

# Surgical Technique

**2.5mm | 3.0mm** Cannulated Herbert Screw System

## AO PRINCIPLES

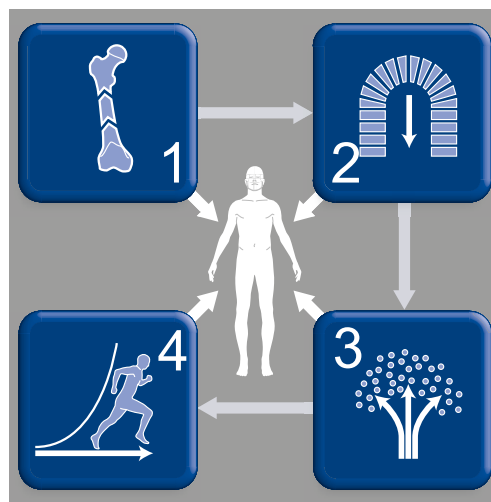
In 1958, the AO formulated four basic principles, which have become the guidelines for internal fixation.

### Anatomic reduction

Fracture reduction and fixation to restore anatomical relationships.

### Early, active mobilization

Early and safe mobilization and rehabilitation of the injured part and the patient as a whole.



### Stable fixation

Fracture fixation providing absolute or relative stability, as required by the patient, the injury, and the personality of the fracture.

### Preservation of blood supply

Preservation of blood supply reservation of the blood supply to soft tissues and bone by gentle reduction techniques and careful handling.



## INDICATIONS

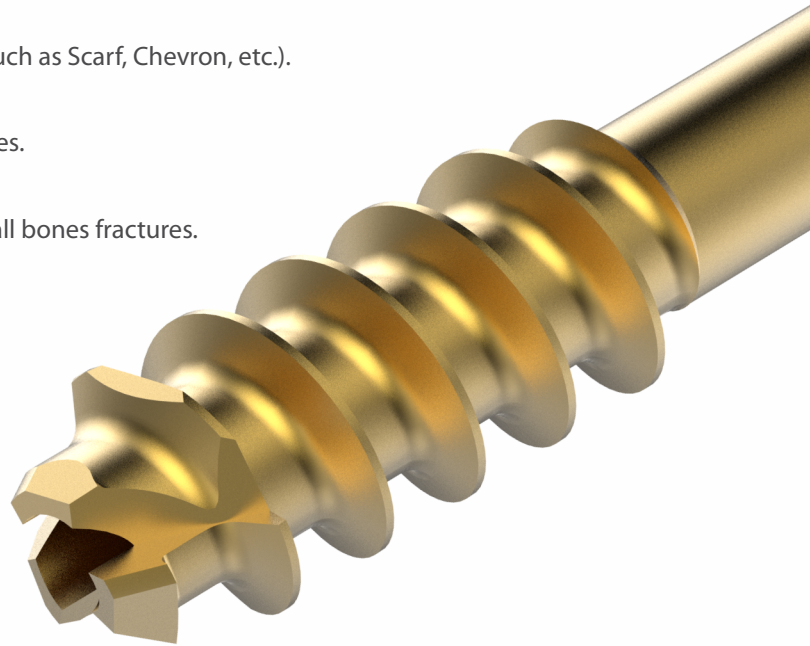
For fixation of bone fractures or for bone reconstruction.

### Examples Include:

- Fixation of Osteotomies for Hallux Valgus treatment (such as Scarf, Chevron, etc.).
- Mono or Bi-cortical Osteotomies in the Foot or Hand.
- Distal or Proximal Metatarsal or Metacarpal Osteotomies.
- Arthrodesis in Hand or Foot surgery.
- Fixation of small bone fragments, in long bones or small bones fractures.

1.0mm Guide wire

Screw	Compression
Dia 2.5mm	Bicortical compression
Dia 3.0mm	Bicortical compression



Self drill &  
Self tapping flutes



Star Head



- Totally Intra-Osseous Implants.
- Dual threads.
- Material: Titanium Alloy

## Intended Use:

### **2.5mm Cannulated Herbert Screw, are indicated for fixation of :**

- Fractures and nonunions of small bones and small bone arthrodeses, including scaphoid fractures; intra-articular fractures of the tarsals, metatarsals, carpals and metacarpals; bunionectomies and osteotomies; arthrodeses of small joints (e.g. phalanges); fractures of the patella, ulna and radial styloid.

### **3.0mm Cannulated Herbert Screw are intended for fixation of :**

- Intra-articular and extra-articular fractures and nonunions of small bones and small bone fragments; arthrodeses of small joints; bunionectomies and osteotomies, including scaphoid and other carpal bones, metacarpals, tarsals, metatarsals, patella, ulnar styloid, capitellum, radial head and radial styloid.

## Scaphoid Fixation

This surgical technique describes a volar approach procedure. Depending on the type and location of the fracture, a dorsal approach to the scaphoid may be preferred. The same surgical steps apply.

**HS101-11** Double Periosteal Elevator for Herbert Screw Use for elevation and parting the soft tissues such as the periosteum from Bone

### 1. Insert guide wire

#### Instruments

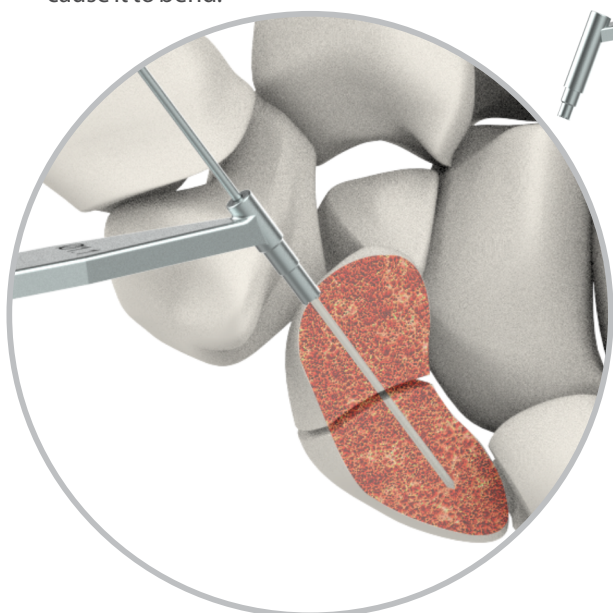
**HS101-08** GuideWire, Ø1.0mm x Length 150mm

**HS101-06** Double Drill Guide, Ø2.0/1.1mm, for Herbert Screw

Reduce fragments with a 1.1 mm guide wire and the 2.0 mm/1.1 mm double drill sleeve using image intensification. Insert the wire from distal-radial to proximal-ulnar until the tip is anchored into the far cortex. Ensure the guide wire lies along the central axis of the scaphoid in the frontal and sagittal planes.

