# WishFIX™ GROWTH CONTROL PLATING SYSTEM

## SURGICAL TECHNIQUE

WishFIX™

*Because **kids** are not just little adults.®*

WISHBONE MEDICAL

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## Introduction



## Surgical Technique

# WishFIX™

## PROCEDURE KIT COMPONENTS

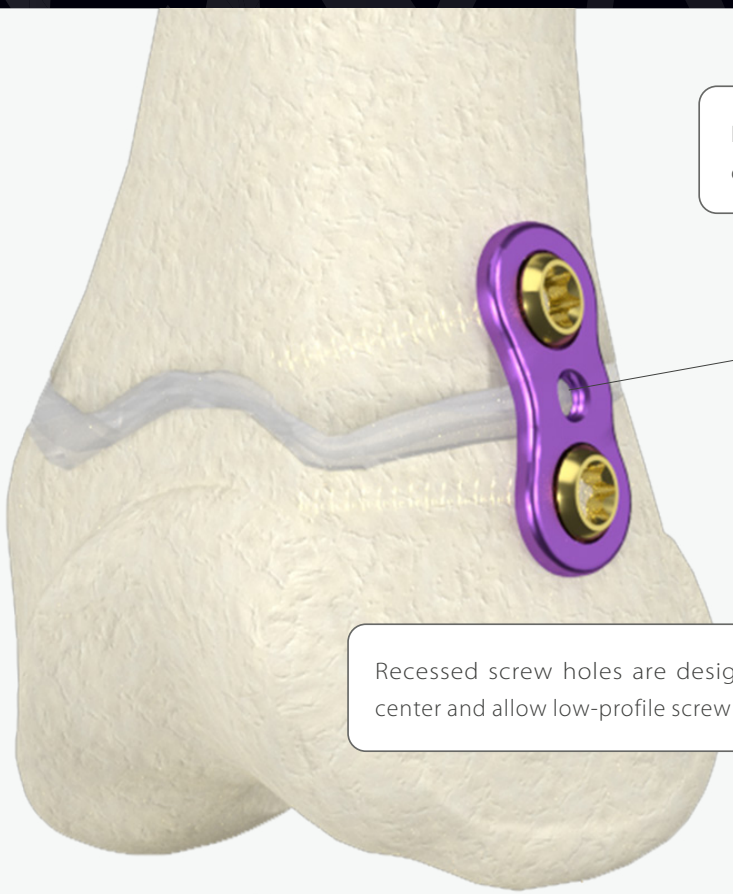
1. **Curved 2-Hole Plate, SS or Ti**
   (12, 16, 20, 22, 24mm) ***or***

   **Curved 4-Hole Plate, SS or Ti**
   (14, 16, 22, 26, 32mm)
2. 1.6mm Guide Wire **(×3 or ×5)**
3. 1.7mm Cannulated Plate Holder
4. Double-Ended Drill Guide
5. Direct Measurement Device
6. 2.8mm x 175mm Cannulated Drill Bit
7. Cannulated T20 Screwdriver
8. 4.5mm Cannulated or Solid Screws

**Select system components are available as sterile packed ancillary items. For more information, please refer to the WishBone Product Catalog (LIT-PC-WBM) or contact your local rep for product availability.**

# 2-HOLE PLATES

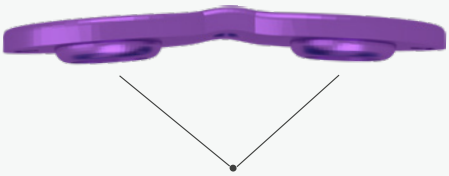
WishFIX



Low-profile plates designed to conform to patient anatomy

Central pilot hole designed to precisely place plate over physis

Recessed screw holes are designed to center and allow low-profile screw seating



Protruding bosses designed to elevate plate for ***reduced contact*** with growth plate and periosteum

Each plate size is available in titanium or stainless steel.

