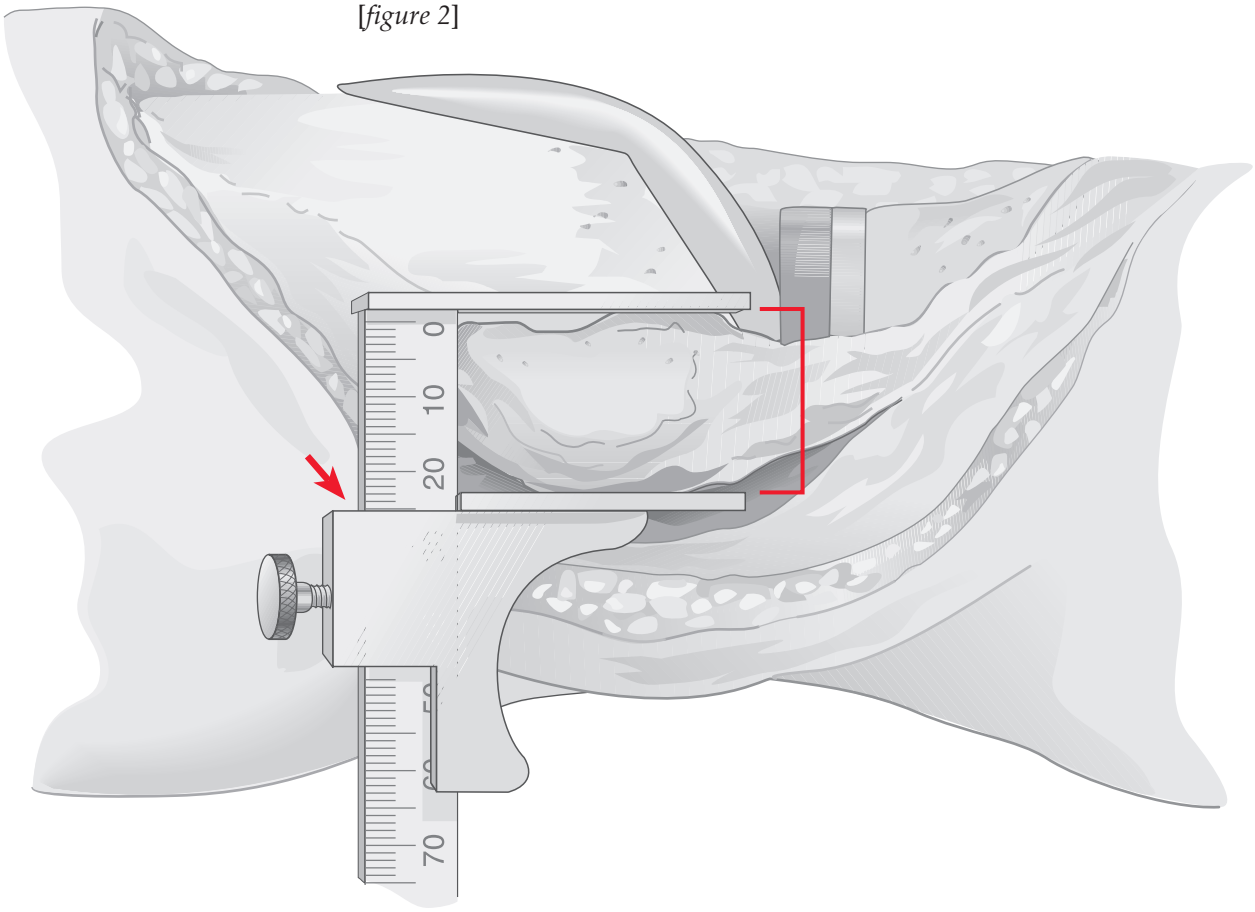


[*figure 1*]

Measuring Patellar Height

Position the arms of the patellar caliper over the highest anteroposterior (A/P) point of the patella, usually the median ridge. This will measure the preoperative patellar height (the normal range is 20-30 mm). It will later correspond with the final postoperative height, generally to within +/- 1 mm. Note patellar height and remove the caliper. If the patellar thickness is less than 20 mm, a full planing of the patella may not be possible. [*fig. 2*]

[*figure 2*]



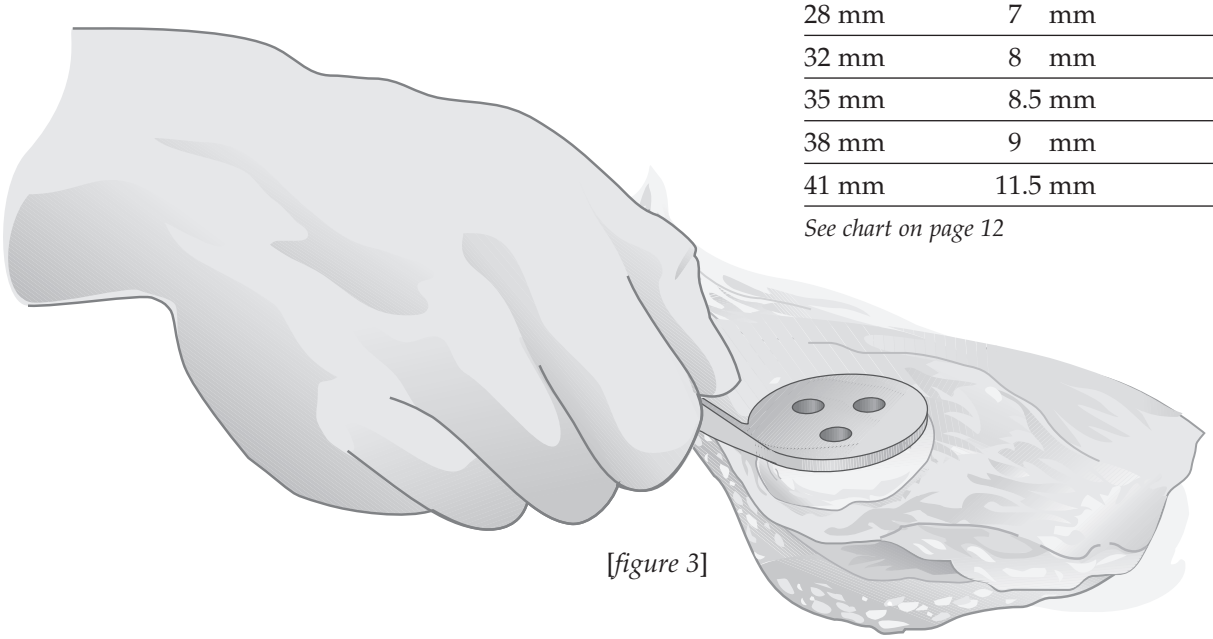
Sizing the Patella

Select a template that most adequately covers the articular surface of the patella. The size of the template selected will dictate the level of bone to be resected. [*fig. 3*]