**Note:** Using a pen-style rather than a pistol-grip drive unit may facilitate the insertion of the 1.1 mm guide wire. Insert the guide wire in 10 mm to 15 mm increments to minimize the possibility of bending the wire.

**Precaution:** Do not forcefully insert the guide wire. This may cause it to bend.



## 2. Drill Trapezium

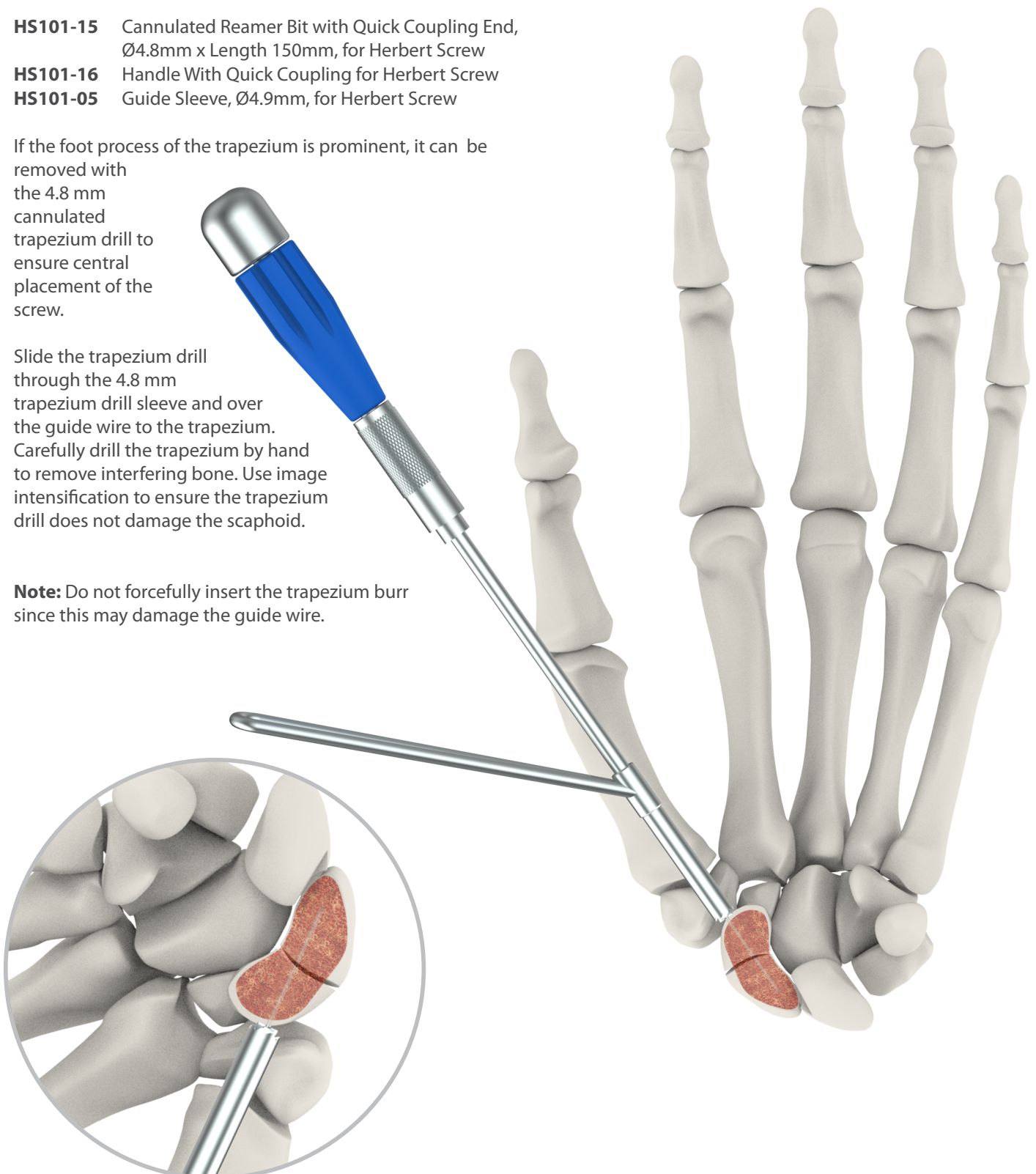
### Instruments

- HS101-15** Cannulated Reamer Bit with Quick Coupling End, Ø4.8mm x Length 150mm, for Herbert Screw
- HS101-16** Handle With Quick Coupling for Herbert Screw
- HS101-05** Guide Sleeve, Ø4.9mm, for Herbert Screw

If the foot process of the trapezium is prominent, it can be removed with the 4.8 mm cannulated trapezium drill to ensure central placement of the screw.

Slide the trapezium drill through the 4.8 mm trapezium drill sleeve and over the guide wire to the trapezium. Carefully drill the trapezium by hand to remove interfering bone. Use image intensification to ensure the trapezium drill does not damage the scaphoid.

