

Aequalis[®]-Glenoid

Keeled and Pegged



Surgical
Technique



TORNIER 



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COMMON OPERATIVE TECHNIQUES FOR THE KEELED AND PEGGED AEQUALIS-GLENOIDS

AEQUALIS-GLENOID CONCEPT

The Aequalis-glenoid system is designed to give the surgeon the flexibility to intra-operatively decide between the implantation of a keeled or pegged glenoid.

1. Preoperative planning

A careful analysis of X-rays and axial CT scan views is recommended before surgery to evaluate the following parameters: osteophytes, anterior and, more importantly, posterior wear of the glenoid, as well as the location, orientation and depth of the medullary canal.

2. Exposure

With the arm abducted and internally rotated, a posterior glenoid retractor is placed on the posterior glenoid border as the proximal humerus is dislocated posteriorly and inferiorly. An angled retractor placed above the glenoid and an angled Kolbel retractor placed in the subscapular fossa are used to complete the exposure (Fig 1).

If preoperatively the humerus rests in a fixed posteriorly subluxed position, then the posterior capsule may be stretched out sufficiently so that a posterior capsular release for exposure may not be necessary. If, after releasing the entire anterior capsule down to 6 o'clock on the glenoid face the shoulder is still tight, then additional capsule is released around the posterior inferior corner and up the posterior side until the humerus can be adequately retracted for exposure (labrum and posterior capsule) (Fig 2).

The glenoid retractor then is moved upward if more of the posterior release needs to be completed (Fig 3).

