stryker

Tornier Perform®
Reversed Glenoid

Operative technique

Disclaimer

This publication sets forth detailed recommended procedures for using Stryker devices and instruments. It offers guidance that you should need, but, as with any such technical guide, each surgeon must consider the particular needs of each patient and make appropriate adjustments when and as required.

Important

- The patient should be advised that the device cannot and does not replicate a normal healthy bone, that the device can break or become damaged as a result of strenuous activity or trauma and that the device has a finite expected service life.
- Removal or revision of the devicemay be required sometime in the future.
- Cleaning and sterilization information is provided in the applicable instructions for use.
- Non-sterile devices, including implants and instruments, must be cleaned and sterilized prior to use, in accordance with validated methods.
- Devices that are able to be disassembled should be disassembled prior to point-of-use processing. Additionally, devices with movable components that do not facilitate disassembly should be manually articulated during the point-of-use processing step in order to evacuate additional soils.
- Please remember that the compatibility of different product systems has not been tested unless specified otherwise in the product labeling.
- Consult Instructions for Use (www.ifu.stryker.com) for a complete list of potential adverse effects and adverse events, contraindications, warnings and precautions.
- The surgeon must advise patients of surgical risks, and make them aware of adverse effects and alternative treatments.
- An implant whose packaging is open or damaged or whose expiration date has passed must not be used. Every precaution must be taken to ensure sterility when opening the packaging of the implant and during implantation.

Tornier Perform

Reversed Glenoid

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Tornier Perform Reversed Glenoid

Tornier Perform Reversed Glenoid overview

The Tornier Perform Reversed is intended to replace the shoulder joint in order to relieve pain and to improve the mobility of the shoulder joint in relation to the preoperative state of health. The standard system allows for the implantation of a baseplate, central and peripheral anchoring screws, and a glenosphere with the use of either cannulated or non-cannulated techniques.

The Tornier Perform Reversed system has the option of a press-fit post to be attached to the baseplate as an alternative to central screw fixation. Tornier Perform Reversed standard baseplates can be used with a bone graft to achieve lateralization following the surgical technique from the Tornier BIO-RSA system.

The Tornier Perform Reversed baseplates utilize Stryker's AdapTiS porous titanium technology and was designed to encourage bone ingrowth and may assist in fixation strength. In addition to the standard baseplates, the Tornier Perform Reversed Augmented Glenoid lateralized augment system features four lateralized baseplates with AdapTiS porous titanium on the backside in different configurations (lateralized +3 and +6 for both 25mm and 29mm diameters). These baseplates can be used to achieve lateralization.

The Tornier Perform Reversed glenoids must be used in association with a Stryker humeral component*:

- Humeral implants Tornier Flex Convertible Shoulder System in reverse configuration
- Or humeral implants Aequalis Reversed, Aequalis Reversed Fracture, Aequalis Adjustable Reversed Shoulder System

The Stryker shoulder prostheses are intended for replacement of the shoulder joint to reduce pain and improve shoulder mobility for patients with designated indication.

Pre-operative planning

Pre-operative planning is performed utilizing X-rays including a true anterior/posterior view of the glenohumeral joint or axillary views. The use of a CT scan or MRI is recommended to better determine the orientation of the glenoid, the quality of glenoid bone stock and to evaluate the integrity of the rotator cuff.

A careful analysis of X-rays and CT scan views is recommended before surgery to evaluate the following parameters: osteophytes, anterior, superior, posterior, and inferior wear of the glenoid, as well as the location, orientation and depth of the glenoid vault and presence of subcortical cysts.

If a bone graft is used during a primary surgery, or during a revision procedure with glenoid bone loss, it is recommended that an Tornier Perform Reversed 29mm diameter baseplate be used in association with a centered glenosphere.

*Not all glenoid and humeral components are available in all geographies.

Tornier Perform Reversed Glenoid

Glenoid exposure

Exposure of the glenoid is one of the more technically difficult aspects of shoulder arthroplasty. The size of the patient, soft tissue contractures, bony morphology, and the sequelae of previous surgeries are some of the potential challenges to adequate exposure.

A thorough understanding of the neuroanatomy and techniques for protecting the axillary nerve, in particular, are routinely used to achieve successful exposure. In brief, a standard deltopectoral approach is typically used, with retraction of the deltoid laterally and pectoralis and conjoined tendon medially.

A superior approach may also be utilized. Humeral exposure is performed per surgeon preference with appropriate subscapularis techniques and humeral head resection. The proximal humerus is then retracted posteriorly and access to the glenoid is gained. Residual labral tissue is excised, biceps tendon is released, and the capsule is released from the glenoid anterior, inferiorly, and posteriorly.

Special attention is given for protection of the axillary nerve inferiorly. Appropriate glenoid retractors are then inserted and additional exposure techniques can then be used as needed. Please reference the approach shoulder arthroplasty program for additional details.

Indications and contraindications

Indications for use

The Tornier Perform Reversed & Tornier Perform Reversed Augmented Glenoid are indicated for use as a replacement of shoulder joints for patients with a functional deltoid muscle and with massive and non-repairable rotator cuff-tear with pain disabled by:

- Rheumatoid arthritis.
- Non-inflammatory degenerative joint disease (i.e. osteoarthritis and avascular necrosis).
- Correction of functional deformity.
- Fractures of the humeral head.
- Traumatic arthritis.
- Revision of the devices if sufficient bone stock remains.

Notes:

- All components are single use.
- The glenoid sphere implant is anchored to the bone with screws and is for non-cemented fixation.

Known-contraindications to date:

Absolute contraindications for shoulder arthroplasty:

- Poor quality and insufficient quantity of glenoid bone stock.
- Pre or Per-operative glenoid fracture.
- Acromion fracture. - Non-functional deltoid.
- Active local or systemic infection, sepsis and osteomyelitis.
- Elevation of sedimentation rate unexplained by other disease, elevation of WBC count, or marked shift in WBC differential count.
- Use of this implant is contraindicated in the presence of significant injury to the upper brachial plexus.
- Paralysis of the axillary nerve.
- Neuromuscular disease (e.g. joint neuropathy).
- Known allergy to one of the materials.
- Patient pregnancy.

Relative contraindications for shoulder arthroplasty:

- Uncooperative patient or patient with neurologic disorders who are not capable of following directions.
- Osteoporosis.
- Metabolic disorders which may impair bone formation.
- Osteomalacia.
- Distant foci of infection from genitourinary, pulmonary, skin and other sites, dental focus infection which may cause hematogenous spread to the implant site. The foci of infection should be treated prior to, during and after implantation.
- Rapid joint destruction, marked bone loss or bone resorption apparent on roentgenogram.

Operative technique

Tornier Perform Reversed surgical steps

Tornier Perform Reversed instrumentation allows for use of multiple surgical techniques to better suit the clinical situation and surgeon preference. The instruments have been designed to increase the safety of the procedure and to assist the surgeon in obtaining accurate and reproducible results. The instrumentation allows for either a standard cannulated glenoid preparation referencing a guide pin positioned at a chosen orientation or a non-cannulated preparation.

Cannulated

Sizing the glenoid and pin placement

Two types of pin guides are available (circular or anatomic) (fig. 1). The circular guide has the same outer diameter as the glenoid baseplate in 25mm or 29mm diameters. The anatomical pin guides come in four sizes (s=small, m=medium, l=large, and xl=extra-large) that correspond to the varying patient anatomies. The anatomical pin guides have an inferior offset built in, which positions the pin 12mm from the bottom of the guide.1 Two pin guide handles are offered in the instrument set, a 0° or 10° inferior tilt handle. The 0° pin guide handle can be used to prepare the baseplate perpendicular to the glenoid. The 10° pin guide handle can be used to place a 10° inferior tilt to the baseplate. The guides are assembled by rotating the distal end of the pin guide handle into the pin guide clockwise until it is fully seated (fig. 2).

According to surgeon preference, exposure, and surgical approach, the offset pin guide handle can be attached to the straight pin guide handles by sliding the offset handle down the shaft of the straight handle until it snaps in place (fig. 3). Use of the offset handle can provide better visualization as the guide pin is placed.

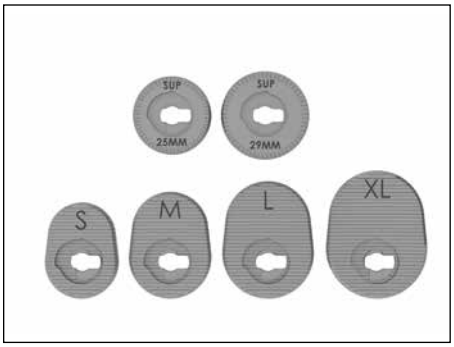


Fig. 1

Fig. 2

Fig. 3

Operative technique

While referencing the face of the glenoid and appropriately seating the assembled pin guide on the inferior edge of the glenoid to reduce the risk of impingement, drill the 2.5mm guide pin through the guide pin handle until bi-cortical fixation is achieved (fig 4).

Once the 2.5mm guide pin is fixed in the glenoid with bi-cortical fixation, remove the drill and the pin guide assembly. Finally, before reaming, check to ensure the guide pin is accurately placed on the glenoid and no adjustments are needed. It is important to check the guide pin condition after every step of the glenoid preparation. If the guide pin is damaged or bent, a new guide pin should be inserted.

NOTICE

An optional trialing step to estimate glenoid position can be performed at this point using the guide pin and the glenosphere trials (fig. 5).

Resurfacing the glenoid

To obtain complete seating and secure fixation of the glenoid baseplate, it is important to create a flat glenoid surface using the cannulated baseplate reamer of the same diameter of the baseplate that will be used. Half-moon reamers are provided standard in the Tornier Perform Reversed instrument set. If preferred, full-moon reamers are available upon request.

