

Aesculap Spine S⁴ Spinal System

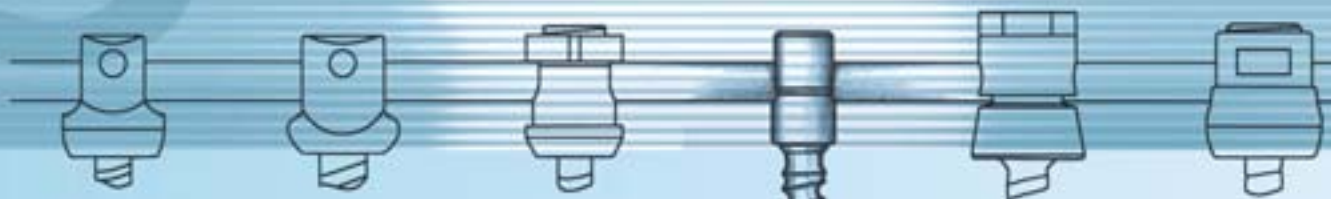
Instrumentation Guide



S⁴ Spinal System

S⁴

S⁴



From initial conception, the S⁴ Spinal System was developed to meet the spine surgeon's need for an extremely low profile and incredibly stable thoracolumbar spinal fixation system.

By combining the exceptionally small yet stable design of the screw construct with simple instrumentation, the S⁴ Spinal System emerges as a remarkably safe system for posterior column fixation. The development elements – small, stable, simple, and safe – define the S⁴ Spinal System as the state-of-the-art pedicle fixation system of choice for surgeons requiring performance oriented top-loading pedicle screw systems!

■ Small

The S⁴ Spinal System features a revolutionary pressure vessel design capable of delivering unmatched biomechanical stability while maintaining an exceptionally small implant volume.

This low profile, low volume aspect of S⁴ reduces the risk of facet and soft tissue impingement which ultimately leads to better mechanical stability and reduced soft tissue irritation. S⁴ also features an inner set screw for locking the construct which greatly improves distraction and compression maneuvers and guarantees a "low run on the rod" throughout all implant components!

■ Stable

The S⁴ Spinal System features a unique closure mechanism that maximizes surface contact area which effortlessly stabilizes the whole construct and ensures a high overall biomechanical strength. In addition, the inter-connection strength between the bone screw and body is extremely stable due to a special shaped seat inside the body which creates the revolutionary pressure vessel that efficiently transfers force throughout the rod-screw construct. Lateral stability can also be achieved with S⁴ using the various rigid and adjustable cross-connectors!



■ **Simple**

S⁴'s instruments were designed to meet the surgeon's demand for a quicker yet simpler operational procedure. The multi-axial capability of the polyaxial screws provide 42° total range of motion, which allows for easier rod placement and reduction. The small implant volume greatly improves distraction and compression maneuvers, especially in narrow conditions, and enhances the surgeon's ability to place interbody fusion spacers when distracting off pedicle screws. By combining the S⁴ Spinal System with the ProSpace® interbody fusion spacers, Aesculap offers a true three-column stabilization portfolio, capable of providing the surgeon all it takes to operate in spine surgery!

■ **Safe**

The top-loading, inner set screw of S⁴ features an exclusive undercut thread design that virtually eliminates cross threading. This unique undercut thread actually directs the forces inward to prevent splaying of the body, which ultimately results in improved force transmission and efficiency throughout the rod screw construct. S⁴'s small volume and low profile design also minimizes interference with anatomical structures thereby allowing the surgeon the ability to remove less facet joint!

S⁴ Spinal System

Content

1. Pedicle Preparation	5
2. Tapping	7
3. Screw Application	8
3.1 Monoaxial Screw Application	9
3.2 Polyaxial Screw Application	10
4. Screw Body Manipulation	12
5. Rod Placement	13
6. Set Screw Starting for Monoaxial and Polyaxial Screws	15
7. Reduction Maneuvers	17
7.1 Compression Maneuvers	17
7.2 Rotation Maneuvers	18
8. Final Tightening	19
9. Tab Removal	21
10. Cross Connector Placement	22
11. Final Construct	25
12. Implants	26
12.1 Implant Description	26
12.2 Implant Tray Set-Up Recommendation	28
13. Instruments	30
13.1 Instrument Description	30
13.2 Instrument Set Configuration	34

1. Pedicle Preparation

After determination of the pedicle entry point use the bone awl FW190R to open the pedicle canal (Fig. 1).



Bone awl
FW190R

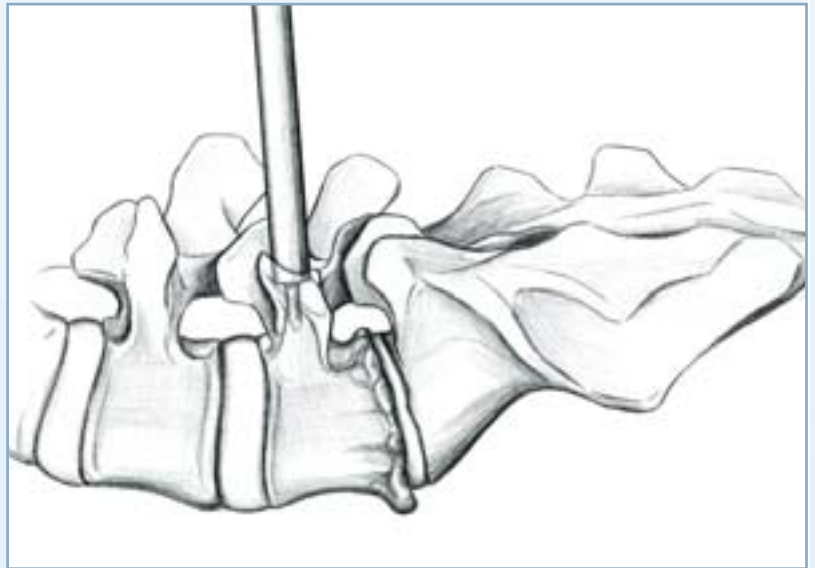
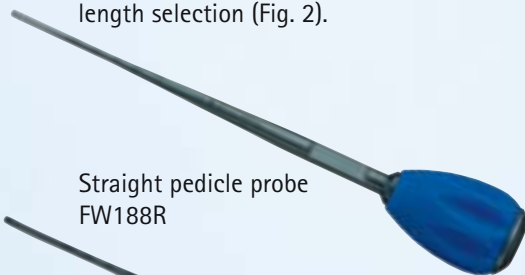
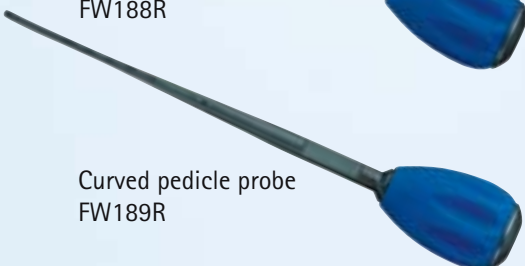


Fig. 1: Opening the pedicle canal

Perforation of the pedicle is performed with the straight or curved blunt-tip pedicle probes FW188R and FW189R. The probes have ruled markings to determine the depth measurement in the pedicle canal. This assists with screw length selection (Fig. 2).



Straight pedicle probe
FW188R



Curved pedicle probe
FW189R

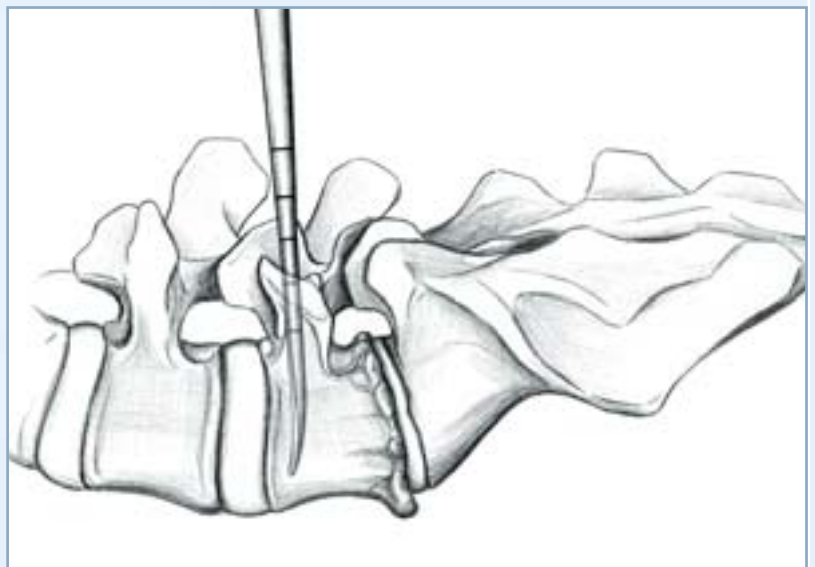


Fig. 2: Perforate the pedicle canal with straight or curved pedicle probe

S⁴ Spinal System

1.

Utilize the straight or curved pedicle sounder FW146R or FW147R to confirm the patency of the pedicle and vertebral body cortex (Fig. 3).

