

Ankle Spanning, Knee Spanning, Long Bone and Pelvic



JET-X[◇] External Fixation System

Ankle Spanning, Knee Spanning, Long Bone and Pelvic Surgical Technique

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Nota Bene

The technique description herein is made available to the healthcare professional to illustrate the author's suggested treatment for the uncomplicated procedure. In the final analysis, the preferred treatment is that which addresses the needs of the specific patient.

System features

Indications

Intended to be used on adults or pediatric patients as required for fracture fixation (open or closed); post-traumatic joint contracture which has resulted in loss of range of motion; fractures and disease which generally may result in joint contractures or loss of range of motion and fractures requiring distraction; pseudoarthrosis of long bones; limb lengthening by epiphyseal or metaphyseal distraction; correction of bony or soft tissue deformity; correction of segmental bony or soft tissue defects; infected fractures or non-unions; joint arthrodesis; and management of comminuted intra-articular fracture of the distal radius.



Freedom Bar-to-Pin Clamp



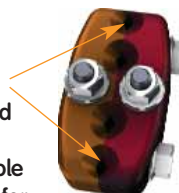
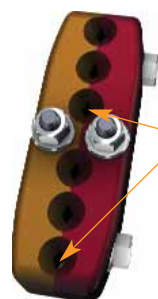
Freedom Bar-to-Bar Clamp



Quick Bar-to-Pin Clamp



Quick Bar-to-Bar Clamp

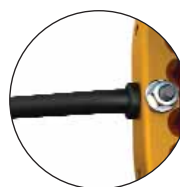


The multiple pin clamps are designed so that half pin spacing is compatible with Rancho cubes for definitive treatment

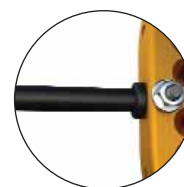
The four hole and six hole clamps offer several attachment posts to maximize construct alternatives



Freedom Post



30° Post



Straight Post



Stainless steel pin with TiN coating

Designed for flexibility in frame construction and ease of use

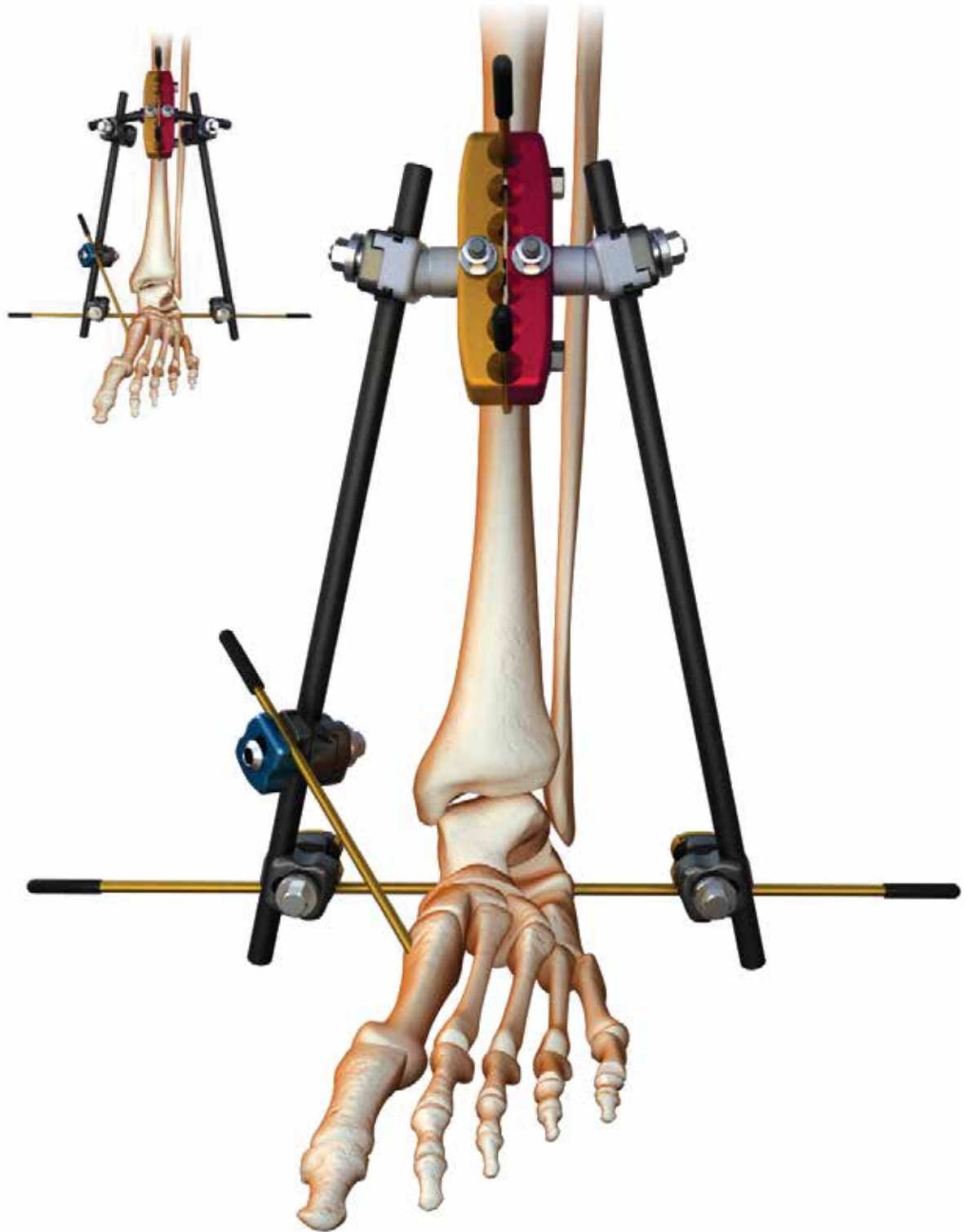
- Freedom Clamps provide the ability to angle pins up to 50° and also allow linear reduction of fractures with true translation of long bone fragment ends.
- Quick Clamps allow for rapid application, stability, and single point tightening
- Cartridge clamp design is positive locking – no passive release of pins or bars – even when clamps are loosened
- The system includes four hole and six hole multiple clamps to optimize pin spread
- The four hole and six hole clamps offer several attachment posts to maximize construct alternatives
- Various clamps and bar lengths give the surgeon the versatility to assemble the necessary frame constructs
- Self-drilling, self-tapping JET-X® Half Pins
- Stainless steel pins with TiN* coating to reduce friction, which may minimize heat during insertion
- Tapered minor/constant major diameter of half pins provide radial compression to prevent loosening
- JET-X clamp components are designed to meet ASTM** MR Conditional requirements***

*TiN = Stainless Steel Half Pins with a Titanium Nitride coating

**American Society for Testing and Materials

***See IFU for specific MR Conditional information

Ankle Spanning Surgical Technique



Indications

Temporary or definitive stabilization of pilon fractures.
Adjunct to internal fixation for treatment of fractures.

JET-X[◇] External Fixator Ankle Spanning Surgical Technique

Pin insertion

Make a stab incision at the desired pin site. Dissect down to bone using a small elevator, being careful to elevate the periosteum, so that the drill and pin avoid as much soft tissue as possible. Insert the 3.5mm Drill Sleeve into the 5mm Tissue Protector and place the sleeve combination through the stab incision to bone.



