

Choose  
**CiproScrew™**  
to prevent implant  
related infections.

## Get better with CiproScrew™

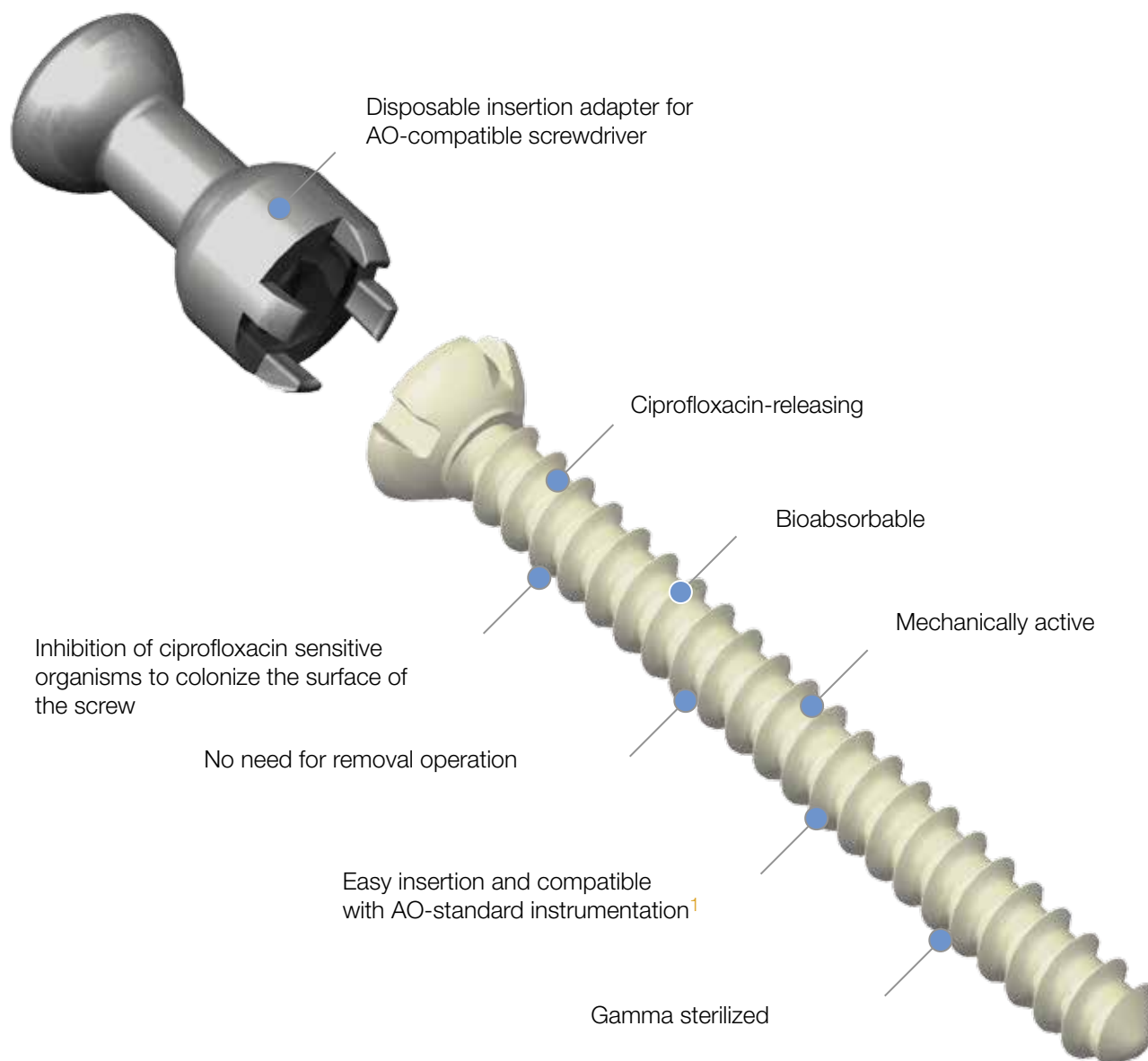
The world's first bioabsorbable  
bone fixation device with local  
drug release - CiproScrew™

Implants that Do More

**bioretec**

# Get better with CiproScrew™

To prevent implant related infections



## Ciprofloxacin

Ciprofloxacin is a bactericidal fluoroquinolone antimicrobial whose mechanism of action is the inhibition of DNA gyrase. Ciprofloxacin has a broad spectrum of activity against a wide range of Gram-positive and Gram-negative bacteria including the most common implant-related infection causing bacteria, *S. aureus*, *S. epidermidis* and *P. aeruginosa*.

