Open Module Surgical Technique





Ennovate[®] Spinal System

Open Module Surgical Technique

Table of Contents

1	System Overview 3
11.	Indications and Contraindications
III.	Warnings and Precautions5
IV.	Preoperative Planning6
V.	Implants and Instruments7-16
VI.	Surgical Technique
	A. Pedicle Preparation17-18
	B. Screw Placement
	C. Rod Contouring and Placement21
	D. Rod Reduction
	E. Final Tightening24
	F. Alternate Final Tightening24
VII.	Distraction and Compression25-28
	A. Distraction25-26
	B. Compression27-28
VIII.	Cross Connector Placement
IX.	Construct Extension
	A. Axial Rod-to-Rod Connector Application
	B. Domino Rod-to-Rod Connector Application
	C. Lateral Offset Connectors
	D. Provisional and Final Tightening of Construct Extensions
Х.	Removal of Implants
XI.	ENNOVATE Spinal System – Open Module Travs
XII	Implant Sets 30-42
	inipiane Sets

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.



Ennovate[®] Spinal System

Open Module Surgical Technique

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.
- The 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.

Open Module Surgical Technique

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
lliac	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 Solid Screws



All implants are supplied sterile packaged.

- Refer to set list quantities on pages 39-43.
- Cannulated screws are additionally available. Refer to DOC1541 – ENNOVATE Spinal System – MIS Module Surgical Technique.
- Compatible with 5.5 mm diameter rods.

Open Module Surgical Technique

V. Implants and Instruments (continued)





Rods larger than 150 mm in length have a hexagonal end





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

V. Implants and Instruments (continued)

ENNOVATE® Fixed Transconnectors*

Length	for 5.5						
		30 mm	32 mm	34 mm	36 mm	38 mm	40 mm

ENNOVATE Variable Transconnectors*

Length	for 5.5					
		42-45 mm	45-50 mm	50-60 mm	60-80 mm	80–100 mm

ENNOVATE Multiaxial Cross Connectors*



*Length is defined as the distance between rod centers. *Arrows indicate the degrees of freedom.

Open Module Surgical Technique

V. Implants and Instruments (continued)

ENNOVATE Axial Connectors

	for 55		
Length		19 mm	34 mm

ENNOVATE Closed Domino Connectors

I di	for 55		
Length		7 mm	11 mm

ENNOVATE Closed/Open Domino Connectors

	for 5.5		
Length		7 mm	11 mm

ENNOVATE Closed Lateral Offset Connectors



ENNOVATE Open Lateral Offset Connectors



V. Implants and Instruments (continued)



Open Module Surgical Technique

V. Implants and Instruments (continued) **Implantation Instruments** Description Item No. NANANA SZ254R ENNOVATE Screw Tap, 4.5 mm MARAAAAA SZ255R ENNOVATE Screw Tap, 5.5 mm SZ256R ENNOVATE Screw Tap, 6.5 mm SZ257R ENNOVATE Screw Tap, 7.5 mm ENNOVATE Screw Tap, 8.5 mm SZ258R SZ259R ENNOVATE Screw Tap, 9.5 mm SZ260R ENNOVATE Screw Tap, 10.5 mm SZ248R ENNOVATE Pedicle Marker, Dual Band SZ249R ENNOVATE Pedicle Marker, Single Band SZ262R ENNOVATE Screwdriver ENNOVATE Screw Body Manipulator SZ265R ENNOVATE Rod Holding Forceps SZ272R

V. Implants and Instruments (continued)



Open Module Surgical Technique



V. Implants and Instruments (continued) **Connector Instruments** Item No. Description FW181R $\mathsf{ENNOVATE}^{\circ}$ / $\mathsf{S}^{\scriptscriptstyle 4^{\circ}}$ Distraction Forceps FW023R ENNOVATE / SSE / S⁴ Distraction Forceps, Small ENNOVATE Torque Wrench Handle, 5 Nm ↑ ĭ SZ229R ENNOVATE Cross Connector Holder SZ290R SZ291R ENNOVATE Cross Connector Caliper

Open Module Surgical Technique

V. Implants and Instruments (continued) Item No. Description Item No. Description SZ292R ENNOVATE Counter Torque Handle, Cross Connectors Item No. SZ292R ENNOVATE Counter Torque Handle, Cross Connectors Item No. SZ292R SZ292R Item No. SZ292R ENNOVATE Counter Torque Handle, Cross Connectors Item No. SZ292R SZ292R

VI. Surgical Technique



A. Pedicle Preparation

- Identify the appropriate spinal landmarks for initiating cortex perforation for screw placement. Create the perforation of the cortex with the Pedicle Awl (SZ241R) or burr, according to surgeons preference. (Fig. 1)
- 2. The perforation is followed by a Pedicle Probe to open the pedicle canal.
 - The Pedicle Probes are available as straight or curved Lumbar Probes (SZ242R or SZ243R) and straight or curved Thoracic Probes (SZ244R or SZ245R). (Fig. 2)
 - The Pedicle Probes have ruled markings to determine the advancement into the pedicle canal.
- 3. If necessary, Pedicle Markers (SZ248R or SZ249R) can be used as a placeholder during pedicle preparation or to identify proper anatomic location on the intraoperative imaging.

See pages 7–16 for illustrations and descriptions of each implant and instrument listed here.

