



**SURGICAL  
TECHNIQUE**

**Motec<sup>®</sup>**

Wrist Joint Arthrodesis System  
– Double Taper

*Swemac*

# Motec®

## Wrist Joint Arthrodesis System

**The system has been developed to enable easy conversion of the Motec® Wrist Joint Prosthesis to a total wrist arthrodesis.**

The Motec Wrist Joint Arthrodesis System provides salvage options that limit unnecessary implant removal by taking advantage of pre-existing stable and osseointegrated implants from the Motec Wrist Joint Prosthesis. This preserves the bone available for arthrodesis by minimising bone loss which would otherwise occur during removal of well-fixed implants. The intramedullary system has been developed to reduce soft tissue irritation from hardware and the associated need for secondary implant removal.

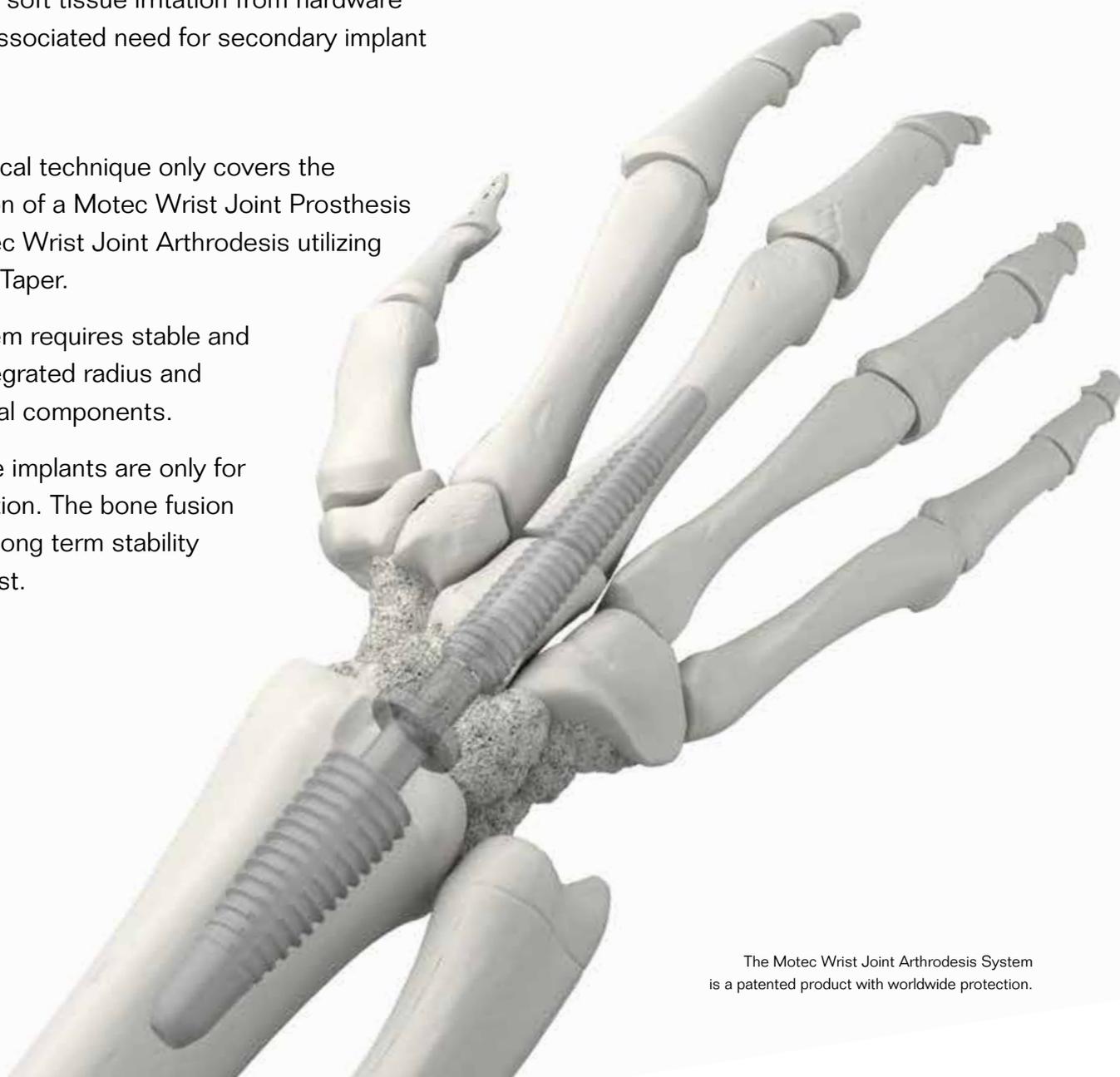
This surgical technique only covers the conversion of a Motec Wrist Joint Prosthesis to a Motec Wrist Joint Arthrodesis utilizing a Double Taper.