Ciprofloxacin is evenly dispersed throughout the CiproScrew™. It is released from the screw within approximately 30 to 36 weeks.

<sup>1</sup> AO/ASIF (Arbeitsgemeinschaft für Osteosynthesefragen/ Association for the Study of Internal Fixation) Standard ASTM F 543-07.

## Risk of infection in orthopaedic surgery

Infection is a common serious complication of surgical procedures in orthopedics and traumatology surgery especially when traditional fixation implants are used. Although on average, only a few percent of inserted fixation devices become contaminated and cause infection, in the case of open fracture, the incidence of infection may exceed 30%. Several factors which increase the risk of such infection include smoking, diabetes, age, or an immunocompromised state. (1,2,3,4)

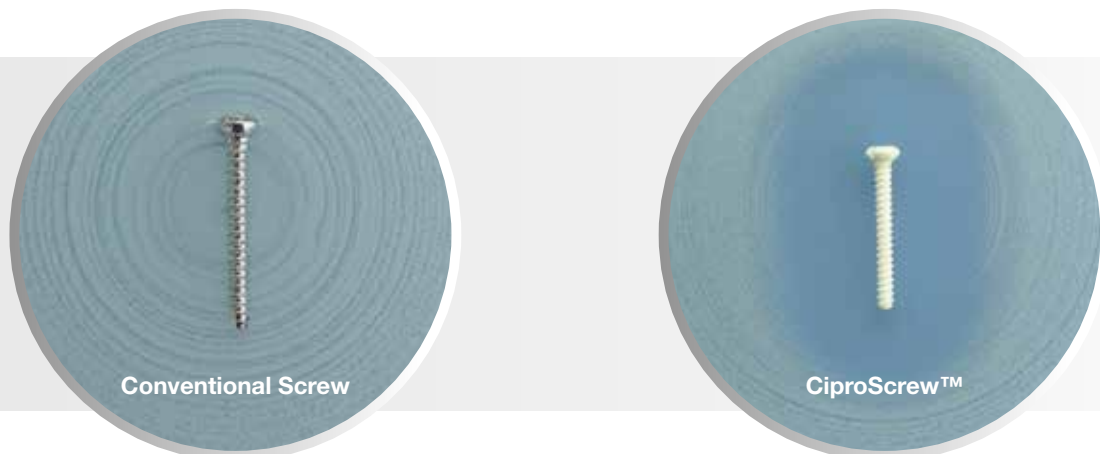
The treatment of implant-related infections is very challenging and time consuming. The most common treatments involve long term systemic antimicrobial therapy, surgical

debridement and removal of all foreign bodies. As well as being challenging and time consuming, treatment is also very expensive. It has been estimated that the cost of managing surgical site infection may be more than \$30 000 per case. (5,6) Since such infections are difficult to cure and expensive to manage, the best strategy is to prevent infections in the first place.

By introducing the world's first antibiotic releasing bioabsorbable bone fixation screw – CiproScrew™ Bioretec offers a solution to prevent implant-related infection.

## For prevention of local infection – CiproScrew™

In addition to its fixation function, CiproScrew™ is designed to inhibit ciprofloxacin sensitive organisms to colonize the surface of the screw when implanted in the body. When placed on a bacterial culture\*, the bactericidal effect of CiproScrew™ can be seen as a bacteria free clear area around the screw.



In preclinical investigations CiproScrew™ showed local ciprofloxacin release around the implant and effective prevention of implant related infection caused by *S. aureus*. Typical signs of implant-related infection were not seen with the CiproScrew™ as were seen with the metallic screw. (7)



Fixation of tibiofibular syndesmosis

\* *S. aureus* (ATCC 25923)  
after 18 h incubation at 35°C.

