ROMEO®2

BY SPINEART

SOLUTION FOR DEFORMITY

CONTENT

Concept and Design	PAGE 04
Implants	PAGE 05
Technical Features	PAGE 10
Instrument Set	PAGE 11
Instruments	PAGE 14
Surgical Technique	PAGE 25

CONCEPT AND DESIGN

Since 2005 Spineart has been true to the motto: quality, innovation, simplicity, by developing highly performing systems for the treatment of spinal pathologies.

ROMEO®2 posterior fixation system incorporates smart technologies and simplified instrumentation.

Spineart is innovating with an expanded platform to address complex spinal cases. The ROMEO®2 25D semi-polyaxial screw provides the benefits of monoaxial screw for controlled powerful reduction and the versatility of the polyaxial screw for ease of rod connection.

The combination of the ROMEO®2 25D screw with the powerful QR Reducer allows multi-segmental vertebral derotation and 'en bloc' apical derotation maneuvers.

ROMEO®2 is a complete posterior fixation system that offers alternative solutions to the surgeons and their patients.

AT A GLANCE

COMPLEX SPINAL CASE

STREAMLINED SCREW TIP

SEMI-POLYAXIAL 25D SCREW

LOW PROFILE HEAD

QUICK RELEASE REDUCER

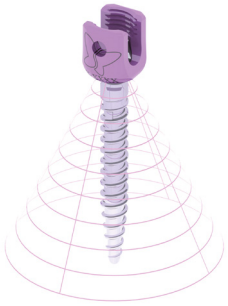
INDICATIONS

ROMEO®2 thoracolumbar posterior osteosynthesis system is intended to provide immobilization and stabilization of thoraco-lumbo-sacral spine in skeletally mature patients for the following indications: DDD (Degenerative Disc Disease), spondylolisthesis, trauma, spinal stenosis, curvatures, tumor, pseudarthrosis and failed previous fusion.

IMPLANTS

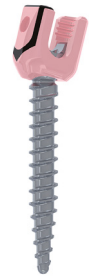
Monoaxial screw

LENGTH/DIAMETER	Ø4	Ø5	Ø6	Ø7	Ø8
L25	ELL-MS 04 25-S	ELL-MS 05 25-S			
L30	ELL-MS 04 30-S	ELL-MS 05 30-S	ELL-MS 06 30-S	ELL-MS 07 30-S	ELL-MS 08 30-S
L35	ELL-MS 04 35-S	ELL-MS 05 35-S	ELL-MS 06 35-S	ELL-MS 07 35-S	ELL-MS 08 35-S
L40	ELL-MS 04 40-S	ELL-MS 05 40-S	ELL-MS 06 40-S	ELL-MS 07 40-S	ELL-MS 08 40-S
L45	ELL-MS 04 45-S	ELL-MS 05 45-S	ELL-MS 06 45-S	ELL-MS 07 45-S	ELL-MS 08 45-S
L50		ELL-MS 05 50-S	ELL-MS 06 50-S	ELL-MS 07 50-S	ELL-MS 08 50-S
L55				ELL-MS 07 55-S	ELL-MS 08 55-S
L60				ELL-MS 07 60-S	ELL-MS 08 60-S
L70				ELL-MS 07 70-S	ELL-MS 08 70-S
L80				ELL-MS 07 80-S	ELL-MS 08 80-S



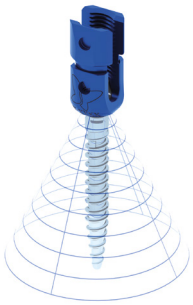
Polyaxial screw

LENGTH/DIAMETER	Ø4	Ø5	Ø6	Ø7	Ø8
L25	ELL-PS 04 25-S	ELL-PS 05 25-S			
L30	ELL-PS 04 30-S	ELL-PS 05 30-S	ELL-PS 06 30-S	ELL-PS 07 30-S	ELL-PS 08 30-S
L35	ELL-PS 04 35-S	ELL-PS 05 35-S	ELL-PS 06 35-S	ELL-PS 07 35-S	ELL-PS 08 35-S
L40	ELL-PS 04 40-S	ELL-PS 05 40-S	ELL-PS 06 40-S	ELL-PS 07 40-S	ELL-PS 08 40-S
L45	ELL-PS 04 45-S	ELL-PS 05 45-S	ELL-PS 06 45-S	ELL-PS 07 45-S	ELL-PS 08 45-S
L50		ELL-PS 05 50-S	ELL-PS 06 50-S	ELL-PS 07 50-S	ELL-PS 08 50-S
L55			ELL-PS 06 55-S	ELL-PS 07 55-S	ELL-PS 08 55-S
L60			ELL-PS 06 60-S	ELL-PS 07 60-S	ELL-PS 08 60-S
L70			ELL-PS 06 70-S	ELL-PS 07 70-S	ELL-PS 08 70-S
L80			ELL-PS 06 80-S	ELL-PS 07 80-S	ELL-PS 08 80-S
L90			ELL-PS 06 90-S	ELL-PS 07 90-S	ELL-PS 08 90-S



25D screw

LENGTH/DIAMETER	Ø4	Ø5	Ø6	Ø7	Ø8
L25	ELL-DS 04 25-S	ELL-DS 05 25-S			
L30	ELL-DS 04 30-S	ELL-DS 05 30-S	ELL-DS 06 30-S	ELL-DS 07 30-S	ELL-DS 08 30-S
L35	ELL-DS 04 35-S	ELL-DS 05 35-S	ELL-DS 06 35-S	ELL-DS 07 35-S	ELL-DS 08 35-S
L40	ELL-DS 04 40-S	ELL-DS 05 40-S	ELL-DS 06 40-S	ELL-DS 07 40-S	ELL-DS 08 40-S
L45	ELL-DS 04 45-S	ELL-DS 05 45-S	ELL-DS 06 45-S	ELL-DS 07 45-S	ELL-DS 08 45-S
L50		ELL-DS 05 50-S	ELL-DS 06 50-S	ELL-DS 07 50-S	ELL-DS 08 50-S
L55			ELL-DS 06 55-S	ELL-DS 07 55-S	ELL-DS 08 55-S
L60			ELL-DS 06 60-S	ELL-DS 07 60-S	ELL-DS 08 60-S
L70			ELL-DS 06 70-S	ELL-DS 07 70-S	ELL-DS 08 70-S
L80			ELL-DS 06 80-S	ELL-DS 07 80-S	ELL-DS 08 80-S
L90			ELL-DS 06 90-S	ELL-DS 07 90-S	ELL-DS 08 90-S



Reduction screw

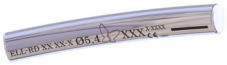
LENGTH/DIAMETER	Ø5	Ø6	Ø7
L30	ELL-SS 05 30-S	ELL-SS 06 30-S	ELL-SS 07 30-S
L35	ELL-SS 05 35-S	ELL-SS 06 35-S	ELL-SS 07 35-S
L40	ELL-SS 05 40-S	ELL-SS 06 40-S	ELL-SS 07 40-S
L45	ELL-SS 05 45-S	ELL-SS 06 45-S	ELL-SS 07 45-S
L50	ELL-SS 05 50-S	ELL-SS 06 50-S	ELL-SS 07 50-S

IMPLANTS

	RODS STRAIGHT Ø5.4MM TITANIUM ALLOY	RODS STRAIGHT Ø5.4MM COBALT CHROME
L100	ELL-RD 21 00-S	ELL-RD 11 00-S
L120	ELL-RD 21 20-S	ELL-RD 11 20-S
L140	ELL-RD 21 40-S	ELL-RD 11 40-S
L160	ELL-RD 21 60-S	ELL-RD 11 60-S
L180	ELL-RD 21 80-S	ELL-RD 11 80-S
L200	ELL-RD 22 00-S	ELL-RD 12 00-S
L240	ELL-RD 22 40-S	ELL-RD 12 40-S
L350	ELL-RD 23 50-S	ELL-RD 13 50-S
L500	ELL-RD 25 00-S	ELL-RD 15 00-S
L550	ELL-RD 25 50-S	ELL-RD 15 50-S

