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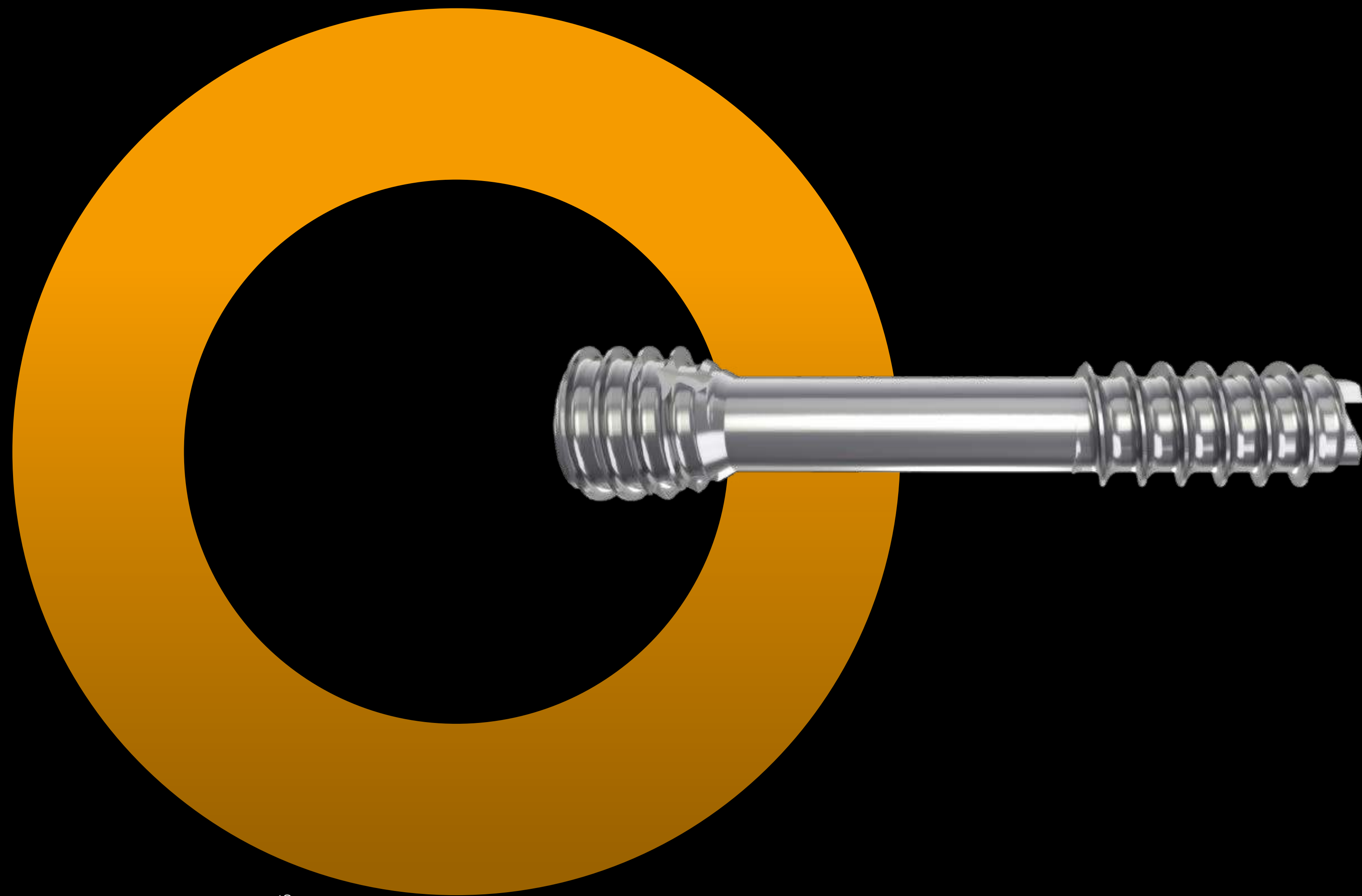
MAGNEZIX

METALLIC AND BIOABSORBABLE

TAKE A NEW LOOK AT IMPLANTS



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

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Intelligent innovations for a better life.
www.syntellix.com

SYNTELLIX

The advantages are obvious – an overview

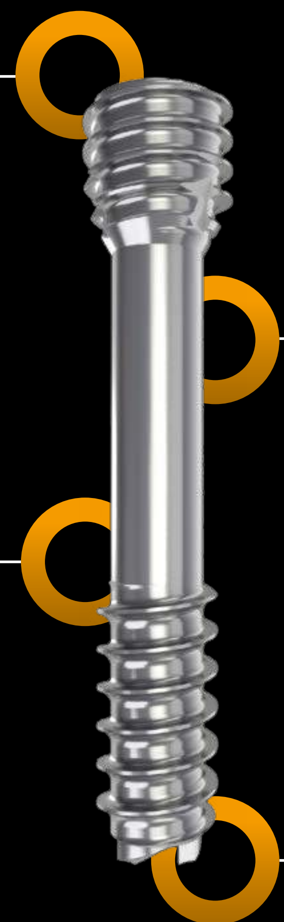
Virtually no
radiological artifacts.

