stryker®

Osteosynthesis

SPS

Basic Fragment Set

- Features and Benefits
- Indications
- Operative Technique
- Ordering Information

Rationale

The Basic Fragment Set is designed for the most common indications of traumatology and orthopaedics. The shape, material properties and the surface quality of the plates take into account the current demands from clinical physicians for high fatigue strength, optimised transfer of loading forces and a simple and standardised operative technique with broad applicability.

The implants are available in either Stainless Steel (316LVM) or Titanium Alloy (Ti-6Al-4V).

Implant Rationale

The Stryker Plating System (SPS) Basic Fragment Set consists of seven different plate designs. The plates are differentiated by their function.

The main functions are:

- Compression
- Neutralization
- Buttressing
- Bridging

Compression

The use of individual Lag Screws in transverse and short oblique fractures may provide limited compression only. Axial compression can therefore be increased by using a compression plate in the compression mode in accordance with the tension-band principle, whenever possible. In order to provide increased stability, an interfragmentary screw may be inserted through the plate.

Neutralisation

In situations where Lag Screws alone cannot provide sufficient stability, plates are used to increase stability and load sharing. When used, such neutralisation plates protect the interfragmental compression achieved by the Lag Screws, from torsion, bending and shearing forces.
This allows early mobilisation and certain limited weight bearing.
The type of plate and screws used depends on the fracture site, pattern and the bone quality.
A Lag Screw of either 4.5mm or 6.5mm can also be inserted through neutralisation plates.

Buttressing

Most specially designed plates are used in the metaphyseal area of bone and have the function as buttress plates. The screws must be inserted in such a position that under load there must be no shift in the position of the plate. The position is secured by placing the screws in the side of the plate hole closest to the fracture. During load application, any tendency for the plate to shift is reduced by the screws.

Bridging

In order to maintain length and alignment, a plate can be used to bridge a badly comminuted segment of bone. This type of fixation is naturally less stable and union will depend on bridging callus. Consideration may be given to subcutaneous plate application which may maintain all soft tissue attachments and the nutrification of the intervening comminuted fragments. Both plate ends have to be solidly fixed to their corresponding parts of the bone by sufficient screws. Infrequently, bridging osteosynthesis is carried out in combination with bone grafting. Tumour resections and bone elongations represent other situations where bridging plates are used. The compression plate of the Stryker Basic Fragment Set can be used as a bridging plate in a non compression mode.

Screws

All the SPS Screws have a hexagonal head with a spherical underside and conform fully to the requirements set by ASTM F138 & F139/ISO 5832-1 standards. All the cortical screws within the range are self-tapping. Three cutting flutes on the tip of each screw allows cleaner cutting and help to avoid “compacting” of the bone chips at the tip of the screw. Due to specially designed grooves, the screw offers an enhanced insertion torque. Furthermore, the bone splinters that may accumulate are pushed forward and kept out of the way of the thread thus preventing possible pressure necrosis. The range of different screw lengths has been increased and modified according to different anatomical regions. Depending on the individual plate thickness, the screw heads can be almost completely countersunk into the specifically designed plate holes. In addition to the cortical screws, cancellous screws may also be inserted.

Material Composition

ASTM F138 & F139/ISO 5832-1 and ASTM F136/ISO 5832-3 material standards provide rigid specifications which define the chemical composition, microstructural characteristics and mechanical properties of implant quality Stainless Steel and Titanium Alloy respectively. These standards ensure that Stainless Steel 316LVM and Titanium Alloy Ti-6Al-4V, even if provided by different suppliers, is consistent and compatible.
The material used for all SPS plates and screws meets these standards.

Introduction

Clinical Design Team

The System is designed with the kind collaboration of the following Surgeons:

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We would also like to thank various Operating Room Nurses and Sterilisation Staff for their help during the pre-market evaluation period.

This publication sets forth detailed recommended procedures for using Stryker Trauma 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. A workshop training is required prior to first surgery.

Introduction

Cases and Trays

The Basic Fragment Set consists of four individual bases containing plates, screws, general instruments, reduction clamps and forceps available in either plastic or metal*. The three plate racks, screw rack and tray inserts offer optimum modularity for storage and sterilisation. The vertical "pop-up" rack allows for easy access to all the instruments which are arranged in a logical order, whilst minimising "overhang" on the instrument table.

***reduction case only available in plastic**

Reduction Clamps and Forceps

The range of clamps and reduction forceps available within the system has been optimised for greater performance and ease of use. The clamps are designed to be versatile and easily inserted into small incisions without restricting vision. This offers greater manoeuvrability and the unconstrained use of additional instrumentation during the surgical procedure. The combination of ratchet and speedlock mechanisms extends the surgeon greater accuracy and confidence in reduction fixation.

Screws

The independent screw rack of the Basic Fragment Set offers a comprehensive range of 4.5mm cortical self-tapping and 6.5mm cancellous screws. All screws can easily be used through the plate or as independent interfragmentary Lag Screws. Three options of thread length on the 6.5mm cancellous screws presents the surgeon with greater intra-operative flexibility in screw fixation dependent on the size and quality of bone.

Features and Benefits

The system design is based on input from key clinicians, theatre and sterilisation staff, data from literature and both practical and biomechanical testing results of the system.

Features	Benefits
Stainless Steel or Titanium implant range	• Patient compatibility and surgeon preference
Multiple plate options	• Increased indication coverage all in one set
Rounded and tapered plate ends	• Reduced potential for soft-tissue irritation Easier placement of plate during sub-cutaneous insertion
4.5/6.5mm screw hole options	• Flexibility of cortical or cancellous screws
K-wire and reduction holes	• Enhanced primary/temporary plate and fracture fixation
Equal hole spacing on straight plates	• Greater operative flexibility for screw and plate placement
Low—screw head profile in plate hole	• Reduced potential for soft-tissue irritation
Staggered hole spacing on Broad Compression plate	• Reduced potential for longitudinal fissures during screw insertion
Uniform bending stiffness in Waisted Compression plate	• Equal bending force distribution for increased fatigue strength and contourability
Speciality Reconstruction plate optionally available	• Extended indications
Bi-directional holes	• Allows compression and/or distraction
Self-tapping screws	• Quick, simple and efficient
Sharp Hook, Ballspike, Periosteal and Freer Elevator	• Modified design for ease of use
Bending Irons	• Designed for easy plate contouring Closed design to capture plate during bending for security of use
Bending Templates	• Facilitates quicker anatomical contouring of the plate
Elastosil Handles	• Ergonomic feel and better grip Does not retain heat after sterilisation
Screwdriver Holding Sleeve	• Efficiency in screw pick-up and insertion/removal via a “No-touch” technique
Retractors/Clamps	• Specialist forceps and optimised clamp design
Modular Case design	• Maximum flexibility for sterilisation method in either outer base or in sterilisation container Lighter for transportation purposes

Indications

Implants of the SPS Basic Fragment Set are indicated for fractures in the following areas as shown below:

Contraindications

The physician's education, training and professional judgement must be relied upon to choose the most appropriate device and treatment. 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 can not provide adequate support and/or fixation of the devices.

