



Rod Link Reducer

3-Plane Deformity Correction Technique

Outside the US Only

GLOBUS MEDICAL

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Life Moves Us

The Surgical Technique shown is for illustrative purposes only. The technique(s) actually employed in each case always depends on the medical judgment of the surgeon exercised before and during surgery as to the best mode of treatment for each patient. Additionally, as instruments may occasionally be updated, the instruments depicted in this Surgical Technique may not be exactly the same as the instruments currently available. Please consult with your sales representative or contact Globus directly for more information.

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CREO® Rod Link Reducer Instruments Set 20

Rod Link Reducer

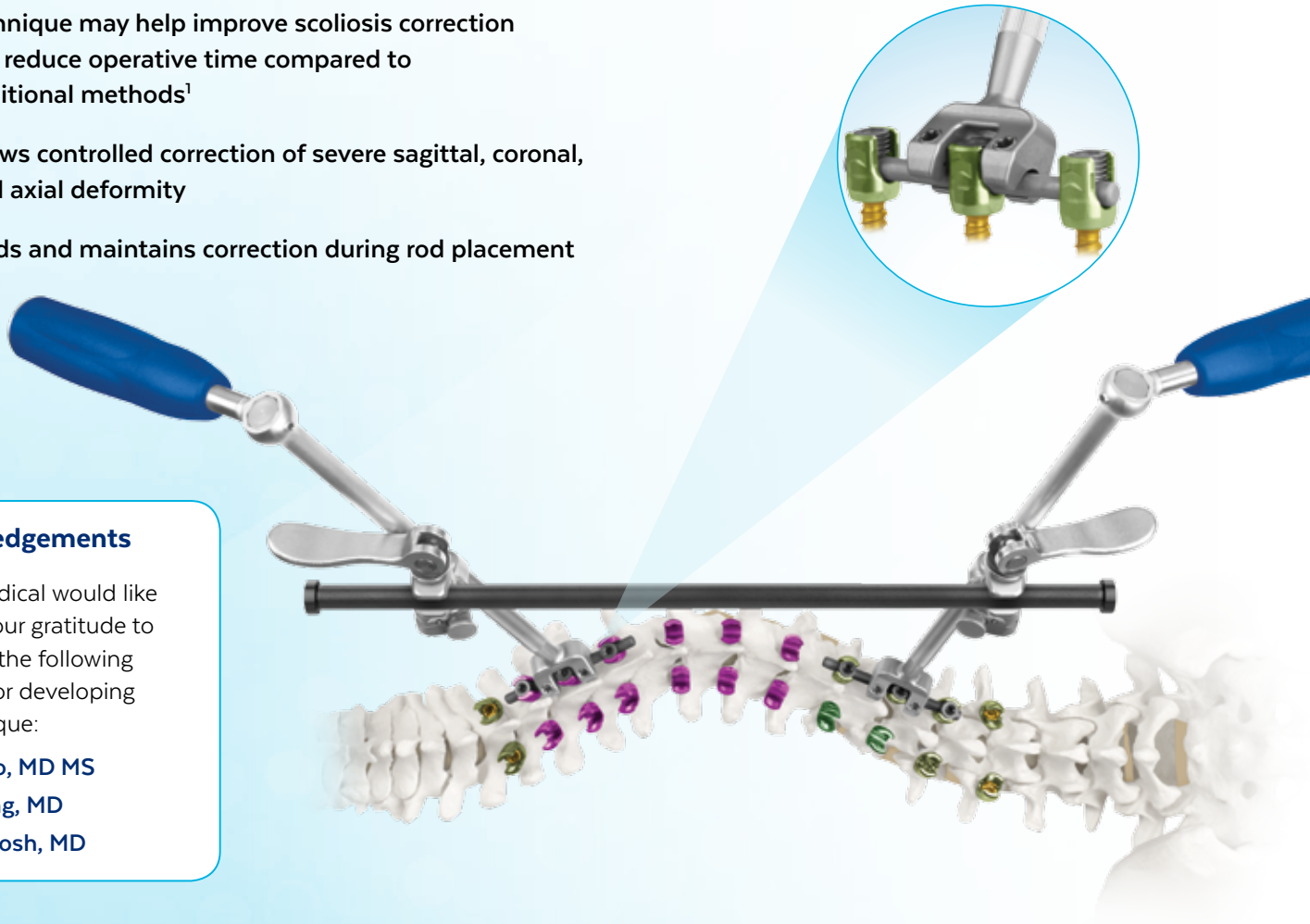
3-Plane Deformity Correction Technique

Originally developed at the Texas Scottish Rite Hospital for Children, the Rod Link Reducer technique is designed to aid in correction of severe spinal curvatures with a novel set of instruments. This technique increases leverage to manipulate the spine in the axial, coronal and sagittal planes.

During the procedure, Manipulating Arms are attached to provisional rods which are placed proximal and distal to the apex of the curve. The Manipulating Arms are used to correct the deformity in three planes. The deformity is manipulated into a corrected position, then the construct is rigidly locked in place while a permanent rod is installed on the contralateral side.

Advantages of the Rod Link Reducer Technique

- **Technique may help improve scoliosis correction and reduce operative time compared to traditional methods**[1]
- **Allows controlled correction of severe sagittal, coronal, and axial deformity**
- **Holds and maintains correction during rod placement**



Acknowledgements

Globus Medical would like to extend our gratitude to TSRH and the following surgeons for developing this technique:

Dan Sucato, MD MS
Hong Zhang, MD
Amy McIntosh, MD

1. Sucato, D. J. and Zhang, H. (March 2017). *A Novel Posterior Rod-Link-Reducer System Provides Safer Easier and Better Correction of Severe Scoliosis.* Paper #097 Presented at AAOS Annual Meeting, San Diego, CA.

