OrthoLine™ Medial Patella Luxation (MPL) System



Arthrex Vet Systems

OrthoLine™ Medial Patella Luxation (MPL) System

Introduction

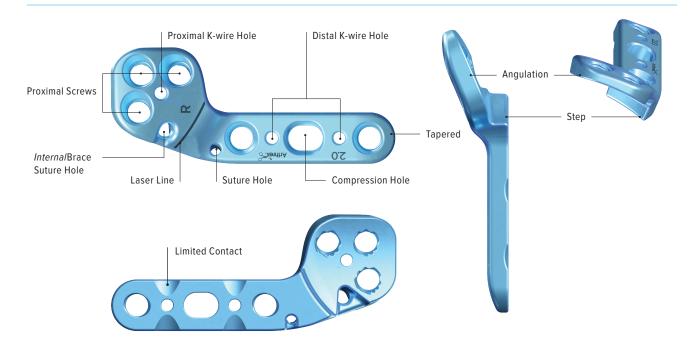
The OrthoLine MPL plate system mimics the anatomically designed tibial plateau leveling osteotomy plates, with additional designs and features specifically for medial patella luxation. The size range includes 1.6 mm, 2.0 mm, 2.4 mm, 2.7 mm, 3.0 mm, small 3.5 mm, standard 3.5 mm, and broad 3.5 mm. The design includes a step to offset the fragment from the long bone of the tibia, with the intention of creating medial tibial plateau translation. The smaller sizes, 3.0 mm and below, include a torsional angle. By combining rotation with translation we increase bone contact, needing less translation to achieve the transposition your patient requires. Slight rotation and translation allow for 2-3 mm of tibial tuberosity transposition.

The plates continue to support *Internal*Brace™ ligament augmentation with the use of the proximal suture hole. Distal suture holes on the cranial aspect of the plate aid in soft tissue closure. The design includes multiple K-wire holes on the distal aspect. The laser line represents the location of the step and aids in proper positioning. The design features limited contact on the distal aspect and a locking screw distal to the osteotomy, protecting the osteotomy site.

Features and Benefits

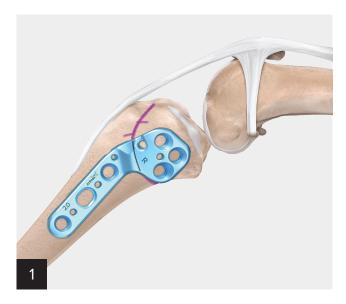
- Step to offset the fragment, including slight torsional rotation on smaller sizes
- Proximal screw trajectories avoid the joint
- Distal suture hole to aid in soft tissue closure
- Scalloped underside to distribute stress and minimize contact
- Proximal suture hole to support rotational stability
- Multiple K-wire holes allow surgeons to choose what is best for the patient
- Distal locking hole to protect the osteotomy site
- Laser line represents the location of the step
- Anatomic plate design with left and right options

Anatomic Design

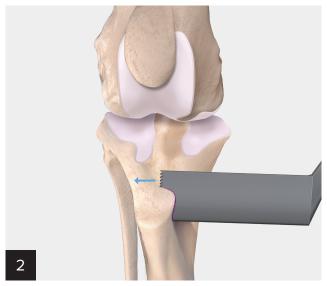


Surgical Technique

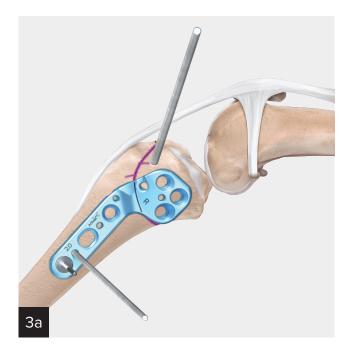
Surgical Approach: Use a standard tibial plateau leveling osteotomy (TPLO) approach for the MPL plate.

