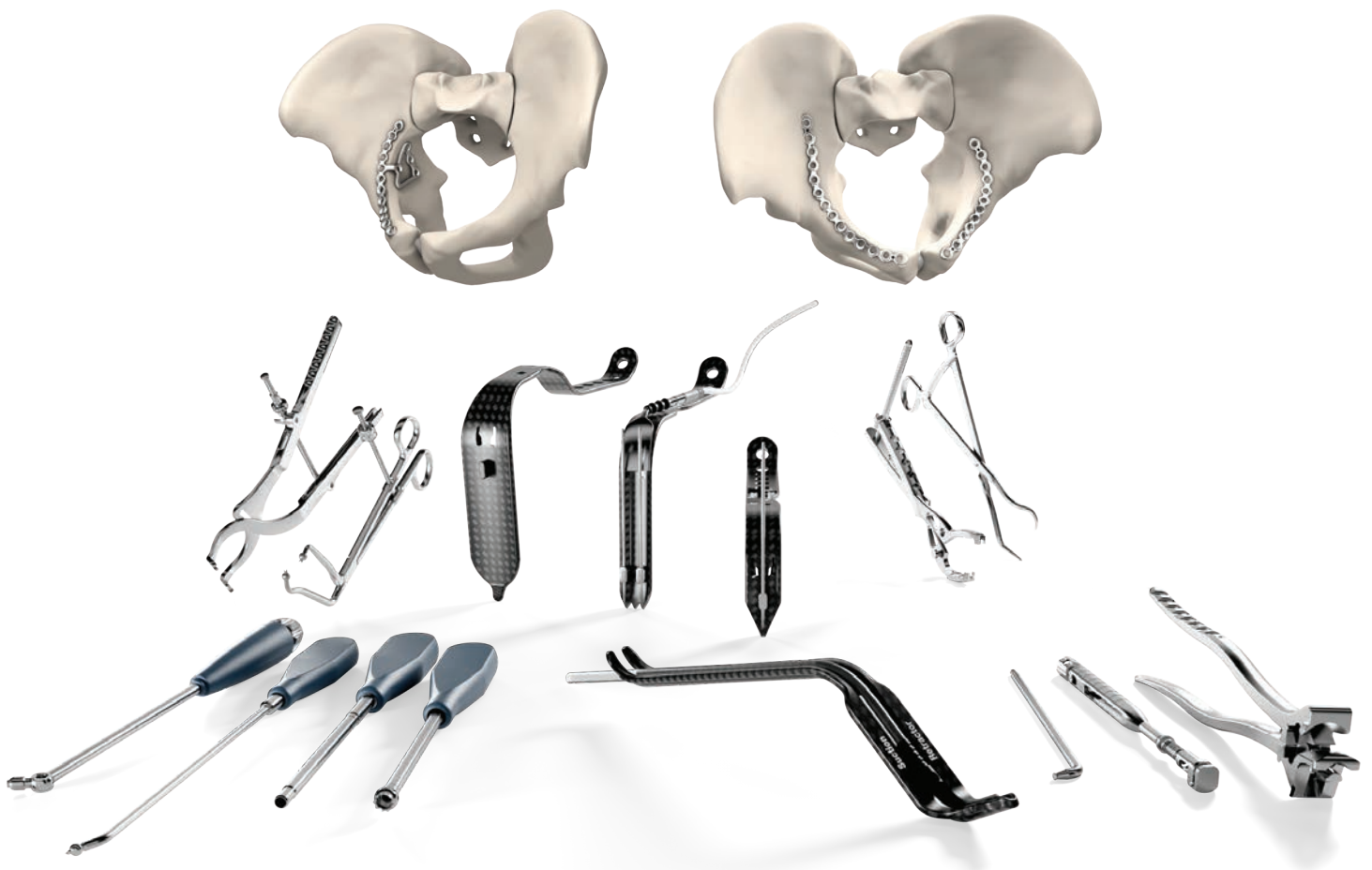


PRO

Pelvis and
Acetabulum

Operative technique



Pelvic and acetabular fracture

Operative technique

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Introduction

This publication sets forth detailed recommended procedures for using Stryker devices and instruments. It offers guidance that you should heed, but, as with any such technical guide, each surgeon must consider the particular needs of each patient and make appropriate adjustments when and as required.

WARNING

- Follow the instructions provided in our cleaning and sterilization guide (OT-RG-1).
- All non-sterile devices must be cleaned and sterilized before use.

WARNING

Multi-component instruments must be disassembled for cleaning. Please refer to the corresponding assembly / disassembly instructions.

Please remember that the compatibility of different product systems has not been tested unless specified otherwise in the product labeling.

Consult Instructions for Use (www.ifu.stryker.com) for a complete list of potential adverse effects and adverse events, contraindications, warnings and precautions.

The surgeon must advise patients of surgical risks, and make them aware of adverse effects and alternative treatments.

WARNING

- The patient should be advised that the device cannot and does not replicate a normal healthy bone, that the device can break or become damaged as a result of strenuous activity or trauma and that the device has a finite expected service life.
- Removal or revision of the device may be required sometime in the future due to medical reasons.

Introduction

The surgical approaches and operative techniques described on the pages to follow are for the treatment of complex injuries to the pelvic structures.

WARNING

The licensed healthcare professional and operating room team must be thoroughly familiar with the operating technique, the instruments, as well as the range of implants to be applied. Complete information and labeling on these subjects must be readily available at the workplace.

WARNING

In the event of contamination, or expiration of shelf life or in the case of products supplied non-sterile, the product must be subjected to an appropriate cleaning process and sterilized by means of a validated sterilization procedure before use, unless specified otherwise in the product labeling or respective product technical guides.

Indications and contraindications

Indications for use

PRO plates

The PRO implants are indicated for the treatment of fractures, non-unions and deformities of the pelvic ring, acetabulum and sacroiliac joint dislocations.

Matta pelvic plates

These implants are indicated for the following conditions:

- Fractures of the acetabulum, sacrum, ilium, or pubic bone, and reconstruction of the pelvic ring.
- Dislocations and disruptions of the sacroileac joint, or symphysis pubis joint,



Contraindications

The licensed healthcare professional's education, training and professional judgment must be relied upon to choose the most appropriate device and treatment. They should warn patients about these contraindications and limitations when appropriate.

Conditions presenting an increased risk of failure include:

- Any active or suspected latent infection or marked local inflammation in or about the affected area.
- Compromised vascularity that would inhibit adequate blood supply to the fracture or the operative site.
- Bone stock compromised by disease, infection or prior implantation that cannot provide adequate support and/or fixation of the devices.
- Material sensitivity, documented or suspected.
- Patients having inadequate tissue coverage over the operative site.
- Implant utilization that would interfere with anatomical structures or physiological performance.
- Any mental or neuromuscular disorder which would create an unacceptable risk of fixation failure or complications in postoperative care.
- Other medical or surgical conditions which would preclude the potential benefit of surgery.

MRI Safety Information

MRI safety information 	
<p>A patient with the PRO and Matta implants may be safely scanned under the following conditions. Failure to follow these conditions may result in injury to the patient.</p>	
Device name	PRO and Matta implants
Static magnetic field strength (t)	1.5 T and 3.0 T
Maximum spatial field gradient	20 T/m (2000 gauss/cm)
RF excitation	Circularly Polarized (CP)
RF transmit coil type	Integrated Whole Body Transmit Coil
Operating mode	Normal Operating Mode
Maximum whole-body SAR (W/kg)	2 W/kg (Normal Operating Mode)
Scan duration	<p>1.5 Tesla</p> <p>2 W/kg whole-body average SAR for 15 minutes of continuous RF (a sequence or back to back series/scan without breaks) followed by a wait time of 5 minutes if this limit is reached, for the total scanning session duration of up to 1 hour (or 60 minutes).</p> <p>3.0 Tesla</p> <p>2 W/kg whole-body average SAR for 1 hour (or 60 minutes) of continuous RF (a sequence or back to back series/scan without breaks).</p>
MR image artifact	The presence of this implant produced an image artifact of approximately 78mm from the PRO and Matta implants when imaged with a gradient echo pulse sequence and a 3.0 T MRI system.
Additional instructions	<p> CAUTION</p> <p>The MRI safety information provided is based on testing which did not include supplementary devices. If there are supplementary devices (i.e. plates, screws, wires, etc.) present in proximity to the PRO and Matta implants, it could result in significant heating and possible tissue damage, and therefore scanning is not recommended.</p>

PRO design

Utility plates

Curved plates

4-hole to 16-hole, 18-hole, 20-hole

*3-hole option also available



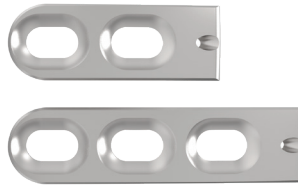
R108



R88*

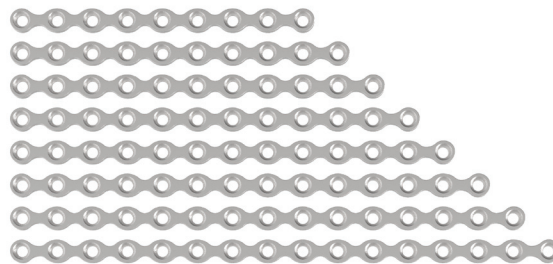
Hooked spring plates

2-hole and 3-hole



Straight plates

2-hole to 16-hole, 18-hole, 20-hole



Annealed (Flex) plates

3-hole to 18-hole, 20-hole, 22-hole



PRO design

Anatomic plates



Posterior Rim plates

1-hole, 2-hole, narrow and broad

Anterior SI plates

left and right



Pelvic Brim plates

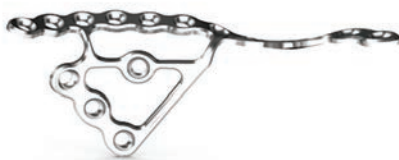
12-hole and 14-hole, left and right

Anterior Column plates

14-hole and 16-hole, left and right

Suprapectineal Flex Plates

12-hole and 14-hole, left and right



Suprapectineal plates

left and right



Pubic symphysis plates

4-hole and 6-hole



Infrapectineal plates

small and large, left and right

PRO design

Implants - Utility Plates Summary

Annealed (Flex) Plates

Made of annealed stainless-steel, the flex plates have a higher malleability than straight plates. Plates are 2.5mm thick and have 12mm spacing between holes.



Straight plates

Made of a hard, cold-worked stainless-steel. Plates are 2.5mm thick and have 16mm spacing between holes.



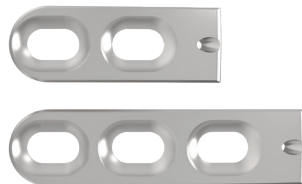
Curved plates (R88 and R108)

Made of hard, cold-worked stainless-steel. Curved plate options allow for both male and female anatomy accommodation. Plates are 2.5mm thick and have 16mm spacing between holes.



Hooked Spring Plates (2-hole and 3-hole)

Intended for the reduction and fixation of small bone fragments (e.g. of the posterior wall). The oblong holes on the spring plates allows for 2mm of compression, and the plates accept both Ø3.5mm and Ø2.7mm screws.



PRO design

Implants - Anatomic Plates Summary

Suprapectineal plate

The design of the Suprapectineal Plate allows it to buttress the quadrilateral surface while allowing for screw fixation along both the pelvic brim and posterior column. The central hole directly perpendicular to the OLS is designed for ideal attachment to the plate insertion handle, but can still accept a Ø3.5mm or Ø4.5mm screw.



Suprapectineal Flex Plate (12-hole and 14-hole)

Using the same design as the Suprapectineal Plate, the Suprapectineal Flex Plate has only one tab between the brim and OLS portion, which may allow for easier in-situ manipulation and contouring, if necessary. Available in two brim lengths, the Suprapectineal Flex Plate also has K-wire holes for provisional fixation.



The 14-hole plate includes an additional hole distally adjacent to OLS portion of the plate.

Infrapectineal plate (small and large)

The design of the Infrapectineal plates allow for buttressing of the quadrilateral surface in treatment of acetabular fractures with central dislocation, comminution, and disassociation of the quadrilateral surface from the posterior column. The anterior extensions may be bent over the pubic ramus to get multiplanar fixation. Available in small and large sizes.



PRO design

Implants - Anatomic Plates Summary

Pelvic brim plates (12-hole and 14-hole)

The pelvic brim plate is designed to treat isolated anterior column fractures with minimal posterior and cranial extension. Available in two lengths, the brim plates also have K-wire holes anteriorly and posteriorly for provisional fixation.



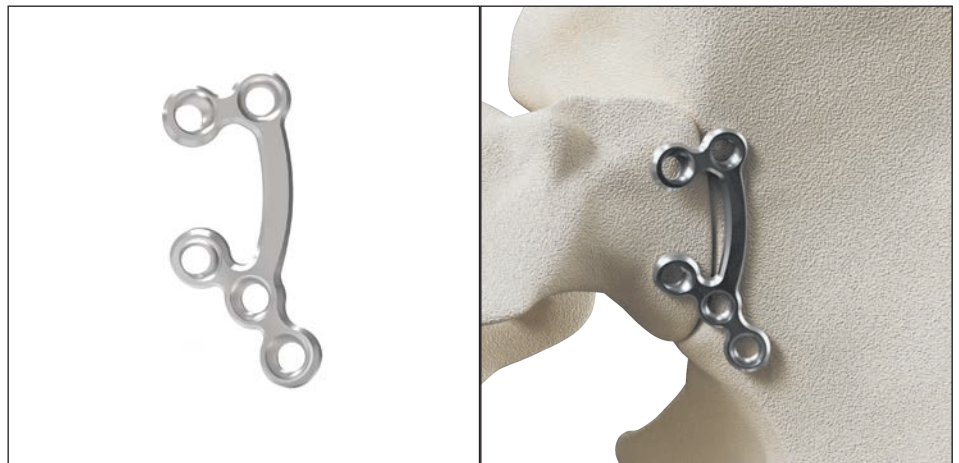
Anterior column plates (14-hole and 16-hole)

The anterior column plate is designed to treat isolated anterior column fractures that extend cranially towards the sacroiliac joint. Available in two lengths, the anterior column plates also have K-wire holes anteriorly and posteriorly for provisional fixation.



Anterior SI plates

The asymmetrically designed Anterior SI Plate is intended to stabilize SI joint disruptions and fractures around the SI joint. With screw holes on either side of the SI joint, the plate comes with two holes cranially and three holes caudally that allows for use in conjunction with Farabeuf clamp reduction.



PRO design

Implants - Anatomic Plates Summary

Posterior rim plates (1-hole, 2-hole, narrow and broad)

Designed as an alternative to spring plates, the posterior rim plates are equipped with tines at the end of the plate intended to capture small bone fragments around the acetabular rim. The screw holes closer to the acetabular rim accept $\text{\O}2.7\text{mm}$ screws.



Pubic symphysis plates

Anatomically curved plates with an increased midsection design specifically for stabilizing the pubic symphysis. Plates are 3.2mm thick and have 16mm spacing between holes.

The distance between the middle two holes is 18mm.

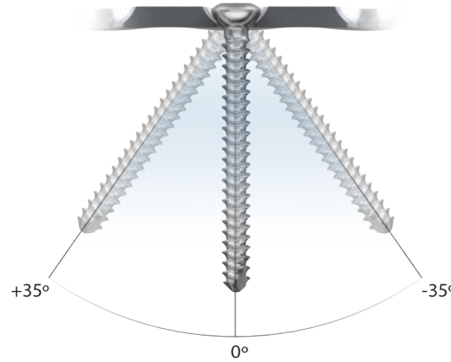


PRO design Implants

Screw summary

Ø3.5mm self-tapping cortical screw

Ø3.5mm self-tapping cortical screws are recommended for both plate fixation and independent lagging. The plates are designed to have low screw/plate profiles and accept Ø3.5mm stainless steel screws to be inserted at angles up to $\pm 35^\circ$ in all directions in standard holes. Oblong holes in Posterior Rim Plates and Spring Plates offer $\pm 10^\circ$ of angulation.



Ø4.5mm self-tapping cortical screw

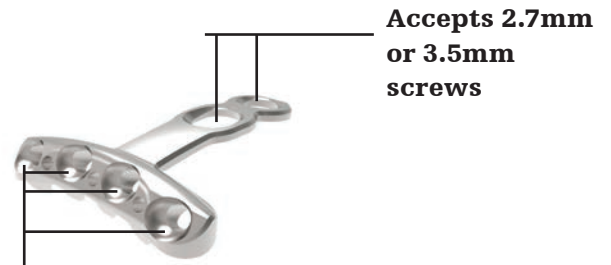
Ø4.5mm self-tapping cortical screws are an alternative to the Ø3.5mm screws for both plate fixation and independent lagging. Though used less commonly than the Ø3.5mm screws, they can be inserted at angles up to $\pm 5^\circ$ in all directions.



Ø3.5mm Ø4.5mm
Ø3.5mm and Ø4.5mm profiles

Ø2.7mm self-tapping cortical screw

The Ø2.7mm self-tapping cortical screws can be used for fixation of only the rim portion of the posterior rim plates. They can also be placed through the shaft holes (oblong and standard) of posterior rim and spring plates at angles up to $\pm 25^\circ$, or for independent lagging, if desired.



Accepts only
Ø2.7mm screws

WARNING

Use a sharp drill bit when drilling bone, particularly in areas of hard, dense bone. This may offer the surgeon more control and help avoid plunging that may injure neurovascular structures, viscera, or other soft tissue structures. It may also lessen heat generation.

- Blunt drills should be discarded and replaced.
- Always use the designated drill sleeve/Plate Screw Inserter (see page 34) to assure accurate placement of the screw and to protect the adjacent soft tissues against the generation of heat and build-up of debris.
- The drill sleeves are also designed to prevent damage to the drill bit and to avoid the drill bits being seized or blocked in the sleeve.

PRO design

Instruments

Instrument design summary

Carbon fiber retractors

Four retractors designed to match the anatomic region being dissected. Retractors may accept a light pipe and suction tube for improved visualization in deeper cavities and may be fixed in place with K-wires. Because they are made of radiolucent carbon fiber, there is no need to remove them for fluoroscopy.



Sciatic nerve retractors

Available in two sizes, large and small. Made of radiolucent carbon fiber, eliminating the need to remove them for fluoroscopy.



K-wires

Two Ø3.2mm K-wires (150mm and 220mm lengths) are offered in the system to fix the retractors into place.



Angled and straight ball spikes

Ball spike pushers are offered straight and at 15° and 30° angles, designed for fracture reduction in deep spaces.



Spiked disks

Offer enhanced utility options with reduction forceps and ball spike pushers, which may allow for increased bone contact. K-wire holes have been incorporated to allow for temporary fixation during reduction.



