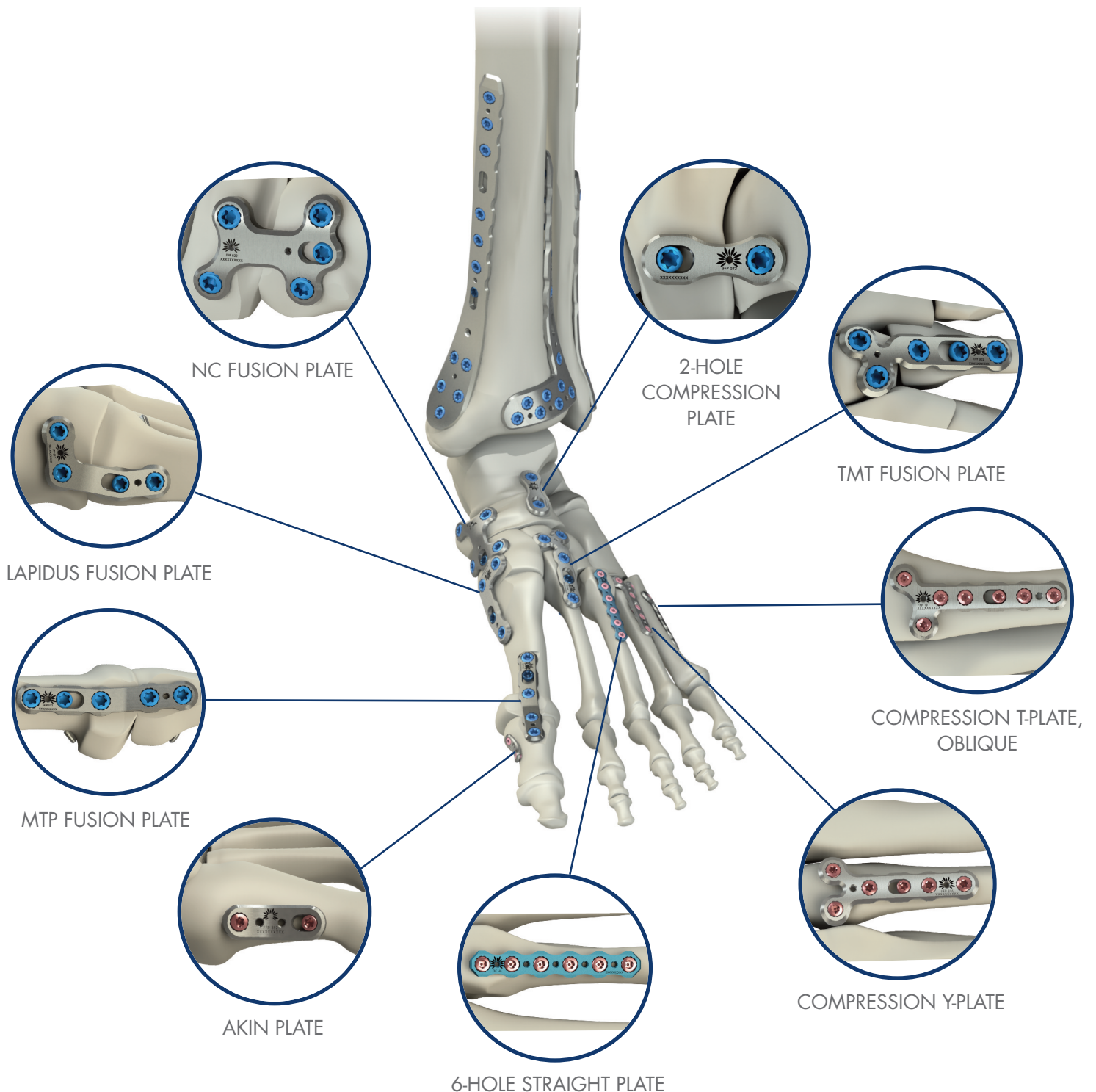


The Flower MTP Fusion

PROCEDURE GUIDE

The Flower Foot & Ankle Application



INDICATIONS FOR USE:

The Flower Small and Medium Implants set is intended for use for internal fixation of fractures and reconstruction of bones, including the scapula, olecranon, humerus, radius, ulna, pelvis, distal tibia, fibula, hand and foot in adults and for use in long bones in adolescents (12-21) in whom the growth plates have fused. Examples of these internal fixations and reconstructions include compression fractures, intra-articular and extra-articular fractures, displaced fractures, osteotomies, non-unions and mal-unions. This system can be used for palmar, ventral, dorsal and orthogonal application. The Flower Orthopedics Bone Screw set is intended to be used for the fixation of bone structures, fusion of joints of bone reconstruction.

