

# TPLO Plate System

Surgical Technique for Tibial Plateau Leveling Osteotomy

With *InternalBrace*™ Ligament Augmentation



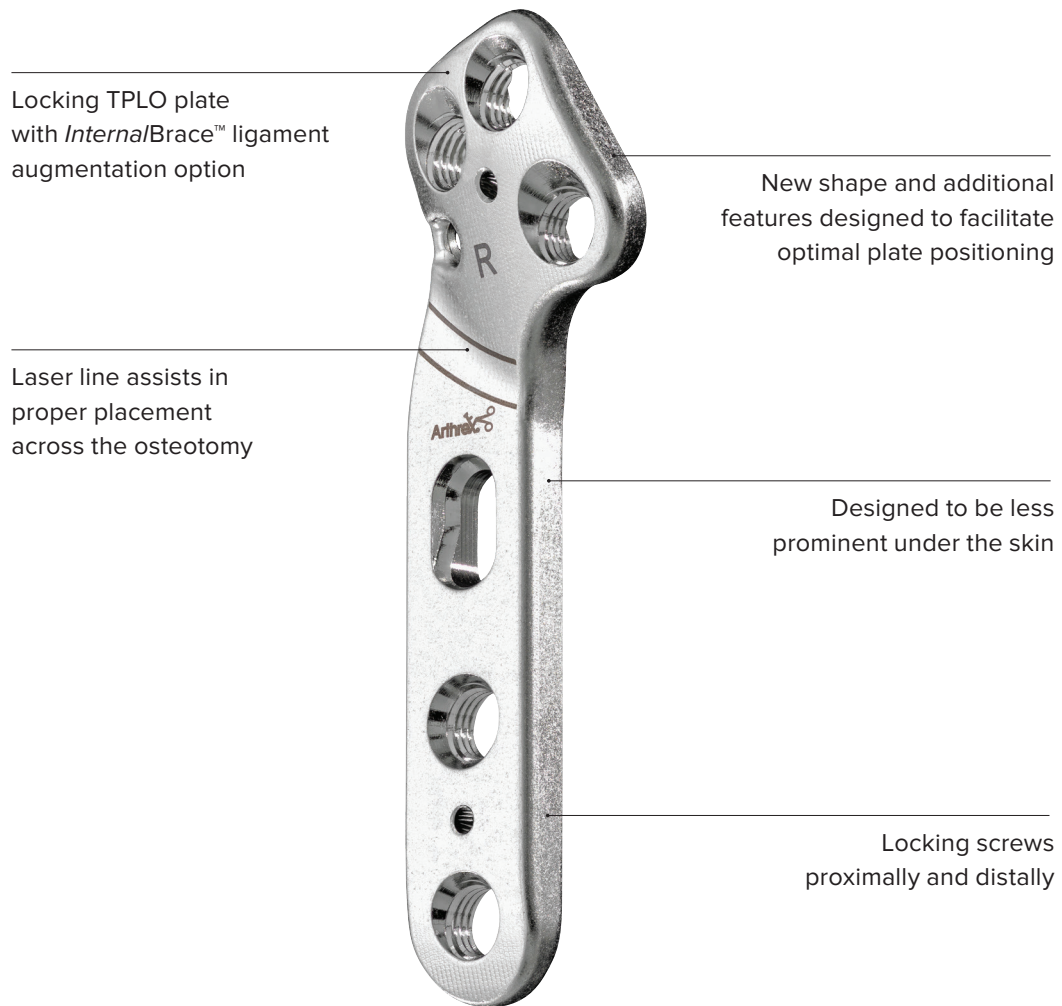
**Arthrex**®   
**Vet Systems**

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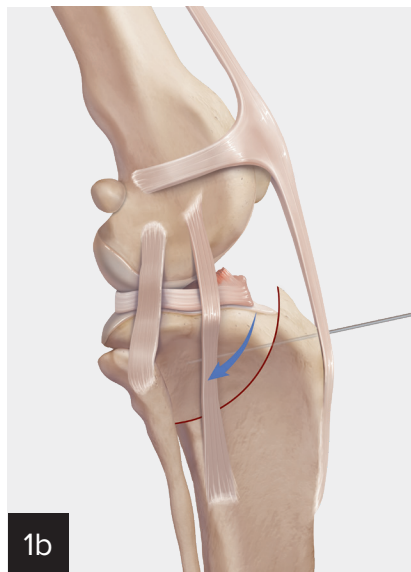
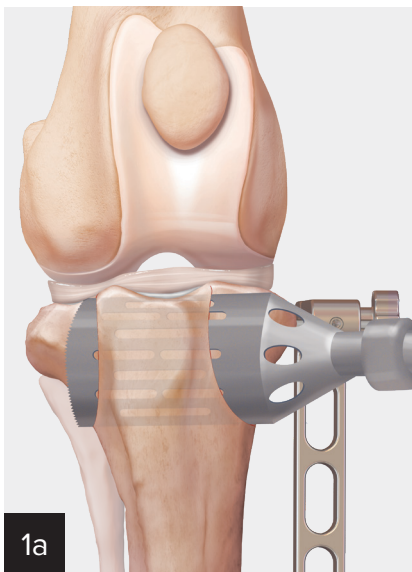
# TPLO Plating System

## Product Features

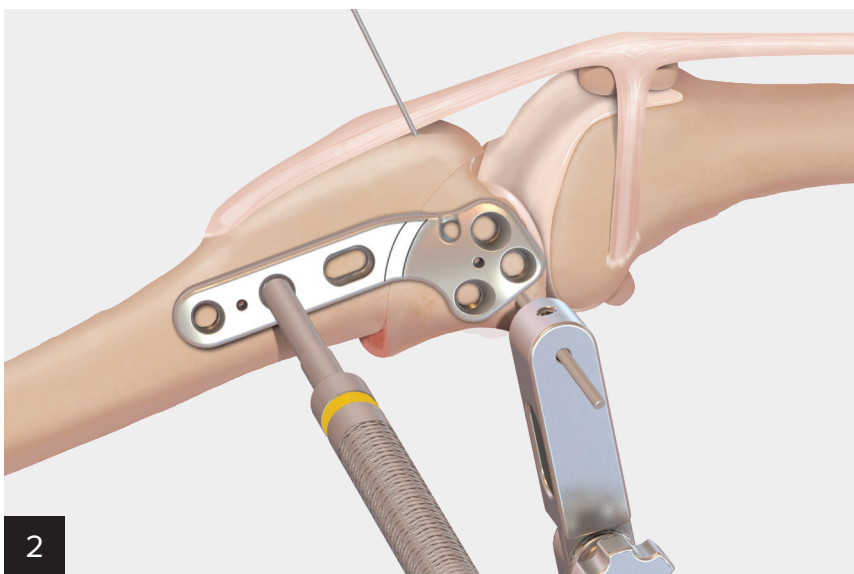
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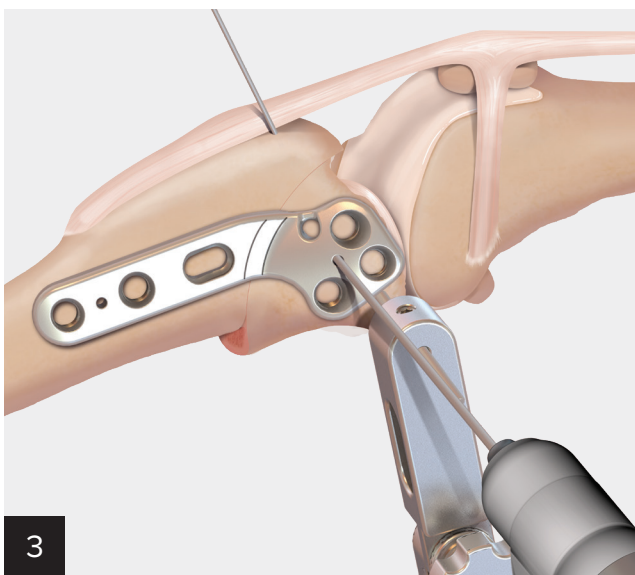
## Surgical Technique



