



Mecron[®] Cannulated Screw System and Chronoceptor[™]

Surgical Technique

This surgical technique applies only to the U.S.



Caution

Federal law restricts this device to sale by or on the order of a physician.

Caution

The following product descriptions contain detailed information on the recommended procedure (and associated surgical techniques) for Merete® implants and instruments. Training in the correct handling of implants and instruments is only to be executed by an authorized Merete representative.

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1. Product Description

The Mecron® Cannulated Screw System consists of self-tapping and self-drilling screws which are manufactured from titanium alloy Ti-6Al-4V ELI. The Mecron® Cannulated Screw System is comprised of headed and headless bone screws and corresponding washers for headed screws. The screws are offered in diameters from 2.0 mm thru 4.0 mm (in 0.5 mm diameter increments) and overall lengths from 8 mm (for smaller diameters) thru 50 mm in 2.0 mm increments (Table 1).

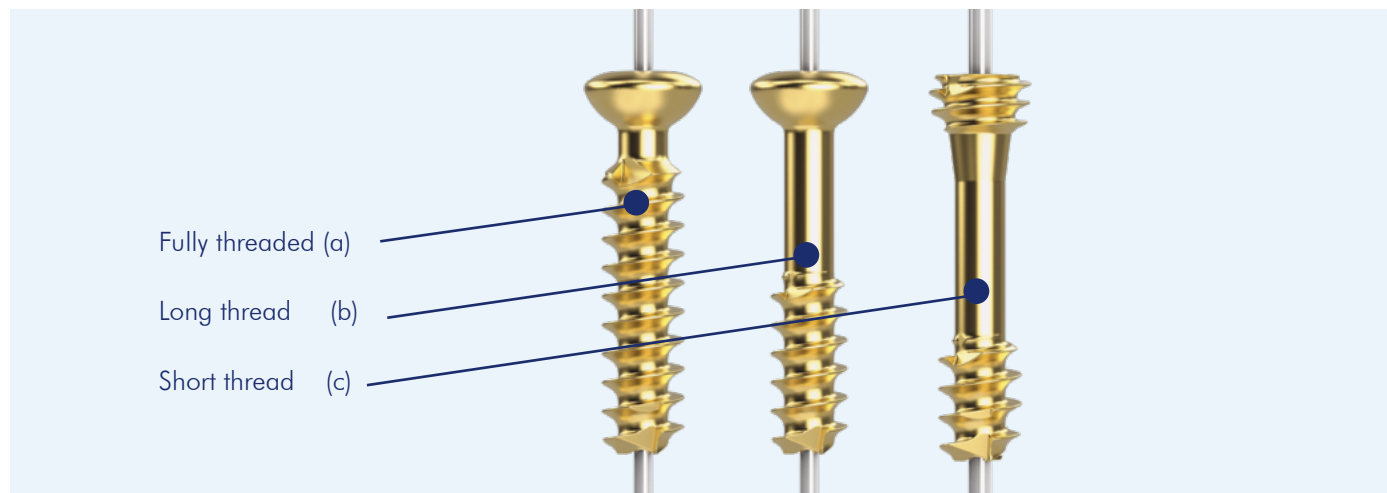


Figure 1: Headed full thread (a), Headed long thread (b) and Headless short thread (c) screws. Example illustration for dia. 4.0 mm (gold).

For exact sizing options, please see tables in chapter **4.1**.

Table 1: Available Screw Dimensions. The Headed and Headless screws are color-coded according to diameter.

| Screw dia. Size in mm | Color | Length Size in mm |
|---------------------------------|----------------|-----------------------------|
| 2.0 | White | 8 - 50 |
| 2.5 | Magenta | 10 - 50 |
| 3.0 | Blue | 10 - 50 |
| 3.5 | Green | 10 - 50 |
| 4.0 | Gold | 10 - 50 |

1.1. Design features

1.1.1. Headed Screw

Designed with a smooth curvature to prevent soft tissue interferences under oblique insertion angles that lead to head prominence along cortical bone (Figure 2). The head geometry keeps the screw from plunging into softer bone.



Figure 2: Headed screw. Example illustration for dia. 4.0 mm (gold) and color-coded corresponding countersink.

1.1.2. Headless Screw

The tapered neck is designed to induce controlled precompression before the proximal thread engages the cortical bone (Figure 3). The heightened teeth of the thread design anchor the head in the cortical bone while the self-tapping cutting flutes of the first and last pitch facilitate easy insertion and removal.



Figure 3: Headless screw. Example illustration for dia. 4.0 mm (gold) and color-coded corresponding countersink.

1.1.3. Thread Design

The thread design in the headless screw features a pitch differential between the threads of the head and shaft (Figure 4). All screws feature a reduced core diameter and increased thread depth maximizes pull-out resistance by maximizing the screw/bone interface. Each tip has three cutting flutes for self-drilling and self-tapping properties to reduce insertion torques during surgery.

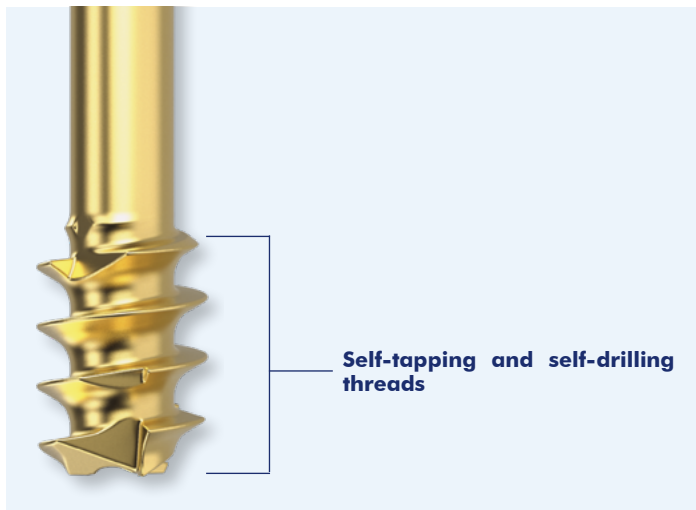


Figure 4: Thread design. Example illustration for 4.0 mm (gold).

1.1.4. Characteristics

- Connection to  8 (**dia.** 2.0 mm and **dia.** 2.5 mm) and  10 (**dia.** 3.0 mm, **dia.** 3.5 mm and **dia.** 4.0 mm)
- Washers for headed screws available
- **K-wire:**
 - **dia.** 0.9 mm for **dia.** 2.0 and 2.5 mm screws
 - **dia.** 1.1 mm for **dia.** 3.0 and 3.5 mm screws
 - **dia.** 1.2 mm for **dia.** 4.0 mm screws
- Non-Sterile.

1.1.5. Driver Connection

Driver connections for hexalobe driver sizes of  8 and  10 (Figure 5).



Figure 5: Hexalobe driver connection. Example illustrations for 2.5 mm (magenta) and 4.0 mm (gold).

The Mecron® Cannulated Screw System is self-tapping and self-drilling and may be inserted over a K-wire with the included hexalobe driver. Certain sequences of implantation may improve ease of insertion. Therefore, the following surgery steps (Figures 7-13) illustrate bone preparation using the overdrill, drill (Figure 6) and countersink plus their screw length determination using the dia. 4.0 mm (gold) Mecron® screw as an example. All instruments are color-coded according to the corresponding screw diameter allowing precise identification.

All instruments are color-coded

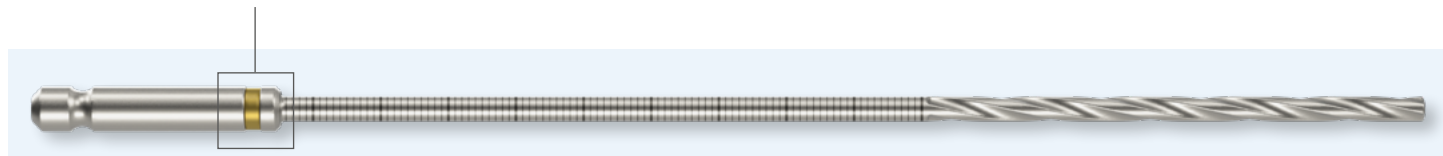


Figure 6: Drill. Example illustration for drill 4.0 mm (gold).

Table 2: Instrumentation according to screw diameter. Illustrating part colors of each corresponding screw diameter.

| Screw Dia. Size in mm | Color | Tissue Protector Size in mm | | Drill Size in mm | Overdrill Size in mm | Countersink Size in mm | | Hexalobe Driver | K-wire |
|--------------------------|---------|--------------------------------|-----|---------------------|-------------------------|---------------------------|----------|--------------------|--------|
| | | | | | | Headed | Headless | | |
| 2.0 | White | 1.8 | 1.8 | 1.7 | 2.0 | 4.0 | 3.2 | 8 | 0.9 |
| 2.5 | Magenta | 1.8 | 2.6 | 1.7 | 2.5 | 4.0 | 3.2 | 8 | 0.9 |
| 3.0 | Blue | 2.2 | 3.1 | 2.1 | 3.0 | 5.0 | 3.5 | 10 | 1.1 |
| 3.5 | Green | 2.6 | 3.6 | 2.5 | 3.5 | 5.0 | 3.5 | 10 | 1.1 |
| 4.0 | Gold | 2.6 | 4.1 | 2.5 | 4.0 | 6.0 | 4.0 | 10 | 1.2 |

1.2. Intended Purpose / Use

The Mecron® Cannulated Screw System is indicated for use in bone reconstruction, osteotomy, arthrodesis, joint fusion, ligament fixation, fracture repair and fixation appropriate for the size of the device.

1.3. Indications

- Bone Reconstructions
- Osteotomies
- Arthrodesis
- Joint Fusions
- Ligament Fixation
- Fracture Repairs and Fixations

1.4. Contraindications

- Osteoarthritis
- Primary Chronic Polyarthritis
- Osteoporotic Bone

1.5. MRI Safety Information

The Mecron® Cannulated Screws have not been evaluated for safety and compatibility in the MR environment. They have not been tested for heating, migration, or image artifact in the MR environment. The safety of the screws in the MR environment is unknown. Scanning a patient who has these screws may result in patient injury.

Warning: Examination of patient using MRI

Risk of injury due to alternating magnetic fields! Merete Technologies, Inc. does not authorize the use of MRI examinations in conjunction with the components described in these user instructions. Always perform an individual risk-benefit analysis. Check whether other imaging procedures can be used to achieve the desired diagnostic goal.

