

Smith+Nephew

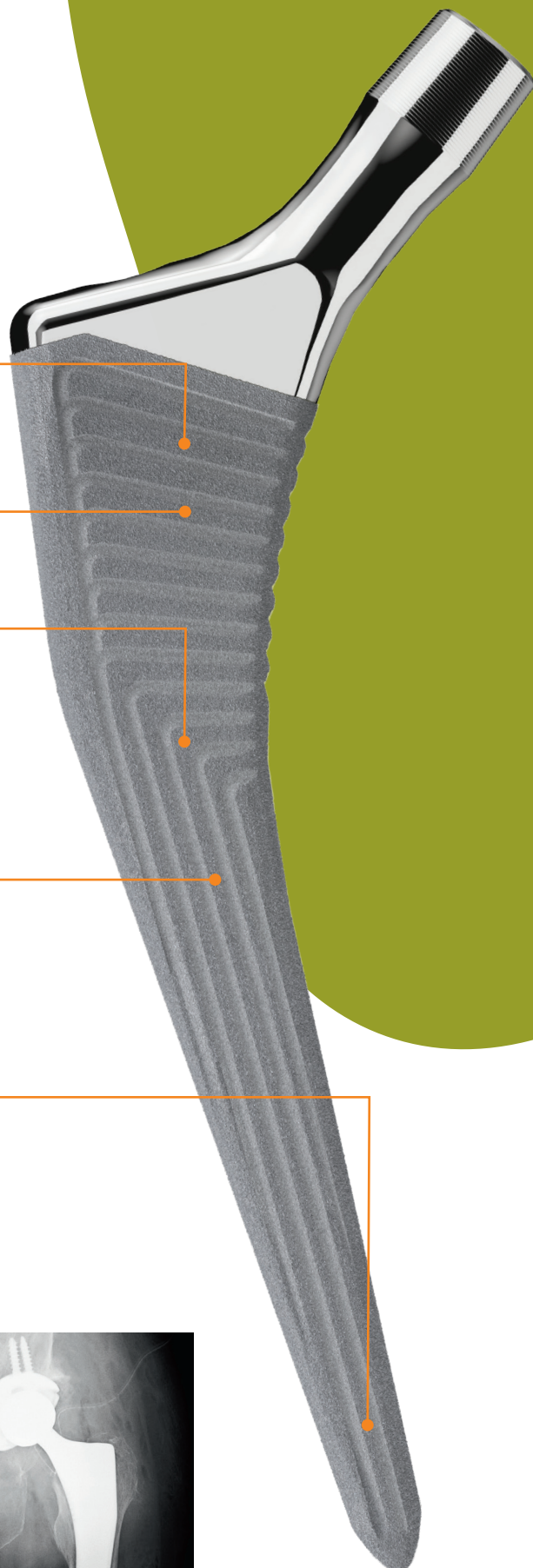
POLARSTEM 
Cementless and Cemented Stem

Design Rationale

Striving for excellence

POLARSTEM[◇] hip stem is designed to...

- help achieve excellent proximal stability with a triple taper, self-locking design and a reinforced proximal body¹⁻³
- avoid stem subsidence through the proximal grooves perpendicular to the average load direction^{2,3,6,12}
- maximise rotational stability with the distinctive axial structure of the stem^{4,5}
- provide rapid osseointegration and contribute to excellent primary stability with an advanced surface roughness of a 180µm open porous Titanium Plasma spray coating with an additional 50µm layer of HA (Hydroxyapatite)^{3,6-9}
- allow implantation in very small intramedullary canals such as Dorr A type femurs with a slim tapered distal tip^{4,6,7}
- allow for ease of implantation with any surgical approach thanks to the shortened stem length and narrow distal tip,^{1,11-13}