Note Pre-drilling is optional when using the JET-X Half Pins, which are self-drilling and self-tapping.

Using the 3.5mm drill, pre-drill the bone, using the C-arm to assist in pre-drilling. Measure using the drill and sleeve combination to determine pin thread length. Remove the drill sleeve and insert the appropriate 5mm Half Pin attaining bicortical purchase.

Pin placement/ frame construction

The working construct is a delta frame using a Multiple Pin Clamp.

Calcaneal pin placement

Place a centrally threaded half pin (traction pin) through the calcaneus in the safe zone from medial to lateral. Position this pin parallel to the ankle joint or perpendicular to the mechanical axis of the tibia. The pin should be positioned in the tuberosity, posterior to the sagittal axis line to produce a dorsiflexion moment with distraction. Confirm pin placement using the C-arm.

Note Construct shown utilizes the Quick Clamp. Freedom clamps may also be used for frame construction.



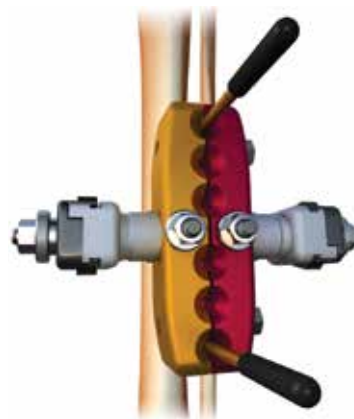
Tibial pin placement

Place the tibial pins in the AP plane. Direct AP or anteromedial are optimal placements. If treatment is to progress to ORIF, proximal half pins should be placed outside the planned area of fixation and zone of injury.

Use the Multiple Pin Clamp and Tissue Protectors to insert half pins and ensure proper spacing. Allow for planned future fixation and avoid zone of injury.

Select the appropriate posts and snap them into the Multiple Pin Clamp. Add a Pin to Bar Clamp to the calcaneal traction pin and attach carbon fiber bars. Reduce the fracture and tighten all clamps using the 10mm Ratchet Wrench or AO T-Handle Connector with 10mm Socket.

Note Construct shown with Freedom Post attachments. A Straight Post or 30° Angled Post could be used but would require an additional Bar to Bar Clamp.



Metatarsal pin placement

An additional metatarsal pin can be placed to incorporate the foot. Place the desired half pin size (3mm or 4mm) into the base of the first metatarsal at a slight angle into the anterior medial aspect. This is done to avoid tethering of the extensor tendons. Attach the pin to the bar using a Quick or Freedom Bar to Pin Clamp.

Note Construct shown utilizes the 10.5mm to 4mm Quick Clamp and 4mm TiN Half Pin.



Optional frame constructs



Construct shown utilizes the six hole Multiple Pin Clamp with straight posts and the 10.5mm to 4mm Quick Clamp with a 4mm TiN pin in the first metatarsal

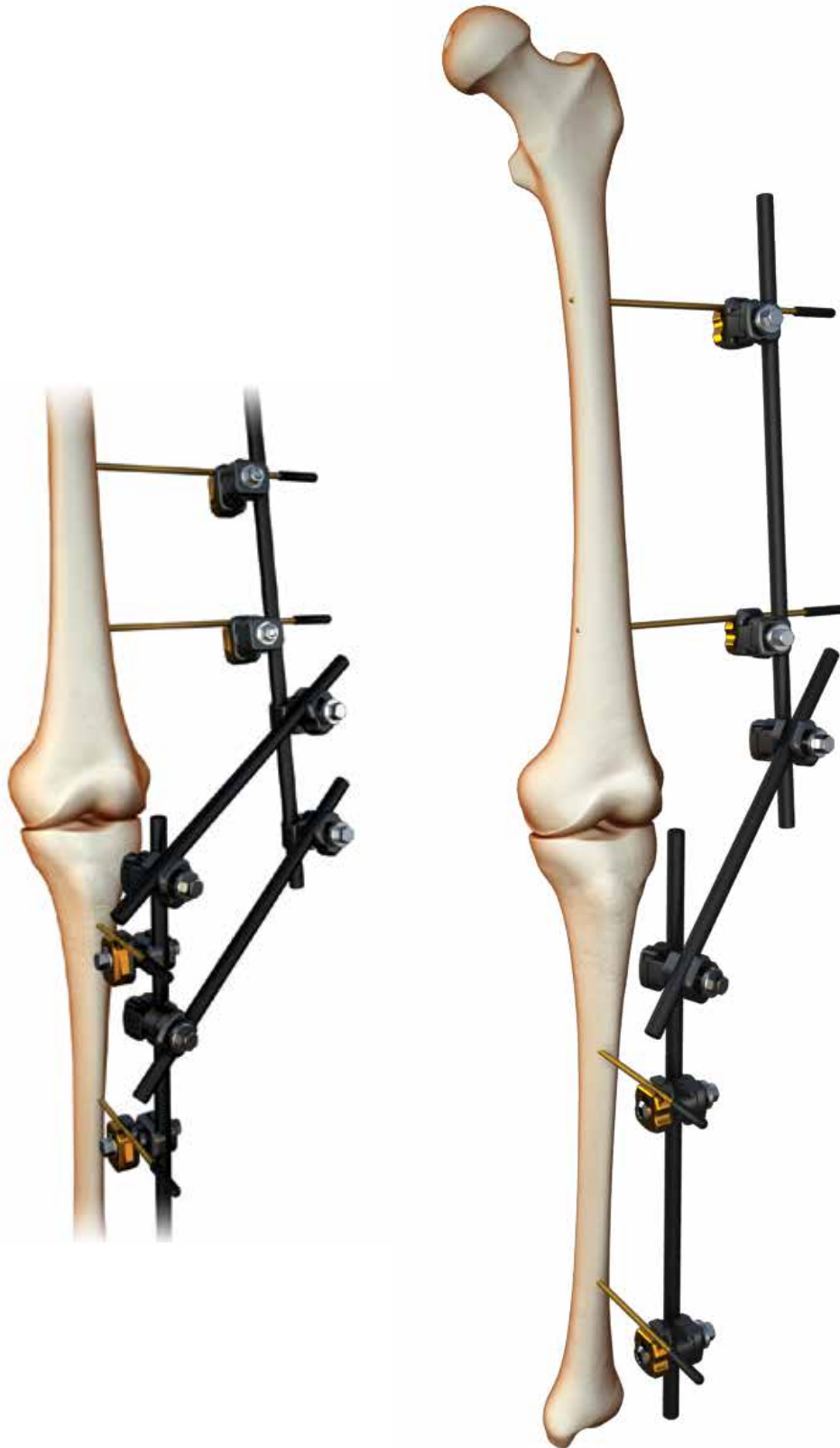


Construct shown utilizes the six hole Multiple Pin Clamp with 30° posts and the 10.5mm to 4mm Quick Clamp with a 4mm TiN pin in the first metatarsal



Construct shown utilizes four 10.5mm Bar to 5mm Pin Clamps and the 10.5mm to 4mm Quick Clamp with a 4mm TiN pin in the first metatarsal

Knee Spanning Surgical Technique



Indications

Temporary stabilization of fractures and severe soft tissue injuries, such as tibial plateau, supracondylar femur, extensor mechanism disruption and knee dislocation.