## For stable fixation of bone fractures – CiproScrew™

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CiproScrew™ is indicated for fixation of bone fractures, osteotomies, arthrodeses, bone grafts and osteochondral fractures in the presence of appropriate immobilization when infection by ciprofloxacin sensitive organism is a potential risk. As the operated bone fracture or osteotomy gains strength during healing, CiproScrew™ gradually loses its strength,

however, maintaining its function for at least 8 weeks. Bioabsorption of the screw takes place within approximately two years. In clinical investigation, CiproScrew™ showed an equal clinical outcome and safety profile as metallic standard screw used in ankle syndesmosis fixation.<sup>(8)</sup>

## For easy and aseptic use – CiproScrew™

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CiproScrew™ is delivered inside the holder. Because of disposable insertion adapter connected to the head of the screw, CiproScrew™ is easy to pick from the holder using an

AO-compatible screwdriver. This supports an aseptic way of working during the surgery.



## Similar design to Bioretec's ActivaScrew™ product family

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- Unique AutoCompression™ feature reduces the risk of unstable fixation
- High strength properties
- Easy insertion
- Safe medical use
- No need for removal operation
- Supplied as gamma sterilized
- Compatible with AO-instrumentation

CiproScrew™ opens up new possibilities to prevent implant-related infection which may occur with traditional fixation products used in orthopedics and traumatology

surgery. It is the first drug-releasing bioabsorbable fixation screw in the world and there is more to come from Bioretec.