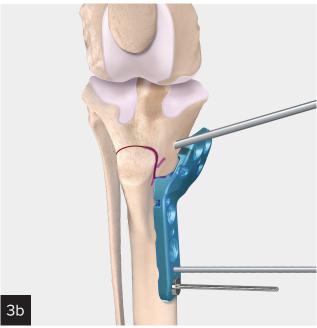


Position the MPL plate about 1 mm distal to the joint line, with the proximal screws in the caudocentral aspect of the proximal fragment. Distally the plate should align with the center of the tibia. Mark the osteotomy at the level of the step and the laser line of the plate.

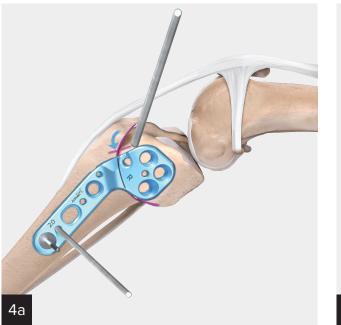


Perform a standard tibial plateau leveling osteotomy (TPLO) with an appropriately sized sawblade. The TPLO jig is not used for this procedure, to allow translation and rotation of the proximal fragment.





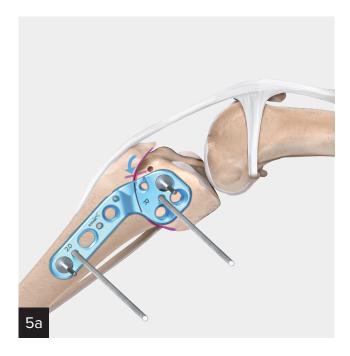
After completing the osteotomy, the rotational pin is placed. Affix the plate to the distal fragment. Ensure the plate is in the caudocentral area of the fragment, the step is aligned to the osteotomy, and the proximal plate hole is 1 mm from the joint line. The preplanned marks should be visible cranial to the plate. Stabilize the plate distally with a K-wire and a BB-Tak.

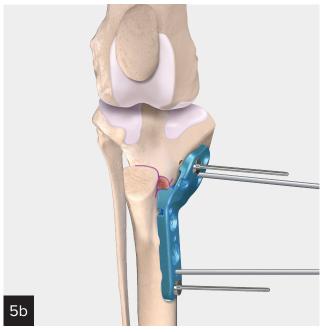




Use the plate as a guide while rotating the proximal fragment with the rotational pin. The fragment is simultaneously rotated craniocaudally, translated lateromedially, and based on the individual limb alignment. Excessive external rotation of the pes anserinus should be avoided. However, some chondrodystrophic dogs may benefit from a torsional correction.

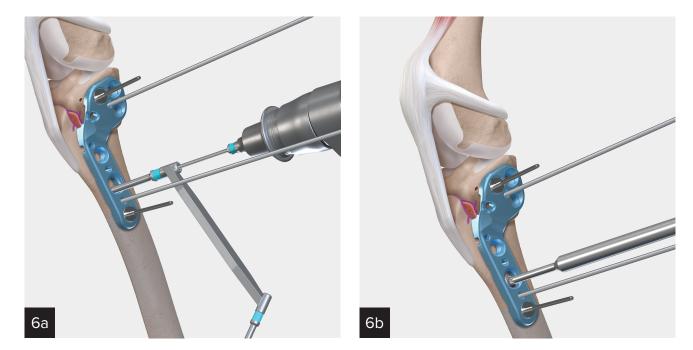
Note: It is important to ensure the limb is aligned appropriately for the patient. Adjustments may be required.





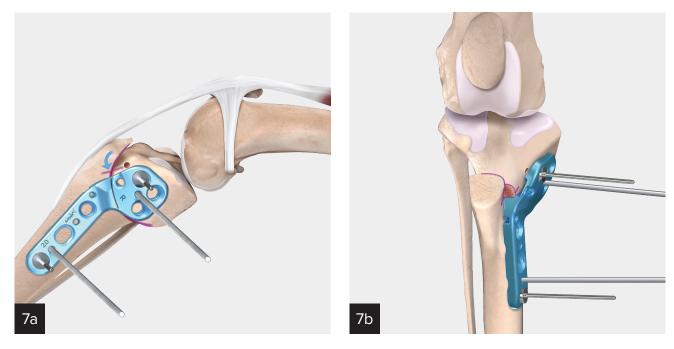
After confirming the plateau angle, limb alignment, and bone contact at the level of the tibial tuberosity, the proximal fragment is affixed with a K-wire and a BB-Tak is placed in the proximal cranial screw hole. Once rotation and stabilization of the fragment has been achieved, remove the rotational pin.

