

zimed[®]

Cannulated
HEADLESS SCREW
Surgical Technique



Headless CANNULATED SCREWS

Surgical Technique

Contents

1. Introduction

1.1. Headless Cannulated Screw	
1.1.1. Specification	3

2. Surgical Technique

2.1. Approach	4
2.1.1. Midaxial approach to the proximal phalanx	
2.2. Fracture	4
2.2.1. Distal Articular, Oblique	
2.3. Ø2.5 Headless Cannulated Screw	
2.3.1. Kirschner Wire	
2.3.2. Drill Guide	
2.3.3. Determine Screw length&screw	
2.4. Approach	
2.4.1. Medial Approach	
2.5. Fracture	
2.5.1. Fracture Types	
2.6. Ø6.5-Ø5.0 Headless Cannulated Screw	
2.6.1. Kirschner Wire	
2.6.2. Drill Guide	
2.6.3. Determine Screw length&screw	

3. Instrument Set

2.5mm Headless Cannulated Screw Instrument Set	8
---	---

4. Disinfection

4.1. Device Cleaning Conditions	9
4.1.1. Manual Cleaning/Disinfection	
4.1.2. Combination Manual / Automated Cleaning and Disinfection:	
4.1.3. Automated Cleaning and Disinfection	

zimed[®]

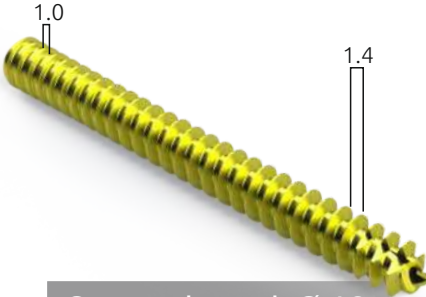
ISO 9001
ISO 13485  1984



1.1 Specifications

1.1.1 Headless Cannulated Screw

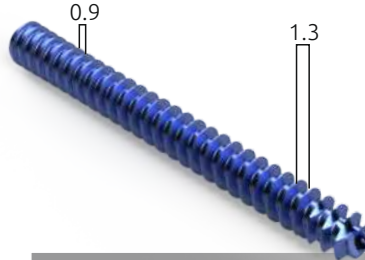
Gliding Hole $\varnothing 4.0\text{mm}$
Threated Hole start $\varnothing 2.4$ end $\varnothing 3.6$



Cannulated $\varnothing 4.0$ HEADLESS SCREW

REF. NO	SIZE
2362-4016	4.0x16
2362-4018	4.0x18
2362-4020	4.0x20
2362-4022	4.0x22
2362-4024	4.0x24
2362-4026	4.0x26
2362-4028	4.0x28
2362-4030	4.0x30
2362-4032	4.0x32
2362-4034	4.0x34
2362-4036	4.0x36
2362-4038	4.0x38
2362-4040	4.0x40

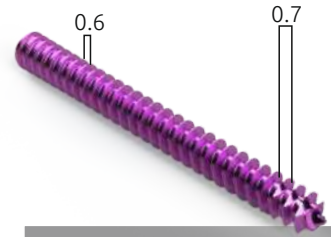
Gliding Hole $\varnothing 3.5\text{mm}$
Threated Hole start $\varnothing 2.00$ end $\varnothing 3.1$



Cannulated $\varnothing 3.5$ HEADLESS SCREW

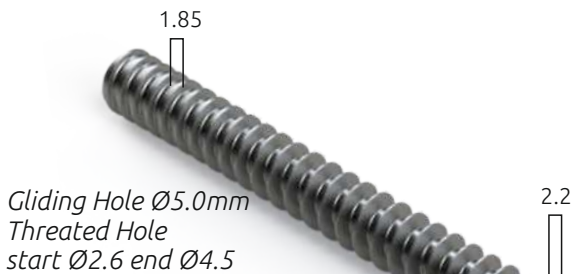
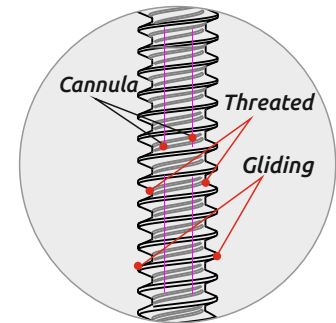
REF. NO	SIZE
2362-3516	3.5x16
2362-3518	3.5x18
2362-3520	3.5x20
2362-3522	3.5x22
2362-3524	3.5x24
2362-3526	3.5x26
2362-3528	3.5x28
2362-3530	3.5x30
2362-3532	3.5x32
2362-3534	3.5x34
2362-3536	3.5x36
2362-3538	3.5x38
2362-3540	3.5x40

Gliding Hole $\varnothing 2.5\text{mm}$
Threated Hole: start $\varnothing 1.7$ -end $\varnothing 2.1$



Cannulated $\varnothing 2.5$ HEADLESS SCREW

REF. NO	SIZE
2362-2508	2.5x8
2362-2510	2.5x10
2362-2512	2.5x12
2362-2514	2.5x14
2362-2516	2.5x16
2362-2518	2.5x18
2362-2520	2.5x20

