Osteotwin™

Surgical
Technique Guide

Biocomposite Interference Screw & Polylactic Interference Screw

Biomatlante
Biologics Solutions

CONTENT SUMMARY

Scope

The scope of this guide is to give practical information regarding the implantation of Osteotwin™.

Osteotwin™ is used worldwide with many different instrument ACL sets. It is not the object of this guide to explain how to use Osteotwin™ in conjunction with those instrument sets but rather to familiarise the practitioner with the custom made Instruments that Osteotwin™ requires. It is important to familiarize yourself with the correct usage of your Instrument set.

The suggestions in this document are limited to the fixation of the graft. General aspects such as patient positioning, surgical approaches and graft harvesting are not covered.

OSTEOTWIN™ INTRODUCTION

The Osteotwin composite screw is composed of poly (L-Lactic-co-D-Lactic acid), Hydroxyapatite, and Tricalcium Phosphate. It is designed to provide fixation by interference between the graft and the bone tunnel walls during the consolidation period.

The Osteotwin Polylactic only screw is composed wholly of poly (L-Lactic-co-D-Lactic acid).

BACKGROUND

Osteotwin was launched in 2010, with over 50,000 implantations safely performed worldwide.

INDICATIONS

Fixation within osseous tunnel of auto-grafts or artificial ligaments adapted for cruciate knee ligament reconstructions.

Fixation within an osseous tunnel of the long head biceps tendon for long head biceps tenodeses.

CONTRA-INDICATIONS

- Acute infections - Allergies to the material (if an allergy of any kind is suspected, adequate exams must be carried out in advance)
- Poor or inadequate bone quality (notably in case of tumours and severe osteoporosis)
- Limited blood flow at the graft site (necrosis, prior infections)
- Refusal of the patient to adhere to surgical follow-up and to the limit in activity level.
- Patients who are in the growth period with cartilages in activity.
- Fever and/or local inflammation.
- It should only be used in the surgeries indicated.

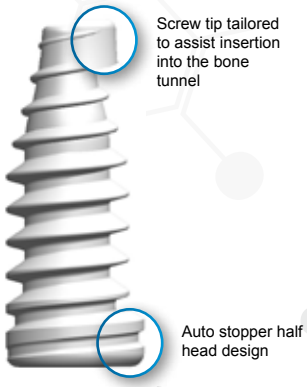
OSTEOTWIN™ INTERFERENCE SCREW

Osteotwin™ was designed to fulfill two core aims: provide appropriate mechanical properties necessary for ligament reconstruction whilst ensuring a controlled resorption and ossification to form architectural bone through hydrolysis.

Design

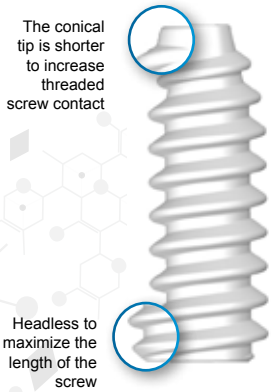
The thread is specific to each screw diameter so as to systematically provide the maximum amount of contact between implant and bone.

Lengths 25 & 30



- Specific design thread for optimal contact
- Smooth thread to minimize damage to ligament
- Graduated tapered design to optimize torque

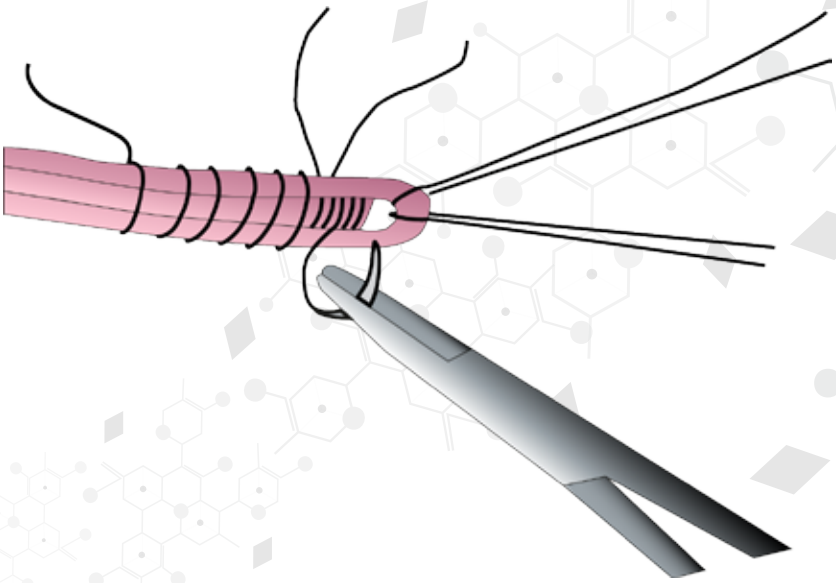
Length 20



Specific screwdriver connection design to provide optimal distribution of force
The mean failure torque for Osteotwin™ is 6 N.m, whereas other leading implants show a breakage rate of 5 and 5,3 N.m*.

