

# Linos

Hand Fracture System Lean. Complete. New!





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# Linos

# Hand Fracture System Lean. Complete. New!

Our main goals in developing the Linos hand fracture system are to build on the success of the MOH system that has been on the market since 2004, learn from customer feedback to understand their needs even better, and add new technical features for more efficient handling.

The Linos hand fracture system provides you with a straight-forward yet complete range of plates in two different profile thicknesses. They can be freely combined with the new smartDrive® standard and multidirectional locking screws with diameters of 1.5 mm, 2.0 mm, and 2.3 mm. An add-on module for 1.2 mm diameter screw osteosynthesis is also available. The system is completed by a handful of intuitive instruments.

# Feature, Function, and Benefit





The full range of plates in the Linos system provides a comprehensive selection for surgical treatment of all types of hand fractures.

All the Linos plates can be combined with both standard screws and with multidirectional locking screws—to ensure completely individual treatment of the fracture. The resulting highly stable treatment enables early functional stability for exercise.

The plates are available in two profile thicknesses and different anatomically contoured shapes and lengths.

Color coding simplifies identification of the two profiles:

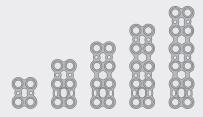
Green: Plates in profile thickness 0.8 mm

Dark gray: Plates in profile thickness 1.2 mm

Reducing the plate portfolio to the essentials and the option of using standard and multidirectional locking screws in one and the same plate make handling significantly easier, satisfying current economic requirements for a state-of-the-art hand fracture system.

# **Linos** Plates

# **Feature Benefit** Anatomical pre-shaped plate design Anatomical plate fit with minimal intraoperative adjustment ■ High stability thanks to less need for bending Rounded, atraumatic plate Optimal embedding in soft tissue for maximum protection contour Universal plate hole geometry All plates can be combined with both smartDrive® standard screws and multidirectional locking screws in diameters 1.5 mm, 2.0 mm, and 2.3 mm Multiple options for individual and optimal fracture treatment Compression hole and Secure closure of the fracture gap elongated K-wire hole even when using grid plates



- Plates are available in different lengths
- Eliminates the need to shorten the plates
- No sharp edges and deburring

# Feature, Function, and Benefit





For screw osteosynthesis with small fragment fractures, there are standard screws available with a diameter of 1.2 mm. If the fracture is being treated with a plate, both standard screws and multidirectional locking screws can be used in diameters 1.5 mm, 2.0 mm, and 2.3 mm. The ability to freely combine plates and screws optimizes treatment options for all fractures. Diameters are clearly identified by color-coded single clips.

Color code	Screw diameter
Blue:	1.2 mm
Green:	1.5 mm
Red:	2.0 mm
Black:	2.3 mm

Color-coded screws enables immediate differentiation between standard and multidirectional locking screws, even when stored in the clip.

Color code	Screw	Diameter
Gold:	Standard screw	1.2 mm, 1.5 mm, 2.0 mm, 2.3 mm
Blue:	Locking screw	1.5 mm, 2.0 mm, 2.3 mm

# smartDrive® Screws

Feature	Benefit
<ul> <li>Atraumatic screw head and tip</li> </ul>	<ul> <li>Secure and soft-tissue-friendly bicortical anchorage in the bone</li> </ul>
<ul><li>Double, self-tapping thread</li></ul>	<ul> <li>Reduces application time by 50% and minimizes the effort needed</li> </ul>
<ul> <li>Multidirectional locking screws in diameters 1.5 mm, 2.0 mm, and 2.3 mm</li> </ul>	<ul> <li>Secure, multidirectional locking of the screw in the plate (± 15°)</li> </ul>
and 2.3 mm	<ul> <li>Maximum deflection with no soft tissue irritation</li> </ul>
■ T5 for screw diameter 1.2 mm and T6 for screw diameters 1.5 mm, 2.0 mm, and 2.3 mm with self-retaining function	<ul> <li>Easy pick-up, insertion, tightening, and removal of the screw</li> <li>Direct transfer of force from the screwdriver blade to the screw</li> </ul>
	<ul> <li>Optimal synergy of handling and force transfer</li> </ul>
■ Color-coded single clip	<ul> <li>Clear assignment of the appropriate screw diameter</li> </ul>
	■ Direct, swift, and application-oriented access
	■ 100% batch traceability
	<ul><li>Can be individually invoiced</li></ul>
	■ Simple record of all relevant implant data

# Feature, Function, and Benefit



KLS Martin has set itself the goal of optimizing instrumentation with regard to easy and efficient handling.

This was why the design of Linos instruments focused not only on distinct color coding for easy identification but also on minimizing the total number of required instruments. For example, both standard screws and multidirectional locking screws in the three diameters, 1.5 mm, 2.0 mm, and 2.3 mm, can be inserted with a single screwdriver.

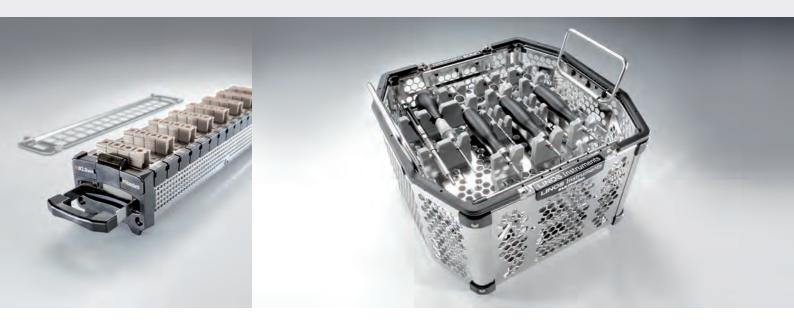
Another concern was the development of reduction forceps especially designed to suit the anatomy of the hand. The result is the unique stepped design of the working ends. It allows easy, reliable reduction of the fracture while optimizing preservation of soft tissue.

# **Linos** Instruments

	Feature	Benefit
	<ul> <li>Clear assignment and identification of instruments</li> </ul>	<ul> <li>Color coding specific for each screw diameter:         <ul> <li>smartDrive* 1.2 mm (blue)</li> <li>smartDrive* 1.5 mm (green)</li> <li>smartDrive* 2.0 mm (red)</li> <li>smartDrive* 2.3 mm (black)</li> </ul> </li> <li>Differentiation between core hole drilling and gliding hole drilling for lag screw osteosynthesis:         <ul> <li>Core hole (1 colored ring)</li> <li>Gliding hole (2 colored rings)</li> </ul> </li> </ul>
	<ul> <li>Reduction forceps designed to suit the anatomy of the hand</li> </ul>	■ Easy, reliable reduction of the fracture
	<ul><li>Unique stepped design of the working ends</li></ul>	Deflection possible in all directions
		Use in the region of the metacarpals possible
	<ul><li>Drill guide with two working ends</li></ul>	■ Standard working end for core hole drilling ①
2		<ul> <li>Universal working end for clicking in the         <ul> <li>compression drill sleeve for eccentric drilling for the compression screw ②</li> <li>gliding hole drill sleeve for lag screw osteosynthesis ③</li> </ul> </li> </ul>
	■ Sizer available for all plates	■ Sizer reflects the plate 1-to-1
		■ Safe selection of the sterile-packed plate
		<ul> <li>Positioning of the sizer on the bone using K-wire holes. When the sizer has been removed, the plate can be introduced</li> </ul>

as required using the placed K-wires.

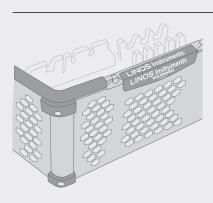
# Feature, Function, and Benefit



In designing the storage tray, the focus was not only on easy handling but also optimizing the reprocessing capability to meet the requirements of all those involved.

Apart from the option of conventional storage, the entire Linos system is also available with sterile packed implants.