Open Module Surgical Technique

VI. Surgical Technique (continued)



A. Pedicle Preparation (continued)

- 4. Utilize the Pedicle Sounder (SZ246R or SZ247R) to palpate for any perforation in order to confirm the integrity of the pedicle and vertebral body cortex. (Fig. 3).
- 5. The ENNOVATE pedicle screws are fully-threaded self-tapping screws with a tapered tip. Screw taps are available for surgeon preference.
 - To tap, attach the desired handle to the appropriately sized Screw 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 to "IN" for tapping. To remove the instrument, set the ratchet to "OUT". (Fig. 4)

VI. Surgical Technique (continued)



Fig. 5



B. Screw Placement

- 1. To determine the appropriate screw length, palpate the prepared pedicle canal with a Pedicle Sounder. Clamp a hemostat to the exposed Pedicle Sounder, and measure the length of the hole using the Screw Length Scale (AA804R). Select the appropriate screw diameter and length based on preoperative planning and intraoperative measuring. (Fig. 5)
- 2. Screw Inserter Assembly
 - Attach the desired handle to the Screwdriver (SZ262R).
 - Place the tip of the Screwdriver assembly into the body of the selected screw.
- Press the gold button of the Screwdriver, and push the outer shaft of the screw inserter down until it mates with the head of the screw.
- Turn the gold knob clockwise until the Screwdriver is fully secured to the screw.
- Press the gold button and pull the gold knob toward the handle until a tactile click is felt (Fig. 6).

Note: Ensure that the ratchet is set to "IN" for screw insertion.

See pages 7–16 for illustrations and descriptions of each implant and instrument listed here.

Open Module Surgical Technique

VI. Surgical Technique (continued)



B. Screw Placement (continued)

3. Slowly advance the screw into the prepared pedicle to allow for viscoelastic expansion of the bone. The sleeve is designed to rotate freely and can be held firmly to help maintain the desired trajectory. (Fig. 7)

Upon full seating of the screw, remove the Screwdriver.

 Press the gold button of the Screwdriver, and push down the outer shaft of the Screwdriver until it is fully seated.

Note: The laser line should be at the level of the distal aspect of the Screwdriver.

- Turn the gold knob counterclockwise until the Screwdriver is removed from the screw.
- 4. If desired, align and position the screw bodies using the Screw Body Manipulator (SZ265R). (Fig. 8)

See pages 7-16 for illustrations and descriptions of each implant and instrument listed here.

VI. Surgical Technique (continued)



C. Rod Contouring and Placement

- 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 Rod Holding Forceps (SZ272R) at both ends will help to avoid a possible rod rotation during contouring. (Fig. 9)
- 2. Use the Rod Holding Forceps to place the Rod into the screw heads. (Fig. 10)

Open Module Surgical Technique

VI. Surgical Technique (continued)



Fig.12

D. Rod Reduction

Reduction with Rod Pusher

- 1. Place the Rod Pusher (SZ273R) on the Rod, and push the Rod manually into the screw head.
- 2. Attach the Set Screw to the Set Screwdriver (SZ280R), and place the Set Screw in the screw head. Provisionally tighten the Set Screw into the screw head. (Fig. 11)

Reduction with Fork Rocker

For minor vertical adjustments to seat the Rod into the screw head, the Fork Rocker (SZ275R) may be used.

- 1. Grasp the sides of the screw body with the rocker pins above the Rod, and then lever the Fork Rocker backward toward the Rod, levering the Rod into the screw head.
- 2. Attach the Set Screw to the Set Screwdriver (SZ280R), and place the Set Screw in the screw head. Provisionally tighten the Set Screw. (Fig. 12)

See pages 7-16 for illustrations and descriptions of each implant and instrument listed here.

VI. Surgical Technique (continued)





Reduction with Rod Persuader

For situations where a higher vertical adjustment is needed, the Rod Persuader (SZ277R) may be used to gradually seat the Rod into the screw body.

- 1. Before placing the Rod Persuader over the screw body, ensure that the gold reduction spindle is fully extended. Place the Rod Persuader over the screw head, and press down firmly until the tips engage with the head of the implant. (Fig. 13)
- 2. Press down on the gold reduction spindle until the reduction sleeve is seated on the Rod. Further reduction can be performed by pushing the spindle down or by turning the gold reduction spindle clockwise until the Rod is fully reduced into the screw head. (Fig. 14)
- 3. Attach the Set Screw to the Set Screwdriver (SZ280R), and place the Set Screw through the Rod Persuader into the screw body. Provisionally tighten the Set Screw.
- 4. To remove the Rod Persuader from the screw head, simultaneously press the proximal gold button, and completely pull up the gold knob.

Note: It may be necessary to turn the gold knob counterclockwise to relieve pressure on the distal aspect of the instrument.

5. Simultaneously press the lateral gold buttons on the distal end of the Rod Persuader, and pull the entire instrument off of the screw head.

See pages 7-16 for illustrations and descriptions of each implant and instrument listed here.

Open Module Surgical Technique

VI. Surgical Technique (continued)





E. Final Tightening, Standard

- 1. Assemble the Torque Wrench by attaching the Torque Wrench Handle 10Nm (SZ228R) to the Torque Wrench Shaft 10Nm (SZ283R).
- 2. Engage the Counter Torque Handle (SZ282R) onto the screw head.
- 3. Insert the assembled Torque Wrench Assembly into the Counter Torque Handle, and fully seat the tip of the Torque Wrench into the Set Screw. (Fig. 15)
- 4. Turn the Torque Wrench clockwise while firmly holding the Counter Torque Handle until a click is heard. The click is an indicator that the final tightening of 10Nm has been achieved.