Dorr A femur

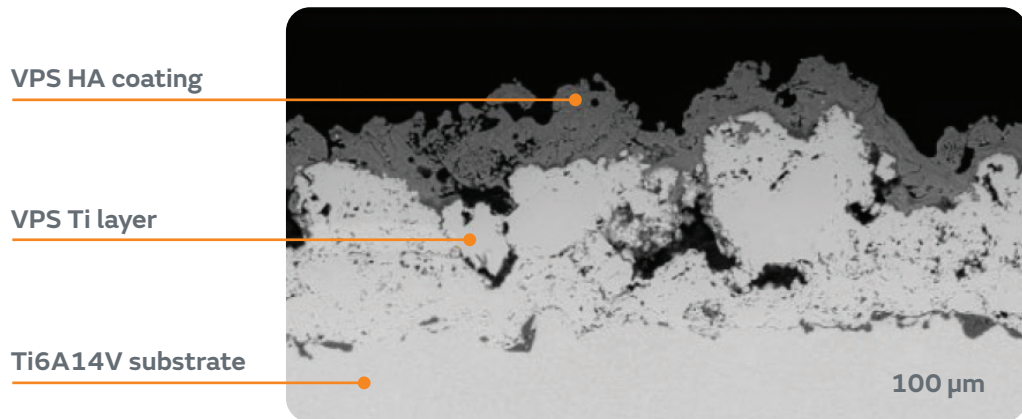


Dorr B femur



Dorr C femur

The advanced multi-layer porous coating on POLARSTEM^o cementless was designed to **provide effective fixation.**^{8,10}



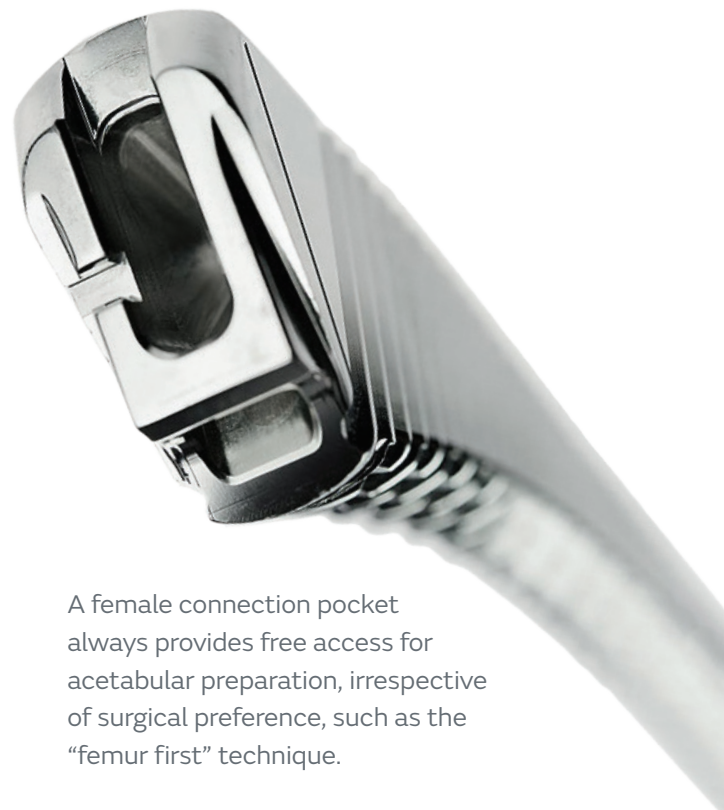
The simple surgical technique helps to **achieve reproducible results** and allows implantation using both conventional and minimally invasive techniques including direct anterior approach.^{1,2,12,14}



Anterior to posterior compaction teeth and medial to lateral bone cutting teeth provide excellent cortical bone contact for self-locking primary stability and may contribute to reduced subsidence.^{2,3,6}









Different versions of adapter handles are available for every surgical approach.



A female connection pocket always provides free access for acetabular preparation, irrespective of surgical preference, such as the "femur first" technique.

Swiss precision in instrumentation

The POLARSTEM[®] hip system is **suitable for all standard femoral morphologies**, due to the range of stem sizes and offset options.^{1,6,7}

Sizes	Valgus 145°	Standard 135°	Standard 135° Collar	Standard 135° cemented	Lateral 126°	Lateral 126° Collar	Lateral 126° cemented
							
01	•	75100462*	75018399*	•	•	•	•
0	75102072	75100463	75018400	75002111*	•	•	•
1	75102073	75100464	75018401	75002112*	75100474	75018412	75002120*
2	75102074	75100465	75018402	75002113*	75100475	75018413	75002121*
3	75102075	75100466	75018403	75002114*	75100476	75018414	75002122*
4	75102076	75100467	75018404	75002115*	75100477	75018415	75002123*
5	75102077	75100468	75018405	75002116*	75100478	75018416	75002124*
6	75102078	75100469	75018406	75002117*	75100479	75018417	75002125*
7	75102079	75100470	75018407	75002118*	75100480	75018418	75002126*
8	•	75100471	75018408	75002119*	75100481	75018419	75002127*
9	•	75100472	75018409	•	75100482	75102209	•
10	•	75100473	75018410	•	75100483	75102210	•
11	•	75100509	75018411	•	75100510	75102211	•