**2-HOLE PLATE LENGTHS**

12.0, 16.0, 20.0, 22.0, 24.0mm

# 4-HOLE PLATES

WishFIX

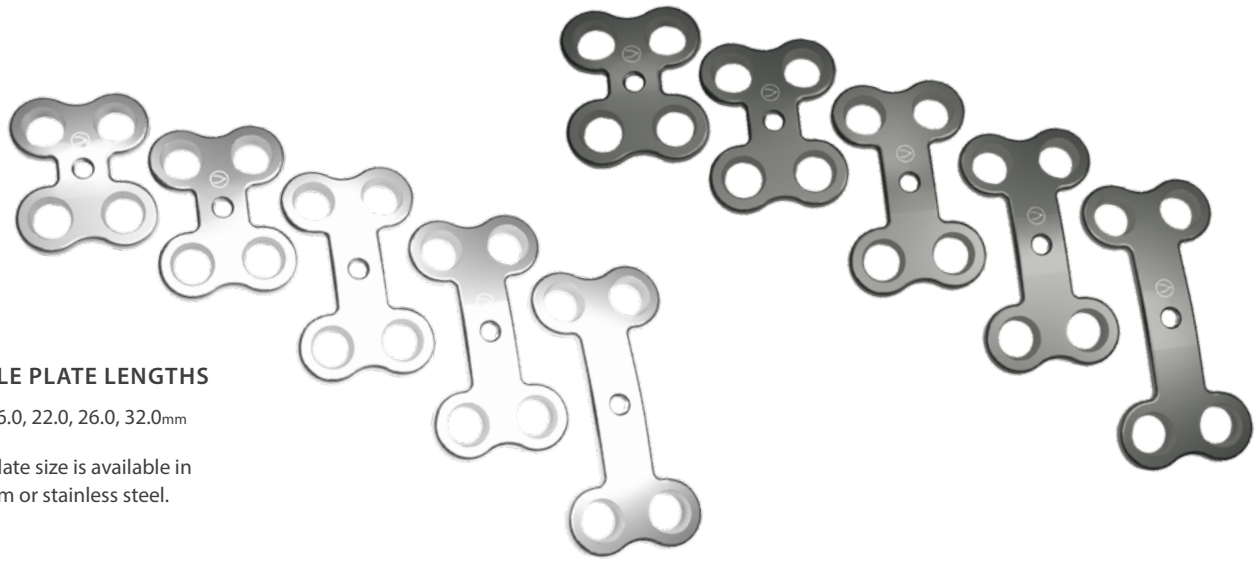
Low-profile plates designed to conform to patient anatomy

Protruding bosses designed to elevate plate for ***reduced contact*** with growth plate and periosteum

Central pilot hole designed to precisely place plate over physis

Recessed screw holes are designed to center and allow low-profile screw seating

4-hole plates provide additional fixation with four screws



**4-HOLE PLATE LENGTHS**

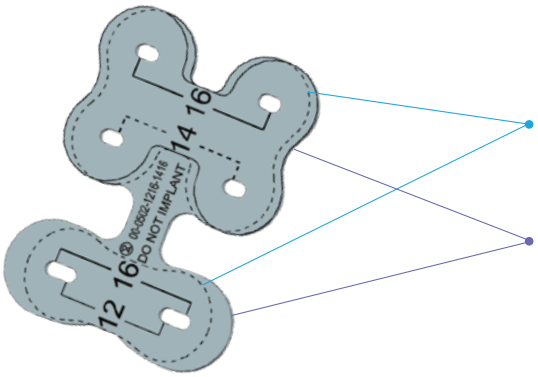
14.0, 16.0, 22.0, 26.0, 32.0mm

Each plate size is available in titanium or stainless steel.

# PLATE TEMPLATES

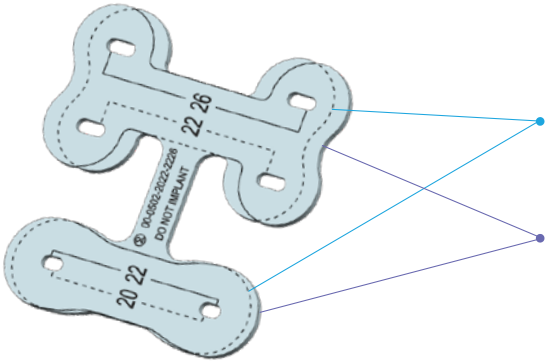
WishFIX™ plate templates may be used for implant selection and temporary plate positioning (ITEM # EFTEMPS).

