

## MIS Foot Recon System Intelligently designed for minimally invasive surgery.



## Implant options

		Full Thread (MIS Bunion)		I	Partial Thread (MIS Fusion	)
Diameter	ø3.0mm	ø3.5mm	ø4.0mm	ø3.0mm	ø3.5mm	ø4.0mm
Length	20 – 50mm	26 - 66mm	26 – 66mm	16 - 40mm	20 – 60mm	20 – 60mm
Pre-Drill	Ø2.3mm	Ø2.9mm	Ø3.6mm	Ø2.3mm	Ø2.4mm	Ø2.7mm
Driver	Т9	T10	T15	Т9	T10	T15
Wire	1.2 x 150mm Stainless Steel	1.4 x 200mm Cobalt Chrome	1.6 x 200mm Cobalt Chrome	1.2 x 150mm Stainless Steel	1.4 x 150mm Titanium	1.6 x 150mm Titanium



	Le	ft	R	ight
Bailout	Standard	Large	Large	Standard
Revision				

## MIS Burr reference guide

Image	Product Description	Applications	Item Number
	2.0 x 8 mm, Shannon Corta	Hammertoe	MBUR2008
	2.0 x 13 mm, Shannon Recta	Akin, DMMO	MBUR2013
	2.2 x 12 mm, Shannon Larga	Akin, Bunion, Joint Prep	MBUR2212
	2.2 x 20 mm, Shannon Recta Larga	Bunion (Cutting), Joint Prep	MBUR2220
	2.9 x 13 mm, Straight Wedge	Bunion (Shaving), Cheilectomy	MBUR2913
	3.1 x 20 mm, Shannon Recta 3 Larga	Calc slide	MBUR3120
	4.3 x 13 mm, Conical Wedge	Cheilectomy	MBUR4313

# MIS bunion technique

### Step 1. Surgical Approach

Take a fluoroscopic image of the first metatarsal and sketch out bones, joint space, and the location of the midaxial first metatarsal in a lateral view to plan for percutaneous procedure.

Make a percutaneous incision at the metadiaphyseal junction of the head of the first metatarsal, dorsal to the midaxial line (figure 1).

Use a hemostat to dissect down to bone; a periosteal elevator may be used to free the soft tissue (figure 2).

### Step 2. Perform 1<sup>st</sup> Metatarsal Osteotomy

Insert a burr through the percutaneous hole and confirm trajectory under fluoroscopy. If desired, slide the burr cut guide over the shaft of the burr and fixate with wires (for transverse osteotomy only).

Create a chevron or transverse osteotomy of the first metatarsal using the burr (figure 3). It is recommended that the cut should be parallel to the TMT joint and the burr trajectory should target the 4th MTP joint. Use fluoroscopy to confirm the osteotomy is complete.



### Step 3. Capital Fragment Translation

De-rotate the capital fragment manually or with a joystick wire for proper sesamoid alignment.

Distract the osteotomy and insert the tip of the translator instrument through the percutaneous hole and into the intramedullary canal of the 1st metatarsal (figure 4). Apply pressure to the translator and shift the fragment laterally until the desired position is achieved (figure 5).

Optional: Temporarily pin the translation of the fragment using fixation wires in the translator holes to maintain position. The wire may be advanced into the 2nd metatarsal for additional stability.

### Step 4. Proximal Wire Placement

For reproducibility, under fluoroscopy in an anterior/posterior view, draw the preferred trajectory of the guidewire. It is recommended that the entry point for the wire should be at the proximal medial base of the 1st metatarsal, approximately 7-10mm from the osteotomy. Choose preferred guidewire size based on expected screw diameter and drive through the metatarsal shaft into the head of the capital fragment (figure 6). Confirm trajectory under fluoroscopy (figure 7).

Create a percutaneous incision at the entry point of the wire where the screw will be inserted.



