

Motec[®] Wrist
System

Swemac

Motec® Wrist Prosthesis

The Motec® Wrist Prosthesis has been designed with the objective to provide a pain free and mobile wrist while minimising the risk of luxation, loosening and osteolysis.

The prosthesis has a modular design comprised of a ball and socket articulation with threaded fixation in the Radius and 3rd Metacarpal/Capitate. The threaded implants are made of titanium alloy and have a blasted surface coated with Bonit®, a resorbable calcium phosphate, to promote osseointegration. Different implant sizes are available to match the prosthesis to individual patient anatomy.

The Motec Wrist System includes a compatible salvage solution, the Motec Wrist Arthrodesis, to allow easy conversion to a total wrist arthrodesis.



**Over 20 years
of clinical use**

Proven Clinical Performance

Provides wrist
pain relief

Provides wrist motion
and function



Proven Design

Ball and socket
articulation

Allows Dart
Thrower's Motion

Optimised short
term fixation

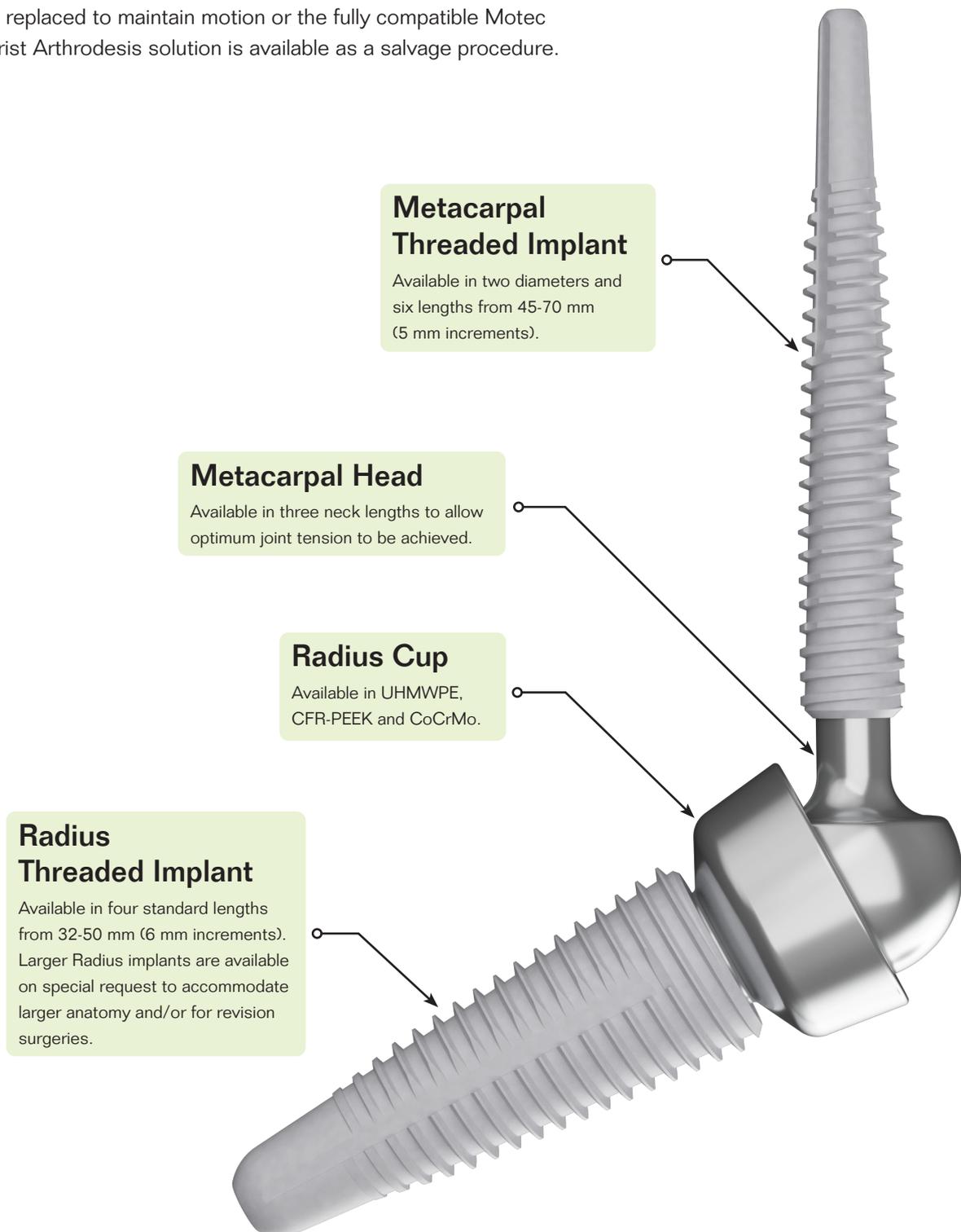
Optimised
osseointegration

Convertible to
a wrist arthrodesis

Product overview

The Motec Wrist Prosthesis is modular in its design to give the surgeon maximum flexibility adjusting the prosthesis to individual patient anatomy and the available bone for fixation.