The system requires stable and osseointegrated radius and metacarpal components.

**Note:** The implants are only for initial fixation. The bone fusion provides long term stability of the wrist.

## Features and benefits

- Fully compatible salvage procedure.
- Minimizes the need for unnecessary implant removal procedures.
- Minimally invasive.
- Adjustable rotation angle
- Rigid permanent fixation.
- Manufactured from blasted Ti6Al4V to optimize osseointegration.
- The Double Taper is available in two models; Straight Double Taper and Angled Double Taper 15°. Each model is available in four sizes; Short, Medium, Long and Extra Long.



The Motec Wrist Joint Arthrodesis System is a patented product with worldwide protection.

# Indication

- Conversion from a Motec Wrist Prosthesis.

# Contraindications

The physician's education, training and professional judgement must be relied upon to choose the most appropriate device and treatment. Conditions presenting an increased risk of failure include:

- Any active or suspected latent infection, sepsis or marked local inflammation in or around the surgical area.
- Severe osteoporosis, insufficient quantity or quality of bone/soft tissue.
- Material sensitivity, documented or suspected.
- Physical interference with other implants during implantation or use.
- Compromised vascularity, inadequate skin or neurovascular status.
- Compromised bone stock that cannot provide adequate support and/or fixation of the device due to disease, infection or prior implantation.
- Patients who are unwilling or incapable of following post-operative care instructions.
- Other physical, medical or surgical conditions that would preclude the potential benefit of surgery.
- Previous open fracture or infection in the joint

# Pre-operative planning

**Ensure that the instrumentation sets for both the Motec Wrist Prosthesis and Motec Wrist Arthrodesis System are available in the operating theatre.**

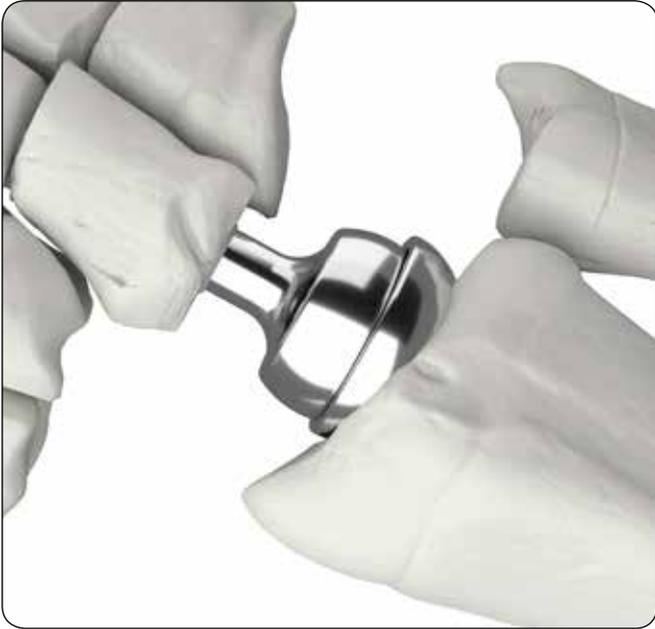
To use the Motec Wrist Arthrodesis system safely the surgeon is required to have extensive knowledge about the implant, the methods of application, instrumentation and the recommended surgical technique for the implant.

The surgeon should evaluate each patient scheduled for arthrodesis individually and choose the most appropriate device and treatment for each case. In otherwise healthy patients, optimal function in the wrist is usually achieved with the wrist fused in slight extension (10-30°). In cases of bilateral wrist fusions, one wrist should be fused in slight flexion to aid with personal hygiene care.

For detailed information about the patient positioning and incision see the Motec Wrist Prosthesis surgical technique.

