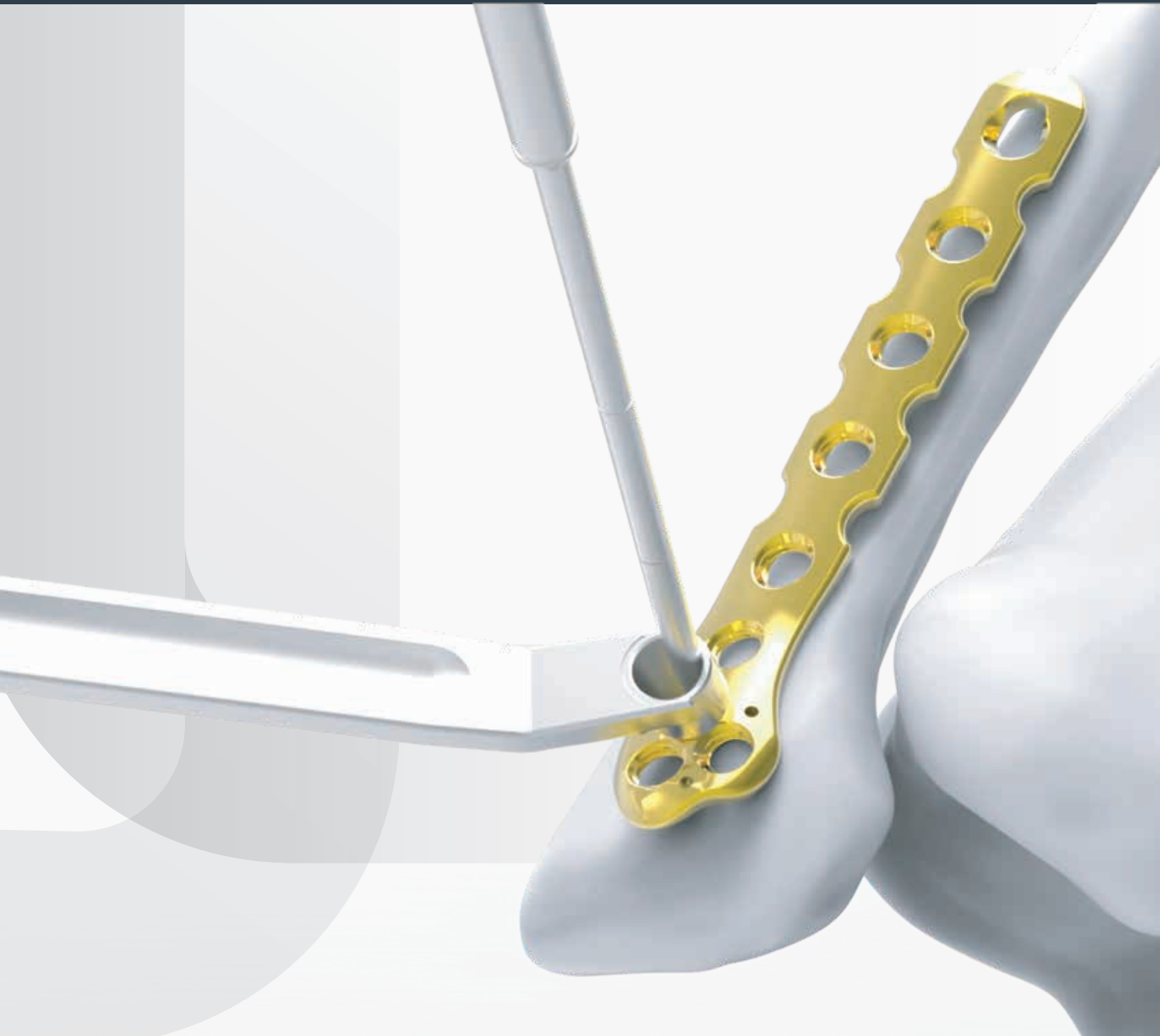


# FIBULA LOCKING PLATE SYSTEM

Surgical Guide



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The SUMMA Ankle System (Fibula) is intended for use in the internal fixation of the distal fibula.