Spiked screw inserters for Ø3.5mm and Ø4.5mm screws

The spiked screw inserter is an instrument for reduction and independent placement of Ø3.5mm or Ø4.5mm screws. The instruments are cannulated to allow for drilling and screw insertion through the instrument.



PRO design Instruments

Instrument design summary

Washer pick-up stand

A washer may be loaded into the Ø3.5mm spiked screw inserter utilizing the washer loading stand and allows for easy washer placement and screw insertion in a single step.



Spiked disk for spiked screw inserter

Larger spiked disk with K-wire holes may be used with the spiked screw inserter to allow for increased bone contact to aid with reduction.



Four options of reduction pins (5mm or 6mm in 150mm or 180mm lengths)

Surgeon may select a pin appropriate to fragment or bone size.



MPS plate templates

Allow plate bending outside of the operative field.



PRO design

Instruments

Instrument design summary

Plate screw inserter

The plate screw inserter can be used to push the plate down to the bone. It is also cannulated to allow for drilling, measuring, and inserting a screw through the instrument. The tip allows for swiveling and centering in the screw hole.



Handle for plate insertion

The handle for plate insertion can be attached to any hole in the PRO and/or Matta plates to facilitate plate insertion. The handle swivels to further assist with access and to achieve the desired plate placement.



Long scaled drills and drill guides

Ø2.5mm and Ø3.2mm x 450mm drills are offered in the PRO system to allow for drilling into deep spaces and through the cannulated spiked screw inserters and plate screw inserter.



Overdrills

Ø3.5mm and Ø4.5mm x 390mm overdrills are now offered in the PRO system in order to lag through the cannulated spiked screw inserters and plate screw inserter.



Long screwdriver

Screwdrivers with a handle or AO attachment are available to allow for screw insertion through the cannulated instruments (Spiked Screw Inserter and Plate Screw Inserter).



PRO design Instruments

Instrument design summary

Plate bender Designed for three-dimensional contouring of all Matta and PRO QLS plates.



Plate bending holder Allows for secure and controlled plate bending for both Matta and PRO plates.



In-situ bender Offers an option for in-situ plate bending.



Angled depth gauge Design allows for measuring along tangential or angulated drill paths in deep spaces.



Range of reduction instruments Variety of reduction forceps and enhanced clamp designs offer many options for fracture reduction and fragment repositioning.



Screwdriver holding sleeve Offers efficiency in screw pick-up, insertion, and removal.



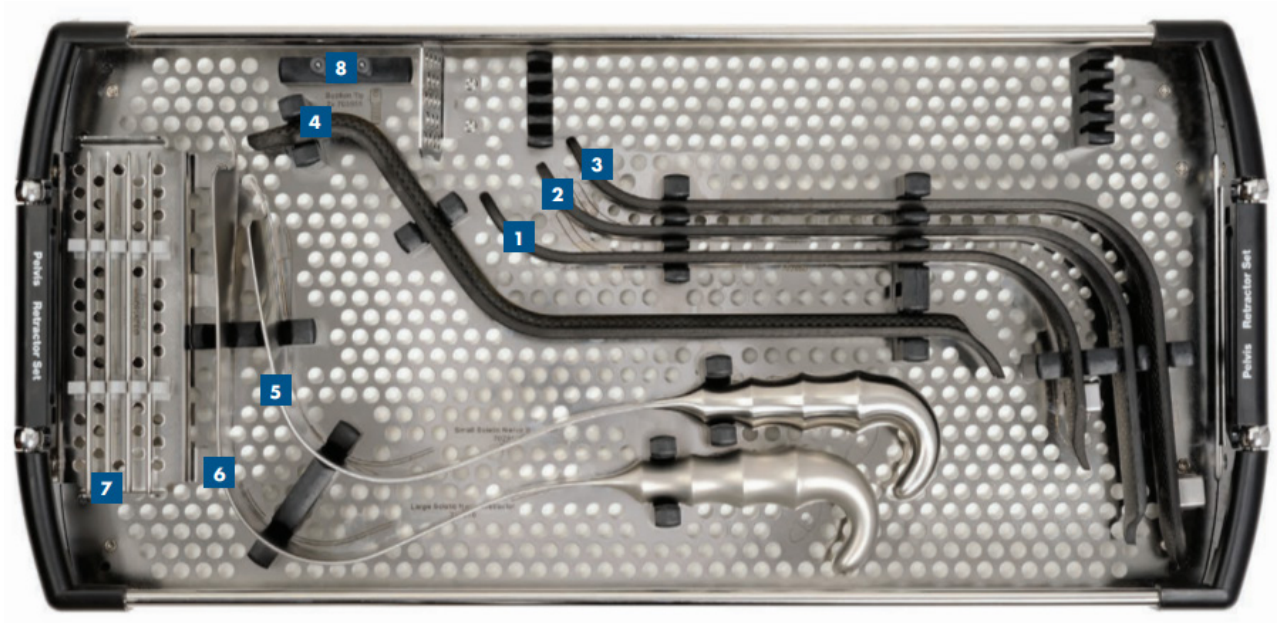
Elastosil handles Surgeon may select a handle according to his/her preference.



PRO design Trays

Retractor set

1-level tray

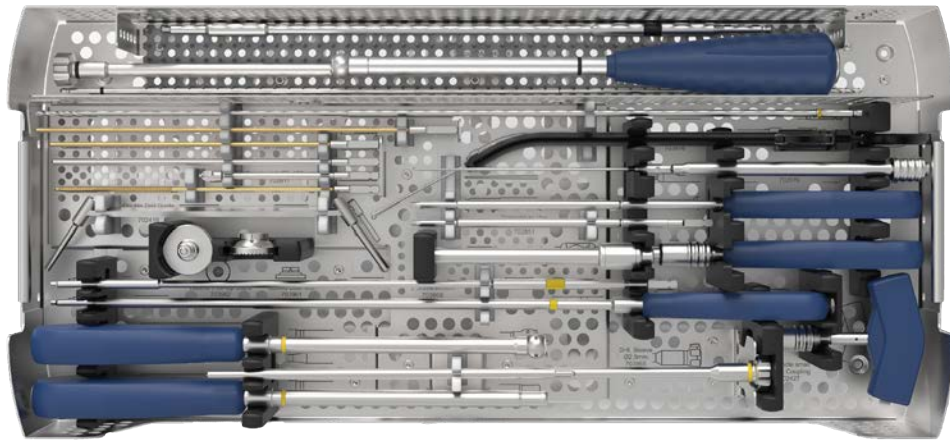
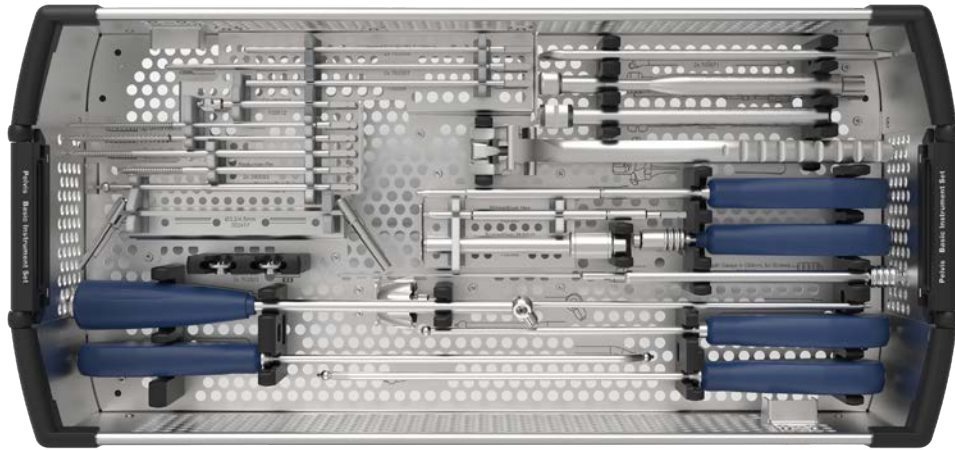


PRO design

Trays

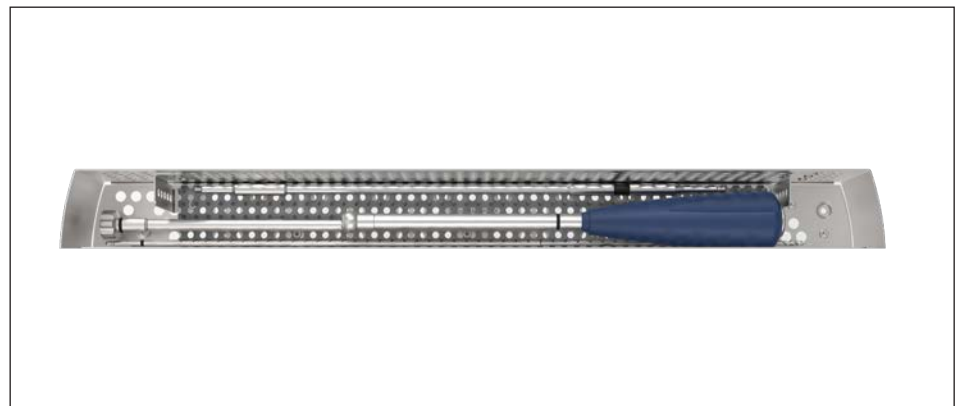
Basic instrument set

2-level tray



Accessory instrument caddy

An optional instrument caddy for the top layer of the Basic Instrument Set. Houses 4.5mm screw instrumentation.

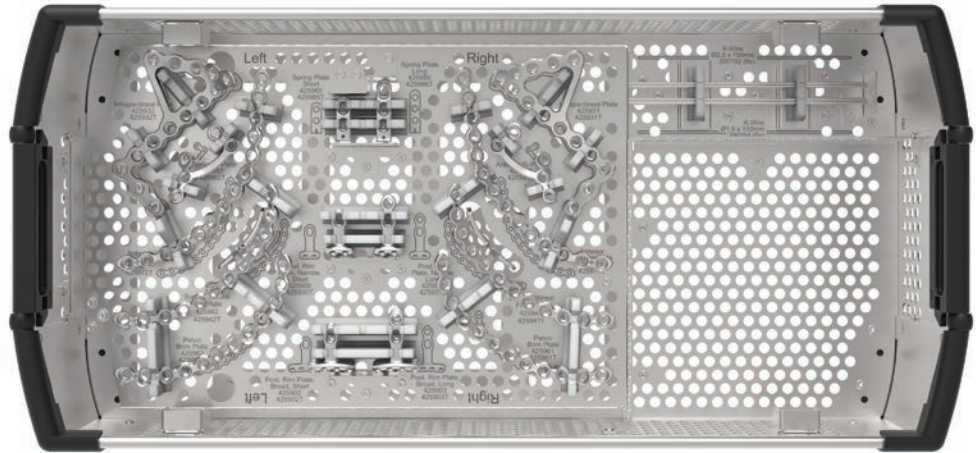


PRO design

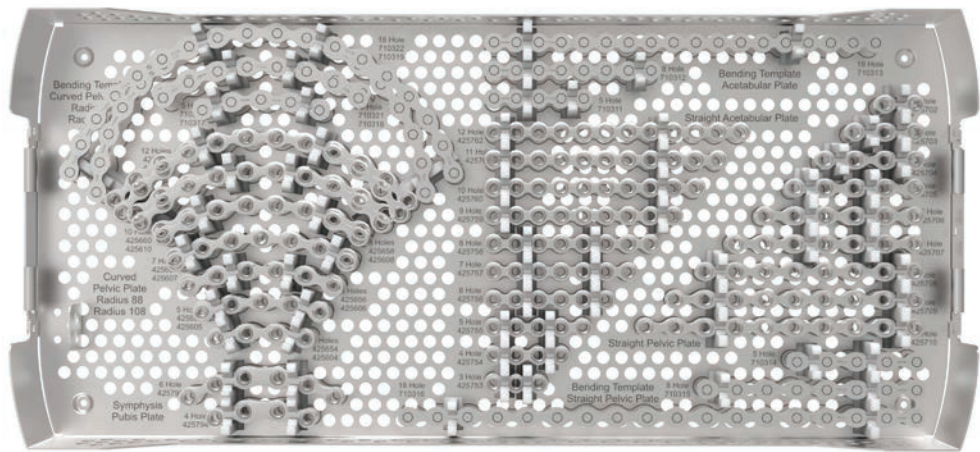
Trays

Pelvis plate tray and screw rack

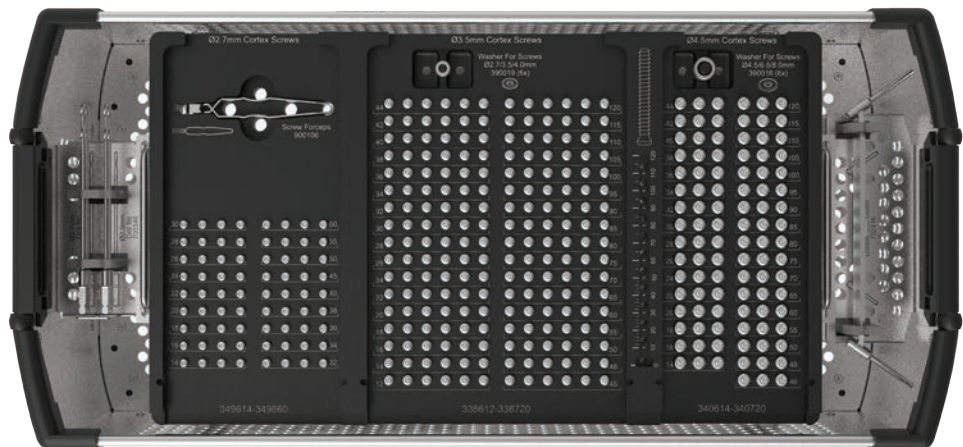
Anatomic plates



Utility plates



Screw rack for 2.7mm, 3.5mm, and 4.5mm screws



PRO design

Retractors

Retractors are designed to address major issues related to working in deep wounds:

- Illumination.
- Obstructing of fluoroscopy images by retractors.
- Limited visibility of structures due to fluids in the wound.
- Handling.



Illumination

To enhance illumination in the surgical field, retractors 1, 2 and 3 may be equipped with a light pipe attachment.

This single-use, disposable fiber optic clip-on is designed to allow a consistent delivery of light to the deepest dissected area. Surgeon preference will dictate which retractor to put the light pipe attachment on.

The light pipe attaches to the fiber optic cable of a Stryker light source or standard endoscopic light source found in the OR via a Storz connection.

CAUTION

If there is excessive heat, the light source should be turned off until the light pipe has sufficiently cooled.



PRO design

Retractors

Imaging

The retractors are made of laminated carbon fiber and are radiolucent, therefore they do not need to be removed for fluoroscopy.

Suction feature

The suction retractor is specially designed so it not only functions as a deep retractor in the areas of the greater or lesser sciatic notch, but additionally serves as a suction device to irrigate blood and fluids that accumulate at the base of the wound.

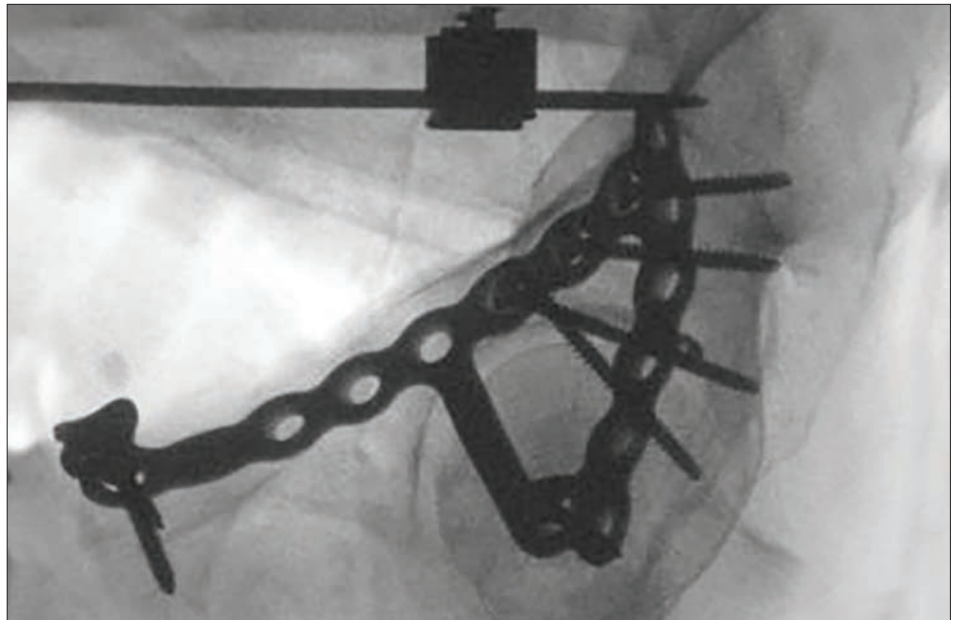
The suction tip is a component in the retractor tray that gets inserted into sterile, 1/4" suction tubing. The groove that runs the length of the suction retractor accommodates the tubing.

Starting at the working end of the retractor, seat the suction tip first and progressively insert the tubing into the groove of the retractor.

NOTICE

Because of best fit characteristics, suction tubing from the companies to the right is recommended:

It might be that the suction tubing has to be cut at one side prior the attachment of the suction tip.



The X-ray above shows a radiolucent retractor held in place with a K-wire, pictured with an infrapectineal plate.



Producer	Description	REF	Inner Ø*
Dahlhausen	SCT - connector: funnel / vac.control	07.068.25.210	~5.6mm (-)
Covidien	Argyle: suction tube, molded connectors	8888301606	~6.3mm (1/4")
Amsino	Suction connecting tube	AS825	~6.3mm (1/4")
Cardinal Health	Medi-vac non-conductive suction tube	CAT. 66A	~6.3mm (1/4")
Legend M.D.	Suction connecting tube	Item#: RSCT201	~6.8mm (1/4")
Medline	Non-conductive connecting tube	DYND50246	~6.3mm (1/4")
Medi Plast	Orthopaedic suction Set	60QP09061	~6.3-6.6mm (-)

PRO design

Retractors

Handling

Once the position of the retractors is established, they may be fixed with Ø3.2mm K-wires (150mm and 220mm lengths) provided in the retractor tray.

⚠ WARNING

Never put undue tension on retracted structures and adjust the retraction periodically to ensure the safe use of the devices.



NOTICE

Seat the Ø3.2mm K-wire to the bone before drilling, to avoid unintended contact and debris.

Matta sciatic nerve retractors



Two sciatic nerve retractors (large and small) are available to allow for retraction in this area.