INSTRUMENT OVERVIEW



Rod Link Manipulating Arm, Double, 4.5-6.0mm 6067.3200
Rod Link Manipulating Arm, Double, 6.0-6.35mm 6152.3200*



Rod Link Manipulating Arm, Single, 4.5-6.0mm 6067.3201
Rod Link Manipulating Arm, Single, 6.0-6.35mm 6152.3201*



Rod Link Coupling Clamp 6067.3206



T-Handle, Ratcheting, 1/4" Quick-Connect 6067.0020



Rod Link Handle 6067.3208



Driver Shaft, 1/4" Quick-Connect, Short 6067.0050



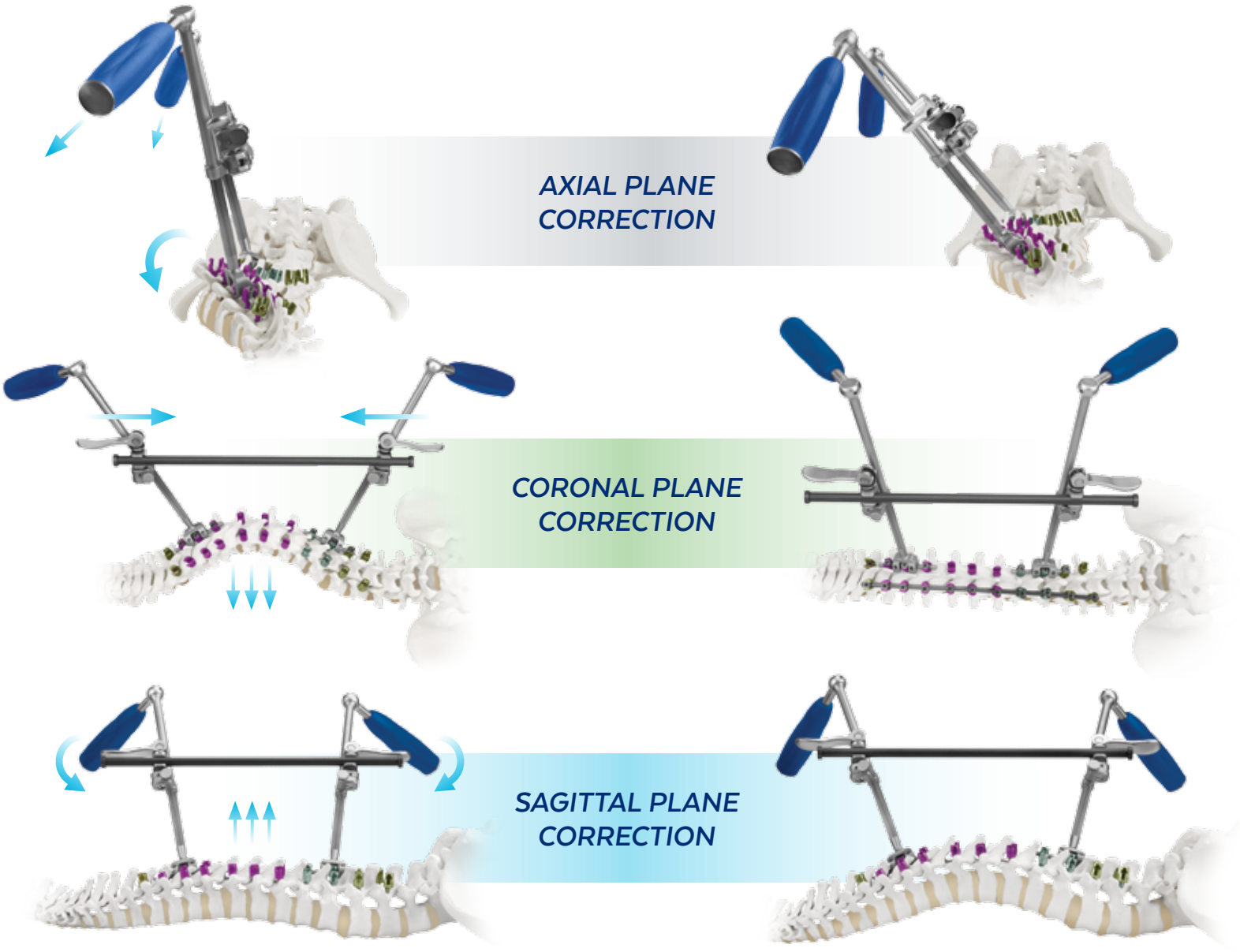
Rod Link Coupling Rod 6067.3207

*Additionally available.

SURGICAL TECHNIQUE

Rod Link Reducer

For the purposes of this technique guide, the correction of a Lenke 1A severe right thoracic curve with the apex at T8-T9 is shown. The spine is instrumented from T4 to L2 with pedicle screws. Instrumented levels may vary with the type and severity of the curve as well as the patient's anatomy. During pre-operative planning, consideration should be given to determine the levels left free at the apex, and the levels proximal and distal to the apex for attachment of temporary rods and Rod Link Reducer Instruments. The model depicted below demonstrates provisional fixation of the proximal and distal segments through 3 screws while leaving 3 segments free at the apex. Most often it is only necessary to attach the rod to 3 proximal screws and 3 distal screws to allow 4 or more apical segments to be free.



STEP 1 ASSEMBLING THE ROD LINK REDUCER INSTRUMENTS

Assembling the Manipulating Arms

Insert the **Rod Link Handle** over the **Rod Link Manipulating Arm, Single** in the desired orientation. Tighten the set screw using a T25 driver.



Inserting the handle over the manipulating arm



Tightening the set screw

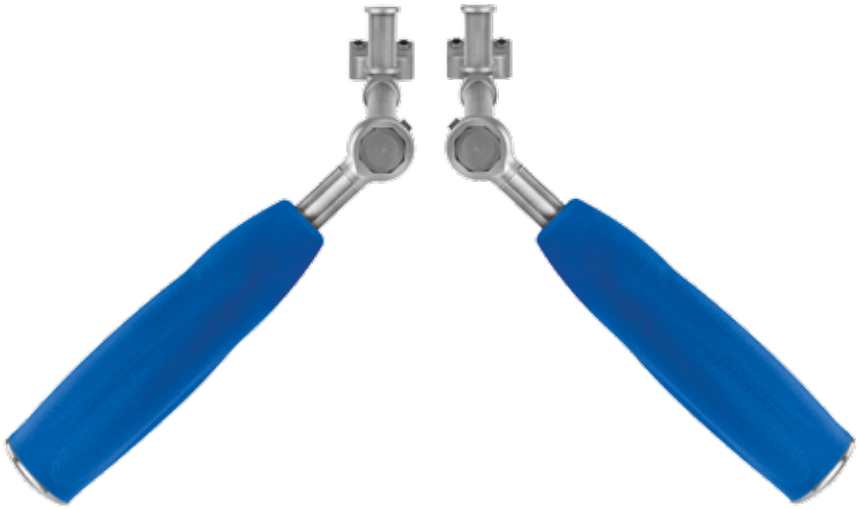
ASSEMBLING THE ROD LINK REDUCER INSTRUMENTS (Con't)

Handle Orientation

The handles may be oriented in three different ways to provide leverage for various types of corrections. The manipulating arms need to be offset for use in the right or left hand. Place the handle offset facing the left or the right.