### Step 5. Distal Wire Placement

Place smaller diameter of parallel wire guide over proximal wire and advance until firmly seated against the metatarsal. It is recommended to make an incision to allow the guide to fully seat (figure 8). Assemble the appropriate sleeve and handle of parallel wire guide and advance wire sleeve through parallel guide to desired entry position of the distal wire/screw (figure 9). Using fluoroscopy, place a secondary wire distal and parallel to the proximal wire and into the capital fragment (figure 10).

Remove parallel wire guide. Use fluoroscopy in multiple views to ensure the trajectory correction is as desired (figure 11). Create a percutaneous incision at the entry point of the wire where the screw will be inserted.



### Step 6. Proximal Screw Preparation & Insertion

Slide the depth gauge over the proximal wire and down to the bone; measure for the length of the proximal screw (figure 12).

Place the tissue protector over the proximal wire and against the bone. Ensure window of tissue protector is aimed medially. Drill over the proximal wire and into the capital fragment, maintaining correction position (figure 13).

Ensure screw side of tissue protector is placed on bone. Countersink over the proximal wire (figure 14).

Ensure laser marking on driver aligns with the screw head bevel for optimal driver engagement. Line up the laser mark on the driver shaft with the laser mark on the screw. Place proximal screw over the wire and then use the appropriate driver to insert the screw, stopping just short of the far cortex of the capital fragment.

Use the driver and fluoroscopy to ensure proper alignment of the screw head chamfer (figure 15). A secondary diagonal mark on the driver will match the orientation of the screw head bevel, and can be used as a visual reference for the orientation of the screw in the bone. Remove proximal wire when screw is placed (figure 16).



### Step 7. Distal Screw Preparation & Insertion

Repeat the steps for the distal screw. Slide the depth gauge over the distal wire and down to the bone; measure for the length of the distal screw (figure 17).

Place the tissue protector over the distal wire and against the bone. Ensure window of tissue protector is aimed medially. Drill over the distal wire and into the capital fragment, maintaining correction position (figure 18).

Ensure screw side of tissue protector is placed on bone. Countersink over the distal wire (figure 19).

Ensure laser marking on driver aligns with the screw head bevel for optimal driver engagement. Line up the laser mark on the driver shaft with the laser mark on the screw. Place distal screw over the wire and then use the appropriate driver to insert the screw, stopping just short of the far cortex of the capital fragment.

Use the driver and fluoroscopy to ensure proper alignment of the screw head chamfer (figure 20). A secondary diagonal mark on the driver will match the orientation of the screw head bevel, and can be used as a visual reference for the orientation of the screw in the bone. Remove distal wire when screw is placed.











### Step 8. Remove Medial Eminence

If necessary, remove distal medial eminence of the metatarsal using a burr or rongeur through the first percutaneous hole (figure 21).

### Step 9. Perform Akin Osteotomy & Wire Placement

Make a percutaneous cut midaxially to the hallux proximal phalanx. Insert a burr through the percutaneous hole and confirm trajectory under fluoroscopy. Create an Akin (wedge) osteotomy of the proximal phalanx using the burr.

Hold the wedge osteotomy closed and place a guidewire to temporarily fixate the osteotomy. Confirm desired trajectory under fluoroscopy. Create a percutaneous incision at the entry point of the wire where the screw will be inserted.

## Step 10. Akin Screw Preparation & Insertion

Slide the depth gauge over the wire and down to the bone; measure for the length of the screw.

Place tissue protector over the wire and against the bone. Ensure window of tissue protector is aimed medially. Drill over the wire through both cortices of the bone. Ensure screw side of tissue protector is placed on bone. Countersink over the wire.

Place screw over the wire using appropriate driver to insert the screw through both cortices. Use the driver and fluoroscopy to ensure proper alignment of screw head chamfer. Remove wire when screw is placed. Ensure desired hallux correction and fixation under fluoroscopy (figure 22-24).



Figure 21

Figure 22





## Bailout & Revision Plates

Bailout and revision plates are available if complications arise and for failed MIS bunions.