F. Alternate Final Tightening

- 1. Assemble the Torque Wrench by attaching the Torque Wrench Handle 10Nm (SZ228R) to the Torque Wrench Shaft 10Nm (SZ283R).
- 2. Engage the Counter Torque Handle for Persuader (SZ276R) with the Rod Persuader (SZ277R).
- 3. Insert the Torque Wrench through the tube of the Rod Persuader.
- 4. Fully seat the tip of the Torque Wrench into the socket of the Set Screw. (Fig. 16)
- 5. Turn the Torque Wrench clockwise while firmly holding the Counter Torque Handle until a click is heard. The click is an indicator that the final tightening of 10Nm has been achieved.

See pages 7–16 for illustrations and descriptions of each implant and instrument listed here.

VII. Distraction and Compression



A. Distraction

Standard Distraction Maneuver

Use the Parallel Distractor Forceps (SZ233R) with the appropriate Tips (SZ252R / SZ253R) or Distraction Forceps (FW181R / FW023R) to distract the construct.

- 1. Select the starting point for the distraction maneuver.
- 2. Loosen the adjacent Set Screw for distraction force transmission.
- 3. Place the distractor forceps between the screw bodies and perform the distraction maneuver. (Fig. 17)
- 4. Once the desired distraction is achieved, perform final tightening of the Set Screw.

Open Module Surgical Technique

VII. Distraction and Compression (continued)





A. Distraction (continued)

Parallel Distraction Maneuver with Rod Persuaders

After rod reduction, parallel distraction can be applied on the spinal segments. Use the Parallel Distractor Forceps (SZ233R) with the appropriate Tips (SZ252R / SZ253R) or the Distraction Forceps (FW023R / FW181R) with the Rod Persuader to distract the construct. For the parallel distraction, the Rod Persuaders need to be attached to the corresponding screws.

1. Select the starting point for the distraction maneuver.

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

- The PolyLock can be activated by connecting the Torque Wrench Handle 10Nm (SZ228R) to the PolyBlocker (SZ393R) and placing the assembly into the upper portion of the gold reduction spindle. Attach the Counter Torque Handle for Rod Persuader (SZ276R) to the Rod Persuader (SZ277R), and turn the Torque Wrench clockwise while firmly holding the Rod Persuader until a click is heard. The click is an indicator that the PolyLock has been activated. (Fig. 18)
- 2. If not using the optional PolyLock instrument, make sure the Rod Persuader is engaged and the rod is fully reduced into the screw body. Fully tighten the Set Screw to create a fixed starting point for distraction.
- 3. Loosen the adjacent Set Screw for distraction force transmission, and activate the PolyLock.
- 4. Place the Parallel Distractor Forceps between the Rod Persuaders, and perform the distraction maneuver. (Fig. 19)
- 5. Once the desired distance has been achieved, perform final tightening of the Set Screw.

See pages 7-16 for illustrations and descriptions of each implant and instrument listed here.

VII. Distraction and Compression (continued)



B. Compression

Standard Compression Maneuver

Use the Parallel Compressor Forceps (SZ234R) with the appropriate Tips (SZ252R / SZ253R) or the Compression Forceps (FW210R) to compress the construct. (Fig. 20)

- 1. Select the starting point for the compression maneuver.
- 2. Loosen the adjacent Set Screw for compression force transmission.
- 3. Place the Parallel Compressor Forceps next to the screw bodies, and perform the compression maneuver.
- 4. Once the desired compression is achieved, perform final tightening of the Set Screw.

Open Module Surgical Technique

VII. Distraction and Compression (continued)





B. Compression (continued)

Parallel Compression Maneuver with Rod Persuaders

After rod reduction, parallel compression can be applied on the spinal segments. Use the Parallel Compressor Forceps (SZ234R) with the appropriate Tips (SZ252R / SZ253R) or the Compression Forceps (FW210R) with the Rod Persuader to compress the construct. For parallel compression, the Rod Persuader must be attached to the corresponding screws.

1. Select the starting point for the compression maneuver.

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

- The PolyLock can be activated by connecting the Torque Wrench Handle 10Nm (SZ228R) to the PolyBlocker (SZ393R) and placing the assembly into the upper portion of the gold reduction spindle. Attach the Counter Torque Handle for Rod Persuader (SZ276R) to the Rod Persuader and turn the Torque Wrench clockwise while firmly holding the Rod Persuader until a click is heard. The click is an indicator that the PolyLock has been activated. (Fig. 21)
- 2. If not using the optional PolyLock instrument, make sure the Rod Persuader is engaged and the rod is fully reduced into the screw body. Fully tighten the Set Screw to create a fixed starting point for compression.
- 3. Loosen the adjacent Set Screw for compression force transmission and activate the PolyLock.
- 4. Place the Parallel Compression Forceps between the Rod Persuaders, and perform the compression maneuver. (Fig. 22)
- 5. Once the desired distance has been achieved, perform final tightening of the Set Screw.

See pages 7-16 for illustrations and descriptions of each implant and instrument listed here.

VIII. Cross Connector Placement







Once final tightening of the pedicle screws is completed, Cross Connectors may be used to provide additional rotational stability to the construct.