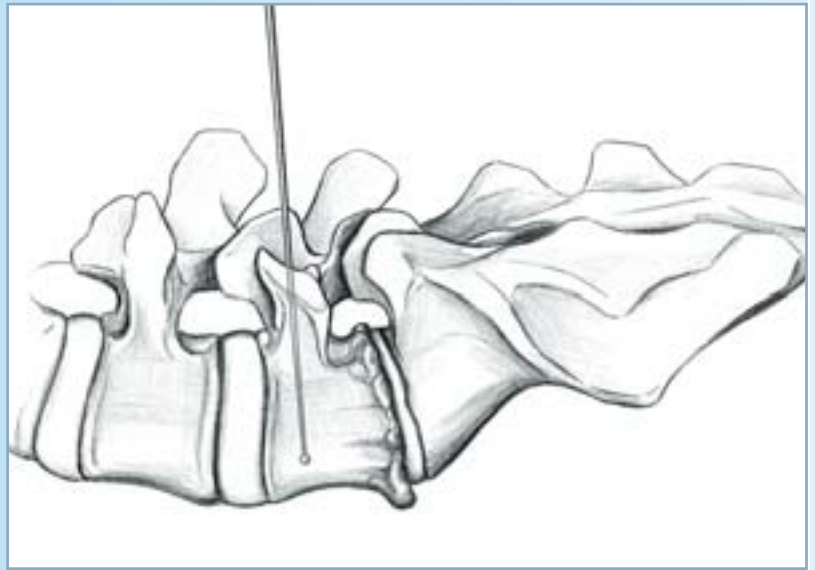
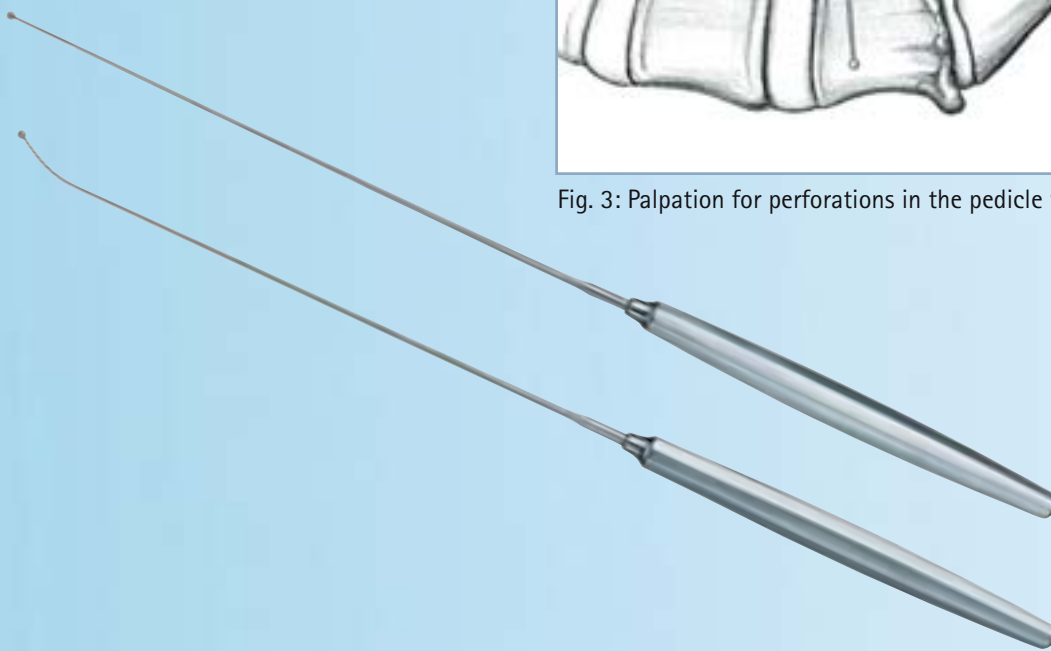


Fig. 3: Palpation for perforations in the pedicle wall



Straight pedicle
sounder
FW146R

Curved pedicle
sounder
FW147R

If necessary, the single or dual band
pedicle markers FW191R or FW192R
can be used to identify proper
anatomic location on intra-operative
radiographic imaging.



Single band pedicle
marker
FW191R

Dual band pedicle
marker
FW192R

2. Tapping

2.

Although the S⁴ Spinal System screws are self-tapping, screw taps are available in all diameters if desired (Fig. 4). To tap attach the ratchet handle FW165R to the appropriate tap, based on the screw diameter.

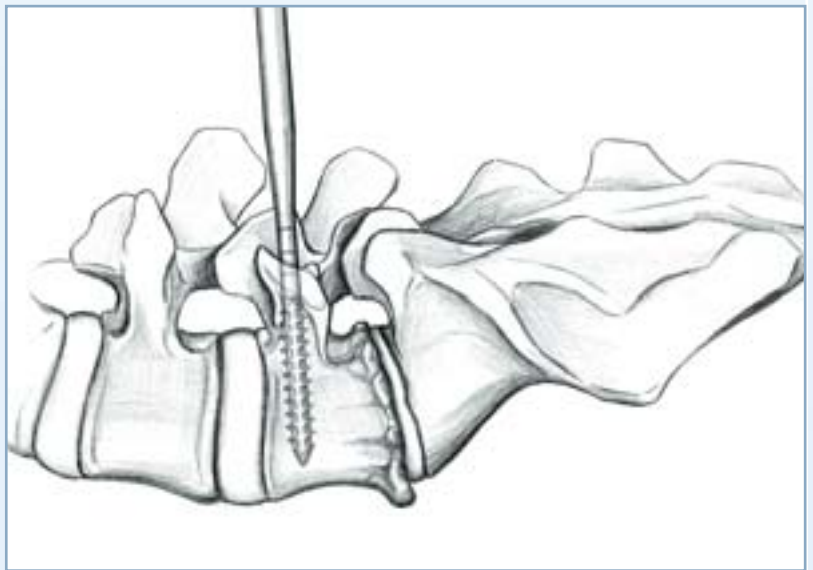
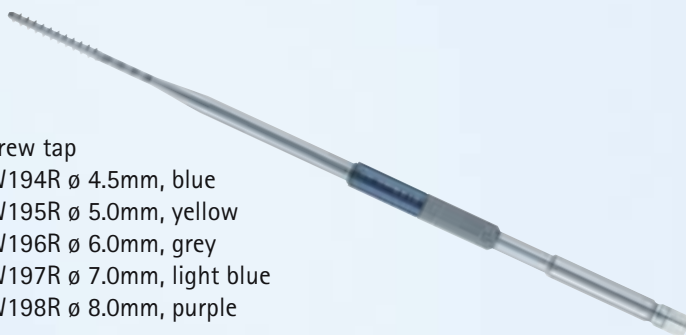


Fig. 4: Tapping the pedicle canal

Screw tap
FW194R ø 4.5mm, blue
FW195R ø 5.0mm, yellow
FW196R ø 6.0mm, grey
FW197R ø 7.0mm, light blue
FW198R ø 8.0mm, purple



Ratchet handle
FW165R

S⁴ Spinal System

3. Screw Application

3.

Once the pedicle has been prepared, select the appropriate screw length and width. Color-coded polyaxial and monoaxial screws are available in 4.5mm (blue), 5.0mm (gold), 6.0mm (grey), 7.0mm (light blue) and 8.0mm (purple) diameter and vary in length from 25 to 60mm.



ø 5.0mm Monoaxial screw



ø 5.0mm Polyaxial screw

Screwdriver with retaining clip for polyaxial screws
FW173R



Screwdriver for monoaxial screws
FW165R

Select the appropriate screwdriver based on the screw style. For monoaxial screws, use the rounded tip monoaxial screwdriver FW165R; for polyaxial screws use the self-retaining polyaxial screwdriver FW173R.



Ratchet handle
FW165R

Attach the ratchet handle FW165R to the appropriate screwdriver.

3.1 Monoaxial Screw Application

To place a monoaxial screw, insert and fully seat the rounded tip of the monoaxial screwdriver FW176R into the slot of the monoaxial screw (Fig. 5) then thread the screw into the prepared pedicle (Fig. 6).

Repeat this process until all screws are placed.

For screw body manipulation the monoaxial screwdriver FW176R can be used or alternatively the screw body manipulator FW180R (see section 5).



Fig. 5: Monoaxial screwdriver assembly

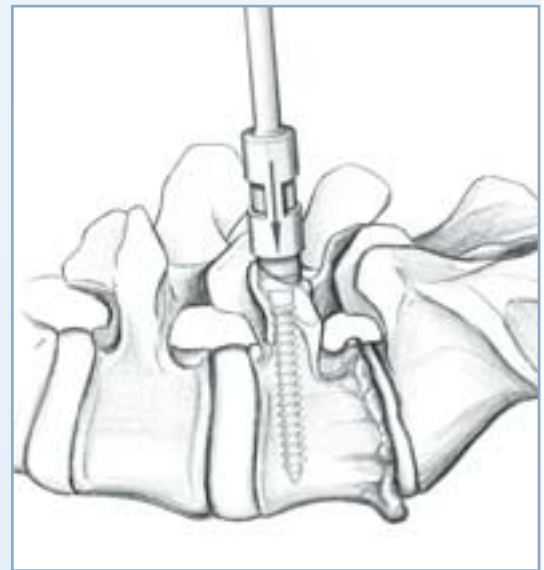


Fig. 6: Insertion of a monoaxial screw



Screwdriver for monoaxial screws FW176R

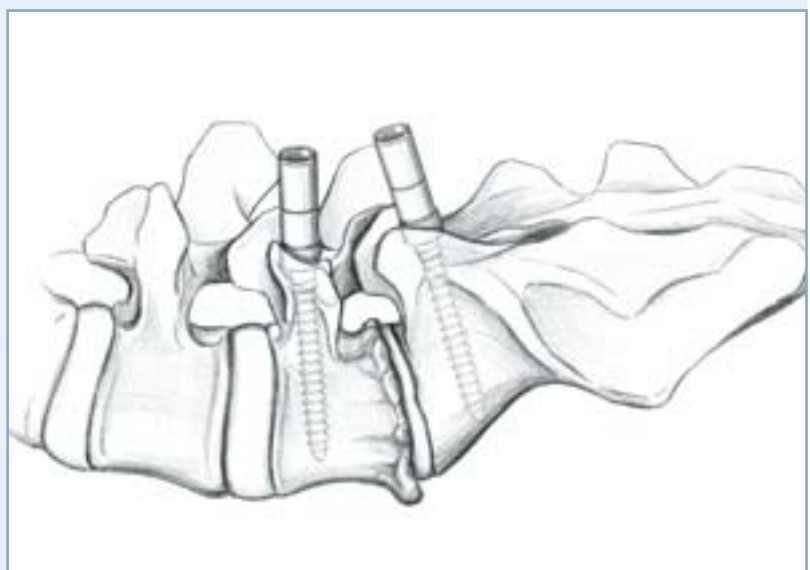


Fig. 7: Completed screw insertion

S⁴ Spinal System

3.2

3.2 Polyaxial Screw Application

To place a polyaxial screw, first fully engage the 3.5mm hexagonal tip of the polyaxial screwdriver FW173R into the head of the screw (Fig. 8), then thread the screw into the prepared pedicle (Fig. 9).



