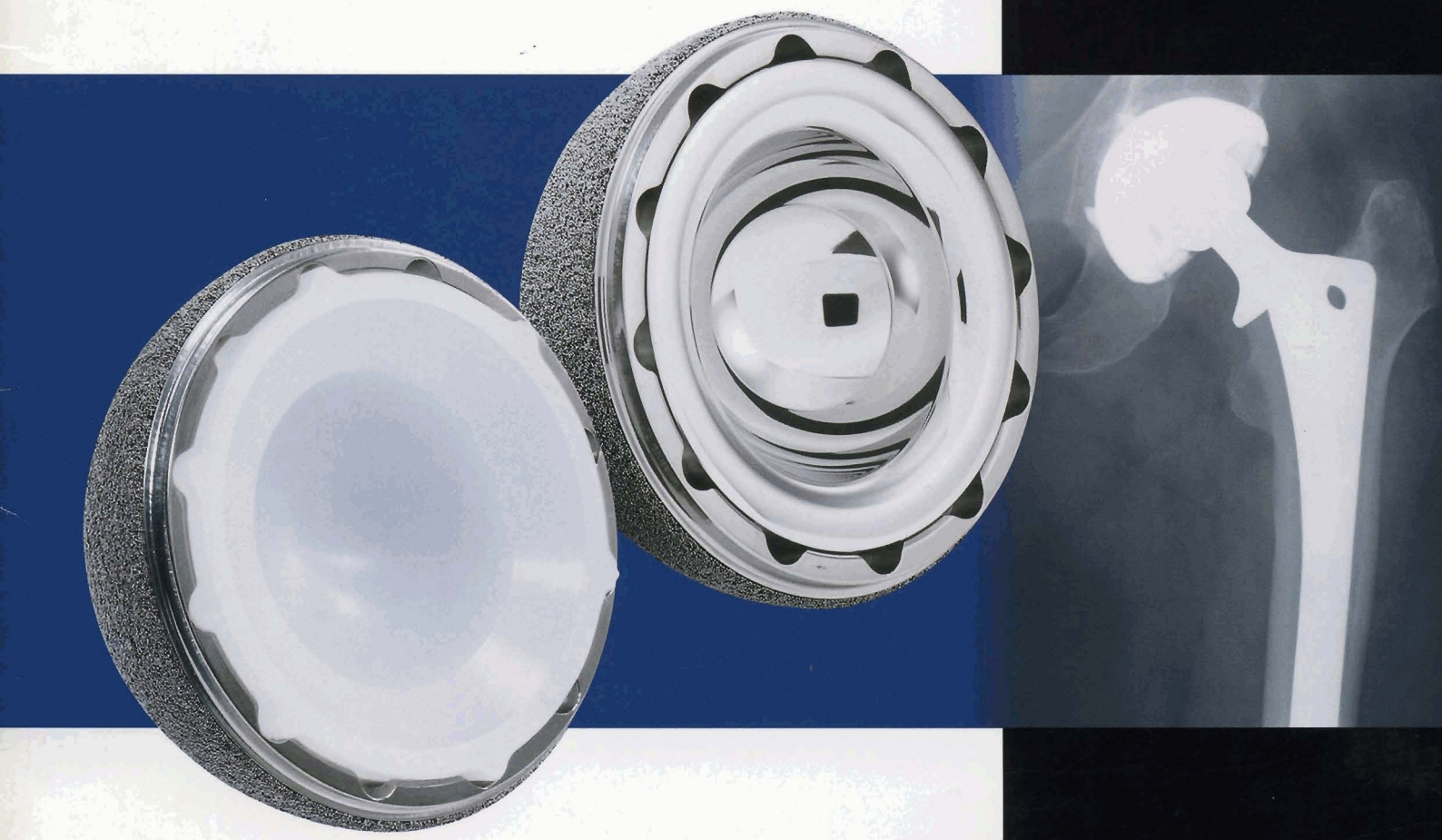
DESIGN RATIONALE

# PINNACLE™
## ACETABULAR CUP SYSTEM



- FIXATION FIRST
- ADVANCED MODULARITY
  - VIP TAPER
- MANAGING DISLOCATION
  - OPTIMIZING RANGE OF MOTION AND STABILITY
- WEAR REDUCTION

DePuy
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# PINNACLE™ SURGEON CONSULTANT DESIGN TEAM

The Pinnacle™ Acetabular Cup System was designed in conjunction with the following surgeons:

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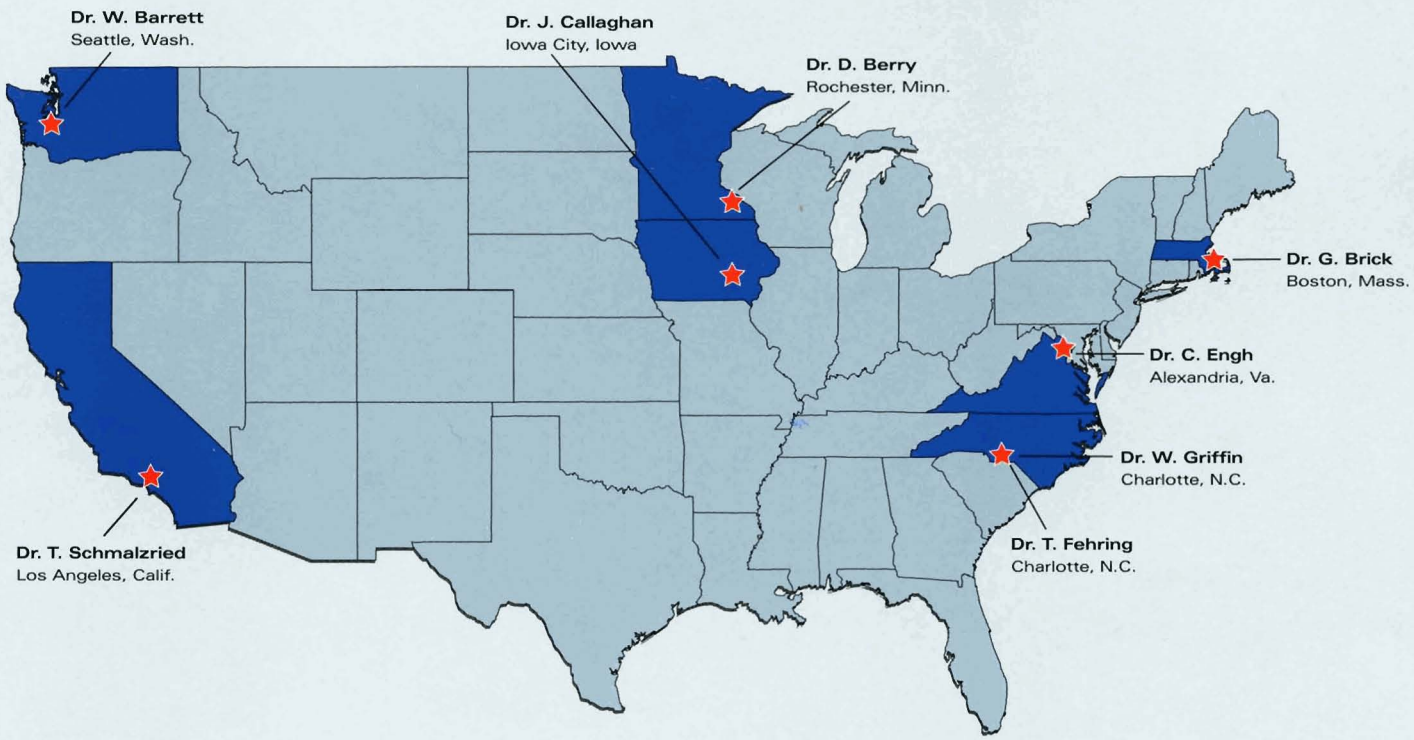
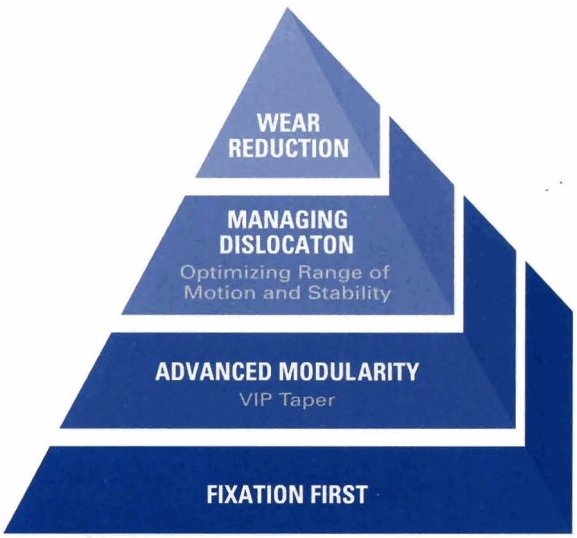


**The next generation acetabular cup system should build on the proven aspects of current designs, while offering new and innovative features to address outstanding issues in total hip arthroplasty (THA). Current opportunities for the improvement of THA include increased intraoperative flexibility, the management of dislocation and the use of advanced bearing surfaces for wear reduction. When designing reconstructive products to address these issues, remember that the long-term success of any acetabular component is predicated on a hierarchy of system requirements.**




## THA PYRAMID FOR SUCCESS

A successful THA outcome can only be realized by meeting the pyramid design requirements from the foundation up. Immediate and long-term bone/prosthesis fixation must first be achieved before the benefits of shell/liner modularity are realized. In turn, modularity is a requirement for the restoration of biomechanics in a diverse patient population. This modularity is also required to allow the surgeon options to manage dislocation in THA. Finally, as the bone/shell/liner construct stays intact for longer periods of time, the importance of wear reduction becomes much more pronounced.