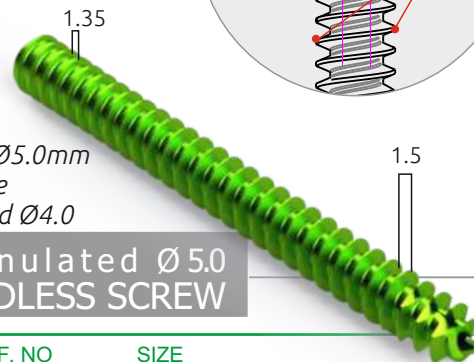


Gliding Hole $\varnothing 5.0\text{mm}$
Threated Hole start $\varnothing 2.6$ end $\varnothing 4.5$

Cannulated $\varnothing 6.5$ HEADLESS SCREW

REF. NO	SIZE
2362-6035	6.5x35
2362-6040	6.5x40
2362-6045	6.5x45
2362-6050	6.5x50
2362-6055	6.5x55
2362-6060	6.5x60
2362-6065	6.5x65
2362-6070	6.5x70
2362-6075	6.5x75
2362-6080	6.5x80
2362-6085	6.5x85
2362-6090	6.5x90
2362-6095	6.5x95

Gliding Hole $\varnothing 5.0\text{mm}$
Threated Hole start $\varnothing 2.7$ end $\varnothing 4.0$



Cannulated $\varnothing 5.0$ HEADLESS SCREW

REF. NO	SIZE
2362-5025	5.0x25
2362-5030	5.0x30
2362-5035	5.0x35
2362-5040	5.0x40
2362-5045	5.0x45
2362-5050	5.0x50
2362-5055	5.0x55
2362-5060	5.0x60
2362-5065	5.0x65
2362-5070	5.0x70
2362-5075	5.0x75
2362-5080	5.0x80



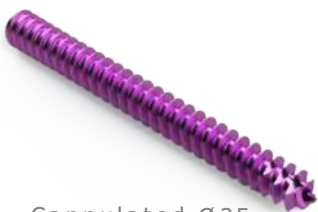
1.1 Specifications

1.1.1 Headless Cannulated Screw

Scaphoid fractures, phalanx fractures, carpal fusions, radial head fractures, Scaphoid fractures and nonunion, carpal fusions, MCP fusions, radius styloid fractures, capitellum fractures, bunionectomy: proximal and 5th metatarsal fractures, midfoot fusions. There are 11 length options in total, with a diameter of Ø2.5 mm, up to 8-14 mm, with an increase of 1 mm between the lengths and an increase of 2 mm between the lengths of 14-40 mm. There are 13 length options in total,

