Ennovate® Spinal System

MIS Module Surgical Technique

AESCULAP®
Implant Systems

Ennovate® Spinal System

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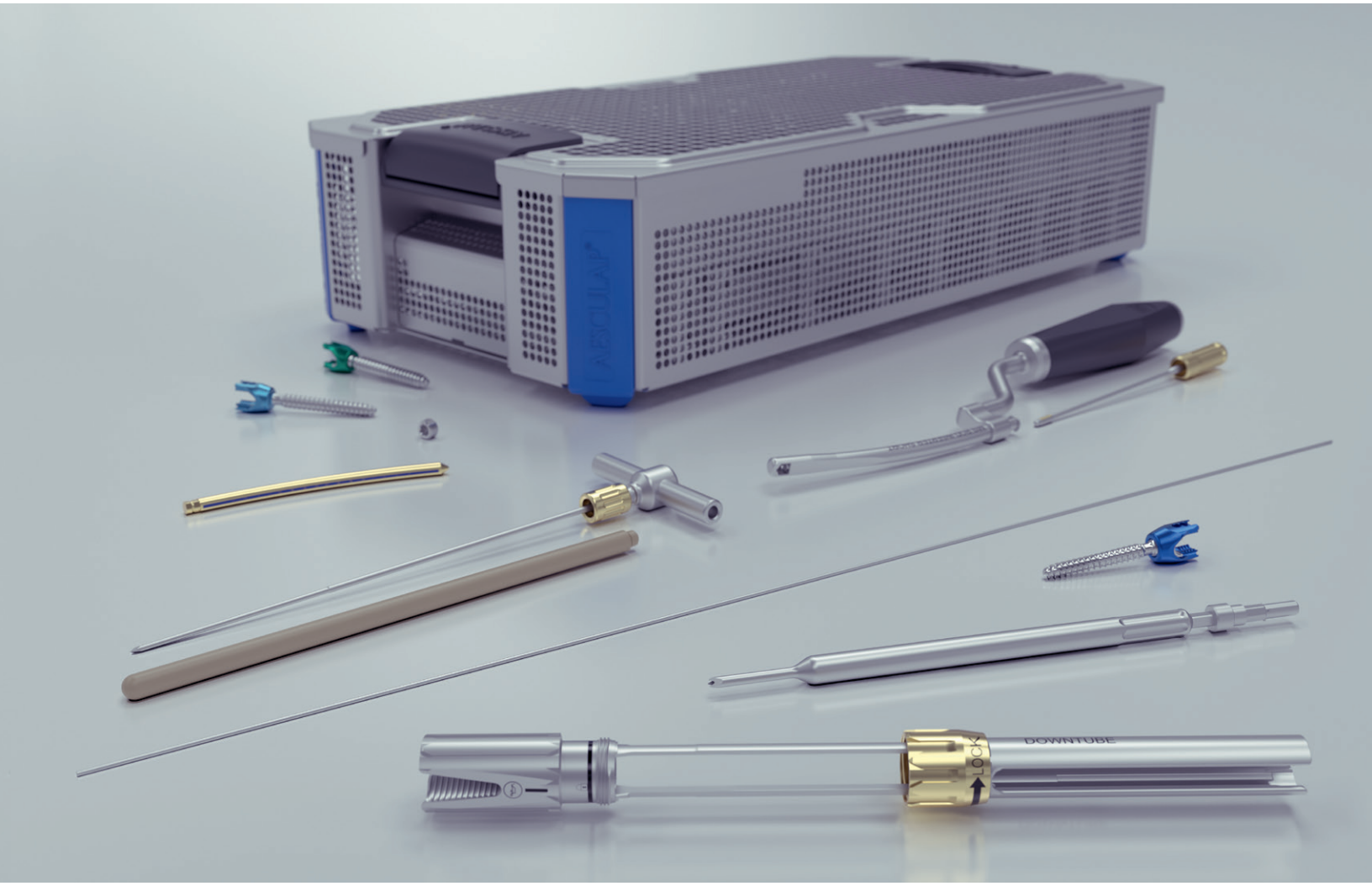
I. System Overview

The ENNOVATE® Spinal System is an implant system designed to address degenerative spine indications and facilitate the biological process of spinal fusion. This system is intended for posterior use in the thoracic, lumbar and sacral areas of the spine and includes polyaxial screws of varying diameters and lengths, and rod-to-rod and cross connectors of various styles and lengths. The implants in this system are manufactured from titanium alloy (Ti-6Al-4V), conforming to ISO 5832-3.

The ENNOVATE Spinal System is a spinal rod and screw system. This system's polyaxial screws can be rigidly locked into a wide range of configurations, allowing for intraoperative flexibility to create a construct to meet the individual needs of a patient. Rods of this system may be shaped intraoperatively to correct or maintain proper spinal curvature.



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II. Indications and Contraindications

Indications and Intended Use

The ENNOVATE Spinal System is intended for anterior/anterolateral and posterior, non-cervical pedicle and non-pedicle fixation. Fixation is limited to skeletally-mature patients and is intended to be used as an adjunct to fusion using autograft or allograft. The ENNOVATE System can be used in both an Open and Minimally Invasive Surgery (MIS). The device is indicated for treatment of the following acute and chronic instabilities or deformities.

- Degenerative disc disease (defined as discogenic back pain with degeneration of the disc confirmed by history and radiographic studies),
- Spondylolisthesis,
- Trauma (i.e., fracture or dislocation),
- Spinal Stenosis,
- Deformities or Curvatures (i.e., scoliosis, kyphosis, and/or lordosis),
- Tumor,
- Pseudoarthrosis, and
- Failed previous fusion.

Contraindications

Contraindications of the ENNOVATE Spinal System are similar to other commercially available posterior spinal fixation systems of similar design and material. Contraindications include, but are not limited to, the following:

- Use in the Cervical Spine,
- Active systemic or local infection,
- Obesity,
- Pregnancy,
- Mental illness,
- Severe osteoporosis or osteopenia,
- Metal sensitivity/allergies to the implant material,
- Alcohol or drug abuse,
- Patients unwilling or unable to follow postoperative instructions,
- Neuromuscular diseases/disorders,
- Soft tissue deficit not allowing wound closure,
- Any medical or physical condition that would preclude the potential benefit of spinal implant surgery,
- Congenital abnormalities, tumors or other conditions that would prevent secure component fixation that has the potential to decrease the useful life of the device,
- Any medical or mental condition which would exclude the patient or put the patient at high risk from surgery of this severity,
- For pedicle screw cases, inadequate pedicles of the fifth lumbar (L5) vertebrae.

III. Warnings and Precautions

Precautions:

- Components of competitive spinal fixation systems should not be used with components of the ENNOVATE® Spinal System. Components of dissimilar material should not be used together due to the potential for accelerating the corrosion process by mixing of dissimilar materials.
- No component of the ENNOVATE Spinal System should be reused after being removed from the body. An implant should never be re-sterilized after contact with body tissues or body fluids.
- Damage to the implant can occur if the set screw is overtightened. Do not tighten the set screw without using the countering instrument, or screw head expansion can occur.
- Damage to the implant can occur when set screw is overtorqued.
- Damage to the implant can occur if the repositioning instruments are positioned too high in relation to the implant. Always apply repositioning instruments (e.g. distraction and compression forceps) below the rod at the implant.
- Overinsertion of the ENNOVATE polyaxial screws may result in contact between the polyaxial screw body and the bone surface. This contact may result in damage to the implant or instrumentation.
- The implant can be damaged by spondylolisthesis repositioning through the set screw. Always use the rod persuader for spondylolisthesis repositioning.
- The ENNOVATE System has not been evaluated for safety and compatibility in the MR environment. The ENNOVATE System has not been tested for heating or migration in the MR environment.
- 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.
- Based on the fatigue testing results, 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.
- The ENNOVATE Spinal System should be implanted only by surgeons experienced in the use of spinal fixation systems. This system should only be used with instrumentation specifically designed for this system, and the surgeon should be familiar with the surgical technique.

Warnings:

- 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 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.
- The ENNOVATE Spinal System is not intended to be used without bone graft, which is required to provide additional spinal support. Use of this product without bone graft or in cases that develop into a non-union will eventually be unsuccessful. A successful result is not always achieved in every surgical case. No posterior spinal fixation system can withstand body loads without the support of bone. In the event that bone is not provided to facilitate fusion, bending, loosening, disassembling and/ or breakage of the implant will eventually occur.
- Refer to the system's surgical technique for detailed implantation/explantation information. To obtain a surgical technique guide, please contact Aesculap Implant Systems' Customer Service Department at (866) 229-3002 or your Sales Representative.
- Patients should be made aware that a successful result, as defined by reduced pain, increased function and the establishment of solid fusion, is not always achieved in every surgical case. Proper patient selection will greatly affect the results. Patients who smoke have been shown to have an increased incidence of non-union. These patients should be informed of this increased risk and counseled to discontinue tobacco use prior to and immediately after surgery. Obese, malnourished and/or nerve paralysis patients are also poor candidates for spinal fusion.
- In addition to the above specified warnings and precautions, general surgical risks should be explained to the patient prior to surgery.

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IV. Preoperative Planning

Preoperative planning is a beneficial step to treating spinal diseases by determining the appropriate starting point and trajectory of the screw. Anterior-Posterior (AP) and lateral views indicate the approximate screw initial trajectory at various levels of the thoracolumbar and sacral spine. The table below shows the recommended starting points for screw placement[1, 2, 3]:

Level	Cephalad-Caudal Starting Point	Medial-Lateral Starting Point
T1	Midpoint transverse process	Junction transverse process and lamina
T2	Midpoint transverse process	Junction transverse process and lamina
T3	Midpoint transverse process	Junction transverse process and lamina
T4	Junction between proximal third and midpoint transverse process	Junction transverse process and lamina
T5	Proximal third transverse process	Junction transverse process and lamina
T6	Junction of proximal edge and proximal third transverse process	Junction transverse process, lamina and facet
T7	Proximal transverse process	Midpoint facet
T8	Proximal transverse process	Midpoint facet
T9	Proximal transverse process	Midpoint facet
T10	Junction of proximal edge and proximal third transverse process	Junction transverse process, lamina and facet
T11	Proximal third transverse process	Just medial to lateral pars
T12	Midpoint transverse process	At level of lateral pars
L1	Midpoint transverse process	Junction superior facet and 2 mm lateral to pars
L2	Midpoint transverse process	Junction superior facet and 2 mm lateral to pars
L3	Midpoint transverse process	Junction superior facet and 2 mm lateral to pars
L4	Midpoint transverse process	Junction superior facet and 2 mm lateral to pars
L5	Midpoint transverse process	Junction superior facet and 2 mm lateral to pars
S1	Midpoint sacral ala	Intersection sacral ala and superior facet
Iliac	Cranial to posterior superior iliac spine	Proximal to S2 foramen / Caudal to posterior superior iliac spine

1 Rhee J, et al. Operative Techniques in Spine Surgery. Philadelphia. Lippincott Williams & Wilkins; 2013.

2 Kim D, et al. Surgical Anatomy and Techniques to the Spine. Amsterdam. Elsevier Health Sciences; 2013.

3 Patel V, et al. Spine Surgery Basics. Heidelberg: Springer Science & Business Media; 2013.

V. Implants and Instruments

ENNOVATE® PentaCore® Polyaxial Cannulated Screws

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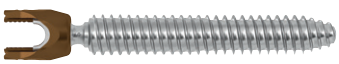	10.5													
		25	30	35	40	45	50	55	60	70	80	90	100	110

All implants are supplied sterile packaged.

- *Refer to set list quantities on pages 35-38.*
- *Solid screws are additionally available. Refer to DOC1542 - ENNOVATE Spinal System - Open Module Surgical Technique.*
- *Compatible with 5.5 mm diameter rods.*

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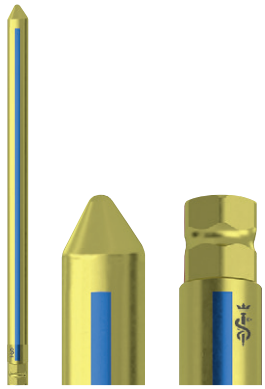
V. Implants and Instruments *(continued)*

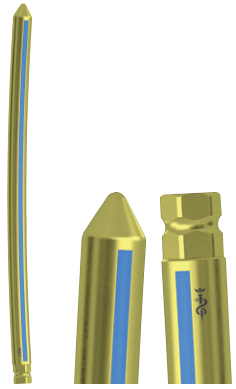
ENNOVATE Set Screw

ENNOVATE MIS Rods – Straight



5.5												
	30	35	40	45	50	55	60	70	80	90	100	110
5.5												
	120	130	140	150	160	170	180	190	200	300	400	500

ENNOVATE MIS Rods – Curved

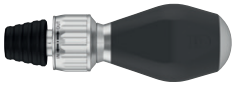
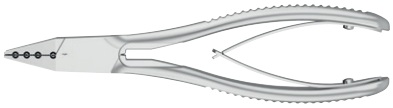


5.5												
	30	35	40	45	50	55	60	70	80	90	100	110
5.5												
	120	130	140	150								

The ENNOVATE curved rod includes licensed technology, which is covered by US Patent 8,771,318.

All implants are supplied sterile packaged.

