Trident®

POLY ACETABULAR SYSTEM

Featuring:

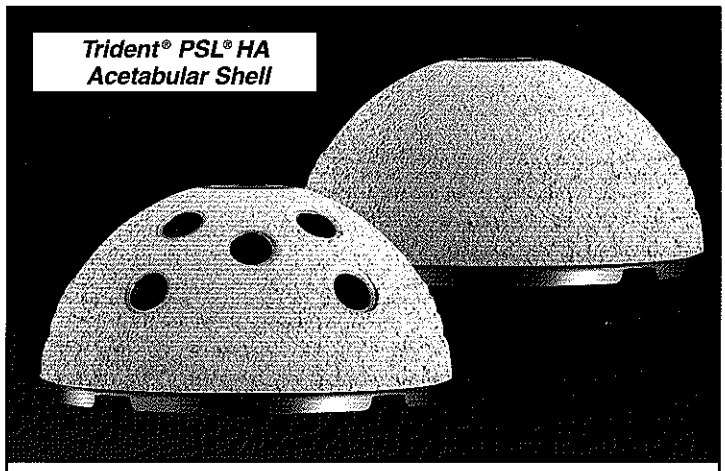
CROSSFIRE®
Crosslinked Polyethylene

Trident®
POLY ACETABULAR SYSTEM

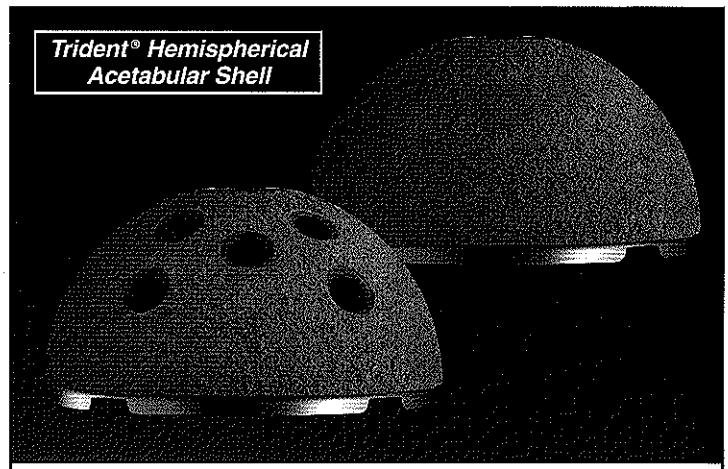
The Trident® Acetabular System has been implanted throughout the world since 1999 and, while commercially available, has also been included in a clinical evaluation through an IDE study in the United States. More than 10,000 Trident® shells have been implanted globally and the success of the Trident® System continues to expand in the US. All Trident® Acetabular Shells feature the Innerchange™ Locking Mechanism, which provides independent locking of polyethylene or ceramic inserts* into the shell.

The Trident® Acetabular System offers:

- Superior locking mechanisms for both polyethylene and ceramic inserts*
- Crossfire® polyethylene for improved wear performance
- The thickest polyethylene on the market
- Choice of shell geometries
- Arc-deposited roughened surface to help achieve immediate stability
- Purefix™ HA
- Eccentric and Constrained Inserts for revision options



The Trident® PSL® Acetabular Shells are designed to maximize fixation in the peripheral lunate region of the acetabulum. Purefix™ HA coating is featured on all Trident® PSL® shells.



Trident® Hemispherical Acetabular Shells are a true hemispherical shape designed to achieve press-fit fixation by under-reaming the acetabulum.

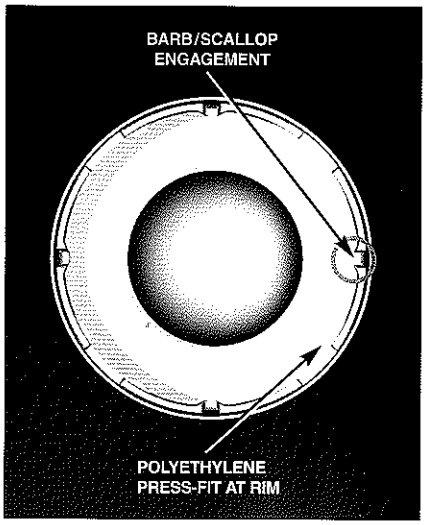
*Ceramic is not currently available in the US as of 7/15/2001.

