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The Instinct™ Java® System was designed to treat a large variety of spinal diseases with intuitive solutions. We focused our design activities to deliver a simple, easy-to-use system that offers versatile options to the surgeons. Zimmer Spine committed to develop a system that offered low profile implants with high biomechanical strength. The Instinct Java System is based on optimized technologies that minimize the overall implants volume without compromising the performance.

- Reduced head diameter offers more room for graft with a lower construct profile.
- Round shape preserves adjacent facets.
- Four recesses for a powerful connection with the persuader.
- Raised dimples for a better connection to the rod fork.
- Optimized buttress thread prevents head splay and cross threading.
- Star connection provides a stable and strong connection with the screwdriver.
- Cortical and cancellous advanced threads to maximize the pull-out resistance.
- Self tapping tip to save surgical time.
Indications/Contraindications

Indications

*Instinct Java* Spinal Fixation Systems are designed for posterior spinal fixation procedures.

*Instinct Java* Spinal Fixation Systems are indicated for the temporary correction and stabilization of a portion of the vertebral column from the thoracic vertebrae to the sacrum until fusion takes place usually in a 6 to 12 months’ period.

When fusion is achieved the *Instinct Java* Spinal Fixation Systems should be removed taking into account the risk/benefit for the patient.

*Instinct Java* Spinal Fixation Systems are indicated to achieve fusion in the thoracic and lumbar spine for documented degenerative diseases of the thoracic and lumbar spine, disk herniation, spondylolisthesis, fractures, spinal stenosis, spinal deformities such as scoliosis, kyphosis, lordosis, tumor, pseudoarthrosis or revision of failed fusion attempts.

The surgeon should take into account the normal capacity of the *Instinct Java* Spinal Fixation Systems depending on his surgical strategy for a given patient in accordance with the state of the art.

Contraindications

Contraindications may be absolute or relative. Circumstances below may reduce the chances of a successful outcome:

- Any abnormality that affects the normal process of bone remodelling including, but not limited to, severe osteoporosis involving the spine, excessive bone absorption, osteopenia, primary or metastatic tumors involving the spine, active infection at the site or certain metabolic disorders affecting osteogenesis.
- Insufficient quantity or quality of bone that might inhibit rigid device fixation.
- Previous history of infection.
- Excessive local inflammation.
- Open wounds.
- Any neuromuscular deficit that places an unusually heavy load on the device during the healing period.
- Obesity contributes to spinal loading, which may be excessive enough for failure of the fixation of the device or to failure of the device itself.
- Patients having inadequate tissue coverage of the operative site.
- Pregnancy.
- A condition of senility, mental illness or substance abuse. These conditions, among others, may cause the patient to ignore certain necessary limitations and precautions in the use of the implant, leading to failure or other complications.
- Foreign body sensitivity. When material sensitivity is suspected, appropriate tests should be made prior to material selection or implantation.
- Other medical or surgical conditions that would preclude the potential benefits of spinal implant surgery, such as the presence of tumor, congenital abnormalities, elevation of white blood cell count (WBC), or marked left shift in the WBC differential count.

These contraindications can be relative or absolute and must be taken into account by the physician when making his decision. The above list is not exhaustive.
Implants

Polyaxial Screw  Monoaxial Screw  Blocker

Rod  Transverse Connector
Instrumentation

Square Awl

Pedicule Probe

Pedicular Sounder Straight Flexible

Tap Ø4.5mm
Tap Ø5.5mm
Tap Ø6.5mm
Tap Ø7.5mm

Polyaxial 3.5 Screwdriver

Monoaxial Screwdriver

Straight Ratchet Handle

Trial Rod 100mm
Trial Rod 200mm
Instrumentation

- Rod Bender
- Rod Holder
- Rod Pusher
- Rod Fork
- Left Rod Bender
- Right Rod Bender
- Countertorque Wrench
- Final Screwdriver Shaft
Torque Limiting T-Handle  Blocker Holder  Derotation Forceps

Alligator Persuader Handle  Alligator Persuader Sleeve  Derotation Forceps (option)

Contraction Forceps  Distraction Forceps
Surgical technique

Bone Preparation

Precise positioning of the pedicle entry point is essential. Proper orientation of the pedicle screw is dependent upon the position of the pilot hole.