2. General Information

Warnings

Use of damaged or defective instruments/implants. Risk of injury due to premature implant failure! Instruments/implants with identifiable damage may not be used. Avoid notches, scratches or bending of the implant in order to preserve its stability.

Use of implants contrary to intended purpose. Risk of injury due to implant failure! Implants must only be used in accordance with intended purpose.

Combination with products from other manufacturers. Risk of injury due to implant failure! Do not combine implant components with products from other manufacturers.

Use of implant/instrument contrary to intended purpose. Damage to/destruction of instrument/implant and injury to patient! Ensure correct implant/instrument handling. Do not misuse.

Combination of implant components of different sizes. Damage to implant components! Combine only components of the same size.

Improper use of an implant/instrument. Damage to/destruction of instrument/implant and injury to patient! Ensure correct implant/instrument handling. Do not misuse. Ensure to use the instruments belonging to the implant.

Use of instruments with electrical energy. Risk of injury due to implant failure! Do not damage the surfaces of the implants under any circumstances.

Use of implants which have been previously used. Risk of injury due to premature implant failure! Risk of sepsis! Implants are only permitted for single use, not for reuse.

Use of contaminated instruments/implants. Risk of Sepsis! Use only instruments/implants without identifiable soiling. Handle instruments/implants only with sterile surgical gloves.

Resterilization of instruments. Risk of injury due to premature instrument fracture caused by adverse material changes! Instruments delivered sterile by Merete GmbH must not be resterilized and/or re-packaged. Products whose expiry date has passed must be returned to Merete Technologies, Inc.

Risk of infection due to non-sterile instruments! Do not use instruments whose packaging is damaged. Do not use instruments whose expiry date has passed.

NOTE

Sterilization of instruments/implants supplied non-sterile. If Merete products are sterilized by the user, this must be noted in the surgical report. All relevant labels and user instructions must be retained. Observe the standard preparation instructions provided.

NOTE

Non-sterile screws, whose color cannot be clearly identified must not be used.

3. Surgical Technique

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3. Surgical Technique

There are two types of instrument sets available for preparation of the bone, the classic approach and the innovative approach using the Chronoceptor™. The following section first describes the classic approach followed by the innovative approach using the Chronoceptor™.

3.1. Surgery Steps in General

3.1.1. Length determination

There are three different possibilities to determine the screw length. For all three possibilities position the K-wire corresponding to the planned screw diameter (e.g., Ref. CK12215, dia. 1.2 mm K-wire for dia. 4.0 mm screws, see Table 2) across the fracture or fusion site (Figure 7). Confirm accurate K-wire placement and appropriate depth under direct visualization or fluoroscopy.

Screw length determination using length gauge

For screw length determination using length gauge (Ref. AI14001). Slide the length gauge over the K-wire (Figure 8). The measurement on the length gauge shows the depth of the K-wire in the bone and indicates the appropriate screw length.

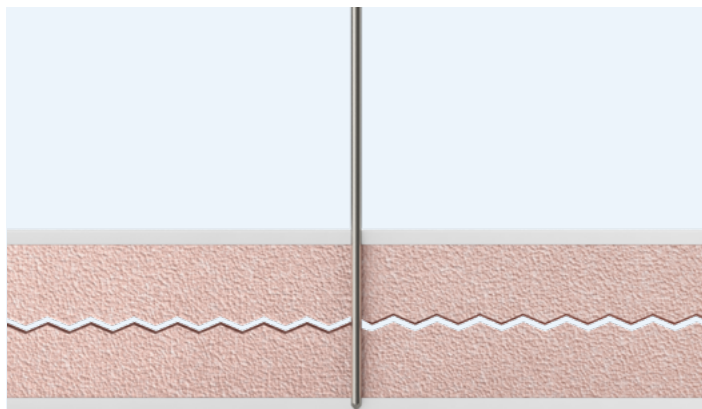


Figure 7: K-wire insertion. Position across fracture or fusion site.

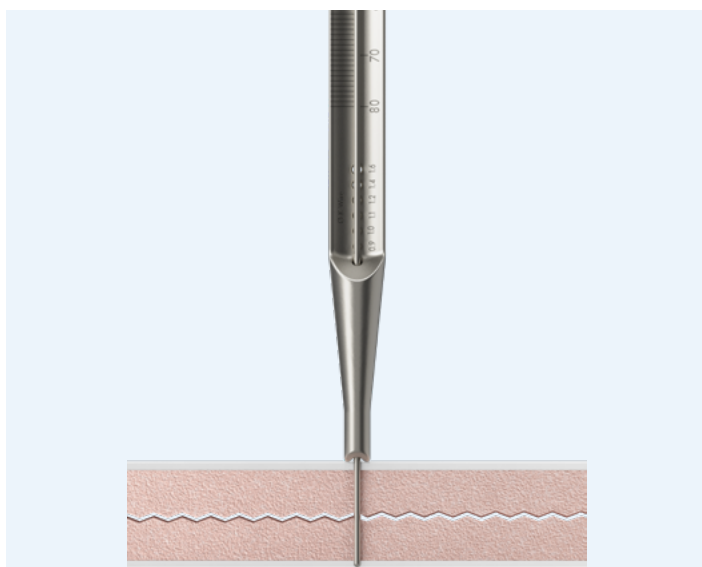
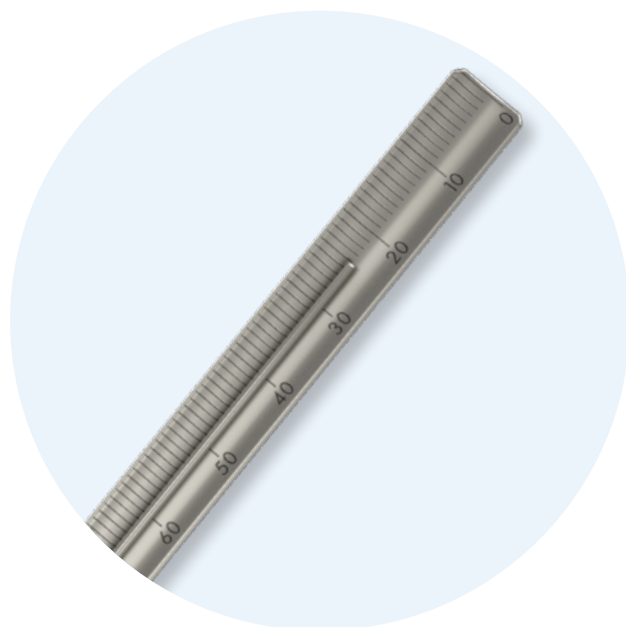


Figure 8: Screw length determination by K-wire. Screw length determination for both headed and headless compression screws.



For the correct length determination please make sure that the K-wire tip does not stick out and is flush with the distal cortex. Keep the resection or fracture gap as small as possible.

Screw length determination using drill bits

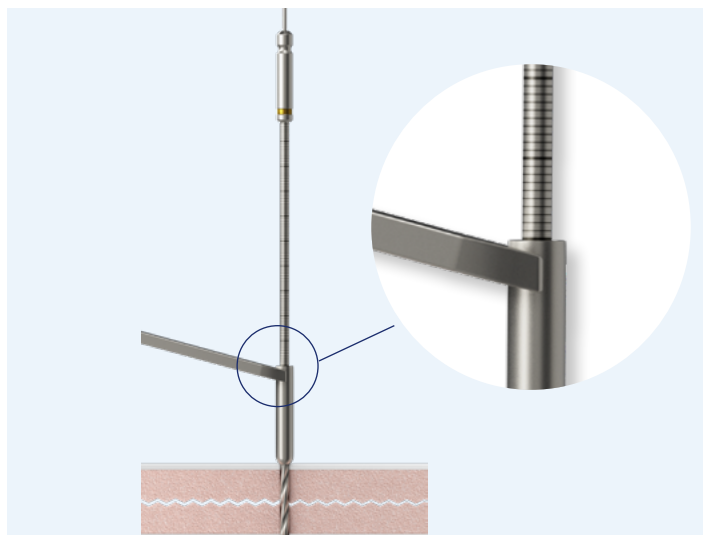


Figure 9: Screw length determination using drill in combination with tissue protector.

Use the drill over the K-wire (Figure 9) in combination with the tissue protector to drill the hole. The measurement on the drill shows the depth of the K-wire in the bone and indicates the appropriate screw length.

For the correct length determination please make sure that the drill bit tip does not stick out and is flush with the distal cortex. Keep the resection or fracture gap as small as possible.

NOTE

This length determination using the drill exclusively works in combination with the tissue protector.

Screw length determination using the combination countersink and length gauge

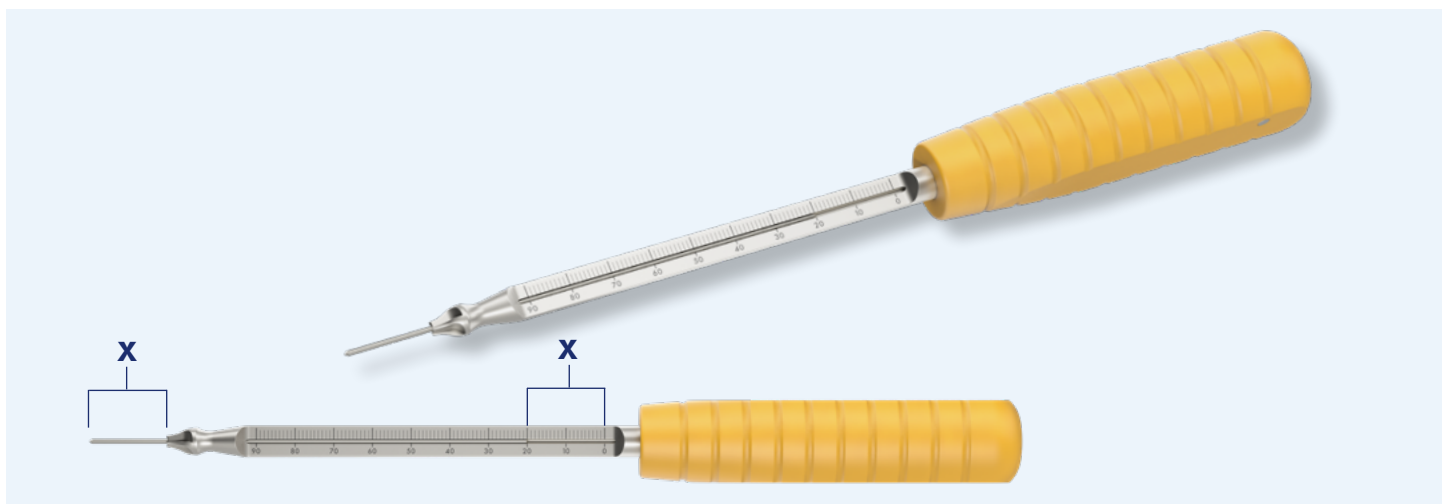


Figure 10: Screw length determination using the manual countersink with length gauge.