Material sensitivity, documented or suspected.

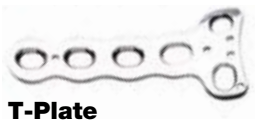
Obesity. An overweight or obese patient can produce loads on the implant that can lead to failure of the fixation of the device or to failure of the device itself.

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.

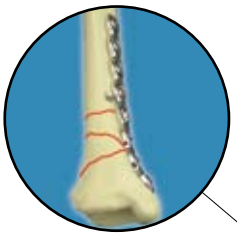


T-Plate

Fractures of the proximal humerus and tibial plateau (distal tibia).

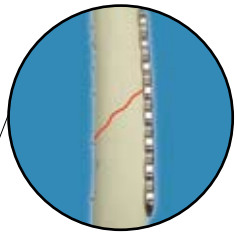
T-Butress Plate

Fractures of the tibial plateau.



Compression Plate Narrow

Fractures of the tibia (femur and humerus).



Compression Plate Broad

Fractures of the femur and humerus.

L-Buttress Plate

Fractures of the tibial plateau.

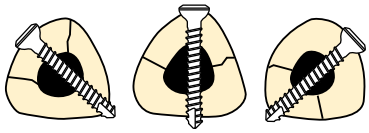
The SPS Basic Fragment Set implants may also be used in revision surgery of pseudoarthroses, non-union and mal-union. Osteotomies, arthrodeses and ligament reattachment may also be performed using these implants with the applicable operative technique.

Independent Interfragmentary Compression

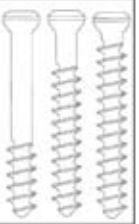
When the thread of a screw only takes purchase in the far cortex of the bone, this is known as a Lag Screw.
The screw thread takes no purchase in the near cortex of the bone either because the screw shaft has no thread or the drill hole in the near cortex is equal or greater than the outside diameter of the screw. The near cortex has to be overdrilled therefore to create a "gliding" hole. This will ensure that the screw thread will only take purchase in the area leading to the far cortex or "threaded" hole.

When such a screw is inserted and tightened, it causes the two fragments of bone to be compressed.

When a Lag Screw is inserted at right angles to the fracture line this provides a maximum of interfragmental compression but a minimum of axial stability. The loss of reduction and fixation will occur when the two fragments start to glide on each other under axial load. It is often preferred therefore, when using multiple screws to insert one at right angles to the axis of the bone and the others at right angles to the fracture line.



In this spiral fracture, which is fixed using multiple screws, the central screw is at 90° to the long axis of the bone and will ensure axial stability. The other screws are at right angles to the spiral fracture line and will ensure optimal compression.

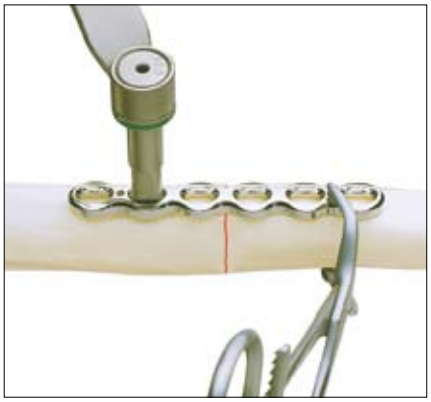
Thread Diameter	2.7	3.5	4.0	4.5	6.5
Screw Type	cortical self-tapping	cortical self-tapping	cancellous non-self-tapping	cortical self-tapping	cancellous non-self-tapping
Thread Length	full	full	partial/full	full	16/32/full
Drill Bit Gliding Hole	2.7	3.5	-/-	4.5	4.5/4.5/-
					
Drill Bit Threaded Hole	2.0	2.5	2.5	3.2	3.2
Tap	(2.7)	(3.5)	4.0	(4.5)	6.5

The chart above highlights the corresponding drill and screw diameters required to ensure interfragmentary Lag Screw compression.

Operative Technique

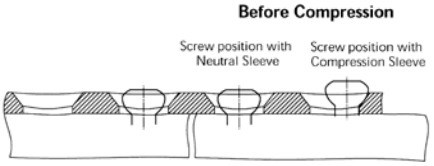
The Modular Drill Guide

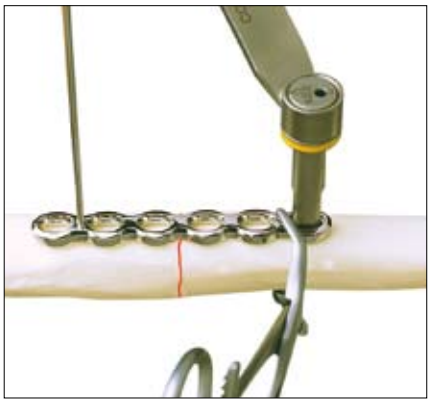
The Modular Drill Guide and Sleeves have been designed specially for use with Compression plates. There are three fixation techniques available for this implant: Neutralization, Compression and Buttress.



Neutral (Green)

Use of the Neutral Drill Sleeve ensures that the screw will be centrally located in the plate hole. This screw position offers a maximum fragment displacement in either direction of approximately 1.0mm.

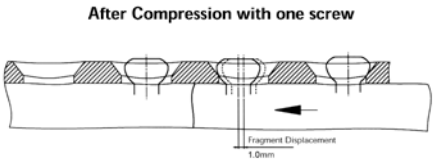


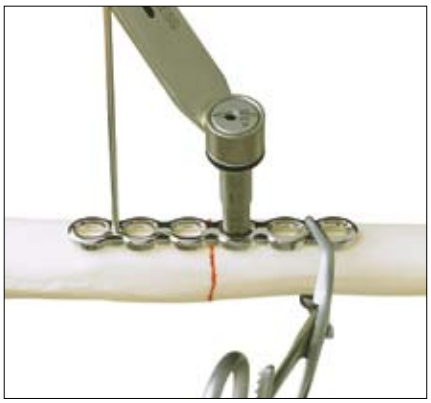


Compression (Yellow)

Use of the Compression Drill Sleeve ensures screw placement at the farthest end of the plate hole from the fracture site. As the screw is inserted the fragment moves along a compression path of up to a maximum of approxi-mately 1.0mm towards the fracture site.

