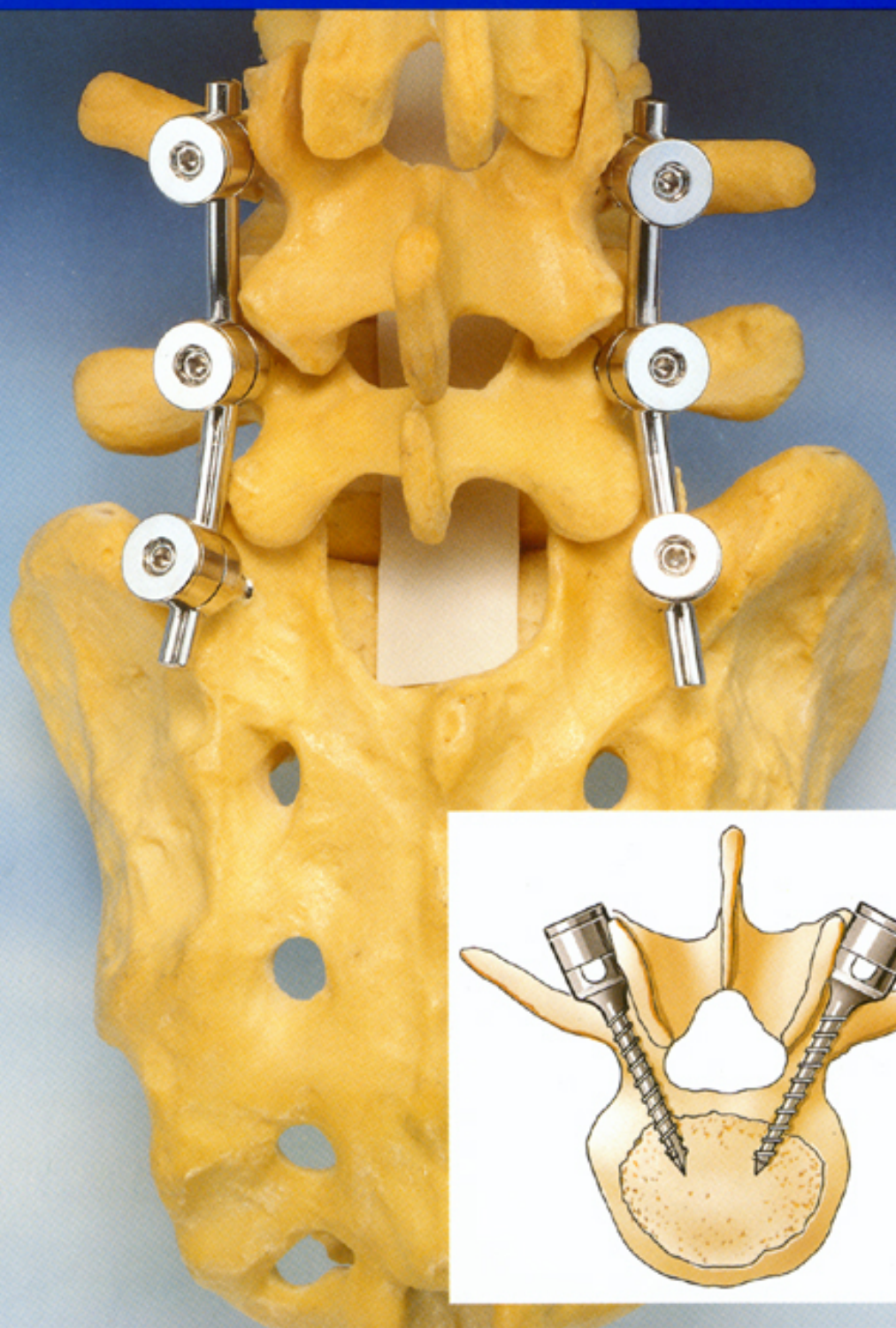


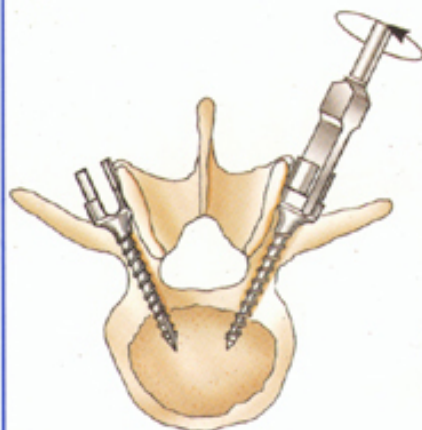
# The Mehddian Pedicle Screw System™

Developed by Mr. S.M.H. Mehddian, Consultant Orthopaedic  
Spinal Surgeon at the Queen's Medical Centre, Nottingham.



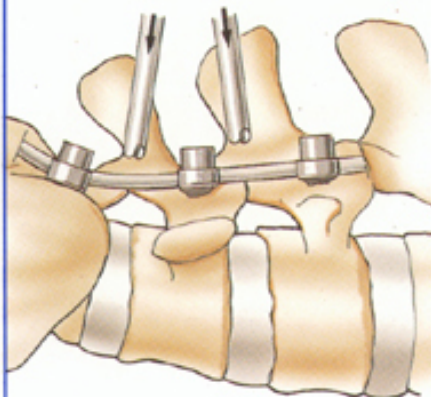
# Operative Technique

10



Seating the screw:  
Final screw positioning is achieved using the pedicle screw driver.

11



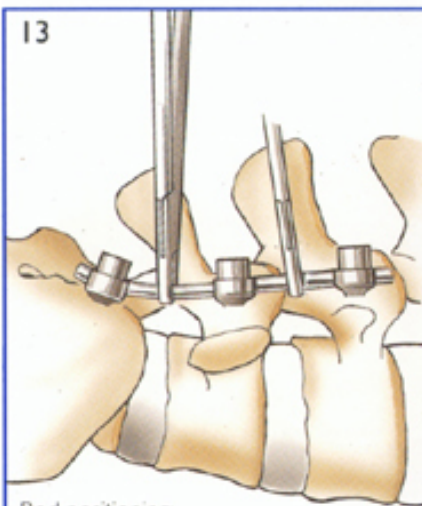