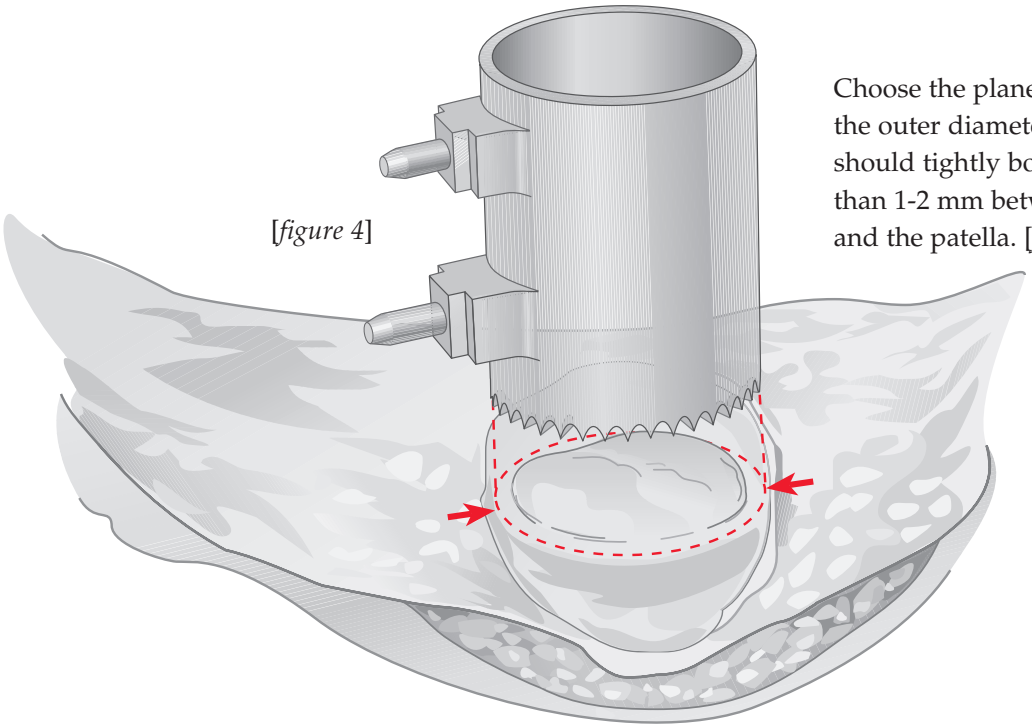
The template size will also correspond to the depth gauge size that will be used when setting the planing depth. [see *fig. 12*]

Template	Patella Implant
28 mm	7 mm
32 mm	8 mm
35 mm	8.5 mm
38 mm	9 mm
41 mm	11.5 mm

See chart on page 12



[*figure 3*]

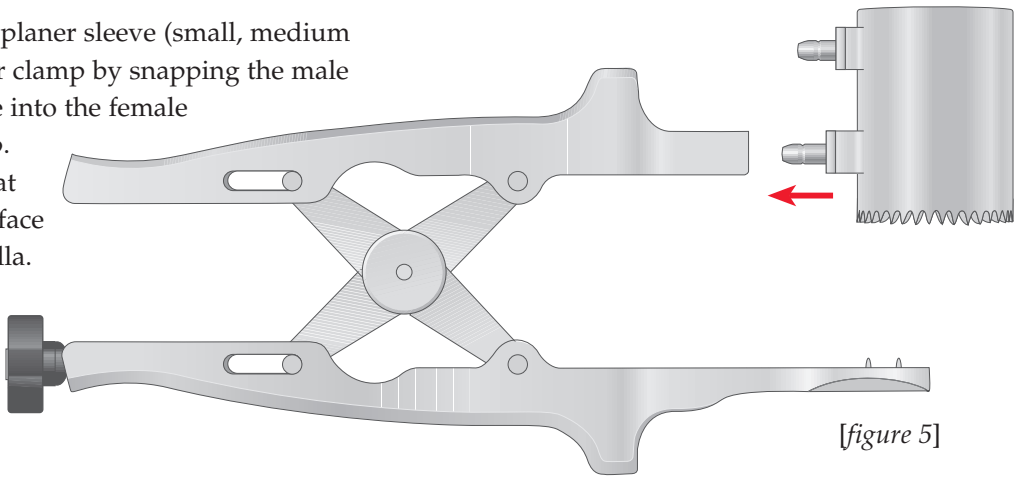


[*figure 4*]

Choose the planer sleeve that best approximates the outer diameter of the patella. The sleeve should tightly border the patellar border with less than 1-2 mm between the inner rim of the sleeve and the patella. [*fig. 4*]

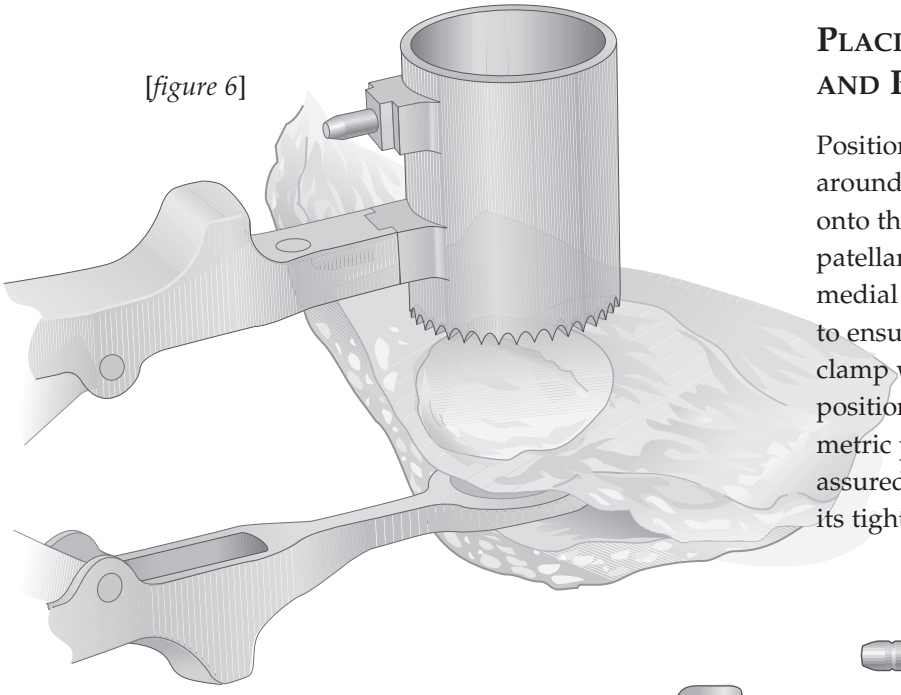
ASSEMBLING THE PLANER SLEEVE

Assemble the selected planer sleeve (small, medium or large) to the patellar clamp by snapping the male connector of the sleeve into the female connector of the clamp. Take care to ensure that the teeth of the sleeve face down toward the patella. [*fig. 5*]



