



# Orthotic Fabrication with Isoforce

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*Step-by-Step Fabrication of the Isoforce Outrigger  
Dynamic Orthosis with Orficast Thermoplastic on a Roll*



# Orthotic fabrication of the Isoforce Dynamic Orthosis with Orficast

This handout features step by step orthotic fabrication instructions of the Isoforce Outrigger Dynamic Orthosis with Orficast Thermoplastic on a roll.

## Materials and recommended amounts

- Use a piece of 30-40 cm (10-12") of Orficast More 15 cm (6") for the base orthosis
- Use Orficast 3 cm (1") and non-elastic thread for the finger cuff
- Use elastic thread to thread the Isoforce unit of a dynamic orthosis
- Isoforce unit



## Create the Base Orthosis

### Step by Step Guide

#### Create the Base Orthosis

1. First, draw a pattern of the patient's hand.
2. Include the proximal phalanx of the involved finger and enough material on the ulnar and radial sides of the hand to create the circumferential base.
3. Trace the pattern onto the piece of Orficast and make a hole for the thumb.



4. Activate the Orficast in water of 65°C (149°F) and briefly pat dry.
5. Position on the dorsum of the patient's hand and place the MCP joint of the involved finger in 40 to 70 degrees of flexion. Pinch the material together on the ulnar border.



6. Mold carefully around the involved finger. Make sure to include the PIP joint axis of motion on each side of the involved finger.
7. Trim away material that blocks PIP joint flexion, and leave material to cover the PIP joint laterally on each side.





## Attach Straps to the Base Orthosis

### Step by Step Guide

#### Attach Straps to the Base Orthosis

8. Place one strap on the ulnar border and one strap over the proximal phalanx. Cut away the excess strap material





## Prepare the Attachment of the Isoforce Unit to the Base Orthosis

### Step by Step Guide

#### Prepare the Attachment of the Isoforce Unit to the Base Orthosis

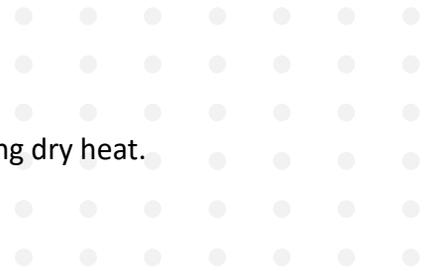
9. Mark the PIP joint axis of motion on each side of the PIP joint as a reference point for placement of the Isoforce unit.



10. Select the appropriate size of Isoforce: Small, Medium or Large.

Size of Isoforce	Circumference of Proximal Interphalangeal Joint	Distance between Isoforce Pegs
Small	4.0 cm – 5.5 cm (1.75" - 2.25")	15.8 mm (0.6")
Medium	5.5 cm – 7 cm (2.25" - 2.75")	21.8 mm (0.85")
Large	7 cm and greater (2.75" and greater)	27 mm (1.06")





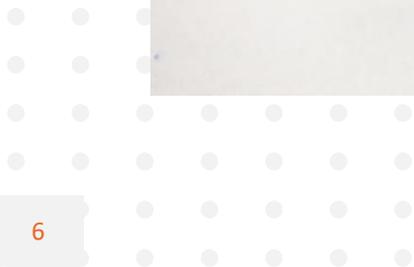
11. Take two small scraps of Orficast and briefly heat up using dry heat.



12. Cover the pegs on the inside of the Isoforce unit with the heated scrap material.
13. Place the covered pegs of the Isoforce immediately on the marked axis of motion on the base orthosis. Secure with pressure and fix into the base orthosis.



14. Check if the Isoforce unit moves easily forward and back with the pegs securely embedded in the holes.





## Create the Finger Cuff

### Step by Step Guide

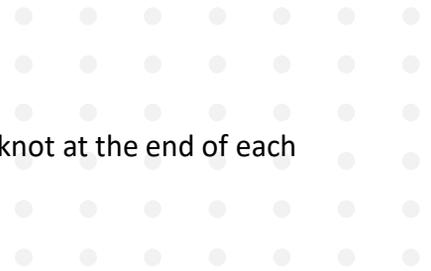
#### Create the Finger Cuff

15. Cut a piece of Orficast 3 cm (1") width material that covers the volar middle phalanx or the middle and distal phalanges for a longer lever arm
16. Activate the Orficast material in a 65°C (149°F) water bath.

