STABLE, TRANSFORMABLE, UNIVERSALLY APPLICABLE

THE NEW MAGNEZIX® CBS OFFERS NEW ADVANTAGES!

Intelligent innovations for a better life.

www.syntellix.com
The advantages are clear to see – at a glance

Unique safety drive head.

Metallic and transformable.
Osteoconductive.
Reduced infection risk.

Suitable for MRI and CT diagnostics.
Virtually no radiological artifacts.

Higher stability than PLA/PGA implants.
Avoids stress shielding.
No foreign materials remain.

No cobalt, chromium, nickel or aluminium.
Excellent biocompatibility, no known allergies.

Virtually no radiological artifacts.
MAGNEZIX® CBS
UNIQUE ADVANTAGES, REMARKABLY VERSATILE

MAGNEZIX®, the advanced alternative to titanium and polymer materials, is now available as a cortical bone screw. MAGNEZIX® CBS offers the ideal combination of a remarkably versatile implant together with the proven benefits of the MAGNEZIX® material. It is in particular the outstanding stability of the MAGNEZIX® CBS screw compared with regular PLA cortical screws which opens the door to a broad spectrum of application options.

Acknowledged MAGNEZIX® benefits:

**Stability:** MAGNEZIX® CBS is much more stable than polymer implants and clearly superior to conventional resorbable devices.

**Osteoconductivity:** MAGNEZIX® CBS promotes bone growth and is not only degraded but actually transforms into endogenous bone tissue.

**Infection inhibiting:** While magnesium degrades it creates an alkaline, anti-bacterial milieu.

**Compatibility:** MAGNEZIX® offers outstanding biocompatibility and the alloy’s components are not causing any known allergies (it is completely free of nickel, chromium, cobalt and aluminium components).

**CE**

CE approval was granted in 2013 for MAGNEZIX® compression screws, enabling the first clinical use of a self-dissolving biometallic screw in Europe. In 2016 and 2017 the CE-certified MAGNEZIX® product portfolio was expanded to include the Pin and the CBS cortical bone screw.

The better implant:
The metal MAGNEZIX® CBS is not only considerably more stable than cortical screws made of PLA/PGA but is actually transformed by the body into bone. A definite advantage for users and patients.
Like all other MAGNEZIX® products, the CBS has more load capacity and is more stable than comparable polymer implants. For example, a corroded CBS offers higher torsional force than a non-degraded PLA screw of the same diameter. These definite advantages are also very persuasive for day-to-day OP activities!
MAGNEZIX®: THE MATERIAL

REVOLUTIONARY AND FUTURE-PROOF

MAGNEZIX® is the name of a magnesium-based alloy (more than 90 % magnesium) which, while offering metallic properties, is completely transformed within the body and is replaced by endogenous tissue. The biomechanical properties of MAGNEZIX® are very similar to that of human bone.

A number of studies also show that magnesium alloys have osteoconductive properties\(^2\), too. The degradation of magnesium is a corrosion process which also creates an anti-bacterial alkaline milieu in the immediate vicinity of the implant. As a result, MAGNEZIX® (comprising more than 90 % magnesium) is anticipated to have anti-infectious properties\(^3\).

Furthermore, MAGNEZIX® implants are both radiologically visible as well as being MRI conditional and only generate minimal artifacts (see also the instructions for use).

Metal transforms into bone

Overview A: Histological evaluations of an animal study show complete transformation of the metal implant after a 12 month implant period.

Section B: The new bone formation (osteoid) at the surface of the degraded implant is histologically verified.

Section C: The presence of osteoclasts and osteoblasts characterises the bone transformation process.