Templates are not intended for screw positioning or use with threaded guide wires.



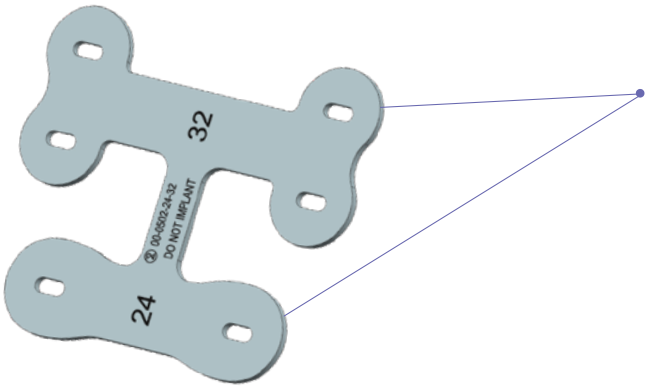

**Inside perimeters/dashed lines** on templates represent smaller implant sizes (**12mm** 2-hole plate | **14mm** 4-hole plate).

**Outside perimeters/solid lines** on templates represent larger implant sizes (**16mm** 2-hole plate | **16mm** 4-hole plate).




**Inside perimeters/dashed lines** on templates represent smaller implant sizes (**20mm** 2-hole plate | **22mm** 4-hole plate).

**Outside perimeters/solid lines** on templates represent larger implant sizes (**22mm** 2-hole plate | **26mm** 4-hole plate).




**Outside perimeters** on templates represent implant sizes (**24mm** 2-hole plate | **32mm** 4-hole plate).

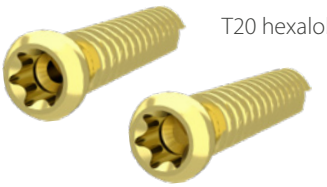
### 4.5mm CANNULATED / 4.5mm SOLID SCREWS

WishBone Medical WishFIX™ Plates utilize 4.5mm cannulated or solid self-tapping cancellous screws.
Available in stainless steel (SS) or titanium (Ti), an assortment of screws is included in each procedure kit and express kit.

***Please refer to LIT-SB-EF for more information on screw quantities within each kit.***

System designed to allow for screw angulation, which facilitates guided growth of limbs [1,2,3]

Fully threaded shaft designed to resist pull out forces and to facilitate screw removal



T20 hexalobe drive

For product information, including indications, contraindications, warnings, precautions and potential adverse effects, visit WishBone Medical's Instructions for Use page online: **www.WishBoneMedical.com/IFU**.

This surgical technique contains all steps to complete an WishFIX™ procedure. Express Kits with reduced instrumentation (no drill guide or direct measurement device) and a 1.6mm threaded guide wire without graduated markings are available, and instructions utilizing the drill guides or the direct measurement device do not apply to these Express Kits.

## ❶ Before the Surgery

### Patient Positioning

Place the patient in a supine position with the leg abducted for fluoroscopy access and sterile prep in a customary fashion.

## ❷ Plate Sizing and Fixation

Before the incision, select the appropriate size and type of growth control plate that best fits the patient's anatomy. WishFIX™ plate templates are available for select plates as a separate ancillary item.

**Warning:** Templates are not intended for screw positioning or use with threaded guide wires.

Once the location is determined a 3cm longitudinal incision is made. The skin and the fascia is divided, avoiding damage to the periosteum.

**Caution:** Due to the notch sensitivity of titanium, take care not to notch plate when bending. The plate must never be unbent or reverted to its original shape once it has been contoured. Do not bend plates excessively.

A 1.6mm guide wire is inserted to determine the location of the physis. Thread the plate holder into the center hole of the plate, and slide the plate/plate holder construct over the guide wire (fig 1).

