

For Fixation of Small Bones and Small Bone Fragments

# 1.5 mm Headless Compression Screw

Surgical Technique





# Table of Contents

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<b>Introduction</b>	1.5 mm Headless Compression Screw	2
	Technique Overview—Lag Screw Technique with Compression Sleeve	3
	Indications	4

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<b>Surgical Technique</b>	Predrill	5
	Determine Screw Length	6
	Pick Up Screw	6
	Insert Screw and Compress	8
	Countersink Screw	9
	Screw Extraction	11

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<b>Product Information</b>	Implants	12
	Instruments	13
	Set Lists	15

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## MR Information

The Headless Compression Screws System has not been evaluated for safety and compatibility in the MR environment. It has not been tested for heating, migration or image artifact in the MR environment. The safety of the Headless Compression Screws System in the MR environment is unknown. Scanning a patient who has this device may result in patient injury.

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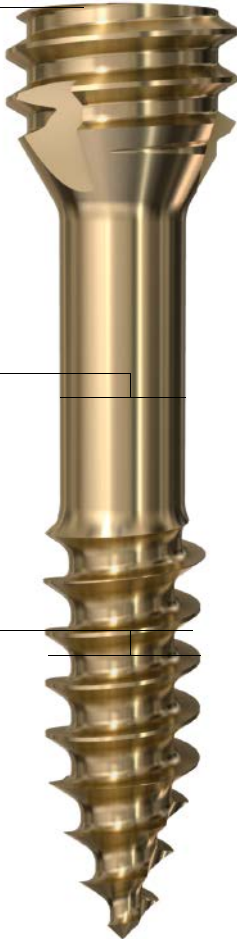
# 1.5 mm Headless Compression Screw

## T4 StarDrive™ Recess

For optimal torque transmission



2.2 mm diameter  
head thread



1.2 mm shaft  
diameter

1.5 mm diameter  
shaft thread



### Cutting flutes on screwhead

Facilitate countersinking of the screw

### Identical pitch of head and shaft threads

Maintains compression when countersinking the head

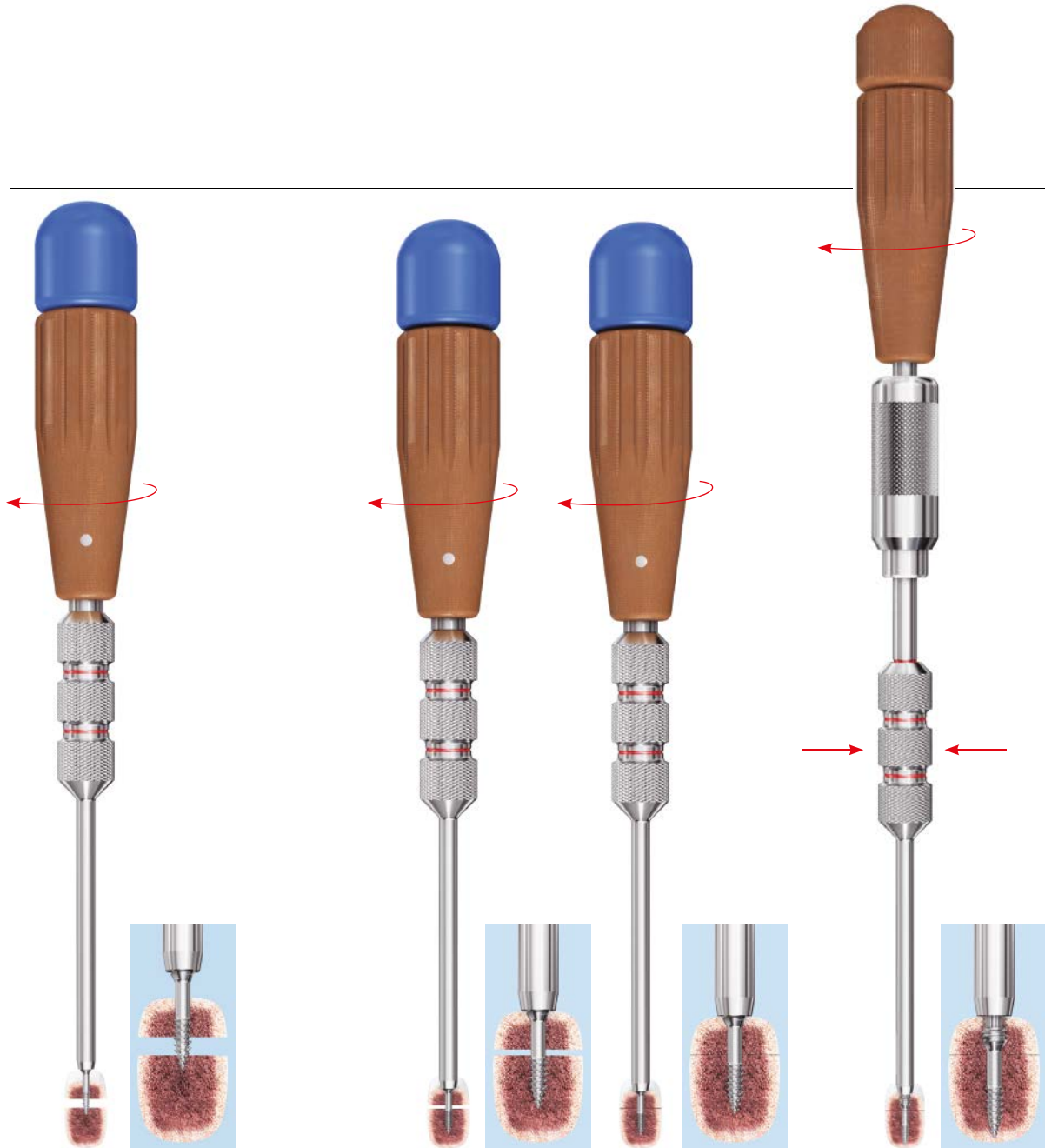
### Available in stainless steel and titanium

