

PROLIANT® Lumbar Pedicle Screw System

DETAILED OPERATIVE TECHNIQUE LOCATE AND PREPARE THE PEDICLE

Identify the pedicle and the entry hole location. The pedicle is typically located at the intersection of the superior articulate facet and the midline of the transverse process. Create an entry hole for the pedicle screw by using the **Bone Awl (05-059-42-0000)** to puncture the cortex. With the Awl, penetrate the cortex by using a downward twisting force (Figure 1).

PROBE THE PEDICLE

The **Straight Pedicle Probe (27152)** or **Curved Pedicle Probe (05-059-10-0000)** is used to create the screw path through the pedicle and into the vertebral body. Both of these instruments include depth markings at the tip of the instrument (Figure 2).

ENSURE THE INTEGRITY OF THE PEDICLE WALL

After the pedicle has been cannulated, the pedicle may now be sounded. Using the Straight Tester, verify the integrity of the interior pedicle walls by palpating the cephalad edge, the medial wall and the inferior edge, as well as the deepest portion of the opening (Figure 3).

Тар	Outer Diameter	Screw Compatibility				
		4.5mm	5.5mm	6.5mm	7.5mm	8.5mm
4.5mm Tap	3.75mm	Х				
5.5mm Tap	4.75mm	Х	Х			
6.5 U Tap	4.75mm			X	X	X
6.5mm Tap	5.75mm			×	×	X
7.5mm Tap	6.75mm				Х	Х
8.5mm Tap	7.75mm					×



FIGURE 1: ESTABLISH PEDICLE ENTRY POINT



FIGURE 2: PROBE THE PEDICLE



FIGURE 3: ENSURE INTEGRITY OF PEDICLE WALL





FIGURE 4: MARK THE PEDICLE



FIGURE 5: TAP THE PEDICLE



FIGURE 6: LOAD THE PEDICLE SCREW



GUIDE PIN INSERTION (OPTIONAL)

Guide Pins (28256) are available and may be inserted to confirm the pedicle location under visualization if desired (Figure 4).

TAPPING (OPTIONAL)

All Proliant screws are self-tapping. However, if pre-tapping is desired, Taps are available in various sizes which correspond to the diameters of the Polyaxial Screws (Table 1). The Proliant Taps are undersized by .75mm, however if additional undertapping is desired a smaller diameter within the same group may be used. Attach the appropriately sized Tap to the **Ratcheting Straight** (28277) or **Ratcheting T-Handle (28279)**, slide on the **Tissue Protector Sleeve (05-059-01-4555)** and proceed to tap the Screw entry hole by rotating the handle clockwise. The Tissue Protector Sleeve may be used to determine tapping depth (Figure 5).

LOAD POLYAXIAL SCREW

After determining the appropriate Screw length, attach the Ratcheting Straight or T-Handle to the **Retaining Polyaxial Screwdriver (05-059-12-0001)**. Insert the Retaining Screwdriver into the inner hexalobe of the Screw and lock it by rotating the central locking wheel clockwise (Figure 6).

INSERT POLYAXIAL SCREW

The Polyaxial Screws may now be inserted into pedicle to the predetermined depth. Turn the Ratcheting Handle clockwise to insert the Screw (Figure 7). Once the Screw is fully inserted, disengage the Screw from the Retaining Polyaxial Screwdriver by turning the central locking wheel counter-clockwise. Repeat the steps for all remaining Pedicle Screws.

REDUCTION SCREWS

If necessary, Reduction Polyaxial Screws are also available and can be inserted using the Retaining Polyaxial Screwdriver. The Retaining Polyaxial Screwdriver is inserted into the Screw tulip and tightened by rotating the central locking wheel clockwise.

ROD SELECTION

After the Polyaxial Screws have been placed, the desired length of the Rod should be selected. The Curved Rods are in lengths ranging from 40mm to 110mm. The Rod should extend no less than 2mm beyond the outer edges of the proximal Screw bodies of the most superior and most inferior Pedicle Screws. Straight Rods are also available in either 200mm or 300mm lengths.

ROD BENDER

The **French Rod Bender (05-059-25-0000)** is primarily used for curving or bending Straight Rods. If needed, it can also be used to increase or decrease the lordosis in the Curved Rod (Figure 8).

The degree of lordosis can be varied by adjusting the center button. A small, medium or large radius may be selected by pulling out the large center knob while rotating the knob as desired. The Rod should seat fully into the tulip of the Pedicle Screw.

Note: In-Situ Benders may also be used to bend the Rod once it is placed within the construct.

