

# SIDEKICK® EZ FRAME™

External Fixator System

SURGICAL TECHNIQUE



# Contents

Chapter 1	2	Introduction
	2	Intended Use
Chapter 2	3	Device Description
Chapter 3	4	Surgical Technique
	4	Preoperative Planning
	4	Surgical Procedure
Chapter 4	12	System Compatibility
Chapter 5	13	Explant Information
Chapter 6	14	Postoperative Care
Chapter 7	15	Catalog Information

Proper surgical procedures and techniques are the responsibility of the medical professional. The following guidelines are furnished for information purposes only. Each surgeon must evaluate the appropriateness of the procedures based on his or her personal medical training and experience. Prior to use of the system, the surgeon should refer to the product package insert for complete warnings, precautions, indications, contraindications and adverse effects. Package inserts are also available by contacting the manufacturer. Contact information can be found on the back of this surgical technique and the package insert is available on the website listed.

For information on product availability in your area, please contact your local sales representative.

The SIDEKICK® EZ FRAME™ External Fixation System utilizes transosseous thin wires and is based on the concepts of minimally invasive external fixation. The system simplifies frame application when compared to traditional ring fixators by eliminating the need for pins and wires to be placed into the tibia. A boot is stabilized on the distal leg (tibia) and further stabilized to a distal ring about the foot with carbon fiber reinforced composite rods that are connected to the boot and ring respectively. Thin wires are placed into the foot to address indications, while a frame-boot combination provides stability and support.

## Intended Use

### Indications for Use

- » Triple Arthrodesis
- » Isolated Rearfoot Arthrodesis
- » Midfoot Arthrodesis
- » Comminuted Trauma
- » Diabetic Charcot Reconstruction
- » Most foot pathology not requiring fixation above the ankle

### Contraindications

- » Talo-tibial or tibio-calcaneal arthrodesis
- » Any pathology requiring absolute rigidity at or above the ankle
- » Mentally unfit patients
- » Poorly vascularized patients

Prior to use of the system, the surgeon should refer to the product package insert for complete warnings, precautions, indications, contraindications and adverse effects. Package inserts are also available by contacting the manufacturer. Contact information can be found on the back of this surgical technique and the package insert is available on the website listed.

## Device Description



The SIDEKICK® EZ FRAME™ was designed to address the need for a simplified approach to external fixation. The system allows for the management of diabetic Charcot reconstruction, triple arthrodesis, fusion of the midfoot and rearfoot, challenging comminuted trauma, and most foot pathology not requiring fixation above the ankle. It is a viable tool for offloading and/or immobilizing wounds associated with diabetic Charcot disease.

The system features transosseous thin wire fixation, taking advantage of the proven benefits of minimally invasive external fixator concepts. Bone segments are easily and effectively manipulated for the purposes of midfoot and rearfoot joint arthrodesis and for fusion of midfoot and rearfoot osteotomies. As with other external fixators, the frame may be applied with or without adjunct internal fixation.

By utilizing a unique combination of total contact casting concepts for the tibia and thin wire fixation in the foot, tibial wires or pins are not needed. By requiring no pins or wires in the tibia, the SIDEKICK® EZ FRAME™ eliminates complications associated with tibial fixation elements and the time it takes to place these pins and wires. The tibial boot portion of the frame helps facilitate positioning and centering of the leg and foot, and the rocker plate helps to align the foot in a neutral position. This simplifies frame application compared to traditional circular frames.

A rocker-bottom sole and rocker plate is attached to the foot ring. This rocker plate features a cushioned surface insole upon which the foot can rest during the healing process after the surgery. This insole (foot pad) may be modified to accommodate compromised soft tissue as needed, by cutting it to relieve pressure on compromised soft tissue. The position of the rocker plate can be adjusted using optional spacers so that the foot is suspended, with no contact or weight on the plantar surface of the foot. This can be particularly useful following a flap or skin grafting procedure associated with diabetic Charcot reconstruction. Spacers are available in two (2) thicknesses (5mm and 10mm).

The sterile boot liner allows for a custom tibial fit and is designed to enhance patient comfort.

The SIDEKICK® EZ FRAME™ is available in Standard and Large size kits.

The SIDEKICK® FREEDOM™ Circular Instrument Kit (RNRCKIT1) should be used with the SIDEKICK® EZ FRAME™ System.

Replacement Boot Liners (Standard and Large), rocker-bottom soles, and foot pads are available. The SIDEKICK® EZ FRAME™, and all frame components (excluding instruments) are intended for single-use only.