All Headless Compression Screws from DePuy Synthes are available in both implant quality 316L stainless steel and titanium alloy (Ti-6Al-7Nb)

### Self-drilling and self-tapping tip

For simplified surgical technique

# Technique Overview—Lag Screw Technique With Compression Sleeve



## 1 Insert screw

Thread the head of the screw into the tip of the compression sleeve. Insert the screw into the bone using the compression sleeve construct.

## 2 Compress

The tip of the compression sleeve acts as a conventional lag screwhead. When the tip of the compression sleeve contacts the bone, the fracture gap is closed and compressed by further turning of the sleeve.

## 3 Countersink

Once the desired amount of compression is reached, hold the compression sleeve stationary and use the screwdriver to advance the screwhead into the bone. Compression is maintained during countersinking.

## Indications

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The Synthes 1.5 mm Headless Compression Screws are indicated for fixation of intra-articular and extra-articular fractures, avulsions, nonunions, and osteotomies of small bones and small bone fragments as well as arthrodeses of small joints.

# Predrill

## 1

### Predrill

#### Instruments

310.11	1.1 mm Drill Bit, quick coupling, 60 mm
312.14	1.5 mm/1.1 mm Double Drill Sleeve

Make a stab incision, and advance the drill guide through the soft tissue to the bone. Insert the drill bit through the drill guide to the bone and drill to the desired depth.

- Verify drill depth using image intensification, if necessary.

#### Notes:

- The 1.5 mm headless compression screw is self-drilling and may be inserted without predrilling.
- Omitting the predrill step does not provide accurate screw length measurement and may make it more difficult to insert the screw in hard cortical bone.

