CERAGYR

THE MOBILE-BEARING KNEE PROSTHESIS

THE ULTIMATE CONGRUENCY

CERAVER

EXPERIENCE - INNOVATION

CERAGYR: THE MOBILE-BEARING KNEE PROSTHESIS

BENEFITS

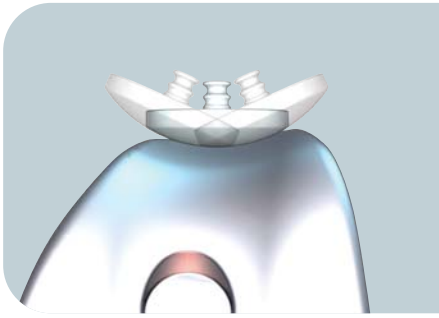
- Excellent mobility, particularly in rotation and flexion
- Full stability in flexion/extension
- Optimal resistance to creep and wear
- Stable, unconstrained patello-femoral articulation
- Full interchangeability of component sizes

THE ULTIMATE CONGRUENCY

DESIGN

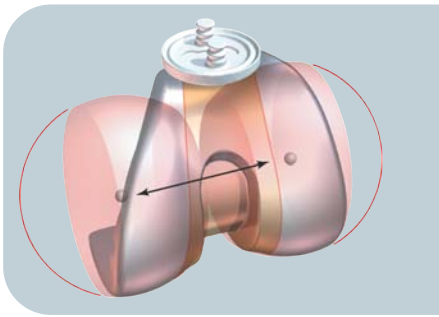
Femoral component with

- Anatomic trochlear depth and alignment, facilitating patellar contact and tracking.
- Distal and posterior condyles which have a spherical curvature radius.



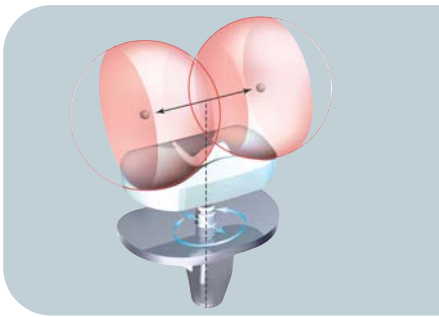
"Spherical" patellar button

allows improved contact with trochlea and ensures excellent patello-femoral stability.



Freely rotating mobile bearing

and anterior-posterior motion reduce stresses at the various interfaces.



Tibial tray anchorage to base-plate

eliminates all risk of dislocation.

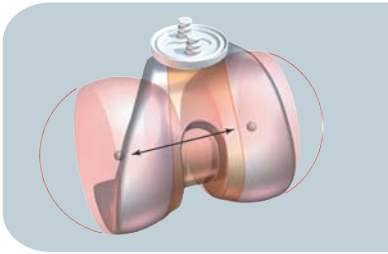
CERAGYR: THE MOBILE-BEARING KNEE PROSTHESIS

1997 - 1999 Research studies

SPECIAL FEATURES

ULTIMATE CONGRUENCY

The CERAGYR prosthesis features "spherical" femoral-tibial contact surfaces associated with a mobile bearing. This allows perfect congruency of bearing surfaces, accompanied by low stress levels, the ideal combination for long-term life expectancy of the polyethylene bearing and the bond.



"Spherical" femoral-tibial contact surfaces

An optimal spherical 27 mm radius ensures stable anterior-posterior and medio-lateral articulation, with perfect conformity of trochlear groove and condyles.

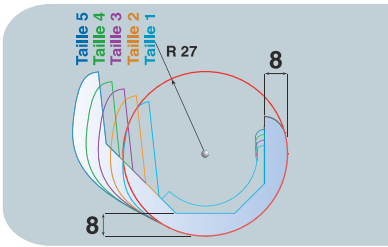
Maximisation of contact surface areas

This results in significantly reduced contact pressure (3 Mpa, which is substantially below the polyethylene elastic limit) and reduced creep and wear

Prosthesis	A	B	C	CERAGYR
Flexion	Surface (mm^2)	Surface (mm^2)	Surface (mm^2)	Surface (mm^2)
0°	731	1142	457	**1161**
20°	843	786	264	**1140**
40°	829	742	182	**1136**
60°	748	784	177	**1145**
80°	486	735	153	**800**

Complete interchangeability of component sizes

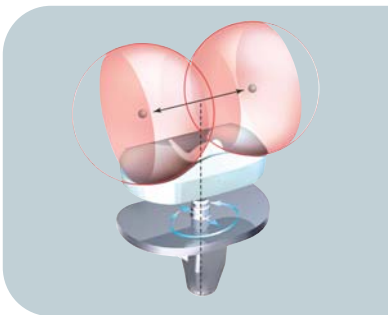
The use of a single radius and a fixed interaxial distance between spheres allows complete interchangeability of femoral components and tibial trays. Ensuring a better match to patient anatomy while reducing surgery times.