**Note:** Do not forcefully insert the trapezium burr since this may damage the guide wire.





### 3. Measure Screw Length

#### Instruments

##### HS101-10 Depth Gauge for Herbert Screw

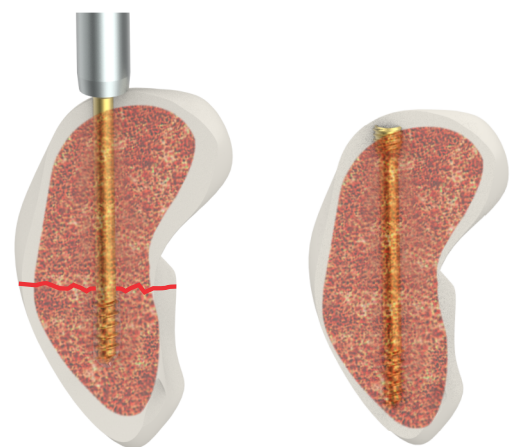
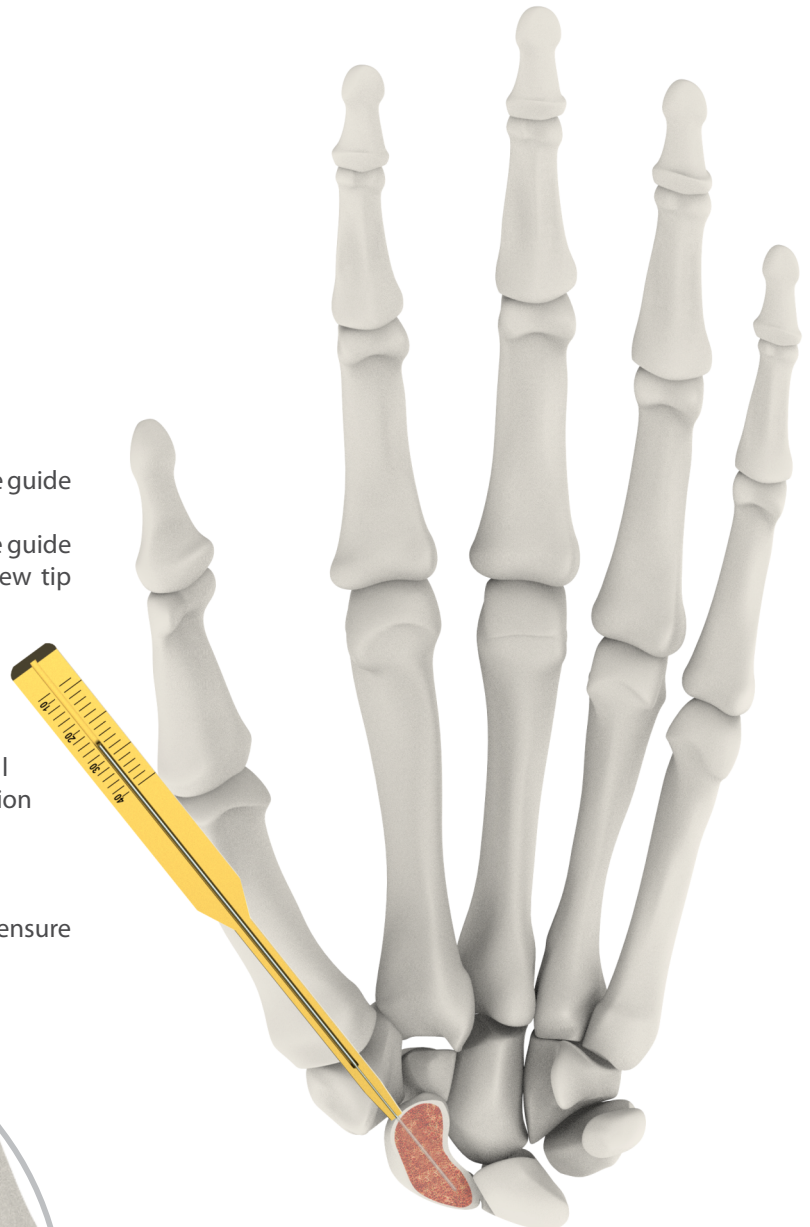
Slide the tapered end of the measuring device over the guide wire to the bone.

The reading on the measuring device at the end of the guide wire indicates the screw length which will place the screw tip at the tip of the guide wire.

To choose the appropriate screw length, subtract approximately 2 mm to account for fracture gap compression and the desired countersinking depth.

When selecting the shaft thread length, ensure that all threads are past the fracture line during the compression stage.

**Note:** Only use the guide wire in its original length to ensure correct measurement.



#### Correctly selected thread length

Shaft thread is past the fracture line during compression.

**Note:** If there is no good bone quality in the distal part of the bone, the distal screw thread can strip-out if too much compression is applied.

Cleaning Stylet Ø1.0mm for Herbert Screw Use for cleaning the cannulated area of Cannulated drill bit and cannulated Screw driver shaft by passing the stylet through the instruments