Rod contouring:  
A malleable rod is positioned across the screw heads and deformed to shape using the rod pushers.

12



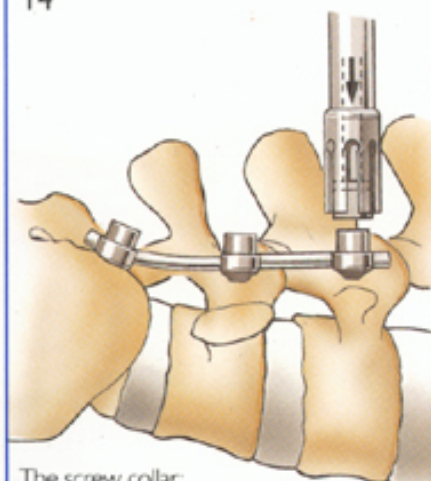
Rod bending:  
The malleable rod provides a template for contouring the definitive rod with the rod bender.

13



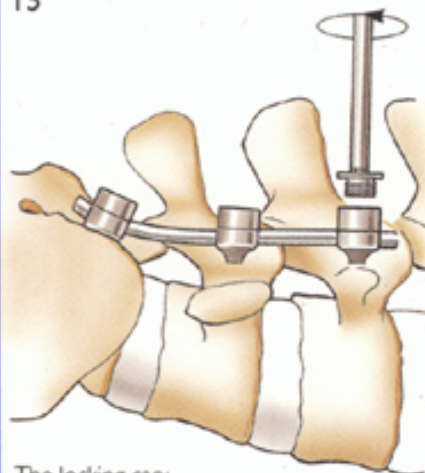
Rod positioning:  
With the aid of the rod introducers, the definitive rod is positioned across the screw heads.