# **Linos** Storage



#### **Feature**

 Stainless steel storage tray in honeycomb design combined with high-performance plastic

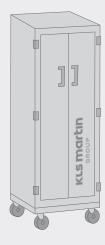
## **Benefit**

- High stability, but low weight
- Good rinsing results thanks to large openings
- No water residues



 The instruments are arranged according to their order of use in surgery

- Swift and intuitive passing of instruments during surgery
- User-friendly, efficient instrumentation



■ Mobile sterile goods trolley

Modular, labeled baskets and compartments

- Easy handling and supply of sterile implants in the operating room
- Optimal protection of sterile packages
- Swivel casters enable easy transport and transfer to and between operating rooms
- Excellently organized, structured storage
- Good overview and easy access to stored items
- Can be adapted to suit users' requirements at any time

# Step by Step to Optimal Fixation

# Fields of Use

The Linos system is used to treat fractures and for reconstructive procedures on small bones and bone fragments as well as arthrodesis of small joints, especially for

- transverse, oblique, and spiral fractures and fractures near joints with and without joint involvement
- shaft, comminuted, and luxation fractures
- avulsion fractures
- arthrodeses and reconstructive procedures
- of the distal, middle, and proximal phalanges as well as the metacarpals



Avulsion fractures



Intra-articular fractures



Phalangeal fractures



Arthrodeses



Metacarpal fractures



Corrective procedures



# Surgical Techniques

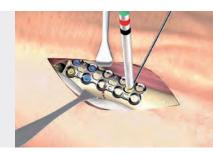
# **Transverse Fracture of the Metacarpal Bone**

Treatment with a 1.2-mm grid plate

Prof. Dr. J. van Schoonhoven

Prof. Dr. C. Meyer

Pages 16-23



# **Oblique Fracture of the Proximal Phalanx**

Treatment with a 0.8-mm T-plate

Prof. Dr. J. van Schoonhoven

Prof. Dr. C. Meyer

Pages 24-31



# **Bony Extensor Tendon Avulsion of the Distal Phalanx**

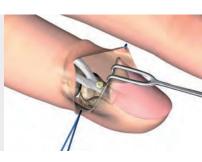
Treatment with a Ø 1.2-mm smartDrive®

Standard Screw

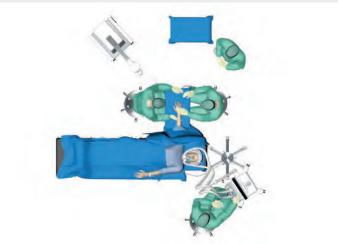
Prof. Dr. J. van Schoonhoven

Prof. Dr. C. Meyer

Pages 32-37







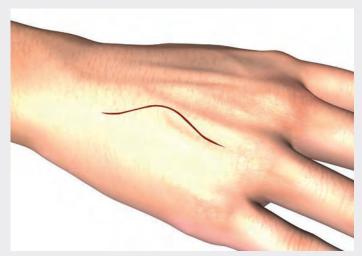
# **Preoperative planning**

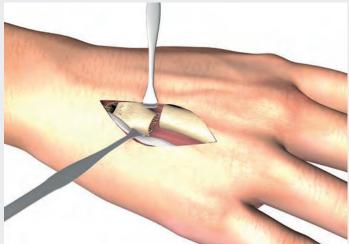
As well as taking standard images of the metacarpus in AP, strictly lateral and possibly also oblique views, it is recommended to carry out a high-resolution computed tomography scan of intra-articular fractures for further evaluation.

# Patient positioning

The patient is placed supine on the operating table. The hand to be operated on is placed with the forearm pronated on the hand side table.







# 1. Dorsal approach

Opening is performed by making a dorsal, slightly curved incision above the relevant metacarpal bone.

## 2. Exposure of the fracture

The skin incision is followed by blunt dissection of the subcutaneous tissue, protecting the dorsal veins of the hand and sensitive nerve branches.

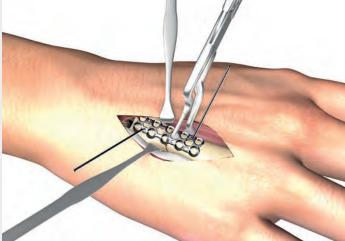
The extensor tendons are mobilized and retracted together with the loosely connected soft tissue, preferably without transecting the tendinous junction.

In the next step, the periosteum on the metacarpal is incised longitudinally and the dorsal interosseous muscles are partially released with the periosteum.

#### Note:

Complete release of the muscles and injury of the palmar structures must be avoided.





#### 3. Reduction of the fracture

For manual reduction there are various techniques available.

One option uses maximum flexion of the MCP and PIP joints by applying slight thumb pressure to the middle phalanx and simultaneously applying counterpressure to the metacarpal with the other fingers.

When all the fingers close to the MCP joint are flexed, rotational alignment is achieved.

Optionally, if there is substantial instability, K-wires can be used for temporary fixation of the reduction.

For spiral fractures or oblique fractures, in addition to manual reduction of the fracture by the surgeon, either the small Backhaus reduction forceps 23-721-09-07, which are integrated into the Linos system, or reduction forceps 26-975-06-07 with the stepped working end, which are specially developed for fractures in the hand region, can be used.

#### 4. Selection and placement of the osteosynthesis plate

By way of example, the present indication is treated with a grid plate with a profile thickness of 1.2 mm. Since the grid plate has two rows, rotational stability can be increased even if standard screws are used. However, the osteosynthesis plate is always selected based on the course of the fracture and the patient's anatomy.

If necessary, the osteosynthesis plate is adapted to the anatomical situation using the two plate-bending forceps 26-975-05-07.

The plate can be temporarily fixed with plate-holding forceps 26-975-04-07 and/or alternately with K-wires. Special K-wire slots are provided for this purpose. If fixation is performed with K-wires, it is advisable to first introduce a K-wire through the circular hole close to the joint and then introduce another K-wire through the elongated K-wire hole on the margin distant from the fracture.



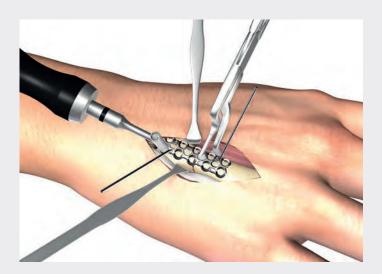
Plate-holding forceps



K-wire dispenser Ø 0.9 mm



K-wire Ø 0.9 mm



# 5. Drilling the first core hole

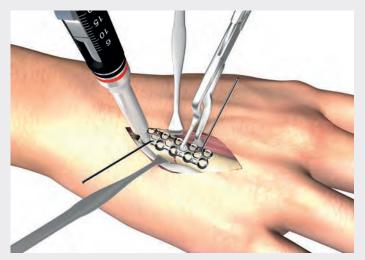
Depending on the course of the fracture, fracture compression using the plate may be indicated. If this is the case, the plate must first be fixed with screws on the side opposite the compression hole. The core hole is first drilled using the drill guide and the appropriate core hole drill. The Linos system makes it possible to use standard and multidirectional locking\* smartDrive® screws with diameters 1.5 mm, 2.0 mm, and 2.3 mm in all plate holes.

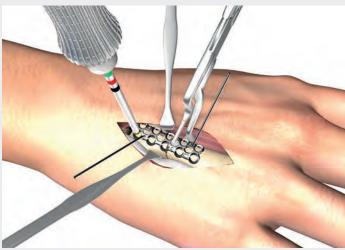
The table to the right shows which core hole bit is used in conjunction with which drill guide for the various screw diameters.

\* In the compression hole only standard screws are used.

Ø Screw	Core hole drill	Drill guide
1.5 mm	Ø 1.1 mm 26-153-11-07 26-153-11-71	Ø 1.5 mm 26-975-75-07
2.0 mm	Ø 1.5 mm 26-153-16-07 26-153-16-71	Ø 2.0 mm 26-975-80-07
2.3 mm	Ø 1.8 mm 26-153-18-07 26-153-18-71	Ø 2.3 mm 26-975-85-07







## 6. Determination of screw length

Correct screw length is determined with depth gauge 26-975-30-07, which can be used in all cases for screw diameters 2.0 mm and 2.3 mm.

#### 7. Placement of the first screw

After precise reduction of the fracture, the plate is fixed with a smartDrive® standard screw. The screw is picked up and driven in with the color-coded screwdriver 26-975-36-07, which is used for diameters 1.5 mm, 2.0 mm, and 2.3 mm. Additional screws are then placed using the technique described in steps 5–7. Optionally, multidirectional locking screws can be used to increase stability.

At this point, it is advisable to clinically assess for correct rotation and take an X-ray to check the position of the implants.



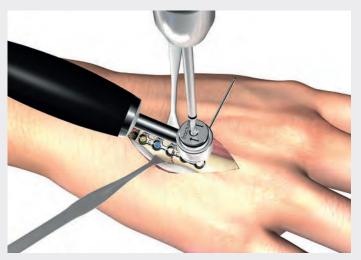


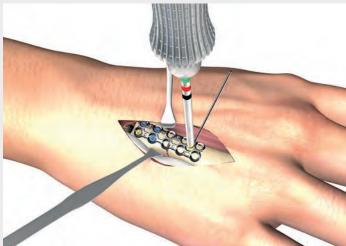
Depth gauge (one-handed design) 2.0 mm and 2.3 mm





Screwdriver T6 short, rotatable





## 8. Placement of the compression screw

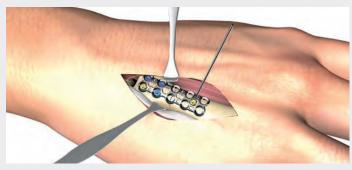
If compression plate osteosynthesis is planned, after successful insertion of the first screws, the compression screw is then inserted into the compression hole to securely close the fracture gap. Standard screws with diameters 1.5 mm, 2.0 mm, and 2.3 mm can be used. The compression drill sleeve is clicked into the open working end of the drill guide from below. The arrows on the compression drill sleeve point toward the fracture gap when drilling. Analogous to the first screws, the core hole is drilled and the length of the screw is determined.