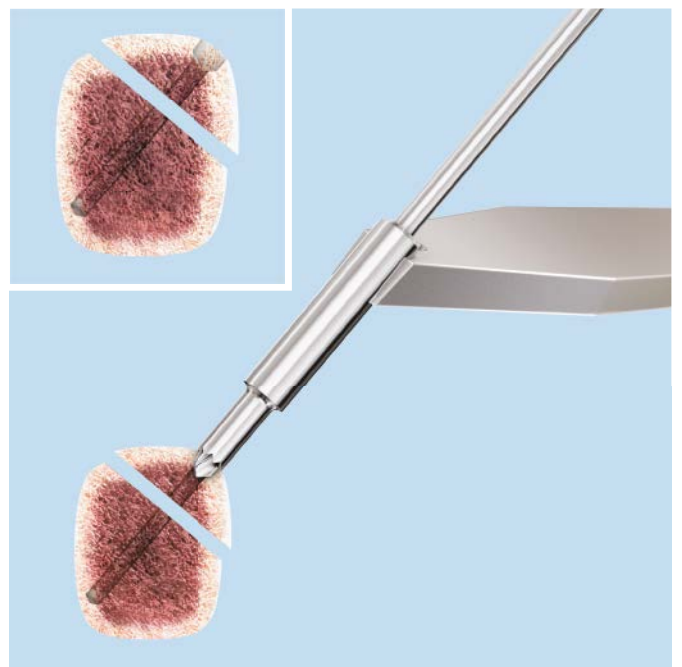
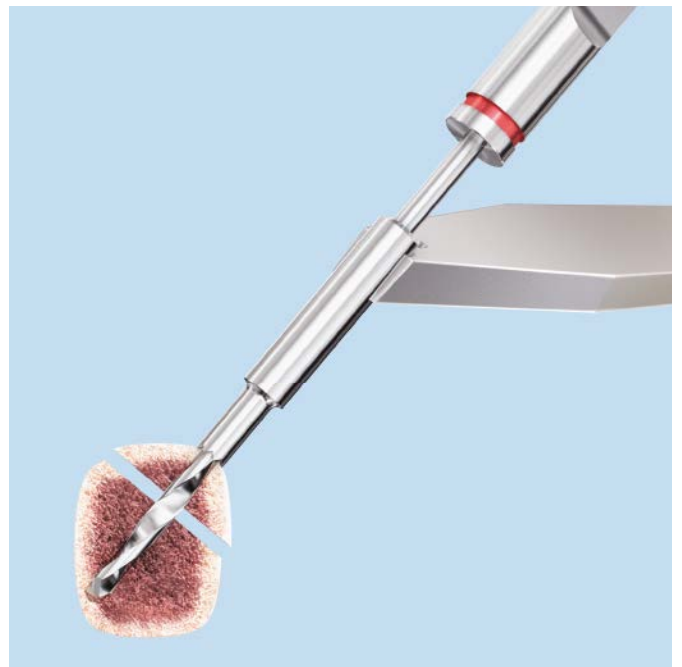
**Precaution:** Avoid forcefully advancing or bending the drill bit as this may cause the drill bit to break.

#### Option: Predrill the near cortex

#### Instrument

310.15	1.5 mm drill bit, quick coupling, 85 mm
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For hard (dense) bone it is recommended to predrill the near cortex to facilitate countersinking of the screwhead. Insert the 1.5 mm drill bit through the drill guide to the bone and drill through the near cortex only.



# Determine Screw Length and Pick Up Screw

## 2

### Determine screw length

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**Instrument**

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319.004      Depth Gauge, for 1.3 mm and 1.5 mm screws

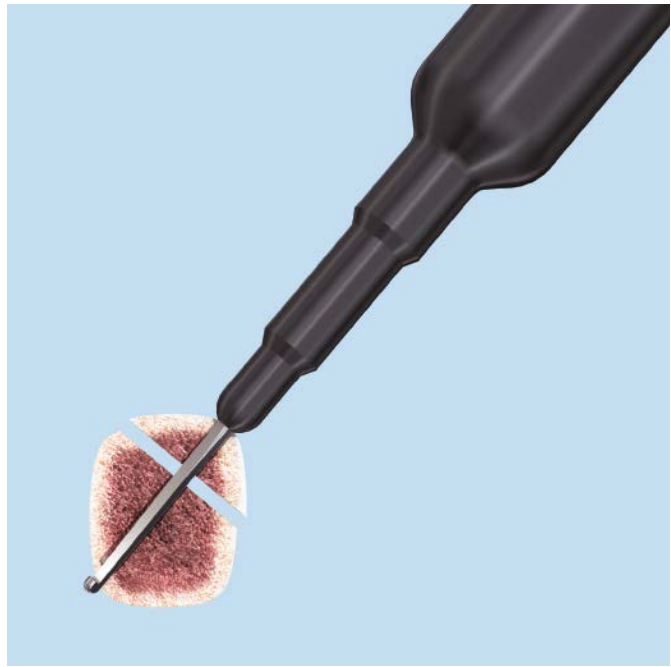
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Measure for screw length using the depth gauge.