If a plate is needed, select the appropriate plate and implant using standard plate/screw technique (figure 25).



## Tray Layout



## Section 1

#### **MIS Bunion Instruments**

Item No.	Description	Qty.
MSN40015	Blade Handle	1
MSN50002	Periosteal Elevator	1
MSN50001	Percutaneous Rasp	1
MSN50000	Translator	1
MSN50003	4:1 Speed Reducer	1
MSN50013	Irrigation Clip	1
SNAPWIRE	Ø1.1 x 50mm Guidewire	6
MSN40021	Ø1.2mm Parallel Wire Guide	1
MSN40022	Ø1.4mm Parallel Wire Guide	1
MSN40023	Ø1.6mm Parallel Wire Guide	1
MSN40018	Ø1.2mm Wire Guide Sleeve	1
MSN40019	Ø1.4mm Wire Guide Sleeve	1
MSN40020	Ø1.6mm Wire Guide Sleeve	1
MSN40024	Burr Cut Guide	1
MSN40017	Parallel Wire Guide Handle	1

## Section 2

### Screw Prep Instruments

Item No.	Description	Qty.
MSN40016	Depth Gauge – 150mm Wire	1
MSG12150	Ø1.2 x 50mm Guidepin	10
MSN40026	Ø3.0mm Tissue Protector	1
MSN10019	Ø2.3mm Cannulated Drill Bit	2
MSN20021	Ø3.0mm FT Cannulated Countersink	2
MSN20016	Ø3.0mm PT Cannulated Countersink	2
MSN30007	T9 Cannulated Driver	2
MSN40029	Depth Gauge – 200mm Wire	1
MGW14200	Ø1.4 x 200mm Guidepin	10
MSN40027	Ø3.5mm FT Tissue Protector	1
MSN10020	Ø2.9mm Cannulated Drill Bit	2
MSN20017	Ø3.5mm FT Cannulated Countersink	2
MSN30008	T10 Cannulated Driver	2
MGW16200	Ø1.6 x 200mm Guidepin	10
MSN40028	Ø4.0mm FT Tissue Protector	1
MSN10021	Ø3.6mm Cannulated Drill Bit	2
MSN20018	Ø4.0mm FT Cannulated Countersink	2
MSN30009	T15 Cannulated Driver	2