Lateral-to-Medial for Derotation



45º for Combined Correction



Cephalad-to-Caudal for Sagittal Correction

STEP 2 SCREW AND TEMPORARY ROD PLACEMENT

Fixation Placement

Place pedicle screws at all required levels (T4 to L2 shown). For CREO® pedicle screws, refer to the CREO® or CREO® Threaded Technique Guides for detailed instructions. Robust fixation is required to prevent screw pullout during correction.



Temporary Rod Placement

Place temporary rods proximal and distal to the apex on the convex side of the deformity. Temporary rods may be cut and contoured. It is recommended to leave 3 or 4 levels free at the apex. Secure the temporary rods by provisionally tightening the locking caps. To evenly distribute corrective forces and prevent loosening of the bone-screw interface, attachment of the temporary rods to at least 3 screws is recommended.



STEP 3 ATTACHING THE ROD LINK REDUCER

Attaching the Manipulating Arms

Insert the manipulating arms over the temporary rods. Double or single-tipped manipulating arms may be used. Secure the manipulating arms to the temporary rods by tightening the set screws.

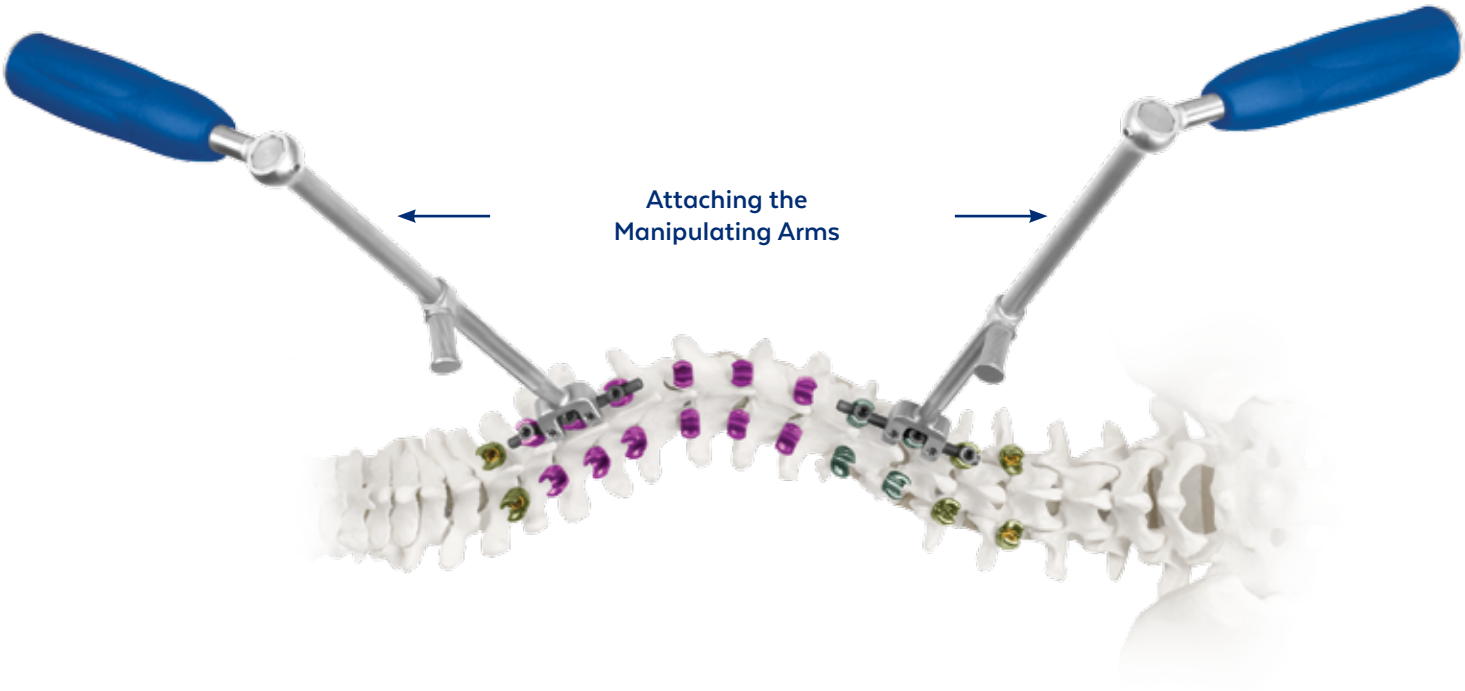
Note: The temporary rods cannot be re-used.