14



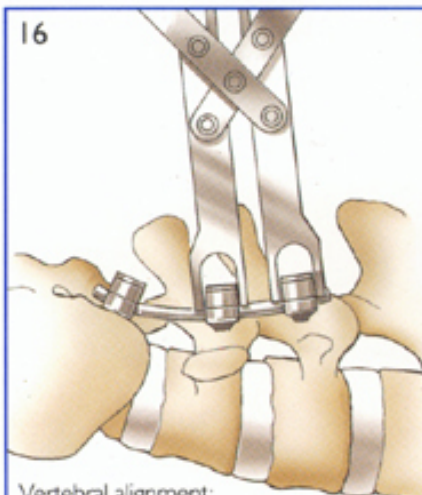
The screw collar:  
Using the collar introducer, a collar is positioned over each pedicle screw head.

15



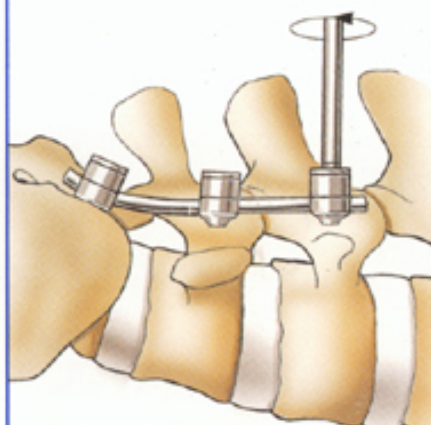
The locking cap:  
A large hexagonal screw driver is used to introduce the locking cap and pinch the rod in position.

16



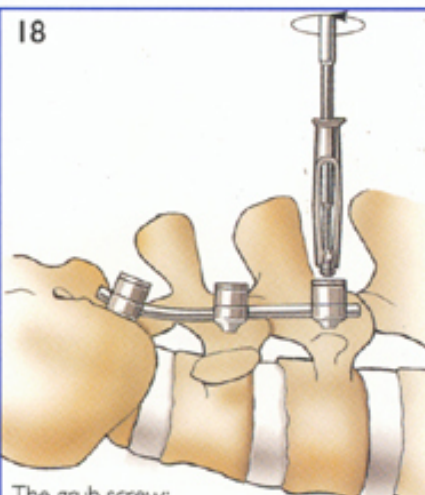
Vertebral alignment:  
Final manipulation is achieved using the compressor/distractor which is positioned over two adjacent pedicle screw heads.

17



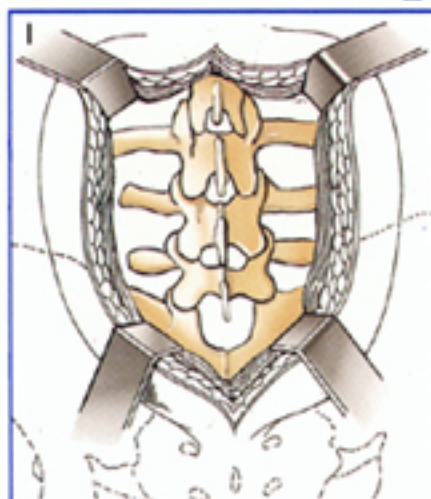
Collar tightening:  
The large hexagonal screw driver is re-employed to achieve high pressure clamping.

18

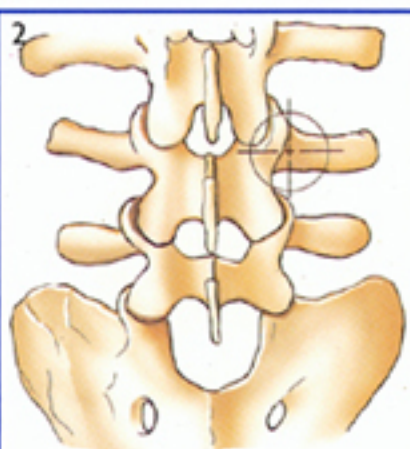


The grub screw:  
With the aid of the small hexagonal screw driver, the grub screw is introduced and tightened to achieve final locking.