RODS PRE-CURVED Ø5.4MM COBALT CHROME		
L500	40°	ELL-R4 15 00-S
	60°	ELL-R6 15 00-S
	80°	ELL-R8 15 00-S
L550	40°	ELL-R4 15 50-S
	60°	ELL-R6 15 50-S
	80°	ELL-R8 15 50-S

RODS PRE-BENT Ø5.4MM TITANIUM ALLOY	
L30	ELL-RD 00 30-S
L35	ELL-RD 00 35-S
L40	ELL-RD 00 40-S
L45	ELL-RD 00 45-S
L50	ELL-RD 00 50-S
L55	ELL-RD 00 55-S
L60	ELL-RD 00 60-S
L70	ELL-RD 00 70-S
L80	ELL-RD 00 80-S
L90	ELL-RD 00 90-S
L100	ELL-RD 01 00-S
L110	ELL-RD 01 10-S
L120	ELL-RD 01 20-S
L130	ELL-RD 01 30-S



IMPLANTS

SETSCREW	ELL-SC 00 00-S

ROD CONNECTOR PARALELL	ELL-RC PA 00-S

ILIAC CONNECTOR	
L15	ELL-IC 00 15-S
L20	ELL-IC 00 20-S
L30	ELL-IC 00 30-S
L40	ELL-IC 00 40-S
L50	ELL-IC 00 50-S
L60	ELL-IC 00 60-S

ROD CONNECTOR AXIAL	ELL-RC AX 00-S

ROD CONNECTOR PARALELL	ELL-RC PA 01-S

ILIAC T CONNECTOR	ELL-RC TE 00-S

IMPLANTS

MULTIAXIAL CROSS CONNECTOR	
L33 TO L36	ELL-CC MU 33-S
L36 TO L43	ELL-CC MU 36-S
L43 TO L55	ELL-CC MU 43-S
L55 TO L80	ELL-CC MU 55-S

MULTIAXIAL CROSS CONNECTOR PREBENT	
L33 TO L36	ELL-CC MP 33-S
L36 TO L43	ELL-CC MP 36-S
L43 TO L55	ELL-CC MP 43-S
L55 TO L80	ELL-CC MP 55-S

STRAIGHT CROSS CONNECTOR	
L18	ELL-CC ST 18-S
L21	ELL-CC ST 21-S
L24	ELL-CC ST 24-S
L27	ELL-CC ST 27-S
L30	ELL-CC ST 30-S

TRANSVERSE CONNECTORS HOOKS	ELL-TC 00 00-S

TRANSVERSE CONNECTORS ROD	
L20	ELL-TR 00 20-S
L30	ELL-TR 00 30-S
L40	ELL-TR 00 40-S
L50	ELL-TR 00 50-S
L60	ELL-TR 00 60-S
L70	ELL-TR 00 70-S
L80	ELL-TR 00 80-S

IMPLANTS

HOOK LAMINAR SMALL	ELL-HO LL 0S-S

HOOK LAMINAR LARGE	ELL-HO LL 0L-S

HOOK LAMINAR EXTENDED	ELL-HO LL EX-S

SUPRALAMINAR	ELL-HO LT SU-S

INFRALAMINAR	ELL-HO LT IN-S

ANGLED LEFT	ELL-HO AN 0L-S
ANGLED RIGHT	ELL-HO AN 0R-S

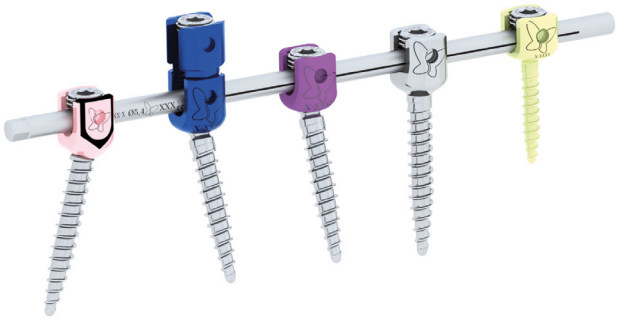
OFFSET LEFT	ELL-HO OF 0L-S
OFFSET RIGHT	ELL-HO OF 0R-S

PEDICULAR	ELL-HO P0 00-S

TECHNICAL FEATURES

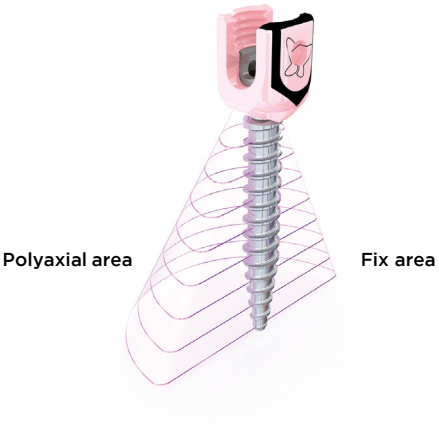
SCREW RANGE

- Streamlined tip
- Polyaxial, monoaxial and reduction screws
- Low profile screw head
- Sterile packaged



25D SCREW

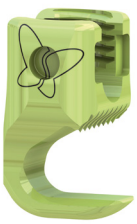
- Semi-polyaxiality
- Correction in axial and frontal plane
- Control of apical vertebra derotation
- Identification of the fix area
- Sterile packaged



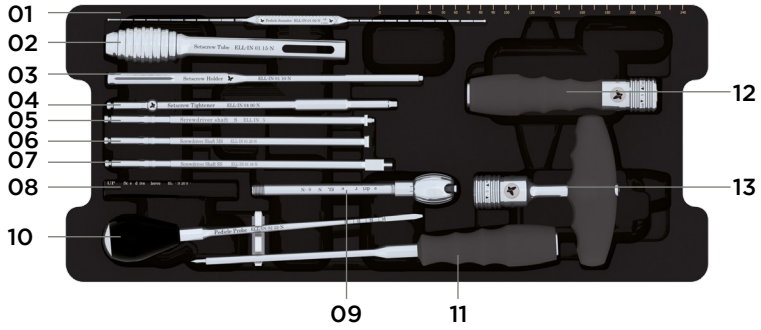
HOOKS

A full range of hooks are available with ROMEO®2, the range encompasses the following types:

- Pedicular
- Laminar straight
- Laminar offset
- Laminar angled
- Infra-laminar
- Supra-laminar
- Various sizes are also available for laminar hooks
- Autostatic teeth to enhance their stability once impacted.