Connect the appropriate reamer to power and select the reaming option on the drill. Slide the assembly onto the guide pin and ream.

It is recommended to start the reamer before contacting the glenoid surface and ream until the glenoid surface is flat (fig. 6).

If insertion of reamer is difficult, remove or reposition retractors for greater exposure. A T-handle is provided in all of Stryker's humeral instrument sets if manual reaming is desired. Preserve as much bone as possible to support good primary fixation with avoiding overly aggressive reaming to minimize the risk of glenoid fracture.

Fig. 4

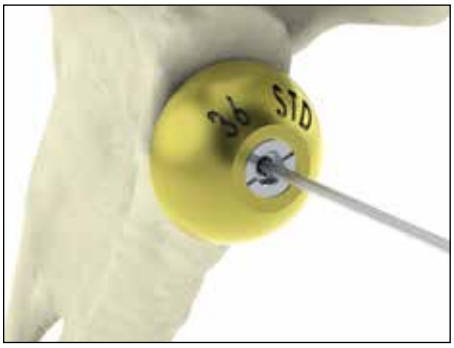


Fig. 5

Fig. 6

Operative technique

Baseplate post and central screw drilling

The hole for the baseplate post is drilled over the guide pin using the cannulated 10mm diameter drill bit. A positive stop on the drill bit ensures that drilling will not go too deep and allows for press-fit fixation of the post (fig. 7).

Remove the guide pin.

The surgeon determines the diameter of the central screw drill bit based on patient bone quality. It is recommended to start with the 6.5mm diameter drill bit as the hole can be expanded if necessary. 9.5mm diameter screws are recommended if inadequate fixation is achieved with 6.5mm diameter screw secondary to poor bone quality or for revision cases.

Place the corresponding central screw drill and central drill guide into the hole in the glenoid face that was created using the baseplate post drill. The central screw hole is drilled using a 6.5mm or 9.5mm diameter drill bit. Laser marks can be used to approximate the final implant length (fig. 8a-8b).

The drilling is performed under power. Palpation of the drill bit tip can be performed to confirm the drill bit has exited the anterior cortex.

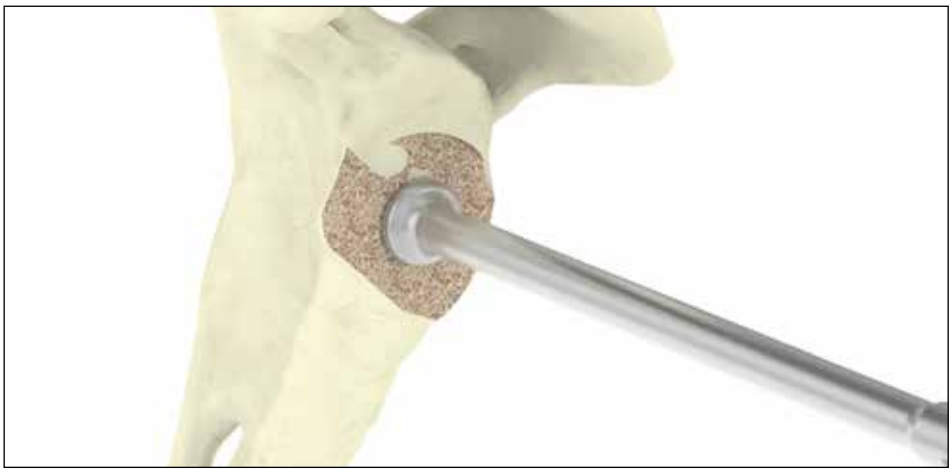


Fig. 7

Fig. 8a

Fig. 8b

Operative technique

Sizing for central screw

To determine the final central screw length, the central screw depth gauge is used (fig. 9a-9b). The gauge measures the recommended screw length. The actual prepared hole is approximately 3mm less to allow for bicortical fixation. To ensure an accurate evaluation of the final screw length, make sure the flat end of the depth gauge is contacting the glenoid surface.

The length of the central screw is matched with the color and number that appears on the depth gauge. If you fall on a line above a color, choose the length below the line.

Central screw tap

Although the central screws are self-tapping, after measuring the depth of the central hole, the tap can be used to prepare the threads of the final implant and reduce the possibility of glenoid fracture in cases for hard bone. Tapping is recommended when using the 9.5mm central screw in order to prevent glenoid fracture. Tapping should be done manually by connecting it to a T-handle (do not use with power). When tapping, it is important to maintain alignment to the axis of the previously drilled hole. There are laser markings on the tap to show depth (fig. 10a-10b) The tapping depth should be chosen similar to the depth of the drilled central hole. Using the measurements of the central screw length, stop at the level of the corresponding laser mark.

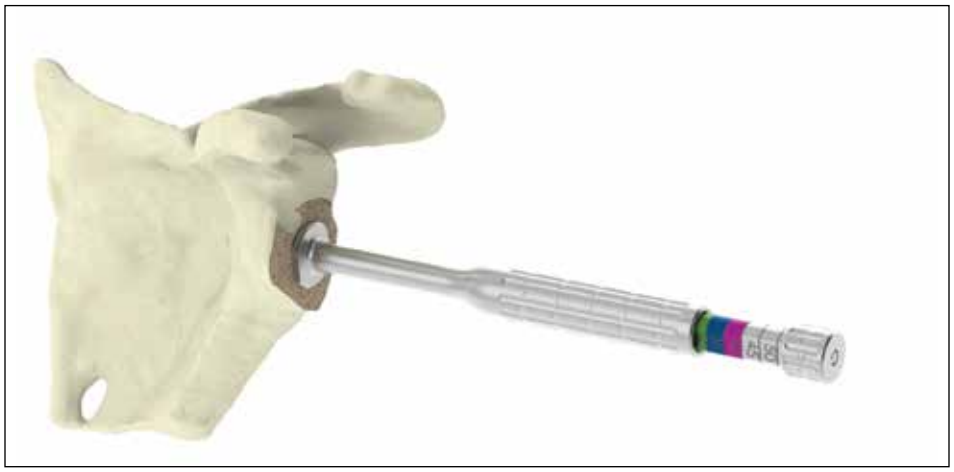


Fig. 9a

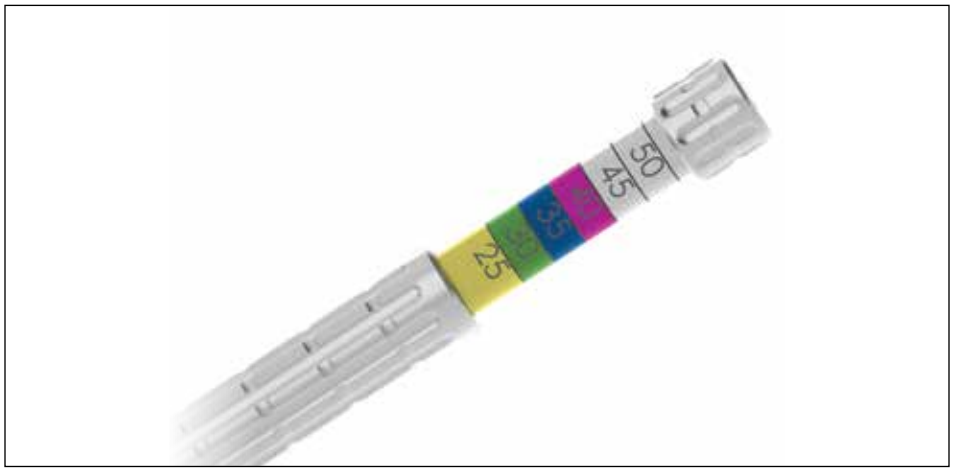


Fig. 9b

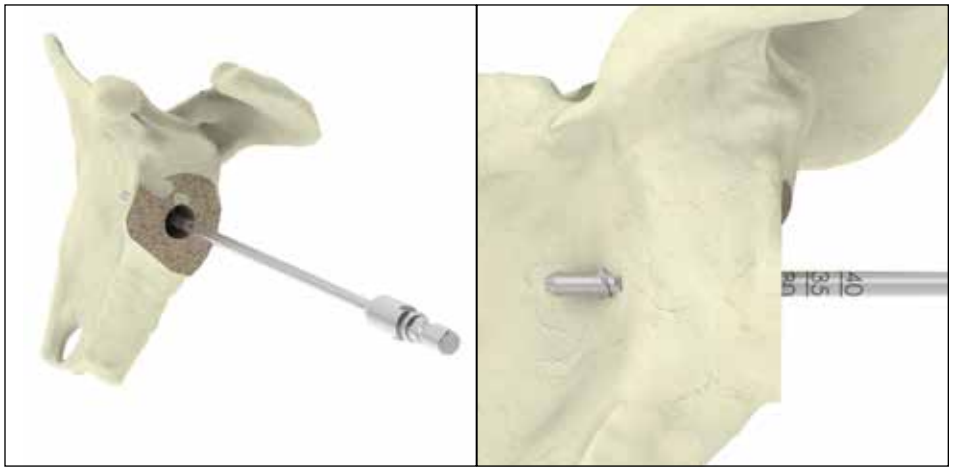


Fig. 10a **Fig. 10b**

Operative technique

Baseplate assembly and insertion

The final baseplate is chosen according to the reamed glenoid surface (25mm or 29mm). Additionally, the final central screw is chosen according to the measured length using the central screw depth gauge.