Note:
The arrow on the Drill Sleeve must point towards the fracture line.



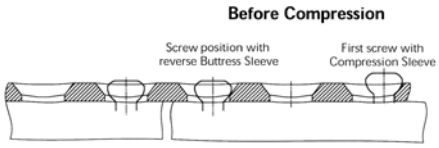


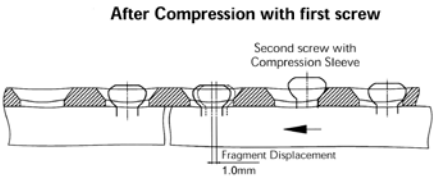
Buttress (Black)

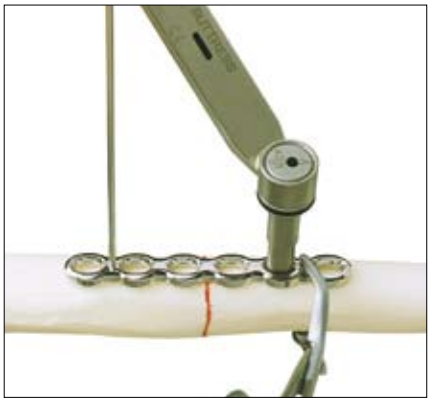
Use of a Buttress Drill Sleeve ensures a screw placement at the end of the hole nearest to the fracture line.

This screw position is designed to prevent any axial displacement of the fragment under load.

Note:
The arrow on the Drill Sleeve must point towards the fracture line.



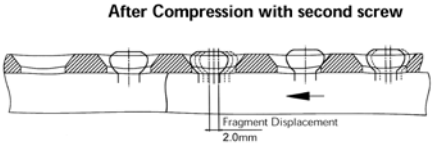




Reverse Buttress (Black)

Should a displacement of 1.0mm not be sufficient for a compression osteosyntheses, then placement of the neutral screw using the Buttress Drill Sleeve in a reverse mode is recommended. This technique allows for a maximum displacement of up to approximately 2.0mm on either side of the fracture line.

Note:
The arrow on the Drill Sleeve must point away from the fracture line.

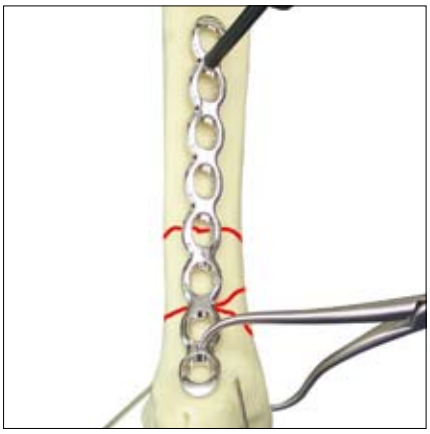


Operative Technique

Compression Plate Narrow

e.g.: Distal Tibia

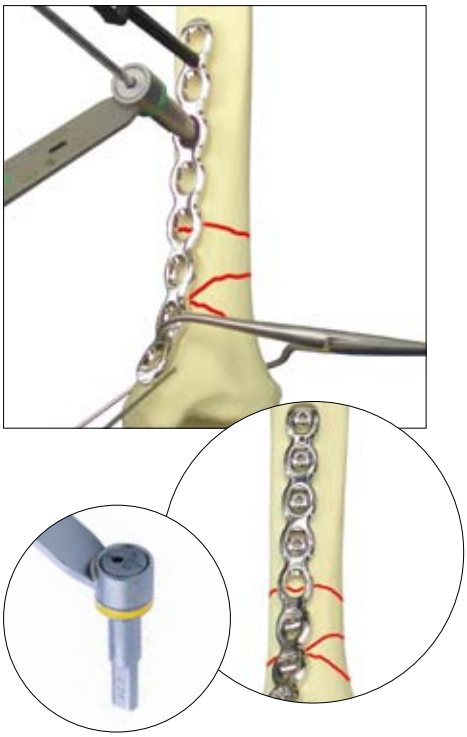
Clear identification and classification of the fracture should first be established using the appropriate imaging methods. The appropriate anatomical reduction should be carried out before any definitive fixation is undertaken.



Step One

For this segmented distal Tibial fracture the primary stabilisation of the fracture site could be carried out through the use of the Reduction Forceps or K-wires.

The dedicated K-wire and reduction holes offered in the plate allows the surgeon to "try on" the plate fit around the fracture site before initialising any screw holes into the bone.



Step Two

After contouring and affixing the plate with the K-wires, the first drill holes are made using the Neutral Drill Sleeve (702824).
Both cortices are drilled and the appropriate screw length measured using the Measuring Gauge (702878). To achieve optimal purchase of the screw in the far cortex, a screw length one size longer than originally measured is recommended. The desired screws can then be inserted using the Screwdriver (702844) and Holding Sleeve (702863) combination. These first two screws therefore, hold the plate in a neutral rotationally stable position. The K-wires can be removed as appropriate.

In this indication the implant should have a slight compression effect, therefore the next drill hole (which can be made in either of the main fragments) is made using the Compression Drill Sleeve (702823), ensuring that the arrow is pointing in the direction of the fracture line. Again both cortices are drilled and the appropriate screw length measured. Before insertion of this screw however, the previously inserted adjacent screw is loosened. The screw in the compression hole is inserted and the fracture compressed. The previously loosened screw is then retightened.

For increased compression repeat this procedure on the opposite main fragment.

Step Three

Additional screws are inserted in the neutral position until final fixation is complete. In order to achieve a longer displacement a further screw on each side of the fracture can be set in the compression mode. Please note that this may only be possible if the initial screws have been inserted using the Buttress Drill Sleeve (702839) in a reverse position.

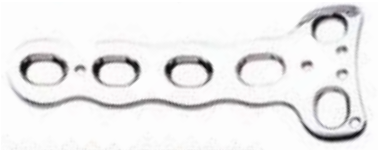
In this indication additional interfragmentary Lag Screw compression is achieved by inserting a 4.5mm cortical screw outside of the plate.