## Section 3

#### **MIS Bunion and Fusion Screws**

<b>n</b> rew. 3.0 x 20mm	Qty.	Item No.	Description	0.00
rew. 3.0 x 20mm				Qty.
	3	MSCF3544	MIS FT Screw, 3.5 X 44mm	3
rew, 3.0 x 22mm	3	MSCF3546	MIS FT Screw, 3.5 X 46mm	3
rew, 3.0 x 24mm	3	MSCF3548	MIS FT Screw, 3.5 X 48mm	3
rew, 3.0 x 26mm	3	MSCF3550	MIS FT Screw, 3.5 X 50mm	3
rew, 3.0 x 28mm	3	MSCF3552	MIS FT Screw, 3.5 X 52mm	3
rew, 3.0 x 30mm	3	MSCF3554	MIS FT Screw, 3.5 X 54mm	3
rew, 3.0 x 32mm	3	MSCF3556	MIS FT Screw, 3.5 X 56mm	3
rew, 3.0 x 34mm	3	MSCF3558	MIS FT Screw, 3.5 X 58mm	3
rew, 3.0 x 36mm	3	MSCF3560	MIS FT Screw, 3.5 X 60mm	3
rew, 3.0 x 38mm	3	MSCF3562	MIS FT Screw, 3.5 X 62mm	3
rew, 3.0 x 40mm	3	MSCF3564	MIS FT Screw, 3.5 X 64mm	3
rew, 3.0 x 42mm	3	MSCF3566	MIS FT Screw, 3.5 X 66mm	3
rew, 3.0 x 44mm	3	MSCF4026	MIS FT Screw, 4.0 X 26mm	3
rew, 3.0 x 46mm	3	MSCF4028	MIS FT Screw, 4.0 X 28mm	3
rew, 3.0 x 48mm	3	MSCF4030	MIS FT Screw, 4.0 X 30mm	3
rew, 3.0 x 50mm	3	MSCF4032	MIS FT Screw, 4.0 X 32mm	3
rew, 3.0 x 16mm	3	MSCF4034	MIS FT Screw, 4.0 X 34mm	3
rew, 3.0 x 18mm	3	MSCF4036	MIS FT Screw, 4.0 X 36mm	3
rew, 3.0 x 20mm	3	MSCF4038	MIS FT Screw, 4.0 X 38mm	3
rew, 3.0 x 22mm	3	MSCF4040	MIS FT Screw, 4.0 X 40mm	3
rew, 3.0 x 24mm	3	MSCF4042	MIS FT Screw, 4.0 X 42mm	3
rew, 3.0 x 26mm	3	MSCF4044	MIS FT Screw, 4.0 X 44mm	3
rew, 3.0 x 28mm	3	MSCF4046	MIS FT Screw, 4.0 X 46mm	3
rew, 3.0 x 30mm	3	MSCF4048	MIS FT Screw, 4.0 X 48mm	3
rew, 3.0 x 32mm	3	MSCF4050	MIS FT Screw, 4.0 X 50mm	3
rew, 3.0 x 34mm	3	MSCF4052	MIS FT Screw, 4.0 X 52mm	3
rew, 3.0 x 36mm	3	MSCF4054	MIS FT Screw, 4.0 X 54mm	3
rew, 3.0 x 38mm	3	MSCF4056	MIS FT Screw, 4.0 X 56mm	3
rew, 3.0 x 40mm	3	MSCF4058	MIS FT Screw, 4.0 X 58mm	3
rew, 3.5 X 26mm	3	MSCF4060	MIS FT Screw, 4.0 X 60mm	3
rew, 3.5 X 28mm	3	MSCF4062	MIS FT Screw, 4.0 X 62mm	3
rew, 3.5 X 30mm	3	MSCF4064	MIS FT Screw, 4.0 X 64mm	3
rew, 3.5 X 32mm	3	MSCF4066	MIS FT Screw, 4.0 X 66mm	3
rew, 3.5 X 34mm	3	MSCP3520	MIS PT Screw, 3.5 X 20mm	3
rew, 3.5 X 36mm	3	MSCP3522	MIS PT Screw, 3.5 X 22mm	3
rew, 3.5 X 38mm	3	MSCP3524	MIS PT Screw, 3.5 X 24mm	3
rew, 3.5 X 40mm	3	MSCP3526	MIS PT Screw, 3.5 X 26mm	3
rew, 3.5 X 42mm	3	MSCP3528	MIS PT Screw, 3.5 X 28mm	3
	rew, 3.0 x 22mm   rew, 3.0 x 24mm   rew, 3.0 x 26mm   rew, 3.0 x 28mm   rew, 3.0 x 30mm   rew, 3.0 x 30mm   rew, 3.0 x 30mm   rew, 3.0 x 34mm   rew, 3.0 x 40mm   rew, 3.0 x 44mm   rew, 3.0 x 44mm   rew, 3.0 x 46mm   rew, 3.0 x 46mm   rew, 3.0 x 20mm   rew, 3.0 x 22mm   rew, 3.0 x 22mm   rew, 3.0 x 22mm   rew, 3.0 x 22mm   rew, 3.0 x 28mm   rew, 3.0 x 28mm   rew, 3.0 x 28mm   rew, 3.0 x 30mm   rew, 3.5 X 28mm   rew, 3.5 X 30mm   rew, 3.5 X 30mm   rew, 3.5 X 30mm   rew, 3.5 X 40mm	ew, 3.0 x 22mm 3   ew, 3.0 x 24mm 3   ew, 3.0 x 26mm 3   ew, 3.0 x 28mm 3   ew, 3.0 x 30mm 3   ew, 3.0 x 34mm 3   ew, 3.0 x 34mm 3   rew, 3.0 x 40mm 3   rew, 3.0 x 40mm 3   rew, 3.0 x 44mm 3   rew, 3.0 x 44mm 3   rew, 3.0 x 46mm 3   rew, 3.0 x 46mm 3   rew, 3.0 x 20mm 3   rew, 3.0 x 20mm 3   rew, 3.0 x 20mm 3   rew, 3.0 x 22mm 3   rew, 3.0 x 32mm 3   rew, 3.0 x 3	aMSCF3546ew, 3.0 x 24mm3MSCF3548ew, 3.0 x 26mm3MSCF3550ew, 3.0 x 28mm3MSCF3552ew, 3.0 x 30mm3MSCF3556ew, 3.0 x 30mm3MSCF3556ew, 3.0 x 34mm3MSCF3556ew, 3.0 x 34mm3MSCF3560ew, 3.0 x 34mm3MSCF3562ew, 3.0 x 34mm3MSCF3566ew, 3.0 x 40mm3MSCF3566ew, 3.0 x 40mm3MSCF3566ew, 3.0 x 44mm3MSCF4026ew, 3.0 x 44mm3MSCF4030rew, 3.0 x 44mm3MSCF4036rew, 3.0 x 44mm3MSCF4036rew, 3.0 x 45mm3MSCF4036rew, 3.0 x 20mm3MSCF4036rew, 3.0 x 20mm3MSCF4040rew, 3.0 x 24mm3MSCF4042rew, 3.0 x 24mm3MSCF4046rew, 3.0 x 24mm3MSCF4050rew, 3.0 x 38mm3MSCF4056rew, 3.0 x 38mm3<	ew, 3.0 x 22mm3MSCF3346MSCF3548MSCF3548MSCF3548MSCF3548MSCF3548MSCF3548MSCF3548MSCF3548MSCF3548MSCF3550MSCF3550MSCF3550MSCF3550MSCF3550MSCF3550MSCF3550MSCF3550MSCF3550MSCF3550MSCF3550MSCF3550MSCF3550MSCF3560

