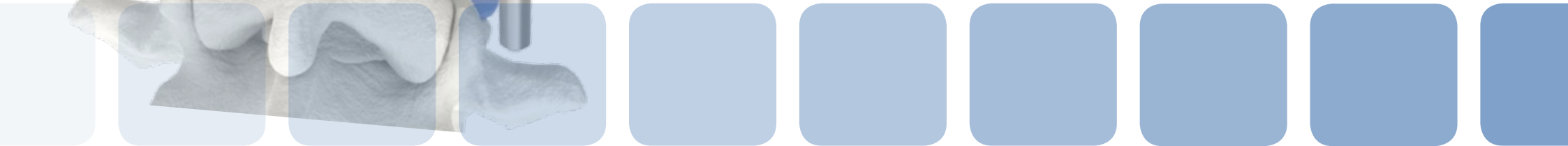




# VENUS<sup>®</sup>

SPINE FIXATION SYSTEM





The VENUS® Spinal System is designed for application in the thoracic and lumbar vertebrae regions. The main application area is the stabilization of the thoracic and lumbar spine areas. It can be used monosegmentally as well as multisegmentally. The system is characterized by its extremely high biomechanical stability. Additional assortments of numerous minimally invasive instrument modules are available, such as reduction screws, cannulated screws and hooks. A combination of the modules together with additional components can be used to increase the stability and security of the fixture.

In tumor-induced or traumatic fractures of the spinal segment, with a loss or absence of the ventral column, a unique posterior instrumentation is generally not sufficient for the stability of the segment, and requires an additional stabilization of the anterior structures with vertebral body replacement implants or other appropriate HumanTech Fixation Systems.

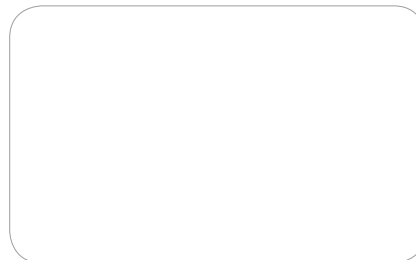
We develop and produce all of our implants and instruments inhouse in Germany, both today as well as in the future. „Made in Germany“ is for us a special quality seal, we are proud of. Our HumanTech competence team operates in all parts of the world. In-depth market analysis, as well as active renowned surgeons provide their know how for our production.

## Fusion and Revision of Implants

The VENUS®-Spinal System is ideal for usage in nearly all types of surgical disorders and injuries of the thoracic and lumbar vertebrae, such as instability, degenerative disc disorder, degenerative spondylolisthesis, degenerative stenosis, deformities such as scoliosis and kyphosis, fractures and spondylitis, as well as modification surgery.

### VENUS® Fixation

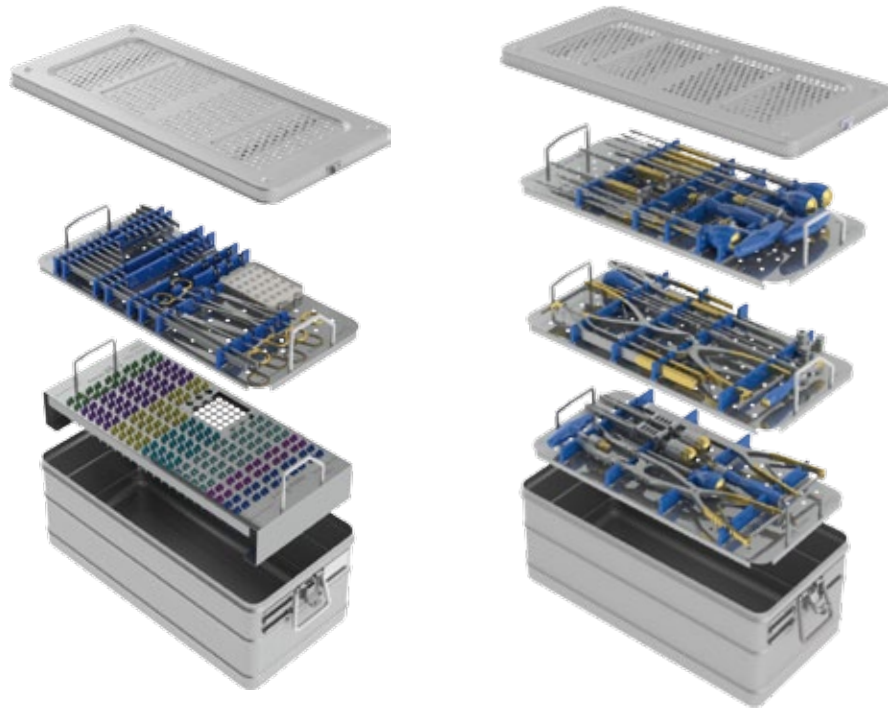
The perfect starting system with a unique cost effectiveness. The comprehensive selection of implants becomes completed user friendly and aesthetically.