Screwdriver with retaining clip FW173R

Note:
If the polyaxicity of the screw remains, the screwdriver is not fully engaged.

Repeat this process until all screws are placed (Fig. 10).



Fig. 8: Polyaxial screwdriver assembly

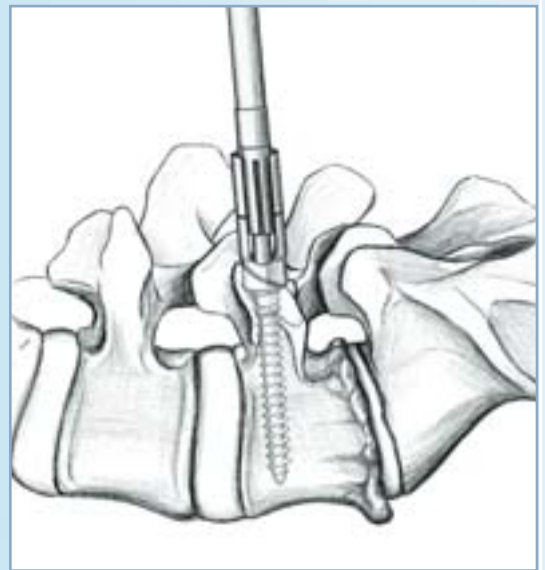


Fig. 9: Insertion of a polyaxial screw

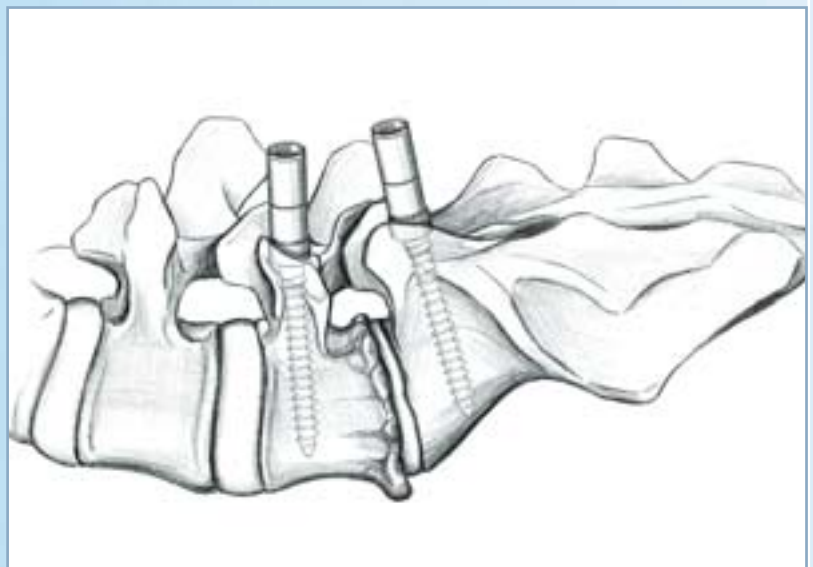
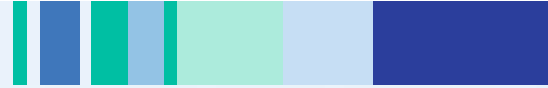


Fig. 10: Completed screw insertion

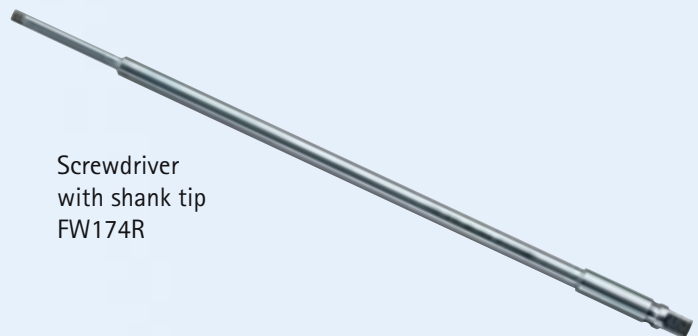


In case of soft tissue impingement, the Marnay lever FW154R can be used to retract-off a previously placed pedicle screw thereby creating a free operating window.



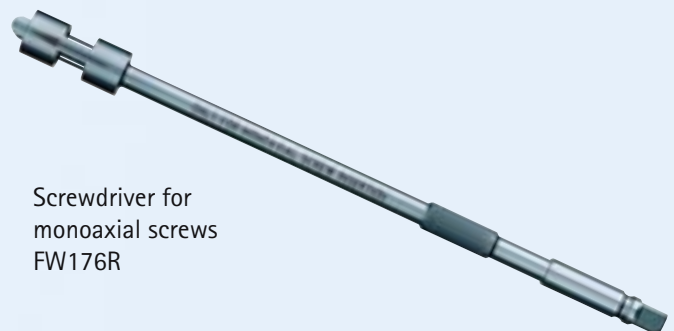
Marnay lever
FW154R

Use the shank tip screwdriver FW174R for the safe removal of polyaxial screws.



Screwdriver
with shank tip
FW174R

Monoaxial screws can be removed using the standard monoaxial screwdriver FW176R.



Screwdriver for
monoaxial screws
FW176R

S⁴ Spinal System

4. Screw Body Manipulation

4.

All polyaxial screw heads have 42° range of motion (ROM) to facilitate rod placement (Fig. 11).

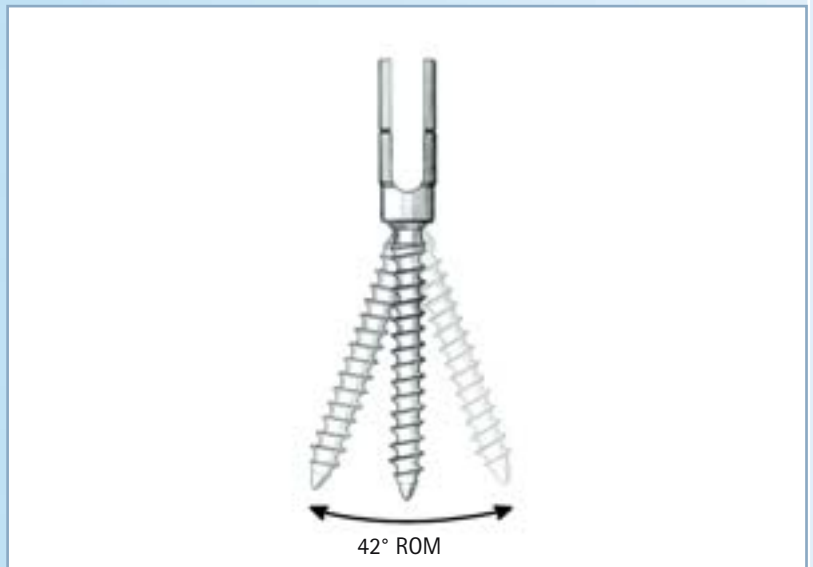
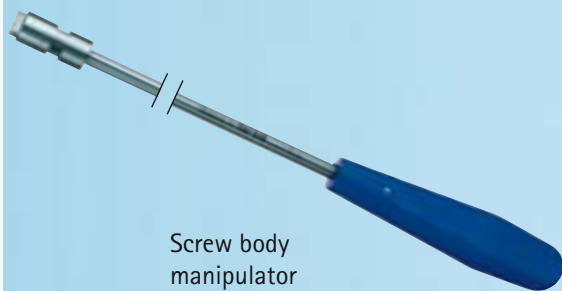


Fig. 11: Polyaxial screw range of motion

If desired, the screw body manipulator FW180R can be used to adjust the rotation of monoaxial screws as well as the alignment of the polyaxial screw bodies (Fig. 12).



Screw body manipulator FW180R

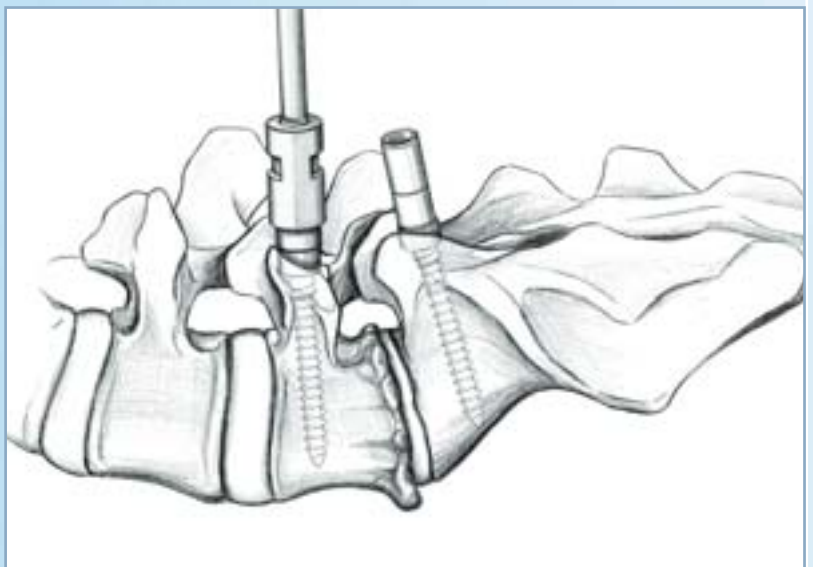
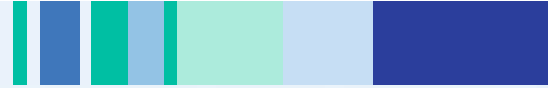


Fig. 12: Aligning the screw body



5. Rod Placement

5.