Continue in next page →

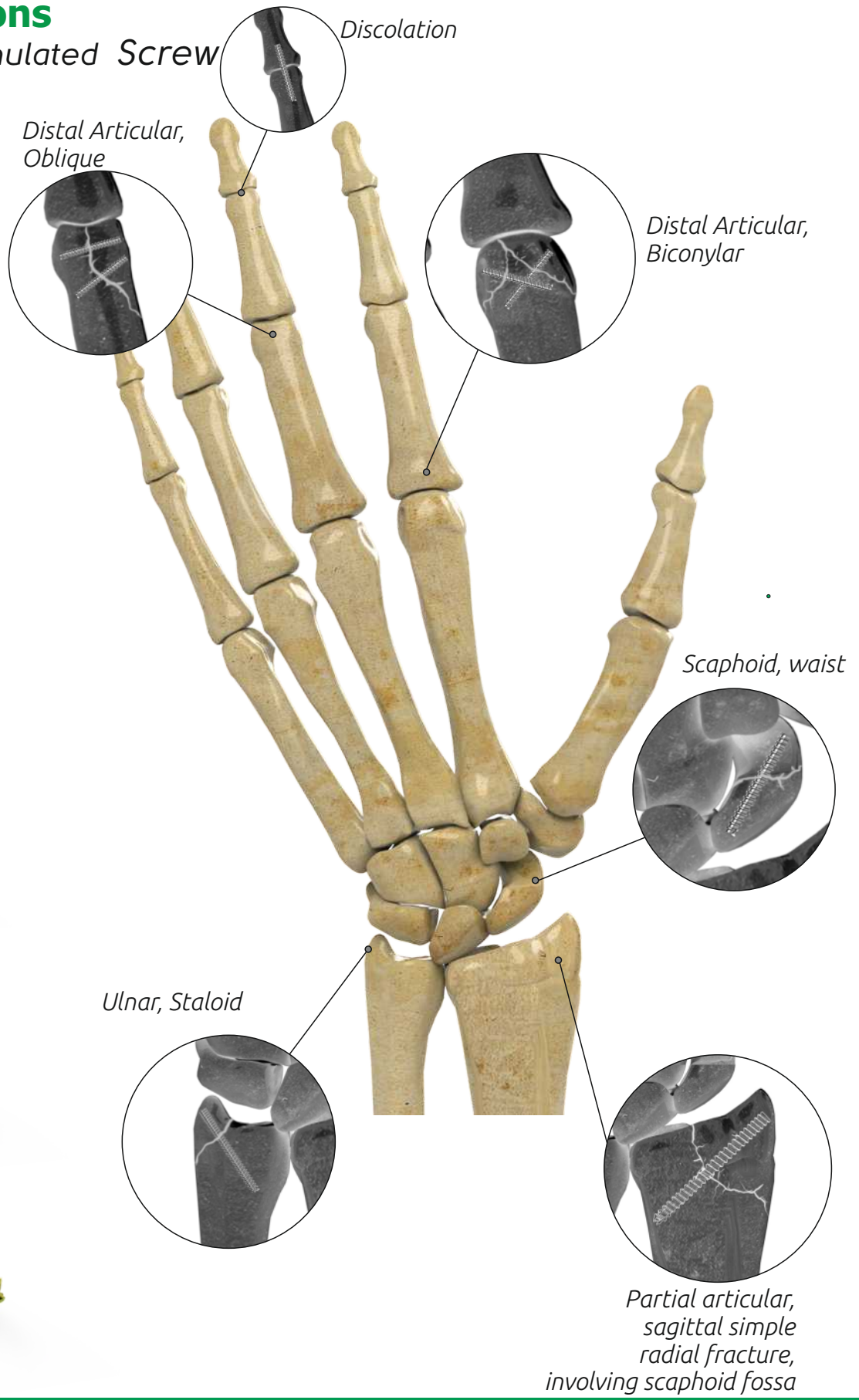
Cannulated Ø2.5 HEADLESS SCREW



Cannulated Ø3.5 HEADLESS SCREW



Cannulated Ø4.5 HEADLESS SCREW





1.1 Specifications

1.1.1 Headless Cannulated Screw

with a diameter of $\text{Ø}3.5$ mm, between 16-40 mm in length, with an increase of 2 mm. There are 13 length options in total, with a diameter of $\text{Ø}4.0$ mm, between 16-40 mm in length, increasing by 2 mm. There are 12 length options in total, with a diameter of $\text{Ø}5.0$ mm, between 25-80 mm in length, increasing by 5 mm. There are 13 length options in $\text{Ø}6.5$ mm diameter, between 35-95 mm lengths, increasing by 5 mm. It is produced from Ti 6Al4V ELI material in accordance with ISO 5832-3 standard. All headless cannulated screws are supplied non-sterile.