Sciatic nerve retractor

PRO retractor 1

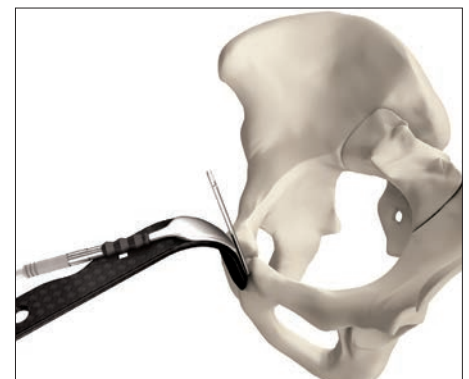


Designed to be placed lateral to the pubic tubercle, retractor 1 may be equipped with a light pipe and held in place with a Ø3.2mm K-wire.

The retractor may be used in additional anatomic areas as the surgeon sees fit.



Retractor 1



PRO design

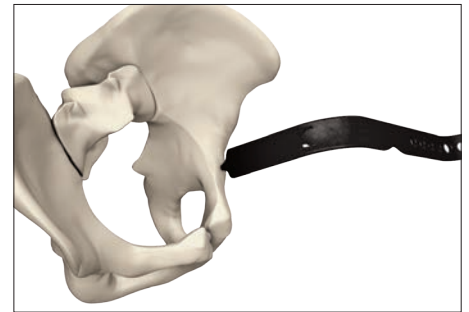
Retractors

PRO retractor 2



Designed to be placed over the psoas gutter, retractor 2 may be equipped with a light pipe. K-wires intentionally cannot be placed using this retractor to reduce the risk of inadvertently penetrating the hip joint.

This retractor may be used in additional anatomic areas as the surgeon sees fit.



Retractor 2

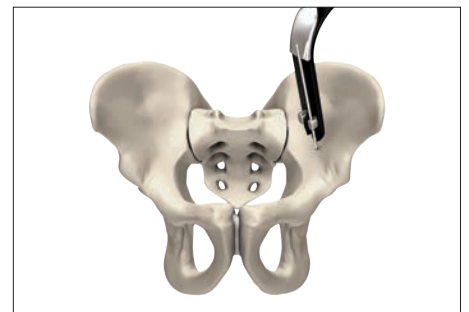
PRO retractor 3



Designed to be placed in the iliac fossa to retract the iliac vessels and ilio-psoas muscles, retractor 3 may be equipped with a light pipe and has 2 holes for K-wire fixation. The lateral most K-wire hole may be used for placement of a stabilizing wire.

Due to this anatomic positioning, retractor 3 may be the most ideal for light pipe attachment.

This retractor may be used in additional anatomic areas as the surgeon sees fit.



Retractor 3

PRO suction retractor

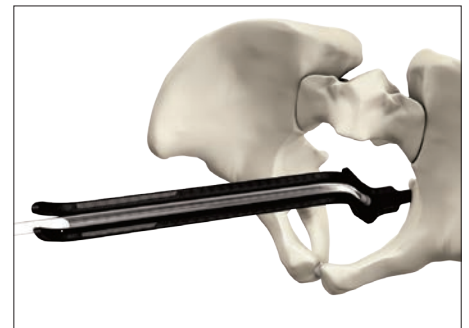


Designed to be placed in the lesser sciatic notch to retract the bladder away from the posterior column and OLS, the suction retractor has the ability to run standard tubing through the channel in the retractor to simultaneously provide suction and retraction.

This retractor may be used in additional anatomic areas as the surgeon sees fit.

⚠ WARNING

When using suction retractor, continue to monitor the amount of blood loss as per standard operating procedure.



Suction retractor

PRO design

Reduction instruments

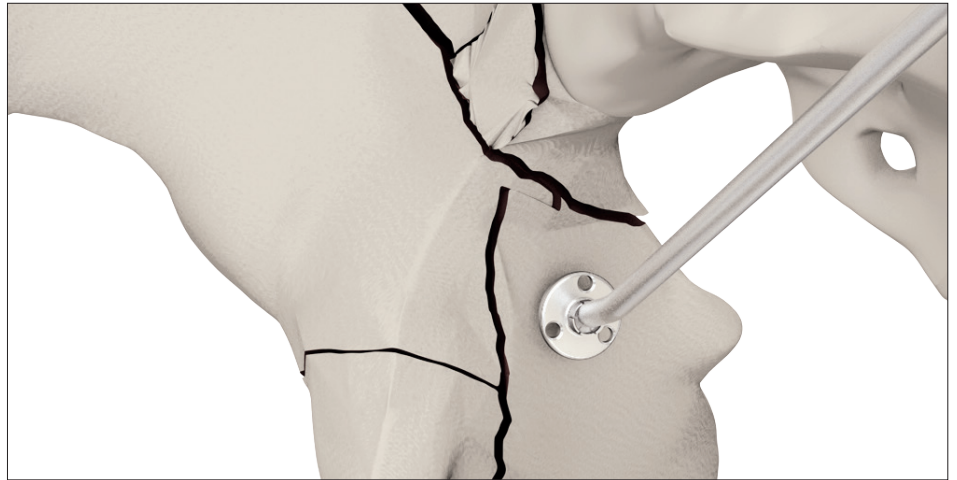
Angled ball spike



Angled at 15° and 30° respectively, the angled ball spikes have increased length and are designed for working in narrow corridors or in areas where the irregular contours of the bone do not allow reduction clamps to be used. The angle allows flush application of the spike or disk at tangential surfaces, such as the interior intrapelvic and QLS areas.

To distribute reduction forces over a comminuted area, a spiked disk can be attached to the ball tip.

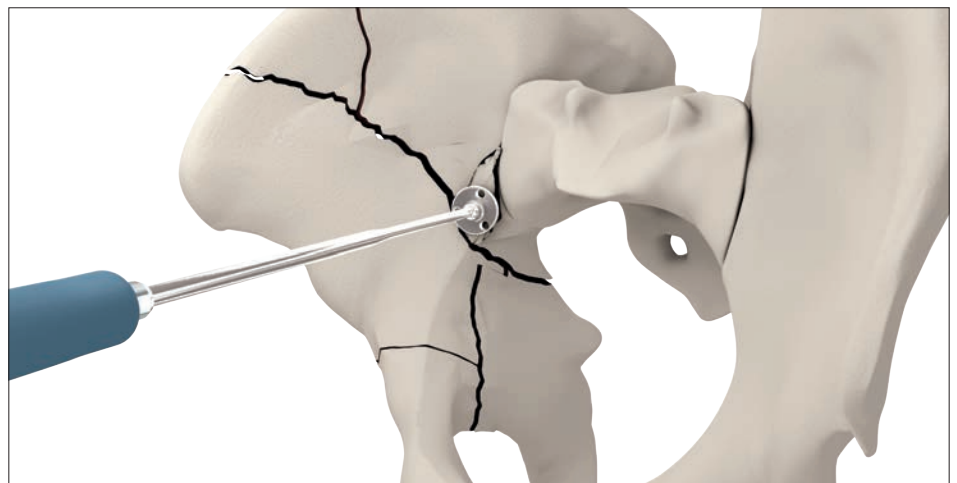
The angled ball spikes may also be used in conjunction with reduction clamps to fine tune reduction.



Straight ball spike



This reduction instrument is used as a pusher with pointed ball tip to reduce bone fragments. To distribute reduction forces over a comminuted area, the spiked disk can be attached to the ball tip.



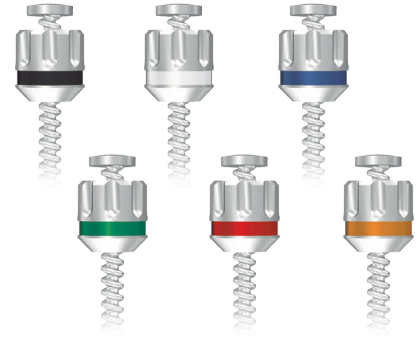
PRO design

Reduction instruments

Design summary

Color coding

Clamps and tray are color coded to allow easier identification and communication in the OR and during clean up.



Four spike design

The jaw clamps are designed with a 4-point ball spike to provide the required grip on the bone surface and distribution of the applied force. If additional purchase is needed, a reduction aid may be used.



Asymmetry

Offset jaw clamps allow a wide range of applications and are conducive to various surgical approaches.



Improved visualization

The wide Jungbluth, Contoured Weber, and angled Farabeuf designed to sit away from the surgeon's working area or allow use with other instruments.



Distraction / compression

The Farabeuf's ratchet mechanism allows the clamp to be placed in compression or distraction mode to compress or distract fracture fragments.



PRO design

Jaw clamps

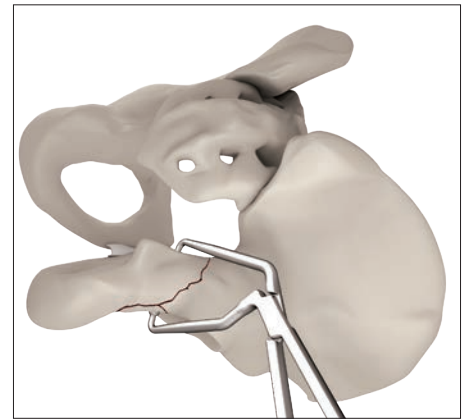
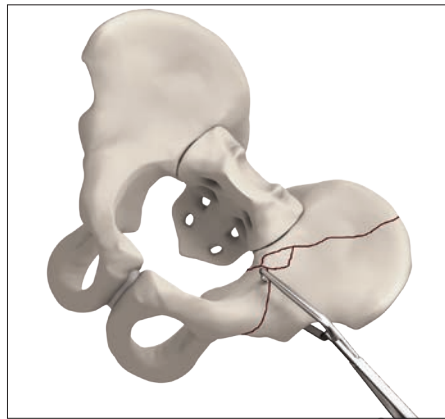
The jaw clamps are primarily used for acetabular fracture reduction through various windows of the ilioinguinal approach, the Kocher-Langenbeck approach, or Anterior Intrapelvic Approach. The clamps are fitted

with a threaded speedlock mechanism. The crown-spike tips allow for oblique application of force onto a bony surface and optional connection to the spiked disks available in either the Matta or PRO pelvis implants.

Standard jaw clamps



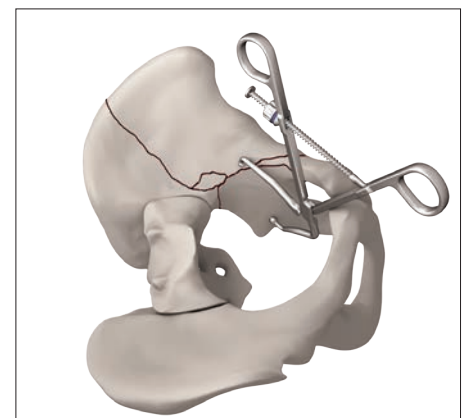
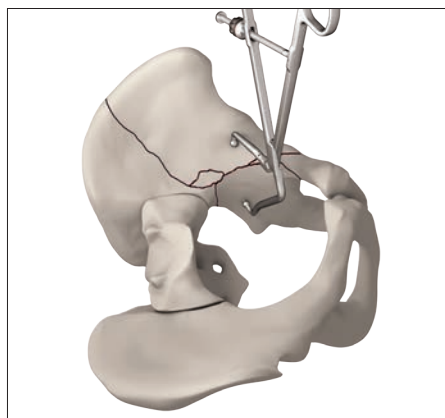
The spikes of the standard jaw clamps allow for a secure hold on the bone while the balls prevent penetration of bone with a thin cortex. The handles angle away from both the surgeon's line of sight and critical soft tissue structures.



Offset jaw clamps



The offset jaw clamps are designed with an underbite or overbite in order to accommodate multiple surgical approaches and bony anatomy. The angle of the tine and jaw offset allows for instrument use on tangential surfaces and is designed to prevent tine skiving.



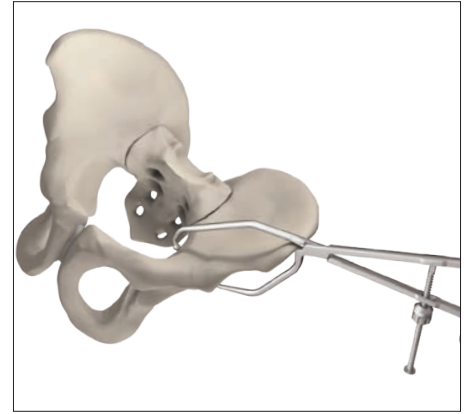
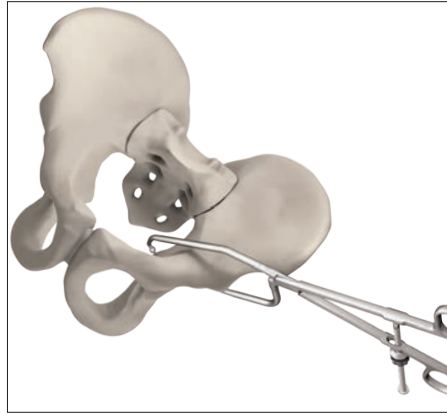
PRO design

Jaw clamps

Large offset jaw clamps



The large offset jaw clamps were designed to reduce acetabular fractures in areas where more clearance is needed between the jaws and where the bony anatomy precludes the use of more symmetric clamps.



PRO design

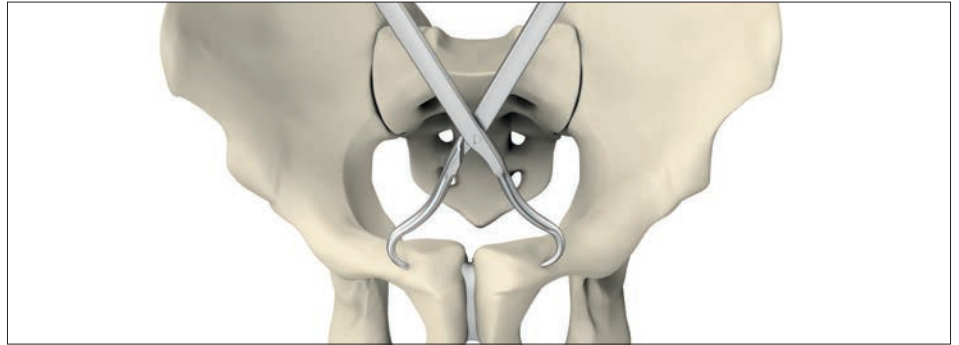
Weber clamps

Pointed reduction forceps may be applied directly to the bone or in shallow pre-drilled holes, to allow for greater stability. Use a Ø3.2 or Ø3.5 drill to create anchoring holes.

Standard weber



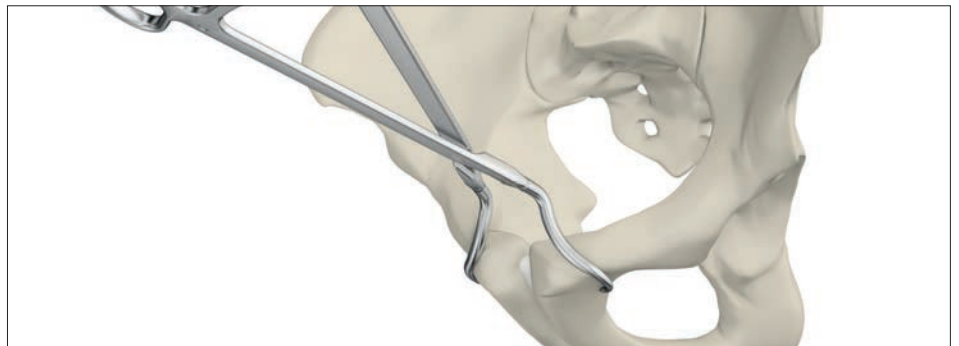
The Standard Weber may be applied directly to the bone in a variety of applications to stabilize the pubic symphysis or displaced pelvic fragments.



Contoured weber



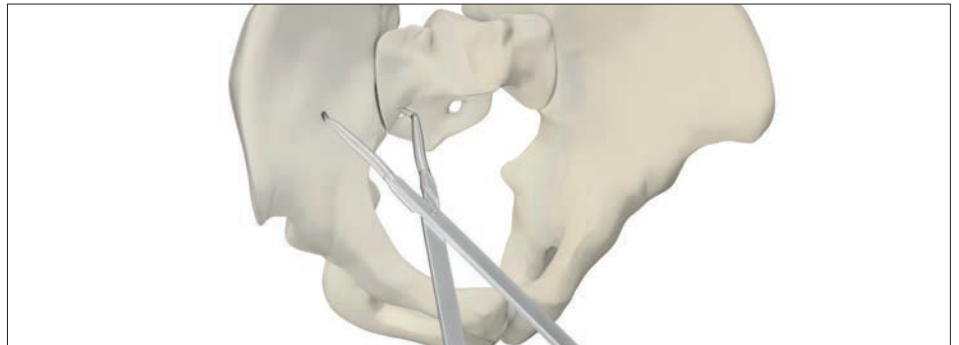
The Contoured Weber has a reverse bend designed to angle the handles away from the area of reduction and fixation.



Narrow weber (straight, straight)



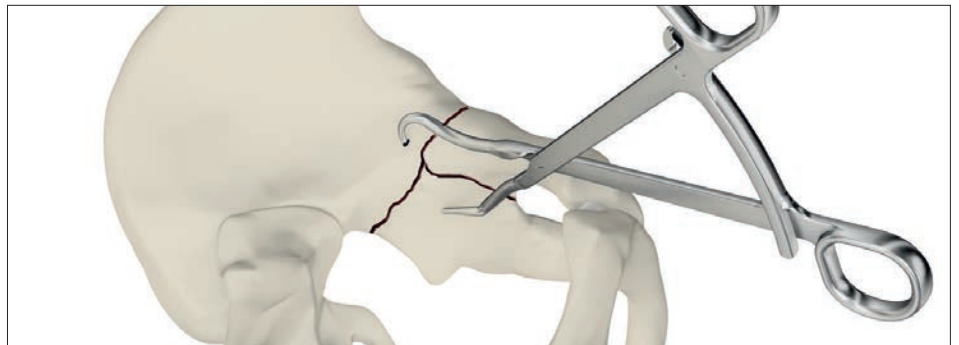
The Narrow Weber has two straight tines which may be used in areas where access is limited.



Asymmetric webers (straight, curved)



Left and right asymmetric webers have one curved and one straight tine, which may be placed in shallow pre-drilled holes to gain stability.