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**Note:** When selecting screw length:

- Allow for fracture gap compression
  - Consider desired countersinking depth
  - Ensure the self-drilling tip does not penetrate the far cortex
- 



## 3

### Pick up screw

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**Instrument**

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03.230.003      Compression Sleeve for 1.5 mm Headless  
Compression Screw

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Thread the compression sleeve over the head of the screw to remove it from the screw rack.

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**Optional instrument**

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347.985      Screw and Plate Forceps

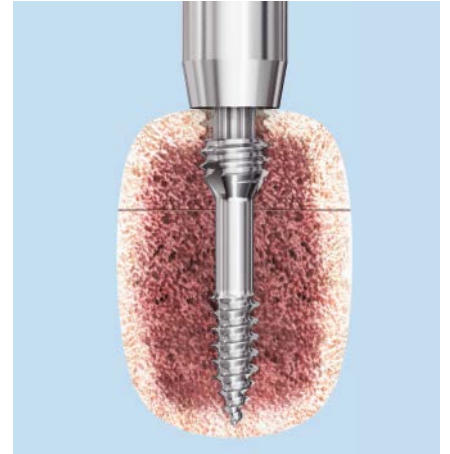
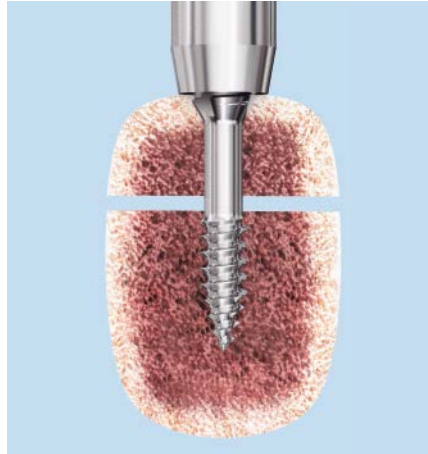
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Alternatively, use the screw forceps to pick up the screw from the rack and thread it into the compression sleeve.



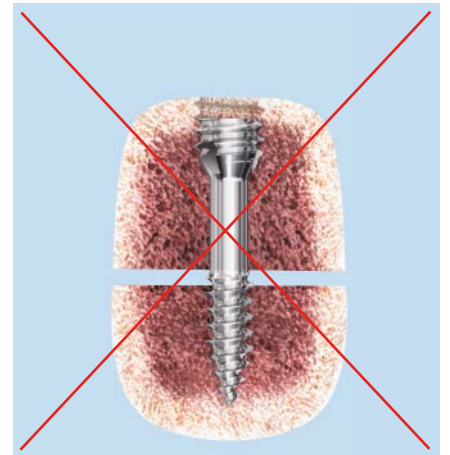
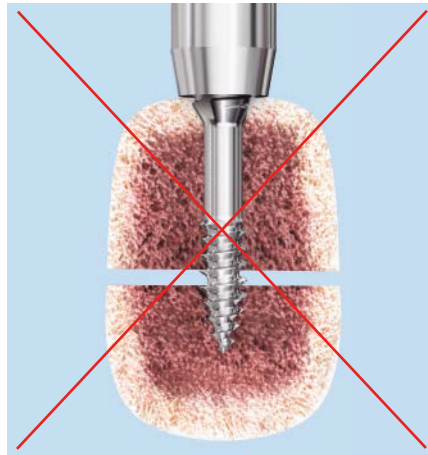


The position of the fracture line determines the screw length



### Correct screw length

The shaft thread lies below the fracture gap and completely within the distal fragment during compression. Compression of the fracture gap is possible.