The pilot hole should be made where a line through the middle of the transverse process crosses a vertical line at the lateral edge of the facet joints (fig. 1).

A square awl is provided to pierce the bone cortex at the entry point (fig. 2).

The pedicle probe is inserted through the pilot hole into the pedicle to create a path to guide the screw through the pedicle into the vertebral body (fig. 3). A depth gauge on the probe indicates the path length. The sagittal orientation of the screw and its degree of convergence is determined by the surgeon, depending on the patient’s anatomy.
After removing the pedicle probe, the pedicle sounder straight flexible is inserted to verify the integrity of the pedicle and the vertebral body walls. When fully inserted, a forceps can be clamped onto the pedicle sounder straight flexible to determine the path depth for choosing the screw size (fig.4).

**Verification**

![Fig. 4](image)

The appropriate diameter tap is connected to the straight ratchet handle, inserted and rotated clockwise (fig.5).

**Tapping**

After removing the tap by turning it counterclockwise, the surgeon should verify the anatomical integrity with the pedicle sounder straight flexible.

![Fig. 5](image)
Surgical technique

Inserting the screw

The polyaxial or monoaxial screwdriver is connected to the straight ratchet handle (fig.6).

The appropriate polyaxial screw is placed on the polyaxial 3.5 screwdriver by aligning the screwdriver tip to the female hex on the screw shank. The polyaxial screw is fixed by screwing the polyaxial 3.5 screwdriver sleeve clockwise into the screw head.

The appropriate monoaxial screw is placed on the monoaxial screwdriver and fixed by screwing the sleeve clockwise into the screw head.

The polyaxial or monoaxial screwdriver sleeve is locked by turning the collet clockwise. This secure locking system prevents screw loosening during insertion. Do not overtighten the collet.

The screw is inserted through the pedicle pathway until it reaches the proper dorsal height (fig.7).

The polyaxial or monoaxial screwdriver is released by unlocking the collet counterclockwise. The sleeve can then be turned counterclockwise to loosen the screw head (fig.8).

This procedure is repeated for all the screws of the construct.

For cleaning, the screwdriver is disassembled. The handle is disconnected from the shaft, then the collet and the sleeve are removed from the top (fig.9).

Warning: Choose screw size and diameter according to the patient’s anatomy and surgeon preference. It is recommended to use diameters 4.5mm and 5.5mm on the thoracic spine.
Placing the rod

Use the rod bender to prepare and contour the rods by progressive bends (fig.10) until obtaining a shape similar to that defined by the trial rod.

In the case of short rods (30 to 100 mm), pre-contoured versions simplify the initial approximation.

The proximal tip of the blocker holder can be used to adjust the head alignments.

The rod is positioned within the heads using the rod holder (fig.11).

Once the rod has been placed in the screw heads, the blockers are picked up with the blocker holder with the etched cross oriented upwards.

The blocker holder is aligned in the direction of the screw head and the blocker is introduced (fig.12).

The blocker is turned until it comes into contact with the rod, but not tightened. The same procedure is used for all the blockers of the construct.
For any rod approximation, the *Instinct* System offers three options for rod reduction.

For the smallest reductions, the rod pusher can be used to directly introduce the rod into the screw head (fig.13).

For moderate reductions, the rod fork may be used. When using the rod fork, the prongs of the forceps should be aligned vertically in the screw head dimples. Lock the rod fork ratchet mechanism and use the rod as a lever to introduce the rod into the screw head (fig.14). Insert the blocker with the blocker holder (fig.15).
For substantial reductions, the Alligator persuader is used to seat the rod into place. The four prongs at the distal part of the shaft are aligned with the screw head recesses (fig.16).

By squeezing the handle, the prongs come into contact with the screw head to provide stable fixation, the external sleeve slides onto the shaft to push the rod into the screw head (fig.17).

The ratchet offers a controlled reduction maneuver. The knob is screwed clockwise until it reaches the sleeve in order to maintain the reduction (fig.18).