**Warning:** Take care not to damage the physis during guide wire insertion.

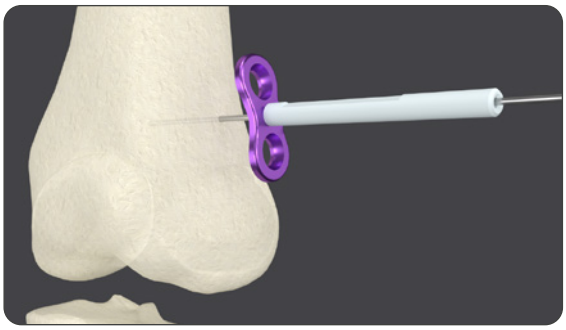


fig. 1

Introduce the plate into the surgical site (fig 2). The guide wire and plate position are verified using fluoroscopy.

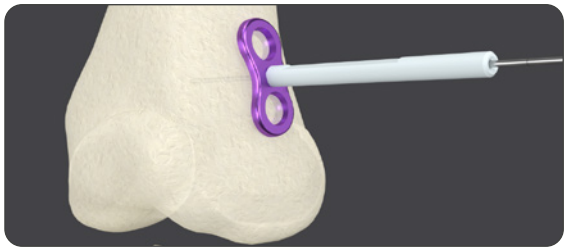


fig. 2

## ❸ Epiphyseal Guide Wire Insertion

The plate holder is then removed.

A second 1.6mm guide wire with graduated markings is introduced through the guide wire sleeve of the double-ended drill guide and into the epiphysis to a suitable depth (fig 3).

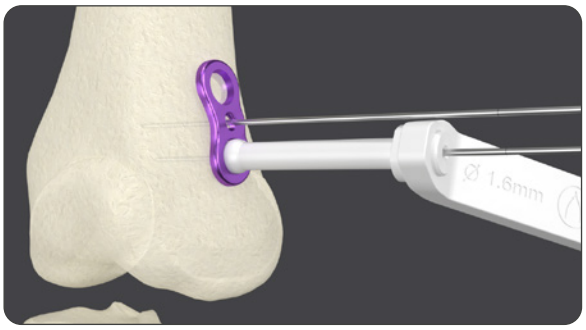



fig. 3

**Warning:** Take care not to damage the physis during guide wire insertion.

**Note:** Be sure to use the appropriate end of the double-ended drill guide. The ball tip end of the guide is used for position the guide wire, and 2.8mm drill guide end is used when drilling for screw preparation.

## 4 Metaphyseal Guide Wire Insertion

The 1.6mm ball tip guide wire sleeve of the double-ended drill guide is used to pass a third guide wire into the metaphyseal region to an appropriate depth (fig 4).

Fluoroscopic A/P and lateral images are taken to assure that the wires are within the epiphysis and the metaphysis.

**Warning:** Take care not to damage the physis during guide wire insertion. **Note:** Be sure to use the appropriate end of the double-ended drill guide. The ball tip end of the guide is used for position the guide wire, and 2.8mm drill guide end is used when drilling for screw preparation.

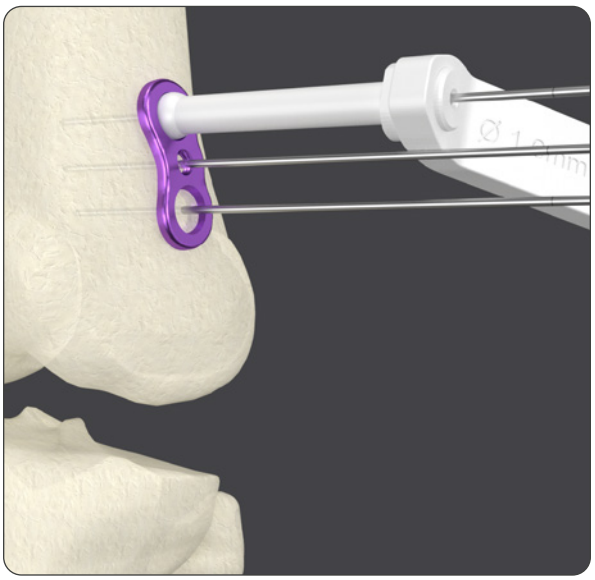


fig. 4

## 5 Screw Sizing

A measurement of the appropriate screw length can be taken with the direct measurement device over the guide wire directly off the bone (fig 5).