Ensure that the inner shaft of the baseplate inserter is backed out to the point where it moves freely within the outer sleeve yet is still contained. While lining up the pegs on the inserter with the peg holes on the baseplate, snap the inserter onto the baseplate. Screw the inner shaft down the sleeve to capture the baseplate onto the inserter. Care should be taken to ensure that the two pegs on the inserter seat properly into their respective holes on the baseplate (fig 11a-11b).

There is a 6.5and 9.5mm slot corresponding to the screw diameter. The hex head portion of the screw is orientated in the up position (fig. 12).

The baseplate inserter with baseplate attached is placed onto the screw and turned in a counterclockwise manner (fig. 13) Turn the baseplate until it is fully seated onto the screw. There will be a slight drop of the baseplate indicating that it has fully seated. The baseplate will spin independently from the screw once seated. The baseplate/ screw can be removed from assembly tool.

Fig. 11a

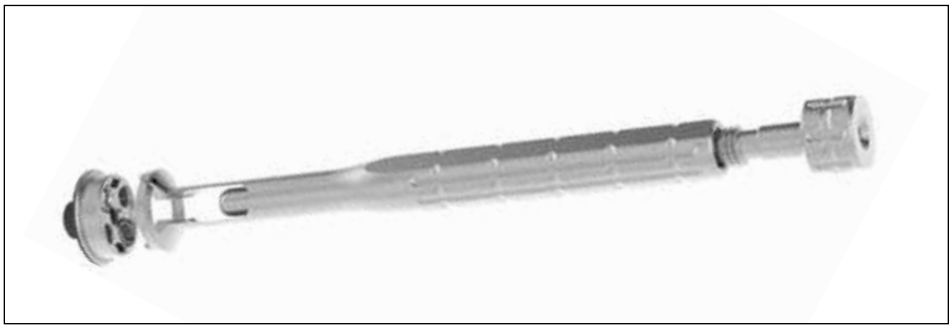


Fig. 11b

Fig. 12

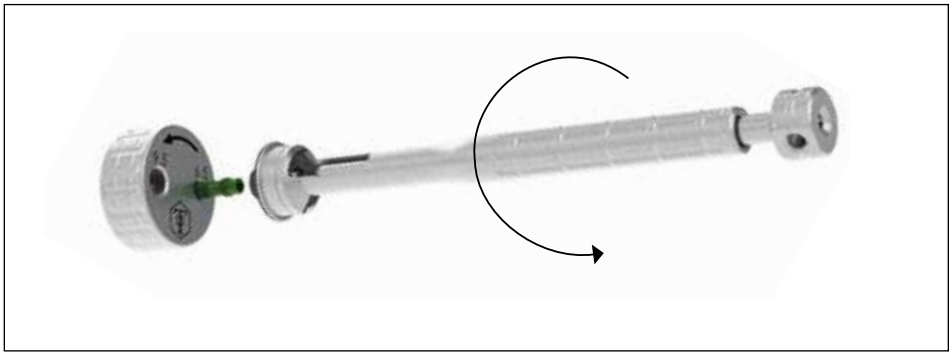


Fig. 13

Operative technique

Insert the baseplate inserter screwdriver down the shaft of the baseplate inserter and engage the head of the central screw. To insert the assembled baseplate, place the screw into the central screw drill hole and turn the central screw in a clockwise manner (fig. 14). It is important to continuously check the orientation of the baseplate relative to the prepared hole and reamed surface to ensure accurate implantation of the baseplate. Screw the baseplate into the prepared glenoid until it has fully seated against the surface. There will be a slight audible clicking noise once the post begins to engage the prepared bone. This is normal and is due to the free-floating nature of the screw within the assembly.

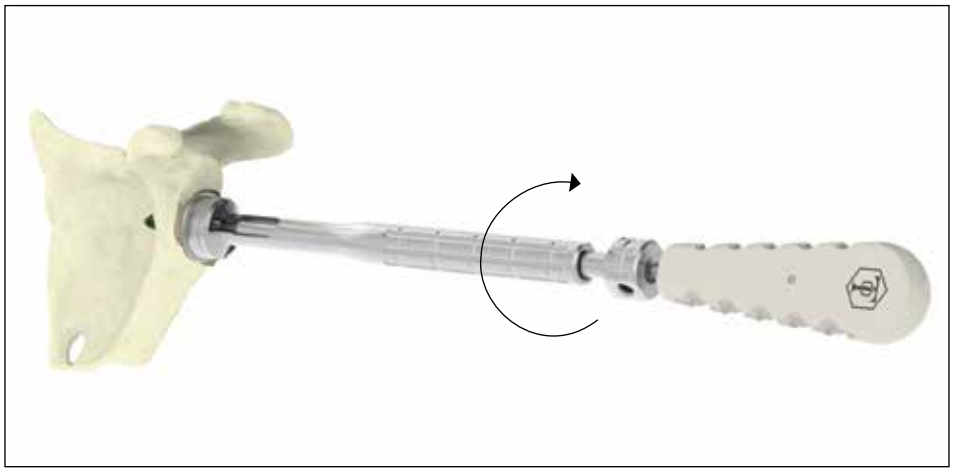


Fig. 14

NOTICE

At the completion of glenoid component installation, the central locking screw of the glenosphere locks the central compression screw into the baseplate, creating a locked fixed angle implant.

An arrow on the baseplate inserter will indicate your superior or inferior screw hole. Once the baseplate is seated flush on the glenoid surface, the baseplate inserter can be detached from the baseplate.

NOTICE

The baseplate should be seated completely onto the prepared glenoid surface. Avoid over-tightening or excessive advancement of the baseplate into the subchondral bone. Gaps between the baseplate and glenoid surface should also be avoided.

NOTICE

If the 6.5mm screw strips a 9.5mm screw can be used. This is accomplished by removing the baseplate and installing the 9.5mm screw in place of the 6.5mm screw.

Operative technique

Peripheral screw drilling and insertion

Once the baseplate is implanted, the four peripheral holes are prepared using the 3.2mm diameter drill bit and the peripheral screw drill guide (fig. 15). The standard and lateralized baseplates contain two multidirectional locking screws that can be placed in the desired location. The angles of the multidirectional locking screws can be found in the Appendix. The direction of the drill axis is chosen by free orientation of the drill guide. The other peripheral screw holes are fixed compression screws and have no angle variability. These will be put in on axis to the central screw.

The 3.2mm diameter drill bit is passed through the guide and the hole is drilled bicortically. It is desirable to have the superior screw in the base of the coracoid and the inferior screw in the pillar of the scapula, where the best bone fixation of the screws can be achieved. With inferior positioning of the baseplate, the inferior screw is frequently placed parallel to the central screw.

It is important to avoid angling the drill guide and drill too close to the post in order to avoid any damage to the post and compromising fixation.
The screw length can read directly from the end of the drill guide by locating the laser mark on the drill (fig. 16).

Fig. 15

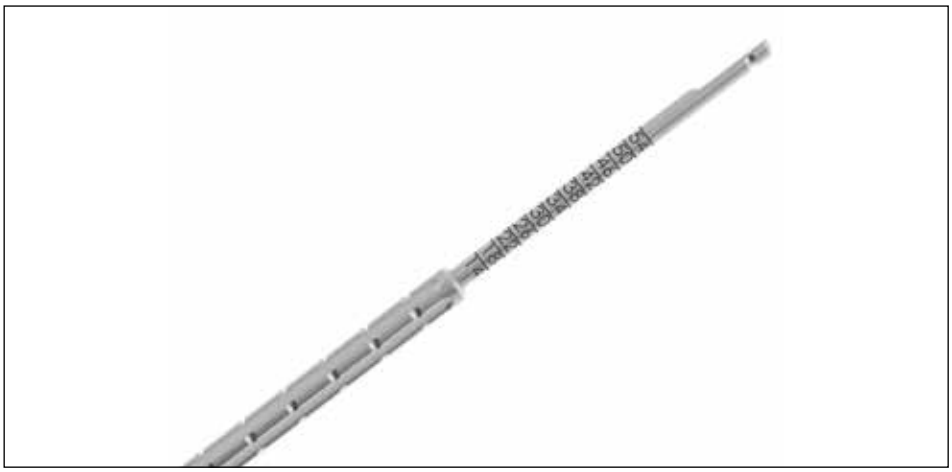


Fig. 16

NOTICE

On the standard and lateralized baseplates, the anterior and posterior holes are fixed and used for compression and can be considered optional when using a central screw. If the press-fit post option is desired it is recommended to use all four peripheral holes.

NOTICE

When using the lateralized baseplates longer peripheral screws are required to account for the augmented offset from the bone. A minimum peripheral screw length of 26mm should be used for the superior and inferior screws holes to ensure sufficient bone purchase.

Operative technique

Measure the depth of the drilled peripheral screw hole using the peripheral screw depth gauge (fig. 17). Insert the distal end of the depth gauge in the screw hole that was drilled on the baseplate. Insert the thin wire portion of the depth gauge into the prepared hole and with the L-shaped distal portion, hook the distal portion of the drilled hole. The length of the peripheral screw is matched with the number that appears on the depth gauge. If you fall on a line above a number, choose the length below the line.

Fig. 17

The peripheral screws act as both locking and compression screws and therefore may go in the fixed angle or multidirectional prepared holes. After measuring each hole, attach the peripheral screwdriver bit onto the ratcheting screwdriver (the baseplate inserter screwdriver can also be used at this step). The peripheral screws are inserted into the drilled holes and hand tightened (fig. 18).

