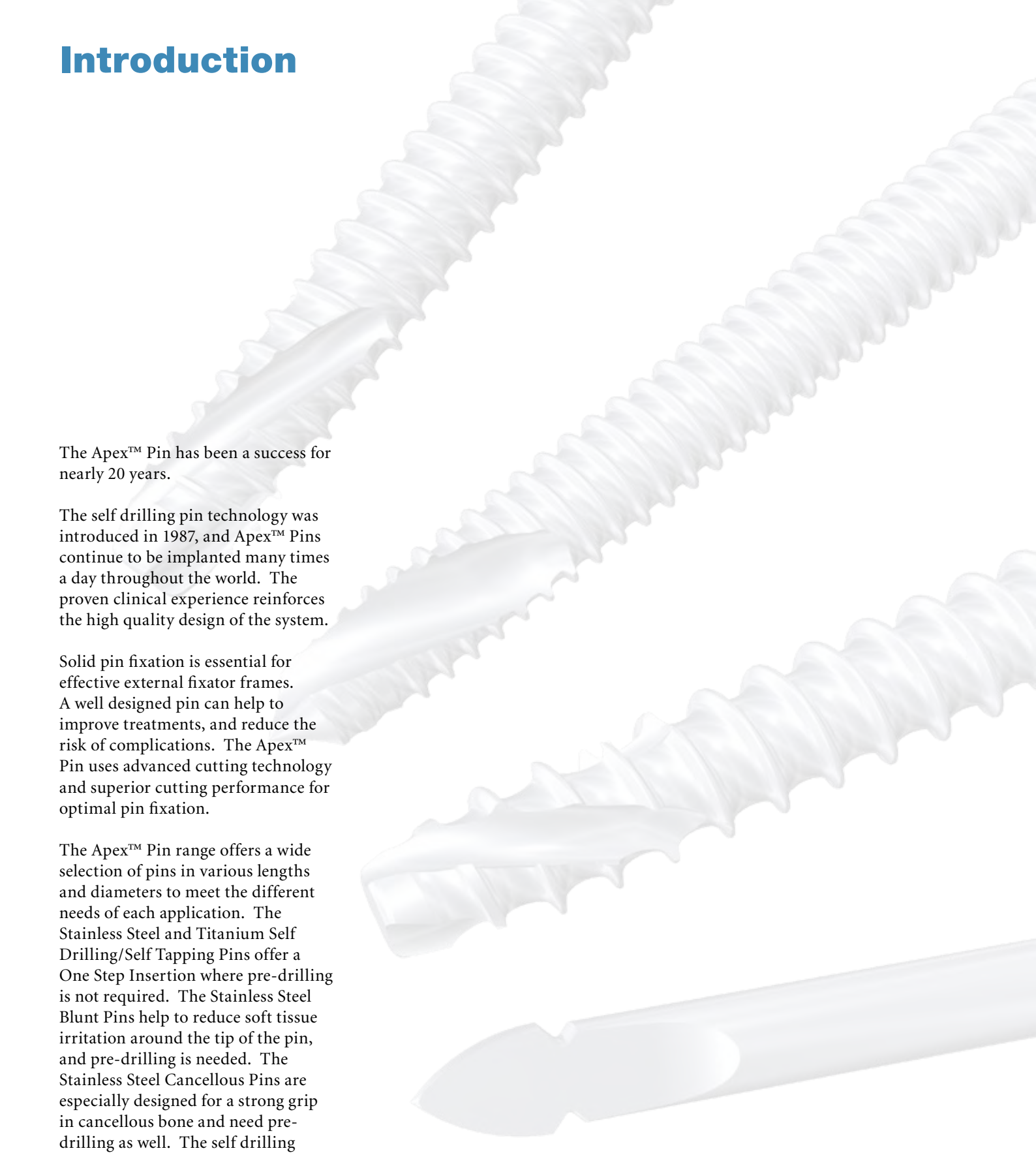
stryker®

Osteosynthesis

Apex™ Pin Fixation System

Half Pins, Transfixing Pins
& Instruments

Introduction



The Apex™ Pin has been a success for nearly 20 years.

The self drilling pin technology was introduced in 1987, and Apex™ Pins continue to be implanted many times a day throughout the world. The proven clinical experience reinforces the high quality design of the system.

Solid pin fixation is essential for effective external fixator frames. A well designed pin can help to improve treatments, and reduce the risk of complications. The Apex™ Pin uses advanced cutting technology and superior cutting performance for optimal pin fixation.