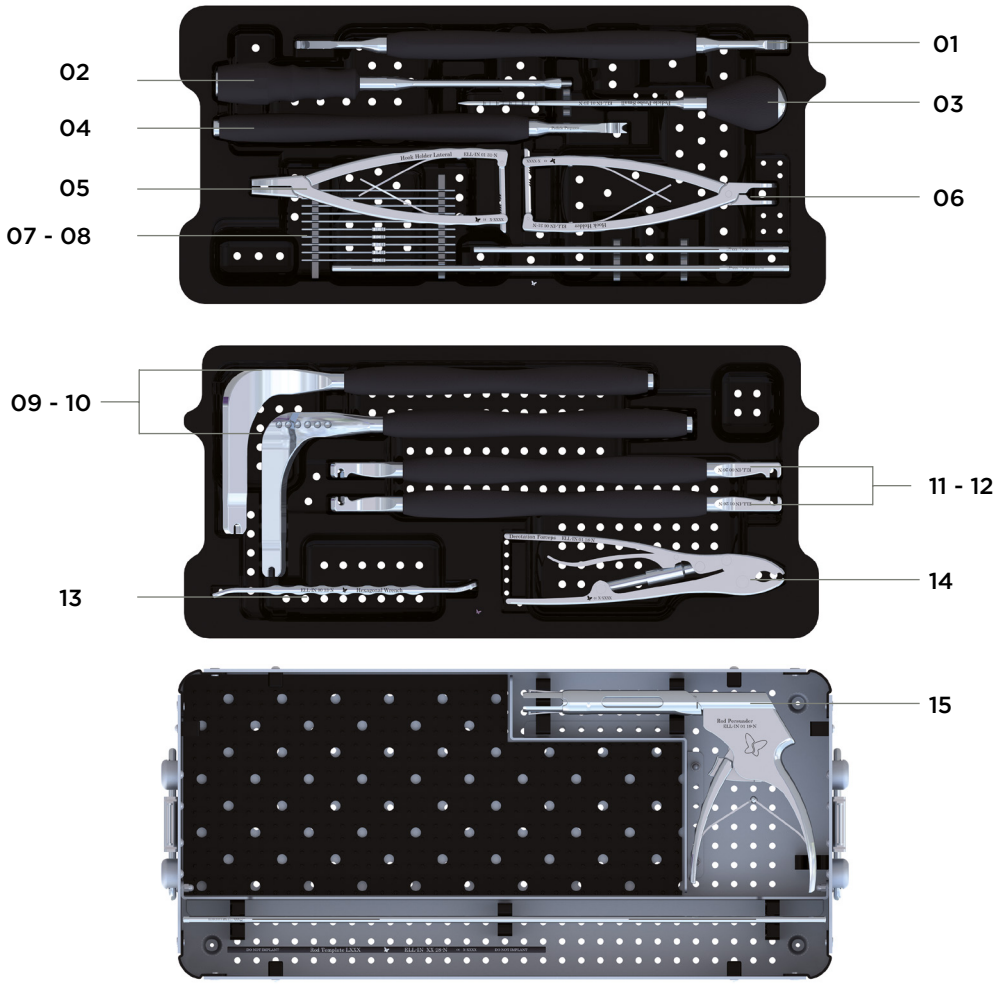
INSTRUMENT SET ROMEO®2



#	DESCRIPTION	REFERENCE
01	PEDICLE SOUNDER	ELL-IN 01 02-N
02	SETSCREW TUBE	ELL-IN 01 15-N
03	SETSCREW HOLDER W	ELL-IN 03 10-N
04	SETSCREW TIGHTENER	ELL-IN 04 06-N
05	SCREWDRIVER SHAFT, PS	ELL-IN 05 03-N
06	SCREWDRIVER SHAFT, MS	ELL-IN 01 20-N
07	SCREWDRIVER SHAFT, SS	ELL-IN 01 16-N
08	SCREWDRIVER SLEEVE	ELL-IN 20 03-N
09	SCREWDRIVER TUBE	ELL-IN 21 03-N
10	PEDICLE PROBE	ELL-IN 02 22-N
11	BONE AWL	ELL-IN 02 01-N

#	DESCRIPTION	REFERENCE
12	STRAIGHT HANDLE RATCHET	HAN-SI RA ST-N
13	T-HANDLE RATCHET	HAN-SI RA TE-N
14	COUNTER TORQUE, TIGHT FIT	ELL-IN 03 11-N
15	ROD BENDER	ELL-IN 00 09-N
16	FINAL TIGHTENER	ELL-IN 05 06-N
17	DISTRACTION FORCEPS	ELL-IN 00 07-N
18	COMPRESSION FORCEPS	ELL-IN 00 08-N
19	CALIPER	ELL-IN 00 12-N
20	IMPLANT HOLDER	ELL-IN 01 04-N
21	ROCKER	ELL-IN 00 05-N
	INSTRUMENT CONTAINER	ROM-BX 10 01-N

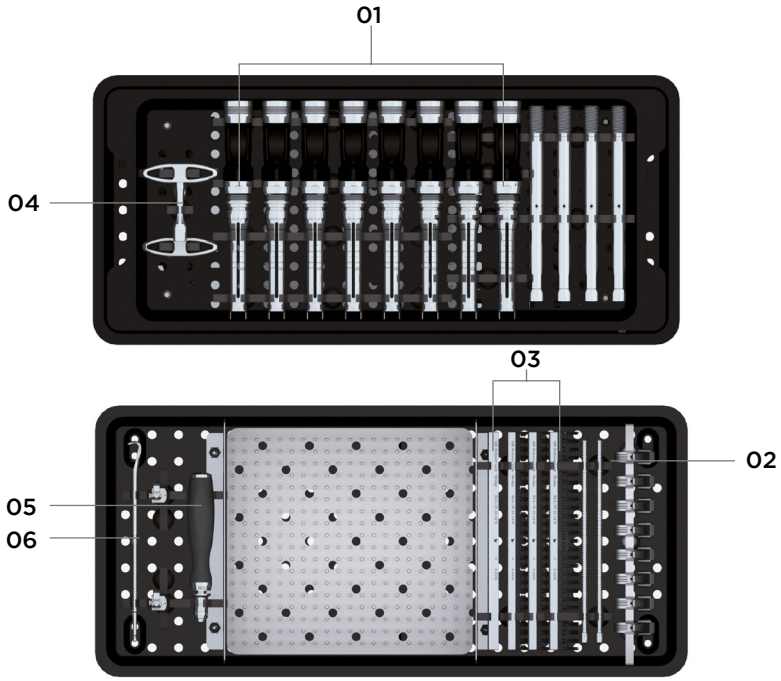
INSTRUMENT SET ROMEO®2 LC



#	DESCRIPTION	REFERENCE
01	LAMINA PREPARER	ELL-IN 00 30-N
02	HOOK PUSHER	ELL-IN 00 32-N
03	PEDICLE PROBE SMALL	ELL-IN 02 23-N
04	PEDICLE PREPARER	ELL-IN 00 29-N
05	HOOK HOLDER LATERAL	ELL-IN 01 31-N
06	HOOK HOLDER	ELL-IN 00 31-N
07	MARKER LEFT	ELL-IN 00 25-N
08	MARKER RIGHT	ELL-IN 00 24-N

#	DESCRIPTION	REFERENCE
09	CORONAL BENDER LEFT	ELL-IN 00 27-N
10	CORONAL BENDER RIGHT	ELL-IN 01 27-N
11	SAGITTAL BENDER LEFT	ELL-IN 00 26-N
12	SAGITTAL BENDER RIGHT	ELL-IN 01 26-N
13	HEXAGONAL WRENCH	ELL-IN 00 33-N
14	DEROTATION FORCEPS	ELL-IN 01 18-N
15	ROD PERSUADER	ELL-IN 01 19-N
	INSTRUMENT CONTAINER	ROM-BX 40 01-N

INSTRUMENT SET ROMEO®2 QR Link



#	DESCRIPTION	REFERENCE
01	QR REDUCER	ELL-IN 20 34-N
02	QR REDUCER LINK	ELL-IN 21 34-N
03	QR REDUCER LINK BRIDGE	ELL-IN 22 34-N
04	QR REDUCER T-HANDLE	HAN-SS TY 14-N
05	AO HANDLE	HAN-SI AO 08-N
06	RIBAC	ELL-IN 23 34-N
	QR LINK INSTRUMENT BOX	ROM-BX 41 01-N