## Section 3

#### MIS Bunion and Fusion Screws

MIS Bunion and Fusio	on Screws	I
Item No.	Description	Qty.
MSCP3530	MIS PT Screw, 3.5 X 30mm	3
MSCP3532	MIS PT Screw, 3.5 X 32mm	3
MSCP3534	MIS PT Screw, 3.5 X 34mm	3
MSCP3536	MIS PT Screw, 3.5 X 36mm	3
MSCP3538	MIS PT Screw, 3.5 X 38mm	3
MSCP3540	MIS PT Screw, 3.5 X 40mm	3
MSCP3542	MIS PT Screw, 3.5 X 42mm	3
MSCP3544	MIS PT Screw, 3.5 X 44mm	3
MSCP3546	MIS PT Screw, 3.5 X 46mm	3
MSCP3548	MIS PT Screw, 3.5 X 48mm	3
MSCP3550	MIS PT Screw, 3.5 X 50mm	3
MSCP3552	MIS PT Screw, 3.5 X 52mm	3
MSCP3554	MIS PT Screw, 3.5 X 54mm	3
MSCP3556	MIS PT Screw, 3.5 X 56mm	3
MSCP3558	MIS PT Screw, 3.5 X 58mm	3
MSCP3560	MIS PT Screw, 3.5 X 60mm	3
MSCP4020	MIS PT Screw, 4.0 X 20mm	3
MSCP4022	MIS PT Screw, 4.0 X 22mm	3
MSCP4024	MIS PT Screw, 4.0 X 24mm	3
MSCP4026	MIS PT Screw, 4.0 X 26mm	3
MSCP4028	MIS PT Screw, 4.0 X 28mm	3
MSCP4030	MIS PT Screw, 4.0 X 30mm	3
MSCP4032	MIS PT Screw, 4.0 X 32mm	3
MSCP4034	MIS PT Screw, 4.0 X 34mm	3
MSCP4036	MIS PT Screw, 4.0 X 36mm	3
MSCP4038	MIS PT Screw, 4.0 X 38mm	3
MSCP4040	MIS PT Screw, 4.0 X 40mm	3
MSCP4042	MIS PT Screw, 4.0 X 42mm	3
MSCP4044	MIS PT Screw, 4.0 X 44mm	3
MSCP4046	MIS PT Screw, 4.0 X 46mm	3
MSCP4048	MIS PT Screw, 4.0 X 48mm	3
MSCP4050	MIS PT Screw, 4.0 X 50mm	3
MSCP4052	MIS PT Screw, 4.0 X 52mm	3
MSCP4054	MIS PT Screw, 4.0 X 54mm	3
MSCP4056	MIS PT Screw, 4.0 X 56mm	3
MSCP4058	MIS PT Screw, 4.0 X 58mm	3
MSCP4060	MIS PT Screw, 4.0 X 60mm	3