Note: K-wires can be cut to approximately 7-10 mm to ensure the wires do not interfere with the locking drill guide.



Place a cortical screw in the compression hole, leaving it slightly loose but in contact with the plate. The degree of compression may be adjusted by the placement of the drill guide within the oblong screw hole. Placement furthest from the osteotomy site results in the greatest degree of compression. With good reduction compression may not be required. The screw should be placed in a neutral fashion.

Note: It is important to ensure the limb is aligned appropriately for the patient. Adjustments may be required.



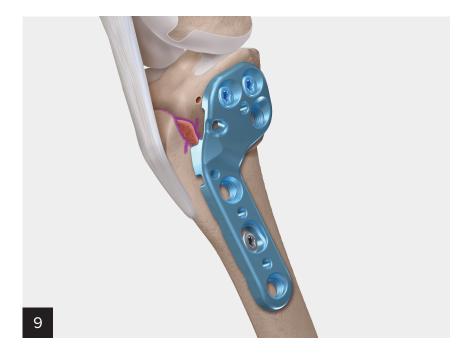
Keep the proximal BB-Tak in place and place a locking screw in the proximal segment. Use the locking drill guide to drill the hole and measure its depth to the appropriate length. Use a depth gauge for a more consistent measurement. Place the locking screw in the proximal fragment. The screw can be placed under power but should have the final turns tightened by hand.



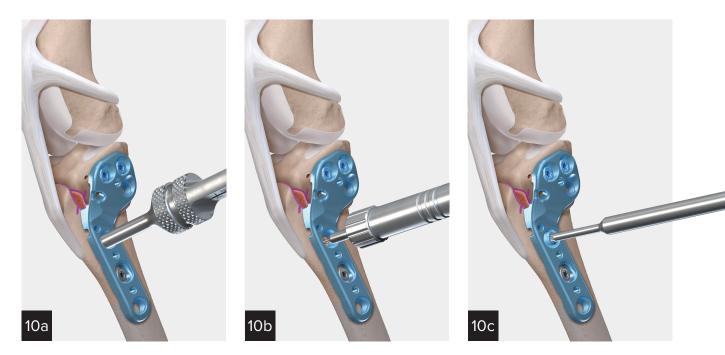


Remove the BB-Tak and proximal K-wire. Place the cranial locking screw in the proximal segment. Use the locking drill guide to drill the hole and measure its depth to the appropriate length. Use a depth gauge for a more consistent measurement. Place the locking screw in the proximal fragment. The screw can be placed under power but should have the final turns tightened by hand.

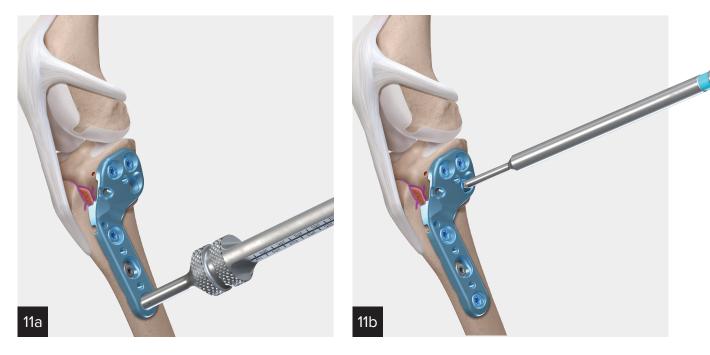
Note: It is important to ensure the limb is aligned appropriately for the patient. Adjustments may be required.



If compression is required, remove the distal K-wire and BB-Tak. Tighten the compression screw by hand.