### WEAR REDUCTION

The Pinnacle Acetabular Cup System's advanced bearing options for wear reduction include Marathon® Cross-linked Polyethylene liners and Ultamet™ metal inserts. Marathon polyethylene has demonstrated an 86 percent wear reduction in hip simulator studies compared to standard polyethylene and offers superior long-term oxidative stability.[1-3] Ultamet metal inserts produce a fraction of the wear seen in metal/polyethylene articulations and offer an uncompromised option for utilizing this technology.

### MANAGING DISLOCATION
OPTIMIZING RANGE OF MOTION AND STABILITY

Multiple polyethylene liner and alternative bearing options allow surgical flexibility in restoring proper patient biomechanics. In addition to standard neutral polyethylene liners, the Pinnacle system offers lateralized, lipped and face-changing liners in a variety of head diameters. The availability of a 36 mm inner diameter polyethylene or metal bearing provides an important, nonconstrained option for addressing instability and dislocation.

### ADVANCED MODULARITY
VIP TAPER

The Pinnacle Acetabular Cup System realizes an improvement in the use of modularity through the patented Variable Interface Prosthesis (VIP) taper. In addition to providing increased shell/polyethylene congruency and decreased micromotion of the polyethylene liner, this locking mechanism is ideal for the use of hard bearing surfaces.

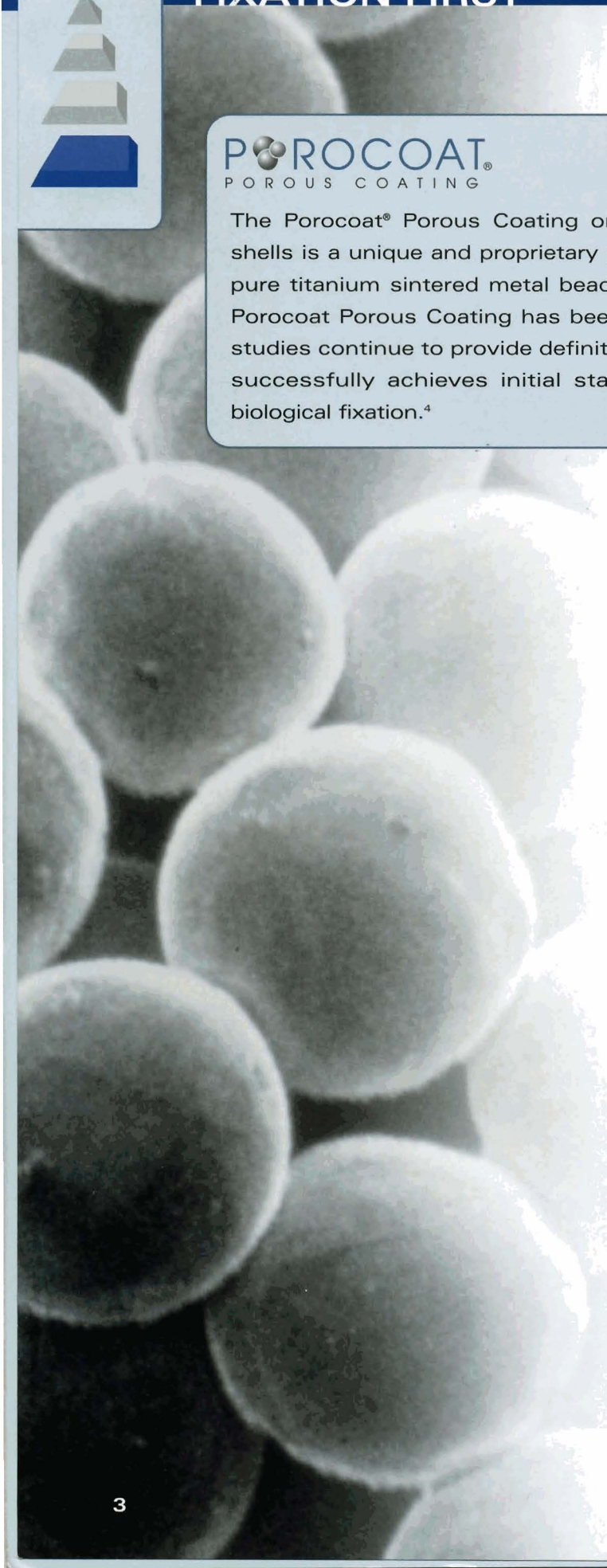
### FIXATION FIRST

Immediate and long-term fixation of the acetabular shell to host bone is the foundation for achieving a successful clinical outcome.

# FIXATION FIRST

## POROCOAT®
POROUS COATING

The Porocoat® Porous Coating on the backside of all Pinnacle acetabular shells is a unique and proprietary porous surface composed of commercially pure titanium sintered metal beads. The successful clinical performance of Porocoat Porous Coating has been tracked for more than 25 years. Clinical studies continue to provide definitive evidence that Porocoat Porous Coating successfully achieves initial stability and provides extensive long-term biological fixation.[4]



### POROCOAT POROUS COATING FEATURES

- Pore size of 250 microns, which is documented in laboratory studies to be the optimum size for penetration of bone tissue. Pores below 50 microns may restrict blood vessel development and hinder uniform maturation of tissue. In larger pores, 400 microns and above, ingrowth may be slow, inconsistent and fibrous.[5]

- Sintered beads are arranged to produce higher porosity on the outer edge and lower porosity at the substrate. This porosity gradient helps optimize the volume and density of ingrowth.

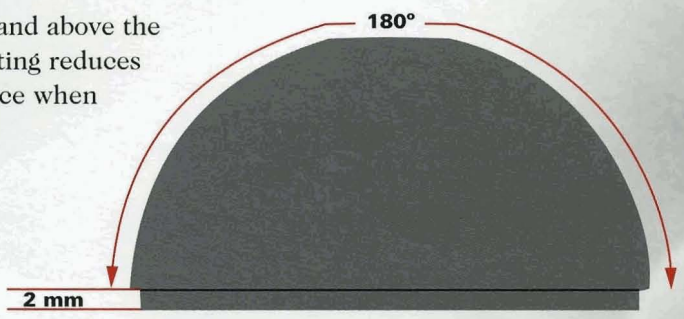
- Superior bond strength at the substrate/implant interface.

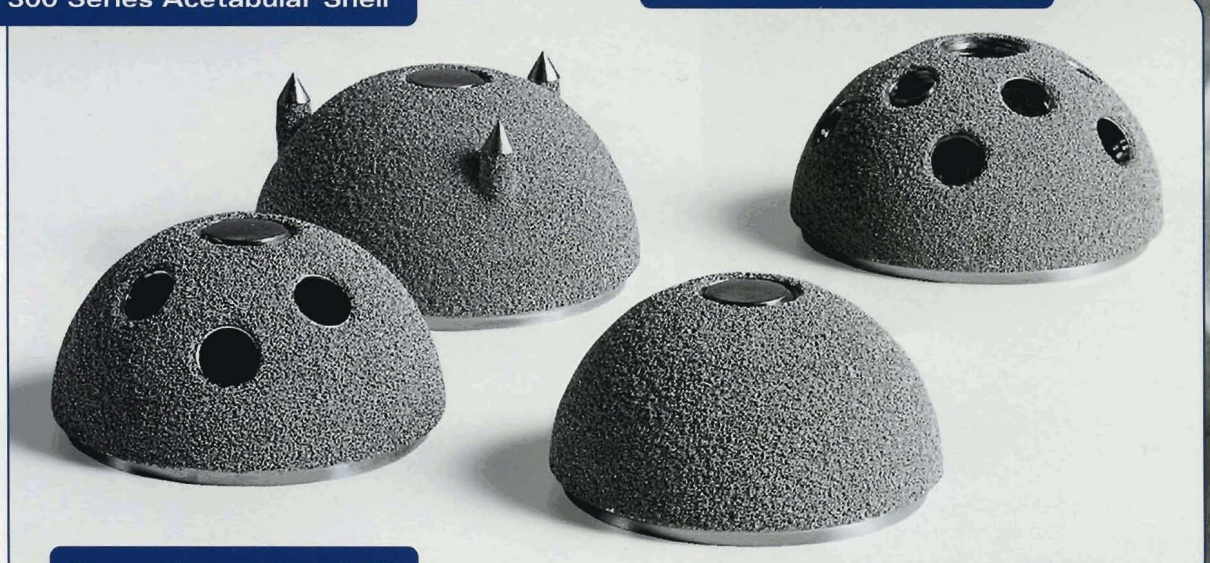
- High coefficient of friction enhances the "scratch-fit" and improves the initial stability of the acetabular shell.

