

Proximal Lateral Tibia Plate Surgical Technique









Disclaimer

This surgical technique is exclusively intended for medical professionals, especially physicians, and therefore may not be regarded as a source of information for non-medical persons. The description of this surgical technique does not constitute medical advice or medical recommendations nor does it convey any diagnostic or therapeutic information on individual cases. Therefore, the attending physician is fully responsible for providing medical advice to the patient and obtaining the informed consent of the patient which this surgical technique does not supersede.

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	LOOTEO® Large Fragment Set, Screw Rack, complete	

Introduction

The proximal lateral tibia plate 4.5 is part of the LOQTEQ® plate system and unifies angular stability with modern plate design. Special features include the gliding-locking holes in the plate shaft. They enable compression and angle-stable locking in one single step.

Materials

For the manufacture of angle stable plate systems materials are used which have been proven to be successful in medical technology for decades. The anatomical plates and bone screws are made of titanium alloy.

All materials used are standardized in national and international norms. They are characterized by good biocompatibility, a high degree of reliability against allergic reactions and good mechanical properties.



Description

- The anatomically pre-shaped plate profile is adapted to the lateral condyle
- Available as right and left version
- Minor Contact undercuts reduce the contact surface of the plate and thereby reduce damage to the periosteum
- The flattened end of the plate shaft enables the tissue-conserving, submuscular insertion of the plate
- Gliding-locking holes in the plate shaft can be used with 4.5mm locking screws (red) or standard screws and offer variable compression options
- Round locking holes in the plate head (L-limb) take 4.5mm locking screws (blue) or standard screws with small head
- 3 proximal screws in the L-limb slightly diverge, parallel to the joint
- Locking screws oriented in a diagonal cranial direction support the stabilization of medial fragments
- Fitted targeting devices guarantee a safe placement of locking screws at the preset angle
- Holes for K-wires and an oblong hole facilitate the primary fixation of the plate
- 5-14 holes in the plate shaft

Indications/Contraindications

Indications

The proximal lateral tibia plate 4.5 mm is indicated for stabilizing:

- Intra-articular and extra-articular fractures
- Non-unions and corrections of proximal tibial fractures healed in malposition
- Proximal diaphyseal fractures of the tibia

Contraindications

- Infection or inflammation (localized or systemic)
- Allergies against the implant material
- Acute or chronic osteomyelitis at or close to the surgical field
- High anesthesia risk patients
- Severe soft tissue swelling impacting normal wound healing
- Insufficient soft tissue coverage
- Fractures in children and adolescents with epiphyseal plates not yet ossified

Processing (Sterilization & Cleaning)

Instruments and implants are supplied non-sterile.

Before every use, instruments as well as implants must be processed. Reference is here made to the Instructions for Use.

Implant components which may have come into contact with infectious fluids (e.g. blood) must not be resterilized and reused in another surgery. They must be returned to the manufacturer.

Resterilization is prohibited under any circumstances (see Instructions for Use).

Positioning

The patient is positioned supine on a radiolucent operating table.
 The proximal tibia must be clearly visible intraoperatively in both planes.

Access

• Lateral, according to the fracture situation

Preoperative Planning

• Evaluation of the fracture situation on the basis of the x-ray and selection of the appropriate plate length

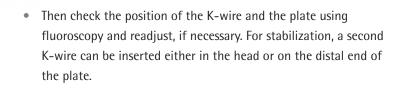
Surgical Technique • Repositioning hand. Check the result of repositioning using fluoroscopy.

Reposition fracture fragments and joint surface and temporarily fixate with K-wires. Depending on the fracture situation, it is recommended to use an external fixator or large distractor before-

Appropriate holes in the plate for K-wires can also be used for temporary fixation.

Insertion of the plate

Mount the targeting device on the plate using the fixation screw. Insert the plate from the tibial plateau in distal direction until the plate head is correctly aligned over the tibial plateau. Fixate the plate to the intact or reconstructed tibial plateau. For this purpose, insert a K-wire into one of the holes provided on the plate's L-limb.



