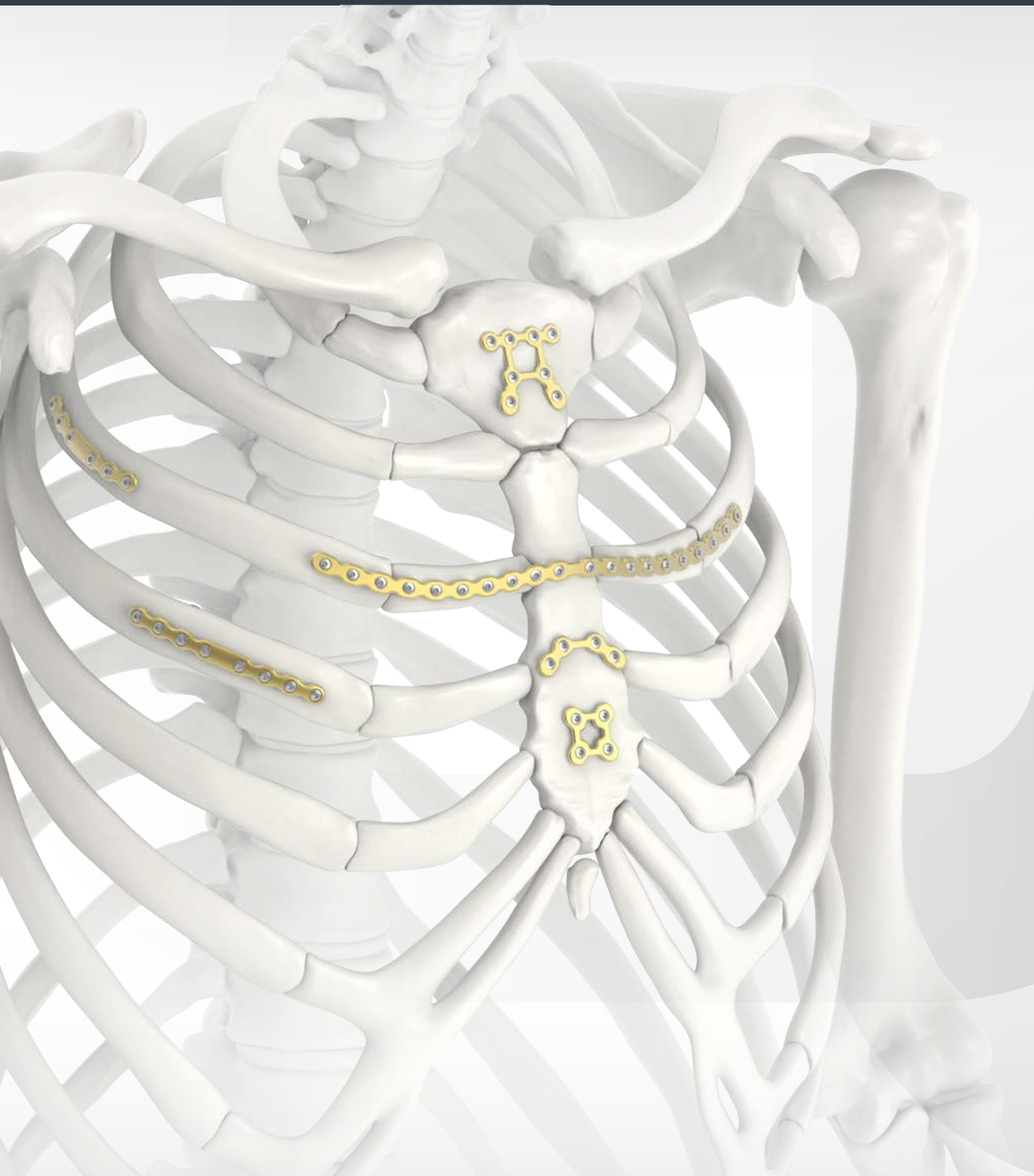


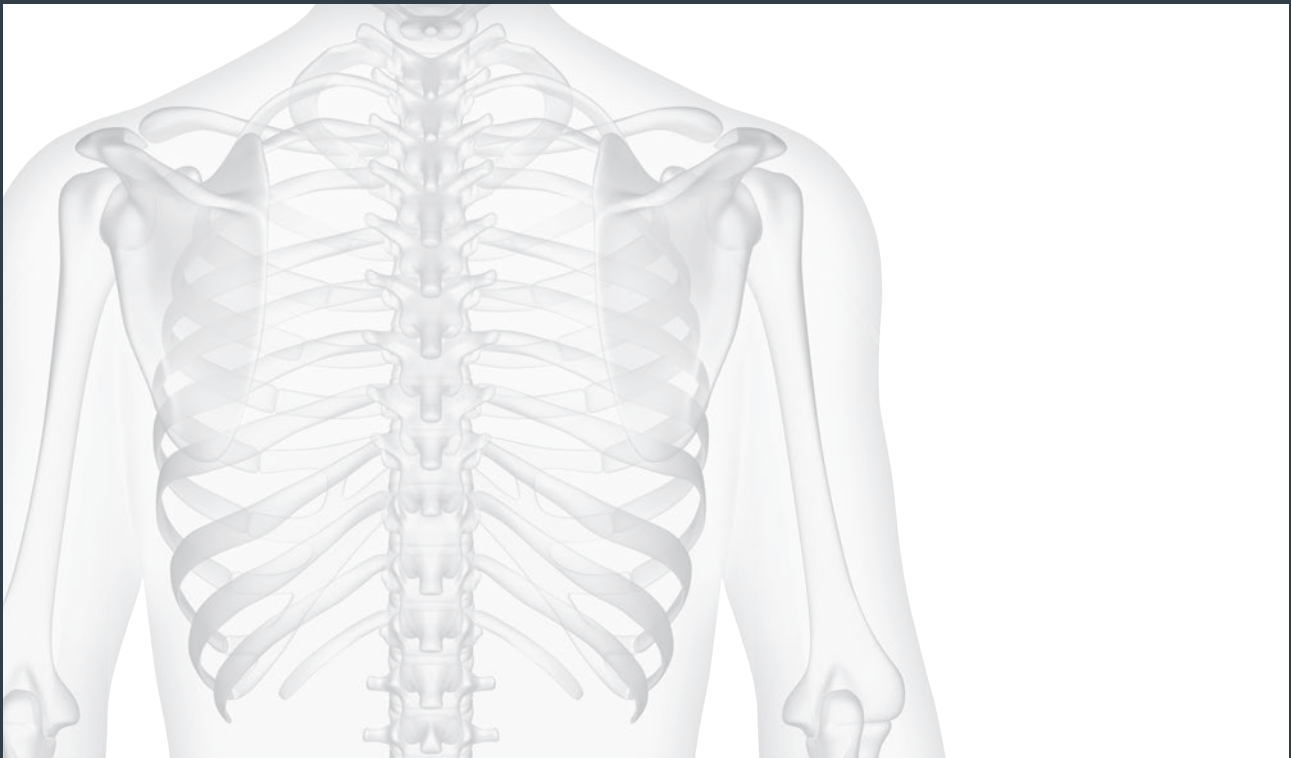
# **ARX STERNAL SYSTEM**

Sternal & Rib Plates



# Contents

3	Indication
	Surgical Technique
4	- Sternal Plates
8	- Rib Plates
	Ordering Information
12	- Plates
17	- Screws
18	- Packages
19	- Instruments
23	Order Information List



**ARIX Sternal System** is intended for use in the stabilization and fixation of the fractures of the anterior chest wall including sternal fixation following sternotomy and sternal reconstructive surgical procedures to promote fusion.

### **Materials**

Commercially Pure Titanium, ASTM F-67

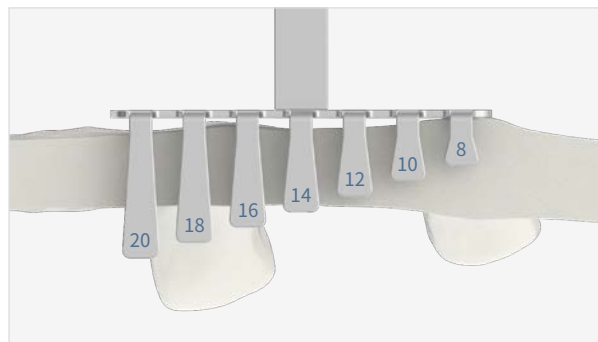
Titanium 6Al 4V Alloy, ASTM F-136

## 1. Measuring Sternal Depth

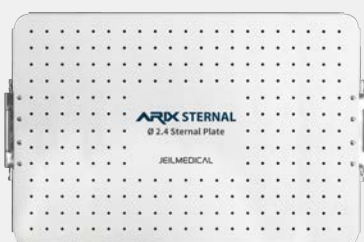
Measure sternal depth where plate placement will occur. Measure at 3 points (manubrium, body and xiphoid). In the photo above, the measuring device indicates that a 14 mm screw length would be recommended for plate placement in the circled region.

The measuring device accounts for the thickness of the plate, so a 14 mm screw would be used in this example.

**Note:** if using a standard ruler to measure the thickness of the sternum, you should use the next highest even numbered length screw to account for the plate thickness. For example a sternal thickness of 8 mm - 9 mm should utilize a 10 mm screw, while a sternal thickness of 10 mm - 11 mm should use a 12 mm screw. Surgeons should always determine screw size based on the patient's anatomy.