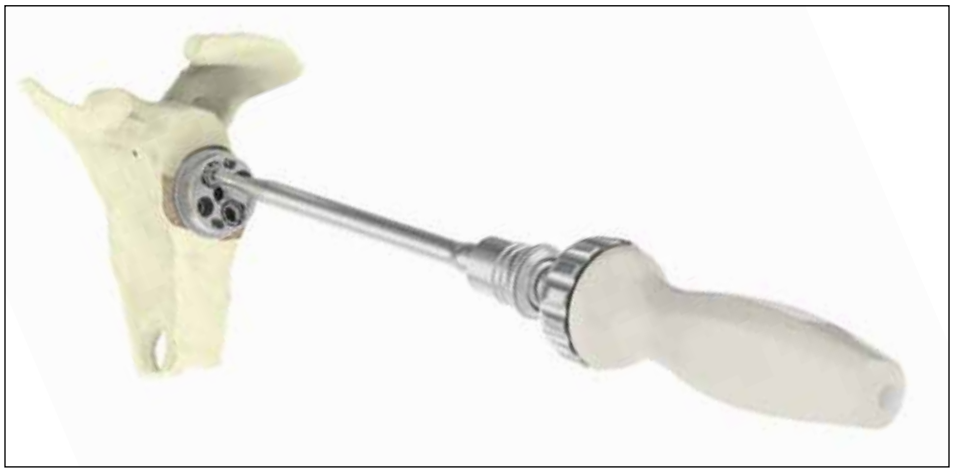


Fig. 18

The baseplate implantation is finalized once all screws are seated (fig. 19).

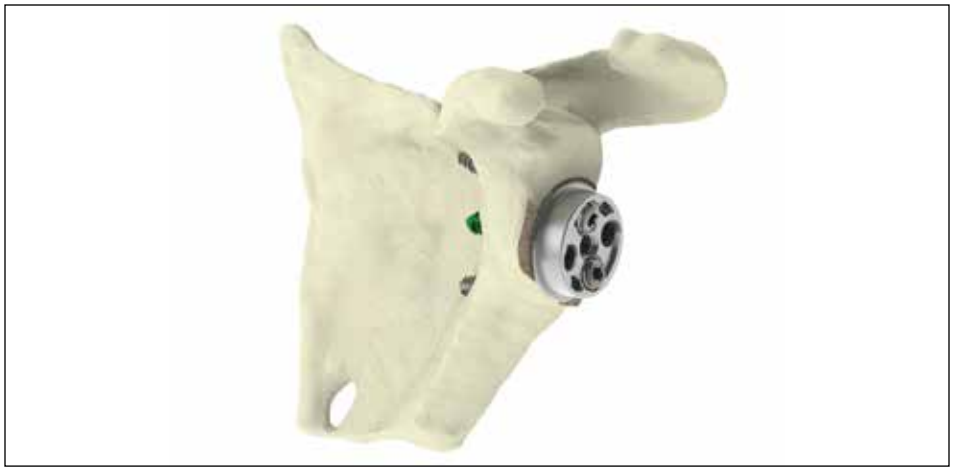


Fig. 19

Operative technique

Peripheral reaming

The peripheral reamer associated with the corresponding diameter of the intended glenosphere is attached to a T-handle. Do not use these reamers under power.

Reaming with the peripheral reamers must be performed manually and kept parallel to the central screw. The pilot tip on the reamer is carefully inserted into the central hole of the baseplate in alignment with the axis of the baseplate post (fig. 20). Manual reaming is then performed using a back and forth sweeping motion (fig. 21). Progression of the reaming should be gradual, being careful not to ream too aggressively and cause glenoid fracture.

Glenosphere trialing

To allow for trialing of the glenoid with the humeral components, the optional glenosphere trials can be obtained. Place the desired size glenosphere onto the baseplate and tighten the screw with the screwdriver (fig. 22).

Four different sizes of glenospheres are available in 33mm, 36mm, 39mm and 42mm in the following configurations:

A. centered glenospheres (standard)

B. inferior offset eccentric glenosphere (+2 for the 36mm; +3 for the 39mm and +4 for the 42mm)

C. lateralized glenosphere (to create 3mm of lateralization)

Fig. 20

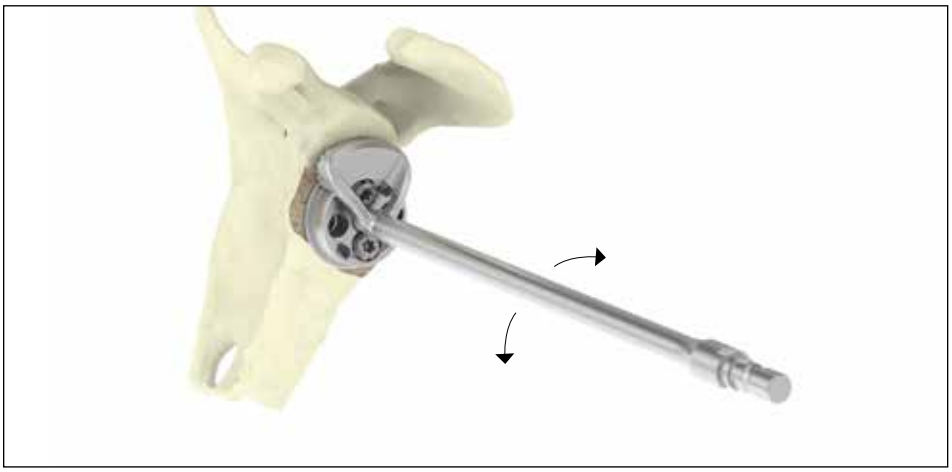


Fig. 21

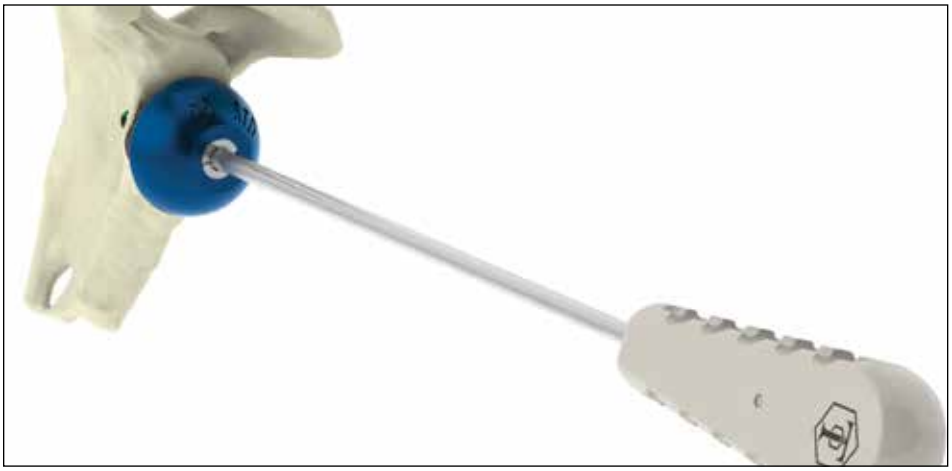


Fig. 22

Operative technique

Final implantation

Once the desired sphere is chosen, the final implantation can be performed. Prior to positioning of the definitive glenosphere, it is important to remove any soft tissue between the baseplate and the glenoid sphere. Attach the glenosphere screwdriver bit to the ratcheting screwdriver. Place the glenoid sphere onto the baseplate using the screwdriver. Ensure that the locking screw is captured in the glenosphere by turning it counterclockwise until it stops. Then place it onto the morse taper of the baseplate (fig. 23). Do not impact on the screwdriver.

Fig. 23

NOTICE

The 33mm glenosphere should only be used with the 25mm baseplate and is only offered in the +3mm lateralization option.

Fig. 24

Assemble glenosphere impactor tip onto the impactor handle from the humeral instrument set that is being used. The glenosphere is then impacted onto the morse taper of the glenoid baseplate with the glenosphere impactor assembly (fig. 24). There will be a 2mm gap between the glenoid face and the glenosphere.

The fixation of the assembly is visually checked to ensure that no soft tissue is present between the baseplate and the glenoid sphere.

Once impacted, secure the assembly by tightening the glenoid sphere locking screw clockwise with the glenosphere screwdriver assembly. Increased resistance will be felt when engaging the spring lock washer in the glenosphere. Continue tightening until central locking screw is fully seated using hand pressure only. When the screw is securely tightened, it locks into the central baseplate screw and forms the entire assembly as one solid piece.

Operative technique

Optional non-cannulated technique

Initial drilling and resurfacing the glenoid

The non-cannulated drill guide is the same outer diameter as the final glenoid baseplate (25mm or 29mm). Choose the appropriate diameter drill guide that matches the desired final baseplate diameter.

According to surgeon preference, exposure, and surgical approach, the drill guide is positioned making sure that its bottom surface is properly seated on the bone surface. To limit any risk of impingement, it is important to properly align the drill guide with the inferior edge of the glenoid. When evaluating the central hole location and angle of entry for eroded glenoids, the hole orientation and angle of entry may need to be adjusted to compensate for wear. Referencing the pre-operative CT scan or MRI, the central hole is typically located inferiorly and slightly posterior from the anatomical center.

Insert the 6.5mm diameter central screw drill into the drill guide and drill until the far cortex is reached (fig. 25).

To obtain good bone seating and secure fixation of the glenoid baseplate it is important to flatten the glenoid surface. Two non-cannulated baseplate reamers for diameters 25mm or 29mm are available to create the flat surface for the glenoid baseplate.