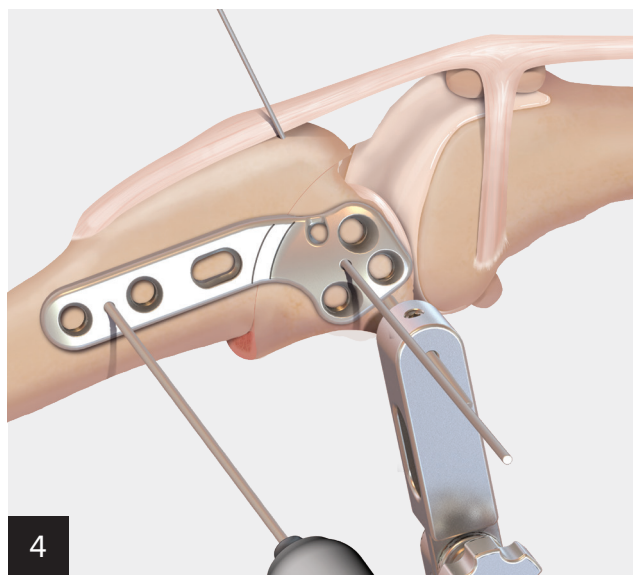
Perform a tibial plateau leveling osteotomy (TPLO) with or without a standard TPLO jig and the appropriate size saw blade. Secure the osteotomy using a Kirschner wire (K-wire) placed across the tibial tuberosity.



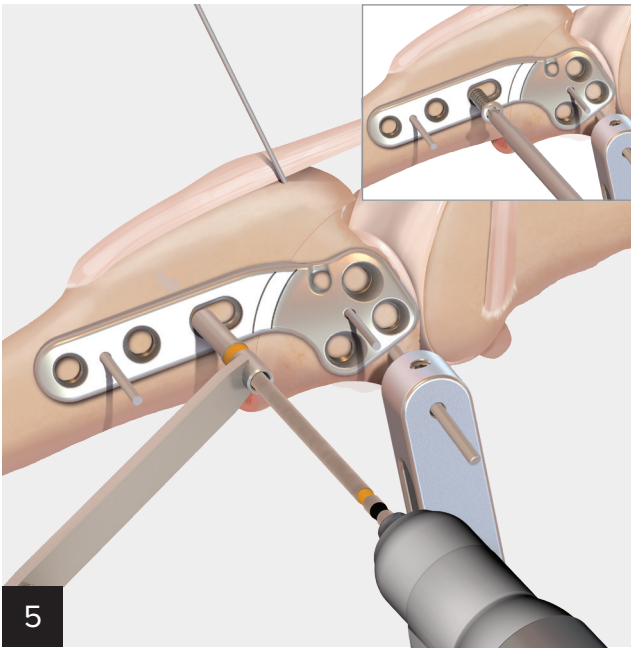
To properly align the TPLO plate, place the proximal screw holes in the center of the proximal fragment. Place the distal portion of the plate in the center of the distal fragment and align the laser lines with the osteotomy.



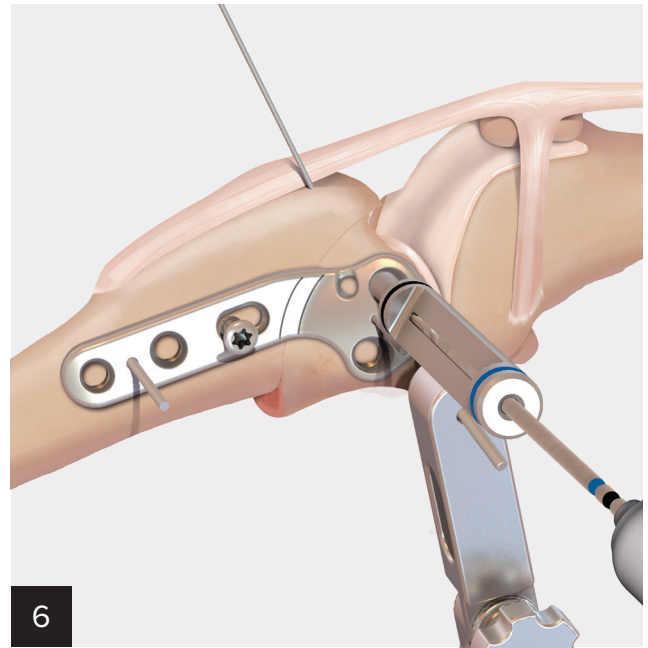
After placing the plate in the center of the proximal fragment, insert the proximal K-wire.



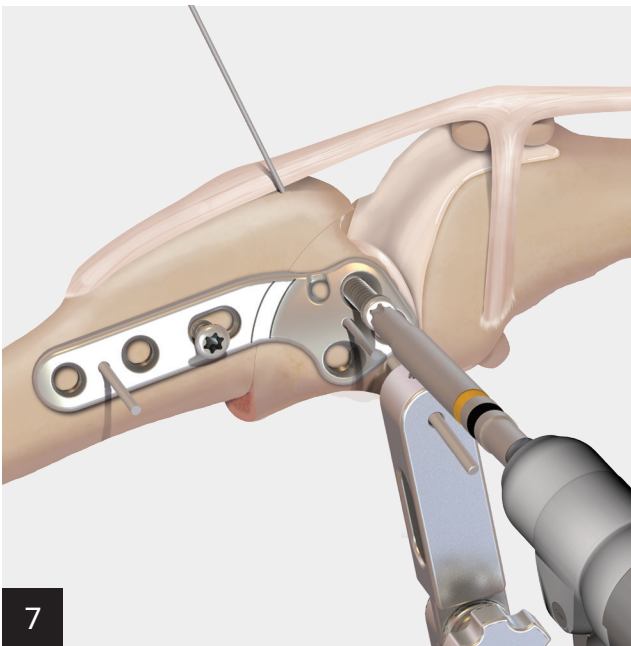
After aligning the plate with the tibial diaphysis, insert the distal K-wire to secure the plate.



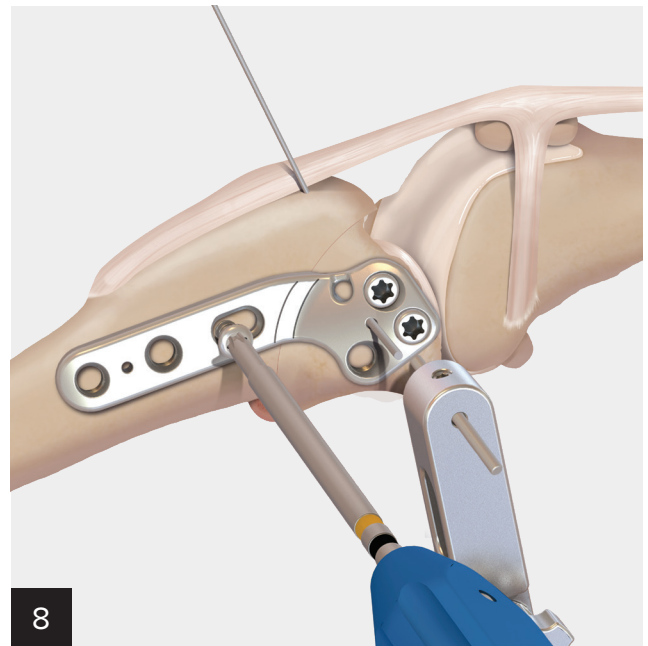
5  
 Insert a cortical screw in compression position. This screw should be left slightly loose but in contact with the plate. Use the drill guide and appropriate drill bit to drill a hole in the compression position.