# 9. Closing the fracture gap

When it is being driven in, the smartDrive® standard screw glides over the sloping surface integrated into the compression hole, toward the fracture gap, and closes it.

To ensure that gliding takes place, the K-wire hole in the plate is also elongated, thus enabling the placed K-wire to also migrate when the fracture gap is being closed.







Ø 1.8 mm



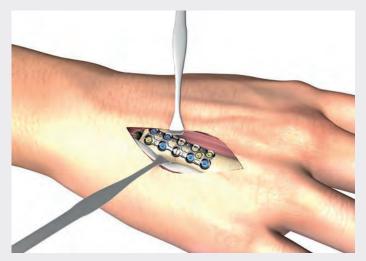


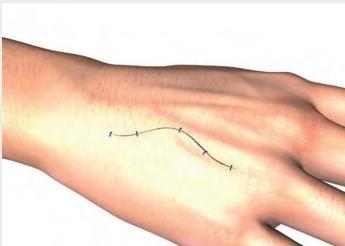


Compression drill sleeve Ø 2.3 mm



Screwdriver T6 short, rotatable





## 10. Placement of further screws

To achieve adequate early functional stability, more distal plate holes are filled with screws.

The procedure for this is described in steps 5 to 7.

The number of screws and the selection of screw diameter and type depend on the specific anatomy of the patient and the required stability.

#### 11. Wound closure

The flat implant design usually permits closure of the periosteum above the implants to prevent tendon adhesions.

This is followed by skin suture.



Screwdriver T6 short, rotatable





## 12. Postoperative treatment

After surgery, a detachable splint that surrounds the metacarpus without including the fingers or inhibiting the metacarpophalangeal joints should be used to protect the wound and the osteosynthesis.

If patients with stable internal fixation are cooperative, the splint can be removed once the swelling has subsided, otherwise, it is removed four to six weeks after osteosynthesis.

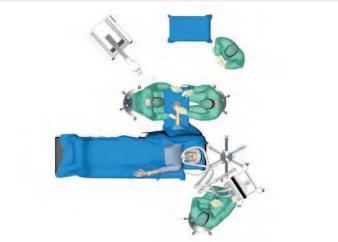
At night the splint can be worn for a longer period if it helps to increase patient comfort.

Patients should begin exercises themselves immediately after surgery to achieve full mobility of all the fingers and especially the basal joints. If problems arise, hand therapy should be initiated at an early stage.

The stitches can be taken out 10 to 14 days after surgery.

A check-up X-ray is taken six weeks after internal fixation.





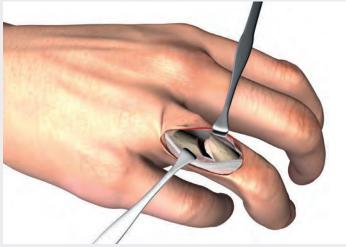
# Preoperative planning

Standard X-rays are first taken in the A/P and lateral views with the hand in neutral position. In the case of intra-articular fractures, a high-resolution computed tomography scan is recommended for further evaluation.

# Patient positioning

The patient is placed supine on the operating table. The hand to be operated on is placed with the forearm pronated on the hand side table.



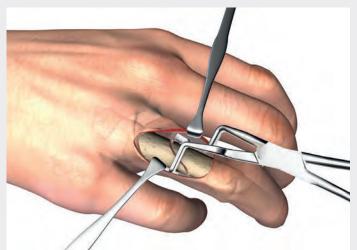


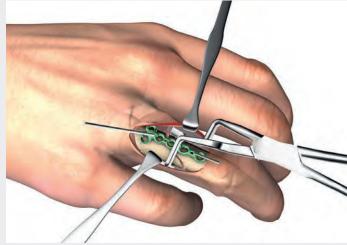
# 1. Approach

With simple types of fracture, the lateral approach is used with mobilization of the oblique portion, extensor aponeurosis, and lateral placement of the osteosynthesis implants. For complex fractures or comminuted fracture zones, the opening is made by a dorsal, slightly curved incision, starting at the level of the MCP joint and moving to the PIP joint.

## 2. Exposure of the fracture

The skin incision is followed by blunt spreading of the subcutaneous tissue, with protection and local coagulation of the veins. When the extensor hood has been exposed, it is cut with a median longitudinal incision. This is followed by subperiostal exposure of the fractured proximal phalanx.





#### 3. Reduction of the fracture

For spiral fractures or oblique fractures, in addition to manual reduction of the fracture by the surgeon, either the small Backhaus reduction forceps 23-721-09-07, which are integrated into the Linos system, or reduction forceps 26-975-06-07 with the stepped working end, which are specially developed for hand fractures, can be used.

## 4. Selection and placement of the osteosynthesis plate

By way of example, the present indication is treated using a T-plate with a profile thickness of 0.8 mm. The osteosynthesis plate is always selected based on the course of the fracture and the patient's anatomy.

If necessary, the osteosynthesis plate is adapted to the anatomical situation using the two plate-bending forceps 26-975-05-07.

The plate can be temporarily fixed with K-wires. Special K-wire holes are provided for this purpose. Alternatively, Linos plateholding forceps 26-975-04-07 can also be used.



Reduction forceps pointed/pointed

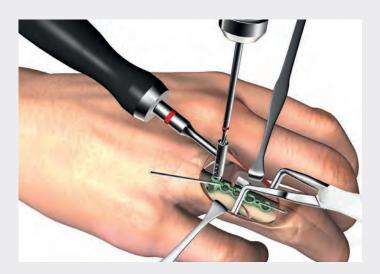


K-wire dispenser Ø 0.9 mm



K-wire

Ø 0.9 mm



# 5. Drilling the first core hole

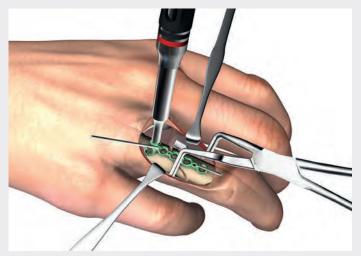
Depending on the course of the fracture, fracture compression using the plate may be indicated. In this case, the plate must first be fixed on the side opposite the compression hole. The core hole is drilled using the drill guide and the appropriate core hole drill. The Linos system enables the use of standard and multidirectional locking smartDrive® screws with diameters 1.5 mm, 2.0 mm, and 2.3 mm in all plate holes\*.

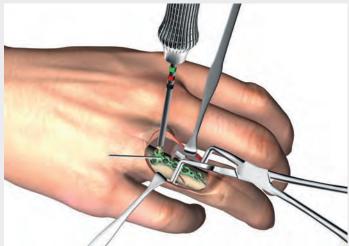
The table opposite shows which core hole drill is used together with which drill guide for the various screw diameters.

<sup>\*</sup> In the compression hole only standard screws are used.

Ø Screw	Core hole drill	Drill guide
1.5 mm	Ø 1.1 mm 26-153-11-07 26-153-11-71	Ø 1.5 mm 26-975-75-07
2.0 mm	Ø 1.5 mm 26-153-16-07 26-153-16-71	Ø 2.0 mm 26-975-80-07
2.3 mm	Ø 1.8 mm 26-153-18-07 26-153-18-71	Ø 2.3 mm 26-975-85-07





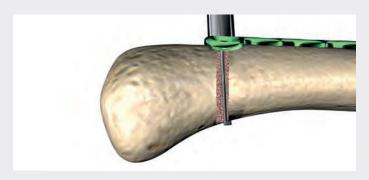


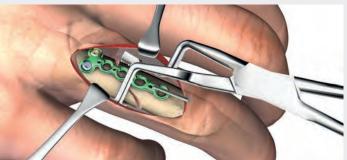
## 6. Determination of screw length

Correct screw length is determined with depth gauge 26-975-30-07, which can be used in all cases for screw diameters 2.0 mm and 2.3 mm.

#### 7. Placement of the first screw

The plate is first fixed with a smartDrive® standard screw. The screw is picked up and inserted with the color-coded screwdriver 26-975-36-07, which is used for diameters 1.5 mm, 2.0 mm, and 2.3 mm. Now the second screw is placed using the technique described in steps 5–7. Optionally, a multidirectional locking screw can be used to increase strength. At this point, it is advisable to clinically assess for correct rotation and take an X-ray to check the position of the implants.