Right shoulder

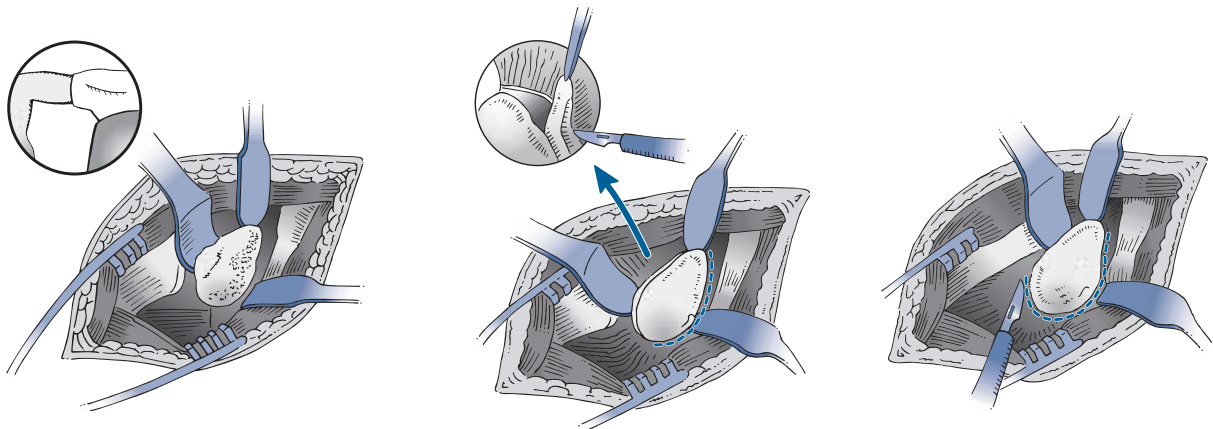


Fig. 1

Fig. 2

Fig. 3

3. Choice of the glenoid size

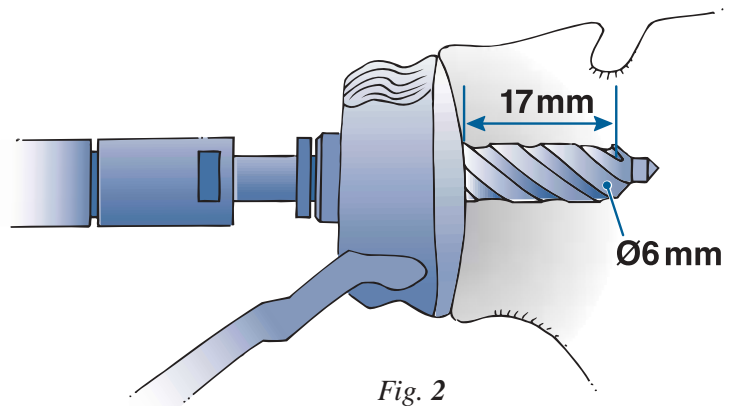
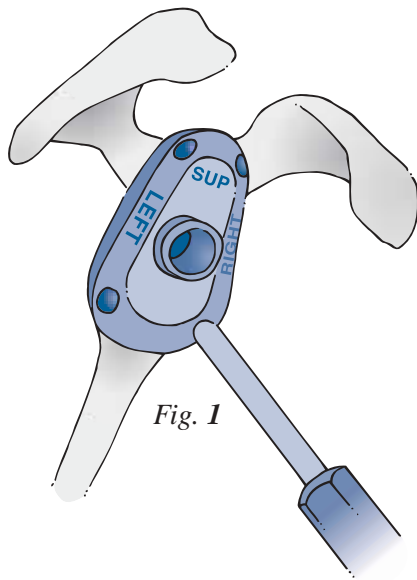
Selection of the appropriate sized glenoid depends on the diameter of the Aequalis humeral head and must be done according to the table below.

Aequalis humeral head diameter	Glenoid size (implant)	Reamer size	Peripheral drill guide size	Trial glenoid size
37 39	Small	Small <i>(black)</i>	Small <i>(black)</i>	Small <i>(black)</i>
41 43	Medium	Medium <i>(red)</i>	Medium <i>(red)</i>	Medium <i>(red)</i>
46 48	Large	Large <i>(yellow)</i>	Large <i>(yellow)</i>	Large <i>(yellow)</i>
50 52	Extra Large	Extra Large <i>(green)</i>	Extra Large <i>(green)</i>	Extra Large <i>(green)</i>

The color code refers to the trial implants as well as the instruments to be used for each size.

4. Preliminary central drilling of the glenoid medullary canal

The central hole drill guide is positioned on the glenoid surface (Fig 1) and the central hole is drilled with the central hole drill bit (grey handle) (Fig 2).



5. Resurfacing the glenoid

Based on the predetermined glenoid size, reaming must be performed with the corresponding reamer. The reamer is designed with a pilot tip which is inserted in the existing central hole. The reamer should remain perpendicular to the medullary canal. The goal of reaming is to obtain a bony surface that matches the base of the glenoid component (Fig 3).