In case of failure of the prosthesis, individual components can be replaced to maintain motion or the fully compatible Motec Wrist Arthrodesis solution is available as a salvage procedure.



Radius Cup options



UHMWPE Ø15 mm

- CoCrMo outer shell with UHMWPE blended with vitamin E insert



CFR-PEEK Ø15 mm

- CoCrMo outer shell with CFR-PEEK insert



CoCrMo Ø15 mm



A Maximum range of motion (ROM) **B** Cup maximum diameter **C** Distance to the centre of rotation from the threaded implant.

Metacarpal Head options



Ø15 mm Medium

~1.5



Ø15 mm Long

~2.5



Ø15 mm Extra Long

Proven Clinical Performance

The Motec Wrist Prosthesis has been in clinical use for more than 20 years with results published in numerous peer reviewed journals. The survivorship of the Prosthesis was reported as 92% at an average of 5.8 year follow-up in one international series of 171 patients and 86% at 10 year follow-up in another cohort of 56 patients (Ref 1 and 2).

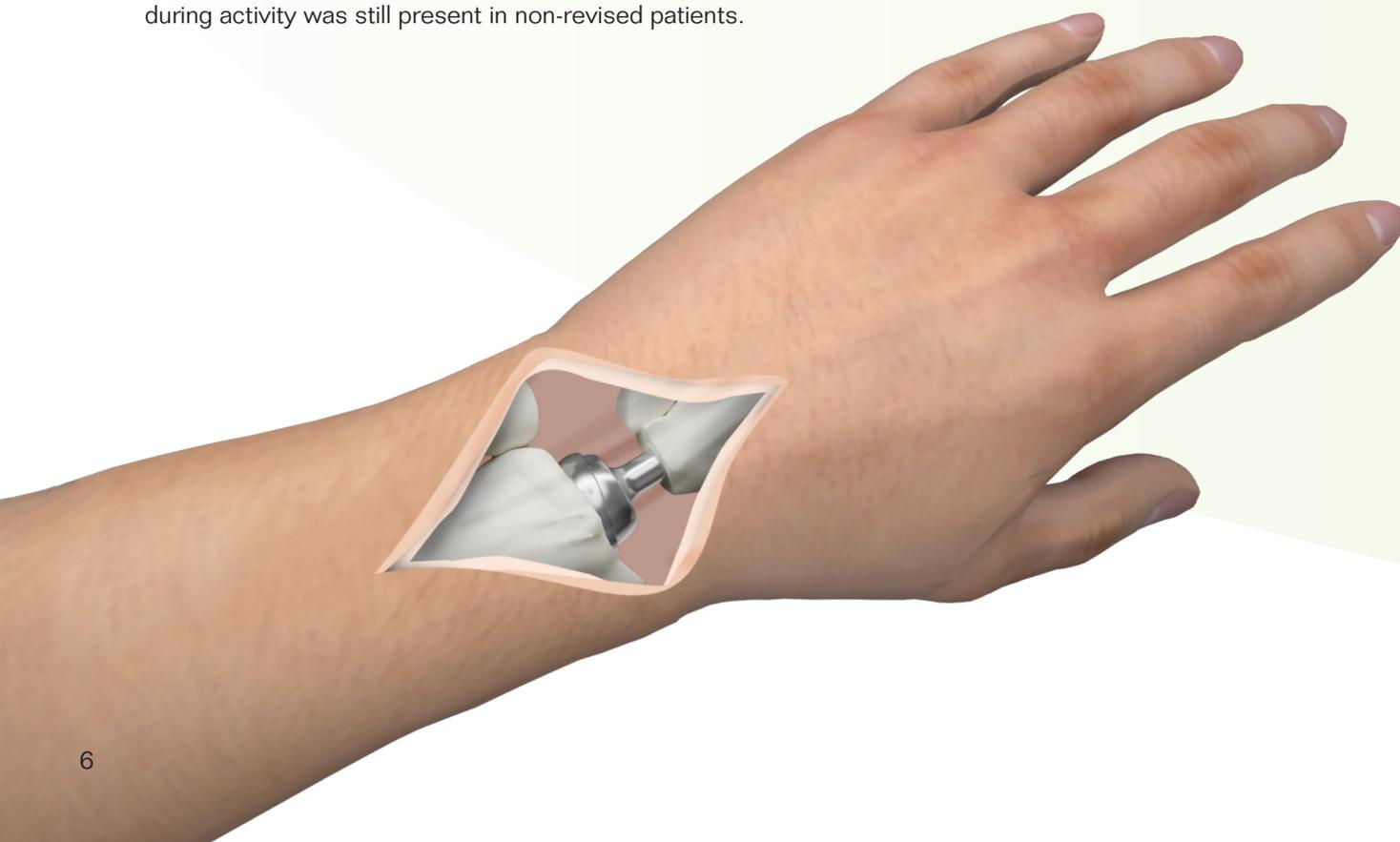
Provides wrist pain relief

The minimum requirement of a wrist arthroplasty is to provide pain relief and the Motec Wrist Prosthesis has demonstrated this during its clinical use.

Holm-Glad et al (2022) assessed pain before and after implantation of a Motec Wrist Prosthesis and reported significant improvements in pain both at rest and during activity when it was first assessed 6 months postoperatively. Whilst the pain relief at rest that was already obtained at 6 months stayed consistent, the pain scores during activity continued to improve until the last time point of 24 months (Ref. 3).

Long lasting pain reduction was reported by Reigstad et al (2017). In a cohort of 56 patients with a mean of 8 years follow-up, a relevant pain reduction at rest and during activity was still present in non-revised patients.

Pain relief achieved within six months and long lasting in non-revised patients.





Provides wrist motion and function