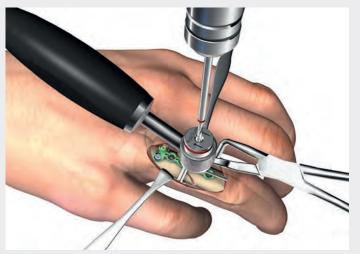


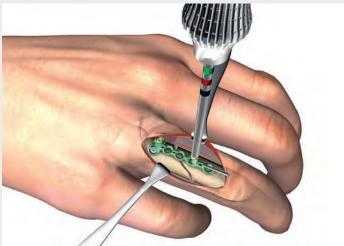


Depth gauge (one-handed design) 2.0 mm and 2.3 mm



T6 screwdriver short, rotatable





#### 8. Placement of the compression screw

If compression plate osteosynthesis is planned, after successful implantation of the first screws the compression screw is now inserted into the compression hole to securely close the fracture gap. Standard screws with diameters 1.5 mm, 2.0 mm, and 2.3 mm can be used. The compression drill sleeve is clicked into the working end of the drill guide from below. The arrows on the compression drill sleeve point toward the fracture when drilling. Analogous to the first screws, the core hole is drilled and the length of the screw is determined.

## 9. Closing the fracture gap

When it is being inserted, the smartDrive® standard screw glides over the sloping surface integrated into the compression hole, toward the fracture gap, and closes it.

To ensure that gliding takes place, the K-wire hole in the plate is also elongated, thus enabling the placed K-wire to also migrate when the fracture gap is being closed.







Core hole drill Ø 1.5 mm



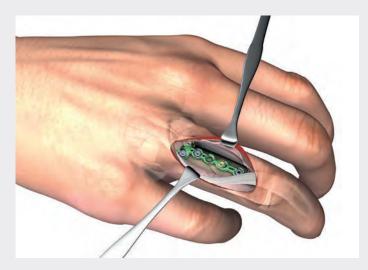
Drill guide Ø 2.0 mm

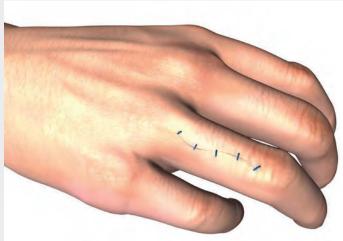


Compression drill sleeve Ø 2.0 mm



T6 screwdriver short, rotatable





#### 10. Placement of further screws

To achieve adequate early functional stability, more plate holes are filled with screws. The procedure for this is described in steps  $5\ {\rm to}\ 7$ .

The number of screws and the selection of screw diameter and type depend on the specific anatomy of the patient and the required stability.

#### 11. Wound closure

The flat implant design usually permits suture of the periosteum to prevent adhesions. This is followed by side-to-side suture of the extensor tendon and skin suture.



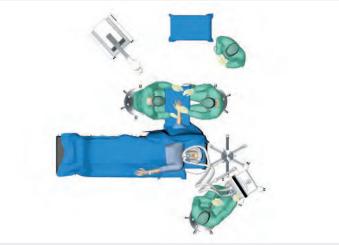
T6 screwdriver short, rotatable



# 12. Postoperative treatment

Following surgery, immobilization for a few days may be advisable. Early functional follow-up treatment should start as early as possible, adapted to pain and swelling. The injured finger can be splinted to the adjacent finger to neutralize lateral forces acting on the finger.





# Preoperative planning

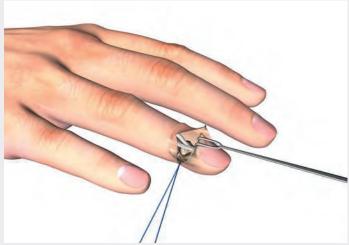
X-rays are taken in the A/P and strict lateral views with the finger in the neutral position and focusing on the distal interphalangeal joint.

The surgical indication for reduction and osteosynthesis is dislocation of the dorsal fragment and a fragment size that involves at least 1/3 of the joint surface or palmar dislocation of the distal phalanx.

# Patient positioning

The patient is placed supine on the operating table. The hand to be operated on is placed with the forearm pronated on the hand side table.





# 1. Dorsal approach

Opening is performed by making a Y-shaped skin incision over the distal interphalangeal joint on the extensor side with the longitudinal portion above the extensor tendon and terminating at the level of the distal interphalangeal joint. From here, radial and ulnar incisions, each approximately 1 cm in length, are made on the distal palmar side of the nail fold. During incision and further preparation, the nail matrix must be reliably protected.

## 2. Exposure of the fracture

Skin incision is followed by exposure of the extensor aponeurosis and the joint fragment of the distal phalanx base. The still intact ulnar and radial tendon fibers and the matrix of the nail root must not be damaged. The fragment and fragment bed are cleaned to remove clots.





#### 3. Reduction of the fracture

The DIP joint is extended. The fracture is reduced by applying light pressure to the palmar side of the distal phalanx and simultaneously applying counterpressure with the wide working end of drill guide 26-975-42-07 on the extensor side.

The reduction is maintained with the horizontal drill guide until final fixation of the fracture.

## 4. Drilling the first core hole

Following precise reduction of the fracture, drill sleeve 26-975-43-07 is inserted into the wide working end of the drill guide from above. It serves as a guide for the bit when drilling.

The core hole is drilled to a diameter of 1.0 mm using core hole drill 26-975-44-71. The core hole penetrates the cortical bone opposite.

After drilling, the drill sleeve is removed but the drill guide is left in place.





Drill guide Ø 1.2 mm



Drill sleeve Ø 1.2 mm



Core hole drill Ø 1.0 mm





## 5. Determination of screw length

Correct screw length is determined with depth gauge 26-975-28-07 using the opening in the drill guide.

#### 6. Placement of the screw

The fracture is fixed with a 1.2 mm diameter smartDrive® standard screw.

The screw is picked up with color-coded screwdriver 26-975-33-07 and implanted through the opening in the drill guide. If the screw length selected is ideal, the last thread turn grips in the opposite cortical bone while the atraumatic screw tip protrudes slightly.

An X-ray check is performed to verify the position of the screw.



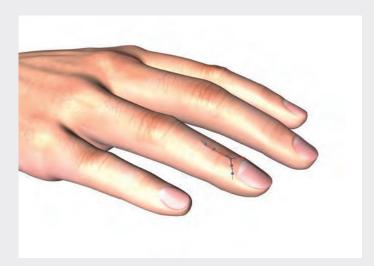




Depth gauge (one-handed design) 1.2/1.5 mm



T5 screwdriver short, rotatable





#### 7. Wound closure

Skin suture is performed with non-absorbable suture material using the single button technique.

## 8. Postoperative treatment

After surgery, a forearm two-finger plaster splint is applied to the extensor side in the intrinsic-plus position, including the adjacent finger, or a plaster splint including the thumb.

The arm should be systematically supported in a raised position and regular wound checks are recommended. The suture material and also usually the plaster cast are removed about two weeks after surgery. Further immobilization of the joint that has been operated on can be achieved using a Stack splint if necessary.

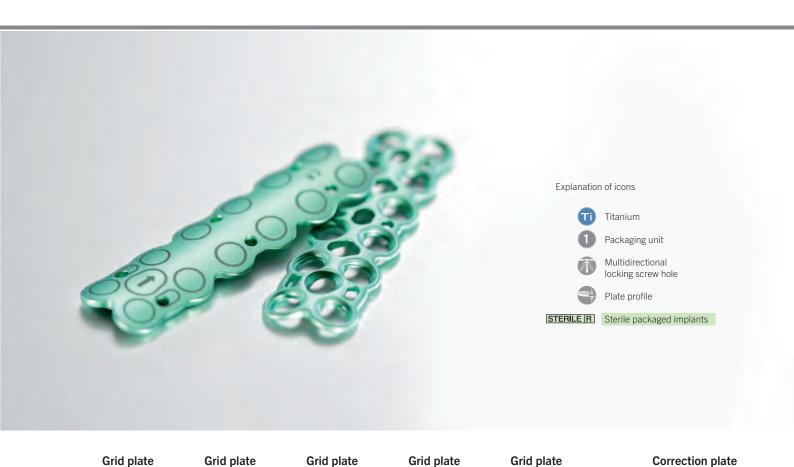
Physiotherapy exercises (active and passive exercises) can commence.