Fig. 25

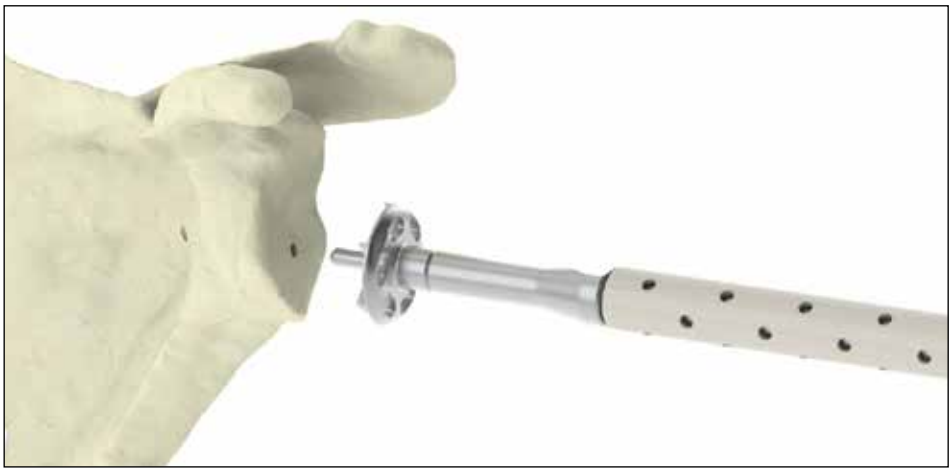


Fig. 26

Attach the reamer to power making sure that the drill is on ream. Once attached, insert the tip of the reamer into the pilot hole of the glenoid. It is recommended to start the reamer before contacting the glenoid surface and ream until the glenoid surface is flat (fig. 26).

Operative technique

Once the reamer tip is inserted into the drill hole, apply power to the reamer prior to seating on the glenoid surface and then apply using pressure. The reamer should remain perpendicular to the pilot hole. The goal of reaming is to obtain a bony surface that matches the backside of the glenoid component.

However, it is not advisable to ream down to cancellous bone because of the limited glenoid bone stock. Over aggressive reaming should be avoided to prevent possible glenoid fracture (fig. 27).

Fig. 27

Drilling for baseplate post and central screw

The hole for the baseplate post is drilled using the non-cannulated 10mm diameter baseplate post drill. A positive stop on the drill bit maintains that drilling will not go too deep and ensures a press-fit fixation for the post (fig. 28).

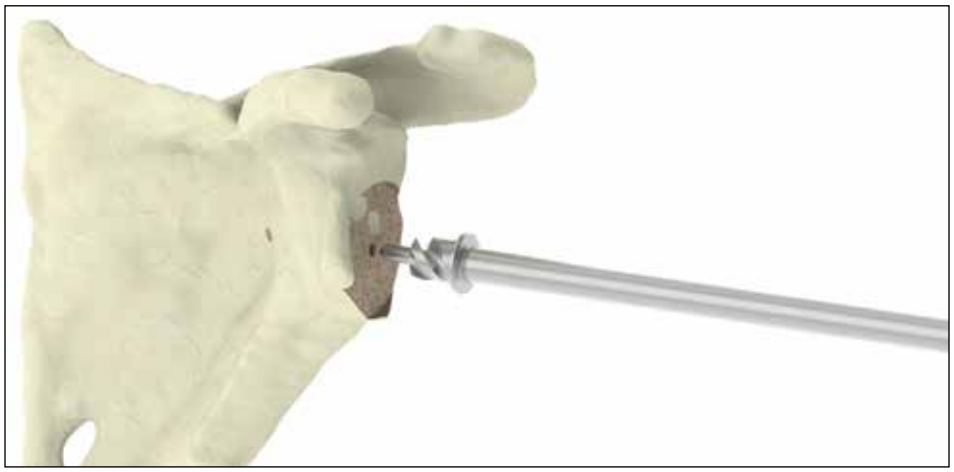


Fig. 28

If it is desired to use a 9.5mm central screw, insert the 9.5mm central screw guide into the post hole. Attach the 9.5mm central screw drill bit to power and drill until the far cortex is reached.

NOTICE

Please refer to steps 15-37 of the above technique to complete the procedure.

Operative technique

Baseplate lateralization

The Tornier Perform Reversed Augmented Glenoid lateralized augmented baseplates provide lateralization of the glenoid component.

The baseplate achieves lateralization using Stryker's AdapTiS porous titanium (Ti) technology that was designed to encourage bone ingrowth. Stryker offers the following baseplates to achieve lateralization.

There is no difference in the surgical technique for the lateralized baseplates. Please refer to the standard cannulated or non-cannulated technique above.

If it is desired to utilize Stryker's Tornier BIO-RSA technology please refer to the surgical technique that is provided with that instrument set.

25mm with +3mm Lateralization

25mm with +6mm Lateralization

29mm with +3mm Lateralization

29mm with +6mm Lateralization

⚠WARNING

Tornier BIO-RSA surgical technique is not recommended to be used: in cases of severe glenoid bone deficiency, not autologous humeral head bone graft, humeral head necrosis, revision of failed hemi or total arthroplasty and humeral head fractures.

NOTICE

Do not to use the Tornier BIO-RSA bone graft with the lateralized augmented baseplates.

NOTICE

A separate drilling step must be performed in order to have the bone graft fit to the standard baseplates. After the bone graft is produced, the surgeon must use the 10 mm diameter baseplate post drill to drill both sides of the bone graft. This must be done in order for the graft to fit onto the baseplate post.

Operative technique

Press-fit post options

The initial glenoid preparation is the same for the press-fit post option. Please refer to pages 6-8 for cannulated technique or pages 16-17 for non-cannulated technique. After these steps, perform the following:

Drilling for press-fit short post

Final drilling of the glenoid central hole is performed under power using the press-fit short post drill to enable a press-fit when impacting the final glenoid baseplate (the baseplate post has a diameter of 9mm).

Attach the press-fit short post drill to power and drill over the guide pin to prepare for the baseplate. Drill until the depth stop contacts the surface of the glenoid bone (fig. 29). The press-fit short post drill is designed to drill the hole for the baseplate post and 7mm press-fit post in a single step. A positive stop on the drill bit ensures that drilling will not go too deep and allows for press-fit fixation of the baseplate post. Remove the drill bit.

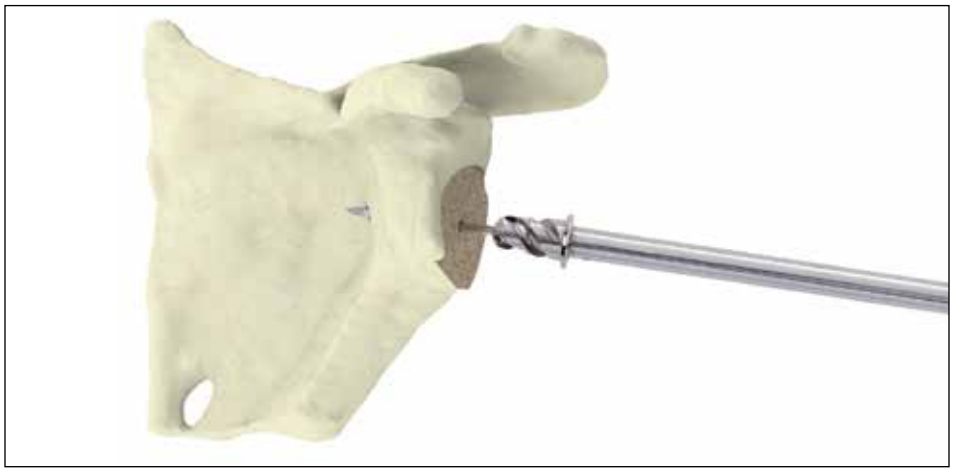


Fig. 29

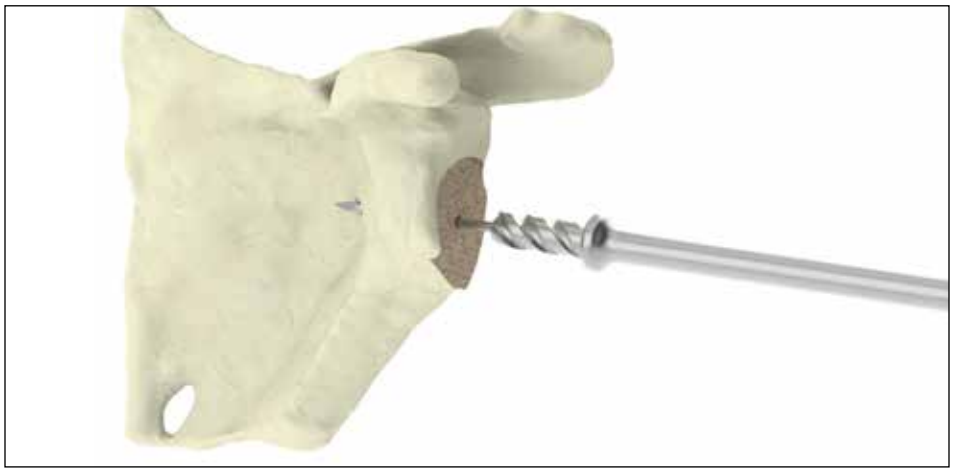


Fig. 29a

Drilling for press-fit long post

Final drilling of the glenoid central hole is performed under power using the 8mm diameter press-fit post drill to enable a press-fit when impacting the final glenoid baseplate (the baseplate post has a diameter of 9mm).

Attach the mm diameter press-fit post drill to power and drill into the prepared hole in the glenoid. Drill until the depth stop contacts the surface of the glenoid bone (fig. 29a). The hole for the baseplate post is drilled over the guide pin using the cannulated 10mm diameter drill bit.

A positive stop on the drill bit ensures that drilling will not go too deep and allows for press-fit fixation of the baseplate post. Remove the drill bit.