Maintaining wrist motion is a distinct advantage of a wrist arthroplasty when compared to the standard alternative treatment, a wrist arthrodesis. Wrist range of motion has been clinically investigated before and after implantation of a Motec Wrist Prosthesis in 3 separate patient cohorts in a total of 135 patients (Ref. 3-5). These studies consistently show that Motec provides on average around 30-40% improved ROM compared to patients' pre-operative status.

Wrist motion naturally facilitates wrist function which is subjective based on individual patient experience. In the same 135 patient cohort as above, wrist function was shown to improve after Motec implantation when measured using the PRWHE and DASH scoring systems. The minimally clinically important difference (MCID) of 14 points for the PRWHE and Q-DASH scores (Ref. 6) was achieved in all 3 patient cohorts that made up the 135 in total.

*Published data
showing 86% survival
at 10 year follow-up*

Proven Design

Ball and socket articulation

The Motec Wrist Prosthesis simplifies the complex wrist joint into a ball and socket joint and replicates the function of the native wrist rather than the anatomy. The ball and socket articulation provides inherent stability and clinical data shows that luxation has occurred in <1% of patients. The natural freedom of the ball and socket articulation of the Motec Wrist Prosthesis allows up to 77° theoretical range of motion (ROM) in all directions depending on the Radius Cup chosen (see page 5).



Allows dart thrower's motion

Dart thrower's motion (DTM) is defined as an oblique wrist motion from radial deviation-extension to ulnar deviation-flexion and has been identified as a functionally important motion to perform normal daily activities (Ref. 7). The Motec Wrist Prosthesis has been biomechanically proven to recreate all normal movements of the wrist including motion in the DTM plane in cadaveric studies by Glanville et al (2025) and Bain et al (2024) (Ref. 8-9).