The Flower MTP Fusion – Product Rationale



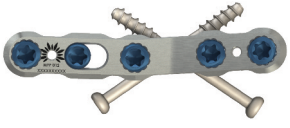
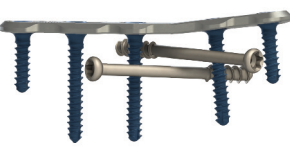
The Flower MTP Fusion Plate is a low profile neutralization plate designed to best fit the unique anatomical requirements of the metatarsal phalangeal joint, while providing the stability needed for a predictable joint fusion.



It is recommended to use the Flower MTP Plate in combination with two crossing 3.0mm partially threaded cannulated interfragmentary screws.

The Flower MTP Fusion Plate allows for the use of variable angle locking and compression screws. The variable angle compressions screws are available for axial compression through the plate.

The Flower MTP Fusion – Design Features

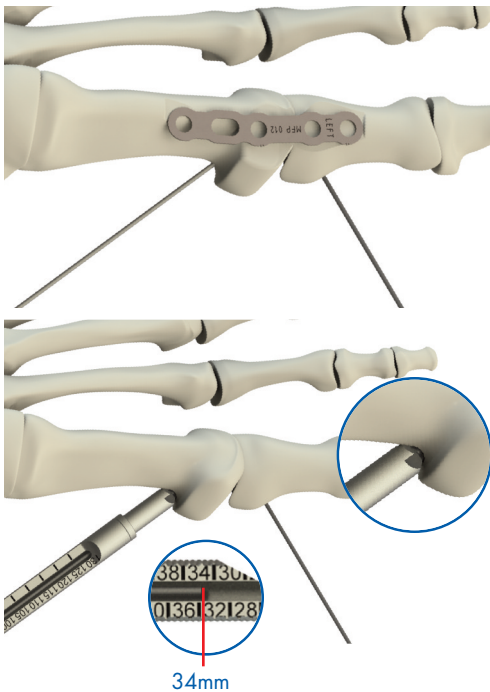
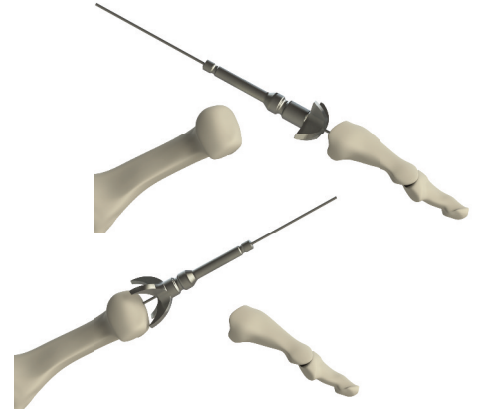
	PLATE RATIONALE	SURGICAL BENEFIT
	Plate accepts 2.7mm, 3.0mm and 3.5mm locking and non-locking compression screws	Provides multiple screw options for anatomic variance
	The screw hole configuration allows for two cannulated “homerun” screws	The construct simplifies the interfragmentary screw placement, increasing the efficiency of the case
	Plate is pre-contoured to 5° of dorsiflexion, 7° of valgus	Provides anatomic alignment for optimal fusion
	Anatomic, low-profile	Reduces potential soft tissue irritation and provides stable anatomic fixation

The Flower MTP Fusion – Surgical Strategy

Step 1 – Reaming of the MTP Joint

- Three sizes of cannulated reamers are available (18mm, 21mm & 24mm). A reamer trial (FIS 613) can be used to determine the appropriate reamer size.
- Guide wires are part of the reamer kit. Center the guide wire on the articular surface of the metatarsal base. Use the cup reamer to remove the cartilage and any osteophytes from the bone. Repeat using the cone reamer on the head of the phalanx.