Suitable for
MRI and CT diagnostics.

Metallic and
bioabsorbable.

Osteoconductive.

Reduced risk
of infection.



Similar stability to titanium.

Avoids stress shielding.

No second operation necessary
to remove hardware.

No known allergies or
foreign body reactions.

Nickel- and aluminium-free.

MAGNEZIX®

REVOLUTIONARY AND PIONEERING

Metal that turns into bone. You think that's impossible? We can prove it – it really does work! Innovative material MAGNEZIX® is the start of a medical revolution.

We have developed a metallic implant for osteosynthesis which has similar stability to screws made of steel or titanium but which degrades in a controlled fashion in the body and is replaced by the body's own bone tissue.

MAGNEZIX® is the first implant of its kind in the world to have CE and HSA approval, satisfying the highest safety standards. It offers doctors, patients and cost providers with unique advantages.

Top-Innovator 2015

INNOVATIONSPREIS DER DEUTSCHEN WIRTSCHAFT Sieger 2012/13

Syntellix AG is an internationally active medical technology company based in Germany specialised in the research, development and distribution of self-degrading metallic implants made of magnesium.

We have received many awards for our work: 2013 the "German industry innovation award" and in 2015 as the "Top Innovator" of the German Mittelstand

PROPERTIES

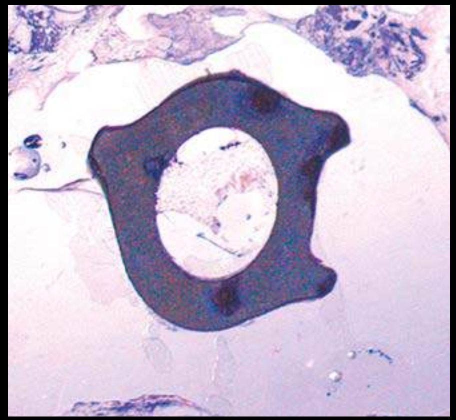
OSTEOCONDUCTIVE AND REDUCED RISK OF INFECTION

MAGNEZIX® has osteoconductive properties. Human osteoblasts have not only to great vitality in vitro but in addition they are stimulated in proliferation tests. The formation of new bone (osteoids) has been proven histologically at the surface of the degrading implant.

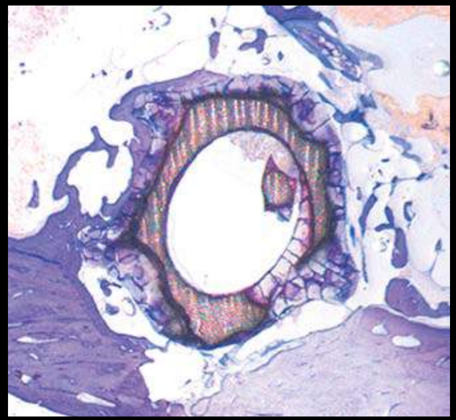
MAGNEZIX® implants help reduce the risk of infection because they are delivered as sterile devices. The degradation of the screw through corrosion further creates an alkaline bactericidal environment in the immediate vicinity of the implant such that MAGNEZIX® is anticipated to have anti-infectious properties.

Right side
Histological sections show the implant's conversion process. The images show a cross-section of the cannulated MAGNEZIX® CS at various times post-OP.

Supporting the healing process



Histological preparation of an implanted MAGNEZIX® CS after a few days.