## Preoperative Planning

The proper size fixator should be ordered after considering patient anatomy. Prior to surgery, the surgeon should consider the following while planning:

- » Diameter of the distal leg
- » Foot width and length
- » Tibial length

## Surgical Procedure

### Example Procedure for Triple Arthrodesis

The leg should be prepared to above the knee and wrapped. Cast padding or Kerlix with an Ace Bandage may be used to prepare the leg as shown.



After the completion of triple arthrodesis with provisional K-wire or screw fixation (surgeon's preference), closure of all wounds, and application of all drains as indicated, the foot and leg are placed within the SIDEKICK® EZ FRAME™ Fixator.



The foot should be placed in the center of the rocker plate, and the calf placed within the boot. The insole may be placed between the foot and the rocker plate.

The boot position of the fixator can be adjusted. Loosen the four vertical adjustment locking bolts, the two carbon fiber reinforced composite rod clamp bolts, and the two carbon fiber reinforced composite rod connector bolts using the 10mm wrench (RR301090B SIDEKICK® SLOTTED WRENCH 10mm or the RR3010 WRENCH 10mm) prior to adjusting the height of the boot assembly. Once loosened, the boot assembly can be adjusted up or down by sliding the boot assembly on the carbon fiber reinforced rods.



Once adjustments are made to best fit patient anatomy, the bolts should be tightened with the 10mm wrench, locking the frame/boot position. Subsequently, the surgeon is ready to insert the 2mm Titanium Nitride (TiN) Tip Wires (#EF002400) across the foot to eventually achieve transosseous compression of the arthrodesis sites. The 2mm Titanium Nitride (TiN) Tip Wires (#EF002450) with olive and SIDEKICK® FREEDOM™ 1.8mm wires (#RR18400 and #RR180400) are also available for use with the system.

When placing transosseous wires, they can be inserted directly through the skin in a percutaneous manner. When using an olive (stopper) wire, a small 3mm incision is made in the skin to allow the olive to rest directly against the bone. Wires are inserted under power, and it is recommended to use a start/stop technique to minimize potential thermal damage. Once the wire is through both cortices, the wire can be tapped through the skin on the opposite side manually, or advanced using the oscillating feature of the hand-held power equipment. Tapping the wire manually or oscillating the wire may help prevent “wrapping” soft tissue as the wire penetrates the soft tissue. When placing any percutaneous fixation, be mindful of anatomic safe zones. If a wire causes tension or tenting of the skin, this tension should be released with a small incision. Utilization of the fluoroscope may be helpful in determining the exact anatomic position.



*SIDEKICK® Slotted Wrench 10mm  
RR301090B*



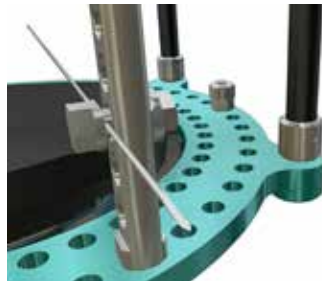
*Wrench 10mm  
RR3010*

Three essential 2mm TiN Tip Wires need to be placed in order to achieve the goal of compressing fusion sites of the triple arthrodesis.

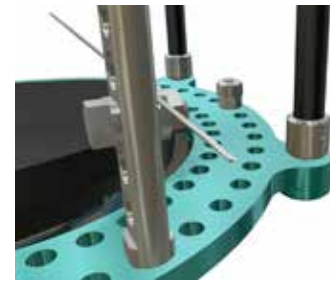
The first wire crosses the calcaneus from medial to lateral avoiding the neurovascular bundle. An olive wire may be used in this position to limit medial migration of the foot on the frame after surgery.



Attach a post to the foot ring on either side of the foot, next to the wire that was placed. Tighten the nuts on these posts to the ring using the 10mm wrench. Attach the wire to the posts on either side using a wire bolt and a wire nut for each end of the wire. The wire can be attached using the cannulation of the bolt, or using the slot feature built into the nut.



Wire attached using the EZ FRAME™ wire bolt



Wire attached using the EZ FRAME™ wire nut

Please note that the system features 6-hole male posts. Male and female posts are also available with 1 through 4 holes. Select the aperture closest to the location of the wire exiting the foot to determine placement of the wire bolt. Use the longer 6-hole posts for wires further away from the foot plate, and use shorter posts for wires that are closer to the foot plate. Calcaneal wires should not be bent up or down when attaching them to the posts. Bending wires up or down could result in elevating the heel away from the rocker bottom insole or overly compressing it into the rocker bottom insole when the wires are tensioned. Tighten the wire bolts and wire nuts using the 10mm wrench.