Innerchange™ Locking Mechanism

The Innerchange™ Locking Mechanism allows for independent locking of polyethylene and ceramic inserts into the shell. This provides superior locking of both inserts without compromise.

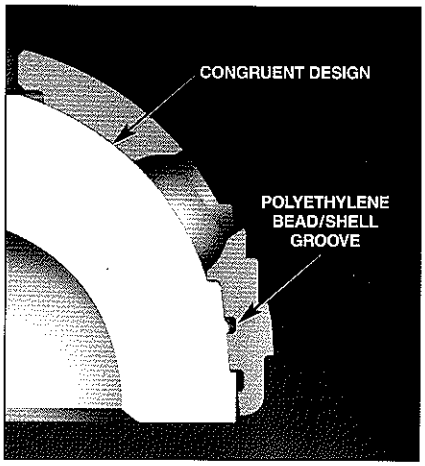
The Trident® polyethylene insert allows for proper rotational alignment using 12 indexable scallops. Polyethylene inserts lock into the shell in three ways:

- Four alignment studs on the shell provide proper rotational and axial alignment
- Unique bead and groove mechanism
- Additional rim locking provides for exceptional insert stability

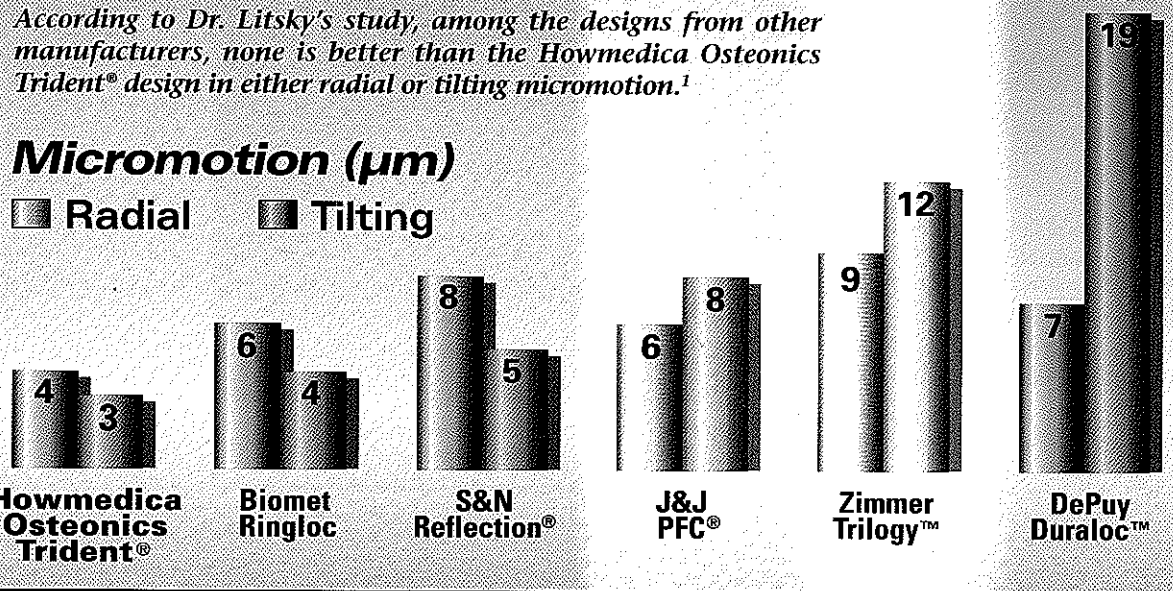


Extensively Tested Locking Mechanism

- Fully congruent design
- Independent testing by Alan Litsky, MD, PhD at Ohio State University[1]
- Robust push-out and lever-out resistance[2]
- Hip simulation testing with Crossfire® polyethylene has demonstrated improved wear performance[3]



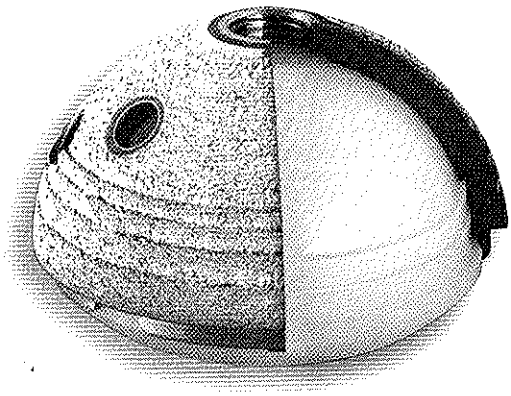
According to Dr. Litsky's study, among the designs from other manufacturers, none is better than the Howmedica Osteonics Trident® design in either radial or tilting micromotion.[1]