Securing rod with the Manipulating Arm



Tightening the set screws



Attaching the Manipulating Arms

Attaching the Couplers and Coupling Rod

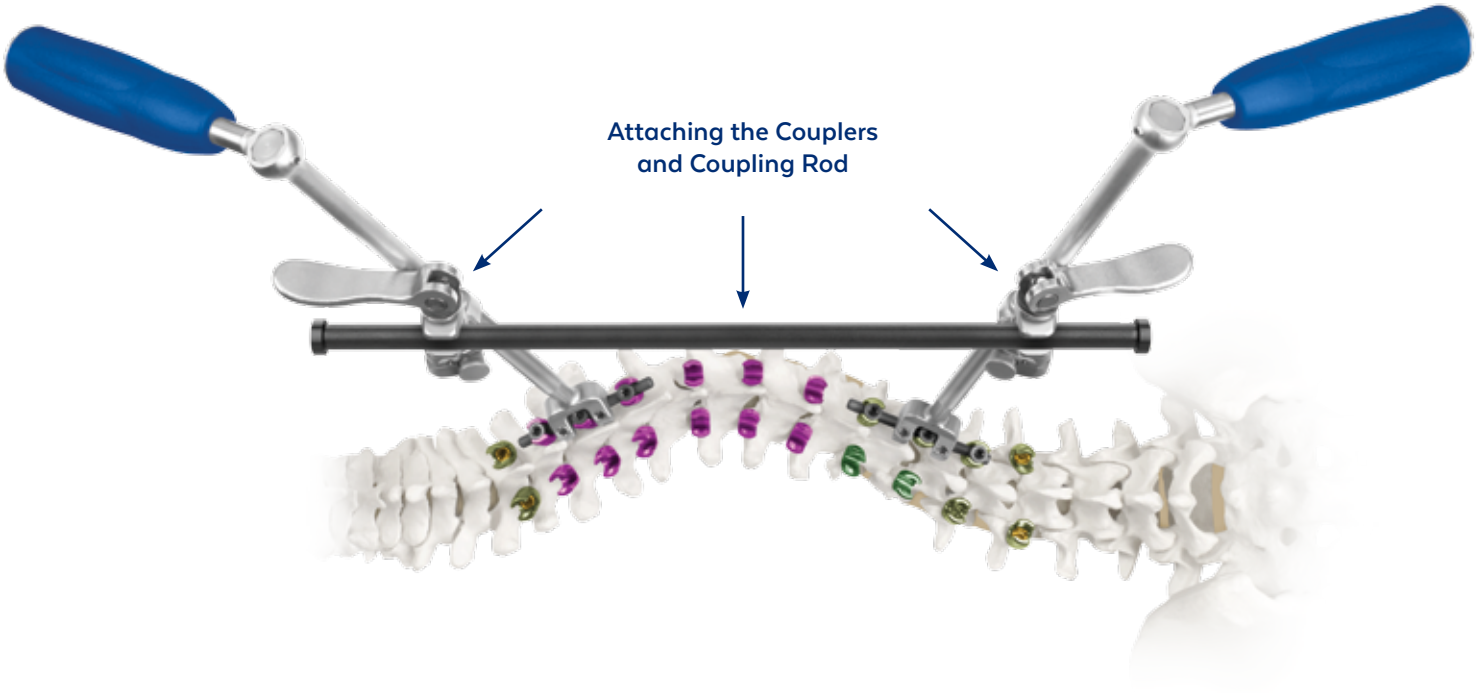
With the locking lever in the unlocked position, place the lower coupler of the **Rod Link Coupling Clamp** onto the coupling posts of the manipulating arms. Place the **Rod Link Coupling Rod** into the upper coupler.



Positioning Rod Link Coupling Clamp onto the coupling posts



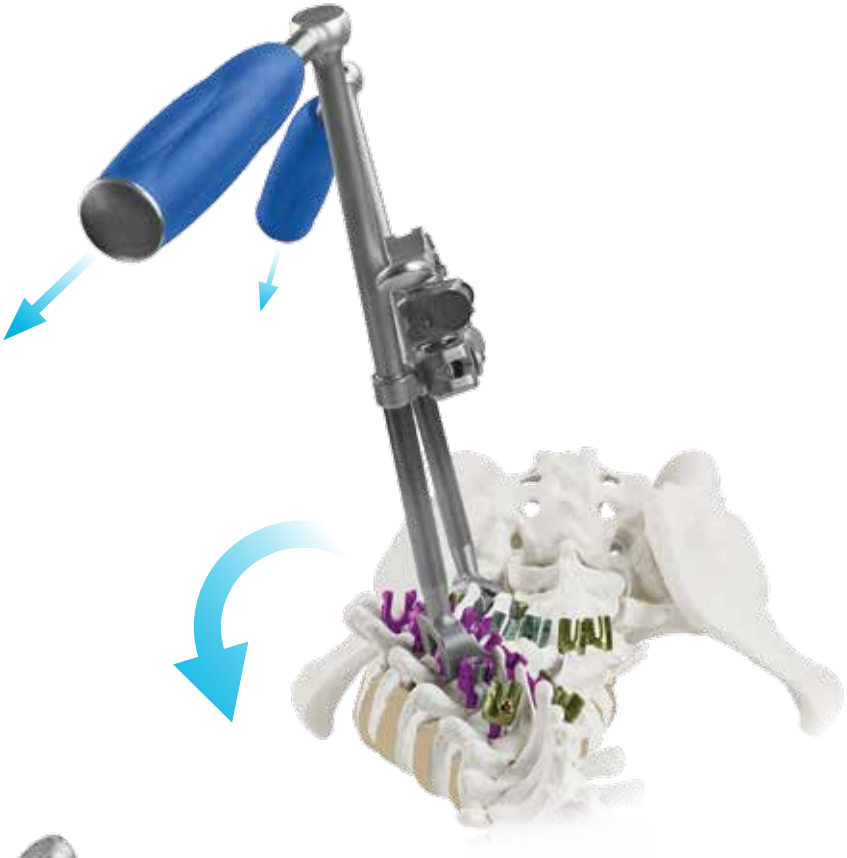
Placing the Rod Link Coupling Rod into the upper coupler