INSTRUMENTS

PREPARATION

BONE AWL	ELL-IN 02 01-N

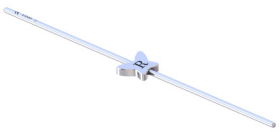
PEDICLE SOUNDER	ELL-IN 01 02-N

MARKER LEFT	ELL-IN 00 25-N

PEDICLE PROBE	ELL-IN 02 22-N

PEDICLE PROBE SMALL	ELL-IN 02 23-N

MARKER RIGHT	ELL-IN 00 24-N



INSTRUMENTS

PREPARATION - OPTION

CURETTE	ELL-IN 01 18-N

TAP ØXX	ELL-IN XX 30-N

PEDICLE PROBE STRAIGHT	ELL-IN 02 24-N

PEDICLE PROBE LENKE CURVED	ELL-IN 02 25-N

PEDICLE PROBE LENKE STRAIGHT	ELL-IN 02 26-N

INSTRUMENTS

SCREW INSERTION

SCREWDRIVER SHAFT PS	ELL-IN 05 03-N

SCREWDRIVER SHAFT SS	ELL-IN 01 16-N

SCREWDRIVER SHAFT MS	ELL-IN 01 20-N

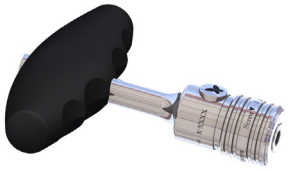
SCREWDRIVER SLEEVE	ELL-IN 20 03-N

SCREWDRIVER TUBE	ELL-IN 21 03-N

INSTRUMENTS

HANDLE

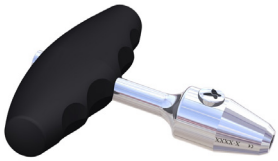
T-HANDLE RATCHET	HAN-SI RA TE-N



STRAIGHT HANDLE RATCHET	HAN-SI RA ST-N

HANDLE OPTION

T-HANDLE	HAN-SI MD TE-N



STRAIGHT HANDLE	HAN-SI MD ST-N

INSTRUMENTS

HOOK PREPARATION AND INSERTION

LAMINA PREPARER	ELL-IN 00 30-N

PEDICLE PREPARER	ELL-IN 00 29-N

HOOK PUSHER	ELL-IN 00 32-N

HOOK HOLDER	ELL-IN 00 31-N

HOOK HOLDER LATERAL	ELL-IN 01 31-N

HOOK PREPARATION AND INSERTION - OPTION

J-HOOK	ELL-IN 00 40-N

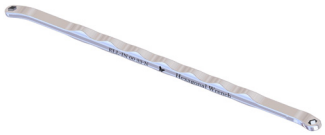
INSTRUMENTS

ROD SELECTION AND PREPARATION

ROD TEMPLATE L250	ELL-IN 00 28-N

ROD BENDER	ELL-IN 00 09-N

HEXAGONAL WRENCH	ELL-IN 00 33-N

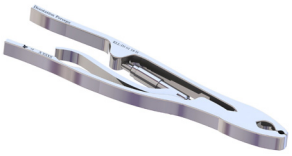


IMPLANT HOLDER	ELL-IN 01 04-N

ROD TEMPLATE L500	ELL-IN 01 28-N

CALIPER	ELL-IN 00 12-N

DEROTATION FORCEPS	ELL-IN 01 18-N



INSTRUMENTS

SETSCREW INSERTION

SETSCREW HOLDER W	ELL-IN 03 10-N

SETSCREW TUBE	ELL-IN 01 15-N

SETSCREW TIGHTENER	ELL-IN 04 06-N

SET SCREW INSERTION - OPTION

SETSCREW HOLDER DOUBLE	ELL-IN 02 10-N

SETSCREW HOLDER	ELL-IN 01 10-N

INSTRUMENTS

ROD PERSUASION

ROD PERSUADER	ELL-IN 01 19-N

ROCKER	ELL-IN 00 05-N

QR REDUCER	ELL-IN 20 34-N

QR REDUCER T-HANDLE	HAN-SS TY 14-N

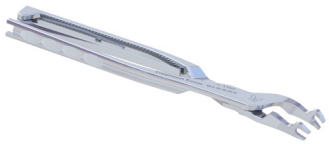
ROD PERSUASION - OPTION

ROD PUSHER	ELL-IN 00 26-N

INSTRUMENTS

REDUCTION MANEUVERS

COMPRESSION FORCEPS	ELL-IN 00 08-N



DISTRACTION FORCEPS	ELL-IN 00 07-N

CORONAL BENDER LEFT	ELL-IN 00 27-N

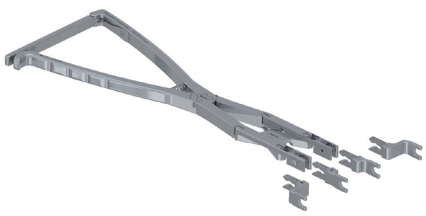
CORONAL BENDER RIGHT	ELL-IN 01 27-N

SAGITTAL BENDER LEFT	ELL-IN 00 26-N

SAGITTAL BENDER RIGHT	ELL-IN 01 26-N

REDUCTION MANEUVERS - OPTION

PARALLEL COMPRESSOR	ELL-IN 01 08-N
STRAIGHT ENDTIP	ELL-IN 02 08-N
OFFSET ENDTIP	ELL-IN 03 08-N



PARALLEL DISTRACTOR	ELL-IN 01 07-N
STRAIGHT ENDTIP	ELL-IN 02 08-N
OFFSET ENDTIP	ELL-IN 03 08-N

INSTRUMENTS

QR LINK INSTRUMENTS

QR LINK	ELL-IN 21 34-N

QR LINK BRIDGE	ELL-IN 22 34-N

RIBAC*	ELL-IN 23 34-N

AO HANDLE	HAN-SI AO 08-N

RiB Attachment

INSTRUMENTS

TRANSVERSE CONNECTION

3.5 TIGHTENER	ELL-IN 00 27-N

CALIPER	ELL-IN 01 27-N

FINAL TIGHTENING

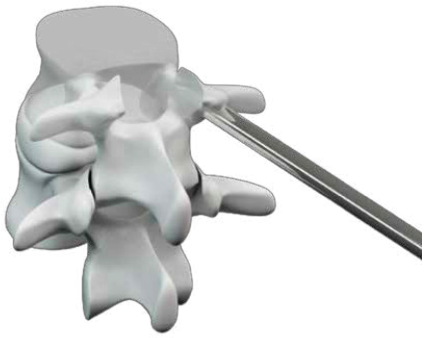
FINAL TIGHTENER - TORQUE LIMITER	ELL-IN 05 06-N

COUNTER TORQUE - TIGH FIT	ELL-IN 03 11-N

SURGICAL TECHNIQUE

STEP 1

PEDICLE PREPARATION



After determining the entry point in the pedicle, perforate the outer cortex with the **Bone Awl** and open the pedicle canal with the **Pedicle Probe**.

The probes are LASER marked to determine the appropriate length of the screws.

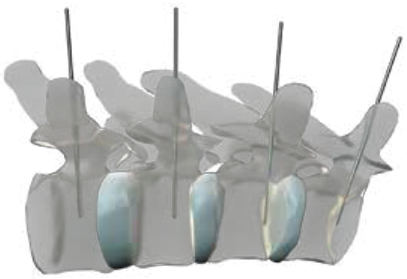
Note: When implanting a Ø4mm screw, it is mandatory to use the pedicle probe small. For Ø5, 6, 7 and 8mm screws use the pedicle probe.

INSTRUMENT	REFERENCE
BONE AWL	ELL-IN 02 01-N
PEDICLE PROBE	ELL-IN 02 22-N
PEDICLE PROBE SMALL	ELL-IN 02 23-N

STEP 2

PEDICLE SOUNDING

Insert the Pedicle Sounder to verify the integrity of the screw path.



Marker Left & Right can be used for an X-ray assessement of the screw path.

INSTRUMENT	REFERENCE
PEDICLE SOUNDER	ELL-IN 01 02-N
MARKER LEFT	ELL-IN 00 25 -N
MARKER RIGHT	ELL-IN 00 24-N

SURGICAL TECHNIQUE

STEP **3** (Optional)

HOLE TAPPING

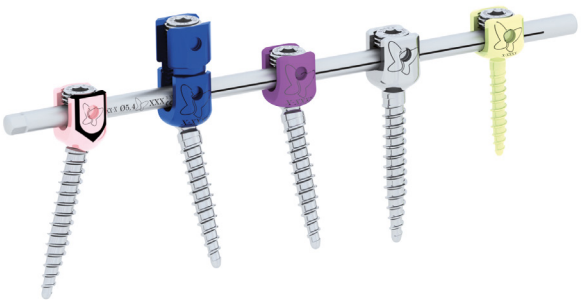
Taps are available and may be utilized to prepare the pedicle hole.

Select the **Tap** undersized by 0.5mm to the chosen screw diameter, connect it to the selected handle and advance the Tap into the pedicle hole.

Note: Always undersize the tap compared to the screw that will be inserted.

INSTRUMENT	REFERENCE
BONE TAP Ø4 (FOR SCREW Ø4 ONLY)	ELL-IN 40 30-N
BONE TAP Ø4.5MM	ELL-IN 45 30-N
BONE TAP Ø5.5MM	ELL-IN 55 30-N
BONE TAP Ø6.5MM	ELL-IN 65 30-N
BONE TAP Ø7.5MM	ELL-IN 75 30-N

STEP **4**



SCREW SELECTION

ROMEO®2 offers a full range of screws to better adapt to the surgical needs:

1. Polyaxial screw, with a 50° conical range of motion. The polyaxial screw works with the **Screwdriver shaft PS**.
2. Polyaxial reduction screw, also called spondylo screw. With a 50° conical range of motion, it allows for a 15mm reduction capacity. The spondylo screws works with the **Screwdriver shaft SS**.
3. 25D Deformity screw with a hemi-polyaxiality has a controlled side and a polyaxial side. This screw is designed to give control of the apical vertebrae derotation while keeping easy rod introduction. The 25D screw works with the Screwdriver shaft PS.
4. Monoaxial screw is monobloc. The monoaxial screw works with the **Screwdriver shaft MS**.