Use the countersink with length gauge over the K-wire (Figure 10). The measurement on the drill shows the depth of the K-wire in the bone and indicates the appropriate screw length.

3.1.2. Bone preparation using an overdrill

Place the tissue protector (i.e., Ref. CH15041) against the cortical bone with the desired screw trajectory. Position K-wire through tissue protector, across fracture or fusion site, and through the distal cortex. Remove the tissue protector and use length gauge (Ref. A114001) to determine appropriate screw length. Once the accurate screw length has been determined, remove the length gauge.

Place the tissue protector back over the K-wire. The cannulated overdrill (i.e., Ref. CH15013) is then placed over the K-wire (Figure 11a) and through the tissue protector to drill a hole up to the fracture or fusion site (Figure 11a).

Use the drill (i.e., Ref. CH15006) to advance a smaller hole (the size represents the core diameter of the screw) to the distal cortex (Figure 11b). Stop advancing the drill once the distal cortex is breached. A normal feedback of the instrument is a slightly higher resistance while the drill pushes through the distal cortex.

Use the Countersink (i.e., Ref. CH15027) to create a recess for the headed screw head (Figure 11c).

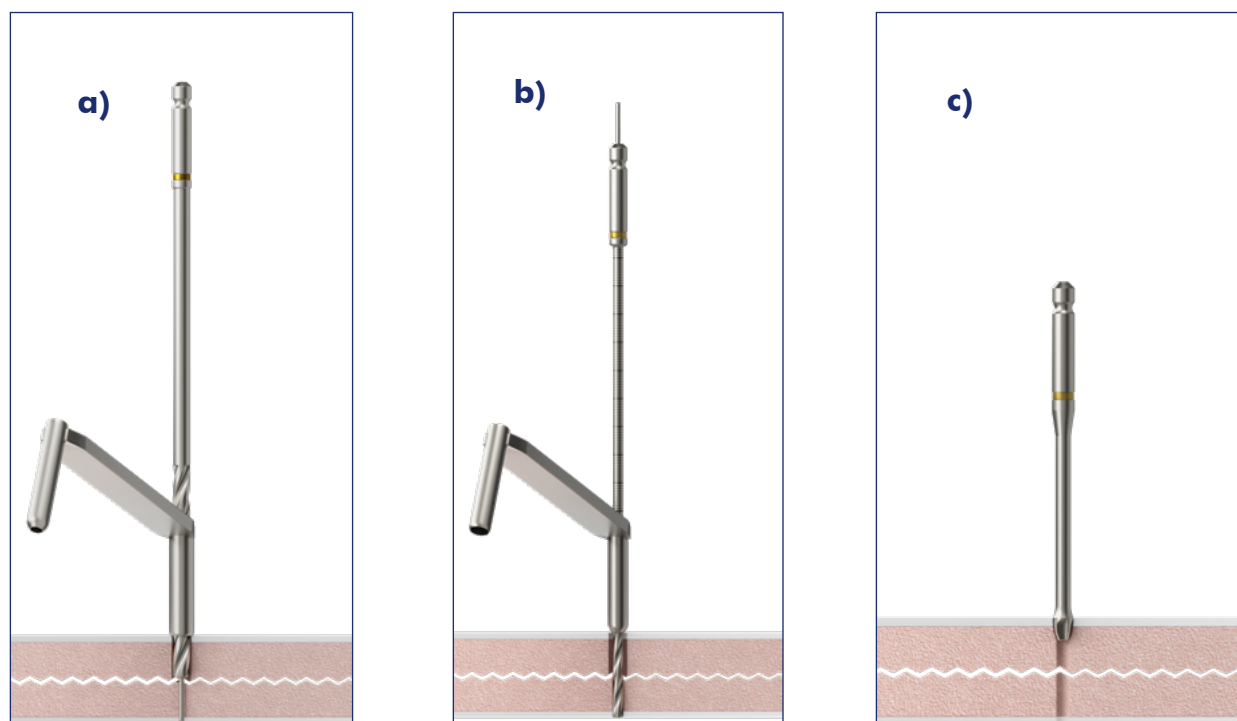


Figure 11: Bore hole preparation with overdrill, drill and countersink.

- Advance overdrill to fusion site (a).
- Drill over the remaining K-wire with the core diameter drill until the distal cortex is breached and determine the screw length (b).
- Apply the countersink to create a recess for the screw head (c).

Proceeding in an opposite order of the above application, i.e., starting with the drill first until the distal cortex, causes the loss of the ability of guidance by the K-wire.

3.1.3. Bone preparation with a standard drill

Recommended sequence for Headless Screws with long and short thread

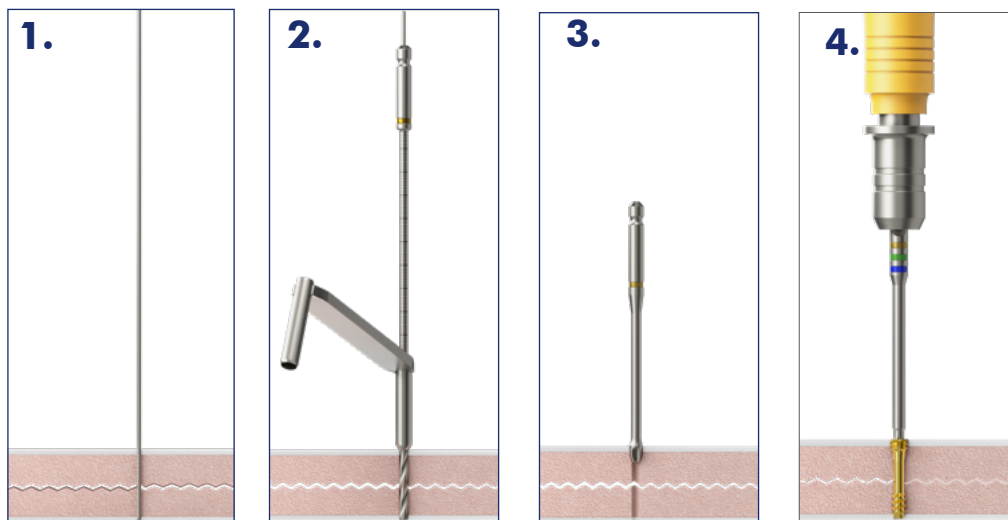


Figure 12: Surgery steps for screws with long and short thread for both headed and headless screws. 1) K-wire placement, 2) Tissue Protector placement over K-wire and length determination 3) Countersink, 4) Screw insertion. Headless screws are generally countersunk after the screw length is determined and the core diameter is drilled.

Recommended sequence for Headless Screws with long and short thread

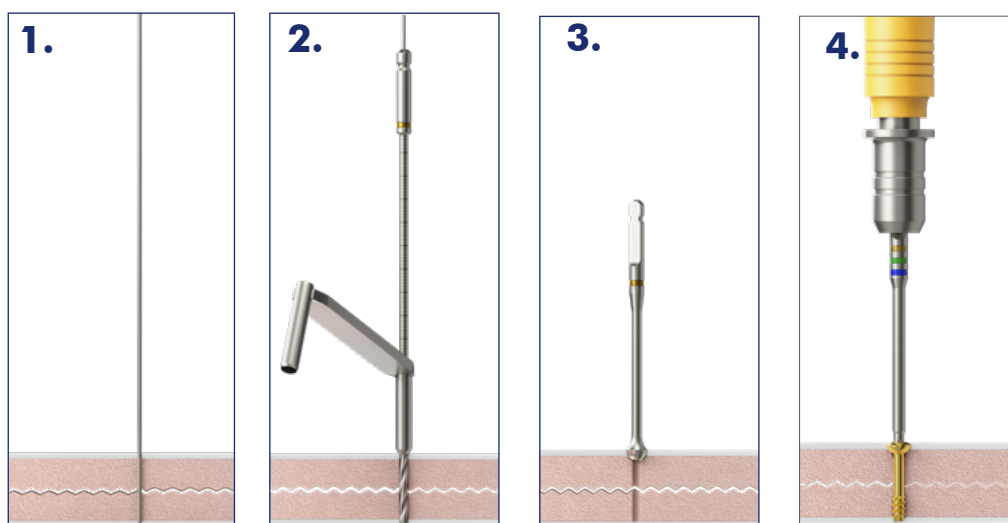


Figure 13: Surgery steps for screws with long and short thread for both headed and headless screws. 1) K-wire placement, 2) Tissue Protector placement over K-wire and length determination 3) Countersink, 4) Screw insertion.

Recommended Sequence for Headed Screws fully threaded

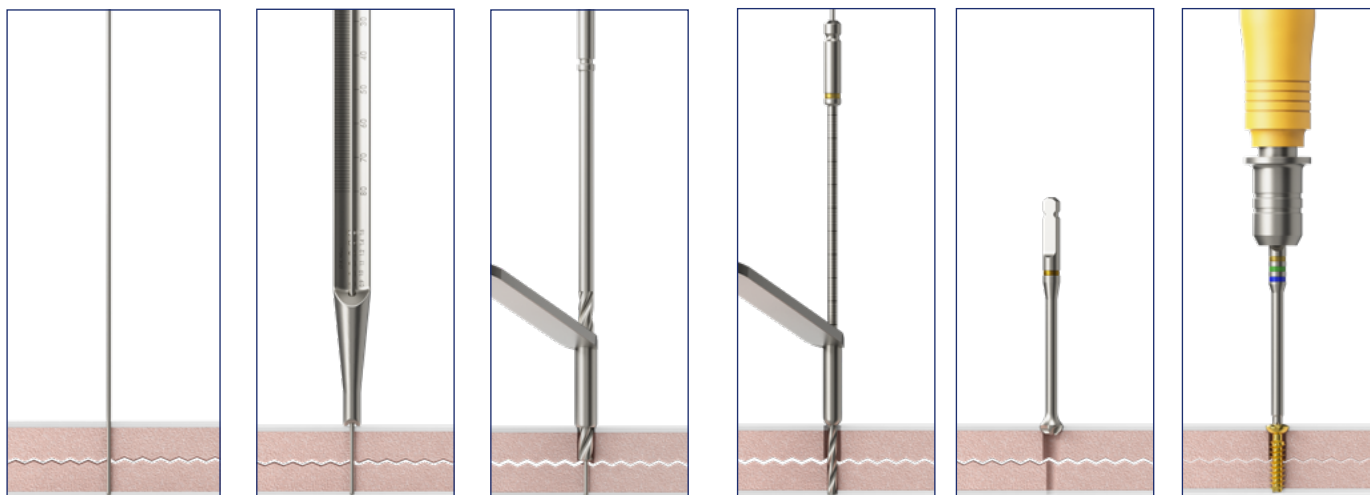


Figure 14: Surgery steps for fully threaded screws. 1) K-wire placement, 2) Length determination using the length gauge, 3) Tissue Protector placement over K-wire, 4) Drill, 5) Countersink, 6) Screw insertion. Headed screws are generally countersunk after the screw length is determined and the first cortex is overdrilled.

