

**stryker**

# Tornier Perform<sup>®</sup>

Anatomic Augmented Glenoid



# Decades of dedication



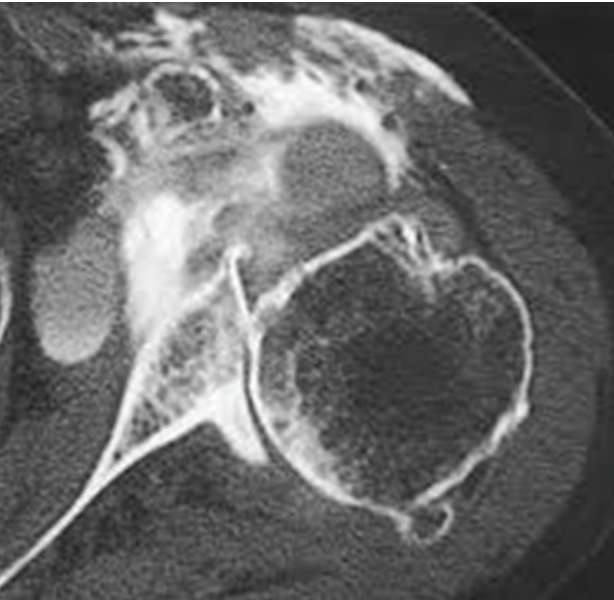
Since the late 1990s, Stryker's Upper Extremities team has partnered with surgeons who have dedicated themselves to understanding the intricacies of the arthritic glenoid. From the Walch classification, to the landmark multi-centered studies highlighting the importance of subchondral bone preservation, the Tornier Perform Anatomic Augmented Glenoid draws upon a rich clinical heritage, resulting in the first "anatomic" augmented glenoid.

## Walch classifications



- Defined in 1999, the Walch classification was a first step in understanding the intricacies of the arthritic glenoid<sup>1</sup>
- Numerous studies now demonstrate that B2 glenoids have an increased risk of loosening when treated with traditional glenoid implants<sup>2,3</sup>
- Recent publication suggests that up to 41% of arthritic glenoids demonstrate some level of posterior erosion<sup>4</sup>

# Design rationale



The Tornier Perform Anatomic Augmented Glenoid was developed to address posterior glenoid deficiencies. The system has been specifically designed to restore appropriate humeral to glenoid **position**, provide accurate **preparation** and deliver bone **preservation**.

# Implant offering

- Four profile sizes (S/M and L/XL)
- Three augment sizes (15°, 25°, 35°)
- Side specific (lefts and rights)



15°



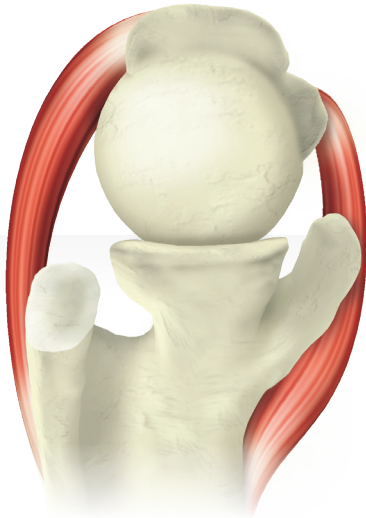
25°



35°

# Position

Designed to restore the joint line, correct version and re-center the humeral head



