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Kirschner Wires and Cerclage Wires

Surgical Technique

Description

The Kirschner Wires (K-Wires) and Cerclage Wires are made from stainless steel (Protasul®-S). The K-Wires are available in a range of lengths, diameters and tip types, i.e. threaded, unthreaded bayonet or trocar. Cerclage Wires are provided with different diameters, in pre-cut lengths with an already prepared eye on one end.

Intended Purpose

Kirschner Wires are intended for use in temporary fixation of bone fractures, skeletal traction as anchorage, and bone reconstruction. Cerclage Wires are intended for use in temporary fixation of bone fractures and are utilized in a tension-band application typically for patellar or olecranon fractures.

K-Wires can also be used as instruments during surgical procedures, e.g. to transiently fix devices/ bone fragments or to guide the insertion of implants/ instruments. For details, refer to the corresponding Surgical Techniques of the devices used together with K-Wires.

Indications and Contraindications

Indications

As implants: Kirschner Wires and Cerclage Wires are indicated for temporary fixation of bone fractures.

As instruments: Kirschner Wires are indicated to transiently fix devices/bone fragments or to guide the insertion of implants/instruments. For details, refer to the corresponding Surgical Techniques of the devices used together with Kirschner Wires.

Kirschner Wires are limited to be used as instruments in the USA, Canada, Brazil and Japan.

Contraindications

- All concomitant diseases that may impair the fixation of the implant and/or the success of the intervention.
- Lack of bone substance or poor bone quality impairing stable fixation of the implant.
- Severe muscular, neural or vascular diseases that endanger the success of the intervention.
- Allergy to the implanted material.
- Acute or chronic, local or systemic infections

For more information please refer to IFU D011500201.

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Applications

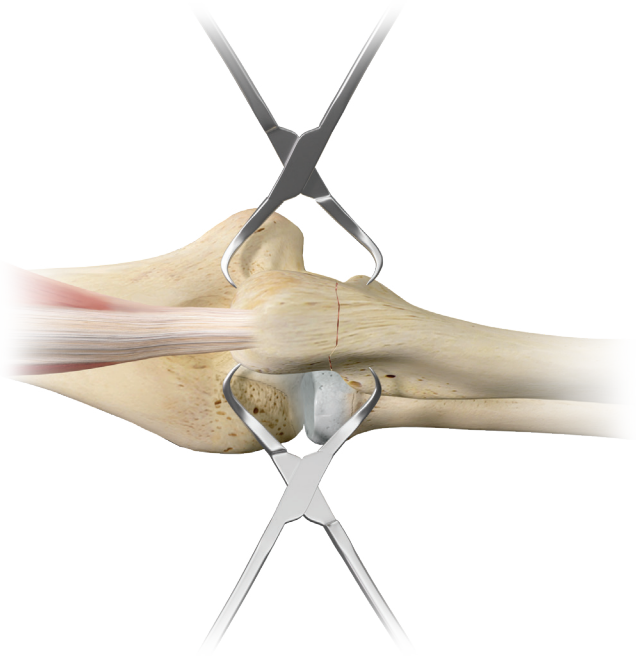


Figure 1

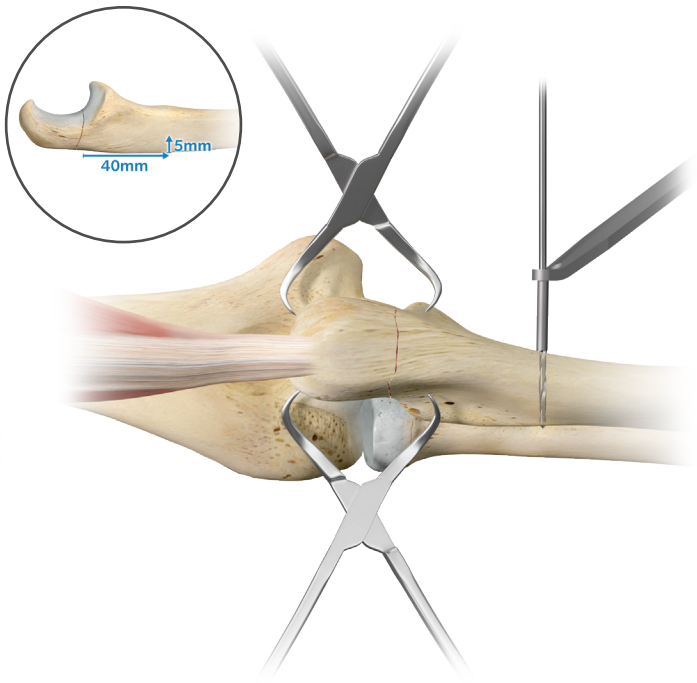


Figure 2

Wire implants are multifunctional devices. The following techniques describe two possible applications of the devices for bone fracture fixation.