# Surgical Technique

## 1. Motec Wrist Prosthesis



For detailed information about the position of the patient, incision and the Motec Wrist Prosthesis, see the Motec Wrist Prosthesis system brochure and the surgical technique.

## 2. Remove the Metacarpal Head



Gently pull the hand downwards until the Metacarpal Head luxates from the Radius Cup.



Keep the wrist in maximum flexion and use the Impactor to release the Metacarpal Head from the Metacarpal Threaded Implant. Remove the Metacarpal Head.

### 3. Remove the Radius Cup



Use the Cup Remover to release the Radius Cup from the Radius Threaded Implant. The Cup Remover is compatible with both the metal and plastic Cups. Place the tips of the Cup Remover between the Radius Threaded Implant and the Radius Cup. If needed; remove bone to gain access to the neck of the Cup. Keep the Cup Remover perpendicular to the Radius Threaded Implant and tap gently with the Hammer. The Radius Cup will release from the conical press-fit inside the Radius Threaded Implant. Remove the Radius Cup.



Remove any remaining cartilage and sclerotic bone between the carpal bones and the distal radius. The spongy bone surfaces provides optimal conditions for fusion of the wrist.

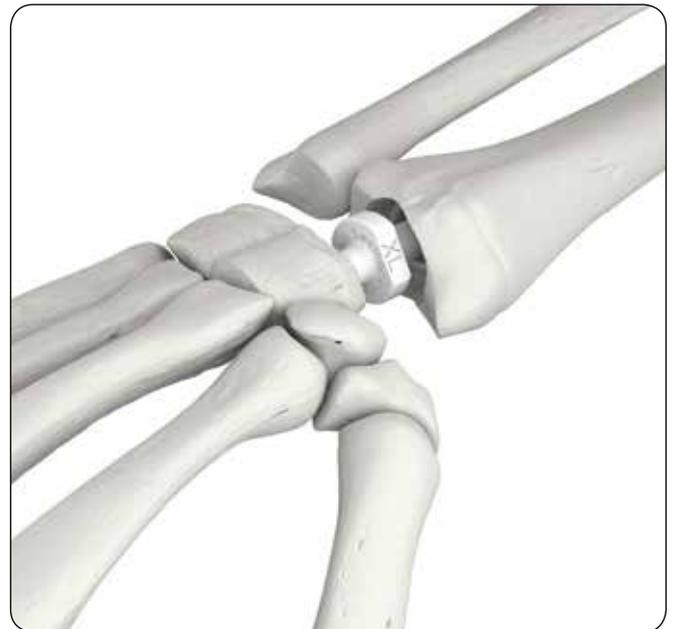
### 4. Trials



The Trials should be used to determine the correct size of implant for the joint.

Start by inserting the shortest Trial and increase the size until the right tension is achieved. The Double Taper is available in two models; Straight Double Taper and Angled Double Taper 15°. Each model is available in four sizes; Short, Medium, Long and Extra Long. Always start by inserting the Trial in the distal component, the Metacarpal Threaded Implant.

**Note:** Do not use the impactor when inserting the Trials.



Attach the Trial to the Radius Threaded Implant.

**Note:** The Angled Double Taper is designed to enable the wrist to be fused in 15° extension, in relation to the Radius Threaded Implant.

## 5. Insert the Double Taper in the Metacarpal Threaded Implant

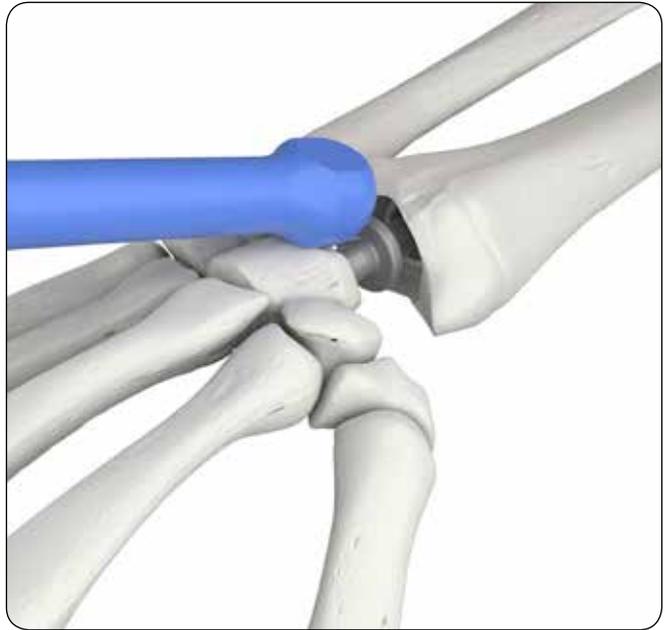


Remove the Trial and insert the corresponding implant. Before introducing the Double Taper, make sure the internal taper of the Metacarpal Threaded Implant is clean.