V. Implants and Instruments *(continued)*

Implantation Instruments	Item No.	Description
	**SZ222R**	ENNOVATE® Quick Connect Ratchet Straight Handle, Medium
	**SZ224R**	ENNOVATE Quick Connect Ratchet T-Handle
	**SZ225R**	ENNOVATE Quick Connect Ratchet Handle, Drop Shape
	**SZ364SU**	ENNOVATE MIS Aspiration Needle
	**SZ365R**	ENNOVATE MIS K-Wire Trocar, Short
	**SZ366R**	ENNOVATE MIS K-Wire Sleeve, Short
	**SZ367R**	ENNOVATE MIS K-Wire Forceps
	**SZ368R**	ENNOVATE MIS Slotted Hammer
	**SZ370**	ENNOVATE MIS K-Wire Nitinol, Short, Sterile
	**SZ204R**	ENNOVATE K-Wire Tray
	**SZ371R**	ENNOVATE MIS Skin Incision Guide

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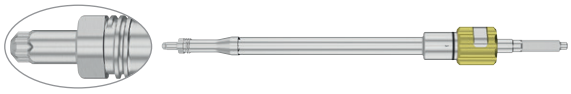
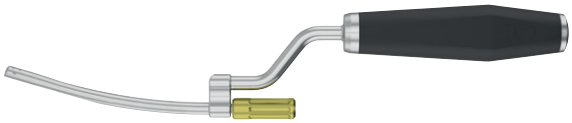
V. Implants and Instruments *(continued)*

Implantation Instruments	Item No.	Description
	**SZ372T**	ENNOVATE MIS Dilator, Small
	**SZ254R**	ENNOVATE Screw Tap, 4.5 mm
	**SZ255R**	ENNOVATE Screw Tap, 5.5 mm
	**SZ256R**	ENNOVATE Screw Tap, 6.5 mm
	**SZ257R**	ENNOVATE Screw Tap, 7.5 mm
	**SZ258R**	ENNOVATE Screw Tap, 8.5 mm
	**SZ259R**	ENNOVATE Screw Tap, 9.5 mm
	**SZ260R**	ENNOVATE Screw Tap, 10.5 mm
	**SZ377R**	ENNOVATE MIS Screw Length Measuring Device
	**SZ378R**	ENNOVATE MIS Downtube, Short
	**SZ379R**	ENNOVATE MIS Downtube Locking Wrench
	**SZ380R**	ENNOVATE MIS Removal Key, Short

V. Implants and Instruments *(continued)*

Implantation Instruments	Item No.	Description
	**SZ381R**	ENNOVATE® MIS Screwdriver, Short
	**SZ373T**	ENNOVATE MIS Dilator, Medium
	**SZ374T**	ENNOVATE MIS Dilator, Large
	**SZ375T**	ENNOVATE MIS Dilator Handle
	**SZ376R**	ENNOVATE MIS Lumbar Pedicle Probe
	**SZ382R**	ENNOVATE MIS Rod Length Caliper, Short Construct
	**SZ384R**	ENNOVATE MIS Rod Inserter, Short Construct
	**SZ385R**	ENNOVATE MIS Rod Inserter, Long Construct
	**SZ387R**	ENNOVATE MIS Rod Indicator, Short
	**SZ389R**	ENNOVATE MIS Rod Pusher, Short (Persuader)
	**SZ390R**	ENNOVATE Rod Pusher Handle

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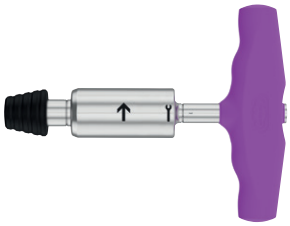
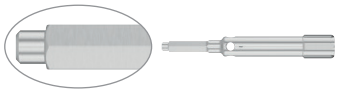
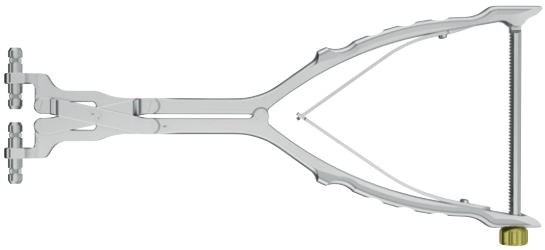
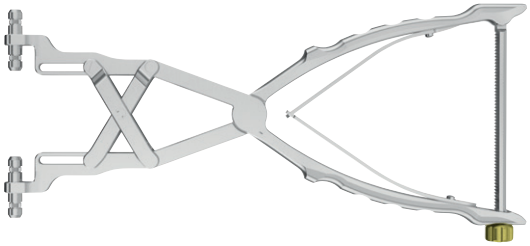
V. Implants and Instruments *(continued)*

Implantation Instruments	Item No.	Description
	**SZ391R**	ENNOVATE Set Screwdriver, Short
	**SZ392R**	ENNOVATE MIS Counter Torque Handle
	**SZ397R**	ENNOVATE MIS Quick Rod Pusher, Short
	**SZ228R**	ENNOVATE Torque Wrench Handle, 10 Nm

V. Implants and Instruments *(continued)*

Manipulation Instruments	Item No.	Description
	**SZ393R**	ENNOVATE® PolyBlocker *(Designed to lock the screw head from polyaxial to monoaxial)*
	**SZ270R**	French Rod Bender
	**SZ231R**	ENNOVATE MIS Parallel Distractor Forceps
	**SZ232R**	ENNOVATE MIS Parallel Compressor Forceps
	**SZ388R**	ENNOVATE MIS Parallel Sleeves
	**SZ394T**	ENNOVATE MIS Compression/Distraction Device
	**SZ395R**	ENNOVATE MIS C-Rings for Co/Di Device
	**SZ396R**	ENNOVATE MIS Cage Sleeves
	**SZ398P**	ENNOVATE MIS Alignment Working Port, Short
	**SZ399R**	ENNOVATE MIS Alignment Tool, Short

Auxillary Instruments	Item No.	Description
	**FW692R**	Cleaning Device

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VI. Surgical Technique

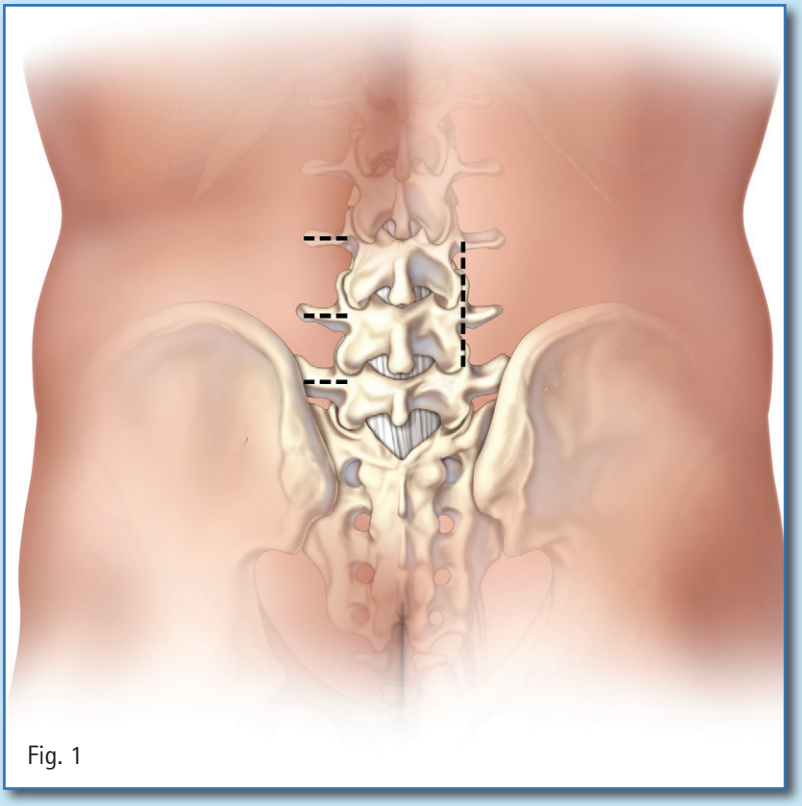

Fig. 1

A. Patient Positioning, Monitoring, and Skin Incision

1. Position the patient on a radiolucent OR table in the prone position. The OR table should have enough clearance available for a fluoroscopic C-arm to rotate freely.
2. Locate the pedicles of interest through A/P and lateral X-ray and mark appropriate incision areas on skin. (Fig. 1)
3. Paramedian incisions may be individualized for each screw or combined as a single incision.
4. Ensure the fascia is cut to the same length.
5. Neuromonitoring (hospital provided) is recommended during this procedure.

VI. Surgical Technique

Fig. 2

Fig. 3

Fig. 4

A. Patient Positioning, Monitoring, and Skin Incision *(continued)*

1. Determine the entry point of the screw based on the location of the pedicles confirmed through A/P and lateral X-Ray.
2. Perforate the cortex with the K-Wire Aiming Device consisting of Trocar (SZ365R) and Sleeve (SZ366R) or the Aspiration Needle (SZ364SU). (Fig. 2)

Note: *After cortex perforation, the Trocar is removed while the Sleeve remains in position. (Figs. 3 and 4)*

See pages 7-13 for illustrations and descriptions of each implant and instrument listed here.

VI. Surgical Technique *(continued)*

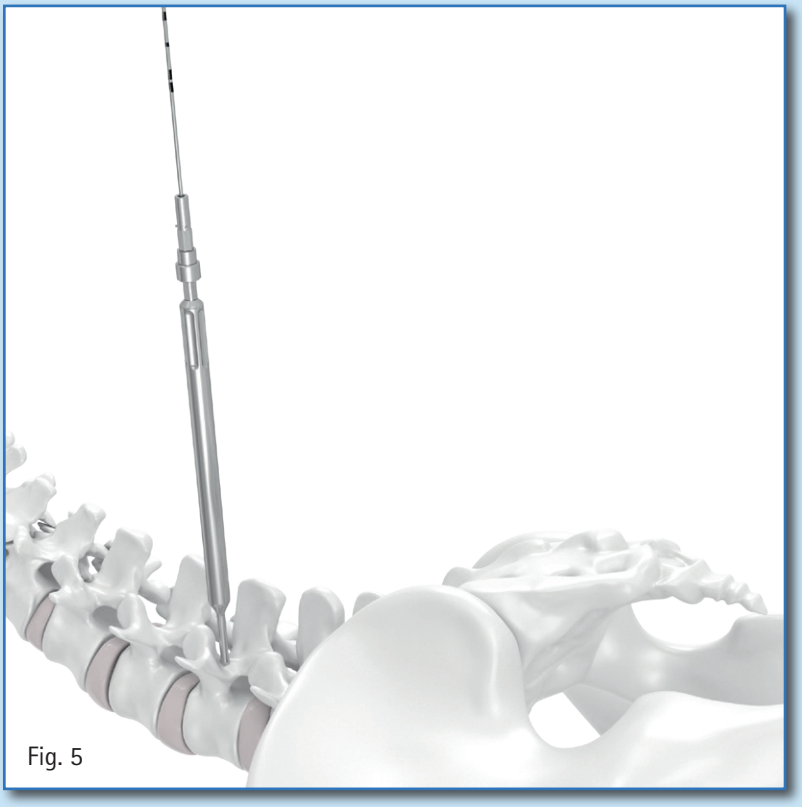

Fig. 5

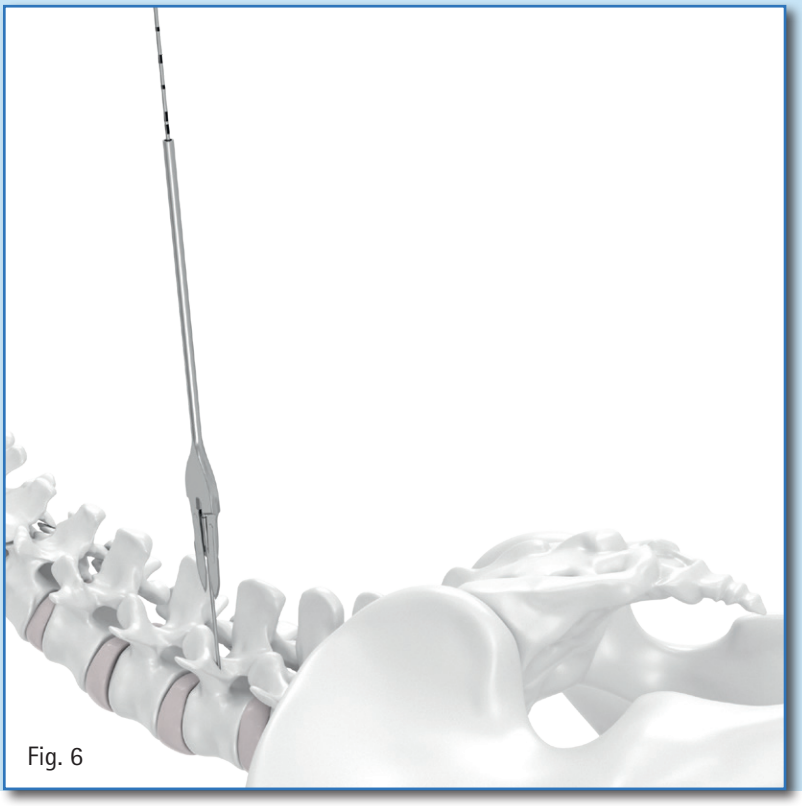

Fig. 6

A. Patient Positioning, Monitoring, and Skin Incision *(continued)*

3. The K-Wire (SZ370) is introduced through the cannulation of the Bone Access Needle or the K-Wire Aiming Device using the K-Wire Forceps (SZ367R) and the Slotted Hammer (SZ368R). The roughened tip of the K-Wire needs to be placed inside the vertebra. The K-Wire should be introduced so its distal tip represents the end position of the pedicle screw tip. During insertion, monitor the K-Wire tip to ensure it does not penetrate the anterior wall of the vertebral body. (Fig. 5)
4. Remove the Bone Access Needle or the K-Wire Aiming Device using the K-Wire Forceps and the Slotted Hammer while holding the K-Wire firmly in place.
5. For an appropriate incision length, slide the Skin Incision Guide (SZ371R) over the K-Wire and perform skin incision. (Fig. 6)

See pages 7-13 for illustrations and descriptions of each implant and instrument listed here.