3.2. Chronoceptor™

AO Sequence with Chronoceptor™

Merete's Chronoceptor™ combines K-wire, pilot drill, countersink and length gauge in a single instrument to streamline the implantation of Mecron® Cannulated Screw System (Figure 15). The sterile, single-use Chronoceptor™ (Ref. CH15100s, CH15101s, CH15102s) is selected according to the corresponding screw diameter (Table 3) and applied through a short sequence of steps that resemble the commonly applied AO technique. In addition, the Chronoceptor™ automatically ensures compatibility between pilot drill and head geometry for each selected screw diameter.

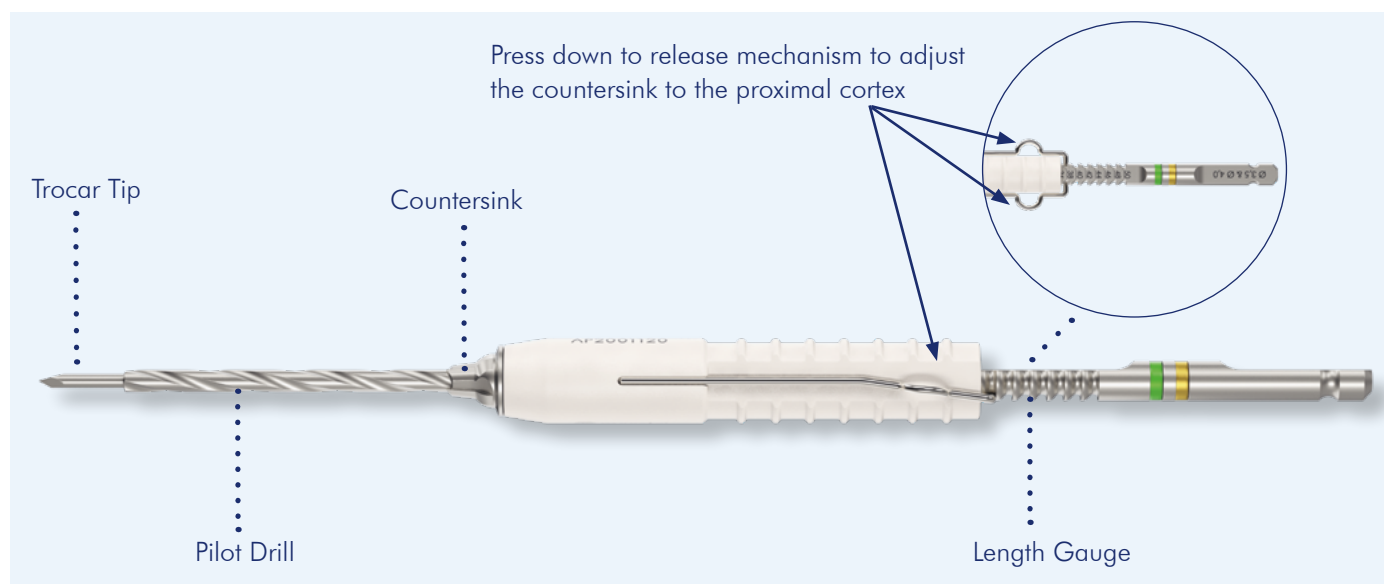


Figure 15: Chronoceptor™ for compression screws with short and long thread.

Description: Trocar tip including pilot drill and axial adjustable countersink that slides forward along a ratcheting handle that determines the screw lengths on the laser marked shaft. The AO-connection is color coded according to screw diameter to identify sizing options (Table 1).

3.2.1. Selection

Begin by selecting the correct Chronoceptor™ size according to the matching screw diameter (Table 3). The color code on the packaging and underneath each AO-drive connection corresponds to the color of each compatible screw. Note that 2.0 mm and 2.5 mm Mecron® Cannulated Screw Systems, as well as 3.5 mm and 4.0 mm Mecron® Cannulated Screw Systems only vary in outer diameter. Thus, identical pilot drill, countersink and trocar tip diameters are provided within the same instrument.

Table 3: Chronoceptor™ selection according to screw diameter. Pilot drill, countersink, length gauge and trocar tip for headed and headless screws from 2.0 mm to 4.0 mm.

| Screw Dia. Size in mm | Color | Drill Size in mm | Countersink Size in mm | | Trocar Size in mm | Chronoceptor™ |
|--------------------------|---------|---------------------|---------------------------|----------|----------------------|---------------|
| | | | Headed | Headless | Dia. | Ref. |
| 2.0 | White | 1.7 | 4.0 | 3.2 | 1.3 | CH15100S |
| 2.5 | Magenta | 1.7 | 4.0 | 3.2 | 1.3 | CH15100S |
| 3.0 | Blue | 2.1 | 5.0 | 3.5 | 1.5 | CH15101S |
| 3.5 | Green | 2.5 | 5.0 | 3.5 | 1.6 | CH15102S |
| 4.0 | Gold | 2.5 | 6.0 | 4.0 | 1.6 | CH15102S |

3.2.2. Assembly

Load the selected Chronoceptor™ (i.e., Ref. CH15102S) into the AO-drive connection.

3.2.3. Guided Insertion

Position the trocar tip of the instrument over the fracture or fusion site and slowly advance it using a power drill (Figure 16).

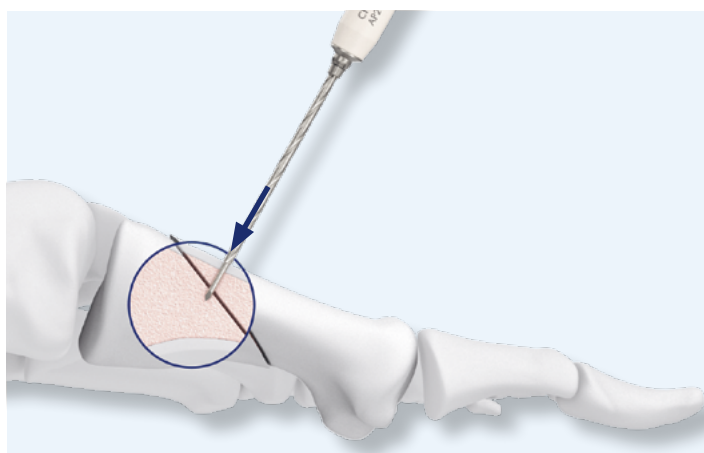


Figure 16: Positioning trocar tip. Drilling the first cortex with the trocar tip.

3.2.4. Generating the Pilot Hole

Stop advancing the Chronoceptor™ once the far cortex is breached (Figure 17) by its drill. A normal feedback of the instrument is a slightly higher resistance while the drill pushes through the far cortex.

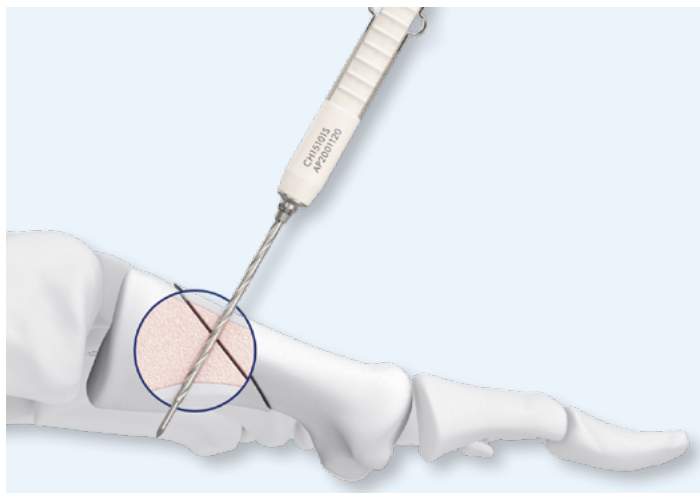


Figure 17: Generating the pilot hole. Drill until the second cortex is breached.

NOTE

It may be good practice to check using direct visualization or fluoroscopy if depth is not certain.

3.2.5. Length Determination

Without advancing the trocar and drill, manually slide the handle forward until the countersink reaches cortical bone (Figure 18 and below).

The ratcheting mechanism advances in 2 mm increments (Figure 18) and indicates the corresponding screw length on the length gauge above the wire. For example: Figure 17, the screw length is 24mm. Next, obtain the reading from the handle once the final position is reached to select the correct screw length. The first fully legible number is the correct measurement.

