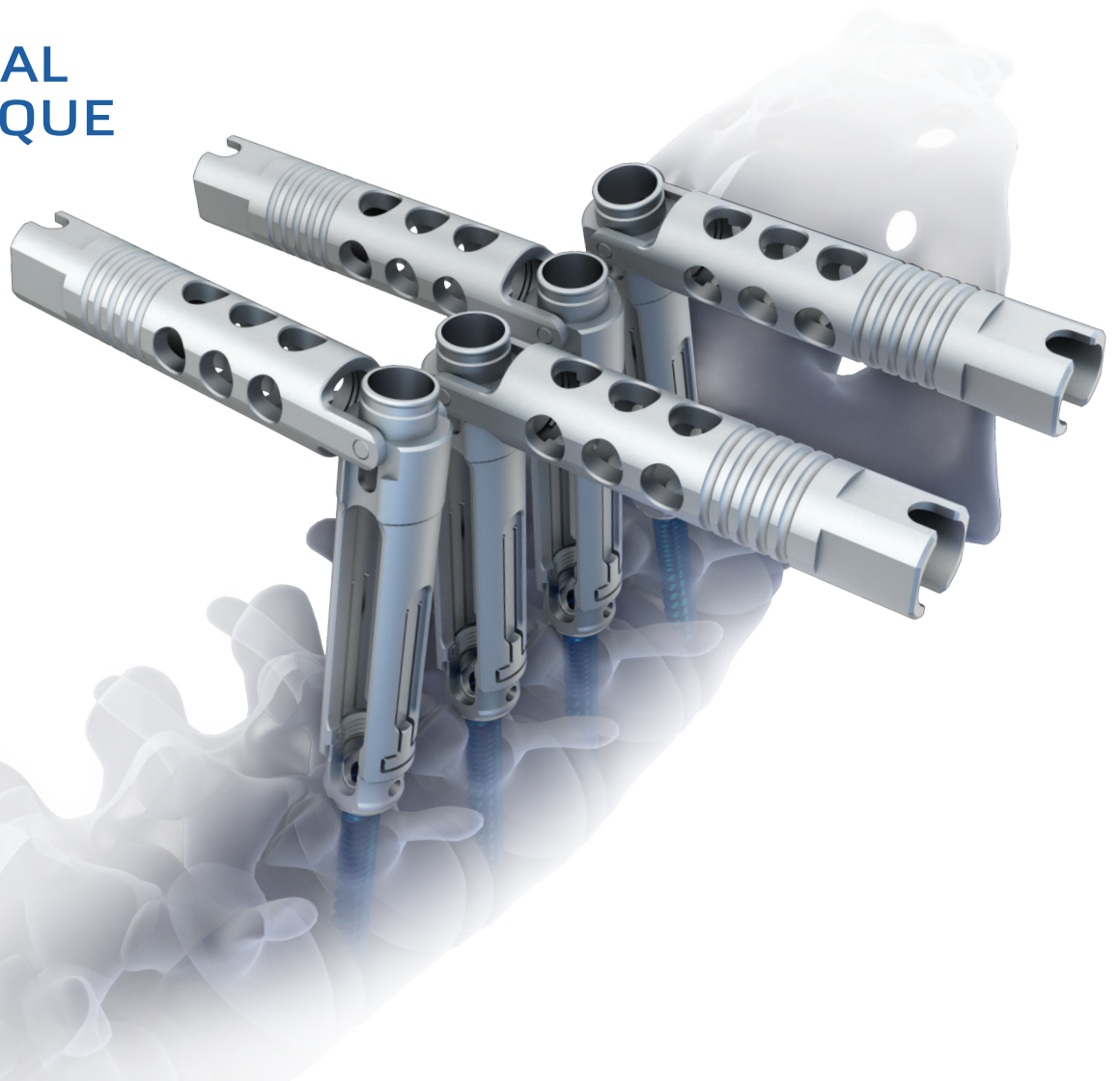


QUATTRO™
GADGET™
MIS PERCUTANEOUS SCREW SYSTEM

**SURGICAL
TECHNIQUE**



Minimally invasive surgery is advantageous because it allow for less tissue trauma, less scarring, shorter hospital stays and less postoperative discomfort, thereby affording a decreased need for post-operative pain medication. QUATTRO-GADGET™ was created to offer a minimal invasive surgical option for pedicle screw placement.