Operative technique

Baseplate assembly and insertion

The final baseplate is chosen according to the reamed glenoid surface (25mm or 29mm).

The baseplate is then attached to the baseplate inserter in the same manner as on page 10 from above.

The central post is attached by hand to the baseplate by screwing it onto the baseplate in a counterclockwise motion (fig. 30). The post must be securely screwed onto the baseplate. To achieve a secure attachment, insert the baseplate inserter screwdriver down the shaft of the baseplate inserter and engage the head of the post. In a clockwise motion, tighten the post to the baseplate (fig 31).

To insert the assembled baseplate, place the post into the prepared hole and using a mallet gently impact the baseplate into the glenoid until it has fully seated against the surface. Once the baseplate is seated flush on the glenoid surface, the baseplate holder can be detached from the baseplate. The baseplate should be seated completely onto the prepared glenoid surface. Gaps between the baseplate and glenoid surface should be avoided.

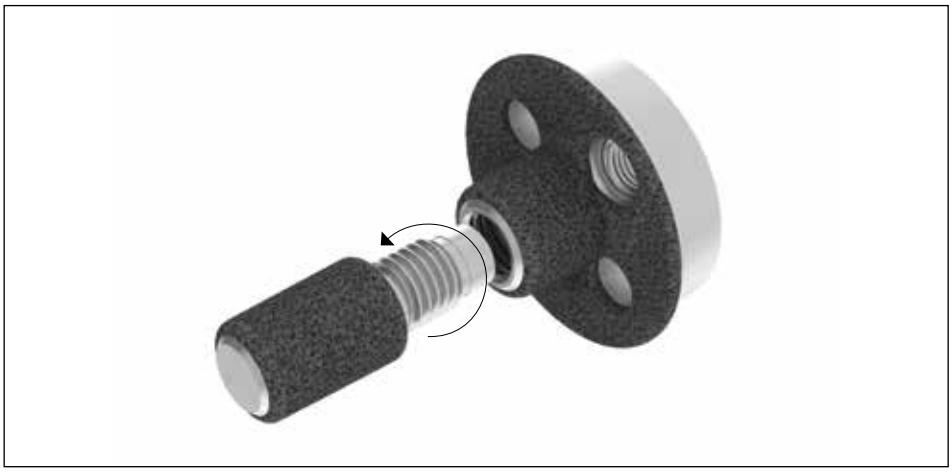


Fig. 30

Fig. 31

NOTICE

Please refer to pages 14-17 of the cannulated technique above to complete the procedure.

Operative technique

Baseplate revision

Glenosphere and peripheral screw removal

Please refer to the following steps if removal of the implants is necessary.

After exposing the glenosphere, attach the sphere screwdriver bit onto the ratcheting screwdriver handle. Insert the screwdriver bit into the screw on the glenosphere and turn counterclockwise (fig 32). Unscrew the locking screw until it backs out completely to ensure that it is not engaged to the baseplate. When doing this, it is suggested applying slight downward pressure on the locking screw and continuing to unscrew until you feel the locking screw clicking. This ensures that the screw is fully backed out of the baseplate.

To remove the sphere from the baseplate, make sure the glenosphere extractor has the central locking screw backed out completely. Insert the tip of the extractor into the central screw hole on the glenosphere at a slight angle to ensure ease of insertion. Once the tip of the extractor has been inserted into the hole of the glenosphere, angle the extractor so that it becomes axially aligned with the implants. Staying parallel with the central screw, begin to turn the central post down the extractor shaft by turning the knob in a clockwise motion. The glenosphere will then be released from the baseplate (fig. 33a-33b).

Fig. 32

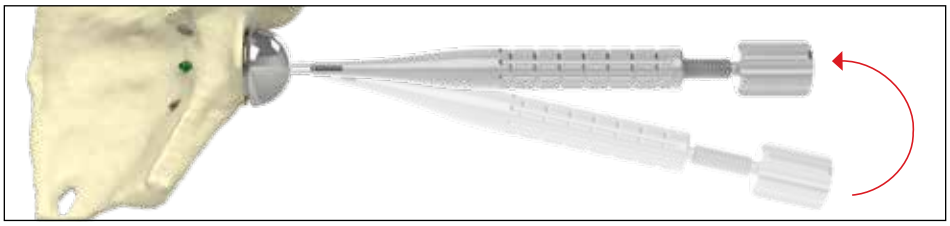


Fig. 33a

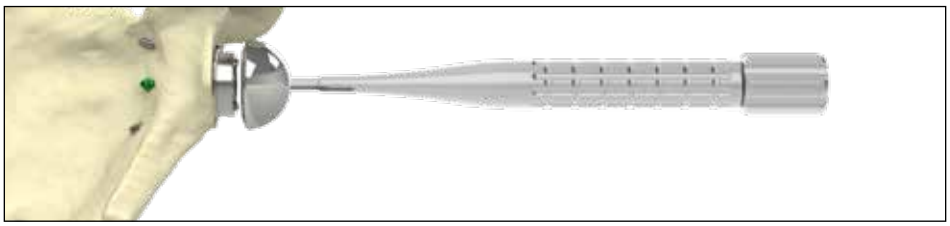


Fig. 33b

NOTICE

Do not use impaction force with this instrument.

If the glenosphere does not remove on the first attempt, remove the extractor, check to ensure that the locking screw is fully backed out of the baseplate.

To remove the peripheral screws from the baseplate, attach the peripheral screw bit to the provided ratcheting screwdriver. Remove each screw one at a time.

Operative technique

Baseplate loosening and central screw removal

To loosen the baseplate from the glenoid, attach the baseplate revision tool to a T-handle. Insert the two pegs on the baseplate revision tool into opposing peripheral screw holes and turn with hand power only. Turn using a gentle oscillating motion to loosen the baseplate from the glenoid. Avoid turning in a clockwise motion to prevent inserting the assembly further into the glenoid (fig. 34a-34b).

Once the baseplate is loosened from the glenoid surface, place the baseplate inserter onto the baseplate, lining up the pegs on the baseplate inserter with the peg holes on the baseplate. Screw the shaft down the holder to capture the baseplate onto the inserter. Care should be taken to ensure that the two pegs on the inserter seat properly into their respective holes on the implanted baseplate.

Insert the baseplate inserter screwdriver down the shaft of the baseplate inserter and engage the head of the central screw. Insert the baseplate screwdriver into the baseplate holder. To remove the assembled baseplate, screw in a counterclockwise motion. Unscrew the baseplate until it is fully removed from the glenoid (fig. 35).