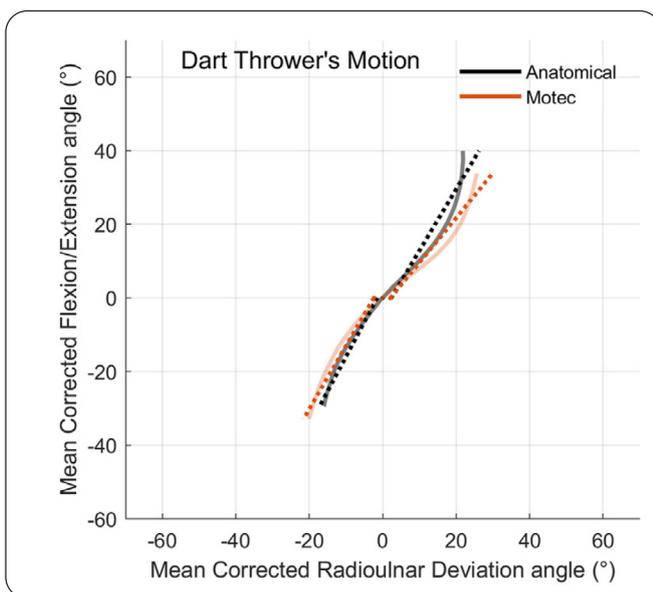


Fig.1 Average ROM, corrected for initial wrist position, in preoperative and postoperative wrists about the flexion (+)/extension (-) and radial (-)/ulnar (+) deviation axes of the radial coordinate system. Regression lines fitted to the mean radial extension (RE) and ulna flexion (UF) profiles are plotted over the average wrist angle trajectories as dotted lines. Adapted from Glanville et al. (2025) under the Creative Commons Attribution 4.0 International (CC BY 4.0) license. (Ref. 8)

Optimised short term fixation and osseointegration

Primary distal fixation

The Metacarpal Threaded Implants have been designed for maximum bone purchase. The threads engage into the cancellous and cortical bone of the capitate and the third metacarpal. Fusion of the third CMC joint is performed to achieve a stable fixation.

Threadless tip

Designed to reduce stress concentration and reduce the risk of fracture.

Conical implants

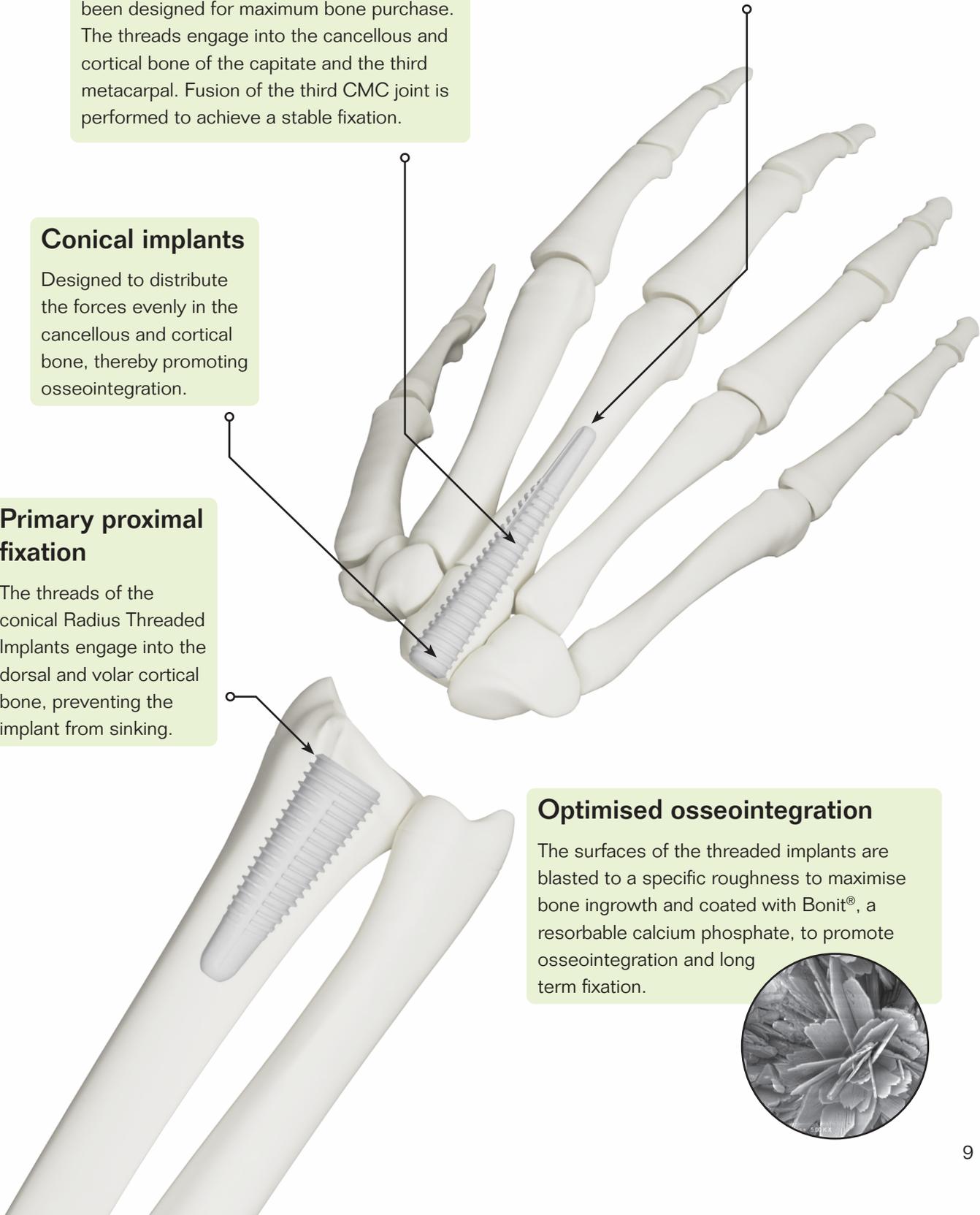
Designed to distribute the forces evenly in the cancellous and cortical bone, thereby promoting osseointegration.