Polyethylene

Trident® polyethylene inserts are:

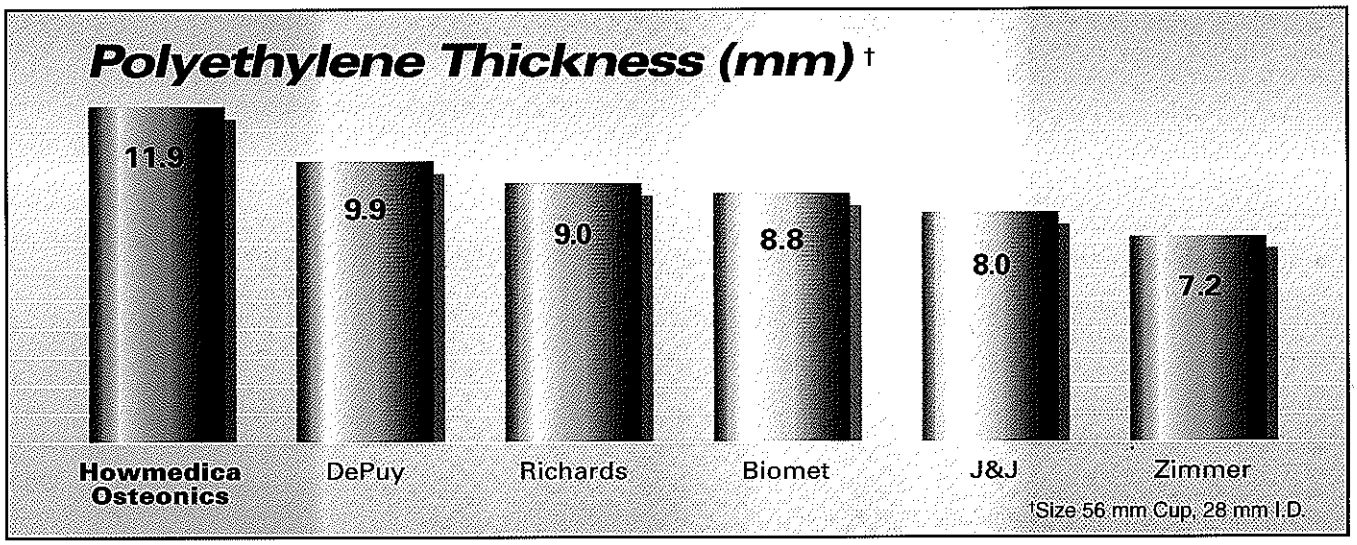
- Fully congruent to the shell
- Supported by extensive research on range of motion and head stability[10]
- Available in neutral, hooded and eccentric designs

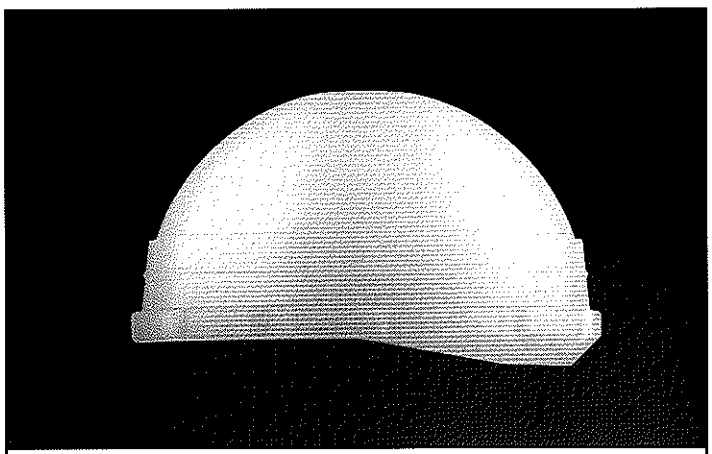


Shell fully supports the Trident® insert

Polyethylene Thickness

Polyethylene thickness plays an important role in the wear performance.[4] Size for size, the Trident® polyethylene inserts are the thickest in the industry.