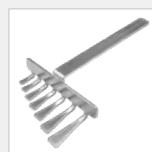


### Required Set



Sternal Full Kit  
112-107

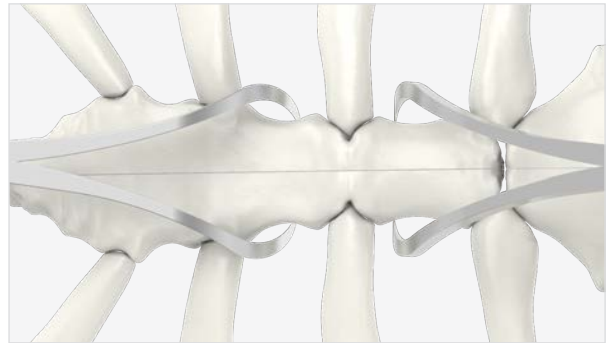
### Required Instruments



Legth Guide  
111-148

## 2. Bone Reduction and Plate Positioning

- 1 Wire the manubrium and xiphoid to reduce the top and bottom of the sternum. Complete the full approximation by placing reduction forceps at the mid-body.



- 2 Select a template plate that corresponds to the fractured bone. Place the template plate on the bone. Bend the template plate to fit the shape of the bone. (S24-XXXX-XXXT Plate Template Series)



### Required Instruments



Forceps Bone  
Reduction  
111-154



Forceps Bone  
Reduction  
111-155

### 3. Fixation of the Plate

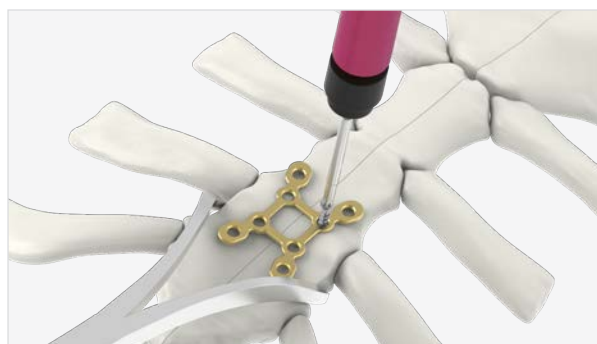
- 1 Plates are two-sided to facilitate placement.  
Bend the plate to match shape of the template plate.



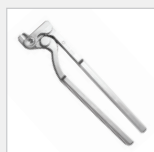
- 2 Using the Smarto for screw insertion is recommended for quick and efficient surgery.



- 3 Insert screws into the plate.  
Fully tighten once additional screws are in place by using screw driver handle (111-151 or 111-262).



#### Required Instruments



Bender Plate  
2.5T  
111-033



Plate Cutter  
2.1T  
111-190



Smarto  
111-ED-051



Handle Type1  
111-151

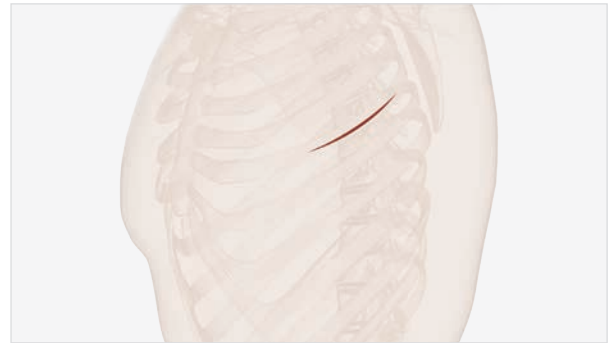


Handle Type5  
111-262



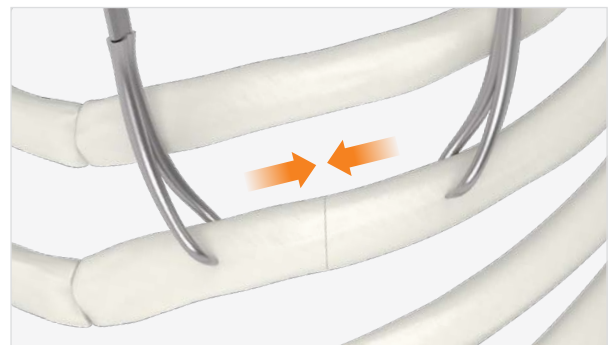
## 1. Approach

Perform chest wall resection including ribs, sternum and/or surrounding soft tissue. Avoid muscle incision. Secure enough exposure for the 3 screws on each side of the fracture.



## 2. Fracture Reduction and Contour Plate

Approximate bone segments by using reduction forceps (111-155). Position the plate on the rib to determine for contour of the plate.



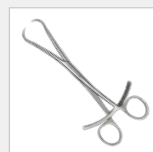
Bone Reduction

### Required Set



Sternal Full Kit  
112-107

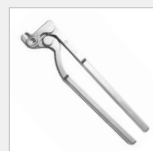
### Required Instruments



Forceps Bone  
Reduction  
111-155



Plate Cutter  
2.1T  
111-190



Bender Plate  
2.5T  
111-033



### 3. Plate Positioning and Initial Fixation

Select the appropriate plate for fixation.

Use supplied plate bender (111-033) to make desired contour of the plate.

If necessary, use a cutter to make desired length of the plate.