### Incorrect screw length

The shaft thread bridges the fracture gap or the osteotomy. Compression of the fracture gap is not possible.

# Insert Screw and Compress

## 4

### Insert screw and compress

#### Instruments

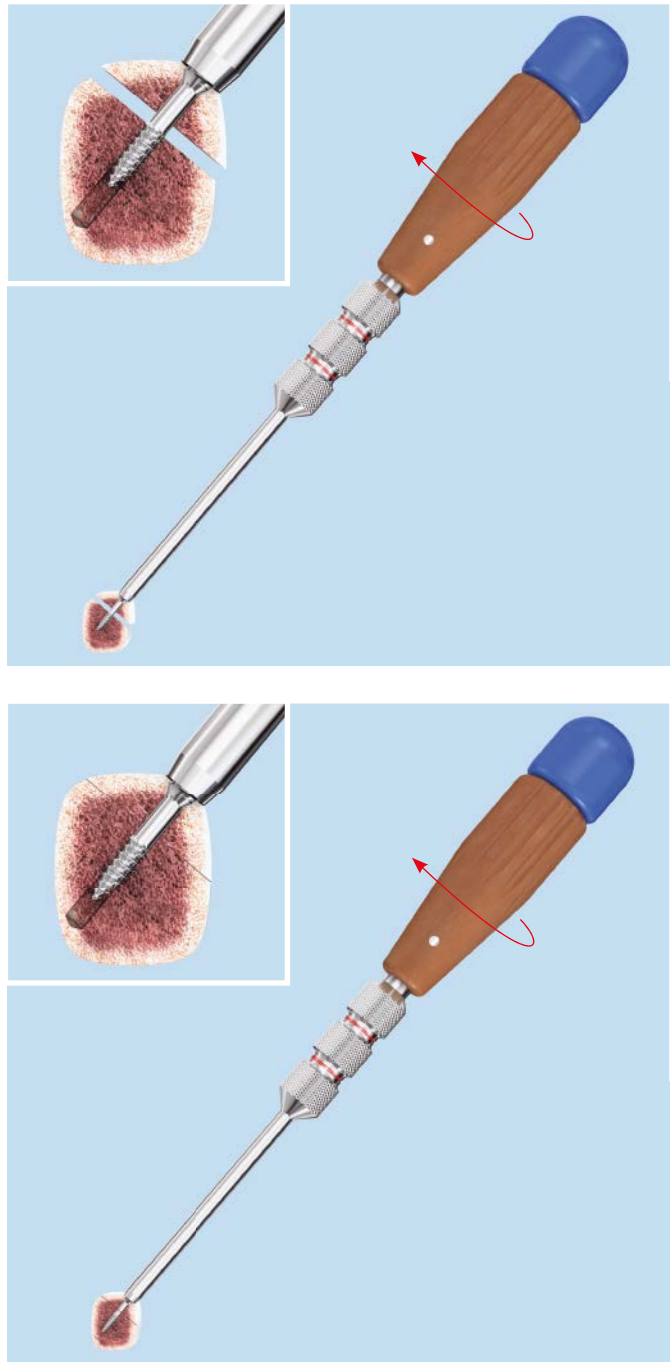
03.226.006	Compression Sleeve Handle
03.230.003	Compression Sleeve for 1.5 mm Headless Compression Screw

Slide the handle into the compression sleeve. Insert the screw into the bone by turning the compression sleeve until the fracture gap or the osteotomy is closed and compressed.

**Note:** Use image intensification to check that the entire shaft thread is beyond the fracture line. Otherwise, no compression can be achieved.

**Precaution:** Take care to not overtighten the screw, as the threads may strip. Use a two-finger technique to tighten the screw. If the thread strips, some or all of the compression will be lost. If the screw is then countersunk correctly, the thread will regain purchase, thereby reducing the danger of postoperative screw loosening.