When placing a locking screw in the distal aspect, use the locking drill guide to drill the hole and measure its depth to the appropriate length. Use a depth gauge for a more consistent measurement. The screw can be placed under power but should have the final turns tightened by hand. If compression screw was placed in neutral fashion and the BB-Tak and distal K-wire has not been removed, it is appropriate to remove the compression screw once the first distal locking screw is in place.



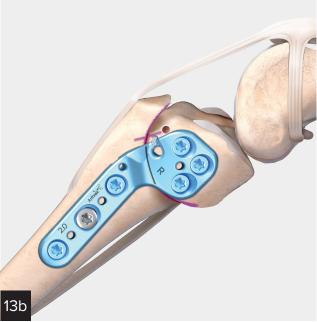
Place the remaining locking screws in the proximal and distal aspects. After all screws are placed, use a screwdriver to tighten each screw by hand.



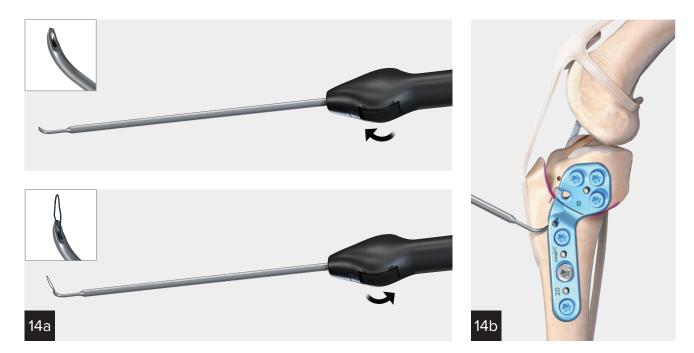


Final fixation: medial view (12a), cranial view (12b).

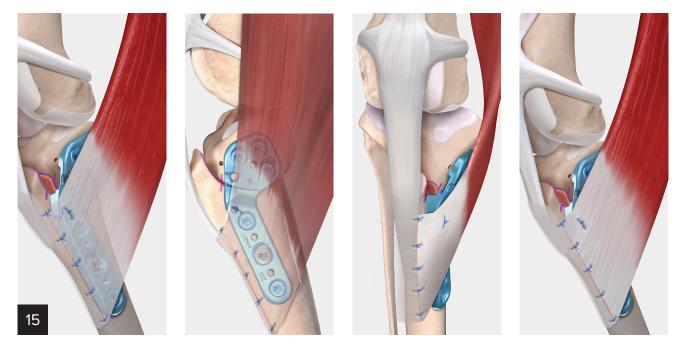




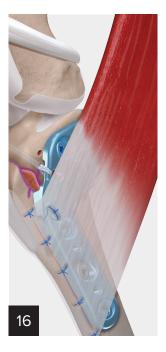
After final fixation, an *Internal*Brace™ ligament augmentation can be added if appropriate.

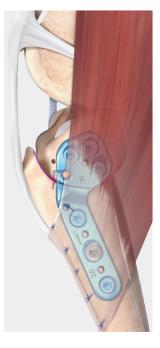


To aid in soft tissue closure, place the QuickPass™ SutureLasso™ suture passer under the suture hole in the MPL plate and advance the trigger by rolling the wheel from top to bottom. Ensure the nitinol loop has passed through the suture hole, then pass the VetSuture through the nitinol loop of the lasso and move the wheel forward bringing the suture passer into tension to hold the suture material in place while passing the VetSuture. Pull the suture through the suture hole within the plate.

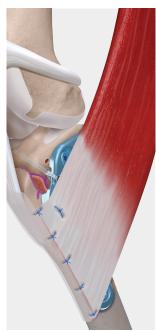


Place one or two mattress sutures in the pes to relieve tension. Suture the cut edge of the pes to the cut edge of the cranial fascia in standard fashion.









Final fixation with *Internal*Brace[™] ligament augmentation.