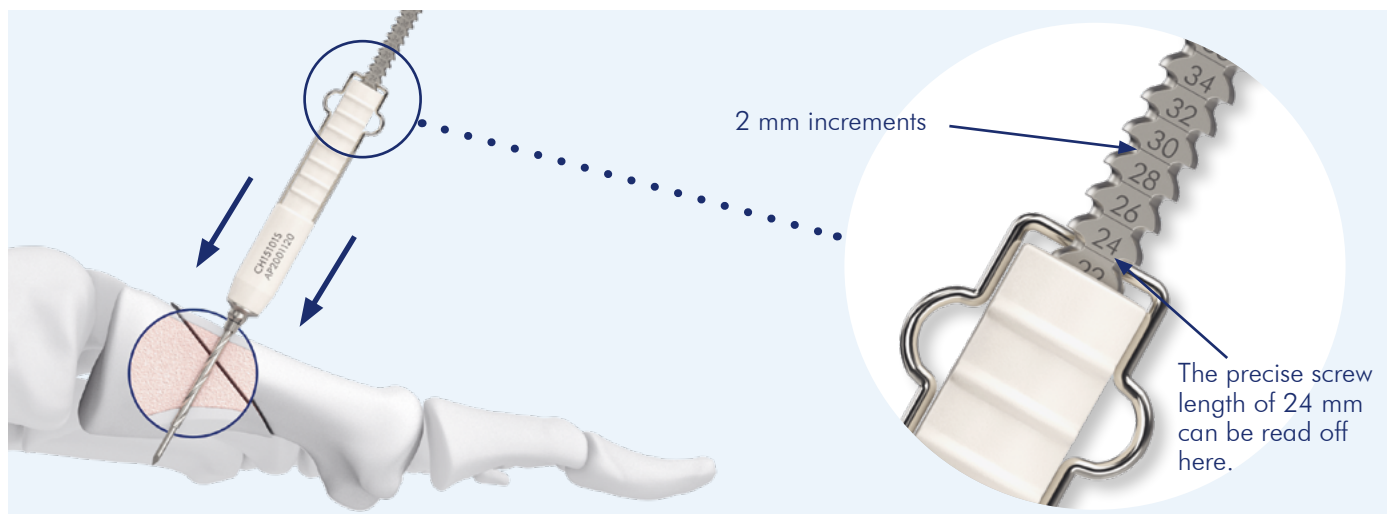


Figure 18: Reading screw length. Push the ratcheting handle with the countersink onto the cortex.

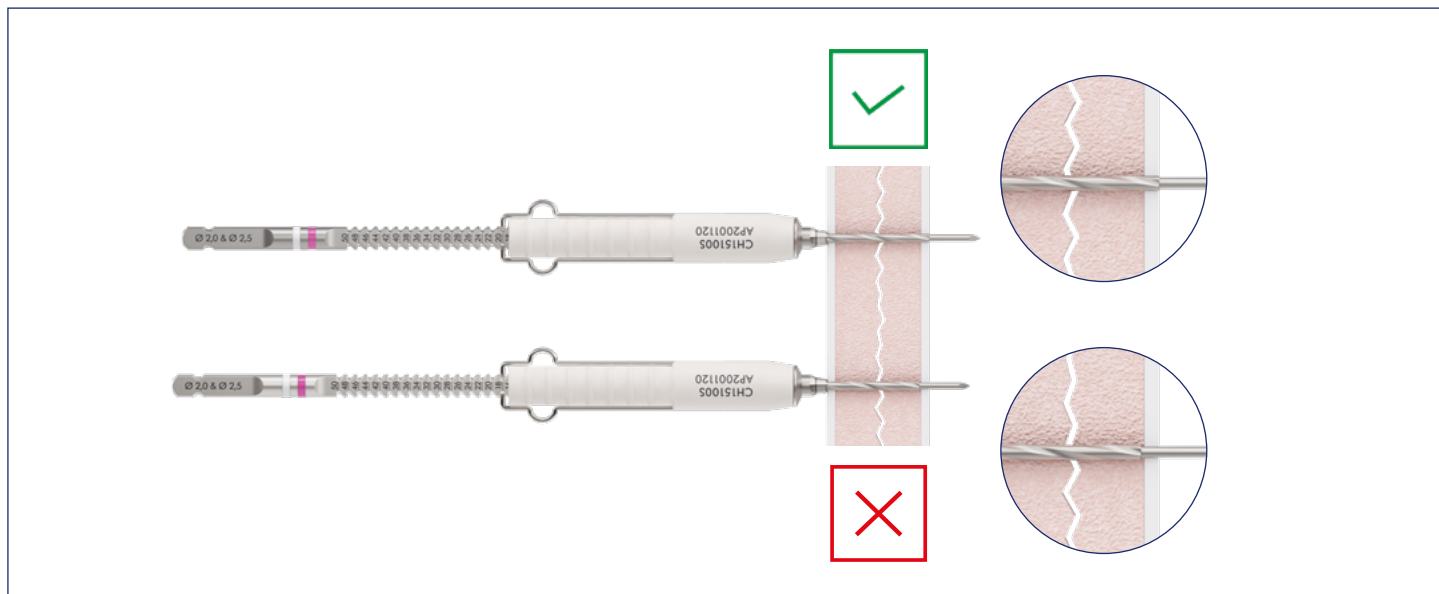


Figure 19: Avoiding wrong screw length readings. Drill until the second cortex is breached and make sure the drill tip is flush with the distal cortex like shown on the green ticked picture above.

3.2.6.Countersinking

A recess is then created according to the desired screw head. The instrument includes both tapered cutting flutes for headless screws and a subsequent rounded contour for headed screws.

Insert the cutting flutes until the taper is immersed in bone (up to the laser mark for a headless screw (Figure 20)); to recess the screw head further advance the rounded portion of the countersink for a headed screw (Figure 21) until resistance is reached.

NOTE

Do not plunge the entire device (see Figure 20).

Headless Screw

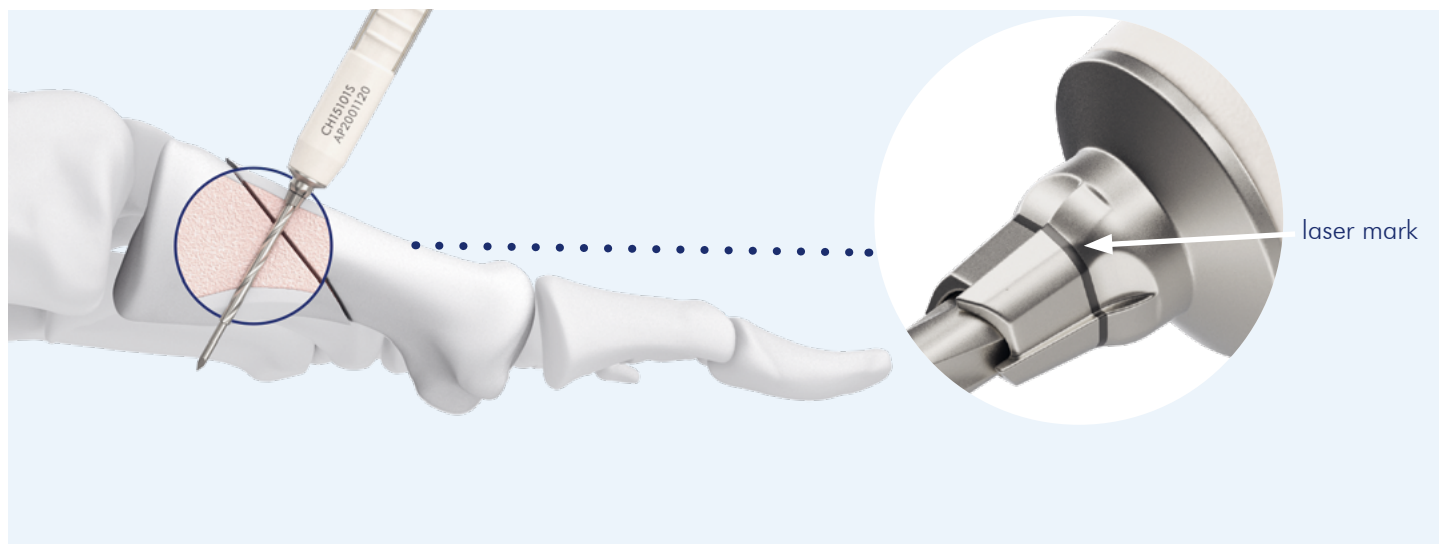


Figure 20: Headless screw countersinking. Insert the cutting flutes until the taper is immersed in the bone (up to the laser marking).

Headed Screw

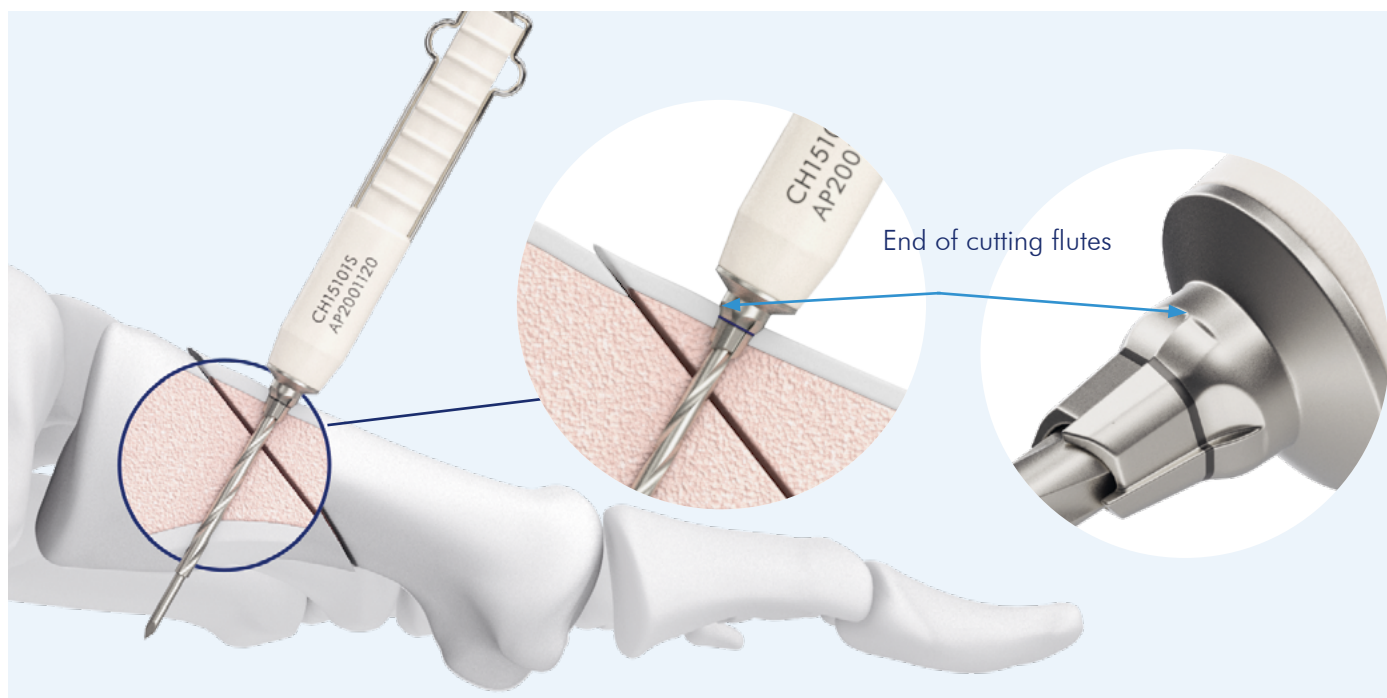


Figure 21: Headed screw countersinking. Insert the cutting flutes until they are fully immersed in the bone.