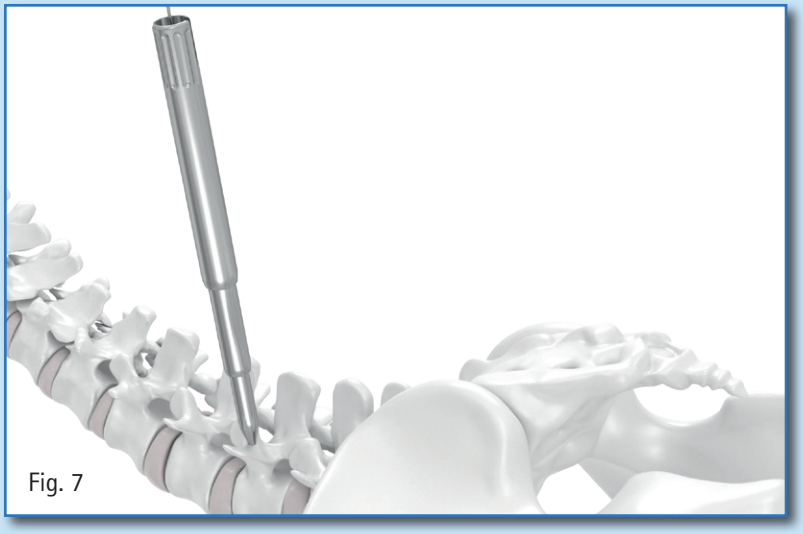

Fig. 7

Fig. 8

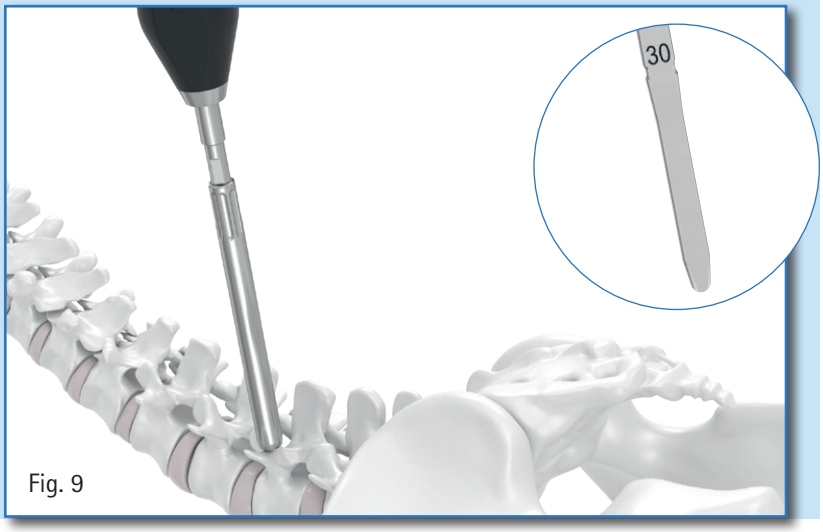

Fig. 9

B. Pedicle Preparation

1. The fascia and muscles may be dilated to allow for screw placement with the Downtube.
2. Hold the K-Wire firmly in place, and slide the Dilators (SZ372T–SZ374T) over the K-Wire in a sequence (Fig. 7). The Dilators should be docked on bony anatomy to minimize tissue creepage. If preferred, the Dilator Handle (SZ375T) may be attached to each Dilator (Fig. 8).
3. If preferred, additional perforation of the pedicle canal can be done with the Lumbar Pedicle Probe (SZ376R). To do so, remove the two inner Dilators leaving the largest Dilator in place. Hold the K-Wire firmly in place, and slide the Lumbar Pedicle Probe over the K-Wire and probe to the desired depth. (Fig. 9)

See pages 7-13 for illustrations and descriptions of each implant and instrument listed here.

VI. Surgical Technique *(continued)*

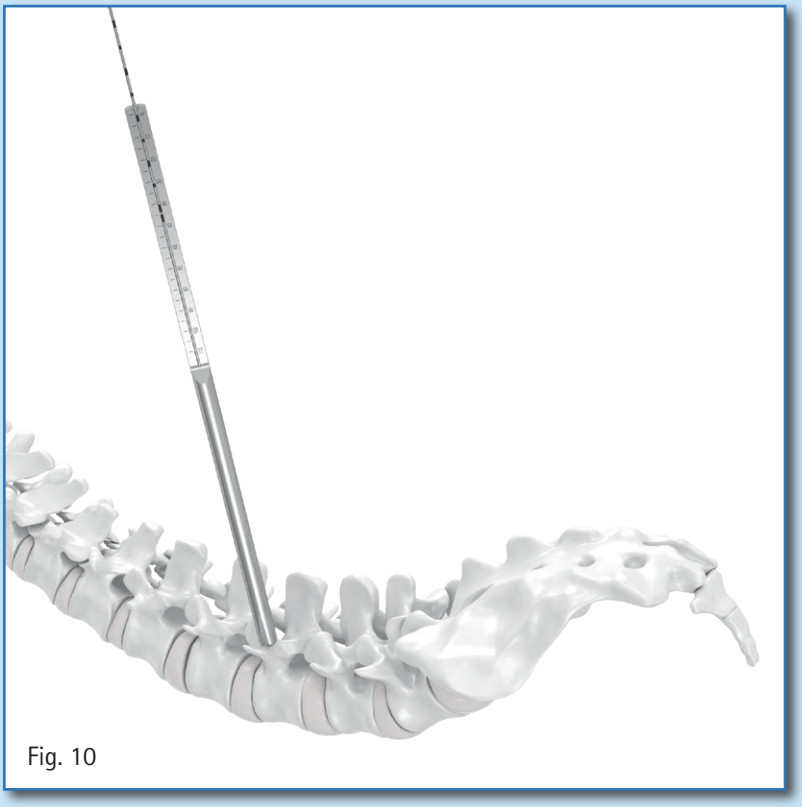

Fig. 10

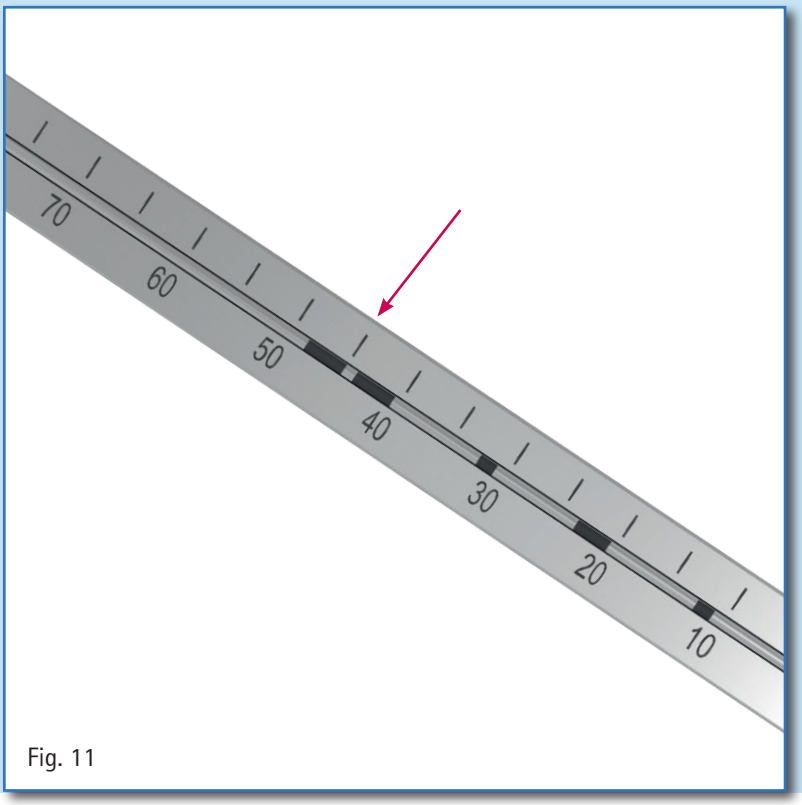

Fig. 11

C. Screw Length Measuring

1. To measure the appropriate screw length, ensure the K-Wire is at an adequate depth, approximating the final screw location in the vertebral body.
2. Hold the K-Wire firmly in place, and slide the Screw Length Measuring Device (SZ377R) over the K-Wire. (Fig. 10)
3. Read the screw length at the middle of the two widest laser markings on the K-Wire. The reading is an approximation, depending on the depth of the K-Wire in bone. (Fig. 11)

See pages 7-13 for illustrations and descriptions of each implant and instrument listed here.

Fig. 12

D. Pedicle Preparation

1. The ENNOVATE® pedicle screws are self-tapping showing a fully-threaded and tapered tip. Screw taps are available for surgeon preference.
   - To tap, attach the desired Quick Connect Ratchet Handle (SZ222R, SZ224R or SZ225R) to the appropriately sized tap (SZ254R-SZ260R) based on the screw diameter. The Taps are undersized by 0.5 mm of the final screw diameter. Ensure that the ratchet is set on "IN" for tapping. To remove the instrument, set the ratchet on "OUT". (Fig. 12)

See pages 7-13 for illustrations and descriptions of each implant and instrument listed here.

Ennovate® Spinal System

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VI. Surgical Technique *(continued)*

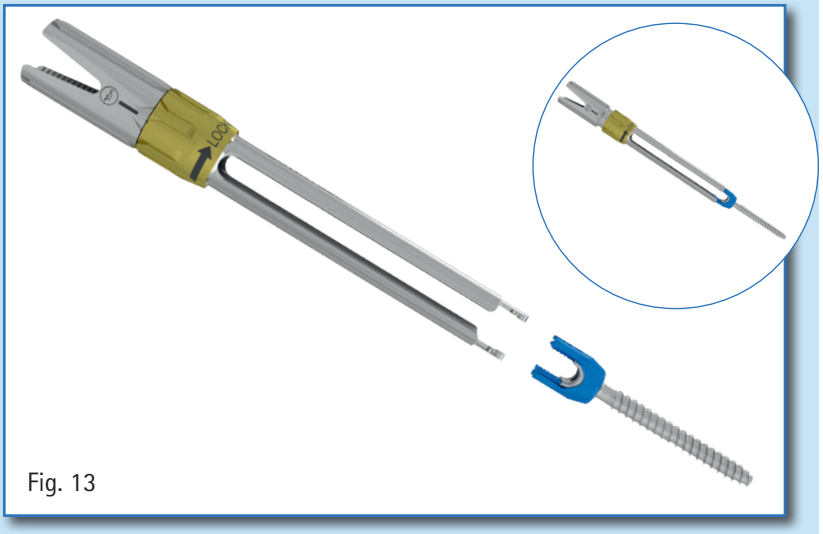


Fig. 13

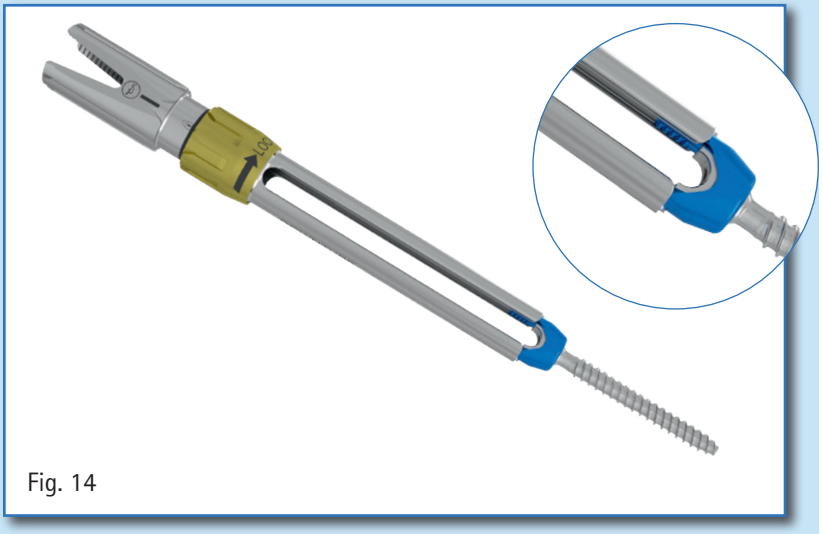


Fig. 14

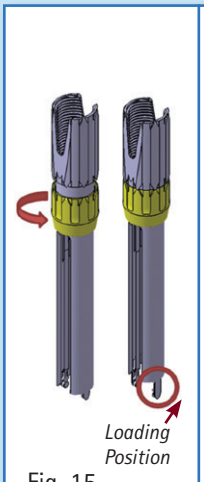


Fig. 15

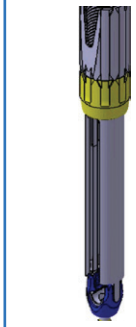


Fig. 15a

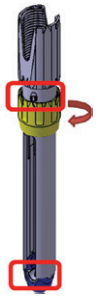


Fig. 15b

Fig. 15c

E. Downtube Attachment

1. Before a pedicle screw can be inserted into the pedicle, the screw must be mounted onto the Downtube (SZ378R). (Figs. 13 and 14)
2. To attach the desired pedicle screw to the Downtube, turn the gold ring counterclockwise, driving the connection arms into loading position and allowing the sleeve for axial movement. (Fig. 15)
3. Lower the Downtube onto the screw body from above. The click is an indicator that the connection arms have attached to the screw body interface. Visual confirmation of the connection is recommended. (Fig. 15a)
4. Slide the sleeve over the screw body. (Fig. 15b) Turn the gold ring clockwise while firmly holding the Downtube until the laser etch mark and lock are visible. (Fig. 15c) If preferred, the Locking Wrench (SZ379R) can be slid over the Downtube to tighten the connection.

See pages 7-13 for illustrations and descriptions of each implant and instrument listed here.