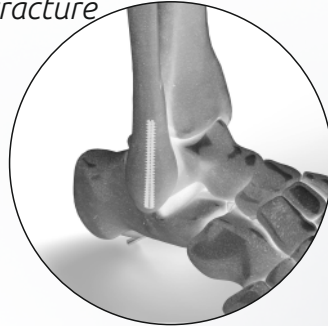


Cannulated $\text{Ø}5.0$
HEADLESS SCREW



Cannulated $\text{Ø}6.5$
HEADLESS SCREW

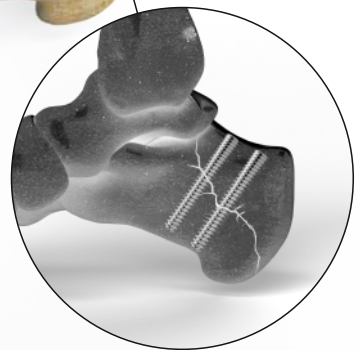
Stability of the fibula
fracture



Medial-Lateral
Malleolus Fracture



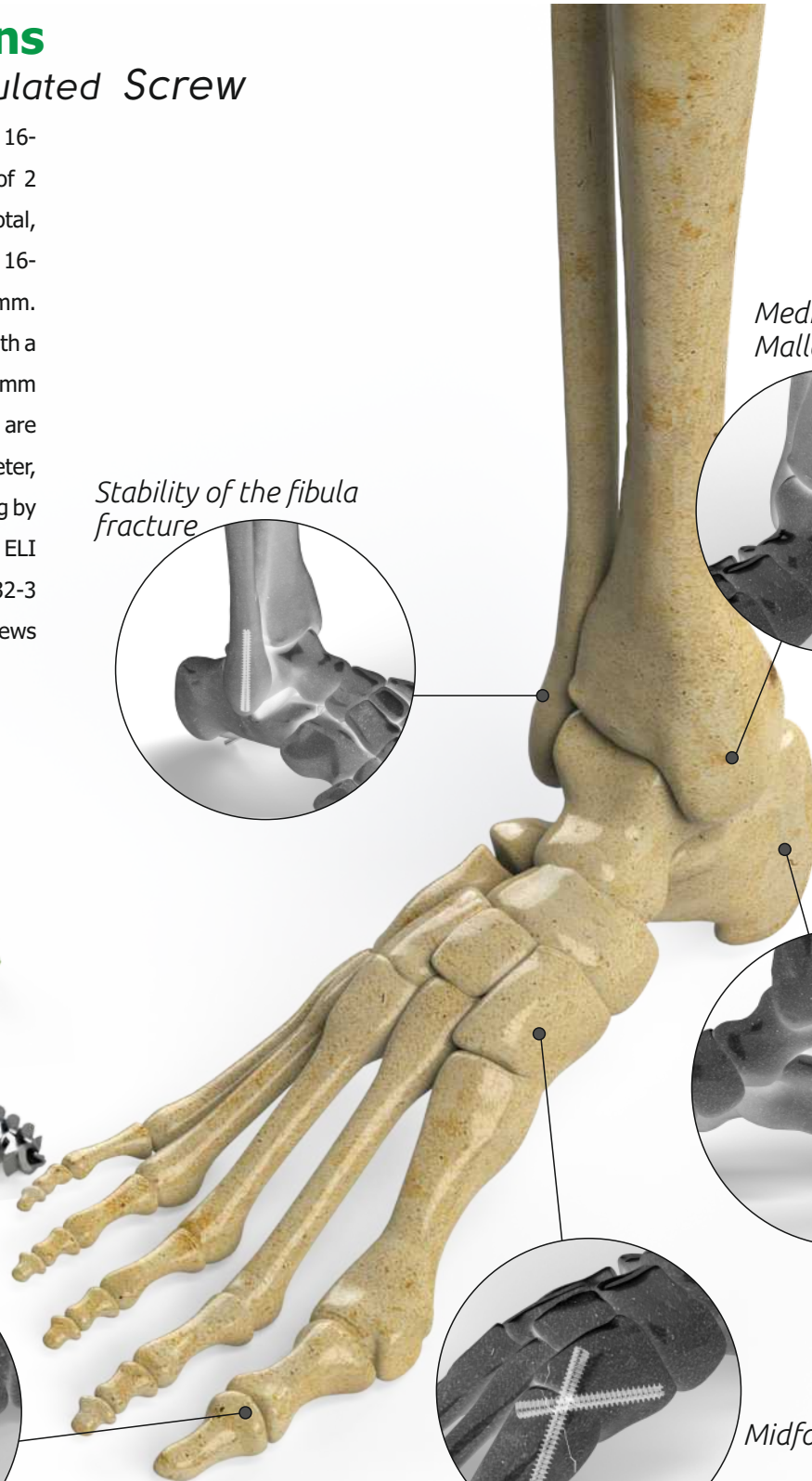
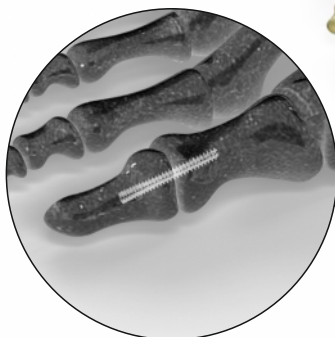
Calcaneal
Osteotomy



Midfoot



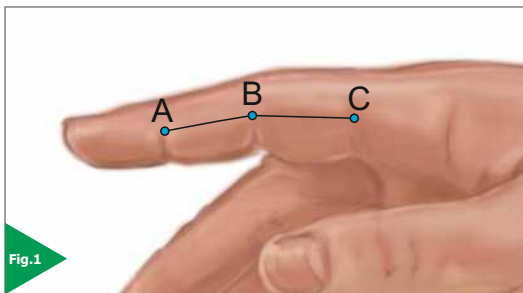
Calcaneal
Osteotomy



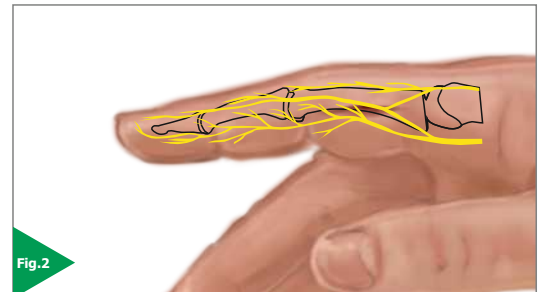


2.1. Approach

2.1.1 Midaxial approach to the proximal phalanx



For proximal fractures, make a skin incision from B to C. The incision can be extended to A if necessary. (Fig. 1-3)



Identify and protect the dorsal branches of the radial, ulnar, and median nerves. (fig.2)



2.2. Fracture

2.2.1 Distal Articular, Oblique

Headless cannula screws can be used in some types of hand and wrist fractures. The fracture type shown here is one such fracture. The example application was applied to the fracture type in the image (Fig. 5).

Unicondylar fractures of the proximal phalanx can be transverse, short or long, oblique, or comminuted. Typically, they occur due to sports injuries caused by axial load combined with lateral angulation of the finger.

Condylar fractures tend to be unstable and generally require surgical treatment. Closed reduction can be treated with two screws or K. wires placed parallel to the joint surface.