The handle may then be removed by pressing the lateral button and used subsequently with another persuader shaft (fig.19).
Surgical technique

The handle can be used in the sagittal plane or in the frontal plane (fig. 20), depending on the surgeon’s preference.

When the desired reduction is achieved, the blocker is advanced through the persuader shaft using the blocker holder (fig. 21). The persuader is removed by unscrewing the knob and releasing the handle ratchet (fig. 22). Pull the sleeve on the maximal position to totally disconnect the screw head.

The Alligator persuader can be disassembled for cleaning (fig. 23). The handle is removed by pushing on the locking button and then pulling down the sleeve to remove it from the shaft. The knob is unscrewed in the clockwise position to be removed from the shaft.
Construct stabilization

To increase the stability of the construct a transverse connector can be used to connect the two rods.

The transverse connectors are preassembled to be used in distraction (fig.24). However, the hooks can be removed from the rod on the etched arrow side and can be set in reverse position to be used in contraction (fig.25).

Once the transverse connector is placed on the longitudinal rods, the two connector blocks are distracted (or contracted) until they snap onto the rods.

The blockers are then locked with the polyaxial 3.5mm screwdriver in the desired position (fig.26).
Surgical technique

Reduction maneuvers

Reduction maneuvers can be achieved by using the contraction forceps, distraction forceps, derotation forceps or in situ benders.

Contraction is achieved by locking one implant then placing the contraction forceps cephalad and caudal to the screw heads. Then the handle is squeezed until contraction is completed.

Distraction is achieved by locking one implant then placing the distraction forceps between the screw heads and squeeze the handle until the distraction is achieved (fig.27).

Once reduction maneuvers are complete, a primary tightening of the implants is mandatory to avoid loosening of the reduction when the forceps are removed.

In situ bending can be achieved by using the right and left rod benders (fig.28). The implants are temporarily locked, and the benders are used in the sagittal plane to restore the lordotic curve.

Derotation maneuvers can be performed with the derotation forceps (fig.29). The strength of the forceps is adjustable by turning the collet located at the proximal part of the handle.
Once all the reduction maneuvers have been completed, all the blockers must be locked.

The final screwdriver shaft must be assembled to the Torque limiting T-handle.

The final screwdriver is inserted in the counter-torque wrench and connected to the blocker (fig.30) to perform the final tightening without transferring torsion to the construct or to the spine.

Turn the screwdriver clockwise until the Torque limiting T-handle releases (fig.31).

Warning: Always use the torque limiting T-handle for the final tightening.
Surgical technique

Implant removal

For revision surgeries, the blockers are removed by placing the counter-torque wrench on the screw head and inserting the final screwdriver shaft into each blocker, which is turned counterclockwise (fig. 32).

Remove the rod and use the blocker holder tip to mobilize the polyaxial screw head.

The procedure is repeated for all the screws of the construct.

Engage the polyaxial 3.5 screwdriver tip into the female star on the screw shank. Screw the sleeve into the screw head (see page 3) and turn counterclockwise to remove the screw from the vertebra (fig. 33).

*Note:* If the ring is not set in the rod axis, use the proximal tip of the blocker holder to align the ring in the proper direction (fig. 34a & b).
Solutions by the people of Zimmer Spine.

You are devoted to helping your patients reduce their pain and improve their lives. And the people of Zimmer Spine are devoted to you. We are dedicated to supporting you with best-in-class tools, instruments and implants. We are driven by the opportunity to share our unrivaled education and training. We are committed partners who will do everything in our power to assist you in your quest to provide the absolute best in spinal care. And we can be counted on always to act with integrity as ethical partners who are worthy of your trust. We are the people of Zimmer Spine.

Disclaimer

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Information on the products and procedures contained in this document is of a general nature and does not represent and does not constitute medical advice or recommendations. Because this information does not purport to constitute any diagnostic or therapeutic statement with regard to any individual medical case, each patient must be examined and advised individually, and this document does not replace the need for such examination and/or advice in whole or in part. Please refer to the package inserts for important product information, including, but not limited to, contraindications, warnings, precautions, and adverse effects.