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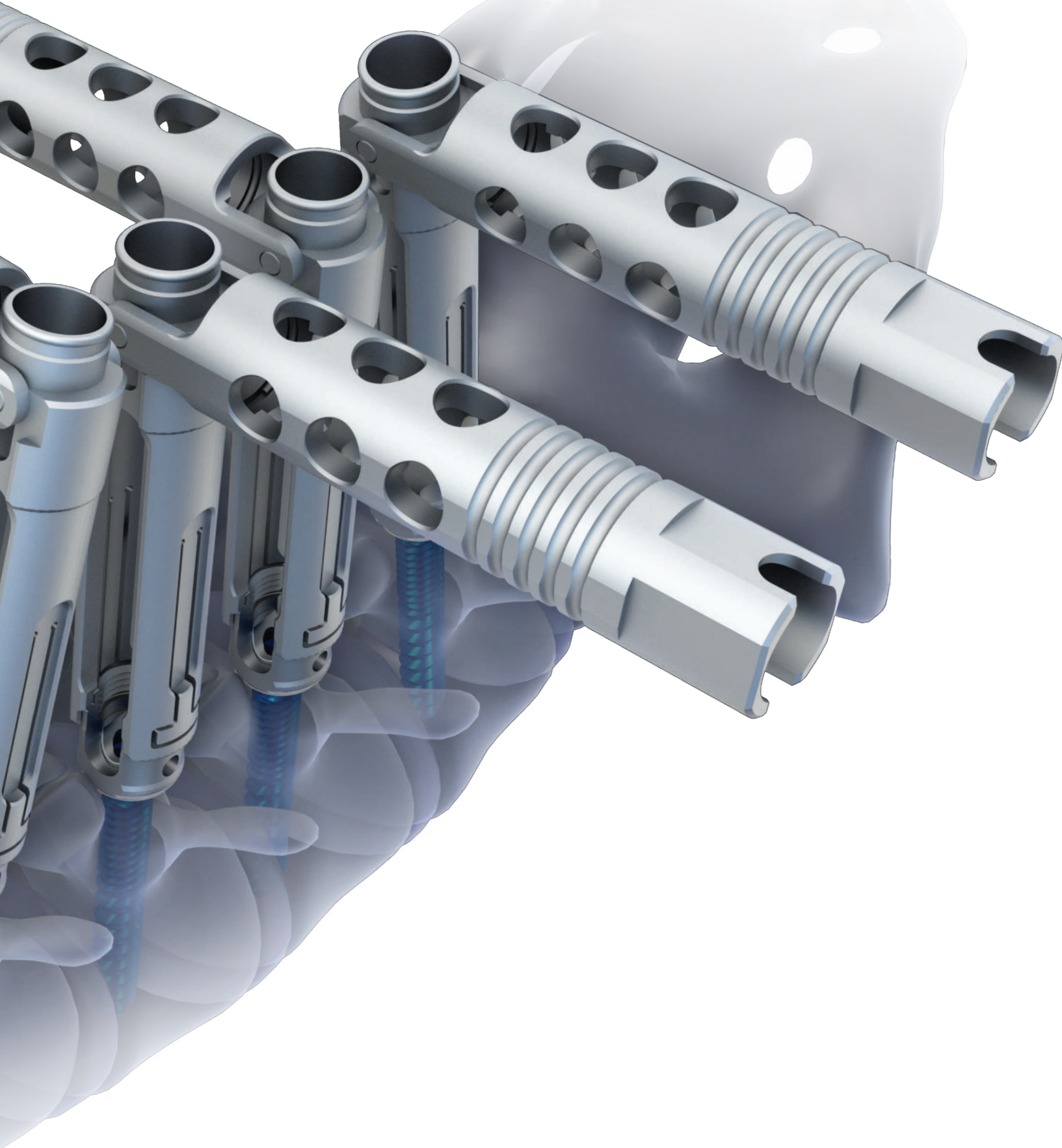
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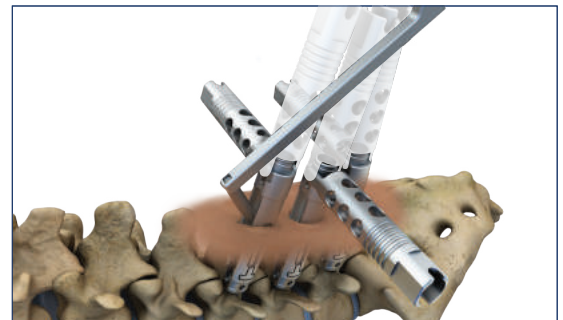


QUATTRO™ GADGET™

QUATTRO - GADGET™ is created to offer a minimally invasive surgical option for pedicle screw placement. It also can provide the stabilization of acute and chronic instabilities or deformities of the thoracic and lumbar spine. The GADGET™ adopts functional mechanism on the screw extender, named “Flexible Hinge System”. The Flexible Hinge System allows to adjust the angle of the screw extender. It offers surgeons the convenience of minimizing operations through the various benefits of GADGET™.

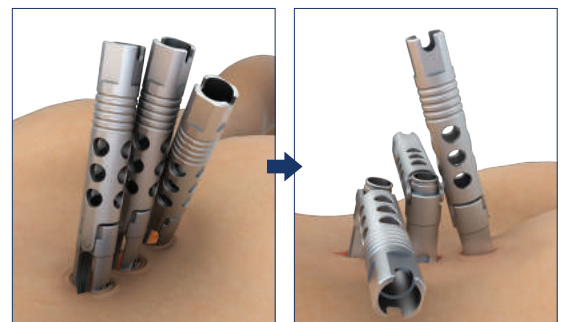
Easy Rod Insertion

The rod is easily inserted with adjusting the hinge angle of screw extender without interruption between the instruments.