Normal shoulder



Shoulder with  
posterior wear



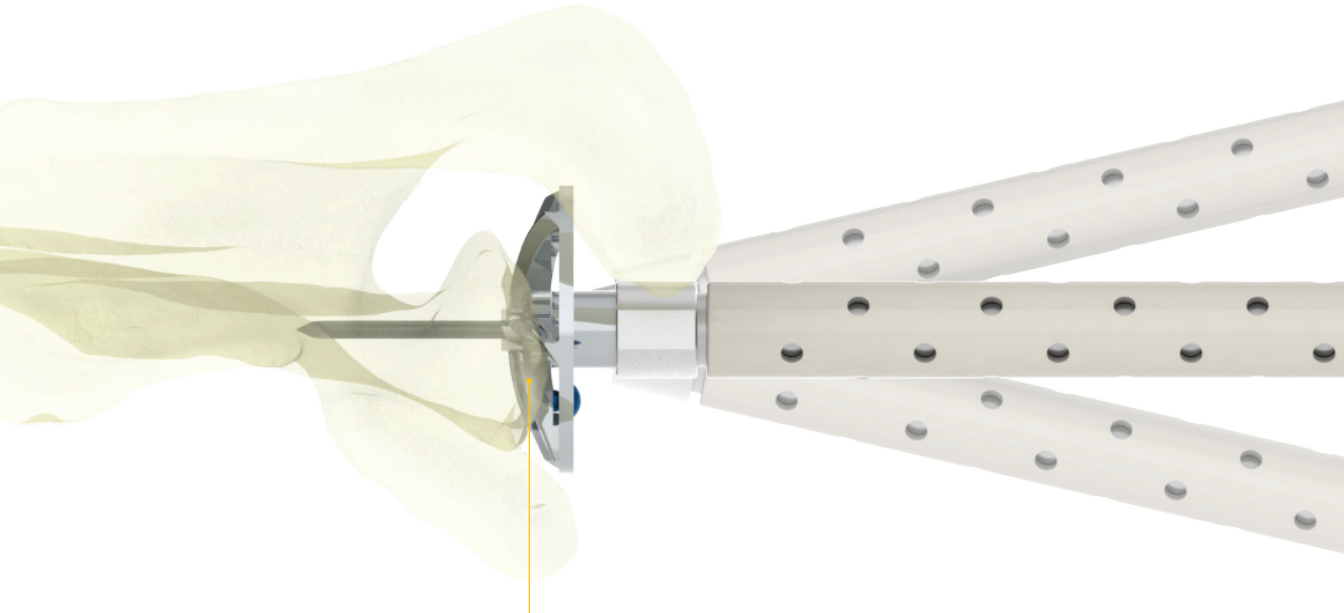
Standard glenoid with  
eccentric reaming