VI. Surgical Technique *(continued)*

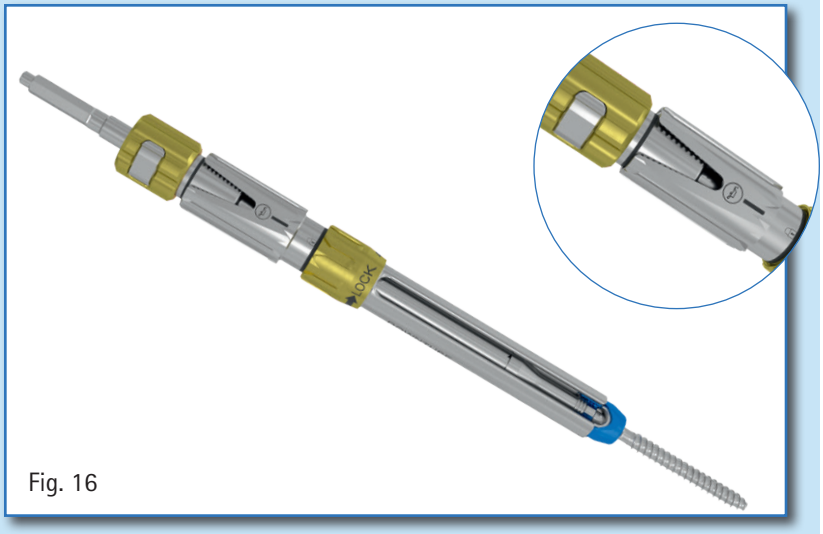


Fig. 16

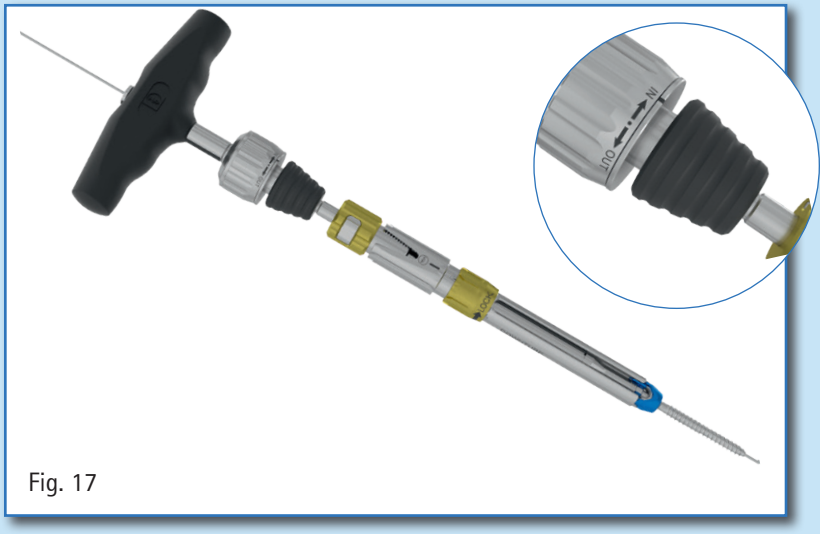


Fig. 17

Fig. 18

F. Screw Insertion

1. Insert the Screwdriver (SZ381R) into the Downtube while ensuring the tip of the Screwdriver is aligned to the screw body. (Fig. 16)
   - Turn the gold knob of the screwdriver clockwise to fully engage the screw.
   - Attach the desired Quick Connect Ratchet Handle (SZ222R, SZ224R or SZ225R) to the Screwdriver, and slide the assembly over the K-Wire. Ensure that the ratchet is set on "IN" for screw insertion. (Fig. 17)
   - Insert the screw to the appropriate depth (Fig. 18). Remove the K-Wire after the screw tip has entered the vertebral body to avoid driving the K-Wire ventrally to vertebra. If needed, fluoroscopic guidance can be used.
   - Once the screw is fully inserted, remove the Screwdriver from the Downtube by turning the gold knob of the screwdriver counterclockwise. Repeat for all subsequent screws.

Note: *The gray button on the SZ381R screwdriver is not used during the implantation procedure. It is designed for instrument cleaning.*

See pages 7-13 for illustrations and descriptions of each implant and instrument listed here.

VI. Surgical Technique *(continued)*

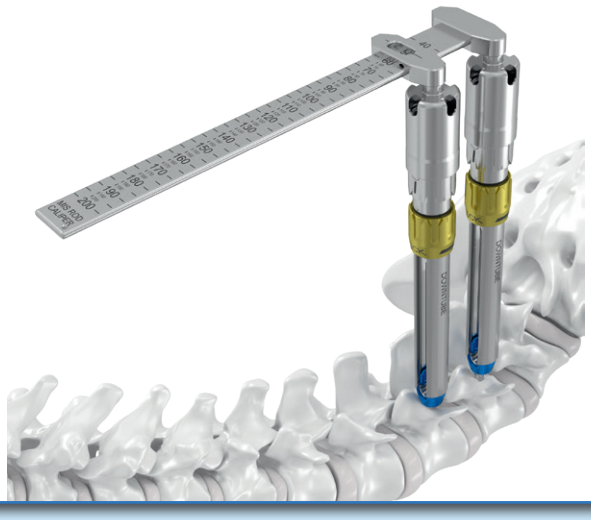


Fig. 19

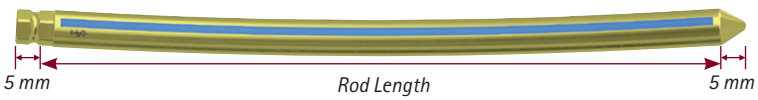


Fig. 20

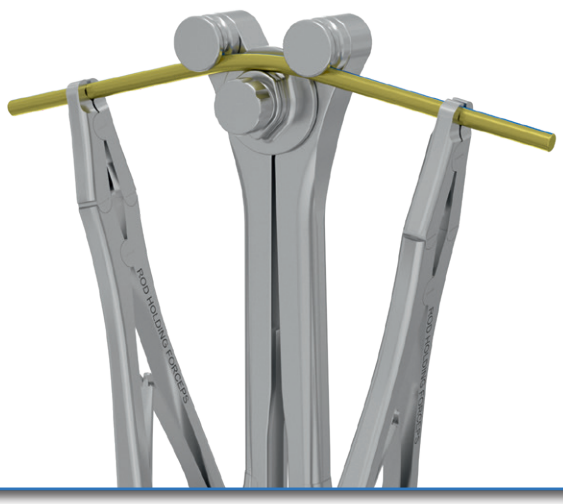


Fig. 21

G. Rod Length Measuring

1. The Rod Length Caliper (SZ382R) is used to approximate minimum rod length.
2. Fully seat the rod length caliper cylinders onto the Downtubes of the most cranial and caudal screws while keeping both Downtubes parallel. (Fig. 19)
3. The etched scale on top of the Rod Length Caliper indicates the minimum recommended rod length.

Note: *The measured rod length is the working length of the rod. The MIS rod includes a 5 mm tip and 5 mm hexagonal connection end. (Fig. 20)*

H. Rod Contouring

1. All Rods may be contoured using the French Rod Bender (SZ270R). To contour the Rod, place the rod in the Bender, and squeeze the handle until the desired curvature is achieved. The rods have an orientation line that serves as a reference during contouring. Clamping the rod with forceps at both ends will help to avoid a possible rod rotation during contouring. (Fig. 21)

See pages 7-13 for illustrations and descriptions of each implant and instrument listed here.

VI. Surgical Technique *(continued)*

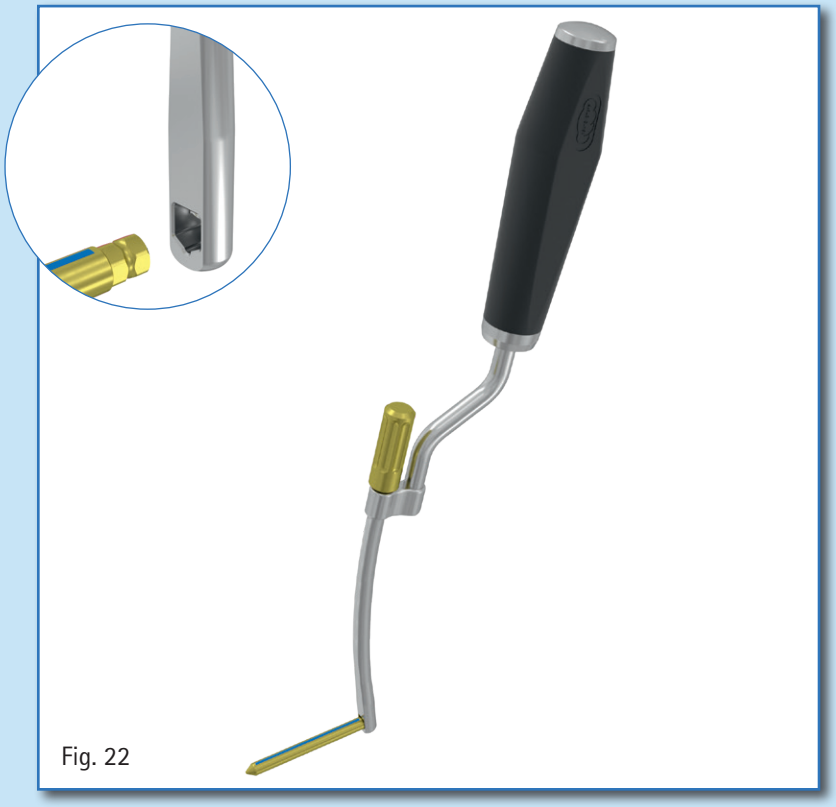


Fig. 22

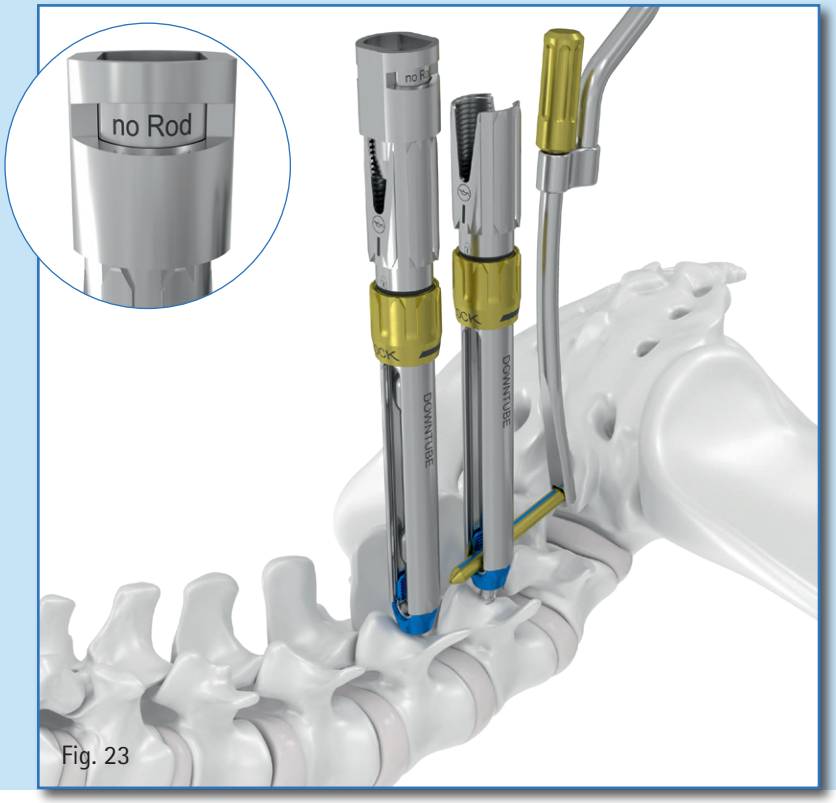


Fig. 23

I. Rod Placement

1. The MIS rods have a bullet tip to ease passage through soft tissue and a hex end geometry to engage with the Rod Inserter (SZ384R–SZ385R).
2. Unscrew the gold knob on top of the Rod Inserter, and slide the hex end into the distal opening of the instrument. Make sure the line marking on the rod is aligned with the line marking on the Rod Inserter. (Fig. 22)
3. Firmly tighten the knob clockwise to secure the rod in place.
4. When using the Long Construct Rod Inserter (SZ385R), a distal incision away from the Downtube may be required.
5. Guide the rod down through the longitudinal slots of the Downtubes.
6. To ensure the rod has been properly placed in the Downtubes, slide the Rod Indicator (SZ387R) into the desired Downtube. If the marking "Rod" is indicated, then the rod is placed properly in the Downtube. However, if "no Rod" is indicated, then the rod is not yet in the Downtube. (Fig 23)
   a. If the rod is not fully seated, use the Rod Pusher (SZ389R) to fully seat the rod.

See pages 7-13 for illustrations and descriptions of each implant and instrument listed here.