INSTRUMENT	REFERENCE
SCREWDRIVER SHAFT PS	ELL-IN 05 03-N
SCREWDRIVER SHAFT MS	ELL-IN 01 20-N
SCREWDRIVER SHAFT SS	ELL-IN 01 16-N

SURGICAL TECHNIQUE

STEP **5**

SCREWDRIVER ASSEMBLING

Insert the **Screwdriver Tube** into the **Screwdriver Sleeve** through the hole with the LASER mark 'UP', until a 'click' is heard.

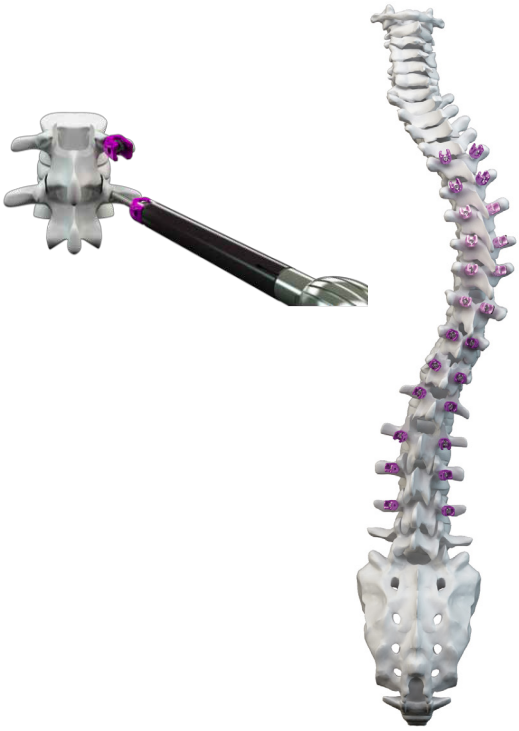
Depending on the selected screw, take the associated **Screwdriver Shaft** and slide it into the distal end of the **Screwdriver Tube** until it 'clicks'.

Connect the assembly to the handle option, e.g. straight or T-handle, ratchet or fixed.

INSTRUMENT	REFERENCE
SCREWDRIVER SHAFT PS	ELL-IN 05 03-N
SCREWDRIVER SHAFT MS	ELL-IN 01 20-N
SCREWDRIVER SHAFT SS	ELL-IN 01 16-N
SCREWDRIVER TUBE	ELL-IN 21 03-N
SCREWDRIVER SLEEVE	ELL-IN 20 03-N
STRAIGHT HANDLE RATCHET	HAN-SI RA ST-N
T-HANDLE RATCHET	HAN-SI RA TE-N
STRAIGHT HANDLE	HAN-SI MD ST-N
T-HANDLE	HAN-SI MD TE-N

SURGICAL TECHNIQUE

STEP 6



SCREW INSERTION

Connect the screw to the Screwdriver and proceed to implantation. Repeat the step for each screw. The 25D screws can selectively be implanted in the vertebrae that need to be directly derotated. As shown, Thoracic vertebrae 7 to 9 are instrumented with 25D screws, i.e. targeted apical vertebrae that will need coronal and axial corrections.

INSTRUMENT	REFERENCE
SCREWDRIVER SHAFT PS	ELL-IN 05 03-N
SCREWDRIVER SHAFT MS	ELL-IN 01 20-N
SCREWDRIVER SHAFT SS	ELL-IN 01 16-N
SCREWDRIVER TUBE	ELL-IN 21 03-N
SCREWDRIVER SLEEVE	ELL-IN 20 03-N
STRAIGHT HANDLE RATCHET	HAN-SI RA ST-N
T-HANDLE RATCHET	HAN-SI RA TE-N
STRAIGHT HANDLE	HAN-SI MD ST-N
T-HANDLE	HAN-SI MD TE-N

SURGICAL TECHNIQUE

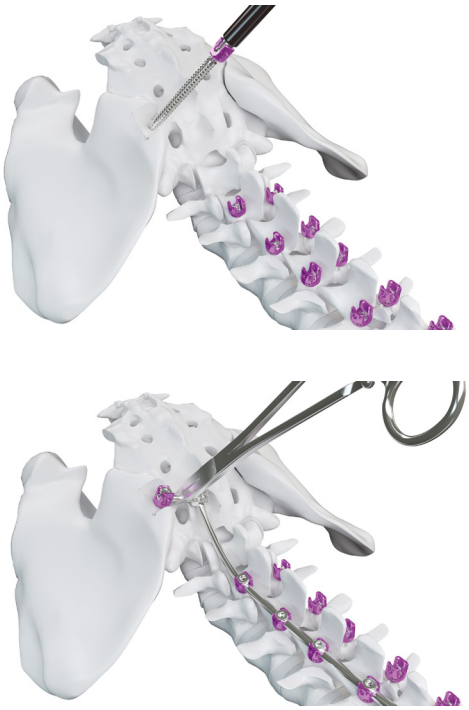
SCREW INSERTION – ILIAC FIXATION

After performing small osteotomy of the iliac crest, determine the entry point of the iliac screw, initiate the pilot hole with the **Bone Awl.**

Penetrate into the cancellous bone with the **Pedicle Probe**.

INSTRUMENT	REFERENCE
BONE AWL	ELL-IN 02 01-N
PEDICLE PROBE	ELL-IN 02 22-N

SURGICAL TECHNIQUE



SCREW INSERTION – ILIAC FIXATION

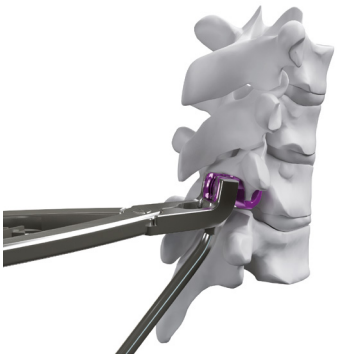
Connect the screw to the **Screwdriver** and proceed to implantation.

Once the screw is implanted, an iliac connector will help to align with the rod. Take the iliac connector with the **Implant Holder**, place it inside the screw head. Secure it with a setscrew introduced with a **Setscrew holder**.

INSTRUMENT	REFERENCE
SCREWDRIVER SHAFT PS	ELL-IN 05 03-N
SCREWDRIVER SHAFT MS	ELL-IN 01 20-N
SCREWDRIVER SHAFT SS	ELL-IN 01 16-N
SCREWDRIVER TUBE	ELL-IN 21 03-N
SCREWDRIVER SLEEVE	ELL-IN 20 03-N
STRAIGHT HANDLE RATCHET	HAN-SI RA ST-N
T-HANDLE RATCHET	HAN-SI RA TE-N
IMPLANT HOLDER	ELL-IN 01 04-N

SURGICAL TECHNIQUE

STEP **7**



HOOK INSERTION – PEDICULAR HOOK

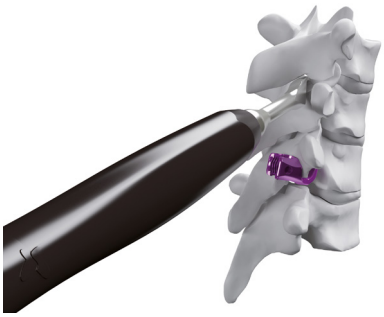
Locate the vertebra where the pedicular hook will be implanted. Partially remove the lower part of the upper vertebra facet joint. Use the **Pedicle Preparer** to adapt the pedicular hook site, until a correct stability is achieved.

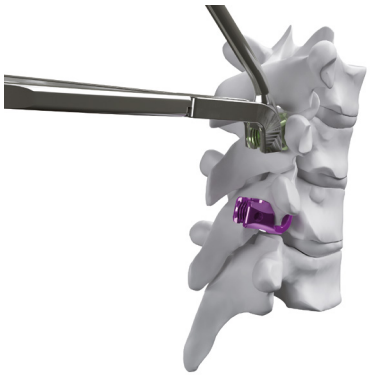
Attach the selected pedicular hook to the **Hook Holder**.