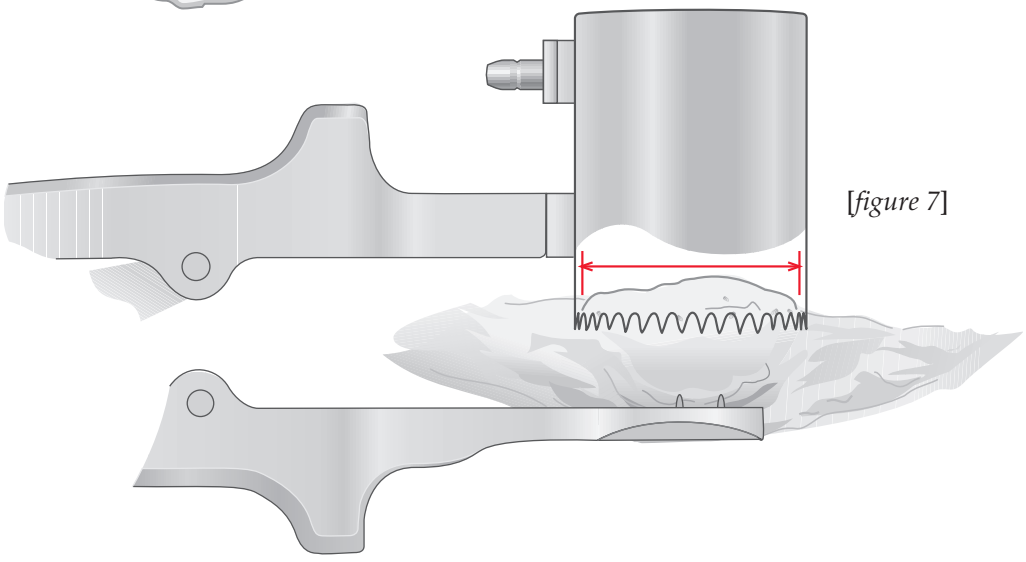
[*figure 5*]

[*figure 6*]



PLACING THE PATELLAR CLAMP AND PLANER SLEEVE

Position the patellar clamp/planer sleeve assembly around the patella. Orient the sleeve by clamping onto the soft tissue of the rectus tendon and the patellar tendon, as well as the soft tissue of the medial and lateral retinaculum. [*fig. 6*] Take care to ensure that the patella is held tightly within the clamp without flexion or laxity. View the clamp's position in profile to ensure a balanced and symmetric patellar resection. [*fig. 7*] Once alignment is assured, close the clamp and lock into place using its tightening screw.



[*figure 7*]

Assemble a planer blade and a drill bit onto the appropriately sized planer body (the planer's blade size should match the planer sleeve):

a) Slide the blade into the slots on the planer body as indicated by the insertion arrow on the body. The side of the blade indicating size should present itself outward. [*fig. 8*]

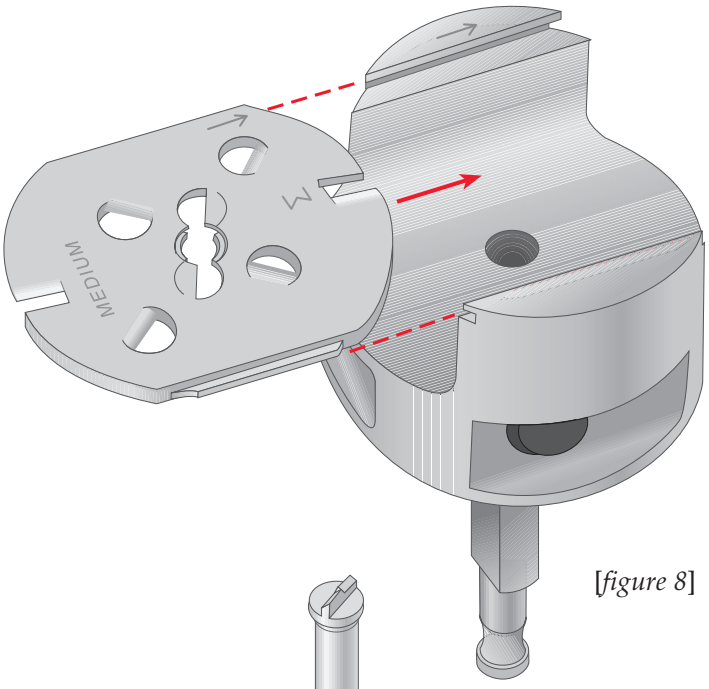
b) Using gauze to protect gloves from a cut, assemble the drill bit through the central hole of the blade and into the central hole of the body while simultaneously depressing the black button on the side of the body. [*fig. 9*]

c) Once the drill bit is firmly seated, release the black button and rotate the drill bit approximately 90 degrees clockwise with a forcep until it locks into place. The black button should pop out into the full "out" position. [*fig. 9*]

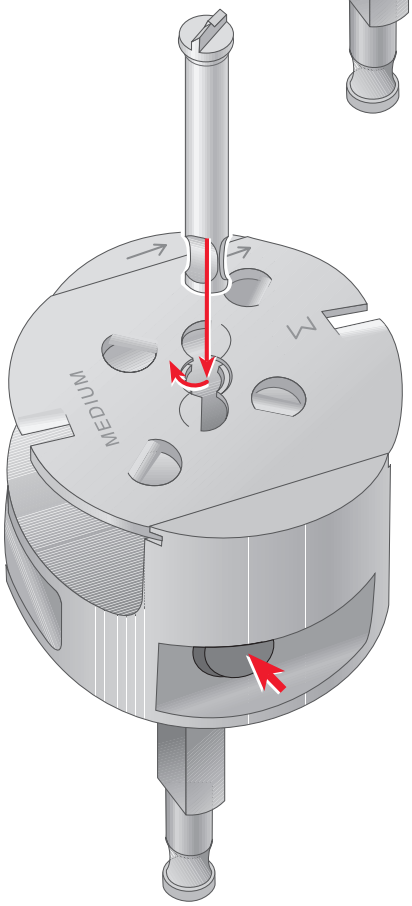
To disassemble a blade and a drill bit from a planer body, take the following disassembly steps:

a) Depress the black button on the side of the planer body while grasping the side of the drill bit with forceps and slide the drill bit out of the planer body. Release the black button.

b) Grasp the blade with forceps and slide it out of the planer body in the direction opposite that shown by the arrow on the planer body.