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 tibiofibular 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
- Within the compression hole, placement furthest from the osteotomy site results in the greatest degree of compression
- Do not overtighten the Internal Brace™ ligament augmentation; the tibia should be free to rotate to neutral-mild internal rotation (about 5°-10°)
- Review the presentation <u>video</u> for *Internal*Brace ligament augmentation considerations

- Cranial aspect of the plate can sit off the bone if torsional angulation is not required for the patient
- Contouring the plate is an option if torsional angulation is not required for the patient
- When placing the suture to aid in soft tissue closure, a mattress stitch should be placed into the pes anserinus as a tension reliever; a second suture should be placed on the remaining cuff of tissue and sutured to the fascia
- Care must be taken with large plate contours as screw trajectories will be altered
- Screw trajectories vary and should be noted prior to locking drill guide insertion
- Using a second sterile plate as a reference guide for screw trajectories may be helpful
- The locking drill guide must be inserted parallel to the screw hole; this is not always perpendicular to the plate
- The nitinol loop of the QuickPass SutureLasso™ suture passer is advanced by rolling the thumbwheel from top to bottom

Plate Step and Angle Chart

Part Number	Description	Plate Size	Step (mm)	Torsional Angle
VAR-3116MPL-L	MPL Plate, titanium, left	1.6 mm	1.4	10°
VAR-3116MPL-R	MPL Plate, titanium, right	1.6 mm	1.4	10°
VAR-3120MPL-L	MPL Plate, titanium, left	2.0 mm	2.0	10°
VAR-3120MPL-R	MPL Plate, titanium, right	2.0 mm	2.0	10°
VAR-3124MPL-L	MPL Plate, titanium, left	2.4 mm	2.4	10°
VAR-3124MPL-R	MPL Plate, titanium, right	2.4 mm	2.4	10°
VAR-3027MPL-L	MPL Plate, stainless steel, left	2.7 mm	2.7	10°
VAR- 3027MPL-R	MPL Plate, stainless steel, right	2.7 mm	2.7	10°
VAR-3130MPL-L	MPL Plate, titanium, left	3.0 mm	3.0	5°
VAR-3130MPL-R	MPL Plate, titanium, right	3.0 mm	3.0	5°
VAR-3035SMPL-L	MPL Plate, stainless steel, left	3.5 mm	3.75	0°
VAR-3035SMPL-R	MPL Plate, stainless steel, right	3.5 mm	3.75	0°
VAR-3035SMMPL-L	MPL Plate, stainless steel, left	3.5 mm	4.0	0°
VAR-3035SMMPL-R	MPL Plate, stainless steel, right	3.5 mm	4.0	0°
VAR-3035BMPL-L	MPL Plate, stainless steel, left	3.5 mm	4.5	0°
VAR-3035BMPL-R	MPL Plate, stainless steel, right	3.5 mm	4.5	0°

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.

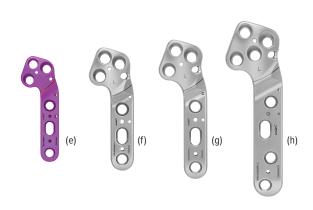
	₩	1	H	*	>	H	1	
	1-4 kg	3-7 kg	8-12 kg	13-17 kg	15-20 kg	18-25 kg	26-39 kg	40-55 kg
Plate Size	1.6 mm	2.0 mm	2.4 mm	2.7 mm	3.0 mm	3.5 mm, small	3.5 mm, standard	3.5 mm, broad
Plate						0.000		CO CO COMPANY CONTRACTOR CONTRACT