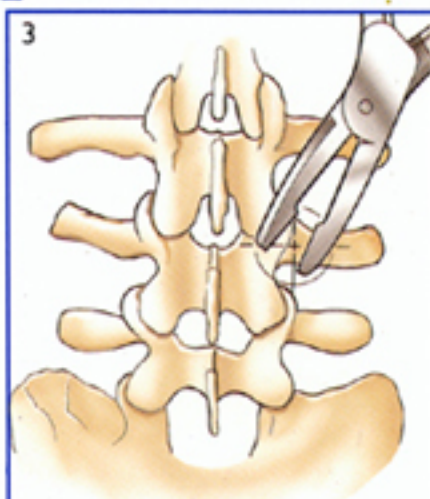
# Operative Technique



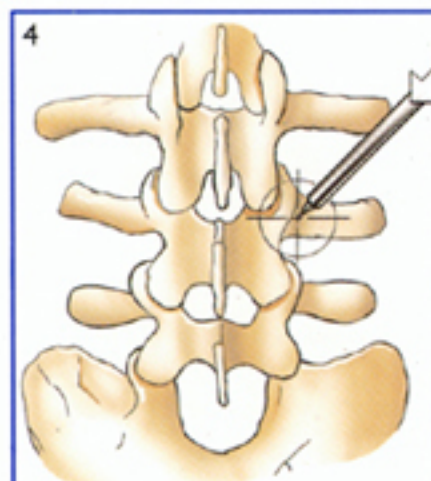
**1**  
**Surgical Exposure:**  
Longitudinal mid-line skin incision. The capsule and articular cartilage in the joints included in the fusion are removed.



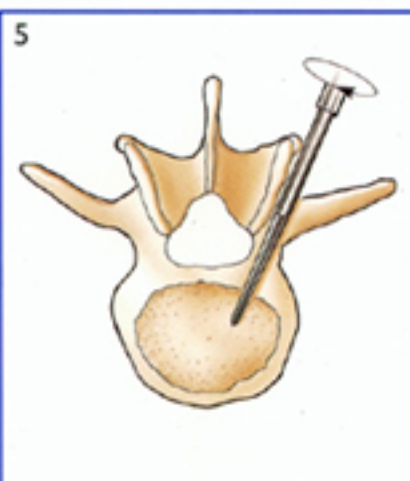
**2**  
**Identification of implant sites:**  
The precise point of screw entry is highly critical. The pedicle canal is most consistently located at the intersection illustrated above.



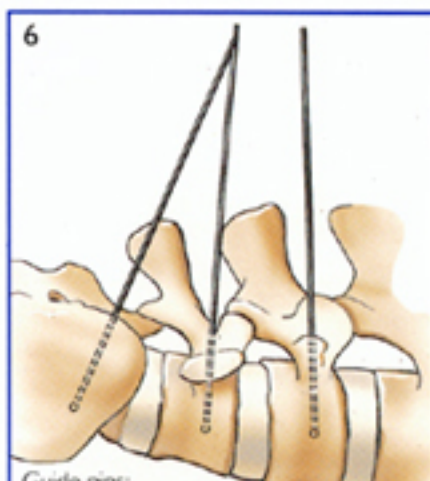
**3**  
**Entry point trimming:**  
Prior to creating a hole in the pedicle canal, the inferior lateral border of the superior articular facet is trimmed.