The Apex™ Pin range offers a wide selection of pins in various lengths and diameters to meet the different needs of each application. The Stainless Steel and Titanium Self Drilling/Self Tapping Pins offer a One Step Insertion where pre-drilling is not required. The Stainless Steel Blunt Pins help to reduce soft tissue irritation around the tip of the pin, and pre-drilling is needed. The Stainless Steel Cancellous Pins are especially designed for a strong grip in cancellous bone and need pre-drilling as well. The self drilling Stainless Steel Transfixing Pins are available threaded and smooth and are indicated for bi-lateral frame constructs.

Choose the optimal pin for your treatment.

Technical Details

Self Drilling/Self Tapping Apex™ Pin

Pin Design

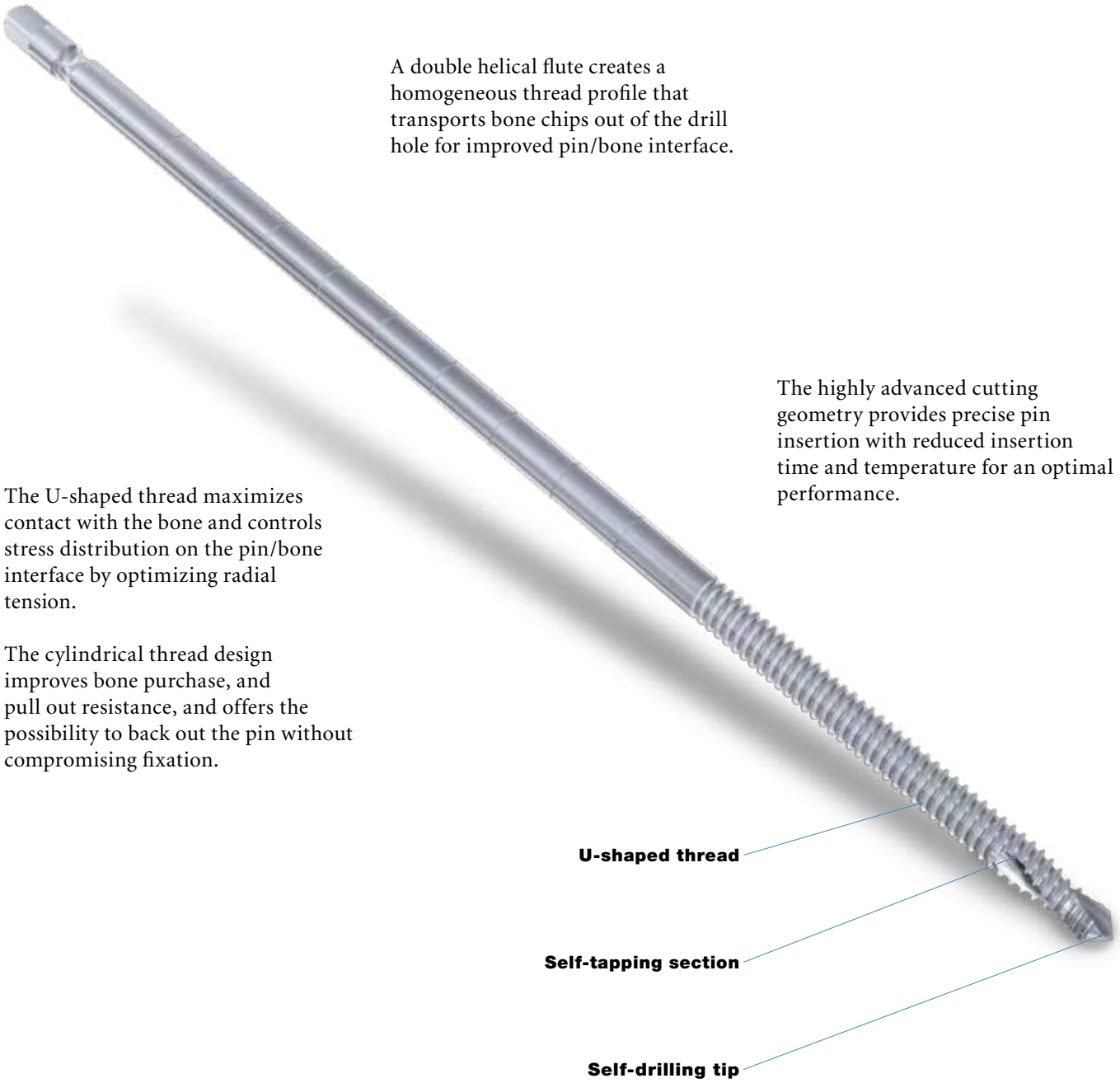
The self drilling tip of the Apex™ Pin acts like a new, sharp drill bit every time and therefore pre-drilling is not necessary. Combined with the unique cutting geometry, this One Step Procedure allows the pin to maintain a reduced insertion temperature below 50°C due to decreased friction.