TIP: Once reaming is complete and all articular cartilage is removed, a meticulous joint preparation is essential to ensure rapid fusion. Drilling of the subchondral bone plate with a 2.0mm drill bit promotes spot welding and ensures a rapid fusion.



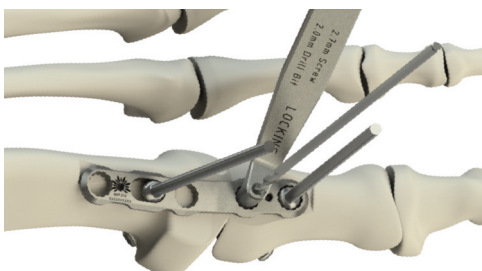
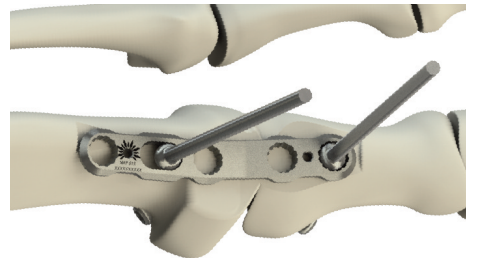
Step 2 – Joint Alignment and Cannulated Screw Insertion

TIP: The plate may be used as a positioning guide and provides exact placement of the hallux in proper position (see Step 3). The plate may be held in place with olive wires prior to placement of the crossing guide wires. The plate is then removed to perform interfragmentary compression with lag screws.

- A guide wire (EWK 200) is passed from the medial basilar flare of the proximal phalanx to the lateral aspect of the metatarsal and is angled slightly dorsal. A second wire is placed, from medial to lateral and proximal to distal, starting proximal to the metatarsal head and exiting at the lateral aspect of the proximal phalanx and is angled slightly plantar. The angulation of the guide wires avoids screw collision when the plate screws are inserted.
- Countersinking for the cannulated screw may be achieved utilizing the cannulated depth gauge (EWK 200). Slide the depth gauge over the guide wire and countersink **before** reading the depth measurement.
- If countersinking is not desired, simply slide the depth gauge over the guide wire and measure the required screw length with the tip of the countersink on bone.
- Pilot holes are drilled using the Flower 2.0mm Cannulated Drill Bit (CDB 020).
- Using the cannulated screw driver, 3.0mm partially threaded cannulated screws are threaded over the guide wires compressing the joint. Bi-cortical placement of the cannulated screws is recommended.

Step 3 – Plate Selection and Provisional Fixation

- A plate trial (FIS 601) is available to properly size the required plate before opening the sterile packaged plate. Two sizes of plate lengths are available.
- Once the proper plate is determined, the plate can be temporarily fixed to the bone using Flower Olive Wires, placed through the screw holes in the plate. Distal placement in the slot will not affect the placement of compression screw (Step 6).



Step 4 – Drill Pilot Holes

- 3.0mm variable angle locking screws are recommended for the Flower MTP Joint Fusion plate. Starting with the distal phalangeal locking holes and using a 2.0mm drill bit (DBK 030), pilot holes are created. Use the locking end of the drill guide for all locking holes in the plate. All screws should be inserted bi-cortically.

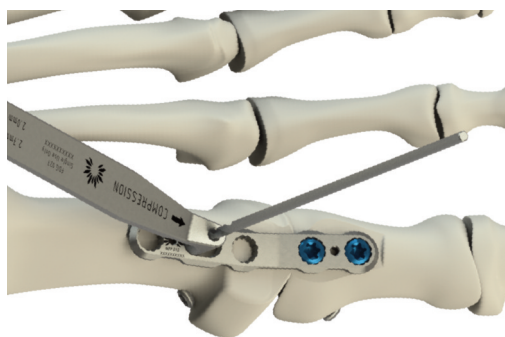
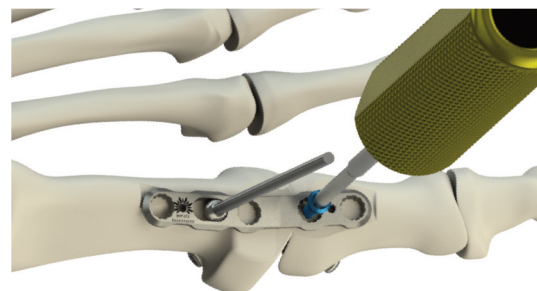
The Flower MTP Fusion – Surgical Strategy

Step 5 – Screw Measurement and Insertion

The depth gauge is part of the Flower E-Kit™ (EWK 200).