Ennovate® Spinal System

MIS Module Surgical Technique

VI. Surgical Technique *(continued)*

Fig. 24

Fig. 25

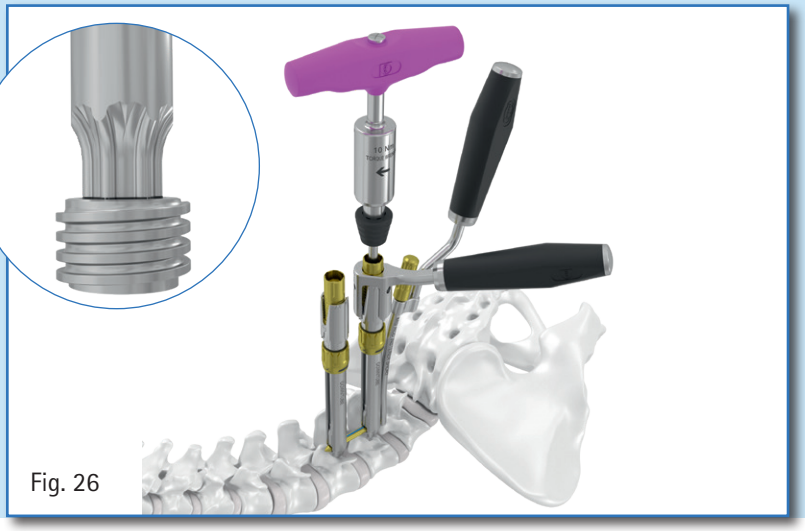


Fig. 26

I. Rod Placement *(continued)*

7. Once the rod has passed through all Downtubes,
   - Load the Set Screw on the Set Screwdriver. (SZ391R)
   - Place the Set Screw in the Downtube.
   - Engage the Set Screw in the screw head, and turn the Set Screwdriver clockwise to fully thread the Set Screw into the screw.
8. If the rod is not fully seated in the screw head, use the Rod Pusher to persuade the rod.
   - Place the Rod Pusher in the Downtube.
   - Thread the gold knob clockwise. The Rod Pusher handle may be used for additional support. (Fig. 24)
   - The rod is fully seated when the "O" line is aligned with the top of the Downtube. (Fig. 25)
   - When the rod is fully seated, implant the Set Screw.

J. Final Tightening

1. Place the Counter Torque Handle (SZ392R) on the Downtube. (Fig. 25)
2. Assemble the Torque Wrench by attaching the Torque Wrench Handle 10 Nm (SZ228R) to the Set Screwdriver (SZ391R) by sliding the hexagonal shaped portion of the shaft into the handle coupling until the stop.
3. Insert the Torque Wrench through the cannulation of the Rod Pusher, and fully seat the tip of the Torque Wrench into the socket of the Set Screw. (Fig. 26)
4. Turn the Torque Wrench clockwise while firmly holding the counter torque until a click is heard. The click is an indicator that the final tightening of 10 Nm has been achieved.
5. Remove the Rod Pusher from the Downtubes after completion of final tightening.
   - Turn the Rod Pusher counterclockwise until it is free of the Downtubes.

See pages 7-13 for illustrations and descriptions of each implant and instrument listed here.

VI. Surgical Technique *(continued)*

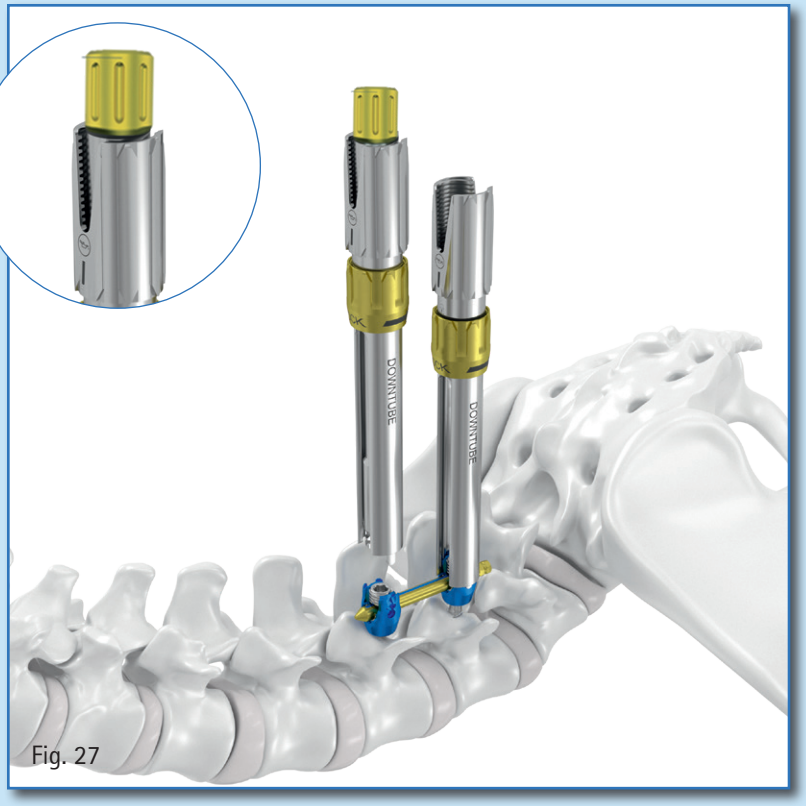


Fig. 27

K. Downtube Removal

1. Slide the Removal Key (SZ380R) through the Downtube until a positive stop is perceived. Ensure the line marking on the Removal Key is flush with the top of the Downtube and rotate the gold knob of the removal key 90°. (Fig. 27)
2. Detach the Downtube by pulling the full assembly off of the patient.

See pages 7-13 for illustrations and descriptions of each implant and instrument listed here.

Ennovate® Spinal System

MIS Module Surgical Technique

VII. Distraction and Compression

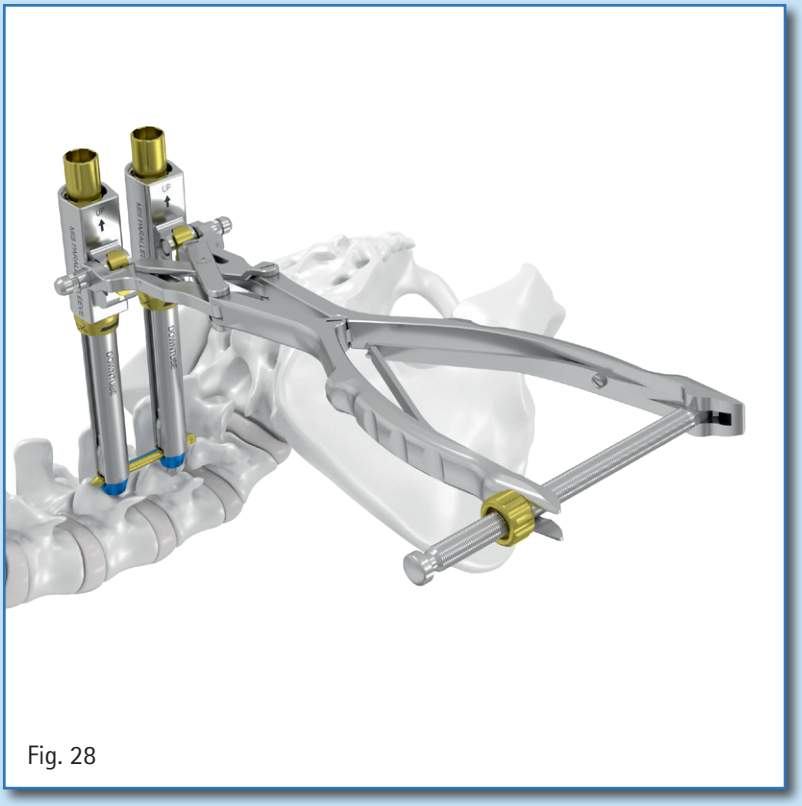


Fig. 28

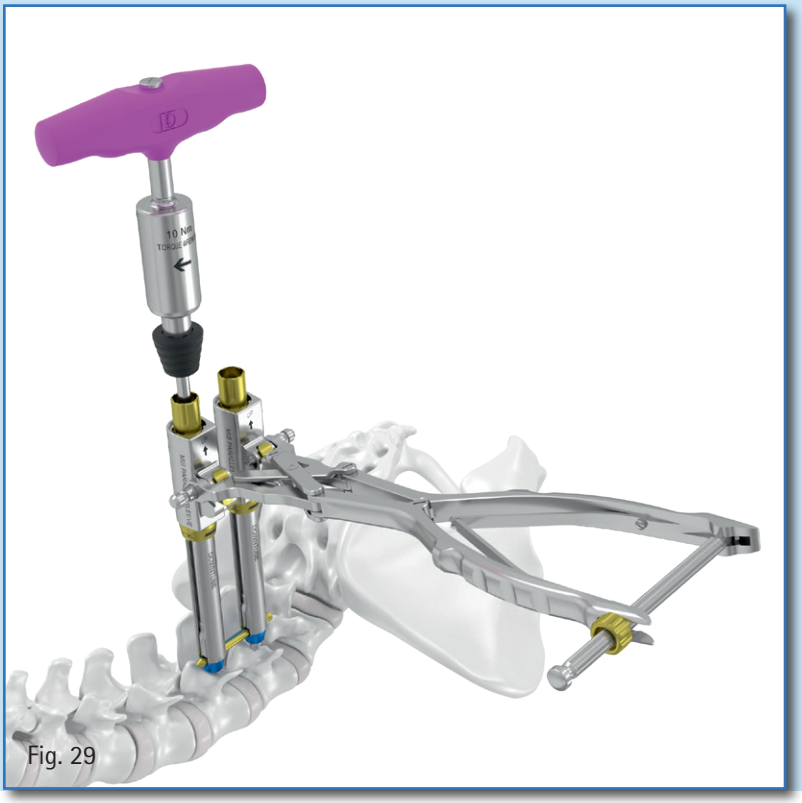


Fig. 29

Distraction and Compression

1. Select the starting point for the distraction or compression maneuver. Ensure the rod is fully reduced in the screw head, and selectively loosen or tighten the adjacent Set Screws to allow force transmission or to create a fixed point for the maneuver. Ensure the Downtubes are aligned parallel.
2. Slide the Parallel Sleeves (SZ388R) or C-Rings (SZ395R) onto the crowns of the Downtubes to be distracted or compressed.
3. For distraction, attach the Parallel Distractor Forceps (SZ231R) to the Sleeves. Respectively, attach the Parallel Compression Forceps (SZ232R) to the Sleeves for compression. (Fig. 28)
4. Squeeze the handles until the desired distraction or compression is achieved. Provisionally tighten the Set Screw to retain the position of the vertebral body. Optionally, final tightening can be applied by using the Torque Wrench and Forceps.

Final Tightening

Final tightening can be accomplished as described on page 29. (Fig. 29)

See pages 7-13 for illustrations and descriptions of each implant and instrument listed here.

VII. Distraction and Compression *(continued)*

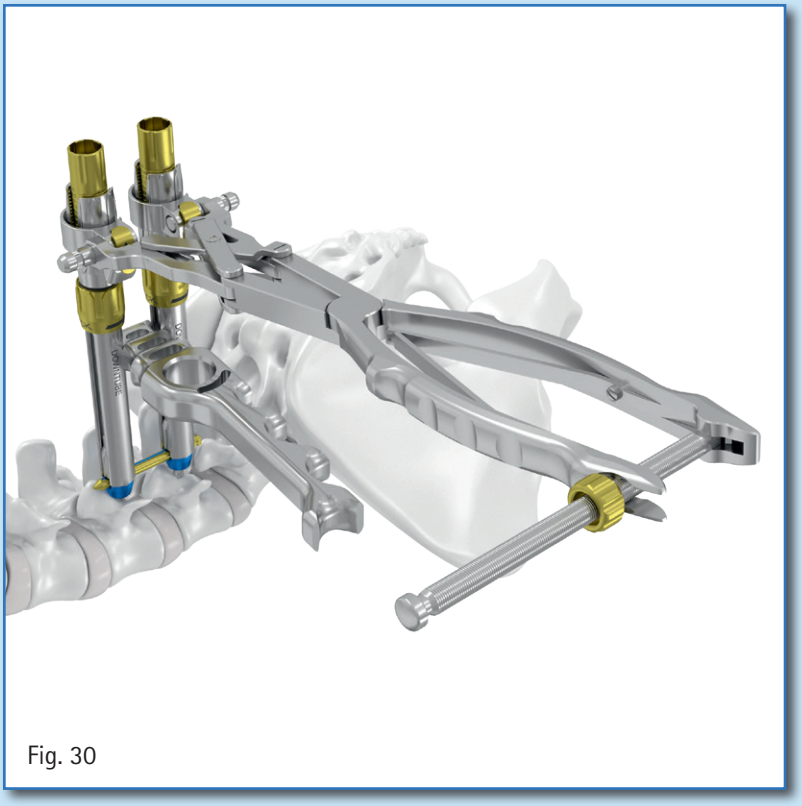


Fig. 30

Fig. 31

Optional Approach for Distraction with CoDi Device and Parallel Distractor

1. Select the starting point for the distraction maneuver.

Optional use of PolyLock instrumentation to convert the pedicle screw to a monoaxial condition.

- Connect the Torque Wrench Handle 10 Nm (SZ228R) to the PolyBlocker (SZ393R) by sliding the hexagonal shaped portion of the shaft into the handle coupling until the stop. Place the assembly into the upper portion of the Rod Pusher. (Fig. 31)
- Activate the PolyLock by turning the Torque Wrench clockwise while firmly holding the Forceps until a click is heard. The click is an indicator that the PolyLock has been activated.

2. If not using the optional PolyLock instrumentation, ensure the rod is fully reduced in the screw head, and selectively loosen or tighten the adjacent Set Screws to allow force transmission or to create a fixed point for the maneuver.
3. Slide the C-Rings (SZ395R) onto the crowns of the Downtubes to be distracted, and attach the Parallel Distraction Forceps to the C-Rings to distract the construct (SZ231R).
4. Place the CoDi Device (SZ394T) between the Downtubes in order to create a pivot point. Make sure that the CoDi Device is placed as closely as possible to the skin surface. (Fig. 30)
5. Squeeze the handles until the desired distraction is achieved. Once the desired correction is achieved, it is possible to provisionally tighten the Set Screw to retain the position of the vertebral body. Optionally, final tightening can be applied by using the Torque Wrench and Forceps.

Final Tightening

Final tightening can be accomplished as described on page 29.

See pages 7-13 for illustrations and descriptions of each implant and instrument listed here.