The second wire crosses the talus from medial to lateral and should ideally be an olive wire to limit lateral foot migration. If necessary, utilize the fluoroscope to ensure the correct placement of this 2mm wire across the talus.

Attach a post to the foot ring on either side of the foot, next to the wire that was placed. Tighten the nut on the post to the ring using the 10mm wrench. Attach the wire to the posts on either side using a wire bolt and a wire nut for each end of the wire. Select the aperture closest to the location of the wire exiting the foot to determine placement of the wire bolt. The ends of the talar wire should be bent slightly down when attaching them to the male posts. This downward bend will help provide better compression across the subtalar joint when tensioned. Tighten the wire bolts and wire nuts using the 10mm wrench.



The third wire can be placed across the foot from either side. This wire can cross the navicular and cuboid or alternatively cross from the medial cuneiform and exit the cuboid. Once again, utilization of the fluoroscope may be helpful in determining the exact anatomic position.



Attach a post to the foot ring on either side of the foot next to the wire that was placed. Tighten the nut on the post to the ring using the 10mm wrench. Attach the wire to the posts on either side using a wire bolt and a wire nut for each end of the wire. Select the aperture closest to the location of the wire exiting the foot to determine placement of the wire bolt. Do not bend the wires up or down when attaching them to the male posts. Tighten the wire bolts and wire nuts using the 10mm wrench.

At least one additional transosseous 2mm wire is recommended to supplement these three essential wires. It can be placed either across the calcaneus or the midfoot. The exact location of this additional wire can be determined by surgeon's preference intraoperatively. This wire should be attached to the foot ring via the same parameters as the first three wires.



Once all wires are placed, the posts can be disconnected from their original positions and realigned on the foot ring. This bends the 2mm wires in anticipation of tensioning them to compress the arthrodesis sites. For a triple arthrodesis the three essential wires, which have been described, are moved as follows:

1. Move the two posts holding the transosseous calcaneal wire 1 or 2 holes on the foot ring forward (towards the toes) and then reattach the posts to the foot ring.
2. Move the two posts holding the transosseous talar wire 1 or 2 holes on the foot ring back (towards the heel) and then reattach the posts to the foot ring.
3. Move the two posts holding the transosseous midfoot wire 1 or 2 holes on the foot ring back (towards the heel) and then reattach the posts to the foot ring.

The fourth, additional wire should be moved in the same manner as the wires described above. If the wire was placed in the calcaneus, the posts should be moved forward and reattached. If the wire is placed in the midfoot, then the posts should be moved back and reattached.



#### TENSIONING THE WIRES:

Tensioning of transosseous thin wires increases frame rigidity. By utilizing arched wire concepts, bone segments can be manipulated to apply compression across arthrodesis sites. When utilizing olive (stopper) wires, tension should be pulled from the **opposite** side of the olive.

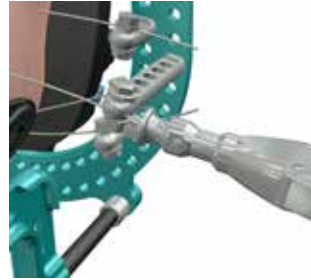
The calcaneal wire is the first to be tensioned. Before tensioning this wire, the posts should be firmly tightened to the footplate using the 10mm wrench. The wire bolts and wire nuts on one side of the 2mm wire need to be firmly tightened next. With the olive (stopper) wires, it should specifically be noted that the wire nut or post on the same side as the olive needs to be tightened first.

Once the wire nut on one side of the foot has been firmly tightened, the tensioner (RR3028 TENSIONER) is applied over the wire on the **opposite** side of the foot, and moved down to contact the wire bolt.



Tensioner  
RR3028

Tension is applied to the wire by squeezing the tensioner handles. The wire should be pulled from 70kg to 110kg, and this measure is taken by reading where the force markings line up with the housing of the tensioner. The tensioner should be held in place, maintaining tension, until the second wire nut is tightened to the wire bolt. This will lock the wire under tension.



The tensioning device is then released. Tensioning the calcaneus wire stabilizes the calcaneus while pushing it forward and compressing the posterior facet of the calcaneus against the talus.