If loss of compression makes screw extraction necessary, follow the instructions on screw extraction on page 11.



# Countersink Screw

## 5

### Countersink screw

#### Instruments

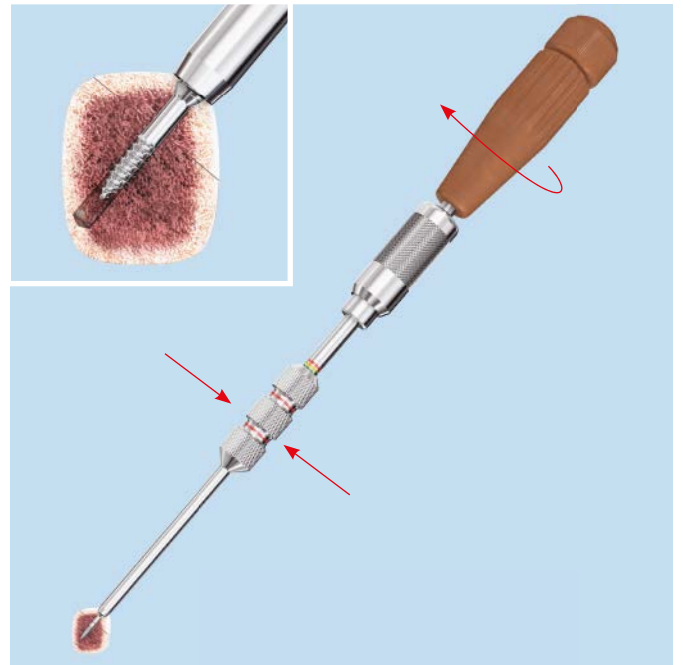
03.230.004 StarDrive Screwdriver Shaft, for 1.5 mm Headless Compression Screw, T4

311.43 Handle, with quick coupling

Remove the compression sleeve handle from the compression sleeve. Assemble the screwdriver shaft to the quick coupling handle. Slide the screwdriver shaft through the compression sleeve into the recess of the screw.

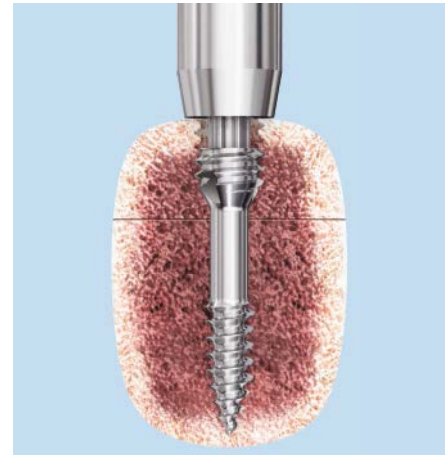
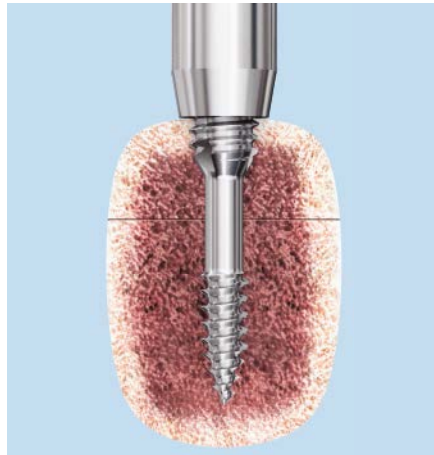
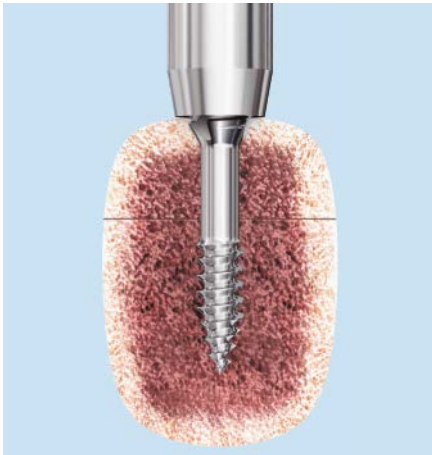
Countersink the screwhead by turning the screwdriver shaft while simultaneously holding the compression sleeve stationary.