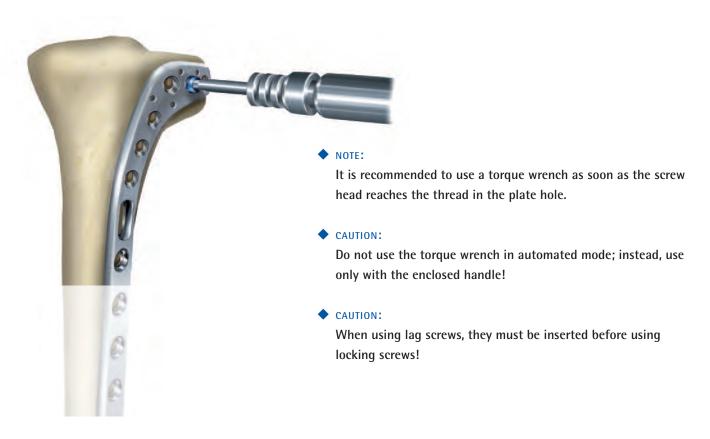
- Using a K-wire, the later position of the screw can be checked. For this purpose, insert a threaded drill guide (blue) for round holes into a proximal plate hole, insert the reduction sleeve and place the K-wire through the reduction sleeve. Use fluoroscopy to check whether
 - the wire is positioned parallel to the joint surface,
 - the joint was repositioned correctly and
 - the plate position at the shaft is optimal.



Securing of proximal plate holes









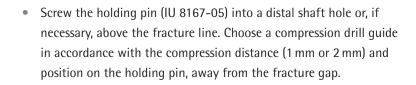
Inserting locking screws into the gliding hole

- The gliding holes in the plate shaft can now be used in the following
 - Locking screw (red) with/without compression
 - Standard screw with/without compression

NOTE:

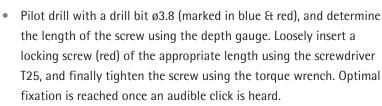
If compression of the fracture is necessary, an anatomically correct and secure fixation of the plate in the periarticular fragment must first be achieved.

Locking screw in compression position





Alternatively, the adjustable compression drill guide (IU 8167-03) can be used. The fracture gap serves as orientation in the setting of the compression distance (max. 2 mm). For this purpose, turn the wheel of the compression drill guide until an appropriate gap forms in the upper part of the instrument, and position the drill guide on the holding pin, away from the fracture gap.





It is recommended to use a torque wrench as soon as the screw head reaches the thread in the plate hole.

CAUTION:

Do not use the torque wrench in automated mode; instead, use only with the enclosed handle!

Alternatively, a standard screw can be inserted as a compression screw. For this purpose, use the double drill guide in compression position (without pressure on the edge of the hole that is away from the centre) and pilot drill with a drill bit ø3.2.



Inserting locking screws without compression



• Remove the drill guide and determine the length of the required screw using the depth gauge. Loosely insert a locking screw (red) of the appropriate length using the screwdriver T25 and tighten the screw with the torque wrench. Optimal fixation is reached once an audible click is heard.



Inserting standard screws into the gliding hole

• For inserting a standard screw use the double drill guide in neutral position, i.e. center in the plate hole by applying pressure on the variable end. Pilot drill using a drill bit ø3.2, determine the length of the screw using the depth gauge and insert a screw of appropriate length using the hexagonal wrench.

CAUTION:

The standard cortical screws with small head as well as the blue locking screws are not suitable for use in a gliding hole!

 After insertion of the first shaft screw or a compression screw, a clinical examination or check using fluoroscopy is recommended to assess the alignment of the tibial plateau relative to the tibial shaft.

Locking screws oriented in medial direction



• To safely insert the screws, it is recommended to position the targeting device again. Then insert a threaded drill guide (blue) into the selected plate hole and pilot drill to the desired depth using a drill bit ø3.8 (marked in blue &t red). Then determine the length of the screw using the depth gauge and loosely insert a screw of appropriate length using the screwdriver T25. Finally, tighten the screw using the torque wrench. Optimal fixation is reached once an audible click is heard.