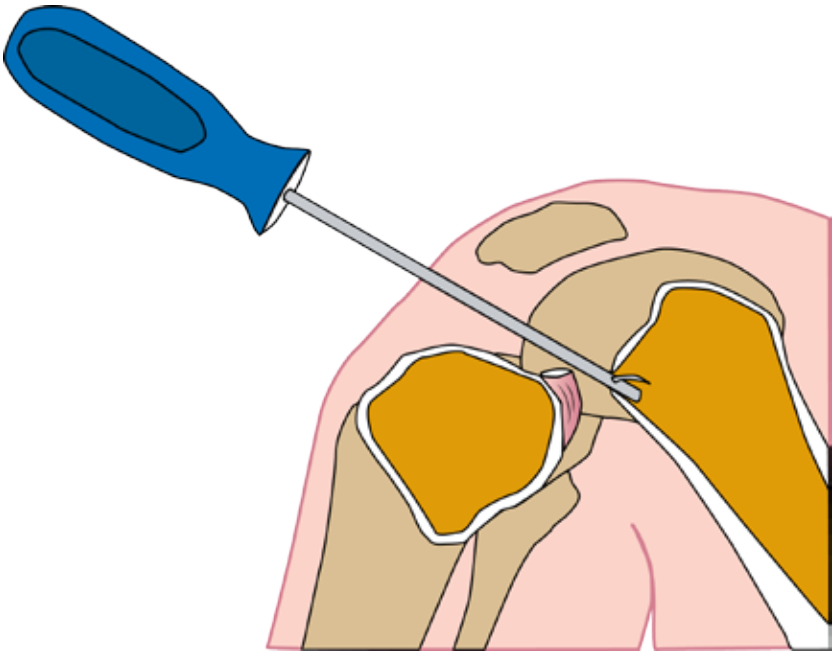
OSTEOTWIN™ SURGICAL GUIDE

Preparation for secure fixation



The soft-tissue graft should be tightly sutured with an absorbable suture and stitched along the entire length of its future contact with the Osteotwin™ interference screw in the bone tunnel.

Notchplasty

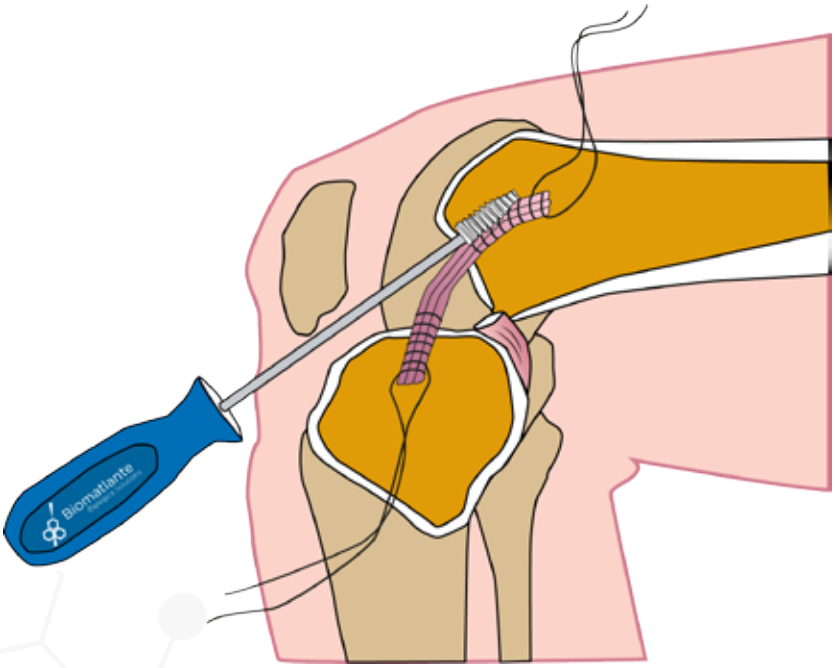


Additionally, a notch may be placed at the tunnel entrance where the femoral Osteotwin™ interference screw is to be inserted.

* Notcher is a common device and not supplied.

OSTEOTWIN™ SURGICAL GUIDE

Fixation of the graft in the femoral semi-tunnel



Before the Osteotwin™ screw is inserted, it is recommended to use a tunnel dilatator to widen the space into which the screw will be inserted.