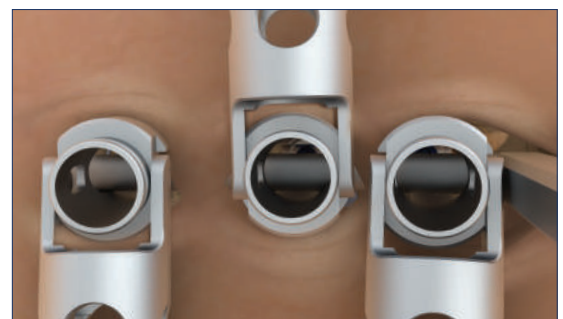
Prevent the instrument Interruption

It can prevent cross interference between the screw extenders even in the increasing of lodotic angle like in the L5-S1's lumbar.



Visualize the Rod Insertion

The location of the rod can be visually checked through the folded hinge hole of the screw.



SURGICAL TECHNIQUE

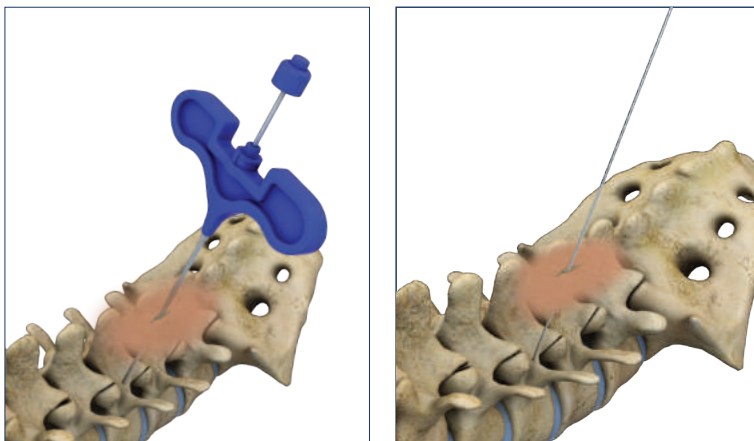
1. Preoperative Planning



When using the GADGET™ MIS Screw System, the patient should be positioned prone on a radiolucent table. Chest rolls may be used, but the knee-to-chest position should be avoided.

Ref. This is intended as a guide only. There are multiple techniques for the insertion of pedicle screws and, as with any surgical procedure, a surgeon should be thoroughly trained before proceeding.

2. Guide-wire Insertion



INSTRUMENTS

A1B-1010	Guide-wire
----------	------------

VP needle insertion

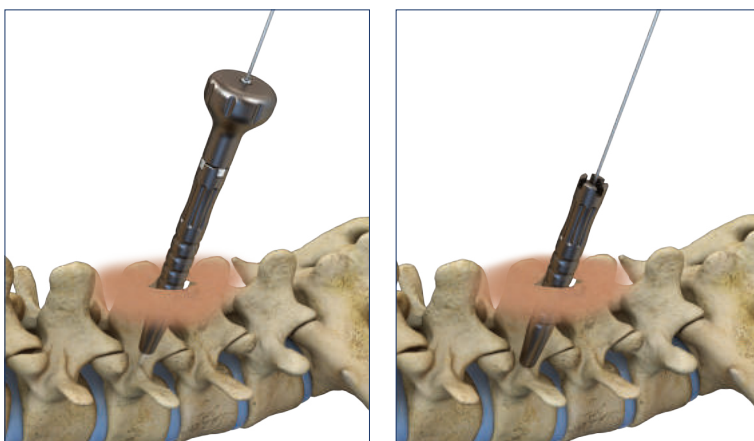
Using fluoroscopic imaging, it should be verified that the true views of both anterior-posterior (A/P) and lateral images of the spine are obtainable.

After that, make an incision and begin by inserting the front tip of the trocar in the pedicle. Remove the trocar from the VP needle after confirming placement with the A/P fluoroscopy.

Guide-wire insertion

After inserting the Guide-wire, ensure the location of the Guide-wire when advancing it under the fluoroscopy. When the Guide-wire is in the place, remove the VP needle.

3. Dilator Insertion



INSTRUMENTS

A1B-1010	Guide-wire
----------	------------

A1B-1012	Dilator
----------	---------

Insert the Dilator along the Guide-wire. Remove the Inner Dilator after the Dilator comes into contact with the pedicle surface.

4. Tapping

INSTRUMENTS	
A1B-1010	Guide-wire
A1B-1012	Dilator
A1B-1013	MIS Tap 5.5
A1B-1014	MIS Tap 6.5
A1B-1015	MIS Tap 7.0
A1A-1047	T-handle Ratchet

- i) Combine the handle with the properly sized MIS Tap.
- ii) Insert the MIS Tap along the Guide-wire.
- iii) Check the size marked on the MIS Tap shaft where it meets the top of the Large Dilator used to choose the length of screw.
- iv) Remove the Dilator after the tapping.



5. Screw Assembly

INSTRUMENTS	
A1B-1016	Screw Extender
A1B-1017	Screw Driver
A1A-1043	Parm handle Ratchet
A1A-1047	T-handle Ratchet

- i) Attach the screw to the bottom of the Screw Extender.
- ii) Insert the Screw Driver into the Screw Extender and lock the screw until it is secure.