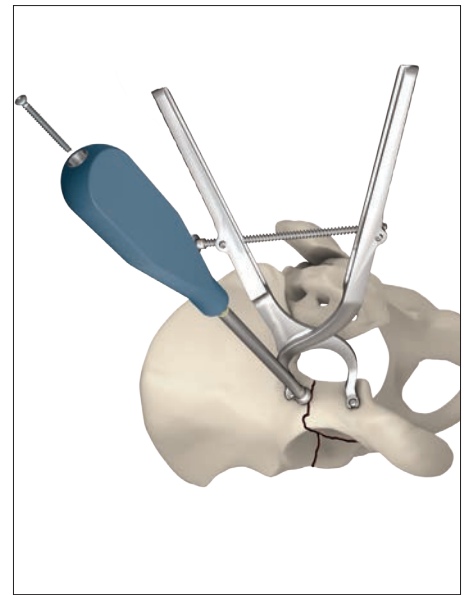
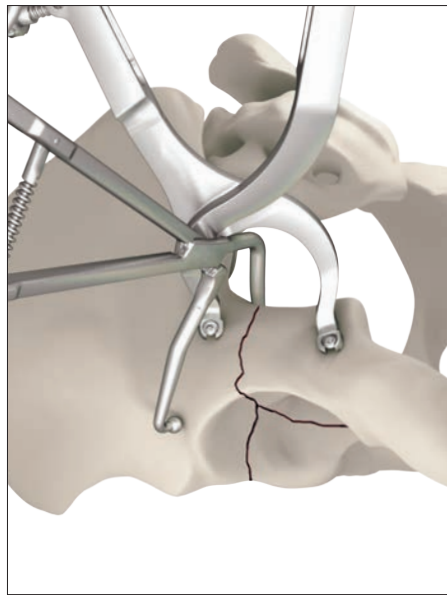
PRO design

Jungbluth clamps

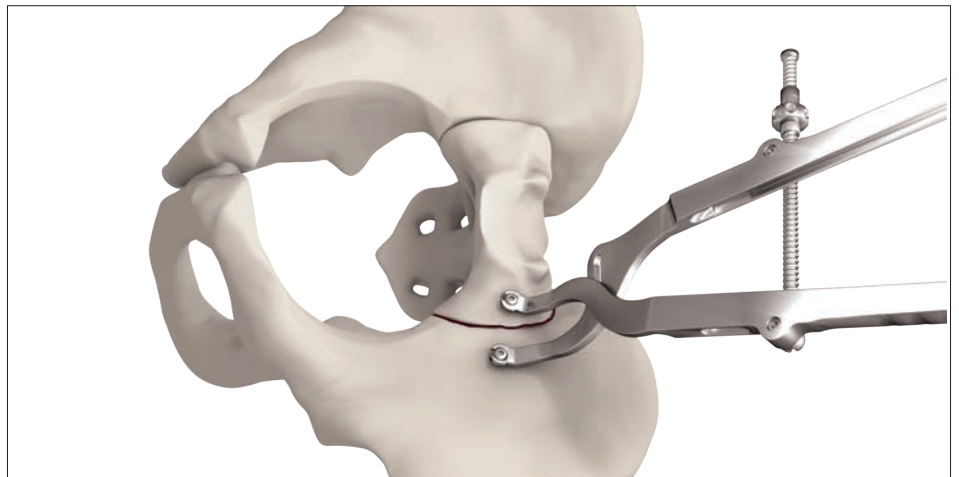
Both Jungbluths in the PRO implants are intended to be used with Ø3.5mm screws. A screw is inserted on each side of the fracture, allowing considerable reduction forces and manipulation in all three planes.



The wide Jungbluth has more clearance between the handles to allow an angled jaw clamp to pass through the greater sciatic notch or to be used in conjunction with the spiked screw inserter.



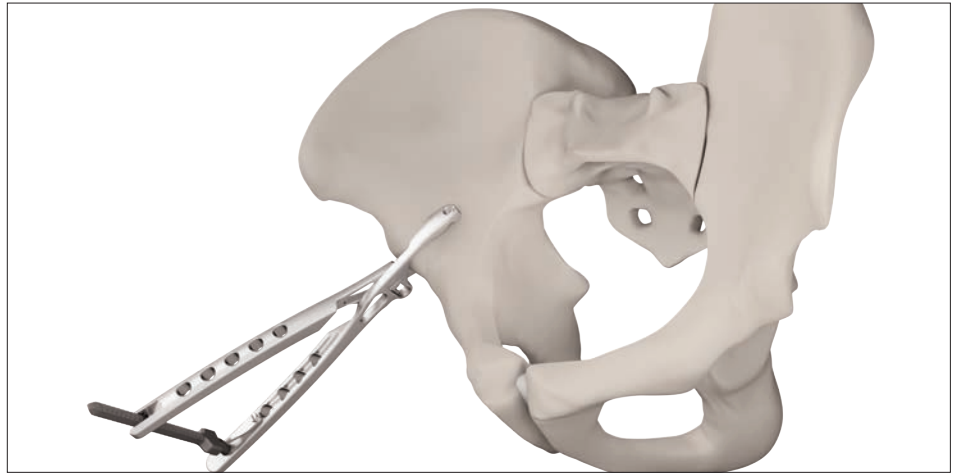
The narrow Jungbluth may be effective in locations where the anatomy and lack of available space preclude the use of the wide Jungbluth.



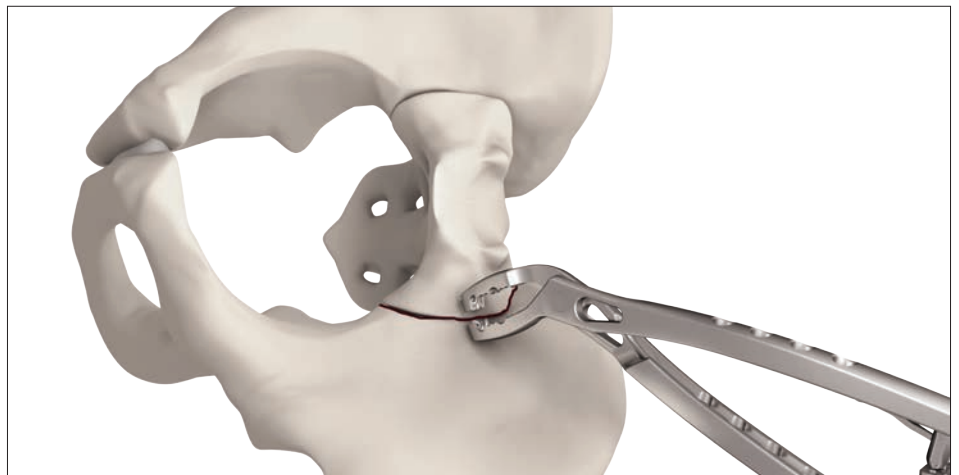
PRO design

Farabeuf clamps

The Farabeuf may be used for smaller manipulations and fine tuning to grasp fragments or as reduction forceps with provisional Ø3.5mm screws.



The angled Farabeuf is designed to avoid impingement of soft tissues against the handles of the clamp and may be particularly useful during reduction of the sacroiliac joint from an anterior approach.



Both Farabeufs feature a ratchet mechanism that enables compression or distraction settings. Face the "D" side outwards to use the clamp as a distraction device. Face the "C" side outwards to use the clamp as a compression device.



Distraction

Compression

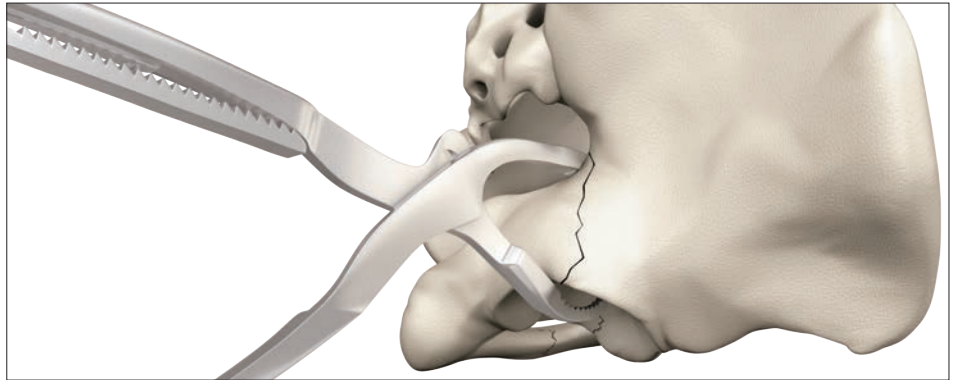
PRO design

Additional matta reduction clamps

Verbrugge forceps



For instances where only one screw is inserted, the Verbrugge forceps may be used. The other jaw takes hold of another part of the bony surface.



Reduction king tong forceps,

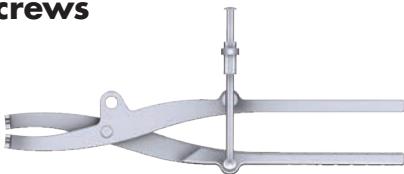


These forceps with three-pointed ball tips allow for reduction of perpendicular fractures. The handles allow for increased leverage for challenging reductions.

This instrument is available in both a 2x1 and 1x1 jaw version.



Jungbluth for Ø4.5mm screws



If a larger screw is needed, the Matta Jungbluth can accommodate a Ø4.5mm screw.



PRO design

Screw fixation

Washer loading

A washer may be pre-loaded into the Ø3.5mm Spiked screw inserter using the Washer loading stand (b) on the back table.

After drilling and inserting a Ø3.5mm screw, the washer will be deployed with the screw as it passes through the cannula of the instrument.

Ø3.5mm and Ø4.5mm spiked screw inserters

The Spiked Screw Inserters are tools for reduction and placement of independent Ø3.5mm and Ø4.5mm screws.

Instruments are cannulated to allow for passage of a drill sleeve, drill bit, and/or screwdriver.

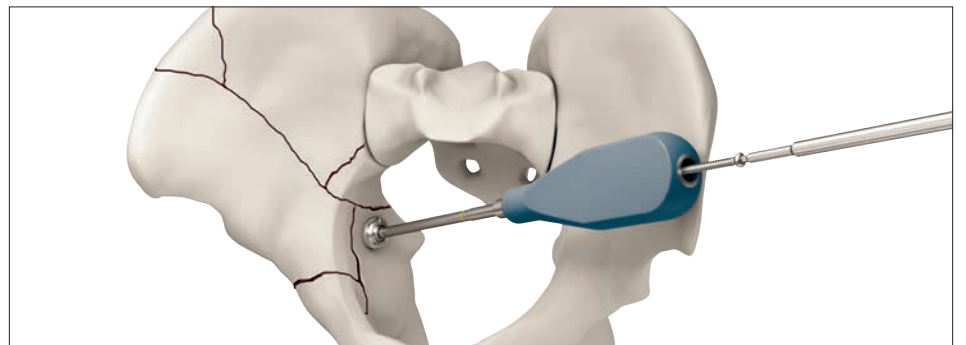
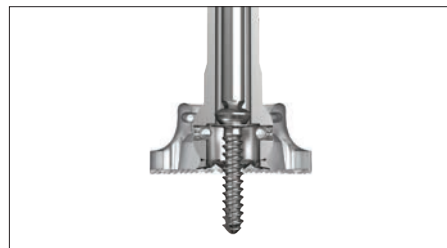
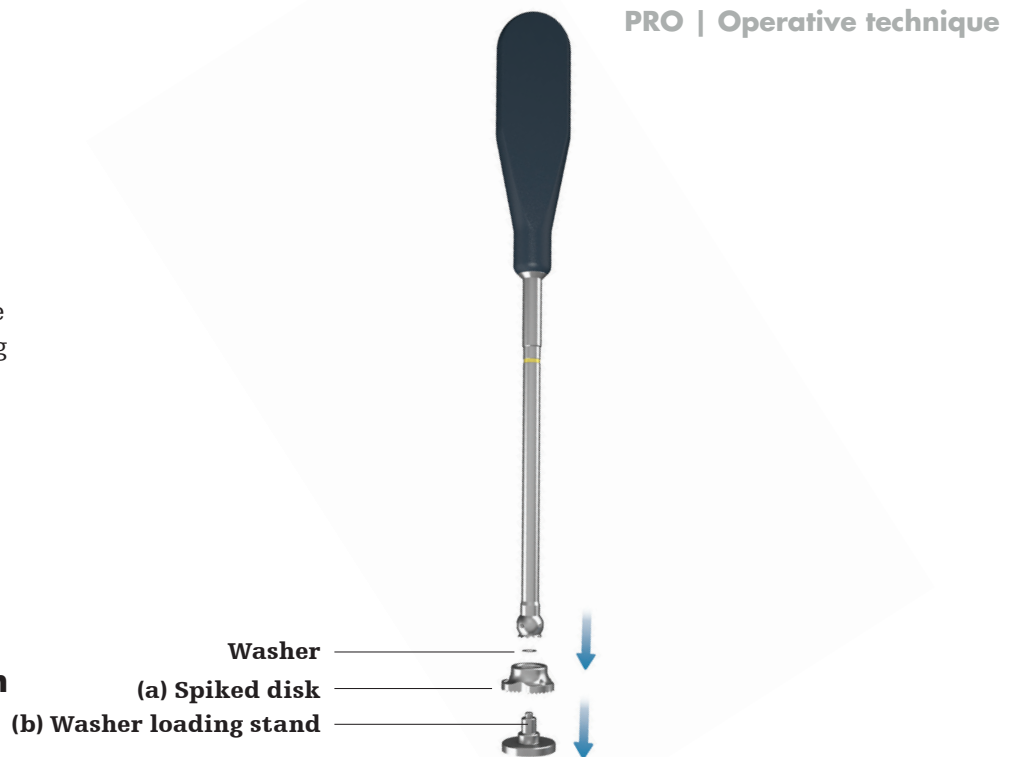
After drilling, screw measurement can be read directly from the scaled drill bit.

The screw may be inserted through the handle followed by the screwdriver. The self-centering design allows the screwdriver to automatically align with the screw head inside the shaft.

Each instrument and accessory is color coded according to screw size.

A yellow ring indicates that the instrument is for a Ø3.5mm screw. A black ring indicates that the instrument is for a Ø4.5mm screw.

If more surface area contact or load distribution is desired, the footplate (a) may be attached to the crowned tip of the Spiked screw inserter. This optional attachment includes three hole options for Ø3.2mm K-wire fixation and 20° of angulation.



The washer loading function is only available for Ø3.5mm screws.

CAUTION

The measurement for correct screw length must be taken with the drill sleeve touching the bone. The measurement is read directly off the drill.

CAUTION


Care must be taken when inserting the drill sleeve, when a washer is loaded. It is recommended that the drill sleeve be inserted into the spiked screw inserter outside of the wound, observing it pass beyond the washer. This ensures that there will not be an inadvertent release of the washer into the wound.

PRO design

Periosteal elevators

Three periosteal elevators are available to aid the dissection and atraumatic exposure of the bone surface in preparation for definitive fixation.

Periosteal elevator, straight



The Straight Periosteal Elevator may be used to elevate periosteum and soft tissues from straight bone surfaces.

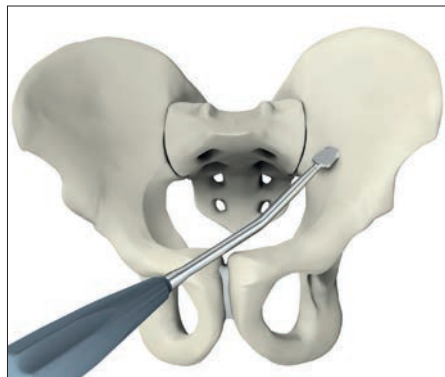
Periosteal reverse elevator,



Periosteal standard elevator,



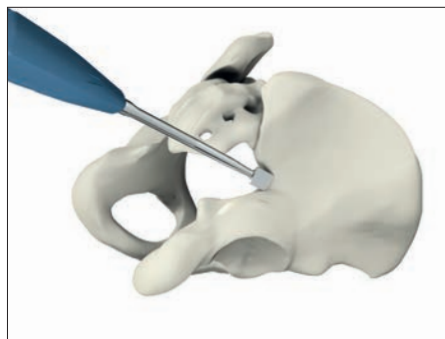
Angled versions may be used to elevate the periosteum and soft tissues from angled bone surfaces such as the ilium and quadrilateral surface.



Anterior Intra-pelvic approach



Ilioinguinal approach



Kocher-Langenbeck approach



Ilioinguinal approach

PRO design

Plate contouring and bending techniques

The plate must be shaped correctly to fit the reduced contours of the bone.

The fit of the plate on the bony surface should be as precise as possible, so the insertion of screws will maintain position of the fragments (Fig. 1).

During plating and screw insertion, it is common that the bone is drawn toward the plate and not the plate toward the bone (Fig. 2). Therefore, in certain instances it may be advantageous to contour the plate to a slight mismatch to the bone to aid in obtaining and/or maintaining the optimal reduction.

It is important to utilize the proper instrumentation and bending techniques when manipulating plates. Proper technique may help prevent wedging of the plate by bending tools and weakening of the plate by repeated, corrective contouring.

WARNING

The plate must be shaped correctly to fit the reduced contours of the bone to prevent a fragment from being drawn towards the plate during the tightening of screws.

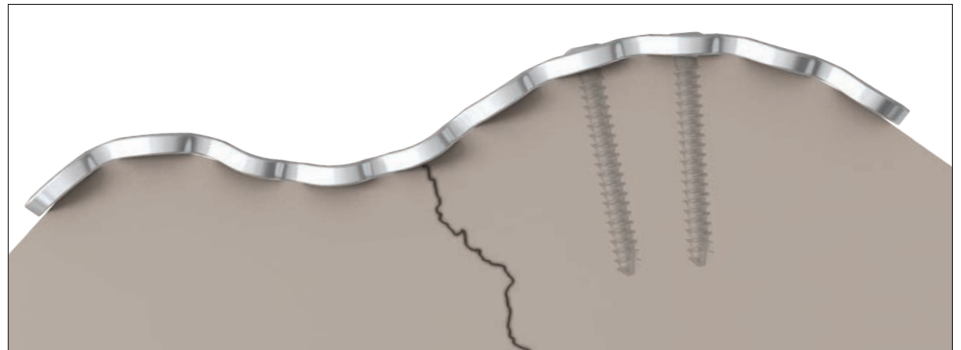


Fig. 1 – correct
If the plate fits precisely.

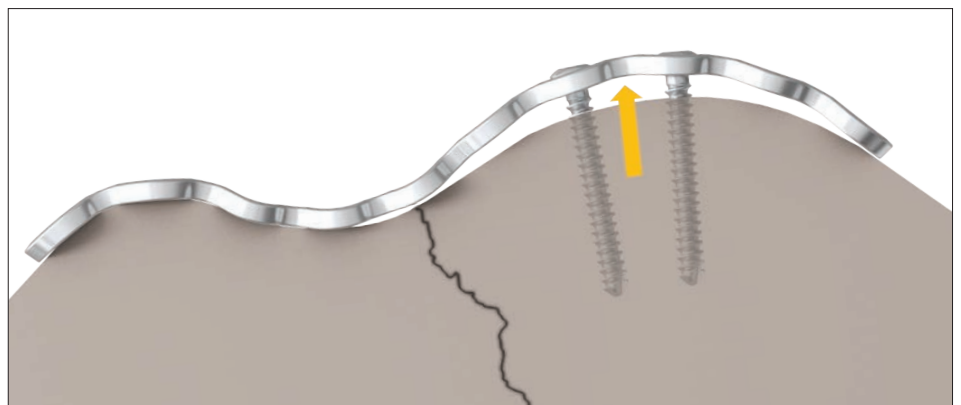


Fig. 2 – incorrect
When tightening the screws, the fragment may be drawn towards the plate.