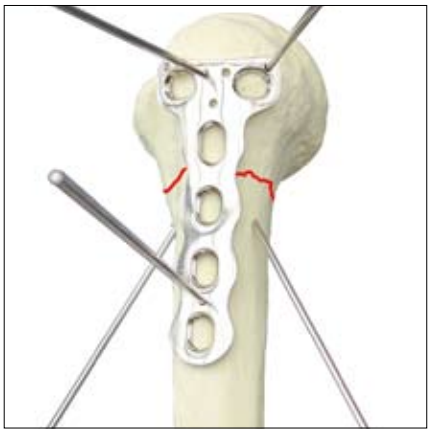
Operative Technique

T-Plate

e.g.: Proximal Humerus

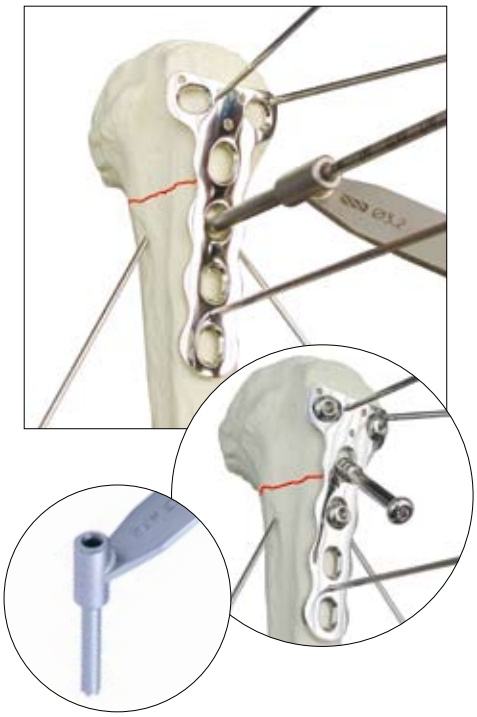
Clear identification and classification of the fracture should first be established using the appropriate imaging methods. The appropriate anatomical reduction should be carried out before any definitive fixation is undertaken.





Step One

For this proximal Humeral fracture the reduction and primary stabilisation of the fracture site could first be carried out through either the use of independent K-wires and Reduction Forceps or through the dedicated K-wire and reduction holes offered in the plate. This allows the surgeon to "try on" the plate fit around the fracture site before initialising any screw holes into the bone.



Step Two

After contouring and affixing the plate with the K-wires the first drill hole is made using the Double Drill Guide (702417) together with the 3.2mm Drill in the first hole distal to the fracture. To achieve optimal purchase of the screw in the far cortex, a screw length one size longer than originally measured is recommended. The screw can then be inserted using the Screwdriver (702844) and Holding Sleeve (702863) combination. This screw holds the plate in a neutral position.

For the fixation of the proximal fragment a minimum of two screws (4.5mm cortical or 6.5mm cancellous) should be inserted in the T part of the plate. The Double Drill Guide (702417) should be used to allow correct angulation of the screws. Depending on the orientation of the fracture a third screw can be inserted in the T part of the plate, as the proximal fragment is considered large enough to require additional fixation.

Step Three

Additional screws are added in the neutral, compression or buttress position until final fixation is complete.

Operative Technique

L-Buttress Plate

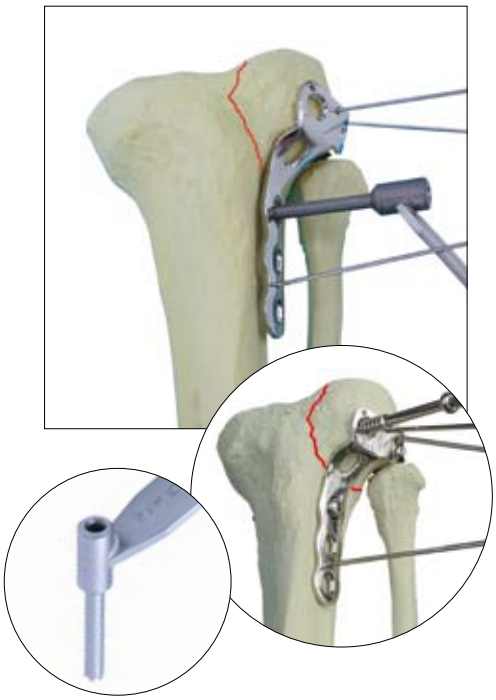
e.g.: Lateral Proximal Tibia

Clear identification and classification of the fracture should first be established using the appropriate imaging methods. The appropriate anatomical reduction should be carried out before any definitive fixation is undertaken.

Step One

In this fracture, as with any intraarticular fracture the precision of the primary reduction is critical to the outcome of the surgery.

In this instance the primary stabilisation of the fracture site could first be carried out through either the use of independent K-wires and Reduction Forceps or through the dedicated K-wire and reduction holes offered in the plate.



Step Two

After contouring and affixing the plate with the K-wires the first drill hole is placed in the first hole distal to the fracture line. Using the 3.2mm Double Drill Guide (702417) the hole is then drilled in neutral position. This allows for readjustment of the plate before the final fixation. Further fixation of the fragments
is now performed through the L portion of the plate. The Double Drill Guide (702417) should be used to allow correct angulation of the screws.

Multiple 6.5mm Lag Screws are inserted for interfragmentary compression fixation of the lateral fragment. K-wires are manipulated as necessary. Alternatively 6.5mm Asnis III cannulated screws can be used in the L part of the plate. As in this instance the plate should have a buttressing effect, a minimum of one hole of the remaining holes in the shaft section of the plate is drilled using the buttress technique. In order to achieve the buttressing effect the Double Drill Guide (702417) must be positioned at the nearest end of the hole to the fracture line.

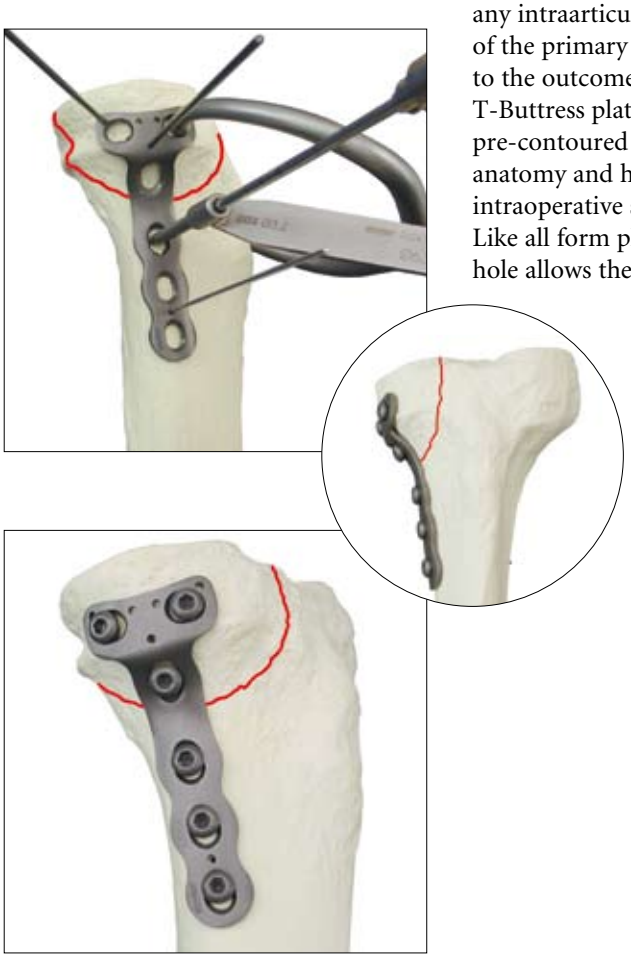
Step Three

Additional screws are added in neutral or buttress positions until adequate fixation is complete.