## Plate Specifications

Plates	Thickness	Length	Holes	Color	Material
Lateral Distal Fibula Plates	2.0 mm	62 ~ 122mm	3 ~ 8	Gold ●	Pure Titanium Gr.4
Straight Distal Fibula Plates		38 ~ 122mm	3 ~ 10	Blue ●	

## Screw Specifications

Screw Types	Outer Diameter	Length	Insertion Type	Screw Head Recess	Color	Material
Locking Screw	Ø 3.5 mm	10 ~ 50 mm	Self-Tapping	Hexagonal	Silver ●	Titanium Alloy
Cortical Screw (Non-Locking)		10 ~ 70mm				

## Materials

All plates are made from pure titanium material in conformity with ASTM F67.

All screws are made from titanium alloy material in conformity with ASTM F136.

The titanium is an ideal material for implant as it is biocompatible, corrosion resistant, and non-toxic.

## Benefits of Locking Plating System

Locking plate and screw system provides more stable fixation than conventional plate and screw system. Locking screws do not rely on bone-to-plate compression and will not be loosened from the plate during the healing process. A fixed angle construct can be created by using locking screws in osteopenic bones or multi fragmentary fractures where secure bone purchase with conventional screws may be compromised.



### Anatomically twisted body of the lateral plate

The twisted body of the lateral plate accommodates the lateral anatomy of the distal fibula.



### Anatomically pre-contoured plate design

The SUMMA Fibula plates are pre-contoured to fit the distal fibula with minimal plate bending.

Additional bending of distal fibula plates may be necessary depending on the patients' bone anatomy.

Plate bending can be performed by using the plate bender (111-088).



### Guide pin holes for temporary plate fixation

Guide Pin can be placed for temporary plate fixation. The guide pin holes accept guide pins up to 1.6mm thick.



### Multiple Distal Screws

Multiple distal screws on the head of the lateral plate enable stable periarticular fixation by providing multiple points of fixation in fractures with multiple fragments or limited distal bone stock.



### Syndesmotic screw placement

The edges of the plates are scalloped to allow syndesmotic screw placement outside the plate without compromising the plate's position.



### Poly-Axial Locking System

Both the locking or cortical screws can be inserted in  $\pm 10^\circ$  with respect to the plate in any direction as surgical needs dictate.



### Variable Angle Drill Guide

The variable angle drill guide helps to drill pilot holes within the poly-axial range of  $\pm 10^\circ$ .



### Fixed Angle Drill Sleeve

The drill sleeve helps to drill a pilot hole in the nominal trajectory.

Scales are marked on the drill guide and the drill bit for prompt depth measurement without the help of a depth gauge.



## Surgical Technique – Straight Distal Fibula Locking Plates (Shaft Fracture)

### Reduction

Expose and clean the fracture site and reduce the fracture.



### Insertion of a lag screw (Optional)

#### Drilling

Drill a 3.6 mm gliding hole for the lag screw into the anterior cortex of the proximal fragment. The hole should be drilled as perpendicular to the fracture plane as possible.

Insert the 2.7 mm drill sleeve into the gliding hole, then drill the far cortex with the 2.7 mm drill bit.



Instruments	
Code	Description
112-35-601-L	Drill Bit Ø3.6mm for Lag Screw Technique
112-35-603	Drill Bit Ø2.7mm for 3.5mm Screws
111-087	Fixed Angle Drill Sleeve for Ø2.7mm Drill Bit
111-100	Lag & Compression Drill Guide for Ø3.6 & 2.7mm Drill Bit

#### Measuring

Measure the depth of the hole with the hook of the depth gauge pointing distally.

Instrument	
Code	Description
111-086	Depth Gauge



#### Lag screw insertion

Closely observe the compression effect on the fracture line while tightening the lag screw.



### Plate preparation

#### Bending the plate

Prepare a plate. If surgical needs dictate, bend the plate slightly to match the anatomic shape of the bone.

Instruments	
Code	Description
111-088	Bender
114-009	Grasping Forceps



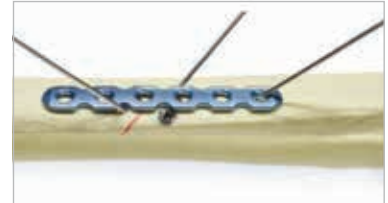


## Pinning

Guide pins can be placed through the distal end of the plate to assist with temporary maintenance of the reduction and plate placement.