A double helical flute creates a homogeneous thread profile that transports bone chips out of the drill hole for improved pin/bone interface.

The highly advanced cutting geometry provides precise pin insertion with reduced insertion time and temperature for an optimal performance.

The U-shaped thread maximizes contact with the bone and controls stress distribution on the pin/bone interface by optimizing radial tension.

The cylindrical thread design improves bone purchase, and pull out resistance, and offers the possibility to back out the pin without compromising fixation.



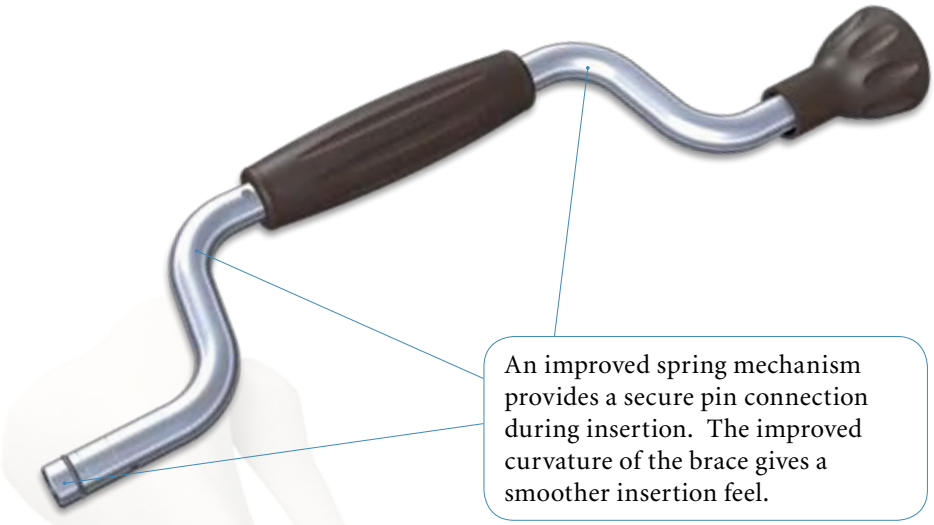
Instruments

Apex™ Instruments

Drill Brace

The Drill Brace is designed for manual pin insertion for better control and reduced insertion temperature.

It provides integrated attachments for 3mm & 4mm and 5mm & 6mm pins. Simply by changing the Drill Handle from one end to the other you gain access to the different attachments.



An improved spring mechanism provides a secure pin connection during insertion. The improved curvature of the brace gives a smoother insertion feel.

Predrilling Assembly

The Predrilling Assembly consists of a Trocar, a Drill Sleeve and a Soft Tissue Protector which allows for pre-drilling and pin insertion without causing additional damage to the soft tissues. Different lengths enable you to choose the correct device for the soft tissue envelope.

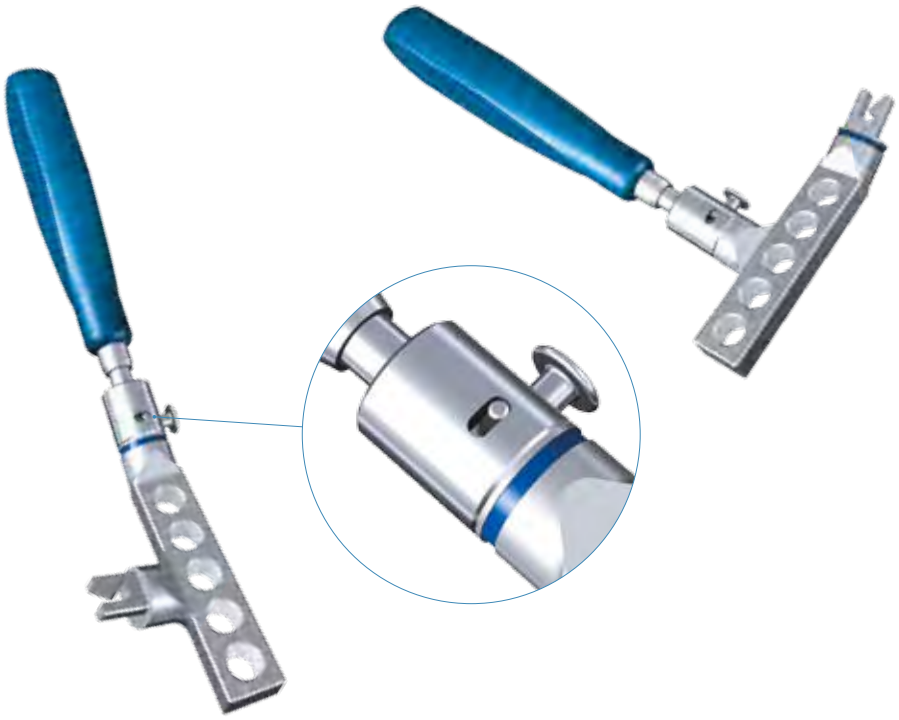
Instruments

Apex™ Instruments

Drill Guide

The Drill Guide is designed for simplified parallel pin insertion. The colour coded Drill Guide Blocks provide the correct distance for the various pin clamps of the Hoffmann® II, Hoffmann® II Compact™ and Monotube® TRIAX™ systems. The colour coding matches the colours of the various systems for easier selection.

