



## **ILLICO® MIS POSTERIOR FIXATION SYSTEM**

### **INSTRUCTIONS FOR USE (International)**

#### **GENERAL INFORMATION:**

The Illico MIS Posterior Fixation System is intended to facilitate the surgical correction of noncervical spinal deformities by providing temporary internal fixation and stabilization during bone graft healing and/or fusion mass development. When used for a minimally invasive posterior approach Illico MIS Instrumentation is used in conjunction with polyaxial screw components. The implants are manufactured from surgical grade titanium alloy (Ti-6Al-4V ELI or Ti-6Al-4V). The rods are available in commercially pure (CP) titanium and/or cobalt chrome.

#### **INDICATIONS FOR USE:**

The Illico MIS Posterior Fixation System is intended for posterior, non-cervical, spinal fixation device in skeletally mature patients as an adjunct to fusion for the following indications: degenerative disc disease (defined as back pain of discogenic origin with degeneration of the disc confirmed by history and radiographic studies); spondylolisthesis; trauma (i.e., fracture or dislocation); spinal stenosis; curvatures (i.e., scoliosis, kyphosis and/or lordosis); tumor; pseudarthrosis; and/or failed previous fusion. It is intended to provide stabilization during the development of fusion utilizing autograft or allograft bone graft. It is intended that this device, in any system configuration, be removed after development of solid fusion mass.

#### **CONTRAINDICATIONS:**

The ILLICO MIS Posterior Fixation System is contraindicated for:

1. Use in the cervical spine.
2. Patients with osteopenia, bone absorption, bone and/or joint disease, deficient soft tissue at the wound site or probable metal and/or coating intolerance.
3. Patients with infection, inflammation, fever, tumors, elevated white blood count, obesity, pregnancy, mental illness, and other medical conditions, which would prohibit beneficial surgical outcome.
4. Spinal surgery cases that do not require bone grafting and/or spinal fusion.
5. Use with bone cement.
6. Patients resistant to following post-operative restrictions on movement especially in athletic and occupational activities.
7. Comingling of titanium and stainless steel components within the same construct.
8. Reuse, or multiple use.

#### **WARNINGS:**

1. The implants and instruments of the Illico System are provided non-sterile. Refer to the CLEANING and STERILIZATION sections for directions on cleaning and sterilization.
2. The Illico MIS Posterior Fixation System implants are used only to provide temporary internal fixation during the bone fusion process with the assistance of a bone graft. A successful result may not be achieved in every instance of use with these devices. Without solid bone fusion, these devices cannot be expected to support the spine indefinitely and may fail due to bone-metal interface, rod failure or bone failure.
3. The product implants are single use devices. Do not reuse.
4. The instruments are reusable surgical devices with the exception of the guide wires which are designed for single use.
5. To prevent guide wire breakage, do not use a kinked or bent guide wire.



6. Use of these systems is significantly affected by the surgeon's proper patient selection, preoperative planning, proper surgical technique, proper selection, and placement of implants. The physician/surgeon should consider the levels of implantation, patient weight, patient activity level and patient condition, which may impact the performance of the system when using this device.
7. Potential risks identified with the use of these devices, which may require additional surgery, include device component failure, loss of fixation/stabilization, non-union, vertebral fracture, neurological injury, vascular or visceral injury.
8. Other significant risks to spinal surgery include alcohol abuse, obesity, patients with poor bone, muscle and/or nerve quality. Patients who smoke should be advised of the consequences that an increased incidence of non-union has been reported with patients who smoke.
9. It is critical that set screws are turned to the proper torque values as recommended in the surgical techniques, using the instruments provided.
10. The safety and effectiveness of pedicle screw spinal systems have been established only for spinal conditions with significant mechanical instability or deformity requiring fusion with instrumentation. These conditions are significant mechanical instability or deformity of the thoracic, lumbar, and sacral spine secondary to severe spondylolisthesis (grades 3 and 4) of the L5-S1 vertebra, degenerative spondylolisthesis with objective evidence of neurological impairment, fracture, dislocation, scoliosis, kyphosis, spinal tumor, and failed previous fusion (pseudarthrosis). The safety and effectiveness of these devices for any other conditions are unknown.
11. It is recommended that the implants of the Alphatec Spine product lines should not be used with any other company's spinal systems.

#### **PRECAUTIONS:**

1. The implantation of pedicle screw spinal systems should be performed only by experienced spinal surgeons with specific training in the use of this pedicle screw spinal system because this is a technically demanding procedure presenting a risk of serious injury to the patient.
2. The ILLICO MIS System has not been evaluated for safety and compatibility in the Magnetic Resonance (MR) environment. The ILLICO MIS System has not been tested for heating or migration in the MR environment.
3. Device components should be received and accepted only in packages that have not been damaged or tampered with. Damaged implants should not be used. Components must be carefully handled and stored in a manner that prevents scratches, damage, and corrosion.
4. The physician/surgeon should consider the levels of implantation, patient weight, patient activity level, other patient conditions, etc. which may impact on the performance of the system.