### Instrument

Code	Description
111-068-3	Guide Pin Ø1.6mm

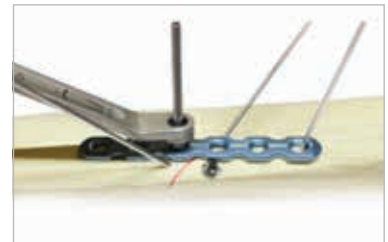


## Drilling

Use the drill bit through the drill guide to predrill the bone.

### Instruments

Code	Description
111-089	Drill Guide for Ø2.7mm Drill Bit
112-35-603	Drill Bit Ø2.7mm for 3.5mm Screws

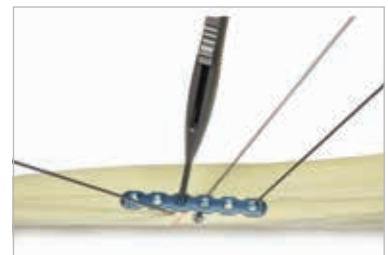


## Depth measurement

Measure for screw length using the depth gauge.

### Instrument

Code	Description
111-086	Depth Gauge



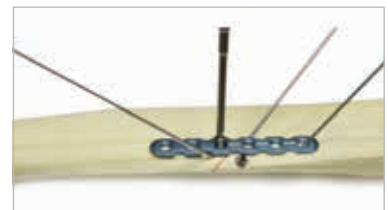
## Fixation

Select and insert the appropriate screw.

Fixation should start at the hole near to the proximal fracture line.

### Instruments

Code	Description
111-063	Screwdriver Handle
111-087	Fixed Angle Drill Sleeve for Ø2.7mm Drill Bit
111-100	Lag & Compression Drill Guide for Ø3.6 & 2.7mm Drill Bit



## Confirm reduction and fixation

Confirm the stability of the fixation and make sure that there is unrestricted motion at the ankle joint.



## Surgical Technique – Straight Distal Fibula Locking Plate (Distal Malleolus Fracture)

### Reduction

Expose and clean the fracture site and reduce the fracture.



### Insertion of a lag screw (Optional)

#### Drilling

Drill a 3.6 mm gliding hole for the lag screw into the anterior cortex of the proximal fragment. The hole should be drilled as perpendicular to the fracture plane as possible.

Insert the 2.7 mm drill sleeve into the gliding hole, then drill the far cortex with the 2.7 mm drill bit.



Instruments	
Code	Description
112-35-601-L	Drill Bit Ø3.6mm for Lag Screw Technique
112-35-603	Drill Bit Ø2.7mm for 3.5mm Screws
111-087	Fixed Angle Drill Sleeve for Ø2.7mm Drill Bit
111-100	Lag & Compression Drill Guide for Ø3.6 & 2.7mm Drill Bit

#### Measuring

Measure the depth of the hole with the hook of the depth gauge pointing distally.

Instrument	
Code	Description
111-086	Depth Gauge



#### Lag screw insertion

Closely observe the compression effect on the fracture line while tightening the lag screw.



### Plate preparation

#### Bending the plate

Prepare a plate. If surgical needs dictate, bend the plate slightly to match the anatomic shape of the bone.

Instruments	
Code	Description
111-088	Bender
114-009	Grasping Forceps

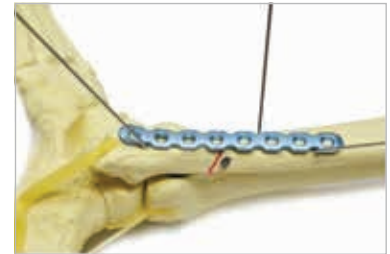


## Pinning

Guide pins can be placed through the distal end of the plate to assist with temporary maintenance of the reduction and plate placement.

### Instrument

Code	Description
111-068-3	Guide Pin Ø1.6mm



## Drilling

Use the drill bit through the drill guide to predrill the bone.

### Instruments

Code	Description
111-089	Drill Guide for Ø2.7mm Drill Bit
112-35-603	Drill Bit Ø2.7mm for 3.5mm Screws



## Depth measurement

Measure for screw length using the depth gauge.

### Instrument

Code	Description
111-086	Depth Gauge



## Fixation

Select and insert the appropriate screw.

Fixation should start at the hole near to the proximal fracture line.

### Instruments

Code	Description
111-063	Screwdriver Handle
111-087	Fixed Angle Drill Sleeve for Ø2.7mm Drill Bit
111-100	Lag & Compression Drill Guide for Ø3.6 & 2.7mm Drill Bit



## Confirm reduction and fixation

Confirm the stability of the fixation and make sure that there is unrestricted motion at the ankle joint.



