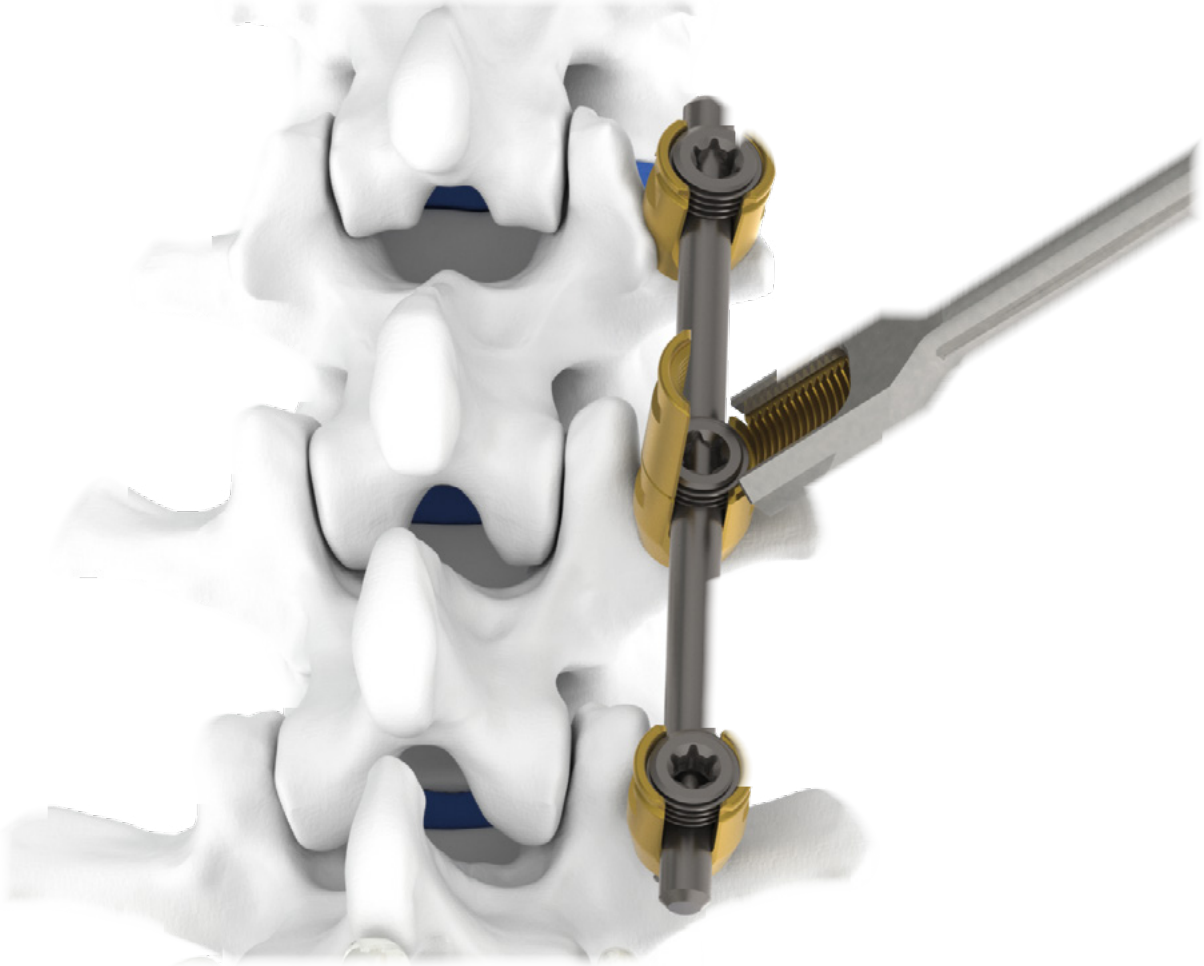


HumanTech Spine

VENUS®

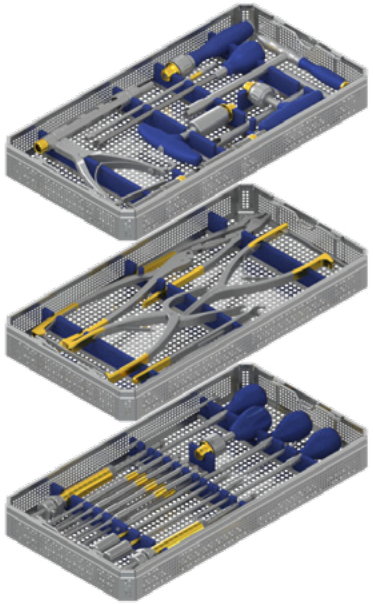
Reduction

Longhead Screw Reposition

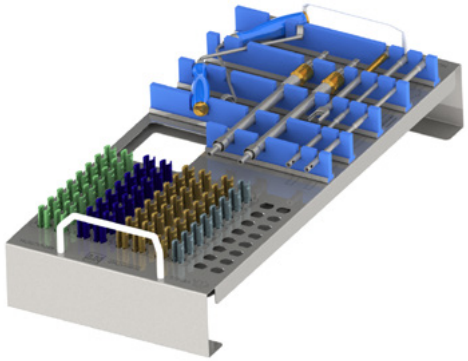
Brochure & Surgical Technique

Content

Made in Germany



VENUS® Fixation



VENUS® Reduction

The VENUS® Reduction system is an additional kit for use with the VENUS® Fixation system.

Longhead Screw Reposition System

VENUS® Reduction longhead screws complement the standard screws for enhanced approximation of the rod. The special screwhead design avoids a burr formation at the break-off-line. The VENUS® Reduction System implants and instruments are designed to allow reposition of three-dimensional deformities. An extensive portfolio of diameters and sizes offers the surgeon to adapt to a variety of surgical conditions.

Preparing the Pedicle

Set the pedicle insertion point. Open the pedicle canal using the Awl.

Note:
The Awl is available with and without stop and also in cannulated form. The variants of the Awl without stop should be used only for the initial preparation of the pedicle. The deeper the preparation is carried out, the larger the core hole will be at the entry point.