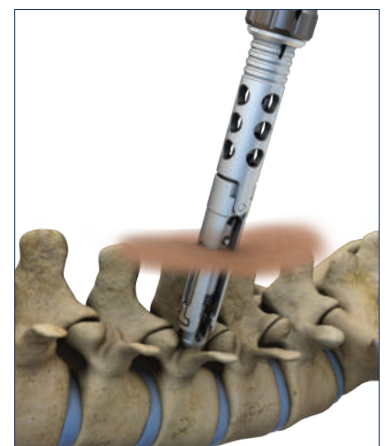
Ref. To verify that the screw is fully locked, ensure that the screw cannot be removed by pulling it away or rotating it.

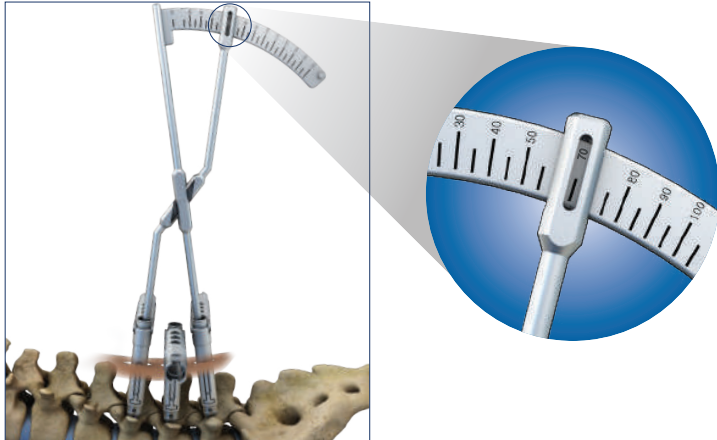


6. Screw Insertion

INSTRUMENTS	
A1B-1010	Guide-wire
A1B-1016	Screw Extender
A1B-1017	Screw Driver
A1A-1047	T-handle Ratchet

- i) Insert the Screw Driver combined with the screw, into the pedicle along the Guide-wire.
- ii) After inserting the screw, verify the location of the screw through the fluoroscopy.
- iii) Remove the Guide - wire and Screw Driver after screw placement.
- iv) Repeat the steps above to place all screws at the adjacent operable level.





7. Rod Measurement

INSTRUMENTS

A1B-1016	Screw Extender
A1B-1018	Rod Length Gauge

- i) Align the Screw Extenders.
- ii) Assemble the Rod Length Gauge to the end of Screw Extenders.
- iii) Measure the exact length through the size marked on the Rod Length Gauge and confirm the rod needed.
- iv) After determining the Rod Length, remove the Rod Length Gauge.

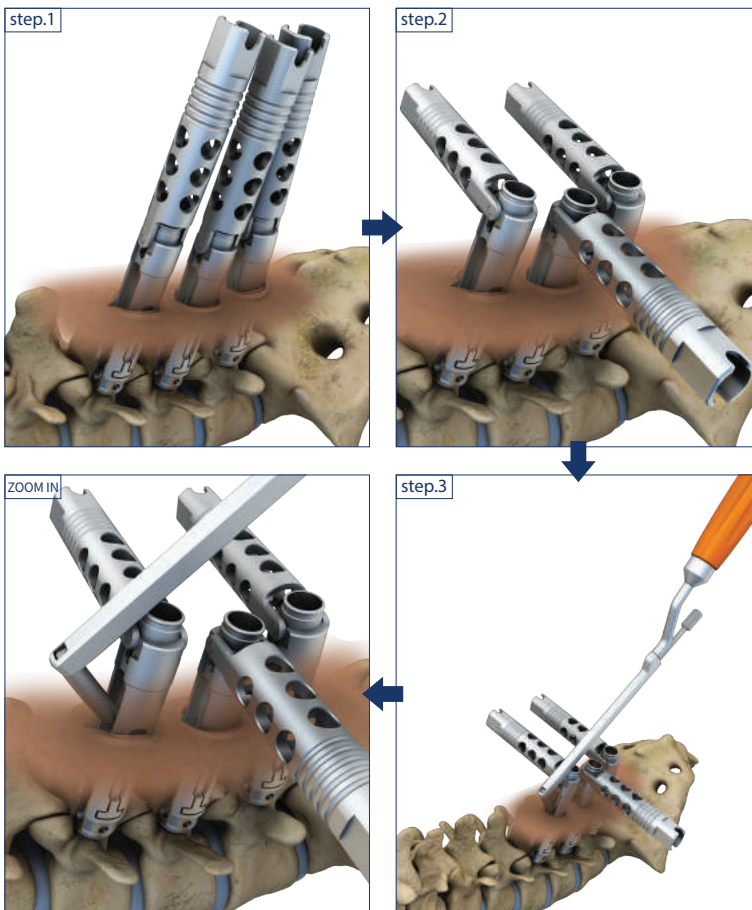
8. Rod Insertion

INSTRUMENTS

A1B-1016	Screw Extender
A1B-1019	Rod Holder

Deflect the flexible hinge on the Screw Extender to set the Rod to be inserted freely.

- i) Attach the rod to the Rod Holder and place it into the Screw Extender channels.
- ii) Advance the Rod Holder down the channel and seat the rod into the bottom of the screw head.
- iii) Verify the location of the rod through lateral Image of the fluoroscopy.