## Fixation of the syndesmotic complex (Optional)

### Syndesmosis

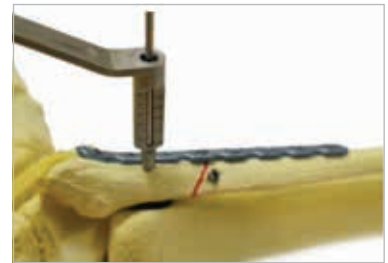
If the syndesmosis is disrupted, it must be stabilized.

### Drilling

Drill a hole through the fibula and the lateral cortex of the tibia, just proximal to the inferior tibiofibular joint, 30 degrees from posterior to anterior, parallel to the tibial plafond, with the ankle joint in neutral position.

#### Instruments

Code	Description
111-089	Drill Guide for Ø2.7mm Drill Bit
112-35-603	Drill Bit Ø2.7mm for 3.5mm Screws



### Depth measurement

Measure for screw length using the depth gauge.

#### Instrument

Code	Description
111-086	Depth Gauge



### Screw insertion

Use a depth gauge to determine the length of the screw.

The foot should be in neutral position during the positioning of the screw.

#### Instruments

Code	Description
111-063	Screwdriver Handle
111-087	Fixed Angle Drill Sleeve for Ø2.7mm Drill Bit
111-100	Lag & Compression Drill Guide for Ø3.6 & 2.7mm Drill Bit



## Surgical Technique – Lateral Distal Fibula Locking Plates

### Reduction

Expose and clean the fracture site and reduce the fracture.



### Insertion of a lag screw (Optional)

#### Drilling

Drill a 3.6 mm gliding hole for the lag screw into the anterior cortex of the proximal fragment. The hole should be drilled as perpendicular to the fracture plane as possible.

Insert the 2.7 mm drill sleeve into the gliding hole, then drill the far cortex with the 2.7 mm drill bit.



#### Instruments

Code	Description
112-35-601-L	Drill Bit Ø3.6mm for Lag Screw Technique
112-35-603	Drill Bit Ø2.7mm for 3.5mm Screws
111-087	Fixed Angle Drill Sleeve for Ø2.7mm Drill Bit
111-100	Lag & Compression Drill Guide for Ø3.6 & 2.7mm Drill Bit

#### Measuring

Measure the depth of the hole with the hook of the depth gauge pointing distally.

#### Instrument

Code	Description
111-086	Depth Gauge



#### Lag screw insertion

Closely observe the compression effect on the fracture line while tightening the lag screw.



### Plate preparation

#### Bending the plate (optional)

Prepare a plate. If surgical needs dictate, bend the plate slightly to match the anatomic shape of the bone.

#### Instruments

Code	Description
111-088	Bender
114-009	Grasping Forceps



## Pinning

Guide pins can be placed through the distal end of the plate to assist with temporary maintenance of the reduction and plate placement.

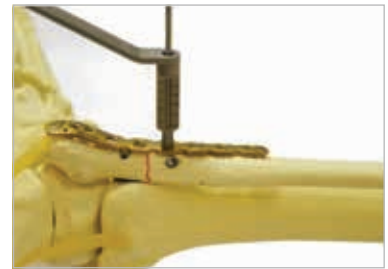
Instrument	
Code	Description
111-068-3	Guide Pin Ø1.6mm



## Drilling

Use the drill bit through the drill guide to predrill the bone.

Instruments	
Code	Description
111-089	Drill Guide for Ø2.7mm Drill Bit
112-35-603	Drill Bit Ø2.7mm for 3.5mm Screws



## Depth measurement

Measure for screw length using the depth gauge.

Instrument	
Code	Description
111-086	Depth Gauge



## Fixation

Select and insert the appropriate screw.

Fixation should start at the hole near to the proximal fracture line.

Instruments	
Code	Description
111-063	Screwdriver Handle
111-087	Fixed Angle Drill Sleeve for Ø2.7mm Drill Bit
111-100	Lag & Compression Drill Guide for Ø3.6 & 2.7mm Drill Bit



## Confirm reduction and fixation

Confirm the stability of the fixation and make sure that there is unrestricted motion at the ankle joint.



## Fixation of the syndesmotic complex (Optional)

### Syndesmosis

If the syndesmosis is disrupted, it must be stabilized.