ROD PLACEMENT AND TIGHTENING

After the Rod has been contoured as desired, it is then placed into the Polyaxial Screw housing with the Rod Holder (Figure 9). The Polyaxial Screw allows up to 60 degrees of angulation, and the EZ Set Tulip Head allows the Screw to be placed in any angle and stay in that location as the Rod is inserted.

Once the Rod has been placed, load a Set Screw on each end of the double-ended Set Screw Starter and provisionally tighten each Screw.

ROD REDUCTION

To assist with the reduction of the Rod into the Screw, there are several instruments that are available.

1) The **Rod Pusher (05-059-20-0000)** helps to persuade the Rod into the Screw head, without capturing the Screw head.

2) The **Pistol Grip Rod Persuader (05-059-17-0000)** is inserted over the Rod and Screw, and the Ratcheting Handle allows the Rod to be slowly reduced.

3) The **Cylinder Style Rod Persuader (05-059-16-0000)** is used to fully capture the Polyaxial Screw head in place, while the Ratcheting Handles reduce the Rod (Figure 10).

After the Rod is fully reduced into the Screw head, it can be provisionally tightened using the Set Screw Starter as described above.



FIGURE 8: FRENCH ROD BENDER



FIGURE 9: PLACE ROD AND TIGHTEN



FIGURE 10: REDUCE ROD INTO SCREW

DEROTATION, COMPRESSION AND DISTRACTION (OPTIONAL)

After all of the Set Screws have been provisionally inserted into the Screw housing, the De-rotator may be used to rotate the contoured Rod into the desired position. While the Rod is held in place with the De-rotator, the Set Screws are tightened using the Set Screwdriver attached to the T-Handle Torque Limiting Driver (Figure 11).

The **Compressor (05-059-27-0000) or Distractor (05-059-26-0000)** can also be used to apply final compression or distraction to the construct. Once the desired compression or distraction is accomplished, the Set Screws can be tightened using the Set Screwdriver attached to the T-Handle Torque Limiting Driver (Figure 12).

COUNTER TORQUE AND FINAL TIGHTENING

After any desired derotation, compression and distraction have been performed, the Set Screwdriver should be attached to the T-Handle Torque Limiting Driver and inserted through the **Counter Torque (05-059-14-0000)** for final tightening of the Set Screws (Figure 13). The Set Screw should be rotated clockwise until the T-Handle clicks, indicating the necessary torque has been applied.



FIGURE 11: DEROTATE OF ROD



FIGURE 12: COMPRESSION/DISTRACTION



FIGURE 13: FINAL TIGHTENING OF SET SCREWS

CROSS CONNECTOR PLACEMENT

A Cross Connector may now be used if desired. Cross Connectors are available in sizes ranging from 30 to 40mm in 5mm increments and in 40 to 70mm in 10mm increments.

The Cross Connector is attached to the Rods either by hand or by using the **Cross Connector Nut Starter (05-059-46-0000)**. The Cross Connector Nut Starter snaps around the arm of the Cross Connector underneath the connector nut (Figure 14). This leaves the nut and rod clamp portion of the Connector free to rotate for proper positioning over the construct.

The Connector is pushed down until the rod clamp mechanism clicks onto the Rod. Once positioned onto both Rods, attach the Cross Connector Torque Limiting Wrench to the Nut Driver. Place the Cross Connector Counter Torque onto the Cross Connector Nut that is positioned on either rod. Insert the Nut Driver into the Cross Connector Counter Torque and rotate clockwise until the handle clicks, indicating that the necessary torque has been applied. Repeat this step to tighten the Cross Connector Nut on the second rod. Lastly, place the Cross Connector, and use the Nut Driver to tighten this nut (Figure 15).

Note: It is important to ensure that the nuts on both of the rods are tightened prior to tightening the central nut.

SCREW REMOVAL

The Reversible Polyaxial Screwdriver is available for removal and readjustment of the Polyaxial Screws. To accomplish this, the Reversible Polyaxial Screwdriver must first be attached to the Screw by placing the driver shaft at the same angle as the Screw that was initially placed into the pedicle.

Next, the Reversible Polyaxial Screwdriver needs to be secured tightly onto the Screw by rotating the central locking wheel clockwise. Now the Screw may be backed out by holding the shaft and turning the handle counterclockwise.



