

hps fusion



surgical TECHNIQUE GUIDE



Rethinking Possibilities, Reshaping Lives

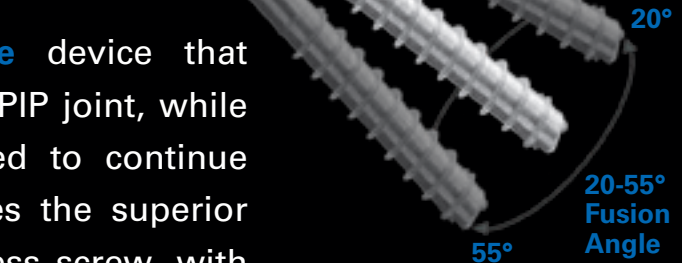
hps fusion



44° - 1.6mm
36° - 2.0mm

Hand Fusion is an **innovative** device that provides stable fixation of the PIP joint, while allowing for the fusion angle needed to continue **daily activity**. Hand Fusion combines the superior compression of the ExtremiFix headless screw, with the **one-of-a-kind**, variable-angle locking technology of the HPS™ system. The highly polished plates are low profile and have rounded edges to reduce dorsal prominence and soft tissue irritation. The system includes the first cannulated compression screw with locking capabilities; the Fusion Screw can lock up to 18 degrees from center, allowing for fusion of the joint at a **natural resting angle**. For patients requiring arthrodesis, the addition of Hand Fusion to HPS will allow the patient to return to daily activity.

Still... One System, Endless Possibilities.



20°

20-55°
Fusion
Angle

55°



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2.0mm Fusion Screws*



334-2016	2.0x16mm Fusion Screw
334-2018	2.0x18mm Fusion Screw
334-2020	2.0x20mm Fusion Screw
334-2022	2.0x22mm Fusion Screw
334-2024	2.0x24mm Fusion Screw
334-2026	2.0x26mm Fusion Screw
334-2028	2.0x28mm Fusion Screw
334-2030	2.0x30mm Fusion Screw
334-2032	2.0x32mm Fusion Screw

2.4mm Fusion Screws*



334-2420	2.4x20mm Fusion Screw
334-2422	2.4x22mm Fusion Screw
334-2424	2.4x24mm Fusion Screw
334-2426	2.4x26mm Fusion Screw
334-2428	2.4x28mm Fusion Screw
334-2430	2.4x30mm Fusion Screw
334-2432	2.4x32mm Fusion Screw
334-2434	2.4x34mm Fusion Screw
334-2436	2.4x36mm Fusion Screw

Hand Fusion Plates*



333-1614	1.6mm Fusion Plate
333-2014	2.0mm Fusion Plate

K-Wire



316-0107 .035 x 4" K-Wire Single Trocar



316-0119 .035" x 4" K-Wire Double Trocar



316-0003 .045 x 4" K-Wire Single Trocar



316-0123 .045 x 4" K-Wire Double Trocar

Patent Pending*



Instruments



320-1065 Module



320-1040 Goniometer



316-1041 20°/25° Fusion Reamer
 316-1042 30°/35° Fusion Reamer
 316-1043 40°/45° Fusion Reamer
 316-1044 50°/55° Fusion Reamer



316-1046 Depth Gauge



316-1045-03 K-Wire Guide



316-1045 K-Wire Drill Guide



316-1017 1.7mm Drill, Quick Release



316-0917 1.7mm Drill, Manual



316-1020 2.0mm Drill, Quick Release



316-0920 2.0mm Drill, Manual



316-1120 2.0mm Fusion Screw Driver Stem



316-1124 2.4mm Fusion Screw Driver Stem

surgical technique

surgical technique

Joint Preparation

1 Expose joint

Make incision on dorsal surface of proximal bone of PIP joint.



2 Remove damaged joint surfaces

Using goniometer for reference, position joint at desired angle (between 20-55 degrees) and create osteotomy cuts. Distal bone should be cut perpendicular to dorsal surface; proximal bone cut will determine angle of fusion. Cup and cone configuration can also be used.



3 Create guide channel in distal canal

From center of joint, drive $\text{\O}0.045'' \times 4''$ k-wire into distal bone axially to create a guide channel.

NOTE: In **soft bone** where drilling for fusion screw will not be needed, $\text{\O}0.035'' \times 4''$ k-wire can be used to create a smaller channel. Do not bend k-wire when inserting into bone.



4 Remove k-wire from distal bone



5 Place k-wire to determine plate placement

From center of joint, drive $\text{Ø}.045'' \times 4''$ k-wire into proximal bone through dorsal cortex at desired angle.



6 Confirm fusion angle

Retrograde k-wire into channel of distal bone, re-attaching joint. Use goniometer to confirm angle.

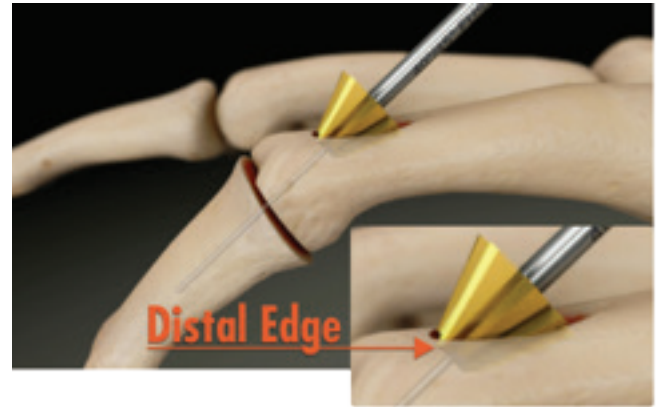
NOTE: Measuring the angle of the k-wire in the proximal bone relative to the dorsal surface will also determine fusion angle.