3.2.7. Removal

Remove the Chronoceptor™ from the pilot hole. A reading of the screw lengths may also be obtained at this point if the ratcheting handle maintained its position. Subsequently, release the spring and slide the handle back to its starting position at the 50 mm mark to prepare the instrument for the next screw.

From here forward all following steps are standard procedure.

3.3. Implanting the Mecron® Cannulated Screw System

Load the required cannulated hexalobe driver (Ref. A114336) into the AO-connection of the Ratcheting Handle (Ref. FH90003) by pulling the upper part back while inserting the driver (Figure 22).

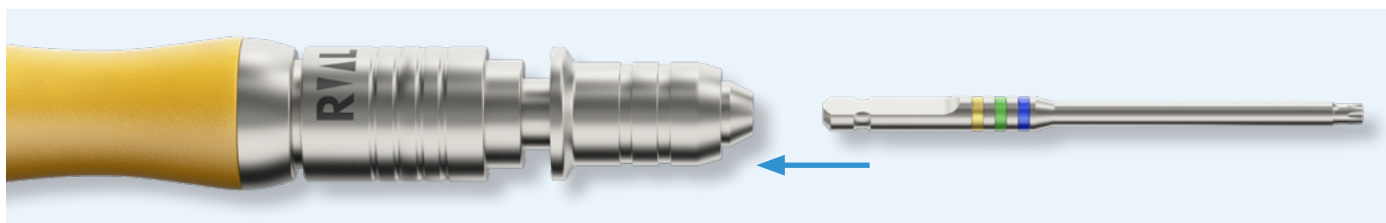


Figure 22: Loading screwdriver. Ratcheting handle loaded with hexalobe driver.

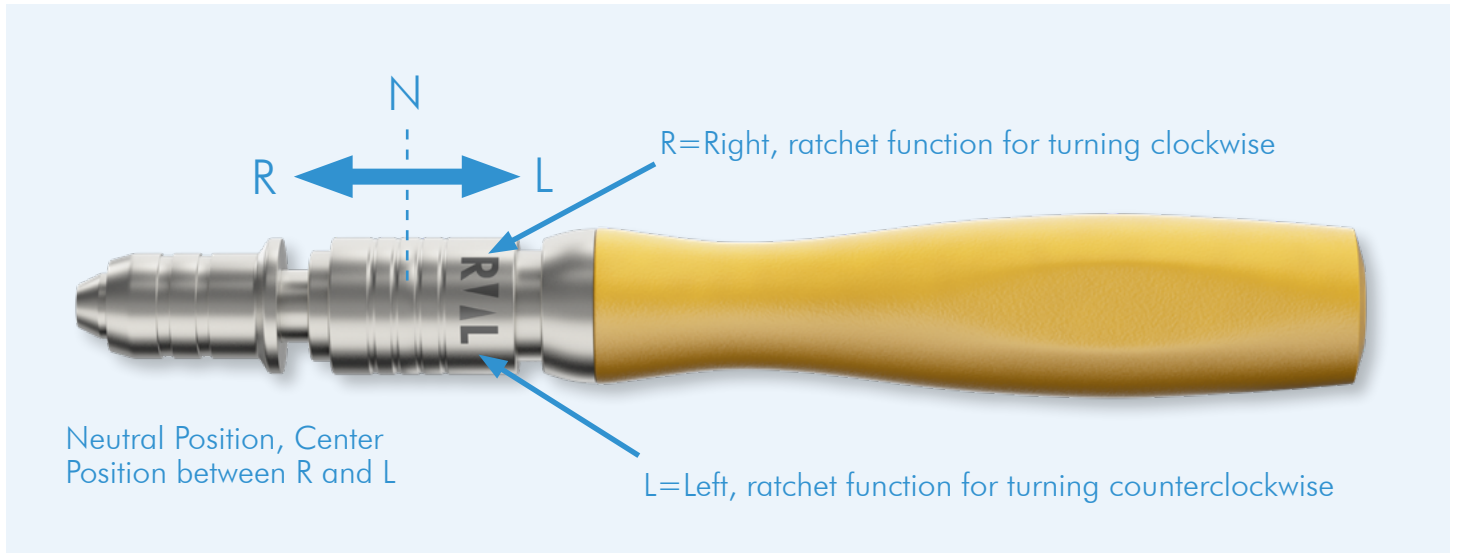


Figure 23: Right and left functionality of the screwdriver

Insert the predetermined Mecron® Cannulated Screw System screw with the loaded screwdriver. Advance the screw until the head is flush with the proximal cortex and the fusion site is sufficiently compressed (Figure 24c). Confirm placement and length of the screw under direct visualization or fluoroscopy. Ensure that both leading and trailing edges of the screw are placed beneath the cortex to avoid soft tissue interferences. Finally, remove the K-wire (Figure 24c).

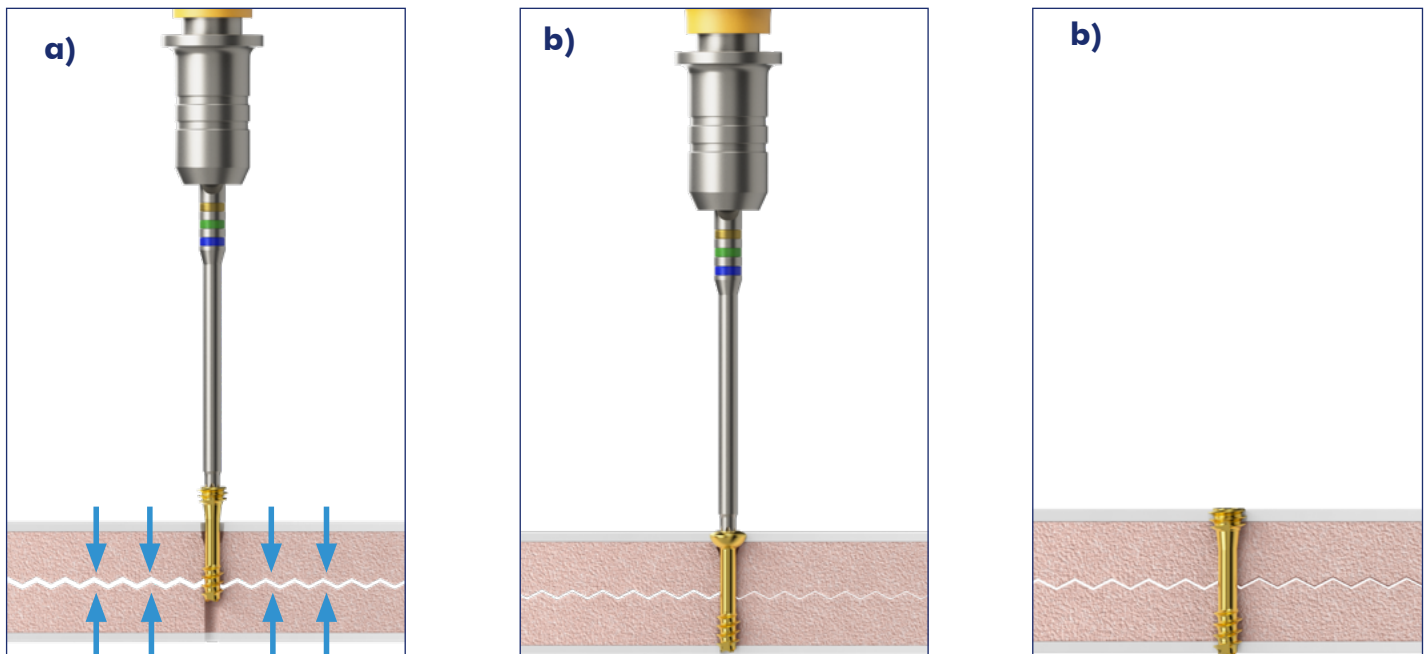


Figure 24: Screw insertion. Drive in the selected screw a) over the K-wire or b) directly into the pilothole c) until screw is fully seated

NOTE

Please ensure that the screw driver is fully seated into the drive connection of the screw's head. Also please make sure that the screw driver aligns collinear with the screw axis and/or the axis of the K-wire. For safe screw application in hard cortical bone, it is best to use non-cannulated screw drivers (Ref. A114332, hexalobe 8 and Ref. A114333, hexalobe 10) with fixed handles which are additionally provided.

3.4. Troubleshooting

An inserted screw may plunge in soft bone (e.g. cancellous bone) while the distal end of the screw advances inwards (Figure 25). Plunging headless screws (Symptom A) may be substituted with headed screws for secure cortical fixation (Solution A). Plunging headed screws (Symptom B) can be secured with washers (Solution B) selected for the corresponding screw diameter (Table 4). In both cases, the surgeon may also elect to utilize the next largest diameter screw if clinically appropriate. Follow the insertion steps within this guide.

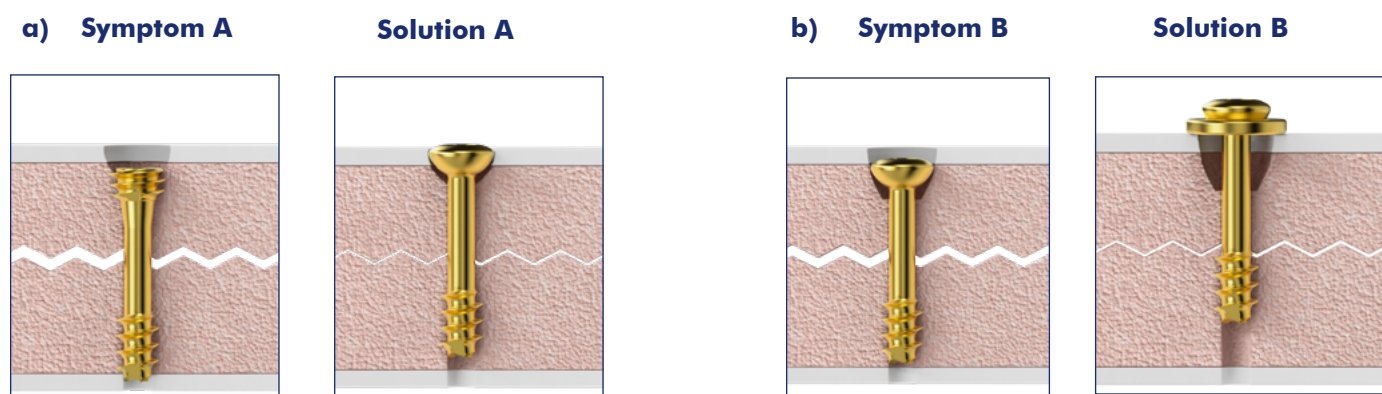


Figure 25: Washer installation. (a) Plunging of headless screws through cortical bone. (b) Plunging of headed screws through cortical bone remedied with a washer.