FIGURE 14: APPLY CROSS CONNECTOR



FIGURE 15: FINAL TIGHTENING OF CROSS CONNECTORS



PROLIANT IMPLANT LISTING

Catalog Number	Part Description
05-050-00-4530	Proliant 5.5mm Polyaxial Screw, 4.5mm x 30mm
05-050-00-4535	Proliant 5.5mm Polyaxial Screw, 4.5mm x 35mm
05-050-00-4540	Proliant 5.5mm Polyaxial Screw, 4.5mm x 40mm
05-050-00-4545	Proliant 5.5mm Polyaxial Screw, 4.5mm x 45mm
05-050-00-5535	Proliant 5.5mm Polyaxial Screw, 5.5mm x 35mm
05-050-00-5540	Proliant 5.5mm Polyaxial Screw, 5.5mm x 40mm
05-050-00-5545	Proliant 5.5mm Polyaxial Screw, 5.5mm x 45mm
05-050-00-5550	Proliant 5.5mm Polyaxial Screw, 5.5mm x 50mm
05-050-00-5555	Proliant 5.5mm Polyaxial Screw, 5.5mm x 55mm
05-050-00-6535	Proliant 5.5mm Polyaxial Screw, 6.5mm x 35mm
05-050-00-6540	Proliant 5.5mm Polyaxial Screw, 6.5mm x 40mm
05-050-00-6545	Proliant 5.5mm Polyaxial Screw, 6.5mm x 45mm
05-050-00-6550	Proliant 5.5mm Polyaxial Screw, 6.5mm x 50mm
05-050-00-6555	Proliant 5.5mm Polyaxial Screw, 6.5mm x 55mm
05-050-00-7535	Proliant 5.5mm Polyaxial Screw, 7.5mm x 35mm
05-050-00-7540	Proliant 5.5mm Polyaxial Screw, 7.5mm x 40mm
05-050-00-7545	Proliant 5.5mm Polyaxial Screw, 7.5mm x 45mm
05-050-00-7550	Proliant 5.5mm Polyaxial Screw, 7.5mm x 50mm
05-050-00-7555	Proliant 5.5mm Polyaxial Screw, 7.5mm x 55mm
05-050-00-8535	Proliant 5.5mm Polyaxial Screw, 8.5mm x 35mm
05-050-00-8540	Proliant 5.5mm Polyaxial Screw, 8.5mm x 40mm
05-050-00-8545	Proliant 5.5mm Polyaxial Screw, 8.5mm x 45mm
05-050-00-8550	Proliant 5.5mm Polyaxial Screw, 8.5mm x 50mm
05-050-00-8555	Proliant 5.5mm Polyaxial Screw, 8.5mm x 55mm
05-050-04-0000	Proliant Set Screw for 5.5mm rod
05-050-02-5540	Proliant 5.5mm Polyaxial Reduction Screw, 5.5mm x 40mm
05-050-02-5545	Proliant 5.5mm Polyaxial Reduction Screw, 5.5mm x 45mm
05-050-02-5550	Proliant 5.5mm Polyaxial Reduction Screw, 5.5mm x 50mm
05-050-02-6540	Proliant 5.5mm Polyaxial Reduction Screw, 6.5mm x 40mm
05-050-02-6545	Proliant 5.5mm Polyaxial Reduction Screw, 6.5mm x 45mm
05-050-02-6550	Proliant 5.5mm Polyaxial Reduction Screw, 6.5mm x 50mm
05-050-02-7540	Proliant 5.5mm Polyaxial Reduction Screw, 7.5mm x 40mm
05-050-02-7545	Proliant 5.5mm Polyaxial Reduction Screw, 7.5mm x 45mm
05-050-02-7550	Proliant 5.5mm Polyaxial Reduction Screw, 7.5mm x 50mm



Proliant Implant Listing Catalog Number

05-052-01-0040 05-052-01-0045 05-052-01-0050 05-052-01-0055 05-052-01-0065 05-052-01-0070 05-052-01-0075 05-052-01-0080 05-052-01-0090 05-052-01-0100

Part Description

Rod,	5.5mm	Х	40mm,	Curved
Rod,	5.5mm	х	45mm,	Curved
Rod,	5.5mm	х	50mm,	Curved
Rod,	5.5mm	х	55mm,	Curved
Rod,	5.5mm	х	60mm,	Curved
Rod,	5.5mm	х	65mm,	Curved
Rod,	5.5mm	Х	70mm,	Curved
Rod,	5.5mm	Х	75mm,	Curved
Rod,	5.5mm	х	80mm,	Curved
Rod,	5.5mm	х	90mm,	Curved
Rod,	5.5mm	Х	100mm	, Curved
Rod,	5.5mm	Х	110mm,	Curved

Rod, 5.5mm x 200mm, Straight

Rod, 5.5mm x 300mm, Straight

Proliant 5.5mm Cross Connector, 30mm-35mm

Proliant 5.5mm Cross Connector, 35mm-40mm

Proliant 5.5mm Cross Connector, 40mm-50mm Proliant 5.5mm Cross Connector, 50mm-60mm