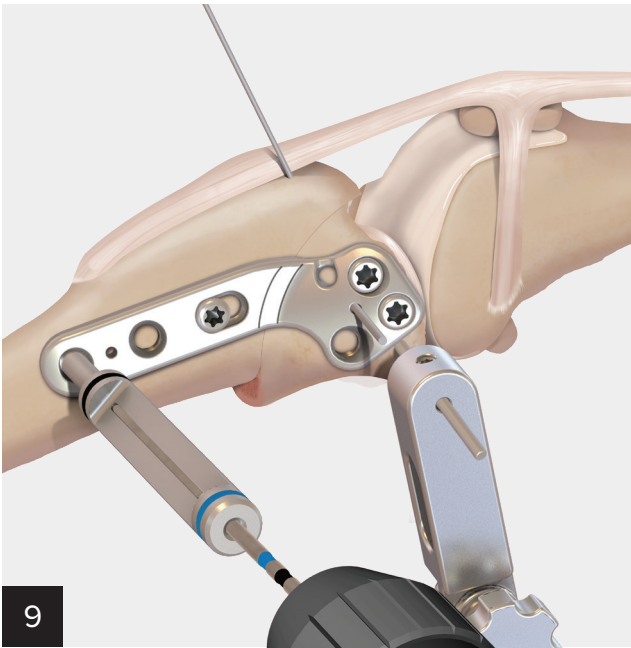
6  
 Use the locking drill guide to drill the hole and measure its depth to the appropriate length. Use a depth gauge for a more accurate measurement.



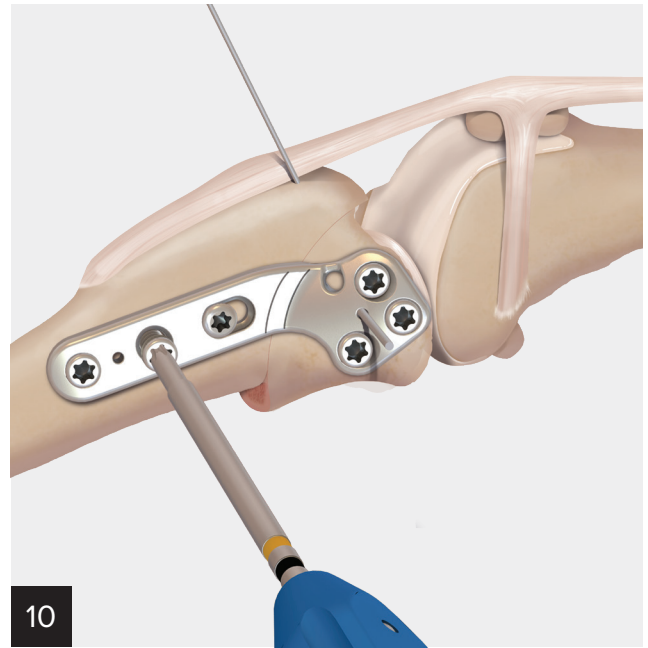
7  
 Place the locking screws in the proximal fragment.



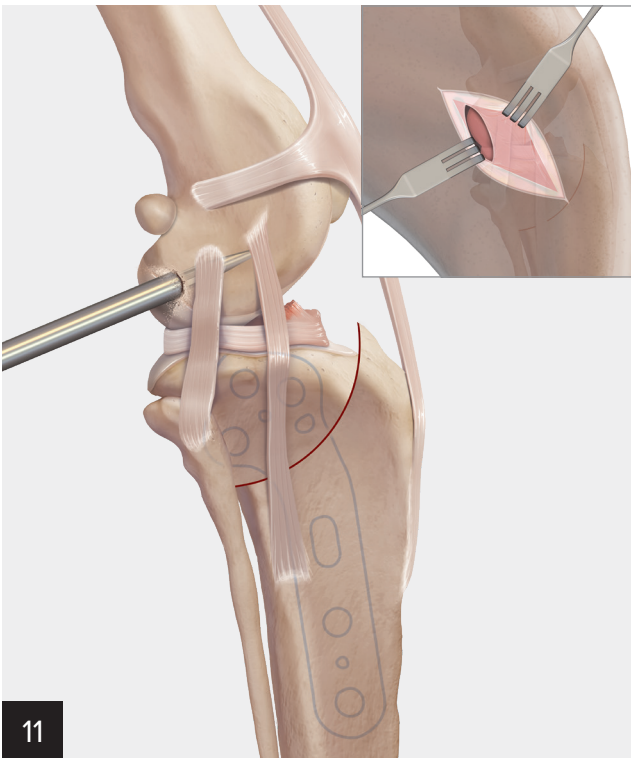
8  
 After removing the distal K-wire, tighten the compression screw by hand.



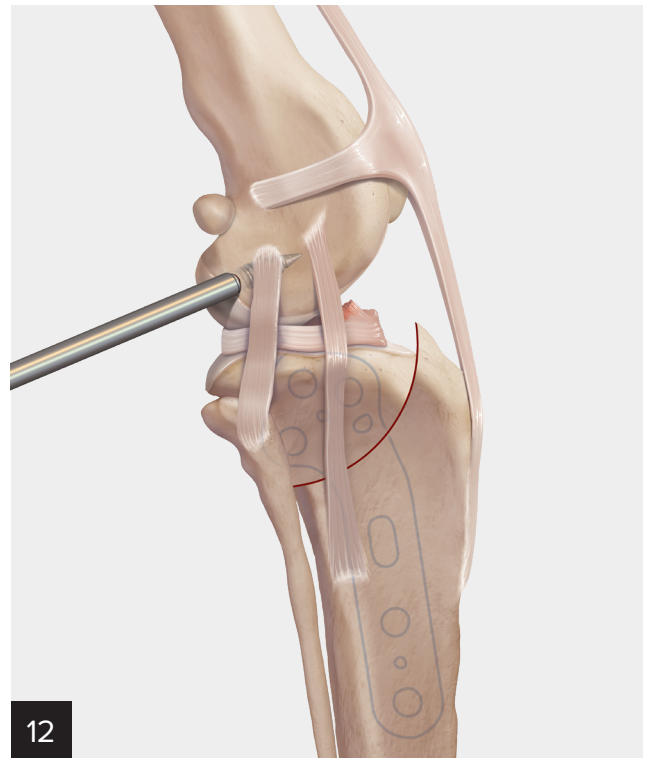
9 After tightening the compression cortical screw, insert the locking screws in the distal holes and remove the jig.



