

WSI MX/PX-TITAN EXPERTISE

INNOVATIVE DESIGN - MORE SAFETY



PETER BREHM
Die Präzision in Titan
für den Menschen

Implant concept

WSI MX/PX-Titan Expertise is a modular spinal fixator system with proven pedicle screw technology, above-average mechanical stability of the rod-screw connection due to an innovative screw head design and convincing clinical advantages.



Always sterile packed – always safe.

Design characteristics

Monoaxial (MX) and polyaxial (PX) screws, optionally with BONIT® coating* and their clinical advantages (Fig. 1)

- | Improved mechanical fixation^{1,3}
- | Ideal proliferation conditions for osteoblasts, more bone attachment¹
- | Accelerated and improved osseointegration of the implant¹
- | Less osteolytic edges³

Distal plug and lateral fenestration of the BONIT® coated screws for the proven, additional anchoring through cement augmentation (Fig. 2)

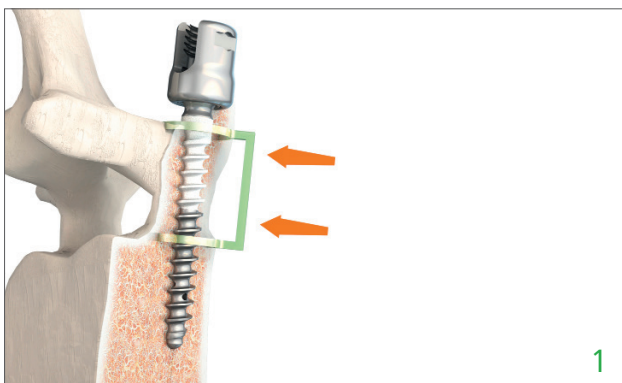
- | High extraction forces of augmented screws, especially in osteoporotic bone⁴
- | Homogeneous distribution of the cement without risk of leakage⁴

Undercut buttress thread and special clamping cage for securing the screw in the screw head and patented Diamond-Like-Carbon (DLC) coating (Fig. 3, 4)

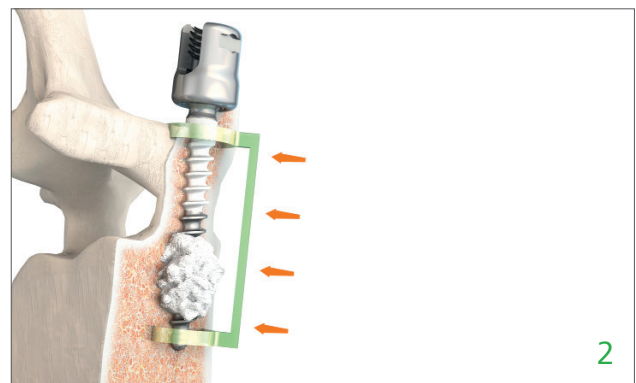
- | Increased resulting clamping force of the grub screw at the same tightening torque compared to conventional pedicle screws⁵
- | High stability of rod-screw connection in small installation space^{6,7}

Rod variants in different lengths, radii of curvature and materials

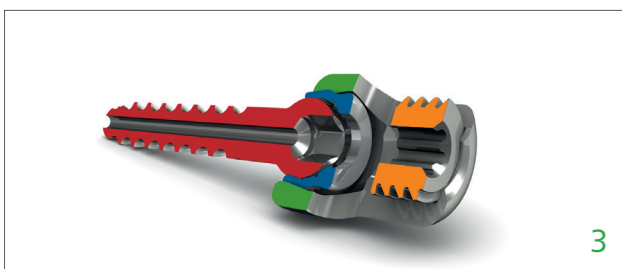
Sterile packaging for all implants



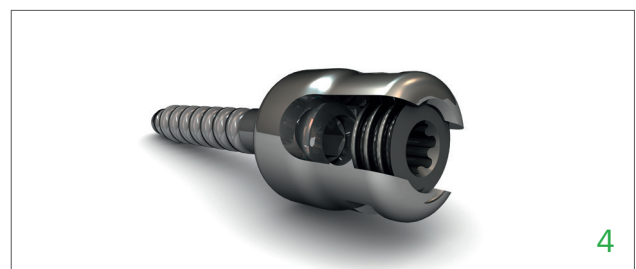
1



2



3



4

*BONIT® is a registered trademark of DOT GmbH, Rostock.