Table 4: Washer selection. Colors of each matching washer.



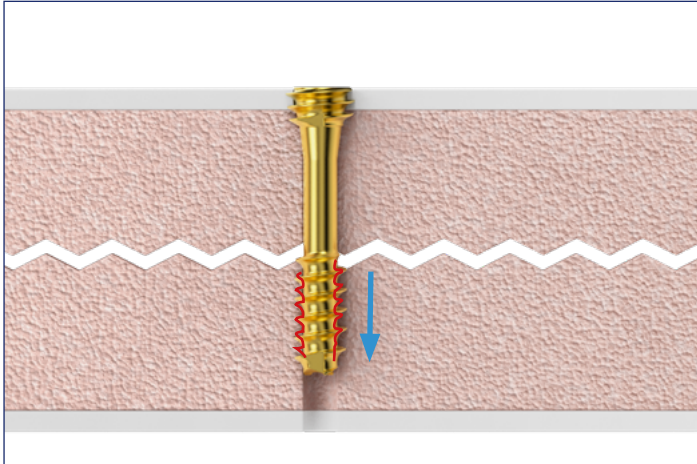
| Color code for washers | |
|------------------------|-----|
| Size in mm | |
| | 2.0 |
| | 2.5 |
| | 3.0 |
| | 3.5 |
| | 4.0 |

NOTE

for bicortical screw application please add an extra 2 mm to the length of the screw once a washer is needed (see Figure 25b).

Distal threads sometimes displace cancellous bone while the head remains in cortical bone (Figure 26). This may be prevented by selecting a longer screw and/or thread size (Figure 26). The use of a clamp can support compressing the resected bones.

c) Symptom C



Solution C

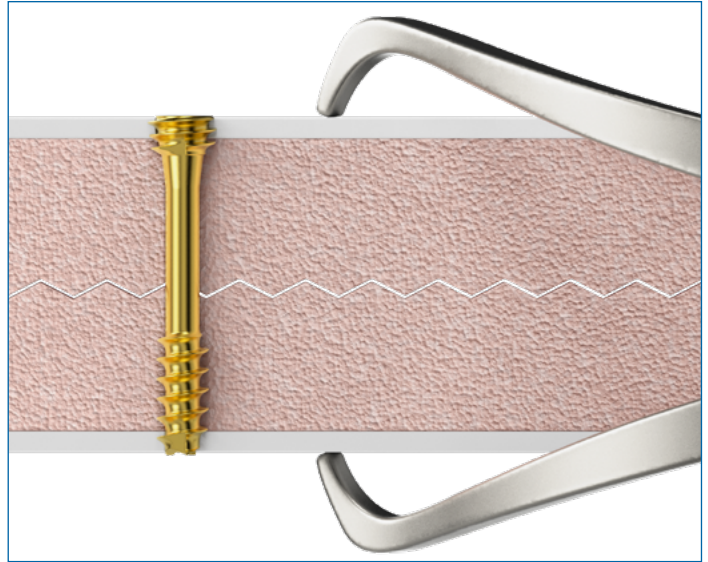


Figure 26: Screw stripping. (c) Stripping of the cancellous bone with the distal thread can be prevented by selecting of a longer screw or the redirection of a new screw of the same length.

Caution

Explantation: Risk due to bone loss. Implant osseointegration may occur over time. The surgeon/ physician is responsible for decisions regarding implant removal.

Generally, explantation procedures are left to the discretion of the surgeon. However, the following steps may be necessary to recover deformed or fractured screws.

Caution

For the safe explantation of ingrown screws non-cannulated screw drivers (Ref. A114332 or Ref. A114333) with fixed handles are required. DO NOT use the cannulated screwdriver for explantation.

For explantation of the implant use the non-cannulated hexalobe driver with fixed handle (Ref. A114332, Ref. A114333) if the hexalobe connection remains intact (Figure 27).



Figure 27: Removal with hexalobe driver. An intact hexalobe connection within the head of the screw allows screw explantation with the appropriately sized screwdriver.

If the implant is broken remove the proximal, damaged fragment of the screw with the non-cannulated hexalobe driver (Ref. A114332, Ref. A114333, see chapter 4.3 Instruments).

Insert the Screw Extractor (Ref. CH15017) with its trocar tip in the cannulation of the remaining screw fragment until it is firmly seated (Figure 28). Drive the trocar tip into the cannulation of the screw.

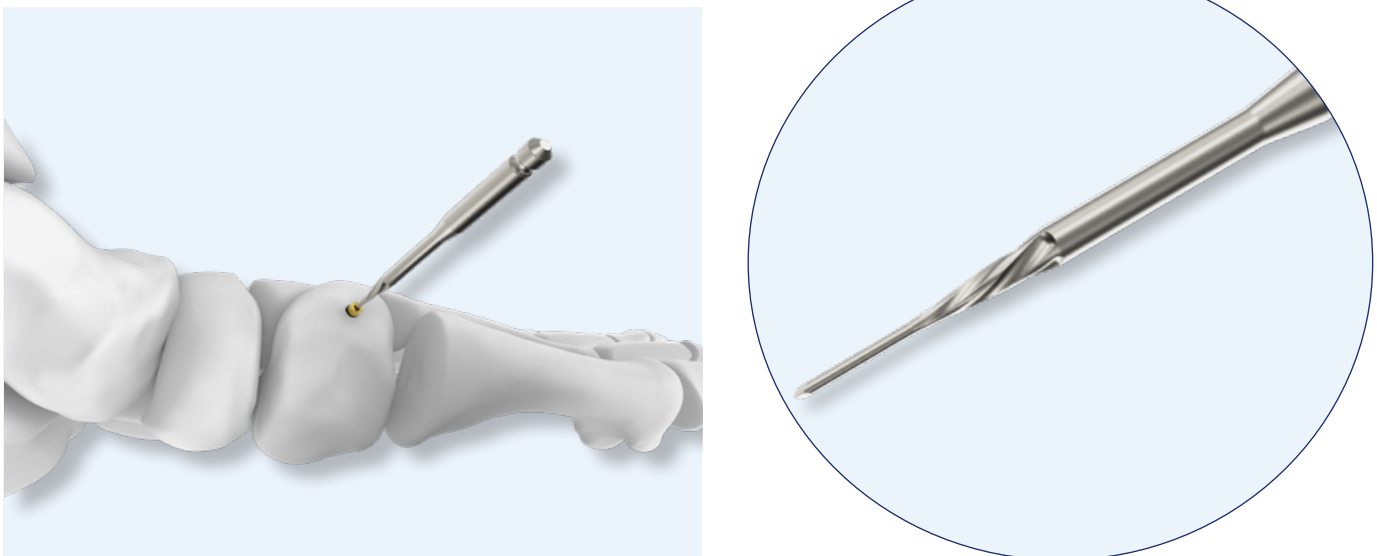


Figure 28: Recovery with the screw extractor. Insert trocar tip until the screw extractor is firmly seated in the remaining screw fragment.

The screw extractor may be applied directly if the driver connection of the screw is damaged.

Attach the T-Handle (Ref. AI90100) to the AO-connector of the screw extractor. The damaged screw is removed by carefully turning the T-Handle counterclockwise while applying constant axial pressure (Figure 29).



Figure 29: Recovery with the screw extractor. T-Handle connected and turned counterclockwise.

4. Ordering Information

| | |
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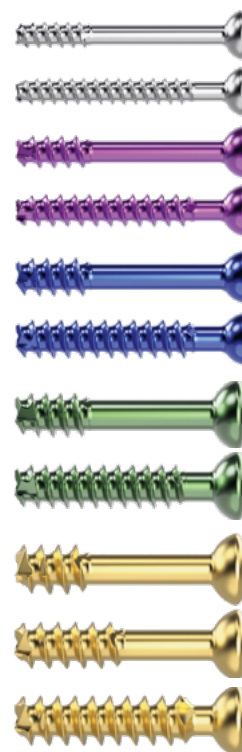
4.1. Screws

Ordering Example

| Screw | Ref. |
|---|-------------------|
| Dia. 4.0 mm, full thread 32 mm , non-sterile | CH403 32 T |

Mecron® Cannulated Screw System, headed, non-sterile

| Description | Screw Color | Ref. |
|--|-------------|---------------------|
| Dia. 2.0 mm, short thread 8-50 mm (2 mm increments) | | CH20108T - CH20150T |
| Dia. 2.0 mm, full thread 8-50 mm (2 mm increments) | | CH20208T - CH20250T |
| Dia. 2.5 mm, short thread 10-50 mm (2 mm increments) | | CH25110T - CH25150T |
| Dia. 2.5 mm, full thread 10-50 mm (2 mm increments) | | CH25210T - CH25250T |
| Dia. 3.0 mm, short thread 10-50 mm (2 mm increments) | | CH30110T - CH30150T |
| Dia. 3.0 mm, full thread 10-50 mm (2 mm increments) | | CH30210T - CH30250T |
| Dia. 3.5 mm, short thread 10-50 mm (2 mm increments) | | CH35110T - CH35150T |
| Dia. 3.5 mm, full thread 10-50 mm (2 mm increments) | | CH35210T - CH35250T |
| Dia. 4.0 mm, short thread 10-50 mm (2 mm increments) | | CH40110T - CH40150T |
| Dia. 4.0 mm, long thread 10-50 mm (2 mm increments) | | CH40210T - CH40250T |
| Dia. 4.0 mm, full thread 10-50 mm (2 mm increments) | | CH40310T - CH40350T |