Proliant 5.5mm Cross Connector, 60mm-70mm

05-052-00-0200 05-052-00-0300

05-052-01-0110

05-054-00-3035 05-054-00-3540 05-054-00-4050 05-054-00-5060 05-054-00-6070

27152

28258

28277

Straight Probe

05-059-10-0000 Curved Probe 28254 Straight Tester 28256 Guide Pin

28257 Guide Pin, Grooved

Depth Gauge

Ratchet Straight Handle









Ratchet T-Handle

28279

28278

05-059-00-0000

Counter Torque, Cross Connector

05-059-01-4500 05-059-01-4555 05-059-01-5500 05-059-02-5500 05-059-02-6500 05-059-01-6585 05-059-02-7500 05-059-02-8500

Proliant Tap, 4.5mm Proliant Tap Sleeve Proliant Tap, 5.5mm Proliant Tap, 6.5mm Proliant Tap, 6.5mm Proliant Tap, 7.5mm Proliant Tap, 8.5mm

05-059-14-0001	Proliant Head Turner	
05-059-27-0000	Compressor	\Rightarrow
05-059-28-0000 05-059-29-0000	In-situ Bender, Left, 5.5mm In-situ Bender, Right, 5.5mm	(d
05-059-42-0000	Bone Awl	
05-059-46-0000	Cross Connector Nut Starter	
05-059-50-0000	Tab Breaker, Reduction Screw	



Proliant Instrument Listing

Catalog Number	Part Description	
05-059-02-0000	Cross Connector Nut Driver	ili - Haine (
05-059-03-0000	Cross Connector Torque Limiting Driver Handle	
05-059-10-0000	Curved Probe	
05-059-12-0000	Proliant Screwdriver, Hexalobe	
05-059-12-0001	Proliant Retaining Screwdriver	
05-059-13-0000	Torque Limiting T-Handle, Hudson	-
05-059-14-0000	Counter Torque	
05-059-15-0000	Proliant Reversible Screwdriver	
05-059-16-0000	Persuader, Cylinder Style	
05-059-17-0000	Persuader, Pistol Grip	-
05-059-18-0000	Proliant Set Screw Starter	
05-059-19-0000	Proliant Set Screwdriver	_
05-059-20-0000	Rod Pusher, 5.5mm	-
05-059-22-0000	Rod Holder, 5.5mm	-
05-059-24-0000	De-rotator	
05-059-25-0000	Rod Bender, French Style	2
05-059-26-0000	Distractor	