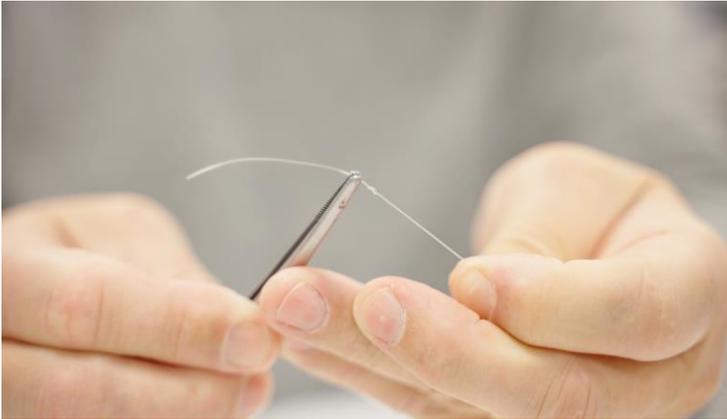


17. Wrap around the finger and let the finger cuff harden.
18. Trim the sides.

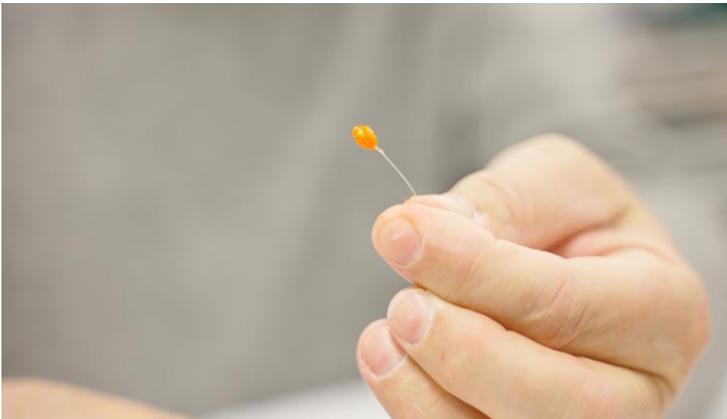




19. Take two small pieces of non-elastic thread and make a knot at the end of each thread.



20. Cover each knot with dry heated Orficast material.



21. Reheat the knots and attach to each side of the finger cuff to secure.





## Thread the Isoforce Unit

### Step by Step Guide

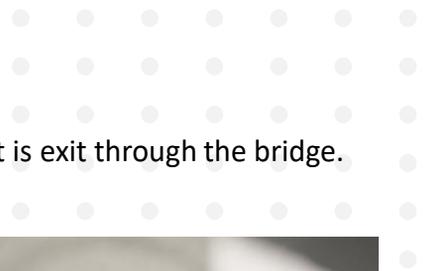
#### Thread the Isoforce Unit

22. Use elastic thread for the creation of a dynamic orthosis, or use non-elastic thread for the creation of a static progressive orthosis. In this example, we are creating a dynamic orthosis with elastic thread. Tie a knot on one end of the elastic thread.
23. Cover the knot with dry-heated Orficast material to secure.
24. Pull the thread through the pulling hole.





25. Re-thread the other end through the dorsal canal and let it exit through the bridge.





## Attach the Isoforce Unit to the Base Orthosis

### Step by Step Guide

#### Attach the Isoforce Unit to the Base Orthosis

26. Have the patient don the orthosis, secure the straps and place the Isoforce Unit in the previously determined position. The pegs must be aligned with the PIP joint axis of motion.



27. Place the finger cuff on the finger.



28. Use a straight object to select a hole in the Isoforce outrigger that provides a 90° angle of pull to the middle phalanx or the middle and distal phalanges for a longer lever.

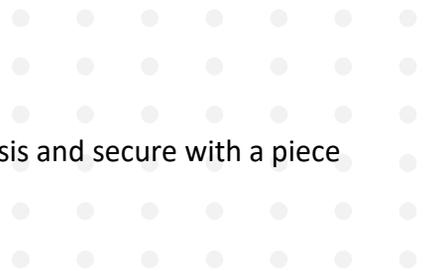


29. Pull the thread from the finger cuff through the selected hole.



30. Create a tunnel from a small piece of Orfitube.





31. Position the Orfitube tunnel on the dorsum of the orthosis and secure with a piece of dry heated Orficast.



32. Pull the elastic thread out of the bridge hole and through the tunnel. The Orfitube tunnel can be lengthened to allow for moderation of the tension.



33. Place a piece of adhesive backed hook on the base of the orthosis



- 34. Create a hole in a small piece of loop strap.
- 35. Attach the elastic thread of the Isoforce into the loop strap hole.
- 36. The tension can now be adjusted by securing the loop strap onto the adhesive backed hook on the base orthosis.



- 37. Check if you patient feels a slight pulling sensation when the finger is held in passive PIP joint extension. Your patient should not feel any pain.
- 38. Trim away the excess lever arm.



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