VII. Distraction and Compression *(continued)*

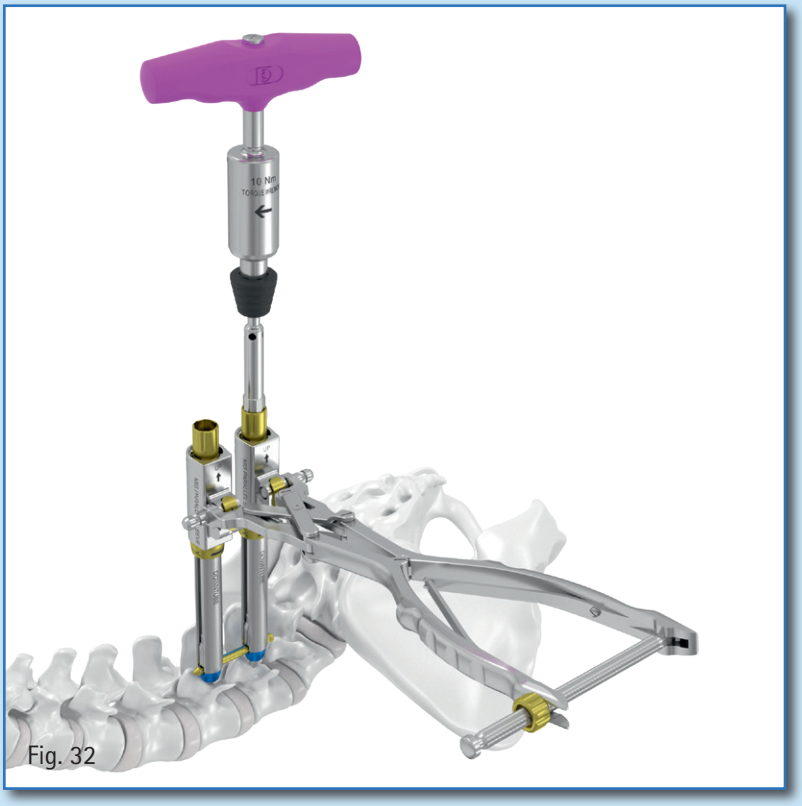


Fig. 32

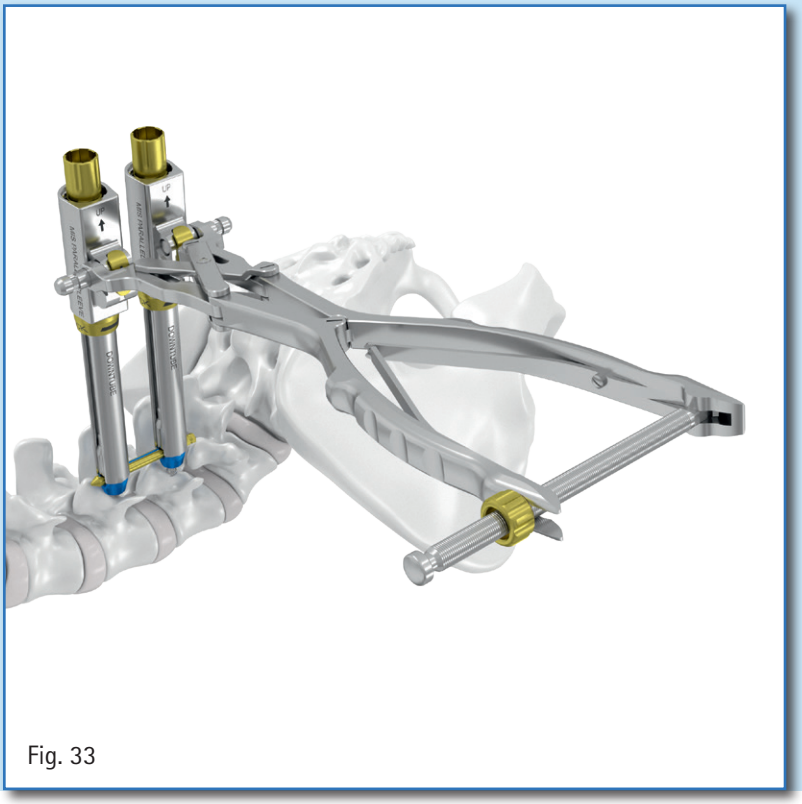


Fig. 33

Parallel Distraction and Compression Maneuver

1. Select the starting point for the distraction or compression maneuver.

Use the PolyLock instrumentation to convert the pedicle screw to a monoaxial condition.

- Connect the Torque Wrench Handle 10 Nm (SZ228R) to the PolyBlocker (SZ393R) by sliding the hexagonal shaped portion of the shaft into the handle coupling until the stop. Place the assembly into the upper portion of the Rod Pusher. (Fig. 32)
- Activate the PolyLock by turning the Torque Wrench clockwise while firmly holding the Forceps until a click is heard. The click is an indicator that the PolyLock has been activated.

2. If not using the optional PolyLock instrumentation, ensure the rod is fully seated in the screw heads. Parallel distraction or compression can be applied only on spinal segments which use straight rods.
3. Selectively loosen or tighten the adjacent Set Screws to allow force transmission or to create a fixed point for the maneuver. Ensure the Downtubes are aligned parallel.
4. Slide the Parallel Sleeves (SZ388R) onto the crowns of the Downtubes to be distracted or compressed. For distraction, attach the Parallel Distractor Forceps (SZ231R) to the Sleeves. Respectively, attach the Parallel Compression Forceps (SZ232R) to the Sleeves for compression. (Fig. 33)

See pages 7-13 for illustrations and descriptions of each implant and instrument listed here.

VII. Distraction and Compression *(continued)*

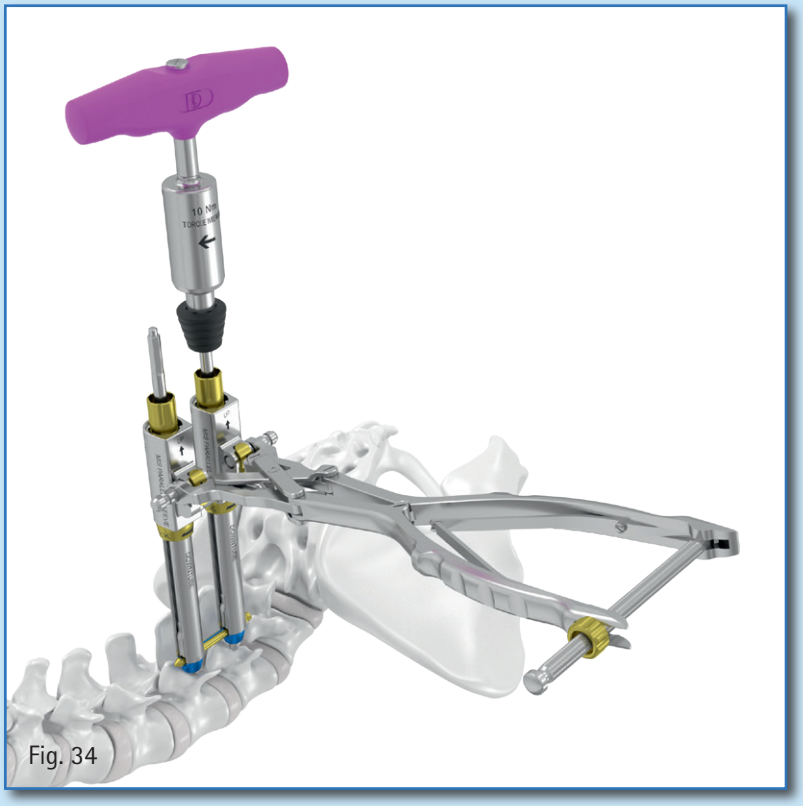


Fig. 34

5. Squeeze the handles until the desired distraction or compression is achieved. Once the desired correction is achieved, it is possible to provisionally tighten the Set Screw to retain the position of the vertebral body. Optionally, final tightening can be applied by using the Torque Wrench and Forceps.

Final Tightening

1. Assemble the Torque Wrench by attaching the Torque Wrench Handle 10 Nm (SZ228R) to the Set Screwdriver (SZ391R) by sliding the hexagonal shaped portion of the shaft into the handle coupling until the stop.
2. Insert the Torque Wrench through the cannulation of the Rod Pusher and fully seat the tip of the Torque Wrench into the socket of the Set Screw. (Fig. 34)
3. Turn the Torque Wrench clockwise while firmly holding the Forceps until a click is heard. The click is an indicator that the final tightening of 10 Nm has been achieved.
4. To release the PolyLock, attach the PolyBlocker assembly into the upper portion of the Rod Pusher. Hold the Forceps or attach the Counter Torque Handle to the Downtube, and turn the assembly counterclockwise.

See pages 7-13 for illustrations and descriptions of each implant and instrument listed here.

VIII. Removal or Adjustment of Implants

Removal of Implants

Set Screws

To remove a set screw from the pedicle screw construct, engage the MIS Set Screwdriver (SZ391R) with any of the non-torque limiting ENNOVATE Quick Connect Handles. Ensure that the ratchet is set on "OUT" for set screw removal. Unthread the set screw from the pedicle screw with the Set Screwdriver.

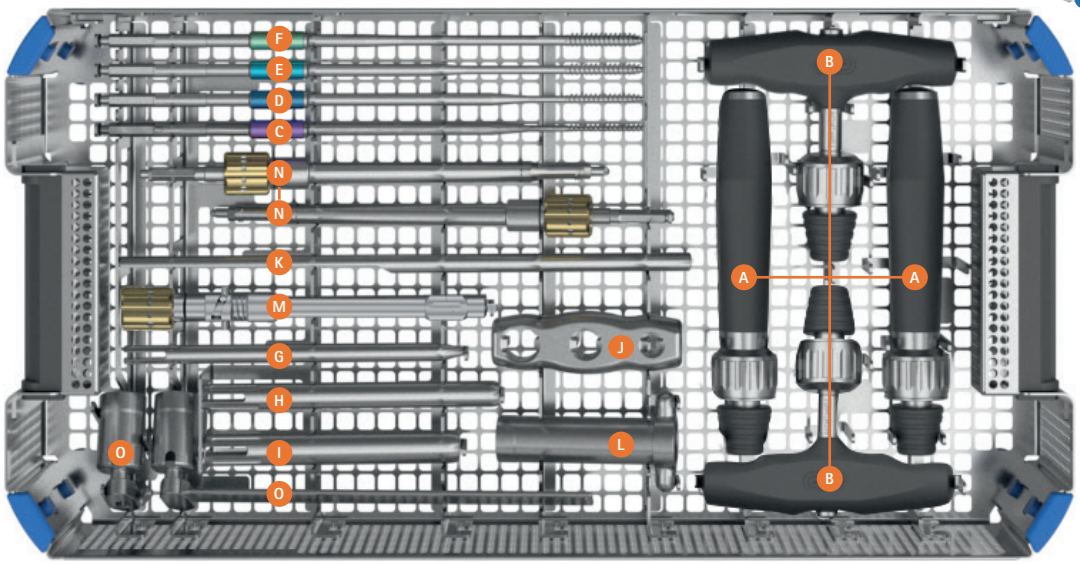
Pedicle Screws / Adjustment or Removal

To adjust or remove a pedicle screw from the patient, attach the MIS Screwdriver (SZ381R) to any of the non-torque limiting ENNOVATE Quick Connect Handles. Ensure that the ratchet is set on "OUT" for screw removal. Next, engage the Screwdriver with the pedicle screw as described in the Screw Insertion Section. Adjust the pedicle screw depth or unthread the pedicle screw out of the pedicle.

Precaution: *No component of the ENNOVATE Spinal System should be reused after removal from the body.*

See pages 7-13 for illustrations and descriptions of each implant and instrument listed here.

IX. ENNOVATE® Spinal System – MIS Module Trays

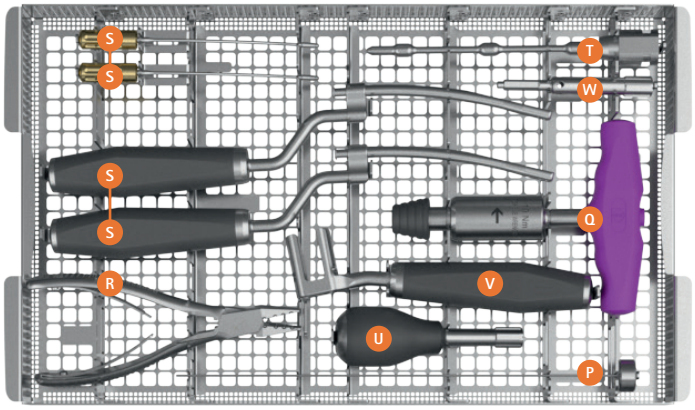


ST0721 – ENNOVATE MIS Instrument Set I

Index	Item No.	Description	Set Qty.
	SZ361R	ENNOVATE Tray MIS Implantation	1
	JA455R	Lid for Aesculap OrthoTray® DIN without Handle	1
Instruments – Lower Layer			
Index	**Item No.**	**Description**	**Set Qty.**
A	SZ222R	ENNOVATE Quick Connect Ratchet Straight Handle, Medium	2
B	SZ224R	ENNOVATE Quick Connect Ratchet T-Handle	2
C	SZ254R	ENNOVATE Screw Tap, 4.5 mm	1
D	SZ255R	ENNOVATE Screw Tap, 5.5 mm	1
E	SZ256R	ENNOVATE Screw Tap, 6.5 mm	1
F	SZ257R	ENNOVATE Screw Tap, 7.5 mm	1

Instruments – Lower Layer, *continued*

Index	Item No.	Description	Set Qty.
G	SZ372T	ENNOVATE MIS Dilator, Small	1
H	SZ373T	ENNOVATE MIS Dilator, Medium	1
I	SZ374T	ENNOVATE MIS Dilator, Large	1
J	SZ375T	ENNOVATE MIS Dilator Handle	1
K	SZ377R	ENNOVATE MIS Screw Length Measuring Device	1
L	SZ379R	ENNOVATE MIS Downtube Locking Wrench	1
M	SZ380R	ENNOVATE MIS Removal Key, Short	1
N	SZ381R	ENNOVATE MIS Screwdriver, Short	2
O	SZ382R	ENNOVATE MIS Rod Length Caliper	1