JET-X[◇] External Fixator Knee Spanning Surgical Technique

Pin insertion

Make a stab incision at the desired pin site. Dissect down to bone using a small elevator, being careful to elevate the periosteum, so that the drill and pin avoid as much soft tissue as possible. Insert the 3.5mm Drill Sleeve into the 5mm Tissue Protector and place the sleeve combination through the stab incision to bone.



Note Pre-drilling is optional when using the JET-X Half Pins, which are self-drilling and self-tapping.

Using the 3.5mm Drill, pre-drill the bone, using the C-arm to assist in pre-drilling. Measure using the drill and sleeve combination to determine pin thread length. Remove the drill sleeve and insert the appropriate 5mm Half Pin attaining bicortical purchase.

Pin placement/ frame construction

Tibial pins

Place initial half pin just distal to the zone of injury and distal to planned future fixation. The pin should be placed AP, just medial to the anterior tibial crest.

The second tibial pin should be inserted distally at the diaphyseal-metaphyseal junction to obtain maximum pin spread. Attach Quick or Freedom Bar to Pin Clamps to each tibial pin.

Choose a bar of appropriate length to end at the level of patella. Attach this bar to the Bar to Pin Clamps. This bar is placed approximately two finger breadths above skin level to allow for swelling of the soft tissue.

Femoral pins

(Frame option #1)

Insert two half pins straight anterior through the quadriceps. Use maximum pin spread for construct stability. Attach Quick or Freedom Bar to Pin Clamps to each pin.

Choose a bar that is long enough to cross the proximal end of the tibial bar. Attach this bar to the Bar to Pin Clamps. This bar should be placed approximately two finger breadths above skin level to allow for swelling of the soft tissue.

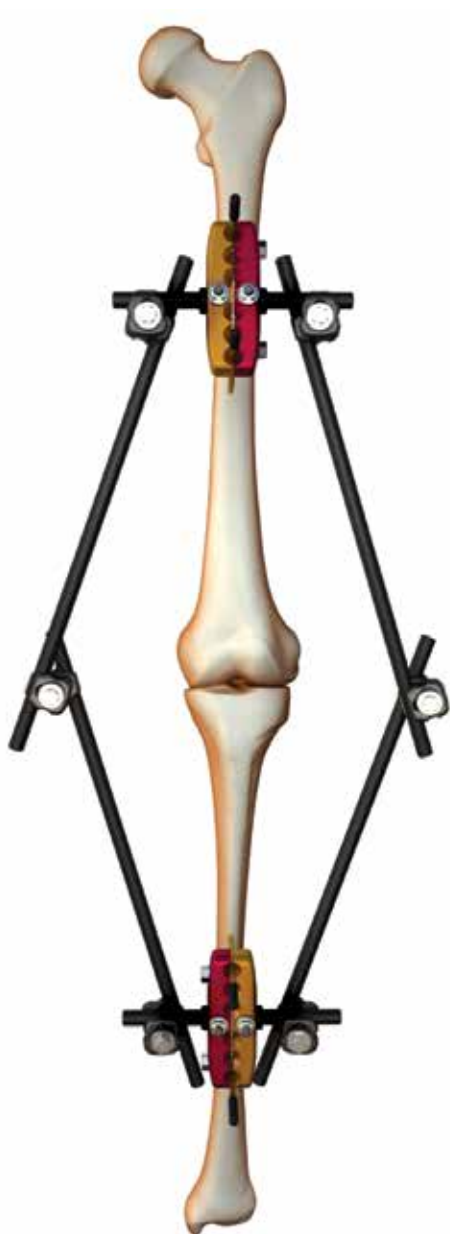
Connector bars

Attach Quick or Freedom Bar to Bar Clamps to the tibial and femoral bars. Attach a third bar to these clamps. Distract the leg and reduce the fracture. Verify reduction by C-arm and tighten all clamps.

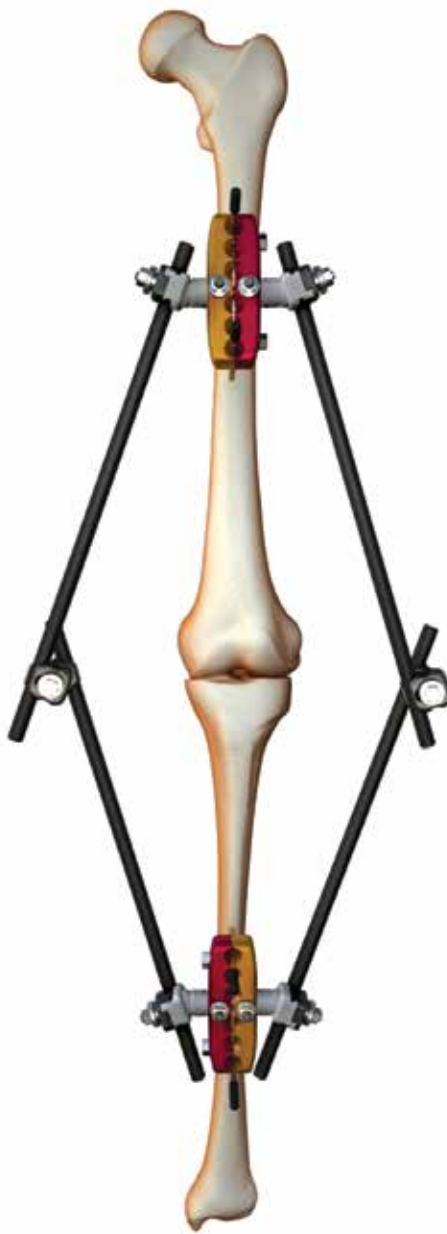
Note For additional stability, bars can be double stacked.