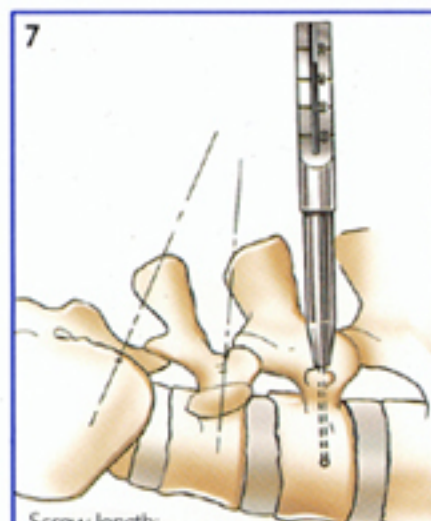
**4**  
**Hole site preparation:**  
A start hole in the pedicle canal is achieved by careful insertion of the trocar.



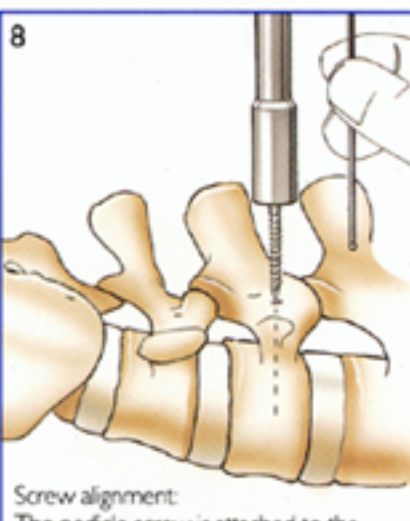
**5**  
**Pedicle reamer:**  
The blunt ended pedicle reamer is used to deepen the start hole and probe the pedicle canal.



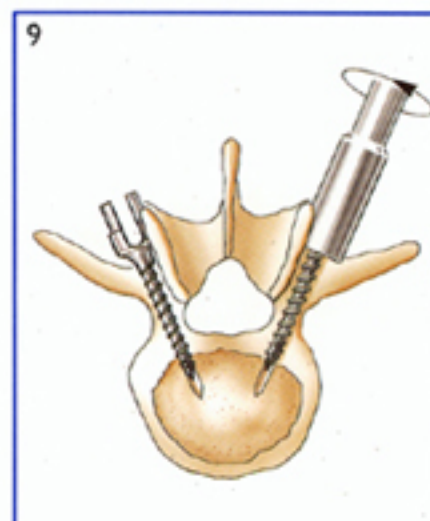
**6**  
**Guide pins:**  
X-ray guide pins are placed in the pedicle canal holes. Two different diameter pins are used to differentiate between right and left screw sites.



**7**  
**Screw length:**  
Screw length is determined by sliding the back measure over the guide pin and reading from the scale.



**8**  
**Screw alignment:**  
The pedicle screw is attached to the screw introducer. To achieve alignment the screw introducer is placed in the same plane as the guide pin.



**9**  
**Introduction of the screw:**  
The screw is inserted as far as the screw introducer will allow.



*Dedicated instruments ensure optimal implant positioning and manipulation*

## Indications for Surgery

- Degenerative spinal disease.
- Spondylolytic spondylolisthesis
- Post-laminectomy Syndrome.
- Pseudarthrosis.
- Spinal trauma.
- Primary and metastatic tumours.
- Ankylosing spondylitis.
- Support for any form of arthrodesis.

## Advantages of the Mehdiian Pedicle Screw System

The Mehdiian Pedicle Screw System provides versatile fixation in a variety of conditions for the treatment of spinal disorders. It allows surgeons to effectively immobilise selected segments of the spinal column against relative movement. Specific design advantages include:-

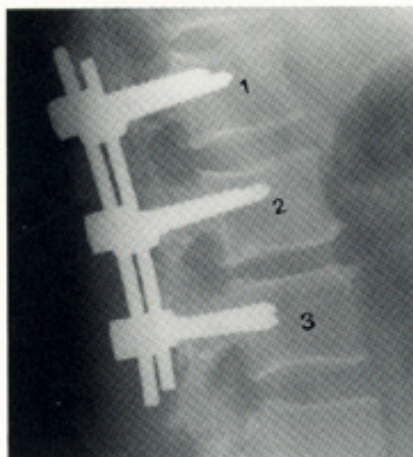
- Low profile design.
- High degree of clamping.
- High rate of fusion.
- Early mobilisation.
- Easy to use implants and instruments.
- No wires.
- No plates or frames.
- Wide range of implant options.