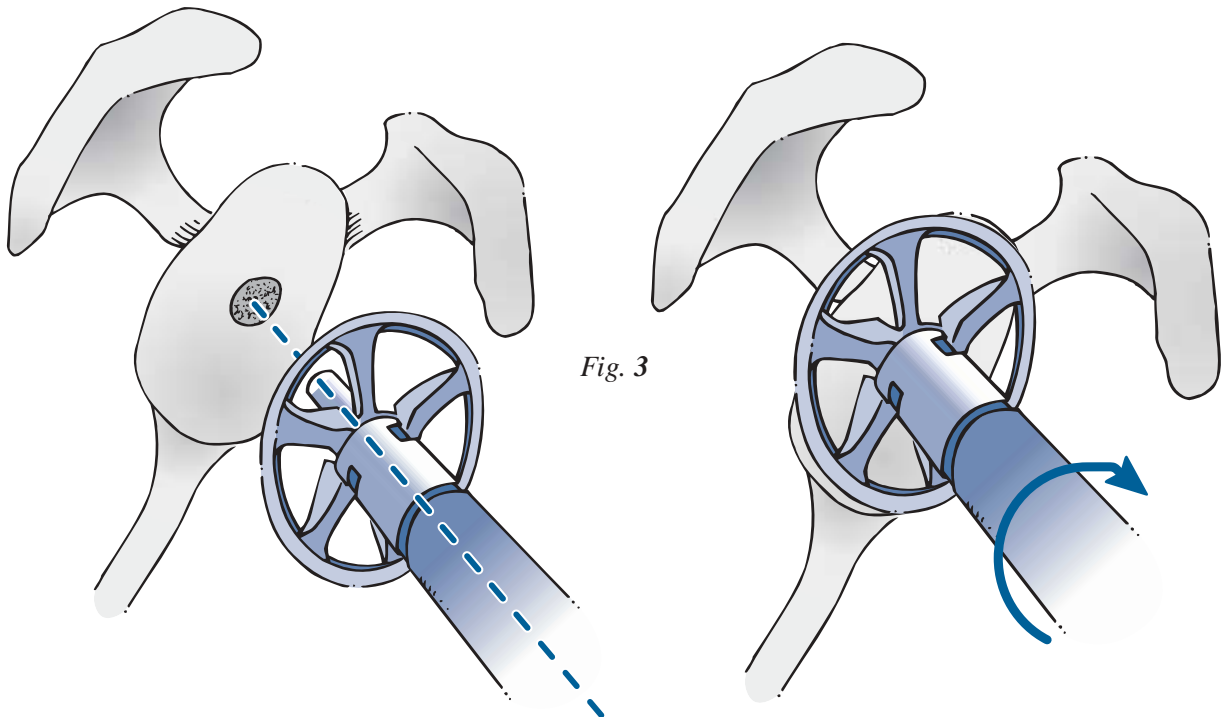


Fig. 3

However, it is not advisable to ream down to cancellous bone because of the limited glenoid bone stock (Fig 4). Over aggressiveness of reaming should be avoided to prevent possible glenoid fracture.

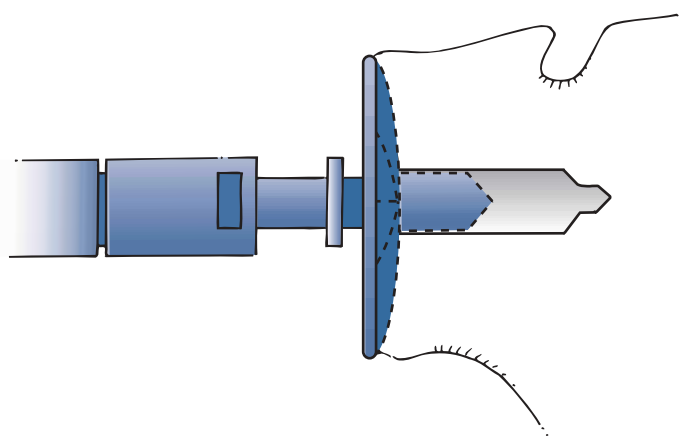


Fig. 4

At this step in the procedure, depending on the bone stock available and surgeon preference, the decision is made between the implantation of the keeled or pegged glenoid.

IMPLANTATION OF THE AEQUALIS KEELED GLENOID

6. Preparation for the keel slot

The peripheral holes drill guide for the keeled glenoid is positioned on the reamed glenoid surface in the central hole (Fig 1). The superior hole is drilled first with the keel peripheral hole drill bit (Fig 2) and then stabilized with a peg (Fig 3).

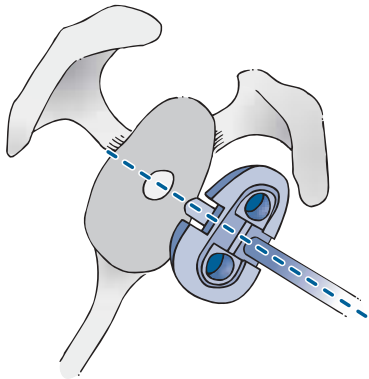


Fig. 1

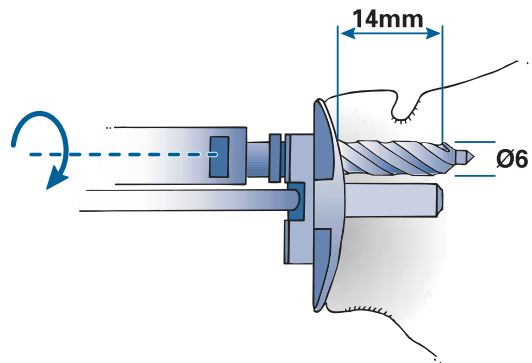


Fig. 2

The inferior hole is then drilled (Fig 3).