Operative Technique

T-Buttress Plate

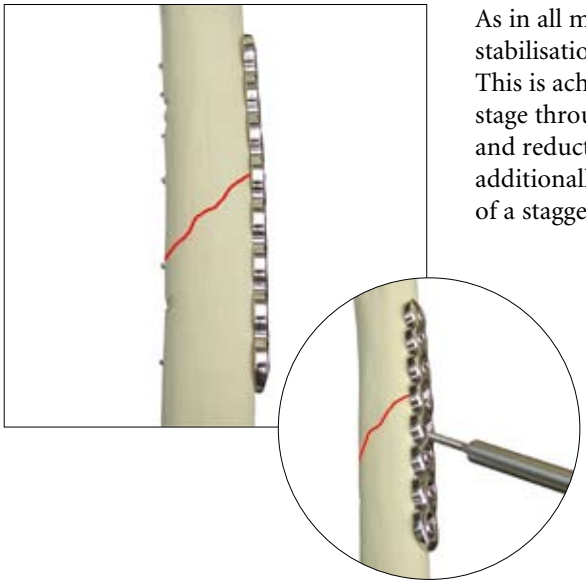
e.g.: Medial Proximal Tibia



In this tibial plateau fracture, as with any intraarticular fracture the precision of the primary reduction is critical to the outcome of the surgery. The T-Buttress plate has been pre-contoured to better fit the anatomy and help reduce intraoperative surgical time. Like all form plates, the oblong hole allows the plate to be re-adjusted before final tightening. After initial fixation of the plate with a neutral screw in the first hole distal to the fracture, interfragmentary compression fixation of the proximal fragment can be achieved by inserting a minimum of two 6.5mm Lag Screws through the T section. Alternatively 6.5mm Asnis III cannulated screws can be used. All remaining shaft screws should have a buttressing effect.

Compression Plate Broad

e.g.: Mid-Shaft Femur



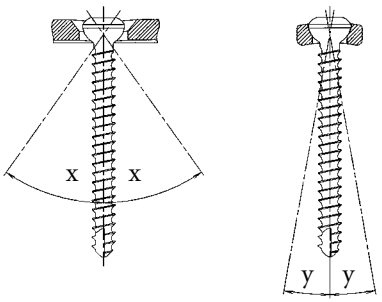
As in all mid-shaft fractures, primary stabilisation is of great importance. This is achieved in a preliminary stage through the use of K-wires and reduction forceps. This plate additionally offers the advantages of a staggered hole pattern which reduces the potential for longitudinal fissures in the bone during screw insertion as well as the opportunity to achieve interfragmentary screw compression through the plate (as shown).

Technical Details

It is well known that any plate osteosynthesis may lead to local necrosis in the area of the bony supporting surface. This has been addressed by the design of the plate contour. The unique contour is designed to reduce the occurrence of two undesirable traits: extensive support over a large surface area and point contact with extreme compression of the surface.

The outside contours of the plates are fully rounded in order to protect the surrounding tissue from injury during insertion or from irritation due to relative movements after implantation. The ends of the plates are drawn into an oval shape in order to make them easier to push under soft tissue and surrounding muscle. This makes it possible for the plates to be used for the subcutaneous technique with small incisions.

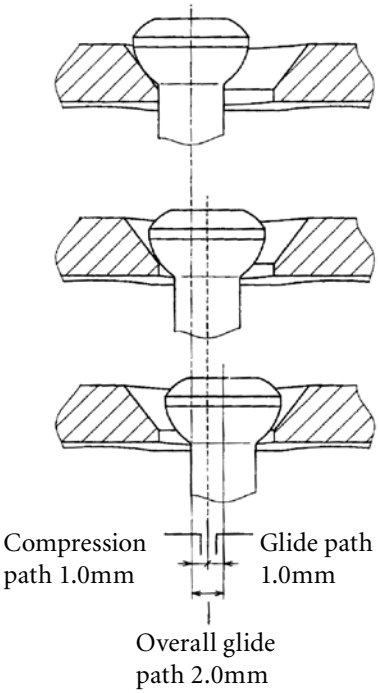
The holes in the plates are designed such that fixation can be performed either with self-compression, or with neutral fixation and buttressing. The arrangement, size and shape of the holes are symmetrical so that the plate position can be freely selected for the fracture.



Cortical screws can be inserted into all holes and can be angled axially and laterally as indicated in the table below. The heads of the screws can be almost completely countersunk into the holes in compression plates.

Although cortical screws are self-tapping, it is advisable to pre-tap hard (dense) cortical bone before screw insertion.

In addition to cortical screws, cancellous screws can also be inserted with sufficient angulation into all of the holes. The availability of different Drill Guides allows a compression, distraction, neutralisation or buttress effect created by specific screw placement in the plate hole.



When using a SPS Compression plate, 2.0mm of compression can be achieved by placing one cortical screw in each of the distal and proximal fragments in the compression position.
For special situations, this path can be doubled by placing an additional screw on each side of the fragment in the compression position. In this case, all screws on the compression side must be momentarily loosened, and may only be tightened again after final compression has been achieved.

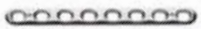
Screw Angulation with 4.5mm Cortical Screws		
Plate	**Axial (x)**	**Lateral (y)**
Compression	30°	13°
Reconstruction	30°	10°
Formed plates (T and L part)	20°	35°

Ordering Information — Plates

Waisted Compression Plate Narrow

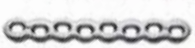
Stainless Steel REF	Plate Length mm	Holes	Titanium REF
432002	38	2	620202
432003	56	3	620203
432004	**74**	**4** *	**620204**
432005	**92**	**5** *	**620205**
432006	**110**	**6** *	**620206**
432007	**128**	**7** *	**620207**
432008	**146**	**8** *	**620208**
432009	**164**	**9** *	**620209**
432010	**182**	**10** *	**620210**
432011	200	11	620211
432012	**218**	**12** *	**620212**
432013	236	13	620213
432014	**254**	**14** *	**620214**
432015	272	15	620215
432016	290	16	620216
432018	326	18	620218
432020	362	20	620220
432022	398	22	620222