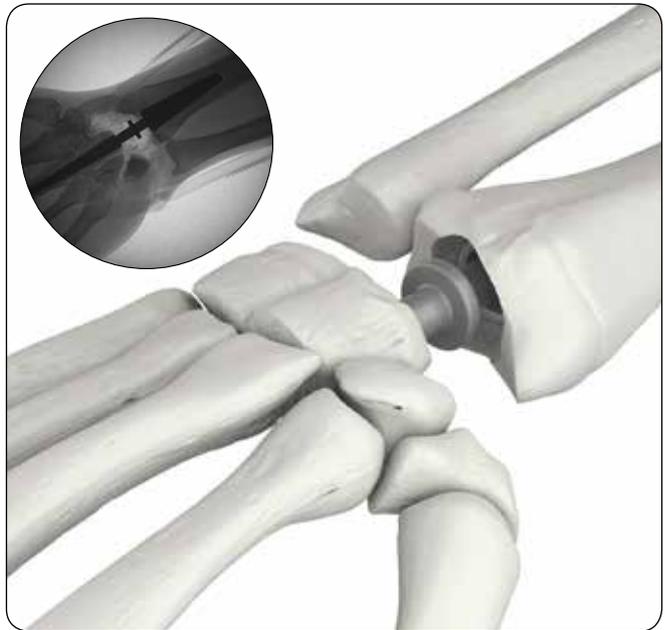


**Note:** Always start by attaching the Double Taper to the Metacarpal Threaded Implant. If the proximal end is inserted first, you will have problems inserting the distal end. Tap gently with the Impactor to ensure firm seating.

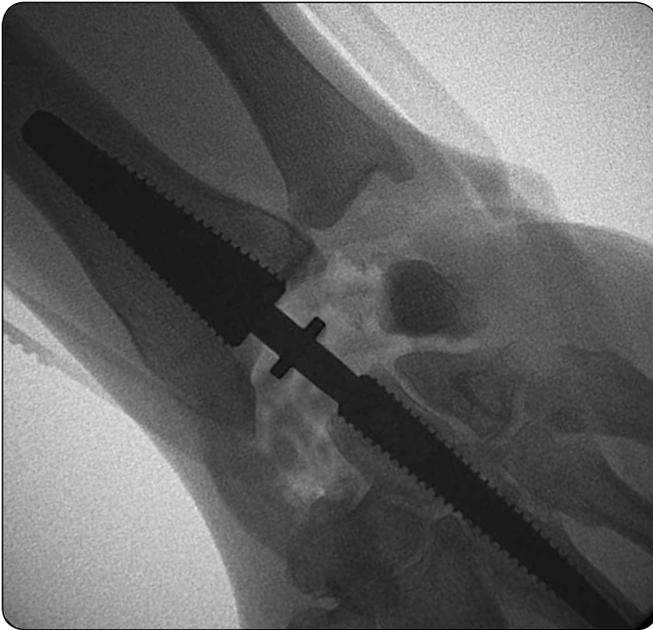
## 6. Insert the Double Taper in the Radius Threaded Implant



Make sure the internal taper of the Radius Threaded Implant is clean before inserting the Double Taper. Tap gently with the hammer to ensure firm seating.



## 7. Use bone to fill the wrist cavity



Make sure that the cartilage is removed both distally and proximally. Also remove the cartilage between the small bones in the joint, as in the traditional preparation of a wrist arthrodesis. All bone surfaces should be spongy. Fill the wrist cavity with bone graft to get maximum stability and optimal conditions for fusion.

**Observe:** The implant is only for initial fixation. The bone fusion provides long term stability of the wrist.

## 8. Closure



The dorsal capsule is closed. The extensor retinaculum is sutured back and a subcutaneous drainage is, if deemed necessary, introduced before the incision is closed.