2.3.Ø2.5 Headless Cannulated Screw

2.3.1 Kirschner Wire



Prior reduction may be necessary. Send the Kirschner Wire for motor assistance guidance. Kirschner wires should be parallel to the bone surface. (Fig. 6-7)

2.3.2 Drill Guide



Pass the drill guide over the guide wire (fig.8)

Do the drilling (fig.9)



2.3.Ø2.5 Headless Cannulated Screw

2.3.3 Determine Screw length & screw



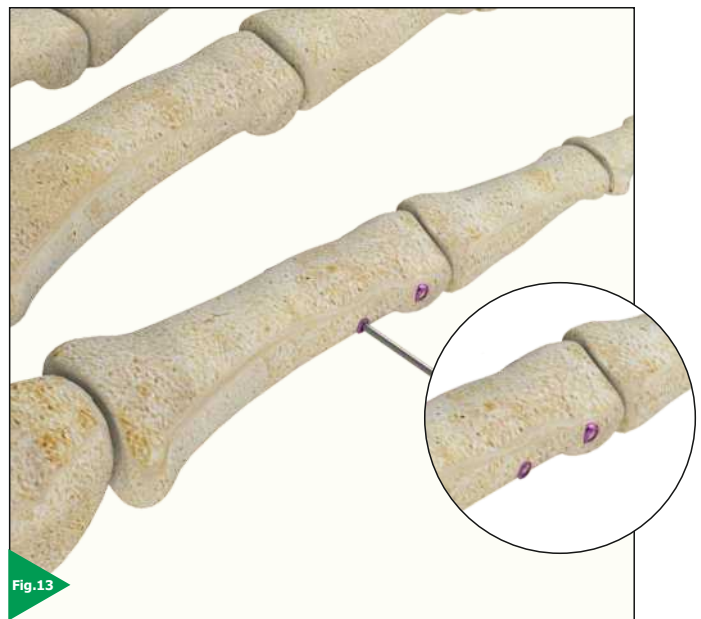
Determine the screw length by placing the depth guide over the guide wire. (Fig.10)



Pass the screw you have chosen over the guide wire with a screwdriver and install it. (Fig.11)



Remove the guide wire with the help of the motor. (Fig.12)



Follow the procedure using the guide wire for the other screw and complete the procedure. (Fig.13)



2.4. Approach

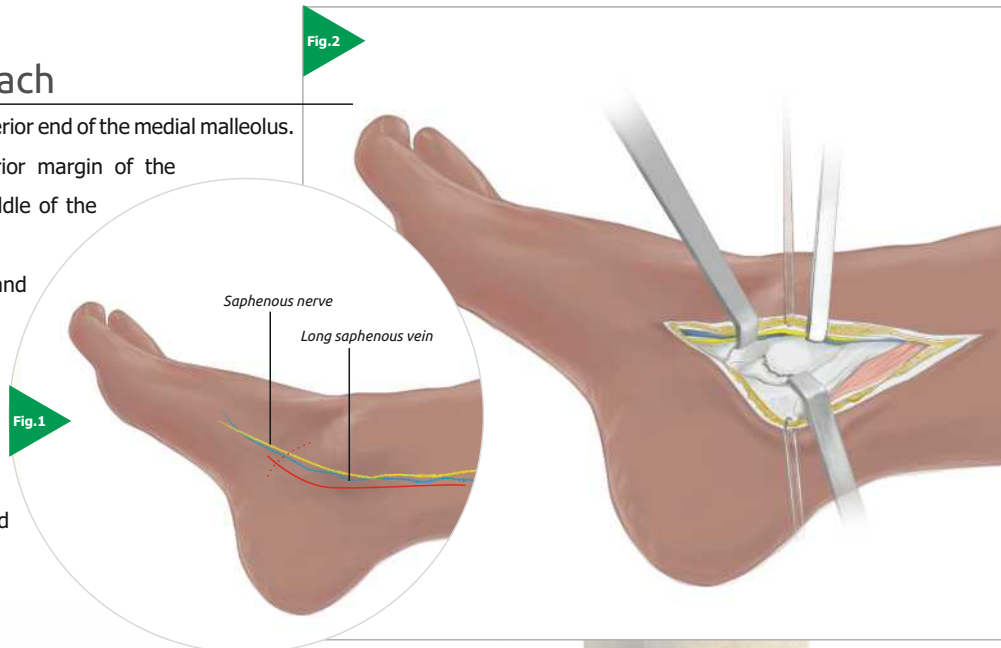
2.4.1. Medial Approach

Start the incision 2 cm distal to the anterior end of the medial malleolus.

Angle the incision toward the anterior margin of the medial malleolus and toward the middle of the distal tibia.

Locate the saphenous vein and nerve and use a vascular loop to retract them.

The dotted line indicates an alternative skin incision that can be used when more anterior access is required. Be particularly careful not to divide the more vulnerable saphenous vein and nerve with this incision. (Figs. 1-2)



2.5. Fracture

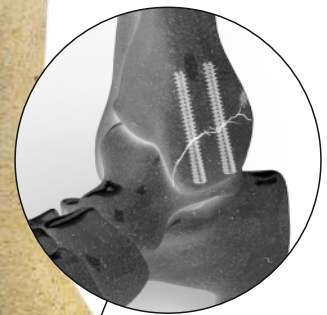
2.5.1. Fracture Types

Cannulated screws can be used in many different ways, either as an adjunct or on their own. The images show an example of a fractured application in the medullary region (fig. 3).