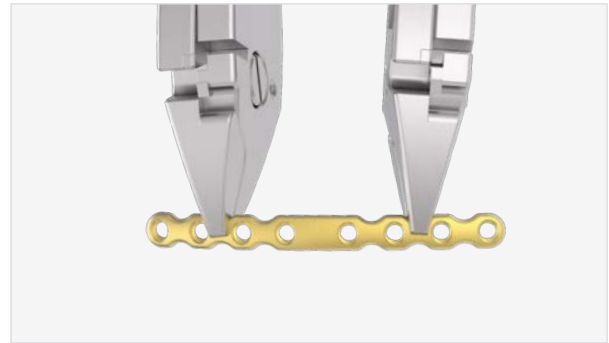
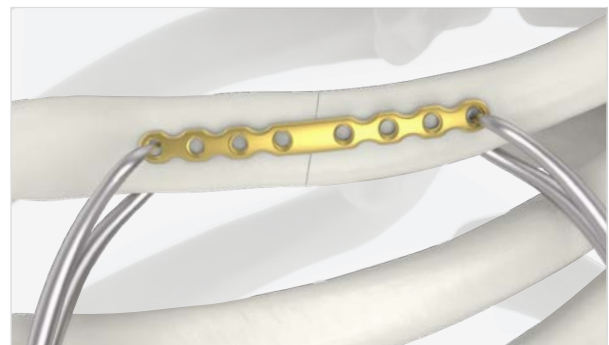
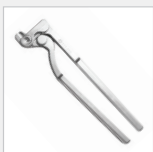


Plate bending 111-033

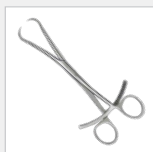


Hold plate using 111-155

#### Required Instruments



Bender Plate  
2.5T  
111-033



Forceps Bone  
Reduction  
111-155

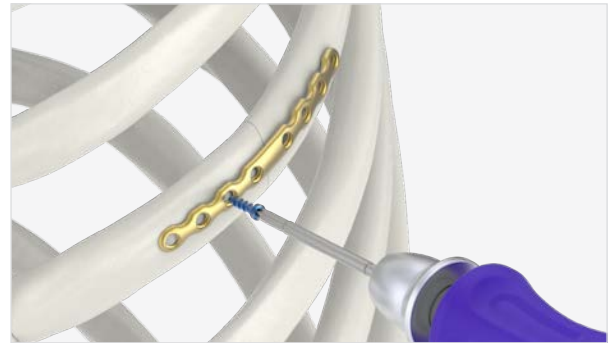
## 4. Fixation

Assemble a driver (113-HF-613/624/625) to handle (111-262) and insert Ø 2.4 screw.

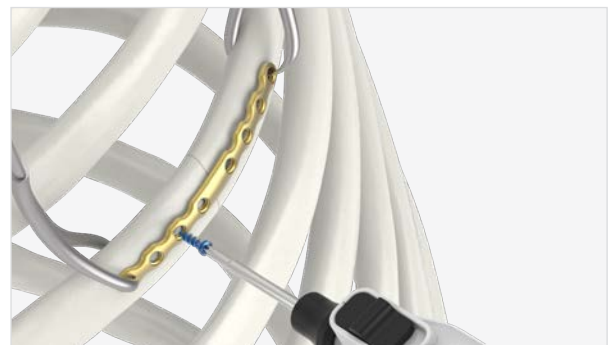
Screws should be inserted perpendicularly to the plate.

### Alternative Technique (Optional)

For easier and faster screw insertion a powered handpiece (111-ED-051) can be used with drivers (113-HF-613/624/625).



Screw pick-up and insertion using 111-262 / 113-HF-613

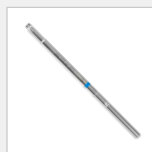


Screw pick-up and insertion using 111-ED-051 / 113-HF-613

### Required Instruments



Handle Type5  
111-262



Driver  
113-HF-613



Driver  
113-HF-624



Driver  
113-HF-625

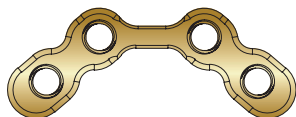


Smarto  
111-ED-051

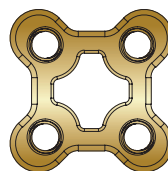


## ARIX Sternal System Plates

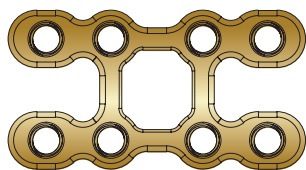
Sternal Plates – L Type / Square Type / Ladder Type