Mecron® Cannulated Screw System, headless , non-sterile

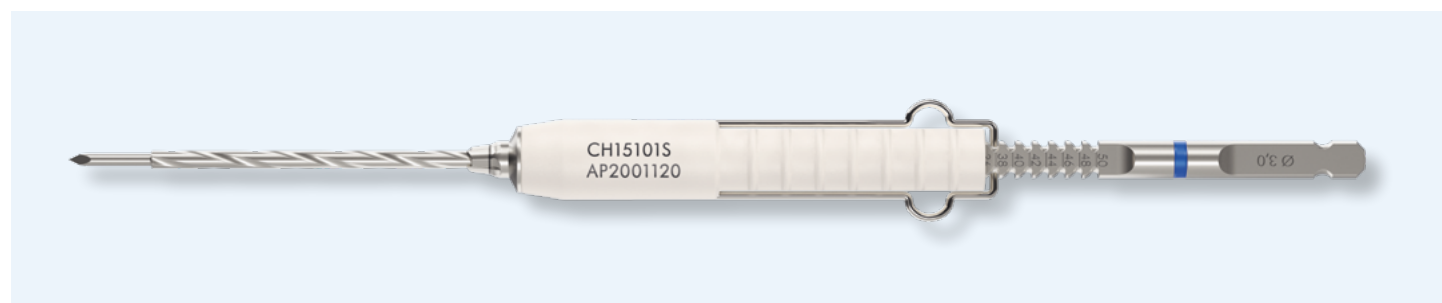
| Description | Screw Color | Ref. |
|--|-------------|---------------------|
| Dia. 2.0 mm, short thread 8-50 mm (2 mm increments) | | CH21108T - CH21150T |
| Dia. 2.5 mm, short thread 10-50 mm (2 mm increments) | | CH26110T - CH26150T |
| Dia. 3.0 mm, short thread 10-50 mm (2 mm increments) | | CH31110T - CH31150T |
| Dia. 3.5 mm, short thread 10-50 mm (2 mm increments) | | CH36110T - CH36150T |
| Dia. 4.0 mm, short thread 10-50 mm (2 mm increments) | | CH41110T - CH41150T |
| Dia. 4.0 mm, long thread 10-50 mm (2 mm increments) | | CH41210T - CH41250T |



| Washer Size in mm | |
|-----------------------------|----------------|
| Screw Dia. | Ref. |
| 2.0 | CH15044 |
| 2.5 | CH15045 |
| 3.0 | CH15046 |
| 3.5 | CH15047 |
| 4.0 | CH15048 |



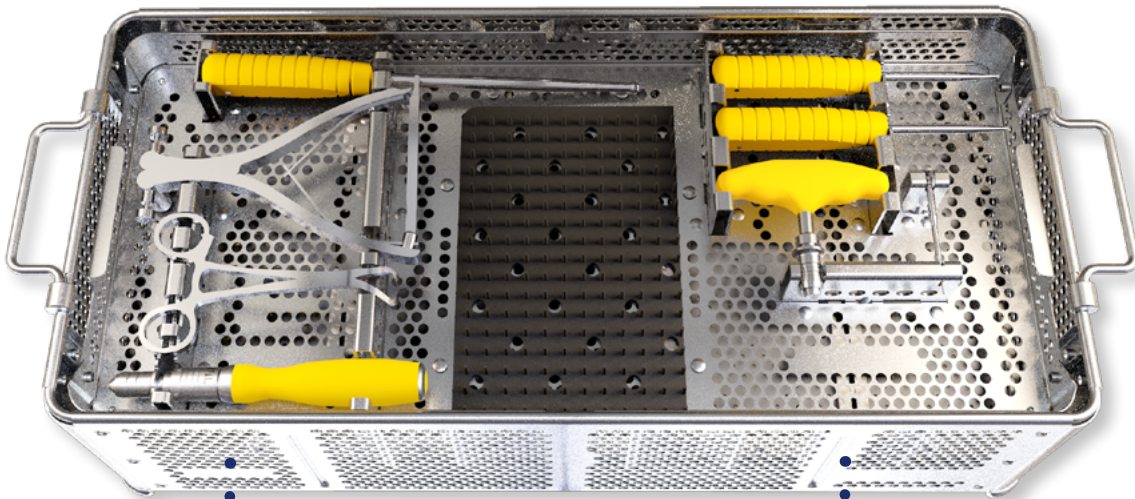
4.2. Chronoceptor™



| Screw Dia. Size in mm | Color | Drill Size in mm | Countersink Size in mm | | Trocar Size in mm | Chronoceptor™ |
|---------------------------------|----------------|----------------------------|----------------------------------|-----------------|-----------------------------|----------------------|
| | | | Headed | Headless | | |
| 2.0 | White | 1.7 | 4.0 | 3.2 | 1.3 | CH15100S |
| 2.5 | Magenta | 1.7 | 4.0 | 3.2 | 1.3 | CH15100S |
| | | | | | | |
| 3.0 | Blue | 2.1 | 5.0 | 3.5 | 1.5 | CH15101S |
| | | | | | | |
| 3.5 | Green | 2.5 | 5.0 | 3.5 | 1.6 | CH15102S |
| 4.0 | Gold | 2.5 | 6.0 | 4.0 | 1.6 | CH15102S |

4.3. Instruments

| Instrument Tray | Ref. |
|-------------------------------|---------|
| Mecron® Cannulated Screw Tray | CH95500 |



| Instrument inset Left, for implantation | | |
|--|-------------------------------|------|
| Ref. | Description | Qty. |
| FH90003 | Ratcheting Handle | 1 |
| CH15016 | Countersink with Length Gauge | 1 |
| 4215-SS | Retractor | 1 |
| 4685 | Clamp, small | 1 |

| Instrument inset Right, for explantation | | |
|---|--------------------------------|------|
| Ref. | Description | Qty. |
| AI90100 | T-Handle | 1 |
| CH15017 | Screw Extractor | 1 |
| AI14332 | Driver hexalobe 8 with handle | 1 |
| AI14333 | Driver hexalobe 10 with handle | 1 |



| Dia. 2.0 mm Caddy Ref. CH95501 | | |
|---------------------------------------|------------------------|-------------|
| Ref. | Description | Qty. |
| CH15002 | Drill | 2 |
| CH15009 | Overdrill | 2 |
| CH15023 | Countersink - Headed | 2 |
| CH15030 | Countersink - Headless | 2 |
| CK09115 | K-wires 0.9 x 150 mm | 8 |
| CH15037 | Tissue Protector | 1 |
| AI14335 | Driver hexalobe 8 | 1 |
| AI14001 | Length Gauge | 1 |
| gs 86.6108 | Forceps | 1 |

| Dia. 3.5 mm Caddy Ref. CH95504 | | |
|---------------------------------------|------------------------|-------------|
| Ref. | Description | Qty. |
| CH15005 | Drill | 2 |
| CH15012 | Overdrill | 2 |
| CH15026 | Countersink - Headed | 2 |
| CH15033 | Countersink - Headless | 2 |
| CK11115 | K-wires 1.1 x 150 mm | 8 |
| CH15040 | Tissue Protector | 1 |
| AI14336 | Driver hexalobe 10 | 1 |
| AI14001 | Length Gauge | 1 |
| gs 86.6110 | Forceps | 1 |

| Dia. 2.5 mm Caddy Ref. CH95502 | | |
|---------------------------------------|------------------------|-------------|
| Ref. | Description | Qty. |
| CH15003 | Drill | 2 |
| CH15010 | Overdrill | 2 |
| CH15024 | Countersink - Headed | 2 |
| CH15031 | Countersink - Headless | 2 |
| CK09115 | K-wires 0.9 x 150 mm | 8 |
| CH15038 | Tissue Protector | 1 |
| AI14335 | Driver hexalobe 8 | 1 |
| AI14001 | Length Gauge | 1 |
| gs 86.6108 | Forceps | 1 |

| Dia. 4.0 mm Caddy Ref. CH95505 | | |
|---------------------------------------|------------------------|-------------|
| Ref. | Description | Qty. |
| CH15006 | Drill | 2 |
| CH15013 | Overdrill | 2 |
| CH15027 | Countersink - Headed | 2 |
| CH15034 | Countersink - Headless | 2 |
| CK12215 | K-wires 1.2 x 150 mm | 8 |
| CH15041 | Tissue Protector | 1 |
| AI14336 | Driver hexalobe 10 | 1 |
| AI14001 | Length Gauge | 1 |
| gs 86.6110 | Forceps | 1 |

| Dia. 3.0 mm Caddy Ref. CH95503 | | |
|---------------------------------------|------------------------|-------------|
| Ref. | Description | Qty. |
| CH15004 | Drill | 2 |
| CH15011 | Overdrill | 2 |
| CH15025 | Countersink - Headed | 2 |
| CH15032 | Countersink - Headless | 2 |
| CK11115 | K-wires 1.1 x 150 mm | 8 |
| CH15039 | Tissue Protector | 1 |
| AI14336 | Driver hexalobe 10 | 1 |
| AI14001 | Length Gauge | 1 |
| gs 86.6108 | Forceps | 1 |

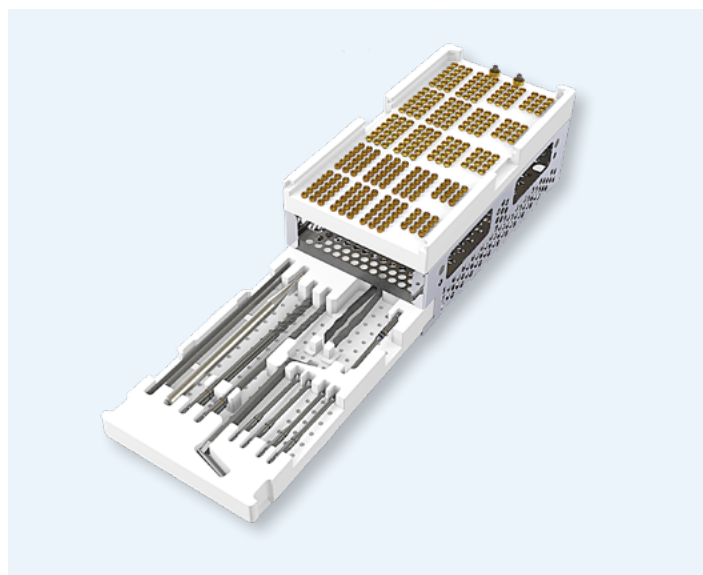


Figure 30 Example screw caddy for Dia. 4.0 mm screws. Diameter specific instruments in a subjacent drawer.

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