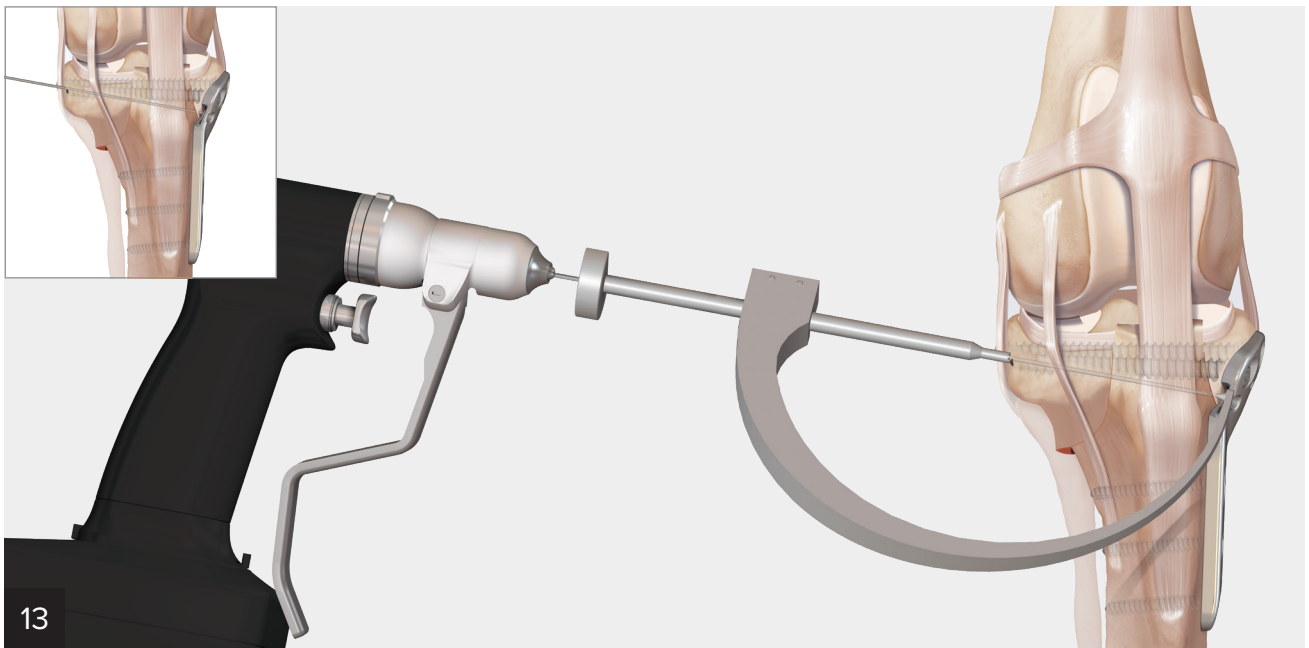
10 After all screws are placed, use a screwdriver to tighten each screw by hand and then remove the K-wire.



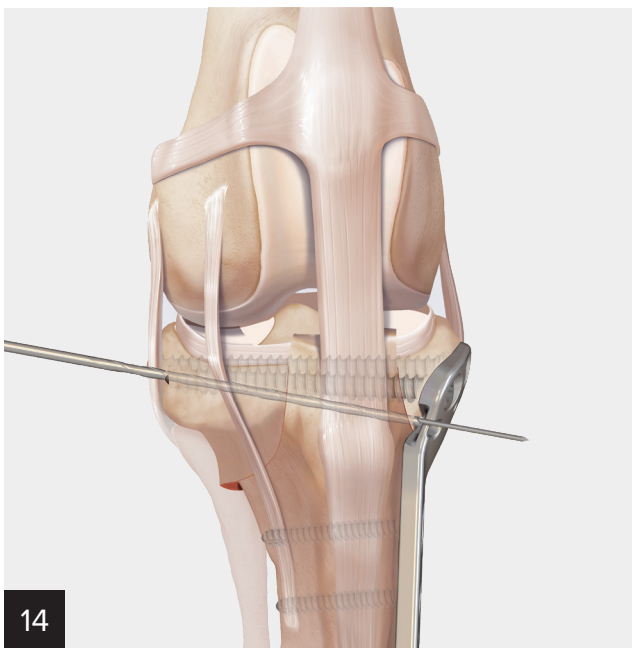
11 Expose the caudal aspect of the lateral femoral condyle. Drill holes for the SwiveLock® anchor using the appropriate size bit.



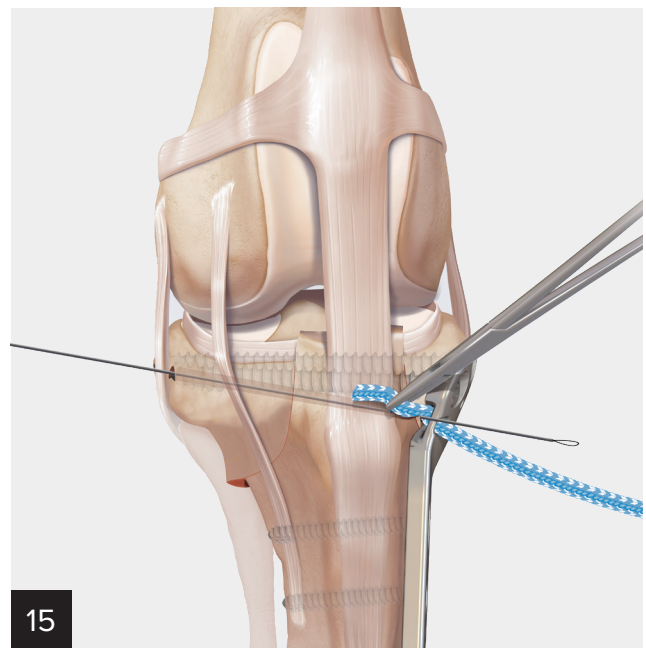
12 Tap the lateral femoral drill hole for the SwiveLock anchor using the appropriate size tap to create threads for the anchor to be inserted.



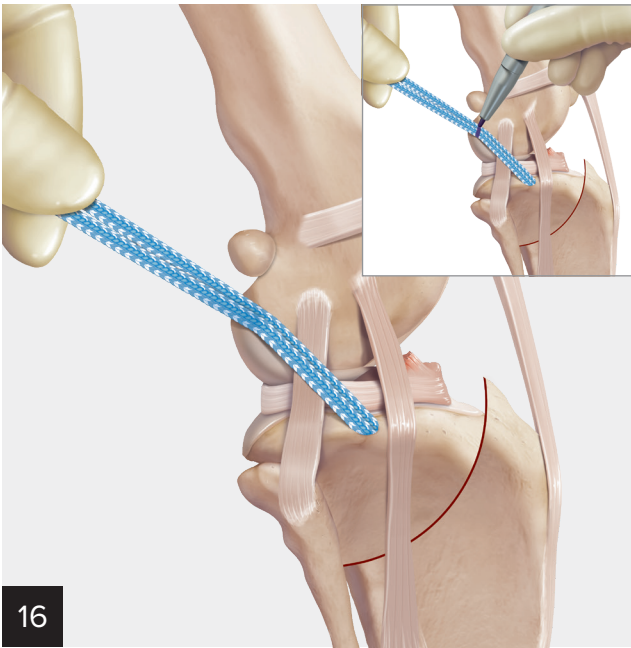
After exposing the tibial tunnel starting point behind the long digital extensor (LDE) groove, place the tip of the aiming guide in the suture hole of the plate and cinch the drill guide sleeve into place to secure the drill guide to the tibia. Drill the appropriately sized K-wire for the tibial tunnel, lateral to medial, ensuring the K-wire exits near the open hole in the TPLO plate. Remove the drill guide after properly placing the K-wire.



After placing the appropriately sized K-wire, use the appropriate size cannulated drill bit to create the tunnel.

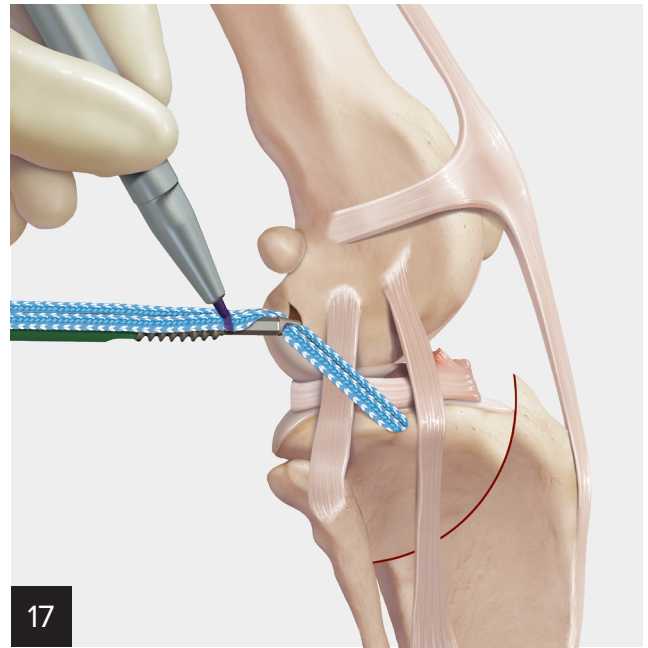


Loop the suture material through the suture hole on the TPLO plate and shuttle it through the tibial tunnel using the nitinol suture passer.