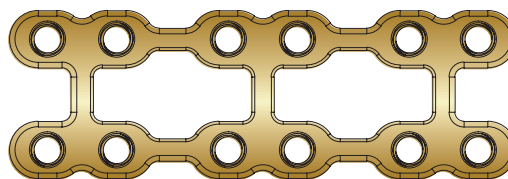
S24-LPST-004



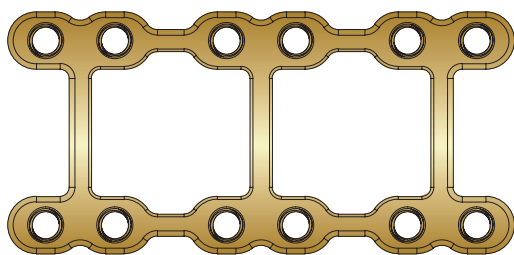
S24-SQST-004



S24-HSST-008



S24-HNST-012

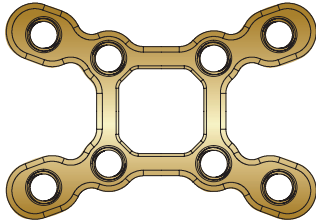


S24-HWST-012

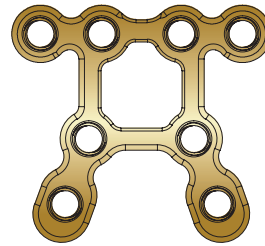
\* Illustrated scale 1:1

<i>Code</i>	<i>Type</i>	<i>Holes</i>	<i>Thickness</i>	<i>Color</i>
S24-LPST-004	L Type plate	4	1.6 mm	Gold
S24-SQST-004	Square plate	4	1.6 mm	Gold
S24-HSST-008	Ladder plate Short	8	1.6 mm	Gold
S24-HNST-012	Ladder plate Narrow	12	1.6 mm	Gold
S24-HWST-012	Ladder plate Wide	12	1.6 mm	Gold

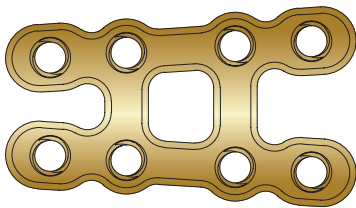
Sternal Plates - X Type / JL Type / C Ladder Type



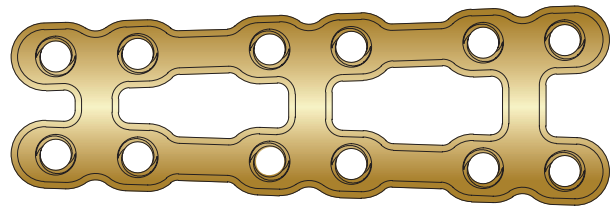
S24-XPST-008



S24-JLST-008



S24-HSST-108



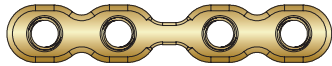
S24-HNST-112

\* Illustrated scale 1:1

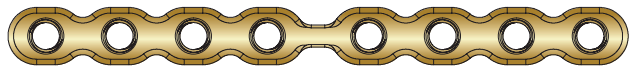
<i>Code</i>	<i>Type</i>	<i>Holes</i>	<i>Thickness</i>	<i>Color</i>
S24-XPST-008	X plate	8	1.6 mm	Gold
S24-JLST-008	JL plate	8	1.6 mm	Gold
S24-HSST-108	C Ladder plate Narrow	8	1.6 mm	Gold
S24-HNST-112	C Ladder plate Short	12	1.6 mm	Gold

# ARIX Sternal System Plates

Sternal Plates – Straight Type / C Straight Type



S24-STST-004



S24-STST-008



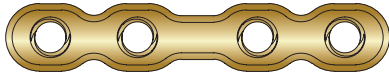
S24-STST-108



S24-STST-120

\* Illustrated scale 1:1

<i>Code</i>	<i>Type</i>	<i>Holes</i>	<i>Thickness</i>	<i>Color</i>
S24-STST-004	Straight plate	4	1.6 mm	Gold
S24-STST-008	Straight plate	8	1.6 mm	Gold
S24-STST-108	C-Straight plate	8	1.6 mm	Gold



S24-STST-104



S24-STST-106

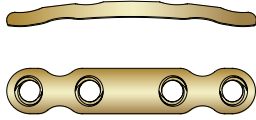


\* Illustrated scale 1:1

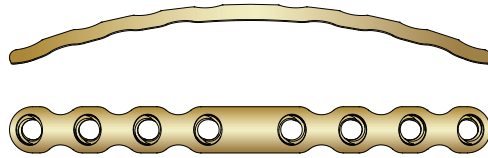
<i>Code</i>	<i>Type</i>	<i>Holes</i>	<i>Thickness</i>	<i>Color</i>
S24-STST-104	C Straight plate	4	1.6 mm	Gold
S24-STST-106	C Straight plate	6	1.6 mm	Gold
S24-STST-120	C Straight plate	20	1.6 mm	Gold