## Technical Support

The surgical technique used with the Mehdiian Pedicle Screw System is fully supported by Corin's systematic approach to training.

Copies of the operative technique video are available.

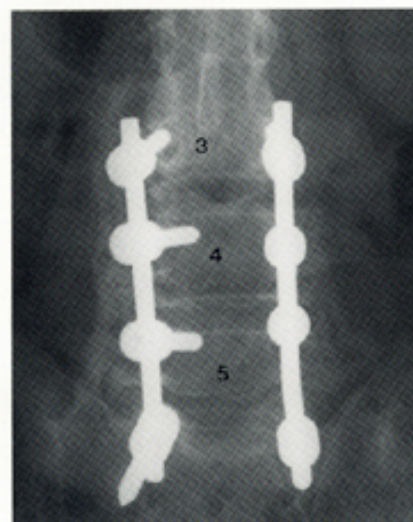
## Clinical Results



Post-operative X-ray of a 46 year old male with spinal instability syndrome due to previous laminectomy operation (Post-laminectomy syndrome). Treatment by posterolateral fusion and transpedicular fixation.



Post-operative X-ray of a 22 year old female with grade 3 lytic spondylolisthesis, associated with mechanical low back and bilateral leg pain. Treatment by posterolateral fusion L4/S1 with transpedicular fixation.



Post-operative X-ray of a 40 year old male with Ankylosing Spondylitis. Kyphotic deformity of the lumbar spine resulted in loss of horizontal gaze. Treatment by multilevel hyperextension lumbar osteotomy with fusion and transpedicular fixation restored horizontal gaze.

## Applications

Spinal instability can be caused by trauma, tumours, degenerative disease or previous surgery. Fusions of the lumbar spine, including the lumbosacral junction, can be indicated if instability is present. The fusion rate and time to fuse can be enhanced by combining the procedure with rigid internal fixation provided by the Mehdiian Pedicle Screw System.