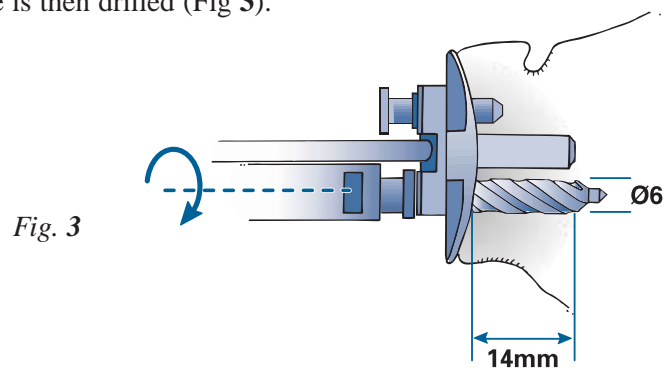


Fig. 3

The drill guide and peg are then removed. The remaining bony bridges between the three holes are then broken with a rongeur or a small osteotome. The keel punch is used to compact the glenoid cancellous bone. The compaction of the cancellous bone is a preferred technique to improve glenoid component fixation (Fig 4).

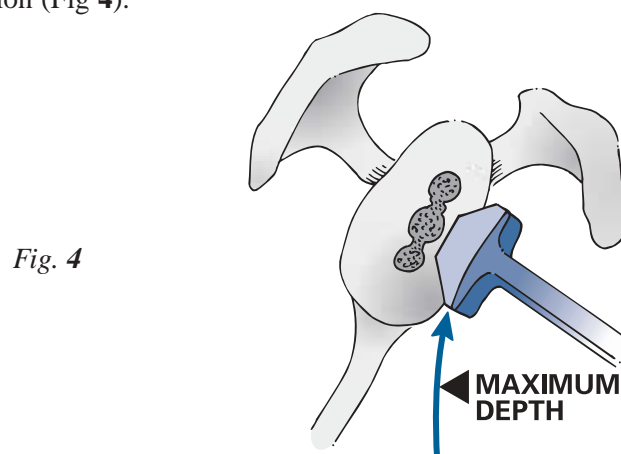


Fig. 4

7. Positioning the keeled glenoid component

The trial component is used to check for appropriate size and positioning (Fig 1). Two windows, anterior and posterior, allow visualization of the implant bone interface (Fig 2). The trial component is removed and the keel space and glenoid surface are carefully cleaned and dried.

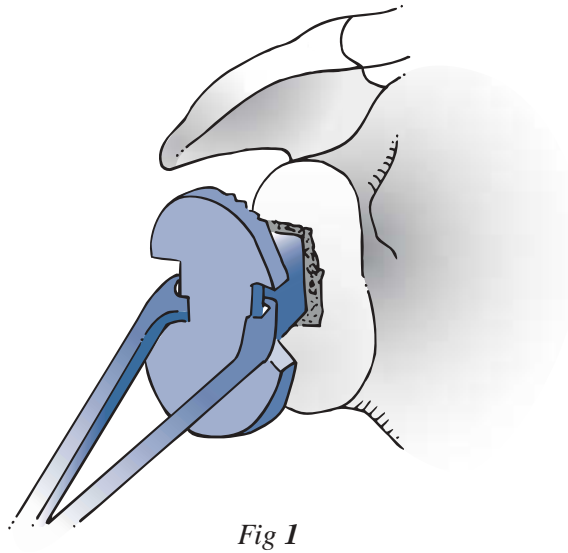


Fig 1

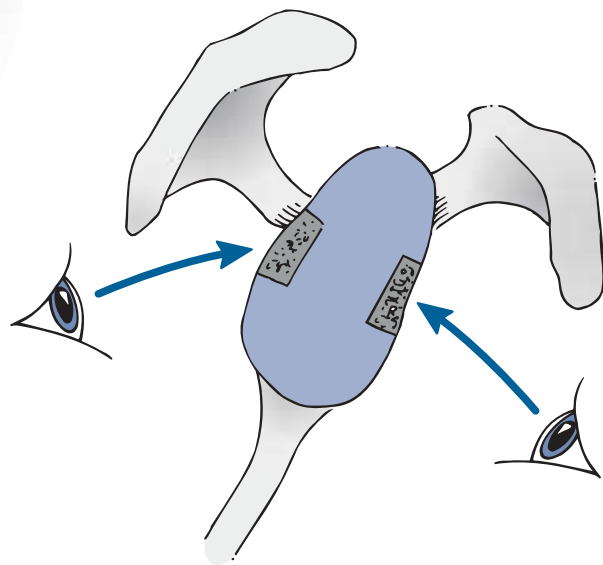


Fig 2

Bone cement is introduced and the final implant is impacted with the glenoid impactor (Fig 3).

