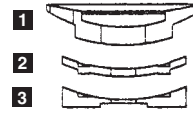


# ASSEMBLY INSTRUCTIONS FOR THE IMPULSE® SYMES SOCKET ADAPTER KIT

## Please read instructions thoroughly before assembling.

Materials included in kit:

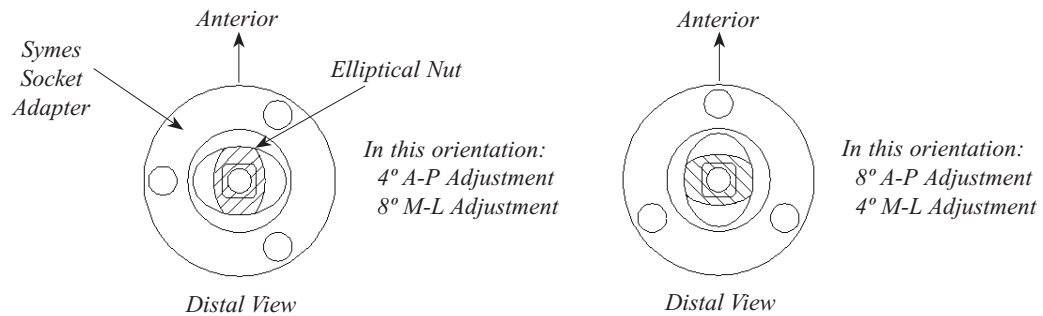
- 1 1 Symes Socket Adapter (contains an Elliptical Nut)
  - 2 3 Height Adjusters, 1/8" (3mm) each
  - 3 1 Base Plate (not included with Impulse Symes System because it is not necessary)
- 1 Plastic Laminating Cap  
1 Alignment Bolt (hollow)  
2 Carbon Tape, 3"x6" (75mm x 150mm)  
1 Pipette



Additional materials needed: Impulse foot, Siegelharz, standard lab supplies (stockinette, resin, etc.).

1. Temporarily attach the Symes Socket Adapter to the socket using Siegelharz thickened with Solka Floc (or a similar method) and casting tape. The orientation of the Symes Socket Adapter with respect to the socket will determine the amount of angular adjustment available in each direction, as illustrated in the figures below.

**Note: If using an Impulse with a Symes keel, omit Step 2.**



2. Place the Base Plate on the keel of the foot so that the ridge on the bottom of the Base Plate fits into one of the slots on the keel.
3. Place the Impulse on the floor, and have the amputee stand so that the Symes Socket Adapter on the socket is directly above the Base Plate/Symes keel on the foot. If there is a gap between the Symes Socket Adapter and the Base Plate/Symes keel, add up to three Height Adjusters as follows:
  - a. Insert the two pegs on the bottom of the Height Adjuster into the two holes on the Base Plate/Symes keel.
  - b. Install additional Height Adjusters by inserting the two pegs on the bottom of the Height Adjuster into the two holes in the Height Adjuster below it.
  - c. No adhesive is necessary.

**Note: The Foot Bolt that will be used definitively can accommodate up to three Height Adjusters. If the gap between the Symes Socket Adapter and the Base Plate/Symes keel is too large, reattach the Symes Socket Adapter to the socket so that the distance to the foot is shorter.**

4. Apply petroleum jelly or paste wax to the threads of the Alignment Bolt.
5. Install the Alignment Bolt up through the bottom of the foot to determine how much the bolt should be shortened [the bolt should extend 7/16" to 1/2" (11mm to 13mm) past the top of the keel/Height Adjuster assembly]. Cut the bolt accordingly.
6. Using the Alignment Bolt, attach the foot (and Height Adjusters, if any were used in Step 3) to the Symes Socket Adapter. Note that the square Elliptical Nut fits into the square opening in the keel/Height Adjuster so that toe-out can be easily preserved. Tighten the Alignment Bolt to 20 ft-lbs (27 Nm).