MINIMISED STRESSES

Free rotation of the tibia

The freely rotating mobile bearing eliminates torsional stresses, encouraging bone ingrowth without the need for precise alignment of the tibial and femoral components.



Antero-posterior glide of the tibia preserved

The bearing allows antero-posterior glide of 5 mm so that its position relative to the tibial base-plate in the antero-posterior plane is determined primarily by the patellar reaction force and the position of the joint line, eliminating purely rotational stresses.

CERAGYR

AN ORIGINAL DESIGN CONCEPT, MASTERFULLY IMPLEMENTED

1999 - 2004 Clinical validation of the implant and associated surgical technique

MOBILITY WITHOUT RISK OF DISLOCATION

Mobility in flexion

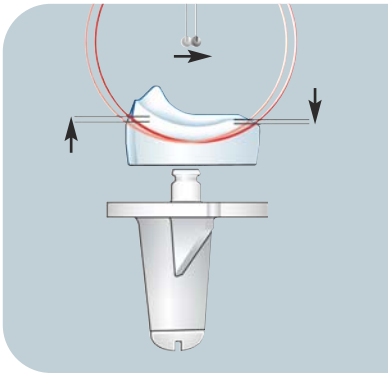
The condyles' rotation centre is located behind the bearing center. The resultant reduction of the posterior lip height allows a greater degree of flexion.

Medial tibial spine

At high flexion any risk of tray dislocation under the femoral component is limited.

Tibial tray anchored to base-plate

The tibial tray is equipped with a ratchet mechanism on the tibial peg, which eliminates the risk of tray dislocation.



LONG TERM FIXATION

Rectangular cross-section keel with fins

The keel offers an excellent anchorage for the implant. The fins, with a posterior alignment of 30°, ensure that the base-plate remains securely in place under rotation, avoiding the risk of tibia fracture.

Modular tibial base-plate

The **CERAGYR** base-plate is compatible with a variety of tibial extension options, both straight-stemmed and eccentric, for use in primary and revision procedures.

The femoral component and the tibial base-plate of the **CERAGYR** prosthesis are both available in cemented or uncemented versions. Their shape and dimensions are identical, allowing the choice to be deferred until the end of the procedure.

Cemented version

The implant undersurfaces incorporate voids capable of accommodating cement under pressure during compaction, so ensuring that the implant is securely anchored.

Uncemented version

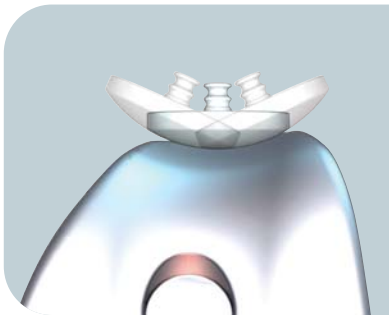
The implant undersurfaces are coated with porous beads whose pore size (250μm) is ideal for the bone ingrowth that ensures optimal secondary implant fixation.

CERAGYR: THE MOBILE-BEARING KNEE PROSTHESIS

SPECIAL FEATURES

THE PATELLO-FEMORAL PROSTHESIS, THE REFERENCE

A design tried and tested since 1979 with the **HERMES** range.
The design of the patello-femoral articulation in the **CERAGYR** prosthesis ensures optimal contact and centring of the patella within the trochlea over the full range of motion and minimal stresses at the various interfaces.



◈ **Near-anatomic trochlea**

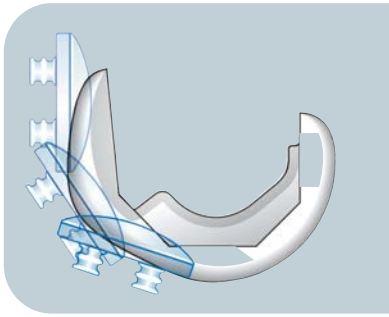
The trochlear groove is deep with a 6° alignment upward and outward. This design results in reduced stress within the natural or prosthetic patella.

◈ **Single radius of curvature for patellar button and trochlea**

This geometry ensures optimal contact whatever the component size, allowing complete interchangeability.

◈ **Elevated outer face**

This helps to reduce the risk of patellar displacement and limits peak stresses within the patellar button.