PRO design

Plate contouring and bending techniques

PRO plate bender

The PRO plate bender is designed to contour Matta and PRO plates.

Two sides for in-plane curving and the tip for out-of-plane bending provide the surgeon multiple options to contour the plate.



For a plate to fit adequately on a bone, it should be possible to shape it in all directions. A plates may be:

Curved

(Fig.1a,1b)

To adapt to the shapes of the pelvis and acetabulum.



Curving (Fig. 1a)



Curving (Fig. 1b)

Bent

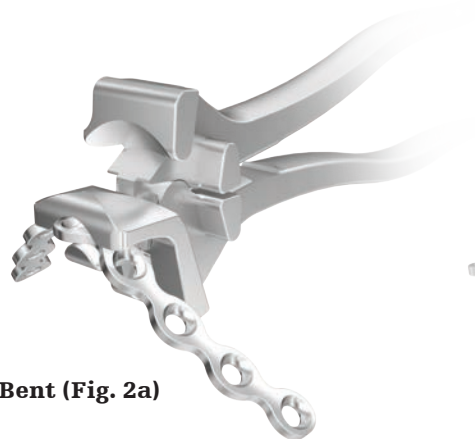
(Fig.2a,2b)

Along its main axis.

Twisted

(Fig.3a,3b)

Along its main axis, to give it a helicoidal shape.



Bent (Fig. 2a)



Bent (Fig. 2b)



Twisted (Fig. 3a)



Twisted (Fig. 3b)

CAUTION

It is not intended to cut any of the plates. All verification testing has been performed on intact plates.

PRO design

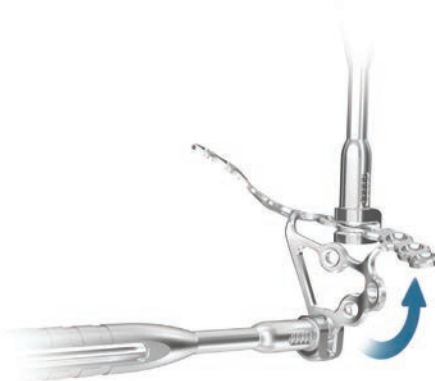
Plate contouring and bending techniques

PRO plate bending holder

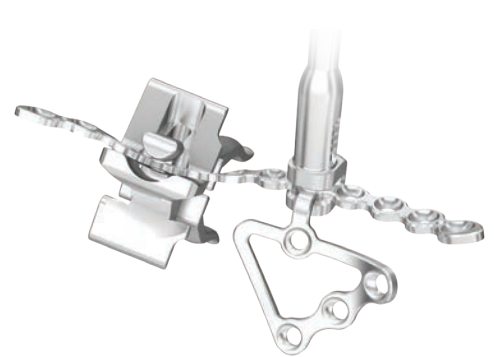
The PRO plate bending holder is available to assist with contouring Matta and PRO pelvic plates.

Designed to give the surgeon more control of the bending process and prevent the plate from slipping, this instrument may be useful in adjusting the angle between the two surfaces of the PRO suprapectineal plate (Fig. 4).

This instrument may also be used in conjunction with other bending tools, such as the PRO plate bender to twist or achieve an out-of-plane bend (Fig. 5).



(Fig. 4)



(Fig. 5)

PRO in-situ bender

Two in-situ benders are offered to perform contouring adjustments while the plate is partially fixed to the bone. It has dual functioning ends – one straight and one angled.

The L-extension on the infrapectineal plate is designed to allow the surgeon to use these bending sticks to conform it to the pubic tubercle and place a screw for anterior fixation of the plate (Fig. 6).



(Fig. 6)

WARNING

Extensive repeated bending of non-annealed Matta Plates can lead to loss of strength. Contouring does not decrease fatigue resistance for annealed Matta Straight Acetabular Plates.

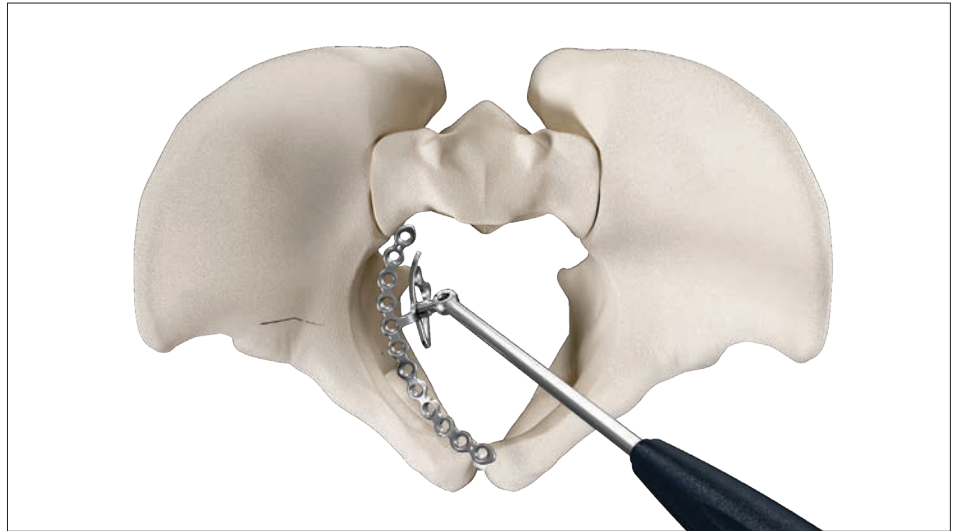
PRO design

Plate and screw fixation

Handle for plate insertion

The handle for plate insertion may be attached to the PRO OLS plates and / or Matta plates to facilitate plate insertion.

The handle may be attached to any screw hole.



The OLS plates have a dedicated screw hole for attachment to the plate insertion handle (see blue circles in images to the right). The other screw holes may be used as well, but they are pre-angled so one must note the direction of the pre-angulation when attaching the handle.



PRO design

Plate and screw fixation

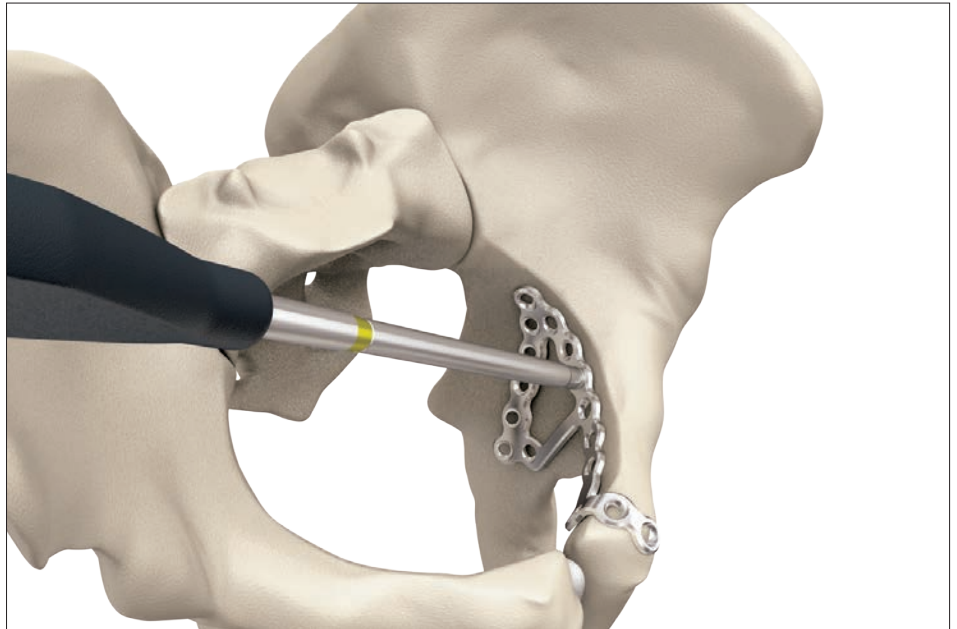
Plate screw inserter

The plate screw inserter allows drilling and screw placement through the plate with one instrument.

The tip of the instrument can swivel in the plate holes to allow accurate placement of angulated screws.

The plate screw inserter accommodates the same drill guides, drills and screwdrivers as the spiked screw inserter.

The accessories are color coded. The yellow ring on the drill guide, drill and screwdriver indicate compatibility with 3.5mm screws.



CAUTION

Take care not to over-angle the drill and drill sleeve beyond the 70° cone (for Ø3.5mm screws).

WARNING

When inserting screws through the plate screw inserter under acute angles, the instrument should be pulled back slightly from the plate before final tightening to allow the screw to be fully seated.

Angled depth gauge

The angled depth gauge offers a design suited for measuring along tangential or angulated drill paths such as the posterior column or quadrilateral surface area. It allows for measurement of screws up to 70mm.

Make sure the metal tip is retracted prior to inserting through the screw hole.



PRO design

Suprapectineal plate technique

Suprapectineal or Suprapectineal Flex Plate

The suprapectineal or suprapectineal flex quadrilateral surface plates were designed to accommodate situations where the anterior column is disrupted and the quadrilateral surface is comminuted and disassociated from the posterior column – such as the anterior column posterior hemi-transverse.

The important feature of these plates is that they provide simultaneous fixation in both the anterior and posterior columns. They buttress the anterior column with the suprapectineal portion of the plate (a), and the quadrilateral surface with the infrapectineal portion (b).

These two portions are connected through one bar with the Suprapectineal Flex plate, allowing for easy manipulation and further contouring, if necessary.

In order for these plates to function optimally, it must be in contact with both surfaces (anterior column and quadrilateral surface) simultaneously.

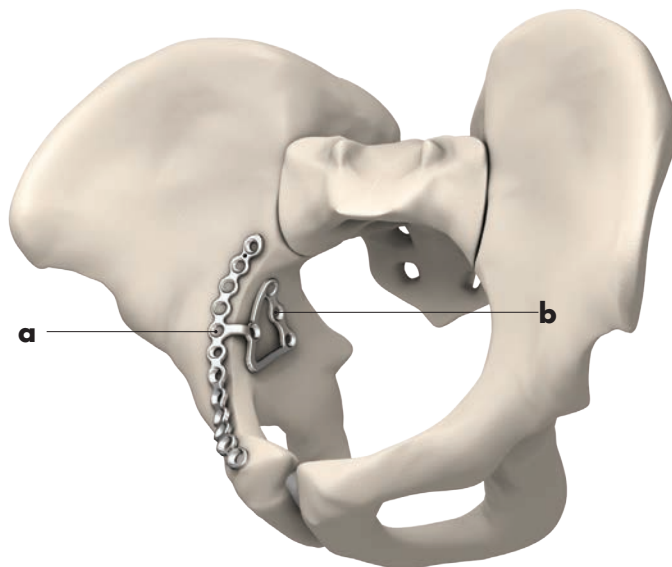
⚠ WARNING

Always carefully apply the plate in such a way that when the first screw is placed into a hole on one of the surfaces that the plate does not come away from the other surfaces.

⚠ WARNING

The insertion of the first screw has to be performed carefully to obtain the correct plate position.

First use the plate insertion handle to hold the plate by the central hole and apply a laterally directed force to ensure that the plate is flush against the quadrilateral surface.



⚠ WARNING

Always properly reduce the fracture and stabilize with reduction clamps and/or lag/position screws prior to the placement of the plate, as it is not a reduction tool.



PRO design

Suprapectineal plate technique

Next, using a Ø2.5mm drill bit, drill eccentrically in the hole opposite the posterior arm of the plate and place a Ø3.5mm screw into the suprapectineal portion.

This will simultaneously bring the plate down onto the anterior column and lateralize the plate to further ensure that good contact is made between the plate and both surfaces.



PRO design

Suprapectineal plate technique

Prior to insertion of any more screws, the surgeon must ensure that the plate is rotated and aligned correctly with the anterior aspect of the pelvis.

At this stage, with only one point of fixation in the posterior aspect of the plate, the plate can still be fine-tuned or adjusted to align with the anterior pelvis without affecting the reduction. A small reduction clamp can be placed onto the plate to bring it down to the pubic body.

A screw is then placed through the plate into the superior pubic ramus followed by the pubic body to secure the anterior portion of the plate to the anterior column in a buttress fashion and maintain the rotation.



PRO design

Suprapectineal plate technique

Next, the infrapectineal portion of the plate is anchored to the posterior column. It is important to use the most distal screw hole as an anchor point. This will help ensure that maximal plate-bone surface area contact is achieved - creating an optimally buttressed quadrilateral surface.

The plate screw inserter will help to facilitate placement of this screw deep in the base of the wound.

At this point, the plate has been secured to the three anchor points in the anterior column, innominate bone, and posterior column, maintaining contact with the anterior column and quadrilateral surface.



PRO design

Pelvic ring fracture types and fixation

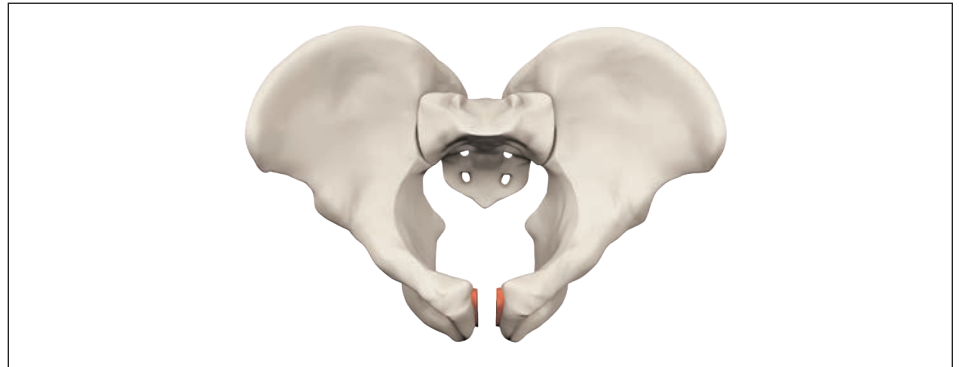
Pubic symphysis disruption

Approach:

Pubic symphysis disruptions may be reduced and fixed through a standard Pfannenstiel approach.

Fixation:

- Isolated pubic symphysis disruption can be fixed using a dedicated 4 or 6-hole Matta pubic symphysis plate.



PRO design

Pelvic ring fracture types and fixation

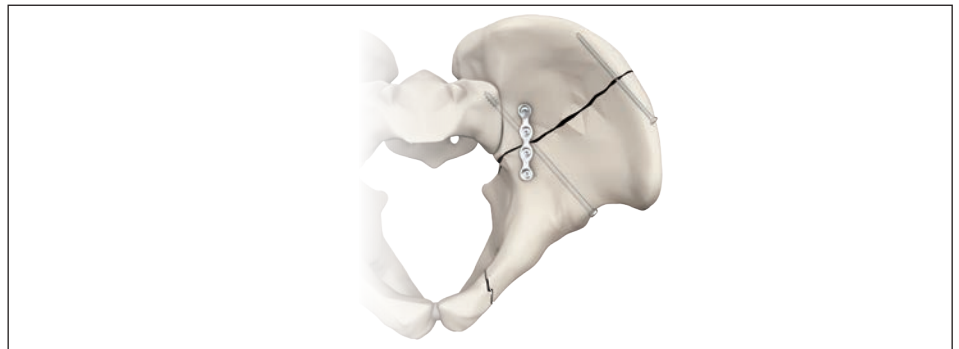
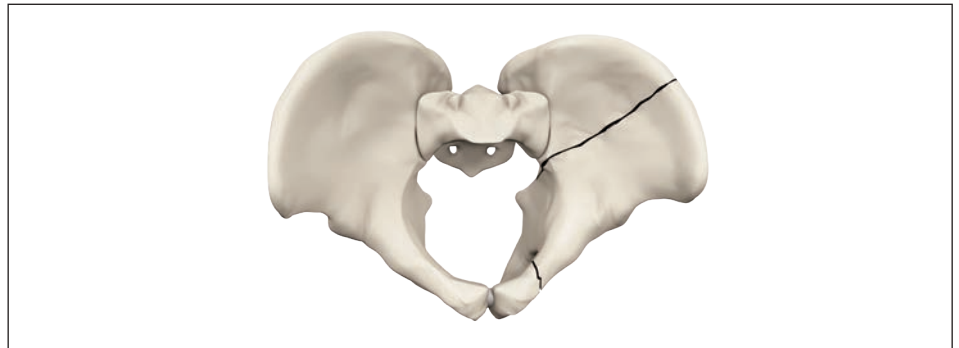
Ilium fracture

Approach:

Fractures of the ilium may be reduced and fixed through the lateral window using the ilioinguinal approach or a posterior pelvic ring surgical approach.

Fixation:

- A screw is inserted from the anterior inferior iliac spine, passing 1cm–2cm above the acetabulum.
- Independent lag screw is inserted in the iliac crest, starting from the anterior branch.
- A Matta straight plate can be used to traverse the fracture line in the area of the pelvic brim. Plate hole count depends on patient anatomy and fracture pattern.



PRO design

Pelvic ring fracture types and fixation

Sacroiliac dislocation

Approach:

Sacroiliac dislocations may be reduced and fixed through an anterior or posterior pelvic ring surgical approach.

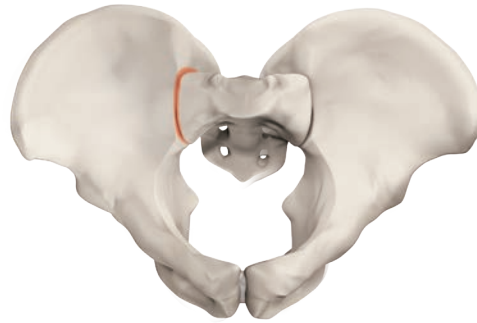
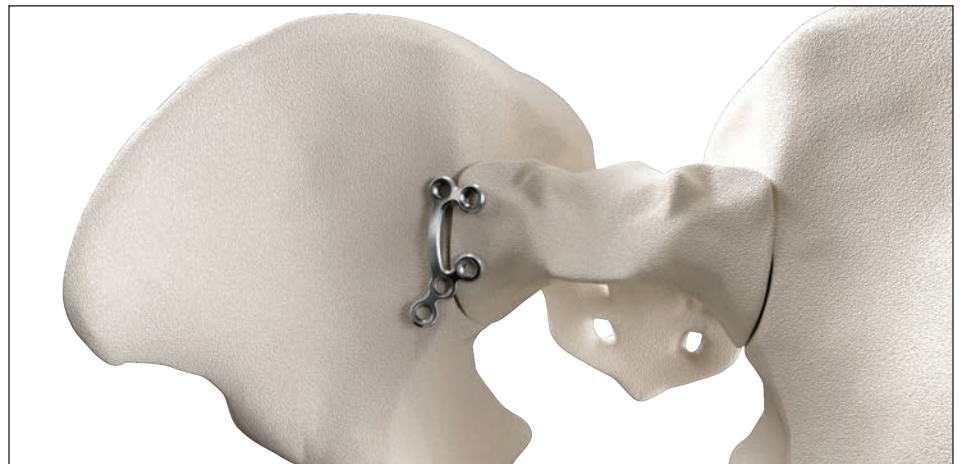


Plate fixation options:

A PRO Anterior SI Plate stabilizes the joint and acts as a neutralization plate.