## 4. Drilling

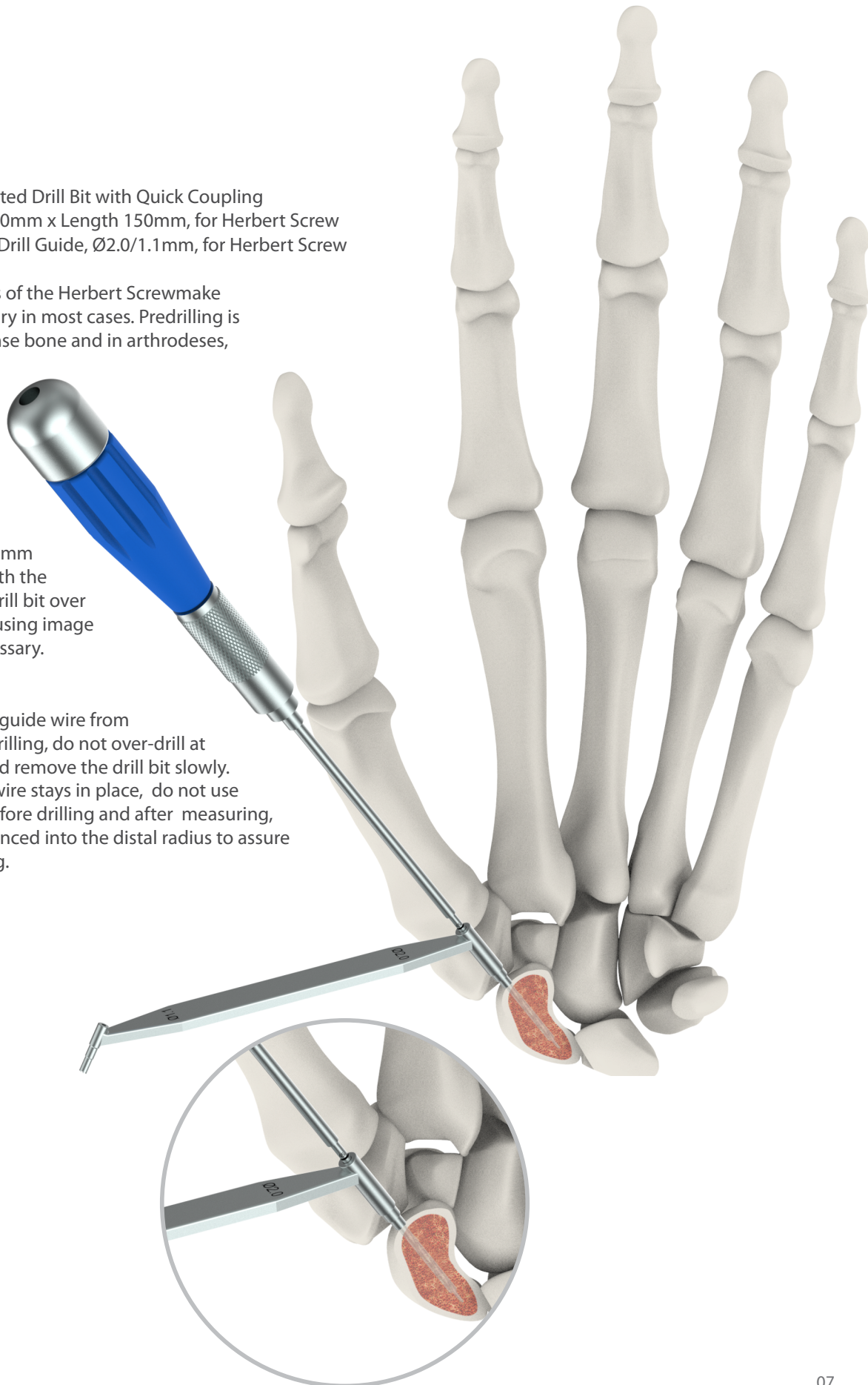
### Instruments

- HS101-14** Cannulated Drill Bit with Quick Coupling End, Ø2.0mm x Length 150mm, for Herbert Screw
- HS101-06** Double Drill Guide, Ø2.0/1.1mm, for Herbert Screw

The self-drilling flutes of the Herbert Screw make predrilling unnecessary in most cases. Predrilling is recommended in dense bone and in arthrodeses, as the axial force necessary for inserting self-drilling screws could temporarily distract the fragments.

Place the 2.0 mm/1.1 mm double drill sleeve with the 2.0 mm cannulated drill bit over the guide wire. Drill, using image intensification if necessary.

**Note:** To prevent the guide wire from backing out during drilling, do not over-drill at the tip of the wire, and remove the drill bit slowly. To ensure the guide wire stays in place, do not use the drill in reverse. Before drilling and after measuring, the wire may be advanced into the distal radius to assure retention after drilling.



## 5. Pick up screw

### Instruments

**HS101-02** Holding Sleeve for 3.0mm Herbert Screw

**HS101-03** Holding Sleeve for 2.5mm Herbert Screw

Thread the holding sleeve into the head threads of Herbert Screw by turning the holding sleeve in clockwise direction. Once the screw is perfectly seated into the sleeve the surgeon would be able to easily pick the screw from the caddy.