## ACETABULAR SHELL OPTIONS

Pinnacle acetabular shells are offered in a variety of styles to treat both primary and revision cases. Features common to all Pinnacle acetabular shells include:

- Manufactured from titanium alloy.
- Full profile shell design with 180 degrees of Porocoat Porous Coating for maximized contact with host bone.
- An apical hole, which is utilized for cup impaction and for visualization to ensure complete seating of the shell in the acetabulum.
- A 2 mm peripheral band above the Porocoat Porous Coating reduces soft tissue interference when seating the liner.



# FIXATION FIRST

Pinnacle 100 Series Acetabular Shell with an S-ROM® femoral stem

## PINNACLE 100 SERIES ACETABULAR SHELL

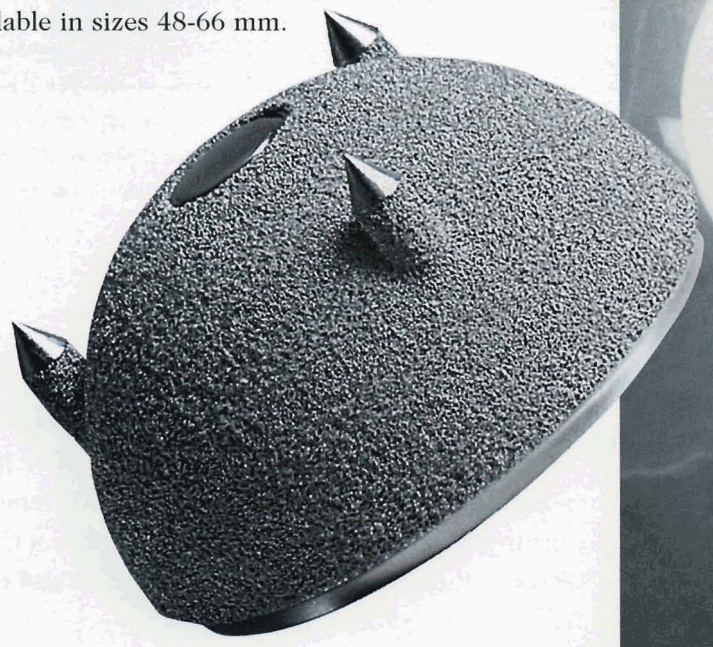
- Maximizes host bone contact with Porocoat Porous Coating for biological fixation.
- Available in sizes 48-66 mm.

## PINNACLE SECTOR ACETABULAR SHELL

- Three screw holes for optional adjunct fixation.
- Screw hole pattern allows screw access to the ilium and posterior column, which are documented areas for safe screw placement.
- Available in sizes 48-66 mm.

## PINNACLE 300 SERIES ACETABULAR SHELL

- Three porous-coated spikes enhance initial fixation.
- Spike length is designed to engage the dome of the acetabulum as the rim of the shell engages the periphery of the acetabulum to enhance directional stability of the shell upon impaction.
- Available in sizes 48-66 mm.



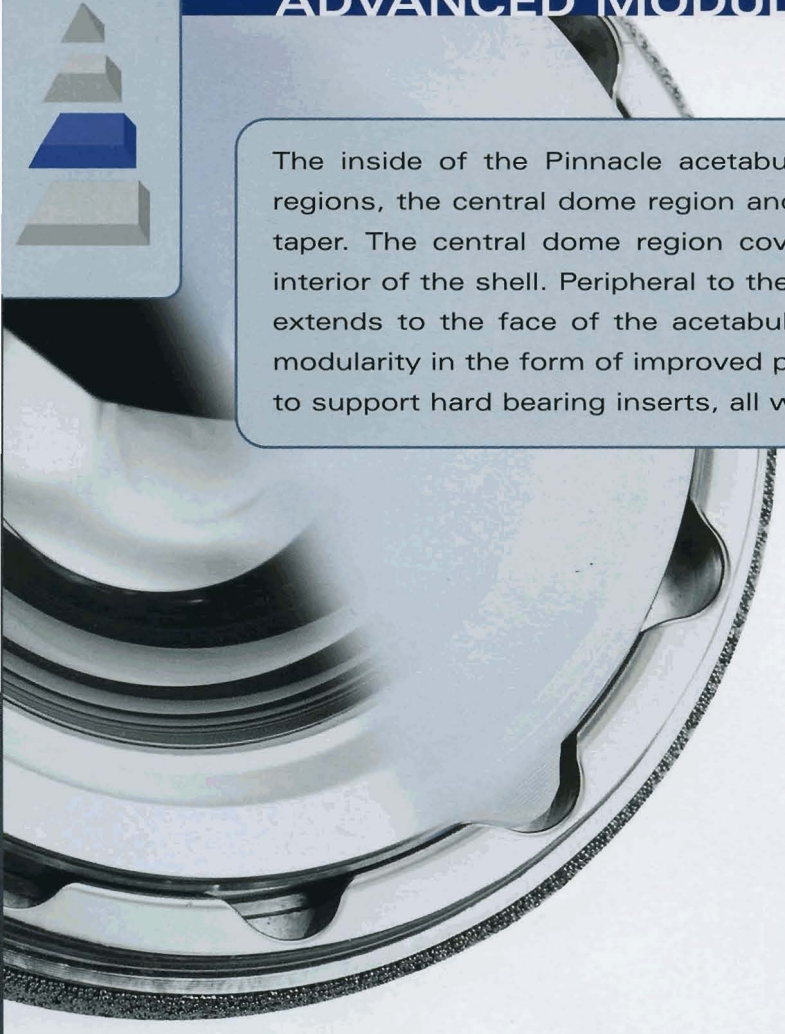
## PINNACLE MULTIHOLE ACETABULAR SHELL

- Eight to 12 screw holes, depending on shell size, for optional adjunct fixation.
- Available in sizes 48-66 mm.

Pinnacle 300 Series Acetabular Shell with a Prodigy® femoral stem

# ADVANCED MODULARITY VIP TAPER

The inside of the Pinnacle acetabular shell is comprised of two distinct regions, the central dome region and the Variable Interface Prosthesis (VIP) taper. The central dome region covers approximately 140 degrees of the interior of the shell. Peripheral to the dome is the patented VIP taper, which extends to the face of the acetabular shell. This taper provides advanced modularity in the form of improved polyethylene performance and the ability to support hard bearing inserts, all without compromise.

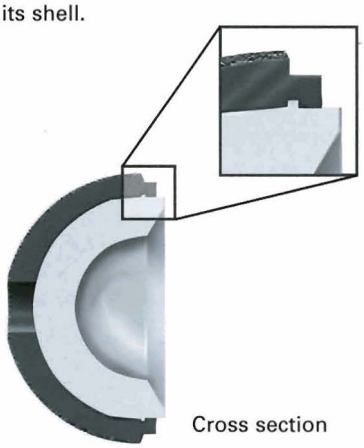


## DOME LOADING OF POLYETHYLENE LINERS

The Pinnacle Acetabular Cup System is designed for optimum polyethylene performance. The high percentage of dome support of the polyethylene liner ensures maximum polyethylene/shell contact. As a result, efficient load transfer is achieved and contact stresses are substantially reduced.

## VIP TAPER
## Polyethylene Liner Macrostability

1. For resistance to cantilever forces, a ring of polyethylene around the periphery of the liner locks into a corresponding groove in the acetabular shell. An average moment of 303 in.• lb. is required to lever a Pinnacle polyethylene liner from its shell.



Cross section

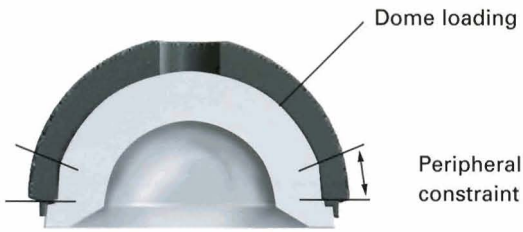
2. For resistance to torsional loads, six anti-rotation devices (ARDS) in the face of the liner lock into any one of 12 scallops at the face of the acetabular shell. An average torque of 387 in.• lb. is required to rotate a Pinnacle liner in its shell.