Fixation:

An Asnis cannulated iliosacral screw may be used for fixation of dislocation.



PRO design

Pelvic ring fracture types and fixation

Sacroiliac fracture / dislocation

Approach:

Sacroiliac fracture dislocations may be reduced and fixed through a posterior pelvic ring surgical approach.

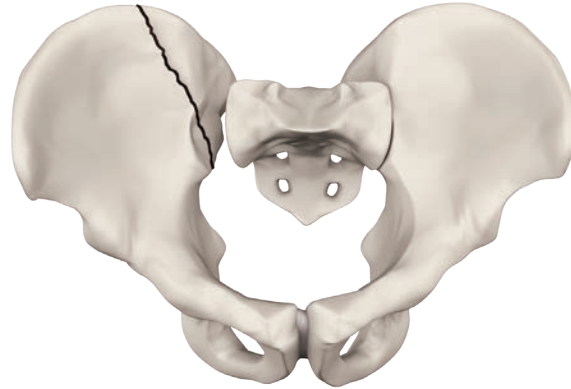
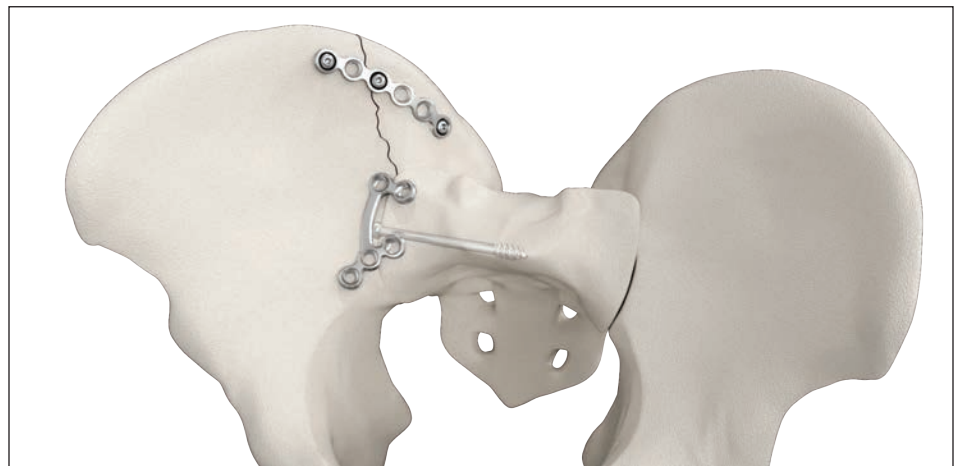


Plate fixation options:

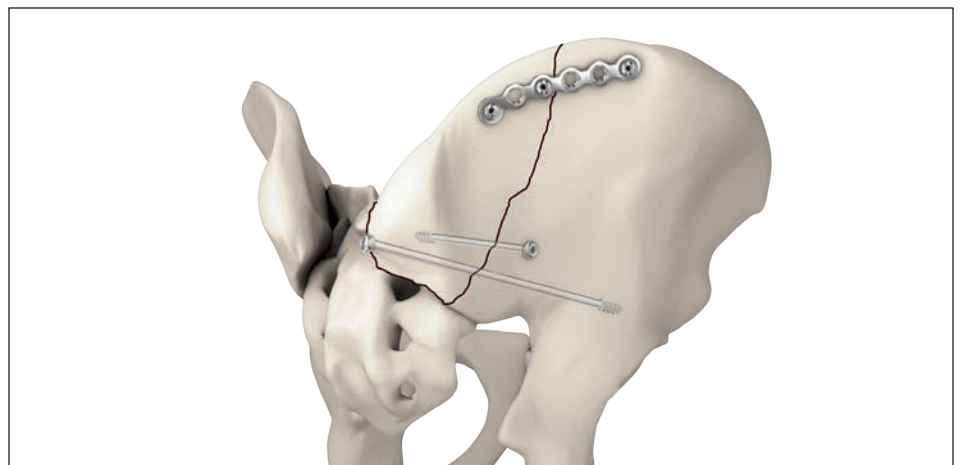
An Annealed Flex Plate stabilizes the reduction of the iliac crest. Plate hole count depends on patient anatomy and fracture pattern.

An Anterior SI Plate or Asnis cannulated iliosacral lag screw fixes the sacroiliac joint.



Fixation:

An independent lag screw is placed starting from the posterior-inferior iliac spine to stabilize the reduction of the inferior aspect of the iliac wing.



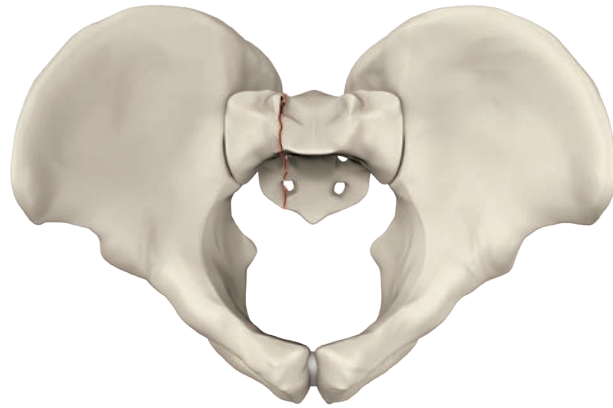
PRO design

Pelvic ring fracture types and fixation

Sacrum fracture

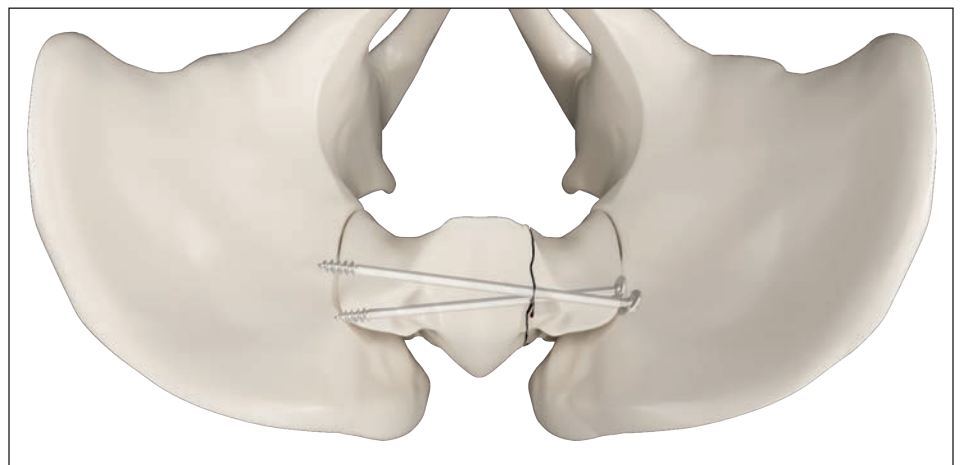
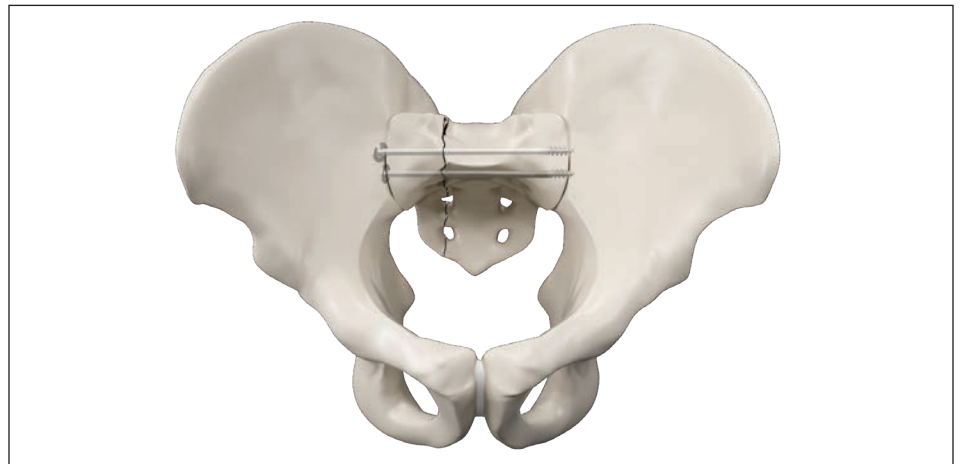
Approach:

Sacral fractures may be reduced and fixed either through a posterior approach to the pelvis, or percutaneously if using cannulated screws for fixation.



Fixation:

- A sacral fracture may be fixed with two Asnis III cannulated lag screws. For detailed surgical steps, reference the Asnis Cannulated Screw operative technique (AS-ST-10).
- Alternatively a Ø6.5mm cancellous screw may be placed into the S1 or S2 vertebral bodies through the lateral iliac wing.



PRO design

Acetabular fracture types and fixation

Posterior Rim

Approach:

Posterior wall fractures may be reduced and fixed using the Kocher-Langenbeck approach.



Plate fixation options:

- PRO Posterior Rim Plates or PRO Spring Plates can reduce and capture the small fragments near the acetabular rim.
- A Matta curved R108 plate or Annealed Flex plate may span the fragments along its axis and serve as a neutralization plate. Plate hole count depends on patient anatomy and fracture pattern.



Screw fixation options:

- Independent lag screws may be used to initially fix the fragments with the desired anatomic reduction.



PRO design

Acetabular fracture types and fixation

Posterior column

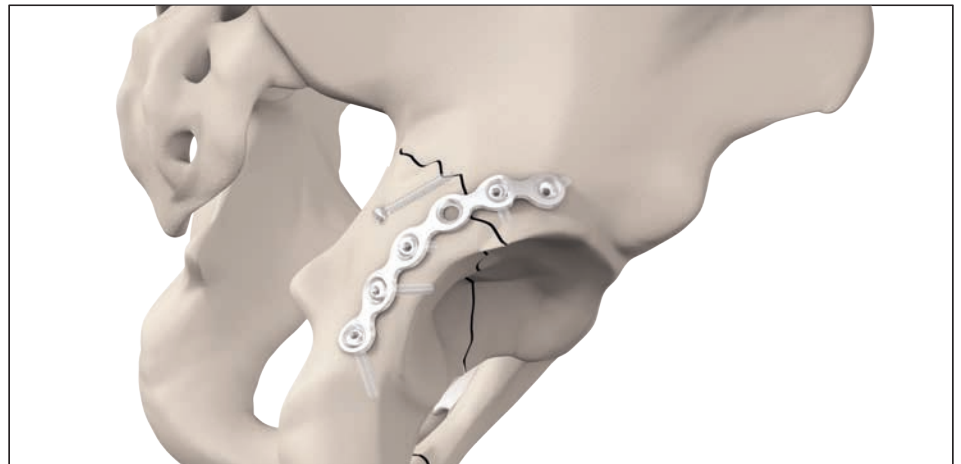
Approach:

Posterior column fractures may be reduced and fixed using the Kocher-Langenbeck approach.



Fixation:

- Definitive fixation can be started with an independent lag screw from the distal fragment into the posterior buttress of the Ilium.
- To maintain the reduction, a Matta curved plate or Annealed Flex Plate may be used along the acetabular margin. Plate hole count depends on patient anatomy and fracture pattern.



CAUTION

All central screws should be perpendicular to the quadrilateral surface to avoid penetration of the hip joint.

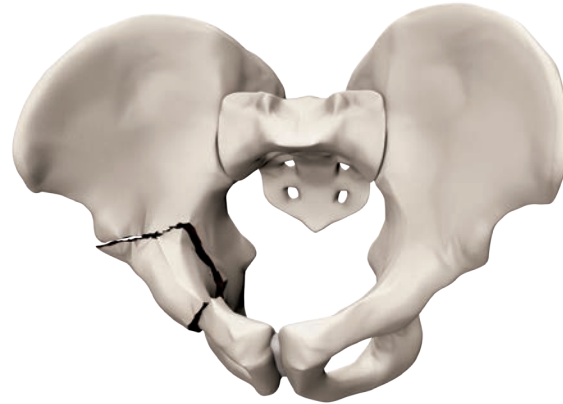
PRO design

Acetabular fracture types and fixation

Anterior wall

Approach:

Anterior wall fractures may be reduced and fixed using the ilioinguinal approach.



Screw fixation options:

- Independent lag screws initially fix the fragments with the desired anatomical reduction.

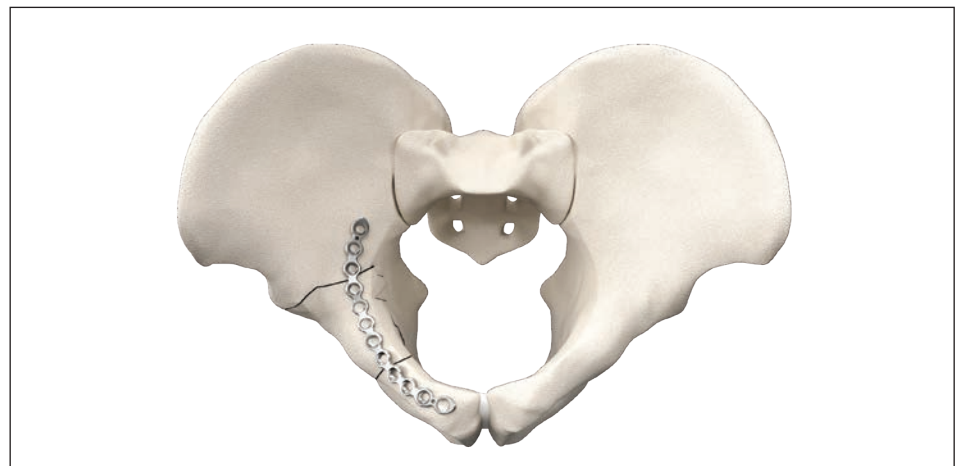
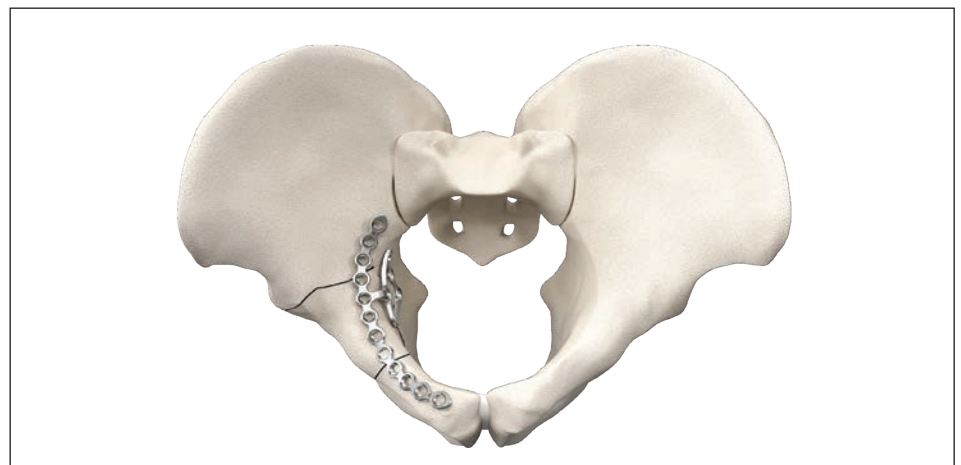


Plate fixation options:

- A pre-contoured PRO Pelvic Brim plate can be placed from the pubic tubercle to the vicinity of the sacroiliac joint.
- A 10-hole Matta curved plate (or Annealed Flex Plate) is shaped to adapt to the pelvic brim from the pubic tubercle to the vicinity of the sacroiliac joint.



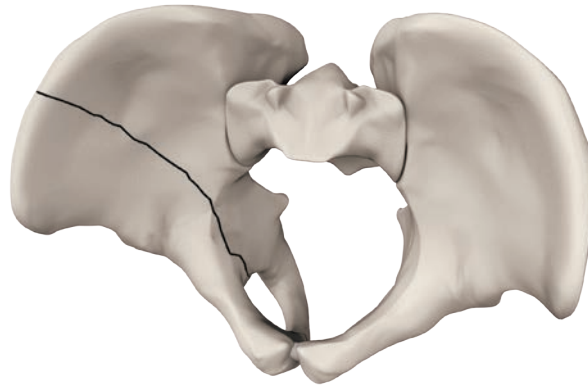
PRO design

Acetabular fracture types and fixation

Anterior column

Approach:

Anterior column fractures may be reduced and fixed using the ilioinguinal or anterior intrapelvic approach.



Fixation:

- An independent lag screw maintains the reduction.
- A pre-contoured PRO Anterior Column plate can be placed from the pubic tubercle to the vicinity of the sacroiliac joint.
- A 10-hole Matta curved plate is shaped to adapt it to the pelvic brim from the pubic tubercle to the vicinity of the sacroiliac joint.
- A minimum of two screws should be placed beyond the fracture line.
- Alternatively, the PRO suprapectineal quadrilateral surface plate may be used.



PRO design

Acetabular fracture types and fixation

Transverse

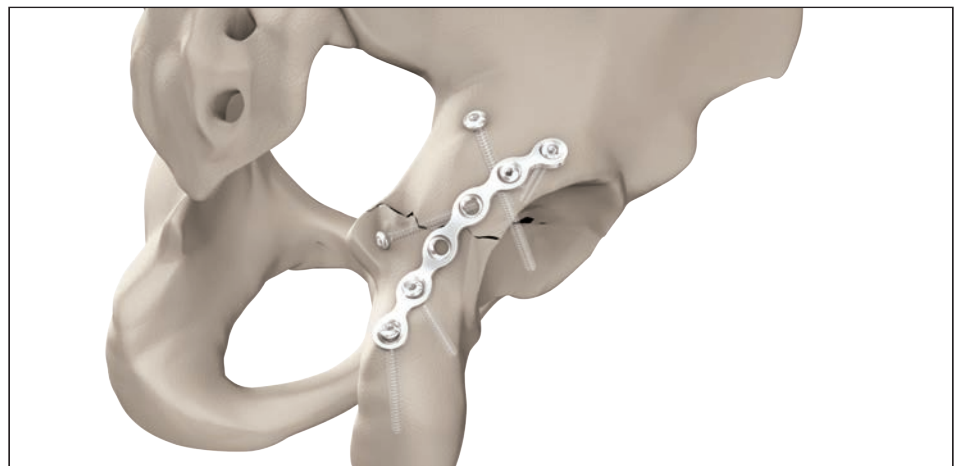
Approach:

The Kocher-Langenbeck approach is typically used to access transverse fractures. Alternatively, they may be accessed anteriorly using the ilioinguinal or anterior intrapelvic approach.