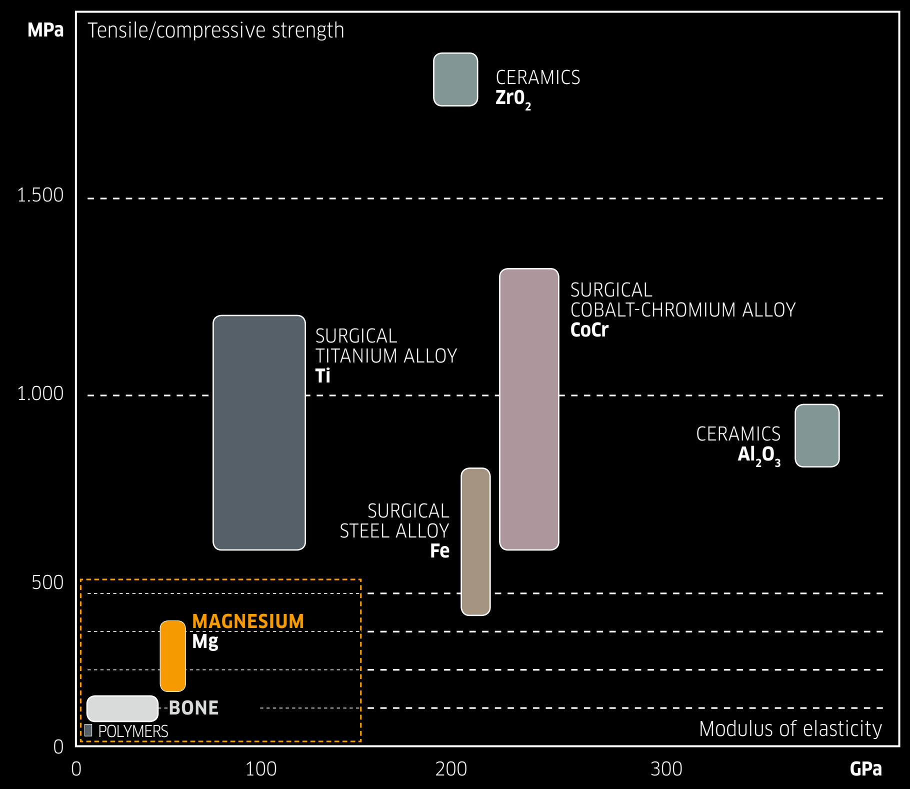


Conversion of MAGNEZIX® CS in progress after 3 months.

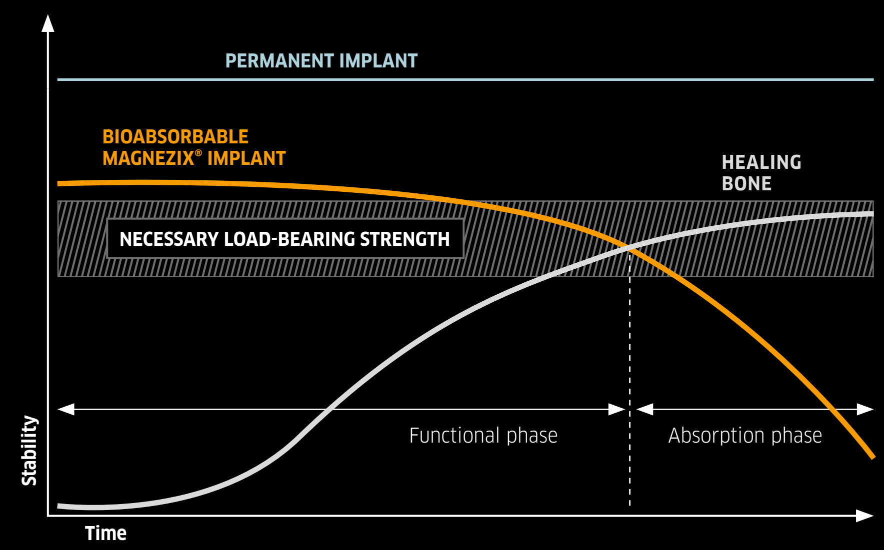
MAGNEZIX® CS conversion into calcium phosphate after 12 months with clear evidence of bone ingrowth.

Source: Waizy H, Diekmann J, Weizbauer A et al. (2014). In vivo study of a biodegradable orthopedic screw (MgYREZr-alloy) in a rabbit model for up to 12 months. J Biomater Appl 28 (5), 667-75.

Bone-like properties [1]



Controlled degradation process (schematic)



PROPERTIES

METALLIC AND BIOABSORBABLE

Stability alone is not enough – the ideal implant can do more.

MAGNEZIX® has mechanical stability values which are far above the values of those bioresorbable materials previously available. The good bone-like stress-strain ratio (modulus of elasticity) effectively counteracts stress shielding effects, which can result in loss of bone density (osteopenia).

MAGNEZIX® is based on a magnesium alloy with stable metallic properties. Over the course of time it is completely degraded in the body and is replaced by the body's own bone tissue.

[1] Image based on: Wintermantel, E. (1996) Biocompatible materials and building methods. Published by Springer, Berlin

FEWER ARTIFACTS

A NEW DIMENSION IN DIAGNOSTIC IMAGING

MAGNEZIX® CS is a metallic implant. Nonetheless interference signals are greatly reduced both in computer tomography as well as MRI diagnostics – the implants generate very few artifacts. **This helps considerably improve the analysis of images by surgeons and radiologists.**

Unlike conventional screws made of steel and titanium, implants made of MAGNEZIX® do not generate any noticeable temperature increases during MRI.

