CERAFIT

R / H-A.C ACETABULAR COMPONENTS

EXPERIENCE - INNOVATION

CERAVER

R/H-A.C ACETABULAR COMPONENTS

HISTORY

CERAVER AND PRESS-FIT ACETABULAR COMPONENTS...

...CONCEPTS AND THE TEST OF TIME

◈ **1971 :** 1st implantation of a press-fit all-alumina acetabular cup.

> **Reliability** of the **32 mm alumina-alumina bearing system.**

◈ **1982 :** 1st implantation of a titanium alloy threaded acetabular shell with an alumina or PE liner.

> **Reliability** of the shell/liner **taper locking mechanism (5°42').**

◈ **1989 :** 1st implantation of a metal shell coated with a titanium mesh, using **the "Triradius" concept.**

> **Reliability** of the fixation of a **"Triradius" acetabular shell.**

◈ **1997 :** 1st implantation of a "Triradius" metal shell with a rough surface, with or without an HA coating.

> **Reliability** of the fixation of a "Triradius" acetabular shell, enhanced by **an osteoconductive HA coating.**

All these concepts have a solid clinical history
of consistently improving
patients outcome

◈ **2004 :** The CERAFIT Acetabular Component retains all the features which made the success of the previous designs and offers enhancements that make it even **more reliable** on the long term.

FIXATION

PRIMARY AND SECONDARY STABILITY

"Triradius" Concept
Ensures PRIMARY STABILITY

◈ **Pole :** Slight flattening at the pole for a perfect seating of the CERAFIT shell in the prepared acetabulum.

◈ **Median area :** Radius of curvature identical to the **nominal radius** of the prepared acetabulum.

◈ **Equator : 1 mm peripheral build-up** for increased press-fit stability: so-called **"equatorial ring"**.

SECONDARY STABILITY provided by:

- The outer macrostructure of the shell which provides **a larger contact area for osteointegration,** further enhancing secondary stability.
- The rough surface of the **"R" type** Acetabular Shell or the HA-coated rough surface of the **"H-A.C" type** Acetabular Shell.

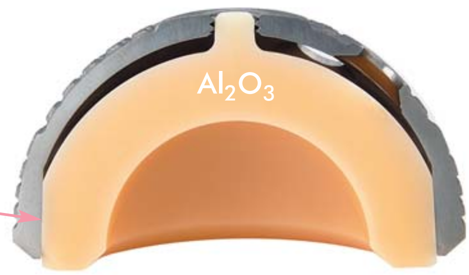
R/H-A.C ACETABULAR COMPONENTS

ALUMINA-ALUMINA BEARING SYSTEM

Requirements for Al_2O_3 acetabular liners

LONG-TERM LOCKING

- Liner locks in the acetabular shell through a 5°42' taper connection that has been used by CERAVER since 1982, and prevents any micromotions at the shell/liner interface.
- Extended taper connection allows optimal distribution of the loads, and provides higher mechanical strength.

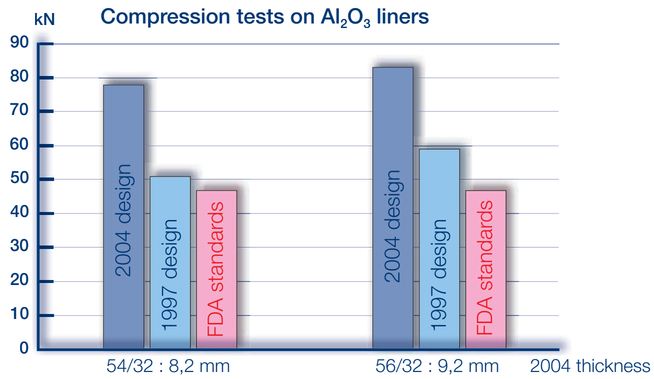


WARNING…

An alumina liner that locks in a metal shell through **a 15° taper locking mechanism** cannot claim these guaranties. It is easier to remove, but it cannot provide secure locking with no micromotions on the long term.

HIGH MECHANICAL STRENGTH

- A maximal alumina thickness; small-diameter liners have a minimum 6 mm alumina thickness.
- An extended taper connection.



WARNING…

An alumina-PE liner cannot claim these advantages. In fact, this hybrid liner has necessarily less alumina than an all-alumina liner, and therefore, a lower mechanical strength. Furthermore, an additional interface is always a potential source of micromotion or separation on the long term.

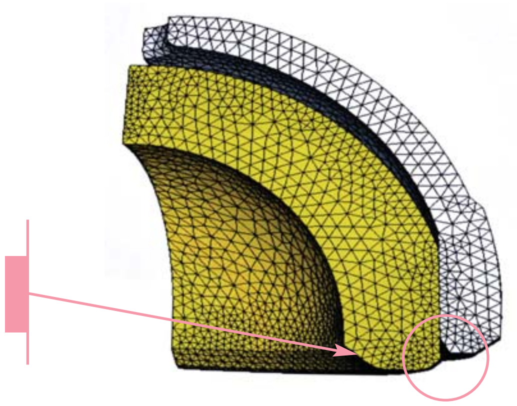
ALUMINA-ALUMINA BEARING SYSTEM

Requirements for Al_2O_3 acetabular liners

A NECESSARY ELEVATION

CERAVER liners have a circumferentially elevated rim (1.5 mm). **This concept has been used by CERAVER for over 20 years** because it optimizes the locking mechanism of the liner within the shell.
Contrary to many unjustified assumptions, this elevated rim does not adversely affect range of motion. 129 degrees range of motion can be achieved with a 32 mm femoral head (standard neck).

The inner chamfer avoids neck impingement against the liner in extreme range of motion.