### Optional instrument:

**HS101-01** Screw Holding Forcep for Herbert Screw

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





## 6. Screw Insertation

### Instruments

**HS101-02** Holding Sleeve for 3.0mm Herbert Screw

**HS101-03** Holding Sleeve for 2.5mm Herbert Screw

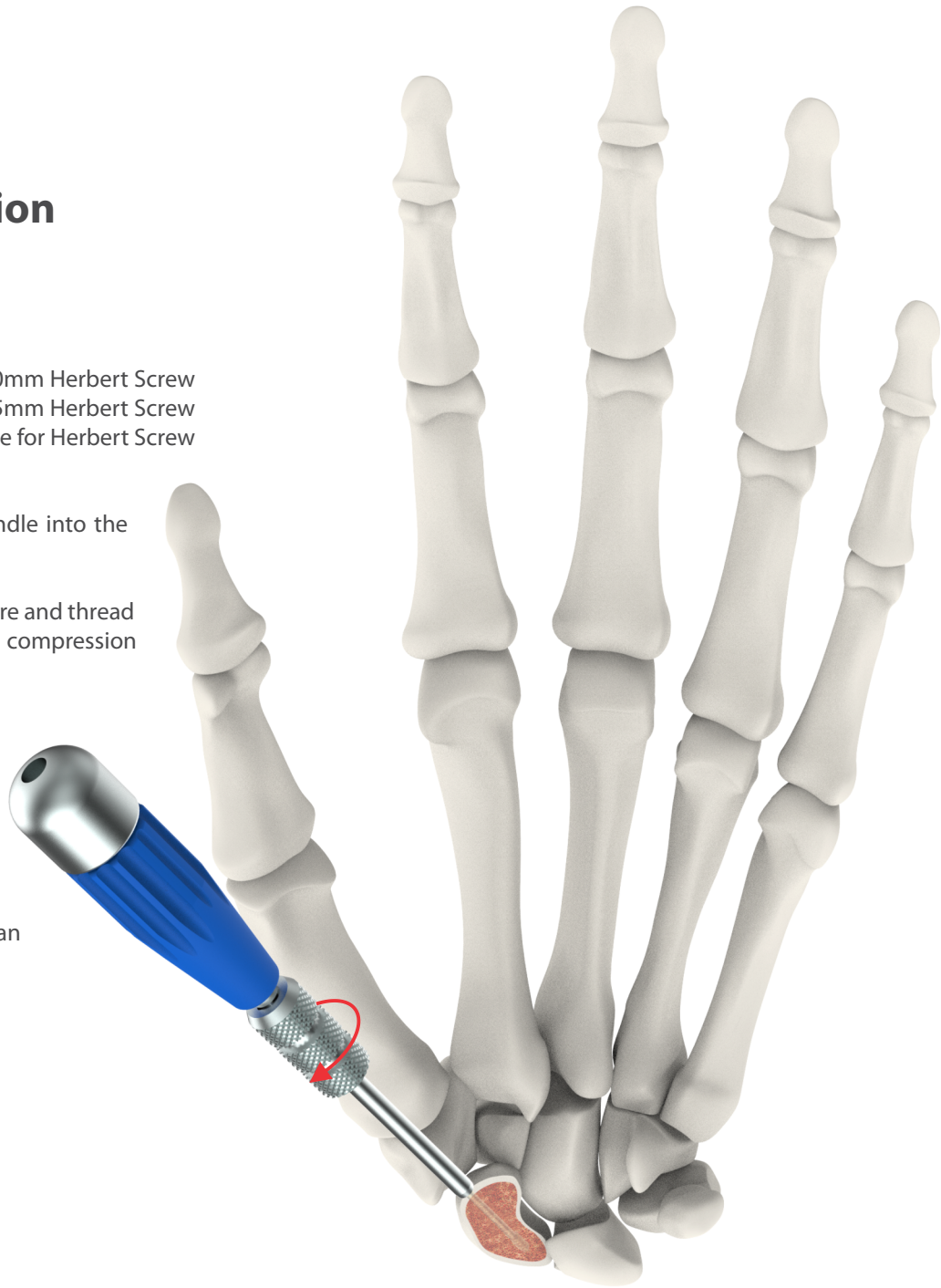
**HS101-04** Holding Sleeve Handle for Herbert Screw

Slide the compression sleeve handle into the back of the compression sleeve.

Insert the screw over the guide wire and thread it into the bone by turning the compression sleeve.

Tighten the compression sleeve until the fracture gap 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





## 7. Screw Compression

### Instruments

**HS101-12** Cannulated Screwdriver Shaft, T8, for Herbert Screw

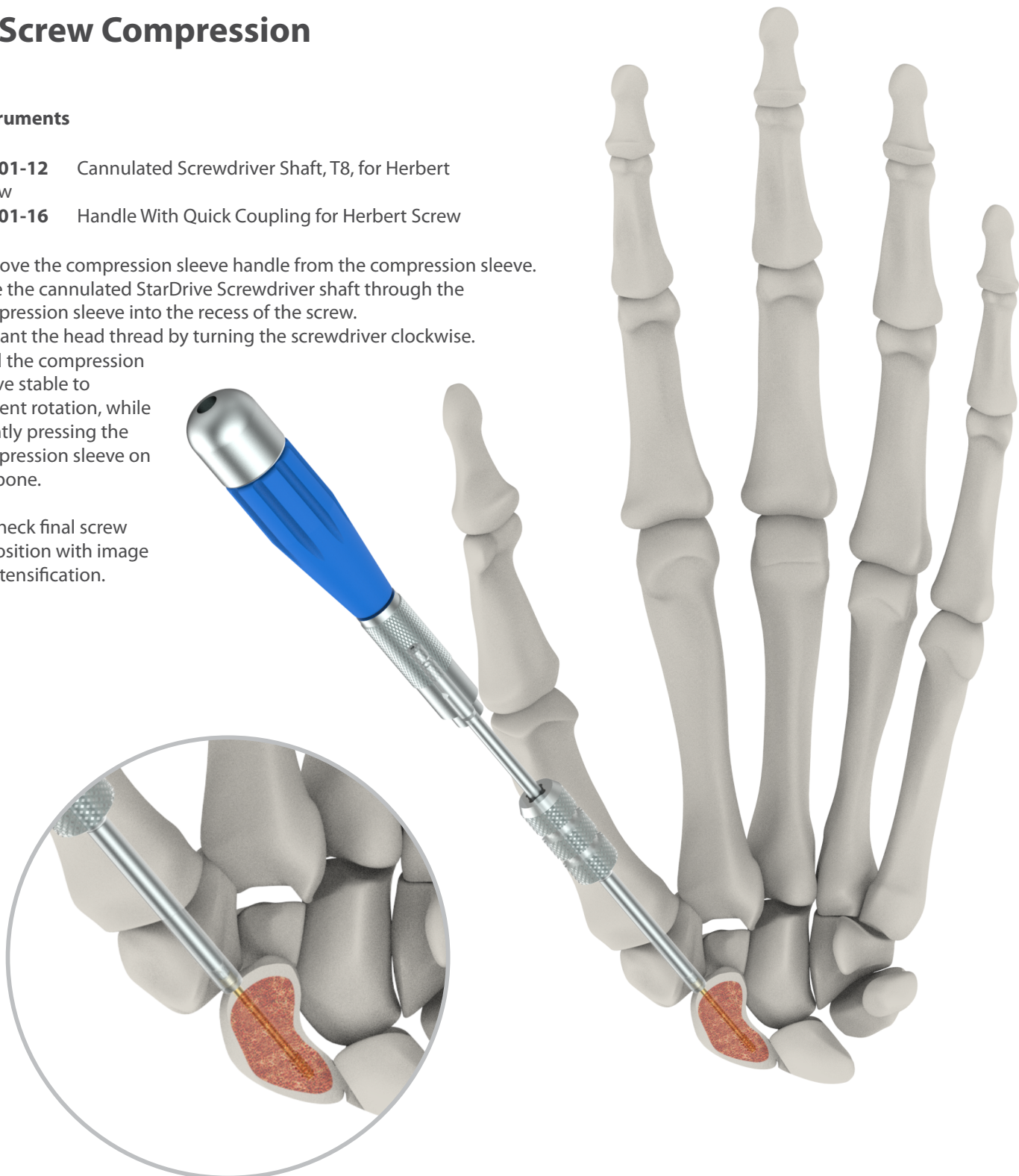
**HS101-16** Handle With Quick Coupling for Herbert Screw

Remove the compression sleeve handle from the compression sleeve. Slide the cannulated StarDrive Screwdriver shaft through the compression sleeve into the recess of the screw.