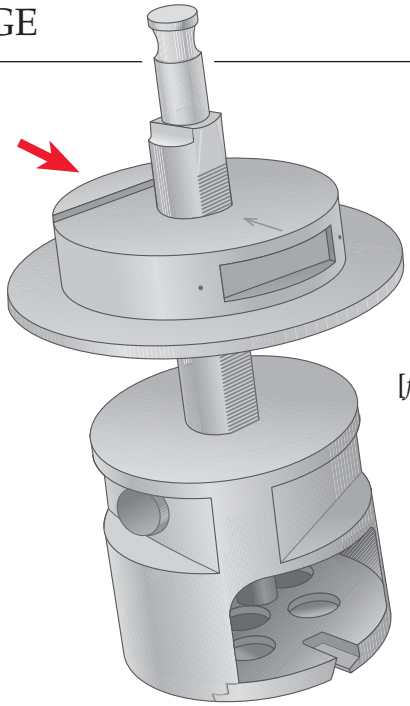
[*figure 8*]



[*figure 9*]

ASSEMBLING THE DEPTH STOP

Attach the depth stop to the appropriate planer body by depressing the release mechanism and sliding the device onto the planer's central shaft. There are two visual cues to ensure proper orientation. First, the teeth on the shaft of the planer body are opposite the release mechanism on the depth stop. Second, an arrow on the top surface of the depth stop should point toward the teeth on the planer body.

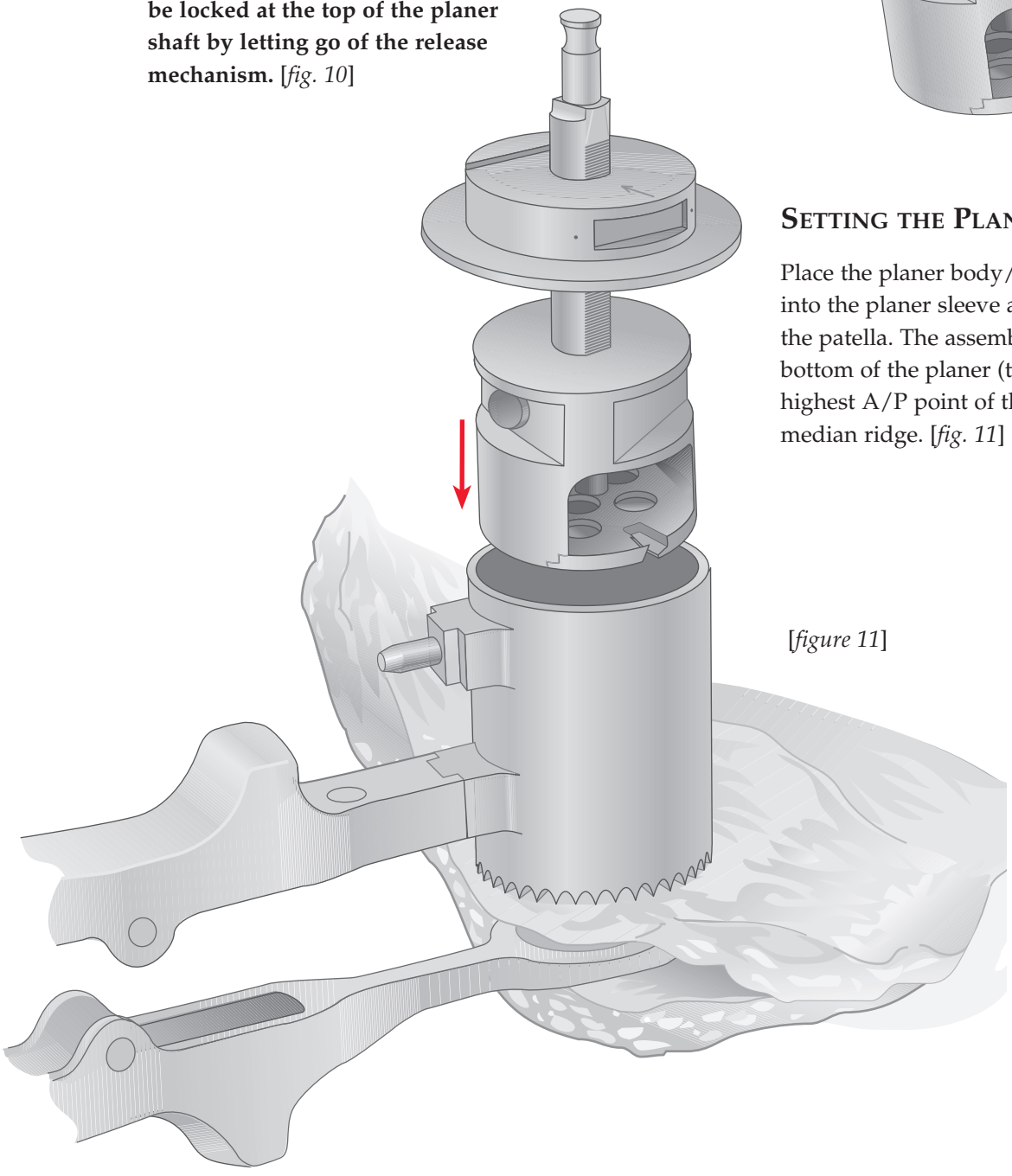


[*figure 10*]

The depth stop should initially be locked at the top of the planer shaft by letting go of the release mechanism. [*fig. 10*]

SETTING THE PLANING DEPTH

Place the planer body/depth stop assembly into the planer sleeve and gently lower onto the patella. The assembly will stop when the bottom of the planer (the blade) contacts the highest A/P point of the patella, usually the median ridge. [*fig. 11*]