Transverse fracture



Medial-Lateral Malleolus Fracture





2.6.Ø6.5-Ø5.0 Headless Cannulated Screw

2.6.3 Determine Screw length&screw

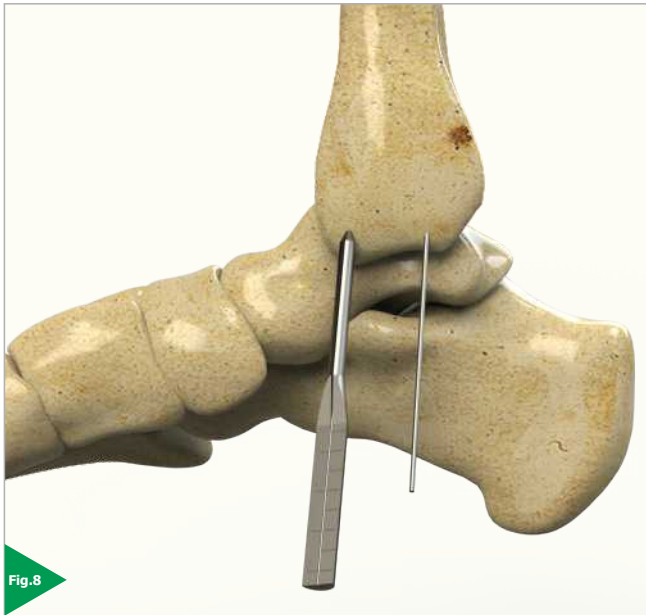


Fig. 8



Fig. 9

Cannulated screws can be used in many different ways, either as an adjunct or on their own. The images show an example of a fractured application in the medullary region (fig. 3).

Pass the screw you have chosen over the guide wire with a screwdriver and install it. (Fig.9)

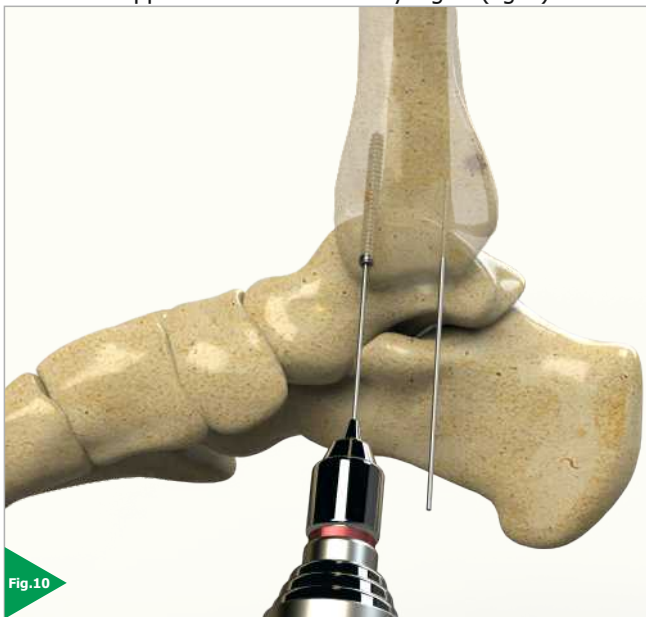


Fig. 10



Fig. 11

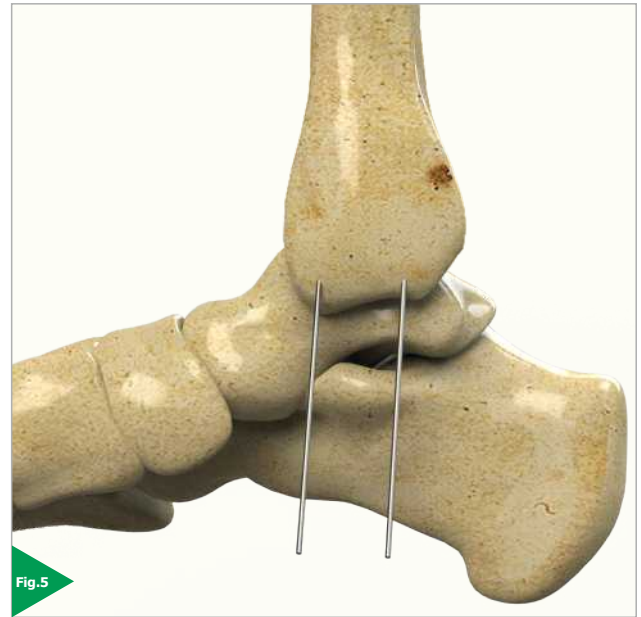
Remove the guide wire with the help of the motor. (Fig.10)

Follow the procedure using the guide wire for the other screw and complete the procedure (fig.11)