**Warning: Due to its hollow structure, the Alignment Bolt must be used for alignment only. Use of the Alignment Bolt in a definitive prosthesis could result in failure of the part and/or injury to the patient.**



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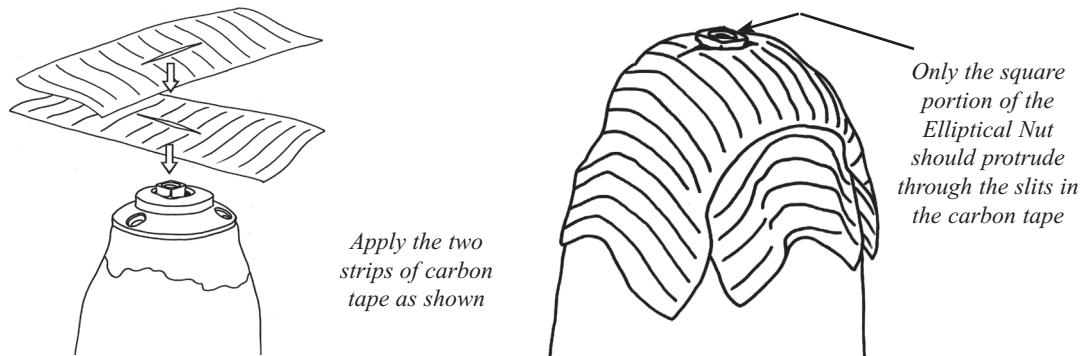
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7. Perform dynamic alignment; when necessary, loosen the Alignment Bolt and make the desired angular adjustments.
8. When dynamic alignment is complete, secure the Elliptical Nut in place to lock in the alignment:
  - a. Fill the Pipette with Siegelharz.
  - b. Turn the prosthesis upside down.
  - c. Inject the Siegelharz through the center of the Alignment Bolt to the Symes Socket Adapter.
  - d. Allow the Siegelharz to harden.

**Warning: Failure to fill the cavity around the Elliptical Nut with Siegelharz will likely cause the Elliptical Nut to pull out of the Symes Adapter, resulting in failure of the prosthesis.**

9. Remove the Alignment Bolt, separate the foot from the socket, and place the socket on a laminating fixture.
10. Cut the Foot Bolt (supplied with the foot) to the same length as the Alignment Bolt. Set the Foot Bolt aside.
11. Cut the Alignment Bolt so that the length of the threaded portion is 1-1/4" (32mm) long and the length of the entire bolt is approximately 1-11/16" (43mm) long. (Depending on the length of bolt that was cut off in Step 5, this step may not be necessary.)
12. Apply petroleum jelly or paste wax to the threads of the Alignment Bolt.
13. Cut a small slit along the midline of each strip of carbon tape at the middle of its length. The slit should be just slightly larger than the square portion of the Elliptical Nut.
14. Place the two strips of carbon tape on the Symes Socket Adapter so that the square portion of the Elliptical Nut protrudes through the slits in the tape. Orient the carbon tape as desired to obtain the strongest reinforcement.

**Warning: Only the square portion of the Elliptical Nut should protrude through the slits in the carbon tape. If the slits are too large, the Symes Socket Adapter itself will protrude through the slits and will not be securely attached to the socket.**



15. Place the Laminating Cap over the carbon tape and press it into place so that the square portion of the Elliptical Nut fits into the square hole in the Laminating Cap.

**Note: Make sure that the four small holes in the Laminating Cap are not obstructed in any way. Blocked holes will interfere with complete saturation during lamination.**

16. Install the Alignment Bolt through the Laminating Cap into the Elliptical Nut.
17. Fill the hex head on the Alignment Bolt with clay to keep resin out of the opening.
18. Cut a length of stockinette long enough to cover the socket twice, and apply as follows:
  - a. Pull one end of the stockinette down over the socket and carbon tape.
  - b. Tie the middle of the stockinette off at the neck of the Symes Socket Adapter.
  - c. Pull the other end of the stockinette down over the socket.
19. Complete the lamination, using a minimum vacuum of 10" (250mm) Hg. After the lamination is complete, discard the Laminating Cap and the Alignment Bolt.
20. File the distal surface to remove any small burrs of resin that may have formed.
21. Attach the foot (with Height Adjusters, if any were used in Step 3) to the socket. Tighten the Foot Bolt to 30 ft-lbs (41 Nm).