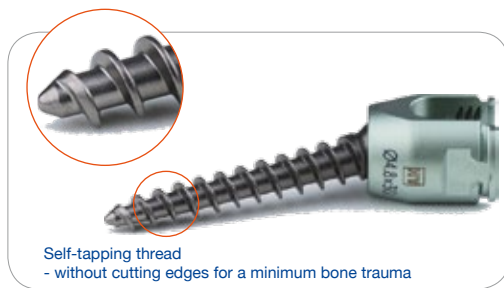
# VENUS®

Spine Fixation System



## Product-Specific Advantages

1. modular system
2. smooth reposition
3. smart navigation
4. optimal osseo-integration
5. self-locking thread
6. self-tapping thread
7. maximum biostability
8. inhouse development & production





The efficient, modular and clear instrumentation makes the VENUS® - Spinal System a universal system that permits its users a simple and safe implantation as well as the fixation of the relevant segments which is the primary objective of a stable posterior instrumentation.

## Implant Screws

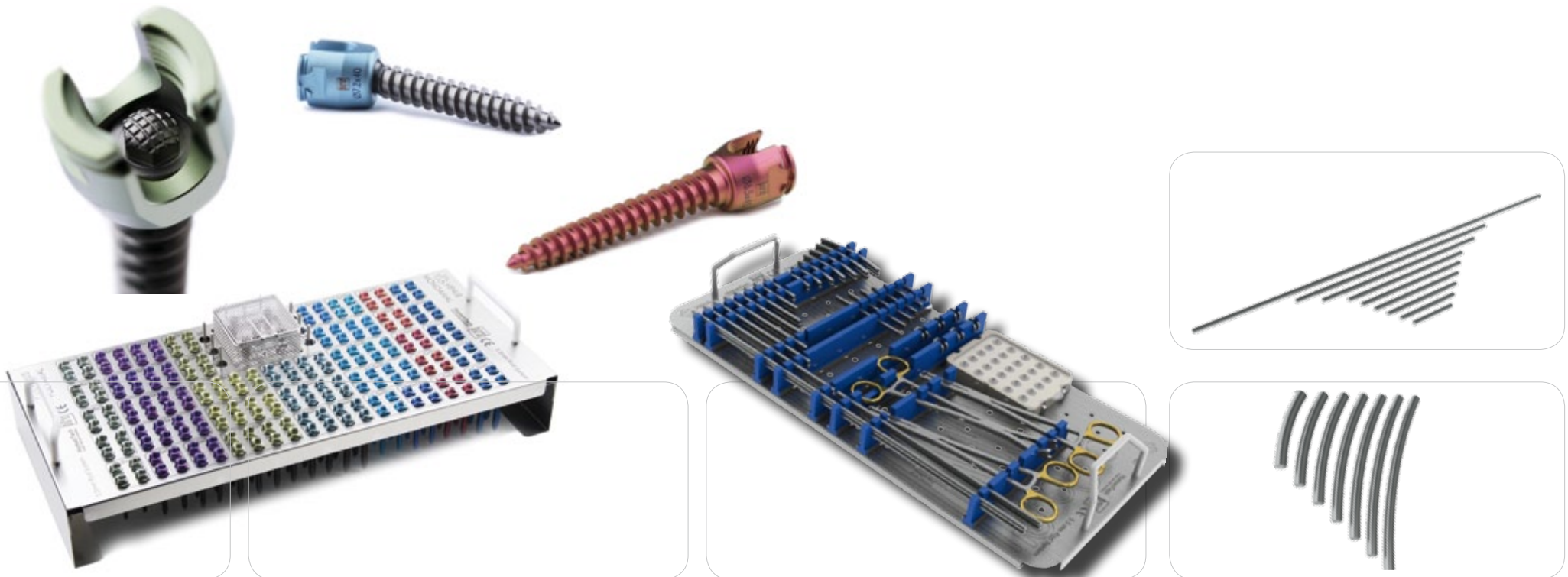
The unique, self-tapping thread design alleviates the need of an additional cutting procedure. The macro form structured screwheads provides a high level of biomechanical stability to the screw-rod system. The screws can be used both monosegmentally as well as polysegmentally.

Straight and curved thoracolumbar rods in various lengths, minimize the need of bending and cutting during surgery.

Phantomrods of Nitinol and special alignment marks on the rod, allow the optimum preparation of the rod before being inserted into the fixture.

## Implant Rods

VENUS® includes rods with hexagonal ends, which enable an „Independent Assembly Technology“ - a significant technological improvement.