The Drill Guide Block offers the possibility for perpendicular and horizontal attachment to the handle, which allows adaptation to the anatomical requirements.



Quick Release Apex™ Chuck

The Quick Release Apex™ Chuck is designed for a fast and easy engagement of the Apex™ Pins and has a standard AO and a tri-flange connector. It is designed for insertion of Apex™ Pins by power.

Note:
For the final seating in the second cortex the T-Wrench/Pin Inserter or the Drill Brace should be used.

T-Wrench/Pin Inserter

The T-Wrench/Pin Inserter is a combined instrument. It is used to insert 4mm & 5mm pins and tighten 7mm Hoffmann® II and TenXor™ bolts.

Implants

Apex™ Pin Range

Self Drilling/Self Tapping Pin

The Stainless Steel and Titanium Self Drilling/Self Tapping Pins allow a One Step Procedure due to the advanced self drilling and cutting technology.

Blunt Pin

The Stainless Steel Blunt Pins help to reduce soft tissue irritation around the tip of the pin. Pre-drilling is required for this pin.

Cancellous Pin

The Stainless Steel Cancellous Pins are designed for a strong grip in cancellous bone. The specially designed thread provides an increased contact area between the cancellous bone and the pin. This pin is blunt and requires pre-drilling.

Transfixing Pin

The self drilling Transfixing Pins are available threaded and smooth and are indicated for bi-lateral frame constructs.

The Apex™ Pin Range is safe for MRI procedures up to 3.0 Tesla.
For more information we refer to the Hoffmann® II MRI brochure (ref.-no.5075-1-600)

Technical Details

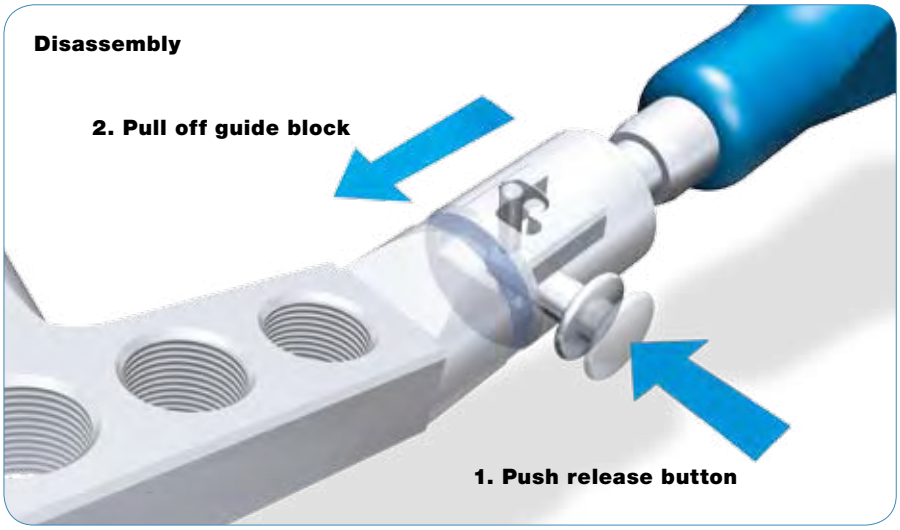
Instructions for Use

Drill Brace

The Drill Brace provides attachments for 3mm & 4mm pins on one end and 5mm & 6mm pins on the other end. For pin insertion, place the pin into the end correlating to the chosen pin diameter.
To access the different attachments for the pins remove the handle and assemble it on the other end.

