1. Ring
2. Ring Clamp
3. Wire Post
4. Pin Post
5. Ring to Monotube® Triax™ Tube Clamp, Ø20mm (Blue)
   Ring to Monotube® Triax™ Tube Clamp, Ø25mm (Red)
6. Kirschner-Wires and Apex® Half-Pins
7. (a) Hoffmann® II and (b) Triax™ Components
   for Diaphyseal Fixation with Apex® Pins
8. Instruments
The Tenxor™ External Fixator is a hybrid system providing advanced technology and ease of application, designed to fulfil the needs of today’s surgeon, by ensuring ease of use, versatility and patient comfort.

**What is a Hybrid Frame?**

A Hybrid frame is a combination of Kirschner-wires and half-pins in a frame construct. It combines the principles of circular ring and modular or unilateral frame fixation to better neutralise the forces acting upon the fracture site.

Hybrid external fixation has become more and more popular in the treatment of peri-articular fractures of the tibia. This type of frame configuration may be used to stabilise metaphyseal fractures, especially in osteoporotic bone (poor quality bone stock) or severe comminuted injuries where regular half-pins may loosen because of repetitive loading.

**Indications**

- Severe multifragmentary tibial plateau and pilon fractures with severe soft tissue injury
- Distal femoral fracture with soft tissue damage
- Peri-articular fractures where neither internal fixation nor regular half-pins can be used
- Designed to provide **optimal stability** and **elasticity**

- **Only 4 major components:** improved hospital stock management

- Designed to be usable either in modular or monolateral configuration (**Hoffmann® II** or **Monotube® Triax™**)

- “**Clicking**” the clamp to the ring and the wire/pin into the post, for quick and easy frame building

- Positioning of the ring clamp **inside or outside** the ring

- Sliding of the ring clamp along the circumference of the ring for easy positioning

- Positioning of the wire/pin post **above or below** the ring

- **Double function** of the post: fixation of wire/pin and connection to Hoffmann® II rods or Apex® pins via Hoffmann® II rod/rod or pin/rod couplings

- Designed with simple and **effective instrumentation:** compatibility of Hoffmann® II, Monotube® Triax™ and Monticelli-Spinelli™ wrenches
**Carbon Rings**

The Tenxor™ open carbon ring has been designed to provide maximum strength, yet be lightweight and easy-to-use.

- Open ring for easy positioning on the limb and posterior access
- Available in 4 sizes (150 - 180 - 210 - 250mm) for compact adaptation to the anatomy
- High technology manufacturing: the orientation of carbon fibres is different within and on the surface of the ring in order to optimise component resistance in torsion and compression
- Radiolucent to aid in the visualisation of fractures
- Light-weight to provide additional comfort to the patient

**Ring Clamp**

The Tenxor™ ring clamp is specifically designed to provide versatile single connection between the ring and K-wire, Apex® pin or rod, allowing accurate placement around the ring to facilitate accurate fracture management and strategic wire or pin placement in very distal or proximal bone fragments.

- Allows connection between the ring and a K-wire post, a pin post or an 8mm diameter rod
- Slides along the ring in order to determine the best position according to frame configuration
- Positioning of the clamp inside or outside the ring
- Integrated snap-fit mechanism for “clicking” the clamp on the ring
- Inside groove for K-wire post introduction
- Easy access for cleaning without any risk of component disassembly
- Compatible with stainless steel, carbon or aluminium Hoffmann® II 8mm connecting rods
- 13mm locking nut compatible with Monticelli-Spinelli™ 13mm wrenches
- Manufactured in stainless steel
The Tenxor™ K-wire post allows 3 dimensional placement of the K-wire to facilitate accurate fracture management.

- Used in combination with the ring clamp
- Allows K-wires with diameter from 1.5 to 2mm
- Positioning below or above the ring
- 8mm short rod allowing connection to Hoffmann® II pin-to-rod or rod-to-rod couplings
- Height adjustment of maximum 25mm
- 2 stops on the rod define the height adjustment limits of the post in the ring clamp
- ± 20° K-wire angulation in the vertical plane
- Possibility of 360° rotation in the ring clamp
- Top entry of the wire with a “click” effect thanks to an integrated snap-fit mechanism
- Locked in position in the ring clamp thanks to the 13mm locking nut of the clamp
- Locking of the wire in the post with a 7mm square head screw compatible with Hoffmann® II wrenches
- Manufactured in stainless steel

Pin Post

The Tenxor™ pin post allows 3 dimensional placement of Apex® pins for accurate fracture management to enable compact and versatile frame configurations.