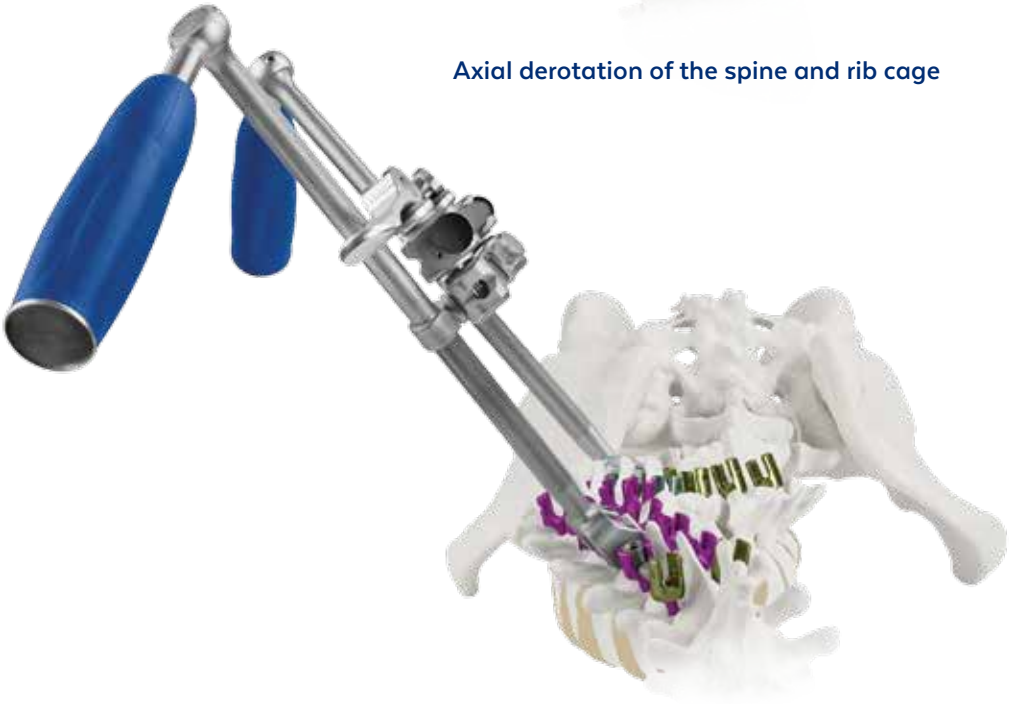
Attaching the Couplers and Coupling Rod

STEP 4 DEFORMITY CORRECTION

The first manipulation is axial derotation of the spine and the rib cage for transverse (axial) correction. This is performed by pressing down on the manipulating arms.

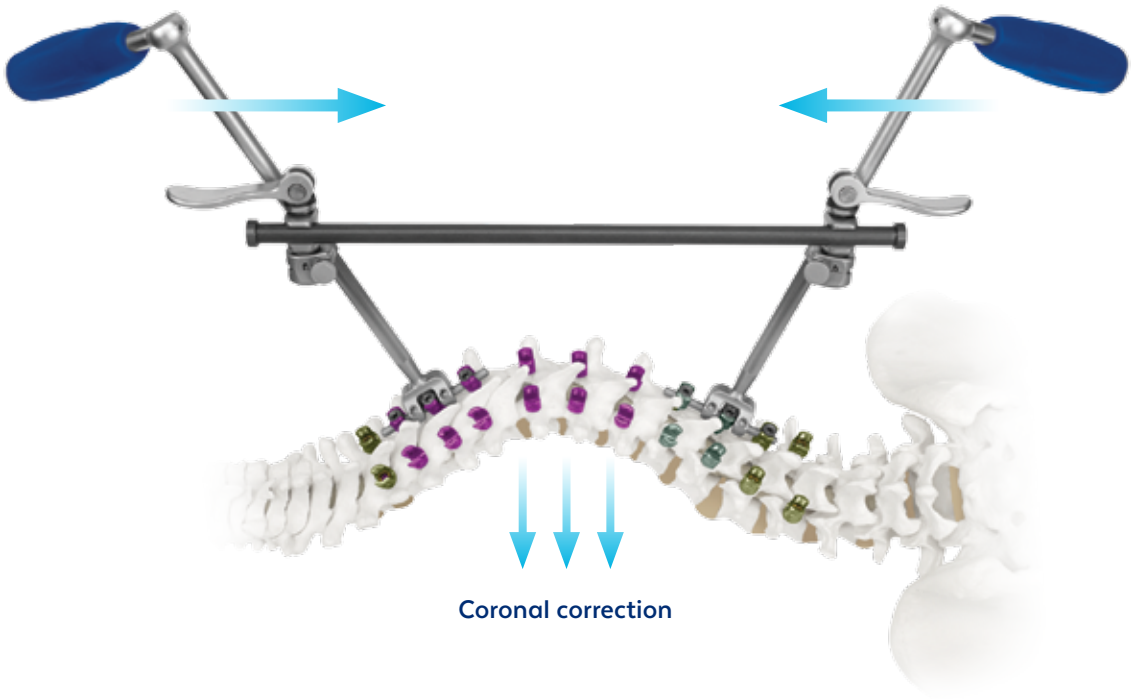


Axial derotation of the spine and rib cage

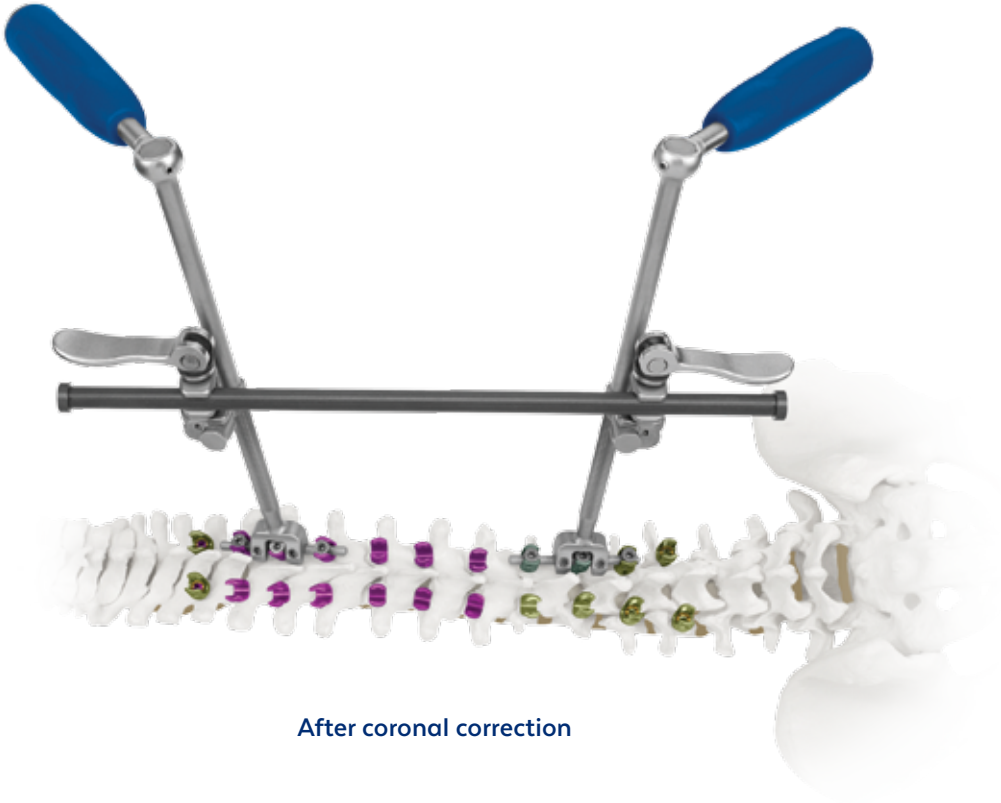


After axial derotation

The second manipulation is compression of the spine on the convexity for coronal correction. This is performed by bringing the manipulating arms together.