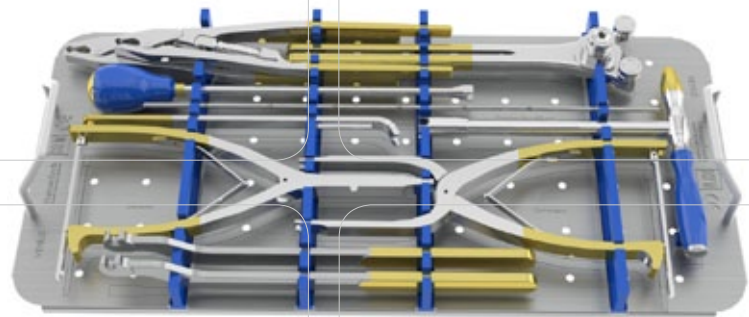
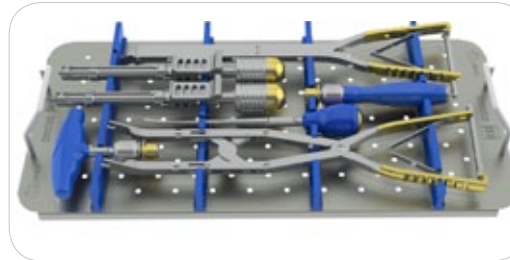
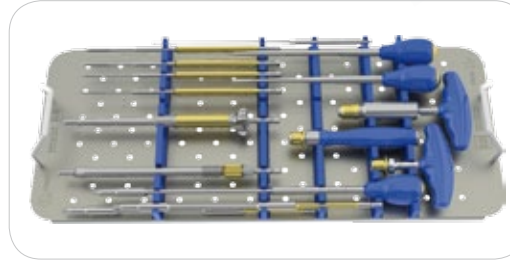


VENUS® Instruments are one of the most outstanding available surgical instrument systems. It represents the German art of engineering „Made in Germany“ based on ISO EC and FDA specifications. A highly-skilled quality management, accurate testing procedures and full traceability, ensure the highest production standards to which our customers can depend.

## Application Reliability

The pursuit of quality and precision are our incentives to develop new direction giving and effective ways for the optimization of the VENUS® System Instrumentation. In this process the close contact with customers and users is crucial for our innovations.

# VENUS®





### 1 Preparation of the Pedicle

Definition of the pedicle entry.  
Use Bone Awl to create pilot hole at pedicle entry point.

Note:  
The Awl is available with and without stop.



### 2 Probing

Preparing the pedicle canal.  
Carefully administer only slight pressure in half rotation steps, inserting the Bone Awl into the pedicle canal.

Note:  
There are two Bone Awl designs available: straight and curved.



### 3 Thread cutting (optional)

All Pedicle Screws are self tapping.  
In case of solid bone structure, where the use of a taps is essential, there are available corresponding taps for all screw diameters.





#### 4 Inserting the Pedicle Screws

##### **Monoaxial Screw:**

The tip of the Monoaxial Screwdriver snaps into the screwhead and fixates the screw. Inserting the screw into the pedicle canal.

##### **Polyaxial Screw:**

First, insert the Screwdriver tip (inner bolt) into the screwhead and place it on the hexagon of the threaded shaft. Then connect the external guide with the screwhead by screwing in the internal thread of the screwhead. Insert the screw into the pedicle canal.



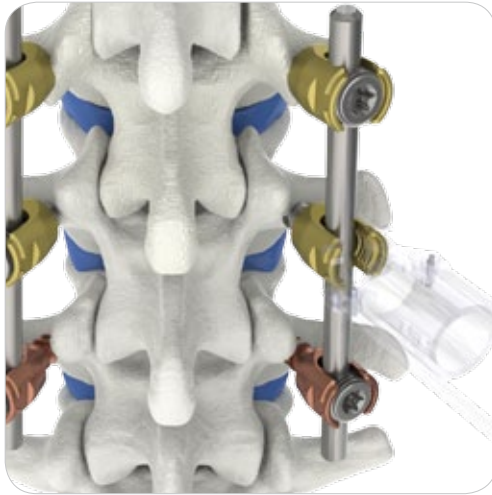
#### 5 Inserting the Rod

Determine the rod length. A Phantom Rod for easier determination of the rod length is included in the instrumentation. Insert the rod into the screwheads with Rod Holder Clamp and if necessary with the support of the fingertips. Fine-tune the rod contour and prebend the rod to the appropriate radius. If necessary, place the rod with Rod Pusher, or Rocker/Persuader/Approximator for correct positioning in the screwhead.



#### 6 Fixation of the Rod

Fix the rod in the screwhead with the setscrew using Set Screwdriver. To avoid cross-threading during insertion of the setscrew, turn first counter clockwise, until you feel „snapping“ the thread in the screwhead. Then continue screwing the setscrew.



### 7 Application of the Approximator

Place the Approximator on the screwhead. The side edges of the Approximator must fit form-closed on the sides of screwhead and snap in place. Carefully turn the handle clockwise. Reduction of the segment under visual inspection, if indicated use X-ray control. Cannulated insertion of the setscrews and fixation of the rod in the screwhead.

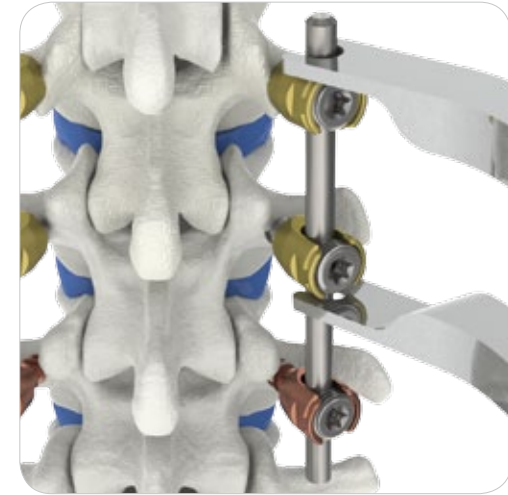
**Note:**

The connection between Approximator and the screwhead must be done smooth and without force. In case of doubt, remove the Approximator and prepare again.