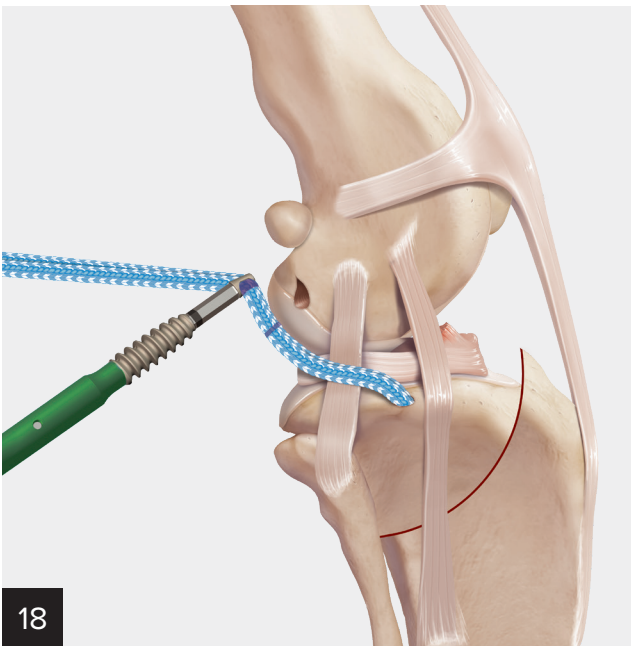
16

Pull both limbs of the suture material taut and lay over the predrilled hole in femur. Use a pen to mark the location of the center of the hole on the suture (inset).



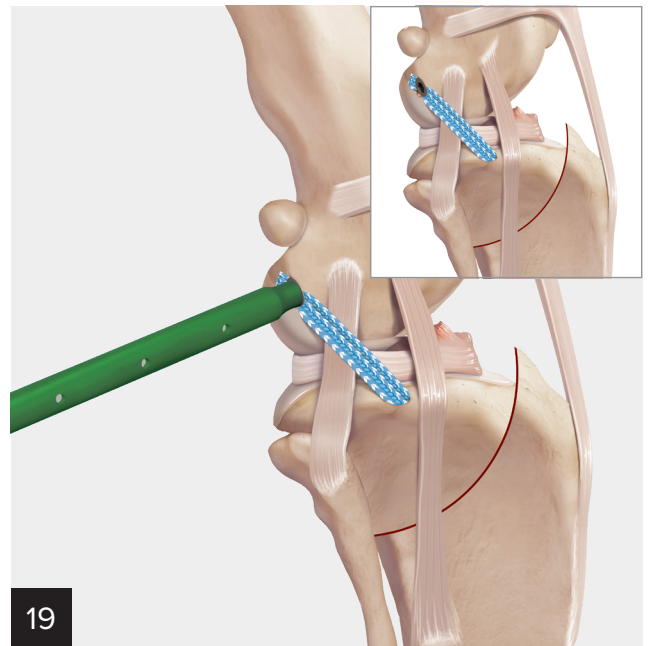
17

Slide the anchor eyelet over the mark created in Step 16. Pull both limbs of the suture material up the shaft of the SwiveLock® anchor and mark the location of the laser line on the suture.



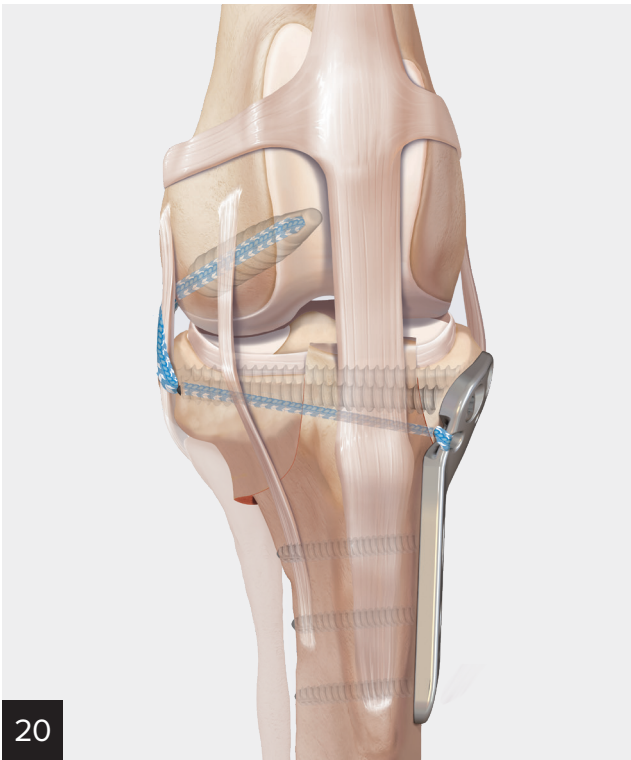
18

Move the eyelet to the mark on the suture material created in Step 17 and advance the anchor and suture into the F2 tunnel. If necessary, use a mallet to advance the eyelet into the tunnel until the tip of the anchor is at the entrance to the femoral hole.



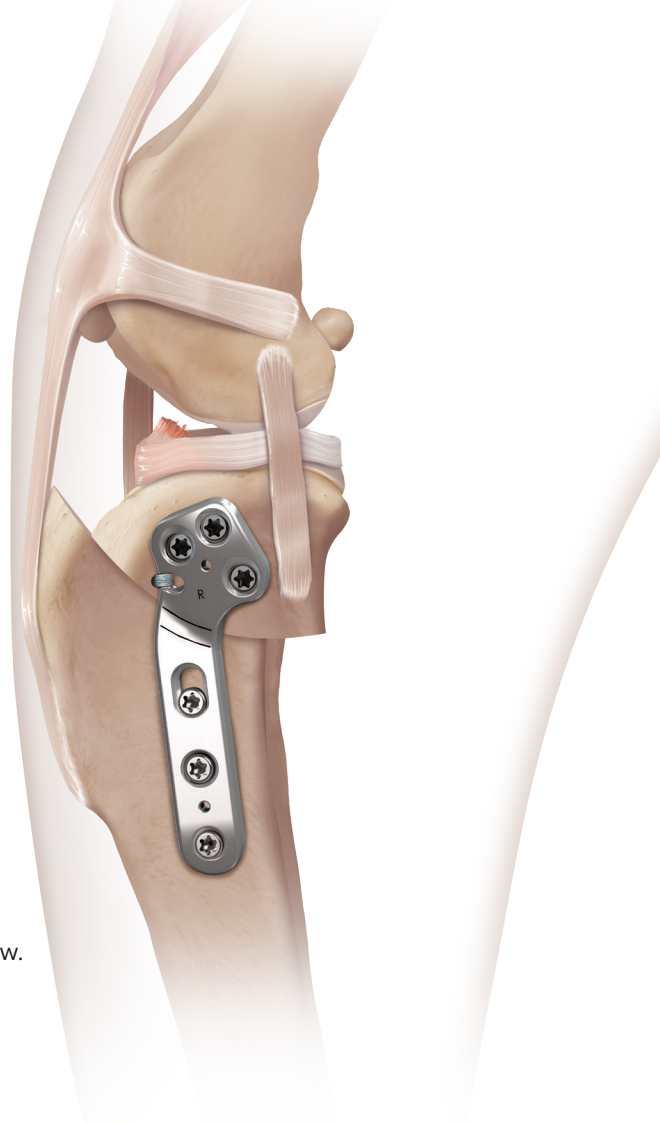
19

If the joint is secure, advance the anchor fully into the tunnel. Remove the driver from the anchor in the appropriate manner. Cut excess suture flush at the anchor.