## Postoperative care

**0-6 weeks:** A short arm cast allowing free forearm rotation and finger function is recommended for 6 weeks (a plaster slab is used for the first 2 weeks). Depending on the surgeons judgement, additional weeks might be preferred. Start early hand therapy during the hospital stay, with finger, forearm, elbow and shoulder motion.

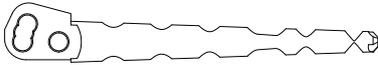
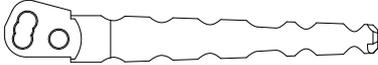
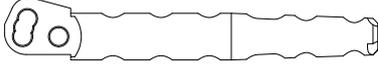
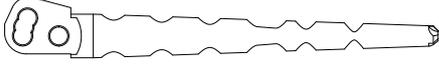
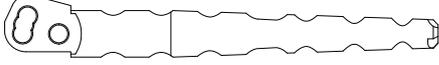
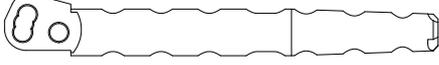
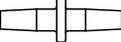
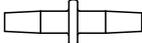
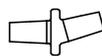
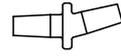
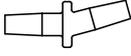
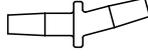
At approximately 2 weeks the slab and sutures are removed and a circular cast applied for additional 4 weeks. If there is any problem with upper extremity motion the patient shall receive hand therapy.

**6 weeks:** The cast is removed (and radiographs to evaluate bone fusion are taken). Start with limited weight bearing and gradually increase the weight. Free weight-bearing is allowed when radiographs confirm bone fusion.

# Product information

● Needed for Double Taper surgical technique.

## Implants

Metacarpal Nail   Ø 3.3 mm   Short	41-0602S		
Metacarpal Nail   Ø 4.7 mm   Short	41-0604S		
Metacarpal Nail   Ø 6.1 mm   Short	41-0606S		
Metacarpal Nail   Ø 3.3 mm   Long	41-0612S		
Metacarpal Nail   Ø 4.7 mm   Long	41-0614S		
Metacarpal Nail   Ø 6.1 mm   Long	41-0616S		
Metacarpal Connector/Taper	41-0712S		
Radius Connector   Medium (Including Lock Screws)	41-0724S		
Radius Connector   Long (Including Lock Screws)	41-0726S		
Straight Double Taper   Short	41-3001S	●	
Straight Double Taper   Medium	41-3002S	●	
Straight Double Taper   Long	41-3003S	●	
Straight Double Taper   Extra Long	41-3004S	●	
Angled Double Taper 15°   Short	41-3101S	●	
Angled Double Taper 15°   Medium	41-3102S	●	
Angled Double Taper 15°   Long	41-3103S	●	
Angled Double Taper 15°   Extra Long	41-3104S	●	

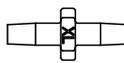
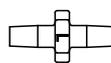
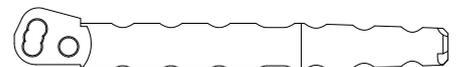
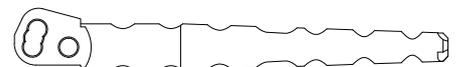
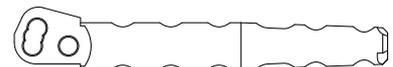
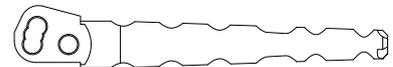
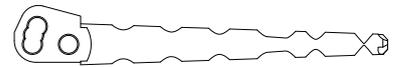
## Cortical Screws

Cortical screw Ø 2,7 mm Ti6Al4V   Length 10 mm	41-2710
Cortical screw Ø 2,7 mm Ti6Al4V   Length 12 mm	41-2712
Cortical screw Ø 2,7 mm Ti6Al4V   Length 14 mm	41-2714
Cortical screw Ø 2,7 mm Ti6Al4V   Length 16 mm	41-2716
Cortical screw Ø 2,7 mm Ti6Al4V   Length 18 mm	41-2718
Cortical screw Ø 2,7 mm Ti6Al4V   Length 20 mm	41-2720
Cortical screw Ø 2,7 mm Ti6Al4V   Length 22 mm	41-2722
Cortical screw Ø 2,7 mm Ti6Al4V   Length 24 mm	41-2724