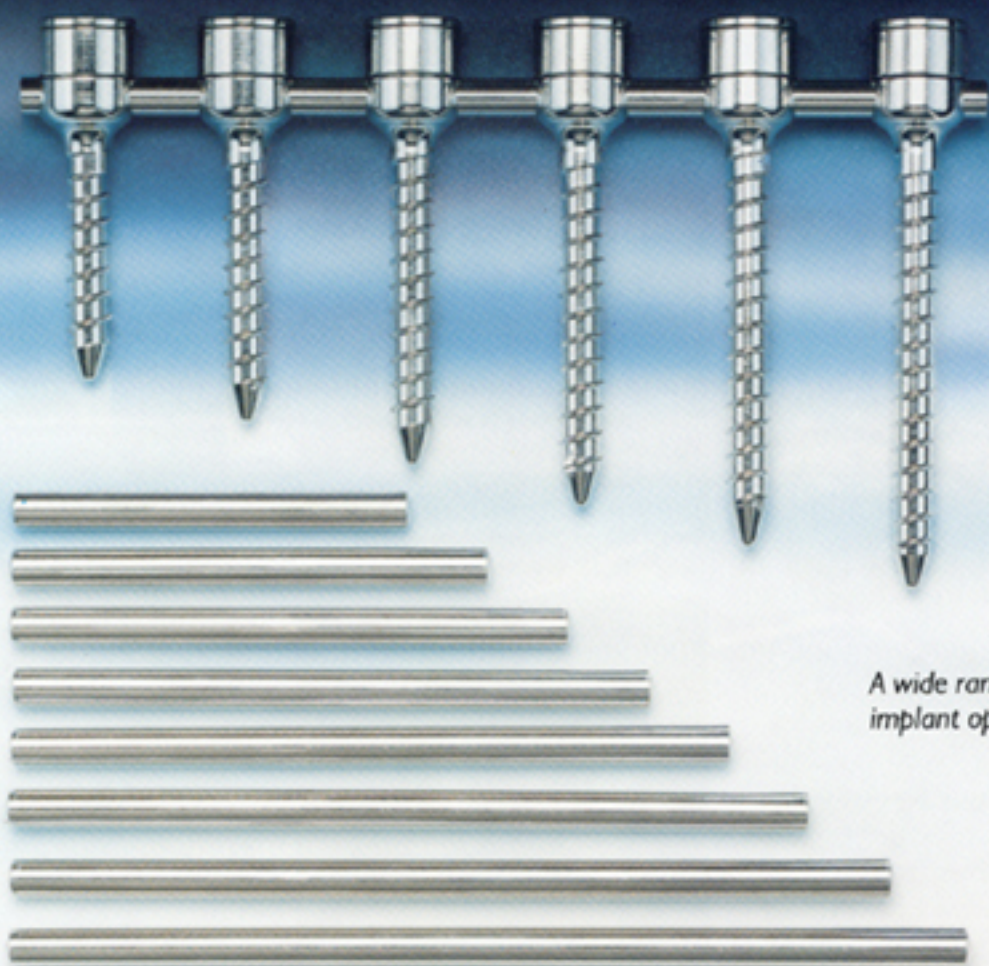
Clinical results reported from Princess Elizabeth Orthopaedic Hospital, Exeter, England, have shown the Mehdiian Pedicle Screw System to be a satisfactory method of achieving stable fixation<sup>(3)</sup>.

A biomechanical study<sup>(4)</sup> to quantify the relative rigidity of the spine from L3 to S1 by seven different fixation devices concludes that only pedicle systems were stable throughout flexion, extension and axial rotation.

The Mehdiian Pedicle Screw System allows the surgeon to: optimally position pedicle screws in selected vertebral segments; to perform a reduction of rotated or translated vertebrae; and then to rigidly fix them, thus performing true three-dimensional spinal reconstruction.

## Instrumentation

A comprehensive range of instruments has been designed as part of the Mehdiian Pedicle Screw System. The specification for each instrument is the result of Mr. Mehdiian's product development and extensive clinical experience. Each operative step has dedicated instruments to ensure optimal implant positioning and manipulation.

