

ISOFORCE

A. GENERAL PRODUCT INFORMATION

ISOFORCE is a uniquely designed outrigger that is attached to a dorsal-based hand orthosis to apply force on a stiff Proximal Interphalangeal (PIP) joint.

! ISOFORCE is not suitable for internal use. It may not be used on open wounds or in the mouth.

B. PRODUCT RANGE

ISOFORCE is available in three different sizes.

Art. no.	Product	Size
35322	Isoforce	Small (S)
35323	Isoforce	Medium (M)
35324	Isoforce	Large (L)

C. PRECAUTIONS BEFORE USE

1. The workplace must be well-ventilated to avoid overheating.
2. The necessary tools should in no way put the patient at risk.
3. Encourage the patient to assume a comfortable position and make sure that you yourself are in an easy working position.
4. **Make sure that the temperature of the activated thermoplastic material will not burn the patient.**

D. APPLICATION TECHNIQUE

Fabricate the Dorsal Base Orthosis:

1. Draw a pattern of the patient's hand to 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. Make a hole for the thumb. Use an elastic based thermoplastic material in 2.0 mm or 1/12" thickness such as Orfit Colors NS, Orfit NS, Orfit Natural NS or Orficast More.
2. The goal is to fabricate a dorsal hand based MCP flexion orthosis, isolating the stiff finger. Make sure to cover the sides of the PIP joint to cover the axis of motion on both sides.
3. Fabricate the orthosis with the involved finger placed in 40-70 degrees of Metacarpal-Phalangeal (MCP) joint flexion. The isolated finger is covered dorsally with the thermoplastic material and the axis of motion of the involved Proximal-Interphalangeal (PIP) joint is also included. Mark the axis of motion of the PIP joint on both sides.
4. Trim material away to allow for wrist and finger motion, specifically PIP joint flexion of the involved finger. Apply straps to secure to the orthosis to the patient's hand.

Create the Finger Cuff:

1. The finger cuff should cover the volar middle phalanx (or the middle and distal phalanges for a longer lever). Use Orficast or other similarly thin thermoplastic material to mold around the volar surface. Let harden and trim the sides.
2. To attach the string to the finger cuff, use a non-elastic thread. Make a knot at the ends of two separate threads. Cover the knots with dry heated Orficast. Slightly re-heat these covered knots and stick to the finger cuff, one on each side.

Attachment of the Isoforce:

1. 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")

2. There are two methods to apply the Isoforce unit to the base orthosis:
 - a. Method 1: Cover the pegs of the Isoforce with small scraps of dry heated thermoplastic material. Place the covered pegs immediately on the marked axis of motion of the PIP joint on the base orthosis and press firmly together to lock the Isoforce in place.
 - b. Method 2: Using a hole punch and create holes in the markings for the joint axis of motion of the PIP joint on both sides in the base orthosis. Cover the pegs of the Isoforce with small scraps of dry heated thermoplastic material and press into the punched holes at the PIP joint axis of motion. Press firmly in place.
3. The Isoforce unit should move easily forward and back with the pegs securely embedded in the holes.

Threading the Isoforce:

1. Have your patient don the orthosis to start threading.
2. Place the finger cuff under the involved finger. Use an Allen wrench or other 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 phalanx combined). Any excess outrigger can be cut away. Thread the non-elastic thread from the finger cuff through the appropriate hole and tie a knot.

Create the Tension Force:

Use elastic thread for the creation of a dynamic orthosis, or use non-elastic thread for the creation of a static progressive orthosis.

a. Dynamic Orthosis

1. Tie a knot in the end of a piece of elastic thread and cover with dry heated thermoplastic scrap material. Thread the other end of the elastic through the pulling hole near the canal.
2. Create a tunnel from a small piece of Orfitube or from a small piece of scrap material on the dorsum of the orthosis.
3. Pull the elastic thread out of the bridge hole of the Isoforce unit and thread this through the Orfitube or tunnel positioned on the dorsal orthosis to ensure alignment. The Orfitube can be lengthened to allow for moderation of the tension.
4. Tie a knot in the elastic thread, and then place a sliding loop knot on top of the thread to create tension. This sliding knot can be adjusted to increase or decrease the tension. An alternative solution is to place adhesive backed hook on the base of the orthosis. Tie the elastic thread to a small piece of loop strap.
5. The tension can be adjusted by securing the loop strap from the Isoforce outrigger onto the adhesive backed hook on the base orthosis.

b. Static Progressive Orthosis

1. Tie a knot in the end of a piece of non-elastic thread and cover with dry heated thermoplastic scrap material. Thread the other end through the pulling hole near the canal.
2. Create a tunnel from a small piece of Orfitube or from a small piece of scrap material on the dorsum of the orthosis.
3. Pull the non-elastic thread out of the bridge hole of the Isoforce unit and thread this through the Orfitube or tunnel positioned on the dorsal orthosis to ensure alignment.
4. Place adhesive backed hook on the base of the orthosis. Tie the non- elastic thread to a small piece of loop strap.
5. The tension can be adjusted by securing the loop strap from the Isoforce outrigger onto the adhesive backed hook on the base orthosis.

With either type of orthosis, the patient should feel a slight pulling sensation but not pain, as the finger is held in passive PIP joint extension.

E. MAINTENANCE AND WASTE MANAGEMENT

All orthoses made with ORFIT low temperature thermoplastic materials and Isoforce should be cleaned daily. Use pre-moistened isopropanol wipes. Dry thoroughly.

! Never use solvents. Avoid acid detergents.

Sterilization of orthoses made with Orfit low temperature thermoplastic materials in an autoclave is impossible.

Disinfection is possible with alcohol, quaternary ammonium or a solution of commercial disinfecting soaps (HAC® Sterilium® etc.).

After use, an orthosis can be disposed of with normal household waste without harming the environment. ORFIT low temperature thermoplastic materials are biodegradable.

F. ADVICE FOR THE PATIENT

! Give the patient sufficient information about the exact use of the orthosis and about the possible constraints of the orthosis. Make sure the patient understands the wearing schedule and what to do if adjustments need to be made.

G. STORAGE

- Isoforce should be stored in its original packaging in a dark, cool, dry place at a temperature of min. 10°C (50°F) and max. 30°C (86°F) and in the original packaging.

Low temperature thermoplastics can only be kept for a limited period of time and must be protected as much as possible from light, heat and humidity. The material ages in direct relation to storage circumstances. When too old, it becomes brittle and too soft when activated.

H. GENERAL SAFETY ADVICE

- ! * **ISOFORCE is not suitable for internal use. It may not be used on open wounds or in the mouth.**
- ! * **Never use an open flame when working with ISOFORCE.**
- ! * **To make orthoses and rehabilitation aids, ISOFORCE may only be used by qualified health professionals.**

I. ADDITIONAL INFORMATION

For additional information such as distributor contact information, product brochures, Safety Data Sheets and regulatory information, please visit our website www.orfit.com

Note:

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