Offset versions intended to allow precise reconstruction

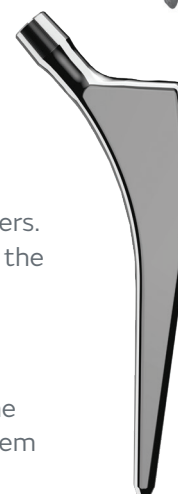
- For a M/+4 femoral head neck length, the offset of the lateral stems is increased by 3.6/3.7mm compared to standard stems to better reconstruct the hip biomechanics.
- Stem length grows in 4mm increments between size 1-11 and 6mm between size 01-1
- The valgus stem provides a reduced offset option to address difficult valgus abnormalities



POLARSTEM cemented – the solution when bone conditions demand a cemented fixation

The POLARSTEM cemented is based on the cementless design with a triple tapered geometry, but made of Stainless Steel with a highly polished surface and rounded corners. While it is using the same rasps, it facilitates intraoperative decision making and keeps the number of instruments low.

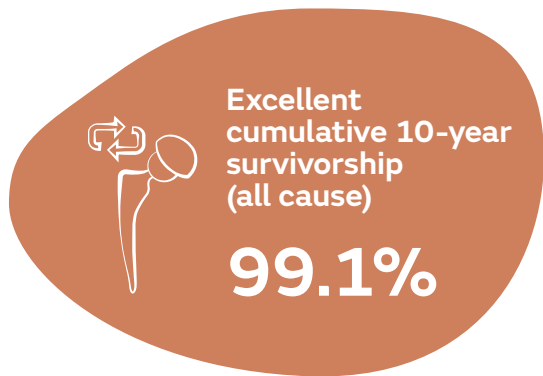
The dimension of the cemented stem equals the cementless without Ti/HA coating providing an approx. 250µm gap per side for bone cement. To perform an implantation according to the self-locking principle, also known as the 'French paradox', a stem of the same size as the last rasp used is selected.¹⁵ To obtain a complete cement mantle, a stem of one to two sizes smaller than the last rasp used is selected.



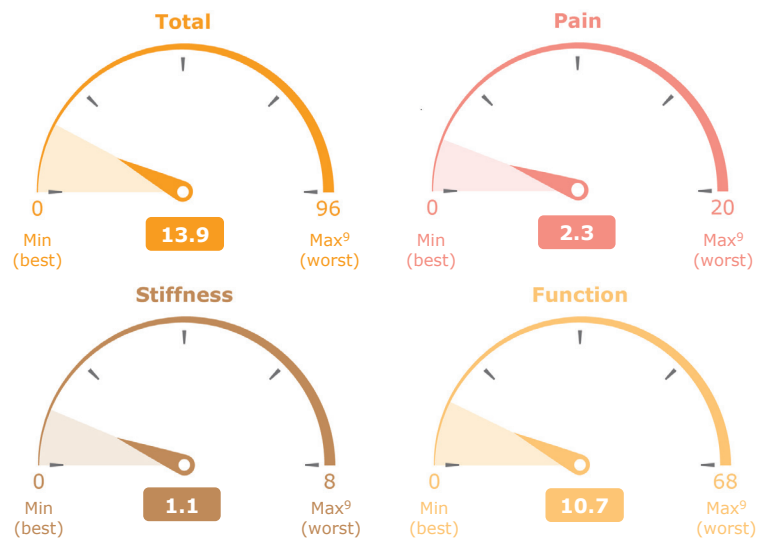
Striving for excellence

POLARSTEM[®] hip stems deliver high survivorship and excellent patient-reported function outcomes at 10 years.¹⁶