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Proliant LE Part Numbers

Part Number Part Description

05-050-10-4525	PRO,LE, SCREW, MONO, 4.5 x 25	05-050-10-8550	PRO,LE, SCREW, MONO, 8.5 x 50
05-050-10-4530	PRO,LE, SCREW, MONO, 4.5 x 30	05-050-10-8555	PRO,LE, SCREW, MONO, 8.5 x 55
05-050-10-4535	PRO,LE, SCREW, MONO, 4.5 x 35	05-050-10-8560	PRO,LE, SCREW, MONO, 8.5 × 60
05-050-10-4540	PRO,LE, SCREW, MONO, 4.5 x 40	05-050-10-8565	PRO,LE, SCREW, MONO, 8.5 x 65
05-050-10-4545	PRO,LE, SCREW, MONO, 4.5 x 45	05-050-10-8570	PRO,LE, SCREW, MONO, 8.5 x 70
05-050-10-4550	PRO,LE, SCREW, MONO, 4.5 x 55	05-050-10-8575	PRO,LE, SCREW, MONO, 8.5 x 75
05-050-10-4555	PRO,LE, SCREW, MONO, 4.5 x 55	05-050-10-8580	PRO,LE, SCREW, MONO, 8.5 × 80
05-050-10-4560	PRO,LE, SCREW, MONO, 4.5 x 60	05-050-10-8585	PRO,LE, SCREW, MONO, 8.5 x 85
05-050-10-5525	PRO,LE, SCREW, MONO, 5.5 x 25	05-050-10-8590	PRO,LE, SCREW, MONO, 8.5 × 90
05-050-10-5530	PRO,LE, SCREW, MONO, 5.5 x 30	05-050-12-0001	PRO,LE, HOOK, LAMINA, NARROW, SM
05-050-10-5535	PRO,LE, SCREW, MONO, 5.5 x 35	05-050-12-0003	PRO,LE, HOOK, LAMINA, NARROW, LG
05-050-10-5540	PRO,LE, SCREW, MONO, 5.5 x 40	05-050-12-1001	PRO,LE, HOOK, PEDICLE, SMALL
05-050-10-5545	PRO,LE, SCREW, MONO, 5.5 x 45	05-050-12-1003	PRO,LE, HOOK, PEDICLE, LARGE
05-050-10-5550	PRO,LE, SCREW, MONO, 5.5 x 50	05-050-12-2003	PRO,LE, HOOK, OFFSET, LEFT, LRG
05-050-10-5555	PRO,LE, SCREW, MONO, 5.5 x 55	05-050-12-3003	PRO,LE, HOOK, OFFSET, RIGHT, LRG
05-050-10-5560	PRO,LE, SCREW, MONO, 5.5 x 60	05-050-12-5520	PRO,LE, CONNECTOR, OFFSET, 20
05-050-10-6525	PRO,LE, SCREW, MONO, 6.5 x 25	05-050-12-5530	PRO,LE, CONNECTOR, OFFSET, 30
05-050-10-6530	PRO,LE, SCREW, MONO, 6.5 x 30	05-050-12-5540	PRO,LE, CONNECTOR, OFFSET, 40
05-050-10-6535	PRO,LE, SCREW, MONO, 6.5 x 35	05-050-12-5550	PRO,LE, CONNECTOR, OFFSET, 50
05-050-10-6540	PRO,LE, SCREW, MONO, 6.5 x 40	05-050-12-5560	PRO,LE, CONNECTOR, OFFSET, 60
05-050-10-6545	PRO,LE, SCREW, MONO, 6.5 x 45	05-050-12-5599	PRO,LE, CONNECTOR, OFFSET, 100
05-050-10-6550	PRO,LE, SCREW, MONO, 6.5 x 50	05-050-12-7001	PRO,LE, CONNECTOR, R TO R INLINE
05-050-10-6555	PRO,LE, SCREW, MONO, 6.5 x 55	05-050-12-7002	PRO,LE, CONNECTOR, SIDE BY SIDE
05-050-10-6560	PRO,LE, SCREW, MONO, 6.5 x 60	05-052-02-0200	PRO,LE, ROD, COCR, STRAIGHT, 200
05-050-10-7540	PRO,LE, SCREW, MONO, 7.5 x 40	05-052-02-0300	PRO,LE, ROD, COCR, STRAIGHT, 300
05-050-10-7545	PRO,LE, SCREW, MONO, 7.5 x 45	05-052-02-0480	PRO,LE, ROD, COCR, STRAIGHT, 480
05-050-10-7550	PRO,LE, SCREW, MONO, 7.5 x 50	05-052-12-0040	PRO,LE, ROD, COCR, CURVED, 40
05-050-10-7555	PRO,LE, SCREW, MONO, 7.5 x 55	05-052-12-0045	PRO,LE, ROD, COCR, CURVED, 45
05-050-10-7560	PRO,LE, SCREW, MONO, 7.5 x 60	05-052-12-0050	PRO,LE, ROD, COCR, CURVED, 50
05-050-10-7565	PRO,LE, SCREW, MONO, 7.5 x 65	05-052-12-0055	PRO,LE, ROD, COCR, CURVED, 55
05-050-10-7570	PRO,LE, SCREW, MONO, 7.5 x 70	05-052-12-0060	PRO,LE, ROD, COCR, CURVED, 60
05-050-10-7575	PRO,LE, SCREW, MONO, 7.5 x 75	05-052-12-0065	PRO,LE, ROD, COCR, CURVED, 65
05-050-10-7580	PRO,LE, SCREW, MONO, 7.5 x 80	05-052-12-0070	PRO,LE, ROD, COCR, CURVED, 70
05-050-10-7585	PRO,LE, SCREW, MONO, 7.5 x 85	05-052-12-0075	PRO,LE, ROD, COCR, CURVED, 75
05-050-10-7590	PRO,LE, SCREW, MONO, 7.5 x 90	05-052-12-0080	PRO,LE, ROD, COCR, CURVED, 80
05-050-10-8540	PRO,LE, SCREW, MONO, 8.5 x 40	05-052-12-0090	PRO,LE, ROD, COCR, CURVED, 90
05-050-10-8545	PRO,LE, SCREW, MONO, 8.5 x 45	05-052-12-0100	PRO,LE, ROD, COCR, CURVED, 100
		05-052-12-0110	PRO,LE, ROD, COCR, CURVED, 110



Implant Tray



Instrument Tray 1 Top



Instrument Tray 1 Bottom



Instrument Tray 2 Top



Instrument Tray 2 Bottom



For Instructions for Use, please visit https://choicespine-eifu.com/



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