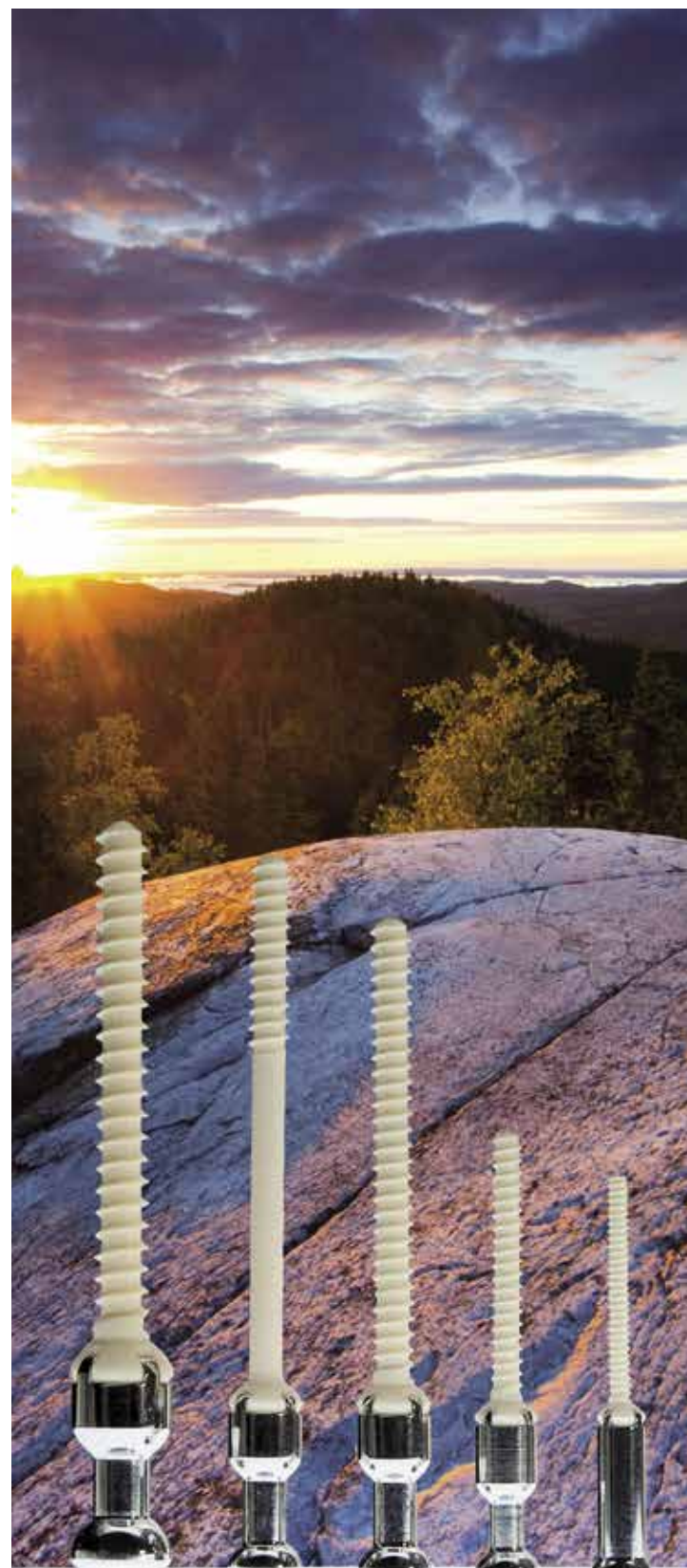
# CiproScrew™ product range

## Fully Threaded

Product code	Description
B-BS-2020	CiproScrew™ 2.0 x 20 mm
B-BS-2712	CiproScrew™ 2.7 x 12 mm
B-BS-2714	CiproScrew™ 2.7 x 14 mm
B-BS-2716	CiproScrew™ 2.7 x 16 mm
B-BS-2718	CiproScrew™ 2.7 x 18 mm
B-BS-2720	CiproScrew™ 2.7 x 20 mm
B-BS-2724	CiproScrew™ 2.7 x 24 mm
B-BS-3516	CiproScrew™ 3.5 x 16 mm
B-BS-3520	CiproScrew™ 3.5 x 20 mm
B-BS-3524	CiproScrew™ 3.5 x 24 mm
B-BS-3528	CiproScrew™ 3.5 x 28 mm
B-BS-3532	CiproScrew™ 3.5 x 32 mm
B-BS-3536	CiproScrew™ 3.5 x 36 mm
B-BS-3540	CiproScrew™ 3.5 x 40 mm
B-BS-4535	CiproScrew™ 4.5 x 35 mm
B-BS-4540	CiproScrew™ 4.5 x 40 mm
B-BS-4545	CiproScrew™ 4.5 x 45 mm
B-BS-4550	CiproScrew™ 4.5 x 50 mm
B-BS-4555	CiproScrew™ 4.5 x 55 mm
B-BS-4560	CiproScrew™ 4.5 x 60 mm
B-BS-4570	CiproScrew™ 4.5 x 70 mm

## Partially Threaded

Product code	Description
B-BL-3520	CiproScrew™ LAG 3.5 x 20 mm, thread 8 mm
B-BL-3524	CiproScrew™ LAG 3.5 x 24 mm, thread 10 mm
B-BL-3530	CiproScrew™ LAG 3.5 x 30 mm, thread 14 mm
B-BL-3535	CiproScrew™ LAG 3.5 x 35 mm, thread 14 mm
B-BL-3540	CiproScrew™ LAG 3.5 x 40 mm, thread 14 mm
B-BL-3545	CiproScrew™ LAG 3.5 x 45 mm, thread 15 mm
B-BL-4535	CiproScrew™ LAG 4.5 x 35 mm, thread 18 mm
B-BL-4540	CiproScrew™ LAG 4.5 x 40 mm, thread 20 mm
B-BL-4545	CiproScrew™ LAG 4.5 x 45 mm, thread 22 mm
B-BL-4550	CiproScrew™ LAG 4.5 x 50 mm, thread 24 mm
B-BL-4560	CiproScrew™ LAG 4.5 x 60 mm, thread 28 mm
B-BL-4570	CiproScrew™ LAG 4.5 x 70 mm, thread 32 mm



With Bioretec you do  
more than just a surgery.

You set  
**NEW STANDARDS.**



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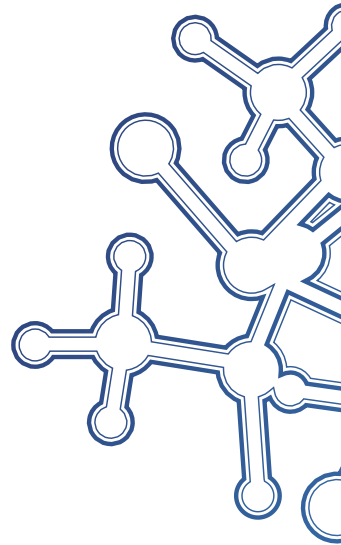
The Mission of Bioretec is to develop and bring into clinical use innovative bioabsorbable products and surgical solutions which improve patient outcome, user friendliness and cost-efficiency in clinical care.

**Implants that do more – It's Bioretec**

[www.bioretec.com](http://www.bioretec.com)

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