## Tray Layout



## Section 4

### MIS Bailout and Revision Plates

Item No.	Description	Qty.
MPPF1115	Temporary Fixation Pin, Smooth, 1.1 x 15mm	4
MPN10028	Ø2.8mm Drill Bit	2
MPN40002	Ø2.8mm Locking Tower Drill Guide	2
MPN52014	Ø2.8mm Tissue Protector/Polyaxial Cone	1
MPN30002	T15 Retaining Driver	2
MPP1101L	Bailout Plate, Standard, Left	1
MPP1101R	Bailout Plate, Standard, Right	1
MPP1102L	Bailout Plate, Large, Left	1
MPP1102R	Bailout Plate, Large, Right	1
MPP1111L	Revision Plate, Standard, Left	1
MPP1111R	Revision Plate, Standard, Right	1
MPP1112L	Revision Plate, Large, Left	1
MPP1112R	Revision Plate, Large, Right	1
MPSL3510	Screw, Polyaxial Locking, 3.5 x 10mm	3

Item No.	Description	Qty.
MPSL3512	Screw, Polyaxial Locking, 3.5 x 12mm	3
MPSL3514	Screw, Polyaxial Locking, 3.5 x 14mm	3
MPSL3516	Screw, Polyaxial Locking, 3.5 x 16mm	3
MPSL3518	Screw, Polyaxial Locking, 3.5 x 18mm	3
MPSL3520	Screw, Polyaxial Locking, 3.5 x 20mm	3
MPSL3522	Screw, Polyaxial Pocking, 3.5 x 22mm	3
MPSN3510	Screw, Non-Locking,3.5 x 10mm	2
MPSN3512	Screw, Non-Locking,3.5 x 12mm	2
MPSN3514	Screw, Non-Locking,3.5 x 14mm	2
MPSN3516	Screw, Non-Locking,3.5 x 16mm	2
MPSN3518	Screw, Non-Locking,3.5 x 18mm	2
MPSN3520	Screw, Non-Locking,3.5 x 20mm	2
MPSN3522	Screw, Non-Locking,3.5 x 22mm	2

## Section 5

#### Screw Prep Instruments

Item No.	Description	Qty.
MGT14150	Ø1.4 x 50mm Guidepin	10
MSN40031	Ø3.5mm PT Tissue Protector	1
MSN10023	Ø2.4mm Cannulated Drill Bit	2
MSN20019	Ø3.5mm PT Cannulated Countersink	2
MSN30011	T10 Cannulated Driver	2
MGT16150	Ø1.6 x 50mm Guidepin	10
MSN40032	Ø4.0mm PT Tissue Protector	1
MSN10024	Ø2.7mm Cannulated Drill Bit	2
MSN20020	Ø4.0mm PT Cannulated Countersink	2
MSN30012	T15 Cannulated Driver	2
MSN90001	Cannulated Ratcheting Handle	1
MSN90003	Pickups	1

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