### 8 Application of the Rocker

Attach the Persuador/Rocker to the screwhead by sliding the side fork ends in the lateral millings of the screwhead. Lever the shaft of the Persuador/Rocker until it fits on the bar. Then continue levering carefully under visual control, if necessary X-ray control, until rod and screwhead are form-closed connected. Insertion of the setscrews and fixation of the rod in the screwhead.



### 9 Compression / Distraction

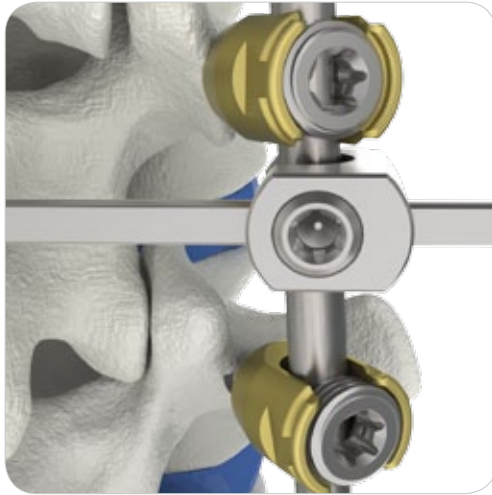
Place the compressor or distractor on the screwheads and carry out the compression/distraction procedure until you have achieved the desired position. Tighten the setscrews using the Setscrew Driver to secure the proper compression/distraction result.

**Note:**

Make sure the setscrews are not tightened during assembling. If necessary, loosen the setscrews again using the Setscrew Driver.

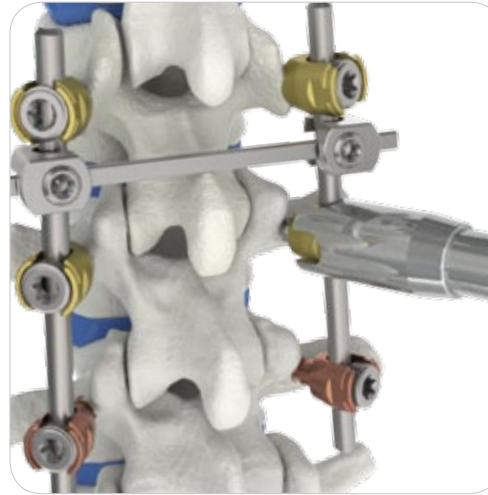
# VENUS®





### 10 Transverse Connector

Attach a transverse connector hook to the rod. Fix the rod to the transverse connector and then attach the second transverse connector hook to the rod. Connect the rod to the second hook. Tighten the setscrews into the transverse connector hook by using the Setscrew Driver.

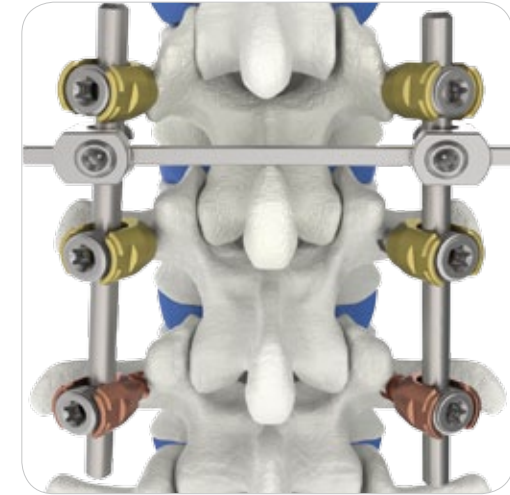


### 11 Complete Fixation

Interlock the Torque Driver with the Counter Holder. Place this combined instrument over the screwhead. You may also attach the two instruments separately. Tighten the setscrew. Proceed in the same manner with the remaining setscrews.

**Note:**

You will have reached the full torque of 10 Nm when the two arrows on the head of the Torque Key are aligned or when an acoustic signal is heard.



### 12 Final Assembly

Check the result of the final assembly using X-ray imaging in two planes. Clean the surgery area and close the wound.