Coronal correction

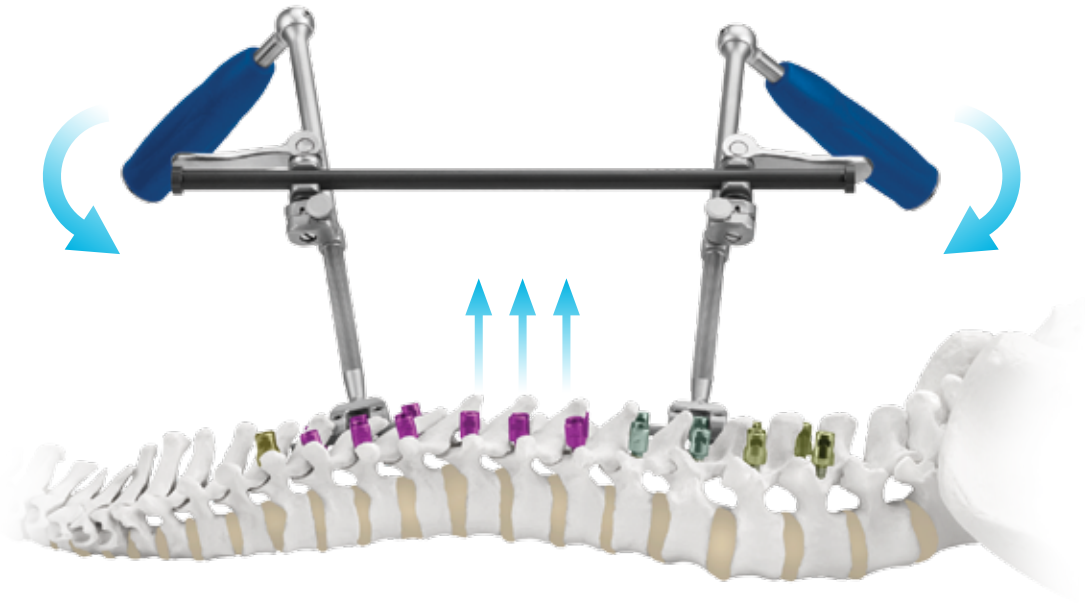


After coronal correction

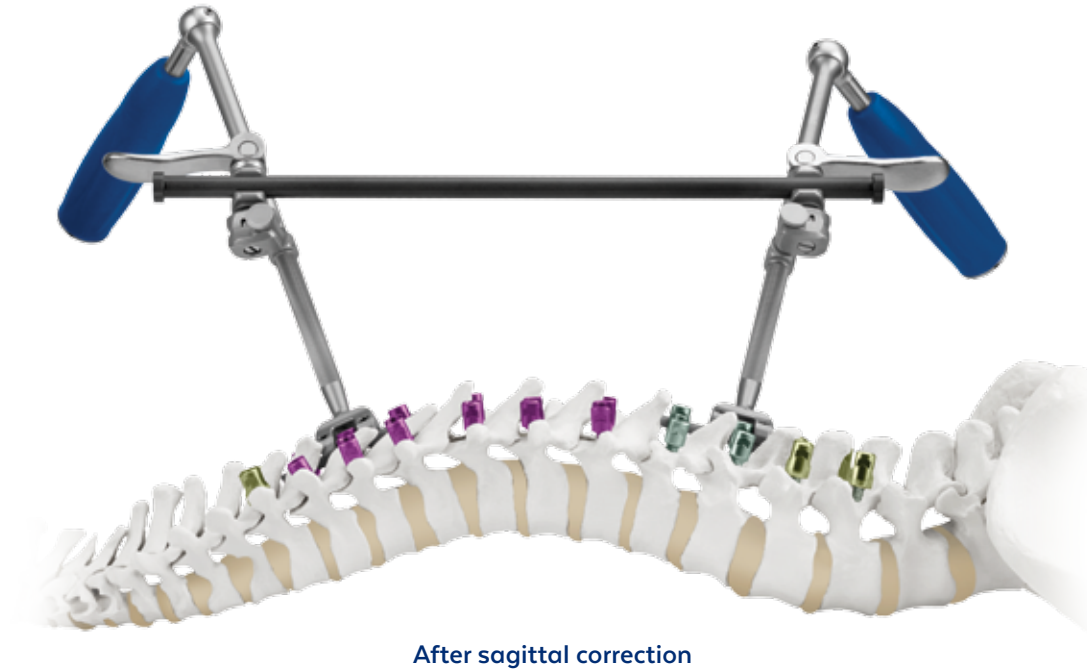
DEFORMITY CORRECTION (Cont'd)

The third manipulation is to restore thoracic kyphosis for sagittal correction. This is performed by rotating the handles of the manipulating arms simultaneously, as shown below.

The Rod Link Reducer Instruments may be temporarily locked to permit relaxation of the spine between corrections.



Sagittal correction

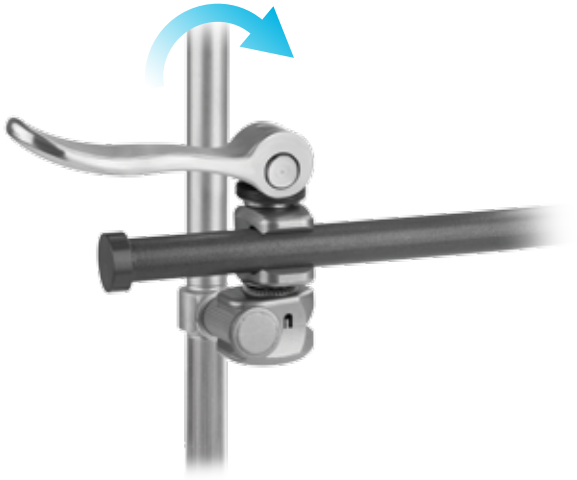


After sagittal correction

STEP 5 LOCKING THE ROD LINK REDUCER

Once sufficient correction has been achieved, the Rod Link Reducer is locked to hold the correction. Rotate the locking levers to the locked position. Grasp the coupling rod and compress the levers to tighten the assembly. The Rod Link Reducer with temporary rods holds the correction of the deformity.