Awling and probing

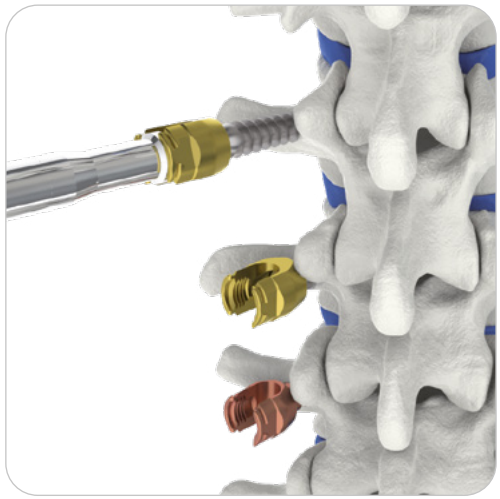
The pedicle canal is awled. Using light pressure, the Pedicle Probe is carefully advanced into the pedicle canal in half rotations.

Note:
There are two types of Pedicle Probe available: straight and curved.

Tapping

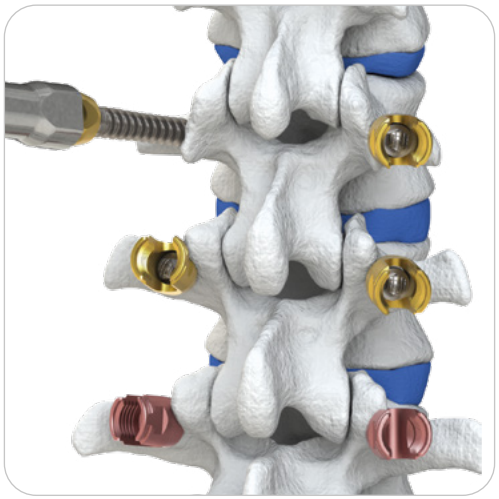
All pedicle screws are self-tapping. However, we recommend using taps in cases with a dense bone structure. These are available for all screw diameters.

Note:
For 6T Reduction screws we offer special taps to prepare cancellous and cortical thread. We always recommend using the tap that corresponds to the diameter of the pedicle screw.



Inserting the Standard Pedicle Screws I

First, insert the tip of the Polyaxial Screw Driver (inner shaft) into the screw head and attach it to the outer hexagon of the thread shaft. Then connect the outer guide to the screw head by screwing it into the inner thread of the screw head.
When using the Polyaxial Screw Driver, you must push the locking adapter forward and lock it into the connection geometry. You must also check the button of the locking adapter. (See user information of the Polyaxial Screw Driver.)