Optional frame constructs

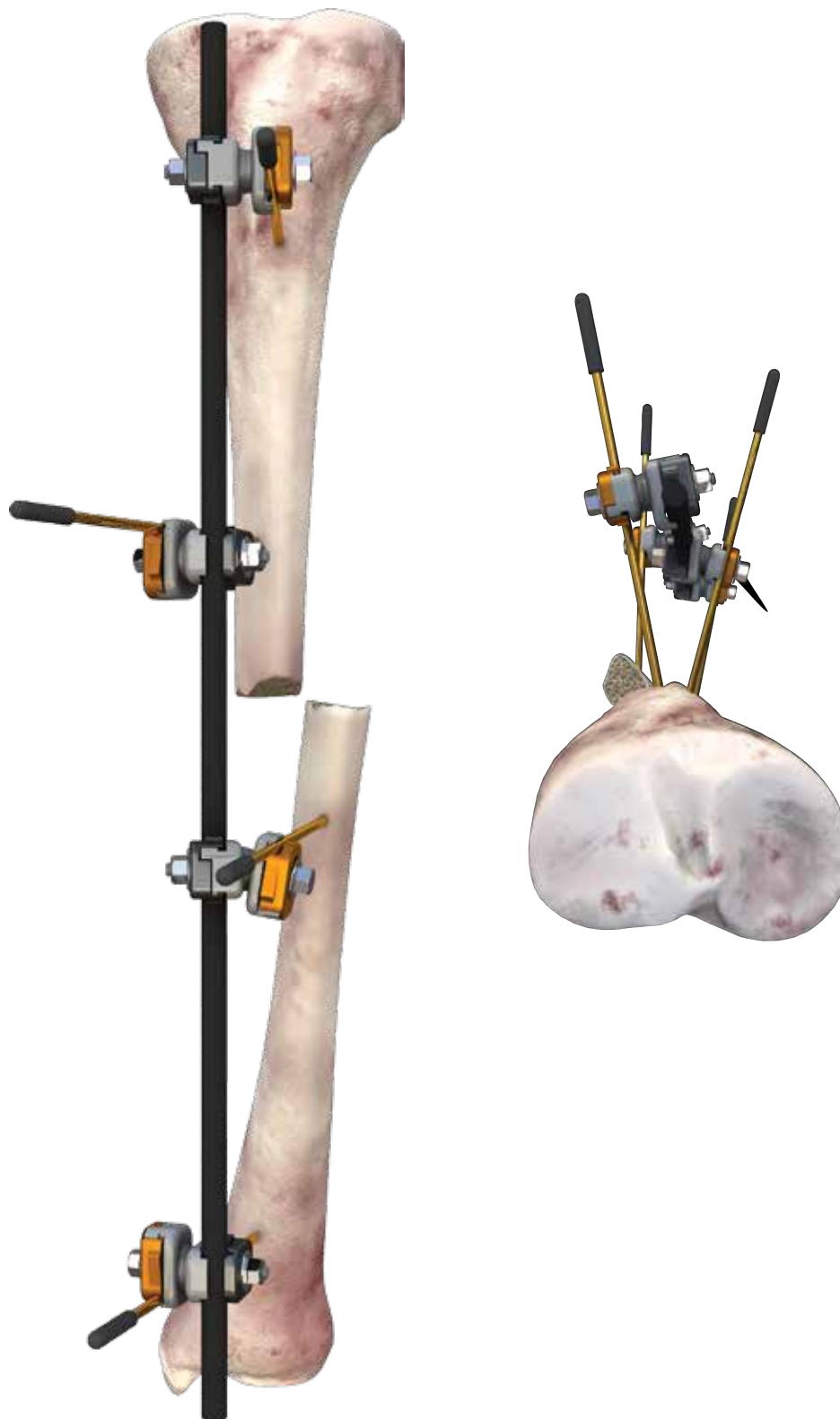


Construct shown utilizes the six hole Multiple Pin Clamp with Straight Posts in the proximal and distal portions.



Construct shown utilizes the six hole Multiple Pin Clamp with Freedom Posts in the proximal and distal portions.

Long Bone Surgical Technique



Indications

Treatment of long bone fractures. First stage stabilization of fractures that will be treated definitively with ORIF.

JET-X[◇] External Fixator Long Bone Surgical Technique

Pin insertion

Make a stab incision at the desired pin site. Dissect down to bone using a small elevator, being careful to elevate the periosteum, so that the drill and pin avoid as much soft tissue as possible. Insert the 3.5mm Drill Sleeve into the 5mm Tissue Protector and place the sleeve combination through the stab incision to bone.

Note Pre-drilling is optional when using JET-X Half Pins, which are self-drilling and self-tapping.

Using the 3.5mm Drill, pre-drill the bone, using the C-arm to assist in pre-drilling. Measure using the drill and sleeve combination to determine pin thread length. Remove the drill sleeve and insert the appropriate 5mm Half Pin attaining bicortical purchase.

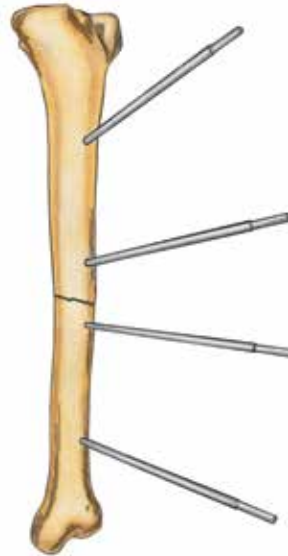


Pin placement

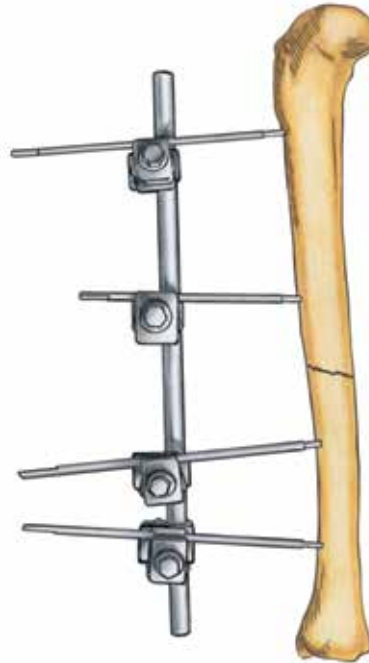
A simple stable frame is achieved by placing four pins with maximal spread along the length of the bone. Correct pin placement should provide for one pin on either side of the fracture as **far** from the fracture line as can be achieved.



Place two additional pins as **close** as possible on either side of the fracture.

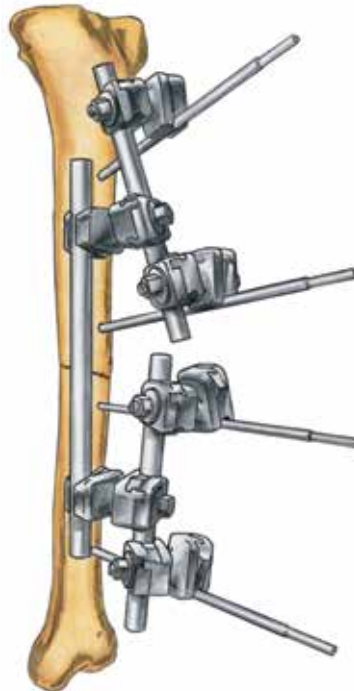


Using Freedom Bar to Pin Clamps, snap the pin clamps onto the pins. Snap the appropriate length bar(s) into the bar clamps.



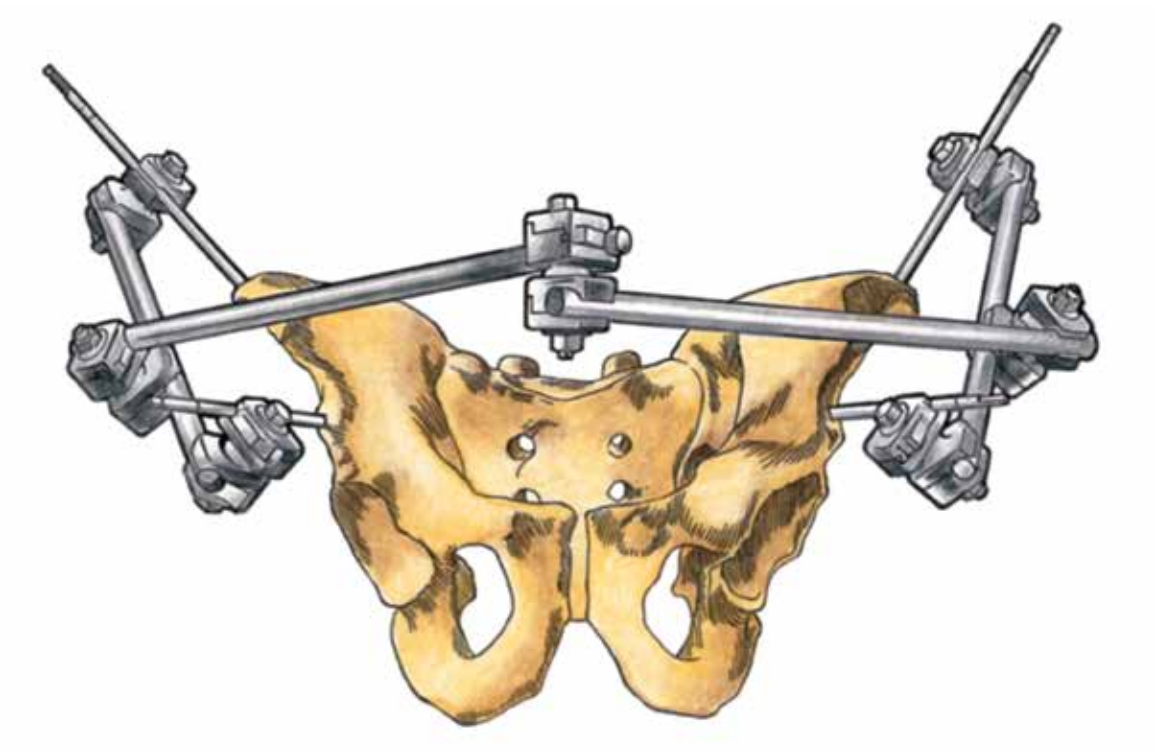
If fracture reduction is satisfactory, the wide adjustability of the clamps allows for one connecting bar to be snapped into all four Freedom Bar to Pin Clamps. Once tightened, the reduction is maintained.