Cross section through scallop

Rotation

## VIP TAPER
## Polyethylene Liner Microstability

1. The VIP taper incorporates a slight interference fit between the polyethylene liner taper and shell taper to enhance shell/liner stability. The shared loading of the polyethylene liners in both the peripheral region (VIP taper) and the dome results in maximized congruency.

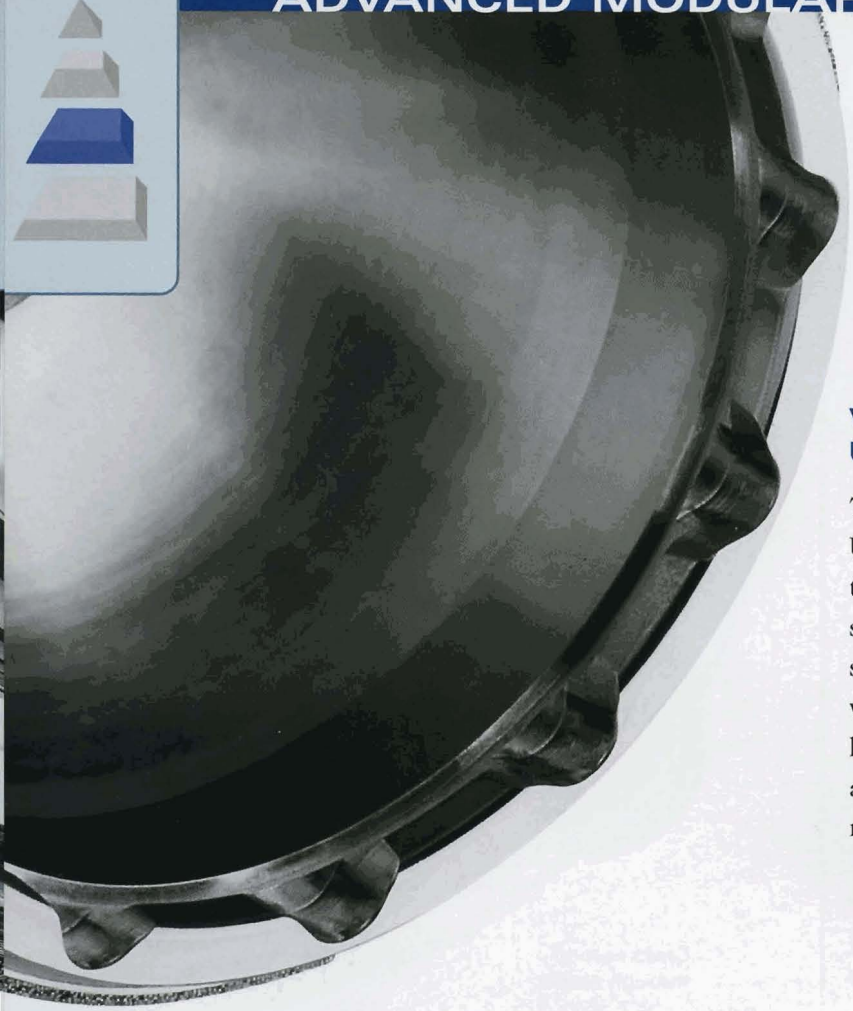



2. In addition, the shared loading of the Pinnacle Acetabular Cup System significantly reduces micromotion at the shell/liner interface in three planes of motion: toggle, rotation and pistoning, thereby reducing the potential for generation of polyethylene wear debris at the interface.[1]

Toggle

Rotation

Pistoning



## VIP TAPER
## ULTAMET METAL INSERTS

The VIP taper also serves as the locking mechanism for Ultamet metal inserts. The self-locking VIP taper secures the metal insert into the Pinnacle acetabular shell in the same way that a modular head is attached to a femoral stem. This allows modularity of the shell/insert construct without requiring the use of polyethylene as a part of the locking mechanism. The taper-locking junction is also a proven method of assembling two components, while minimizing fretting and corrosion at the modular interface.[1]

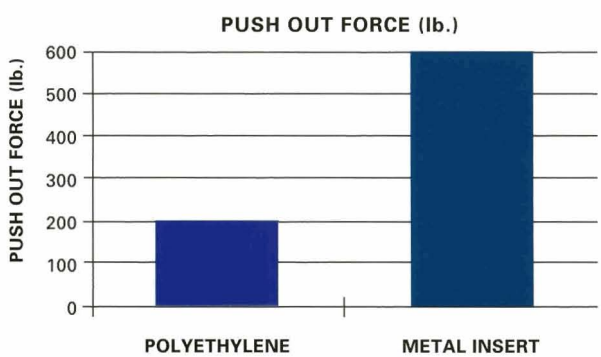

**A gap in the dome region between the Ultamet metal insert and shell ensures complete engagement at the taper interface.**

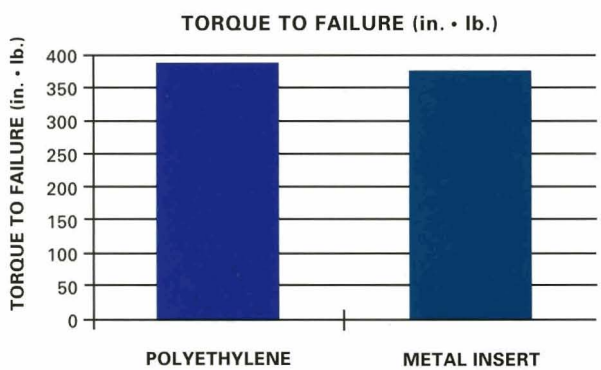
## VIP TAPER
## Metal Insert Macrostability

The design of the VIP taper ensures both macro- and microstability of the Ultamet metal insert. An average of 600 lb. is required to axially dislodge an Ultamet insert after impaction. An average of 360 in. • lb. is required to torque an Ultamet metal insert in a Pinnacle shell.

## VIP TAPER
## Metal Insert Microstability

The microstability of the Pinnacle shell/Ultamet metal insert combination was evaluated by reviewing the effect of material mismatch (Ti and CoCr), as well as the effect of taper geometry in fretting and corrosion at the taper interface. Independent university testing showed that the fretting and corrosion potential of Ultamet metal inserts is less than or equal to that of standard modular femoral heads on femoral components.[1]



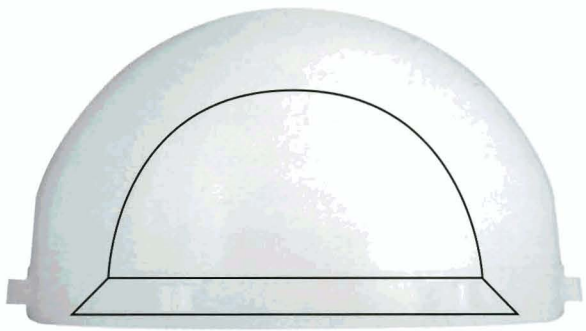



## POLYETHYLENE LINER CONFIGURATIONS

The Pinnacle Acetabular Cup System offers multiple liner options in standard polyethylene and Marathon Cross-linked Polyethylene to address the restoration of patient biomechanics and reduce the potential for mechanical impingement.

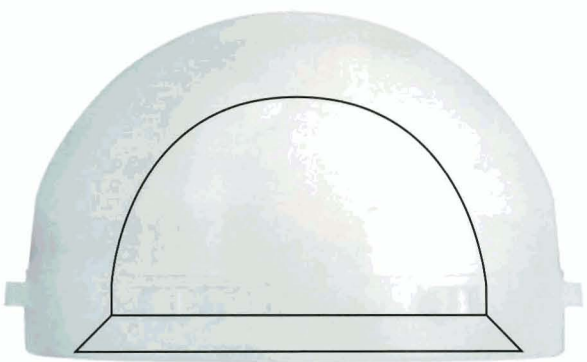
### NEUTRAL

- 180 degrees of femoral head coverage.
- The liner face is symmetric about the acetabular shell face.
- Offered in 28, 32 and 36 mm IDs.