Rebalanced shoulder with  
Tornier Perform Anatomic  
Augmented Glenoid

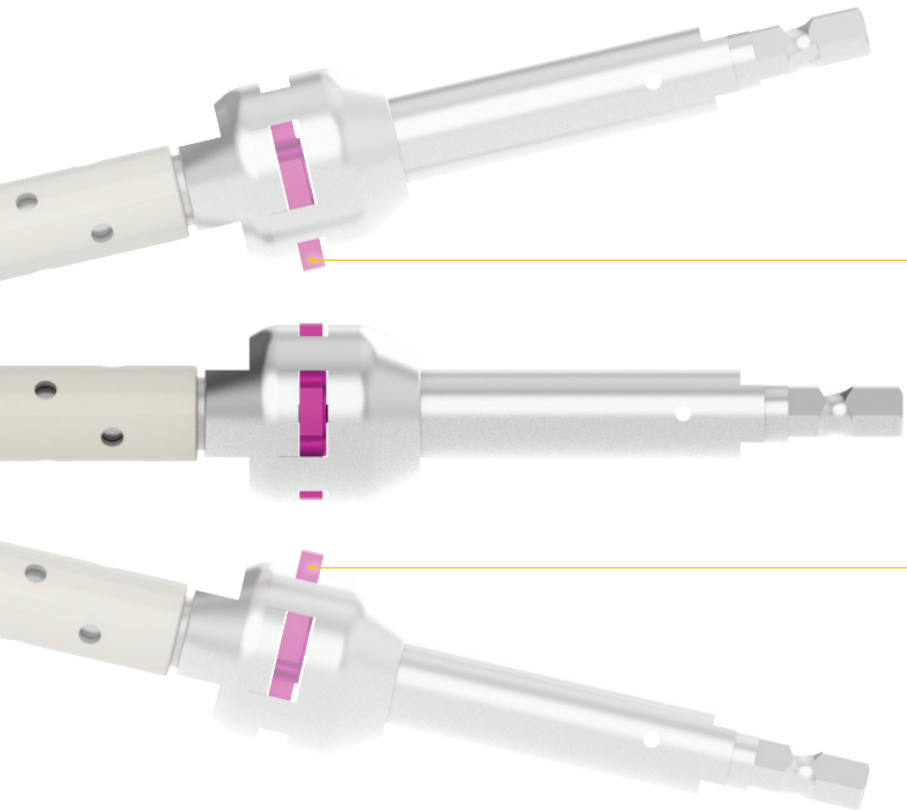
# Position

Designed for precision in every step



Accurately prepares the anterior "paleo" surface

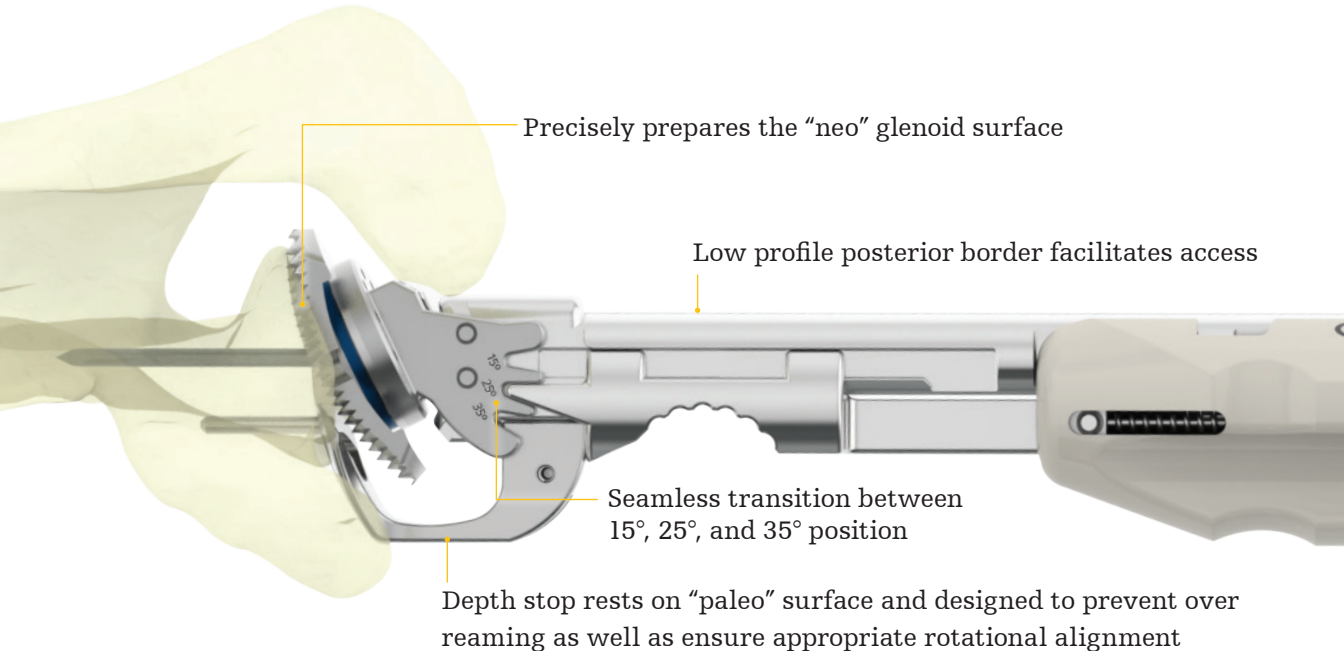




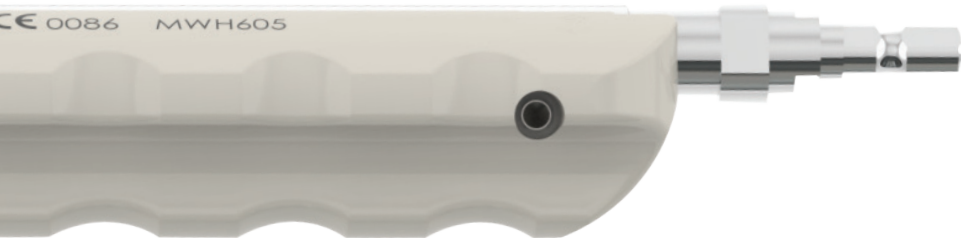
The Marksman feature provides visual feedback to keep the reamer aligned to the guide pin

