

SURGICAL TECHNIQUE
HEADLESS CANNULATED SCREWS



Headless cannulated screws

Ø 2.5 mm; Ø 3 mm; Ø 4 mm

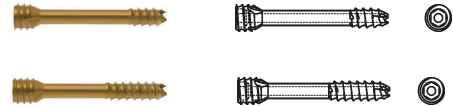
Intended purpose for use

Screws are designed for the temporary fixation, correction or stabilization of the bones in the various anatomical areas during treatment of fractures and reconstruction surgery. Diameter size of the selected screw should respond to the particular indication.

Indications

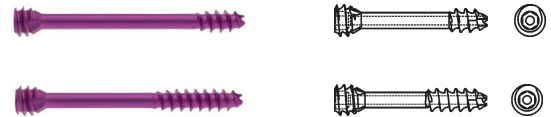
2.5 mm

- Fixation of the intraarticular and extraarticular fractures, non-unions of the small bones and small bone fragments
- Small bone arthrodesis
- Osteotomy



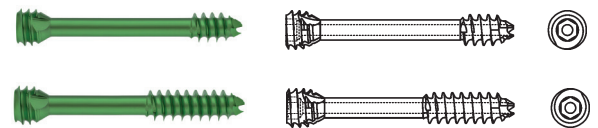
3 mm

- Fixation of the intraarticular and extraarticular fractures, non-unions of the small bones and small bone fragments
- Small bone arthrodesis
- Osteotomy



4 mm

- Fractures, osteoarthritis or deformities of the small and large bones



Contraindications

1. Insufficient quantity or quality of bone which could prevent proper fixation of the bone.
2. Any fully developed or presumed latent infection.
3. Patients who are not able or willing to comply with the postoperative instructions (therapeutic regime); patients suffering from mental disorders, neuromuscular illness, etc.
4. Reduced vascularisation, which would prevent necessary blood supply of the fracture or surgical site.
5. Insufficient quality or quantity of soft tissues in the vicinity of the implants.
6. Risk of direct injury of a neurovascular bundle at introduction of the implant.
7. Malignancy in the developed stage of the disease.

Screw specification

Screw diameter	Colour design	Length range	Guide wire	Drill
2,5 mm	yellow	14–30 mm	Ø 1,0×100 mm	Ø 2,0 mm
3 mm	purple	12–32 mm	Ø 1,0×100 mm	Ø 2,0 mm
4 mm	green	26–60 mm	Ø 1,2×150 mm	Ø 2,7 mm

Surgical technique

1. Preparation of the surgical site

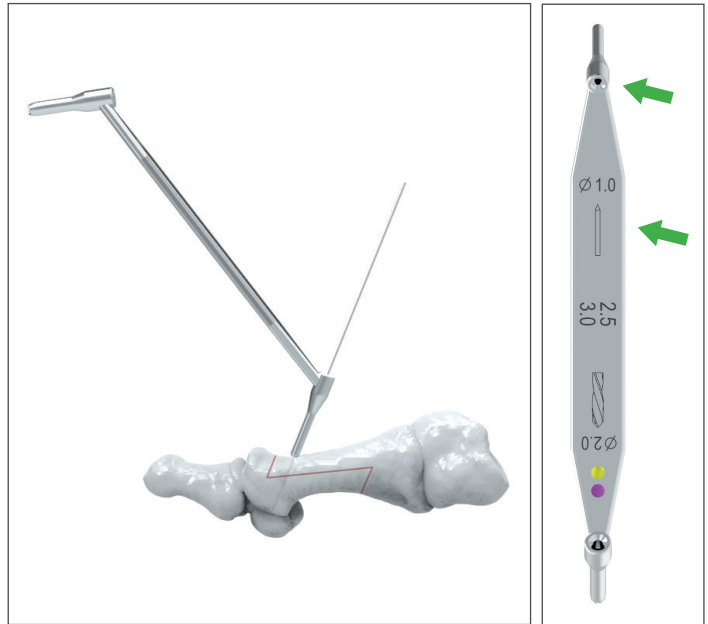
The patient is positioned to mostly facilitate the access to the surgical site by the selected surgical technique while allowing X-ray imaging in the required projections.