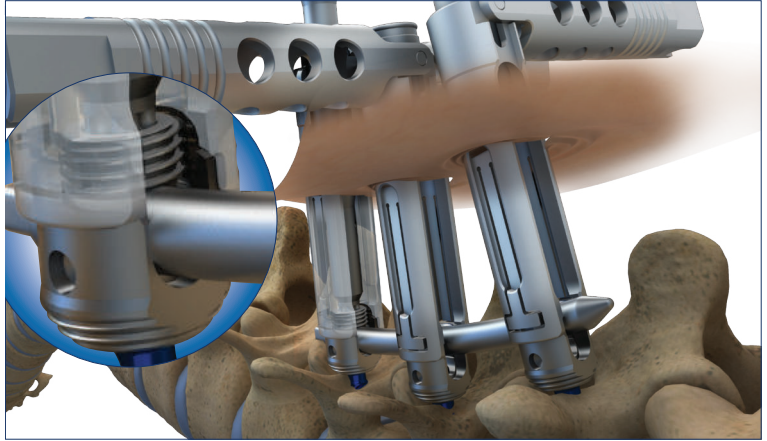


9. Set Screw Insertion

INSTRUMENTS

A1B-1016	Screw Extender
A1B-1020	MIS Set Screw Driver (starter)

After verifying that the rod is seated on all screws, insert the set screw and lock it down by using the Set Screw Driver (starter).

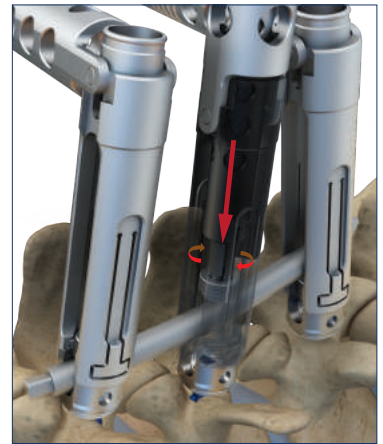
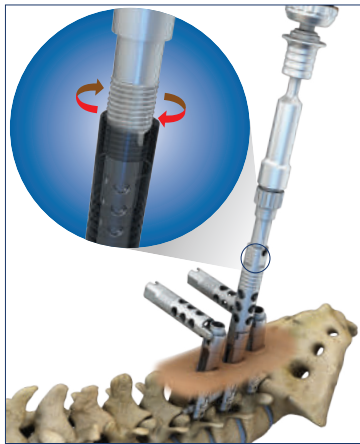


10. Reducing

INSTRUMENTS

A1B-1016	Screw Extender
A1B-1022	Reducing Set Screw Driver
A1B-1028	Reducing Handle connector
A1A-1047	T-handle Ratchet

In the case of Spondylolisthesis, use the assembled Reducing Set Screw Driver with the Reducing Handle Connector. The assembled Set Screw driver is rotated and fits into Screw Extender to push down the rod on the bottom of the screw head.



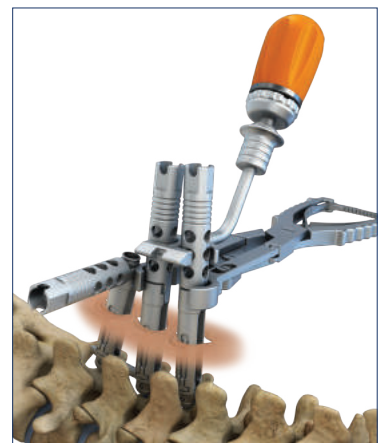
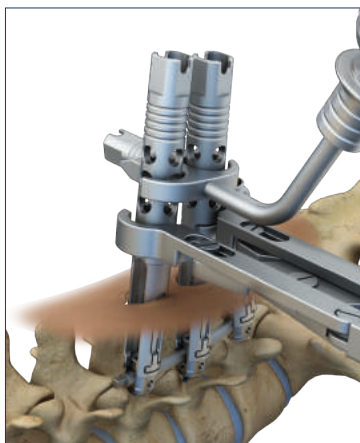
11. Compression

INSTRUMENTS

A1B-1016	Screw Extender
A1B-1023	Compression Guide 6mm
A1B-1024	Compression Guide 12mm
A1B-1025	Compressor
A1A-1047	T-handle Ratchet

Use the Compressor and the Compression Guide to perform the Compression and Distraction as necessary.

- i) Compression: Place the Compression Guide **above** the compressor attaching point.
- ii) Distraction: Place the Compression Guide **below** the Compressor attaching point.