- Ensure that the instrument is fully seated into the screw hole before the hook probe is advanced into the pilot hole.
- The hook of the depth gauge is engaged behind the opposite cortex of the pilot hole and the pilot hole depth can be read off the distal end of the slider.
- Place the locking screws into the distal phalangeal screw holes using the Flower cannulated screw driver that is part of the Flower E-Kit (EWK 200).

Note: This is NOT a torque limiting screw driver. The screws are fully inserted once flush with the top of the plate. Do not over tighten.



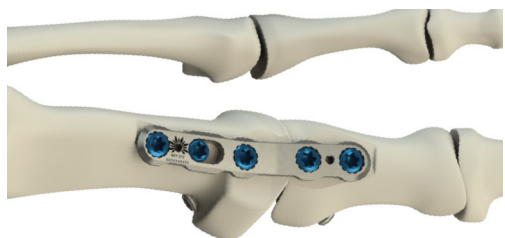
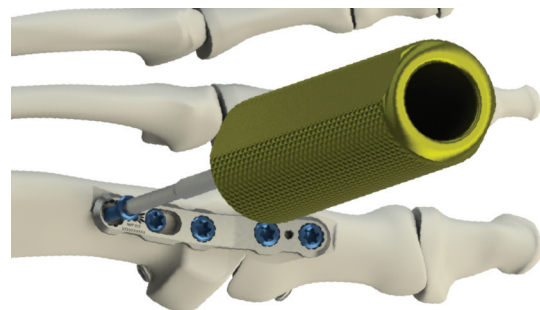
Step 6 – Axial Compression Through the Plate

- If dynamic compression is desired, place the compression end of the drill guide (DBK 035) in the proximal end of the slot with the arrow pointing toward the joint. Drill the eccentric pilot hole. The addition of the compression screw in the slot hole increases the stability of the construct and is a recommended technique.
- Remove the olive wires before placing the compression screw.
- Measure pilot hole using the Flower Depth Gauge and place a 3.5mm compression screw drill guide (DBK 035).

Note: Screws are fully inserted once flush with the top of the plate. Do not overtighten.

Step 7 – Proximal Screw Insertion

- After the compression screw is placed, the remaining proximal 3.0mm locking screws can be inserted.
- A drill guide is used to create the proximal pilot holes and all remaining locking screws are inserted using the Flower screwdriver.



Step 8 – The Final Construct

Placement of two crossing screws provides 4 cortices of fixation and enhances both bending and rotational stability. The AO principal of “two smaller screws vs. one large screw” is suggested. With the addition of the plate, 14 cortices of fixation can be achieved. Because of this, the neutralization plate is designed as a low profile but stable construct. Weight bearing can be performed in a walking boot or cast with a first ray cut out as soon as the patient is comfortable.

The Flower MTP Fusion – Implant Selection

VARIABLE ANGLE LOCKING SCREWS

Screw Diameters	Product Description	Lengths
2.7mm*	2.7mm Variable Angle Locking Screw	8mm-30mm
3.0mm	3.0mm Variable Angle Locking Screw	8mm-30mm
3.5mm	3.5mm Variable Angle Locking Screw	10mm-30mm

*Additionally available. Not included in the First Ray IndicationCube™.



VARIABLE ANGLE COMPRESSION SCREWS

Screw Diameters	Product Description	Lengths
2.7mm*	2.7mm Variable Angle Compression Screw	10mm-26mm
3.5mm	3.5mm Variable Angle Compression Screw	10mm-30mm

*Additionally available. Not included in the First Ray IndicationCube.