Posterior fixation:

- Through the Kocher-Langenbeck approach, the posterior column is stabilized with an independent lag screw.
- A Matta curved plate may serve as a neutralization plate. Plate hole count depends on patient anatomy and fracture pattern.
- The anterior column is stabilized with an additional independent lag screw.



Anterior fixation:

- Through the ilioinguinal or anterior intrapelvic approach, the PRO Suprapectineal Plate, PRO Suprpectineal Flex Plate, or PRO Infrapectineal plate may also be used.



PRO design

Acetabular fracture types and fixation

T-shaped

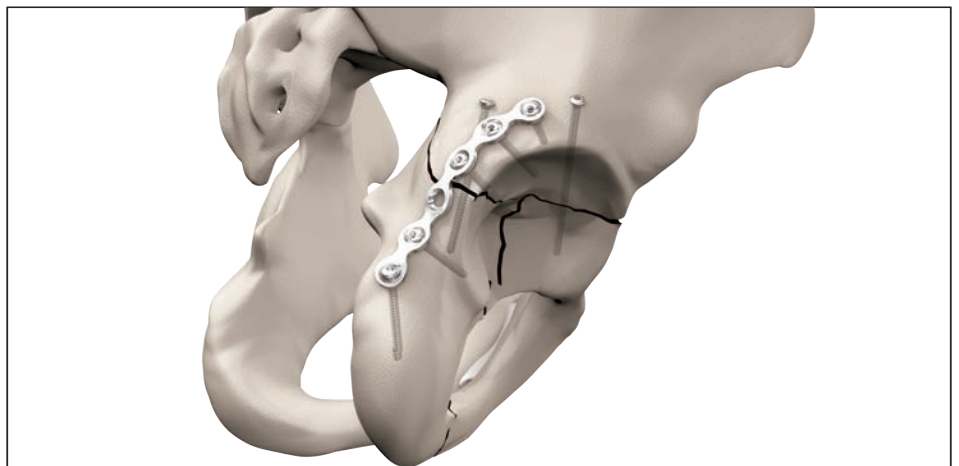
Approach:

A Kocher-Langenbeck approach is frequently used to perform an ORIF of a T-shaped fracture. In some circumstances, combined anterior and posterior approaches or an extended ilio-femoral approach may be necessary.



Posterior fixation:

- Through the Kocher-Langenbeck approach, the posterior column is stabilized with an independent lag screw.
- A Matta Curved or Matta Annealed Flex Plate may serve as a neutralization plate.
- The anterior column is stabilized with an additional independent lag screw.



Anterior fixation:

- Through the ilioinguinal or anterior intrapelvic approach, the PRO suprapectineal or infrapectineal quadrilateral surface plate may be used.



PRO design

Acetabular fracture types and fixation

Transverse plus posterior wall

Approach:

Combined transverse and posterior wall fractures may be reduced and fixed using the Kocher-Langenbeck approach.



Fixation:

- Two independent lag screws stabilize the transverse fracture component.
- One or two independent lag screws maintain the reduction of the posterior wall fragment.
- A Matta Annealed Flex Plate or a Matta Curved Plate can be applied to buttress the posterior wall. Plate hole count depends on patient anatomy and fracture pattern.



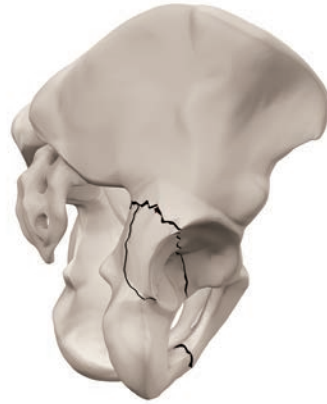
PRO design

Acetabular fracture types and fixation

Posterior column plus posterior wall

Approach:

Combined posterior column and Posterior Wall fractures may be reduced and fixed using the Kocher-Langenbeck approach.



Fixation:

- Initial fixation of the posterior column is achieved with an independent lag screw and / or a Matta curved plate.
- If the posterior wall fragment is large enough, it should be attached to the column with lag screws.
- Definitive stabilization of the posterior wall and column can be achieved using a Matta curved plate. The posterior wall is buttressed and anchored to the ilium and ischium with cortical screws. Plate hole count depends on patient anatomy and fracture pattern.



PRO design

Acetabular fracture types and fixation

Both column

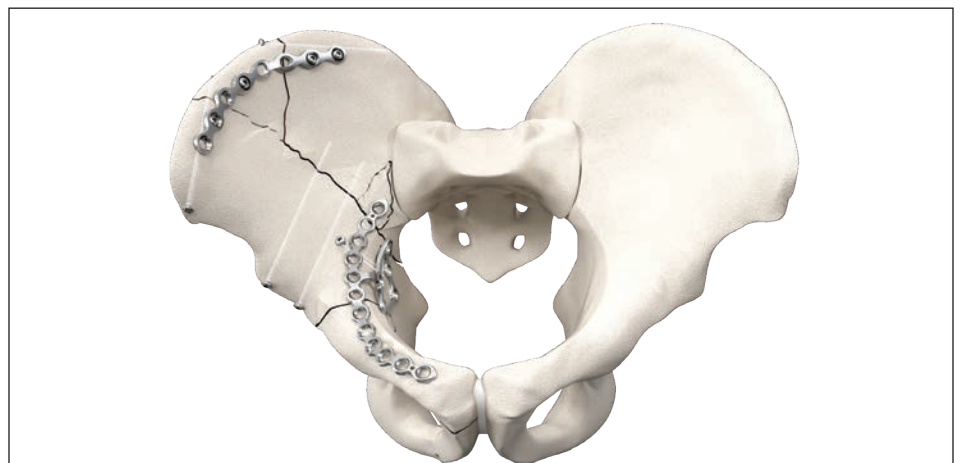
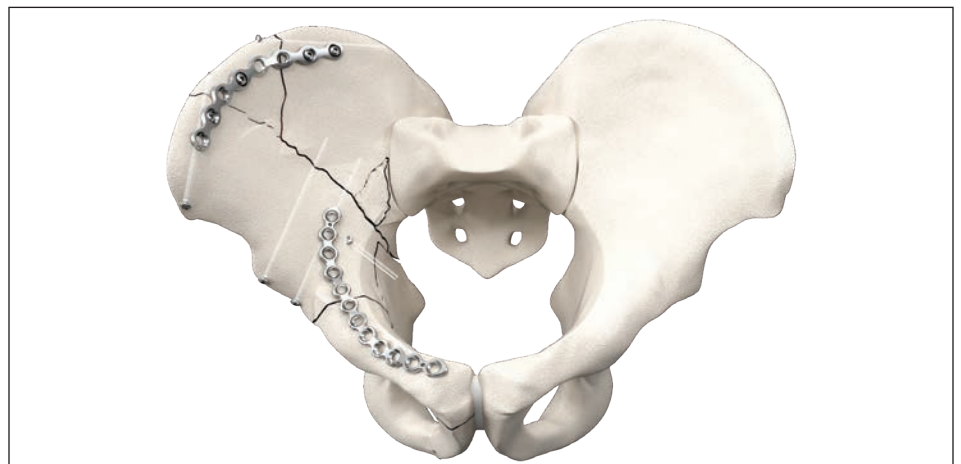
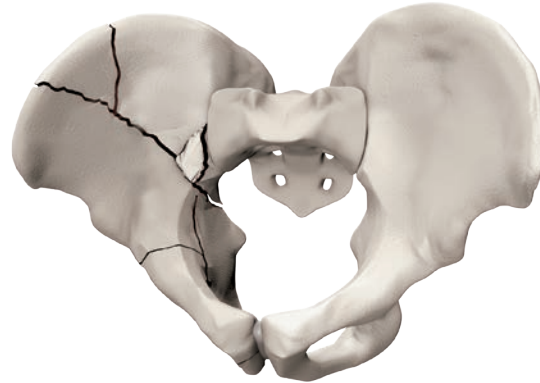
Approach:

Both column fractures may be reduced and fixed using the iliofemoral, extended iliofemoral, or anterior intrapelvic approach.

Fixation:

- Two independent lag screws in the iliac crest stabilize the iliac wing fracture fragments.
- Independent lag screws running from the upper aspect of the true pelvis can fix the posterior column.
- An independent lag screw can fix the separated posterior fragment of the pelvic brim just lateral to the sacroiliac joint.
- An 8-hole Matta flex plate may be placed along the iliac crest to stabilize the iliac wing fracture.
- A pre-contoured PRO Anterior Column plate, or 10 or 12-hole Matta curved plate, can be placed along the pelvic brim to stabilize the anterior column.
- Alternatively, a PRO Suprapectineal quadrilateral surface plate may be used.

Plate hole count depends on patient anatomy and fracture pattern.



PRO design

Acetabular fracture types and fixation

Anterior column and posterior hemi-transverse

Approach:

Anterior column / posterior hemi-transverse fractures may be reduced and fixed using the ilioinguinal approach or anterior intrapelvic approach.

Anterior column reduction:

Reduction typically starts with the anterior column.

Anterior column fixation:

Stabilization of the anterior column typically starts peripherally with the iliac crest and can be achieved with either plates or screws. This may be augmented by a Pelvic Brim or Anterior Column plate.

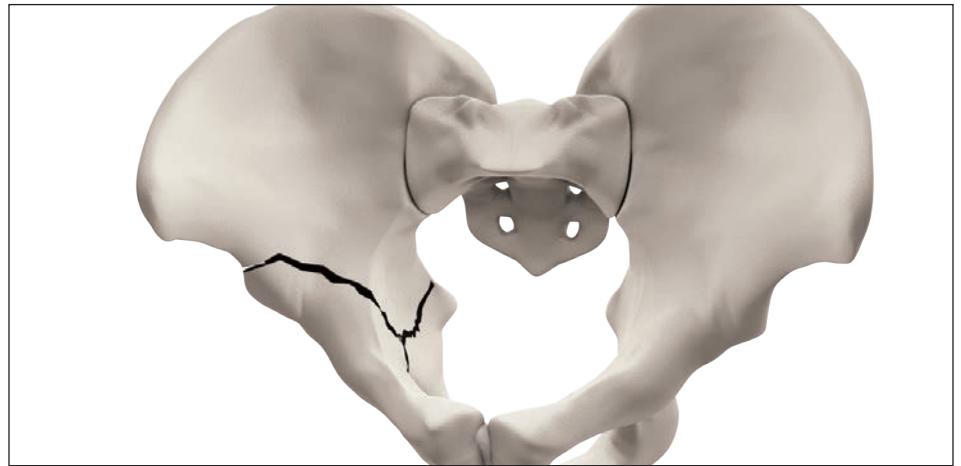
In some cases, it is possible to achieve stable fixation with a lag screw technique alone.

Posterior column reduction:

Once the anterior column is reduced and provisionally stabilized, the posterior column can be addressed.

Posterior column fixation:

Fixation of the posterior column is typically achieved by lag screws or position screws, which are inserted from the pelvic brim into the safe zone that extends from the cranial limit of the greater sciatic notch distally to the ischium, depending on the starting point.



Pelvic buttress plate:

A PRO Suprapectineal or Suprapectineal Flex Plate can be placed on the quadrilateral surface to buttress comminution or counteract posterior column medial displacement.

In addition, one or two independent lag screws can be placed in the posterior portion of the plate. Care should be taken to avoid hip joint penetration.

⚠ CAUTION

Take care to avoid penetration of the hip joint when independent lag screws are placed in the posterior portion of the plate.

Notes

PRO

Pelvis and Acetabulum System

System components



PRO system components

Screws

Matta Pelvic Screws

2.7mm Cortical Screws, Self-Tapping



Ref #	Diameter (mm)	Length (mm)
349608	2.7	8
349610	2.7	10
349612	2.7	12
349614	2.7	14
349616	2.7	16
349618	2.7	18
349620	2.7	20
349622	2.7	22
349624	2.7	24
349626	2.7	26
349628	2.7	28
349630	2.7	30
349632	2.7	32
349634	2.7	34
349636	2.7	36
349638	2.7	38
349640	2.7	40
349645	2.7	45
349650	2.7	50
349655	2.7	55
349660	2.7	60

3.5mm Cortical Screws, Self-Tapping



Ref #	Diameter (mm)	Length (mm)
338610	3.5	10
338612	3.5	12
338614	3.5	14
338616	3.5	16
338618	3.5	18
338620	3.5	20
338622	3.5	22
338624	3.5	24
338626	3.5	26
338628	3.5	28
338630	3.5	30
338632	3.5	32
338634	3.5	34
338636	3.5	36
338638	3.5	38
338640	3.5	40
338645	3.5	45
338650	3.5	50
338655	3.5	55
338660	3.5	60
338665	3.5	65
338670	3.5	70
338675	3.5	75

Note: All non-sterile screws may be ordered sterile by adding "S" at the end of the REF number.

PRO system components

Screws

Matta Pelvic Screws

3.5mm Cortical Screws, Self-Tapping (cont.)

Ref #	Diameter (mm)	Length (mm)
338680	3.5	80
338685	3.5	85
338690	3.5	90
338695	3.5	95
338700	3.5	100
338705	3.5	105
338710	3.5	110
338715	3.5	115
338720	3.5	120

Note: All non-sterile screws may be ordered sterile by adding "S" at the end of the REF number.

PRO system components

Screws

Matta Pelvic Screws

4.5mm Cortical Screws, Self-Tapping



Ref #	Diameter (mm)	Length (mm)
340614	4.5	14
340616	4.5	16
340618	4.5	18
340620	4.5	20
340622	4.5	22
340624	4.5	24
340626	4.5	26
340628	4.5	28
340630	4.5	30
340632	4.5	32
340634	4.5	34
340636	4.5	36
340638	4.5	38
340640	4.5	40
340642	4.5	42
340644	4.5	44
340646	4.5	46
340648	4.5	48
340650	4.5	50
340652	4.5	52
340654	4.5	54
340656	4.5	56
340658	4.5	58
340660	4.5	60
340665	4.5	65
340670	4.5	70
340675	4.5	75
340680	4.5	80
340685	4.5	85
340690	4.5	90
340695	4.5	95
340700	4.5	100
340705	4.5	105
340710	4.5	110
340715	4.5	115
340720	4.5	120
340725	4.5	125
340730	4.5	130
340735	4.5	135
340740	4.5	140
340745	4.5	145
340750	4.5	150

Note: All non-sterile screws may be ordered sterile by adding "S" at the end of the REF number.

PRO system components

Screws

Matta Pelvic Screws

6.5mm Cancellous Screws, 16mm Thread



Ref #	Diameter (mm)	Length (mm)
341030	6.5	30
341035	6.5	35
341040	6.5	40
341045	6.5	45
341050	6.5	50
341055	6.5	55
341060	6.5	60
341065	6.5	65
341070	6.5	70
341075	6.5	75
341080	6.5	80
341085	6.5	85
341090	6.5	90
341095	6.5	95
341100	6.5	100
341105	6.5	105
341110	6.5	110
341115	6.5	115
341120	6.5	120
341125	6.5	125
341130	6.5	130
341135	6.5	135
341140	6.5	140

6.5mm Cancellous Screws, 32mm Thread



Ref #	Diameter (mm)	Length (mm)
342045	6.5	45
342050	6.5	50
342055	6.5	55
342060	6.5	60
342065	6.5	65
342070	6.5	70
342075	6.5	75
342080	6.5	80
342085	6.5	85
342090	6.5	90
342095	6.5	95
342100	6.5	100
342105	6.5	105
342110	6.5	110
342115	6.5	115
342120	6.5	120
342125	6.5	125
342130	6.5	130

Washers

Matta Pelvic Screw Washers



Ref #	Diameter (mm)	Thickness (mm)	Screws, ø
390016S*	13.0	1.5	4.5
390019S*	9.0	1	3.5

PRO system components

Utility plates

Matta Pelvic Curved Plates

MPS Curved Plates, R108



Ref #	Holes	Plate Length (mm)	Width (mm)	Thickness (mm)	Hole Spacing (mm)	Screws (ø)
425604	4	58.5	10.5	2.5	16	3.5 & 4.5
425605	5	74.5	10.5	2.5	16	3.5 & 4.5
425606	6	90.5	10.5	2.5	16	3.5 & 4.5
425607	7	106.5	10.5	2.5	16	3.5 & 4.5
425608	8	122.5	10.5	2.5	16	3.5 & 4.5
425609	9	138.5	10.5	2.5	16	3.5 & 4.5
425610	10	154.5	10.5	2.5	16	3.5 & 4.5
425611	11	170.5	10.5	2.5	16	3.5 & 4.5
425612	12	186.5	10.5	2.5	16	3.5 & 4.5
425613	13	202.5	10.5	2.5	16	3.5 & 4.5
425614	14	218.5	10.5	2.5	16	3.5 & 4.5
425615	15	234.5	10.5	2.5	16	3.5 & 4.5
425616	16	250.5	10.5	2.5	16	3.5 & 4.5
425618	18	282.5	10.5	2.5	16	3.5 & 4.5
425620	20	314.5	10.5	2.5	16	3.5 & 4.5

MPS Curved Plates, R88



Ref #	Holes	Plate Length (mm)	Width (mm)	Thickness (mm)	Hole Spacing (mm)	Screws (ø)
425653	3	42.5	10.5	2.5	16	3.5 & 4.5
425654	4	58.5	10.5	2.5	16	3.5 & 4.5
425655	5	74.5	10.5	2.5	16	3.5 & 4.5
425656	6	90.5	10.5	2.5	16	3.5 & 4.5
425657	7	106.5	10.5	2.5	16	3.5 & 4.5
425658	8	125.5	10.5	2.5	16	3.5 & 4.5
425659	9	138.5	10.5	2.5	16	3.5 & 4.5
425660	10	154.5	10.5	2.5	16	3.5 & 4.5
425661	11	170.5	10.5	2.5	16	3.5 & 4.5
425662	12	186.5	10.5	2.5	16	3.5 & 4.5
425663	13	202.5	10.5	2.5	16	3.5 & 4.5
425664	14	218.5	10.5	2.5	16	3.5 & 4.5
425665	15	234.5	10.5	2.5	16	3.5 & 4.5
425666	16	250.5	10.5	2.5	16	3.5 & 4.5
425668	18	282.5	10.5	2.5	16	3.5 & 4.5
425670	20	314.5	10.5	2.5	16	3.5 & 4.5

MPS Symphysis Pubis Plates, R75



Ref #	Holes	Plate Length (mm)	Width (mm)	Thickness (mm)	Hole Spacing (mm)	Screws (ø)
425794	4	60.5	10.5	3.2	16	3.5 & 4.5
425796	6	92.5	12.5	3.2	18	3.5 & 4.5


Note: All non-sterile plates (except REF 425653) may be ordered sterile by adding "S" at the end of the REF number.