#### **POSSIBLE ADVERSE EFFECTS:**

The following complications and adverse reactions have been shown to occur with the use of similar spinal instrumentation. These effects and any other known by the surgeon must be discussed with the patient preoperatively.

1. Initial or delayed loosening, disassembly, bending, dislocation and/or breakage of device components.
2. Physiological reaction to implant devices due to foreign body intolerance including inflammation, local tissue reaction, and possible tumor formation.
3. In the case of insufficient soft tissue at and around the wound site to cover devices, skin impingement and possible protrusion through the skin may occur.
4. Loss of desired spinal curvature, spinal correction and/or a gain or loss in height.
5. Infection and/or hemorrhaging.
6. Bone graft, vertebral body and/or sacral fracture, and/or discontinued growth of fused bone at, above and/or below the surgery level.
7. Non-union and/or pseudarthrosis.



8. Neurological disorder, pain and/or abnormal sensations.
9. Revision surgery.
10. Death.

#### **PREOPERATIVE MANAGEMENT:**

1. Only those patients meeting the criteria listed in indication for use section should be selected.
2. Surgeons should have a complete understanding of the surgical technique, system indications, contraindications, warnings and precautions, safety information, as well as functions and limitations of the implants and instruments.
3. Careful preoperative planning should include construct strategy, pre-assembly of component parts (if required), and verification of required inventory for the case.

#### **INTRAOPERATIVE MANAGEMENT:**

1. To prevent possible nerve damage and associated disorders, extreme caution should be taken to avoid the spinal cord and nerve roots at all times.
2. During guide wire placement, it is recommended to frequently use alternate imaging planes. Ideally, an A-P, lateral, and oblique view should be taken at all critical steps during the procedure to ensure proper positioning and alignment, and to prevent kinking or breakage of the devices.
3. Rods should be bent in only one direction, one time, at an angle no greater than 15° at the same point of location. If it is mandatory to cut the rods to a more specific length, rod cutting should be done at a distance from the operative range, and such that a non-sharp edge remains on the rod.
4. Only one single continuous rod should be used on the same side of the spine whenever possible. Connecting two parallel or axially aligned rods is not recommended.
5. Bone graft must be placed in the area to be fused and graft material must extend from the upper to the lower vertebrae being fused.
6. The final operative procedure with polyaxial screws must include tightening of set screws to 100in-lb torque value with the instruments provided.

#### **POSTOPERATIVE MANAGEMENT:**

Postoperative management by the surgeon, including instruction and warning and compliance by the patient, of the following is essential:

1. Patient should be informed and compliant with the purpose and limitations of the implant devices.
2. The surgeon should instruct the patient regarding amount and time frame after surgery of any weight bearing activity. The increased risk of bending, dislocation, and/or breakage of the implant devices, as well as an undesired surgical result are consequences of any type of early or excessive weight bearing, vibratory motion, fall, jolts or other movements preventing proper healing and/or fusion development.
3. In the case of delayed, mal-union, or non-union of bone, immobilization should be considered in order to prevent bending, dislocation, or breakage of the implant devices. Immobilization should continue until a complete bone fusion mass has developed and been confirmed.
4. Postoperative patients should be instructed not to smoke, consume alcohol, or consume non-steroidal anti-inflammatory drugs and aspirin, as determined by the surgeon. Complete postoperative management to maintain the desired result should also follow implant surgery.
5. The ILLICO MIS Posterior Fixation System implants are designed and intended as temporary fixation devices. The devices should be removed after complete healing has occurred. Devices, which are not removed after serving their intended purpose may bend, dislocate, or break and/or cause corrosion, localized tissue reaction, pain, infection, and/or bone loss due to stress shielding. Complete postoperative management to maintain the desired result should also follow implant removal surgery.
6. Retrieved implants should be properly disposed of and are not to be reused under any circumstance.



**INSTRUMENT PREPARATION:**

1. Cleaning, inspection, lubrication, and sterilization must be performed by hospital personnel trained in the general procedures involving contaminant removal.
2. Instruments must be cleaned prior to lubrication and sterilization.
3. All instrument hinged, rotating, and articulating parts must be lubricated prior to sterilization with a water soluble and sterilizable lubricant intended for surgical instruments (Hinge-Free® for example).

**CLEANING:**

Implants and instruments must be free of packaging material and bio-contaminants prior to sterilization. Cleaning, maintenance, and mechanical inspection must be performed by hospital personnel trained in the general procedures involving contaminant removal. For complex devices, such as those with, cannulas, hinges, retractable features, mated surfaces, and textured surface finishes, require special attention during cleaning. Manual pre-cleaning of such device features is required before automated cleaning processing. Assure devices are in the fully extended, open position throughout cleaning. Certain instruments may require dismantling before cleaning. Handle all products with care. Mishandling may lead to damage and possible improper functioning of the device.