Using both **Hook Holder** and **Hook Pusher**, impact the pedicular hook in place. A slight hammering on the **Hook Pusher** will gently impact the hook into the pedicle.

INSTRUMENT	REFERENCE
HOOK PUSHER	**ELL-IN 00 32-N**
PEDICLE PREPARER	**ELL-IN 00 29-N**
HOOK HOLDER	**ELL-IN 00 31-N**

SURGICAL TECHNIQUE





HOOK INSERTION – LAMINAR HOOK

Locate the vertebra where the laminar hook will be implanted.

Use the **Lamina Preparer** to adapt the lamina hook site, until a correct stability is achieved.

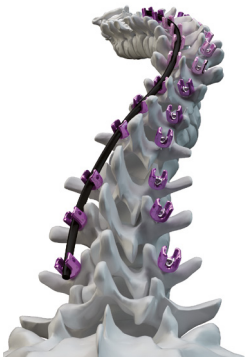
Attach the selected laminar hook to the **Hook Holder**.

Using both **Hook Holder** and **Hook Pusher**, impact the hook in place.

INSTRUMENT	REFERENCE
HOOK PUSHER	ELL-IN 00 32-N
LAMINA PREPARER	ELL-IN 00 30-N
HOOK HOLDER	ELL-IN 00 31-N

SURGICAL TECHNIQUE

STEP **8**



ROD SELECTION & CONTOURING

Determine the appropriate contour and length of the rod using the **rod template L500**.

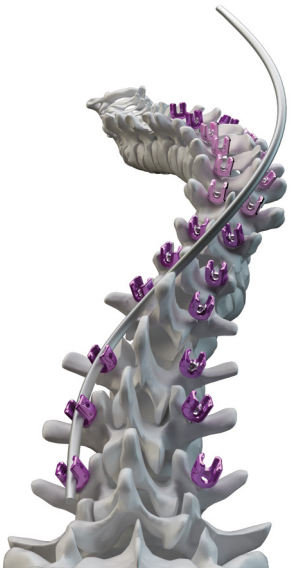
Perform rod contouring using the **rod bender**.

Note: ROMEO®2 rods are 5.4mm. To contour a Titanium rod, the radius selector of the bender can be positioned on 5, 6, 7 or 8. When a cobalt chromium needs to be contoured, we recommend positioning the radius selector of the bender on 7 or 8. Once bent, rods should not be bent back again. Repeated bending can weaken the rod.

INSTRUMENT	REFERENCE
ROD TEMPLATE L500	ELL-IN 01 28-N
ROD BENDER	ELL-IN 00 09-N

SURGICAL TECHNIQUE

STEP **9**



ROD PLACEMENT

According to the surgeon's philosophy, different approaches can be considered for rod placement prior to derotation. One rod only in the concavity of the curve. One rod only in the convexity of the curve. Two rods at the same time. This surgical technique describes the approach based on one rod placed in the concavity. Start at the lower levels of the construct. **Implant holder** and/or derotation forceps can be used for rod insertion.

Note: Spineart provides rods with different mechanical properties: Titanium and cobalt chromium rods, both in Ø5.4mm. Cobalt Chromium rods present a stiffness value that is twice that of the Titanium rods. When used, Cobalt Chromium rods reduce the loss of correction after derotation of the scoliotic spine.

INSTRUMENT	REFERENCE
IMPLANT HOLDER	**ELL-IN 01 04-N**
DEROTATION FORCEPS	**ELL-IN 01 18-N**

SURGICAL TECHNIQUE

SET SCREW INSERTION

Start inserting the setscrews from the caudal part of the construct. The setscrews should not be firmly locked at this stage, to allow movement of the rod in the screw heads.

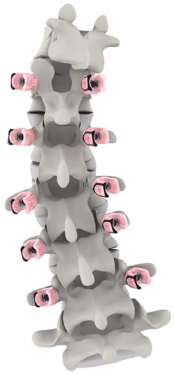
Connect the setscrew to the **Setscrew Holder**. three different **Setscrew Holders** are available.

To ensure the placement of the setscrews and avoid cross threading use the **Setscrew Tube** acts as a guide.

INSTRUMENT	REFERENCE
SETSCREW HOLDER W	ELL-IN 03 10-N
SETSCREW HOLDER	ELL-IN 01 10-N
SETSCREW HOLDER DOUBLE	ELL-IN 02 10-N
SETSCREW TUBE	ELL-IN 01 15-N

SURGICAL TECHNIQUE

STEP **10**



25D SCREWHEAD POSITIONNING

Before proceeding with rod placement in the upper levels, the 25D screw head orientation must be checked.

The **LASER marking** must be orientated toward **convexity**.

STEP **11**

HOOK SECURING

If hooks have been used, **J Hooks** could be placed on the rod to keep the hooks in place during the reduction maneuvers.

For hook placement when the rod is already in place, follow the same procedure as described in chapter 7 while using the lateral hook holder instead of the hook holder.

INSTRUMENT	REFERENCE
J-HOOK	ELL-IN 01 26-N
HOOK HOLDER LATERAL	ELL-IN 01 31-N

SURGICAL TECHNIQUE

STEP **12**

CHOICE OF THE REDUCTION TECHNIQUE

ROMEO®2 thoracolumbar fixation system offers multiple options for the reduction technique.

- Distraction / Compression
- Rod derotation
- In Situ contouring
- Direct vertebral derotation (DVR)
- Bilateral apical vertebral derotation (BAVD)
- 'En bloc' derotation

This surgical technique describes the 'En Bloc' derotation technique on a single rod.

SURGICAL TECHNIQUE

STEP **13**

QR REDUCER ASSEMBLY

Insert the shaft into the reducer tube. The extremity of the shaft has to be slightly squeezed to ease the insertion.

Connect the handle to the tube. Firmly screw the locking ring of the handle.

Push the shaft into the handle and turn the handle clockwise to engage the thread. The engagement of the tube thread into the handle must be carefully performed. **Do NOT** force. The assembling procedure is finished when the position marker of the shaft is aligned with the «start» LASER marking of the tube.

INSTRUMENT	REFERENCE
QR REDUCER	ELL-IN 20 34-N

Slide the ring onto the **QR Reducer** until it clicks when reaching its position.

The picture shows the correct position of the ring. When connected to the **QR Reducer**, the **QR Link** ring is free to rotate.

If at any time you need to disasemble the ring, unlock it by pushing on the button. Keeping the pressure on the button will allow to slide and disengage it from the **QR Reducer**.

INSTRUMENT	REFERENCE
QR REDUCER	ELL-IN 20 34-N
QR LINK	ELL-IN 21 34-N

SURGICAL TECHNIQUE

STEP **14**

ROD PERSUASION

Persuade the rod into the implant head by turning the handle part of the **QR Reducer** or the **QR Reducer T-Handle**. Sequential manipulation of the **QR Reducer** can be performed for multilevel rod persuasion.

In case of particular anatomy configuration, the **QR Reducer T-Handle** can be used. The rod must be loose enough to allow its rotation in the next steps.

If the rod is not fully seated, you can use the **QR Reducer T-Handle** to push the rod in the screw head.

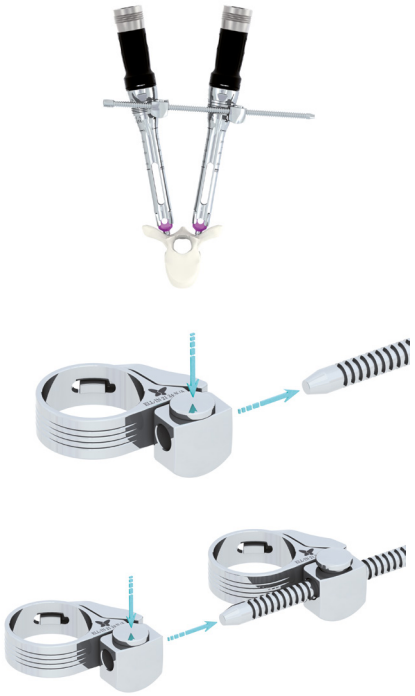
When the rod is in the screw head, one of the **Setscrew Holder** could be used to insert it through the **QR Reducer** into the screw head.