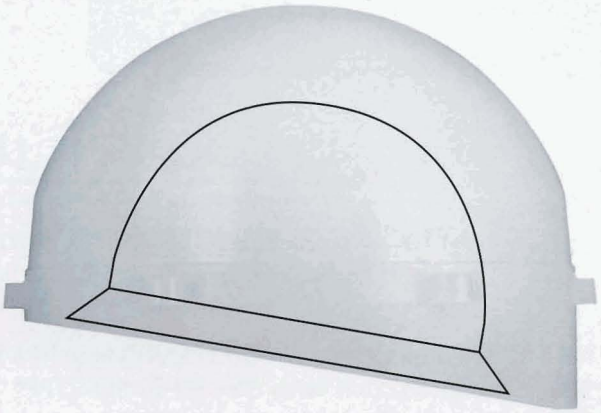
### +4 mm NEUTRAL

- 180 degrees of femoral head coverage.
- Head center is lateralized 4 mm.
- Offered in 28, 32 and 36 mm IDs.



## +4 10-DEGREE FACE-CHANGING

- 180 degrees of femoral head coverage.
- Head center is lateralized 4 mm.
- The face of the liner is located at a 10-degree angle relative to the shell face.
- The use of this liner will effectively shift the available range of motion by 10 degrees, depending on rotation of the liner within the shell.
- A +4 10-degree face-changing liner can also be indicated for revision THA. The +4 lateralization helps tighten the joint space, while the 10-degree shift in range of motion may be useful when multiple surgical approaches to the hip leave less than optimum soft tissue for repair.
- Offered in 28, 32 and 36 mm IDs.

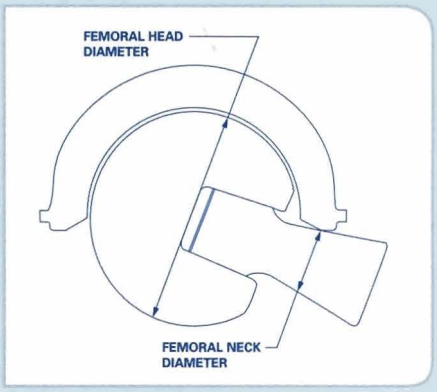


## LIPPED LINER

- 180 degrees of femoral head coverage plus a 4 mm build-up for added stability.
- In addition to the 4 mm build-up, the use of this liner will effectively shift the available range of motion by 15 degrees, depending on rotation of the liner within the shell.
- Offered in 28 and 32 mm IDs.

## INCREASING FEMORAL HEAD DIAMETER

The head/neck ratio is defined as the diameter of the femoral head/diameter of the femoral component neck at the point of impingement. By increasing the femoral head diameter or decreasing the femoral component neck diameter, the available range of motion prior to mechanical impingement is improved. In addition, the total distance required to completely dislocate the femoral head from the liner increases as the head diameter increases, indicating an increase in hip stability.



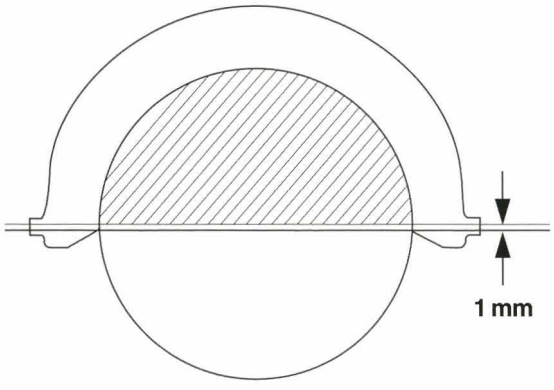

While both the Pinnacle 36 mm Marathon Cross-linked Polyethylene and the 36 mm Ultamet metal-on-metal insert benefit from an increased head/neck ratio, subtle design differences allow stability to be prioritized in the polyethylene bearings and range of motion to be prioritized in the metal bearings.

MARATHON.
CROSS-LINKED POLYETHYLENE

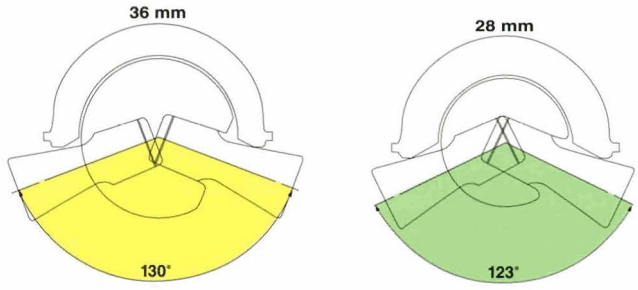
## 36 mm MARATHON POLYETHYLENE LINERS

### Optimized For Stability

- All Pinnacle 36 mm polyethylene liners have a 1 mm cylindrical bore above 180 degrees of femoral head coverage, which provides additional resistance to dislocation by increasing the subluxation distance.

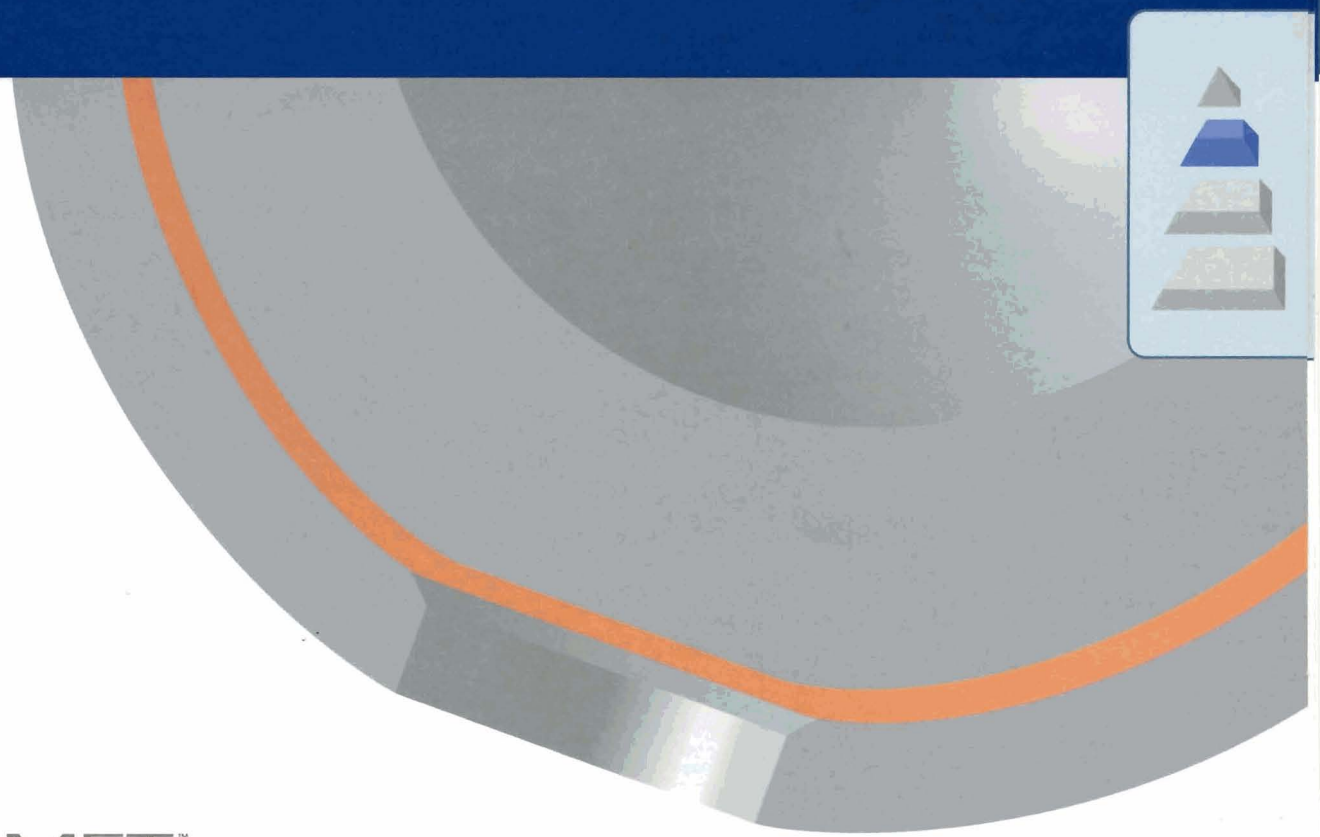



- 36 mm Pinnacle Marathon liners are available in three configurations for proper restoration of hip biomechanics:
  - Neutral in sizes 56-66 mm
  - +4 mm neutral in sizes 54-66 mm
  - +4 10-degree face-changing in sizes 54-66 mm
- All Pinnacle 36 mm ID Marathon liners maintain a minimum of 6 mm polyethylene thickness in the dome and at 45 degrees.
- 36 mm Marathon Cross-linked Polyethylene liners used in conjunction with 36 mm Articul/eze® 12/14 taper or S-ROM 11/13 taper femoral heads provide an improved head/neck ratio, which leads to increased range of motion prior to mechanical impingement.