20

Cranial view.



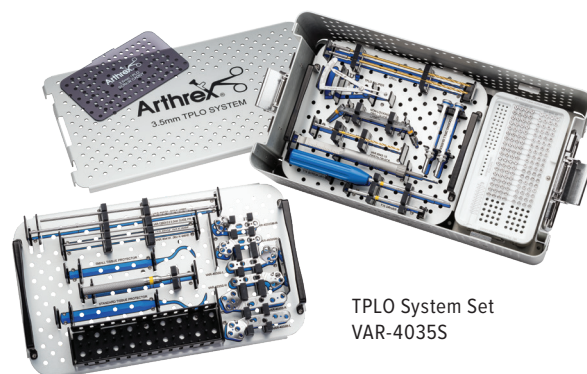
21

Medial view.

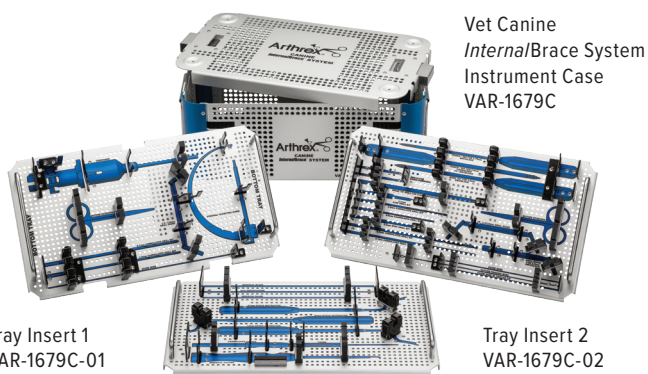


## Surgical Pearls

- Preoperative planning allows repeatable and accurate placement of the osteotomy
- Difficult fragment rotation may be due to poorly centered osteotomy, incomplete osteotomy, or tibia-fibular synostosis
- The stifle should be held in flexion while sawing to prevent the popliteal vessels from being compressed against the caudal aspect of the tibia (risk of bleeding)
- No attempt should be made to align the medial cortices of the tibial fragments
- Better interfragmentary compression can be achieved with the following order:
  - 2 locking screws in the proximal fragment
  - Compression screw in the distal fragment
- The *InternalBrace*™ ligament augmentation should not be overtightened. The tibia should be free to rotate to neutral-mild internal rotation (about 5-10 degrees)



TPLO System Set  
VAR-4035S



Vet Canine  
*InternalBrace* System  
Instrument Case  
VAR-1679C

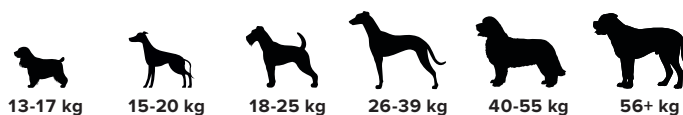
Tray Insert 1  
VAR-1679C-01

Tray Insert 2  
VAR-1679C-02

Tray Insert 3  
VAR-1679C-03

## Product Weight Chart

All weight ranges are suggestions based on the ultimate load of the product and/or on our veterinary consultant's recommendation. It is up to the veterinarian to determine the proper product, application, technique, and weight range for using the selected product.



<i>InternalBrace</i> System Anchors	TPLO Plate Sizes						<i>InternalBrace</i> System Sutures
	13-17 kg	15-20 kg	18-25 kg	26-39 kg	40-55 kg	56+ kg	
3.5 mm SwiveLock® anchor	2.7 mm						LabralTape™ suture, 1.5 mm FiberTape® suture, 2.0 mm
3.5 mm/4.75 mm SwiveLock anchor		3.0 mm					LabralTape suture, 1.5 mm FiberTape suture, 2.0 mm
3.5 mm/4.75 mm SwiveLock anchor			3.5 mm, small				LabralTape suture, 1.5 mm FiberTape suture, 2.0 mm
4.75 mm SwiveLock anchor				3.5 mm, standard			FiberTape suture, 2.0 mm
4.75 mm/5.5 mm SwiveLock anchor					3.5 mm, broad		FiberTape suture, 2.0 mm
5.5 mm SwiveLock anchor						4.5 mm	FiberTape suture, 2.0 mm

## Size Chart

### Size Selection

Plate Size	K-Wire Hole	Drill Bit Locking Screw	Drill Bit Cortical Screw	InternalBrace™ System Tap
2.7 mm	VAR-8933K 1.14 mm (0.045 in)	VAR-8944-22 2.0 mm	VAR-8944-22 2.0 mm	VAR-1678-03
3.0 mm	VAR-8933K 1.14 mm (0.045 in)	VAR-4030D 3.0 mm	VAR-4030SD 3.0 mm	VAR-1678-03 VAR-2324PTB
3.5 mm, small	VAR-8941K 1.57 mm (0.062 in)	VAR-4035D 2.8 mm	VAR-8943-42 2.5 mm	VAR-1678-03 VAR-2324PTB
3.5 mm, standard	VAR-8941K 1.57 mm (0.062 in)	VAR-4035D 2.8 mm	VAR-8943-42 2.5 mm	VAR-2324PTB
3.5 mm, broad	VAR-8941K 1.57 mm (0.062 in)	VAR-4035D 2.8 mm	VAR-8943-42 2.5 mm	VAR-2324PTB
4.5 mm	VAR-8941K 1.57 mm (0.062 in)	VAR-4045D 3.8 mm	VAR-8970-30 3.0 mm	VAR-1927CTB

### Size Selection

Plate Size	InternalBrace System Suture	InternalBrace System Anchor	InternalBrace System Femoral Drill Bit	InternalBrace System Tibial Drill Bit
2.7 mm	AR-7276 LabralTape™ suture, 1.5 mm AR-7237 FiberTape® suture, 2.0 mm	VAR-2325PSLC 3.5 mm SwiveLock® anchor	VAR-1678-05 2.7 mm	VAR-8933-20C 2.0 mm
3.0 mm	AR-7276 LabralTape suture, 1.5 mm AR-7237 FiberTape suture, 2.0 mm	VAR-2325PSLC 3.5 mm SwiveLock anchor VAR-2324PSLC 4.75 mm Swivelock anchor	VAR-1678-05 2.7 mm VAR-1927D 3.6 mm	VAR-8933-20C 2.0 mm
3.5 mm, small	AR-7276 LabralTape suture, 1.5 mm AR-7237 FiberTape suture, 2.0 mm	VAR-2325PSLC 3.5 mm SwiveLock anchor VAR-2324PSLC 4.75 mm SwiveLock anchor	VAR-1678-05 2.7 mm VAR-1927D 3.6 mm	VAR-8933-20C 2.0 mm
3.5 mm, standard	AR-7237 FiberTape suture, 2.0 mm	VAR-2324PSLC 4.75 mm SwiveLock anchor	VAR-1927D 3.6 mm	VAR-8737-09 2.5 mm
3.5 mm, broad	AR-7237 FiberTape suture, 2.0 mm	VAR-2324PSLC 4.75 mm SwiveLock anchor	VAR-1927D 3.6 mm	VAR-8737-09 2.5 mm
4.5 mm	AR-7237 FiberTape suture 2.0 mm	VAR-2323PSLC 5.5 mm SwiveLock anchor	VAR-1927D 3.6 mm	VAR-8737-09 2.5 mm