If reduction is difficult to maintain, the proximal and distal pin couples can each be connected with separate short bars. Using both bars as reduction tools, the fracture can be manipulated to achieve reduction and stability. Freedom Bar to Bar Clamps are then attached to each short bar, and a long bar is then snapped into place to connect the proximal and distal fracture blocks.



After assembly of the needed frame, tighten the pin side of the Freedom Bar to Pin Clamps using a 10mm wrench. This will only lock the clamp to the pin, leaving the ball component free to move to aid in reduction. Reduce the fracture and tighten the bar side of the Bar to Pin Clamps and the Bar to Bar Clamps.

Pelvic Surgical Technique



Indications

Closed fracture fixation such as unstable open book pelvic fractures, unstable anterior pelvic ring with bilateral rami fracture not amenable to internal fixation.

JET-X[◇] External Fixator Pelvic Surgical Technique

Pin insertion

Make a stab incision at the desired pin site. Dissect down to bone using a small elevator, being careful to elevate the periosteum, so that the drill and pin avoid as much soft tissue as possible. Insert the 3.5mm Drill Sleeve into the 5mm Tissue Protector and place the sleeve combination through the stab incision to bone.

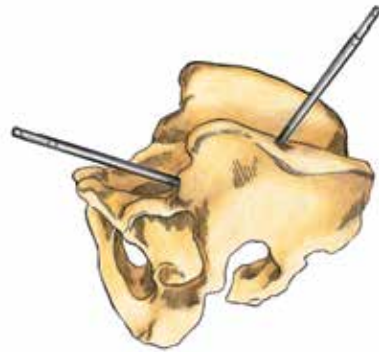


Note Pre-drilling is optional when using JET-X Half Pins, which are self-drilling and self-tapping.

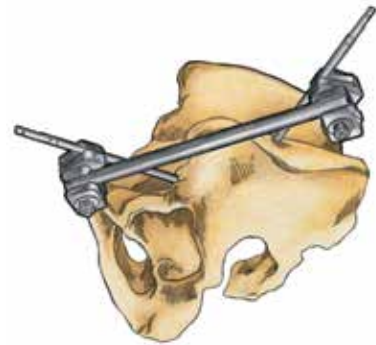
Using the 3.5 mm Drill, pre-drill the bone, using the C-arm to assist in pre-drilling. Measure using the drill and sleeve combination to determine pin thread length. Remove the drill sleeve and insert the appropriate 5mm Half Pin attaining bicortical purchase.

Pin placement/ frame construction

Two half pins should be inserted on each side of the pelvis. One pin is inserted at each anterior inferior iliac spine under C-arm guidance directed obliquely toward the PSIS and/or greater sciatic notch (best available bone).

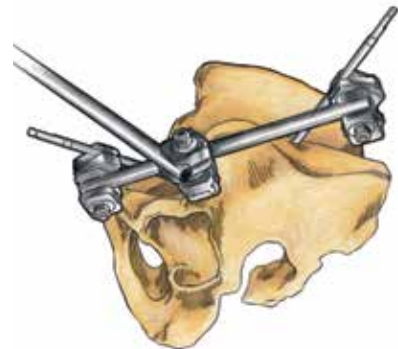


A second pin is inserted just cephalad to the ASIS on each side between the inner and outer tables. Using Freedom Bar to Pin Clamps, snap the pin clamps onto the four pins. Snap the appropriate length bar(s) into the Bar to Pin Clamps and secure the pin portion of the clamp using a 10mm wrench. Check for soft tissue clearance with leg flexed to 90°.



Apply a Bar to Bar Clamp by snapping the clamp onto each bar between fixation pins. Attach one bar of the appropriate length into the Bar to Bar Clamp on each side of the pelvis. These two bars should be connected by a Bar to Bar Clamp, anterior to the pelvis.

Align the bars depending on need for access to abdomen or need for sitting. The pelvis is manually compressed on each iliac wing until adequately reduced. Once the frame is positioned appropriately, tighten both sides of the Bar to Bar Clamps.



Using the Bar to Bar Clamps, add an additional cross bar or double stack as needed. Simply snap the bars into the cartridge mechanism of the clamp.



Optional frame construct

Construct shown utilizes two bars, one Bar to Bar Clamp, and two Bar to Pin Clamps.

Catalog Information

JET-X[®] BAR – External Fixation Devices

Freedom Clamps – Aluminum, Titanium and Stainless Steel on Tightening Bolts

	Description
7106-4001	10.5mm Bar to 5mm Pin
7106-4002	10.5mm Bar to 10.5mm Bar
7106-4010	10.5mm Bar to 4mm Pin
7106-2722*	10.5mm Bar to Ring
7106-4019**	10.5mm Bar to 6mm Pin



Quick Clamps – Aluminum and Stainless Steel on Tightening Bolts

	Description
7106-7372	10.5mm Bar to 5mm Pin
7106-7374	10.5mm Bar to 10.5mm Bar
7106-7373	10.5mm Bar to 6mm Pin



4 Hole Pin Clamp

Cat. No. 7106-7375



6 Hole Pin Clamp

Cat. No. 7106-7376



*In addition to other rings, also works with TAYLOR SPATIAL FRAME[®] 2/3, Half and Full Rings

**Option accept both bar to pin and bar to bar

JET-X^o BAR – External Fixation Devices

Straight Post

Cat. No. 7106-7379



30° Angled Post

Cat. No. 7106-7381



Freedom Post

Cat. No. 7106-7382



Bar Caps

Cat. No. 7106-2008



Bars

	Description
7106-2100	100mm Bar
7106-2150	150mm Bar
7106-2160	L Bar
7106-2180	V Bar
7106-2200	200mm Bar
7106-2250	250mm Bar
7106-2300	300mm Bar
7106-2350	350mm Bar
7106-2400	400mm Bar
7106-2500	500mm Bar*
7106-2600	600mm Bar*
7106-4006	Add-A-Bar Coupler



