The SELDRILL™ Schanz Screw

Technique Guide/Ordering Information
Contents

The SELDRILL™ Schanz Screw 4

Features at a Glance 5

SELDRILL™ Insertion Technique 6

Frequently Asked Questions 7

Ordering Information 8

Literature 9

Warning
This description is not sufficient for an immediate application of the instrumentation. An instruction by an experienced surgeon in handling this instrumentation is highly recommended.
The SELDRILL™ Schanz Screw

The SELDRILL™ Schanz Screw has been specifically designed to optimise the bone/pin interface to reduce the occurrence of pin-tract related complications in external fixation.

The unique design of the SELDRILL™ Schanz Screw reduces heat generation and insertion torque while improving pullout resistance in cortical and cancellous bone.

### Radial preload

Core diameter increase of screw in the near cortex resulting in:

- enhanced anchorage in bone
- sealing of intramedullary canal against contamination
- less bone resorption due to minimisation of micromotion in screw-bone interface

### Self-drilling and self-tapping

- Quick insertion
- Precise geometry of bone thread
- No need to search for pre-drilled pilot hole

### Materials

- Commercially pure titanium
- Implant quality stainless steel

### Standard vs self-drilling Schanz Screws

<table>
<thead>
<tr>
<th></th>
<th>Temperature increase (°C)</th>
<th>Insertion torque (Nm x 10^{-1})</th>
<th>Cortical pullout (N x 10^2)</th>
<th>Cancellous pullout (N x 10^2)</th>
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<tr>
<td><strong>Standard 5.0mm Schanz Screw</strong>&lt;br&gt;(predrilled then inserted at 50rpm)</td>
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<td><strong>5.0mm SELDRILL™ Schanz Screw</strong>&lt;br&gt;(inserted at 400rpm)</td>
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</table>

### Radial preload

Microradiographs – after inserting smooth pins for 6 weeks

Without radial preload: extensive bone resorption

With radial preload: minimal bone resorption

Precise geometry of bone thread
Features at a Glance

1. Efficient drill bit and tap
   - One-step insertion
   - Precise pilot hole and threads
   - Reduced heat generation
   - Decreased insertion torque

2. Short, 2% core taper provides optimal radial preload
   - Reduces micromotion and pin-tract infections

3. Symmetrical thread profile
   - Improved pullout strength in diaphyseal and metaphyseal bone
   - Improved anchorage in cancellous bone due to increased thread length

4. Smooth thread/shaft transition area
   - Reduced stress riser

5. Standard shaft diameters
   - Compatible with AO/ASIF external fixators
SELDRILL™ Insertion Technique

Insert the SELDRILL™ through a drill sleeve with a power tool or hand drill. The tip should be embedded in the far cortex to effectively resist cantilever forces. Less experienced users are advised to use a hand drill when placing the SELDRILL™ in the far cortex.

In anatomically uncritical regions of osteoporotic bone, the SELDRILL™ Schanz Screw may penetrate the far cortex to further enhance the stability slightly.

Like with conventional Schanz screws, the position of the SELDRILL™ should be checked radiographically.

The SELDRILL™ has been developed to minimise heat development. Nevertheless, slow insertion and additional cooling (for example with a Ringer solution) are recommended.

Finally, remove the insertion instrument and drill sleeve.
1 Can the thread of a SELDRILL™ Schanz Screw penetrating into the soft tissue or the skin lead to irritations or infections?

Like with conventional Schanz screws, the thread does not result in irritation of the soft tissue.

2 What can a surgeon do to avoid pin tract infection?

The SELDRILL™ Schanz screw has been designed such to minimise occurrences of infections.

Nevertheless, like with conventional Schanz screws the following points should be observed:

a. Placement of pins taking anatomy into consideration (ligaments, etc.).

b. Slow insertion and/or cooling, particularly in dense, hard bone to avoid heat necrosis.

c. Release of skin tension at soft tissue entry point of pin.

3 Is it possible to turn back a SELDRILL™ without loosening?

Yes, a SELDRILL™ can be turned back without loosening as the thread is not conical.
# Ordering Information

## The SELDRILL™ Schanz Screws

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<th>Item no.</th>
<th>Diameter (mm)</th>
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<th>Thread length (mm)</th>
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* Shaft/thread diameter. Shaft and thread diameters are the same for all other sizes listed.

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## Pure titanium SELDRILL™ Schanz Screws

- 4.0/2.5mm*, 4.0/3.0mm*
- 4.0mm
- 5.0mm
- 6.0mm

## Stainless steel SELDRILL™ Schanz Screws

- 4.0/2.5mm*, 4.0/3.0mm*
- 4.0mm
- 5.0mm
- 6.0mm
Literature

1 Schavan R. (1994)
Mechanische Testung von Schanzschen Schrauben.
Diplomarbeit, Aachen, Deutschland 1-92.

The Effect of Radial Preload on the Implant-Bone Interface: A Cadaveric Study.

Untersuchung des Effekts unterschiedlicher radia l er Kompression bei der Insertion von Schanzschen Schrauben.

Die Auswirkung einer radialen Vorlast auf den Knochen bei Verwendung von Fixateur externe Nägeln.