Inserting the Standard Pedicle Screws II

When using the Polyaxial Screw Driver, you must push the locking adapter forward and lock it into the connection geometry. You must also check the button of the locking adapter. (See user information of the Polyaxial Screw Driver.)
When using the Polyaxial Screw Inserter, secure the pedicle screw and then feed the guide wire over the screw head. The screw is screwed into the pedicle canal.

Note:
If desired, use the Reposition Screw Driver afterwards to correct the screw-in depth.

Inserting the Longhead Screws

In specific situations, such as Spondylolisthesis, it might be indicated to use reduction screws. Insert the screws the same way as the standard pedicle screws using the Polyaxial Screw Driver with the Shaft Reduction Screw Driver (from Index 08).

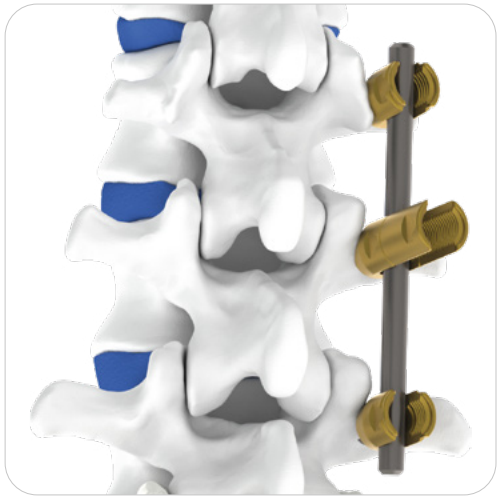
Cutting the Rod

Determine the rod length. A Phantom Rod is included in the instrument set to aid in determining the rod length. Widen the Rod Cutter so that the rod holders stay open. Depending on the relative diameter, slide the rod through the appropriate holder. With pressure, shorten the rod to the intended point.

Bending of the Rod

The Rod Bender is designed for different rod diameters. Pullout the central bending roll and turn it to the desired bending radius.

Note:
Do bend a rod at one point only in one direction. Bending the rod at the same point to the other direction afterwards will weaken the rod notably or damage it.



Insertion of the Rod

Insert the rod into the screwheads using the Rod Holder or Rod Inserter and if required with help of fingertips. If required, further bend the rod to the appropriate radius as described in the previous step. If necessary, use the Rod Pusher or Rocker to place the rod into position.

Note:
The insertion of the rod must be performed without pressure, in order to avoid the early collapse of the long sides.

Fixing of the Rod

Fix the rod in the cranial and caudal segments. The segment with the reduction screw remains without a Setscrew initially.

Reduction / Reposition

In order to reposition the segment with as little stress as possible, the rod must be inserted at least at the posterior end of the reduction screw. If necessary, use the Rocker to push the rod into the screw head.

Note:
To protect the screw flanks against breaking off prematurely:
Attach the Long Head Sleeve and simultaneously guide it along the screw head while inserting the Setscrew. Carefully tighten the Setscrew under visual control and X-ray control, until the rod is fully inserted in the screwhead.

Insertion of the Setscrew

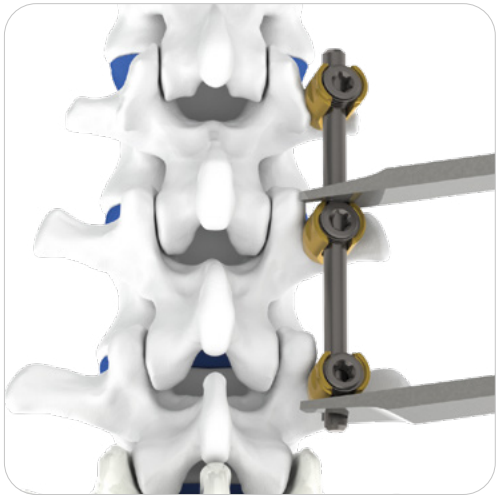
Once the rod is correctly positioned in the screw head, fix the rod in the screw head with the Setscrew using the Set Screw Inserter. To prevent cross-threading while screwing in the Setscrew, first turn the Setscrew in a counterclockwise direction until the thread “clicks into” the screw head. Continue screwing in the Setscrew.