Primary proximal fixation

The threads of the conical Radius Threaded Implants engage into the dorsal and volar cortical bone, preventing the implant from sinking.

Optimised osseointegration

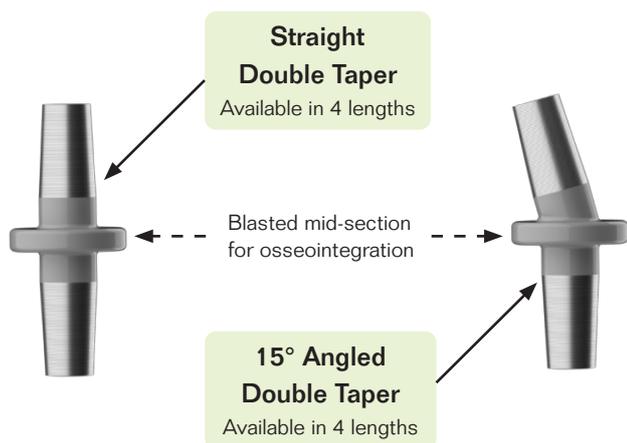
The surfaces of the threaded implants are blasted to a specific roughness to maximise bone ingrowth and coated with Bonit®, a resorbable calcium phosphate, to promote osseointegration and long term fixation.



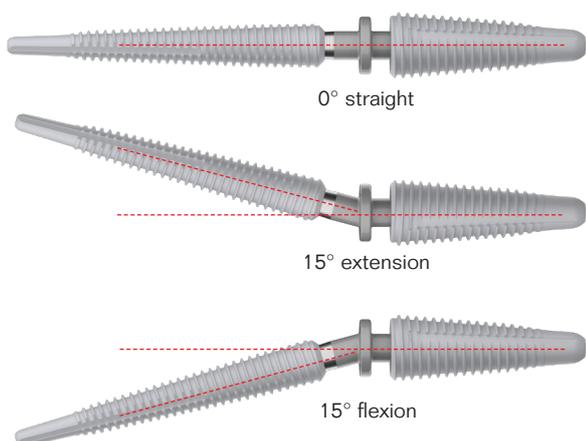
Convertible to a Wrist Arthrodesis

The Motec® Wrist Arthrodesis is a salvage option that has been developed to enable easy conversion of a Motec Wrist Prosthesis to an intramedullary total wrist arthrodesis.

Unnecessary implant removal is avoided by utilising pre-existing stable and osseointegrated Radius and Metacarpal Threaded Implants from the prosthesis. This preserves the bone available for arthrodesis by minimising bone loss which would otherwise occur during removal of well-fixed implants. The Radius Cup and Metacarpal Head are removed and the stable threaded implants are connected together with a Straight or 15° Angled Double Taper which provides the initial rigid fixation for bone fusion to occur following grafting. Long term stability requires successful fusion of the wrist.

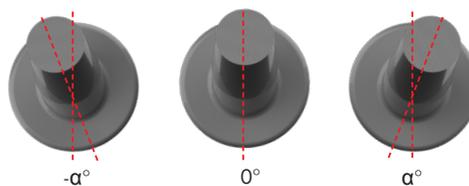


Angular flexibility



Rotational flexibility

The Angled Double Taper can be inserted into the Radius Threaded Implant with a slight rotation clockwise or anticlockwise to achieve some wrist deviation.



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Swemac

Motec® Wrist System

Manufacturer: **Swemac Innovation AB**



Cobolgatan 1 • SE-583 30 Linköping, Sweden

+46 13 37 40 30 • info@swemac.com

www.swemac.com

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