- 1. Determine the appropriate length using the Cross Connector Caliper (SZ291R). (Fig. 23)
- Choose the desired Cross Connector type based on the measured length and patient anatomy. Verify there are no obstructions before placing the Cross Connector. Prior to placement, ensure that the Cross Connector set screws are backed out to prevent damage to the implants.
- 3. Insert the Cross Connector by using the Cross Connector Holder (SZ290R). (Fig. 24)
- 4. If the Cross Connector fits properly and is fully seated onto both rods, final tightening can be accomplished.
 - Assemble the Torque Wrench by attaching the Torque Wrench Handle 5Nm (SZ229R) to the Torque Wrench Shaft 5Nm (SZ297R).
 - Insert the torque wrench through the tube of the Counter Torque Handle (SZ292R) so the tip is exposed.
 - Fully seat the tip of the Torque Wrench into the socket of the Set Screw. (Fig. 25)
 - Engage the Counter Torque Handle with the Cross Connector.
 - Turn the torque wrench clockwise while firmly holding the Counter Torque Handle until a click is heard. The click is an indicator that the final tightening of 5Nm has been achieved.

See pages 7-16 for illustrations and descriptions of each implant and instrument listed here.

Open Module Surgical Technique

IX. Construct Extension





A Rod-to-Rod Connector may be used to extend an existing construct in the event of a revision surgery, for a new multilevel construct or to connect to an offset screw. For the respective cases, a variety of Rod-to-Rod-Connector designs are offered.

Determine the appropriate length using the Caliper (SZ291R).

Choose the desired Rod-to-Rod Connector type based on the measured length and patient anatomy. Verify there are no obstructions before placing the Rod-to-Rod Connector. Prior to placement, ensure that the Rod-to-Rod Connector set screws are backed out to prevent damage to the implants.

A. Axial Rod-to-Rod Connector Application

- Engage the Rod-to-Rod Holder (SZ295R) to the desired Axial Rod-to-Rod Connector, and fully seat the rod of the existing construct inside the connector and tighten the set screw provisionally. (Fig. 26)
- 2. After the placement of all implants, the extension rod can be placed inside the Connector, and the set screw can be tightened provisionally. Confirm adequate rod placement using the window on the Connector.
- 3. If the Rod-to-Rod Connector fits properly and is fully seated on both rods, final tightening can be accomplished. (Fig. 27)

Note: Refer to Provisional and Final Tightening of Construct Extension on page 33.

IX. Construct Extension (continued)



B. Domino Rod-to-Rod Connector Application

- 1. Engage the Rod-to-Rod Holder (SZ295R) to the desired Domino Rod-to-Rod connector.
 - a. For Closed/Open Connectors: Slide the rod of the existing construct inside the closed hole, and then connect to the other rod using the open hole.
 - b. For Closed Connectors: Slide both rods into the closed holes prior to placing the rods into the pedicle screw bodies. (Fig. 28)
- 2. Tighten the set screw provisionally, and confirm adequate Connector placement.
- 3. If the Rod-to-Rod Connector fits properly and is fully seated on both rods, final tightening can be accomplished.

Note: Refer to Provisional and Final Tightening of Construct Extension on page 33.

Ennovate[®] Spinal System

Open Module Surgical Technique

IX. Construct Extension (continued)



Fig. 29



C. Lateral Offset Connector

Determine the appropriate length of the Lateral Offset Connector by following the placement and alignment of the cranially-placed instrumentation with the objective of being in line with the rod, so that only sagittal plane bending is required.

- 1. Determine the appropriate length using the Caliper (SZ291R).
- 2. Choose the desired Lateral Offset Connector type based on the measured length and patient anatomy. Verify there are no obstructions before placing the Connector. Prior to placement, ensure that the Offset Connector Set Screws are backed out to prevent damage to the implants. (Fig. 29)
- 3. Place the rod of the cranial construct into the head of the Lateral Offset Connector.
- 4. Cantilever the rod portion of the Lateral Offset Connector into the head of the Iliac Screw. Tighten the Set Screw of the Lateral Offset Connector by using the Torque Wrench.
- 5. If the Rod Connector fits properly and is fully seated, perform final tightening of the Lateral Offset cConnector. (Fig. 30)

Note: Refer to Provisional and Final Tightening of Construct Extension on page 33.

6. Place a Set Screw into the iliac screw head by attaching the Set Screw to the Set Screwdriver, and provisionally tighten the Set Screw. Perform final tightening of the iliac screw. Refer to page 24 for proper final tightening of the Set Screw.

See pages 7-16 for illustrations and descriptions of each implant and instrument listed here.

IX. Construct Extension (continued)



D. Provisional and Final Tightening of Construct Extensions

- 1. Assemble the Torque Wrench by attaching the Torque Wrench Handle 5 Nm (SZ229R) to the Torque Wrench Shaft 5 Nm (SZ297R) by sliding the square shaped portion of the shaft into the coupling until the stop. (Fig. 31)
- 2. Insert the Torque Wrench through the cannulation of the Counter Torque Handle (SZ292R) so the tip is exposed. Fully seat the tip of the Torque Wrench into the socket of the Set Screw. Engage the distal tip of the Counter Torque Handle with the Rod Connector. (Fig. 32)
- 3. Turn the Torque Wrench clockwise while firmly holding the Counter Torque Handle to provisionally tighten or perform final tightening of the set screw until a click is heard. The click is an indicator that the final tightening of 5 Nm has been achieved. (Fig. 33)

See pages 7-16 for illustrations and descriptions of each implant and instrument listed here.

Open Module Surgical Technique

X. Removal of Implants





Set Screws

To remove a set screw from the pedicle screw construct, engage the Set Screwdriver (SZ280R) with any of the non-torque limiting ENNOVATE Quick Connect Handles. Then, remove the set screw from the pedicle screw with the Set Screwdriver.