# ARIX Sternal System Plates

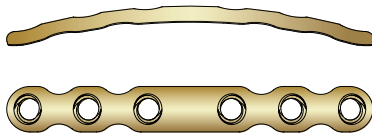
## Rib Plates – Pre-Contoured Type



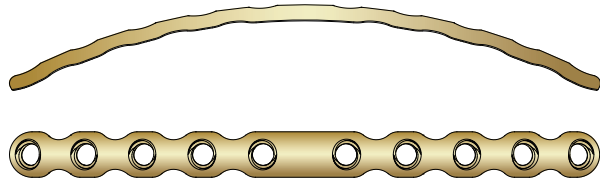
S24-STRB-004



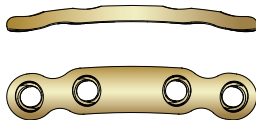
S24-STRB-008



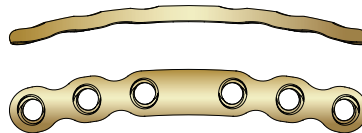
S24-STRB-006



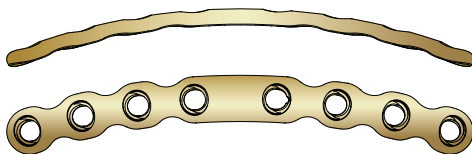
S24-STRB-010



S24-CVRB-004



S24-CVRB-006



S24-CVRB-008

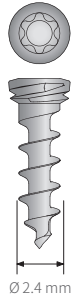
\* Illustrated scale 1:1

Code	Type	Holes	Thickness	Color
S24-STRB-004	Straight plate	4	1.6 mm	Gold
S24-STRB-006	Straight plate	6	1.6 mm	Gold
S24-STRB-008	Straight plate	8	1.6 mm	Gold
S24-STRB-010	Straight plate	10	1.6 mm	Gold
S24-CVRB-004	Curved plate	4	1.6 mm	Gold
S24-CVRB-006	Curved plate	6	1.6 mm	Gold
S24-CVRB-008	Curved plate	8	1.6 mm	Gold



## ARIX Sternal System Screws

### 2.4 Locking Screws (Auto)



Code	Length	Color	Set Quantity
S24L-SA-S06-TA	6 mm	Silver	1
S24L-SA-S08-TA	8 mm	Silver	1
S24L-SA-S10-TA	10 mm	Silver	1
S24L-SA-S12-TA	12 mm	Silver	1
S24L-SA-S14-TA	14 mm	Silver	1
S24L-SA-S16-TA	16 mm	Silver	1
S24L-SA-S18-TA	18 mm	Silver	1
S24L-SA-S06-TA-4	6 mm	Silver	4
S24L-SA-S08-TA-4	8 mm	Silver	4
S24L-SA-S10-TA-4	10 mm	Silver	4
S24L-SA-S12-TA-4	12 mm	Silver	4
S24L-SA-S14-TA-4	14 mm	Silver	4
S24L-SA-S16-TA-4	16 mm	Silver	4
S24L-SA-S18-TA-4	18 mm	Silver	4

### 2.7 Locking Screws



Code	Length	Color	Set Quantity
S27L-SA-S06-TA	6 mm	Gold	1
S27L-SA-S08-TA	8 mm	Gold	1
S27L-SA-S10-TA	10 mm	Gold	1
S27L-SA-S12-TA	12 mm	Gold	1
S27L-SA-S14-TA	14 mm	Gold	1
S27L-SA-S16-TA	16 mm	Gold	1
S27L-SA-S18-TA	18 mm	Gold	1
S27L-SA-S06-TA-4	6 mm	Gold	4
S27L-SA-S08-TA-4	8 mm	Gold	4
S27L-SA-S10-TA-4	10 mm	Gold	4
S27L-SA-S12-TA-4	12 mm	Gold	4
S27L-SA-S14-TA-4	14 mm	Gold	4
S27L-SA-S16-TA-4	16 mm	Gold	4
S27L-SA-S18-TA-4	18 mm	Gold	4

## ARIX Sternal System Gamma Sterilized Products



### Sternal System Plate

- Packaging unit: 1ea
- Sterilized single use device



### Sternal System Screw

- Packaging unit: 1, 4ea
- Sterilized single use device



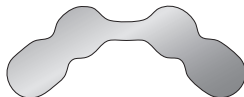
### SMARTO - Disposable Battery Powered Driver 111-ED-051 [Gamma Sterilization]

- Battery-powered screwdriver in sterile package
- Single use disposable design eliminates need for autoclaving and repairing
- Designed to drive self-drilling screw
- Torque at the motor : 40 N·cm
- Motor speed : 165rpm