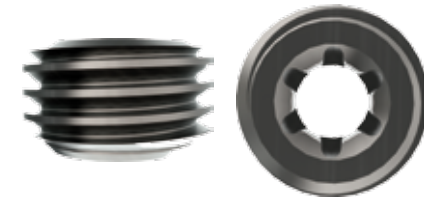


## VENUS® 5.5mm

## Monoaxial Screw

Art.No.	Description	Diameter	Length
VL-PMS	Polyaxial / Monoaxial Setscrew		
VL-MS-5-4830	Monoaxial Screw	4,8mm	30mm
VL-MS-5-4835	Monoaxial Screw	4,8mm	35mm
VL-MS-5-4840	Monoaxial Screw	4,8mm	40mm
VL-MS-5-4845	Monoaxial Screw	4,8mm	45mm
VL-MS-5-5525	Monoaxial Screw	5.5mm	25mm
VL-MS-5-5530	Monoaxial Screw	5.5mm	30mm
VL-MS-5-5535	Monoaxial Screw	5.5mm	35mm
VL-MS-5-5540	Monoaxial Screw	5.5mm	40mm
VL-MS-5-5545	Monoaxial Screw	5.5mm	45mm
VL-MS-5-5550	Monoaxial Screw	5.5mm	50mm
VL-MS-5-5555	Monoaxial Screw	5.5mm	55mm
VL-MS-5-6535	Monoaxial Screw	6.5mm	35mm
VL-MS-5-6540	Monoaxial Screw	6.5mm	40mm
VL-MS-5-6545	Monoaxial Screw	6.5mm	45mm
VL-MS-5-6550	Monoaxial Screw	6.5mm	50mm
VL-MS-5-6555	Monoaxial Screw	6.5mm	55mm
VL-MS-5-7240	Monoaxial Screw	7.2mm	40mm
VL-MS-5-7245	Monoaxial Screw	7.2mm	45mm
VL-MS-5-7250	Monoaxial Screw	7.2mm	50mm
VL-MS-5-7255	Monoaxial Screw	7.2mm	55mm
VL-MS-5-7260	Monoaxial Screw	7.2mm	60mm

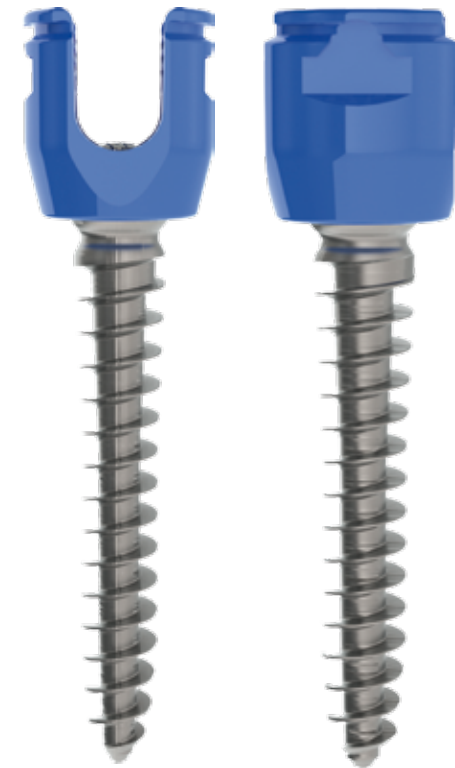
## Setscrew



## VENUS® 5.5mm

## Polyaxial Screw

Art.No.	Description	Diameter	Length
VL-PS-5-4825	Polyaxial Screw	4.8mm	25mm
VL-PS-5-4830	Polyaxial Screw	4.8mm	30mm
VL-PS-5-4835	Polyaxial Screw	4.8mm	35mm
VL-PS-5-4840	Polyaxial Screw	4.8mm	40mm
VL-PS-5-4845	Polyaxial Screw	4.8mm	45mm
VL-PS-5-5525	Polyaxial Screw	5.5mm	25mm
VL-PS-5-5530	Polyaxial Screw	5.5mm	30mm
VL-PS-5-5535	Polyaxial Screw	5.5mm	35mm
VL-PS-5-5540	Polyaxial Screw	5.5mm	40mm
VL-PS-5-5545	Polyaxial Screw	5.5mm	45mm
VL-PS-5-5550	Polyaxial Screw	5.5mm	50mm
VL-PS-5-5555	Polyaxial Screw	5.5mm	55mm
VL-PS-5-6525	Polyaxial Screw	6.5mm	25mm
VL-PS-5-6530	Polyaxial Screw	6.5mm	30mm
VL-PS-5-6535	Polyaxial Screw	6.5mm	35mm
VL-PS-5-6540	Polyaxial Screw	6.5mm	40mm
VL-PS-5-6545	Polyaxial Screw	6.5mm	45mm
VL-PS-5-6550	Polyaxial Screw	6.5mm	50mm
VL-PS-5-6555	Polyaxial Screw	6.5mm	55mm



## VENUS® 5.5mm

## Polyaxial Screw

Art.No.	Description	Diameter	Length
VL-PS-5-7240	Polyaxial Screw	7.2mm	40mm
VL-PS-5-7245	Polyaxial Screw	7.2mm	45mm
VL-PS-5-7250	Polyaxial Screw	7.2mm	50mm
VL-PS-5-7255	Polyaxial Screw	7.2mm	55mm
VL-PS-5-7260	Polyaxial Screw	7.2mm	60mm



## Transverse Connector

Art.No.	Description	Diameter	Length
1001050500	Transverse Connector Hook	5.0mm	
1001040100	Transverse Connector Torx Screw 30		
VL-TR-50	Transverse Connector Rod		50mm
VL-TR-60	Transverse Connector Rod		60mm
VL-TR-70	Transverse Connector Rod		70mm
VL-TR-80	Transverse Connector Rod		80mm
VL-TR-90	Transverse Connector Rod		90mm
VL-TR-100	Transverse Connector Rod		100mm