Drill Guide Block

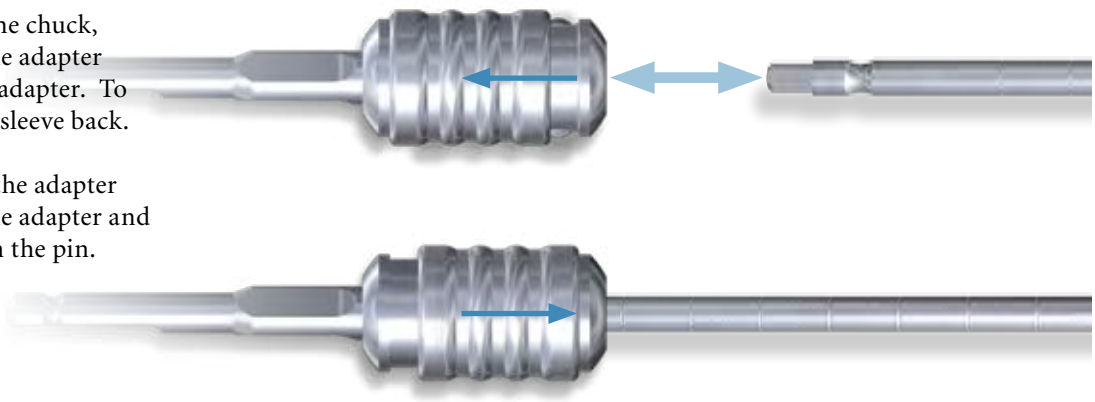
To assemble the Drill Guide Block, choose the correct block for your pin clamp. Set the Drill Guide Block horizontal or perpendicular and push it onto the handle. To release the block, push the button on the handle and pull it off.



Quick Release Apex™ Chuck

To assemble the pin to the chuck, pull the sleeve toward the adapter and place the pin in the adapter. To secure the pin, push the sleeve back.

To release the pin from the adapter pull the sleeve toward the adapter and remove the adapter from the pin.



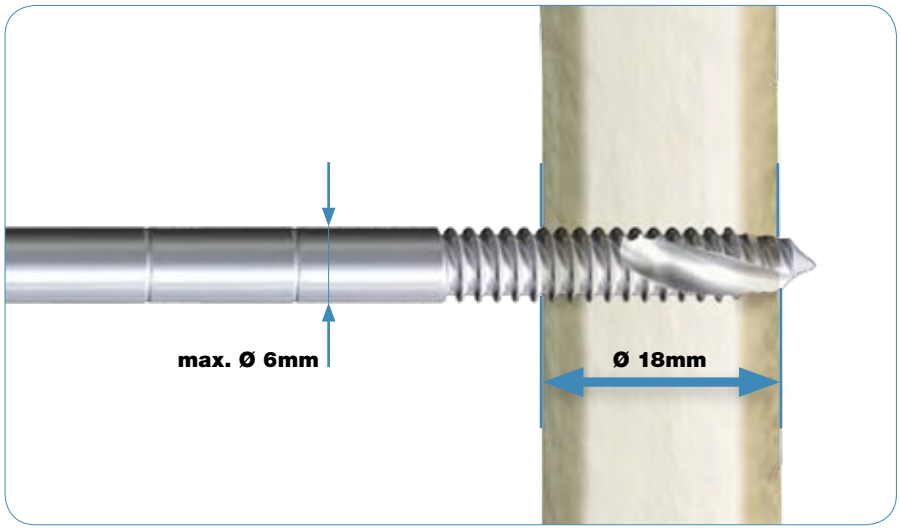
Technical Details

Pin Insertion Guidelines

The maximum pin diameter should not exceed 30% of the diameter of the bone. For example: bone diameter 18mm = maximum pin diameter 6mm

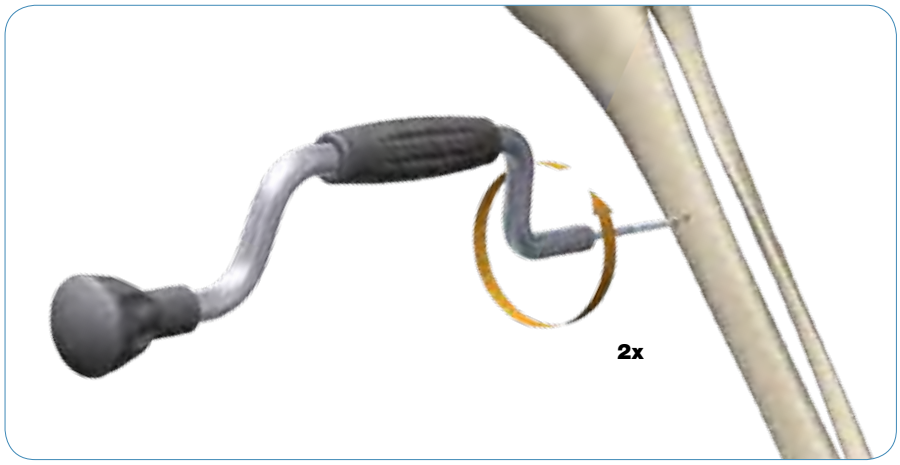
The pin diameter influences the axial frame rigidity. A 1mm increase in pin diameter will approximately double its stiffness and thereby increase the frame rigidity.