Biomechanical tests

The PX screws of the WSI MX/PX-Titan Expertise System were tested according to ASTM F1798 (Static Flexion/Extension Bending Test) in comparison with a competitive system⁶ (Fig. 5).

Another ASTM F1798 test was performed by an independent, accredited test laboratory (SpineServ GmbH & Co. KG) in comparison with nine competitor systems⁷, (Fig. 6).

Results - Benchmark of 10 screw-rod-systems

- Significantly higher load capacity of PX screw head due to special clamping cage and DLC coating compared to tested competitor systems^{6, 7}
- Above-average system stability with high resistance to angular and position losses of the screw head^{6, 7}
- Flexibility of the polyaxial design in the choice of screw trajectory combined with the strength of a MX screw

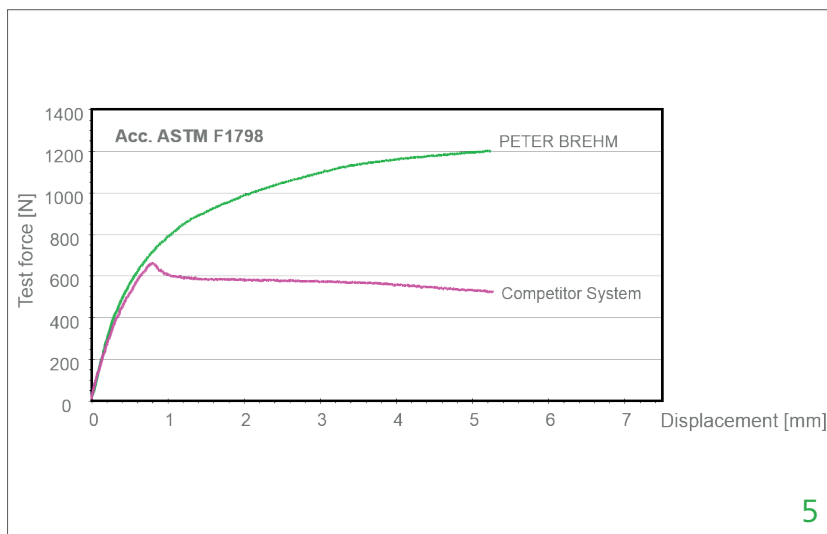


Fig. 5 Test according to ASTM F1798 (Static Flexion/Extension Bending Test)⁶, PX screws. In the WSI MX/PX-Titan Expertise Systems (green), the resistance to positional changes is significantly increased compared to a competitive system (purple).

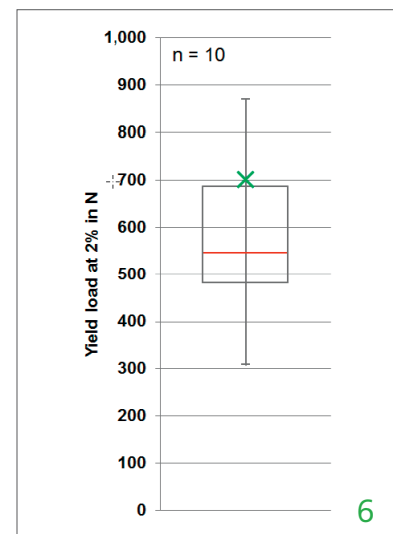


Fig. 6 Benchmark according to ASTM F1798 (Static Flexion/Extension Bending Test)⁷, PX screws. In the WSI MX/PX-Titan Expertise System (green), the resistance to positional changes is significantly increased and is well above the median of the nine competitor systems tested (red).