Standard Compression Plate Narrow



Stainless Steel REF	Plate Length mm	Holes	Titanium REF
432052	38	2	N/A
432053	56	3	N/A
432054	74	4	N/A
432055	92	5	N/A
432056	110	6	N/A
432057	128	7	N/A
432058	146	8	N/A
432059	164	9	N/A
432060	182	10	N/A
432061	200	11	N/A
432062	218	12	N/A
432063	236	13	N/A
432064	254	14	N/A
432065	272	15	N/A
432066	290	16	N/A
432068	326	18	N/A

Waisted Compression Plate Broad



Stainless Steel REF	Plate Length mm	Holes	Titanium REF
432106	**112**	**6** *	**620306**
432107	**130**	**7** *	**620307**
432108	**148**	**8** *	**620308**
432109	166	9	620309
432110	**184**	**10** *	**620310**
432111	202	11	620311
432112	**220**	**12** *	**620312**
432113	238	13	620313
432114	**256**	**14** *	**620314**
432115	274	15	620315
432116	292	16	620316
432117	310	17	620317
432118	328	18	620318
432120	364	20	620320
432122	400	22	620322
432124	436	24	620324
432126	472	26	620326

K-Wires Trocar Tip — (PKG 10)

Stainless Steel REF	Diameter mm	Length mm	Titanium REF
390142	1.0	150	690015
390157	1.25	150	690020
390162	1.4	150	N/A
390164	**1.6** *	**150**	**690030**
390192	**2.0** *	**150**	**690035**

Note: For sterile K-wires add "S" to REF (single packed)

Standard Compression Plate Broad

Stainless Steel REF	Plate Length mm	Holes	Titanium REF
432156	112	6	N/A
432157	130	7	N/A
432158	148	8	N/A
432159	166	9	N/A
432160	184	10	N/A
432161	202	11	N/A
432162	220	12	N/A
432163	238	13	N/A
432164	256	14	N/A
432165	274	15	N/A
432166	292	16	N/A
432167	310	17	N/A
432168	328	18	N/A
432170	364	20	N/A
432172	400	22	N/A

T-Plate

Stainless Steel REF	Plate Length mm	Shaft Holes	Titanium REF
433103	63	3	620413
433104	**79**	**4** *	**620414**
433105	**95**	**5** *	**620415**
433106	**111**	**6** *	**620416**
433108	143	8	620418

T-Buttress Plate

Stainless Steel REF	Plate Length mm	Shaft Holes	Titanium REF
433154	**81**	**4** *	**620454**
433155	97	5	620455
433156	**113**	**6** *	**620456**
433158	145	8	620458

L-Buttress Plate

Stainless Steel REF		Plate Length mm	Shaft Holes	Titanium REF	
Left	Right			Left	Right
433004	**433054**	**83**	**4** *	**620704**	**620754**
433005	433055	99	5	620705	620755
433006	**433056**	**115**	**6** *	**620706**	**620756**
433008	433058	147	8	620708	620758

Left angled for right leg / **Right** angled for left leg

4.5mm Reconstruction Plate

Stainless Steel REF	Plate Length mm	Shaft Holes	Titanium REF
432203	46	3	N/A
432204	62	4	N/A
432205	78	5	N/A
432206	94	6	N/A
432207	110	7	N/A
432208	126	8	N/A
432209	142	9	N/A
432210	158	10	N/A
432211	174	11	N/A
432212	190	12	N/A
432213	206	13	N/A
432214	222	14	N/A
432215	238	15	N/A
432216	254	16	N/A

Reduction Pin

Stainless Steel REF	Diameter mm	Length mm	Titanium REF
390082	**4.5** *	**150**	**N/A**
390084	5.0	180	N/A
390087	6.0	180	N/A

*** Recommended set item**

Ordering Information — Screws

4.5mm Cortical Screw, Self Tapping

Stainless Steel REF	Plate Length mm	Titanium REF
340614	**14 ***	**601014**
340616	**16 ***	**601016**
340618	**18 ***	**601018**
340620	**20 ***	**601020**
340622	**22 ***	**601022**
340624	**24 ***	**601024**
340626	**26 ***	**601026**
340628	**28 ***	**601028**
340630	**30 ***	**601030**
340632	**32 ***	**601032**
340634	**34 ***	**601034**
340636	**36 ***	**601036**
340638	**38 ***	**601038**
340640	**40 ***	**601040**
340642	**42 ***	**601042**
340644	**44 ***	**601044**
340646	**46 ***	**601046**
340648	**48 ***	**601048**
340650	**50 ***	**601050**
340652	**52 ***	**601052**
340654	**54 ***	**601054**
340655	55	601055
340656	**56 ***	**601056**
340658	**58 ***	**601058**
340660	**60 ***	**601060**
340662	**62 ***	**601062**
340664	**64 ***	**601064**
340665	65	601065
340666	**66 ***	**601066**
340668	**68 ***	**601068**
340670	**70 ***	**601070**
340672	72	601072
340675	75	601075
340676	76	601076
340680	80	601080
340685	85	601085
340690	90	601090
340695	95	601095
340700	100	601100
340705	105	601105
340710	110	601110
340715	115	601115
340720	120	601120
340725	125	601125
340730	130	601130
340735	135	601135
340740	140	601140
340745	145	601145
340750	150	601150

6.5mm Cancellous Screw, 16mm Thread

Stainless Steel REF	Screw Length mm	Titanium REF
341030	**30 ***	**602030**
341035	**35 ***	**602035**
341040	**40 ***	**602040**
341045	**45 ***	**602045**
341050	**50 ***	**602050**
341055	**55 ***	**602055**
341060	**60 ***	**602060**
341065	**65 ***	**602065**
341070	**70 ***	**602070**
341075	**75 ***	**602075**
341080	**80 ***	**602080**
341085	**85 ***	**602085**
341090	**90 ***	**602090**
341095	**95 ***	**602095**
341100	**100 ***	**602100**
341105	**105 ***	**602105**
341110	**110 ***	**602110**
341115	115	602115
341120	120	602120
341125	125	602125
341130	130	602130
341135	135	602135
341140	140	602140
341145	145	602145
341150	150	602150

6.5mm Cancellous Screw, 32mm Thread

Stainless Steel REF	Screw Length mm	Titanium REF
342045	**45 ***	**602245**
342050	**50 ***	**602250**
342055	**55 ***	**602255**
342060	**60 ***	**602260**
342065	**65 ***	**602265**
342070	**70 ***	**602270**
342075	**75 ***	**602275**
342080	**80 ***	**602280**
342085	**85 ***	**602285**
342090	**90 ***	**602290**
342095	**95 ***	**602295**
342100	**100 ***	**602300**
342105	**105 ***	**602305**
342110	**110 ***	**602310**
342115	115	602315
342120	120	602320
342125	125	602325
342130	130	602330
342135	135	602335
342140	140	602340
342145	145	602345
342150	150	602350