Read the depth of the wire from the mark on the guide wire and the direct measurement device (fig 5).

Select the screw length accordingly.

**Cannulated and solid screws are available in an assortment of lengths:**

- **16mm** (Available as ancillary item)
- **20mm** (included in kits + available ancillary)
- **24mm** (included in kits + available ancillary)
- **28mm** (included in kits + available ancillary)
- **32mm** (included in kits + available ancillary)
- **36mm** (Available as ancillary item)

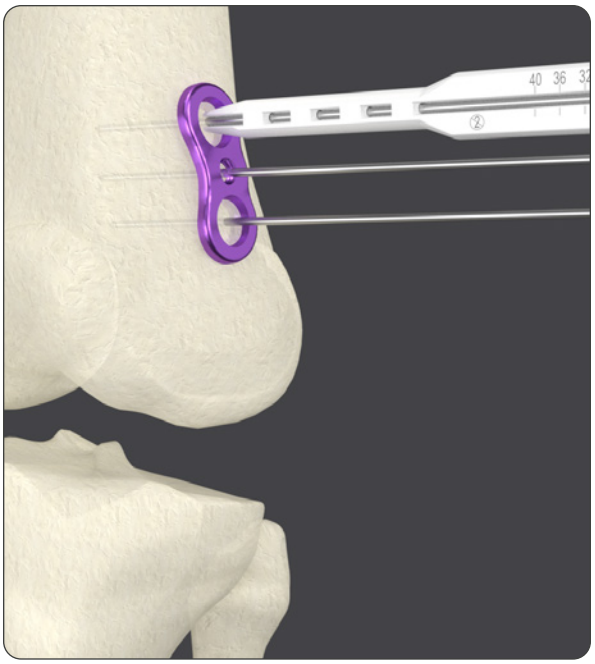


fig. 5

## 6 Screw Insertion (Epiphyseal)

The 2.8mm cannulated drill bit is passed over the 1.6mm guide wire, and through the drill guide (fig 6). The bone is drilled to the appropriate depth under fluoroscopic examination. The drill is then withdrawn ensuring that guide wire remains in place.

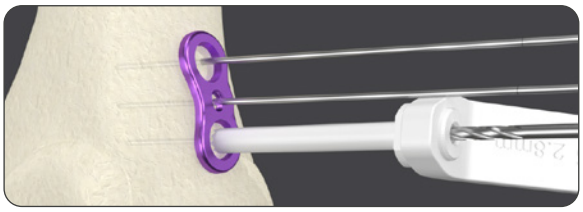


fig. 6

After the drill is withdrawn, the drill guide is removed. The appropriate screw is selected and seated on the tip of the screwdriver and passed over the guide wire into the plate (fig 7).

**Note:** If using a solid screw, drill over the guide wire to the desired depth, and then remove the guide wire prior to screw insertion.

The screw is lightly tightened into place, and the screwdriver is withdrawn, and guide wire removed.

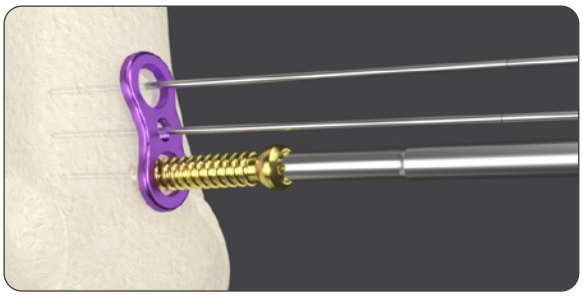


fig. 7

**Caution:** Ensure guide wire is not unintentionally advanced during drilling.

**Note:** Drill is calibrated to be used with the double-ended drill guide.

**Caution:** Use manual force only with a screwdriver, do not use power.

## 6 Screw Insertion (Metaphyseal)

For the metaphyseal screw hole drilling, pass the drill guide over the guide wire. The 2.8mm cannulated drill bit is passed over the 1.6mm guide wire, and through the double-ended drill guide (fig 8).