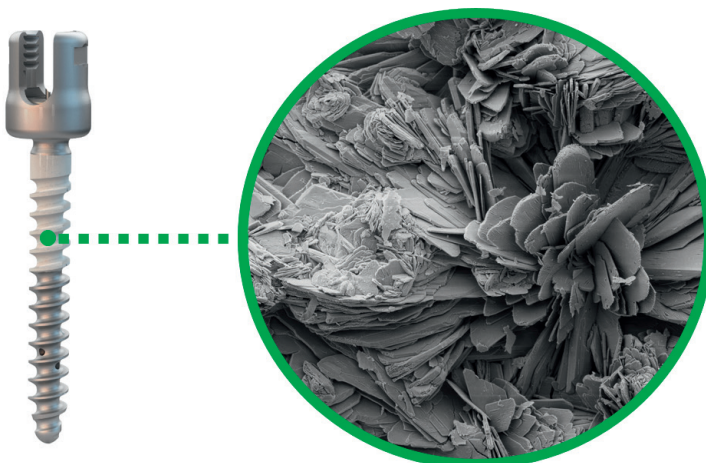


Fig. 7 PX screw with BONIT® coating (PETER BREHM GmbH) and SEM image of the BONIT® surface, magnification 1000 x

(Courtesy of DOT GmbH)

Case report

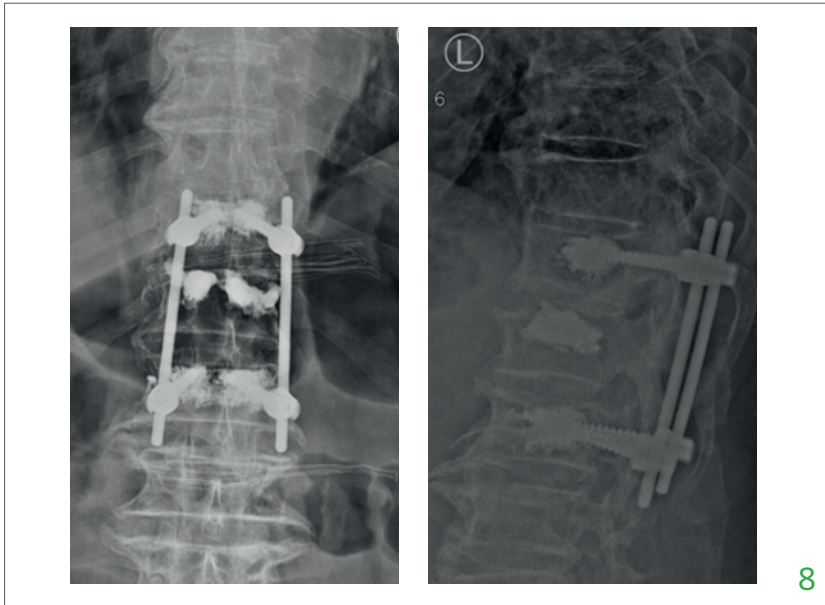


Fig. 8

Postoperative images of a stable fracture treatment

Patient, 82 years old; T12 fracture in Bechterew's disease with osteoporosis, supplied with augmented, BONIT® coated PX screws

(Courtesy of Prof. Dr. med. Robert Pflugmacher, Orthopaedic University Hospital Bonn, Germany)

Key facts

Safety for user and patient

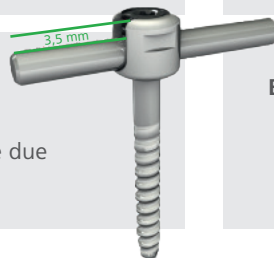
- | Increased anchoring stability through proven BONIT® coating in combination with the option for cement augmentation
- | Reduced probability of leakage by distal plug
- | Above-average positional stability of the screw head to reduce correction losses
- | Sterile packaged implant components