◆ NOTE:

It is recommended to use a torque wrench as soon as the screw head reaches the thread in the plate hole.

CAUTION:

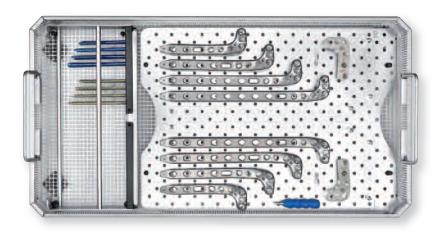
Do not use the torque wrench in automated mode; instead, use only with the enclosed handle!

• When all required screws have been inserted, perform final check using fluoroscopy, AP and lateral, and close the wound.

Explantation

- First loosen all locking screws, and successively remove them to prevent the plate from turning when you loosen the last screw.
 Remove the plate. A hexagonal wrench 3.5 A/F and a screwdriver T25 are required for explantation.
- Recommended instruments:
 IU 7865-00 Hexagonal wrench 3.5 A/F with round handle
 IU 7811-25 Screwdriver T25 with round handle







ARTICLE	QUANTITY	ARTNO.
Tray for implants LOQTEQ® PLT 4.5, empty	1	IC 6942-01
Lid for trays, large	1	IC 2008-00
LOQTEQ® Prox. Lateral Tibia Plate 4.5, 3/6 holes, L 113, R	1	PA 4531-06-2
LOQTEQ® Prox. Lateral Tibia Plate 4.5, 3/8 holes, L 149, R	1	PA 4531-08-2
LOQTEQ® Prox. Lateral Tibia Plate 4.5, 3/10 holes, L 185, R	1	PA 4531-10-2
LOQTEQ® Prox. Lateral Tibia Plate 4.5, 3/12 holes, L 221, R	1	PA 4531-12-2
LOQTEQ® Prox. Lateral Tibia Plate 4.5, 3/6 holes, L 113, L	1	PA 4532-06-2
LOQTEQ® Prox. Lateral Tibia Plate 4.5, 3/8 holes, L 149, L	1	PA 4532-08-2
LOQTEQ® Prox. Lateral Tibia Plate 4.5, 3/10 holes, L 185, L	1	PA 4532-10-2
LOQTEQ® Prox. Lateral Tibia Plate 4.5, 3/12 holes, L 221, L	1	PA 4532-12-2
Aiming device LOQTEQ® Proximal Lateral Tibia Plate 4.5, R	1	IU 8173-01
Aiming device LOQTEQ® Proximal Lateral Tibia Plate 4.5, L	1	IU 8173-02
Fixing screw aiming device LOQTEQ® Tibia Plates	2	IU 8173-03
Screwdriver mini, SW 2.5	1	IU 7825-05
OPTIONAL		
LOQTEQ® Prox. Lateral Tibia Plate 4.5, 3/5 holes, L 95, R	1	PA 4531-05-2
LOQTEQ® Prox. Lateral Tibia Plate 4.5, 3/14 holes, L 257, R	1	PA 4531-14-2
LOQTEQ® Prox. Lateral Tibia Plate 4.5, 3/5 holes, L 95, L	1	PA 4532-05-2
LOQTEQ® Prox. Lateral Tibia Plate 4.5, 3/14 holes, L 257, L	1	PA 4532-14-2



^{*} No Instruments! Please complete with Large Fragment Set IC 6941-05 and/or IC 6941-10 and IC 6941-35