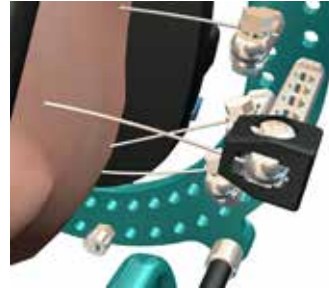
Next, the talar wire will be tensioned. Before tensioning this wire, the posts should be firmly tightened to the foot ring using the 10mm wrench. The wire bolts and wire nuts **on one side** of the 2mm wire need to be firmly tightened next. With the olive (stopper) wires it should specifically be noted that the wire nut on the **same side** of the foot as the olive needs to be the one which is tightened first.

Once the wire nut or post on one side of the foot has been firmly tightened, the tensioner is applied over the wire on the **opposite** side of the foot, and moved down to contact the wire bolt. Tension is applied to the wire by squeezing the tensioner handles. The wire should be pulled from 70kg to 110kg, and this measure is taken by reading where the markings line up with the housing of the tensioner. The tensioner should be held in place, maintaining tension, until the second wire nut is tightened to the wire bolt. This will lock the wire under tension. The tensioning device is then released. Tensioning the talar wire pushes the talus backwards towards the posterior facet of the calcaneus, applying compression from the opposite direction as the first wire.

The midfoot wire is the last wire to be tensioned. Before tensioning this wire, the posts should be firmly tightened to the footplate using the 10mm wrench. The wire bolts and wire nuts **on one side** of the 2mm wire need to be firmly tightened next. With the olive (stopper) wires it should specifically be noted that the wire nut on the **same side** of the foot as the olive needs to be tightened first.

Once the wire nut on one side of the foot has been firmly tightened, the tensioner is applied over the wire on the **opposite** side of the foot, and moved down to contact the wire bolt. Tension is applied to the wire by squeezing the tensioner handles. The wire should be pulled from 70kg to 110kg, and this measure is taken by reading where the force markings line up with the housing of the tensioner. The tensioner should be held in place, maintaining tension, until the second wire nut is tightened to the wire bolt. This will lock the wire under tension. The tensioning device is then released. Tensioning the midfoot wire results in compression across the talaonavicular and calcaneocuboid joints.

The fourth wire should be arched and tensioned in the same manner as the wires described above. Once wires are properly tensioned, the surgeon should cut and curl wires to prevent unintentional injury.



All nuts and points of tightening should be locked securely. Make sure skin is not tenting at any of the wire sites. If it is, release it with a #11 blade. At this point, a final check should be made to ensure all connections are tight and secure.

After all wires/pins are placed, it is necessary to secure the boot portion of the fixator to the leg. The sterile liner should be wrapped around the lower leg, using the Velcro® tabs to secure the liner in place. Care should be taken to not have wrinkles or folds in the liner. These Velcro® tabs should align with the top of the boot component.



The boot portion of the frame can be adjusted to different diameters to accommodate differing patient anatomy. These adjustments are made by adjusting the tabs at the back of the boot. The SIDEKICK® EZ FRAME™ features three adjustable Velcro® straps.



The EZ FRAME™ system also features locking straps that may be used to post-operatively replace standard Velcro® straps. To tighten the straps, release the locking clamp by rotating the purple locking mechanism into a horizontal position with the white key. Once tightened, close the clamp and rotate the key and locking mechanism back into a vertical orientation.

Once the liner is fitted and the boot portion of the frame is secured around the leg, the liner can be customized to fit the patient anatomy. After adjusting, each strap should be pulled snugly and secured, ensuring proper fit.

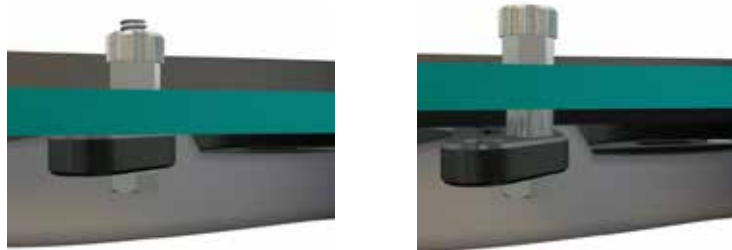


Safety seals are available to place over the Velcro® straps after final adjustments. These seals will not prevent adjustments made by patients, but will indicate if any unauthorized adjustments are made.

The heel of the plate should be pressed down onto the rocker-bottom sole to connect with the rocker plate as shown.



Optional spacers can be used to move the plate away from the plantar surface of the foot. Spacers are available in two (2) thicknesses (5mm and 10mm).



**Important Note:** The locking optional locking straps, safety seals, and the rocker-bottom sole are all available nonsterile. They should not be applied in the sterile field.