Rod-to-Rod Connectors and Cross Connectors

To remove the Rod-to-Rod Connectors or Cross Connectors, attach the Torque Wrench Shaft, 5Nm (SZ297R) to a Quick Connect Ratchet T-Handle (SZ222R, SZ224R, SZ225R). Remove the set screws of the Connectors until all are disengaged from the rod. Remove the Connectors with either the Rod-to-Rod Holder (SZ295R) or the Cross Connector Holder (SZ290R) depending on the implant. (Fig. 34)

Pedicle Screws

To remove a pedicle screw from the patient, attach the Screwdriver (SZ262R) to any of the non-torque limiting ENNOVATE Quick Connect Handles and set the ratchet setting to "OUT". Engage the Screwdriver with the pedicle screw as described in Step 2 of SCREW PLACEMENT on page 19. Remove the pedicle screw out of the pedicle. (Fig. 35)

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

XI. ENNOVATE[®] Spinal System – Open Module Trays



ST0701 - ENNOVATE Open Instrument Set

Index	Item No.	Description	Set Qty.	Instrum	Instruments – Lower Layer				
	SZ201R	ENNOVATE Tray Open Implantation	1	Index	Item No.	Description	Set Qty.		
	JA455R	Lid for Aesculap OrthoTray® DIN without Handle	1	Α	SZ222R	ENNOVATE Quick Connect Ratchet Straight Handle, Medium	2		
				В	SZ224R	ENNOVATE Quick Connect Ratchet T-Handle	2		
				С	SZ265R	ENNOVATE Screw Body Manipulator	1		
				D	SZ262R	ENNOVATE Screwdriver	2		
				E	FW692R	S4® Cleaning Device	1		
				F	SZ254R	ENNOVATE Screw Tap, 4.5 mm	1		
				G	SZ255R	ENNOVATE Screw Tap, 5.5 mm	1		
				Н	SZ256R	ENNOVATE Screw Tap, 6.5 mm	1		
					SZ257R	ENNOVATE Screw Tap, 7.5 mm	1		
				J	SZ242R	ENNOVATE Lumbar Pedicle Probe, Straight	1		
				K	SZ243R	ENNOVATE Lumbar Pedicle Probe, Curved	1		
				L	SZ241R	ENNOVATE Pedicle Awl	1		
				М	SZ246R	ENNOVATE Pedicle Sounder, Straight	1		
				N	SZ247R	ENNOVATE Pedicle Sounder, Curved	1		



ST070	ST0701 – ENNOVATE Open Instrument Set I						
Instrum	ents – Upp	er Layer					
Index	Item No.	Description	Set Qty.				
0	SZ272R	ENNOVATE Rod Holding Forceps	2				
Р	SZ282R	ENNOVATE Counter Torque L-Handle	1				
Q	SZ391R	ENNOVATE Set Screwdriver, Short	2				
R	SZ228R	ENNOVATE Torque Wrench Handle, 10 Nm	1				
S	SZ273R	ENNOVATE Rod Pusher	1				
T	SZ280R	ENNOVATE Set Screwdriver	2				

Ennovate[®] Spinal System

Open Module Surgical Technique

XI. ENNOVATE Spinal System – Open Module Trays (continued)



21010	DZ = EININ	IOVATE Open Manipulation/Optional Instrume	nt Set II					
Trays /	Container			Instrum	Instruments – Lower Layer			
Index	Item No.	Description	Set Qty.	Index	Item No.	Description	Set Qty.	
	SZ251R	ENNOVATE Tray Open Manipulation/Optional	1	Α	SZ248R	ENNOVATE Pedicle Marker, Dual Band	4	
	JA455R	Lid for Aesculap OrthoTray® DIN without Handle	1	В	SZ249R	ENNOVATE Pedicle Marker, Single Band	4	
				С	SZ244R	ENNOVATE Thoracic Pedicle Probe, Straight	1	
				D	SZ258R	ENNOVATE Screw Tap, 8.5 mm	1	
				E	SZ245R	ENNOVATE Thoracic Pedicle Probe, Curved	1	
				F	SZ259R	ENNOVATE Screw Tap, 9.5 mm	1	
				G	SZ260R	ENNOVATE Screw Tap, 10.5 mm	1	
				Н	SZ283R	ENNOVATE Torque Wrench Shaft, 10 Nm	2	
				I	AA804R	ENNOVATE Screw Length Scale	1	
				J	SZ270R	ENNOVATE French Rod Bender	1	
				K	SZ277R	ENNOVATE Rod Persuader	4	
				L	SZ393R	ENNOVATE PolyBlocker	1	
				М	SZ276R	ENNOVATE Rod Persuader Counter Torque Handle	1	



ST070	ST0702 – ENNOVATE Open Manipulation/Optional Instrument Set II						
Instrum	Instruments – Upper Layer						
Index	Item No.	Description	Set Qty.				
Ν	SZ234R	ENNOVATE Open Compressor Forceps	1				
0	SZ233R	ENNOVATE Open Distraction Forceps	1				
Р	SZ252R	ENNOVATE Open Parallel Tips	2				
Q	SZ253R	ENNOVATE Open Offset Tips	2				