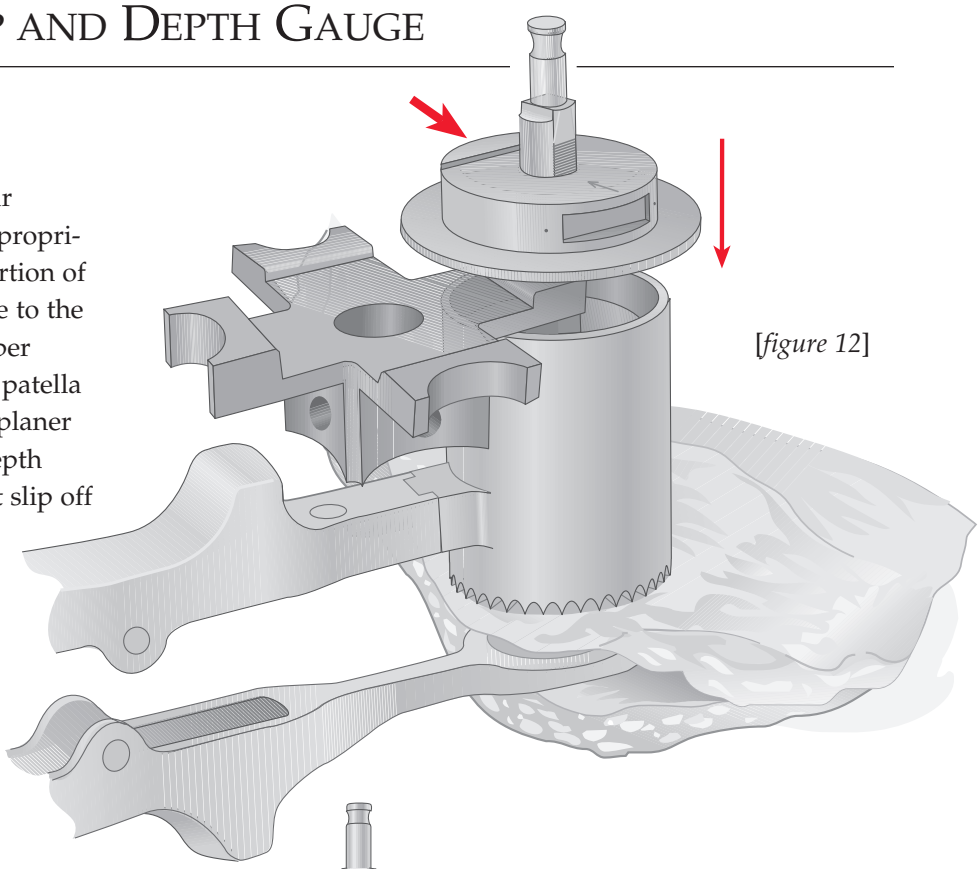


[*figure 11*]

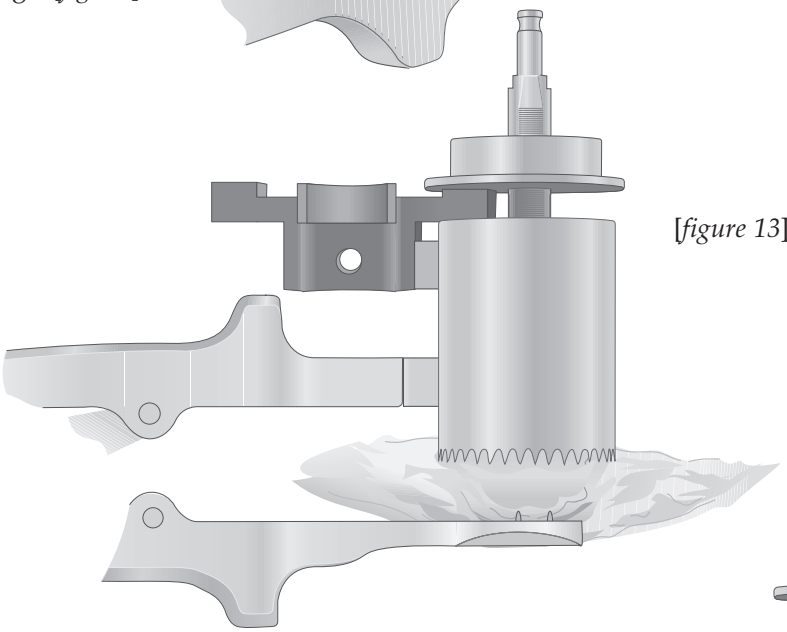
The Depth Stop and Depth Gauge

Depending on the size patellar implant desired, select the appropriate 28, 32, 35, 38 or 41 mm portion of the depth gauge and assemble to the reamer sleeve. To ensure proper orientation, have the selected patella size resting on the rim of the planer sleeve. Take care while the depth gauge is used, that it does not slip off the sleeve. Press the release mechanism on the depth stop and gently lower it on the planer's central shaft to rest flush with the depth gauge. [*figs. 12 and 13*]

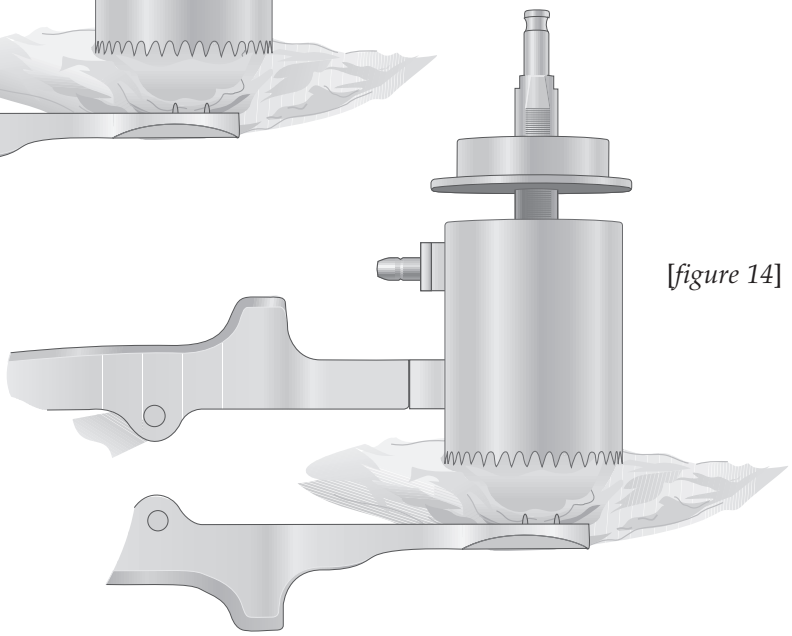
Remove the gauge. [*fig. 14*]



[*figure 12*]



[*figure 13*]