**Range of motion calculated with Articul/eze 12/14 taper, AML® stem.**

- 36 mm femoral heads allow several "nonskirted" neck lengths for restoration of biomechanics and optimized stability:
  - 12/14 Articul/eze –2, +1.5, +5, +8.5, +12
  - 11/13 S-ROM +0, +3, +6, +9



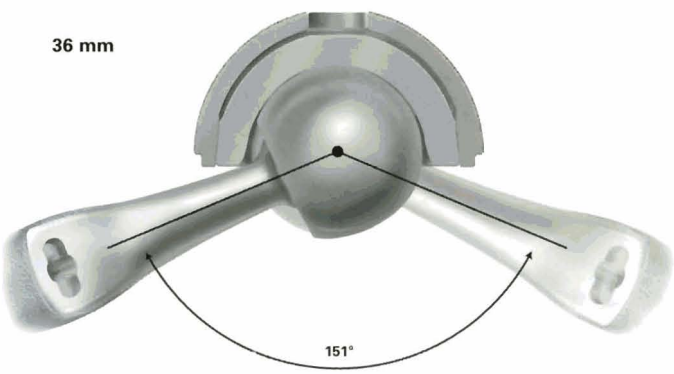
# ULTAMET™

Metal-on-Metal Articulation

## 36 mm ULTAMET METAL INSERTS

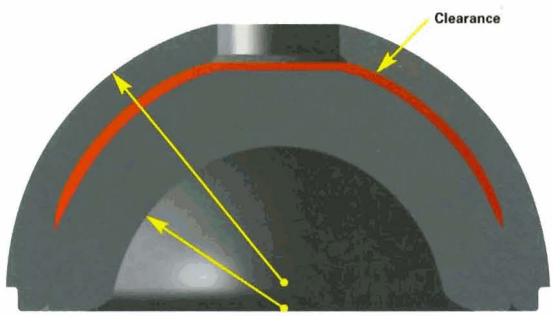
### Optimized For Range Of Motion

- 36 mm Ultamet metal inserts used in conjunction with 36 mm Articul/eze 12/14 taper or S-ROM 11/13 taper femoral heads provide an improved head/neck ratio, which leads to increased range of motion prior to mechanical impingement.




- 36 mm femoral heads allow several "nonskirted" neck lengths for maximized range of motion:
  - 12/14 Articul/eze –2, +1.5, +5, +8.5, +12
  - 11/13 S-ROM +0, +3, +6, +9

- The center of rotation of the femoral head, for both the Ultamet 28 and 36 mm metal inserts, is lateralized 2 mm compared to a neutral polyethylene liner. The lateralization of these inserts in conjunction with the option of several nonskirted neck lengths of 36 mm femoral heads is designed to help accommodate variable patient anatomy by restoring appropriate neck length, offset and leg length. The variation in femoral neck length is also attained without sacrificing range of motion.



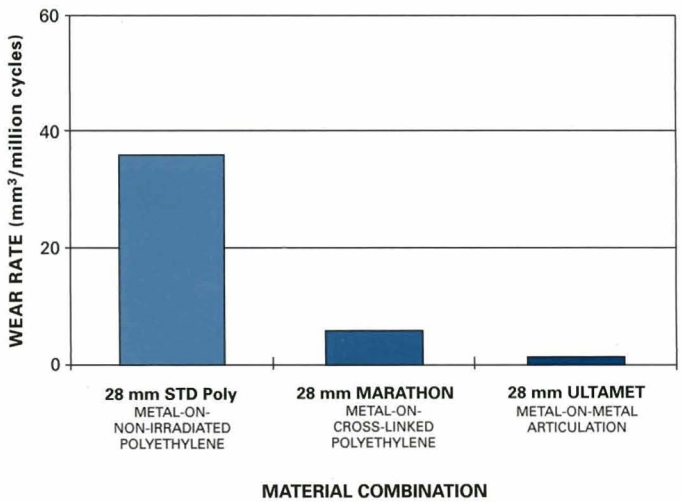

2 mm head center lateralization with all Ultamet inserts.

- Ultamet 28 mm metal inserts are available to fit Pinnacle shell sizes 48-60 mm.
- Ultamet 36 mm metal inserts are available to fit Pinnacle shell sizes 52-66 mm.
- Ultamet metal inserts must be used in conjunction with "M" specification femoral heads.

# WEAR REDUCTION

Many second generation acetabular cup designs have provided solutions to issues regarding biological fixation and shell/liner macrostability. Success with these designs has allowed the industry to focus on other emerging issues, such as wear-induced osteolysis. New technologies, such as cross-linked polyethylene and hard-on-hard bearing surfaces have been introduced as low-wear bearing options.

The Pinnacle Acetabular Cup System offers both Marathon Cross-linked Polyethylene and Ultamet metal inserts as advanced bearing options for wear reduction.

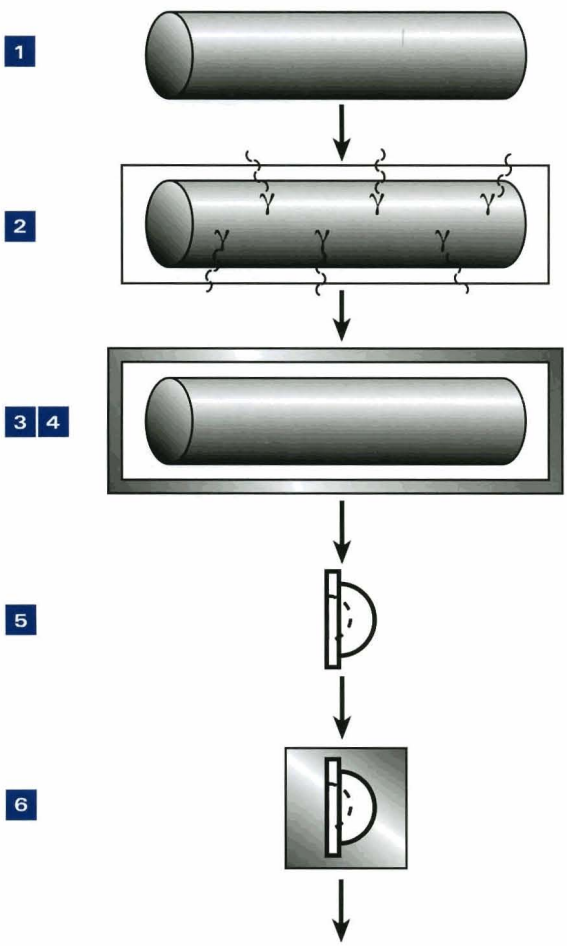


MARATHON.
CROSS-LINKED POLYETHYLENE

## PINNACLE CUP AND MARATHON CROSS-LINKED POLYETHYLENE

The manufacturing process for Marathon polyethylene combines the wear reduction benefits of gamma cross-linking with oxidative stability to produce an 86 percent reduction in hip simulator wear rates when compared to noncross-linked polyethylene.[1-3]

- First FDA cleared cross-linked polyethylene, November 1997.




**RESULTS**

The Marathon process provides 86 percent wear reduction in hip simulator studies, no free radicals and reduced oxidation. Marathon polyethylene is optimally cross-linked and processed for clinical success.[1-3]

**FIXATION FIRST**
**WEAR REDUCTION**
**OXIDATIVE STABILITY**
**MECHANICAL INTEGRITY**
**PROVEN TECHNOLOGY**

**1 RAW MATERIAL**
Quality controlled, calcium stearate-free polyethylene.

**2 RADIATION CROSS-LINKING**
Consolidated polyethylene is treated with 5 Mrad of gamma radiation to induce cross-linking. The creation of free radicals during this process is a by-product of this step.

**3 THERMAL TREATMENT**
Irradiated polyethylene bars are thermally treated through a patented, proprietary process to force molecular recombination, extinguish free radicals, enhance material consolidation and reduce oxidative potential.

**4 QUALITY ASSURANCE**
After thermal treatment, each Marathon polyethylene bar is thoroughly tested using electron spin resonance (ESR). This test confirms the elimination of free radicals, assuring oxidative resistance.

**5 MANUFACTURING**
Cross-linked polyethylene bars are precision-manufactured into liners and packaged.

**6 GAS PLASMA TERMINAL STERILIZATION**
Packaged liners are gas plasma sterilized. This technique does not alter the polyethylene's molecular structure or introduce free radicals.