100mm Bar



L Bar



V Bar

*Sterile packaged components

JET-X^o BAR – External Fixation Devices

Freedom Ankle Clamp
Cat. No. 7106-2721



Distractor Clip, Package Quantity 2
Cat. No. 7106-3002



JET-X BAR – Instruments

AO to Hall Adaptor*
Cat. No. 7106-3004



10mm Ratchet Wrench
Cat. No. 7106-7322



Quick Clamp Bar to Pin Drill Guide
Cat. No. 7106-7324



AO T-Handle Connector with
10mm Socket
Cat. No. 7106-7326



*Will work with TRIGEN^o SURESHOT^o Hexdriver

JET-X^o BAR – Instruments

5mm/6mm Long Trocar

Cat. No. 7106-7306



5mm/6mm Short Trocar

Cat. No. 7106-7307



5mm/6mm Extra Short Trocar

Cat. No. 7106-7308



Tissue Protector Handle

Cat. No. 7106-7310



5mm/6mm Tissue Protector
for Long Half Pin

Cat. No. 7106-7312



5mm/6mm Tissue Protector
for Short Half Pin

Cat. No. 7106-7313



5mm/6mm Tissue Protector
for Extra Short Half Pin

Cat. No. 7106-7314



Drill for Extra Short 5mm Half Pin

Cat. No. 7106-7317



Drill for Short 5mm Half Pin

Cat. No. 7106-7318



Drill for Long 5mm Half Pin

Cat. No. 7106-7319



Drill for Short 6mm Half Pin

Cat. No. 7106-7320



Drill for Long 6mm Half Pin

Cat. No. 7106-7321



Original JET-X^o BAR – Instruments

AO to Trinkle Adaptor
Cat. No. 7106-3005



Add-A-Bar Coupler
Cat. No. 7106-2006



AO T-Handle Connector
with 10mm Socket
Cat. No. 7106-3001



5mm Bar to Pin Guide
Cat. No. 7106-3010



6mm Bar to Pin Drill Guide
Cat. No. 7106-3024



JET-X^o MINI – External Fixation Devices

Freedom Clamps

Description		Description	
7106-2009	6mm Bar to 5mm Pin	7106-4012	6mm Bar to 6mm Pin
7106-4010	10.5mm Bar to 4mm Pin	7106-4019	10.5mm Bar to 6mm Pin
7106-4011	6mm Bar to 4mm Pin		



Quick Clamps

Description		Description	
7106-7371	10.5mm Bar to 4mm Pin	7106-7378	6mm Bar to 6mm Pin
7106-7373	10.5mm Bar to 6mm Pin	7106-7380	6mm Bar to 5mm Pin
7106-7377	6mm Bar to 4mm Pin		



Double Pin Clamp with Ball Joint
Cat. No. 7106-2016



Bars

Description		Description	
7106-5075	6mm x 75mm	7106-5180	6mm V Bar
7106-5110	6mm x 110mm	7106-5185	6mm x 185mm
7106-5150	6mm x 150mm	7106-5225	6mm x 225mm



Mini Bar

Distractor Clip
Cat. No. 7106-3213



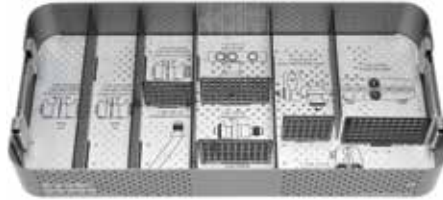
AO T-Handle Connector with
8mm Socket
Cat. No. 7106-7305



JET-X[®] BAR – Sterilization Cases/Trays

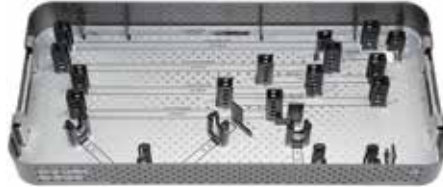
Large Clamp Module Tray

Cat. No. 7106-7350



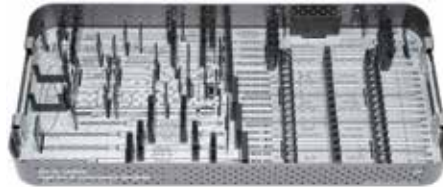
Large Bar Module Tray

Cat. No. 7106-7351



Large Partial Half Pin and Instrument Module Tray

Cat. No. 7106-7352



Auxillary Instrument Modules Sterilization Case with Lid

Cat. No. 7106-7354



JET-X^o BAR – Sterilization Cases/Trays

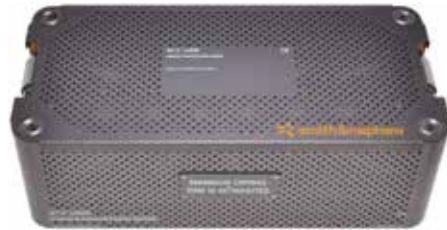
Large Unilateral Inner Tray Lid
Cat. No. 7106-7355



Large Unilateral Outer Tray Lid,
Short Tray
Cat. No. 7106-7358



Large Unilateral Outer Tray Lid,
Tall Tray
Cat. No. 7106-7359

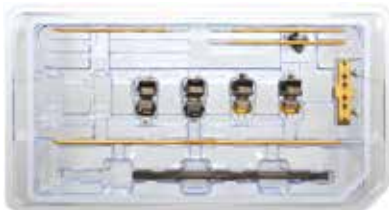


Half Pin Module Sterilization Case
with Lid
Cat. No. 7106-7360



JET-X^o BAR – Kits

Ankle Spanning Kit –
Multiple Clamp with TiN Half Pin, Sterile*
Kit No. 7106-2701



Ankle Spanning Kit –
Single Clamp with TiN Half Pin, Sterile*
Cat. No. 7106-2702



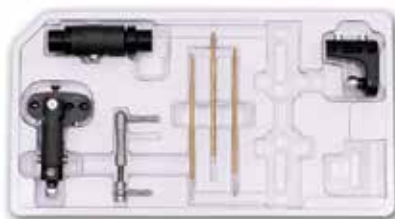
Travel Traction Kit –
600mm Bar with TiN Traction Pin, Sterile*
Cat. No. 7106-2703



Tibia Kit –
350mm Bar with TiN Half Pin, Sterile*
Cat. No. 7106-2705



Ankle Spanning Kit –
Standard Central Body with TiN Half Pins,
Sterile*
Cat. No. 7105-1701



Sterile Kit for JET-X MINI Bar Distal Radius Kit
Cat. No. 7106-4701



Original JET-X^o MINI – Instruments

AO T-Handle Connector with
10mm Socket
Cat. No. 7106-3001



10mm Ratchet
Cat. No. 7106-3003



3.5mm Drill with AO Connector
Cat. No. 7106-3006



Drill for 3mm Short Half Pins
Cat. No. 7106-3203



Drill for 4mm Short Half Pins
Cat. No. 7106-3204



Combination Mini Drill Sleeve/
Tissue Protector
Cat. No. 7106-3205



8mm Ratchet Wrench
Cat. No. 7106-3210



Drill Guide
Cat. No. 7106-3211



4mm Trocar
Cat. No. 7106-3212



Multiple Pin Clamp
Cat. No. 7106-4015



JET-X[◇] Half Pins – Implants

Titanium Nitride Extra Short Half Pins, Non-Sterile

	Thread Diam	Shank Diam	Thread Length	Shank Length*		Thread Diam	Shank Diam	Thread Length	Shank Length*
7106-5304	5mm	5mm	30mm	65mm	7106-5404	5mm	5mm	40mm	65mm
7106-5354	5	5	35	65	7106-5454	5	5	45	65