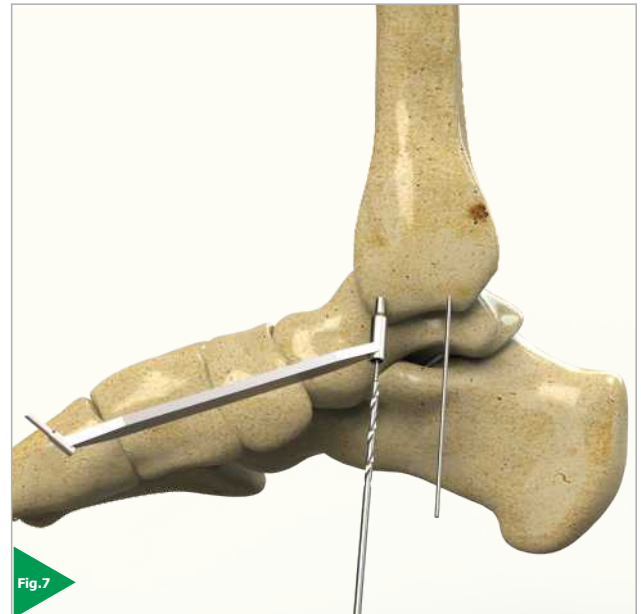
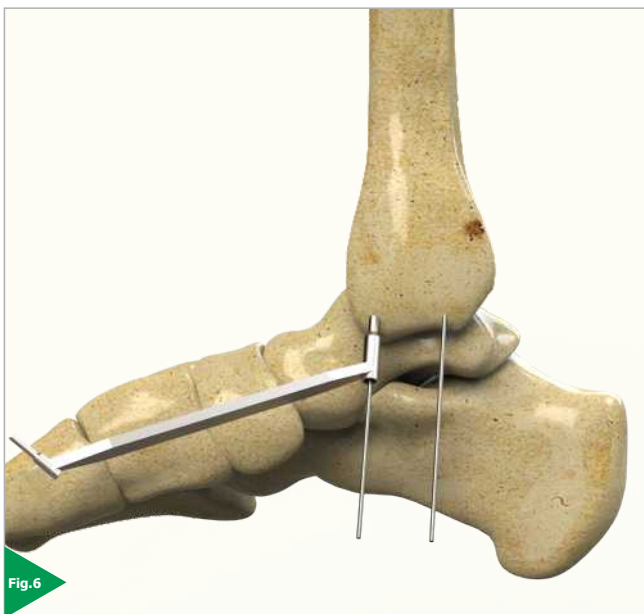
2.6. Ø6.5-Ø5.0 Headless Cannulated Screw

2.6.1 Kirschner Wire



Reduction may be required beforehand. Send the Kirschner Wire for guidance with the help of the motor (Fig. 4).

2.6.2 Drill Guide



Pass the drill guide over the guide wire (fig.6)

Do the drilling. (fig.7)



4

3

2

1

5

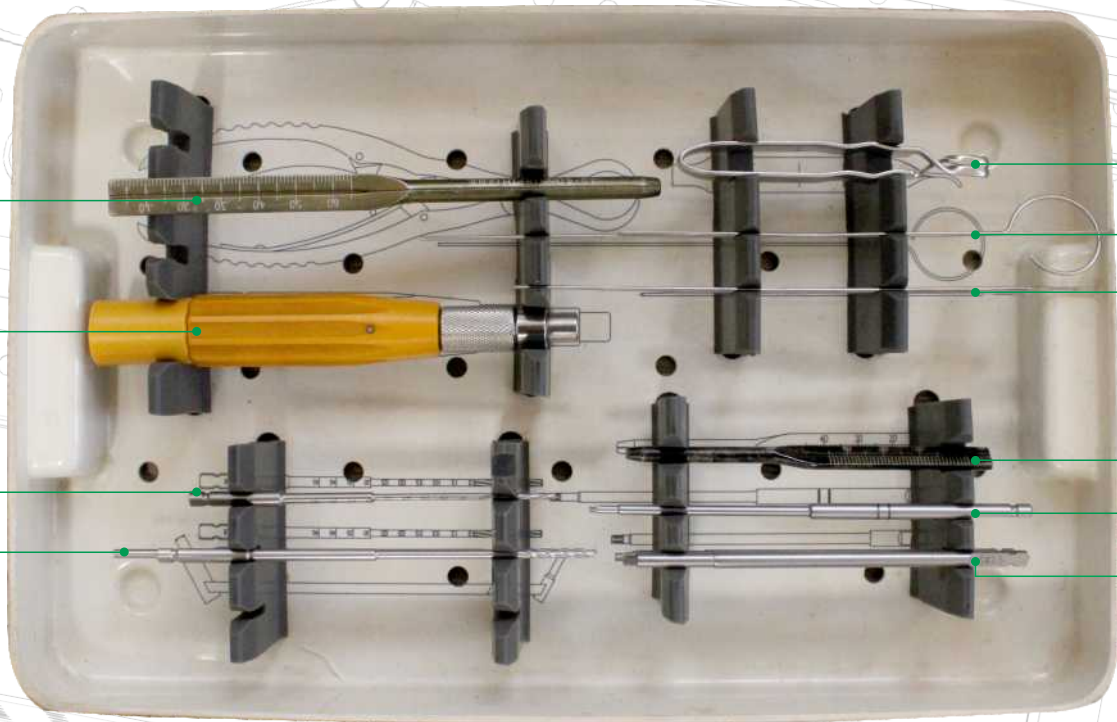
6

7

8

9

10



1	9803-0013	Depth Gauge 1.5/2.0
2	9803-0027	Star Screwdriver Ø 1.75
3	9803-0029	Handle
4	9803-0006	Star Screwdriver Bit Ø 1.75
5	9803-0001	Drill Bit Ø 1.5 x 110 mm
6	9803-0005	Tap for Cortical Screw Ø 2.0
7	9803-0004	Drill Guide Ø 1.5-Ø 2.0
8	9803-0002	Calibrated Drill Sleeve Ø 1.5



DEVICE CLEANING CONDITIONS

Do not use metal brushes or rubbing pads during decontamination of the tools should be performed immediately after the surgical procedure is completed. Contaminated tools must not be allowed to dry before reprocessing.