6.5mm Cancellous Screw, Full Thread

Stainless Steel REF	Screw Length mm	Titanium REF
343020	**20 ***	**602420**
343025	**25 ***	**602425**
343030	**30 ***	**602430**
343035	**35 ***	**602435**
343040	**40 ***	**602440**
343045	**45 ***	**602445**
343050	**50 ***	**602450**
343055	**55 ***	**602455**
343060	**60 ***	**602460**
343065	**65 ***	**602465**
343070	**70 ***	**602470**
343075	**75 ***	**602475**
343080	**80 ***	**602480**
343085	85	602485
343090	90	602490
343095	95	602495
343100	100	602500
343105	105	602505
343110	110	602510
343115	115	602515
343120	120	602520
343125	125	602525
343130	130	602530
343135	135	602535
343140	140	602540
343145	145	602545
343150	150	602550

Washer

Stainless Steel REF	Diameter mm	Thickness mm	Titanium REF
390016	**13.0 ***	**1.5**	**619904**

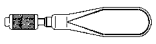
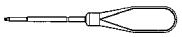
Nut

Stainless Steel REF	Diameter mm	Thickness mm	Titanium REF
390000	10.0	5.0	N/A
N/A	10.0	4.5	619900

For full range of standard non-self tapping screws and sterile implants, please refer to the Stryker Osteosynthesis Product Catalogue.

*** Recommended set item**

Ordering Information — Instruments

	Reference	Description
	700358 *	Drill Bit ø3.2mm x 145mm, AO Fitting
	700359 *	Drill Bit ø4.5mm x 145mm, AO Fitting
	702808 *	Tap ø4.5mm x 145mm, AO Fitting
	702809 *	Tap ø6.5mm x 145mm, AO Fitting
	702812 *	Countersink ø8mm x 100mm, AO Fitting
	702430 *	Elastosil T-Handle Medium, AO Quick Coupling
	702429 *	Elastosil Teardrop Handle Large, AO Quick Coupling
	702417 *	Double Drill Guide for Screws ø3.2/4.4mm
	702820 *	Double Drill Guide for Screws ø3.2/6.5mm
	702822 *	Drill Sleeve Handle
	702823 *	Drill Sleeve ø3.2mm, Compression, Yellow
	702824 *	Drill Sleeve ø3.2mm, Neutral, Green
	702839 *	Drill Sleeve ø3.2mm, Buttress, Black
	702844 *	Screwdriver Hex. ø3.5mm x 245mm, AO Fitting
	702912 *	Straight Ball Spike, AO Fitting
	702923 *	Spiked Disk
	702863 *	Screwdriver Holding Sleeve (Short) for Screws ø4.5/6.5mm
	702854 *	Screwdriver Hex. ø3.5mm x 140mm, AO Fitting
	702855 *	Screwdriver Hex. ø3.5mm x 140mm, Spherical Head, AO Fitting
	702878 *	Depth Gauge 0-110mm for Screws ø4.5/6.5mm
	700151 *	Hook
	900106 *	Screw Forceps
	700668 *	Periosteal Elevator and Freer Elevator
	700669 *	Periosteal Elevator and Ball Spike
	702904 *	Bending Iron for Compression, Recon and Speciality Plates

Reference	Description
Optional Items	
700354	Drill Bit ø4.5mm x 180mm, AO Fitting
700356	Drill Bit ø3.2mm x 180mm, AO Fitting
702806	Tap ø4.5mm x 180mm, AO Fitting
702807	Tap ø6.5mm x 180mm, AO Fitting
702817	Swanson Reamer ø8mm x 100mm, AO Fitting
702367	T-Handle Large, AO Quick Coupling
702428	Elastosil Teardrop Handle Small, AO Quick Coupling
702843	Screwdriver Hex. ø3.5mm x 300mm
702911	Straight Ball Spike
702862	Screwdriver Holding Sleeve (Long) for Screws ø4.5/6.5mm
702853	Screwdriver Hex. ø3.5mm x 165mm, AO Fitting
702856	Screwdriver Hex. ø3.5mm x 165mm, Spherical Head, AO Fitting
702877	Depth Gauge 0-150mm for Screws ø4.5/6.5mm, Titanium
710334	Template Compression plate Narrow, 6 H
710335	Template Compression plate Narrow, 10 H
710336	Template Compression plate Narrow, 18 H
710340	Template Compression plate Broad, 6 H
710341	Template Compression plate Broad, 10 H
710342	Template Compression plate Broad, 18 H
710343	Template Recon plate, 6 H
710344	Template Recon plate, 10 H
710345	Template Recon plate, 18 H
700550	Flat Spanner with Nut Holder
702928	Faraboeuf Forceps L190mm
702929	Faraboeuf Forceps L250mm
702927	Reduction Forceps with Points
702937	Self-Centering Bone Forceps, Ballspike, Size 1
702939	Self-Centering Bone Forceps, Ballspike, Size 3
702940	Reduction Forceps with Serrated Jaws L240mm
702941	Reduction Forceps with Serrated Jaws L170mm
702945	Self Centering Bone Forceps, Swivel Head, Size 1
702946	Self Centering Bone Forceps, Swivel Head, Size 3
702900	Table Plate Bender with Sleeves
702900-21	Slotted Bending Sleeve, (single packed)
702900-22	Standard Bending Sleeve, (single packed)
702900-23	Universal Bending Sleeve, (single packed)
700664	Hohmann Retractor 6mm
700651	Hohmann Retractor 8mm
700652	Hohmann Retractor 18mm
700657	Hohmann Retractor 22mm
700653	Hohmann Retractor 43mm
702936	Mantis Tongs Forceps

*** Recommended set item**

Ordering Information — Cases and Trays

	REF	Description
	901557 *	**Plastic Base (Implant Case Plates)**
	901557 *	**Plastic Base (Implant Case Screws)**
	901557 *	**Plastic Base (Instrument Case)**
	901591	Metal Base Optional (Implant Case Plates)
	901591	Metal Base Optional (Implant Case Screws)
	901591	Metal Base Optional (Instrument Case)
	**901667 ***	**Plastic Lid, Instrument Case**
	**901668 ***	**Tray insert, Instrument Case**
	**901653 ***	**Plastic Lid, Implant Case plates**
	**901670**	Plastic Lid, Reduction Instruments
	**901690**	Plastic Base, Reduction Instruments
	902989	Reduction Instruments, Metal Tray