# Implants **Linos**Plates in Profile Thickness 0.8 mm

Straight plate 4-hole Length 19.5 mm	Straight plate 5-hole Length 26.5 mm	Straight plate 6-hole Length 31.5 mm	Straight plate 7-hole Length 36.5 mm	<b>Z-plate</b> 9-hole Length 24.5 mm	<b>Z-plate</b> 13-hole Length 34.5 mm
Ü	Ü	Ü	J	Ü	S
		Q	8		80
	8	8	8	S	360
8	ğ	ğ	ğ	3	3
<sup>1</sup> / <sub>1</sub> <b>O</b> 26-108-12-09	<sup>1</sup> / <sub>1</sub>	<sup>1</sup> / <sub>1</sub> 26-108-14-09	<sup>1</sup> / <sub>1</sub>	<sup>1</sup> / <sub>1</sub> 26-108-20-09	<sup>1</sup> / <sub>1</sub> 26-108-21-09
26-108-12-71	26-108-13-71	26-108-14-71	26-108-24-71	26-108-20-71	26-108-21-71
= 0.8 mm	= 0.8 mm	= 0.8 mm	= 0,8 mm	= 0.8 mm	= 0.8 mm
26-208-12-09	26-208-13-09	26-208-14-09	26-208-24-09	26-208-20-09	26-208-21-09

Plates 1

Sizer 1



2/5-hole

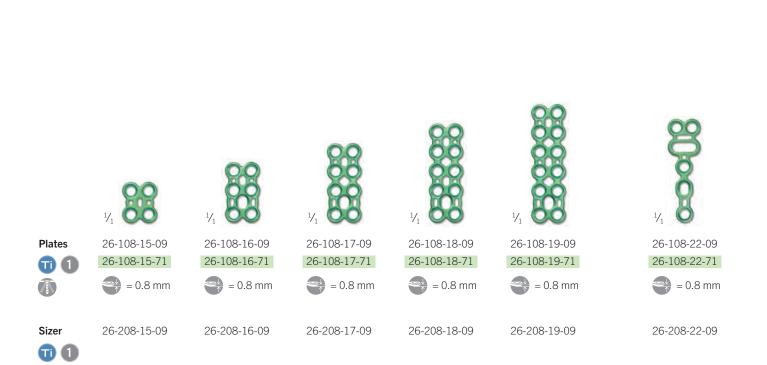
Length 25.5 mm

2/6-hole

Length 30.5 mm

3/3-hole

Length 26.5 mm



2/4-hole

Length 20.5 mm

2/2-hole

Length 10.5 mm

2/3-hole

Length 15.5 mm

# Implants **Linos**Plates in Profile Thickness 0.8 mm

T-plate

2/4-hole

26-208-07-09

T-plate

2/5-hole

26-208-08-09

T-plate

2/3-hole

Length 19.5 mm Length 26.5 mm Length 31.5 mm Length 19.5 mm Length 26.5 mm Length 31.5 mm 26-108-06-09 26-108-07-09 26-108-09-09 26-108-10-09 26-108-11-09 26-108-08-09 26-108-06-71 26-108-07-71 26-108-08-71 26-108-09-71 26-108-10-71 26-108-11-71 = 0.8 mm = 0.8 mm = 0.8 mm = 0.8 mm = 0.8 mm= 0.8 mm

T-plate

3/3-hole

26-208-09-09

T-plate

3/4-hole

26-208-10-09

T-plate

3/5-hole

26-208-11-09

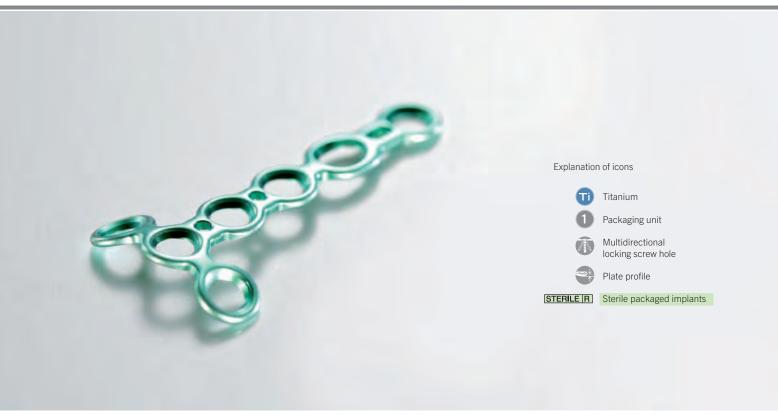
**Plates** 

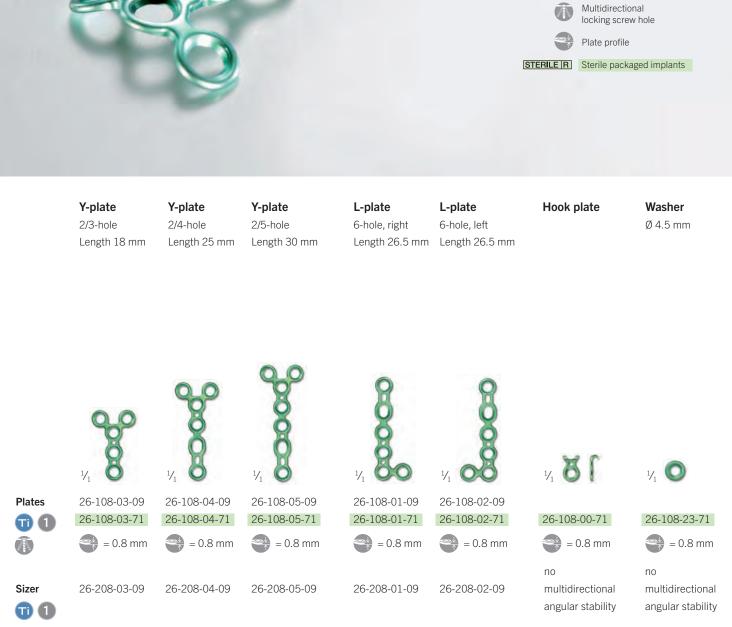
**1** 

Sizer

**1** 

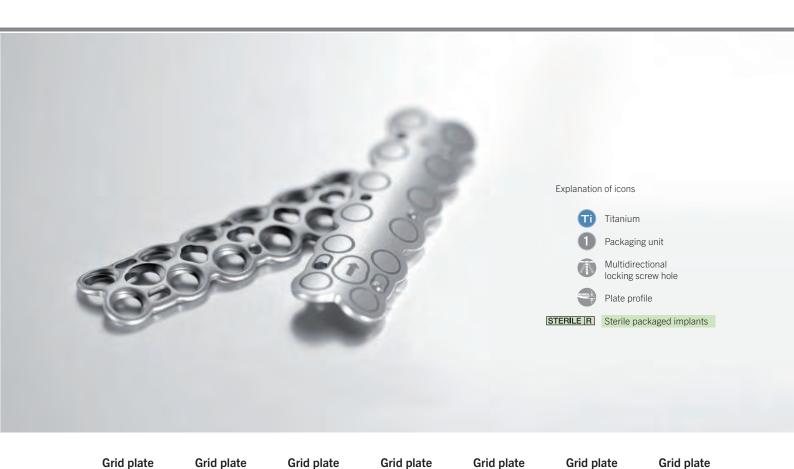
26-208-06-09





# Implants **Linos**Plates in Profile Thickness 1.2 mm

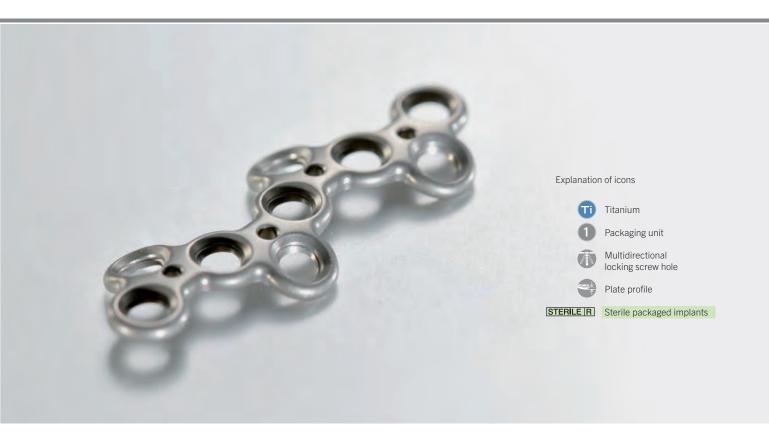
	Straight plate	Straight plate	Straight plate	Straight plate	Straight plate	Z-plate	Z-plate	Correction plate
	4-hole	5-hole	6-hole	7-hole	8-hole	9-hole	13-hole	3/3-hole
	Length	Length	Length	Length	Length	Length	Length	Length
	24.5 mm	32 mm	38.5 mm	45 mm	51.5 mm	31 mm	44 mm	33 mm
	<b>9</b>		1/1 0	00000000000000000000000000000000000000	<b>1</b> / <sub>1</sub>	1/1	1/1	<b>89</b>
Plates	26-112-12-09	26-112-13-09	26-112-14-09	26-112-27-09		26-112-20-09	26-112-21-09	26-112-22-09
	26-112-12-71	26-112-13-71	26-112-14-71	26-112-27-71	26-112-32-71	26-112-20-71	26-112-21-71	26-112-22-71
	= 1.2 mm	= 1.2 mm	= 1.2 mm	= 1.2 mm	= 1.2 mm	= 1.2 mm	= 1.2 mm	= 1.2 mm
Sizer	26-212-12-09	26-212-13-09	26-212-14-09	26-212-27-09	26-212-32-09	26-212-20-09	26-212-21-09	26-212-22-09