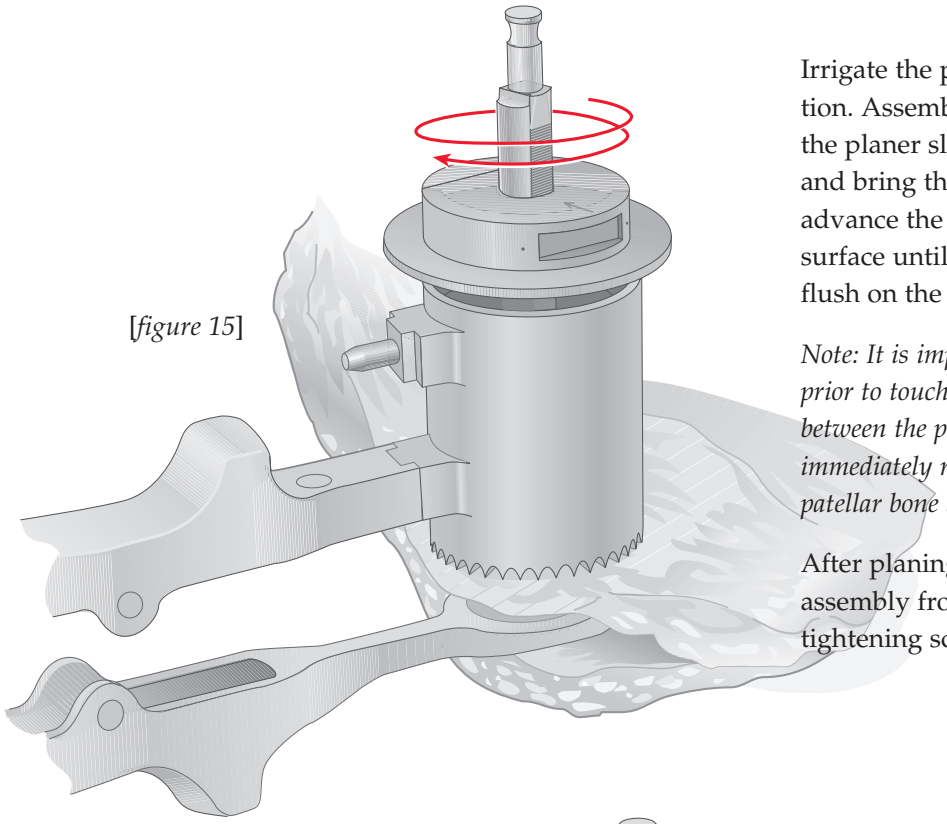


[*figure 14*]

Note: As patellar bone quality and height vary dramatically, the depth of bone resected may be manually adjusted to reflect patellar anatomy. Referencing the scale on the central shaft, the depth stop may be adjusted in 1 mm increments by raising or lowering the device on the shaft. For example, if a 1 mm underresection is desired, lower the ring 1 mm.

Planing the Patella

[*figure 15*]

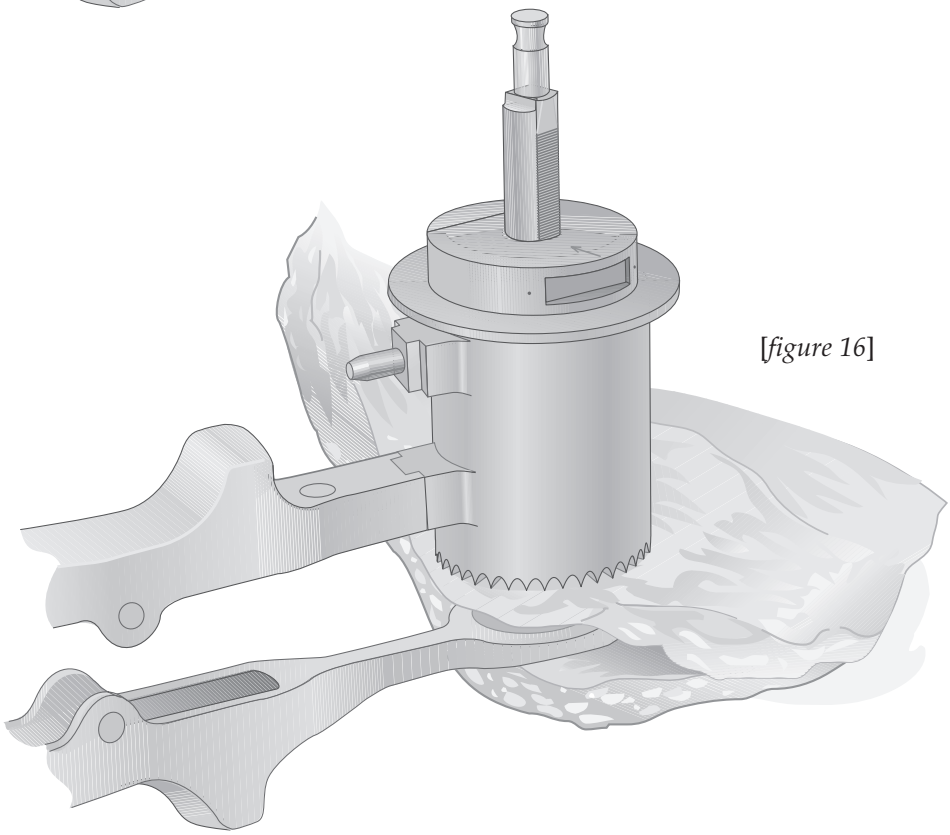


Irrigate the planing site with sterile saline solution. Assemble power to the planer body, raise the planer slightly above the patellar surface and bring the planer to full speed. Firmly advance the planer into the patellar surface until the depth stop's collar is seated flush on the planer sleeve. [*figs. 15 and 16*]

Note: It is important that the planer is at full speed prior to touching the patella to avoid capture between the planer and the bone. If capture occurs, immediately reverse power and lift the planer off the patellar bone before planing is resumed.

After planing is complete, remove the planer assembly from the sleeve, loosen the clamp's tightening screw and remove the clamp.