## Ordering Information

### TPLO Plates

Product Description	Item Number
2.7 mm TPLO Plates	
TPLO locking plate, 2.7 mm, standard, left <b>(a)</b>	VAR-4027S-L
TPLO locking plate, 2.7 mm, standard, right	VAR-4027S-R
3.0 mm TPLO Plates	
TPLO locking plate, 3.0 mm, standard, left <b>(b)</b>	VAR-4130S-L
TPLO locking plate, 3.0 mm, standard, right	VAR-4130S-R
3.5 mm TPLO Plates	
TPLO locking plate, 3.5 mm, small, left <b>(c)</b>	VAR-4035SM-L
TPLO locking plate, 3.5 mm, small, right	VAR-4035SM-R
TPLO locking plate, 3.5 mm, standard, left <b>(d)</b>	VAR-4035S-L
TPLO locking plate, 3.5 mm, standard, right	VAR-4035S-R
TPLO locking plate, 3.5 mm, broad, left <b>(e)</b>	VAR-4035B-L
TPLO locking plate, 3.5 mm, broad, right	VAR-4035B-R
4.5 mm TPLO Plates	
TPLO locking plate, 4.5 mm, standard, left <b>(f)</b>	VAR-4045S-L
TPLO locking plate, 4.5 mm, standard, right	VAR-4045S-R



### TPLO Screws

Product Description	Item Number
2.7 mm Low-profile, Cortical, Titanium	
Low-profile cortical screw, 2.7 mm × 10-34 mm Sizes: 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34 mm	VAR-8827-10 to -34
Low-profile locking screw, 2.7 mm × 10-34 mm Sizes: 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34 mm	VAR-8827L-10 to -34
3.0 mm Low-profile, Cortical, Variable-Angle, Titanium	
Low-profile cortical screw, 2.7 mm × 8-40 mm Sizes: 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40 mm	VAR-8930-08 to -40
Low-profile variable-angle screw, 3.0 mm × 8-40 mm Sizes: 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40 mm	VAR-8930V-08 to -40
Low-profile locking screw, 3.0 mm × 8-40 mm Sizes: 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40 mm	VAR-8930L-08 to -40
3.5 mm Low-profile, Cortical, Titanium	
Low-profile cortical screw, 3.5 mm × 16-50 mm Sizes: 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50 mm	VAR-8835-16 to -50
Low-profile locking screw, 3.5 mm × 16-50 mm Sizes: 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50 mm	VAR-8835L-16 to -50
4.5 mm Low-profile, Cortical, Variable-Angle, Titanium	
Low-profile cortical screw, 4.5 mm × 24-65 mm Sizes: 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 65 mm	VAR-8845-24 to -65
Low-Profile Locking Screw, 4.5 mm × 24-65 mm Sizes: 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 65 mm	VAR-8845L-24 to -65

## Instruments

Product Description	Item Number
<b>2.7 mm Instruments</b>	
TPLO tissue protector, small	VAR-4000TPSM
TPLO caliper	VAR-4000-CAL
Nonlocking drill guide, 2.0 mm/3.0 mm	VAR-8943-31
Locking drill guide, 2.7 mm	VAR-8950-07
Depth device, low profile, 2.7 mm/3.5 mm	VAR-8943-15
T10 driver	VAR-8944DH
T10 screwdriver	VAR-8943-08
Screw holding forceps	VAR-8941F
Locking plate holder, 2.7 mm	VAR-8950-09
Mini mallet, 7 in	VAR-8826M
Low-profile Hohmann retractor	VAR-13210
Wire cutter, 0.062 in	VAR-8956-10
<b>3.0 mm Instruments</b>	
TPLO tissue protector, small	VAR-4000TPSM
TPLO caliper	VAR-4000-CAL
Bone tap, 3.0 mm	VAR-4030T
Drill/depth guide, locking, 3.0 mm	VAR-4030DG
Tap/drill guide, 3.0 mm/2.3 mm	VAR-4030TDG
Drill guide, variable, 3.0 mm	VAR-4030VDG
Screwdriver, T10 hexalobe	VAR-8943-08
Depth measuring device, 2.7 mm/3.0 mm/3.5 mm/4.0 mm	VAR-8943-15
Driver, T10 hexalobe	VAR-8944DH
Mini mallet, 7 in	VAR-8826M
Low-profile Hohmann retractor	VAR-13210
Locking plate holder, 2.7 mm/3.0 mm	VAR-8950-09
<b>3.5 mm Instruments</b>	
TPLO tissue protector, small	VAR-4000TPSM
TPLO tissue protector, standard	VAR-4000TPS
TPLO caliper	VAR-4000-CAL
Nonlocking drill guide, 2.5 mm/3.5 mm	VAR-8943-14
Locking drill guide, 3.5 mm	VAR-4035DG
Locking drill guide, 3.5 mm, cortical screw	VAR-8943-43
Depth device, low profile, 2.7 mm/3.5 mm	VAR-8943-15
T15 driver	VAR-8941DH
T15 screwdriver	VAR-8943-10
Screw holding forceps	VAR-8941F
Locking plate holder, 3.5 mm	VAR-8954-07
Mini mallet, 7 in	VAR-8826M
Low-profile Hohmann retractor	VAR-13210
Wire cutter, 1.57 mm (0.062 in)	VAR-8956-10
<b>4.5 mm Instruments</b>	
TPLO tissue protector, standard	VAR-4000TPS
TPLO caliper	VAR-4000-CAL
Nonlocking drill guide, 3.0 mm/4.5 mm	VAR-8970-02
Locking drill guide, 4.5 mm	VAR-4045DG
Locking drill guide, 4.5 mm, cortical screw	VAR-8970-01
Depth device, 4.5 mm	VAR-8970-07

Product Description	Item Number
T20 Driver	VAR-8970-03
T20 Screwdriver	VAR-8970-04
T20 Screwdriver, self-retaining	VAR-4045-02
Screw Holding Forceps	VAR-8941F
Locking Plate Holder, 4.5 mm	VAR-4045-01
Mini Mallet, 7 in	VAR-8826M
Wire Cutter, 1.57 mm (0.062 in)	VAR-8956-10
Low-Profile Hohmann Retractor	VAR-13210

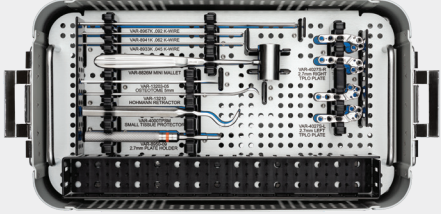
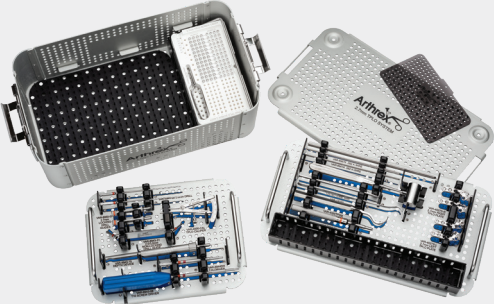

