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OURO
GOLDEN KNEE SYSTEM
GERMAN MAKE

Precious knee for Precious People

OURO
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- Improved Biocompatibility
- Allergy protective effect
- More Durability
- Design to best fit the bone geometry of Asian population

At a glance

OURO™ - Golden Knee System with wide range of modularity including narrow geometry

- Improved biocompatibility
- Allergy protective effect
- Enhanced Surface Hardness:
  5 times that of conventional cobalt-chrome alloys
- Higher wettability with synovial fluid
- Low friction articulation
- Long-term chemical stability
- Extreme adhesive strength

Increased wear resistance

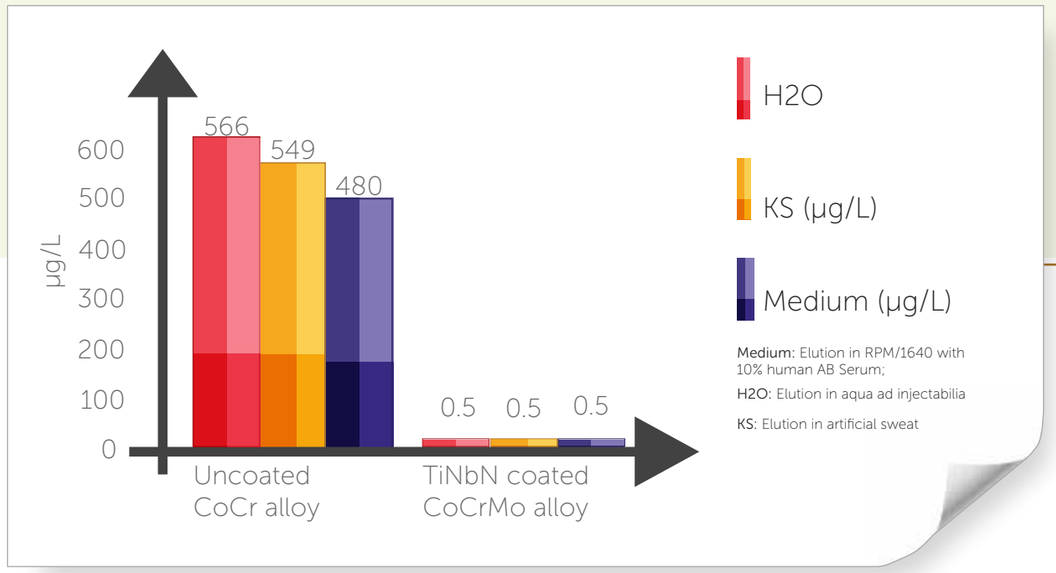
As a result of the hardness of the TiNbN coating and the ceramic-like properties in terms of adhesion behaviour and the wetting angle with liquids, the TiNbN coating shows an outstanding frictional coefficient in contact with UHMWPE.

More Safe...

Reduced Allergy Potential

A significant reduction in the release of metal ions is obtained when the implant surface is coated with TiNbN.

Coating with TiNbN prevents direct contact of the base material with the surrounding tissue and reduces the release of particles and ions due to wear and corrosion.



Coated and uncoated test specimens were investigated to demonstrate the release of cobalt, chromium and nickel ions in body fluids

Improved Biocompatibility

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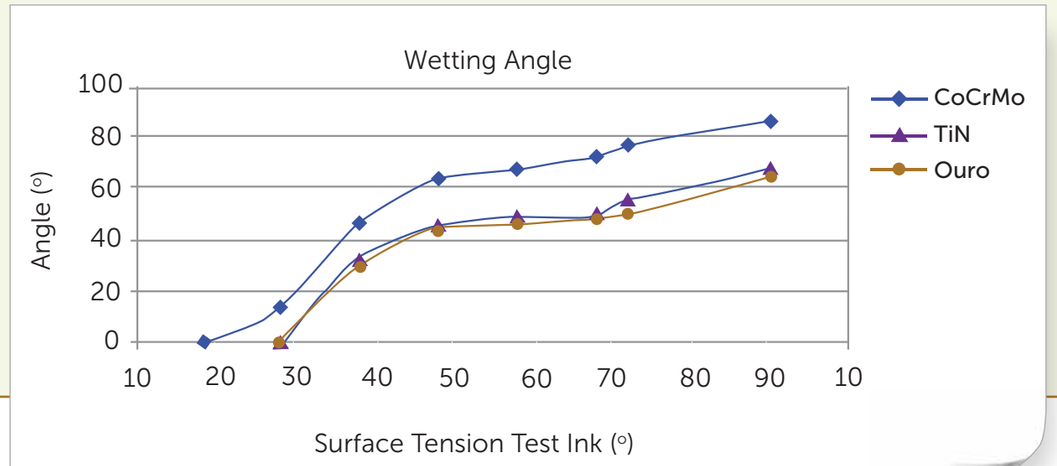
Potential to be more Durable...