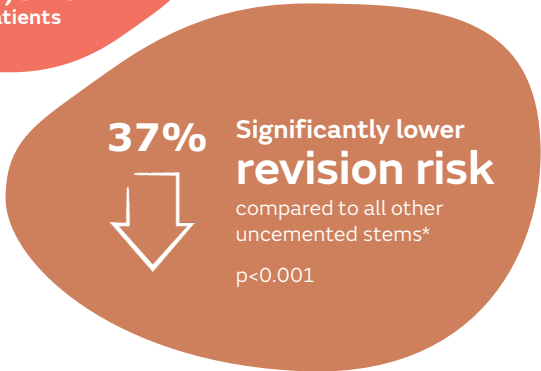
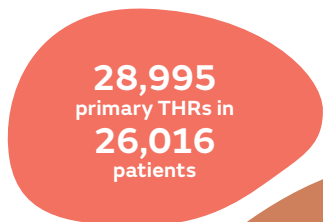
- Multicentre study (three centres)
- 502 THRs in 502 patients; 244 THRs were analysed
- Uncemented POLARSTEM and POLARCUP[®]
- Minimum 10-year follow up (mean, 11.9 years)



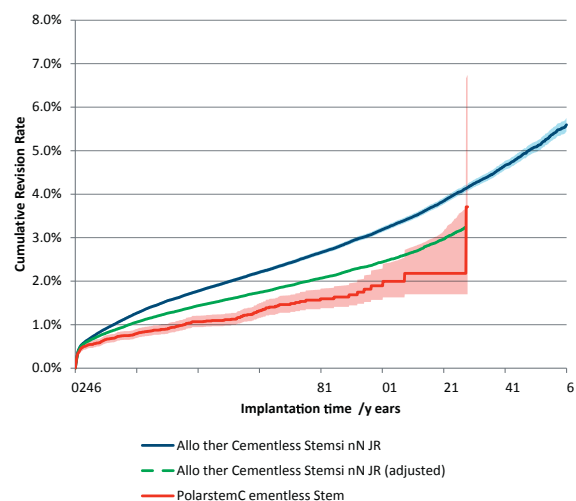
Excellent 10-year mean WOMAC scores



POLARSTEM hip has a survivorship of 97.8% at 11 years.¹⁷



Cumulative revision rate All reasons for revision, excluding metal-on-metal



*Unadjusted analysis. All results reported exclude metal-on-metal bearings. The term 'cementless' is equivalent to 'uncemented' reported on other slides.



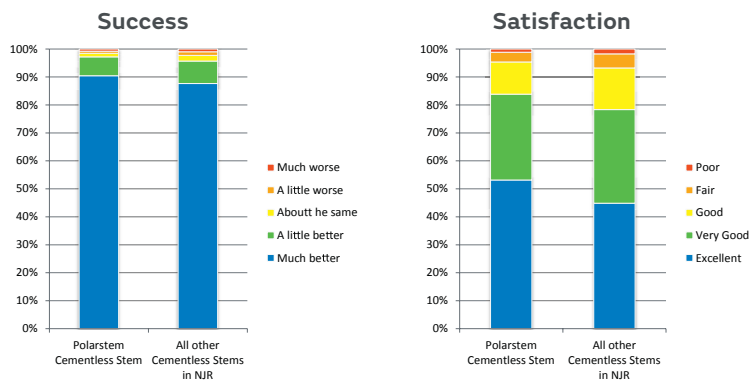
*The POLARSTEM + R3 combination has the lowest revision rate of the top 10 most commonly used constructs in the UK NJR.¹⁸

Striving for excellence *continued*

POLARSTEM[®] hip delivers high patient satisfaction and better PROMs.¹⁷

Patients who received POLARSTEM...

Were **significantly more likely to be satisfied** with their THR, and to consider their procedure a **success** ($p < 0.001$), after 6 months, compared to those who received other uncemented stems.



The term 'cementless' is equivalent to 'uncemented' reported on other slides.

Achieved **significantly better average 6-month PROM scores** compared to patients who received other types of uncemented stem ($p < 0.001$).

PROMs	POLARSTEM	All other NJR uncemented stems	p value
Oxford Hip Score	41.0 (40.8–41.2)	39.6 (39.6–39.6)	$p < 0.001$
EQ-5D	0.825 (0.820–0.831)	0.797 (0.795–0.798)	
EQ-VAS	79.3 (78.9–79.7)	77.1 (77.0–77.2)	

Adjusted health gain scores (95% confidence interval) at 6 months after THR. Adjusted scores correspond to the NHS Digital version 3 case-mix-adjustment model. Using case-mix adjusted scores allows for a more accurate comparison between groups by taking into account variations in patient characteristics.

Manufacturer

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