The disposable, flexible rod trials FW185R can be used as a guide for rod bending and measuring correct rod length.



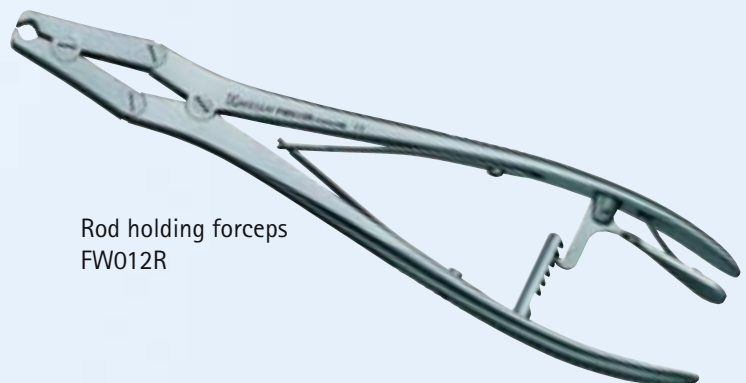
Disposable rod trial
FW185R

Both, pre-bent and straight pre-cut rods are available. All rods may be contoured using the french rod bender FW024R.



French rod bender
FW024R

Use the rod holding forceps FW012R to assist with rod placement or rod manipulation.



Rod holding forceps
FW012R

S⁴ Spinal System

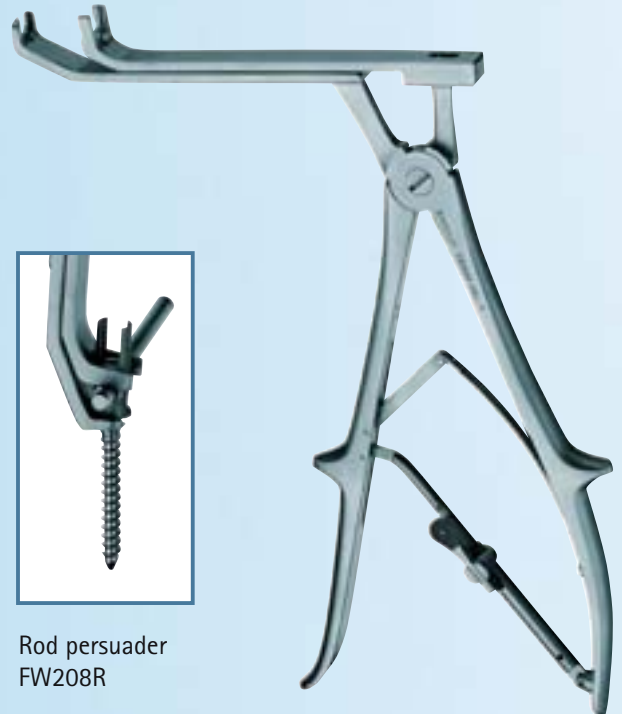
5.

If necessary, the rod pusher FW513R can be used to push the rod into position.



Rod pusher
FW513R

The rod persuader FW208R can be used to help seat the rod fully into the saddle of the screw in multisegmental cases. Using the rod persuader FW208R also simplifies set screw placement.



Rod persuader
FW208R



6. Set Screw Starting for Monoaxial and Polyaxial Screws

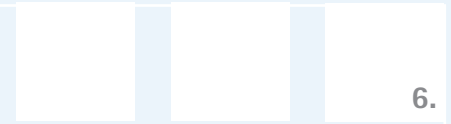
Pick up the set screw SW790T from the storage disc using the set screw starter FW177R.



Set screw for mono-/polyaxial screw SW790T



Set screw starter FW177R



Set screw pick up from the storage disc



Engaging the set screw SW790T with the set screw starter FW177R is only possible on the flat side of the set screw (Fig. 13), which has the 4mm hexagonal opening.

Note:

The set screw SW790T has to be fully engaged to the set screw starter FW177R (Fig. 14).

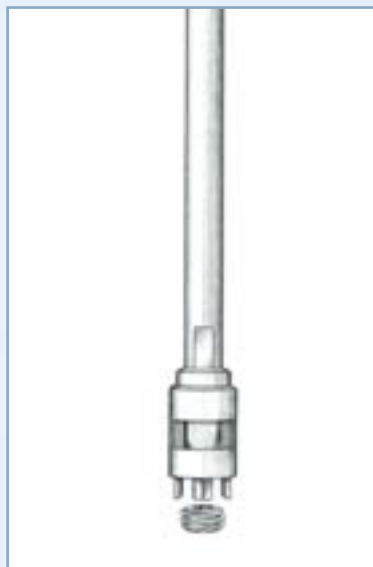


Fig. 13: 4mm hexagonal opening



Fig. 14: Fully engaged set screw

S⁴ Spinal System

6.

The outer ring of the set screw starter FW177R fits onto the flanks of the screw body to ensure the set screw SW790T trajectory is correct during initial threading (Fig. 15).

Finger tighten the set screw SW790T into the screw body until it contacts the rod (Fig. 16).

At this stage, compression and distraction maneuvers can still be performed.

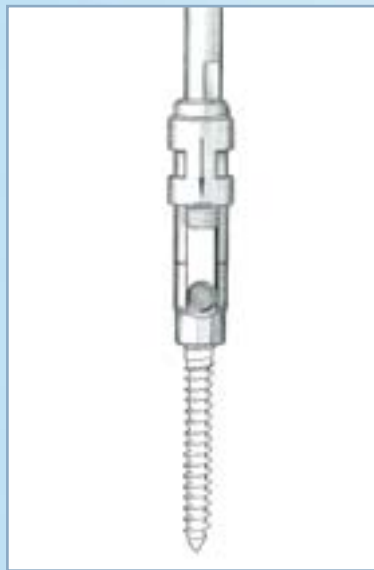


Fig. 15: Set screw insertion



Fig. 16: Full engagement of the set screwdriver

Repeat this process until all set screws SW790T are placed (Fig. 17).

Note:

The set screw starter FW177R is not designed for final tightening of the construct. It is designed to only tighten to a depth that still allows compression and distraction maneuvers to be performed.

Use the set screw revision screwdriver FW193R to remove a tightened set screw SW790T.

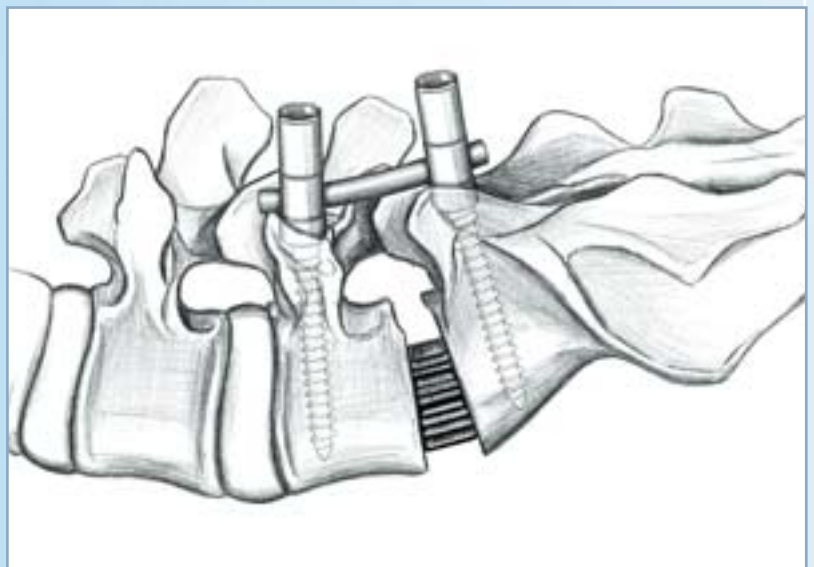
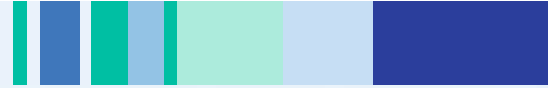


Fig. 17: Placement of the set screw using the set screw starter

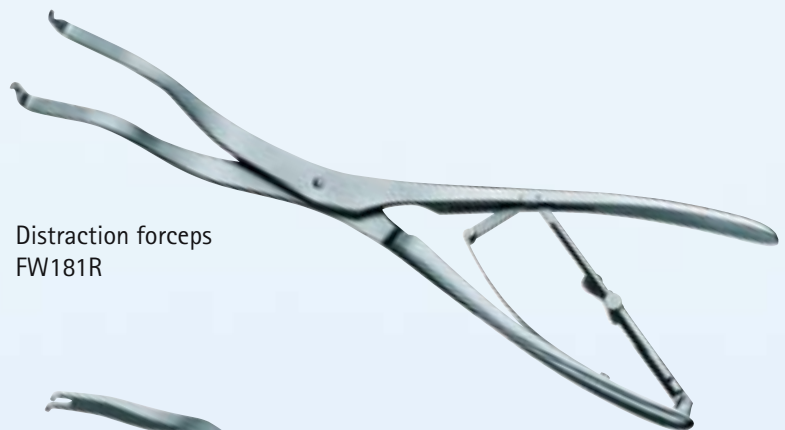


7. Reduction Maneuvers

7.1

7.1 Compression Maneuvers

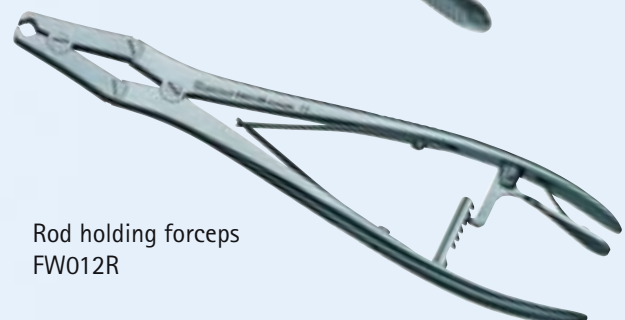
Before final tightening of the construct, compression or distraction may be performed using the compression forceps FW184R or distraction forceps FW181R.