Screw Rack for Extension Screw Set PLT 4.5



ARTICLE	QUANTITY	ARTNO.
Screw rack LOQTEQ® PLT 4.5 for extension screw set, empty	1	IC 6942-02
LOQTEQ® Cortical Screw 4.5, small head T25, self-tapp., L 75	3	SK 4526-75-2
LOQTEQ® Cortical Screw 4.5, small head T25, self-tapp., L 80	3	SK 4526-80-2
LOQTEQ® Cortical Screw 4.5, small head T25, self-tapp., L 85	3	SK 4526-85-2
LOQTEQ® Cortical Screw 4.5, small head T25, self-tapp., L 90	3	SK 4526-90-2
Cortical Screw 4.5, small head, self-tapping, L 75	3	SK 4512-75-2
Cortical Screw 4.5, small head, self-tapping, L 80	3	SK 4512-80-2
Cortical Screw 4.5, small head, self-tapping, L 85	3	SK 4512-85-2
Cortical Screw 4.5, small head, self-tapping, L 90	3	SK 4512-90-2

Trays

LOQTEQ® Large Fragment Set, complete IC 6941-05

A	Set of Instruments	IC 6941-10
B	Set of Plates, complete	IC 6941-25
C	Screw Rack, complete	IC 6941-35





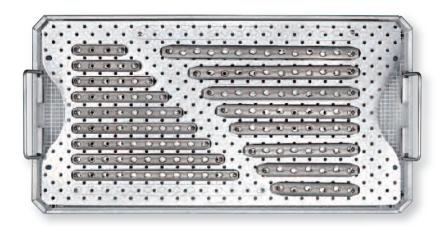
ARTICLE	QUANTITY	ARTNO.
Tray for instruments LOQTEQ® Large Fragment, empty	1	IC 6941-11
Lid for trays, large	1	IC 2008-00
Depth gauge for locking screws, large	1	IS 7905-00
Twist drill ø3.2, L 195, coil 50, quick coupling	1	IU 7432-30
Twist drill ø3.8, L 180, coil 50, quick coupling	1	IU 7438-18
Twist drill ø3.8, L 250, coil 50, quick coupling	1	IU 7438-25
Twist drill ø4.5, L 145, coil 50, quick coupling	1	IU 7445-00
Handle for quick coupling, large, cannulated	1	IU 7706-00
Tap for cortical screw ø4.5, L 125/70	1	IU 7745-00
Screwdriver T25, short, quick coupling	1	IU 7810-26
Screwdriver hexagonal, ø3.5, quick coupling	1	IU 7835-00
Screwdriver Duo, T25, quick coupling	1	IU 7835-55
Torque limiter 3.5 Nm, quick coupling	1	IU 7870-35
Screw forceps, self-holding	1	IU 8004-00
MC ACP double drill guide ø3.2/4.5	1	IU 8117-50
Load drill guide LOQTEQ® 4.5, compression 1 mm	1	IU 8167-01
Load drill guide LOQTEQ® 4.5, compression 2 mm	1	IU 8167-02
Basic insert for load drill guide LOQTEQ® 4.5	1	IU 8167-05
Drill guide for gliding hole LOQTEQ® 4.5, I-ø 3.9, red	2	IU 8167-10
Reduction sleeve for K-wire ø2.0	2	IU 8167-15
Drill guide for round hole LOQTEQ® 4.5, I-ø 3.9, blue	2	IU 8167-20
K-wire with trocar point, ø2.0, L 250	5	NK 0020-25

OPTIONAL

Load drill guide LOQTEQ® 4.5, adjustable up to 2 mm	1	IU 8167-03
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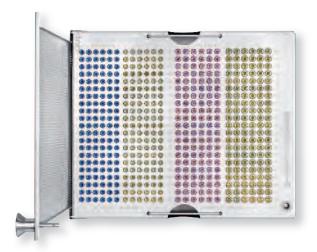