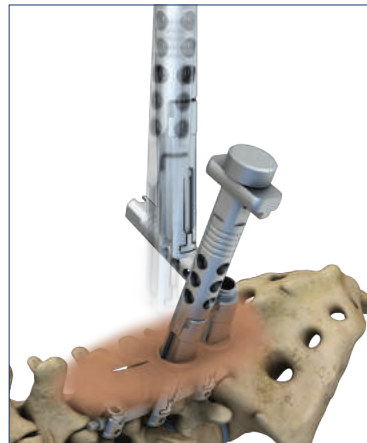
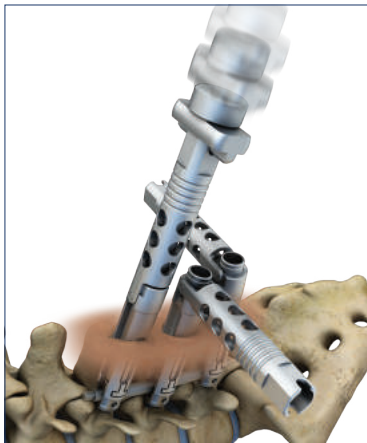


12. Final Locking

INSTRUMENTS

A1B-1016	Screw Extender
A1B-1021	MIS Set Screw Driver(final)
A1B-1026	MIS Anti-torque Wrench
A1A-1044	Torque Limited handle 12N

- i) Attach the MIS Anti-torque Wrench on the top of the Screw Extender.
- ii) Assemble the Torque Limited Handle with the MIS Set Screw Driver(final) and advance it through the Screw Extender into the Set Screw.
- iii) Turn the Torque Limited Handle clockwise. Final locking is achieved when the Torque Limited Handle audibly clicks. It is applied 12Nm of Torque.

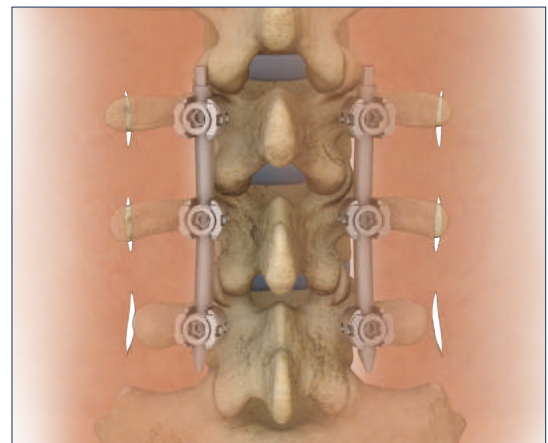
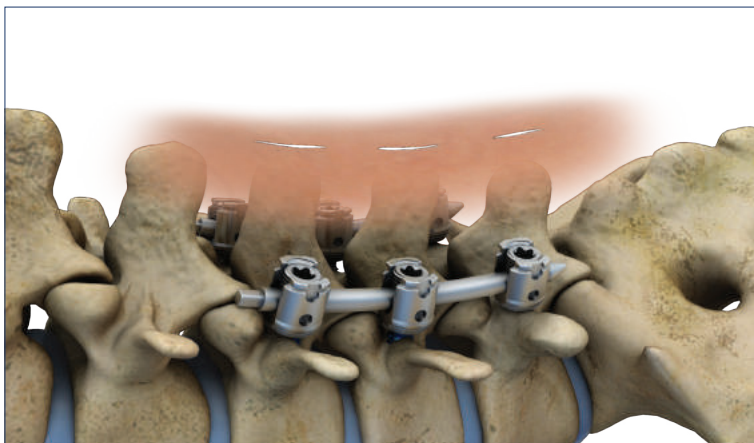


13. Extender Removal

INSTRUMENTS

A1B-1016	Screw Extender
A1B-1027	Remover

- i) Attach the Remover into the Screw Extender after finishing the final locking operation on all screws.
- ii) The Screw Extender can be disassembled from the screw head when the top button on the Remover is pushed.



IMPLANTS

Polyaxial Cannulated Screw (Quad)

Cat' No.	Description	Cat' No.	Description	Cat' No.	Description
A1-4525-A15	Ø4.5-25mm	A1-6030-A15	Ø6.0-30mm	A1-7030-A15	Ø7.0-30mm
A1-4530-A15	Ø4.5-30mm	A1-6035-A15	Ø6.0-35mm	A1-7035-A15	Ø7.0-35mm
A1-4535-A15	Ø4.5-35mm	A1-6040-A15	Ø6.0-40mm	A1-7040-A15	Ø7.0-40mm
A1-4540-A15	Ø4.5-40mm	A1-6045-A15	Ø6.0-45mm	A1-7045-A15	Ø7.0-45mm
A1-4545-A15	Ø4.5-45mm	A1-6050-A15	Ø6.0-50mm	A1-7050-A15	Ø7.0-50mm
A1-4550-A15	Ø4.5-50mm	A1-6055-A15	Ø6.0-55mm	A1-7055-A15	Ø7.0-55mm
A1-4555-A15	Ø4.5-55mm	A1-6060-A15	Ø6.0-60mm	A1-7060-A15	Ø7.0-60mm
		A1-6065-A15	Ø6.0-65mm	A1-7065-A15	Ø7.0-65mm
A1-5030-A15	Ø5.0-30mm	A1-6070-A15	Ø6.0-70mm	A1-7070-A15	Ø7.0-70mm
A1-5035-A15	Ø5.0-35mm	A1-6075-A15	Ø6.0-75mm	A1-7075-A15	Ø7.0-75mm
A1-5040-A15	Ø5.0-40mm	A1-6080-A15	Ø6.0-80mm	A1-7080-A15	Ø7.0-80mm
A1-5045-A15	Ø5.0-45mm				
A1-5050-A15	Ø5.0-50mm	A1-6530-A15	Ø6.5-30mm	A1-7530-A15	Ø7.5-30mm
A1-5055-A15	Ø5.0-55mm	A1-6535-A15	Ø6.5-35mm	A1-7535-A15	Ø7.5-35mm
A1-5060-A15	Ø5.0-60mm	A1-6540-A15	Ø6.5-40mm	A1-7540-A15	Ø7.5-40mm
A1-5065-A15	Ø5.0-65mm	A1-6545-A15	Ø6.5-45mm	A1-7545-A15	Ø7.5-45mm
		A1-6550-A15	Ø6.5-50mm	A1-7550-A15	Ø7.5-50mm
A1-5530-A15	Ø5.5-30mm	A1-6555-A15	Ø6.5-55mm	A1-7555-A15	Ø7.5-55mm
A1-5535-A15	Ø5.5-35mm	A1-6560-A15	Ø6.5-60mm	A1-7560-A15	Ø7.5-60mm
A1-5540-A15	Ø5.5-40mm	A1-6565-A15	Ø6.5-65mm	A1-7565-A15	Ø7.5-65mm
A1-5545-A15	Ø5.5-45mm	A1-6570-A15	Ø6.5-70mm	A1-7570-A15	Ø7.5-70mm
A1-5550-A15	Ø5.5-50mm	A1-6575-A15	Ø6.5-75mm	A1-7575-A15	Ø7.5-75mm
A1-5555-A15	Ø5.5-55mm	A1-6580-A15	Ø6.5-80mm	A1-7580-A15	Ø7.5-80mm
A1-5560-A15	Ø5.5-60mm				
A1-5565-A15	Ø5.5-65mm				
A1-5570-A15	Ø5.5-70mm				
A1-5575-A15	Ø5.5-75mm				