PRO system components

Utility plates


Matta Pelvic Straight Plates

MPS Straight Plates



Ref #	Holes	Plate Length (mm)	Width (mm)	Thickness (mm)	Hole Spacing (mm)	Screws (ø)
425702	2	26.5	10.5	2.5	16	3.5 & 4.5
425703	3	42.5	10.5	2.5	16	3.5 & 4.5
425704	4	58.5	10.5	2.5	16	3.5 & 4.5
425705	5	74.5	10.5	2.5	16	3.5 & 4.5
425706	6	90.5	10.5	2.5	16	3.5 & 4.5
425707	7	106.5	10.5	2.5	16	3.5 & 4.5
425708	8	122.5	10.5	2.5	16	3.5 & 4.5
425709	9	138.5	10.5	2.5	16	3.5 & 4.5
425710	10	154.5	10.5	2.5	16	3.5 & 4.5
425711	11	170.5	10.5	2.5	16	3.5 & 4.5
425712	12	186.5	10.5	2.5	16	3.5 & 4.5
425713	13	202.5	10.5	2.5	16	3.5 & 4.5
425714	14	218.5	10.5	2.5	16	3.5 & 4.5
425715	15	234.5	10.5	2.5	16	3.5 & 4.5
425716	16	250.5	10.5	2.5	16	3.5 & 4.5
425718	18	282.5	10.5	2.5	16	3.5 & 4.5
425720	20	314.5	10.5	2.5	16	3.5 & 4.5

MPS Straight, Flex (Annealed**) Plates



Ref #	Holes	Plate Length (mm)	Width (mm)	Thickness (mm)	Hole Spacing (mm)	Screws (ø)
425753	3	34.5	10.5	2.5	12	3.5 & 4.5
425754	4	46.5	10.5	2.5	12	3.5 & 4.5
425755	5	58.5	10.5	2.5	12	3.5 & 4.5
425756	6	70.5	10.5	2.5	12	3.5 & 4.5
425757	7	82.5	10.5	2.5	12	3.5 & 4.5
425758	8	94.5	10.5	2.5	12	3.5 & 4.5
425759	9	106.5	10.5	2.5	12	3.5 & 4.5
425760	10	118.5	10.5	2.5	12	3.5 & 4.5
425761	11	130.5	10.5	2.5	12	3.5 & 4.5
425762	12	142.5	10.5	2.5	12	3.5 & 4.5
425763	13	154.5	10.5	2.5	12	3.5 & 4.5
425764	14	166.5	10.5	2.5	12	3.5 & 4.5
425765	15	178.5	10.5	2.5	12	3.5 & 4.5
425766	16	190.5	10.5	2.5	12	3.5 & 4.5
425767	17	202.5	10.5	2.5	12	3.5 & 4.5
425768	18	214.5	10.5	2.5	12	3.5 & 4.5
425770	20	238.5	10.5	2.5	12	3.5 & 4.5
425772	22	262.5	10.5	2.5	12	3.5 & 4.5

Note: All non-sterile plates (except REF 425753) may be ordered sterile by adding "S" at the end of the REF number.

PRO system components

Utility plates

Spring Plates

Spring Plate



Ref #	Holes	Width (mm)	Thickness (mm)	Hole Spacing (mm)	Length (mm)	Screws (Ø)
425985*	2	9	1.5	10	25	2.7 & 3.5
425986*	3	9	1.5	10	35	2.7 & 3.5

Note: * Item may be ordered sterile by adding "S" at the end of the REF number. Trial may be ordered by adding "T" at the end of the REF number.

PRO system components

Anatomic plates

Suprapectineal Plates

Suprapectineal Flex Plate



Ref #	Desc.	Holes	Brim Width (mm)	Delta Height (mm)	Thickness (mm)	Hole Spacing (mm)	Screws (Ø)
425941*	Right	12	10.5	40	2.5	12	3.5 & 4.5
425951*	Right	14	10.5	40	2.5	12	3.5 & 4.5
425942*	Left	12	10.5	40	2.5	12	3.5 & 4.5
425952*	Left	14	10.5	40	2.5	12	3.5 & 4.5

Suprapectineal Plate OLS



Ref #	Desc.	Holes	Brim Width (mm)	Delta Height (mm)	Thickness (mm)	Hole Spacing (mm)	Screws (Ø)
425911**	Right	16	11.5	40	2.5	12	3.5 & 4.5
425912**	Left	16	11.5	40	2.5	12	3.5 & 4.5

Infrapectineal Plates

Infrapectineal Plate



Ref #	Desc.	Holes	Brim Width (mm)	Delta Height (mm)	Thickness (mm)	Hole Spacing (mm)	Screws (Ø)
425921**	Large, OLS Right	16	11.5	60.2	2.5	12	3.5 & 4.5
425922**	Large, OLS Left	16	11.5	60.2	2.5	12	3.5 & 4.5
425931*	Small, OLS Right	14	11.5	50	2.5	12	3.5 & 4.5
425932*	Small, OLS Left	14	11.5	50	2.5	12	3.5 & 4.5

Pelvic Brim Plates

Pelvic Brim Plate



Ref #	Desc.	Holes	Brim Width (mm)	Thickness (mm)	Hole Spacing (mm)	Screws (Ø)
425961*	Right	12	10.5	2.5	12	3.5 & 4.5
425963*	Right	14	10.5	2.5	12	3.5 & 4.5
425962*	Left	12	10.5	2.5	12	3.5 & 4.5
425964*	Left	14	10.5	2.5	12	3.5 & 4.5

PRO system components

Anatomic plates

Anterior Column Plates

Anterior Column Plate



Ref #	Desc.	Holes	Brim Width (mm)	Thickness (mm)	Hole Spacing (mm)	Screws (Ø)
425971*	Right	14	10.5	2.5	12	3.5 & 4.5
425973*	Right	16	10.5	2.5	12	3.5 & 4.5
425972*	Left	14	10.5	2.5	12	3.5 & 4.5
425974*	Left	16	10.5	2.5	12	3.5 & 4.5

Anterior SI Plates

Anterior SI Plate



Ref #	Desc.	Holes	Brim Width (mm)	Thickness (mm)	Screws (Ø)
425981*	Right	5	10.5	2.5	3.5 & 4.5
425982*	Left	5	10.5	2.5	3.5 & 4.5

Posterior Rim Plates

Posterior Rim Plate, Narrow



Ref #	Holes	Brim Width (mm)	Thickness (mm)	Hole Spacing (mm)	Screws (Ø)
425900*	1	17	2.5	N/A	2.7 & 3.5
425901*	2	17	2.5	11	2.7 & 3.5

Posterior Rim Plate, Broad



Ref #	Holes	Brim Width (mm)	Thickness (mm)	Hole Spacing (mm)	Screws (Ø)
425905*	1	29	2.5	N/A	2.7 & 3.5
425906*	2	29	2.5	11	2.7 & 3.5

Note: * Item may be ordered sterile by adding "S" at the end of the REF number. Trial may be ordered by adding "T" at the end of the REF number.
Note: ** Item may be ordered sterile by adding "S" at the end of the REF number.

PRO system components

Bending Templates

MPS Bending Templates

Template

Ref #	Description
710311	Template, MPS Flex Plate, 5 Holes
710312	Template, MPS Flex Plate, 8 Holes
710313	Template, MPS Flex Plate, 18 Holes
710314	Template, MPS Straight Plate, 5 Holes
710315	Template, MPS Straight Plate, 8 Holes
710316	Template, MPS Straight Plate, 18 Holes
710317	Template, MPS Curved, R88 Plate, 5 Holes
710318	Template, MPS Curved R108 Plate, 8 Holes
710319	Template, MPS Curved R108 Plate, 18 Holes
710320	Template, MPS Curved, R108 Plate, 5 Holes
710321	Template, MPS Curved R88 Plate, 8 Holes
710322	Template, MPS Curved R88 Plate, 18 Holes
390000	Counter Nut for 4.5mm Cortical Screws
700550	Nut Holder for 4.5mm Cortical Screws




















PRO system components

Instruments

MPS Standard Instruments

Instruments

	Ref #	Description
	700351S*	Calibrated Drill Bit, 2.5 × 180mm, AO Fitting
	700355S*	Calibrated Drill Bit, 2.5 × 230mm, AO Fitting
	700356S*	Calibrated Drill Bit, 3.2 × 180mm, AO Fitting
	700357S*	Calibrated Drill Bit, 3.2 × 230mm, AO Fitting
	700353S*	Drill Bit, 3.5 × 180mm, AO Fitting
	700354S*	Drill Bit, 4.5 × 180mm, AO Fitting
	702804	Tap, 3.5 × 180mm, AO Fitting
	702806	Tap, 4.5 × 180mm, AO Fitting
	702807	Tap, 6.5 × 180mm, AO Fitting
	702811	Countersink for 3.5mm Screws, 6.0 × 100mm, AO Fitting
	702812	Countersink for 4.5/6.0mm Screws, 8.0 × 100mm, AO Fitting
	702842	Screwdriver Hex 2.5, L280mm, Elastosil
	702843	Screwdriver Hex 3.5, L300mm, Elastosil
	702845	Screwdriver Hex 3.5, L300mm, Canevasit
	702846	Screwdriver Hex 2.5, L280mm Canevasit
	702847	Straight Ball Spike, L300mm, Canevasit
	702848	Small Canevasit Handle, AO Fitting
	702849	Large Canevasit Handle, AO Fitting
	702851	Screwdriver Hex 2.5, L165mm, AO Fitting
	702853	Screwdriver Hex 3.5, L165mm, AO Fitting
	702861	Screwdriver Holding Sleeves for Screws 3.5mm
	702862	Screwdriver Holding Sleeves for Screws 4.5/6.5mm
	702417	Double Drill Guide, 3.2/4.5mm
	702418	Double Drill Guide, 2.5/3.5mm
	702876	Depth Gauge, 0 to 110mm, for 2.7, 3.5 and 4.5mm Screws
	702877	Depth Gauge, 0 to 150mm, for 4.5 and 6.5mm Screws
	702911	Straight Ball Spike, Elastosil
	702912	Straight Ball Spike, AO Fitting
	702923	Spiked Disk
	702427	T-Handle, Small, Elastosil, AO Coupling
	702428	Small Teardrop Handle, Elastosil, AO Coupling
	702429	Large Teardrop Handle, Elastosil, AO Coupling
	900106	Screw Forceps
















Note: * Remove "S" for nonsterile.

PRO system components

Instruments

MPS Standard Instruments

Instruments

	Ref #	Description
	702915	Small Sciatic Nerve Retractor
	702916	Large Sciatic Nerve Retractor
	390083	Reduction Pin, 5.0 × 150mm, AO Fitting
	390084	Reduction Pin, 5.0 × 180mm, AO Fitting
	702902	Bending Iron for Pelvis Plates
	702903	Bending Pliers
	702921	Repositioning Forceps, Matta-type, Small, 192mm
	702922	Repositioning Forceps, Matta-type, Large, 240mm
	702924	Repositioning Forceps for 4.5mm Screws, 310mm
	702925	Repositioning Forceps for 3.5mm, Right, 240mm
	702947	Repositioning Forceps for 3.5mm, Left, 240mm
	702926	Reduction Forceps, Small with Points, 130mm
	702927	Reduction Forceps, Large with Points, 205mm
	702928	Faraboeuf Forceps, 198mm
	702929	Faraboeuf Forceps, 250mm
	702930	Repositioning Forceps, 2 × 1 Jaw, 410mm
	702948	Repositioning Forceps, 1 × 1 Jaw, 410mm
	702932	Repositioning Forceps, with Serrated Jaw, 143mm
	700647	Curved Chisel, 14mm Blade
	700641	Verbrugge Forceps, Modified, 264mm
	390086	Reduction Pin, 6.0 × 150mm, AO Fitting
	390087	Reduction Pin, 6.0 × 180mm, AO Fitting
	700367	T-Handle, Large, AO Coupling

PRO system components

Instruments

PRO Pelvis Reduction Set

Instruments

Ref #	Description
705430	Standard jaw clamp, short (green)
705431	Standard jaw clamp, long (red)
705432	Offset jaw clamp, overbite (orange)
705433	Offset jaw clamp, underbite (blue)
705434	Large offset jaw clamp, curved (black)
705435	Large offset jaw clamp, straight (white)
705461	Jungbluth clamp for 3.5mm screws, wide
705462	Jungbluth clamp for 3.5mm screws, narrow
705456	Standard weber
705457	Contoured weber
705458	Narrow weber
705459	Asymmetric weber, right
705460	Asymmetric weber, left
705463	Farabeuf clamp for 3.5mm screws
705464	Angled farabeuf clamp for 3.5mm screws
705465	Spiked disk, large Ø28mm
705466	Spiked disk, oval 40 x 16mm
702923	Spiked disk
705485	Periosteal elevator, straight
705486	Periosteal elevator, reverse
705487	Periosteal elevator, standard
940493	Reduction Tray

PRO Pelvis Retractors

Instruments

Ref #	Description
 703950	Pelvis Retractor 1
 703951	Pelvis Retractor 2
 703952	Pelvis Retractor 3
 703953	Suction Retractor
 703954S	K-Wire Ø3.2 × 150mm
 703955	Suction Tip
 703955S	Suction Tip, Sterile
 702915	Small Sciatic Nerve Retractor
 702916	Large Sciatic Nerve Retractor
940075	Retractors Tray

PRO system components

Instruments

PRO Pelvis Basic Instruments

Instruments








	Ref #	Description
	703958	Angled Ball Spike, 15°
	703959	Angled Ball Spike, 30°
	703960	Spiked Screw Inserter for 3.5mm Screws
	703961	Spiked Disk for 3.5mm Spiked Inserter
	703962	Washer Pick-up Stand
	703963	Handle for Plate Insertion
	703964	Plate Screw Inserter
	703965	Drill Sleeve for 3.5mm Spiked Inserter
	703966	Scaled Drill, 2.5mm, L450mm, AO Fitting
	703967	Screwdriver Hex 2.5mm
	703968	Screwdriver Hex 2.5mm, AO Fitting
	703969	Plate Bending Holder
	703970	Plate Bender
	703971	Bending Stick
	703976	Angled Depth Gauge
	703972	Spiked Screw Inserter for 4.5mm Screws
	703973	Drill Sleeve for 4.5mm Spiked Inserter
	703974	Scaled Drill, 3.2mm, L450mm, AO Fitting
	703975	Screwdriver Hex 3.5mm, L342mm, AO Fitting
	700351	Calibrated Drill Bit, 2.5 × 180mm, AO Fitting
	700353	Drill Bit, 3.5 × 180mm, AO Fitting
	700354	Drill Bit, 4.5 × 180mm, AO Fitting
	700355	Calibrated Drill Bit, 2.5 × 230mm, AO Fitting
	700356	Calibrated Drill Bit, 3.2 × 180mm, AO Fitting
	700357	Calibrated Drill Bit, 3.2 × 230mm, AO Fitting
	702417	Double Drill Guide, 3.2/4.5mm
	702418	Double Drill Guide, 2.5/3.5mm
	702427	T-Handle, Small, Elastosil, AO Coupling
	702428	Small Teardrop Handle, Elastosil, AO Coupling
	702429	Large Teardrop Handle, Elastosil, AO Coupling
	702804	Tap, 3.5 × 180mm, AO Fitting
	702806	Tap, 4.5 × 180mm, AO Fitting
	702807	Tap, 6.5 × 180mm, AO Fitting
	702811	Countersink for Screws 3.5mm, 6.0 × 100mm, AO Fitting
	702812	Countersink for Screws 4.5/6.0mm
	702842	Screwdriver Hex 2.5, 280mm, Elastosil
	702843	Screwdriver Hex 3.5, 300mm, Elastosil
	702851	Screwdriver Hex 2.5, 165mm, AO Fitting
	702853	Screwdriver Hex 3.5, 165mm, AO Fitting
	702861	Screwdriver Holding Sleeve for Screws 3.5mm
	702862	Screwdriver Holding Sleeve for Screws 4.5/6.5mm

PRO system components

Instruments

PRO Pelvis Basic Instruments

Instruments

	Ref #	Description
	702876	Depth Gauge, 0 to 110mm, for 3.5 and 4.5mm Screws
	702877	Depth Gauge, 0 to 150mm, for 4.5 and 6.5mm Screws
	702902	Bending Iron
	702911	Straight Ball Spike, Elastasil
	702912	Straight Ball Spike, AO Fitting
	702923	Spiked Disk
	390083	Reduction Pin, 5.0 x 150mm, AO Fitting
	390084	Reduction Pin, 5.0 x 180mm, AO Fitting

Additional Instruments

Disposables

Ref #	Description
390191	K-wire Ø2.0 x 285mm
390192	K-wire Ø2.0 x 150mm

Optional Instruments

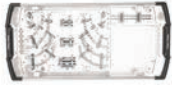
Ref #	Description
940496	Generic insert for reduction tray
940497	Silicone mat, generic insert
940499	Silicone mat, insert for weber clamps
940500	Silicone mat, insert for jaw clamps
390000	Counter Nut for 4.5mm Cortical Screws
700550	Nut Holder for 4.5mm Cortical Screws

PRO system components

Trays

Implant Trays

Pelvis Plate Tray



Ref #	Description
940750	Pelvis Plate Tray

Includes

940751	Pelvis Plates Tray Insert
940754	Tag for Pelvis Trial Tray



Pelvis Screw Rack



Ref #	Description
940756	Pelvis Screw Tray

Includes

940752	Pelvis Screw Rack
940755	Spare Part Screw Rack Lid 2.7mm Screws
940757	Spare Part Screw Rack Lid 3.5mm Screws
940758	Spare Part Screw Rack Lid 4.5mm Screws

MPS Instrument Trays

Implant Case, Basic Instruments



Ref #	Description
901618	Plastic Base
901687	Plastic Lid
901688	Upper Tray Insert
901689	Lower Tray Insert

PRO Instrument Trays

Basic Instruments Tray



Ref #	Description
940070	Basic Instruments Tray

Reduction Instruments Tray



Ref #	Description
940493	Reduction Tray

Retractors Tray



Ref #	Description
940075	Retractors Tray

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Content ID: PRO-ST-5, Rev. 3, 09-2025

Global ID: TR-GSNPS-SURGP-2337451

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