ARTICLE	QUANTITY	ARTNO.
Tray for implants LOQTEQ® Large Fragment, empty	1	IC 6941-21
Lid for trays, large	1	IC 2008-00
LOQTEQ® Narrow Plate 4.5, 4 holes, L 72, Titanium	1	PG 4555-04-2
LOQTEQ® Narrow Plate 4.5, 5 holes, L 90, Titanium	1	PG 4555-05-2
LOQTEQ® Narrow Plate 4.5, 6 holes, L 108, Titanium	1	PG 4555-06-2
LOQTEQ® Narrow Plate 4.5, 7 holes, L 126, Titanium	1	PG 4555-07-2
LOQTEQ® Narrow Plate 4.5, 8 holes, L 144, Titanium	1	PG 4555-08-2
LOQTEQ® Narrow Plate 4.5, 9 holes, L 162, Titanium	1	PG 4555-09-2
LOQTEQ® Narrow Plate 4.5, 10 holes, L 180, Titanium	1	PG 4555-10-2
LOQTEQ® Narrow Plate 4.5, 11 holes, L 198, Titanium	1	PG 4555-11-2
LOQTEQ® Narrow Plate 4.5, 12 holes, L 216, Titanium	1	PG 4555-12-2
LOQTEQ® Broad Plate 4.5, 6 holes, L 115, Titanium	1	PG 4556-06-2
LOQTEQ® Broad Plate 4.5, 7 holes, L 133, Titanium	1	PG 4556-07-2
LOQTEQ® Broad Plate 4.5, 8 holes, L 150, Titanium	1	PG 4556-08-2
LOQTEQ® Broad Plate 4.5, 9 holes, L 168, Titanium	1	PG 4556-09-2
LOQTEQ® Broad Plate 4.5, 10 holes, L 186, Titanium	1	PG 4556-10-2
LOQTEQ® Broad Plate 4.5, 11 holes, L 204, Titanium	1	PG 4556-11-2
LOQTEQ® Broad Plate 4.5, 12 holes, L 222, Titanium	1	PG 4556-12-2
LOQTEQ® Broad Plate 4.5, 14 holes, L 257, Titanium	1	PG 4556-14-2
OPTIONAL		
LOQTEQ® Narrow Plate 4.5, 14 holes, L 252, Titanium	1	PG 4555-14-2
LOQTEQ® Broad Plate 4.5, 16 holes, L 293, Titanium	1	PG 4556-16-2

AVAILABLE ON REQUEST

LOQTEQ® Narrow Plate 4.5, 16 holes, L 287, Titanium	PG 4555-16-2
LOQTEQ® Broad Plate 4.5, 18 holes, L 293, Titanium	PG 4556-18-2

IC 6941-35





ARTICLE	QUANTITY	ARTNO.	
Screw rack LOQTEQ® Large Fragment, empty	1	IC 6941-31	

Screws for gliding-locking hole

ARTICLE	QUANTITY	ARTNO.
LOQTEQ® Cortical Screw 4.5, T25, self-tapping, L 14	6	SK 4525-14-2
LOQTEQ® Cortical Screw 4.5, T25, self-tapping, L 16	6	SK 4525-16-2
LOQTEQ® Cortical Screw 4.5, T25, self-tapping, L 18	6	SK 4525-18-2
LOQTEQ® Cortical Screw 4.5, T25, self-tapping, L 20	6	SK 4525-20-2
LOQTEQ® Cortical Screw 4.5, T25, self-tapping, L 22	6	SK 4525-22-2
LOQTEQ® Cortical Screw 4.5, T25, self-tapping, L 24	6	SK 4525-24-2
LOQTEQ® Cortical Screw 4.5, T25, self-tapping, L 26	6	SK 4525-26-2
LOQTEQ® Cortical Screw 4.5, T25, self-tapping, L 28	6	SK 4525-28-2
LOQTEQ® Cortical Screw 4.5, T25, self-tapping, L 30	6	SK 4525-30-2
LOQTEQ® Cortical Screw 4.5, T25, self-tapping, L 32	6	SK 4525-32-2
LOQTEQ® Cortical Screw 4.5, T25, self-tapping, L 34	6	SK 4525-34-2
LOQTEQ® Cortical Screw 4.5, T25, self-tapping, L 36	6	SK 4525-36-2
LOQTEQ® Cortical Screw 4.5, T25, self-tapping, L 38	6	SK 4525-38-2
LOQTEQ® Cortical Screw 4.5, T25, self-tapping, L 40	6	SK 4525-40-2
LOQTEQ® Cortical Screw 4.5, T25, self-tapping, L 42	6	SK 4525-42-2
LOQTEQ® Cortical Screw 4.5, T25, self-tapping, L 45	6	SK 4525-45-2
LOQTEQ® Cortical Screw 4.5, T25, self-tapping, L 50	6	SK 4525-50-2
LOQTEQ® Cortical Screw 4.5, T25, self-tapping, L 55	6	SK 4525-55-2
LOQTEQ® Cortical Screw 4.5, T25, self-tapping, L 60	6	SK 4525-60-2
LOQTEQ® Cortical Screw 4.5, T25, self-tapping, L 65	6	SK 4525-65-2
LOQTEQ® Cortical Screw 4.5, T25, self-tapping, L 70	6	SK 4525-70-2