Distraction forceps
FW181R



Compression forceps
FW184R
or alternative
FW210R



Rod holding forceps
FW012R

If distraction or compression is desired along the rod, but not against two screws, the rod holding forceps FW012R can be placed on the rod to provide a counter-force to compress or distract against. The rod holding forceps can also be used for rotation maneuvers.

S⁴ Spinal System

7.2

7.2 Rotation Maneuvers

The de-rotation sleeves FW183R should be used during rotation maneuvers to prevent splaying of the implant head. Place the de-rotation sleeves FW183R over the pedicle screws that contain the rod to be rotated. Connect the counter-torque L-handle FW178R to one of the de-rotation sleeves FW183R (Fig. 18) and perform the rotation maneuver. Insert the torque wrench screwdriver FW170R into the tube of the counter-torque L-handle FW178R and tighten the set screw SW790T (as described in section 8) to lock the rod from rotating. Continue locking the set screws until all are tightened.

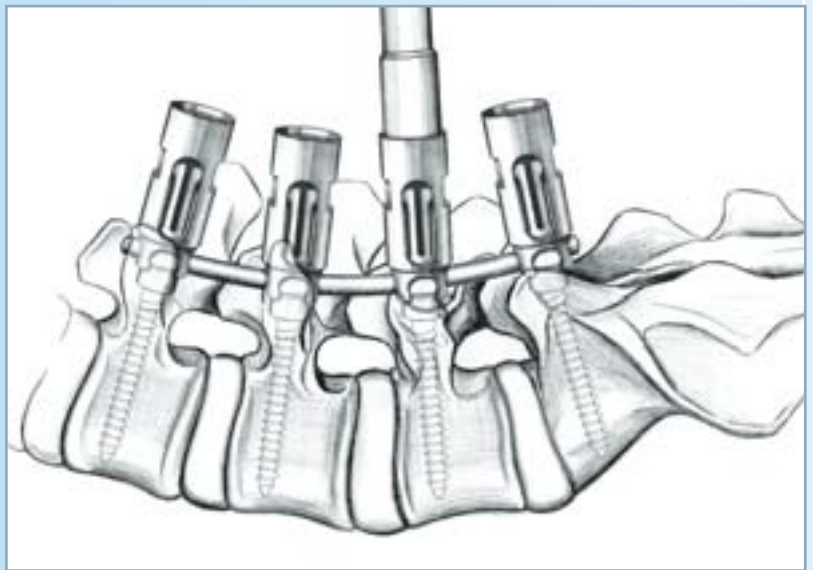
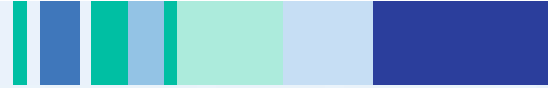


Fig. 18: Placement of the de-rotation sleeves



De-rotation sleeves
FW183R



8. Final Tightening

8.

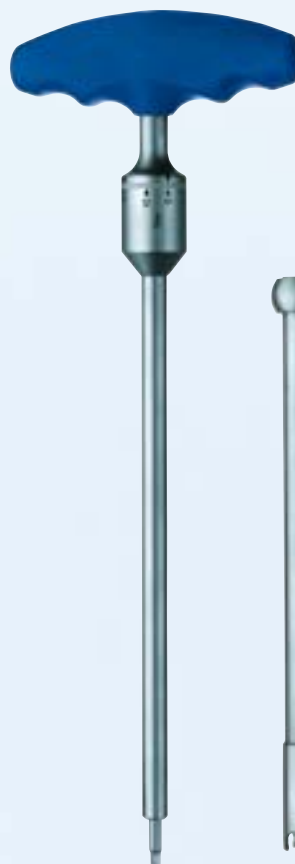
Final tightening of each set screw is completed using the torque limiting wrench FW170R, along with the counter-torque L-handle FW178R.

Note:

It is important to only tighten the set screw SW790T to the specified setting of 10Nm (90 in/lbs). Over tightening will lead to damaging of the bit.

Caution:

Do not use the torque limiting wrench FW170R without the counter-torque L-handle FW178R. This could lead to thread jumping of the set screw within the screw body.



Torque wrench with FW170R



Counter-torque L-handle FW178R

S⁴ Spinal System

8.

To properly tighten the set screw SW790T, use the following steps:

- Insert the torque limiting wrench FW170R through the tube of the counter-torque FW178R, so the tip is exposed
- Fully seat the 4mm hexagonal tip of the torque wrench into the socket of the set screw SW790T
- Engage the counter-torque tip FW178R with the rod.
- Tighten the torque wrench while applying a counter-torque with the counter-torque L-handle FW178R until the arrows on the torque wrench line up with one another
- Repeat this process until all sets screws SW790T are tightened (Fig. 19).

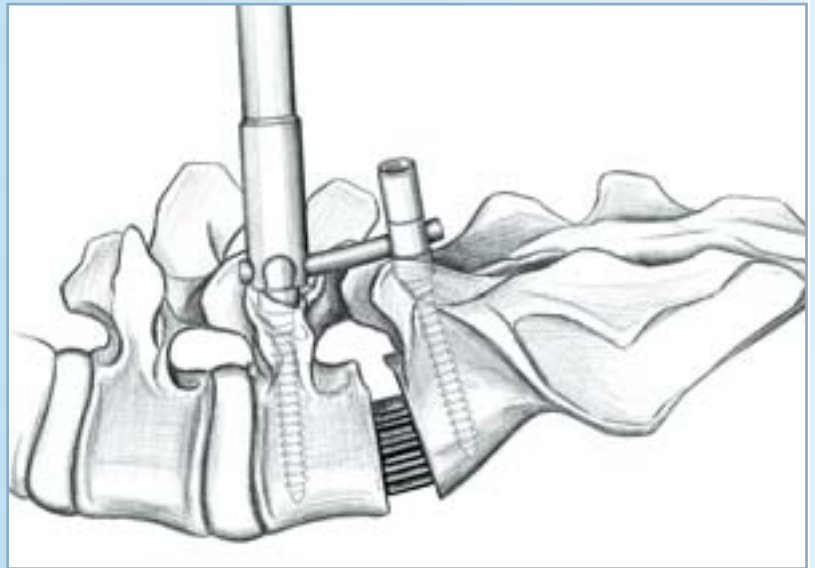


Fig. 19: Placement of the counter-torque L-handle

Caution:

Over tightening the set screw SW790T could lead to implant failure. Damaged set screws must be replaced.

Use the set screw revision screwdriver with the 4mm hex tip to FW193R to remove a previously tightened set screw SW790T.



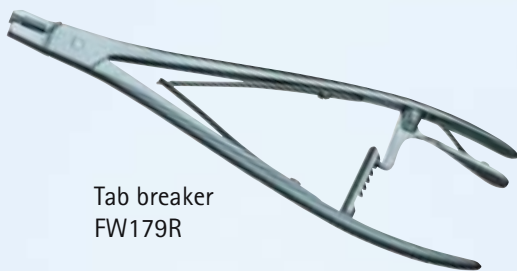
Set screw revision screwdriver with 4mm hex tip FW193R



9. Tab Removal

9.

After verifying that all screws are placed and tightened, remove the tabs with the tab breaker FW179R (Fig. 20).