ST070	3 - ENN	OVATE Open Connector Instrument Set III							
Index	Item No.	Description	Set Qty.	Graphic	Graphic Template / Packing Stencil				
	SZ206R	ENNOVATE Tray Open Connector Application	1	Instrum	Instruments				
	JA455R	Lid for Aesculap OrthoTray® DIN without Handle	1	Index	Item No.	Description	Set Qty.		
				Α	SZ292R	ENNOVATE Counter Torque Handle, Cross Connectors	1		
				В	SZ291R	ENNOVATE Cross Connector Caliper	1		
				С	SZ229R	ENNOVATE Torque Wrench Handle, 5 Nm	1		
				D	SZ297R	ENNOVATE Torque Wrench Shaft Connectors, 5 Nm	2		
				E	SZ290R	ENNOVATE Cross Connector Holder	1		
				F	SZ275R	ENNOVATE Rod Rocker, Curved	1		
				G	SZ295R	ENNOVATE Rod-to-Rod Holder	1		

Ennovate[®] Spinal System

Open Module Surgical Technique

XI. ENNOVATE Spinal System – Open Module Trays (continued)



ST070	ST0704 – ENNOVATE Open Auxiliary Instrument Set IV						
Index	Item No.	Description	Set Qty.	Instruments - Lower Layer			
	SZ221R	ENNOVATE Tray Open S4® Instruments	1	Index	Item No.	Description	Set Qty.
	JA455R	Lid for Aesculap OrthoTray® DIN without Handle	1	Α	FW210R	ENNOVATE/S ⁴ Compression Forceps New Version	1
				В	FW023R	ENNOVATE/SSE/S ⁴ Distraction Forceps Small	1
				С	FW181R	ENNOVATE/S ⁴ Distraction Forceps	1

Addit	Additionally Available			
Index	Item No.	Description	Set Qty.	
	SZ225R	ENNOVATE Quick Connect Ratchet Handle Drop Shape	0	
	SZ233R	ENNOVATE Open Parallel Distractor Forceps	0	
	SZ234R	ENNOVATE Open Parallel Compressor Forceps	0	
	SZ263R	ENNOVATE Lumbar Pedicle Probe Large, Straight	0	
	SZ264R	ENNOVATE Thoracic Pedicle Probe Large, Straight	0	
	SZ369S	ENNOVATE MIS K-Wire Short	0	
	SZ376R	ENNOVATE MIS Lumbar Pedicle Probe	0	

XII. Implant Sets

ST0707 ENNO	VATE [®] Solid Standard Implant Set	
Item No.	Description	Set Qty.
SY001TS	Set Screw	20
SY120TS	Polyaxial Solid Ø 5.5 mm 25	2
SY121TS	Polyaxial Solid Ø 5.5 mm 30	6
SY122TS	Polyaxial Solid Ø 5.5 mm 35	8
SY123TS	Polyaxial Solid Ø 5.5 mm 40	10
SY124TS	Polyaxial Solid Ø 5.5 mm 45	10
SY125TS	Polyaxial Solid Ø 5.5 mm 50	8
SY131TS	Polyaxial Solid Ø 6.5 mm 30	6
SY132TS	Polyaxial Solid Ø 6.5 mm 35	8
SY133TS	Polyaxial Solid Ø 6.5 mm 40	10
SY134TS	Polyaxial Solid Ø 6.5 mm 45	12
SY135TS	Polyaxial Solid Ø 6.5 mm 50	10
SY136TS	Polyaxial Solid Ø 6.5 mm 55	10
SY137TS	Polyaxial Solid Ø 6.5 mm 60	8
SY138TS	Polyaxial Solid Ø 6.5 mm 70	2
SY141TS	Polyaxial Solid Ø 7.5 mm 30	6
SY142TS	Polyaxial Solid Ø 7.5 mm 35	8
SY143TS	Polyaxial Solid Ø 7.5 mm 40	10
SY144TS	Polyaxial Solid Ø 7.5 mm 45	10
SY145TS	Polyaxial Solid Ø 7.5 mm 50	10
SY146TS	Polyaxial Solid Ø 7.5 mm 55	10
SY147TS	Polyaxial Solid Ø 7.5 mm 60	8
SY148TS	Polyaxial Solid Ø 7.5 mm 70	2
SY420TS	Open Straight Ø 5.5 mm 200	2
SY422TS	Open Straight Ø 5.5 mm 400	2
SY430TS	Open Curved Ø 5.5 mm 30	2
SY431TS	Open Curved Ø 5.5 mm 35	4
SY432TS	Open Curved Ø 5.5 mm 40	4
SY433TS	Open Curved Ø 5.5 mm 45	4
SY434TS	Open Curved Ø 5.5 mm 50	4
SY435TS	Open Curved Ø 5.5 mm 55	4
SY436TS	Open Curved Ø 5.5 mm 60	4
SY437TS	Open Curved Ø 5.5 mm 70	4
SY438TS	Open Curved Ø 5.5 mm 80	4
SY439TS	Open Curved Ø 5.5 mm 90	2
SY440TS	Open Curved Ø 5.5 mm 100	2
SX942TS	Transconnector 30	1
SX943TS	Transconnector 32	1
SX944TS	Transconnector 34	1
SX945TS	Transconnector 36	1
SX946TS	Transconnector 38	1
SX947TS	Transconnector 40	1
SX948TS	Transconnector 42-45	1
SX949TS	Transconnector 45-50	1
SX950TS	Transconnector 50-60	1
SX951TS	Transconnector 60-80	1
SX952TS	Transconnector 80–100	1

