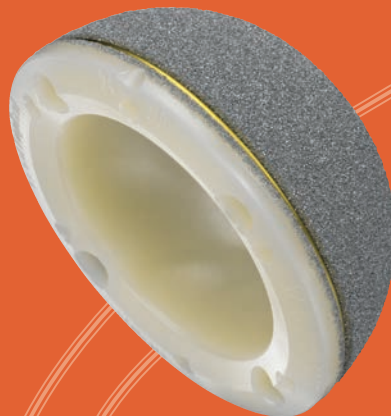
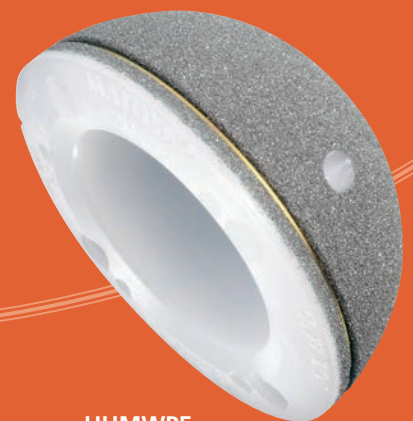


RM Pressfit
Product information



vitamys®



UHMWPE

RM Cup

RM Pressfit

Cementless monoblock press-fit cup

The RM Pressfit Cup was developed based on the heritage of the RM Classic Cup, whose concept of elasticity and titanium particle coating showed excellent clinical results after more than 20 years^[1].

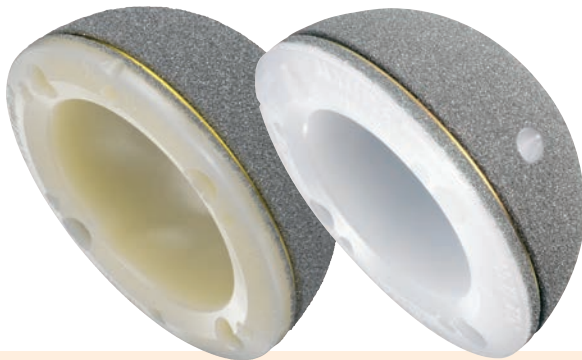


Fig. 1 RM Pressfit vitamys® and RM Pressfit PE Cup

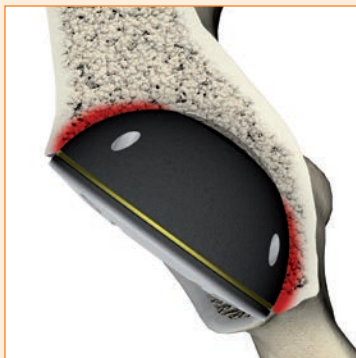


Fig. 2 Fixation principle



Fig. 3 Cup Positioner



Fig. 4 Post-Impactor

The RM Pressfit Cup is an uncemented elastic monobloc cup made from UHMWPE or vitamys, a Vitamin E enriched and highly cross-linked UHMWPE (Fig. 1). It has a special Titanium particle coating applied to its outer surface.

vitamys is highly resistant to oxidation, ageing and wear. Even though the material is crosslinked, the mechanical properties of vitamys are maintained, which makes it an interesting solution especially for younger and more active patients.

Good primary stability and reliable secondary stabilisation

The design of the RM Pressfit Cup is elliptical, with an oversizing at the cup's equator and a slight polar flattening. This design ensures good primary press-fit fixation of the implant and permits stable anchorage of the cup in the acetabulum (Fig. 2).

Sufficient primary stability minimizes movement at the implant-bone interface and provides the physiological conditions necessary for osseointegration and long-term fixation. The proven titanium-particle coating enhances this objective.

If necessary, up to 4 screws can be used for additional stabilisation.

The RM Pressfit Cup can be implanted with only a few instruments and operating steps.

Instrumentation is straight forward and also suitable for different surgical approaches (Fig. 3–4).

A further development of the proven concept of elasticity and titanium particle coating

The RM Pressfit Cup is based on the positive experience of the RM Classic Cup (Fig. 5). Being made from UHMWPE its elasticity is very similar to that of cancellous human bone. The non-interconnected, but individually anchored titanium particles characterise the thin coating and have no structural stiffness of their own. The elasticity of the UHMWPE body of the cup provides the elastic behaviour to the acetabular cup. This ensures that load transfer and the biomechanical behaviour of the cup in the acetabulum remains physiological after implantation.

The RM Pressfit Cups continue to carry on the concepts of elasticity and of the titanium particle coating.



Fig. 5 RM Classic Cup

Elasticity

The modulus of elasticity of UHMWPE and vitamys is very similar to that of human bone (Table 1). This enables the RM Pressfit cup to absorb micromotions in the pelvis and prevent stress shielding.