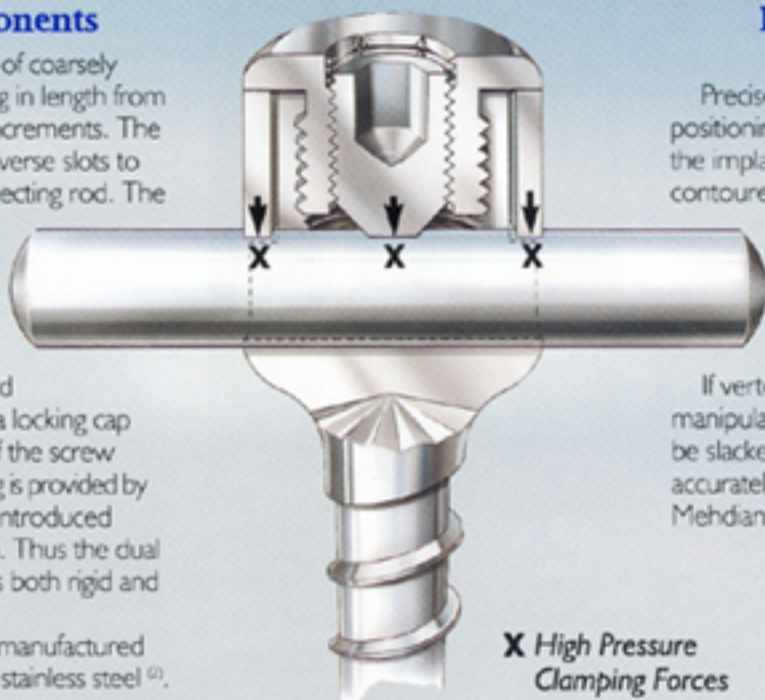


*A wide range of implant options*

### The Components

The implant consists of coarsely threaded screws ranging in length from 30 to 55mm in 5mm increments. The screw heads have transverse slots to accept a solid interconnecting rod. The rod is seated in the slot and a clamping collar positioned over the reduced diameter of the screw head. A hexagonal screwdriver is employed to position and tighten a locking cap into the counterbore of the screw head. Additional clamping is provided by means of a grub screw introduced through the locking cap. Thus the dual action grip on the rod is both rigid and secure.

All components are manufactured from implantable grade stainless steel (1).



**X High Pressure Clamping Forces**

### Positioning and Manipulation

Precise rod contouring is achieved by positioning a trial malleable rod across the implanted screw slots. The rod is contoured by hand to the required shape and removed to provide an accurate template for contouring the definitive rod. This is achieved by means of the rod bender.

If vertebral segments require final manipulation, the clamping screws can be slackened and the pedicle screws accurately repositioned by means of the Mehdian Compressor/Distractor.

# The Mehdian Pedicle Screw System



## The Concept

Multi-segmental spinal fixation is a well established surgical procedure. Clinical experience and product development over the last two decades has resulted in a finely engineered pedicle screw system which enables the spinal surgeon to achieve reliable and stable fixation.

The Mehdian Pedicle Screw System is a versatile method of treatment for a variety of disorders particularly in the lumbar region. The unique<sup>(1)</sup> clamping method is specifically designed to overcome the incidence of rod migration and screw head loosening.

# Ordering Information

## Implants

| Item No. | Description                    |
|----------|--------------------------------|
| 156.010  | Pedicle Screw Set, length 30mm |
| 156.011  | Pedicle Screw Set, length 35mm |
| 156.012  | Pedicle Screw Set, length 40mm |
| 156.013  | Pedicle Screw Set, length 45mm |
| 156.014  | Pedicle Screw Set, length 50mm |
| 156.015  | Pedicle Screw Set, length 55mm |
| 156.210  | Spinal Rod, length 50mm        |
| 156.211  | Spinal Rod, length 60mm        |
| 156.212  | Spinal Rod, length 70mm        |
| 156.213  | Spinal Rod, length 80mm        |
| 156.214  | Spinal Rod, length 90mm        |
| 156.215  | Spinal Rod, length 100mm       |
| 156.216  | Spinal Rod, length 110mm       |
| 156.217  | Spinal Rod, length 120mm       |

## Instruments

| Item No. | Description                    |
|----------|--------------------------------|
| 256.999  | Spinal Instrument Set Complete |
| 256.100  | Instrument Sterilisation Box   |
| 256.010  | Trocar                         |
| 256.011  | Drill Bit                      |
| 256.012  | Reamer                         |
| 256.013  | Thick Guide Pin x 5            |
| 256.014  | Thin Guide Pin x 5             |
| 256.015  | Back Measure                   |
| 256.016  | Curette                        |
| 256.017  | Pedicle Screw Introducer       |
| 256.018  | Pedicle Screw Driver           |
| 256.019  | Malleable Rod                  |
| 256.020  | Rod Bender                     |
| 256.021  | Rod Holder x 2                 |
| 256.022  | Rod Pusher x 2                 |
| 256.023  | Screw Collar Introducer        |
| 256.024  | Locking Cap Screw Driver       |
| 256.025  | Grub Screw Driver              |
| 256.026  | Pedicle Probe                  |
| 256.027  | Compressor/Distractor          |

## References:

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Heidelberg, Germany, May 12-16,  
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## Sterilisation Boxes



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