Caution!
Be sure to only screw in the Setscrew loosely; the final torque is applied using the Set Screw Driver.

Removal of the flanks

Insert the Reduction Crown Breaker over the flanks to remove them. The flanks break after several lever movements (medial-lateral) at the designated breaking point. The Reduction Crown Breaker is designed so that the fragment remains inside the instrument. The screwhead design avoids a burr formation at the break-off points.

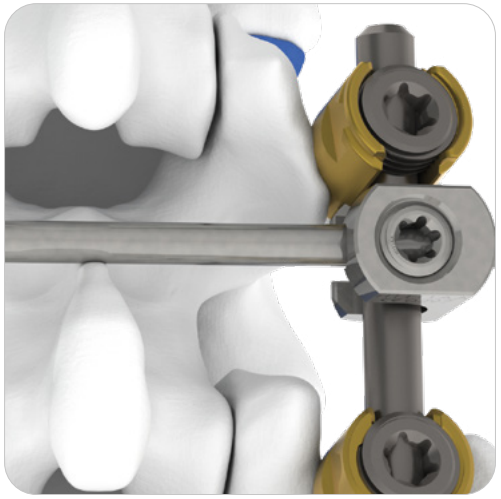
Note:
The broken flanks are discarded. Care must be taken to ensure that no residue remains in situ after breaking-off the flanks.



Compression / Distraction

Position the Compressor or Distractor on the screw heads and carry out the compression or distraction procedure until the desired position has been achieved. To ensure the compression or distraction result, tighten with the MIS Setscrew Driver.

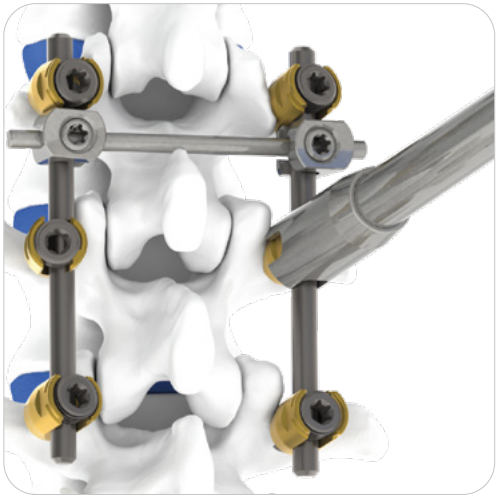
Note:
The Setscrews must not be fully tightened during this manoeuvre. If necessary loosen the Setscrews carefully using the MIS Setscrew Driver.



Transverse Connector

Attach a Transverse Connector using the Transverse Connector Inserter. Connect the second Transverse Connector with the Transverse Connector Rod which is inserted via the Transverse Connector Rod Holder and attach it to the second rod of the construction. Align the elements and connect the Transverse Connectors using the Transverse Connector Rod.

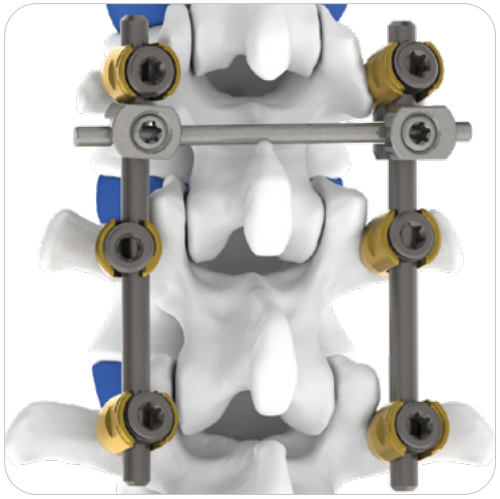
Tigthen the Setscrews all the way into the Transverse Connector using the Set Screw Driver.