Surgical approach

The incision is done with respect to the anatomy of the operated area to prevent damage of the neurovascular structures.

2. Guide wire introduction

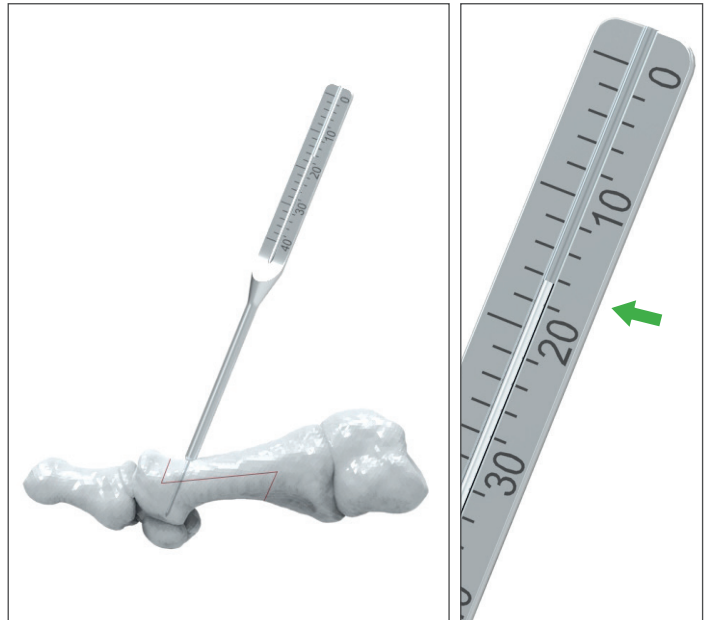
If necessary, perform the fragment repositioning into the original anatomical position under the X-ray control. Attach the sleeve to the bone through the incision and introduce the guide wire in the required direction and into the required depth. Check the guide wire position using X-ray.



3. Screw length determination

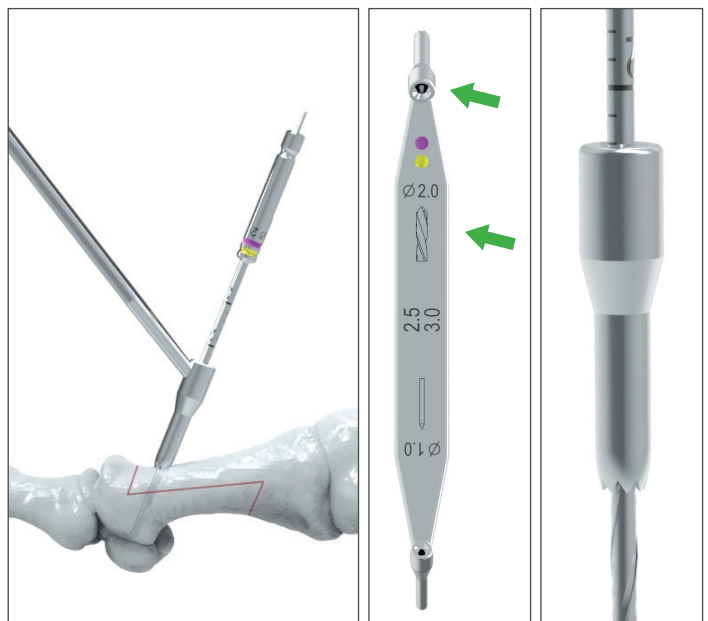
Remove the sleeve. Place the gauge along the guide wire. Read the necessary length of the screw on the gauge scale.

Note:
Use only the included guide wires in their original length. The use of the other or shortened wires may cause selection of the wrong screw size.