Tension Band Wiring of Olecranon Fracture

The following section describes step by step the surgical technique for treatment of an olecranon fracture with the cerclage wiring.

Fracture Reduction

Reduce and hold the reduction with reduction forceps (Figure 1).

Wire Insertion Preparation

Approximately 40 mm distal to the fracture line and 5 mm from the posterior cortex, drill a hole through the ulna with a generic Ø2.0 mm drill (Figure 2).

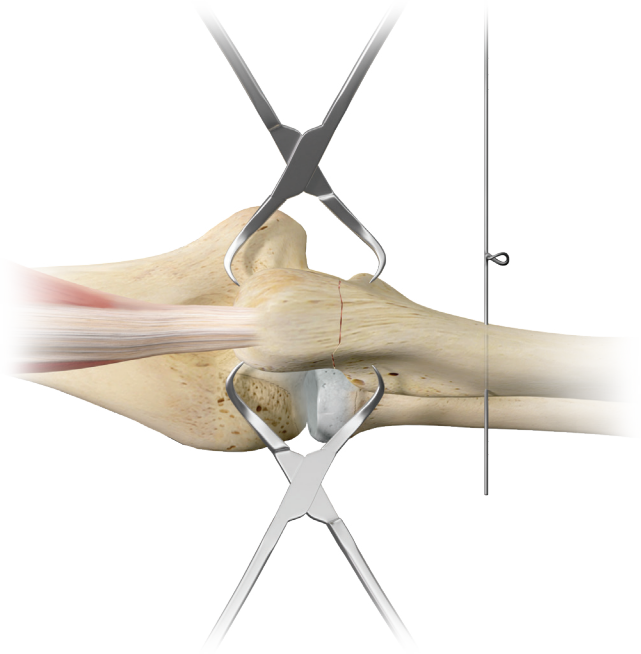


Figure 3

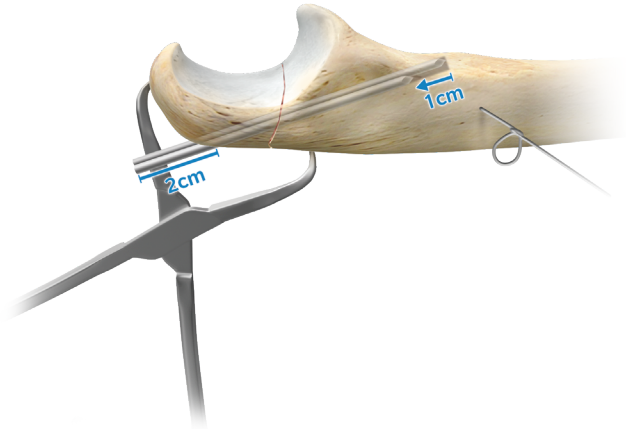


Figure 4

Wires insertion

Prepare a Ø1.0 mm wire with a loop and insert it through the drilled hole (Figure 3).

Drive through both cortices two parallel Ø1.6 mm K-wires through the proximal end of the olecranon. Check the position of both K-wires on a C-arm.

If the position of wires and fracture reduction is good, pull both K-wires back approximately 1 cm (Figure 4)