High intraoperative flexibility

- | Free choice of the screw trajectory through highly stable connection of the PX screw head
- | Step-by-step technique for reconstruction of the sagittal profile
- | High angular stability of tightened PX pedicle screws for the facilitation of reduction, compression and distraction maneuvers
- | One instrument system for all procedures, MISS and open

Soft tissue-friendly restoration

- | Extremely small installation space due to innovative screw head design

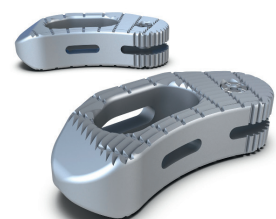


Excellent clinical and radiological results²

The perfect addition for stabilizing the ventral spine

Avoidance of endplate defects with 360° stabilisations (Fig. 9)

- | Large intervertebral contact area due to four footprints
- | Facilitated implantation due to ingenious pivoting technology



9

References

- 1 DOT GmbH, Rostock <https://www.dot-coating.de/>
- 2 Hermann PC, Webler M, Bornemann R, Jansen TR, Rommelspacher Y et al. Influence of smoking on spinal fusion after spondylodesis surgery: A comparative clinical study. *Technol Health Care* 2016 Sep 14;24(5):737-44
- 3 Sandén B, Olerud C, M. Petré-Mallmin M, Larsson S. Hydroxyapatite coating improves fixation of pedicle screws. A clinical study. *J Bone Joint Surg Br.* 2002 Apr(3):387-91 <https://www.ncbi.nlm.nih.gov/pubmed/12002498>
- 4 Goost H, Deborre C, Wirtz DC et al. PMMA-augmentation of incompletely cannulated pedicle screws: A cadaver study to determine the benefits in the osteoporotic spine. *Technology and Health Care* 2014; 22: 607-615 <https://www.ncbi.nlm.nih.gov/pubmed/24837053>
- 5 Report No. 990722, Peter Brehm GmbH
- 6 Report No. 000315, Peter Brehm GmbH
- 7 Report No. 18110113-ASTMF1798-MY_P1, Benchmark for ASTM F1798 S-MY, SpineServ GmbH & Co. KG, Ulm <https://www.spineserv.de/>

Contact PETER BREHM

Do you have any more questions?
Our spine specialist Dietmar Zülke is at your disposal!

Dietmar Zülke

Team lead product development
Telephone +49 9135 7103-304
dietmar.zuelke@peter-brehm.de

Do you have any questions on other topics?
Please feel free to contact our head office in Weisendorf.
We will put you in touch with the right contact person!

PETER BREHM GmbH
Am Mühlberg 30
91085 Weisendorf, Germany
Telephone + 49 9135 - 71 03 - 0
info@peter-brehm.de

Visit our website: www.peter-brehm.de
Or our profile on [in](#)

Watch a short clip about our
IBS-TITAN TLIF II cage made of tita-
nium alloy to support the ventral
column and discover in this anima-
tion the many advantages of this
multifunctional instrument set.

ANIMATION:



! NOTE

This brochure is intended for physicians only and is not suitable as a source of information for laypersons. The information about the products and/or procedures described in this brochure is of a general nature and does not represent a medical advice or a medical recommendation. The information provided here does not in any way represent an opinion on the diagnosis or treatment of any specific medical case. The respective patient must be examined individually and advised accordingly. This brochure can neither completely nor partially substitute these measures.

The information contained in this brochure has been produced and compiled by medical experts and qualified PETER BREHM employees to the best of their knowledge. The greatest possible care has been taken to ensure that the information provided is correct and comprehensive. The content, compilation, structure and presentation of this brochure is protected by copyright. The data and information in this brochure (images, text, wording and summaries) may not be distributed or reproduced – even in part – without the prior written permission of PETER BREHM GmbH. Please contact us if you are interested in acquiring usage rights.