Repeat this step for all the screws that will be part of the apical cluster.

INSTRUMENT	REFERENCE
QR REDUCER	ELL-IN 20 34-N
QR LINK	ELL-IN 21 34-N
QR REDUCER T-HANDLE	HAN-SS TY 14-N
SETSCREW HOLDER W	ELL-IN 03 10-N
SETSCREW HOLDER	ELL-IN 01 10-N
SETSCREW HOLDER DOUBLE	ELL-IN 02 10-N

SURGICAL TECHNIQUE

STEP **15**



CREATE APICAL CLUSTER

Position the QR reducer on the screws. At least one rod should be introduced, but still free to move within the screw head. Start creating the apical cluster.

The first step will link the QR Reducers in the axial plane.

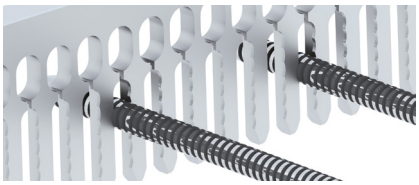
From the concave side and for the two QR Reducer of the same vertebra, introduce the QR Link Stick through the QR Link ring of the concave QR Reducer then convex QR reducer.

To ease QR Link Stick introduction, press on the button. When the button is released, the QR Link Stick will be locked along its axis.

Repeat this step for all vertebrae part of the apical cluster.

INSTRUMENT	REFERENCE
QR REDUCER	ELL-IN 20 34-N
QR LINK	ELL-IN 21 34-N

SURGICAL TECHNIQUE



The second step will link the **QR Reducer** on the sagittal plane. Take a **QR Link Bridge** and attach it to the **QR Link Stick**.

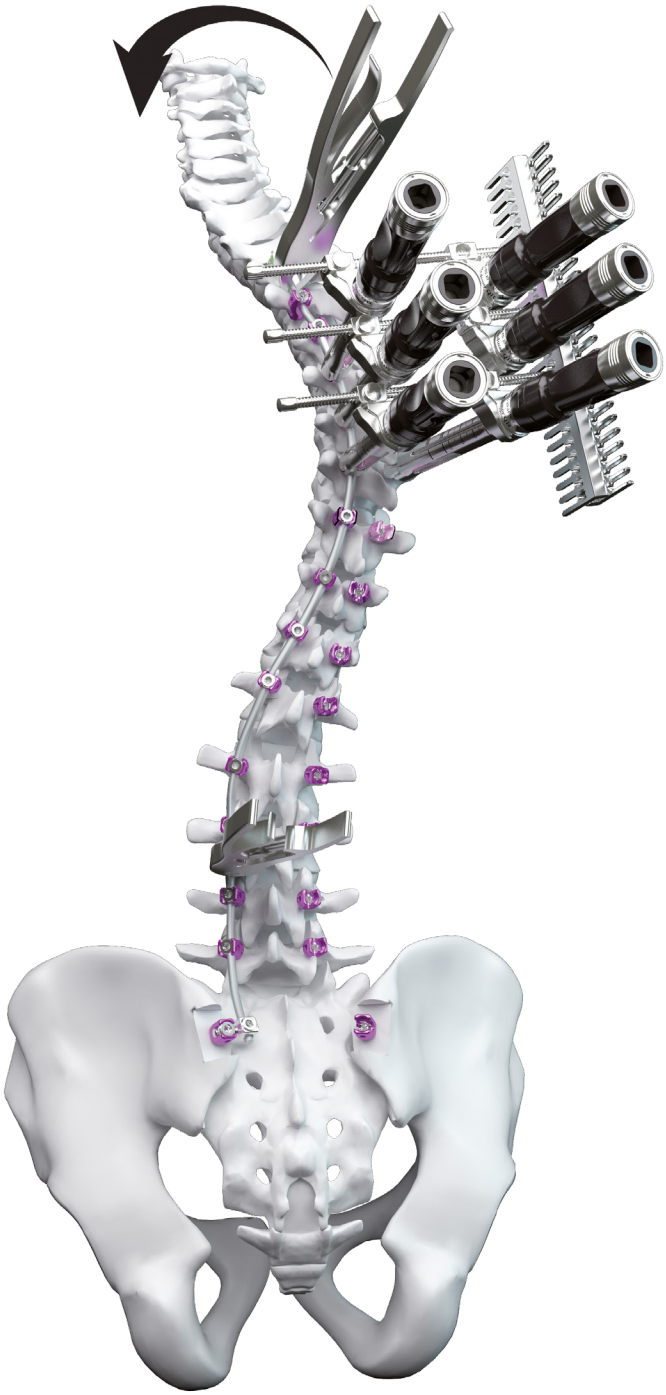
As the deformity convex side has a larger distance between the pedicle, it is preferable to place the **QR Link Bridge** on that side. Due to the vertebrae kinematics, the distraction of the posterior elements of the spine will induce restoriation of the thoracic kyphosis.

Two **QR Link Bridges** are available in the box, it could be used to add some stability of the cluster.

INSTRUMENT	REFERENCE
QR REDUCER	ELL-IN 20 34-N
QR LINK	ELL-IN 21 34-N
QR LINK BRIDGE	ELL-IN 01 28-N

SURGICAL TECHNIQUE

STEP **16**



ROD DEROTATION

The rod is axially rotated at 90° to restore the sagittal plane balance.

Attach two **Derotation Forceps** to the rod and/or one Hexagonal Wrench on the hexagonal endtip of the rod.

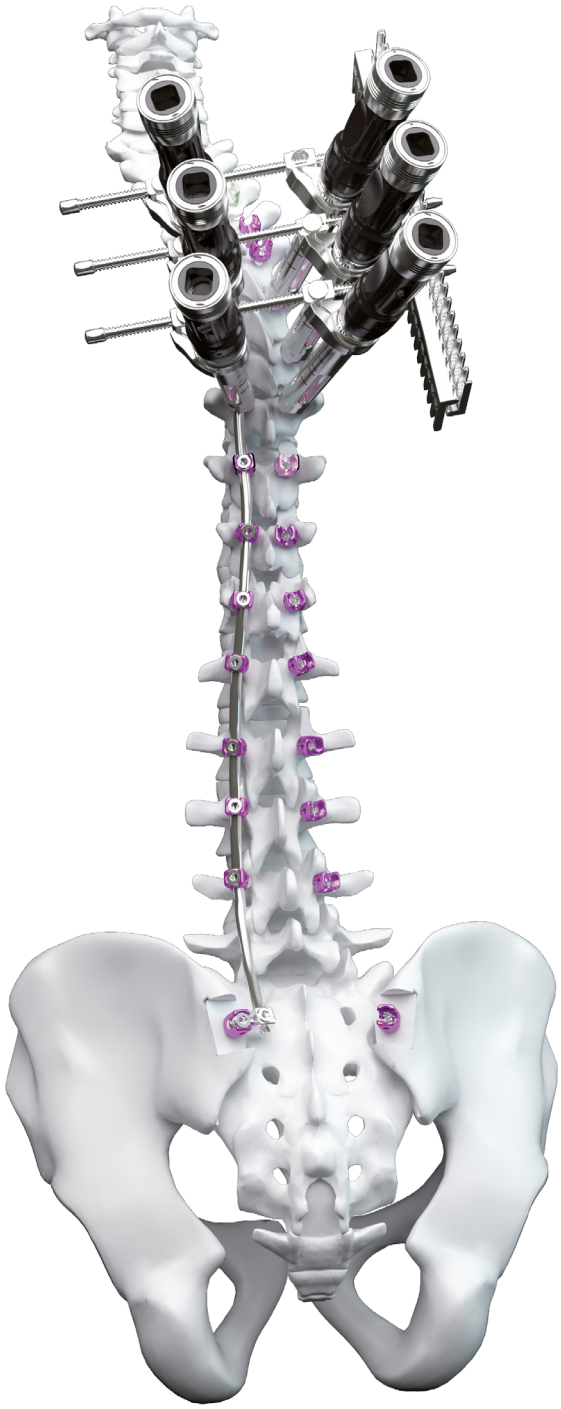
Derotate the rod to have its curvature moving from the frontal plane to the sagittal plane.