Trays

Screws for round locking hole



ARTICLE	QUANTITY	ARTNO.
LOQTEQ® Cortical Screw 4.5, small head T25, self-tapp. L 14	6	SK 4526-14-2
LOQTEQ® Cortical Screw 4.5, small head T25, self-tapp. L 16	6	SK 4526-16-2
LOQTEQ® Cortical Screw 4.5, small head T25, self-tapp. L 18	6	SK 4526-18-2
LOQTEQ® Cortical Screw 4.5, small head T25, self-tapp. L 20	6	SK 4526-20-2
LOQTEQ® Cortical Screw 4.5, small head T25, self-tapp. L 22	6	SK 4526-22-2
LOQTEQ® Cortical Screw 4.5, small head T25, self-tapp. L 24	6	SK 4526-24-2
LOQTEQ® Cortical Screw 4.5, small head T25, self-tapp. L 26	6	SK 4526-26-2
LOQTEQ® Cortical Screw 4.5, small head T25, self-tapp. L 28	6	SK 4526-28-2
LOQTEQ® Cortical Screw 4.5, small head T25, self-tapp. L 30	6	SK 4526-30-2
LOQTEQ® Cortical Screw 4.5, small head T25, self-tapp. L 32	6	SK 4526-32-2
LOQTEQ® Cortical Screw 4.5, small head T25, self-tapp. L 34	6	SK 4526-34-2
LOQTEQ® Cortical Screw 4.5, small head T25, self-tapp. L 36	6	SK 4526-36-2
LOQTEQ® Cortical Screw 4.5, small head T25, self-tapp. L 38	6	SK 4526-38-2
LOQTEQ® Cortical Screw 4.5, small head T25, self-tapp. L 40	6	SK 4526-40-2
LOQTEQ® Cortical Screw 4.5, small head T25, self-tapp. L 42	6	SK 4526-42-2
LOQTEQ® Cortical Screw 4.5, small head T25, self-tapp. L 45	6	SK 4526-45-2
LOQTEQ® Cortical Screw 4.5, small head T25, self-tapp. L 50	6	SK 4526-50-2
LOQTEQ® Cortical Screw 4.5, small head T25, self-tapp. L 55	6	SK 4526-55-2
LOQTEQ® Cortical Screw 4.5, small head T25, self-tapp. L 60	6	SK 4526-60-2
LOQTEQ® Cortical Screw 4.5, small head T25, self-tapp. L 65	6	SK 4526-65-2
LOQTEQ® Cortical Screw 4.5, small head T25, self-tapp. L 70	6	SK 4526-70-2