Excessive blood or debris must be removed in order to prevent the drying on the surface. All users must be qualified staff with documented evidence of training and competence. Training should include the current guidelines, standards and hospital policies. Even if they are made of high-grade stainless steel, the surgical tools must be thoroughly dried in order to prevent rust formation. Prior to sterilization, all the tools should be examined for the cleanliness of the lumens of the joints of the surfaces. manual cleaning process. Use cleaning agents with low-foam surfactant to be able to see the tools in the cleaning solution. Rinse the cleaning materials easily from the tool in order to prevent residue formation.

Mineral oil or silicon lubricants should not be used on Zimed tools. Neutral pH enzymatic and cleaning materials are recommended for cleaning the reusable instruments. It is very important to neutralize and rinse the alkaline cleaning materials thoroughly from the tools. Anodized aluminum should not contact with certain cleaning or disinfectant solutions. Avoid strong alkaline cleaners and disinfectants and solutions containing iodine, chlorine or certain metal salts.

Manual Cleaning/Disinfection:

Prepare the enzymatic and cleaning materials at the dilution rates and temperatures as recommended by the manufacturer. New solutions should be prepared when the existing solutions are heavily contaminated. Place the tools in the enzymatic solution so that they are completely immersed. Operate all the movable parts so that the detergent contacts with all the surfaces.

Keep in the fluid for minimum 20 min. Use a nylon, soft-bristled brush to gently rub the tools until all visible debris is cleaned. Pay particular attention to the accessible areas and use a suitable bottle brush. In order to remove the dirt in the open springs, coils or flexible parts, wash the recesses with plenty of cleaning solution. Rub the surface with a scrubbing brush to remove all the visible dirt from the surface and the recesses. To ensure that all the recesses are cleaned, turn the component while rubbing. Remove the tools and rinse them for minimum 3 min. under running water. Pay particular attention to the cannulas and use a syringe to pass the fluid through the hard-to-reach areas. Place all the tools that are completely immersed in water, in an ultrasonic unit containing the cleaning solution. Operate all the movable parts so that the detergent contacts with all the surfaces. Expose the tools to sonification process for minimum 10 min..

Remove the tools and rinse with deionized water for at least 3 minutes or unless all the blood or dirt traces are eliminated in the rinsing water. Examine the tools under normal light to verify that visible dirt is removed. If

visible dirt is present, repeat the above mentioned sonification procedure and the rinsing steps. Remove the excessive moisture on the tool with a clean, absorbent, lint-free cloth.

Combination Manual / Automated Cleaning and Disinfection:

Prepare the enzymatic and cleaning materials at the dilution rates and temperatures as recommended by the manufacturer. New solutions should be prepared when the existing solutions are heavily contaminated. Place the tools in the enzymatic solution so that they are completely immersed. Operate all the movable parts so that the detergent contacts with all the surfaces. Keep in the fluid for minimum 10 min. Use a nylon, soft-bristled brush to gently rub the tools until all visible debris is cleaned. Pay particular attention to the accessible areas and use a suitable bottle brush. A sonicator will help to clean the instruments thoroughly. The use of a syringe or a water fountain will facilitate passing of the liquid from the low-spaced areas and difficult-to-access areas. Remove the tools from the enzyme solution and rinse them for minimum 1 min. under deionized water. Place the tools in a suitable washer / disinfectant basket and perform a standard washer / disinfectant cycle. Specific minimum parameters are essential for a complete cleaning and disinfection. These parameters are given in a below mentioned table.

Combination Manual / Automated Cleaning and Disinfection:

Automated washing / drying systems are not recommended as the only cleaning method for surgical tools. An automated system can be used as a follow-up operation after manual cleaning. To ensure an effective cleaning, tools must be thoroughly examined before sterilization. For detailed information on Washing and Disinfection see

Specific minimum parameters used for a complete cleaning and disinfection:

	Definition
1	Pre-washing for 2 minutes with cold tap water
2	enzyme spray for 20 seconds with hot tap water
3	Immersion in enzyme after 1 minute
4	rinsing for 15 seconds with cold tap water (Should be repeated twice)
5	Washing with detergent for 2 minutes with hot tap water
6	rinsing for 15 seconds with hot tap water
7	Rinsing with 10 seconds with optional lubricated purified water
8	Drying for 7 minutes with hot air

Note: Follow the instruction of the washer/disinfectant manufacturer

● *Zimed Medical, as the manufacturer of this device, and their surgical consultants do not recommend this or any other surgical technique for use on a specific patient. The surgeon who performs any implant procedure is responsible for determining and utilizing the appropriate techniques for implanting the device in each individual patient. Zimed and their surgical consultants are not responsible for selection of the appropriate surgical technique to be utilized for an individual patient.*

zimed[®]

ISO 9001
ISO 13485

CE 1984

www.zimed.com.tr

ST.02.03-01 Rev.01 - 25.10.2021