**Manual Cleaning Steps for Instruments**

<b>Step 1</b>	Rinse devices in deionized (DI) or reverse osmosis (RO) water to remove excess soil.
<b>Step 2</b>	Submerge device in enzyme solution and soak for 5 minutes.
<b>Step 3</b>	Scrub device using a soft bristled brush until all visible soil has been removed. Use of a syringe or water jet is recommended for hard to reach areas.
<b>Step 4</b>	Rinse devices in lukewarm tap water for a minimum of 1 minute.
<b>Step 5</b>	Submerge devices in cleaning solution such as CritiKlenz and sonicate for a minimum of 10 minutes
<b>Step 6</b>	Thoroughly rinse devices with RO/DI water to remove all detergent residues.
<b>Step 7</b>	Dry devices with a clean soft cloth. Pressurized air (30 psi) may be used to assist in drying.

**Automatic Pre-Wash Steps**

<b>Step 1</b>	Rinse devices in deionized (DI) or reverse osmosis (RO) water, paying particular attention to hard-to-reach areas, to remove excess soil.
<b>Step 2</b>	Submerge device in enzyme solution and soak for 5 minutes.
<b>Step 3</b>	Rinse devices in lukewarm tap water to remove detergent residuals.
<b>Step 4</b>	Place devices in fully extended open position into washer and process through a standard washer/disinfector instrument cycle.

**Automatic Washer/Disinfector Cycle Steps**

<b>Step 1</b>	Pre Wash, cold tap water, 2 minutes.
<b>Step 2</b>	Enzyme wash, hot tap water, 1 minute.
<b>Step 3</b>	Detergent wash, Hot tap water (66 °C/150 °F), 2 minutes.
<b>Step 4</b>	Rinse 2x, hot tap water, 15 seconds.
<b>Step 5</b>	Purified Water rinse (66 °C/150 °F), 10 seconds.
<b>Step 6</b>	Dry devices with a clean soft cloth. Pressurized air can be used to assist drying.



**STERILIZATION/RESTERILIZATION:**

All Implants and instruments should be steam sterilized using the appropriate cycle parameters. Alphatec products have been validated to achieve sterility using sterilization accessories (sterilization wraps, container and filters).

System	Cycle Type	Temperature	Exposure Time	Minimum Drying Time
<b>ILLICO MIS Posterior Fixation System Implants</b>				
Non-Cannulated Screws and Rods Implants SKIF-73700-01	Pre-vacuum	270°F (132°C)	8 minutes	60 minutes
Cannulated Screws and Rods Implants SKIF-73700-02				
Cobalt Chrome Rod Caddy SKIF-73700-05				
<b>ILLICO MIS Posterior Fixation System Instruments</b>				
Retractor Instruments SKIF-73500	Pre-vacuum	270°F (132°C)	10 minutes	60 minutes
Posterior Disc Prep minutes Instruments SKIF-73501				
Screw Extender Posterior Fixation Instruments SKIF-73700-03			8 minutes	10 minutes
Screw System Instruments SKIF-73700-04				
Standard Screw Extender Multi-level Instruments SKIF-73700-06				
Wide Screw Extender Multi-level Instruments SKIF-73700-07				



. It is the end user's responsibility to use only sterilizers and accessories (such as sterilization wraps, sterilization pouches, chemical indicators, biological indicators, and sterilization cassettes) for the selected sterilization cycle specifications (time and temperature).

**MAINTENANCE OF TORQUE WRENCH:**

**CALIBRATION:** Regular calibration ensures the Torque Wrench performs according to its specifications. To ensure that the Torque Wrench operates properly and safely at all times, Alphatec recommends that the Torque Wrench be calibrated every six (6) months, after 200 autoclave cycles, or approximately 3000 actuations (clicks), whichever comes first. Heavy use applications may necessitate much more frequent calibration. **If at any time a torque wrench appears to be malfunctioning, remove it from service and return it to Alphatec for recalibration or replacement immediately.** For any questions regarding calibration, please contact Alphatec Customer Service at (800) 922-1356.

**COMPLAINT HANDLING/REPORTING:**

All product complaints relating to safety, efficacy, or performance of the product should be reported immediately to Alphatec Spine by telephone or letter. All complaints should be accompanied by name, part number, and lot numbers. The person formulating the complaint should provide their name, address, and as many details as possible.

For surgical technique manual or additional information regarding the ILLICO MIS Posterior Fixation Systems, please contact Alphatec Spine, Inc. Customer Service at (800) 922-1356 or (760) 431-9286. Certain components are covered by: U.S Patent No.5,207,678.

For a listing of Symbols and Explanations, see [atecspine.com/eifu](http://atecspine.com/eifu)



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