Ordering Information

Plates

Product Description	Item Number
1.6 mm Plates	
MPL Plate, titanium, left, 1.6 mm (a)	VAR-3116MPL-L
MPL Plate, titanium, right, 1.6 mm	VAR-3116MPL-R
2.0 mm Plates	
MPL Plate, titanium, left, 2.0 mm (b)	VAR- 3120MPL-L
MPL Plate, titanium, right, 2.0 mm	VAR-3120MPL-R
2.4 mm Plates	
MPL Plate, titanium, left, 2.4 mm (c)	VAR- 3124MPL-L
MPL Plate, titanium, right, 2.4 mm	VAR-3124MPL-R
2.7 mm Plates	
MPL Plate, stainless steel, left, 2.7 mm (d)	VAR-3027MPL-L
MPL Plate, stainless steel, right, 2.7 mm	VAR-3027MPL-R
3.0 mm Plates	
MPL Plate, titanium, left, 3.0 mm (e)	VAR-3130MPL-L
MPL Plate, titanium, right, 3.0 mm	VAR-3130MPL-R
3.5 mm Plates	
MPL Plate, stainless steel, standard, left, 3.5 mm (f)	VAR-3035SMPL-L
MPL Plate, stainless steel, standard, right, 3.5 mm	VAR-3035SMPL-R
MPL Plate, stainless steel, small, left, 3.5 mm (g)	VAR-3035SMMPL
MPL Plate, stainless steel, small, right, 3.5 mm	VAR-3035SMMPL
MPL Plate, stainless steel, broad, left, 3.5 mm (h)	VAR-3035BMPL-L
MPL Plate, stainless steel, broad, right, 3.5 mm	VAR-3035BMPL-R





Screws

Sciews	
Product Description	Item Number
1.6 mm Low-Profile Cortical, Variable Angle, Titanium	
Low-profile cortical screw 1.6 mm × 6-20 mm Sizes: 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, 20 mm	VAR- 8916-06 to - 20
Low-profile variable-angle screw 1.6 mm × 6-20 mm Sizes: 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, 20 mm	VAR- 8916V-06 to - 20
2.0 mm Low-Profile Cortical, Locking, Variable Angle, Tit	anium
Low-profile cortical screw 2.0 mm × 6-30 mm Sizes: 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, 20, 22, 24, 26, 28, 30 mm	VAR- 8920-06 to - 30
Low-profile locking screw 2.0 mm × 6-30 mm Sizes: 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, 20, 22, 24, 26, 28, 30 mm	VAR- 8920L-06 to - 30
Low-profile variable-angle screw 2.0 mm × 6-30 mm Sizes: 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, 20, 22, 24, 26, 28, 30 mm	VAR- 8920V-06 to - 30
2.4 mm Low-Profile Cortical, Locking, Variable Angle, Tit	anium
Low-profile cortical screw 2.4 mm × 8-30 mm Sizes: 8, 9, 10, 11, 12, 13, 14, 16, 18, 20, 22, 24, 26, 28, 30 mm	VAR- 8924-08 to - 30
Low-profile locking screw 2.4 mm × 8-30 mm Sizes: 8, 9, 10, 11, 12, 13, 14, 16, 18, 20, 22, 24, 26, 28, 30 mm	VAR- 8924L-08 to - 30
Low-profile variable-angle screw 2.4 mm × 8-30 mm Sizes: 8, 9, 10, 11, 12, 13, 14, 16, 18, 20, 22, 24, 26, 28, 30 mm	VAR- 8924V-08 to - 30
2.7 mm Low-Profile Cortical, Locking, Stainless Steel	
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, Locking, Variable Angle, Tit	anium
Low-profile cortical 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- 8930-08 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
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

Product Description	Item Number
3.5 mm Low-Profile Cortical, Locking, Stainless Steel	
Low-profile cortical screw	VAR- 8835-16
3.5 mm × 16-60 mm	to - 60
Sizes: 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38,	
40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60 mm	
Low-profile locking screw	VAR- 8835L-16
3.5 mm × 16-60 mm	to - 60
Sizes: 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38,	
40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60 mm	
4.0 mm Low-Profile, Locking, Stainless Steel	
Low-profile locking screw	VAR- 8840L-18
4.0 mm × 18-60 mm	to - 60
Sizes: 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40,	
42, 44, 46, 48, 50, 52, 54, 56, 58, 60 mm	