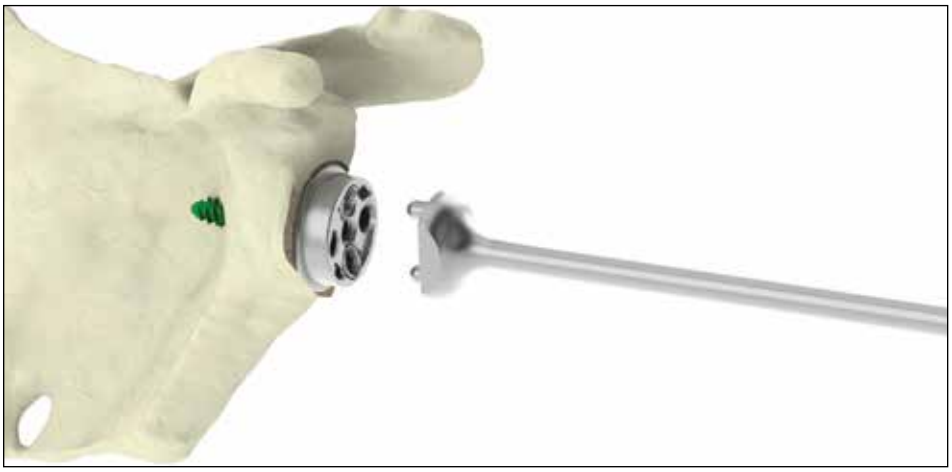


Fig. 34a

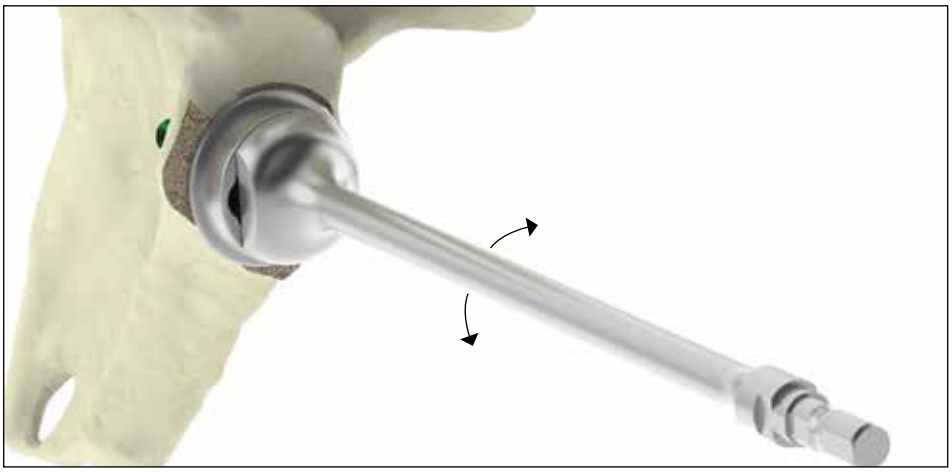


Fig. 34b

Fig. 35

Operative technique

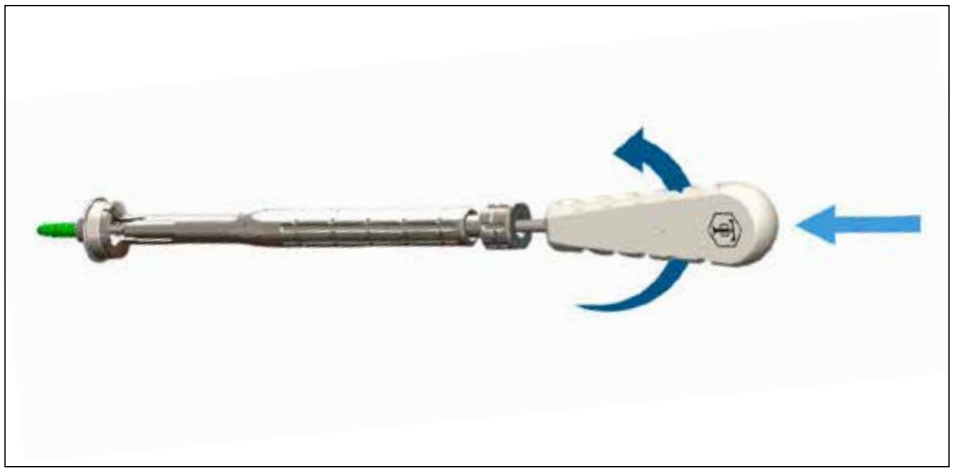


Fig. 36

NOTICE

Intra-operative removal of a central screw from an implanted Tornier Perform Reversed baseplate is not advised, as it may be difficult to unscrew from the baseplate. Introducing a central screw into a baseplate creates a compressive engagement force, which—upon implantation—may make attempts at central screw removal problematic. It is advised to confirm proper screw length prior to implantation.

If a central screw change needs to be made, please follow the steps below to properly excise/extract the implant. If the central screw does not disengage from the baseplate, a new baseplate with the correct length central screw will need to be implanted.

Step 1: ensure the baseplate inserter handle [MWJ118] is attached to the baseplate.

Do not use the central screw assembly tool [MWJ163].

Step 2: apply downward pressure with the baseplate inserter screwdriver [MWJ123] and turn the baseplate inserter screwdriver counter-clockwise until the screw falls out (fig. 36).

You may encounter some resistance, however continue turning until the screw threads out of the baseplate.

Operative technique

Tornier Perform Reversed glenosphere and baseplate configuration chart

The Tornier Perform Reversed baseplates have been designed to be compatible with the Tornier Perform Reversed glenospheres.

With the addition of the AdapTis porous titanium on the backside of the baseplate, certain combinations may have the potential to create an impingement with the humeral insert.

For more information on the cleared combinations, refer to the configuration chart below. The boxes highlighted in green indicate that there should be no impingement of the poly insert on the humeral side with the porous titanium on the baseplate.

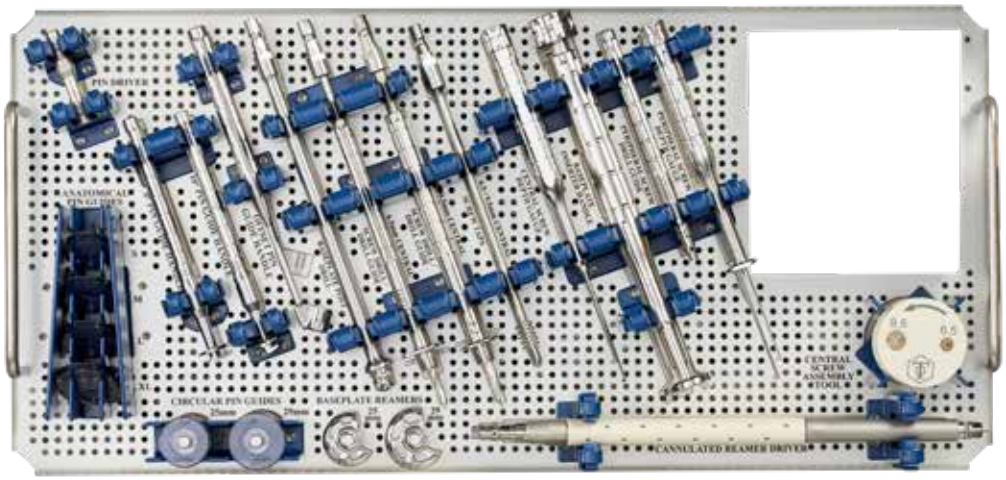
Glenosphere		Baseplate					
		Standard		Lateralized			
		25mm	29mm	25mm (+3)	29mm (+3)	25mm (+6)	29mm (+6)
Standard	36mm						
	39mm						
	42mm						
Eccentric	36mm +2 ECC						
	39mm +3 ECC						
	42mm +4 ECC						
Lateralized	33mm +3 LAT						
	36mm +3 LAT						
	39mm +3 LAT						
	42mm +3 LAT						

Cleared mismatch range Non-cleared mismatch range

Tornier Perform Reversed peripheral screw angulation

Baseplate	Multidirectional locking screws		Compression screws	
	Superior - Inferior	Transverse	Superior - Inferior	Transverse
Standard Baseplates	0-25°	±12°	0°	3°
Lateralized Baseplate (+3mm)	0-25°	±9°	0°	3°
Lateralized Baseplate (+6mm)	0-25°	±7°	0°	3°

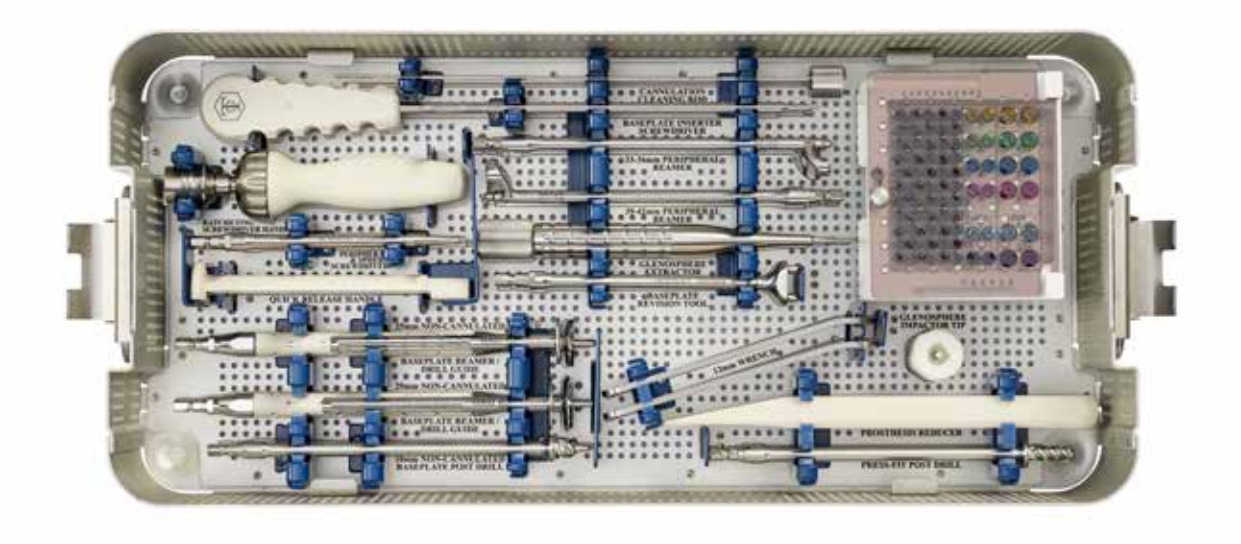
System components



Tornier Perform Reversed standard instrument tray upper level (ref. YKAD261)

Ref #	Description
MWB253	Pin driver
MWE151	Cannulated reamer driver
MWJ101	Circular pin guide, 25mm
MWJ102	Circular pin guide, 29mm
MWJ103	Anatomical pin guide, s
MWJ104	Anatomical pin guide, m
MWJ105	Anatomical pin guide, l
MWJ106	Anatomical pin guide, xl
MWJ107	Pin guide handle, 0°
MWJ108	Pin guide handle, 10°
MWJ109	Half moon baseplate reamer, 25mm
MWJ110	Half moon baseplate reamer, 29mm
MWJ113	Baseplate post drill, 10mm
MWJ111	Central screw drill, 6.5mm
MWJ112	Central screw drill, 9.5mm
MWJ114	Central screw drill guide, 6.5mm
MWJ115	Central screw drill guide, 9.5mm
MWJ116	Central screw depth gauge
MWJ121	Central screw tap, 6.5mm
MWJ122	Central screw tap, 9.5mm
MWJ118	Baseplate inserter handle
MWJ124	Peripheral screw drill guide
MWJ125	Peripheral screw depth gauge
MWJ163	Central screw assembly tool
MWJ117	Offset pin guide handle

System components



Tornier Perform Reversed standard instrument tray lower level (ref. YKAD261)