Final Tightening

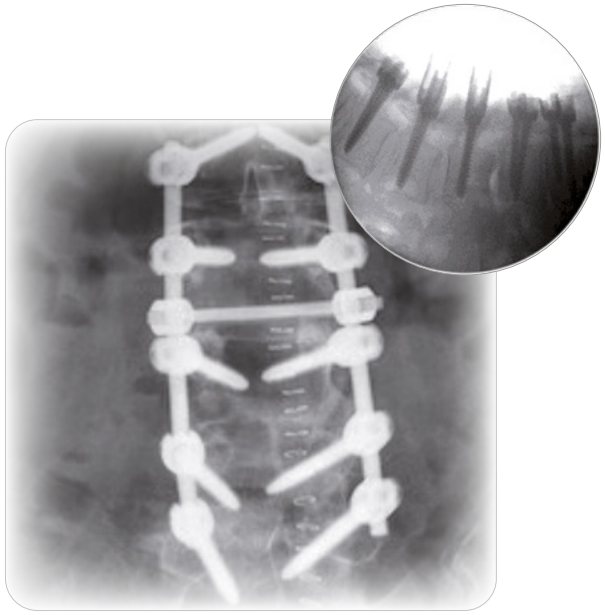
The Counter Holder is guided over the screw head and pushed all the way onto the rod. Ensure that the notches at the distal end of the Counter Holder take up the inserted rod. Couple the MIS Setscrew Driver and the Torque Driver - 12. Place the combined instruments through the fitted Counter Holder. Tighten the set screw in a clockwise direction. Follow the same approach for all other set screws.

Note:
The full torque of 12 Nm is reached when you hear a clicking sound in the Torque Driver. To ensure the maximum stability, care must be taken that the final torque with the Torque Driver is only applied when all repositioning and correction maneuvers are performed.



Final Construction

A spinal correction is usually a combination of many different techniques or maneuvers. The advantage of longhead screws is that the correction takes place slowly and distributes the forces over multiple segments.



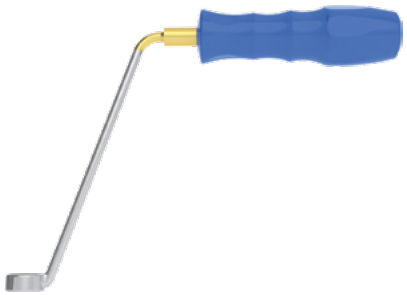
Final Check

Final check of the construction with X-ray control images taken in two planes. Cleaning of the surgical area and closure of the wound.

Reduction Screws

Art.No.	Description	
4000034830	2T Reduction Screw Ø4.8x30mm	Ø 4.8
4000034835	2T Reduction Screw Ø4.8x35mm	
4000034840	2T Reduction Screw Ø4.8x40mm	
4000034845	2T Reduction Screw Ø4.8x45mm	
4000035530	2T Reduction Screw Ø5.5x30mm	Ø 5.5
4000035535	2T Reduction Screw Ø5.5x35mm	
4000035540	2T Reduction Screw Ø5.5x40mm	
4000035545	2T Reduction Screw Ø5.5x45mm	
4000035550	2T Reduction Screw Ø5.5x50mm	
4000035555	2T Reduction Screw Ø5.5x55mm	
4000036535	2T Reduction Screw Ø6.5x35mm	Ø 6.5
4000036540	2T Reduction Screw Ø6.5x40mm	
4000036545	2T Reduction Screw Ø6.5x45mm	
4000036550	2T Reduction Screw Ø6.5x50mm	
4000036555	2T Reduction Screw Ø6.5x55mm	

Art.No.	Description	
4000037240	2T Reduction Screw Ø7.2x40mm	Ø 7.2
4000037245	2T Reduction Screw Ø7.2x45mm	
4000037250	2T Reduction Screw Ø7.2x50mm	
4000037255	2T Reduction Screw Ø7.2x55mm	
4000037260	2T Reduction Screw Ø7.2x60mm	

Art.No.	Description
1005010041	Long Head Sleeve 
1005010040	Reduction Crown Breaker 
1005010039	Shaft Reduction Screw Driver (ab Index 08) 
055061	Polyaxial Screw Driver 

HumanTech Spine

Manufacturing and Sales

HumanTech Spine GmbH

Gewerbestr. 5
D-71144 Steinenbronn

Germany

Phone: +49 (0) 7157 / 5246-71
Fax: +49 (0) 7157 / 5246-66
sales@humantech-spine.de
www.humantech-spine.de

Sales México

Human Tech Smart German Solutions, S. DE R.L. DE C.V.

Rio Mixcoac No. 212-3
Acacias del Valle
Del. Benito Juárez
C.P. 03240 Ciudad de México,
México

Phone: +52 (0) 55/5534 5645
Fax: +52 (0) 55/5534 4929
info@humantech-solutions.mx
www.humantech-spine.de

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