Tab breaker
FW179R

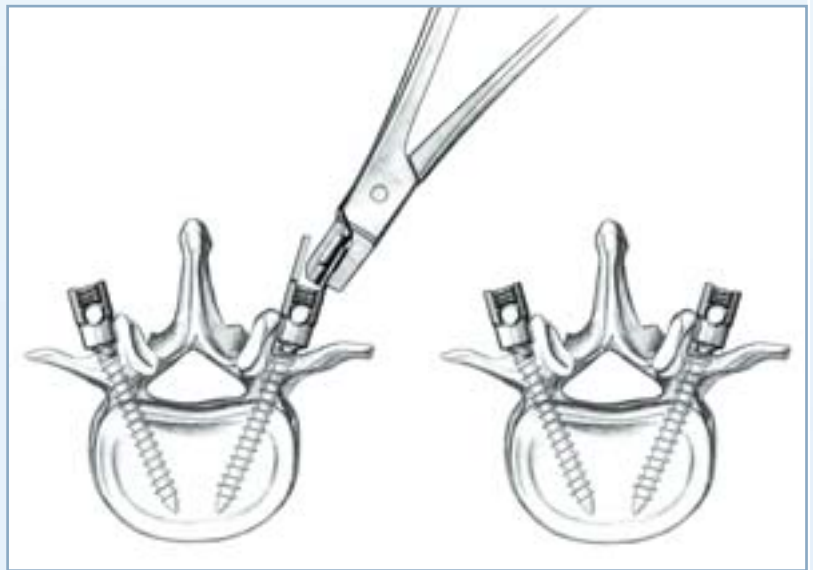
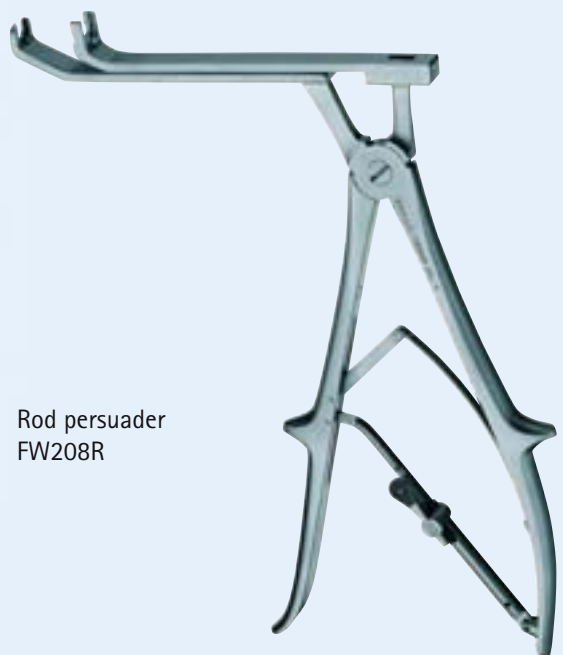


Fig. 20: Tab removal

Note:

The rod persuader FW208R can be used to help seat the rod fully into the saddle of the screw if the screw body tabs break-off prematurely which should simplify set screw placement.



Rod persuader
FW208R

S⁴ Spinal System

10. Cross Connector Placement

10.

Although cross connector placement is optional, they may be used to create a more rigid construct. If a cross connector will be used, determine the appropriate size using the cross connector sizing template FW202R.



Cross connector sizing template FW202R

To place a cross connector, first verify there are no obstructions, then insert the cross connector. If the cross connector fits properly and is fully seated onto both rods, final tightening can be accomplished by applying 4Nm (36 in/lbs) of torque to the golden locking screws using the cross connector torque wrench screwdriver FW207R and the cross connector counter-torque device FW204R (Fig. 21).

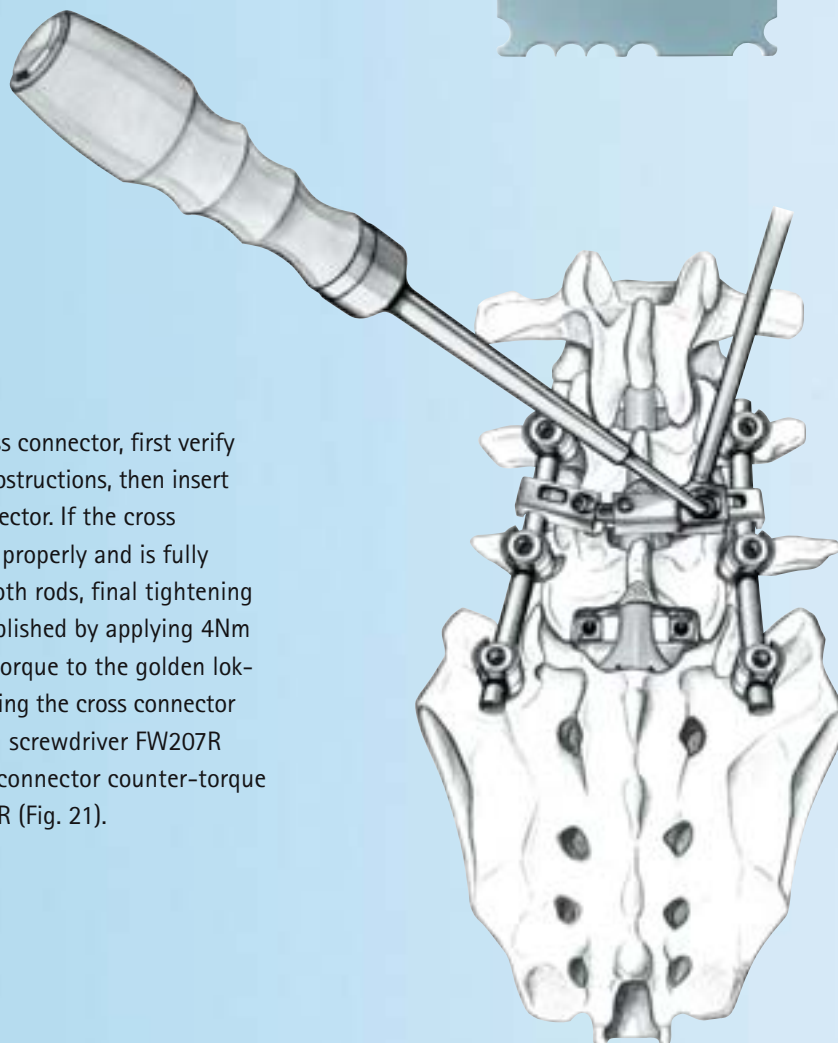
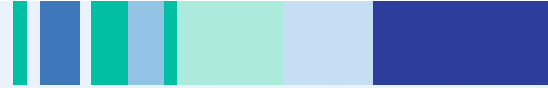


Fig. 21: Applying the cross connector



10.

Cross connector torque
wrench screwdriver
4Nm (36 in/lbs)
FW207R



Counter-torque for
cross connectors
FW204R



S⁴ Spinal System

10.

If necessary, the adjustable cross connectors can be contoured using the cross connector bender FW203R. Place the cross connector face-up in the bender and apply the necessary force required to achieve the appropriate angle (Fig. 22). The maximum angle allowed by the cross connector bender FW203R is 20° (Fig. 23).



Fig. 22: Placement of the cross connector in the cross connector bender FW203R



Fig. 23: Cross connector bending

Caution:

Avoid bending the cross connector more than 20° or in multiple directions. This could lead to cross connector failure.



Cross connector bender FW203R

11. Final Construct

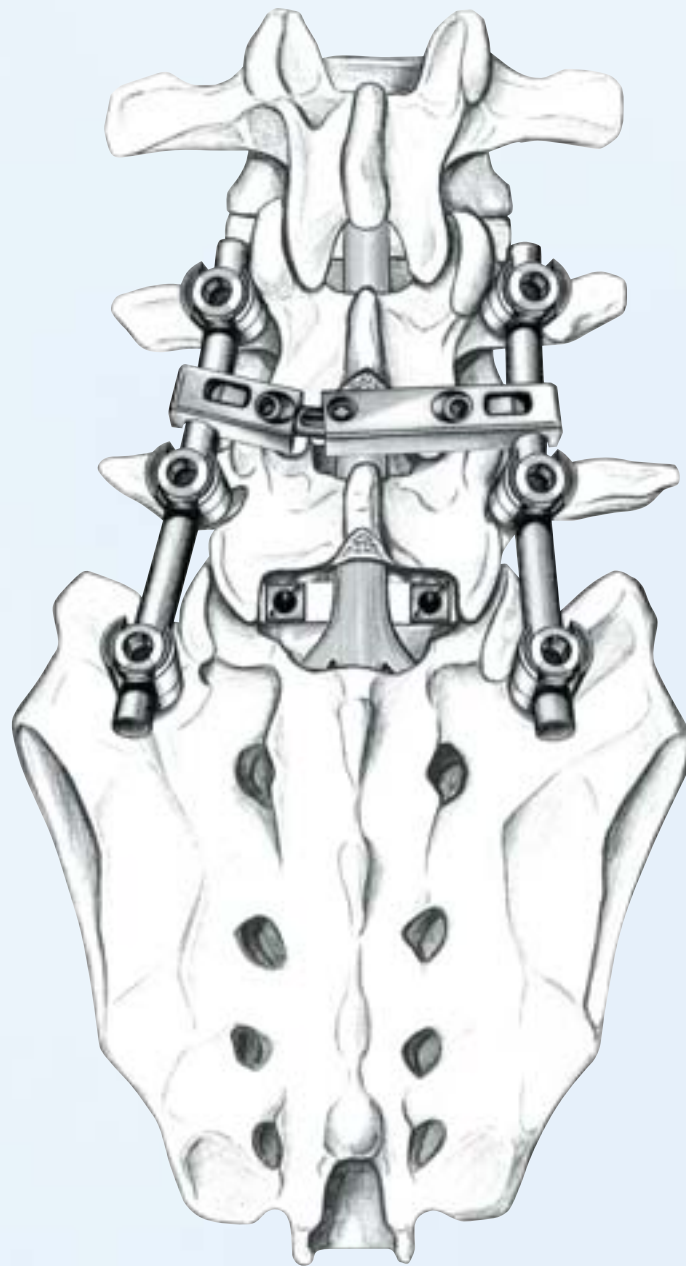
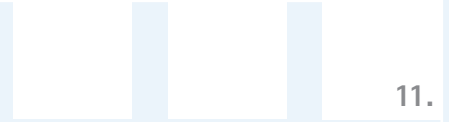


Fig. 24: Final construct: S⁴ Spinal System with cross connector and ProSpace Titanium interbody fusion implant.