Titanium Nitride Short Half Pins, Non-Sterile

	Thread Diam	Shank Diam	Thread Length	Shank Length*		Thread Diam	Shank Diam	Thread Length	Shank Length*
7106-3108	3mm	4mm	10mm	65mm	7106-5308	5mm	5mm	30mm	110mm
7106-3158	3	4	15	65	7106-5358	5	5	35	110
7106-3208	3	4	20	65	7106-5408	5	5	40	110
7106-3258	3	4	25	65	7106-5458	5	5	45	110
7106-4158	4	4	15	95	7106-5508	5	5	50	110
7106-4208	4	4	20	95	7106-5558	5	5	55	110
7106-4258	4	4	25	95	7106-5608	5	5	60	110
7106-4308	4	4	30	95	7106-5658	5	5	65	110
7106-4358	4	4	35	95	7106-5708	5	5	70	110

Titanium Nitride Long Half Pins, Non-Sterile

	Thread Diam	Shank Diam	Thread Length	Shank Length*		Thread Diam	Shank Diam	Thread Length	Shank Length*
7106-5309	5mm	5mm	30mm	160mm	7106-5659	5mm	5mm	65mm	160mm
7106-5359	5	5	35	160	7106-5709	5	5	70	160
7106-5409	5	5	40	160	7106-6409	6	6	40	160
7106-5459	5	5	45	160	7106-6459	6	6	45	160
7106-5509	5	5	50	160	7106-6509	6	6	50	160
7106-5559	5	5	55	160	7106-6559	6	6	55	160
7106-5609	5	5	60	160	7106-6609	6	6	60	160

*Pin length does not include AO Connector or threads. AO Connector length is 23.65mm

JET-X^o Half Pins – Implants

Titanium Nitride Cannulated Half Pin with 1.6mm Guide Wire, Sterile*

	Thread Diam	Shank Diam	Thread Length	Shank Length**
7106-5400	5mm	5mm	40mm	110mm

Titanium Nitride Half Pin with 1.6mm Cannulation, Sterile

	Thread Diam	Shank Diam	Thread Length	Shank Length**
7106-5407S	5mm	5mm	40mm	110mm

Titanium Nitride Short Traction Pin, Sterile

	Thread Diam	Shank Diam	Thread Length	Shank Length**
7106-5504S	7mm	5mm	50mm	223mm

Titanium Nitride Long Traction Pin, Sterile

	Thread Diam	Shank Diam	Thread Length	Shank Length**
7106-5507S	7mm	5mm	50mm	375mm

Titanium Traction Pin, Sterile

	Thread Diam	Shank Diam	Thread Length	Shank Length**
7105-5503	5mm	5mm	50mm	375mm

*Not currently available in the US

**Pin length does not include AO Connector or threads; AO Connector length is 23.65mm

JET-X^o BAR – Sets

Combination (Freedom/Quick) Set

Set No. 7106-7452

	Description	Qty
7106-2721	Freedom Ankle Clamp	1
7106-2722	Freedom Clamp 10.5mm to Ring	2
7106-4001	Freedom Clamp 10.5mm Bar to 5mm Pin	8
7106-4002	Freedom Clamp 10.5mm Bar to 10.5mm Bar	8
7106-4019	Freedom Clamp 10.5mm Bar to 6mm Pin	2
7106-7350	Clamp Module	1
7106-7355	Inner Tray Lid	1
7106-7372	Quick Clamp 10.5mm Bar to 5mm Pin	8
7106-7373	Quick Clamp 10.5mm Bar to 6mm Pin	2
7106-7374	Quick Clamp 10.5mm Bar to 10.5mm Bar	8
7106-7375	4 Hole Pin Clamp	2
7106-7376	6 Hole Pin Clamp	2
7106-7379	Straight Post	2
7106-7381	30° Angled Post	2
7106-7382	Freedom Post	6

Large Bar Set

Set No. 7106-7453

	Description	Qty
7106-2100	100mm Bar	2
7106-2150	150mm Bar	3
7106-2160	L Bar	2
7106-2180	V Bar	1
7106-2200	200mm Bar	3
7106-2250	250mm Bar	3
7106-2300	300mm Bar	4
7106-2350	350mm Bar	4
7106-2400	400mm Bar	4
7106-5507	TiN 5mm x 50mm Traction Pin	3
7106-7351	Bar Module	1

JET-X^o BAR – Sets

Large Instrument Set

Set No. 7106-7454

	Description	Qty
102907	Wrench, 10mm Flex Head	1
7106-3004	AO to Hall Adapter	1
7106-7306	Trocar, 5mm/6mm Long	1
7106-7307	Trocar, 5mm/6mm Short	1
7106-7308	Trocar, 5mm/6mm Extra Short	1
7106-7310	Tissue Protector Handle	2
7106-7312	5mm/6mm Tissue Protector for Long Half Pin	2
7106-7313	5mm/6mm Tissue Protector for Short Half Pin	2
7106-7314	5mm/6mm Tissue Protector for Extra Short Half Pin	2
7106-7317	Drill for Extra Short 5mm Half Pin	2
7106-7318	Drill for Short 5mm Half Pin	2
7106-7319	Drill for Long 5mm Half Pin	2
7106-7320	Drill for Short 6mm Half Pin	2
7106-7321	Drill for Long 6mm Half Pin	2
7106-7322	10mm Ratchet Wrench	1
7106-7324	Quick Clamp Bar to Pin Drill Guide	1
7106-7326	AO T-Handle Connect with 10mm Socket	1
7106-7352	Large Partial Half Pin Instrument Module	1
7106-7358	Outer Tray	1

JET-X^o Half Pins – Sets

Short Half Pin Set

Set No. 7106-7455

	Description	Qty
7106-5308	TiN 5mm x 30mm	8
7106-5358	TiN 5mm x 35mm	8
7106-5408	TiN 5mm x 40mm	8
7106-5458	TiN 5mm x 45mm	6
7106-5504	TiN 5mm x 50mm Short Traction Pin	2
7106-6409	TiN 6mm x 40mm	4
7106-6509	TiN 6mm x 50mm	4

Long Half Pin Set

Set No. 7106-7456

	Description	Qty
7106-5309	TiN 5mm x 30mm	8
7106-5359	TiN 5mm x 35mm	8
7106-5409	TiN 5mm x 40mm	6
7106-5459	TiN 5mm x 45mm	6
7106-5504	TiN 5mm x 50mm Short Traction Pin	2
7106-6409	TiN 6mm x 40mm	4
7106-6509	TiN 6mm x 50mm	4