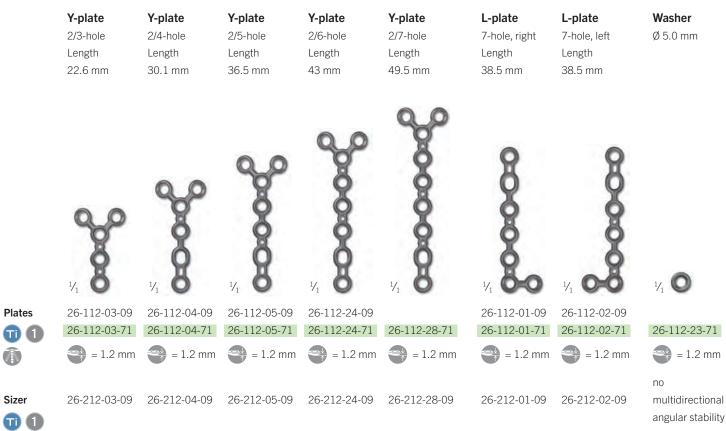




# Implants **Linos** Plates in Profile Thickness 1.2 mm

	<b>T-plate</b> 2/3-hole	<b>T-plate</b> 2/4-hole	<b>T-plate</b> 2/5-hole	<b>T-plate</b> 2/6-hole	<b>T-plate</b> 2/7-hole	<b>T-plate</b> 3/3-hole	<b>T-plate</b> 3/4-hole	<b>T-plate</b> 3/5-hole	<b>T-plate</b> 3/6-hole
	Length	Length	Length	Length	Length	Length	Length	Length	Length
	24.5 mm	32 mm	38.5 mm	45 mm	51.5 mm	24.5 mm	32 mm	38.5 mm	45 mm
	<b>3</b>	<b>8</b> 000000000000000000000000000000000000	<b>6</b> 000000000000000000000000000000000000	<b>3000000</b>	<b>3</b> 000000000000000000000000000000000000	<b>6</b>	<b>6</b>	0000 0000 1/1	0-0-0 0-0-0 0-0-0 0-0-0 1/1
Plates	26-112-06-09 26-112-06-71	26-112-07-09 26-112-07-71	26-112-08-09 26-112-08-71	26-112-25-09 26-112-25-71	26-112-29-71	26-112-09-09 26-112-09-71	26-112-10-09 26-112-10-71	26-112-11-09 26-112-11-71	26-112-26-09 26-112-26-71
	_							= 1.2 mm	
Sizer	26-212-06-09	26-212-07-09	26-212-08-09	26-212-25-09	26-212-29-09	26-212-09-09	26-212-10-09	26-212-11-09	26-212-26-09

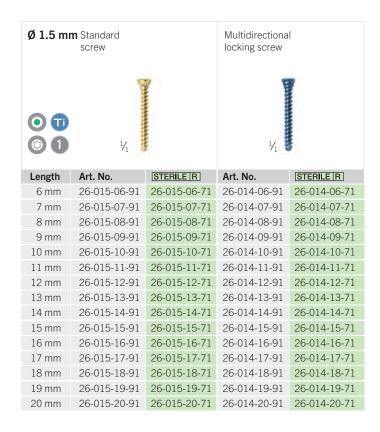




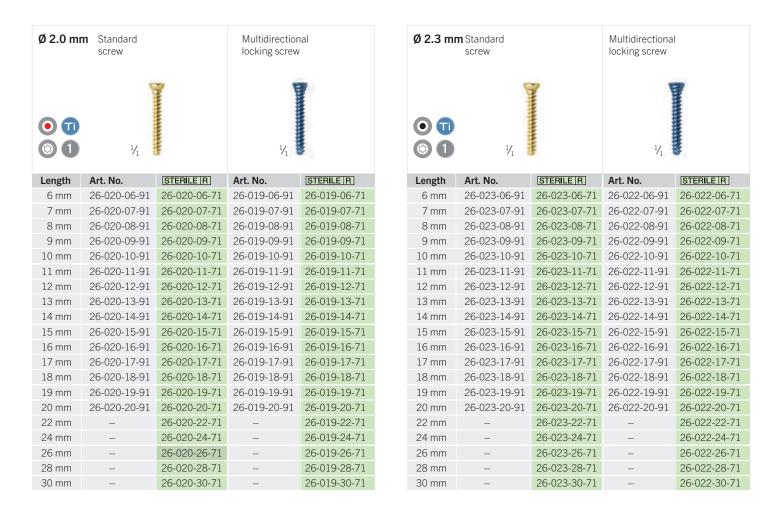
Sizer

# Implants **Linos** smartDrive® Screws









# Instruments Linos Screw Osteosynthesis Ø 1.2 mm

## Standard instruments for the add-on module Ø 1.2 mm



26-975-42-07 Drill guide Ø 1.2 mm











26-975-43-07 Drill sleeve Ø 1.2 mm





26-975-44-07 26-975-44-71 Core hole drill Ø 1.0 mm













26-975-28-07 Depth gauge Ø 1.2/1.5 mm One-handed design

















Optional instruments for the add-on module  $\emptyset$  1.2 mm



26-975-38-07 T5 screwdriver Short, non-rotatable 15 cm













26-975-45-71 Gliding hole drill Ø 1.2 mm











# Instruments Linos Plate and Screw Osteosynthesis

## Standard instruments Ø 1.5 mm



26-975-75-07 Drill guide Ø 1.5 mm









26-153-11-07 26-153-11-71 Core hole drill Ø 1.1 mm













26-975-77-07 Drill sleeve compression Ø 1.5 mm







26-153-15-07 26-153-15-71 Gliding hole drill Ø 1.5 mm



STERILE R









Drill sleeve

26-975-76-07

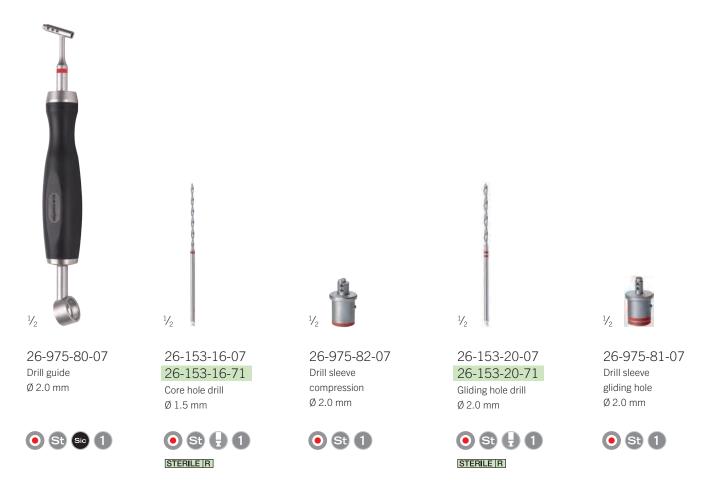








Standard instruments Ø 2.0 mm



# Instruments Linos Plate and Screw Osteosynthesis

## Standard instruments Ø 2.3 mm



26-975-85-07 Drill guide Ø 2.3 mm









26-153-18-07 26-153-18-71 Core hole drill

Ø 1.8 mm









26-975-87-07

Drill sleeve

Ø 2.3 mm

compression



26-153-23-07 26-153-23-71 Gliding hole drill Ø 2.3 mm



STERILE R







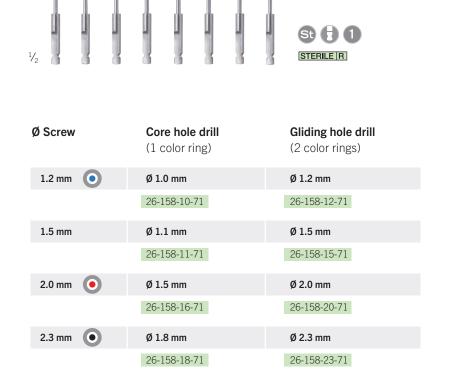








## **Optional Instruments**





26-975-25-07 Depth gauge Ø 1.5/2.0/2.3 mm One-handed design









# Instruments Linos Plate and Screw Osteosynthesis

# Standard instruments $\emptyset$ 1.5 mm, 2.0 mm, and 2.3 mm



26-975-28-07 Depth gauge Ø 1.2/1.5 mm One-handed design



26-975-30-07 Depth gauge Ø 2.0/2.3 mm One-handed design



26-975-36-07 Screwdriver T6 Short, rotatable



26-975-39-07 Screwdriver T6 Short, non-rotatable



26-975-03-07 Plate-holding and positioning instrument



































23-721-09-07 Reduction forceps acc. Backhaus 9 cm

26-975-04-07 Plate-holding forceps

26-975-05-07 Bending forceps

26-975-89-07 K-wire dispenser Ø 0.9 mm

26-975-90-07 K-wires Ø 0.9 mm

26-975-02-04 Screw measuring clip Length and diameter











# Storage System **Linos**Non-Sterile Packed Implants



### Implant storage

When the Linos implant storage container was being developed, the focus was not only on optimizing the reprocessing capability but also on practical implementation of batch traceability.

To meet the requirements of any particular user, there are two sizes of storage baskets available which can be configured with various screw and plate modules.

For transparent organization and easy identification, all module fronts have color-coded labeling clips that clearly indicate the contents.