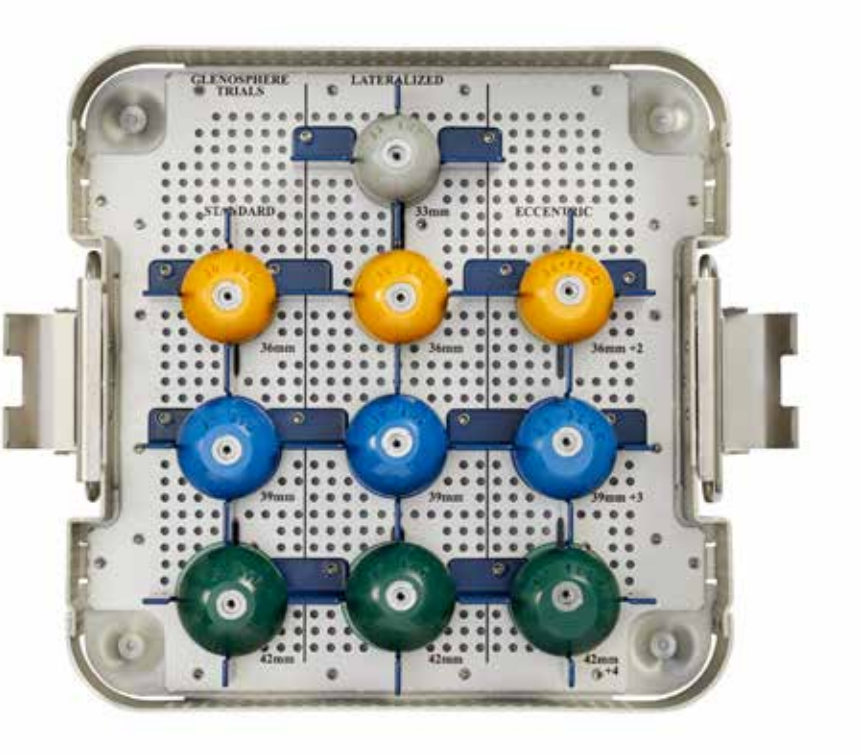
Ref #	Description
MWB236	Cannulation cleaning rod
MWD552	12mm wrench
MWD425	Glenosphere impactor tip
MWE158	Quick release handle
MWJ100	Prosthesis reducer slim
MWJ123	Baseplate inserter screwdriver, T20
MWJ119	Peripheral reamer, 33-36mm
MWJ120	Peripheral reamer, 39-42mm
MWJ127	Peripheral and sphere screwdriver bit, T20
MWJ128	Ratcheting screwdriver handle
MWJ130	Glenosphere extractor
MWJ165	Baseplate revision tool
MWJ162	Press-fit post drill, 15mm
MWJ180*	Screw caddy
MWJ149	Non-cannulated baseplate reamer, 25mm
MWJ150	Non-cannulated baseplate reamer, 29mm
MWJ158	Non-cannulated baseplate post drill, 10mm
MWJ159	Non-cannulated 4.0mm drill guide, 25mm
MWJ160	Non-cannulated 4.0mm drill guide, 29mm
MWJ142	Peripheral screw drill bit, 3.2mm non-sterile

Optional reamers

Ref #	Description
MWJ166	Full moon baseplate reamer, 25mm
MWJ167	Full moon baseplate reamer, 29mm

* Available upon request only

System components



Tornier Perform Reversed glenosphere trials tray (ref. YKAD262)*

Ref #	Description
MWJ132	Standard glenosphere trial, 36mm
MWJ133	Standard glenosphere trial, 39mm
MWJ134	Standard glenosphere trial, 42mm
MWJ135	Lateralized glenosphere trial (+3mm), 33mm
MWJ136	Lateralized glenosphere trial (+3mm), 36mm
MWJ137	Lateralized glenosphere trial (+3mm), 39mm
MWJ138	Lateralized glenosphere trial (+3mm), 42mm
MWJ139	Eccentric glenosphere trial (+2mm inferior offset), 36mm
MWJ140	Eccentric glenosphere trial (+3mm inferior offset), 39mm
MWJ141	Eccentric glenosphere trial (+4mm inferior offset), 42mm

* Available upon request only

System components

Tornier Perform Reversed short post drill tray (ref. YKAD266)*

Ref #	Description
MWJ190	Perform reversed press-fit post drill, 7mm post
MWJ192	Perform reversed baseplate post hard bone drill
MWJ193	Perform reversed baseplate post hard bone drill non-cannulated

Optional reamers*

Ref #	Description
MWJ166	Full moon baseplate reamer, 25mm
MWJ167	Full moon baseplate reamer, 29mm

Sterile items*

Ref #	Description
MWJ126	Peripheral screw drill bit, 3.2mm
DWD017	Sterile single use pin – Ø2.5 x 220mm
EBO101	Cement restrictor

* Available upon request only

System components

Sterile items

Ref #	Description
MWJ126	Peripheral screw drill Bit, 3.2mm*
DWD017	Sterile single use pin – Ø 2.5 X 220 mm

Implants standard baseplates

Ref #	Description
DWJ401	Standard baseplate, 25mm
DWJ411	Standard baseplate, 29mm

Lateralized augmented baseplates

Ref #	Description
DWJ512	Lateralized baseplate (+3 mm), 29mm
DWJ513	Lateralized baseplate (+6 mm), 29mm
DWJ502	Lateralized baseplate (+3 mm), 25mm
DWJ503	Lateralized baseplate (+6 mm), 25mm

Press-fit post

Ref #	Description
DWJ002	Press-fit long post, 15mm
DWJ001	Press-fit short post, 7mm

*Sterile upon request

System components

Central screws (sterile)

Ref #	Description
DWJ525	Central screw, 6.5 mm x 25 mm - Sterile
DWJ530	Central screw, 6.5 mm x 30 mm - Sterile
DWJ535	Central screw, 6.5 mm x 35 mm - Sterile
DWJ540	Central screw, 6.5 mm x 40 mm - Sterile
DWJ545*	Central screw, 6.5 mm x 45 mm - Sterile*
DWJ550*	Central screw, 6.5 mm x 50 mm - Sterile*
DWJ625	Central screw, 9.5 mm X 25 mm - Sterile
DWJ630	Central screw, 9.5 mm X 30 mm - Sterile
DWJ635	Central screw, 9.5 mm X 35 mm - Sterile
DWJ640	Central screw, 9.5 mm X 40 mm - Sterile
DWJ645*	Central screw, 9.5 mm X 45 mm - Sterile*
DWJ650*	Central screw, 9.5 mm X 50 mm - Sterile*

Central screws (non-sterile)

Ref #	Description
DWJ125	Central screw, 6.5mm x 25mm - non-sterile
DWJ130	Central screw, 6.5mm x 30mm - non-sterile
DWJ135	Central screw, 6.5mm x 35mm - non-sterile
DWJ140	Central screw, 6.5mm x 40mm - non-sterile
DWJ145*	Central screw, 6.5mm x 45mm - non-sterile*
DWJ150*	Central screw, 6.5mm x 50mm - non-sterile*
DWJ225	Central screw, 9.5mm x 25mm - non-sterile
DWJ230	Central screw, 9.5mm x 30mm - non-sterile
DWJ235	Central screw, 9.5mm x 35mm - non-sterile
DWJ240	Central screw, 9.5mm x 40mm - non-sterile
DWJ245*	Central screw, 9.5mm x 45mm - non-sterile*
DWJ250*	Central screw, 9.5mm x 50mm - non-sterile*

*Sizes special request

System components

Peripheral screws (sterile)

Ref #	Description
DWJ714	Peripheral screw, 5.0mm, 14mm - sterile
DWJ718	Peripheral screw, 5.0mm, 18mm - sterile
DWJ722	Peripheral screw, 5.0mm, 22mm - sterile
DWJ726	Peripheral screw, 5.0mm, 26mm - sterile
DWJ730	Peripheral screw, 5.0mm, 30mm - sterile
DWJ734	Peripheral screw, 5.0mm, 34mm - sterile
DWJ738	Peripheral screw, 5.0mm, 38mm - sterile
DWJ742	Peripheral screw, 5.0mm, 42mm - sterile
DWJ746	Peripheral screw, 5.0mm, 46mm - sterile
DWJ750	Peripheral screw, 5.0mm, 50mm - sterile
DWJ754	Peripheral screw, 5.0mm, 54mm - sterile

Peripheral screws (non-sterile)

Ref #	Description
DWJ314	Peripheral screw, 5.0mm, 14mm - Non-Sterile
DWJ318	Peripheral screw, 5.0mm, 18mm - Non-Sterile
DWJ322	Peripheral screw, 5.0mm, 22mm - Non-Sterile
DWJ326	Peripheral screw, 5.0mm, 26mm - Non-Sterile
DWJ330	Peripheral screw, 5.0mm, 30mm - Non-Sterile
DWJ334	Peripheral screw, 5.0mm, 34mm - Non-Sterile
DWJ338	Peripheral screw, 5.0mm, 38mm - Non-Sterile
DWJ342	Peripheral screw, 5.0mm, 42mm - Non-Sterile
DWJ346	Peripheral screw, 5.0mm, 46mm - Non-Sterile
DWJ350	Peripheral screw, 5.0mm, 50mm - Non-Sterile
DWJ354	Peripheral Screw 5.0mm, 54mm - Non-Sterile

System components

Standard

Eccentric

Lateralized

Glenospheres

Ref #	Description
DWJ012	Standard glenosphere, 36mm
DWJ013	Standard glenosphere, 39mm
DWJ014	Standard glenosphere, 42mm
DWJ021	Lateralized glenosphere (+3mm), 33mm
DWJ022	Lateralized glenosphere (+3mm), 36mm
DWJ023	Lateralized glenosphere (+3mm), 39mm
DWJ024	Lateralized glenosphere (+3mm), 42mm
DWJ032	Eccentric glenosphere (+2mm inferior offset), 36mm
DWJ033	Eccentric glenosphere (+3mm inferior offset), 39mm
DWJ034	Eccentric glenosphere (+4mm inferior offset), 42mm

Notes

Notes

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Manufacturer:
Tornier, Inc.
10801 Nesbitt Ave South
Bloomington, MN 55437
USA
+1 952 426 7600

Authorised Representative:
Tornier SAS
161 Rue Lavoisier
38330 Montbonnot
Saint Martin
France
+33 (0)4 76 61 35 00