Ennovate[®] Spinal System

Open Module Surgical Technique

ST0708 ENNOVATE Solid Complex Implant Set						
Item No.	Description	Set Qty.				
SY001TS	Set Screw	30				
SY110TS	Polyaxial Solid Ø 4.5 mm 25	4				
SY111TS	Polyaxial Solid Ø 4.5 mm 30	4				
SY112TS	Polyaxial Solid Ø 4.5 mm 35	4				
SY113TS	Polyaxial Solid Ø 4.5 mm 40	4				
SY114TS	Polyaxial Solid Ø 4.5 mm 45	4				
SY115TS	Polyaxial Solid Ø 4.5 mm 50	4				
SY120TS	Polyaxial Solid Ø 5.5 mm 25	4				
SY121TS	Polyaxial Solid Ø 5.5 mm 30	4				
SY122TS	Polyaxial Solid Ø 5.5 mm 35	4				
SY123TS	Polyaxial Solid Ø 5.5 mm 40	6				
SY124TS	Polyaxial Solid Ø 5.5 mm 45	6				
SY125TS	Polyaxial Solid Ø 5.5 mm 50	6				
SY130TS	Polyaxial Solid Ø 6.5 mm 25	4				
SY131TS	Polyaxial Solid Ø 6.5 mm 30	4				
SY132TS	Polyaxial Solid Ø 6.5 mm 35	4				
SY133TS	Polyaxial Solid Ø 6.5 mm 40	6				
SY134TS	Polyaxial Solid Ø 6.5 mm 45	6				
SY135TS	Polyaxial Solid Ø 6.5 mm 50	6				
SY136TS	Polyaxial Solid Ø 6.5 mm 55	6				
SY137TS	Polyaxial Solid Ø 6.5 mm 60	4				
SY138TS	Polyaxial Solid Ø 6.5 mm 70	2				
SY139TS	Polyaxial Solid Ø 6.5 mm 80	2				
SY140TS	Polyaxial Solid Ø 7.5 mm 25	4				
SY141TS	Polyaxial Solid Ø 7.5 mm 30	4				
SY142TS	Polyaxial Solid Ø 7.5 mm 35	4				
SY143TS	Polyaxial Solid Ø 7.5 mm 40	6				
SY144TS	Polyaxial Solid Ø 7.5 mm 45	6				
SY145TS	Polyaxial Solid Ø 7.5 mm 50	6				
SY146TS	Polyaxial Solid Ø 7.5 mm 55	6				
SY147TS	Polyaxial Solid Ø 7.5 mm 60	4				
SY148TS	Polyaxial Solid Ø 7.5 mm 70	2				
SY149TS	Polyaxial Solid Ø 7.5 mm 80	2				
SY188TS	Polyaxial Solid Ø 7.5 mm 90	2				
SY189TS	Polyaxial Solid Ø 7.5 mm 100	2				
SY190TS	Polyaxial Solid Ø 7.5 mm 110	2				
SY151TS	Polyaxial Solid Ø 8.5 mm 30	2				
SY152TS	Polyaxial Solid Ø 8.5 mm 35	2				
SY153TS	Polyaxial Solid Ø 8.5 mm 40	4				
SY154TS	Polyaxial Solid Ø 8.5 mm 45	4				
SY155TS	Polyaxial Solid Ø 8.5 mm 50	4				
SY156TS	Polyaxial Solid Ø 8.5 mm 55	2				
SY157TS	Polyaxial Solid Ø 8.5 mm 60	2				
SY158TS	Polyaxial Solid Ø 8.5 mm 70	2				
SY159TS	Polyaxial Solid Ø 8.5 mm 80	2				

ST0708 ENN(OVATE Solid Complex Implant Set (continued)	
Item No.	Description	Set Qty.
SY191TS	Polyaxial Solid Ø 8.5 mm 90	2
SY192TS	Polyaxial Solid Ø 8.5 mm 100	2
SY193TS	Polyaxial Solid Ø 8.5 mm 110	2
SY162TS	Polyaxial Solid Ø 9.5 mm 35	2
SY163TS	Polyaxial Solid Ø 9.5 mm 40	2
SY164TS	Polyaxial Solid Ø 9.5 mm 45	2
SY165TS	Polyaxial Solid Ø 9.5 mm 50	2
SY166TS	Polyaxial Solid Ø 9.5 mm 55	2
SY167TS	Polyaxial Solid Ø 9.5 mm 60	2
SY168TS	Polyaxial Solid Ø 9.5 mm 70	2
SY169TS	Polyaxial Solid Ø 9.5 mm 80	2
SY194TS	Polyaxial Solid Ø 9.5 mm 90	2
SY195TS	Polyaxial Solid Ø 9.5 mm 100	2
SY196TS	Polyaxial Solid Ø 9.5 mm 110	2
SY172TS	Polyaxial Solid Ø 10.5 mm 35	2
SY173TS	Polyaxial Solid Ø 10.5 mm 40	2
SY174TS	Polyaxial Solid Ø 10.5 mm 45	2
SY175TS	Polyaxial Solid Ø 10.5 mm 50	2
SY176TS	Polyaxial Solid Ø 10.5 mm 55	2
SY177TS	Polyaxial Solid Ø 10.5 mm 60	2
SY178TS	Polyaxial Solid Ø 10.5 mm 70	2
SY179TS	Polyaxial Solid Ø 10.5 mm 80	2
SY197TS	Polyaxial Solid Ø 10.5 mm 90	2
SY198TS	Polyaxial Solid Ø 10.5 mm 100	2
SY199TS	Polyaxial Solid Ø 10.5 mm 110	2
SY400TS	Open Straight Ø 5.5 mm 30	2
SY401TS	Open Straight Ø 5.5 mm 35	2
SY402TS	Open Straight Ø 5.5 mm 40	2
SY403TS	Open Straight Ø 5.5 mm 45	2
SY404TS	Open Straight Ø 5.5 mm 50	2
SY405TS	Open Straight Ø 5.5 mm 55	2
SY406TS	Open Straight Ø 5.5 mm 60	2
SY407TS	Open Straight Ø 5.5 mm 70	2
SY408TS	Open Straight Ø 5.5 mm 80	2
SY409TS	Open Straight Ø 5.5 mm 90	2
SY410TS	Open Straight Ø 5.5 mm 100	2
SY411TS	Open Straight Ø 5.5 mm 110	2
SY412TS	Open Straight Ø 5.5 mm 120	2
SY413TS	Open Straight Ø 5.5 mm 130	2
SY414TS	Open Straight Ø 5.5 mm 140	2
SY415TS	Open Straight Ø 5.5 mm 150	2
SY416TS	Open Straight Ø 5.5 mm 160	2
SY417TS	Open Straight Ø 5.5 mm 170	2
SY418TS	Open Straight Ø 5.5 mm 180	2
SY419TS	Open Straight Ø 5.5 mm 190	2