Plate Placement

7 Create a recess in proximal bone for placement of plate

Select appropriate reamer based on angle of fusion desired. Place reamer over k-wire and ream using power, until top distal edge contacts surface of bone.



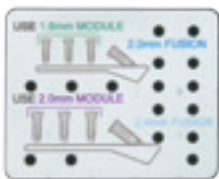
8 Place Fusion Plate

Remove k-wire. Select appropriate size Fusion Plate for fixation of joint. Cut and bend plate as needed using appropriate instrumentation from HPS instrument tray. Place plate in divet created by reamer with transfix hole distal on bone.



9 Fixate plate to proximal bone

Follow Screw Preparation and Insertion steps in HPS Surgical Technique (page 17-18) to insert one locking, non-locking or lag screw from appropriate HPS module into shaft of plate.



- 1.6 plates use screws from **green 1.6 HPS module**
- 2.0 plates use screws from **purple 2.0 HPS module**

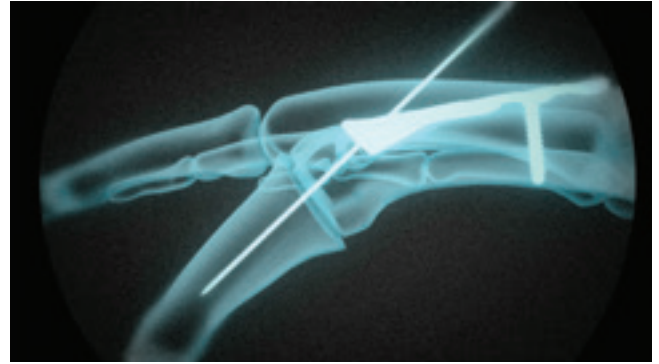
NOTE: Do not place screw in hole in barrel of plate prior to placing Fusion Screw.



10 Position bones for fusion

Insert $\varnothing.035$ k-wire through transfix hole and position bones for fusion. Check positioning under fluoroscopy if desired.

NOTE: Fusion Screw WILL NOT fit over $\varnothing.045$ k-wire previously used.



11 Measure

Slide cannulated depth gauge over k-wire until tip reaches plate; end of k-wire will indicate screw length required.



12 Drill (optional)

If drilling is desired, slide drill guide over k-wire into transfix hole. Drill hole using appropriate drill size. Fusion screws are self-drilling and self-tapping but drilling is recommended in dense bone.

NOTE: Use irrigation when drilling. Fluoroscopy is recommended during drilling. Failure to use drill guide may inhibit ability to lock screw in plate.



13 Select Fusion Screw

Select appropriate Fusion screw diameter and length from Hand Fusion module, 2.0mm screw for 1.6 plate and 2.4mm screw for 2.0 plate. Verify screw length with gauge on block.



hand fusion

Insert Fusion Screw

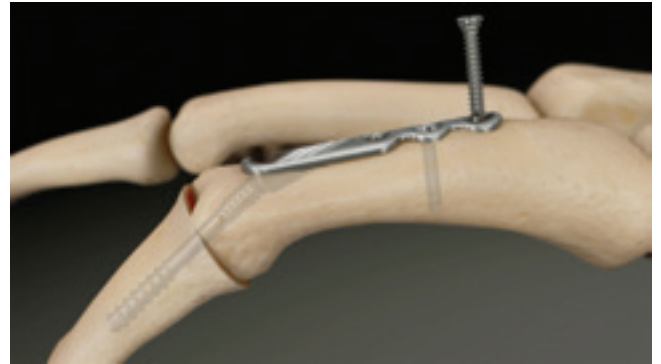
14 Insert Fusion Screw

Reduce joint; insert screw over k-wire into transfix hole to compress joint and lock it into plate.

NOTE: Firmly hold distal bone when inserting screw to prevent malrotation prior to compression and locking of screw into plate.

Optional Screws:

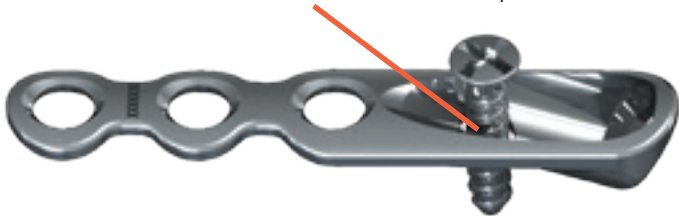
If solid core screw is desired, use standard screws in **2.0 HPS module** for transfix hole in 1.6 Fusion Plate, and standard screws in **2.4 HPS module** for transfix hole in 2.0 Fusion Plate. Follow screw Preparation and Insertion steps in HPS Surgical Technique Guide. (page 17-18)



15 Fill remaining screw holes

Repeat step 9 to place additional screws until all necessary holes are filled.

NOTE: If necessary, use only NON-LOCKING screws in hole in barrel of plate.



Close

16 Place parallel k-wire across joint if needed for anti-rotation. Close.

MCP and DIP Joints

The OsteoMed Hand Fusion System is approved for use in bone fusion and arthrodesis of phalanges and metacarpals. Fusion angles range between 20 and 55, and may be too extreme for the DIP joint. If choosing to fuse the DIP or MCP joint, follow the surgical technique for the PIP Joint.

WARNING: In patients with a large intramedullary canal, the diameter length of the Fusion screw provided may not provide adequate compression of the MCP joint.



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