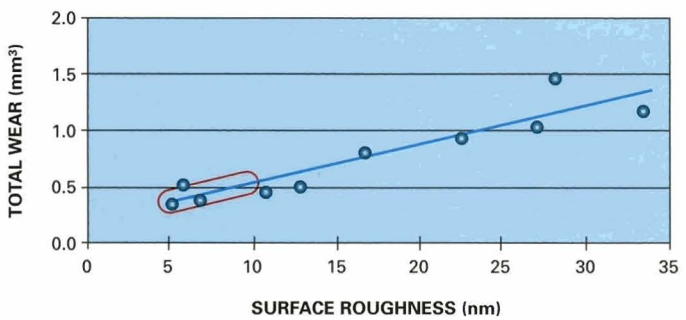
**All Pinnacle polyethylene liners are available in Marathon Cross-linked Polyethylene.**

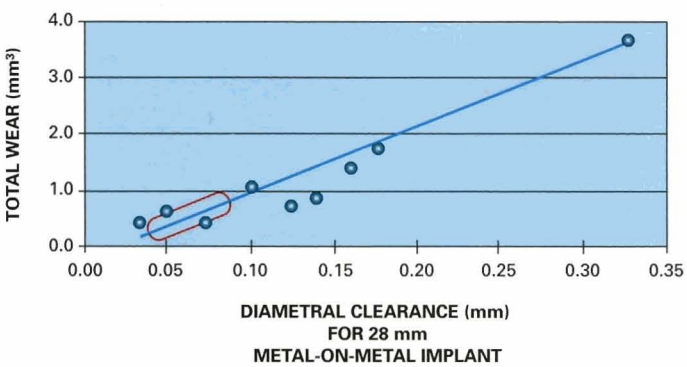
ULTAMET™
Metal-on-Metal Articulation

## PINNACLE CUP AND ULTAMET METAL-ON-METAL ARTICULATION

Metal-on-metal implants have been shown in both retrieval and laboratory studies to experience up to two orders of magnitude less wear compared with conventional metal-on-polyethylene implants.[6-10] Therefore, the use of metal-on-metal hip implants may provide tremendous clinical benefit from the standpoint of greatly improved wear performance.

**28 mm METAL-ON-METAL ARTICULATION**



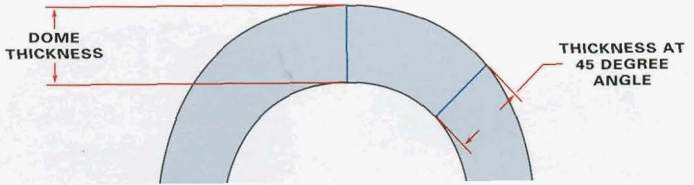




**In the above charts, the 28 mm Ultamet metal insert range is shown in red.**

The Ultamet Metal-on-Metal Articulation for the Pinnacle Acetabular Cup System has been designed for optimized wear performance with respect to the key engineering issues for metal-on-metal articulation: material, processing, clearance and surface finish. Sophisticated equipment and precision craftsmanship, combined with extensive quality control measures, ensure that all Ultamet components meet these rigorous specifications.

- Ultamet metal inserts are manufactured from high-carbon wrought alloy forgings.
- Ultamet metal inserts maintain optimal clearance to ensure that the bearing receives adequate lubrication for reduction of wear and friction.
- Low surface roughnesses enhance the potential for fluid film lubrication at the articular surface.
- Ultamet metal inserts are available with 28 and 36 mm IDs.

There is a minimum of 6 mm of polyethylene thickness in the load-bearing area of all Pinnacle liners.



# ORDERING INFORMATION

## 28 mm STANDARD POLYETHYLENE LINER OPTIONS

| Pinnacle Standard Poly<br>Neutral 28 mm ID Liners | |
|---|---|
| Cat. No. | OD (mm) |
| 1218-28-048 | 48 |
| 1218-28-050 | 50 |
| 1218-28-052 | 52 |
| 1218-28-054 | 54 |
| 1218-28-056 | 56 |
| 1218-28-058 | 58 |
| 1218-28-060 | 60 |
| 1218-28-062 | 62 |
| 1218-28-064 | 64 |
| 1218-28-066 | 66 |

| Pinnacle Standard Poly<br>+4 Neutral 28 mm ID Liners | |
|---|---|
| Cat. No. | OD (mm) |
| 1218-28-448 | 48 |
| 1218-28-450 | 50 |
| 1218-28-452 | 52 |
| 1218-28-454 | 54 |
| 1218-28-456 | 56 |
| 1218-28-458 | 58 |
| 1218-28-460 | 60 |
| 1218-28-462 | 62 |
| 1218-28-464 | 64 |
| 1218-28-466 | 66 |

| Pinnacle Standard Poly<br>+4 10 Degree 28 mm ID Liners | |
|---|---|
| Cat. No. | OD (mm) |
| 1218-28-148 | 48 |
| 1218-28-150 | 50 |
| 1218-28-152 | 52 |
| 1218-28-154 | 54 |
| 1218-28-156 | 56 |
| 1218-28-158 | 58 |
| 1218-28-160 | 60 |
| 1218-28-162 | 62 |
| 1218-28-164 | 64 |
| 1218-28-166 | 66 |

| Pinnacle Standard Poly<br>Lipped 28 mm ID Liners | |
|---|---|
| Cat. No. | OD (mm) |
| 1218-28-248 | 48 |
| 1218-28-250 | 50 |
| 1218-28-252 | 52 |
| 1218-28-254 | 54 |
| 1218-28-256 | 56 |
| 1218-28-258 | 58 |
| 1218-28-260 | 60 |
| 1218-28-262 | 62 |
| 1218-28-264 | 64 |
| 1218-28-266 | 66 |

## 28 mm MARATHON CROSS-LINKED POLYETHYLENE LINER OPTIONS

| Pinnacle Marathon Poly<br>Neutral 28 mm ID Liners | |
|---|---|
| Cat. No. | OD (mm) |
| 1219-28-048 | 48 |
| 1219-28-050 | 50 |
| 1219-28-052 | 52 |
| 1219-28-054 | 54 |
| 1219-28-056 | 56 |
| 1219-28-058 | 58 |
| 1219-28-060 | 60 |
| 1219-28-062 | 62 |
| 1219-28-064 | 64 |
| 1219-28-066 | 66 |

| Pinnacle Marathon Poly<br>+4 Neutral 28 mm ID Liners | |
|---|---|
| Cat. No. | OD (mm) |
| 1219-28-448 | 48 |
| 1219-28-450 | 50 |
| 1219-28-452 | 52 |
| 1219-28-454 | 54 |
| 1219-28-456 | 56 |
| 1219-28-458 | 58 |
| 1219-28-460 | 60 |
| 1219-28-462 | 62 |
| 1219-28-464 | 64 |
| 1219-28-466 | 66 |

| Pinnacle Marathon Poly<br>+4 10 Degree 28 mm ID Liners | |
|---|---|
| Cat. No. | OD (mm) |
| 1219-28-148 | 48 |
| 1219-28-150 | 50 |
| 1219-28-152 | 52 |
| 1219-28-154 | 54 |
| 1219-28-156 | 56 |
| 1219-28-158 | 58 |
| 1219-28-160 | 60 |
| 1219-28-162 | 62 |
| 1219-28-164 | 64 |
| 1219-28-166 | 66 |

| Pinnacle Marathon Poly<br>Lipped 28 mm ID Liners | |
|---|---|
| Cat. No. | OD (mm) |
| 1219-28-248 | 48 |
| 1219-28-250 | 50 |
| 1219-28-252 | 52 |
| 1219-28-254 | 54 |
| 1219-28-256 | 56 |
| 1219-28-258 | 58 |
| 1219-28-260 | 60 |
| 1219-28-262 | 62 |
| 1219-28-264 | 64 |
| 1219-28-266 | 66 |

## 32 mm STANDARD POLYETHYLENE LINER OPTIONS

| Pinnacle Standard Poly<br>Neutral 32 mm ID Liners | |
|---|---|
| Cat. No. | OD (mm) |
| 1218-32-052 | 52 |
| 1218-32-054 | 54 |
| 1218-32-056 | 56 |
| 1218-32-058 | 58 |
| 1218-32-060 | 60 |
| 1218-32-062 | 62 |
| 1218-32-064 | 64 |
| 1218-32-066 | 66 |

| Pinnacle Standard Poly<br>+4 Neutral 32 mm ID Liners | |
|---|---|
| Cat. No. | OD (mm) |
| 1218-32-452 | 52 |
| 1218-32-454 | 54 |
| 1218-32-456 | 56 |
| 1218-32-458 | 58 |
| 1218-32-460 | 60 |
| 1218-32-462 | 62 |
| 1218-32-464 | 64 |
| 1218-32-466 | 66 |

| Pinnacle Standard Poly<br>+4 10 Degree mm 32 ID Liners | |
|---|---|
| Cat. No. | OD (mm) |
| 1218-32-152 | 52 |
| 1218-32-154 | 54 |
| 1218-32-156 | 56 |
| 1218-32-158 | 58 |
| 1218-32-160 | 60 |
| 1218-32-162 | 62 |
| 1218-32-164 | 64 |
| 1218-32-166 | 66 |

| Pinnacle Standard Poly<br>Lipped 32 mm ID Liners | |
|---|---|
| Cat. No. | OD (mm) |
| 1218-32-252 | 52 |
| 1218-32-254 | 54 |
| 1218-32-256 | 56 |
| 1218-32-258 | 58 |
| 1218-32-260 | 60 |
| 1218-32-262 | 62 |
| 1218-32-264 | 64 |
| 1218-32-266 | 66 |