**Note:** Be sure to use the appropriate end of the double-ended drill guide. The ball tip end of the guide is used for position the guide wire, and 2.8mm drill guide end is used when drilling for screw preparation.

The bone is drilled to the appropriate depth under fluoroscopic examination. The drill is then withdrawn ensuring that guide wire remains in place.

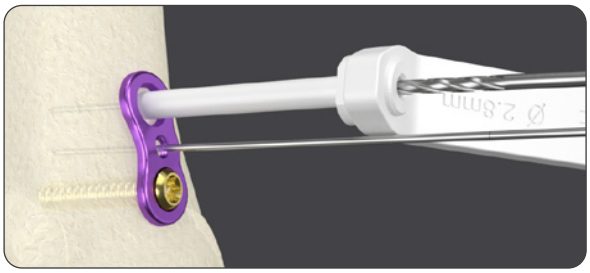


fig. 8

After the drill is withdrawn, the drill guide is removed. The appropriate screw is selected and seated on the tip of the screwdriver and passed over the guide wire into the plate (fig 9).

The screw is lightly tightened into place, and the screwdriver is withdrawn, and guide wire removed.

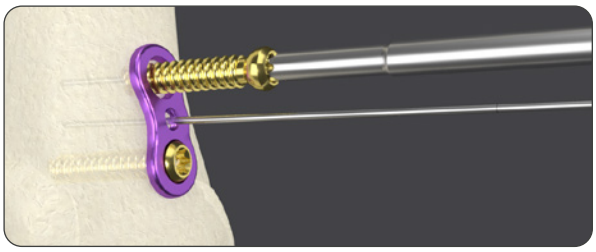


fig. 9

Metaphyseal screw is inserted in the same fashion as the epiphyseal screw.

## 6 Final Control and Closure

Remove the physeal guide wire prior to final screw tightening.

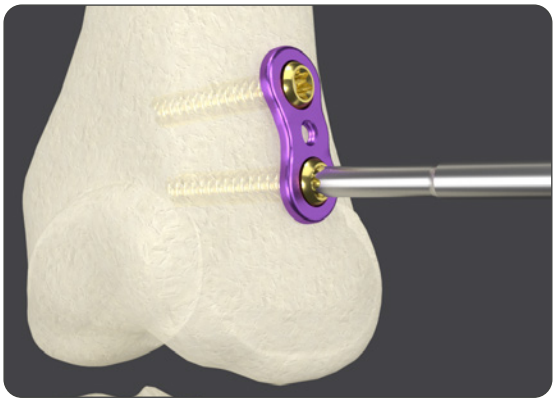


fig. 10

Tighten both screws (fig 10).

**Caution:** Use manual force only with a screwdriver, do not use power.

fig. 11

Screws and plate are imaged fluoroscopically in order to ensure that screws are fully seated with no gap between plate-bone interfaces.

Wound is closed in the customary fashion.

## 7 Removal

Before removing the screws, the 1.7mm plate holder is threaded into the central hole of the plate for plate extraction.

Assemble the screwdriver to screws as described above and remove the screws. After screw removal, the plate may be lifted from the surgical site using the plate holder.

fig. 12

**Caution:** Undercorrection and overcorrection are common issues with guided growth. Careful preoperative planning and follow-up as needed can minimize complications and allow for deformity correction with minimal morbidity.[1]

WishBone Medical

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## References

1. Saran N, Rathjen KE. Guided growth for the correction of pediatric lower limb angular deformity. J Am Acad Orthop Surg. 2010;18:528–36.

**Caution: Federal law restricts this device to sale by or on the order of a physician**



**For product information, including indications, contraindications, warnings, precautions and potential adverse effects, visit WishBone Medical's Instructions for Use page online: www.WishBoneMedical.com/IFU**.