Ennovate[®] Spinal System

Open Module Surgical Technique

ST0708 ENNOVATE Solid Complex Implant Set (continued)						
Item No.	Description	Set Qty.				
SY420TS	Open Straight Ø 5.5 mm 200	2				
SY421TS	Open Straight Ø 5.5 mm 300	2				
SY422TS	Open Straight Ø 5.5 mm 400	2				
SY423TS	Open Straight Ø 5.5 mm 500	2				
SY430TS	Open Curved Ø 5.5 mm 30	2				
SY431TS	Open Curved Ø 5.5 mm 35	2				
SY432TS	Open Curved Ø 5.5 mm 40	2				
SY433TS	Open Curved Ø 5.5 mm 45	2				
SY434TS	Open Curved Ø 5.5 mm 50	2				
SY435TS	Open Curved Ø 5.5 mm 55	2				
SY436TS	Open Curved Ø 5.5 mm 60	2				
SY437TS	Open Curved Ø 5.5 mm 70	2				
SY438TS	Open Curved Ø 5.5 mm 80	2				
SY439TS	Open Curved Ø 5.5 mm 90	2				
SY440TS	Open Curved Ø 5.5 mm 100	2				
SY441TS	Open Curved Ø 5.5 mm 110	2				
SY442TS	Open Curved Ø 5.5 mm 120	2				
SY443TS	Open Curved Ø 5.5 mm 130	2				
SY444TS	Open Curved Ø 5.5 mm 140	2				
SY445TS	Open Curved Ø 5.5 mm 150	2				
SY701TS	Straight Axial Connector 19	4				
SY702TS	Straight Axial Connector 34	4				
SY703TS	Closed Domino Connector 7	4				
SY704TS	Closed Domino Connector 11	4				
SY705TS	Closed / Open Domino Connector 7	4				
SY706TS	Closed / Open Domino Connector 11	4				
SY711TS	Closed Offset Connector 20	4				
SY712TS	Closed Offset Connector 35	4				
SY713TS	Closed Offset Connector 50	4				
SY716TS	Open Offset Connector 20	4				
SY717TS	Open Offset Connector 35	4				
SY718TS	Open Offset Connector 50	4				
SX932TS	Multiaxial 26-30	2				
SX933TS	Multiaxial 28-34	2				
SX934TS	Multiaxial 31-37	2				
SX935TS	Multiaxial 34-40	2				
SX936TS	Multiaxial 39-45	2				
SX937TS	Multiaxial 45-58	2				
SX938TS	Multiaxial 58-80	2				
SX939TS	Multiaxial 80-100	2				
SX942TS	Transconnector 30	2				
SX943TS	Transconnector 32	2				
SX944TS	Transconnector 34	2				
SX945TS	Transconnector 36	2				

ST0708 ENNOVATE Solid Complex Implant Set (continued)						
Item No.	Description		Set Qty.			
SX946TS	Transconnector	38	2			
SX947TS	Transconnector	40	2			
SX948TS	Transconnector	42-45	2			
SX949TS	Transconnector	45-50	2			
SX950TS	Transconnector	50-60	2			
SX951TS	Transconnector	60-80	2			
SX952TS	Transconnector	80-100	2			

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

All rights reserved. Technical alterations are possible. The information provided in this leaflet is distributed by Aesculap Implant Systems, LLC for educational purposes and not for the purpose of rendering medical advice. The material in this leaflet is not instructional and should NOT be relied upon by surgeons and staff as adequate training for performing the surgeries illustrated. This brochure is intended for health care professionals and employees, not for patients. The information presented is not a substitute for a medical examination and opinion by a licensed physician regarding a patient's diagnosis or recommended course of treatment. This leaflet may be used for no other purposes than offering, buying and selling of our products. No part may be copied or reproduced in any form. In the case of misuse we retain the rights to recall our catalogs and price lists and to take legal actions.

©2021 AESCULAP. ALL RIGHTS RESERVED. PRINTED IN THE USA. Aesculap is an equal opportunity employer

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

Aesculap Implant Systems, LLC - a B. Braun company