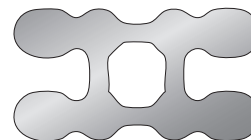
## ARIX Sternal System Templates



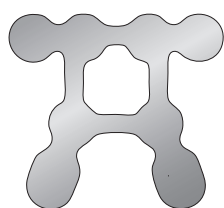
S24-SQST-004T



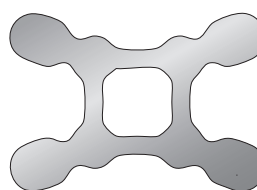
S24-LPST-004T



S24-HSST-008T



S24-JLST-008T



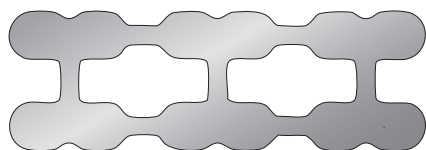
S24-XPST-008T



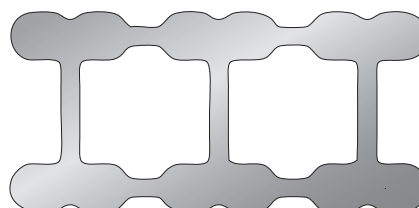
S24-STST-004T



S24-STST-008T



S24-HNST-012T



S24-HWST-012T

\* Illustrated scale 1:1

Code	Description	Color	Set Quantity
S24-SQST-004T	4 Hole Square Template	Silver	1
S24-LPST-004T	4 Hole L Template	Silver	1
S24-HSST-008T	8 Hole Ladder Template Short	Silver	1
S24-JLST-008T	8 Hole JL Template	Silver	1
S24-XPST-008T	8 Hole X Template	Silver	1
S24-STST-004T	4 Hole Straight Template	Silver	1
S24-STST-008T	8 Hole Straight Template	Silver	1
S24-HNST-012T	12 Hole Ladder Template Narrow	Silver	1
S24-HWST-012T	12 Hole Ladder Template Wide	Silver	1

## ARIX Sternal System Instruments

### Driver



113-HF-613



113-HF-624



113-HF-625

Code	Description	Set Quantity
113-HF-613	Driver for T8 Ø 3 Standard 70 mm Ball	1
113-HF-624	Driver for T8 Ø 3 Standard 50 mm Ball	1
113-HF-625	Driver for T8 Ø 3 Standard 100 mm Ball	1

### Bender Plate



111-033

Code	Description	Set Quantity
111-033	Bender Plate 2.5T	1

### Length Guide



111-148

Code	Description	Set Quantity
111-148	Length Guide for Ø 2.4 0820	1

## Forceps



114-009

Code	Description	Set Quantity
114-009	Forceps Common	1

## Handle



111-151



111-262

Code	Description	Set Quantity
111-151	Handle Type1 Ø 3.0	1
111-262	Handle Type5 Ø 3.0	1

## Cutter



111-156



111-190

Code	Description	Set Quantity
111-156	Cutter 1.0T	1
111-190	Cutter 2.1T	1

## ARIX Sternal System Instruments

### Forceps Bone Reduction



Code	Description	Set Quantity
111-155	Forceps Bone Reduction	1
111-154	Forceps Bone Reduction	1

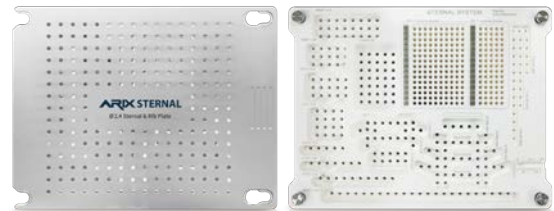
### Kit & Caddy



112-107



112-107-4



112-137-3

Code	Description	Set Quantity
112-107	Sternal Full Kit	1
112-107-4	Sternal Caddy	1
112-137-3	Sternal & Rib Caddy	1