The number of pins used in a frame construct depend on the patients condition and the indication.
By increasing the number of pins the frame rigidity increases.

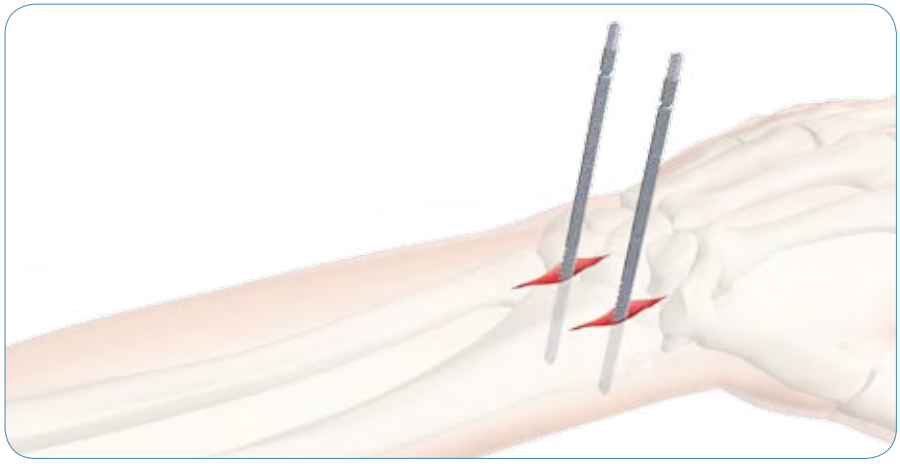


When using a Self Drilling/Self Tapping Pin, turn the Drill Brace two times counter-clockwise to create a small notch for the pin. This helps to prevent the pin from slipping on the cortex.

Afterwards, turn the Drill Brace clockwise for pin insertion.



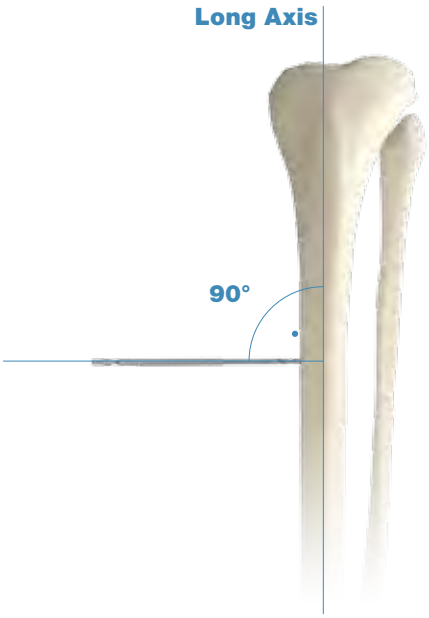
Make a skin incision in the direction the skin will move during mobilization to avoid tension around the pin. This helps to prevent irritation of the skin and reduces the risk of skin infection.



Technical Details

Pin Insertion Guidelines

When inserting the pin by power, make sure to use a low speed to avoid significant temperature increase which can cause bone necrosis.



Insert the pins 90° to the long axis of the bone to reduce pull in and push out forces on the pins.

Surgeons must always rely on their own clinical judgement when deciding which treatment and product to use with their patients.

Ordering Information - Implants

Self Drilling/Self Tapping

Stainless Steel REF	Diameter mm Thread/Shaft	Total Length mm	Thread Length mm
5080-1-612	1.65/2.0	45	12
5080-1-620	1.65/2.0	45	20
5080-2-012	2.0	45	12
5080-2-020	2.0	45	20S
5038-5-060	3.0	60	10
5038-1-080	3.0	80	10
5038-2-080	3.0	80	15
5038-5-080	3.0	80	20
5038-1-110	3.0	110	10
5038-2-110	3.0	110	25
5023-1-090	4.0	90	10
5023-2-090	4.0	90	20
5023-3-090	4.0	90	30
5023-3-120	4.0	120	30
5023-5-120	4.0	120	35
5023-5-150	4.0	150	40
5023-6-150	4.0	150	50
5023-4-180	4.0	180	40
5023-6-180	4.0	180	50
5018-3-120	5.0	120	30
5018-5-120	5.0	120	35
5018-5-150	5.0	150	40
5018-6-150	5.0	150	50
5018-3-180	5.0	180	35
5018-6-180	5.0	180	50
5018-8-180	5.0	180	60
5018-5-200	5.0	200	50
5018-6-200	5.0	200	60
5018-5-250	5.0	250	50
5018-7-250	5.0	250	70
5021-7-150	6.0	150	50
5021-6-180	6.0	180	60
5021-8-200	6.0	200	70
5021-8-250	6.0	250	80