4. Pre-drilling (non-compulsory)

The headless screws have self-tapping/self-drilling grooves on their tips and so it is not necessary to pre-drill the bone before the screw introduction. It is recommended to pre-drill the bone with drill introduced along the guide wire when using screws in the hard bone. Perform drilling only through the sleeve to prevent soft tissue damage. It is possible to check the drilling depth using the scale on the drill body.

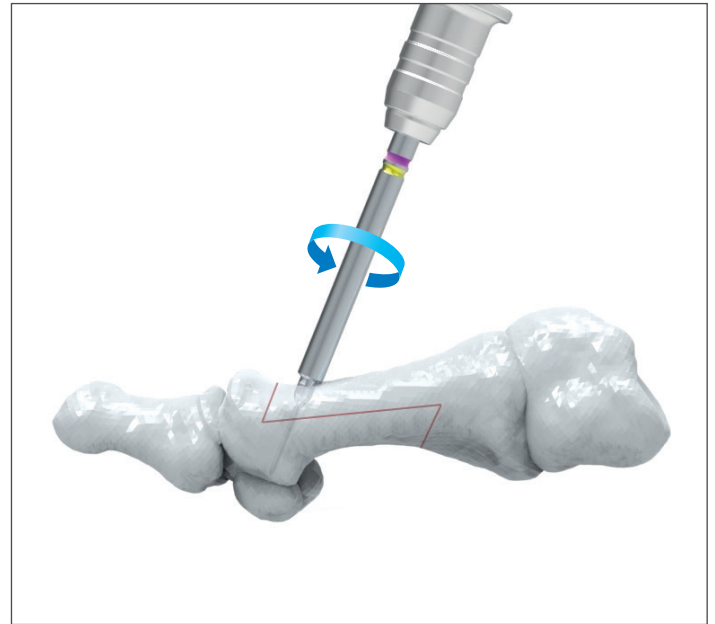


5. Recessing (non-compulsory)

Remove the sleeve and place the countersink to the bone surface along the guide wire. Recess as required using rotational movement.

Note:

It is forbidden to use countersink in connection with drill. Recess exclusively by hand.