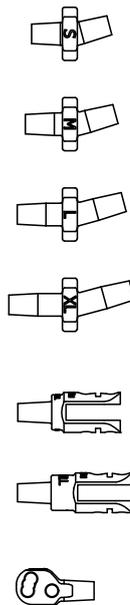


## Trials

Metacarpal Nail   Ø 3.3 mm   Short	41-1702	
Metacarpal Nail   Ø 4.7 mm   Short	41-1704	
Metacarpal Nail   Ø 6.1 mm   Short	41-1706	
Metacarpal Nail   Ø 3.3 mm   Long	41-1712	
Metacarpal Nail   Ø 4.7 mm   Long	41-1714	
Metacarpal Nail   Ø 6.1 mm   Long	41-1716	
Straight Double Taper   Short	41-1791	●
Straight Double Taper   Medium	41-1792	●
Straight Double Taper   Long	41-1793	●
Straight Double Taper   Extra Long	41-1794	●

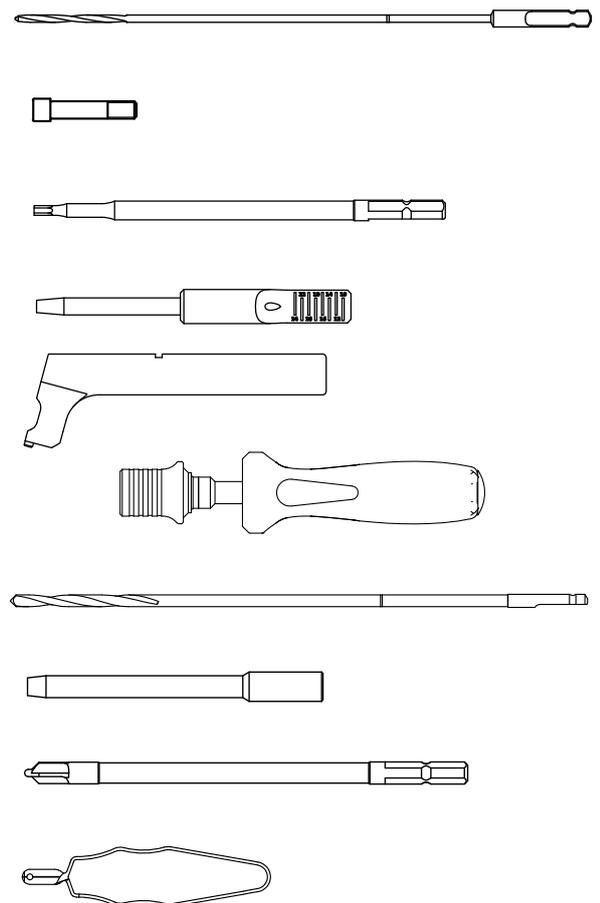


Angled Double Taper 15°   Short	41-1795	●
Angled Double Taper 15°   Medium	41-1796	●
Angled Double Taper 15°   Long	41-1797	●
Angled Double Taper 15°   Extra Long	41-1798	●
Radius Connector   Medium	41-1724	
Radius Connector   Long	41-1726	
Metacarpal Connector/Taper	41-1722	



## Instruments

Drill with AO-coupling   Ø 2 mm	52-2207	
Lock screw for Drill Guide	41-1720	
Hex Driver Tip w. Quick-Lock   6k-2,5 mm	41-1740	
Measurement Sleeve	41-1750	
Drill Guide for Metacarpal Nail	41-1756	
Handle Tri-Lobe with Quick-Lock	49-2504	
Drill with AO-coupling   Ø 4 mm	300.00.105	
Drill Sleeve Ø4 mm	41-1752	
Countersinker with Quick-Lock	41-1760	
Tweezers for Cortical Screw	41-1730	
Motec Wrist Arthrodesis Tray	41-1700	●
Complete Motec Wrist Prosthesis Instrumentation		●



## **IFU**

For the latest version of the Instruction For Use. Please visit:  
<http://download.swemac.com/Motec-Wrist-Arthrodesis>

Swemac develops and promotes innovative solutions for fracture treatment and joint replacement. We create outstanding value for our clients and their patients by being a very competent and reliable partner.

# Swemac

Motec Wrist Joint Arthrodesis

Manufacturer



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