	UHMWPE (ISO 5834/2)	vitamys® (HXLPE)	bone
Density [g/cm³]	0,935	0,938	0,2–2
E modulus [N/mm²]	1000	800	500–6000
Tensile strength [N/mm²]	35	37	10–150

R. Mathys senior: Isoelastic hip endoprostheses. Hans Huber publishers, 1992

Table 1 Mechanical properties of UHMWPE and vitamys compared to bone

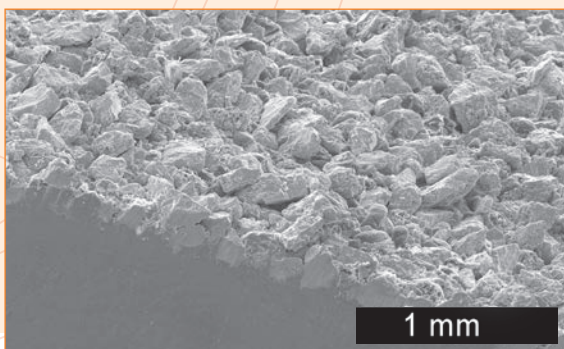


Fig. 6 Macroscopic picture of the TiCP coating

Titanium particle coating

The titanium particle coating prevents a direct contact between bone and polyethylene and is bioinert. In addition, the microstructure of the coating improves the mechanical compound between the cup and the bone (Fig. 6). The RM Pressfit Cups coated with TiCP stand out for their bio-inertness and the well-known titanium osteointegration capacity. This is due to the spontaneously forming and extremely stable surface oxide film.

Pure titanium particles (TiCP) are used as coating material. The warmed titanium-powder particles are hot pressed into the polymer surface of the acetabular cup. This ensures that there is no structural change to the cup material or to the coating material. In addition, the particles are individually anchored in the polyethylene substrate.

Clinical outcome

The **RM Classic Cup** is listed in the Orthopedic Data Evaluation Panel (ODEP) to a 10A NICE (National Institute for Health and Clinical Excellence) rating in the Unit-

ed Kingdom and complies on Level A (Strong evidence) with the 10 year benchmarks set by the NICE! ^[2]

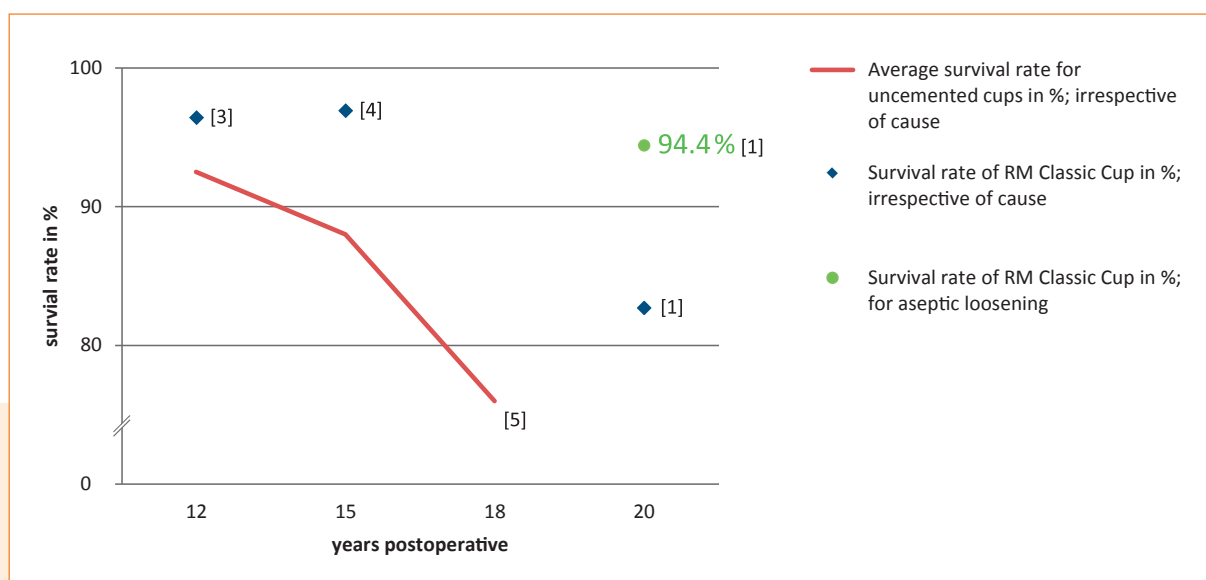


Fig. 7 Excellence based on more than 20 years of experience with a survival rate of 94.4 % for aseptic loosening^[1].

The RM Classic Cup shows a survival rate above the average survival rate of the Swedish Hip Arthroplasty register for uncemented cups irrespective of the cause for revision. (Fig. 7)

An in vivo study by R. Lemaire with RM Classic Cups resulted in PE wear rates between 0.02 mm/year and 0.08 mm/year^[6], compared with 0.14 mm/year and 0.32 mm/year for PE inlays in Ti shells^[7]. According to Dumbleton et al., osteolysis is improbable when the wear rate is lower than 0.1 mm/year^[8].

RM Pressfit Cup clinical outcome

In the 5 year follow-up the mean annual wear rate for the RM Pressfit Cup was 0.09 mm/year and thus below the threshold of 0.1 mm/year^[8]. Mean cup migration was 0.82 mm at two years, well below the >2 mm that is considered to have a higher risk of implant loosening^[9-13], and 1.25 mm at 5 years. Both mean values, wear rate and migration decreased over time. The authors of this study conclude that „Migration and wear values for the RM Pressfit Cup were well below the thresholds predictive of hip replacement failure. ... In future, further improvements in wear rate and osteolysis may result from using new-generation cross-linked polyethylene, which is suitable for this cup design.“^[14]

RM Pressfit vitamys is a promising solution to the challenge of long-term wear reduction.