## Inline Rod Connector

## VENUS® 5.5mm

Art.No.	Description
VL-REA-5/5	Inline Rod Connector 5/5 cpl
VL-REA-5/6	Inline Rod Connector 5/6 cpl
VL-REA-6/6	Inline Rod Connector 6/6 cpl
VL-REAS	Inline Rod Connector Set Screw

## Rod

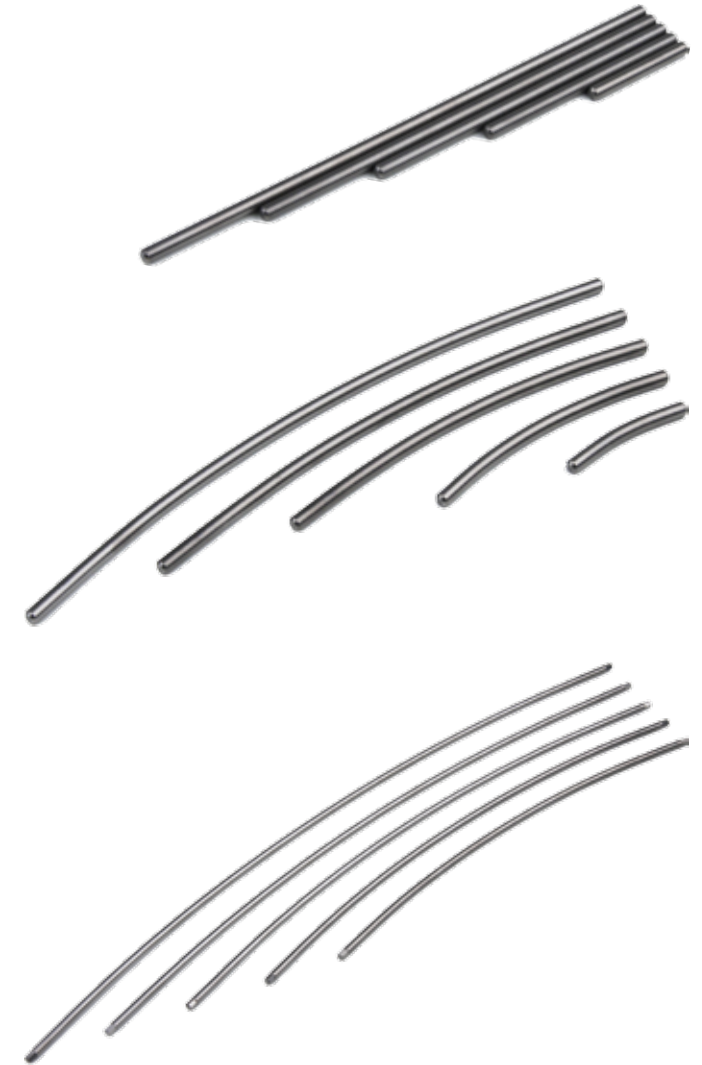
Art.No.	Description	Diameter	Length
VL-RS-5-5	Rod, straight	5.5mm	50mm
VL-RS-5-7	Rod, straight	5.5mm	70mm
VL-RS-5-9	Rod, straight	5.5mm	90mm
VL-RS-5-10	Rod, straight	5.5mm </td <td>100mm</td>	100mm
VL-RS-5-11	Rod, straight	5.5mm	110mm
VL-RS-5-13	Rod, straight	5.5mm	130mm
VL-RS-5-15	Rod, straight	5.5mm	150mm
VL-RS-5-20	Rod, straight	5.5mm	200mm
VL-RS-5-25	Rod, straight	5.5mm	250mm
VL-RS-5-30	Rod, straight	5.5mm	300mm
VL-RS-5-35	Rod, straight	5.5mm	350mm
VL-RS-5-40	Rod, straight	5.5mm	400mm
VL-RS-5-45	Rod, straight	5.5mm	450mm



## Rod

## VENUS® 5.5mm

Art.No.	Description	Diameter	Length
VL-RS-5-30-HEX	Rod straight HEX	5.5mm	300mm
VL-RS-5-35-HEX	Rod straight HEX	5.5mm	350mm
VL-RS-5-40-HEX	Rod straight HEX	5.5mm	400mm
VL-RS-5-45-HEX	Rod straight HEX	5.5mm	450mm
VL-RS-5-60-HEX	Rod straight HEX	5.5mm	600mm
VL-RC-5-4	Rod curved	5.5mm	40mm
VL-RC-5-5	Rod curved	5.5mm	50mm
VL-RC-5-6	Rod curved	5.5mm	60mm
VL-RC-5-7	Rod curved	5.5mm	70mm
VL-RC-5-8	Rod curved	5.5mm <td 80mm	
VL-RC-5-9	Rod curved	5.5mm	90mm
VL-RC-5-10	Rod curved	5.5mm	100mm
VL-RC-5-15	Rod curved	5.5mm	150mm
VL-RC-5-20	Rod curved	5.5mm	200mm
VL-RC-5-25	Rod curved	5.5mm	250mm
VL-RC-5-30-HEX	Rod curved HEX	5.5mm	300mm
VL-RC-5-35-HEX	Rod curved HEX	5.5mm	350mm
VL-RC-5-40-HEX	Rod curved HEX	5.5mm	400mm
VL-RC-5-45-HEX	Rod curved HEX	5,5mm	450mm
VL-RC-5-50-HEX	Rod curved HEX	5.5mm	500mm



## Other rod systems on demand:

### Fluted Rod 5.5mm

The fluted rods are characterized by the following advantages:

**Higher extract moment**

- hereby results a better fit into the implants.