Tests to check Biocompatibility	
Cytotoxicity	✕
Acute Systemic Reactivity	✕
Intracutaneous Reactivity	✕

Reduced Wetting Angle

The wetting angle of the implant surfaces coated with TiNbN is reduced by 20° when compared with uncoated implant surfaces thus resulting in greater hydrophilicity of the implant surface for body fluids.



Reduction of the water contact angle with TiNbN Coating (Source: DA M. Retzlaff)

Smaller the contact angle, better the wettability and improved lubrication which helps to reduce the wear by decreasing the friction between the articulating surfaces.

Increased wear resistance

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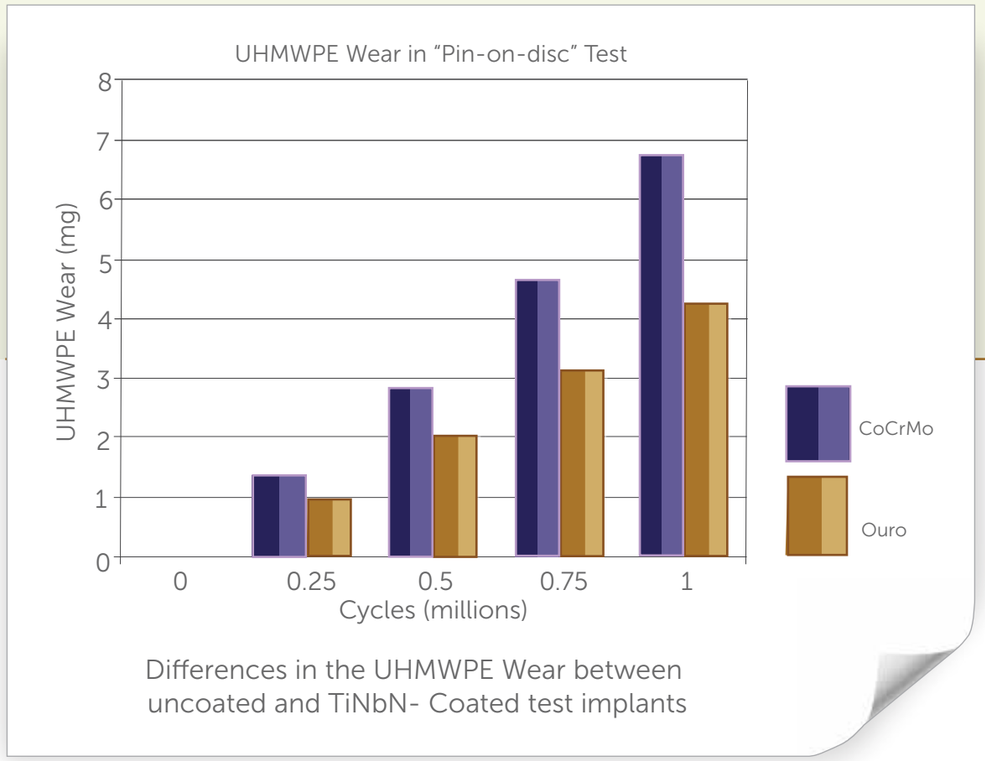

Differences in the UHMWPE Wear between uncoated and TiNbN- Coated test implants

Almost 40% reduction in wear of UHMWPE is observed in a **"Pin on disc"** test when investigated with 1 million cycles between the uncoated and TiNbN-coated specimens.