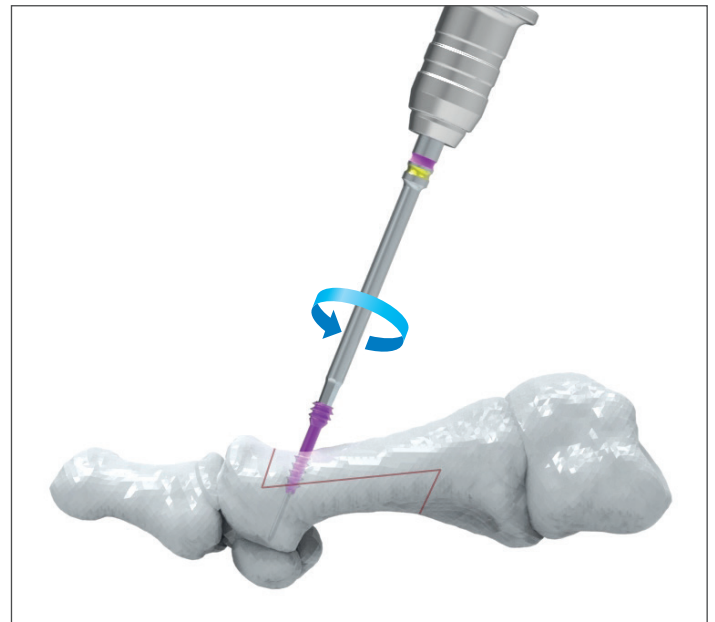


6. Screw introduction

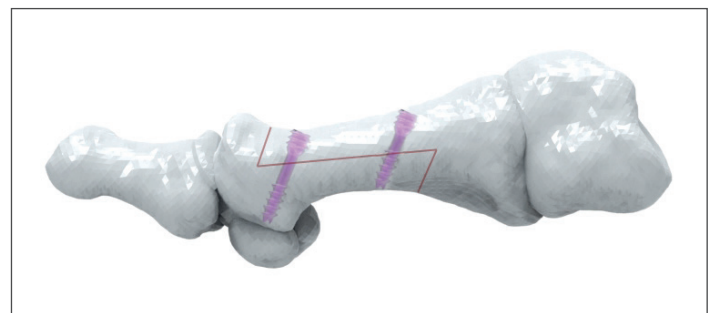
Choose a screw of the required length from the screw stand. Check its length on the stand scale. Introduce this screw along the guide wire into the bone using a screwdriver. Check the correct screw introduction and fragment position using an X-ray. Remove the guide wire after the correct position was confirmed.

Note:

Introduce the screws using exclusively a screwdriver. It is forbidden to introduce the screws using a drill.



7. Wound closure

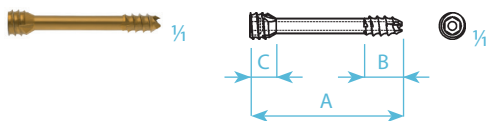


8. Screw extraction

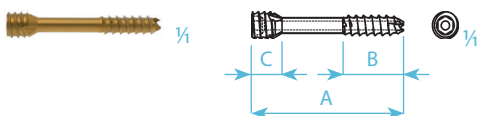
The implant extraction can be done using a screwdriver with its counter-clockwise rotation. The screw extraction set must be used in case of the internal hexagon damage or the screw head breakage.

HEADLESS CANNULATED SCREWS

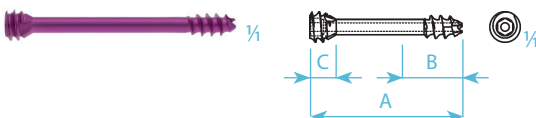
HEADLESS CANNULATED BONE SCREWS



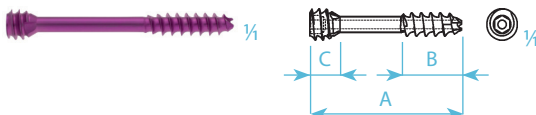
thread diameter	2.5 mm
shaft diameter	1.9 mm
core diameter	1.9 mm
cannulated hole	1.1 mm
drill for the thread	Ø 2.0 mm
screwdriver	Ø 2.0 mm
guide wire	Ø 1.0 mm



thread diameter	2.5 mm
shaft diameter	1.9 mm
core diameter	1.9 mm
cannulated hole	1.1 mm
drill for the thread	Ø 2.0 mm
screwdriver	Ø 2.0 mm
guide wire	Ø 1.0 mm



thread diameter	3.0 mm
shaft diameter	1.9 mm
core diameter	1.9 mm
cannulated hole	1.1 mm
drill for the thread	Ø 2.0 mm
screwdriver	Ø 2.0 mm
guide wire	Ø 1.0 mm



thread diameter	3.0 mm
shaft diameter	1.9 mm
core diameter	1.9 mm
cannulated hole	1.1 mm
drill for the thread	Ø 2.0 mm
screwdriver	Ø 2.0 mm
guide wire	Ø 1.0 mm

Self-tapping headless cannulated screw 2.5 mm

Ti	A	B	C
397 129 70 6804	14 mm	5 mm	3,5 mm
397 129 70 6814	16 mm	5 mm	3,5 mm
397 129 70 6824	18 mm	5 mm	3,5 mm
397 129 70 6834	20 mm	5 mm	3,5 mm
397 129 70 6844	22 mm	6 mm	3,5 mm
397 129 70 6854	24 mm	6 mm	3,5 mm
397 129 70 6864	26 mm	6 mm	3,5 mm
397 129 70 6874	28 mm	6 mm	3,5 mm
397 129 70 6884	30 mm	6 mm	3,5 mm