CANNULATED, PARTIALLY THREADED SCREWS

Screw Diameter	Product Description	Lengths
3.0mm	Partially Threaded Cannulated Screw	10mm-34mm



FLOWER MTP FUSION PLATE PORTFOLIO

Part #	Product Description	Lengths
MFP 011	MTP Plate, Right	5-Hole
MFP 012	MTP Plate, Left	5-Hole
MFP 111	MTP Plate, Right	6-Hole
MFP 112	MTP Plate, Left	6-Hole



The Flower MTP Fusion – Single-Use Instrument Overview

MTP PLATE TRIALS

Part #	Content of Kit
FIS 601	MTP Plate Trials
FIS 613	Cannulated Reamer Trials



DRILL BIT KITS

Part #	Contents of Kit
DBK 027	2.0mm Drill Bit and Drill Guide
DBK 030	2.0mm Drill Bit and Drill Guide
DBK 035	2.5mm Drill Bit and Drill Guide



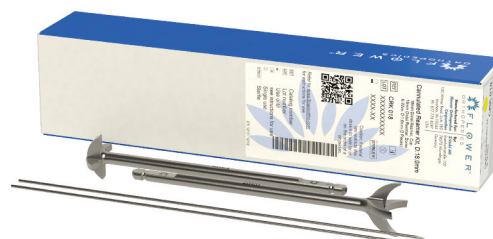
CANNULATED DRILL BIT KIT

Part #	Content of Kit
CDB 020	2.0mm Cannulated Drill Bit



CANNULATED REAMER KITS

Part #	Diameter
CRK 018	18mm Cup and Cone
CRK 021	21mm Cup and Cone
CRK 024	24mm Cup and Cone



FLOWER E-KIT

Part #	Content of Kit
EWK 200	T15 Cannulated Screwdriver Cannulated Depth Gauge and Countersink Plating Depth Gauge 1.8mm Olive Wires (2) CoCr Guide Wires (2)

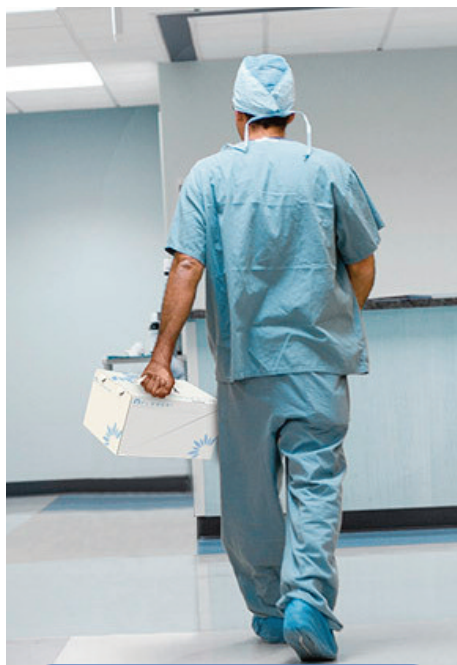


PLATE BENDERS

Part #	Content of Kit
FIS 231	Plate Benders



FlowerCube™: Schedule. Treat. Turn.



Schedule Case Sooner.

(Ready-for-Surgery™)

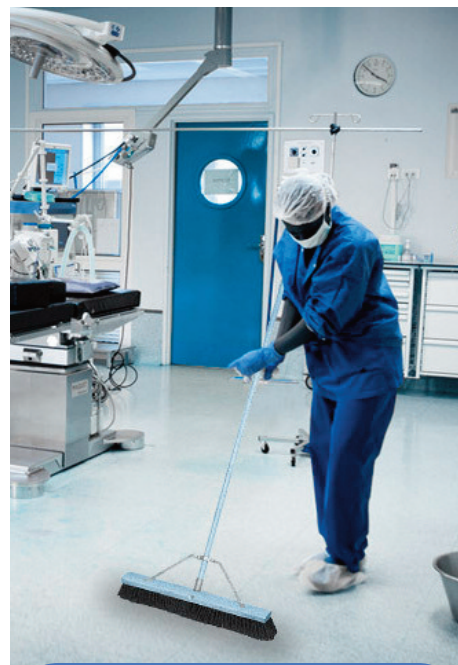
- No cleaning and sterilization
- FlowerCube is always ready to complete the case
- No time consuming set drop off



Treat Confidently.

(Sterile & Single-Use)

- Instrument kits are always complete
- Drill bits are always sharp
- Reliable sterility



Turn OR Faster.

(FlowerCube)

- FlowerCube is always ready for the next surgery
- No delay with back to back cases
- Enough sterile inventory for multiple cases

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