**Higher bending moment**

- for the deformation is about 15% higher force required, than the plain bars.

**Higher return bending strength**

- The increased effort for the rebound of about 10% leads to a higher stability of the fixation.



### CoCr-Rod 5.5mm

Due to the higher stiffness of the cobalt chrome rod in comparison to the titanium rod a better possibility of correction takes place, for example at large deformities.



## VENUS®

Art.No.	Description
055067	Pedicle Sounder
055054	Tap Ø 4.8mm
055051	Tap Ø 5.5mm
055052	Tap Ø 6.5mm
055053	Tap Ø 7.2mm



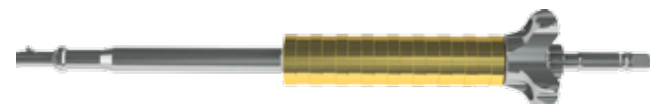


## VENUS®

Art.No.	Description
055068	Awl
1001010047	Awl without stop
055217	Pedicle Probe
055271	Pedicle Probe curved

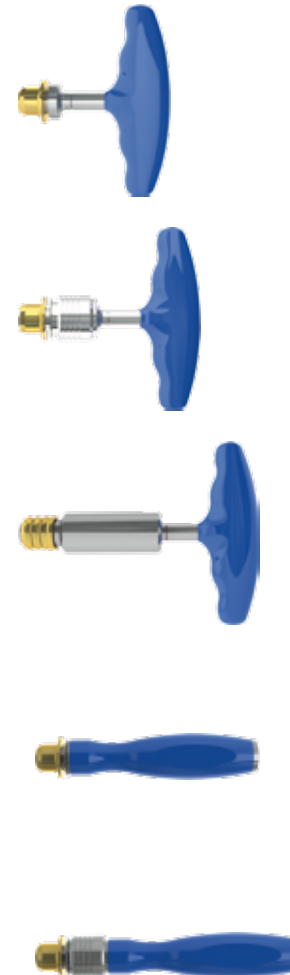


Art.No.	Description
055059	Monoaxial Screw Driver Ø 5.5mm
1001011000	Polyaxial Screw Inserter
055061	Polyaxial Screw Driver
055065	Set Screw Inserter
055064	Set Screw Driver
055071	Approximator Clamp ø 5,5mm



## VENUS®

Art.No.	Description
055077	T-Handle
055078	Ratchet T-Handle
055279	Torque Driver-10
055079	Handle Straight
055080	Ratchet Handle straight



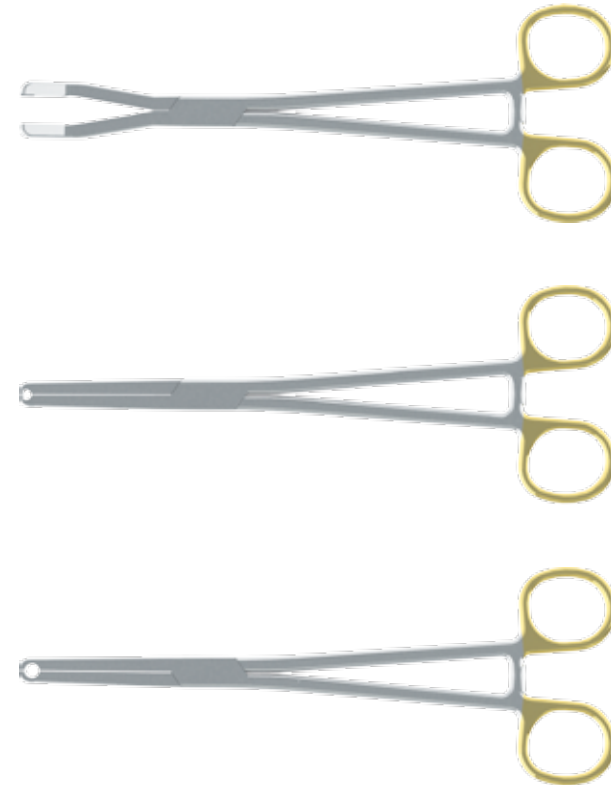
Art.No.	Description
055081	Rod Pusher
055083	Bending Iron Ø 5.5mm
055168	Counter Holder Ø 5.5mm/ Ø 6.35mm
055057 055273	Phantom Rod Nitinol 200mm Phantom Rod Nitinol 400mm
1001010048	Rocker Ø 5.5mm