In hip simulator tests (according to ISO 14242) vitamys proves to significantly reduce wear compared to UHMWPE [15]. Wear rate of vitamys remained at constant low level even using different head materials and diameters [15].

Wear reduction with vitamys *in vivo*

After 1–2 years the vitamys material clinically showed a significantly lower wear rate than standard UHMWPE [16] and confirms the positive results seen in the simulator studies.

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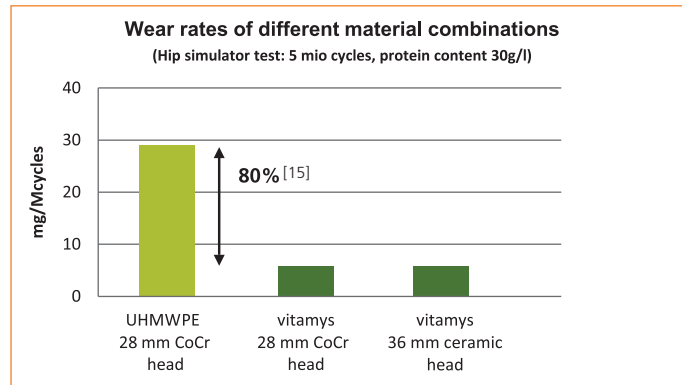


Fig. 8

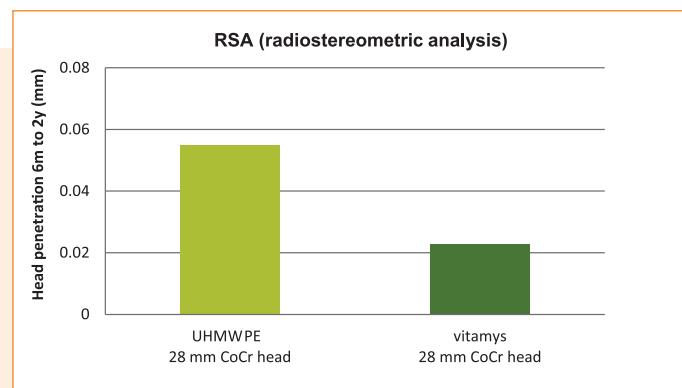


Fig. 9

RM Pressfit

Portfolio



RM Pressfit vitamys®

RM Pressfit PE

Cup size	28 mm Articulation	32 mm Articulation	36 mm Articulation	28 mm Articulation	32 mm Articulation
44	52.34.0032*	–	–	–	–
46	52.34.0033	–	–	55.22.1046	–
48	52.34.0034	52.34.0052	–	55.22.1048	–
50	52.34.0035	52.34.0053	–	55.22.1050	–
52	52.34.0036	52.34.0054	52.34.0067	55.22.1052	55.22.3252
54	52.34.0037	52.34.0055	52.34.0068	55.22.1054	55.22.3254
56	52.34.0038	52.34.0056	52.34.0069	55.22.1056	55.22.3256
58	52.34.0039	52.34.0057	52.34.0070	55.22.1058	55.22.3258
60	52.34.0040	52.34.0058	52.34.0071	55.22.1060	55.22.3260
62	52.34.0041	52.34.0059	52.34.0072	55.22.1062	55.22.3262
64	52.34.0042	52.34.0060	52.34.0073	55.22.1064	55.22.3264
66	52.34.0043	52.34.0061	52.34.0074	–	–
68	52.34.0044	52.34.0062	52.34.0075	–	–
70	52.34.0045	52.34.0063	52.34.0076	–	–

Material vitamys: Highly cross-linked UHMWPE, stabilised with vitamin E, Ti₆Al₄V (ISO 5832-3), TiCP (ISO 5832-2)

Material PE: UHMWPE (ISO 5834-1+2), Ti₆Al₄V (ISO 5832-3), TiCP (ISO 5832-2)

* no screw holes

RM Pressfit Cups can be used with Bionit2, ceramys, stainless steel or CoCr femoral heads.

Bionit®2



ceramys®



Steel



CoCrMo



4.0 mm Special Screws are available for additional screw fixation (if required).



Special screws for RM Pressfit cup, Ø 4 mm

Length	Item no. / Sterile	Item no. / Non sterile
22 mm	4.14.015S	4.14.015
24 mm	4.14.014S	4.14.014
26 mm	4.14.013S	4.14.013
28 mm	4.14.000S	4.14.000
32 mm	4.14.001S	4.14.001
34 mm	4.14.002S	4.14.002
36 mm	4.14.003S	4.14.003
38 mm	4.14.004S	4.14.004
40 mm	4.14.005S	4.14.005
44 mm	4.14.006S	4.14.006
48 mm	4.14.007S	4.14.007
52 mm	4.14.008S	4.14.008

Material: TiCP (ISO 5832-2)

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