Implant the head thread by turning the screwdriver clockwise.

Hold the compression sleeve stable to prevent rotation, while slightly pressing the compression sleeve on the bone.

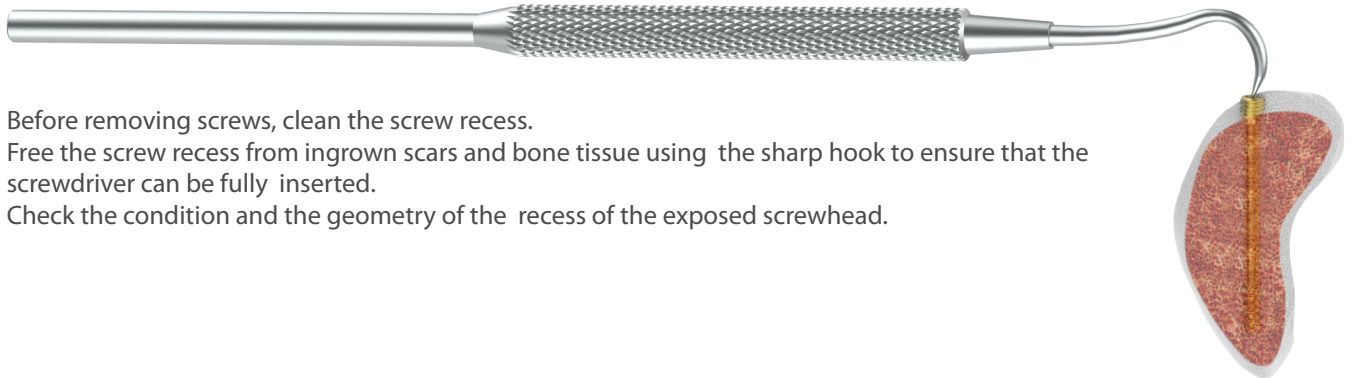
- Check final screw position with image intensification.



## 8. Screw Removal

### Instruments

**HS101-09** Sharp Hook for Herbert Screw



Before removing screws, clean the screw recess.

Free the screw recess from ingrown scars and bone tissue using the sharp hook to ensure that the screwdriver can be fully inserted.

Check the condition and the geometry of the recess of the exposed screwhead.

### Instruments

**HS101-02** Holding Sleeve for 3.0mm Herbert Screw

**HS101-13** Screwdriver Shaft, T8, for Herbert Screw

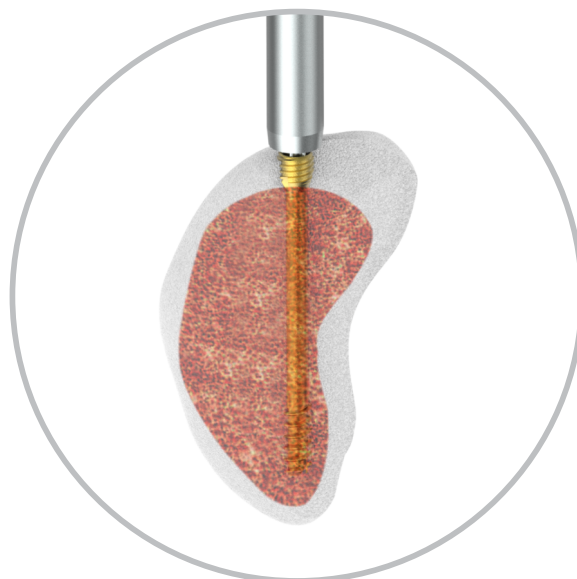
**HS101-16** Handle With Quick Coupling for Herbert Screw

To remove the headless compression screw, use a T8 StarDrive Screwdriver shaft.

If the screw threads are stripped, however, use the following procedure:

Twist the compression sleeve over the head thread, and insert the screwdriver through the compression sleeve into the StarDrive Recess of the screw. If necessary, expose the StarDrive Recess and part of the head thread using a hook, hollow reamer, or curette. Remove the screw by simultaneously pulling on the compression sleeve and turning the screwdriver counterclockwise.

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



## 2.5mm Cannulated Herbert Screw, Short Thread, (Star Head)



**STERILE**

Code	Length
HS25-110	10mm
HS25-112	12mm
HS25-114	14mm
HS25-116	16mm
HS25-118	18mm
HS25-120	20mm
HS25-122	22mm
HS25-124	24mm
HS25-126	26mm
HS25-128	28mm
HS25-130	30mm
HS25-132	32mm
HS25-134	34mm
HS25-136	36mm
HS25-138	38mm
HS25-140	40mm

Code	Length
HS25-110-S	10mm
HS25-112-S	12mm
HS25-114-S	14mm
HS25-116-S	16mm
HS25-118-S	18mm
HS25-120-S	20mm
HS25-122-S	22mm
HS25-124-S	24mm
HS25-126-S	26mm
HS25-128-S	28mm
HS25-130-S	30mm
HS25-132-S	32mm
HS25-134-S	34mm
HS25-136-S	36mm
HS25-138-S	38mm
HS25-140-S	40mm