- **Note:** Verify the screw position with the image intensifier. Ensure that the screw tip does not penetrate the distal cortex and that the screwhead is properly countersunk.



## Color markings

The color markings on the screwdriver shaft indicate the position of the screwdriver tip and the head thread of the screw in the bone.



### **Green mark flush with the top of the compression sleeve**

The screw is fully threaded into the compression sleeve and the screwdriver tip is seated correctly in the recess of the screw.

### **Yellow mark flush with the top of the compression sleeve**

The top of the screw is flush with the bone surface.

**Note:** If the screw is inserted at an angle, it must be countersunk further than the yellow mark so that it does not project from the surface.

### **Red mark flush with the top of the compression sleeve**

The top of the screw is approximately 1 mm below the bone surface.

# Screw Extraction

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## Instruments

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03.230.003    Compression Sleeve for 1.5 mm Headless Compression Screw

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03.230.004    StarDrive Screwdriver Shaft, for 1.5 mm Headless Compression Screw, T4

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311.43        Handle, with quick coupling

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For the extraction of the 1.5 mm headless compression screw, use the screwdriver with the handle with quick coupling.

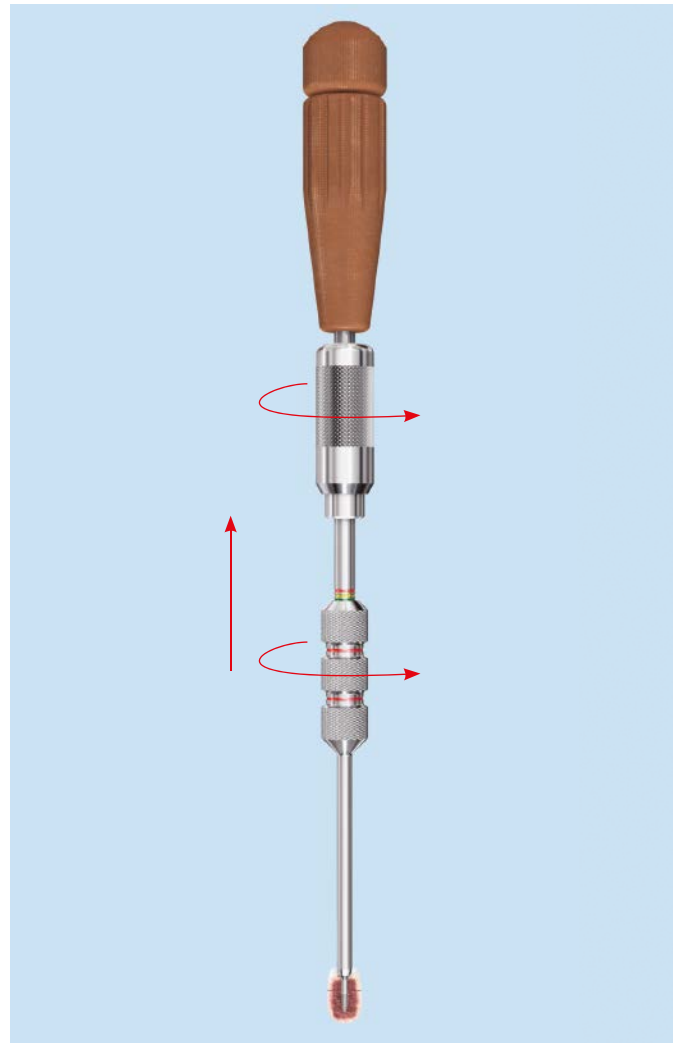
If the screw strips, use the following procedure:  
Thread the compression sleeve over the screwhead thread.  
Insert the screwdriver through the compression sleeve into the recess of the screw.

Remove the screw by simultaneously pulling on the compression sleeve and turning both the screwdriver and the compression sleeve in the counterclockwise direction.