SATISFIED PATIENTS

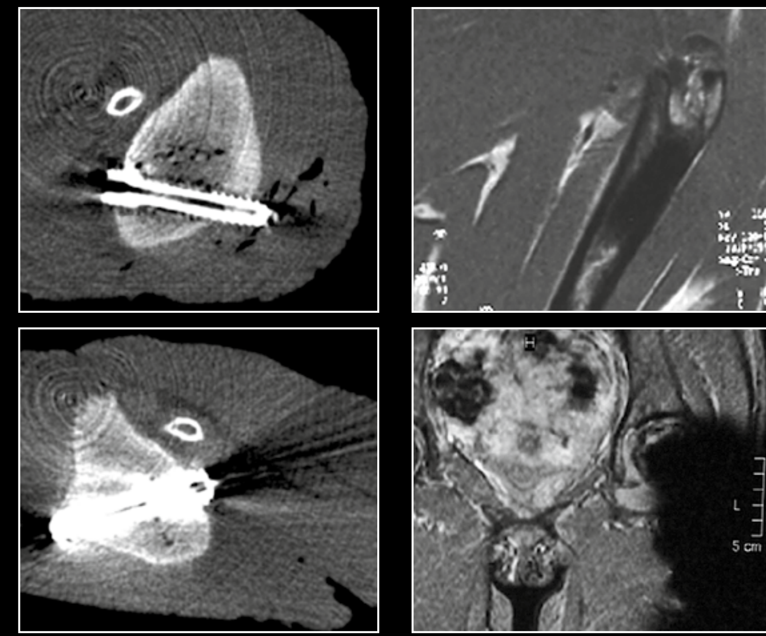
PROGRESS, WHICH PAYS OFF

Patients don't like the thought that after an operation there will be metal in their bodies permanently. But they also don't like having the metal removed because they are aware of the risk of infection and would like to stay mobile. The funding agencies are also backing Syntellix' efforts to avoid the need for a second operation and the associated costs.

Patient satisfaction is high, and that is the talk of the town. You would be effectively creating your own USP in your region by offering patients the choice of innovative MAGNEZIX® technology – the use of MAGNEZIX® demonstrates that you are a front-runner, in tune with your patients' wishes!

Right side
Views of MAGNEZIX® CS compared with titanium in various imaging diagnostic methods (top)
The x-rays show examples of typical indications on feet and hands (bottom).

CT **MRI**



MAGNEZIX® CS: Minimal interference signals

Titanium: Considerable interference signals

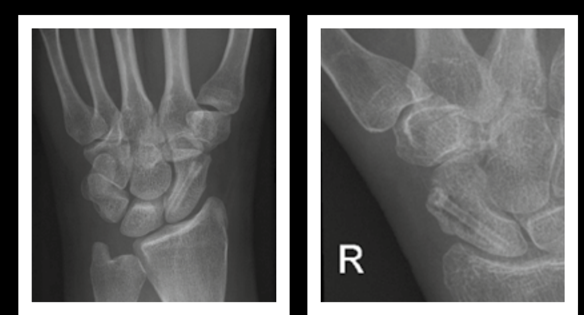
Hallux valgus correction

MAGNEZIX® CS after 6 weeks.

MAGNEZIX® CS after one year.

Titanium after one year.

Scaphoid fracture



MAGNEZIX® CSafter 3 days.

MAGNEZIX® CS after 3 months.

During radiological control the phenomenon of lighter zones may temporarily occur around the implant. This is associated with the degradation processes of MAGNEZIX® and based on clinical experience to date is considered harmless.

Source of CT and MRI images: Hannover Medical School, Institute for Diagnostics and Interventional Radiology

THE IMPLANTS

PRODUCT OVERVIEW

According to its respective dimension, MAGNEZIX® CS can be used for adaption- and exercise-stable fixation of bones and bone fragments in children, adolescents and adult persons.

IMPLANT	DIMENSIONS		LENGTHS
MAGNEZIX® CS 2.0 	**Diameter** **Head diameter**	2.0 mm 2.5 mm	8 to 24 mm (in 2-mm steps), non-cannulated
MAGNEZIX® CS 2.7 	**Diameter** **Head diameter** **Guide wire**	2.7 mm 3.5 mm 1.0 mm	10 to 34 mm (in 2-mm steps), cannulated
MAGNEZIX® CS 3.2 	**Diameter** **Head diameter** **Guide wire**	3.2 mm 4.0 mm 1.2 mm	10 to 40 mm (in 2-mm steps), cannulated
MAGNEZIX® CS 4.8 	**Diameter** **Head diameter** **Guide wire**	4.8 mm 5.7 mm 1.8 mm	14 to 50 mm (in 2-mm steps) 55 to 70 mm (in 5-mm steps), cannulated

MAGNEZIX

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