## 2.5mm Cannulated Herbert Screw, Long Thread, (Star Head)



**STERILE**

Code	Length
HS25-216	16mm
HS25-218	18mm
HS25-220	20mm
HS25-222	22mm
HS25-224	24mm
HS25-226	26mm
HS25-228	28mm
HS25-230	30mm
HS25-232	32mm
HS25-234	34mm
HS25-236	36mm
HS25-238	38mm
HS25-240	40mm

Code	Length
HS25-216-S	16mm
HS25-218-S	18mm
HS25-220-S	20mm
HS25-222-S	22mm
HS25-224-S	24mm
HS25-226-S	26mm
HS25-228-S	28mm
HS25-230-S	30mm
HS25-232-S	32mm
HS25-234-S	34mm
HS25-236-S	36mm
HS25-238-S	38mm
HS25-240-S	40mm



## 3.0mm Cannulated Herbert Screw, Short Thread, (Star Head)



**STERILE**

Code	Length
<b>HS30-110</b>	10mm
<b>HS30-112</b>	12mm
<b>HS30-114</b>	14mm
<b>HS30-116</b>	16mm
<b>HS30-118</b>	18mm
<b>HS30-120</b>	20mm
<b>HS30-122</b>	22mm
<b>HS30-124</b>	24mm
<b>HS30-126</b>	26mm
<b>HS30-128</b>	28mm
<b>HS30-130</b>	30mm
<b>HS30-132</b>	32mm
<b>HS30-134</b>	34mm
<b>HS30-136</b>	36mm
<b>HS30-138</b>	38mm
<b>HS30-140</b>	40mm

Code	Length
<b>HS30-110-S</b>	10mm
<b>HS30-112-S</b>	12mm
<b>HS30-114-S</b>	14mm
<b>HS30-116-S</b>	16mm
<b>HS30-118-S</b>	18mm
<b>HS30-120-S</b>	20mm
<b>HS30-122-S</b>	22mm
<b>HS30-124-S</b>	24mm
<b>HS30-126-S</b>	26mm
<b>HS30-128-S</b>	28mm
<b>HS30-130-S</b>	30mm
<b>HS30-132-S</b>	32mm
<b>HS30-134-S</b>	34mm
<b>HS30-136-S</b>	36mm
<b>HS30-138-S</b>	38mm
<b>HS30-140-S</b>	40mm



## 3.0mm Cannulated Herbert Screw, Long Thread, (Star Head)



**STERILE**

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<b>HS30-216</b>	16mm
<b>HS30-218</b>	18mm
<b>HS30-220</b>	20mm
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<b>HS30-232</b>	32mm
<b>HS30-234</b>	34mm
<b>HS30-236</b>	36mm
<b>HS30-238</b>	38mm
<b>HS30-240</b>	40mm

Code	Length
<b>HS30-216-S</b>	16mm
<b>HS30-218-S</b>	18mm
<b>HS30-220-S</b>	20mm
<b>HS30-222-S</b>	22mm
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<b>HS30-226-S</b>	26mm
<b>HS30-228-S</b>	28mm
<b>HS30-230-S</b>	30mm
<b>HS30-232-S</b>	32mm
<b>HS30-234-S</b>	34mm
<b>HS30-236-S</b>	36mm
<b>HS30-238-S</b>	38mm
<b>HS30-240-S</b>	40mm



**HS101-19** Screw Caddy for 2.5/3.0mm Cannulated Herbert Screw System

**2.5mm Cannulated Herbert Screw,  
Short Thread, (Star Head)**

Code	Length	Unit
HS25-110	10mm	2
HS25-112	12mm	2
HS25-114	14mm	2
HS25-116	16mm	2
HS25-118	18mm	2
HS25-120	20mm	2
HS25-122	22mm	2
HS25-124	24mm	2
HS25-126	26mm	2
HS25-128	28mm	2
HS25-130	30mm	2
HS25-132	32mm	2
HS25-134	34mm	2
HS25-136	36mm	2
HS25-138	38mm	2
HS25-140	40mm	2

**2.5mm Cannulated Herbert Screw,  
Long Thread, (Star Head)**

Code	Length	Unit
HS25-216	16mm	2
HS25-218	18mm	2
HS25-220	20mm	2
HS25-222	22mm	2
HS25-224	24mm	2
HS25-226	26mm	2
HS25-228	28mm	2
HS25-230	30mm	2
HS25-232	32mm	2
HS25-234	34mm	2
HS25-236	36mm	2
HS25-238	38mm	2
HS25-240	40mm	2

**3.0mm Cannulated Herbert Screw,  
Short Thread, (Star Head)**

Code	Length	Unit
HS30-110	10mm	2
HS30-112	12mm	2
HS30-114	14mm	2
HS30-116	16mm	2
HS30-118	18mm	2
HS30-120	20mm	2
HS30-122	22mm	2
HS30-124	24mm	2
HS30-126	26mm	2
HS30-128	28mm	2
HS30-130	30mm	2
HS30-132	32mm	2
HS30-134	34mm	2
HS30-136	36mm	2
HS30-138	38mm	2
HS30-140	40mm	2

**3.0mm Cannulated Herbert Screw,  
Long Thread, (Star Head)**

Code	Length	Unit
HS30-216	16mm	2
HS30-218	18mm	2
HS30-220	20mm	2
HS30-222	22mm	2
HS30-224	24mm	2
HS30-226	26mm	2
HS30-228	28mm	2
HS30-230	30mm	2
HS30-232	32mm	2
HS30-234	34mm	2
HS30-236	36mm	2
HS30-238	38mm	2
HS30-240	40mm	2

**Herbert Screw Instruments**

**HS101-01** Screw Holding Forcep for Herbert Screw



**HS101-02** Holding Sleeve for 3.0mm Herbert Screw



**HS101-03** Holding Sleeve for 2.5mm Herbert Screw



**HS101-04** Holding Sleeve Handle for Herbert Screw



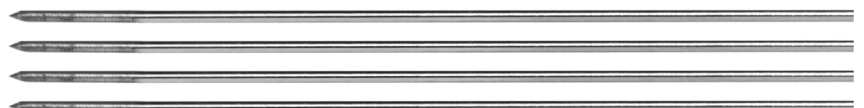
**HS101-05** Guide Sleeve, Ø4.9mm, for Herbert Screw