ST0721 – ENNOVATE MIS Instrument Set I

Instruments – Upper Layer

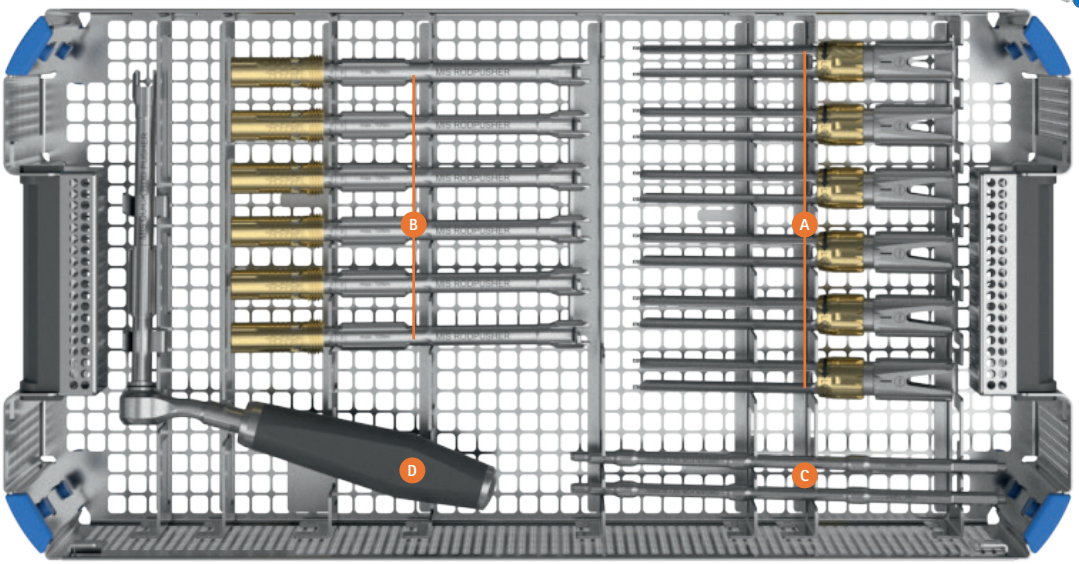
Index	Item No.	Description	Set Qty.
P	FW692R	S⁴® Cleaning Device	1
Q	SZ228R	ENNOVATE Torque Wrench Handle, 10 Nm	1
R	SZ367R	ENNOVATE MIS K-Wire Forceps	1
S	SZ384R	ENNOVATE MIS Rod Inserter, Short Construct	2
T	SZ387R	ENNOVATE MIS Rod Indicator	1
U	SZ390R	ENNOVATE MIS Rod Pusher Handle	1
V	SZ392R	ENNOVATE MIS Counter Torque Handle	1
W	SZ393R	ENNOVATE PolyBlocker	1

	Index	Item No.	Description	Set Qty.
	X	SZ204R	ENNOVATE K-Wire Tray	1
	Y	SZ370	ENNOVATE MIS K-Wire, Short, Nitinol	12

Ennovate® Spinal System

MIS Module Surgical Technique

IX. ENNOVATE Spinal System – MIS Module Trays *(continued)*

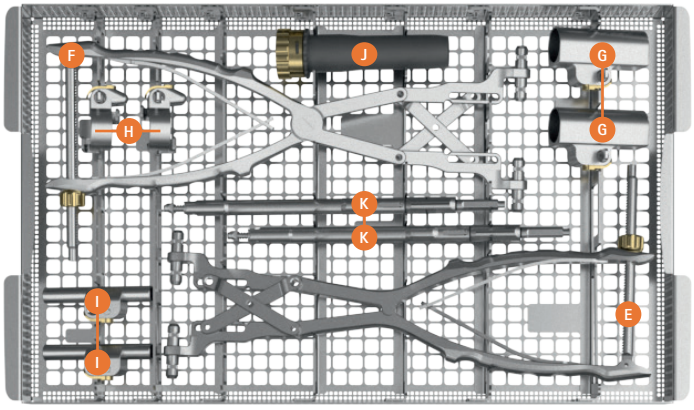


ST0722 – ENNOVATE MIS Manipulation Instrument Set II

Index	Item No.	Description	Set Qty.
	SZ239R	ENNOVATE Tray MIS Manipulation	1
	JA455R	Lid for Aesculap OrthoTray® DIN without Handle	1

Instruments – Lower Layer

Index	Item No.	Description	Set Qty.
A	SZ378R	ENNOVATE MIS Downtube, Short	6
B	SZ389R	ENNOVATE MIS Rod Pusher, Short	6
C	SZ391R	ENNOVATE MIS Set Screwdriver, Short	2
D	SZ397R	ENNOVATE MIS Quick Rod Pusher, Short	1

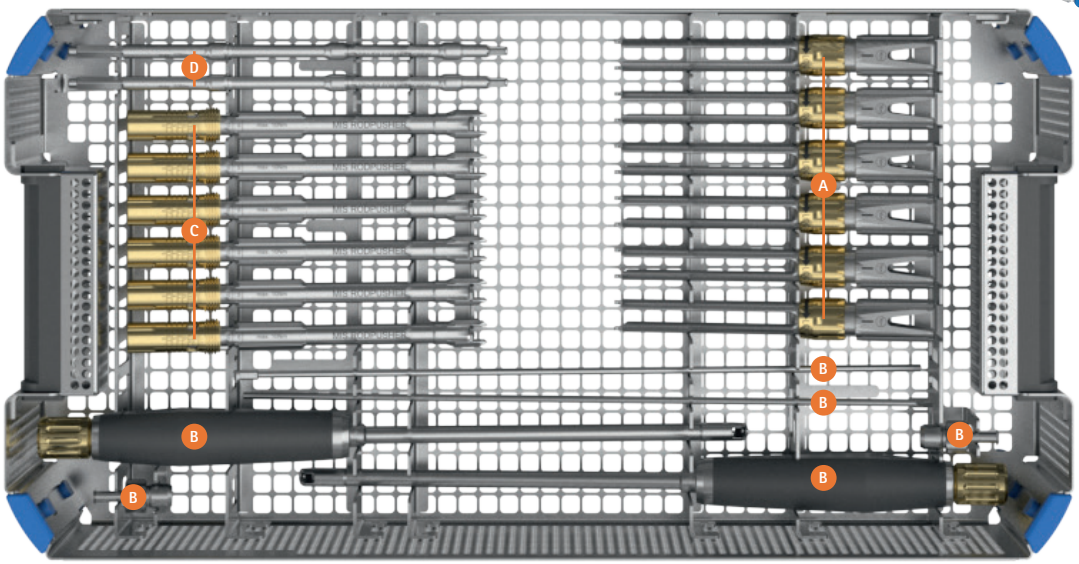


ST0722 – ENNOVATE MIS Manipulation Instrument Set II

Instruments – Upper Layer

Index	Item No.	Description	Set Qty.
E	SZ231R	ENNOVATE MIS Parallel Distractor Forceps	1
F	SZ232R	ENNOVATE MIS Parallel Compressor Forceps	1
G	SZ388R	ENNOVATE MIS Parallel Sleeves	2
H	SZ395R	ENNOVATE MIS CoDi C-Rings	2
I	SZ396R	ENNOVATE MIS Cage Sleeves	2
J	SZ398P	ENNOVATE MIS Alignment Working Port, Short	1
K	SZ399R	ENNOVATE MIS Alignment Tool, Short	2

IX. ENNOVATE® Spinal System – MIS Module Trays *(continued)*



ST0723 – ENNOVATE MIS Extension Instrument Set III

Index	Item No.	Description	Set Qty.
	SZ236R	ENNOVATE Tray MIS Extension	1
	JA455R	Lid for Aesculap OrthoTray® DIN without Handle	1

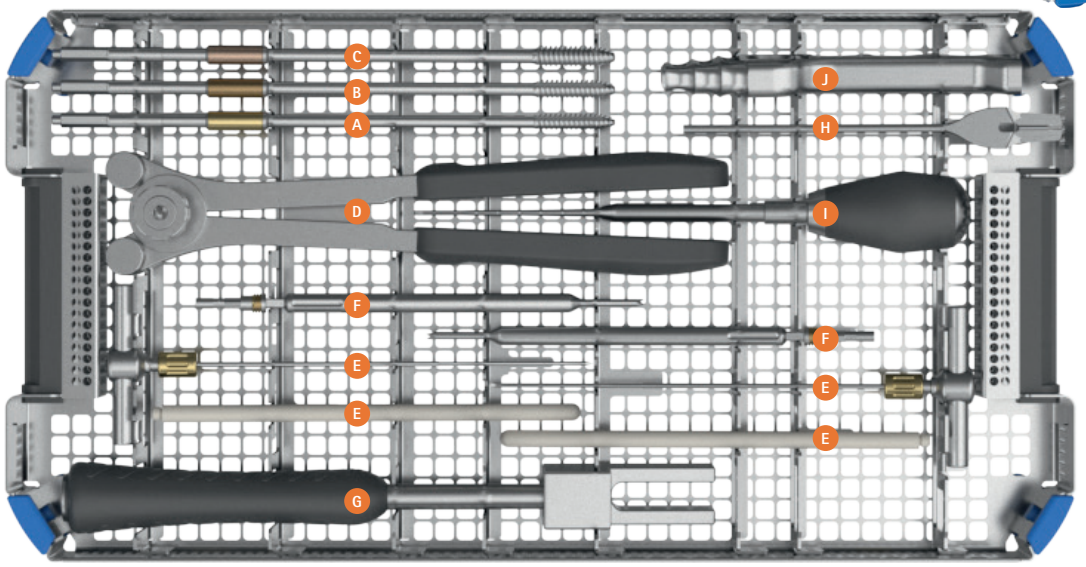
Instruments – Lower Layer

Index	Item No.	Description	Set Qty.
A	SZ378R	ENNOVATE MIS Downtube, Short	6
B	SZ385R	ENNOVATE MIS Rod Inserter, Long Construct	2
C	SZ389R	ENNOVATE MIS Rod Pusher, Short	6
D	SZ391R	ENNOVATE MIS Set Screwdriver, Short	2

Ennovate® Spinal System

MIS Module Surgical Technique

IX. ENNOVATE Spinal System – MIS Module Trays *(continued)*



ST0724 – ENNOVATE MIS Optional Instrument Set IV

Trays / Container

Index	Item No.	Description	Set Qty.
	SZ363R	ENNOVATE Tray MIS Optional	1
	JA455R	Lid for Aesculap OrthoTray® DIN without Handle	1
Graphic Template / Packing Stencil			
	TF313	Graphic Template for SZ363R (SZ362)	1
	TF293	Packing Stencil for SZ363R (SZ362)	1
	Container		
	JK441	Bottom for 1/1 Container height: 120 mm	1
	JK486	Full-Size Lid w/Retention Plate Blue	1
	JG786B	Identification Label (13 Letters) Blue - ENNOVATE MIS	2
	JG786B	Identification Label (13 Letters) Blue - Optional	2

Instruments

Index	Item No.	Description	Set Qty.
A	SZ258R	ENNOVATE Screw Tap, 8.5 mm	1
B	SZ259R	ENNOVATE Screw Tap, 9.5 mm	1
C	SZ260R	ENNOVATE Screw Tap, 10.5 mm	1
D	SZ270R	ENNOVATE French Rod Bender	1
E	SZ365R	ENNOVATE MIS K-Wire Trocar, Short	2
F	SZ366R	ENNOVATE MIS K-Wire Sleeve, Short	2
G	SZ368R	ENNOVATE MIS Slotted Hammer	1
H	SZ371R	ENNOVATE MIS Skin Incision Guide	1
I	SZ376R	ENNOVATE MIS Lumbar Pedicle Probe	1
J	SZ394T	ENNOVATE MIS CoDi Device	1

Additionally Available

Index	Item No.	Description	Set Qty.
	SZ225R	ENNOVATE Quick Connect Ratchet Handle Drop Shape	0