Implants

12.1 Implant Description

12.1

Screws

Monoaxial Transpedicular Bone Screws



- SW701T Monoaxial screw \varnothing 4.5x25mm
- SW702T Monoaxial screw \varnothing 4.5x30mm
- SW703T Monoaxial screw \varnothing 4.5x35mm
- SW704T Monoaxial screw \varnothing 4.5x40mm
- SW706T Monoaxial screw \varnothing 4.5x45mm
- SW707T Monoaxial screw \varnothing 4.5x50mm

Polyaxial Transpedicular Bone Screws



- SW751T Polyaxial screw \varnothing 4.5x25mm
- SW752T Polyaxial screw \varnothing 4.5x30mm
- SW753T Polyaxial screw \varnothing 4.5x35mm
- SW754T Polyaxial screw \varnothing 4.5x40mm
- SW756T Polyaxial screw \varnothing 4.5x45mm
- SW757T Polyaxial screw \varnothing 4.5x50mm



- SW711T Monoaxial screw \varnothing 5.0x25mm
- SW712T Monoaxial screw \varnothing 5.0x30mm
- SW713T Monoaxial screw \varnothing 5.0x35mm
- SW714T Monoaxial screw \varnothing 5.0x40mm
- SW716T Monoaxial screw \varnothing 5.0x45mm
- SW717T Monoaxial screw \varnothing 5.0x50mm



- SW761T Polyaxial screw \varnothing 5.0x25mm
- SW762T Polyaxial screw \varnothing 5.0x30mm
- SW763T Polyaxial screw \varnothing 5.0x35mm
- SW764T Polyaxial screw \varnothing 5.0x40mm
- SW766T Polyaxial screw \varnothing 5.0x45mm
- SW767T Polyaxial screw \varnothing 5.0x50mm



- SW721T Monoaxial screw \varnothing 6.0x25mm
- SW722T Monoaxial screw \varnothing 6.0x30mm
- SW723T Monoaxial screw \varnothing 6.0x35mm
- SW724T Monoaxial screw \varnothing 6.0x40mm
- SW726T Monoaxial screw \varnothing 6.0x45mm
- SW727T Monoaxial screw \varnothing 6.0x50mm
- SW728T Monoaxial screw \varnothing 6.0x55mm
- SW729T Monoaxial screw \varnothing 6.0x60mm



- SW771T Polyaxial screw \varnothing 6.0x25mm
- SW772T Polyaxial screw \varnothing 6.0x30mm
- SW773T Polyaxial screw \varnothing 6.0x35mm
- SW774T Polyaxial screw \varnothing 6.0x40mm
- SW776T Polyaxial screw \varnothing 6.0x45mm
- SW777T Polyaxial screw \varnothing 6.0x50mm
- SW778T Polyaxial screw \varnothing 6.0x55mm
- SW779T Polyaxial screw \varnothing 6.0x60mm



- SW731T Monoaxial screw \varnothing 7.0x25mm
- SW732T Monoaxial screw \varnothing 7.0x30mm
- SW733T Monoaxial screw \varnothing 7.0x35mm
- SW734T Monoaxial screw \varnothing 7.0x40mm
- SW736T Monoaxial screw \varnothing 7.0x45mm
- SW737T Monoaxial screw \varnothing 7.0x50mm
- SW738T Monoaxial screw \varnothing 7.0x55mm
- SW739T Monoaxial screw \varnothing 7.0x60mm



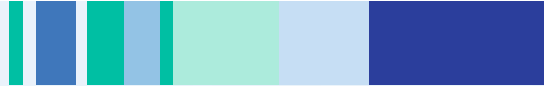
- SW781T Polyaxial screw \varnothing 7.0x25mm
- SW782T Polyaxial screw \varnothing 7.0x30mm
- SW783T Polyaxial screw \varnothing 7.0x35mm
- SW784T Polyaxial screw \varnothing 7.0x40mm
- SW786T Polyaxial screw \varnothing 7.0x45mm
- SW787T Polyaxial screw \varnothing 7.0x50mm
- SW788T Polyaxial screw \varnothing 7.0x55mm
- SW789T Polyaxial screw \varnothing 7.0x60mm



- SW742T Monoaxial screw \varnothing 8.0x30mm
- SW743T Monoaxial screw \varnothing 8.0x35mm
- SW744T Monoaxial screw \varnothing 8.0x40mm
- SW746T Monoaxial screw \varnothing 8.0x45mm
- SW747T Monoaxial screw \varnothing 8.0x50mm
- SW748T Monoaxial screw \varnothing 8.0x55mm
- SW749T Monoaxial screw \varnothing 8.0x60mm



- SW792T Polyaxial screw \varnothing 8.0x30mm
- SW793T Polyaxial screw \varnothing 8.0x35mm
- SW794T Polyaxial screw \varnothing 8.0x40mm
- SW796T Polyaxial screw \varnothing 8.0x45mm
- SW797T Polyaxial screw \varnothing 8.0x50mm
- SW798T Polyaxial screw \varnothing 8.0x55mm
- SW799T Polyaxial screw \varnothing 8.0x60mm



Set screw

SW790T Set screw for mono-/polyaxial screw



Pre-bent Rods

- SW654T Pre-bent rod \varnothing 5.5x35mm
- SW655T Pre-bent rod \varnothing 5.5x40mm
- SW656T Pre-bent rod \varnothing 5.5x45mm
- SW657T Pre-bent rod \varnothing 5.5x50mm
- SW658T Pre-bent rod \varnothing 5.5x55mm
- SW659T Pre-bent rod \varnothing 5.5x60mm
- SW661T Pre-bent rod \varnothing 5.5x70mm
- SW662T Pre-bent rod \varnothing 5.5x80mm
- SW663T Pre-bent rod \varnothing 5.5x90mm
- SW684T Pre-bent rod \varnothing 5.5x100mm



Straight Rods

- SW674T Straight rod \varnothing 5.5x35mm
- SW675T Straight rod \varnothing 5.5x40mm
- SW676T Straight rod \varnothing 5.5x45mm
- SW677T Straight rod \varnothing 5.5x50mm
- SW678T Straight rod \varnothing 5.5x55mm
- SW679T Straight rod \varnothing 5.5x60mm
- SW681T Straight rod \varnothing 5.5x70mm
- SW682T Straight rod \varnothing 5.5x80mm
- SW664T Straight rod \varnothing 5.5x100mm
- SW666T Straight rod \varnothing 5.5x120mm
- SW667T Straight rod \varnothing 5.5x150mm
- SW668T Straight rod \varnothing 5.5x180mm
- SW669T Straight rod \varnothing 5.5x200mm
- SW670T Straight rod \varnothing 5.5x300mm
- SW671T Straight rod \varnothing 5.5x400mm
- SW672T Straight rod \varnothing 5.5x500mm



Straight Cross Connectors

- SW690T Cross connector L 21mm
- SW691T Cross connector L 25mm
- SW692T Cross connector L 29mm
- SW693T Cross connector L 32mm
- SW694T Cross connector L 35mm
- SW695T Cross connector L 38mm
- SW696T Cross connector L 41mm

Adjustable Cross Connectors

- SW697T Cross connector L 43-49mm
- SW698T Cross connector L 49-60mm
- SW699T Cross connector L 60-75mm

Cross Connector Screws for Replacement

- SW687T Locking screw purple for cross connector SW690T-SW692T
- SW688T Locking screw silver for cross connector SW693T-SW699T
- SW689T Locking screw blue for cross connector SW697T-SW699T

Storage Pins for Monoaxial Screws

- TE864P Pin f. monoa. screws \varnothing 4.5mm
- TE865P Pin f. monoa. screws \varnothing 5.0mm
- TE866P Pin f. monoa. screws \varnothing 6.0mm
- TE867P Pin f. monoa. screws \varnothing 7.0mm
- TE868P Pin f. monoa. screws \varnothing 8.0mm

Storage Pins for Polyaxial Screws

- TE854P Pin f. polya. screws \varnothing 4.5mm
- TE855P Pin f. polya. screws \varnothing 5.0mm
- TE856P Pin f. polya. screws \varnothing 6.0mm
- TE857P Pin f. polya. screws \varnothing 7.0mm
- TE858P Pin f. polya. screws \varnothing 8.0mm

Note: 1 pack contains 10 pcs.

Implants



12.2 Implant Tray Set-Up Recommendation

Art. Nr.	Component	Recommended	Optional
* FW161P	S ⁴ Implant tray	1	
SW790T	Set screw for mono/polyaxial screw 4,5mm-7mm	16	8
SW721T	Monoaxial screw \varnothing 6.0x25mm		2
SW722T	Monoaxial screw \varnothing 6.0x30mm	4	
SW723T	Monoaxial screw \varnothing 6.0x35mm	4	
SW724T	Monoaxial screw \varnothing 6.0x40mm	6	
SW726T	Monoaxial screw \varnothing 6.0x45mm	6	
SW727T	Monoaxial screw \varnothing 6.0x50mm	6	
SW728T	Monoaxial screw \varnothing 6.0x55mm		2
SW729T	Monoaxial screw \varnothing 6.0x60mm		2
SW731T	Monoaxial screw \varnothing 7.0x25mm		2
SW732T	Monoaxial screw \varnothing 7.0x30mm	4	
SW733T	Monoaxial screw \varnothing 7.0x35mm	6	
SW734T	Monoaxial screw \varnothing 7.0x40mm	6	
SW736T	Monoaxial screw \varnothing 7.0x45mm	6	
SW737T	Monoaxial screw \varnothing 7.0x50mm	4	
SW738T	Monoaxial screw \varnothing 7.0x55mm	4	
SW739T	Monoaxial screw \varnothing 7.0x60mm		
SW771T	Polyaxial screw \varnothing 6.0x25mm		2
SW772T	Polyaxial screw \varnothing 6.0x30mm	2	
SW773T	Polyaxial screw \varnothing 6.0x35mm	8	
SW774T	Polyaxial screw \varnothing 6.0x40mm	8	
SW776T	Polyaxial screw \varnothing 6.0x45mm	8	
SW777T	Polyaxial screw \varnothing 6.0x50mm	8	
SW778T	Polyaxial screw \varnothing 6.0x55mm	2	
SW779T	Polyaxial screw \varnothing 6.0x60mm	2	
SW781T	Polyaxial screw \varnothing 7.0x25mm		2
SW782T	Polyaxial screw \varnothing 7.0x30mm	2	
SW783T	Polyaxial screw \varnothing 7.0x35mm	8	
SW784T	Polyaxial screw \varnothing 7.0x40mm	8	
SW786T	Polyaxial screw \varnothing 7.0x45mm	8	
SW787T	Polyaxial screw \varnothing 7.0x50mm	8	
SW788T	Polyaxial screw \varnothing 7.0x55mm	2	
SW789T	Polyaxial screw \varnothing 7.0x60mm	2	