Instruments

Product Description	Item Number
Product Description	
Drill bit, solid, AO, 1.1 mm (1.6 mm)	VAR- 4016D
Drill bit, solid, AO, 1.5 mm (2.0 mm)	VAR- 4020D
Drill bit, solid, AO, 1.8 mm (2.4 mm)	VAR- 4024D
Drill bit, solid, AO, 2.0 mm (2.7 mm)	VAR- 8944-20
Drill bit, solid, AO, 2.3 mm (3.0 mm)	VAR- 4030D
Drill bit, solid, AO, 2.8 mm (3.5 mm locking)	VAR- 4035D
Drill bit, solid, AO, 2.4 mm (3.5 mm cortical)	VAR- 8943-30
Drill bit, solid, AO, 3.5 mm (4.0 mm)	VAR- 4040D
Drill bit, solid, short, AO, 1.1 mm (1.6 mm)	VAR- 4016SD
Drill bit, solid, short, AO, 1.5 mm (2.0 mm)	VAR- 4020SD
Drill bit, solid, short, AO, 1.8 mm (2.4 mm)	VAR- 4024SD
Drill bit, solid, short, AO, 2.3 mm (3.0 mm)	VAR- 4030SD
Drill/depth guide, locking, 1.6 mm	VAR- 4016DG
Drill/depth guide, locking, 2.0 mm	VAR- 4020DG
Drill/depth guide, locking, 2.4 mm	VAR- 4024DG
Drill/depth guide, locking, 2.7 mm	VAR- 8950-07
Drill/depth guide, locking, 3.0 mm	VAR- 4030DG
Drill/depth guide, locking, 3.5 mm	VAR- 4035DG
Drill/depth guide, locking, 4.0 mm	VAR- 4040DG
Drill guide, 1.1 mm (1.6 mm)	VAR- 4016TDG
Tap/drill guide, 2.0 mm/1.5 mm (2.0 mm)	VAR- 4020TDG
Tap/drill guide, 2.4 mm/1.8 mm (2.4 mm)	VAR- 4024TDG
2.0 mm/3.0 mm nonlocking drill guide	VAR- 8943-31
Tap/drill guide, 3.0 mm/2.3 mm (3.0 mm)	VAR-4030TDG
Drill guide (3.5 mm)	VAR- 8943-14
Drill guide, variable, 1.6 mm	VAR- 4016VDG
Drill guide, variable, 2.0 mm	VAR- 4020VDG
Drill guide, variable, 2.4 mm	VAR- 4024VDG
Drill guide, variable, 3.0 mm	VAR- 4030VDG
K-wire drill guide, 0.86 mm (1.6 mm/2.0 mm)	VAR- 4020KDG
K-wire drill guide, 1.14 mm (2.4 mm)	VAR- 4024KDG
K-wire drill guide, 1.14 mm (2.7 mm/3.0 mm)	VAR- 4030KDG
K-wire drill guide, 1.3 mm (3.5 mm)	VAR- 4035KDG
Bone tap, 2.0 mm	VAR- 4020T
Bone tap, 2.4 mm	VAR- 4024T
Bone tap, 2.7 mm	VAR- 4027T
Bone tap, 3.0 mm	VAR- 4030T