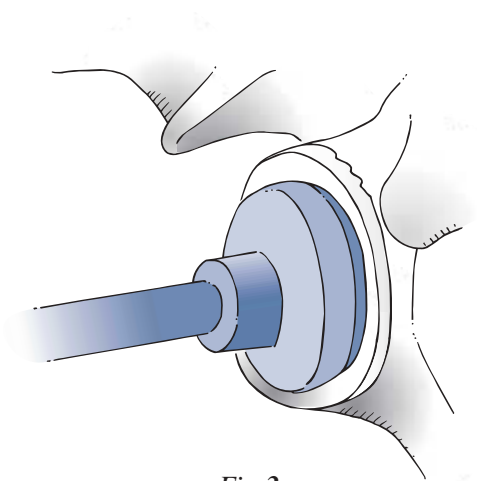
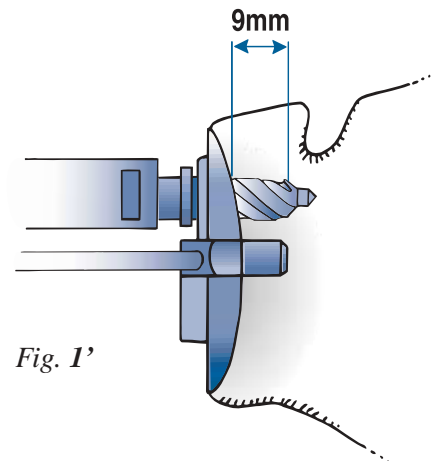
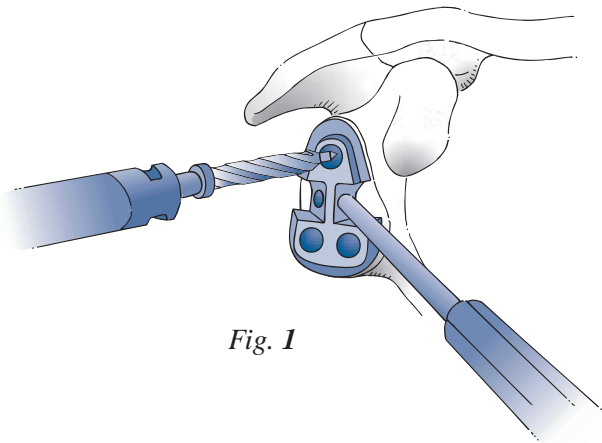


Fig 3

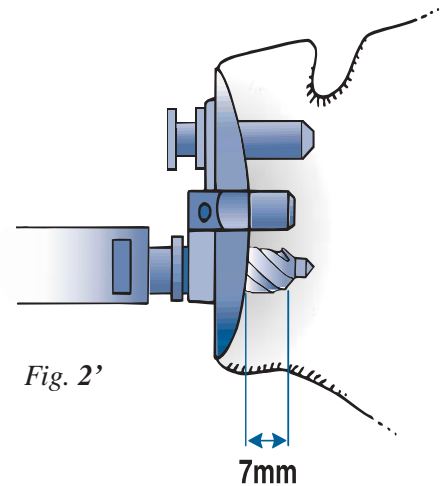
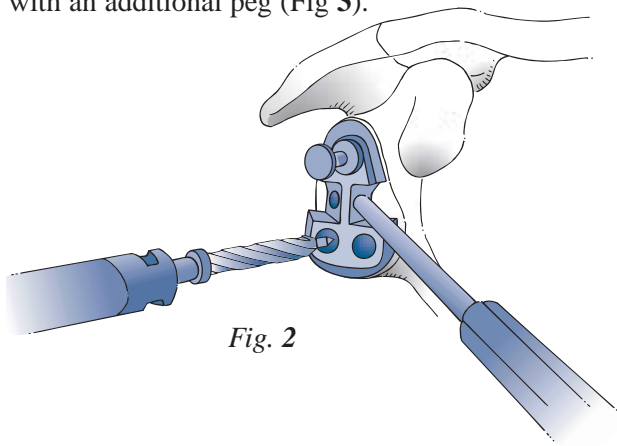
IMPLANTATION OF THE AEQUALIS PEGGED GLENOID