◈ **Optimisation of patellar contact with trochlea**

At full extension the trochlea is raised sufficiently to ensure contact with the patella. The trochlear groove is inclined as far as the top of the anatomic intercondylar notch to ensure optimal contact even at maximum flexion

2-YEAR RESEARCH STUDIES AND 6-YEAR CLINICAL VALIDATION

◈ **Effect of wear**

Simulation studies have found polyethylene wears less than or equal to 0.05 mm/year, with contact surfaces greater than 1,000 mm^2. The polyethylene ratchet mechanism shows no signs of deterioration after more than 10 million cycles. These results guarantee the reliability of the solutions developed.
Initial clinical results confirm in-vitro findings.

◈ **Clinical evaluation 1999–2004**

Radiological studies have shown that in over 50% of cases the tibial tray does not impinge on the spine until flexion has reached 90°. This observation shows the importance of ensuring antero-posterior motion is preserved even by a maximum of 5 mm, to reduce the shear stresses at the bonding interfaces.

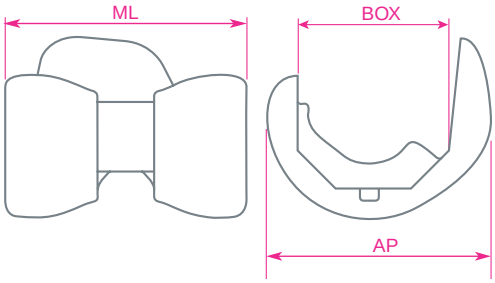
PRODUCT REFERENCES

PATELLAR BUTTON UHMWPE* (ISO 5834/1-2)

Size	Ø 31	Ø 34	Ø 36	Ø 39
Thickness	8 mm	8 mm	9 mm	11 mm
Ref	**5090**	**5091**	**5092**	**5093**

FEMORAL COMPONENT - cobalt chromium alloy (ISO 5832/4)

Size		1	2	3	4	5
DIM.	AP (mm)/Box	53/35	57/39	61/43	65/47	69/51
	ML (mm)	60	64	68	72	77
CEMENTED						
Ref	Right	**6201**	**6202**	**6203**	**6204**	**6205**
	Left	**6101**	**6102**	**6103**	**6104**	**6105**
UNCEMENTED						
Ref	Right	**6611**	**6612**	**6613**	**6614**	**6615**
	Left	**6111**	**6112**	**6113**	**6114**	**6115**

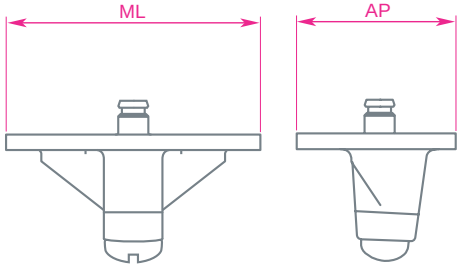


TIBIAL TRAY - UHMWPE* (ISO 5834/1-2)

Size		1	2	3	4 - 5
Ref	Th. 6 mm	**6311**	**6312**	**6313**	**6314**
	Th. 8 mm	**6321**	**6322**	**6323**	**6324**
	Th. 10 mm	**6331**	**6332**	**6333**	**6334**
	Th. 12 mm	**6341**	**6342**	**6343**	**6344**
	Th. 14 mm	**6351**	**6352**	**6353**	**6354**

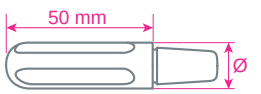
TIBIAL BASE-PLATE - cobalt chromium alloy (ISO 5832/4)

Size		1	2	3	4	5
DIM.	AP (mm)	41	43	47	51	55
	ML (mm)	64	68	73	78	84
CEMENTED						
Ref.		**6401**	**6402**	**6403**	**6404**	**6405**
UNCEMENTED						
Ref.		**6501**	**6502**	**6503**	**6504**	**6505**



TIBIAL EXTENSION (length 50 mm) - titanium alloy (ISO 5832/3)

Size	Ø10	Ø11	Ø12	Ø13	Ø14	Ø15	Ø16	Ø17	Ø18	Ø19
Ref.	**5080**	**5081**	**5082**	**5083**	**5084**	**5085**	**5086**	**5087**	**5088**	**5089**



* All UHMWPE implants are manufactured from compression moulded sheeting and sterilised by gamma irradiation in an argon gas environment (minimum dose 25 kGy).

CERAVER

EXPERIENCE - INNOVATION

THE CERAVER KNEE RANGE

HERMES, a total range

HERMES FP

The patella-femoral

HERMES UNI

The unicompartmental

HERMES 1C-2C

Both cruciates or posterior cruciate retaining

HERMES PS

The posterior-stabilized

HERMES REVISION

The revision posterior-stabilized

CERAGYR

Ultimate congruency

The mobile bearing knee

CERAVISON

Computer-assisted surgery system

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