# System Compatibility

The SIDEKICK® EZ FRAME™ is designed to accept SIDEKICK® FREEDOM™ Circular System components. It is important to note that the SIDEKICK® EZ FRAME™ wires are 2mm in diameter. They are not compatible for use with the SIDEKICK® FREEDOM™ Circular System wire fixation bolts. The SIDEKICK® FREEDOM™ Circular System wire fixation bolts will only accommodate 1.8mm wires.

Frame removal can be achieved with the following steps

- » Detach wires from the frame.
- » Unfasten and loosen Velcro® boot straps from about the tibia.
- » Remove the leg and foot from the frame.
- » Remove wires from the foot. Cut the wire on one side of the foot, close to the surface of the skin. Pull the wire from the other side, applying steady force, until the wire is removed. Note: When removing an olive wire (stopper wire), pull the wire from the same side as the olive.
- » If the removal of the implant is required due to revision or failure of the device, the surgeon should contact the manufacturer using the contact information located on the back cover of this surgical technique to receive instructions for returning the explanted device to the manufacturer for investigation.

# Postoperative Care

chapter  
6

Postoperatively, the frame should be checked routinely to ensure that no frame components have loosened. Any loosened components should be retightened. If a wire has loosened or become unattached from the frame, it should be retensioned, reattached (if necessary), and fixation components should be tightened.

In the event of wire breakage, the broken wire should be removed. A new wire should be placed if needed to restore construct stability.

The boot liner can be replaced if necessary, as the surgeon sees fit. Replacement rocker-bottom soles and foot pads are also available if needed.

The surgeon must educate the patients on wire care and be diligent in watching for any signs of pin irritation. Wire site care is per surgeon preference. Aggressive wire site management, appropriate use of oral antibiotics, and a relatively low threshold to remove a problematic wire should be considered to minimize the risk of serious complication and ensure the desired outcome.

## SIDEKICK® EZ FRAME™ Components

Part Number	Description
EF100000*	EZ FRAME™ FIXATOR ASSEMBLY STD NON STERILE KIT
EF00KIT1	EZ FRAME™ INSTRUMENT KIT
EF00KITA	EZ FRAME™ IMPLANT KIT
EF10000L*	EZ FRAME™ FIXATOR ASSEMBLY LGE NON STERILE KIT
EF001500	EZ FRAME™ WIRE BOLT
EF001600	EZ FRAME™ WIRE NUT
EF001650	EZ FRAME™ POST 6HOLE
EF002000	EZ FRAME™ ROCKER PLATE
EF002400	EZ FRAME™ WIRE 2MM
EF002450	EZ FRAME™ OLIVE WIRE 2MM
EF002500	EZ FRAME™ SOLE
EF002550	EZ FRAME™ QUICK NUT
EF003005	EZ FRAME™ SPACER 5MM
EF003010	EZ FRAME™ SPACER 10MM
EF003700	EZ FRAME™ FOOT PAD
EF103750	EZ FRAME™ LINER STANDARD
EF103775	EZ FRAME™ LINER LARGE
EF190002	EZ FRAME™ LOCKING STRAPS
EF004180	EZ FRAME™ FOOT RING
EF1500PK	EZ FRAME™ WIRE BOLT PK /12
EF1600PK	EZ FRAME™ WIRE NUT PK /12
EF1650PK	EZ FRAME™ POST 6HOLE PK/12
EF2400PK	EZ FRAME™ TIN TIP WIRE 2MM PK / 6
EF2450PK	EZ FRAME™ TIN TIP OLIVE WIRE 2MM 6 / PK
EF3005PK	EZ FRAME™ SPACER 5MM 3/PK
EF3010PK	EZ FRAME™ SPACER 10MM 3/PK
EF375000	EZ FRAME™ SECURITY SEAL 5 / PK
EF410160	EZ FRAME™ 160MM DORSAL 1/2 RING
RR3000	BOLT 30MM
RR3520180TN	PIN 3X180X20 TIN
RR3535180TN	PIN 3X180X35 TIN
RR4000	BOLT 40MM
RR2001CE	ADAPTER