Self Drilling/Self Tapping - Titanium

Diameter mm Thread/Shaft	Total Length mm	Thread Length mm	Titanium REF
5.0	120	35	5016-5-111
5.0	150	40	5016-5-117
5.0	150	50	5016-5-118
5.0	180	50	5016-5-122

Blunt

Stainless Steel REF	Diameter mm Thread/Shaft	Total Length mm	Thread Length mm
5065-3-312	2.0	33	12
5065-3-615	2.0	36	15
5065-3-918	2.0	39	18
5065-4-520	2.0	45	20
5065-5-020	2.0	50	20
5065-6-020	2.0	60	20
5065-9-015	2.0	90	15
5036-2-060	3.0	60	10
5036-1-080	3.0	80	10
5036-1-580	3.0	80	15
5036-2-080	3.0	80	20
5036-1-110	3.0	110	10
5036-2-110	3.0	110	25

For Sterile Apex™ Pins, add 'S' to the end of the REF.

Ordering Information - Implants

Blunt (cont)

Stainless Steel REF	Diameter mm Thread/Shaft	Total Length mm	Thread Length mm
5027-1-090	4.0	90	10
5027-2-090	4.0	90	20
5027-3-090	4.0	90	30
5027-3-120	4.0	120	30
5027-4-120	4.0	120	35
5027-4-150	4.0	150	40
5027-5-150	4.0	150	50
5027-4-180	4.0	180	40
5027-5-180	4.0	180	50
5020-3-120	5.0	120	30
5020-6-120	5.0	120	35
5020-3-150	5.0	150	40
5020-7-150	5.0	150	50
5020-7-180	5.0	180	50
5020-8-180	5.0	180	60
5020-7-200	5.0	200	50
5020-6-200	5.0	200	60
5020-7-250	5.0	250	50
5020-8-250	5.0	250	70
5019-7-150	6.0	150	50
5019-6-180	6.0	180	60
5019-8-200	6.0	200	70
5019-8-250	6.0	250	80

Cancellous

Stainless Steel REF	Diameter mm Thread/Shaft	Total Length mm	Thread Length mm
5015-3-120	6.0/5.0	120	35
5015-4-150	6.0/5.0	150	40
5015-5-150	6.0/5.0	150	50
5015-6-180	6.0/5.0	180	60
5015-7-250	6.0/5.0	250	70

Transfixing Pins

Stainless Steel REF	Diameter mm Thread/Shaft	Total Length mm	Thread Length mm
5030-3-200	5.0/4.0	200	35
5030-4-200	5.0/4.0	200	40
5030-5-200	5.0/4.0	200	50
5030-3-250	5.0/4.0	250	35
5030-4-250	5.0/4.0	250	40
5030-5-250	5.0/4.0	250	50
5030-6-250	5.0/4.0	250	60
5030-4-300	5.0/4.0	300	40
5030-5-300	5.0/4.0	300	50
5030-7-300	5.0/4.0	300	70

Transfixing - Smooth Pin

5045-5-200	3.0	200	--

For Sterile Apex™ Pins, add 'S' to the end of the REF.

Ordering Information - Implants

HA Coated
Self Drilling/Self Tapping

Stainless Steel REF	Diameter mm Thread/Shaft	Total Length mm	Thread Length mm
5013-3-090S	4mm	90	30
5013-2-120S	4mm	120	20
5013-8-120S	4mm	120	25
5013-3-120S	4mm	120	30
5013-9-120S	4mm	120	35
5013-2-150S	4mm	150	20
5013-8-150S	4mm	150	25
5013-3-150S	4mm	150	30
5013-4-150S	4mm	150	40
5017-9-120S	5mm	120	35
5017-2-150S	5mm	150	20
5017-8-150S	5mm	150	25
5017-3-150S	5mm	150	30
5017-9-150S	5mm	150	35
5017-4-150S	5mm	150	40
5017-5-150S	5mm	150	50
5017-6-150S	5mm	150	60
5017-3-180S	5mm	180	30
5017-4-180S	5mm	180	40
5017-5-180S	5mm	180	50
5017-6-200S	5mm	200	60
5017-7-200S	5mm	200	70
5014-2-120S	6mm	120	30
5014-8-150S	6mm	150	25
5014-3-150S	6mm	150	30
5014-4-150S	6mm	150	40
5014-5-150S	6mm	150	50
5014-6-150S	6mm	150	60
5014-3-180S	6mm	180	30
5014-4-180S	6mm	180	40
5014-5-180S	6mm	180	50
5014-6-180S	6mm	180	60
5014-3-200S	6mm	200	30
5014-4-200S	6mm	200	40
5014-5-200S	6mm	200	50
5014-6-200S	6mm	200	60
5014-7-250S	6mm	250	70
5014-8-250S	6mm	250	80
5014-9-250S	6mm	250	90