	REF	Description
	**901654 ***	**Tray Insert, Implant Case plates**
	**901663 ***	**Plastic Lid, Implant Case screws**
	**901664 ***	**Screw Rack with lid**
	**901655 ***	**Plate Rack with lid for Compression plates**
	**901656 ***	**Plate Rack with lid for Form plates**
	**901657 ***	**Generic Plate Rack with lid**

Optional Items

	**902011**	**Metal Tray, Instruments**
	**902012**	**Metal Lid, Instruments**
	**902013**	**Metal Generic Rack**

*** Recommended set item**

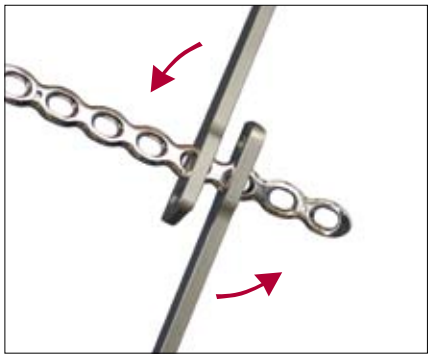
Additional Information

Plate Bending

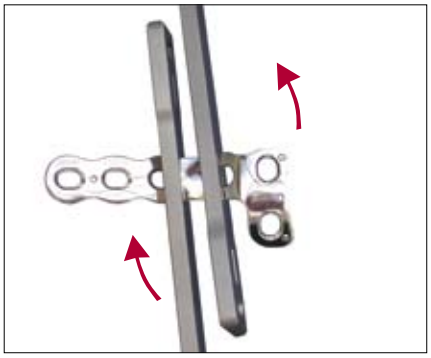
There are three types of plate curvatures that are often used to best match the anatomy of different bones within the body.
• A bend along the main plate axis as shown in pictures 1 and 2.
• Twisted along the main plate axis as shown is pictures 3 and 4.
• A bend 'on the flat' to adapt to the long axis of the bone, as shown in pictures 5 and 6.

Picture 1

Picture 2

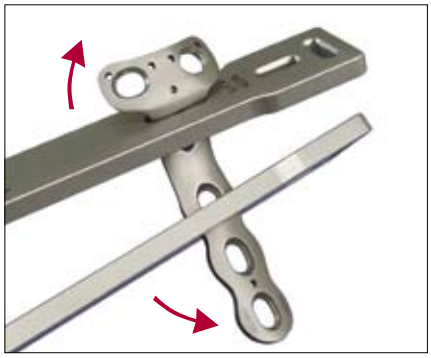


Picture 3



Picture 4

Picture 5



Picture 6

Picture 7

Picture 8

Picture 9

The bending irons (702904) included in the SPS Basic Fragment Set have custom sized slots to accommodate the bending and twisting of various plates within the set.

Manipulation of the implants is achieved by inserting the relevant plates into the appropriate slot and then using the irons to form the plate to the required anatomical fit as shown in pictures 3, 4 and 6 above.

The Table Plate Bender (702900) as shown in picture 9 can also be used to facilitate more precise bending using the contoured bending sleeves (pictures 1, 2, 5, 7 and 8). Use of this Bender allows a more even force distribution across the plate.

T and L parts of form plates can be contoured using the slots in the centre sleeve (concave slot to straighten — picture 7, convex slot to bend-picture 8). Special plastic sleeves are optionally available for use with Titanium implants to help reduce surface notching to the plates.

Additional Information

Other Stryker Plating Systems

Matta Pelvic System

Designed by Joel M. Matta, M.D. the Matta Pelvic System, with four modular trays, features the latest innovations in Pelvic implants and instrumentation.

The implants include a new, specially designed MPS Symphysis plate with an increased plate width through the midsection — this unique plate offers Clinicians new options when treating Symphysis Pubis Disruptions.

The implants also include differentiated curved radius 88mm or 108mm plates designed to respect both the Female and Male anatomies as well as a more malleable MPS Flex plate which allows easier three dimensional contouring.

All the plates are fully compatible with a wide range of 3.5mm and 4.5mm cortical screws. In addition, the 6.5mm screws included, make the Implant Set the most comprehensive on the market.

The Instrument and Reduction Forceps have been simplified to better assist the Clinician in what is an already complicated procedure. The Instruments can be easily handled and manoeuvred around the anatomy without any visual restriction. Additional Reduction Forceps like the 3.5mm Jungbluth are unique and epitomise the innovation and practicality of this System.

Featuring:

3.5mm cortical screws — self tapping
4.5mm cortical screws — self tapping
6.5mm cancellous screws — 16mm thread
6.5mm cancellous screws — 32mm thread
MPS Symphysis plate
MPS Flex plate (annealed)
MPS Straight plate
MPS Curved R108 plate
MPS Curved R88 plate
Modular Case design
Drill, Taps, Countersink — AO couplings
2 Depth Gauges — (for 3.5mm and 4.5/6.5mm Screws)
Fixed Angle Drill Guides
Elastosil Handles on all fixed handle instruments
Reduction Pins
Spiked Disks and Ball Spike Pushers
Screw Holding Sleeves
Bending Irons and Templates
Bending Plier
Unique Repositioning Forceps
Sciatic Nerve Retractors

Small Fragment Set

This system offers Clinicians multiple options for the most common treatments of small bone fractures.

A wide selection of plates, each featuring K-wire holes — for improved primary stabilisation; rounded plate ends — to facilitate the option of subcutaneous plate insertion; uniform hole spacing with bi-directional holes offering increased screw angulation; as well as the unique outer plate contouring are all features of the implant set.

A comprehensive screw range is enhanced not only by a new self-cutting design but by the inclusion of a small range of 2.7mm screws for independent interfragmentary screw fixation obviating the need for an additional screw set.

A full range of instrumentation is complimented by the unique range of reduction clamps and forceps. These non-standardised instruments offer the Clinician new possibilities in their approach to small bone fracture reduction and fixation.

Featuring:

Modular Case design
2.7mm cortical screws — self tapping
3.5mm cortical screws — self tapping
4.0mm cancellous screws — Partial thread
4.0mm cancellous screws — Full thread
Drill, Taps, Countersink — AO couplings
3 diameters of K-wires
Modular and Fixed Angle Drill Guides
Compression plate
Reconstruction plate
1/3rd Tubular plate
Cloverleaf plate
T-plate
Oblique T-plate
Calcaneal plate
Elastosil Handles
Combined Hook and Ball Spike
Combined Periosteal and Freer Elevator
Hohmann Retractors
Bending Irons and Templates
Optional Bending Plier
Forceps

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Literature Number: **982183**
LOT **E4708**