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**Note:** If necessary, expose the recess and part of the head thread with a hollow reamer or use another preferred method.

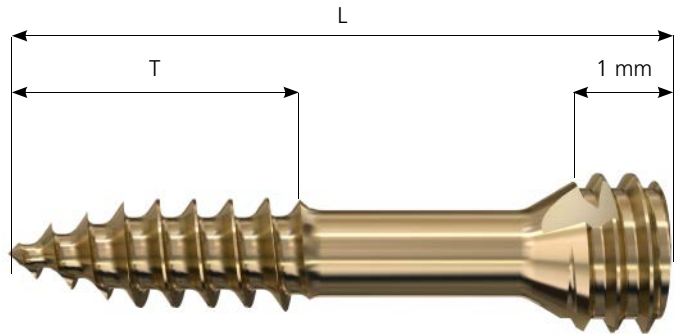
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# Implants

## 1.5 mm Headless Compression Screws<sup>◇</sup>

Stainless Steel	Titanium*	Screw Length, L (mm)	Thread Length, T (mm)
02.230.109	04.230.109	9	4
02.230.110	04.230.110	10	4
02.230.111	04.230.111	11	4
02.230.112	04.230.112	12	4
02.230.113	04.230.113	13	4
02.230.114	04.230.114	14	4
02.230.115	04.230.115	15	4
02.230.116	04.230.116	16	5
02.230.117	04.230.117	17	5
02.230.118	04.230.118	18	5
02.230.119	04.230.119	19	5
02.230.120	04.230.120	20	6



<sup>◇</sup>All screws are available nonsterile or sterile-packed. Add "S" to catalog number for sterile product.

\*Ti-6Al-7Nb.

# Instruments

03.226.006    Compression Sleeve Handle



03.230.003    Compression Sleeve for 1.5 mm Headless  
Compression Screw



03.230.004    StarDrive Screwdriver Shaft, for 1.5 mm  
Headless Compression Screw, T4



310.11        1.1 mm Drill Bit, quick coupling, 60 mm



310.15        1.5 mm Drill Bit, Quick Coupling, 85 mm



311.43        Handle, with quick coupling



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312.14 1.5 mm/1.1 mm Double Drill Sleeve



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319.004 Depth Gauge, for 1.3 mm and 1.5 mm screws, measures up to 30 mm



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347.985 Screw and Plate Forceps





# 1.5 mm Headless Compression Screw Instrument and Implant Sets

## Stainless Steel (01.230.022) and Titanium (01.230.024)

### Graphic Case

60.230.022 1.5 mm Headless Compression Screw Instrument and Implant Module Case

### Instruments

03.226.006 Compression Sleeve Handle  
 03.230.003 Compression Sleeve for 1.5 mm Headless Compression Screw  
 03.230.004 StarDrive Screwdriver Shaft, for 1.5 mm Headless Compression Screw, T4, 2 ea.  
 310.11 1.1 mm Drill Bit, quick coupling, 60 mm, 2 ea.  
 311.43 Handle, with quick coupling  
 312.14 1.5 mm/1.1 mm Double Drill Sleeve  
 319.004 Depth Gauge, for 1.3 mm and 1.5 mm screws  
 347.985 Screw and Plate Forceps



### Implants

1.5 mm Headless Compression Screws, 2 ea.

Stainless

Steel	Titanium	Length (mm)
02.230.109	04.230.109	9
02.230.110	04.230.110	10
02.230.111	04.230.111	11
02.230.112	04.230.112	12
02.230.113	04.230.113	13
02.230.114	04.230.114	14
02.230.115	04.230.115	15
02.230.116	04.230.116	16
02.230.117	04.230.117	17
02.230.118	04.230.118	18
02.230.119	04.230.119	19
02.230.120	04.230.120	20

Note: For additional information, please refer to package insert.

For detailed cleaning and sterilization instructions, please refer to [www.synthes.com/cleaning-sterilization](http://www.synthes.com/cleaning-sterilization) or sterilization instructions, if provided.





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