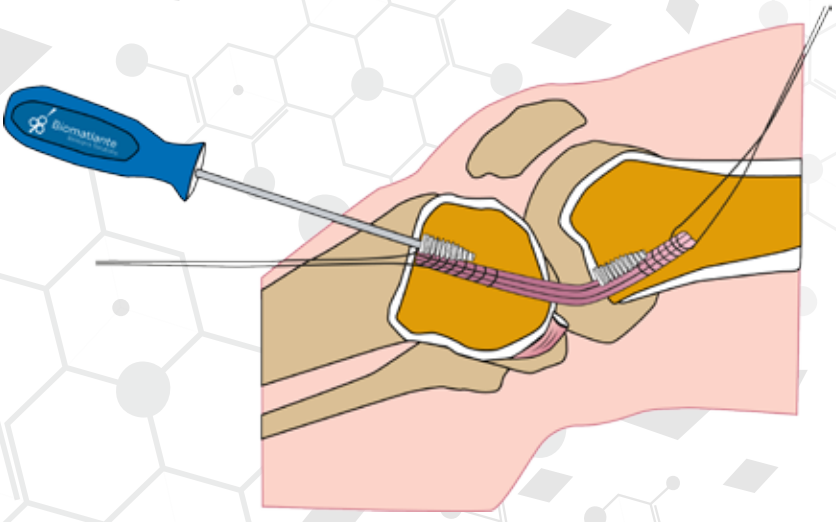
Insertion is accomplished through the anteromedial arthroscopic access to the femoral tunnel. Insert the Osteotwin™ interference screw with the knee joint fully flexed and with the graft held at both ends with the holding threads.

As Osteotwin™ Composite is softer than the Osteotwin™ Polylactic, it is highly recommended to use a starter tap prior to insertion.

Optionally, and depending on the surgical technique, the Osteotwin™ interference screw is sometimes tapped in by a few millimetres with gentle hammer strokes.

The Osteotwin™ screw may then be rotated counter-clockwise by one full turn while it is pushed into the femoral tunnel, particularly if the starter tap was used, to better enable the Osteotwin™ screw to engage between the graft and the bone. The Osteotwin™ screw may then be turned clockwise. Make sure the screwdriver head is fully inserted into the screw. The Osteotwin™ screw is screwed in until it is just below the articular surface.

Fixation of the graft in the tibial tunnel



The knee joint is extended to approx. 20°. A guide wire can now be inserted through the tibial tunnel into the knee joint. By adjusting the position of the guide wire under arthroscopic control, it is possible to correct the graft position should the placement in the tunnel not be initially optimal (the position of the screw relative to the graft in the tunnel can be freely chosen).

The Osteotwin™ screw is screwed in with the screwdriver parallel to the graft until its tip almost appears in the joint space.

OSTEOTWIN SURGICAL GUIDE

The following precautions when using Osteotwin™ screw are:

1	Suture the soft-tissue graft with regular stitches
2	Use notcher* (optional) to make a notch at the femoral tunnel entrance
3	Use tunnel dilatator (7/8) or (9/10)
4	Use the starter tap to pre-thread the tunnel to facilitate screwing, especially when in the presence of strong cortical bone
5	Make sure the screwdriver head is fully inserted into the screw
6	Start (optional): Tap in the screw with gentle hammer strokes
7	Rotate Osteotwin™ screw under axial pressure by one full counter clockwise turn, then screw in clockwise (optional)
8	When rotating the driver, keep centre of rotation without tilting
9	Fully flex the knee joint during femoral screw insertion
10	Always keep graft under tension while screwing in the screw
11	Remove guide wire in the final two or three turns of the screw, so as to prevent kinking, jamming or breakage of the screwdriver tip
12	Once the screw is almost fully inserted in the tibial tunnel, make sure that the last thread is in contact with cortical bone at the tunnel entrance. Contact between both surfaces makes for a stronger pull-out strength as well as preventing the screw from sliding into the tunnel and onto the ligaments.

*Notcher & Tensiometer not supplied

OSTEOTWIN™ REFERENCES

Osteotwin™

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* Data on files, Biomatlante

OSTEOTWIN NOTES

About Biomatlante

Based near Nantes, France, Biomatlante specializes in synthetic biomaterials for bone regeneration and has been a world leader in bone graft technologies for over 20 years, selling its products in over 50 countries. Biomatlante's products are routinely used in orthopedics and trauma surgery, in spine and dental surgery. Biomatlante strives to integrate a strategy of strong innovation and product development required to meet and exceed the needs of today's market. Biomatlante's R&D team has close ties with universities and research centers across the world, guaranteeing it remains at the cutting edge of innovation and providing the intellectual protection necessary to foster long-term projects.

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