Every **screw module** can accommodate a total of 60 screws in lengths ranging from 6 to 20 mm, all stored in single clips. The clips, which are labeled with screw length and diameter, article number, and batch number, permit not only easy recording of all the relevant implant data but also seamless patient-related documentation.





In the **plate module,** the plates are clearly arranged and kept separate from each other. Each plate compartment is marked on the side with a labeling clip that bears the article number, the profile, and a picture of the plate. As a result, all the necessary information is provided for application-oriented access and intuitive refilling. The matte inner surface of the module allows comfortable, glare-free work under surgical lighting.

The stackable modules, which are available in coordinated sizes, can also be used individually, without a storage basket. Consequently, the set design can be simply and practically customized.



### Instrument storage

The instruments are stored in a separate basket, which is described on pages 62 and 63.

# Storage System **Linos**Non-Sterile Packed Implants

### Set 1

55-911-15-04	Implant storage complete, consisting of:				
55-911-21-04	Storage basket, large				
55-911-31-04	Plate module 2/3, configured for plates in plate profile 0.8 mm (see table next page)				
55-911-32-04	Plate module 2/3, configured for plates in plate profile 1.2 mm (see table next page)				
55-911-22-04	Screw module, standard screws Ø 1.5 mm	55-911-25-04	Screw module, locking screws Ø 1.5 mm		
55-911-23-04	Screw module, standard screws Ø 2.0 mm	55-911-26-04	Screw module, locking screws Ø 2.0 mm		
55-911-24-04	Screw module, standard screws Ø 2.3 mm	55-911-27-04	Screw module, locking screws Ø 2.3 mm		



55-911-21-04 Storage basket, large



55-911-22-04 Screw module, standard screws Ø 1.5 mm



55-911-25-04 Screw module, locking screws Ø 1.5 mm



55-911-31-04 Plate module, plate profile 0.8 mm



55-911-23-04 Screw module, standard screws Ø 2.0 mm



55-911-26-04 Screw module, locking screws Ø 2.0 mm



55-911-32-04 Plate module, plate profile 1.2 mm



55-911-24-04 Screw module, standard screws Ø 2.3 mm



55-911-27-04 Screw module, locking screws Ø 2.3 mm

Note: Every screw module can accommodate a total of 60 screws in lengths ranging from 6 to 20 mm, all stored in single clips; 4 standard screws and 4 locking screws for each length.



	Plate module 55-911-31-04 can accommodate all plates with profile 0.8 mm	
26-108-12-09	Straight plate 4-hole, length 19.5 mm	0000
26-108-13-09	Straight plate 5-hole, length 26.5 mm	0:0000
26-108-14-09	Straight plate 6-hole, length 31.5 mm	0:00000
26-108-15-09	Grid plate 2/2-hole, length 10.5 mm	88
26-108-16-09	Grid plate 2/3-hole, length 15.5 mm	888
26-108-17-09	Grid plate 2/4-hole, length 20.5 mm	8388
26-108-18-09	Grid plate 2/5-hole, length 25.5 mm	88888
26-108-19-09	Grid plate 2/6-hole, length 30.5 mm	888888
26-108-20-09	Z-plate 9-hole, length 24.5 mm	ფეგე
26-108-21-09	Z-plate 13-hole, length 34.5 mm	ფეფები
26-108-22-09	Correction plate 3/3-hole, length 28,5 mm	80000
26-108-06-09	T-plate 2/3-hole, length 19.5 mm	8000
26-108-07-09	T-plate 2/4-hole, length 26.5 mm	80000
26-108-08-09	T-plate 2/5-hole, length 31.5 mm	800000
26-108-09-09	T-plate 3/3-hole, length 19.5 mm	ဗွိတတ
26-108-10-09	T-plate 3/4-hole, length 26.5 mm	စွဲတင္
26-108-11-09	T-plate 3/5-hole, length 31.5 mm	စ္မိတ္တတ္
26-108-03-09	Y-plate 2/3-hole, length 18 mm	2000
26-108-04-09	Y-plate 2/4-hole, length 25 mm	ည္တာဝသ
26-108-05-09	Y-plate 2/5-hole, length 30 mm	က္လိတ္တေ
26-108-01-09	L-plate 6-hole, right, length 26.5 mm	00000
26-108-02-09	L-plate 6-hole, left, length 26.5 mm	80000

	Plate module 55-911-32-04 can accommodate the following plates with profile 1.2 mm	
26-112-12-09	Straight plate 4-hole, length 24.5 mm	0:0:0:0
26-112-13-09	Straight plate 5-hole, length 32 mm	00000
26-112-14-09	Straight plate 6-hole, length 38.5 mm	000000
26-112-27-09	Straight plate 7-hole, length 45 mm	0000000
26-112-15-09	Grid plate 2/2-hole, length 11.5 mm	88
26-112-16-09	Grid plate 2/3-hole, length 18 mm	888
26-112-17-09	Grid plate 2/4-hole, length 24.5 mm	8888
26-112-18-09	Grid plate 2/5-hole, length 31 mm	88888
26-112-19-09	Grid plate 2/6-hole, length 37.5 mm	888888
26-112-20-09	Z-plate 9-hole, length 31 mm	იგიცი
26-112-21-09	Z-plate 13-hole, length 44 mm	ინებებებ
26-112-01-09	L-plate 7-hole, right, length 38.5 mm	800000
26-112-02-09	L-plate 7-hole, left, length 38.5 mm	800000
26-112-22-09	Correction plate 3/3-hole, length 33 mm	80.000
26-112-06-09	T-plate 2/3-hole, length 24,5 mm	8000
26-112-07-09	T-plate 2/4-hole, length 32 mm	80000
26-112-08-09	T-plate 2/5-hole, length 38.5 mm	800000
26-112-25-09	T-plate 2/6-hole, length 45 mm	800000
26-112-09-09	T-plate 3/3-hole, length 24.5 mm	စ္စိဝဝဝ
26-112-10-09	T-plate 3/4-hole, length 32 mm	80000
26-112-11-09	T-plate 3/5-hole, length 38.5 mm	800000
26-112-26-09	T-plate 3/6-hole, length 45 mm	8000000
26-112-03-09	Y-plate 2/3-hole, length 22.6 mm	2000
26-112-04-09	Y-plate 2/4-hole, length 30.1 mm	ည်တဝတ
26-112-05-09	Y-plate 2/5-hole, length 36.5 mm	ခွာစစစစ
26-112-24-09	Y-plate 2/6-hole, length 43 mm	2000000

# Storage System **Linos**Non-Sterile Packed Implants

## **Individual Components**

### Storage baskets

55-911-20-04 Storage basket, small, for 2 plate and 4 screw modules 55-911-21-04 Storage basket, large, for 2 plate and 6 screw modules



55-911-20-04 Storage basket, small



55-911-21-04 Storage basket, large

### Plate modules

55-911-31-04 Plate module 2/3, configured for plates in plate profile 0.8 mm 55-911-32-04 Plate module 2/3, configured for plates in plate profile 1.2 mm



55-911-31-04 Plate module, plate profile 0.8 mm



55-911-32-04 Plate module, plate profile 1.2 mm



Screw modules					
55-911-22-04 Screw module, standard screws Ø 1.5 mm	55-911-25-04 Screw module, locking screws Ø 1.5 mm				
55-911-23-04 Screw module, standard screws Ø 2.0 mm	55-911-26-04 Screw module, locking screws Ø 2.0 mm				
55-911-24-04 Screw module, standard screws Ø 2.3 mm	55-911-27-04 Screw module, locking screws Ø 2.3 mm				



55-911-22-04 Screw module, standard screws Ø 1.5 mm



55-911-25-04 Screw module, locking screws Ø 1.5 mm



55-911-23-04 Screw module, standard screws Ø 2.0 mm



55-911-26-04 Screw module, locking screws Ø 2.0 mm



Screw module, standard screws Ø 2.3 mm



55-911-27-04 Screw module, locking screws Ø 2.3 mm

### Screw module combinations\*

55-911-28-04 Screw module, standard and locking screws Ø 1.5 mm 55-911-29-04 Screw module, standard and locking screws Ø 2.0 mm 55-911-30-04 Screw module, standard and locking screws Ø 2.3 mm



55-911-28-04 Screw module, standard/locking screws Ø 1.5 mm



55-911-29-04 Screw module, standard/locking screws Ø 2.0 mm



55-911-30-04 Screw module, standard/locking screws Ø 2.3 mm

# Storage System **Linos** Instruments

The instrument storage boasts easy and well-designed ergonomic handling, with the instruments arranged according to the order of use during the surgical procedure. It has also been optimized for superior reprocessing results to satisfy the requirements of all those involved.

The proven concept—based on a combination of stainless steel in a honeycomb design and high-performance plastic—not only provides great stability at a low weight but also ensures excellent rinsing performance.