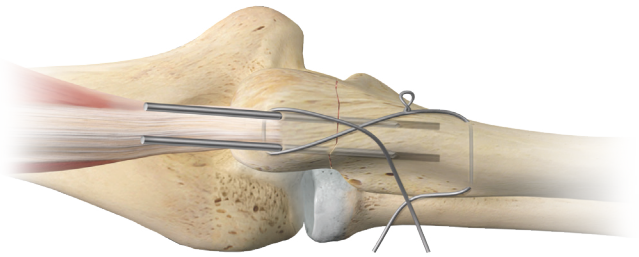


Figure 5

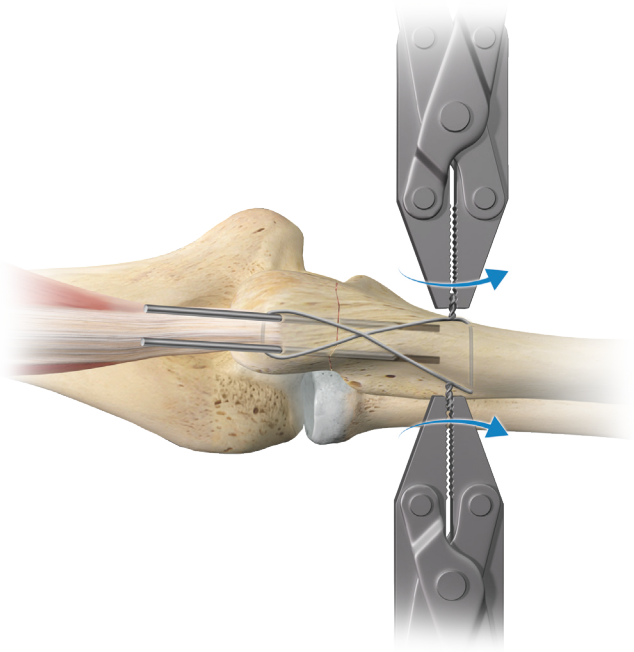


Figure 6

Wires Fixation

Pass the segment with the loop of the wire in a figure-of-eight configuration beneath the triceps tendon, around the protruding ends of the K-wires (Figure 5). Unite the two wires with a little twist.

By tightening the twist and the loop with two pliers simultaneously, the two fragments are drawn together such that the fracture is placed under compression.

Both loops must be tightened at the same time, to achieve equal tension (Figure 6).

Trim the twisted wire and turn both ends towards the ulna/olecranon.

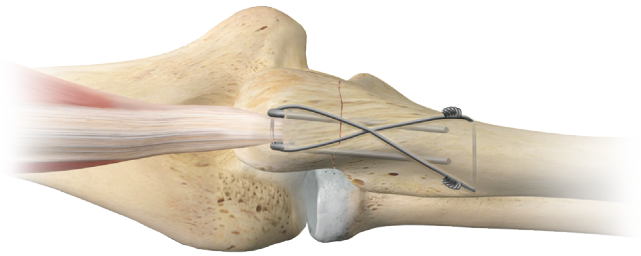


Figure 7

Sinking the K-wires and Final Check

Bend the proximal end of the K-wires 180 degrees and cut them leaving a bend of about 5-6 mm. Sink K-wires curved ends into the bone (Figure 7).

Confirm fracture stability and range of motion, excluding K-wire impingement of the radial ulnar joint.

Implant Removal

In case the physician decides to remove the implants, implants can be removed by using general surgical instruments.

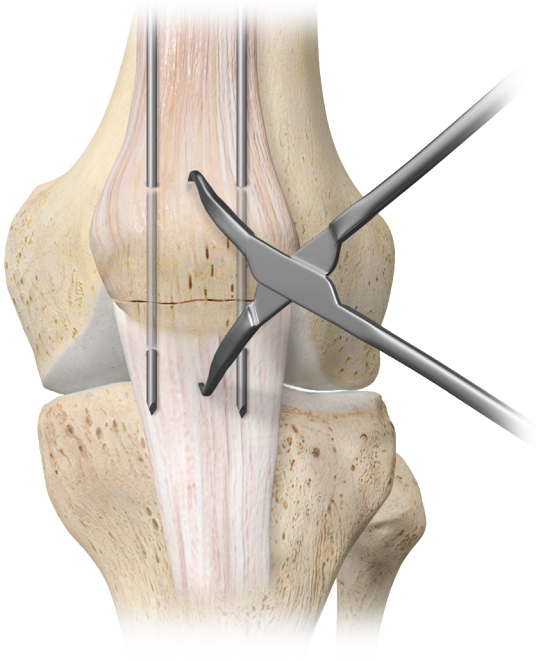


Figure 8

Figure 9

Tension Band Wiring of Patella Fracture

The following section describes step by step the surgical technique for treatment of a patellar fracture with tension band wiring.