# Position

Designed for precision in every step



CE 0086 MWH605



15°



25°

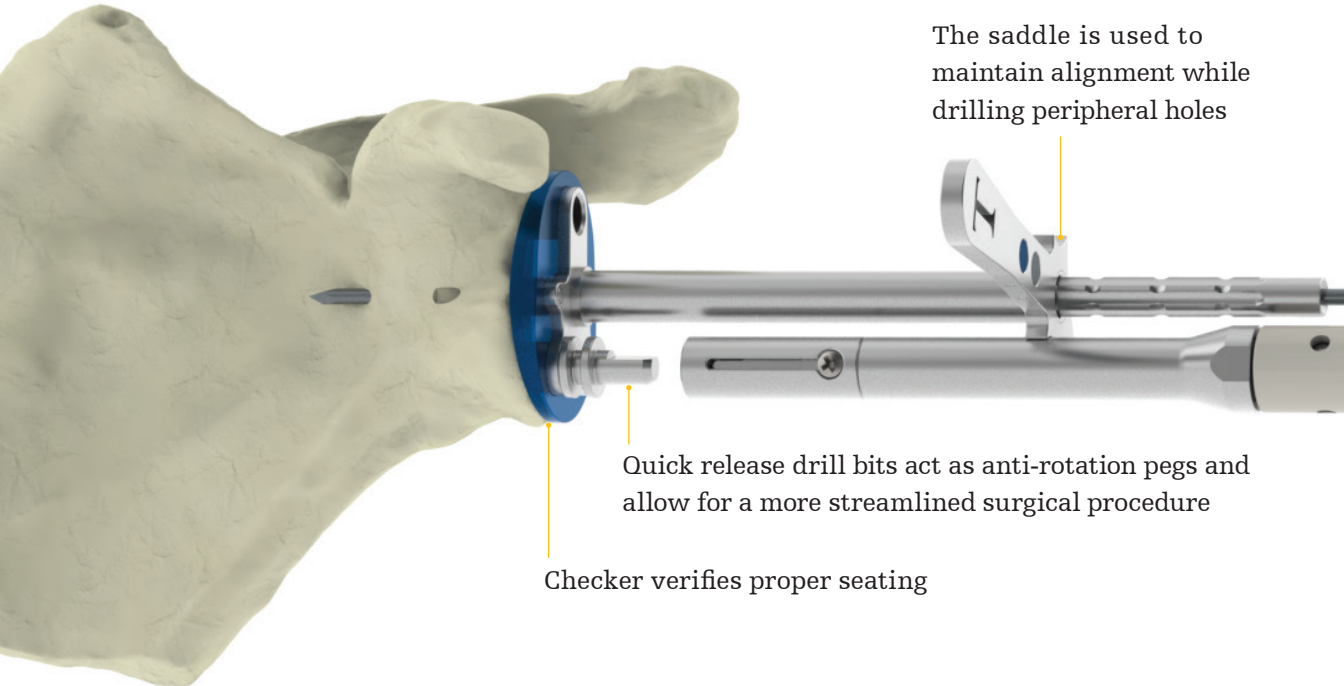


35°



# Position

Designed for precision in every step



The saddle is used to maintain alignment while drilling peripheral holes

Quick release drill bits act as anti-rotation pegs and allow for a more streamlined surgical procedure