## Order Information List

Plates				Templates			
No.	Code	Description	Set Quantity	No.	Code	Description	Set Quantity
1	S24-STRB-004	Rib Straight, 4 Holes	1	1	S24-SQST-004T	4 Hole Square Template	1
2	S24-STRB-006	Rib Straight, 6 Holes	1	2	S24-LPST-004T	4 Hole L Type Template	1
3	S24-STRB-008	Rib Straight, 8 Holes	1	3	S24-HSST-008T	8 Hole Ladder Template	1
4	S24-STRB-010	Rib Straight, 10 Holes	1	4	S24-JLST-008T	8 Hole JL Template	1
5	S24-CVRB-004	Rib Curved, 4 Holes	1	5	S24-XPST-008T	8 Hole X Template	1
6	S24-CVRB-006	Rib Curved, 6 Holes	1	6	S24-STST-004T	4 Hole Straight Template	1
7	S24-CVRB-008	Rib Curved, 8 Holes	1	7	S24-STST-008T	8 Hole Straight Template	1
8	S24-STST-004	Sternal Straight, 4 Holes	1	8	S24-HNST-012T	12 Hole Ladder Template Narrow	1
9	S24-STST-008	Sternal Straight, 8 Holes	1	9	S24-HWST-012T	12 Hole Ladder Template Wide	1
10	S24-STST-104	Sternal C Straight, 4 Holes	1				
11	S24-STST-106	Sternal C Straight, 6 Holes	1				
12	S24-STST-108	Sternal C Straight, 8 Holes	1				
13	S24-STST-120	Sternal C Straight, 20 Holes	1				
14	S24-XPST-008	Sternal X, 8 Holes	1				
15	S24-JLST-008	Sternal JL, 8 Holes	1				
16	S24-HSST-008	Sternal Ladder, 8 Holes	1				
17	S24-HSST-108	Sternal C Ladder, 8 Holes	1				
18	S24-HNST-012	Sternal Ladder, 12 Holes	1				
19	S24-HNST-112	Sternal C Ladder, 12 Holes	1				
20	S24-LPST-004	Sternal L Type, 4 Holes	1				
21	S24-SQST-004	Sternal Square, 4 Holes	1				
22	S24-HWST-012	Sternal Ladder, 12 Holes	1				
				Instruments			
No.	Code	Description	Set Quantity	No.	Code	Description	Set Quantity
1	113-HF-613	Driver for T8 Ø 3 Standard 70 mm Ball	1	1	113-HF-613	Driver for T8 Ø 3 Standard 70 mm Ball	1
2	113-HF-624	Driver for T8 Ø 3 Standard 50 mm Ball	1	2	113-HF-624	Driver for T8 Ø 3 Standard 50 mm Ball	1
3	113-HF-625	Driver for T8 Ø 3 Standard 100 mm Ball	1	3	113-HF-625	Driver for T8 Ø 3 Standard 100 mm Ball	1
4	111-033	Bender Plate 2.5T	1	4	111-033	Bender Plate 2.5T	1
5	111-148	Length Guide for Ø 2.4 0820	1	5	111-148	Length Guide for Ø 2.4 0820	1
6	111-151	Handle Type1 Ø 3.0	1	6	111-151	Handle Type1 Ø 3.0	1
7	111-262	Handle Type5 Ø 3.0	1	7	111-262	Handle Type5 Ø 3.0	1
8	111-154	Forceps Bone Reduction (Large)	1	8	111-154	Forceps Bone Reduction (Large)	1
9	111-155	Forceps Bone Reduction	1	9	111-155	Forceps Bone Reduction	1
10	111-156	Cutter 1.0T	1	10	111-156	Cutter 1.0T	1
11	111-190	Cutter 2.1T	1	11	111-190	Cutter 2.1T	1
12	114-009	Forceps Common	1	12	114-009	Forceps Common	1
13	112-107	Sternal Full Kit	1	13	112-107	Sternal Full Kit	1
14	112-107-4	Sternal Caddy	1	14	112-107-4	Sternal Caddy	1
15	112-137-3	Sternal & Rib Caddy	1	15	112-137-3	Sternal & Rib Caddy	1
2.4 Locking Screws (Auto)				2.7 Locking Screws			
No.	Code	Description	Set Quantity	No.	Code	Description	Set Quantity
1	S24L-SA-S06-TA	24 Locking, T8, 6 mm	1	1	S27L-SA-S06-TA	27 Locking, T8, 6 mm	1
2	S24L-SA-S08-TA	24 Locking, T8, 8 mm	1	2	S27L-SA-S08-TA	27 Locking, T8, 8 mm	1
3	S24L-SA-S10-TA	24 Locking, T8, 10 mm	1	3	S27L-SA-S10-TA	27 Locking, T8, 10 mm	1
4	S24L-SA-S12-TA	24 Locking, T8, 12 mm	1	4	S27L-SA-S12-TA	27 Locking, T8, 12 mm	1
5	S24L-SA-S14-TA	24 Locking, T8, 14 mm	1	5	S27L-SA-S14-TA	27 Locking, T8, 14 mm	1
6	S24L-SA-S16-TA	24 Locking, T8, 16 mm	1	6	S27L-SA-S16-TA	27 Locking, T8, 16 mm	1
7	S24L-SA-S18-TA	24 Locking, T8, 18 mm	1	7	S27L-SA-S18-TA	27 Locking, T8, 18 mm	1
8	S24L-SA-S06-TA-4	24 Locking, T8, 6 mm	4	8	S27L-SA-S06-TA-4	27 Locking, T8, 6 mm	4
9	S24L-SA-S08-TA-4	24 Locking, T8, 8 mm	4	9	S27L-SA-S08-TA-4	27 Locking, T8, 8 mm	4
10	S24L-SA-S10-TA-4	24 Locking, T8, 10 mm	4	10	S27L-SA-S10-TA-4	27 Locking, T8, 10 mm	4
11	S24L-SA-S12-TA-4	24 Locking, T8, 12 mm	4	11	S27L-SA-S12-TA-4	27 Locking, T8, 12 mm	4
12	S24L-SA-S14-TA-4	24 Locking, T8, 14 mm	4	12	S27L-SA-S14-TA-4	27 Locking, T8, 14 mm	4
13	S24L-SA-S16-TA-4	24 Locking, T8, 16 mm	4	13	S27L-SA-S16-TA-4	27 Locking, T8, 16 mm	4
14	S24L-SA-S18-TA-4	24 Locking, T8, 18 mm	4	14	S27L-SA-S18-TA-4	27 Locking, T8, 18 mm	4

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