Fracture Reduction

Reduce and hold the reduction with reduction forceps. Preliminary fix it with two parallel Kirschner wires in an axial direction approximately 5mm below the anterior patella surface (Figure 8).

Tension Band Insertion

Pass the cerclage wires through the ligamentous structures and around the Kirschner wires as close as possible to the bone, realizing a figure-of-eight (Figure 9) or a figure-of-zero (Figure 10). To do so, it may be helpful to use large curved bore injection needle or canula.

Figure 10

Wires Tightening

Twist wires according to the surgical approach and desired tightening is achieved by twisting them with pliers. The distal pin ends can be then trimmed or bent.

Implant Removal

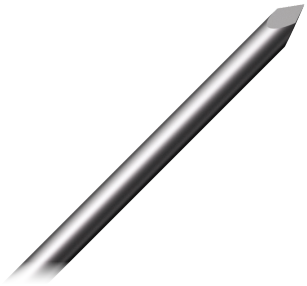
In case the physician decides to remove the implants, implants can be removed by using general surgical instruments.

Products Overview

Kirschner Wires

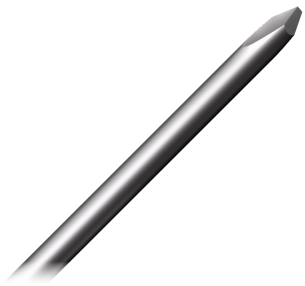
Available in 3 Different Tips

Trocar Tip (one or both ends)



Trocar Tip is the most versatile, indicated for high insertion angle.

Bayonet Tip (one end)



Bayonet Tips are designed to provide penetration point stability for applications where a lower insertion angle is required.

Threaded Tip (one end)

Threaded Tips are designed to provide high pull-out resistance after insertion.

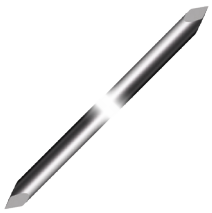
Cerclage Wires

with Eye (one end)

Cerclage Wires are provided in pre-cut lengths with an already prepared eye on one end.

Ordering Information

Kirschner Wires

Product	Description	Size (mm)	Length (mm)	Part Number
	**Kirschner Wire with Trocar Tip (one end)** Stainless Steel (Protasul-S)	Ø0.6	70	290.06.070
		Ø0.8	70	290.08.070
		Ø1.0	150	290.10.150
		Ø1.2	150	290.12.150
		Ø1.4	150	290.14.150
			280	290.14.280
		Ø1.6	150	290.16.150
			280	290.16.280
		Ø1.8	150	290.18.150
			280	290.18.280
		Ø2.0	150	290.20.150
			280	290.20.280
		Ø2.5	150	290.25.150
			280	290.25.280
			310	290.25.310
	**Kirschner Wire with Trocar Tip (double end)** Stainless Steel (Protasul-S)	Ø1.0	150	291.10.150
			280	291.10.280
		Ø1.2	150	291.12.150
		Ø1.4	150	291.14.150
		Ø1.6	150	291.16.150
			280	291.16.280
		Ø1.8	150	291.18.150
		Ø2.0	150	291.20.150
			280	291.20.280
			310	291.20.310
		Ø2.5	150	291.25.150
		Ø3.0	150	291.30.150

Kirschner Wires (cont.)

Product	Description	Size (mm)	Length (mm)	Part Number
	**Kirschner Wire with Bayonet Tip (one end)** Stainless Steel (Protasul-S)	Ø2.0	280 310	292.20.280 292.20.310
	**Kirschner Wire with Threaded Tip (one end)** Stainless Steel (Protasul-S)	Ø2.0	150	299.20.150

Cerclage Wires

	**Cerclage Wire with Eye (one end)** Stainless Steel (Protasul-S)	Ø0.8 Ø1.0 Ø1.2 Ø1.5	280 280 280 600	295.08.280 295.10.280 295.12.280 295.15.600

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Check for country product clearances and reference product specific Instructions for Use.

For Instructions for Care, Cleaning, Maintenance and Sterilization Manual refer to 3455

For disassembly instructions (where applicable) refer to 1258 Disassembly Manual

If damage or wear detected on instruments, please consult the Reusable Instrument Lifespan Manual 1219

CE 2797

CE mark on a surgical technique or ordering information is not valid unless there is a CE mark on the product label.

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