### Drilling

Drill a hole through the fibula and the lateral cortex of the tibia, just proximal to the inferior tibiofibular joint, 30 degrees from posterior to anterior, parallel to the tibial plafond, with the ankle joint in neutral position.

#### Instruments

Code	Description
111-089	Drill Guide for Ø2.7mm Drill Bit
112-35-603	Drill Bit Ø2.7mm for 3.5mm Screws



### Depth measurement

Measure for screw length using the depth gauge.

#### Instrument

Code	Description
111-086	Depth Gauge



### Screw insertion

Use a depth gauge to determine the length of the screw.

The foot should be in neutral position during the positioning of the screw.

#### Instruments

Code	Description
111-063	Screwdriver Handle
111-087	Fixed Angle Drill Sleeve for Ø2.7mm Drill Bit
111-100	Lag & Compression Drill Guide for Ø3.6 & 2.7mm Drill Bit



## Ordering Information

<i>Ø3.5 Fibular Locking Plate Implants – Screws</i>					
<i>No</i>	<i>Code</i>	<i>Description</i>	<i>Head Diameter (A)</i>	<i>Outer Diameter (B)</i>	<i>Quantity</i>
1	35L-HF-010	3.5 Locking Screw (10mm)	Ø5.0	Ø3.5	10
2	35L-HF-012	3.5 Locking Screw (12mm)			15
3	35L-HF-014	3.5 Locking Screw (14mm)			15
4	35L-HF-016	3.5 Locking Screw (16mm)			15
5	35L-HF-018	3.5 Locking Screw (18mm)			10
6	35L-HF-020	3.5 Locking Screw (20mm)			10
7	35L-HF-022	3.5 Locking Screw (22mm)			10
8	35L-HF-024	3.5 Locking Screw (24mm)			10
9	35L-HF-028	3.5 Locking Screw (28mm)			10
10	35L-HF-032	3.5 Locking Screw (32mm)			10
11	35L-HF-036	3.5 Locking Screw (36mm)			5
12	35L-HF-040	3.5 Locking Screw (40mm)			5
13	35L-HF-040	3.5 Locking Screw (45mm)			5
14	35L-HF-045	3.5 Locking Screw (50mm)			5
15	35-FC-010	3.5 Cortical Screw (10mm)			8
16	35-FC-012	3.5 Cortical Screw (12mm)			8
17	35-FC-014	3.5 Cortical Screw (14mm)			8
18	35-FC-016	3.5 Cortical Screw (16mm)			8
19	35-FC-018	3.5 Cortical Screw (18mm)			8
20	35-FC-020	3.5 Cortical Screw (20mm)			8
21	35-FC-022	3.5 Cortical Screw (22mm)			8
22	35-FC-024	3.5 Cortical Screw (24mm)			8
23	35-FC-028	3.5 Cortical Screw (28mm)			8
24	35-FC-032	3.5 Cortical Screw (32mm)			4
25	35-FC-036	3.5 Cortical Screw (36mm)			4
26	35-FC-040	3.5 Cortical Screw (40mm)			4
27	35-FC-045	3.5 Cortical Screw (45mm)			4
28	35-FC-050	3.5 Cortical Screw (50mm)			4
29	35-FC-055	3.5 Cortical Screw (55mm)			4
30	35-FC-060	3.5 Cortical Screw (60mm)			4
31	35-FC-065	3.5 Cortical Screw (65mm)			4
32	35-FC-070	3.5 Cortical Screw (70mm)			4