**HS101-06** Double Drill Guide, Ø2.0/1.1mm, for Herbert Screw



**HS101-07** Guide Wire, Ø0.8mm x Length 150mm





**Herbert Screw Instruments**

**HS101-08** Guide Wire, Ø1.0mm x Length 150mm



**HS101-09** Sharp Hook for Herbert Screw



**HS101-10** Depth Gauge for Herbert Screw



**HS101-11** Double Periosteal Elevator for Herbert Screw



**HS101-12** Cannulated Screwdriver Shaft, T8, for Herbert Screw



**HS101-13** Screwdriver Shaft, T8, for Herbert Screw



**HS101-14** Cannulated Drill Bit with Quick Coupling End, Ø2.0mm x Length 150mm, for Herbert Screw





## Herbert Screw Instruments

**HS101-15** Cannulated Reamer Bit with Quick Coupling End, Ø4.8mm x Length 150mm, for Herbert Screw



**HS101-16** Handle With Quick Coupling for Herbert Screw



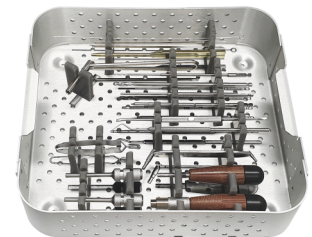
**HS101-18** Cleaning Stylet Ø1.0mm for Herbert Screw



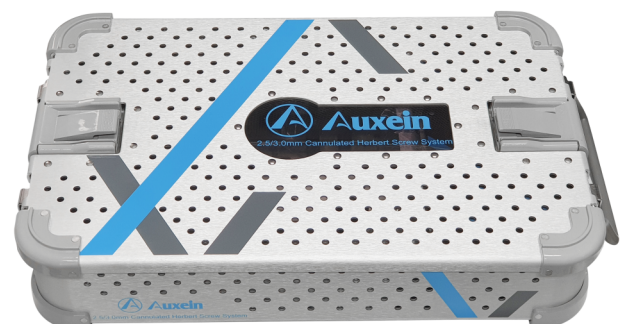
**HS101-19** Screw Caddy for 2.5/3.0mm Cannulated Herbert Screw System

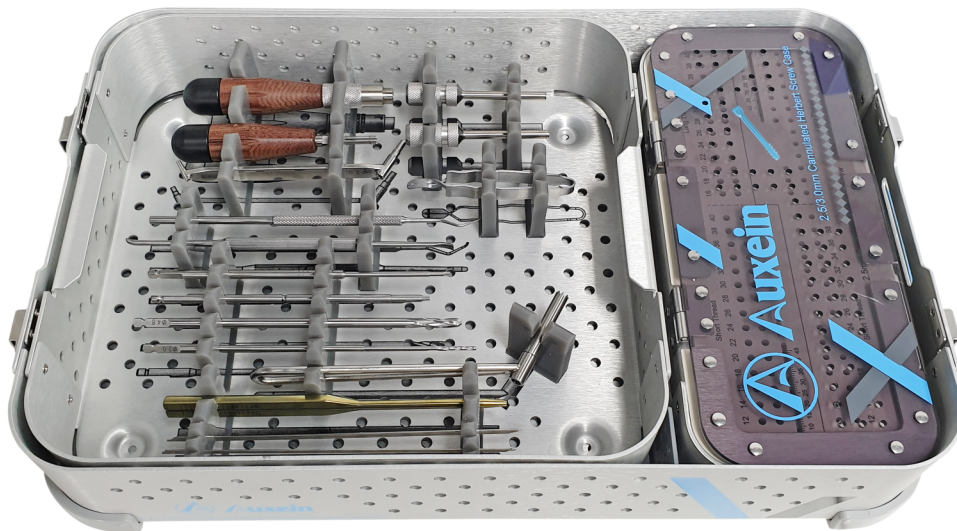


**HS101-21** Instrument Tray for Herbert Screw Instrument Set



**HS101-20** Container for Herbert Screw Instrument Set



**HS101 Herbert Screw Instrument Set**

### HS101 Herbert Screw Instrument Set

Code	Set Consisting of	Units
HS101-01	Screw Holding Forcep for Herbert Screw	1
HS101-02	Holding Sleeve for 3.0mm Herbert Screw	1
HS101-03	Holding Sleeve for 2.5mm Herbert Screw	1
HS101-04	Holding Sleeve Handle for Herbert Screw	1
HS101-05	Guide Sleeve, Ø4.9mm, for Herbert Screw	1
HS101-06	Double Drill Guide, Ø2.0/1.1mm, for Herbert Screw	1
HS101-07	Guide Wire, Ø0.8mm x Length 150mm	4
HS101-08	Guide Wire, Ø1.0mm x Length 150mm	4
HS101-09	Sharp Hook for Herbert Screw	1
HS101-10	Depth Gauge for Herbert Screw	1
HS101-11	Double Periosteal Elevator for Herbert Screw	1
HS101-12	Cannulated Screwdriver Shaft, T8, for Herbert Screw	1
HS101-13	Screwdriver Shaft, T8, for Herbert Screw	1
HS101-14	Cannulated Drill Bit with Quick Coupling End, Ø2.0mm x Length 150mm, for Herbert Screw	1
HS101-15	Cannulated Reamer Bit with Quick Coupling End, Ø4.8mm x Length 150mm, for Herbert Screw	1
HS101-16	Handle With Quick Coupling for Herbert Screw	1
HS101-18	Cleaning Stylet Ø1.0mm for Herbert Screw	1
HS101-19	Screw Caddy for 2.5/3.0mm Cannulated Herbert Screw System	1
HS101-21	Instrument Tray for Herbert Screw Instrument Set	1
HS101-20	Container for Herbert Screw Instrument Set	1



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