INDICATIONS

NEW, WIDER APPLICATION RANGE

The MAGNEZIX® CBS cortical bone screw is suitable, depending upon the chosen size, as a bone screw (lag screw, position screw) for children, adolescents and adults for adaptation-capable or exercise-capable fixation of bones and bone fragments, for example:

**MAGNEZIX® CBS 2.0, 2.7, 3.5:**
- Intra- and extra-articular fractures of small bones and bone fragments
- Arthrodeses, osteotomies or pseudarthroses of small bones and joints
- Small bony ligament and tendon ruptures
- Osteochondral fractures and dissecates
- Similar indications

**MAGNEZIX® CBS 2.7 and 3.5:**
- Carpal, metacarpal, tarsal and metatarsal bones
- Epicondylus humeri
- Metaphyseal fractures of small and medium-sized bones and bone fragments
- Similar indications

**MAGNEZIX® CBS 2.0:**
- Phalangeal and metacarpal bones
- Osteochondrosis dissecans
- Similar indications

MAGNEZIX® CBS combine **metal stability and transformation**. They set new benchmarks in orthopaedics, traumatology and sports surgery.

**UNIQUE IN THE WORLD!**
Application examples

- Tarsal bones (in particular talus bone and navicular bone)
- Metatarsals
- Hallux valgus
- Fingers and thumb
- Osteochondral flakes
- Osteochondrosis dissecans
- Patella
- Proximal tibia and fibula
- Distal radius and ulna
- Processus styloideus radii
- Carpals and metacarpals
- Osteochondral flakes
- Osteochondrosis dissecans
- Distal tibia and fibula
- Medial and lateral malleolus
- Syndesmosis rupture
- Tarsal bones (in particular talus bone and navicular bone)
- Metatarsals
- Hallux valgus
NO METAL REMOVAL NECESSARY

MAGNEZIX® WAIVES THE NEED FOR A SECOND OPERATION TO REMOVE METALWORK

Magnesium is a physiological element required by the human body which can support the healing process. During the course of healing, the MAGNEZIX® implant gradually degrades while the regenerating bone gradually gains in load-bearing capacity. **There is no need for a second operation to remove metalwork.** This saves costs and time and reduces risks.

**Arguments for the removal of implants are fairly obvious:**

- possible negative influence on bone growth
- functional restrictions due to the presence of implants
- irritation of joints, tendons, muscles, subcutis and skin
- possible allergies
- reduced elasticity, stress shielding of bones
- primary infections and later infections
- more difficult diagnostics and therapy conditions due to renewed fracture of the affected bone and/or the implant (due to accident or subsequently due to aging)
- limitations to diagnostics (CT, MRI)
- implant is a nuisance in prominent body locations
- higher patient expectations

**Removal of metal represents higher levels of potential complications for surgeons:**

- The intervention must be planned during implantation in order to allow simplified access if necessary.
- Technical complications, such as worn drives, can make removal considerably more difficult.
- Nerve and vessel lesions can be caused.
- May cause infections to bones and soft tissues as well as interfere in wound healing.
- Renewed fractures may occur (intraoperatively, postoperatively or at a breaking point).
- Increased scarring, possibly the need for scar correction.
**FUNCTIONAL DESIGN**

**ATTENTION TO DETAIL TO ENSURE YOUR SURGICAL SUCCESS**

**Unique, transformable magnesium alloy**
Using MAGNEZIX® implants makes the need for later metal removal obsolete and also supports the bone’s healing process. MAGNEZIX® is bioabsorbable and biocompatible.

**Head design**
The head of the MAGNEZIX® CBS, with a typical cortical screw design, allows for stable repositioning of the bone fragment, with good compression characteristics.

**Drive design**
The special design of the TORX-based drive protects the implant in the shaft area from failure. The drive "slips" during the screwing-in operation if the torsional load is too high.

**Thread design**
The thread design, which is typical for cortical screws, produces strong fixation in cortical bone. A dimension-dependent thread pitch supports the controlled compression of bone fragments.

**Screw tip**
The design features chip flutes to improve the thread quality and ease the screwing-in. However, a pre-cutting of the thread in cortical bone is required.
# THE IMPLANTS
## PRODUCT OVERVIEW

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<tr>
<th>IMPLANT</th>
<th>DIMENSIONS</th>
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<td>MAGNEZIX® CBS 2.0</td>
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### DIMENSIONS IN A STABILITY COMPARISON

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ADDITIONAL MAGNEZIX® IMPLANTS

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ADDITIONAL REFERENCES


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Implants are manufactured in Germany in cooperation with Königsee Implantate GmbH.

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