JET-X^o Half Pins – Sets

Complete 5mm /6mm Half Pin Add On Set

Set No. 7106-7457

	Description	Qty
7105-1039	1.6mm x 240mm Wire	1
7106-5304	TiN 5mm x 30mm Extra Short	2
7106-5354	TiN 5mm x 35mm Extra Short	2
7106-5404	TiN 5mm x 40mm Extra Short	2
7106-5407	TiN 5mm x 40mm 1.6mm Cann Half Pin	1
7106-5454	TiN 5mm x 45mm Extra Short	2
7106-5508	TiN 5mm x 50mm Short Half Pin	2
7106-5509	TiN 5mm x 50mm Long Half Pin	2
7106-5558	TiN 5mm x 55mm Short Half Pin	2
7106-5559	TiN 5mm x 55mm Long Half Pin	2
7106-5608	TiN 5mm x 60mm Short Half Pin	2
7106-5609	TiN 5mm x 60mm Long Half Pin	2
7106-5658	TiN 5mm x 65mm Short Half Pin	2
7106-5659	TiN 5mm x 65mm Long Half Pin	2
7106-5708	TiN 5mm x 70mm Short Half Pin	2
7106-5709	TiN 5mm x 70mm Long Half Pin	2
7106-6409	TiN 6mm x 40mm	2
7106-6459	TiN 6mm x 45mm	2
7106-6509	TiN 6mm x 50mm	2
7106-6559	TiN 6mm x 55mm	2
7106-6609	TiN 6mm x 60mm	2
7106-7360	Half Pin Module Sterile Case with Lid	1

Auxiliary Instrument Set

Set No. 7106-7458

	Description	Qty
7106-3002	Distractor Clip	2
7106-3005	AO to Trinkle Adapter	1
7106-3009	Distraction Instrument	1
7106-3010	5mm Bar To Pin Guide	1
7106-3011	1.6mm Wire Guide	1
7106-3013	3.5mm/1.6mm Cannulated Drill	1
7106-3017	5mm Cannulated Pin Tissue Protector	1
7106-3018	3.5mm Cannulated Pin Drill Sleeve	1
7106-7354	Auxiliary Instrument Case with Lid	1

JET-X^o MINI – Sets

MINI Distal Radius Set

Set No. 7106-7459

	Description	Qty
102915	Box Wrench, SBF 8mm	1
290058	Protective Caps, Red for Threaded 4mm Pin	6
7106-2016	Mini Double Pin Clamp with Ball Joint	2
7106-3152	Half Pin, 3mm x 15mm	2
7106-3202	Half Pin, 3mm x 20mm	2
7106-5225	6mm x 225mm Bar	1
7106-7327	2.0mm Drill	1
7106-7328	Double Pin Drill Sleeve	2
7106-7329	Double Pin Drill Guide	1
7106-7330	Pin Driver	1
7106-7362	Module Tray	1
7163-1186	Mini Connector	1

JET-X[◇] MINI – Sets

MINI Instrument and Clamp Set

Set No. 7106-7462

	Description	Qty
102915	Box Wrench SBF	1
7106-3004	AO to Hall Adapter	1
7106-3108	TiN Half Pin 3mm x 10mm	4
7106-3158	TiN Half Pin 3mm x 15mm	4
7106-3208	TiN Half Pin 3mm x 20mm	4
7106-3258	TiN Half Pin 3mm x 25mm	4
7106-4010	Freedom Clamp, 10.5mm to 4mm Pin	2
7106-4011	Freedom Clamp, 6mm to 4mm Pin	3
7106-4012	Freedom Clamp, 6mm to 6mm Bar	3
7106-4019	Freedom Clamp, 10.5mm to 6mm Pin	2
7106-4158	TiN Half Pin 4mm x 15mm	4
7106-4208	TiN Half Pin 4mm x 20mm	4
7106-4258	TiN Half Pin 4mm x 25mm	4
7106-4308	TiN Half Pin 4mm x 30mm	4
7106-4358	TiN Half Pin 4mm x 35mm	4
7106-5075	6mm x 75mm Bar	2
7106-5110	6mm x 110mm Bar	2
7106-5180	V-Bar 6mm	1
7106-5185	6mm x 185mm Bar	2
7106-5225	6mm x 225mm Bar	4
7106-7305	AO T-Handle Connector with 8mm Socket	1
7106-7309	Trocar	1
7106-7310	Tissue Protector Handle	2
7106-7311	Tissue Protector	2
7106-7315	Drill for 3mm Half Pin	2
7106-7316	Drill for 4mm Half Pin	2
7106-7322	10mm Ratchet Wrench	1
7106-7323	8mm Ratchet Wrench	1
7106-7325	Quick Clamp Bar to in Drill Guide	1
7106-7361	Tray	1
7106-7371	Quick Clamp 10.5mm to 4mm Pin	2
7106-7373	Quick Clamp 10.5mm to 6mm Pin	2
7106-7377	Quick Clamp 6mm to 4mm Pin	3
7106-7378	Quick Clamp 6mm to 6mm Bar	3

Sterilization/Resterilization

External Fixation Devices and Instruments

Unless specifically labeled sterile, the external fixation devices and instruments are supplied non-sterile and must be sterilized prior to use. “JET-X[®] Bar Kits” (Ankle Spanning Kit, Travel Traction Kit and other kits listed in this brochure) are supplied sterile and have been sterilized by ethylene oxide gas. All radiation sterilized components have been exposed to a minimum of 25 kilo Grays of gamma radiation. The method of sterilization is noted on the package label.

External fixation devices are considered single use devices. The external fixation devices may be steam sterilized using the following validated cycles and parameters:

Dynamic air removal (prevacuum) steam

- Exposure temperature: 132°C (270°F); Minimum exposure time: 4 minutes
- OR
- Exposure temperature: 135°C (275°C); Minimum exposure time: 3 minutes
- Minimum drying time: Wrapped devices – 15 minutes; containerized devices –30 minutes

For non-US customers

UK steam cycle

- Prevacuum cycle
- Exposure temperature: 134°C (273°F)
- Exposure time: 3 minutes
- Vacuum drying: 30 minutes

Note The procedure outlined in HTM 2010 should be followed

World Health Organization (WHO) steam cycle

- Exposure temperature: 134°C (273°F)
- Exposure time: 18 minutes
- Vacuum drying: 30 minutes

Instruments (reusable devices) may be steam sterilized using the same cycles above and also the following validated cycles and parameters:

Gravity displacement steam

- Exposure temperature: 132°C (270°F)
- Exposure time:
 - 15 minutes for wrapped devices
 - 30 minutes for containerized devices
- Purge: 1 minute
- Minimum vacuum drying: 30 minutes

Immediate Use Steam Sterilization (IUSS) or Flash Steam

- Exposure temperature: 132°C (270°F)
- Exposure time:
 - Gravity displacement: 15 minutes
 - Dynamic air removal (prevacuum): 4 minutes

Half Pins and Wires

Half pins and wires are considered implants and are therefore single use devices. These devices are sold both sterile and nonsterile. The sterile devices are often removed from their original packaging and placed in a containment device for processing. Used implants cannot be reprocessed for use. The validated steam sterilization cycles and parameters are as follows:

Dynamic air removal (prevacuum) steam

- Exposure temperature: 132°C (270°F); Minimum exposure time: 4 minutes
- OR
- Exposure temperature: 135°C (275°F); Minimum exposure time: 3 minutes
- Minimum drying time: Wrapped devices – 15 minutes; containerized devices –30 minutes

Gravity displacement steam

- Exposure temperature: 132°C (270°F)
- Exposure time:
 - 15 minutes for wrapped devices
 - 30 minutes for containerized devices
- Purge: 1 minute
- Minimum vacuum drying: 30 minutes

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