Self-tapping headless cannulated screw 2.5 mm

Ti	A	B	C
397 129 71 2204	20 mm	8 mm	4 mm
397 129 71 2214	22 mm	8 mm	4 mm
397 129 71 2224	24 mm	9 mm	4 mm
397 129 71 2234	26 mm	9 mm	4 mm
397 129 71 2244	28 mm	10 mm	4 mm
397 129 71 2254	30 mm	10 mm	4 mm

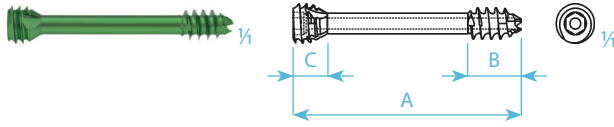
Self-tapping headless cannulated screw 3 mm

Ti	A	B	C
397 129 70 7574	12 mm	5 mm	3,5 mm
397 129 70 7584	14 mm	5 mm	3,5 mm
397 129 70 7594	16 mm	5 mm	3,5 mm
397 129 70 7604	18 mm	5 mm	3,5 mm
397 129 70 7614	20 mm	5 mm	3,5 mm
397 129 70 7624	22 mm	6 mm	3,5 mm
397 129 70 7634	24 mm	6 mm	3,5 mm
397 129 70 7644	26 mm	6 mm	3,5 mm
397 129 70 7654	28 mm	6 mm	3,5 mm
397 129 70 7664	30 mm	6 mm	3,5 mm

Self-tapping headless cannulated screw 3 mm

Ti	A	B	C
397 129 71 1554	16 mm	7 mm	4 mm
397 129 71 1564	18 mm	7 mm	4 mm
397 129 71 1574	20 mm	8 mm	4 mm
397 129 71 1584	22 mm	8 mm	4 mm
397 129 71 1594	24 mm	9 mm	4 mm
397 129 71 1604	26 mm	10 mm	4 mm
397 129 71 1614	28 mm	10 mm	4 mm
397 129 71 1624	30 mm	12 mm	4 mm
397 129 71 1634	32 mm	12 mm	4 mm

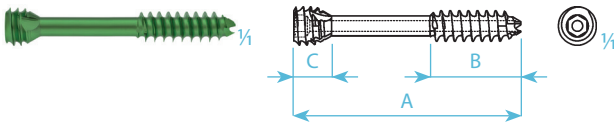
NOTES: Ti – version titanium, material Ti6Al4V ELI according to ISO 5832-3



thread diameter	4.0 mm
shaft diameter	2.6 mm
core diameter	2.5 mm
cannulated hole	1.4 mm
drill for the thread	Ø 2.7 mm
screwdriver	Ø 2.5 mm
guide wire	Ø 1.2 mm

Self-tapping headless cannulated screw 4 mm

Ti	A	B	C
397 129 70 7704	26 mm	7 mm	4,5 mm
397 129 70 7714	28 mm	7 mm	4,5 mm
397 129 70 7724	30 mm	7 mm	4,5 mm
397 129 70 7734	32 mm	7 mm	4,5 mm
397 129 70 7744	34 mm	7 mm	4,5 mm
397 129 70 7754	36 mm	7 mm	4,5 mm
397 129 70 7764	38 mm	7 mm	4,5 mm
397 129 70 7774	40 mm	8 mm	4,5 mm
397 129 70 7784	45 mm	9 mm	4,5 mm
397 129 70 7794	50 mm	10 mm	4,5 mm
397 129 70 7804	55 mm	11 mm	4,5 mm
397 129 70 7814	60 mm	12 mm	4,5 mm



thread diameter	4.0 mm
shaft diameter	2.6 mm
core diameter	2.5 mm
cannulated hole	1.4 mm
drill for the thread	Ø 2.7 mm
screwdriver	Ø 2.5 mm
guide wire	Ø 1.2 mm