Checker verifies proper seating



# Preservation

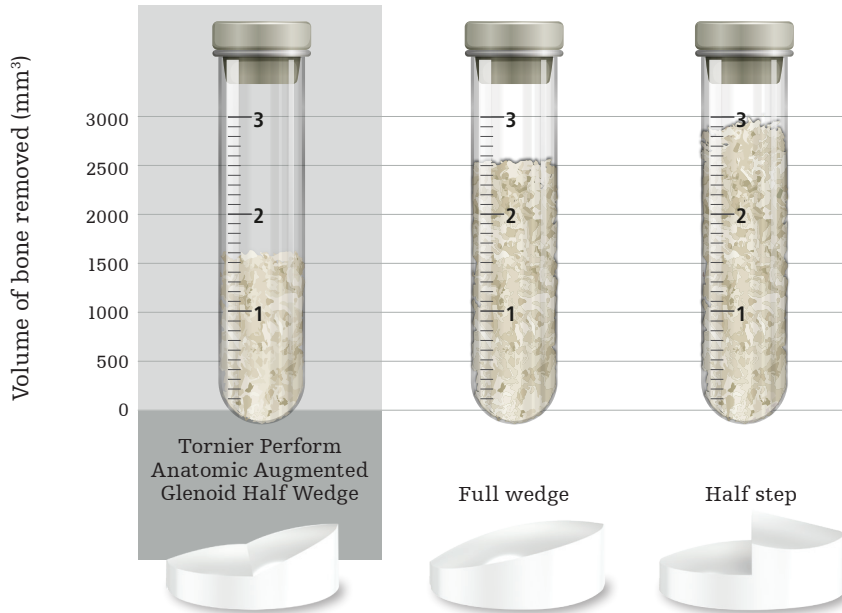
## More bone, more support

The Tornier Perform Anatomic Augmented Glenoid was developed to address posterior glenoid deficiencies that, when treated with traditional implants, have demonstrated an increased risk of glenoid loosening via finite element analysis.<sup>5</sup> The “defect mimicking” augment shape was developed to preserve subchondral bone, which has been demonstrated to be a critical factor in long-term survivorship.<sup>4</sup> In an independent head-to-head comparison conducted via virtual implantation in CAD, the posterior wedge shape removed substantially less bone than the other designs, with the remaining bone being of better quality.<sup>6</sup>

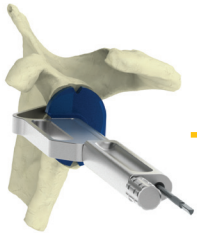


# The difference is clear

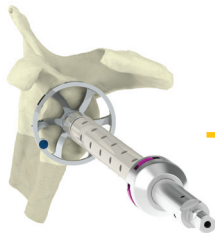
**Volumetric bone removal comparison**  
with different augmented glenoid designs<sup>6</sup>



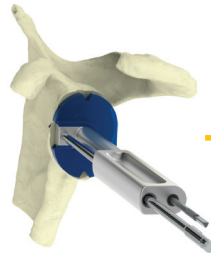
# The anatomic augment technique



Size and place pin



Paleo ream

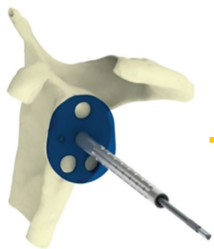


Anterior drill

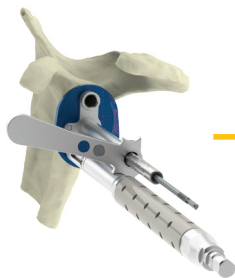


Neo ream





Check



Peg drill



Center drill



Trial

# Notes

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# Notes

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## References

- 1 Gilles Walch, MD; Roger Badet, MD; Aziz Boulahia, MD; Alfred Khoury, MD. Morphologic Study of the Glenoid in Primary Glenohumeral Osteoarthritis. *J of Arthroplasty*. 1999; 14(6).
- 2 Gilles Walch, MD; Allan A. Young, MD; Pascal Boileau, MD; Markus Loew, MD; Dominique Gazielly, MD and Daniel Molé, MD. Patterns of Loosening of Polyethylene Keeled Glenoid Components After Shoulder Arthroplasty for Primary Osteoarthritis. Results of a Multicenter Study with More Than Five Years of Follow-up.
- 3 Gilles Walch, MD; Allan A. Young, MD; Barbara Melis, MD; Dominique Gazielly, MD; Markus Loew, MD; Pascal Boileau, MD. Results of a convex-back cemented keeled glenoid component in primary osteoarthritis: multicenter study with a follow-up greater than 5 years
- 4 R. Sean Churchill, MD, Edwin E. Spencer Jr, MD, Edward V. Fehring, MD. Quantification of B2 glenoid morphology in total shoulder arthroplasty. *J Shoulder Elbow Surgery*. 2015; 24(8)
- 5 Juan C. Hermida, MD; Cesar Flores-Hernandez, BS; Heinz R. Hoenecke, MD; Darryl D. D’Lima, MD, PhD. Augmented wedge-shaped glenoid component for the correction of glenoid retroversion: a finite element analysis. *J Shoulder Elbow Surg* (2014) 23, 347-354
- 6 Nikolas K. Knowles, B. Eng, Louis M. Ferreira, PhD, George S. Athwal, MD, FRCSC. Augmented glenoid component designs for type B2 erosions: a computational comparison by volume of bone removal and quality of remaining bone. *J Shoulder Elbow Surg* (2015)

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### **Manufacturer:**

Tornier, Inc.  
10801 Nesbitt Avenue South  
Bloomington, MN 55437  
t: 888 867 6437  
t: 952 426 7600

[stryker.com](http://stryker.com)