[*figure 16*]

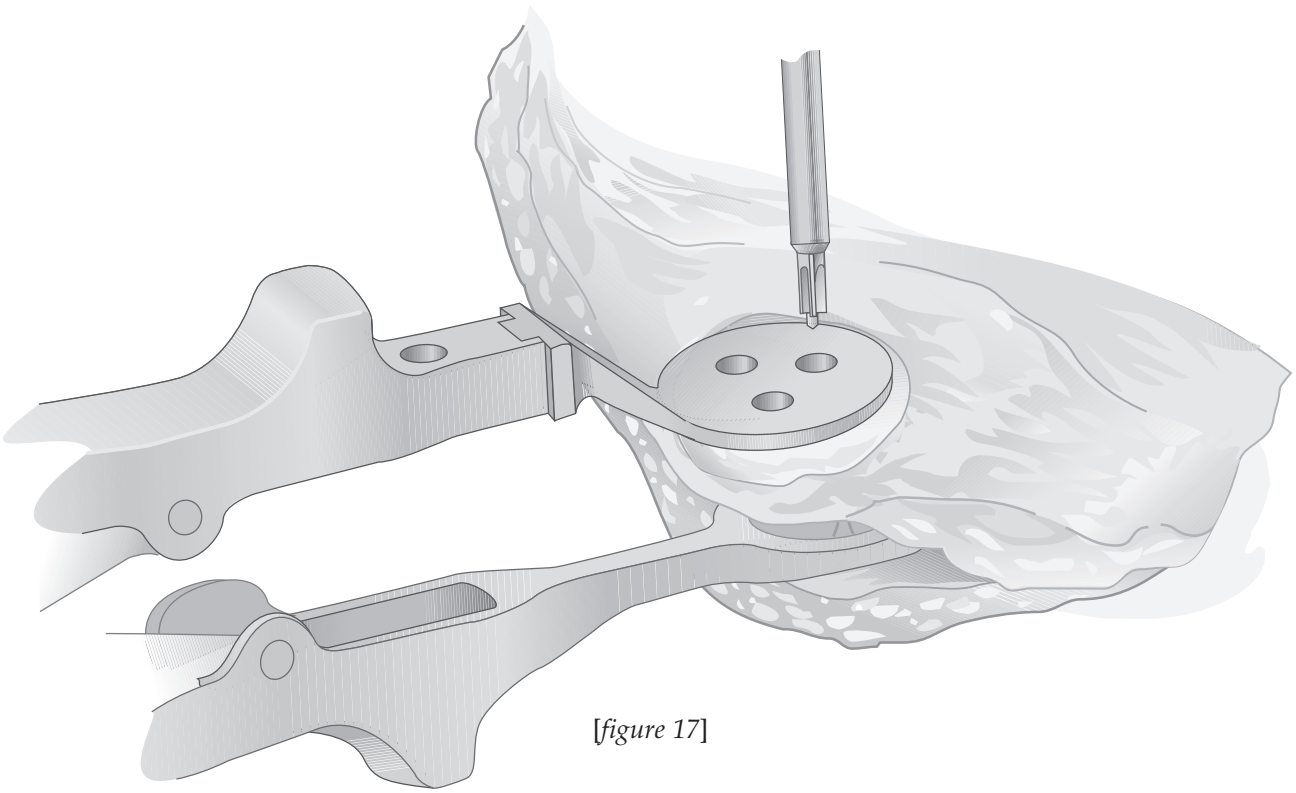


Verifying Height and Preparing the Pegs

Verify patellar thickness using the patellar caliper. The height of the patella, plus the implant, should be within +/- 1 mm of the pre-operative height unless intentional under or overresection was elected. Remove residual marginal osteophytes.

Assemble the template to the patellar clamp. Align the template with the patellar surface in the desired position, close the clamp and lock into place with the template snug against the planed surface. The clamp's tightening screw should be securely closed. Advance the patellar drill through the template's drill holes until positive stop is obtained. Prepare the peg holes. Loosen the clamp's tightening screw and remove the clamp. Assemble the appropriate patellar trial to the patellar surface and reduce the patella into the trochlea for trial from 0 degrees of extension to 120 degrees of flexion. If a lateral retinacular release is required, it may be done at this time. [*fig. 17*]

Note: It is important to ensure that marginal osteophytes or residual patellar bone facets do not contact the anterior flange of the femoral component during trial reduction.



[*figure 17*]

Cementing the Implant

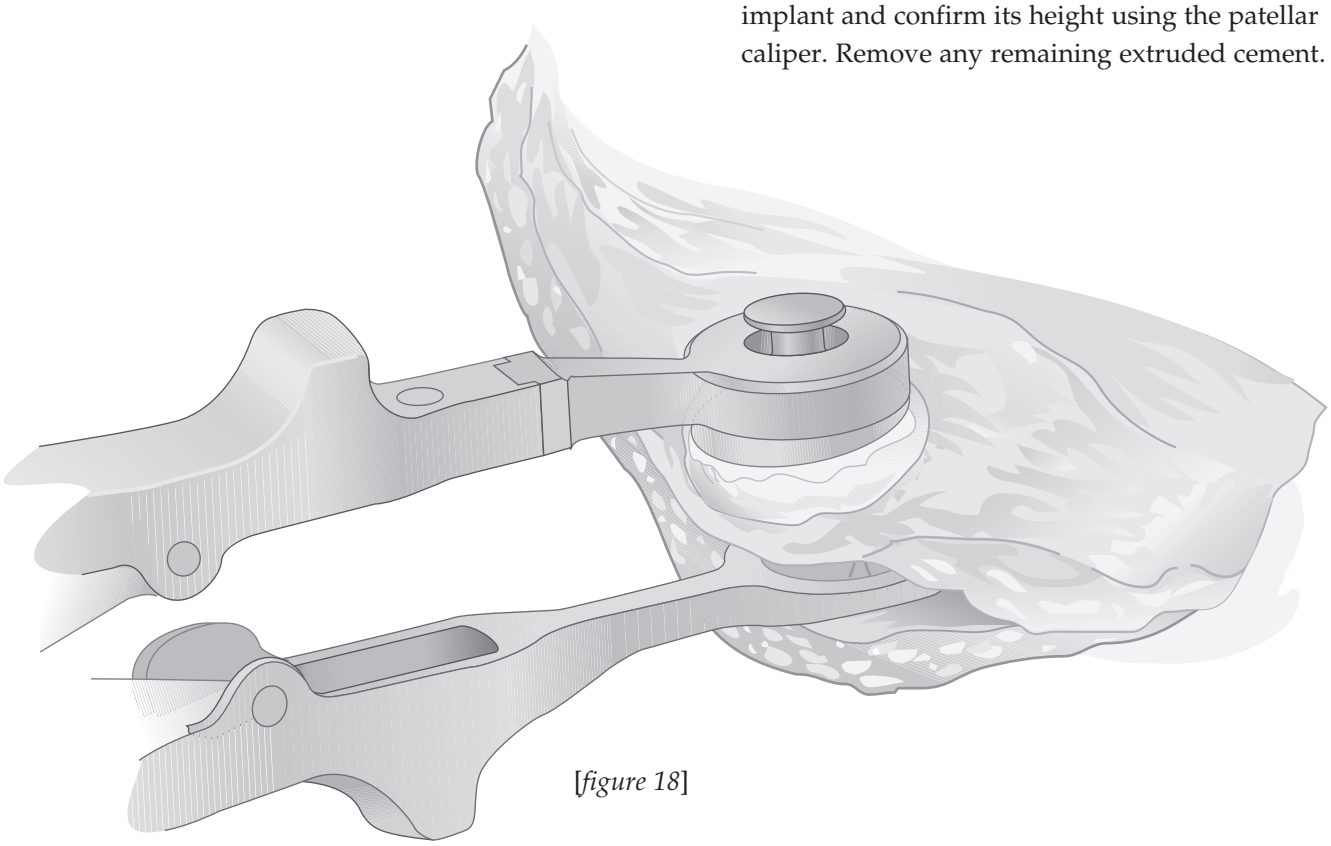
Note: This step may be done in conjunction with the cementing of the tibial and femoral components or independently if desired.