## 32 mm MARATHON CROSS-LINKED POLYETHYLENE LINER OPTIONS

| Pinnacle Marathon Poly<br>Neutral 32 mm ID Liners | |
|---|---|
| Cat. No. | OD (mm) |
| 1219-32-052 | 52 |
| 1219-32-054 | 54 |
| 1219-32-056 | 56 |
| 1219-32-058 | 58 |
| 1219-32-060 | 60 |
| 1219-32-062 | 62 |
| 1219-32-064 | 64 |
| 1219-32-066 | 66 |

| Pinnacle Marathon Poly<br>+4 Neutral 32 mm ID Liners | |
|---|---|
| Cat. No. | OD (mm) |
| 1219-32-452 | 52 |
| 1219-32-454 | 54 |
| 1219-32-456 | 56 |
| 1219-32-458 | 58 |
| 1219-32-460 | 60 |
| 1219-32-462 | 62 |
| 1219-32-464 | 64 |
| 1219-32-466 | 66 |

| Pinnacle Marathon Poly<br>+4 10 Degree 32 mm ID Liners | |
|---|---|
| Cat. No. | OD (mm) |
| 1219-32-152 | 52 |
| 1219-32-154 | 54 |
| 1219-32-156 | 56 |
| 1219-32-158 | 58 |
| 1219-32-160 | 60 |
| 1219-32-162 | 62 |
| 1219-32-164 | 64 |
| 1219-32-166 | 66 |

| Pinnacle Marathon Poly<br>Lipped 32 mm ID Liners | |
|---|---|
| Cat. No. | OD (mm) |
| 1219-32-252 | 52 |
| 1219-32-254 | 54 |
| 1219-32-256 | 56 |
| 1219-32-258 | 58 |
| 1219-32-260 | 60 |
| 1219-32-262 | 62 |
| 1219-32-264 | 64 |
| 1219-32-266 | 66 |

## 36 mm MARATHON CROSS-LINKED POLYETHYLENE LINER OPTIONS

| Pinnacle Marathon Poly Neutral 36 mm ID Liners | |
|---|---|
| Cat. No. | OD (mm) |
| 1219-36-056 | 56 |
| 1219-36-058 | 58 |
| 1219-36-060 | 60 |
| 1219-36-062 | 62 |
| 1219-36-064 | 64 |
| 1219-36-066 | 66 |

| Pinnacle Marathon Poly +4 Neutral 36 mm ID Liners | |
|---|---|
| Cat. No. | OD (mm) |
| 1219-36-454 | 54 |
| 1219-36-456 | 56 |
| 1219-36-458 | 58 |
| 1219-36-460 | 60 |
| 1219-36-462 | 62 |
| 1219-36-464 | 64 |
| 1219-36-466 | 66 |

| Pinnacle Marathon Poly +4 10 Degree 36 mm ID Liners | |
|---|---|
| Cat. No. | OD (mm) |
| 1219-36-154 | 54 |
| 1219-36-156 | 56 |
| 1219-36-158 | 58 |
| 1219-36-160 | 60 |
| 1219-36-162 | 62 |
| 1219-36-164 | 64 |
| 1219-36-166 | 66 |

## SHELL ALTERNATIVES

| Pinnacle 100 Shells | |
|---|---|
| Cat. No. | Size (mm) |
| 1217-01-048 | 48 |
| 1217-01-050 | 50 |
| 1217-01-052 | 52 |
| 1217-01-054 | 54 |
| 1217-01-056 | 56 |
| 1217-01-058 | 58 |
| 1217-01-060 | 60 |
| 1217-01-062 | 62 |
| 1217-01-064 | 64 |
| 1217-01-066 | 66 |

| Pinnacle Sector Shells | |
|---|---|
| Cat. No. | Size (mm) |
| 1217-22-048 | 48 |
| 1217-22-050 | 50 |
| 1217-22-052 | 52 |
| 1217-22-054 | 54 |
| 1217-22-056 | 56 |
| 1217-22-058 | 58 |
| 1217-22-060 | 60 |
| 1217-22-062 | 62 |
| 1217-22-064 | 64 |
| 1217-22-066 | 66 |

| Pinnacle 300 Shells | |
|---|---|
| Cat. No. | Size (mm) |
| 1217-03-048 | 48 |
| 1217-03-050 | 50 |
| 1217-03-052 | 52 |
| 1217-03-054 | 54 |
| 1217-03-056 | 56 |
| 1217-03-058 | 58 |
| 1217-03-060 | 60 |
| 1217-03-062 | 62 |
| 1217-03-064 | 64 |
| 1217-03-066 | 66 |

| Pinnacle Multi-Hole Shells | |
|---|---|
| Cat. No. | Size (mm) |
| 1217-20-048 | 48 |
| 1217-20-050 | 50 |
| 1217-20-052 | 52 |
| 1217-20-054 | 54 |
| 1217-20-056 | 56 |
| 1217-20-058 | 58 |
| 1217-20-060 | 60 |
| 1217-20-062 | 62 |
| 1217-20-064 | 64 |
| 1217-20-066 | 66 |

## ULTAMET METAL INSERT OPTIONS

| Ultamet Metal Inserts 28 mm ID | |
|---|---|
| Cat. No. | OD (mm) |
| 1218-89-148 | 48 |
| 1218-89-150 | 50 |
| 1218-89-152 | 52 |
| 1218-89-154 | 54 |
| 1218-89-156 | 56 |
| 1218-89-158 | 58 |
| 1218-89-160 | 60 |

| Ultamet Metal Inserts 36 mm ID | |
|---|---|
| Cat. No. | OD (mm) |
| 1218-87-352 | 52 |
| 1218-87-354 | 54 |
| 1218-87-356 | 56 |
| 1218-87-358 | 58 |
| 1218-87-360 | 60 |
| 1218-87-362 | 62 |
| 1218-87-364 | 64 |
| 1218-87-366 | 66 |

**NOTE: Pinnacle Ultamet inserts must be used with the "M" specification femoral heads shown below.**

## "M" SPECIFICATION FEMORAL HEADS

| Articul/eze 12/14 28 mm "M" | |
|---|---|
| Cat. No. | Neck Length |
| 1365-11-500 | +1.5 |
| 1365-12-500 | +5.0 |
| 1365-13-500 | +8.5 |

| Articul/eze 12/14 36 mm "M" | |
|---|---|
| Cat. No. | Neck Length |
| 1365-50-000 | -2.0 |
| 1365-51-000 | +1.5 |
| 1365-52-000 | +5.0 |
| 1365-53-000 | +8.5 |
| 1365-54-000 | +12.0 |

| S-ROM 11/13 28 mm "M" | |
|---|---|
| Cat. No. | Neck Length |
| 1365-16-500 | +0.0 |
| 1365-17-500 | +3.0 |
| 1365-18-500 | +6.0 |

| S-ROM 11/13 36 mm "M" | |
|---|---|
| Cat. No. | Neck Length |
| 1365-31-000 | +0.0 |
| 1365-32-000 | +3.0 |
| 1365-33-000 | +6.0 |
| 1365-34-000 | +9.0 |
| * 1365-35-000 (skirted) | +12.0 |

*** This femoral head indicated for use with polyethylene liners only.**

## SCREW OPTIONS

| Pinnacle 6.5 mm Cancellous Bone Screws | |
|---|---|
| Cat. No. | Length (mm) |
| 1217-15-500 | 15 |
| 1217-20-500 | 20 |
| 1217-25-500 | 25 |
| 1217-30-500 | 30 |
| 1217-35-500 | 35 |
| 1217-40-500 | 40 |
| 1217-45-500 | 45 |
| 1217-50-500 | 50 |
| 1217-55-500 | 55 |
| 1217-60-500 | 60 |
| 1217-65-500 | 65 |
| 1217-70-500 | 70 |

| Apex Hole Eliminator | |
|---|---|
| Cat. No. | Description |
| 1246-03-000 | Apex Hole Eliminator |

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CAUTION: Federal Law (USA) restricts these devices to sale by or on the order of a physician.

US Patent 5,282,864.

For more information about the Pinnacle Acetabular Cup System or alternative bearings, visit our web sites at **www.jnjgateway.com/pinnacle** or **www.jnjgateway.com/aboutalternativebearings.**

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