8. Preparation for the peripheral peg holes

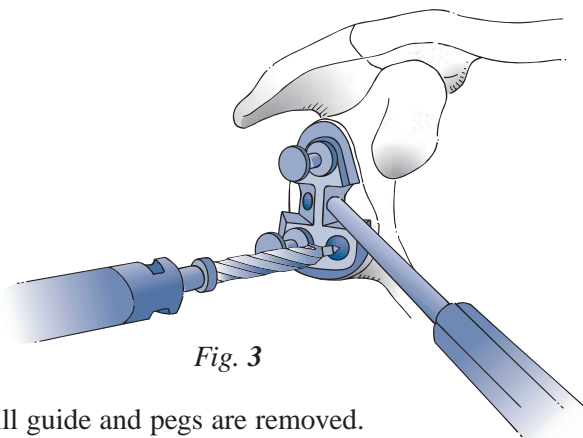
The peripheral holes drill guide for the pegged glenoid is positioned on the reamed glenoid surface. The superior hole is drilled first with the pegged peripheral hole drill bit (Fig 1 and Fig 1') and then stabilized with a peripheral peg (Fig 2).



The first inferior hole is drilled with the same peripheral hole drill bit (Fig 2 and Fig 2') and stabilized with an additional peg (Fig 3).



The second inferior hole is then drilled (Fig 3).



Upon completion, the drill guide and pegs are removed.

9. Positioning the pegged glenoid component

The trial component is used to check for appropriate size and positioning (Fig 1).

Two windows, anterior and posterior, allow visualization of the implant bone interface (Fig 2).

The trial component is removed and the peg holes and glenoid surface are carefully cleaned and dried.

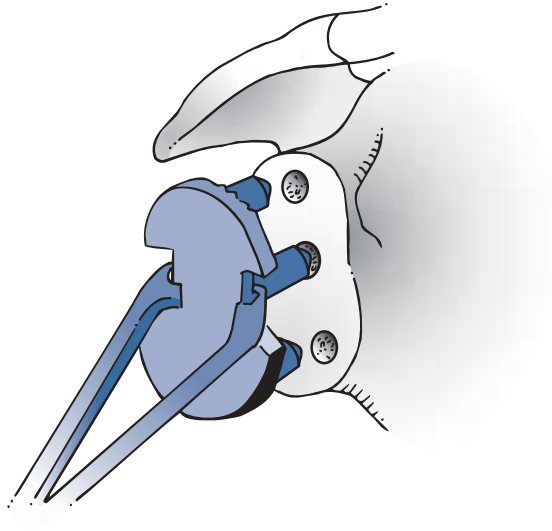


Fig. 1

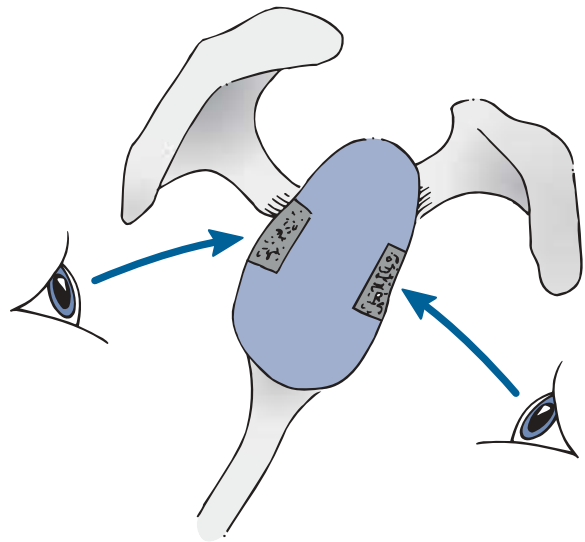


Fig. 2

Cementing of the component is then performed with a low viscosity cement introduced with a syringe. The final implant is impacted with the glenoid impactor (Fig 3).