*\*Note: Primary components are packaged with detailed Instructions for Use.*



## SIDEKICK® FREEDOM™ Components

Part Number	Description
RR0080TR	THREADED ROD, 80 MM
RR0120TR	THREADED ROD, 120 MM
RR0150TR	THREADED ROD, 150 MM
RR0165TR	THREADED ROD, 165 MM
RR0200TR	THREADED ROD, 200 MM
RR0300TR	THREADED ROD, 300 MM
RR0400TR	THREADED ROD, 400 MM
RR1001	NUT, 10MM
RR100PL	PLATE, 1 HOLE
RR1010	SQUARE NUT
RR10P	MALE POST, 1 HOLE
RR10PF	FEMALE POST, 1 HOLE
RR1200	BOLT, 12MM
RR1205CE	120MM HALF RING
RR120CE	120MM RING
RR120DFP	120MM FOOT PLATE
RR120DFR	120MM FOOT RING
RR1258CE	120MM 5/8 RING
RR1405CE	140MM HALF RING
RR140CE	140MM RING
RR140DFP	140MM FOOT PLATE
RR140DFR	140MM FOOT RING
RR1458CE	140MM 5/8 RING
RR1600	BOLT, 16 MM
RR1605CE	160MM HALF RING
RR160CE	160MM RING
RR160DFP	160MM FOOT PLATE
RR160DFR	160MM FOOT RING
RR1658CE	160MM 5/8 RING
RR180400	WIRE W/STOPPER 1.8 MM x 400 MM
RR1805CE	180MM HALF RING
RR180CE	180MM RING
RR180DFP	180MM FOOT PLATE
RR180DFR	180MM FOOT RING
RR18400	WIRE, BAYONET 1.8 MM x 400 MM
RR1858CE	180MM 5/8 RING
RR2000	BOLT, 20 MM
RR2005CE	200MM HALF RING

**SIDEKICK® FREEDOM™ Components** *continued...*

Part Number	Description
RNRCKIT1	SIDEKICK® FREEDOM™ INSTRUMENT KIT
RR200CE	200MM RING
RR200PL	PLATE, 2 HOLE
RR2058CE	200MM 5/8 RING
RR20P	MALE POST, 2 HOLE
RR20PF	FEMALE POST, 2 HOLE
RR2101	SLOTTED WASHER
RR2201	CONICAL WASHER
RR2401	WASHER, 1.0 MM
RR2501	WASHER, 2.5 MM
RR300PL	PLATE, 3 HOLE
RR3010	WRENCH 10MM
RR301090B	SIDEKICK® SLOTTED WRENCH 10MM
RR3028	TENSIONER
RR3029	PIN DRIVER SQUARE END
RR3031	SIDEKICK® PIN CUTTER 4-6MM
RR3033	SIDEKICK® PIN REMOVER
RR3034	SIDEKICK® WIRE PLIERS
RR30P	MALE POST, 3 HOLE
RR30PF	FEMALE POST, 3 HOLE
RR400PL	PLATE, 4 HOLE
RR4025TN	SIDEKICK® HALF PIN 4X25 TIN 180MM LONG
RR4040	HALF PIN 4MMX180MM 40MM THREAD
RR4040TN	SIDEKICK® HALF PIN 4X40 TIN 180MM LONG
RR40P	MALE POST, 4 HOLE
RR40PF	FEMALE POST, 4 HOLE
RR5025TN	PIN 5X25TIN
RR5030TN	PIN 5X30 TIN
RR5035TN	PIN 5X35 TIN
RR5040	HALF PIN 5MMX180MM 40MM THREAD
RR5040TN	SIDEKICK® HALF PIN 5X40 TIN 180MM LONG
RR5050TN	SIDEKICK® HALF PIN 5X50 TIN 180MM LONG
RR5300C	WIRE FIXATION BOLT COVER
RR5300P	BOLT PIN FIXATION
RR5300W	BOLT WIRE FIXATION
RR6025TN	PIN 6X25 TIN
RR700035	SIDEKICK® HEX WRENCH 3.5MM
RR7500	SIDEKICK® UNIVERSAL HINGE



**Wright Medical Technology, Inc.**

1023 Chery Road  
Memphis, TN 38117  
800 238 7117  
901 867 9971  
[www.wmt.com](http://www.wmt.com)

**Wright Medical EMEA**

Atlas Arena, Australia Building  
Hoogoorddreef 7  
1101 BA Amsterdam  
the Netherlands  
011 31 20 565 9060

**Wright Medical UK Ltd.**

Unit 1, Campus Five  
Letchworth Garden City  
Hertfordshire SG6 2JF  
United Kingdom  
011 44 (0)845 833 4435

™Trademarks and \*Registered marks of  
Wright Medical Technology, Inc.  
©2015 Wright Medical Technology, Inc.  
All Rights Reserved.