HA Coated Blunt

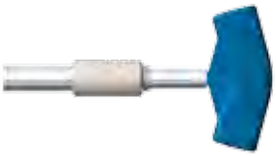
Stainless Steel REF	Diameter mm Thread/Shaft	Total Length mm	Thread Length mm
5008-2-150S	4mm	150	20
5008-8-150S	4mm	150	25
5008-3-150S	4mm	150	30
5008-4-150S	4mm	150	40
5009-2-200S	5mm	200	20
5009-8-200S	5mm	200	25
5009-3-200S	5mm	200	30
5009-9-200S	5mm	200	35
5009-4-200S	5mm	200	40
5009-5-200S	5mm	200	50
5009-6-200S	5mm	200	60
5009-7-250S	5mm	250	70
5009-8-250S	5mm	250	80
5009-9-250S	5mm	250	90
5010-8-200S	6mm	200	25
5010-3-200S	6mm	200	30
5010-4-200S	6mm	200	40
5010-5-200S	6mm	200	50
5010-6-200S	6mm	200	60
5010-7-250S	6mm	250	70
5010-8-250S	6mm	250	80
5010-9-250S	6mm	250	90

Note:
For additional information on HA Coated Apex™ Pins please refer to brochure 5075-4-001

Special Order

All Implants are single packed and sterile.

Ordering Information - Instruments

	REF	Description
		Apex™ Instruments
	5057-0-300	Drill Brace Assembly
	5057-0-310	Handle for Drill Brace
	4920-9-030	T-Wrench/Pin Inserter, 7mm
	5057-1-003	Quick Release Apex™ Chuck with AO fitting, 3mm
	5057-1-004	Quick Release Apex™ Chuck with AO fitting, 4mm
	5057-1-005	Quick Release Apex™ Chuck with AO fitting, 5mm
	5057-1-006	Quick Release Apex™ Chuck with AO fitting, 6mm
	5057-1-110	Drill Guide Handle
	5057-1-115	Drill Guide Block, 5 holes, Hoffmann® II
	5057-1-116	Drill Guide Block, 10 holes, Hoffmann® II
	5057-1-117	Drill Guide Block, 4 holes, Hoffmann® II Compact™
	5057-1-118	Drill Guide Block, 4 holes, Hoffmann® II Compact™, Peri Articular Clamp
	5057-1-119	Drill Guide Block, 4 holes, Monotube® Triax™, blue, red
	5057-1-120	Drill Guide Block, 2 holes, Monotube® Triax™, yellow

Ordering Information - Instruments

REF	Description	
Apex™ Instruments		
5057-4-000	Predrilling Assembly, Ø 4.0mm, extra short	35mm protection length
5057-5-000	Predrilling Assembly, Ø 5.0mm, extra short	50mm protection length
5057-6-000	Predrilling Assembly, Ø 6.0mm, extra short	60mm protection length
5057-3-100	Predrilling Assembly, Ø 3.0mm, short	33mm protection length
5057-4-100	Predrilling Assembly, Ø 4.0mm, short	70mm protection length
5057-5-100	Predrilling Assembly, Ø 5.0mm, short	73mm protection length
5057-6-100	Predrilling Assembly, Ø 6.0mm, short	90mm protection length
5057-3-200	Predrilling Assembly, Ø 3.0mm, long	43mm protection length
5057-4-200	Predrilling Assembly, Ø 4.0mm, long	100mm protection length
5057-5-200	Predrilling Assembly, Ø 5.0mm, long	113mm protection length
5057-6-200	Predrilling Assembly, Ø 6.0mm, long	120mm protection length

5057-6-300	Pin Cutter, 4mm, 5mm & 6mm, Extension Handles	

5057-9-913	Apex™ Storage Tray, Metal Lid	
5057-9-912	Apex™ Storage Tray, Upper Insert	
5057-9-911	Apex™ Storage Tray, Lower Insert	
5057-9-910	Apex™ Storage Tray, Metal Base	

Notes

stryker®

Joint Replacements

Trauma, Extremities & Deformities

Craniomaxillofacial

Spine

Biologics

Surgical Products

Neuro & ENT

Interventional Pain

Navigation

Endoscopy

Communications

Imaging

Patient Handling Equipment

EMS Equipment

Stryker Trauma AG
Bohnackerweg 1
CH-2545 Selzach
Switzerland

www.osteosynthesis.stryker.com

Literature Number: **5075-4-000**
LOT **C0107**