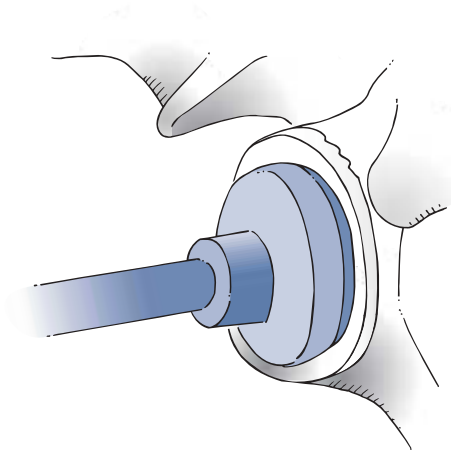


Fig. 3

Note:

The pegs should not be altered in any manner before implantation.

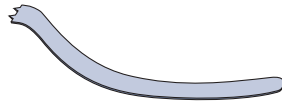
INSTRUMENTATION FOR AEQUALIS KEELED AND PEGGED GLENOIDS

Common instrumentation:

Kolbel retractor

Wide

Ref. MWA681



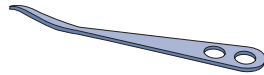
Narrow

Ref. MWA682



Hohmann retractor

Ref. MWA683



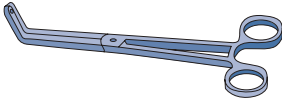
Posterior glenoid retractor

Ref. MWA651



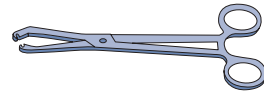
Stabilization peg clamp

Ref. MWA653



Trial glenoid clamp

Ref. MWA652



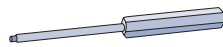
Glenoid impactor

Ref. MWA654



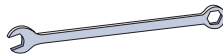
Drill guide handle

Ref. MWA210



8 mm wrench

Ref. MKL010



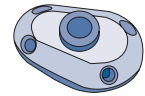
12 mm wrench

Ref. MGB306



Central hole drill guide Ø 6 mm central hole

Ref. MWA665



Central hole drill bit with handle Ø 6 mm central hole - 17 mm length (grey)

Ref. MWA689



Glenoid reamer with handle (color coded)

Small (black)

Ref. MWA685



Medium (red)

Ref. MWA686



Large (yellow)

Ref. MWA687



Extra Large (green)

Ref. MWA688



INSTRUMENTATION FOR AEQUALIS KEELED AND PEGGED GLENOIDS

Keeled instrumentation:

Peripheral holes drill bit
Drill bit with handle Ø 6 mm - length 14 mm
 Ref. MWA691 

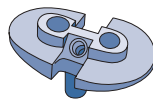
Peripheral holes keeled glenoid drill guide

Small
 Ref. MWA661


Medium
 Ref. MWA662

Large
 Ref. MWA663

Extra Large
 Ref. MWA664



Glenoid stabilization peg x 2
 Ref. MWA659 

Glenoid keel punch
 Ref. MWA692 

Trial keeled glenoid (color coded)

Small (black)
 Ref. MWA655 

Medium (red)
 Ref. MWA656 

Large (yellow)
 Ref. MWA657 

Extra Large (green)
 Ref. MWA658 

Pegged instrumentation:

Peripheral holes drill bit
Drill bit with handle Ø 6 mm - length 7/9 mm
 Ref. MWA690 

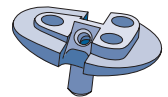
Peripheral holes pegged glenoid drill guide

Small
 Ref. MWA677

Medium
 Ref. MWA678

Large
 Ref. MWA679

Extra Large
 Ref. MWA680



Glenoid stabilization peg x 3
 Ref. MWA659 

Trial pegged glenoid (color coded)

Small (black)
 Ref. MWA673 

Medium (red)
 Ref. MWA674 

Large (yellow)
 Ref. MWA675 

Extra Large (green)
 Ref. MWA676 

IMPLANTS

Keeled Glenoids

Small

Ref. DWB 210

Medium

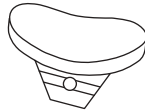
Ref. DWB 211

Large

Ref. DWB 212

Extra Large

Ref. DWB 213



Pegged Glenoids

Small

Ref. DWB 215

Medium

Ref. DWB 216

Large

Ref. DWB 217

Extra Large

Ref. DWB 218



For more information, call toll free
1-888-TORNIER (867-6437)
or contact your local representative



This surgical technique has been developed
in conjunction with TOM NORRIS, M.D.,
(SAN FRANCISCO).

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