Product Description	Item Number
Depth measuring device (1.6 mm/2.0 mm/2.4 mm)	VAR- 2024DD
Depth measuring device	VAR- 8943-15
(2.7 mm/3.0 mm/3.5 mm/4.0 mm)	
T6 driver (1.6 mm/2.0 mm)	VAR- 4020-01
T8 driver (2.4 mm)	VAR- 4024-01
T10 screwdriver (2.7 mm/3.0 mm)	VAR- 8944DH
T15 driver (3.5 mm/4.0 mm)	VAR- 8941DH
T6 screwdriver (1.6 mm/2.0 mm)	VAR- 4020-02
T8 screwdriver (2.4 mm)	VAR- 4024-02
Screw holding forceps (2.7 mm/3.0 mm)	VAR- 8943-08
T15 screwdriver (3.5 mm)	VAR- 8943-10
Locking plate holder, 2.0 mm	VAR- 4020-03
Locking plate holder, 2.4 mm	VAR- 4024-03
Locking plate holder, 2.7 mm/3.0 mm	VAR- 8950-09
Locking plate holder, 3.5 mm	VAR- 8954-07
Screw holding forceps	VAR- 8941F
Bending plug, cannulated, 1.6 mm/2.0 mm	VAR- 4020-04
Bending plug, cannulated, 2.4 mm	VAR- 4024-04
Bending plug, cannulated, 3.0 mm	VAR- 4030-04
Bending plug, cannulated, 3.5 mm	VAR- 4035-04
Bending iron, small (1.6 mm/2.0 mm)	VAR- 4000-07
Bending iron, medium (2.4 mm/3.0 mm)	VAR- 4000-08
Bending iron, large (3.5 mm/3.5 mm broad)	VAR- 4000-09
BB-Tak, small, threaded	VAR-8933TBB
BB-Tak, small	VAR- 8933BB
BB-Tak, large	VAR- 8941BB
BB-Tak, large, threaded	VAR- 8941TBB
Freer elevator	VAR- 4000-10
Hohmann retractor, double-ended, 6 mm/10 mm	VAR- 4000-11
Ikuta clamp	VAR- 4000-12
Lobster clamp, mini	VAR- 4000-13
Lobster clamp, mini, radiolucent	VAR- 4000-14
Periosteal elevator, 6 mm curved blade	VAR- 4000-15
Pliers, needlenose	VAR- 4000-16
Pointed reduction forceps	VAR- 4000-17
Reduction forceps, guidewire	VAR- 4000-18
Sharp hook	VAR- 4000-19
Termite forceps	VAR- 4000-20
Toothed reduction forceps, Kocher	VAR- 4000-21
QuickPass SutureLasso	AR- 6068-90



Plate Size	Plate	VetSuture	Product Description
1.6 mm		VAR- R316	Polydioxanone 3-0, SH, TP, ½ C
		VAR- R317	Polydioxanone 2-0, SH, TP, ½ C
2.0 mm	٥١٥٠٠	VAR- J8665	Polypropylene 3-0, FS-2, Rev Ctg, % C
2.4 mm		VAR- R334	Polydioxanone 0, CT-2, TP, ½ C
		VAR- R340	Polydioxanone 0, CT-1, TP, ½ C
2.7 mm		VAR- R467	Polydioxanone 0, CP-1, Rev Ctg, ½ C
3.0 mm			
3.5 mm	0.0.0	VAR- R468	Deludiavanana 1 CD 1 Deu Ctr 1/ C
3.5 mm			Polydioxanone 1, CP-1, Rev Ctg, ½ C
3.5 mm	Constant of the second of the		

Cases and Caddies

Image	Product Description	Item Number
Arthrex. Ver outhousers Segrend 9 Segrend	OrthoLine™ system case (36.83 cm x 20.32 cm x 9.53 cm)	VAR- 4000GC
WAR-doodge-of	Generic case insert	VAR- 4000GC-01
	1.6 mm Screw caddy	VAR- 3016SC-01
	2.0 mm Screw caddy	VAR- 3020SC-01
	2.4 mm Screw caddy	VAR- 3024SC-01

Image	Product Description	Item Number
Atthews a sum stop of the stop	2.7 mm Screw caddy	VAR- 40275C-01
	3.0 mm Screw caddy	VAR- 3030SC-01
Athrick	3.5 mm/4.0 mm Screw caddy	VAR- 4035SC-02
Arine	Bending plug caddy	VAR- 4000BPC
	TPLO set w/ instruments, 2.0 mm/2.4 mm	VAR- 402024S

Image	Product Description	Item Number
	TPLO set w/ instruments, 2.7 mm	VAR- 4027S
Authority of the Control of the Cont	TPLO set w/ instruments, 3.0 mm	VAR- 4030S
1 mes	TPLO set w/ instruments, 3.5 mm	VAR- 4035S

Notes

Notes



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.



Arthrex manufacturer, authorized representative, and importer information (Arthrex eIFUs)



US patent information

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