X. Implant Sets

ST0726 – ENNOVATE® Cannulated Standard Implant Set		
Item No.	**Description**	**Set Qty.**
SY001TS	Set Screw	30
SY620TS	ENNOVATE Polyaxial Screw 5.5 x 25 mm Cannulated	2
SY621TS	ENNOVATE Polyaxial Screw 5.5 x 30 mm Cannulated	6
SY622TS	ENNOVATE Polyaxial Screw 5.5 x 35 mm Cannulated	8
SY623TS	ENNOVATE Polyaxial Screw 5.5 x 40 mm Cannulated	10
SY624TS	ENNOVATE Polyaxial Screw 5.5 x 45 mm Cannulated	10
SY625TS	ENNOVATE Polyaxial Screw 5.5 x 50 mm Cannulated	8
SY631TS	ENNOVATE Polyaxial Screw 6.5 x 30 mm Cannulated	6
SY632TS	ENNOVATE Polyaxial Screw 6.5 x 35 mm Cannulated	8
SY633TS	ENNOVATE Polyaxial Screw 6.5 x 40 mm Cannulated	10
SY634TS	ENNOVATE Polyaxial Screw 6.5 x 45 mm Cannulated	12
SY635TS	ENNOVATE Polyaxial Screw 6.5 x 50 mm Cannulated	10
SY636TS	ENNOVATE Polyaxial Screw 6.5 x 55 mm Cannulated	10
SY637TS	ENNOVATE Polyaxial Screw 6.5 x 60 mm Cannulated	8
SY641TS	ENNOVATE Polyaxial Screw 7.5 x 30 mm Cannulated	6
SY642TS	ENNOVATE Polyaxial Screw 7.5 x 35 mm Cannulated	8
SY643TS	ENNOVATE Polyaxial Screw 7.5 x 40 mm Cannulated	10
SY644TS	ENNOVATE Polyaxial Screw 7.5 x 45 mm Cannulated	10
SY645TS	ENNOVATE Polyaxial Screw 7.5 x 50 mm Cannulated	10
SY646TS	ENNOVATE Polyaxial Screw 7.5 x 55 mm Cannulated	10
SY647TS	ENNOVATE Polyaxial Screw 7.5 x 60 mm Cannulated	8
SY930TS	ENNOVATE Curved Rod 5.5 x 30 mm MIS	2
SY931TS	ENNOVATE Curved Rod 5.5 x 35 mm MIS	4
SY932TS	ENNOVATE Curved Rod 5.5 x 40 mm MIS	4
SY933TS	ENNOVATE Curved Rod 5.5 x 45 mm MIS	4
SY934TS	ENNOVATE Curved Rod 5.5 x 50 mm MIS	4
SY935TS	ENNOVATE Curved Rod 5.5 x 55 mm MIS	4
SY936TS	ENNOVATE Curved Rod 5.5 x 60 mm MIS	4
SY937TS	ENNOVATE Curved Rod 5.5 x 70 mm MIS	4
SY938TS	ENNOVATE Curved Rod 5.5 x 80 mm MIS	4
SY939TS	ENNOVATE Curved Rod 5.5 x 90 mm MIS	2
SY940TS	ENNOVATE Curved Rod 5.5 x 100 mm MIS	2
SY941TS	ENNOVATE Curved Rod 5.5 x 110 mm MIS	2
SY942TS	ENNOVATE Curved Rod 5.5 x 120 mm MIS	2
SY943TS	ENNOVATE Curved Rod 5.5 x 130 mm MIS	2
SY944TS	ENNOVATE Curved Rod 5.5 x 140 mm MIS	2
SY945TS	ENNOVATE Curved Rod 5.5 x 150 mm MIS	2
SY920TS	ENNOVATE Straight Rod 5.5 x 200 mm MIS	2
SY922TS	ENNOVATE Straight Rod 5.5 x 400 mm MIS	2

X. Implant Sets *(continued)*

ST0727 – ENNOVATE® Cannulated Complex Implant Set

Item No.	Description	Set Qty.
SY001TS	ENNOVATE Set Screw	30
SY610TS	ENNOVATE Polyaxial Screw 4.5 x 25 mm Cannulated	4
SY611TS	ENNOVATE Polyaxial Screw 4.5 x 30 mm Cannulated	4
SY612TS	ENNOVATE Polyaxial Screw 4.5 x 35 mm Cannulated	4
SY613TS	ENNOVATE Polyaxial Screw 4.5 x 40 mm Cannulated	4
SY614TS	ENNOVATE Polyaxial Screw 4.5 x 45 mm Cannulated	4
SY615TS	ENNOVATE Polyaxial Screw 4.5 x 50 mm Cannulated	4
SY620TS	ENNOVATE Polyaxial Screw 5.5 x 25 mm Cannulated	4
SY621TS	ENNOVATE Polyaxial Screw 5.5 x 30 mm Cannulated	4
SY622TS	ENNOVATE Polyaxial Screw 5.5 x 35 mm Cannulated	4
SY623TS	ENNOVATE Polyaxial Screw 5.5 x 40 mm Cannulated	6
SY624TS	ENNOVATE Polyaxial Screw 5.5 x 45 mm Cannulated	6
SY625TS	ENNOVATE Polyaxial Screw 5.5 x 50 mm Cannulated	6
SY630TS	ENNOVATE Polyaxial Screw 6.5 x 25 mm Cannulated	4
SY631TS	ENNOVATE Polyaxial Screw 6.5 x 30 mm Cannulated	4
SY632TS	ENNOVATE Polyaxial Screw 6.5 x 35 mm Cannulated	4
SY633TS	ENNOVATE Polyaxial Screw 6.5 x 40 mm Cannulated	6
SY634TS	ENNOVATE Polyaxial Screw 6.5 x 45 mm Cannulated	6
SY635TS	ENNOVATE Polyaxial Screw 6.5 x 50 mm Cannulated	6
SY636TS	ENNOVATE Polyaxial Screw 6.5 x 55 mm Cannulated	6
SY637TS	ENNOVATE Polyaxial Screw 6.5 x 60 mm Cannulated	4
SY640TS	ENNOVATE Polyaxial Screw 7.5 x 25 mm Cannulated	4
SY641TS	ENNOVATE Polyaxial Screw 7.5 x 30 mm Cannulated	4
SY642TS	ENNOVATE Polyaxial Screw 7.5 x 35 mm Cannulated	4
SY643TS	ENNOVATE Polyaxial Screw 7.5 x 40 mm Cannulated	6
SY645TS	ENNOVATE Polyaxial Screw 7.5 x 50 mm Cannulated	6
SY646TS	ENNOVATE Polyaxial Screw 7.5 x 55 mm Cannulated	6
SY647TS	ENNOVATE Polyaxial Screw 7.5 x 60 mm Cannulated	4
SY651TS	ENNOVATE Polyaxial Screw 8.5 x 30 mm Cannulated	2
SY652TS	ENNOVATE Polyaxial Screw 8.5 x 35 mm Cannulated	2
SY653TS	ENNOVATE Polyaxial Screw 8.5 x 40 mm Cannulated	4
SY654TS	ENNOVATE Polyaxial Screw 8.5 x 45 mm Cannulated	4
SY655TS	ENNOVATE Polyaxial Screw 8.5 x 50 mm Cannulated	4
SY656TS	ENNOVATE Polyaxial Screw 8.5 x 55 mm Cannulated	2
SY657TS	ENNOVATE Polyaxial Screw 8.5 x 60 mm Cannulated	2
SY662TS	ENNOVATE Polyaxial Screw 9.5 x 35 mm Cannulated	2
SY663TS	ENNOVATE Polyaxial Screw 9.5 x 40 mm Cannulated	2
SY664TS	ENNOVATE Polyaxial Screw 9.5 x 45 mm Cannulated	2
SY665TS	ENNOVATE Polyaxial Screw 9.5 x 50 mm Cannulated	2
SY666TS	ENNOVATE Polyaxial Screw 9.5 x 55 mm Cannulated	2
SY667TS	ENNOVATE Polyaxial Screw 9.5 x 60 mm Cannulated	2
SY672TS	ENNOVATE Polyaxial Screw 10.5 x 35 mm Cannulated	2

X. Implant Sets *(continued)*

ST0727 – ENNOVATE® Cannulated Complex Implant Set *(continued)*

Item No.	Description	Set Qty.
SY673TS	ENNOVATE Polyaxial Screw 10.5 x 40 mm Cannulated	2
SY674TS	ENNOVATE Polyaxial Screw 10.5 x 45 mm Cannulated	2
SY675TS	ENNOVATE Polyaxial Screw 10.5 x 50 mm Cannulated	2
SY676TS	ENNOVATE Polyaxial Screw 10.5 x 55 mm Cannulated	2
SY677TS	ENNOVATE Polyaxial Screw 10.5 x 60 mm Cannulated	2
SY638TS	ENNOVATE Polyaxial Screw 6.5 x 70 mm Cannulated	2
SY639TS	ENNOVATE Polyaxial Screw 6.5 x 80 mm Cannulated	2
SY648TS	ENNOVATE Polyaxial Screw 7.5 x 70 mm Cannulated	2
SY649TS	ENNOVATE Polyaxial Screw 7.5 x 80 mm Cannulated	2
SY688TS	ENNOVATE Polyaxial Screw 7.5 x 90 mm Cannulated	2
SY689TS	ENNOVATE Polyaxial Screw 7.5 x100 mm Cannulated	2
SY690TS	ENNOVATE Polyaxial Screw 7.5 x 110 mm Cannulated	2
SY658TS	ENNOVATE Polyaxial Screw 8.5 x 70 mm Cannulated	2
SY659TS	ENNOVATE Polyaxial Screw 8.5 x 80 mm Cannulated	2
SY691TS	ENNOVATE Polyaxial Screw 8.5 x 90 mm Cannulated	2
SY692TS	ENNOVATE Polyaxial Screw 8.5 x 100 mm Cannulated	2
SY693TS	ENNOVATE Polyaxial Screw 8.5 x 110 mm Cannulated	2
SY668TS	ENNOVATE Polyaxial Screw 9.5 x 70 mm Cannulated	2
SY669TS	ENNOVATE Polyaxial Screw 9.5 x 80 mm Cannulated	2
SY694TS	ENNOVATE Polyaxial Screw 9.5 x 90 mm Cannulated	2
SY695TS	ENNOVATE Polyaxial Screw 9.5 x 100 mm Cannulated	2
SY696TS	ENNOVATE Polyaxial Screw 9.5 x 110 mm Cannulated	2
SY678TS	ENNOVATE Polyaxial Screw 10.5 x 70 mm Cannulated	2
SY679TS	ENNOVATE Polyaxial Screw 10.5 x 80 mm Cannulated	2
SY697TS	ENNOVATE Polyaxial Screw 10.5 x 90 mm Cannulated	2
SY698TS	ENNOVATE Polyaxial Screw 10.5 x 100 mm Cannulated	2
SY699TS	ENNOVATE Polyaxial Screw 10.5 x 110 mm Cannulated	2
SY921TS	ENNOVATE Straight Rod 5.5 x 300 mm MIS	2
SY922TS	ENNOVATE Straight Rod 5.5 x 400 mm MIS	2
SY923TS	ENNOVATE Straight Rod 5.5 x 500 mm MIS	2
SY900TS	ENNOVATE Straight Rod 5.5 x 30 mm MIS	2
SY901TS	ENNOVATE Straight Rod 5.5 x 35 mm MIS	2
SY902TS	ENNOVATE Straight Rod 5.5 x 40 mm MIS	2
SY903TS	ENNOVATE Straight Rod 5.5 x 45 mm MIS	2
SY904TS	ENNOVATE Straight Rod 5.5 x 50 mm MIS	2
SY905TS	ENNOVATE Straight Rod 5.5 x 55 mm MIS	2
SY906TS	ENNOVATE Straight Rod 5.5 x 60 mm MIS	2
SY907TS	ENNOVATE Straight Rod 5.5 x 70 mm MIS	2
SY908TS	ENNOVATE Straight Rod 5.5 x 80 mm MIS	2
SY909TS	ENNOVATE Straight Rod 5.5 x 90 mm MIS	2
SY910TS	ENNOVATE Straight Rod 5.5 x 100 mm MIS	2
SY911TS	ENNOVATE Straight Rod 5.5 x 110 mm MIS	2

Ennovate® Spinal System

MIS Module Surgical Technique

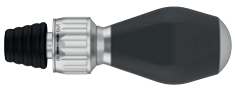
X. Implant Sets *(continued)*

ST0727 – ENNOVATE® Cannulated Complex Implant Set *(continued)*

Item No.	Description	Set Qty.
SY912TS	ENNOVATE Straight Rod 5.5 x 120 mm MIS	2
SY913TS	ENNOVATE Straight Rod 5.5 x 130 mm MIS	2
SY914TS	ENNOVATE Straight Rod 5.5 x 140 mm MIS	2
SY915TS	ENNOVATE Straight Rod 5.5 x 150 mm MIS	2
SY916TS	ENNOVATE Straight Rod 5.5 x 160 mm MIS	2
SY917TS	ENNOVATE Straight Rod 5.5 x 170 mm MIS	2
SY918TS	ENNOVATE Straight Rod 5.5 x 180 mm MIS	2
SY919TS	ENNOVATE Straight Rod 5.5 x 190 mm MIS	2
SY920TS	ENNOVATE Straight Rod 5.5 x 200 mm MIS	2
SY930TS	ENNOVATE Curved Rod 5.5 x 30 mm MIS	2
SY931TS	ENNOVATE Curved Rod 5.5 x 35 mm MIS	2
SY932TS	ENNOVATE Curved Rod 5.5 x 40 mm MIS	2
SY933TS	ENNOVATE Curved Rod 5.5 x 45 mm MIS	2
SY934TS	ENNOVATE Curved Rod 5.5 x 50 mm MIS	2
SY935TS	ENNOVATE Curved Rod 5.5 x 55 mm MIS	2
SY936TS	ENNOVATE Curved Rod 5.5 x 60 mm MIS	2
SY937TS	ENNOVATE Curved Rod 5.5 x 70 mm MIS	2
SY938TS	ENNOVATE Curved Rod 5.5 x 80 mm MIS	2
SY939TS	ENNOVATE Curved Rod 5.5 x 90 mm MIS	2
SY940TS	ENNOVATE Curved Rod 5.5 x 100 mm MIS	2
SY941TS	ENNOVATE Curved Rod 5.5 x 110 mm MIS	2
SY942TS	ENNOVATE Curved Rod 5.5 x 120 mm MIS	2
SY943TS	ENNOVATE Curved Rod 5.5 x 130 mm MIS	2
SY944TS	ENNOVATE Curved Rod 5.5 x 140 mm MIS	2
SY945TS	ENNOVATE Curved Rod 5.5 x 150 mm MIS	2

Additionally Available Instruments

SZ364SU ENNOVATE MIS Aspiration Needle



SZ225R ENNOVATE Quick Connect Ratchet Handle, Drop Shape

Notes

Through collaborative excellence we will improve the quality of a patient's life and meet the needs of the changing healthcare environment.

Aesculap Implant Systems, LLC | 3773 Corporate Parkway | Center Valley, PA | 18034
Phone 866-229-3002 | Fax 610-984-9096 | www.aesculapimplantsystems.com

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