Note: Make sure to have all the setscrews slightly loose before performing any rod derotation maneuvers.

INSTRUMENT	REFERENCE
DEROTATION FORCEPS	ELL-IN 01 18-N
T-RATCHET HANDLE	HAN-SI RA TE-N
FINAL TIGHTENER	ELL-IN 04 06-N

SURGICAL TECHNIQUE

STEP **16**



ROD DEROTATION

Once the derotation of the rod is complete, firmly tighten the setscrews of the most proximal screw.

Tightening is achieved with the **Setscrew tightener** attached to the **T-handle Ratchet Handle**.

Remove the **Derotation Forceps / Hexagonal Wrench.**

INSTRUMENT	REFERENCE
SET SCREW TIGHTENER	ELL-IN 04 06-N
T-RATCHET HANDLE	HAN-SI RA TE-N
FINAL TIGHTENER	ELL-IN 04 06-N

SURGICAL TECHNIQUE

STEP **17**

VERTEBRAL DEROTATION

Further correction can be achieved via 'En bloc' derotation.

The vertebral derotation maneuver is performed by applying a cantilever force on the cluster created by linking the **QR Reducers**.

The maneuvers force will be shared among the **QR Reducer** of the cluster. Then transmitted from the **QR Reducer** to the 25D screws to make the vertebrae rotate. A deoration forceps or Hexagonal wrench should be used to make a counter-force against the cluster rotation.

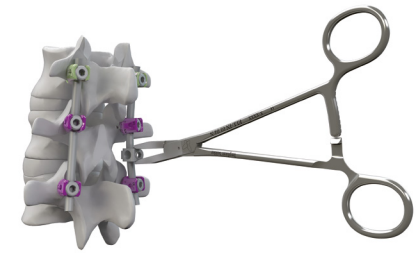
Under intraoperative neurophysiological monitoring, continue derotation until desired position is reached.

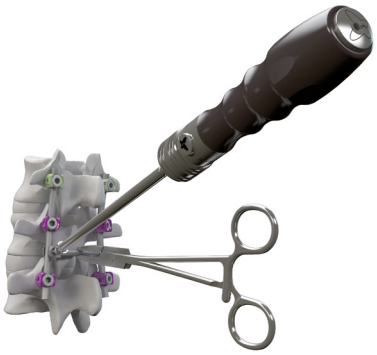
Tighten the setscrews of the construct. Insert the second rod followings the steps 8 to 11.

INSTRUMENT	REFERENCE
T-RATCHET HANDLE	**HAN-SI RA TE-N**
FINAL TIGHTENER	**ELL-IN 04 06-N**

SURGICAL TECHNIQUE

STEP **18 - Option 1**





TRANSVERSE CONNECTOR

For long construct, it is recommended to add transverse connectors to increase the rotational stability of the construct. Hold the transverse hooks with the **implant holder** and place them onto the rod. The length of the transverse rod is measured by using the **caliper**.

Note: For the transverse rod selection, 10mm should be added to the length measured by the caliper.

Hold the transverse rod with the **implant holder** to place it into the transverse hooks. Tighten the setscrew of the transverse hooks with the **Screwdriver shaft PS**.

INSTRUMENT	REFERENCE
IMPLANT HOLDER	ELL-IN 01 04-N
CALIPER	ELL-IN 00 12-N
SCREWDRIVER SHAFT PS	ELL-IN 05 03-N
STRAIGHT HANDLE RATCHET	HAN-SI RA ST-N

STEP **18 - Option 2**

TRANSVERSE CONNECTOR

To determine the transverse connector size, use the **Caliper**.

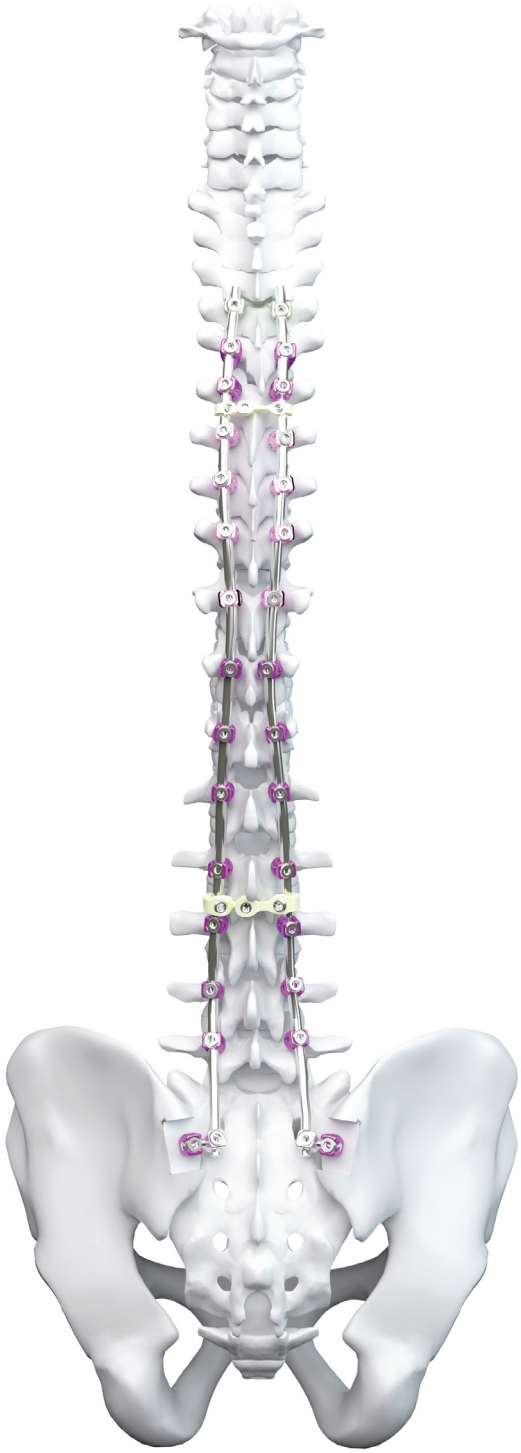
Take the transverse connector of the defined length with the **Implant Holder**. Place it on one of the rod and tigten the related setscrew with the **3.5 Tightener**.

Catch the contralateral rod and tighten the setscrew. Final tighten the 3 setscrews with the **3.5 Tightener** until a ‘click’ occurs.

INSTRUMENT	REFERENCE
IMPLANT HOLDER	ELL-IN 01 04-N
CALIPER	ELL-IN 00 35-N
3.5 TIGHTENER	ELL-IN 00 36-N

SURGICAL TECHNIQUE

STEP **19**



FINE-TUNING

Remove the **QR Link Bridge**, the **QR Link** and the **QR Reducers**. At this step a long cassette X-ray will help to understand the frontal correction and shoulder balance. If needed, fine-tune the correction by performing compression, distraction and/or in situ bending.

INSTRUMENT	REFERENCE
CORONAL BENDER LEFT	ELL-IN 00 27-N
CORONAL BENDER RIGHT	ELL-IN 01 27-N
SAGITTAL BENDER LEFT	ELL-IN 00 26-N
SAGITTAL BENDER RIGHT	ELL-IN 01 26-N
COMPRESSION FORCEPS	ELL-IN 00 08-N
DISTRACTION FORCEPS	ELL-IN 00 07-N
PARALLEL COMPRESSOR	ELL-IN 01 08-N
PARALLEL DISTRACTOR	ELL-IN 01 07-N

SURGICAL TECHNIQUE

STEP **20**

FINAL TIGHTENING

The **Final Tightener** has a ratcheting handle that has 3 positions: Forward, Neutral and Backward.

Before applying the tightening force, make sure the laser etching of the **Final Tightener** is flush with the top of the **Counter Torque Tigh Fit**.

Apply forces between the **Final Tightener** and the **Counter Torque Tigh Fit** until a 'click' happens.

Before closing, proceed to the final tightening of each screw, hook and connectors of the construct by using the **Counter Torque Tight Fit** and the **Final Tightener**.

INSTRUMENT	REFERENCE
FINAL TIGHTENER TORQUE LIMITER	ELL-IN 05 06-N
COUNTER TORQUE TIGH FIT	ELL-IN 03 11-N

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