MIS Pre-Bent Rod

Cat' No.	Description	Cat' No.	Description	Cat' No.	Description
AZ-5504-030	Ø5.5x30mm	AZ-5504-070	Ø5.5x70mm	AZ-5504-120	Ø5.5x120mm
AZ-5504-035	Ø5.5x35mm	AZ-5504-075	Ø5.5x75mm	AZ-5504-130	Ø5.5x130mm
AZ-5504-040	Ø5.5x40mm	AZ-5504-080	Ø5.5x80mm	AZ-5504-140	Ø5.5x140mm
AZ-5504-045	Ø5.5x45mm	AZ-5504-085	Ø5.5x85mm	AZ-5504-150	Ø5.5x150mm
AZ-5504-050	Ø5.5x50mm	AZ-5504-090	Ø5.5x90mm	AZ-5504-160	Ø5.5x160mm
AZ-5504-055	Ø5.5x55mm	AZ-5504-095	Ø5.5x95mm	AZ-5504-170	Ø5.5x170mm
AZ-5504-060	Ø5.5x60mm	AZ-5504-100	Ø5.5x100mm	AZ-5504-180	Ø5.5x180mm
AZ-5504-065	Ø5.5x65mm	AZ-5504-110	Ø5.5x110mm	AZ-5504-200	Ø5.5x200mm




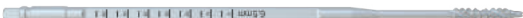





Set Screw

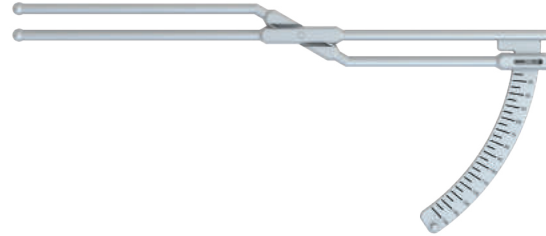
Cat' No.	Description
A1-0000-A01	



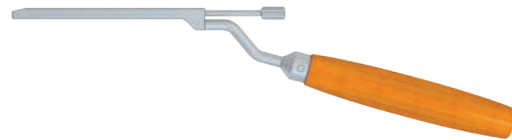
INSTRUMENTS

	<p>A1B-1010 Guide-wire</p>	<p>Catalog No. Description</p>
	<p>A1B-1011 Guide-wire Driver</p>	<p>Catalog No. Description</p>
	<p>A1B-1012 Dilator</p>	<p>Catalog No. Description</p>
	<p>A1B-1013 MIS Tap 5.5</p>	<p>Catalog No. Description</p>
	<p>A1B-1014 MIS Tap 6.5</p>	<p>Catalog No. Description</p>
	<p>A1B-1015 MIS Tap 7.0</p>	<p>Catalog No. Description</p>
	<p>A1B-1016 Screw Extender</p>	<p>Catalog No. Description</p>
	<p>A1B-1017 Screw Driver</p>	<p>Catalog No. Description</p>