Remove the trial implant, cleanse the prepared bed with pulsatile lavage, and adequately dry the bony surface. Apply methyl methacrylate bone cement using digital pressure to assure adequate penetration into the cancellous bone. Implant the appropriate P.F.C. Sigma patellar component. Apply digital pressure to the dome of the implant to remove extraneous cement.

Give careful attention to ensure correct patellar alignment and peg seating relative to the patellar surface.

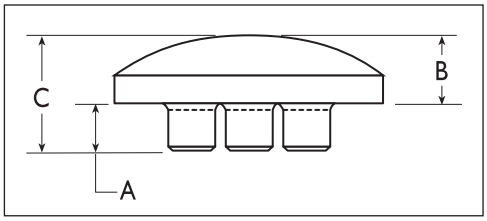
Assemble the cementing clamp head to the patellar clamp, align the head with the patellar implant, and close the clamp and lock into place. Securely close the clamp's tightening screw to ensure proper implant seating and cement pressurization. Carefully remove extruded cement with a curette. [*fig. 18*]

Once the cement has polymerized, loosen the tightening screw and remove the clamp. Inspect the implant and confirm its height using the patellar caliper. Remove any remaining extruded cement.

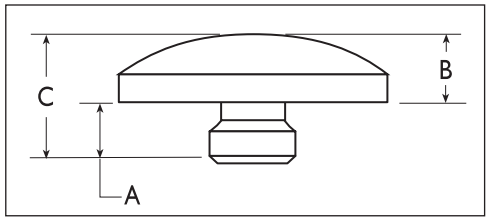


[*figure 18*]

P.F.C. SIGMA PATELLA OPTIONS



3-Post Dome Patella



1-Post Dome Patella

3-Post Dome Patella

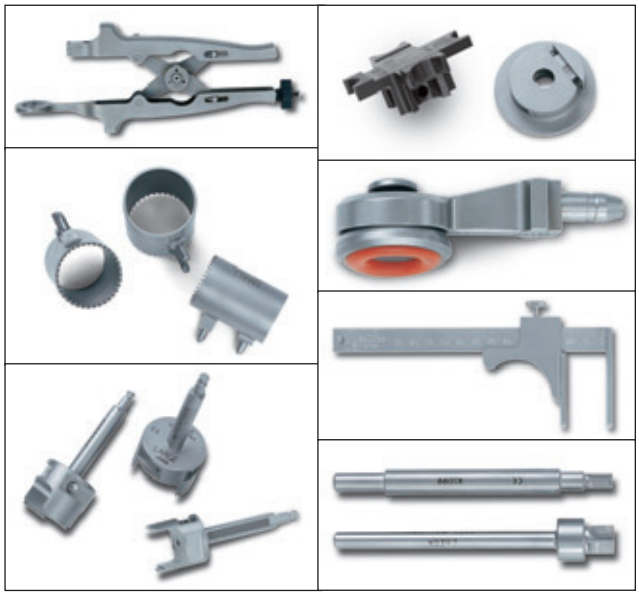
Description	Dimension A	Dimension B	Dimension C
Round and Oval, 32 mm	5.0	7.8	12.9
Round and Oval, 35 mm	5.0	8.5	13.6
Round and Oval, 38 mm	5.0	9.1	14.2
Round and Oval, 41 mm	5.0	11.4	16.5

1-Post Dome Patella

Round, 28 mm	5.7	7.2	13.0
Round and Oval, 32 mm	6.2	7.8	14.0
Round and Oval, 35 mm	6.2	8.5	14.7
Round and Oval, 38 mm	7.2	9.1	16.3
Round and Oval, 41 mm	7.2	11.4	18.6

Specialist 2 Patellar Planer Instruments

Cat. No.	Description
96-6670	Patellar Clamp
97-6752	Patellar Planer Sleeve, Small
97-6753	Patellar Planer Sleeve, Medium
97-6754	Patellar Planer Sleeve, Large
97-6749	Patellar Planer Body, Small
97-6750	Patellar Planer Body, Medium
97-6751	Patellar Planer Body, Large
97-6755	Patellar Planer Depth Gauge
97-6740	Patellar Planer Depth Stop
96-6683	Patellar Cement Clamp Head
86-9188	Patellar Caliper
86-5103	One-Peg Patellar Drill
86-8800	Three-Peg Patellar Drill
97-6760	Patellar Planer Instrument Sterilization Tray



Modular Drill Template Cat. No.	Patellar Trial Cat. No.	Style	Size mm
96-6705	96-1100	Three-Peg, Oval	32
96-6706	96-1101	Three-Peg, Oval	35
96-6707	96-1102	Three-Peg, Oval	38
96-6708	96-1103	Three-Peg, Oval	41
*	96-1110	Three-Peg, Round	32
*	96-1111	Three-Peg, Round	35
*	96-1112	Three-Peg, Round	38
*	96-1113	Three-Peg, Round	41
96-6711	96-1130	One-Peg, Oval	32
96-6712	96-1131	One-Peg, Oval	35
96-6713	96-1132	One-Peg, Oval	38
96-6714	96-1133	One-Peg, Oval	41
96-6710	86-6135	One-Peg, Round	28
96-6734	86-6136	One-Peg, Round	32
96-6735	86-6137	One-Peg, Round	35
96-6736	86-6138	One-Peg, Round	38
96-6737	86-6139	One-Peg, Round	41

Modular drill template not offered

Planer Blades and Bits (Sterile)

Cat. No.	Size
97-6746	Small
97-6747	Medium
97-6748	Large

For more information about DePuy products, visit our web site at **www.jnjgateway.com.**

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