WARNING…

When the alumina liner is level with the shell, long-term mechanical locking cannot be guaranteed. Indeed, edge effects occur which generate excessive stresses on the liner, resulting in destabilization of the liner over time.

PROVEN EFFICACY OF THE 32 MM DIAMETER BEARING SIZE

The 32 mm diameter, used by CERAVER since 1971, offers **the best compromise:**

- **To improve the load distribution.**
- **To increase the range of motion (up to 129°) with all neck lengths.**
- **To optimize stability of the prosthetic hip.**

WARNING…

If a 36 mm internal diameter alumina liner provides greater ranges of motion (which may not be necessary), increasing internal diameter means reducing alumina thickness and by the way increasing potential risk of failure of the shell/liner locking mechanism over time.

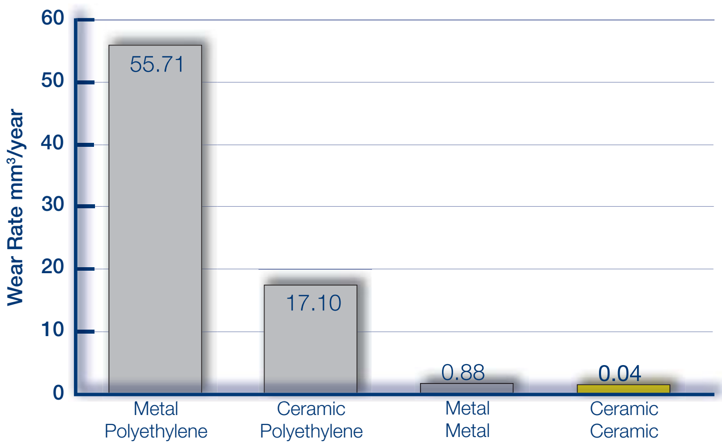
ALUMINA-ALUMINA BEARING SYSTEM

MINIMAL FRICTION AND WEAR

The **alumina-alumina** bearing system, first implanted in **April 1970,** addresses the problem of PE wear debris and its detrimental effect on the long term survival of hip implants.

The excellent biotolerance properties and the chemical inertia of alumina (whether bulk or particulate form) have contributed to **the unsurpassed in vivo durability** of the alumina-alumina bearing system.

AAOS 1999
Committee of Biomedical Engineering
A.S. Greenwald
J.P. Garino



Density : 3,985 **Grain size :** 1,8 µm

The outstanding features of Alumina:

Hardness, grain size, density, wettability, combined with the remarkable surface finish and sphericity of the articulating components…

constitute to the bearing material of excellence.

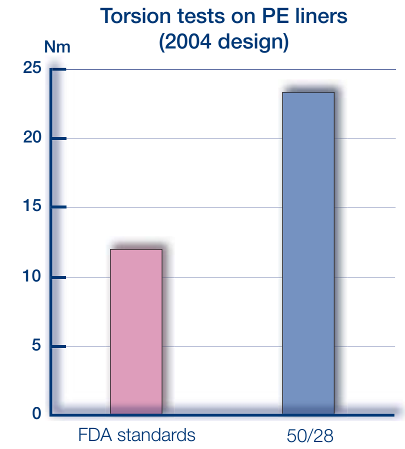
CERAFIT

POLYETHYLENE (PE) ACETABULAR LINERS

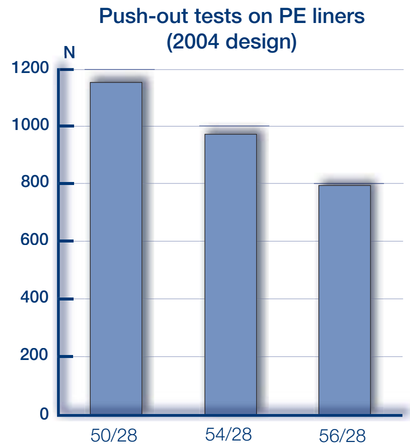
PE LINERS AND IN VITRO TESTING RESULTS

Maximum PE thickness. Small-diameter liners have a **minimum PE thickness of 7 mm** in load-bearing areas.

Highly polished inner surface of the shell: **abrasive wear of PE is minimized;** wear debris and associated detrimental effects are reduced.



Reliable shell/liner taper locking mechanism: no micromotions leading to generation of PE wear debris.



Our PE acetabular liners come in two versions: standard and **antiluxation elevated-lip,** to match anatomically each individual patient.

CERAVER

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ACETABULAR COMPONENTS

Size		42	44	46	48	50	52	54	56	58	60	62	64	66	68
SHELL	R	4781*	4782*	4783*	4784	4785	4786	4787	4788	4789	4790	4791	4792*	4793*	4794*
	HAC	4881*	4882*	4883*	4884	4885	4886	4887	4888	4889	4890	4891	4892*	4893*	4894*
Al_2O_3 LINER	Ø 28			4770*	4771										
	Ø 32					4772	4773	4774	4775	4776	4777				
PE LINER	Ø 22,2	2870*	2871*	2872*	2873	2874	2875	2876	2877	2878	2879				
	Ø 28			2880*	2881	2882	2883	2884	2885	2886	2887				
	Ø 32					2888	2889	2890	2891	2892	2893				
ELEVATED-LIP LINER	Ø 28				3020	3021	3022	3023	3024	3025	3026				
	Ø 32					3027	3028	3029	3030	3031	3032				

* Upon request

SCREWS

Length		15	20	25	30	35	40	50	60
SHELL Ø 42 to 48	Ø 5	11515	11520		11530		11540	11550	11560
SHELL Ø 50 to 68	Ø 6,5	11615	11620	11625	11630	11635	11640	11650	11660

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ISO 9001

ISO 13485

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