## Disposables and Limited Reusables

Product Description	Item Number
<b>2.7 mm Disposables and Limited Reusables</b>	
TPLO tissue protector, small	VAR-4000TPSM
TPLO caliper	VAR-4000-CAL
Nonlocking drill guide, 2.0 mm/3.0 mm	VAR-8943-31
Locking drill guide, 2.7 mm	VAR-8950-07
Depth device, low profile, 2.7 mm/3.5 mm	VAR-8943-15
T10 driver	VAR-8944DH
T10 screwdriver	VAR-8943-08
Screw holding forceps	VAR-8941F
Locking plate holder, 2.7 mm	VAR-8950-09
Mini mallet, 7 in	VAR-8826M
Low-profile Hohmann retractor	VAR-13210
Wire cutter, 0.062 in	VAR-8956-10
<b>3.0 mm Disposables and Limited Reusables</b>	
K-Wire, 2.3 mm (0.092 in)	VAR-8967K
Guidewire w/ trocar tip, 1.3 mm × 150 mm (3.5 mm)	VAR-8937K
Drill bit, solid, AO, 2.3 mm	VAR-4030D
Guidewire w/ trocar, 1.1 mm	VAR-8933K
Drill bit short, solid, AO, 2.3 mm	VAR-4030SD
Small osteotome, 5 mm	VAR-13203-05
<b>3.5 mm Disposables and Limited Reusables</b>	
K-Wire, 1.14 mm (0.045 in)	VAR-8933K
K-Wire, 1.57 mm (0.062 in)	VAR-8941K
K-Wire, 2.3 mm (0.092 in)	VAR-8967K
Guide pin, 3.0 mm (0.118 in)	VAR-13303-3.0
Drill bit, 2.8 mm, long	VAR-4035D
Drill bit, 2.5 mm, short	VAR-8943-30
Drill bit, 2.5 mm, long	VAR-8943-42
Small osteotome, 5 mm	VAR-13203-05
<b>4.5 mm Disposables and Limited Reusables</b>	
K-Wire, 1.57 mm (0.062 in)	VAR-8941K
K-Wire, 2.3 mm (0.092 in)	VAR-8967K
Guide pin, 3.0 mm (0.118 in)	VAR-13303-3.0
Drill bit, 3.8 mm	VAR-4045D
Drill bit, 3.0 mm	VAR-8970-30
Small osteotome, 5 mm	VAR-13203-05

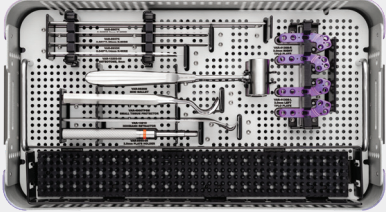
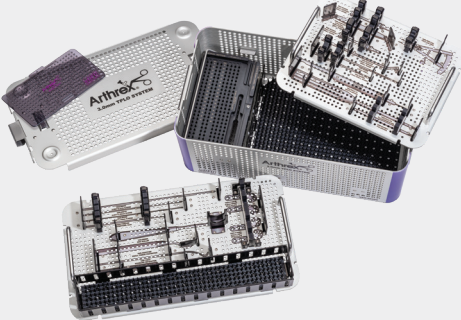

## InternalBrace™ Ligament Augmentation System

Product Description	Item Number
Implants for <i>InternalBrace</i> System	
SwiveLock® anchor, 4.75 mm	VAR-2324PSLC
FiberTape® suture, 2.0 mm	AR-7237
Instrumentation for <i>InternalBrace</i> System	
Spade tip drill bit, 4.75 mm/5.5 mm SwiveLock suture	VAR-1927D
SwiveLock tap, 4.75 mm	VAR-2324PTB
Aiming guide	VAR-2810
Disposables/Limited Reusables for <i>InternalBrace</i> System	
K-Wire, 1.14 mm (0.045 in)	VAR-8933K
K-Wire, 1.24 mm (0.049 in)	VAR-8920P
Suture passing wire	VAR-1255-08
Cannulated drill bit, 2.5 mm	VAR-8737-09
Cannulated drill bit, 2.7 mm	VAR-8911DC

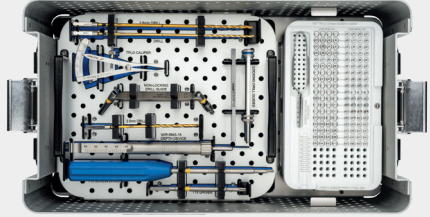
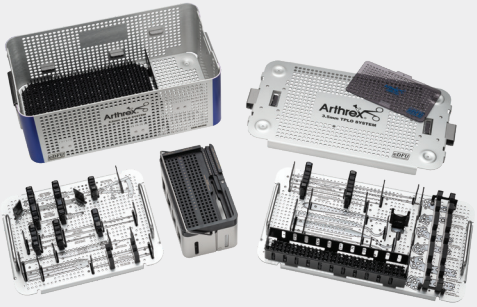

## 2.7 mm Sets and Cases

Image	Product Description	Item Number
	<p>TPLO set with instruments, 2.7 mm</p>	<p>VAR-4027S</p>
	<p>TPLO case with screw caddy, 2.7 mm</p>	<p>VAR-4027C</p>
	<p>TPLO screw caddy, 2.7 mm</p>	<p>VAR-4027SC-01</p>

### 3.0 mm Sets and Cases

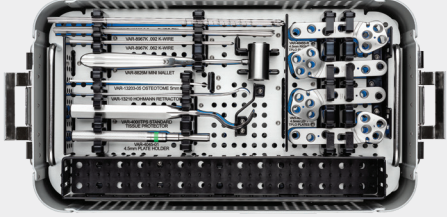
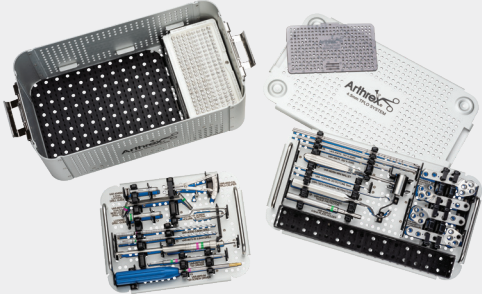
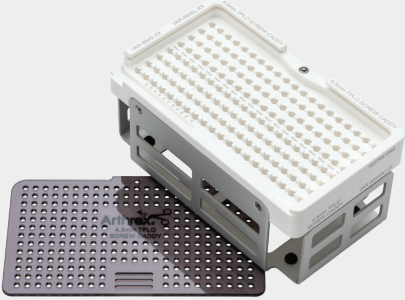
Image	Product Description	Item Number
	<p>TPLO set with instrument, 3.0 mm</p>	<p><b>VAR-4030S</b></p>
	<p>TPLO case with screw caddy, 3.0 mm</p>	<p><b>VAR-4030C</b></p>
	<p>TPLO screw caddy, 3.0 mm</p>	<p><b>VAR-3030SC-01</b></p>

### 3.5 mm Sets and Cases

Image	Product Description	Item Number
	<p>TPLO set with instruments, 3.5 mm</p>	<p>VAR-4035S</p>
	<p>TPLO case with screw caddy, 3.5 mm</p>	<p>VAR-4035C</p>
	<p>TPLO screw caddy, 3.5 mm</p>	<p>VAR-4035SC-01</p>



## 4.5 mm Sets and Cases

Image	Product Description	Item Number
	<p>TPLO set with instrument, 4.5 mm</p>	<p><b>VAR-4045S</b></p>
	<p>TPLO case with screw caddy, 4.5 mm</p>	<p><b>VAR-4045C</b></p>
	<p>TPLO screw caddy, 4.5 mm</p>	<p><b>VAR-4045SC-01</b></p>







This is not veterinary advice and Arthrex recommends that veterinarians be trained in the use of any particular product before using it in surgery. A veterinarian must always rely on their own professional clinical judgment when deciding whether to use a particular product. A veterinarian must always refer to the package insert, product label, and/or directions for use before using any Arthrex product. Products may not be available in all markets because product availability is subject to the regulatory or veterinary practices in individual markets. Postoperative management is patient-specific and dependent on the treating professional's assessment. Individual results will vary and not all patients will experience the same postoperative activity level or outcomes. Please contact your Arthrex representative if you have questions about availability of products in your area.

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