* Recommended container: JK441 for implant tray FW161P Recommended lid: JK489 for implant tray FW161P

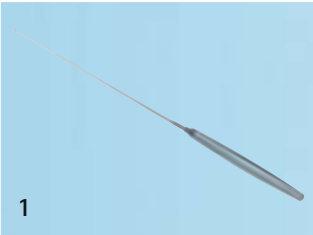
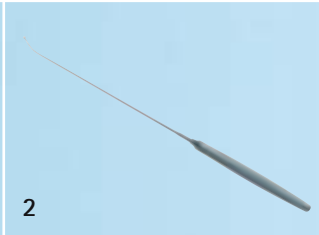







Note: Storage pins for mono-/polyaxial screws are included in implant tray FW161P (detailed information see section 12.1)

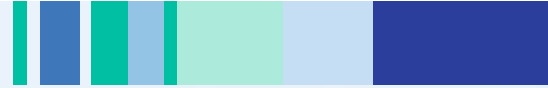





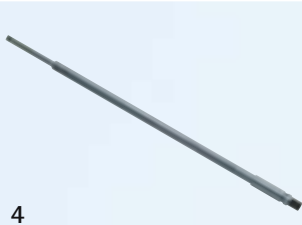




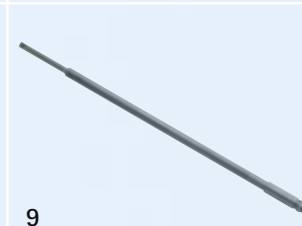

Art. Nr.	Component	Recommended	Optional
SW690T	Cross connector - straight 21mm		1
SW691T	Cross connector - straight 25mm		1
SW692T	Cross connector - straight 29mm		1
SW693T	Cross connector - straight 32mm		1
SW694T	Cross connector - straight 35mm		1
SW695T	Cross connector - straight 38mm	1	1
SW696T	Cross connector - straight 41mm	1	1
SW697T	Cross connector - adjustable 43-49mm	1	1
SW698T	Cross connector - adjustable 49-60mm	1	1
SW699T	Cross connector - adjustable 60-75mm	1	1
SW653T	Pre-bent rod \varnothing 5.5x30mm		2
SW654T	Pre-bent rod \varnothing 5.5x35mm	2	
SW655T	Pre-bent rod \varnothing 5.5x40mm	2	
SW656T	Pre-bent rod \varnothing 5.5x45mm	2	
SW657T	Pre-bent rod \varnothing 5.5x50mm	2	
SW658T	Pre-bent rod \varnothing 5.5x55mm	2	
SW659T	Pre-bent rod \varnothing 5.5x60mm	2	
SW661T	Pre-bent rod \varnothing 5.5x70mm	2	
SW662T	Pre-bent rod \varnothing 5.5x80mm	2	
SW663T	Pre-bent rod \varnothing 5.5x90mm		2
SW684T	Pre-bent rod \varnothing 5.5x100mm		2
SW674T	Straight rod \varnothing 5.5x35mm	2	
SW675T	Straight rod \varnothing 5.5x40mm	2	
SW676T	Straight rod \varnothing 5.5x45mm	2	
SW677T	Straight rod \varnothing 5.5x50mm	2	
SW678T	Straight rod \varnothing 5.5x55mm	2	
SW679T	Straight rod \varnothing 5.5x60mm	2	
SW681T	Straight rod \varnothing 5.5x70mm	2	
SW682T	Straight rod \varnothing 5.5x80mm	2	
SW664T	Straight rod \varnothing 5.5x100mm	2	
SW666T	Straight rod \varnothing 5.5x120mm	2	
SW667T	Straight rod \varnothing 5.5x150mm	2	
SW668T	Straight rod \varnothing 5.5x180mm		2
SW669T	Straight rod \varnothing 5.5x200mm		2
SW670T	Straight rod \varnothing 5.5x300mm		2
SW671T	Straight rod \varnothing 5.5x400mm		2
SW672T	Straight rod \varnothing 5.5x500mm		2

Instruments

13.1 Instrument Description





 <p>1</p>	 <p>2</p>	 <p>3</p>	<p>Preparation</p> <p>1 FW146R Pedicle sounder, straight</p> <p>2 FW147R Pedicle sounder, curved</p> <p>3 FW165R Ratchet handle, straight</p> <p>4 FW188R Bone probe, straight</p> <p>5 FW189R Bone probe, curved</p> <p>6 FW190R Bone awl</p> <p>7 FW191R Pedicle marker, single band</p> <p>8 FW192R Pedicle marker, dual band</p> <p>9 FW194R Screw tap, ø 4.5mm FW195R Screw tap, ø 5.0mm FW196R Screw tap, ø 6.0mm FW197R Screw tap, ø 7.0mm FW198R Screw tap, ø 8.0mm</p>
 <p>4</p>	 <p>5</p>	 <p>6</p>	
 <p>7</p>	 <p>8</p>	 <p>9</p>	



			Application
 1	 2	 3	1 FW170R Torque limiting wrench (10Nm/90 in/lbs)
 4	 5	 6	2 FW178R Counter-torque L-handle 3 FW173R Screwdriver for polyaxial screws 4 FW174R Screwdriver with 3.5mm hex tip 5 FW176R Screwdriver for monoaxial screws 6 FW177R Set screw starter
 7	 8	 9	7 FW179R Tab breaker 8 FW180R Screw body manipulator 9 FW193R Set screw revision screwdriver 4mm hex tip
 10			10 FW154R Marnay lever

Instruments

13.1 Instrument Description

 <p>1</p>	 <p>2</p>	 <p>3</p>	Cross Connector Application
 <p>4</p>			

Rod bending and reconstruction

- 1 FW012R Rod holding forceps
- 2 FW185R Rod trial single use
- 3 FW024R French rod bender
- 4 FW513R Rod pusher
- 5 FW208R Rod persuader
- 6 FW181R Distraction forceps
- 7 FW184R Compression forceps
- 8 FW183R De-rotation sleeves
- 9 FW210R Compression forceps



Instruments

13.2 Instrument Set Configuration

Art. Nr.	Component	Recommended	Optional
Trays			1
* FW163P	Tray Preparation & Application (I)	1	
* FW164P	Tray Rod Bending & Reconstruction (II)	1	
Preparation			
FW146R	Pedicle sounder, curved	1	
FW147R	Pedicle sounder, straight	1	
FW165R	Ratchet handle, straight	2	
FW188R	Bone probe, straight	1	
FW189R	Bone probe, curved	1	
FW190R	Bone awl	1	
FW191R	Pedicle marker, single band	4	2
FW192R	Pedicle marker, dual band	4	2
FW194R	Screw tap, ø 4.5mm		1
FW195R	Screw tap, ø 5.0mm		1
FW196R	Screw tap, ø 6.0mm	1	
FW197R	Screw tap, ø 7.0mm	1	
FW198R	Screw tap, ø 8.0mm		1
Application			
FW170R	Torque limiting wrench (10Nm/90 in/lbs)	1	
FW173R	Screwdriver for polyaxial screws	2	
FW174R	Screwdriver with 3.5mm hex tip	1	
FW176R	Screwdriver for monoaxial screws	2	
FW177R	Set screw starter	2	
FW178R	Counter-torque L-handle	1	
FW179R	Tab breaker	1	
FW180R	Screw body manipulator	1	
FW193R	Set screw revision screwdriver 4mm hex tip	1	
FW154R	Marnay lever	2	
Cross Connector Application			
FW202R	Cross connector sizing template	1	
FW203R	Cross connector bender	1	
FW204R	Counter torque for cross connectors	1	
FW206R	Rod cutter		1
FW207R	Cross connector torque wrench screwdriver (4Nm/36 in/lbs)	1	

* Recommended container: JK442 for S⁴ Preparation & Application (I) FW163P and Rod Bending & Reconstruction (II) FW164P
 Recommended lid: JK489 for S⁴ Preparation & Application (I) FW163P and Rod Bending & Reconstruction (II) FW164P



13.2 Instrument Set Configuration

Art. Nr.	Component	Recommended	Optional
Rod Bending and Reconstruction			
FW012R	Rod holding forceps	2	
FW024R	French rod bender	1	
FW181R	Distraction forceps	1	
FW184R	Compression forceps	1	
FW185R	Rod trial, single use	2	
FW513R	Rod pusher	1	
FW208R	Rod persuader	1	
FW183R	De-rotation sleeves	4	2



AESCULAP®

B | BRAUN
SHARING EXPERTISE

Aesculap AG & Co. KG

Am Aesculap-Platz
78532 Tuttlingen
Germany

Telefon +49 7461 95-0
Fax +49 7461 95-2600

www.aesculap.de

All rights reserved. Technical alterations are possible. 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 catalogues and pricelists and to take legal actions.