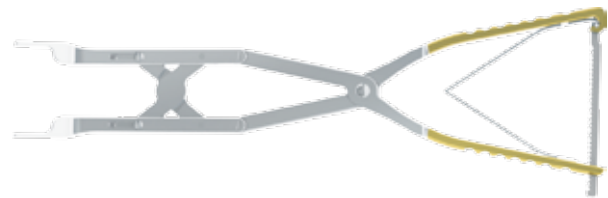
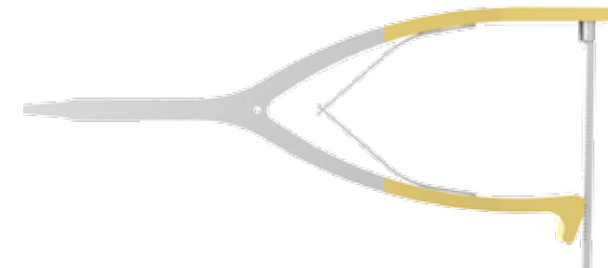
## VENUS®

Art.No.	Description
1001010050	Transverse Connector Inserter
1001010051	Transverse Connector Rod Holder
1001010052	Rod Inserter



## VENUS®

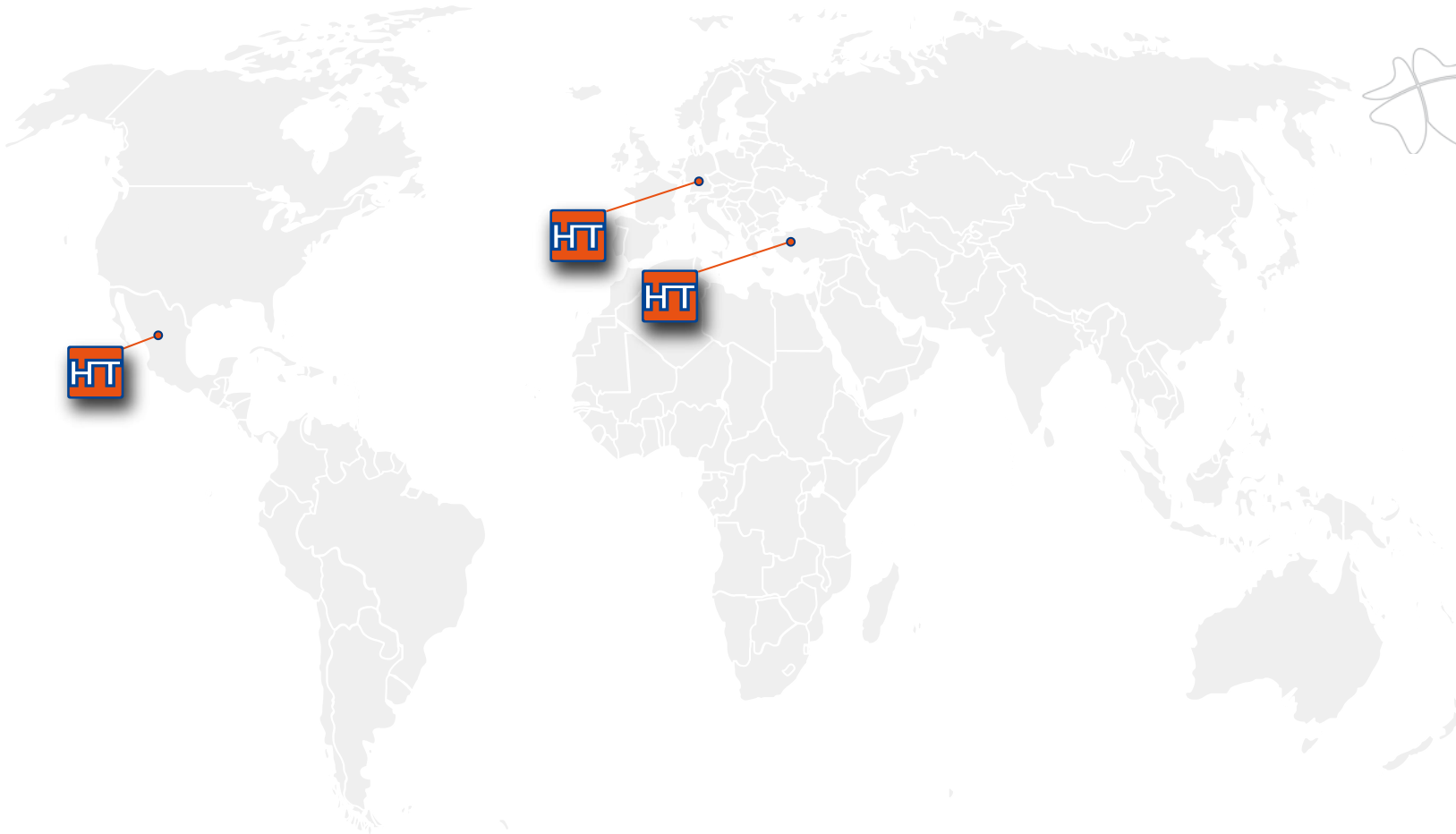
Art.No.	Description
055259	Compressor
055262	Distractor
055293	Parallel Compressor AT
055249	Parallel Distractor AT



VENUS®

Art.No.	Description
055084	Rod Cutter 5.50 & 6.35
055069	Rod Bender
055072	Rod Holder





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