- Allows 4mm, 5mm or 6mm Apex® pins
- Used in combination with the ring clamp
- Positioning below or above the ring
- 8mm short rod allowing connection to Hoffmann® II pin-to-rod or rod-to-rod couplings
- Height adjustment of maximum 35mm
- Possibility of 360° rotation in the ring clamp
- Entry of the pin at the top of the post with a “click” effect thanks to an integrated snap-fit mechanism
- Allows independent pin placement
- Integrated serrated teeth guaranteeing a good axial stability of the frame
- Locked in position in the ring clamp thanks to the 13mm locking nut of the clamp
- Locking of the pin in the post with a 7mm square head screw compatible with Hoffmann® II wrenches
- Manufactured in stainless steel
Ring to Tube Clamp

Allows connection between the Tenxor™ ring and a Monotube® Triax™ dynamic or carbon tube.

The Monotube® Triax™ Fixator allows for postoperative adjustment of the frame, with an integrated dynamisation and distraction compression feature.

- Available in 2 sizes for Blue and Red Monotube® Triax™ (20 and 25mm)
- Possibility of sliding along the ring in order to determine the best position according to frame configuration
- Integrated snap-fit mechanism for “clicking” the clamp on the ring
- Positioning of the clamp inside or outside the ring
- 3 axes of rotation
- 7mm square head locking screws compatible with Hoffmann® II and Blue/Red Monotube® Triax™ wrenches
- Easy access of locking screws
- Manufactured from stainless steel and aluminium
**Wire tensioner**
Allows tension up to 100kg for 2mm and up to 50kg for 1.5mm K-wire.
Integrated screw mechanism maintains wire tension even while surgeon is not applying a load - allowing locking of the K-wire post screw without any assistance.

**Cutting and bending pliers**
Allows a smooth cut section of the wire. 
Permits bending of the remaining portion of the wire after cutting it with the same device.

**Split K-wire guide**
Split sleeve for easy removal of the device after wire introduction into the bone. Allows introduction of K-wire with olive.

**Stabilisation wrench**
Applied on the K-wire or pin post during tightening of the locking screws. Acts as a counter-key.

**Wrenches**
13mm quick capture spanner wrench for quicker locking of the ring clamp nut.
7mm Cardan wrench for easy access of locking screws.
7mm Hoffmann® II wrenches (T-wrench, spanner wrench) for locking of the K-wire post, the pin post and the ring to Monotube® Triax™ tube clamp.

**Sterilisation & Storage tray**
Allows for storage and sterilisation of Tenxor™ components and instruments, and facilitates inventory control.
**Tenxor™ Frames Reference Guide**

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Clinical Cases

Proximal intra-articular tibia fracture (A-P view)

M-L view

Final frame (A-P view)

Frame removal after fracture consolidation

Proximal tibia fracture (A-P view)

M-L view

Final frame (A-P view)

Frame removal after fracture consolidation (A-P view)

Proximal intra-articular tibia fracture (A-P view)

Final frame (A-P view)

M-L view

Final frame (M-L view)
## Components & Instruments

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### Ring to Monotube® Triax™ Tube Clamp

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### Kirschner Wires

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### Kirschner Wires with Olive

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### Tenxor™ Instruments

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<td>4936-9-010 Wire Tensioner</td>
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<td>4936-9-040 Split Wire Sleeve</td>
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<td>4936-9-070 7mm Cardan Wrench</td>
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<td>5054-8-009 7mm Spanner Wrench</td>
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† Data on file at Stryker® Howmedica Osteonics USA.
TenXor™
External Fixation System

Monotube® TRIAX™ *
Unilateral frame system designed to handle a wide variety of fractures and limb-lengthening applications. This simple, colour-coded system offers both dynamic and carbon tubes for individualised performance and economy. True simplicity, versatility, and economy.

Hoffmann™ II **
Modular frames which allow for true independent pin placement. Completely compatible with Original Hoffmann® components, this new system improves flexibility and ease-of-use, while enhancing frame economics through minimal componentry. It’s external fixation with a “snap.”

Compact™
Designed to complement the anatomy of the distal radius by allowing independent movement of its clamps in multiple planes. Standard unilateral or bi-lateral bridging frames for intra-articular fractures and peri-articular non-bridging frames for extra-articular fractures. Fully compatible with the Hoffmann® II System, based on a spring-loaded snap-fit mechanism that improves flexibility and ease-of-use.

Dynamic Joint
Distractor II
The DJD II is a Dynamic Elbow Joint Distractor. Fully compatible with the Hoffmann® II Compact™ System, it is designed to treat post-traumatic elbow stiffness as well as acute elbow trauma cases.

TenXor™
The TenXor™ System is a hybrid system providing advanced technology and ease of application. Fully compatible with Hoffmann® II and Monotube® Triax™, based on a spring-loaded, snap-fit mechanism that improves flexibility and ease of use.

Apex™ ***
Every Fixator incorporates the high quality pin-to-bone interface provided by Apex® Pins. The Apex® Pin cuts more sharply with less torque, friction and heat upon insertion improving purchase while minimising the risk of pin tract problems.† Available in self-drilling and blunt tip designs, only from Stryker® Howmedica Osteonics!