Note: The concave screws may be placed after locking the Rod Link Reducer, for more accessible screw trajectories.



Unlocked



Locked



Rod Link Reducer
Locked - Coronal View



Rod Link Reducer
Locked - Sagittal View

STEP 6 CONCAVE ROD PLACEMENT

Measure, cut, and contour the permanent rod for the concave side of the construct. Over-contour the concave rod into kyphosis, as it tends to flatten out as it is gradually introduced into the pedicle screws. Place the concave rod in the proximal and distal screws. Lock the distal screw to the rod rigidly while leaving the proximal locking caps loose to allow for elongation of the spine. The apical segments can be translated posteriorly to correct the hypokyphosis and laterally to correct the coronal plane deformity.

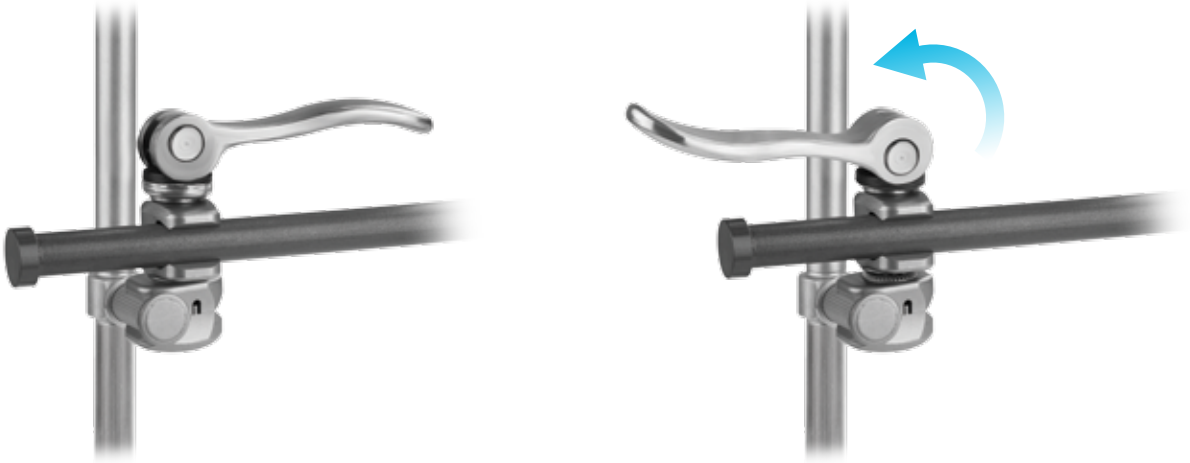
Alternatively, an ***en bloc*** derotation maneuver can be performed prior to correction. Tighten the locking caps to the rod to hold the correction.

Please refer to the CREO®, CREO® Threaded Technique Guides for rod contouring, reduction, derotation, and locking cap insertion instructions.

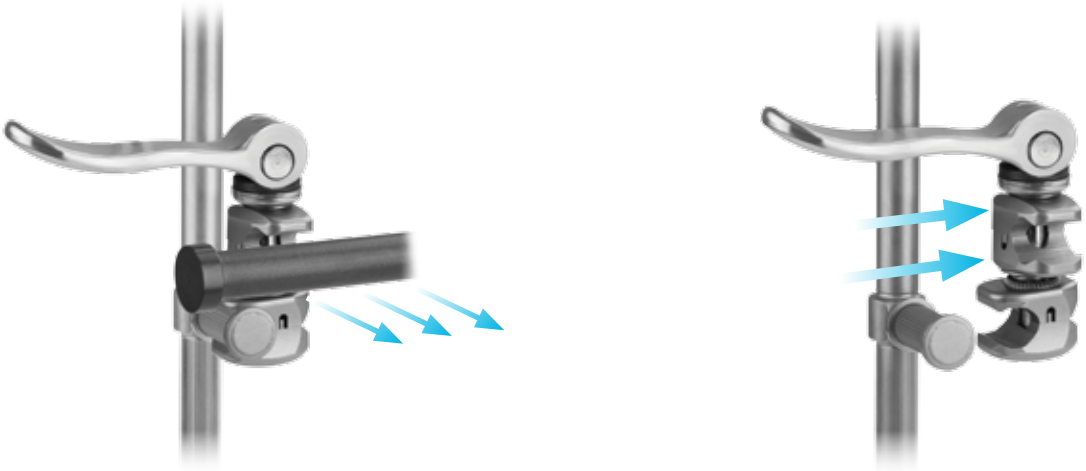


STEP 7 REMOVING THE ROD LINK REDUCER

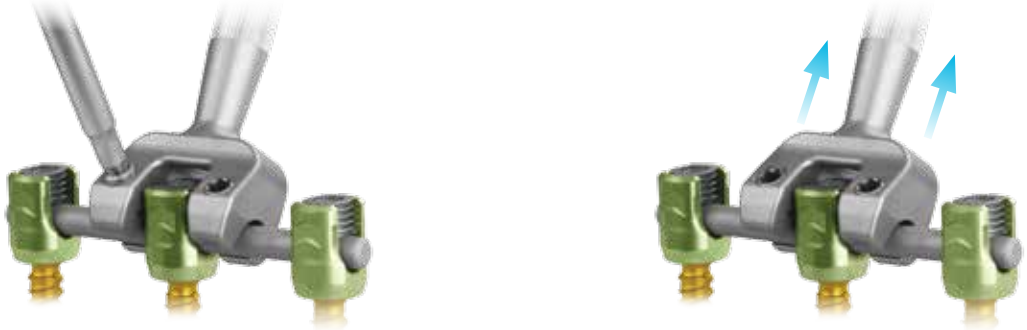
Unlock the couplers by rotating the locking levers to the unlocked position.



Remove the coupling rod from the couplers and detach the couplers from the manipulating arms.