Standard screws



ARTICLE	QUANTITY	ARTNO.
Cortical Screw 4.5, self-tapping, L 14	6	SK 4510-14-2
Cortical Screw 4.5, self-tapping, L 16	6	SK 4510-16-2
Cortical Screw 4.5, self-tapping, L 18	6	SK 4510-18-2
Cortical Screw 4.5, self-tapping, L 20	6	SK 4510-20-2
Cortical Screw 4.5, self-tapping, L 22	6	SK 4510-22-2
Cortical Screw 4.5, self-tapping, L 24	6	SK 4510-24-2
Cortical Screw 4.5, self-tapping, L 26	6	SK 4510-26-2
Cortical Screw 4.5, self-tapping, L 28	6	SK 4510-28-2
Cortical Screw 4.5, self-tapping, L 30	6	SK 4510-30-2
Cortical Screw 4.5, self-tapping, L 32	6	SK 4510-32-2
Cortical Screw 4.5, self-tapping, L 34	6	SK 4510-34-2
Cortical Screw 4.5, self-tapping, L 36	6	SK 4510-36-2
Cortical Screw 4.5, self-tapping, L 38	6	SK 4510-38-2
Cortical Screw 4.5, self-tapping, L 40	6	SK 4510-40-2
Cortical Screw 4.5, self-tapping, L 42	6	SK 4510-42-2
Cortical Screw 4.5, self-tapping, L 45	6	SK 4510-45-2
Cortical Screw 4.5, self-tapping, L 50	6	SK 4510-50-2
Cortical Screw 4.5, self-tapping, L 55	6	SK 4510-55-2
Cortical Screw 4.5, self-tapping, L 60	6	SK 4510-60-2
Cortical Screw 4.5, self-tapping, L 65	6	SK 4510-65-2
Cortical Screw 4.5, self-tapping, L 70	6	SK 4510-70-2



Standard screws with small head

ARTICLE	QUANTITY	ARTNO.
Cortical Screw 4.5, small head, self-tapping, L 14	6	SK 4512-14-2
Cortical Screw 4.5, small head, self-tapping, L 16	6	SK 4512-16-2
Cortical Screw 4.5, small head, self-tapping, L 18	6	SK 4512-18-2
Cortical Screw 4.5, small head, self-tapping, L 20	6	SK 4512-20-2
Cortical Screw 4.5, small head, self-tapping, L 22	6	SK 4512-22-2
Cortical Screw 4.5, small head, self-tapping, L 24	6	SK 4512-24-2
Cortical Screw 4.5, small head, self-tapping, L 26	6	SK 4512-26-2
Cortical Screw 4.5, small head, self-tapping, L 28	6	SK 4512-28-2
Cortical Screw 4.5, small head, self-tapping, L 30	6	SK 4512-30-2
Cortical Screw 4.5, small head, self-tapping, L 32	6	SK 4512-32-2
Cortical Screw 4.5, small head, self-tapping, L 34	6	SK 4512-34-2
Cortical Screw 4.5, small head, self-tapping, L 36	6	SK 4512-36-2
Cortical Screw 4.5, small head, self-tapping, L 38	6	SK 4512-38-2
Cortical Screw 4.5, small head, self-tapping, L 40	6	SK 4512-40-2
Cortical Screw 4.5, small head, self-tapping, L 42	6	SK 4512-42-2
Cortical Screw 4.5, small head, self-tapping, L 45	6	SK 4512-45-2
Cortical Screw 4.5, small head, self-tapping, L 50	6	SK 4512-50-2
Cortical Screw 4.5, small head, self-tapping, L 55	6	SK 4512-55-2
Cortical Screw 4.5, small head, self-tapping, L 60	6	SK 4512-60-2
Cortical Screw 4.5, small head, self-tapping, L 65	6	SK 4512-65-2
Cortical Screw 4.5, small head, self-tapping, L 70	6	SK 4512-70-2



Notes

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Layout, typesetting: deSIGN graphic - Wolfram Passlack

Illustrations: Karen Hilberg

aap Implantate AGLorenzweg 5 • 12099 Berlin Germany

Phone +49 30 75019-0 +49 30 75019-111

customer.service@aap.dewww.aap.de



aap Implantate AGLorenzweg 5 • 12099 Berlin
Germany

Phone +49 30 75019-0 Fax +49 30 75019-111

customer.service@aap.de www.aap.de