10 degree hooded inserts are available with the Trident® System (shown here)

Crossfire® Highly Crosslinked Polyethylene

Crossfire® Highly Crosslinked polyethylene has demonstrated significant wear reduction compared to standard polyethylene. Howmedica Osteonics' technology and conservative process have allowed increased crosslinking while maintaining the material properties of the polyethylene.

- ***90% reduction in wear[5]***
  Crossfire® polyethylene demonstrates 90% reduction in wear over nitrogen sterilized polyethylene in joint simulation testing, thereby reducing the potential for osteolysis.

- ***Material properties are retained***
  The material properties of Crossfire® polyethylene are similar to those of standard polyethylene, as shown in ***Figure 1***.

- ***Preserves the polymer structure of UHMWPE***
  The crystalline and amorphous regions of Crossfire® are similar to standard polyethylene which suggests predictable clinical performance[6] (***Figure 2***).

- ***N_2/Vac™ packaging provides resistance to oxidation***
  Packaging polyethylene in an oxygen-free environment improves material toughness and strength on shelf-stored polyethylene up to 10 years.[7]

- ***Same particle size and shape as standard polyethylene***
  The biological response to Crossfire® particles is not expected to be different from standard polyethylene.

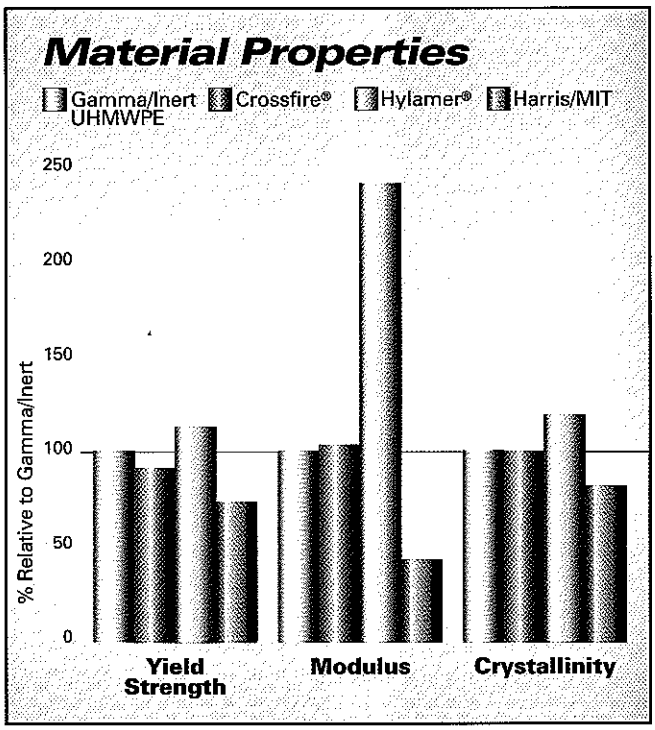


Figure 1 *Crossfire® polyethylene maintains similar yield strength, modulus and crystallinity as standard polyethylene. When these properties change significantly, the clinical wear performance cannot be predicted.*

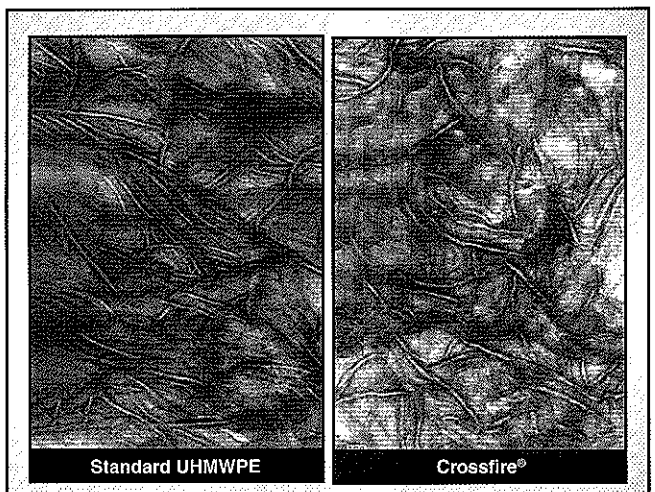


Figure 2 *Crossfire® exhibits a morphology that is very similar to that of standard UHMWPE*