Loosen the set screws and remove the manipulating arms from the temporary rods.



Remove the locking caps and temporary rods. Discard the temporary rods; do not reuse.

STEP 8 PLACING THE CONVEX ROD

Measure, cut, and contour the permanent rod for the convex side of the construct. Capture the rod with locking caps and perform compression/distraction or *in-situ* bending before final tightening the construct.

Refer to the CREO® or CREO AMP® Technique Guides for further information on additional instruments and final tightening.



FINAL CONSTRUCT



CREO® ROD LINK REDUCER INSTRUMENT SET 9067.9025

Instruments

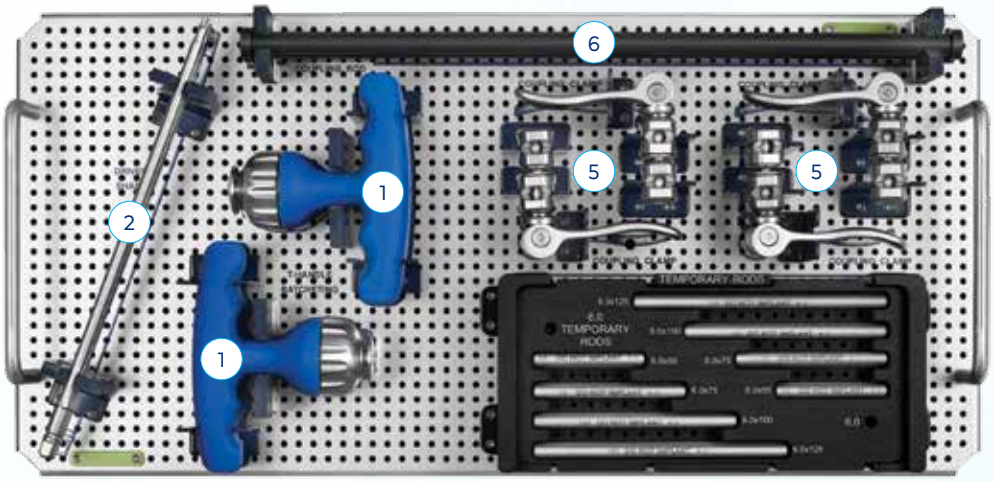
	PART NO.	DESCRIPTION	QTY
1	6067.0020	T-Handle, Ratcheting, 1/4" Quick-connect	2
2	6067.0050	Driver Shaft, 1/4" Quick-connect, Short	2
3	6067.3200	Rod Link Manipulating Arm, Double, 4.5-6.0	4
4	6067.3201	Rod Link Manipulating Arm, Single, 4.5-6.0	4
5	6067.3206	Rod Link Coupling Clamp	4
6	6067.3207	Rod Link Coupling Rod	4
7	6067.3208	Rod Link Handle	4
	6152.3200	Rod Link Manipulating Arm, Double 6.0-6.35	0
	6152.3201	Rod Link Manipulating Arm, Single, 6.0-6.35	0

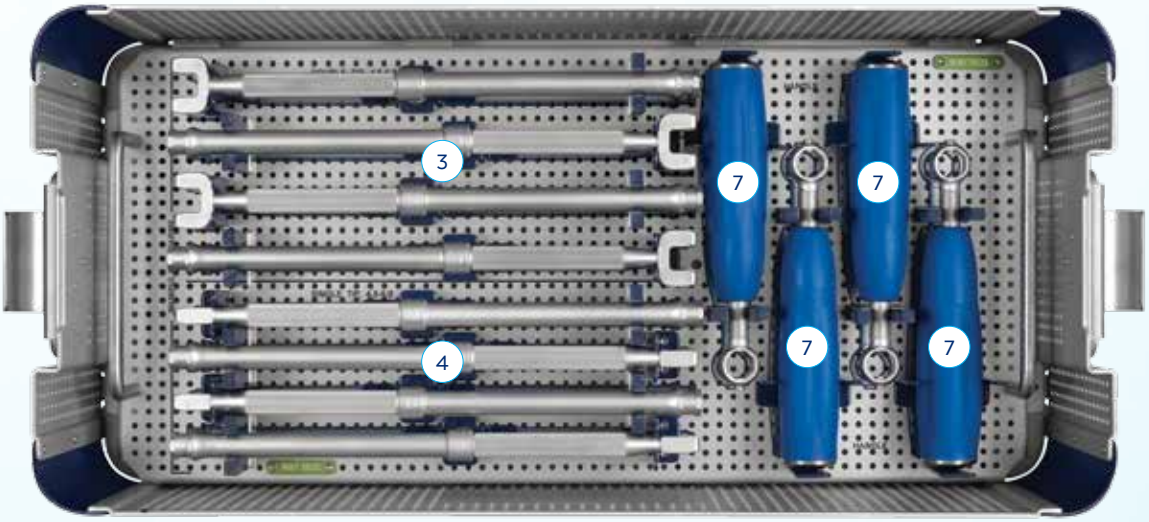
Straight Temporary Rods, Cobalt Chrome Alloy

PART NO.	DIAMETER	LENGTH	QTY
6041.5055	4.5mm	55mm	0
6041.5056	4.5mm	75mm	0
6041.5057	4.5mm	100mm	0
6041.5058	4.5mm	125mm	0
6067.5055	4.75mm	55mm	4
6067.5056	4.75mm	75mm	4
6067.5057	4.75mm	100mm	4
6067.5058	4.75mm	125mm	4
6119.5055	5.5mm	55mm	4
6119.5056	5.5mm	75mm	4
6119.5057	5.5mm	100mm	4
6119.5058	5.5mm	125mm	4
6120.1055	6.0mm	55mm	4
6120.1056	6.0mm	75mm	4
6120.1057	6.0mm	100mm	4
6120.1058	6.0mm	125mm	4
6120.5055	6.35mm	55mm	0
6120.5056	6.35mm	75mm	0
6120.5057	6.35mm	100mm	0
6120.5058	6.35mm	125mm	0

NOTE: Set configuration may vary depending on location. Please consult your Globus Medical Sales Representative.

Items highlighted in gray are additoinally available.


6
5
5
1
2
1
TEMPORARY RODS


3
7
7
7
7
4

NOTES

NOTES

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