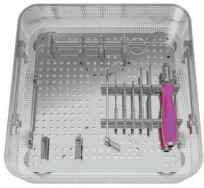
Self-tapping headless cannulated screw 4 mm

Ti	A	B	C
397 129 71 2284	30 mm	12 mm	5 mm
397 129 71 2294	32 mm	12 mm	5 mm
397 129 71 2304	34 mm	13 mm	5 mm
397 129 71 2314	36 mm	14 mm	5 mm
397 129 71 2324	38 mm	15 mm	5 mm
397 129 71 2334	40 mm	16 mm	5 mm
397 129 71 2344	45 mm	18 mm	5 mm
397 129 71 2354	50 mm	20 mm	5 mm
397 129 71 2364	55 mm	22 mm	5 mm
397 129 71 2374	60 mm	24 mm	5 mm

NOTES: Ti – version titanium, material Ti6Al4V ELI according to ISO 5832-3

HEADLESS CANNULATED SCREWS

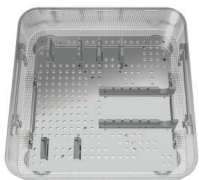
INSTRUMENTATION FOR HEADLESS CANNULATED SCREWS 2.5 / 3.0 mm



397 139 09 0995 Instrumentation set for headless cannulated screws 2.5 and 3 mm with sieve
240 × 240 × 60 mm
instruments included



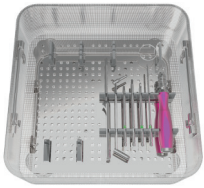
397 139 09 0990		set	
1	397 129 68 0191	Screwdriver 2/1.2×70 mm; hexagon	pcs 1
2	397 129 68 0211	Countersink 3 mm; cannulated	1
3	397 129 68 0380	Gauge	1
4	BD17-080-AO-K20	Handle AO; cannulated 2 mm; 21 × 120 mm	1
5	397 129 69 7910	Screwdriver 2 × 90 mm; hexagon	1
6	397 129 69 9390	Sleeve 2.5/3.0 mm	1
7	397 129 69 9421	Drill 2/1.2 × 90 mm	1
8	397 129 69 9430	Cleaning wire Ø 1.0 mm	1
9	397 129 99 0396	Kirschner wire 1.0 × 100 mm	10



397 129 68 0960 Sieve for the instrumentation for headless screws 2.5 and 3 mm
240 × 240 × 60 mm
excluding instruments



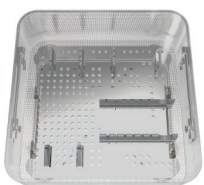
397 129 68 0890 Stand for headless screws 2.5 and 3 mm
135 × 96 × 36 mm
excluding implants



397 139 09 1005 Instrumentation set for headless cannulated screws 4 mm with sieve
240 × 240 × 86
instruments included



397 139 09 1000	set		
1	397 129 68 0221	Countersink 4 mm; cannulated	1 pcs
2	397 129 68 0281	Screwdriver 2.5/1.4 × 90 mm; hexagon	2
3	BD17-080-AO-K20	Handle AO; cannulated 2 mm; 21 × 120 mm	1
4	397 129 69 9400	Gauge	1
5	397 129 69 9471	Drill 2.7/1.4 × 125 mm	1
6	397 129 69 9480	Sleeve 4.0 mm	1
7	397 129 69 9950	Cleaning wire Ø1.2 mm	1
8	397 129 69 9981	Screwdriver 6HR 2.5 × 100 mm	1
9	397 129 99 1095	Kirschner wire 1.2 × 150 mm	10



397 129 68 0970 Sieve for the instrumentation for headless screws 4 mm
240 × 240 × 86 mm
excluding instruments



397 129 68 0900 Stand for headless screws 4 mm
135 × 96 × 66 mm
excluding implants

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