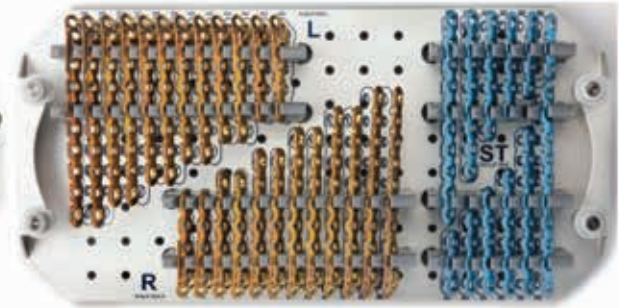


<i>Ø3.5 Fibular Locking Plate Implants – Plate</i>			
<i>No</i>	<i>Code</i>	<i>Description</i>	<i>Quantity</i>
1	35-DLFI-003-L	Lateral, Left, Length 62mm, 3 Shaft Holes	3
2	35-DLFI-004-L	Lateral, Left, Length 74mm, 4 Shaft Holes	3
3	35-DLFI-005-L	Lateral, Left, Length 86mm, 5 Shaft Holes	3
4	35-DLFI-006-L	Lateral, Left, Length 98mm, 6 Shaft Holes	3
5	35-DLFI-007-L	Lateral, Left, Length 110mm, 7 Shaft Holes	3
6	35-DLFI-008-L	Lateral, Left, Length 122mm, 8 Shaft Holes	3
7	35-DLFI-003-R	Lateral, Right, Length 62mm, 3 Shaft Holes	3
8	35-DLFI-004-R	Lateral, Right, Length 74mm, 4 Shaft Holes	3
9	35-DLFI-005-R	Lateral, Right, Length 86mm, 5 Shaft Holes	3
10	35-DLFI-006-R	Lateral, Right, Length 98mm, 6 Shaft Holes	3
11	35-DLFI-007-R	Lateral, Right, Length 110mm, 7 Shaft Holes	3
12	35-DLFI-008-R	Lateral, Right, Length 122mm, 8 Shaft Holes	3
13	35-DLST-003	Straight, Length 38mm, 3 Holes	3
14	35-DLST-004	Straight, Length 50mm, 4 Holes	3
15	35-DLST-005	Straight, Length 62mm, 5 Holes	3
16	35-DLST-006	Straight, Length 74mm, 6 Holes	3
17	35-DLST-008	Straight, Length 98mm, 8 Holes	3
18	35-DLST-010	Straight, Length 122mm, 10 Holes	3

<i>Instruments</i>			
<i>No</i>	<i>Code</i>	<i>Description</i>	<i>Quantity</i>
1	111-063	Screwdriver Handle	2
2	111-086	Depth Gauge	1
3	112-35-603	Drill Bit Ø2.7mm for 3.5mm Screws	2
4	111-089	Drill Guide for Ø2.7mm Drill Bit	1
5	111-100	Lag & Compression Drill Guide for Ø3.6 & 2.7mm Drill Bit	1
6	111-087	Fixed Angle Drill Sleeve for Ø2.7mm Drill Bit	1
7	114-009	Grasping Forceps	1
8	113-HF-611	Screwdriver Shaft for 3.5mm Screws	2
9	111-068-3	Guide Pin Ø1.6mm	10
10	111-088	Bender	2
11	112-35-601-L	Drill Bit Ø3.6mm for Lag Screw Technique	1
12	111-096	Guide Pin Dispenser	1
13	112-087	SUMMA Fibula Locking Plate System Container	1



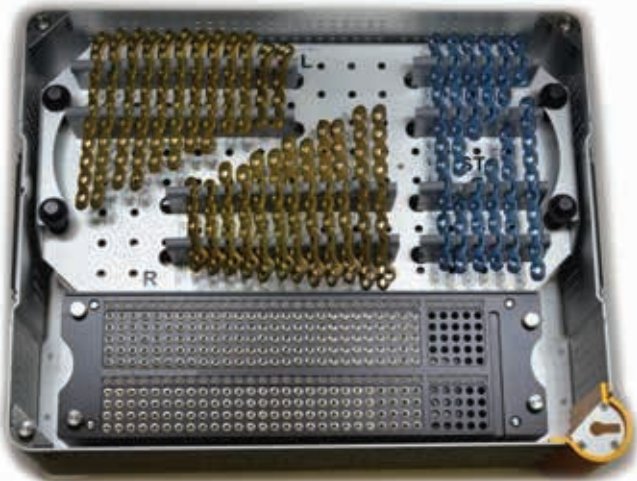
[3.5 Locking and Cortical Screws]



[Lateral Distal Fibula Plates and Straight Plates]



[Instruments for Distal Fibula Plates and Screws]



[Full Set]

A 3D anatomical model of a human leg, showing the femur and fibula. A yellow locking plate is attached to the fibula, secured with several locking screws. The plate has a series of circular locking holes along its length. The femur is shown in a light blue color, and the fibula is in a light green color. The background is a dark blue gradient.

## SUMMA Fibula Locking Plate System

Manufactured for Summa Orthopaedics by Jeil Medical. Distributed by Maxx Health Inc.



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