Femoral Component

TiNbN coating from DOT Germany

- Redued anteriror flange
- Deeper patellar groove
- Enhanced cam and spine design
- Reduced radius of curvature of posterior condyle for increased flexion
- Bone sparing notch cut design
- Highly polished surface
- Available in 8 sizes

Sizes	A	B	C	D	E	F	G	H
ML (mm)	53.7	56.7	59	61.5	64.2	67	70	75
AP (mm)	49.8	52.5	54.4	58.1	59.5	63.3	66.5	70.5

Tibial Tray

TiNbN coating from DOT Germany

- Continuous Peripheral Rim
- Highly polished tibial tray to reduce backside wear rate
- Cement Pockets for optimum fixation
- Available in 7 sizes

Sizes	ML (mm)	AP (mm)
TRAY 1	54.7	38
TRAY 2	60	40
TRAY 3	63	43
TRAY 4	66	45
TRAY 5	71	47
TRAY 6	75	51
TRAY 7	81	55

Tibial Insert

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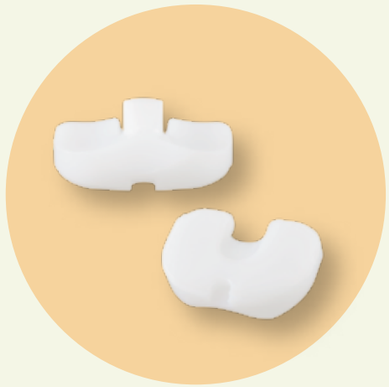
UHMWPE imported from Orthoplastics (UK)

- Deep Dish Design
- Proportionate bearing surfaces for large contact area
- Enhanced PS Cam/Spine design
- Available in 8 sizes

Insert Thickness (mm)			
	7	10	13
	8	11	15
	9	12	17



Components Compatibility Chart

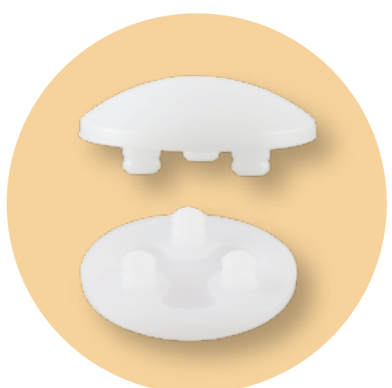
TIBIAL TRAY SIZES		TRAY SIZE 1	TRAY SIZE 2	TRAY SIZE 3	TRAY SIZE 4	TRAY SIZE 5	TRAY SIZE 6	TRAY SIZE 7
FEMUR SIZES	A	A 12		A 34				
	B	BCDE 12		BCDE 34		BCDE 56		
	C							
	D							DE 7
	E							
	F					FGH 56		FGH 7
	G							
	H							

Tibial Insert Sizes

Patella

UHMWPE imported from orthoplastics (UK)

- Dome Shaped
- 3 pegs for optimum fixation
- Available in 6 sizes



Diameter (mm)	Dome Thickness (mm)
26	8
29	8
32	8
35	8.5
38	9
41	11.5

PROPERTY	RESULT	PROPERTY	RESULT
Color	Light golden yellow	Sensitization test according to 10993-1	No sensitization from TiNbN
Coating thickness	3-6 µm	Irritation test according to ISO 10993-1	No irritant reactions from TiNbN coating
Roughness	≤ 0.05 µm	Implantation according to DIN EN ISO 10993-6	No product-related tissue reactions
Adhesive strength (according to Rockwell indentation test)	HF 1-2	Friction against UHMWPE	0.04-0.07
Coating hardness	ca. 2,400 HV (0.1 N)	Allergy potential	Release of ions was reduced to the detection limit
Wear resistance	Very high wear resistance towards bone cement		
Wear	Reduction of UHMWPE wear	Liquid contact angle	Reduction of the liquid contact angle by 20 %, result: improved wettability of the surface compared to uncoated CoCrMo surfaces
Cytotoxicity	Not cytotoxic		
Genotoxicity	Not genotoxic		

Summary of the properties of TiNbN coating

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