Catalog No. **A1B-1018**
Description **Rod Length Gauge**



Catalog No. **A1B-1019**
Description **Rod Holder**



Catalog No. **A1B-1020**
Description **MIS Set Screw Driver(starter)**



Catalog No. **A1B-1021**
Description **MIS Set Screw Driver(final)**

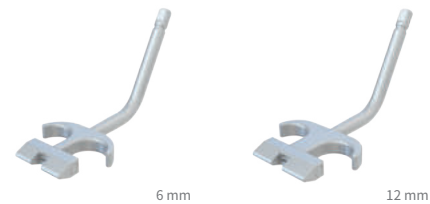


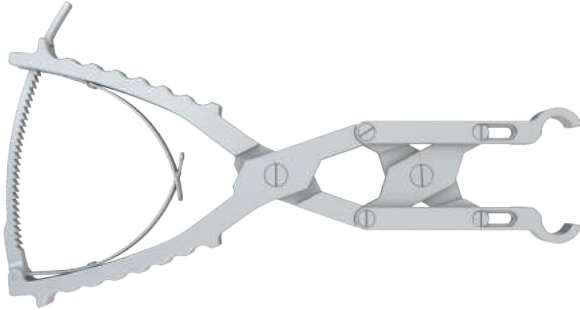
Catalog No. **A1B-1022**
Description **Reducing Set Screw Driver**



Catalog No. **A1B-1023**
Description **Compression Guide 6mm**

Catalog No. **A1B-1024**
Description **Compression Guide 12mm**





A1B-1025
Compressor

Catalog No.
Description



A1B-1026
MIS Anti-torque Wrench

Catalog No.
Description



A1B-1027
Remover

Catalog No.
Description



A1B-1028
Reducing Handle connector

Catalog No.
Description



A1A-1043
Parm Handle Ratchet

Catalog No.
Description



A1A-1044
Torque Limited Handle 12N

Catalog No.
Description



A1A-1047
T-handle Ratchet

Catalog No.
Description

PRODUCT ORDERING INFORMATION

IMPLANTS

Cat' No.	Description	Qty in Set
A1-5530-A15	QUATTRO™ Polyaxial Cannulated Screw (Quad) Ø5.5-30 mm	8
A1-5535-A15	QUATTRO™ Polyaxial Cannulated Screw (Quad) Ø5.5-35 mm	8
A1-5540-A15	QUATTRO™ Polyaxial Cannulated Screw (Quad) Ø5.5-40 mm	8
A1-5545-A15	QUATTRO™ Polyaxial Cannulated Screw (Quad) Ø5.5-45 mm	8
A1-6535-A15	QUATTRO™ Polyaxial Cannulated Screw (Quad) Ø6.5-35 mm	8
A1-6540-A15	QUATTRO™ Polyaxial Cannulated Screw (Quad) Ø6.5-40 mm	8
A1-6545-A15	QUATTRO™ Polyaxial Cannulated Screw (Quad) Ø6.5-45 mm	8
A1-6550-A15	QUATTRO™ Polyaxial Cannulated Screw (Quad) Ø6.5-50 mm	8
A1-7540-A15	QUATTRO™ Polyaxial Cannulated Screw (Quad) Ø7.5-40 mm	8
A1-7545-A15	QUATTRO™ Polyaxial Cannulated Screw (Quad) Ø7.5-45 mm	8
A1-7550-A15	QUATTRO™ Polyaxial Cannulated Screw (Quad) Ø7.5-50 mm	8
A1-7555-A15	QUATTRO™ Polyaxial Cannulated Screw (Quad) Ø7.5-55 mm	8
AZ-5504-035	QUATTRO™ MIS Pre-Bent Rod Ø5.5x35mm	4
AZ-5504-040	QUATTRO™ MIS Pre-Bent Rod Ø5.5x40mm	4
AZ-5504-045	QUATTRO™ MIS Pre-Bent Rod Ø5.5x45mm	4
AZ-5504-050	QUATTRO™ MIS Pre-Bent Rod Ø5.5x50mm	4
AZ-5504-060	QUATTRO™ MIS Pre-Bent Rod Ø5.5x60mm	4
AZ-5504-070	QUATTRO™ MIS Pre-Bent Rod Ø5.5x70mm	4
AZ-5504-080	QUATTRO™ MIS Pre-Bent Rod Ø5.5x80mm	4
AZ-5504-090	QUATTRO™ MIS Pre-Bent Rod Ø5.5x90mm	4
AZ-5504-100	QUATTRO™ MIS Pre-Bent Rod Ø5.5x100mm	2
A1-0000-A01	QUATTRO™ Set Screw	20

INSTRUMENTS

Cat' No.	Description	Qty in Set
A1B-1010	Guide-wire	
A1B-1011	Guide-wire Driver	1
A1B-1012	Dilator	1
A1B-1013	MIS Tap 5.5	1
A1B-1014	MIS Tap 6.5	1
A1B-1015	MIS Tap 7.0	1
A1B-1016	Screw Extender	6
A1B-1017	Screw Driver	2
A1B-1018	Rod Length Gauge	1
A1B-1019	Rod Holder	2
A1B-1020	MIS Set Screw Driver(starter)	2
A1B-1021	MIS Set Screw Driver(final)	1
A1B-1022	Reducing Set Screw Driver	2
A1B-1023	Compression Guide 6mm	1
A1B-1024	Compression Guide 12mm	1
A1B-1025	Compressor	1
A1B-1026	MIS Anti-torque Wrench	1
A1B-1027	Remover	1
A1B-1028	Reducing Handle connector	1
A1A-1043	Parm Handle Ratchet	1
A1A-1044	Torque Limited handle 12N	1
A1A-1047	T-handle Ratchet	1

QUATTRO™
GADGET™
MIS PERCUTANEOUS SCREW SYSTEM



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