All the instruments required for the surgical procedure can be stored side by side in the storage basket. The optional module used for 1.2-mm screw osteosynthesis can also be accommodated.



55-910-61-04	Instrument storage set complete, consisting of:	Optional:
55-910-62-04	Storage basket	55-910-64-04 Instrument tray 1.2 mm
55-910-63-04	Instrument tray	
55-910-59-04	Lid	



55-910-62-04 Storage basket



55-910-63-04 Instrument tray



55-910-59-04 Lid



55-910-64-04 Instrument tray 1.2 mm

# Storage System **Linos**Sterile Packed Implants

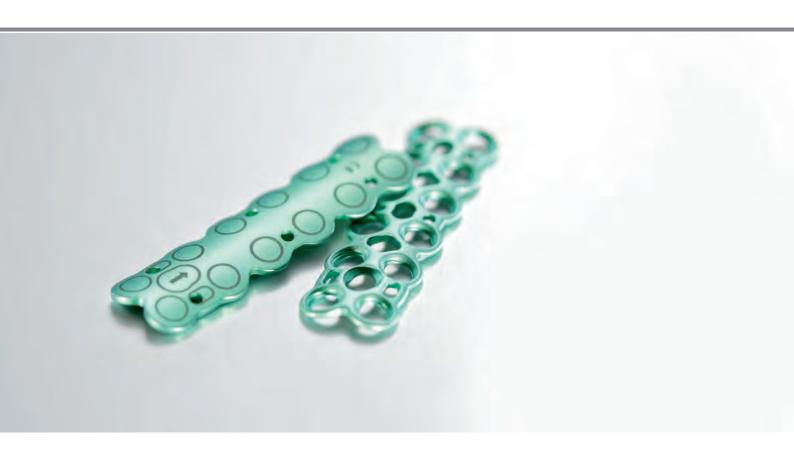
As well as the option of conventional storage, the entire Linos system is also available with sterile packed implants.

The storage concept for Linos-STERILE consists of various components:

The sterile goods trolley is ideal for easy handling and supply of sterile implants in the operating room and for logistics. The labeled baskets and storage comparments coordinated with Linos ensure structured storage, a good overview, and easy access to the individual items.

In the open-design instrument storage tray, all the instruments required for an operation can be stored individually. The optional instrument tray for  $\emptyset$  1.2-mm screw osteosynthesis can also be accommodated.

For storing Linos sizers, there is a special sizer storage tray with a design based on the instrument storage. In the two sizer trays, the 0.8-mm and 1.2-mm sizers can be stored separately from each other. Special labeling clips with a pictogram and the article number of the Linos plate corresponding to the sizer ensure the right choice of sterile implant.



ı	55-910-61-04	Instrument storage set complete, consisting of:
	55-910-62-04	Storage basket
	55-910-63-04	Instrument tray
	55-910-59-04	Lid

	Optional:	
55-910-64-04	Instrument tray 1.2 mm	



55-910-62-04 Storage basket



55-910-63-04 Instrument tray



55-910-59-04 Lid

Ì	55-910-65-04	Sizer storage set complete, consisting of:	
	55-910-77-04	Sizer module 0.8 mm, with lid	
	55-910-78-04	Sizer module 1.2 mm, with lid	



55-910-77-04 Sizer module 0.8 mm, with lid



55-910-78-04 Sizer module 1.2 mm, with lid



55-910-64-04 Instrument tray 1.2 mm

## 55-900-50-04 Sterile goods trolley, preconfigured



55-900-50-04 Sterile goods trolley, preconfigured, incl. 7 baskets,  $66 \times 50 \times 49$  cm (W×H×D)

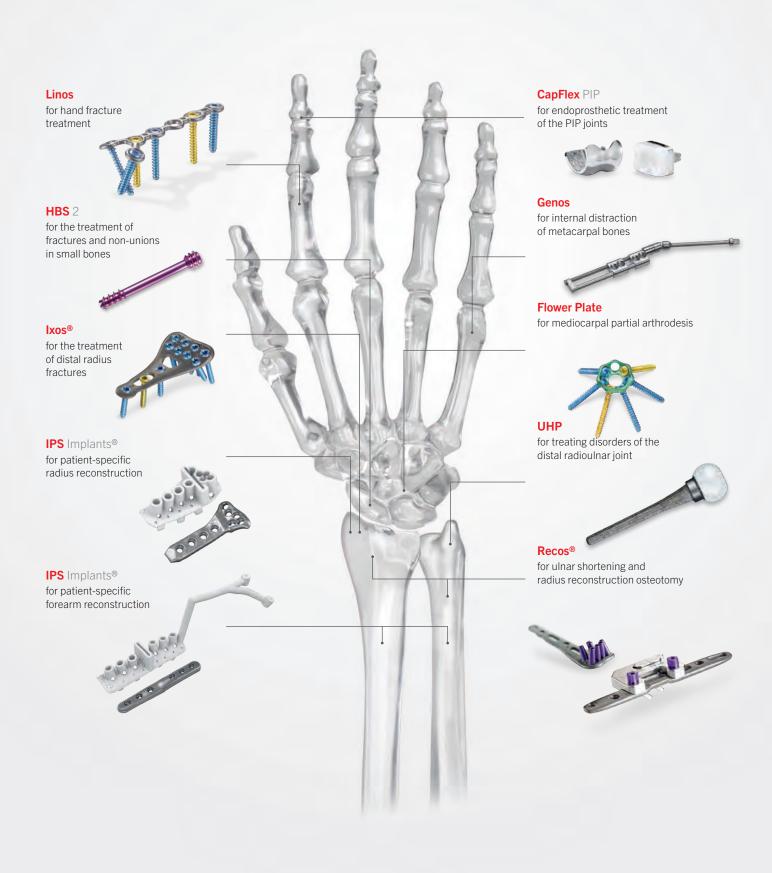
# Hand Surgery

A field where we can offer you much more than just standard treatment solutions for, say, distal radius fractures. Many of our products are intended to help you to achieve outstanding results in difficult, non-routine situations as well. Products such as our Ulna Head Prosthesis (UHP) or the Flower Plate for mediocarpal partial arthrodesis are excellent examples.

**Our objective** is to simplify hand surgery interventions using intelligent system solutions, helping you to achieve the best possible results in the interest of the patient. Working in close cooperation with well-known authors and their teams, we have translated new ideas into innovative products that we then continuously refine. The result is a wide range of high-quality systems that impress with their clever design along with easy and safe handling.

Furthermore, we have never lost sight of the economic perspective and service needs of our customers.

**We consider ourselves a true partner**—to be relied upon for routine tasks and special challenges alike.



### **KLS Martin Group**

### KLS Martin Australia Pty Ltd.

Sydney · Australia Tel. +61 2 9439 5316 australia@klsmartin.com

#### Martin Italia S.r.l.

Milan · Italy Tel. +39 039 605 67 31 italia@klsmartin.com

#### Martin Nederland/Marned B.V.

Huizen · Netherlands Tel. +31 35 523 45 38 infonl@klsmartin.com

#### KLS Martin UK Ltd.

Reading · United Kingdom Tel. +44 118 467 1500 uk@klsmartin.com

#### KLS Martin do Brasil Ltda.

São Paulo · Brazil Tel. +55 11 3554 2299 brazil@klsmartin.com

#### Nippon Martin K.K.

Tokyo · Japan Tel. +81 3 3814 1431 nippon@klsmartin.com

### Gebrüder Martin GmbH & Co. KG

Moscow · Russia Tel. +7 499 792 76 19 russia@klsmartin.com

#### **KLS Martin LP**

Jacksonville · Florida, USA Tel. +1 904 641 77 46 usa@klsmartin.com

### KLS Martin Medical (Shanghai) International Trading Co., Ltd

Shanghai · China Tel. +86 21 5820 6251 china@klsmartin.com

#### KLS Martin SE Asia Sdn. Bhd.

Penang · Malaysia Tel. +604 506 2380 malaysia@klsmartin.com

#### KLS Martin Taiwan Ltd.

Taipei 106 · Taiwan Tel. +886 2 2325 3169 taiwan@klsmartin.com

#### KLS Martin India Pvt Ltd.

Chennai · India Tel. +91 44 66 442 300 india@klsmartin.com

### KLS Martin de México S.A. de C.V.

Mexico City · Mexico Tel. +52 55 7572 0944 mexico@klsmartin.com

#### Gebrüder Martin GmbH & Co. KG

Dubai · United Arab Emirates Tel. +971 4 454 16 55 middleeast@klsmartin.com

Gebrüder Martin GmbH & Co. KG A company of the KLS Martin Group

KLS Martin Platz  $1\cdot 78532$  Tuttlingen  $\cdot$  Germany P.O. Box  $60\cdot 78501$  Tuttlingen  $\cdot$  Germany Tel. +49 7461 706-0  $\cdot$  Fax +49 7461 706-193 info@klsmartin.com  $\cdot$  www.klsmartin.com