



Motion ArmTM

Forearm Cutting Tool

Prosthetist Manual

Introduction

The Motion Arm, both Manual Lock (ML) and Electric Lock (EL) represent the next level of functionality in automatic forearm balance elbows. A part of this increased functionality is meeting the IP67 dust-proof/waterproof standard.

To maintain the waterproof nature of the elbow, the forearm must not be removed. We have provided a special cutting tool and instructions to shorten the forearm up to one inch. If additional shortening is necessary, please contact Motion Control.

Special Precautions



A waterproof terminal device with a waterproof quick disconnect wrist must be installed to make the elbow waterproof. Exposing the elbow to water without a waterproof wrist installed will likely cause damage to the elbow.



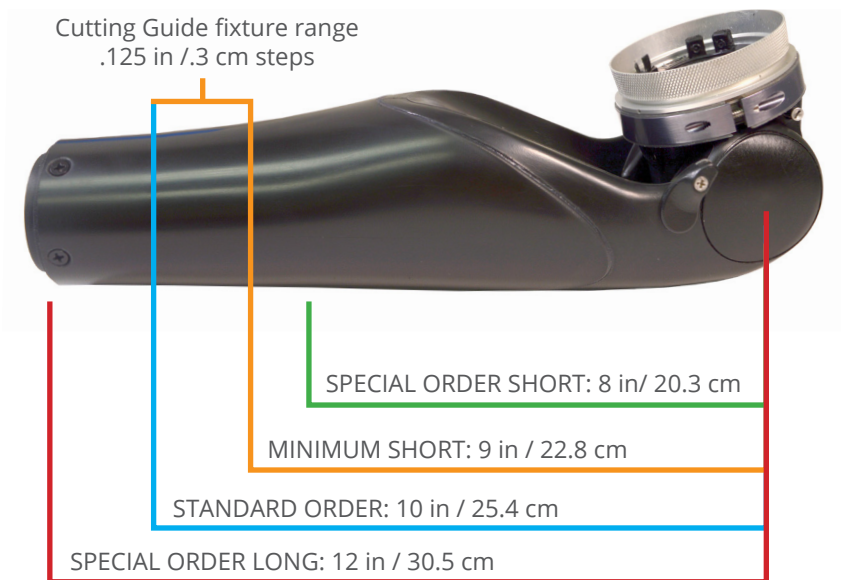
Do not remove the forearm cover for any reason. This will damage the waterproof seal. The warranty will be voided for any water damage caused to the elbow if the forearm has been removed by anyone other than authorized personal.



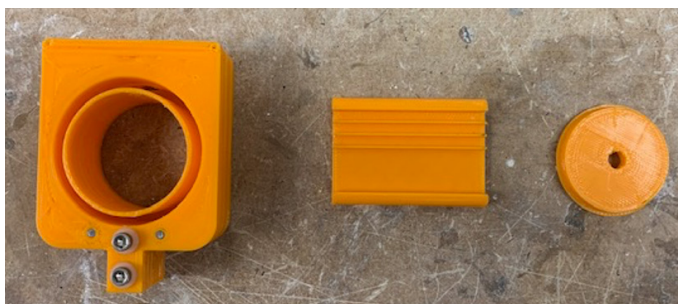
Do not remove any covers, screws, plates or any part of the elbow not described in this manual. There are no user serviceable components within the elbow. Removal of these covers will compromise the waterproof seal and void the warranty.

Procedure to Cut the Hybrid Forearm to Length

The Standard length for the Motion Arm is 10 inches (25.4 cm) from the center of rotation of the elbow to the distal forearm. This is the shortest forearm possible when using an electric wrist rotator. The elbow can be custom ordered up to 2 inches longer than standard. With the Forearm Cutting Tool the forearm can be shortened up to 1 inch (2.54 cm). The forearm can be shortened an additional 1 inch but must be sent in to Motion Control for cutting. See image below:



The Forearm Cutting Tool



- 1. Remove the wrist End Cap or Electric Wrist Rotator from the forearm.** Remember, if the forearm is shorter than "Standard Length" an electric wrist rotator cannot be used.

2. Insert the circular disc in the cutting fixture as pictured (Figure 1).

3. Insert forearm section into the circular receiver and make sure it is fully seated so that the holes in the cutting fixture matches the hole in the forearm (Figure 2). Note the position of the prosthetic elbow with the top of the cutting fixture. Use the screw that comes with the forearm cutting tool to lock the forearm section accurately in the cutting fixture (Figure 3). This ensures the accuracy of your intended cutting length.



Figure 1. Tab to be inserted in a vice for hand cutting



Figure 2.

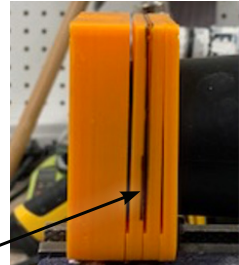


Figure 3.

4. Measure the length desired from elbow center to the wrist and mark on the cutting fixture, each cutting slot represents 5mm in length. The first slot from the distal end is 12.5mm or ½" (Figure 4).



Figure 4. With a Sharpie marker, identify the cutting slot.



5. Insert the cutting guide and arm into a vice (Figure 5) using the Tab called out in Figure 1.

Figure 5.

- 6. Insert the hacksaw blade** and slide the spacing cap in place as shown above. Then cut off the section of the forearm no longer needed.



Figure 6. Cut through guide slot with a hack saw.

- 7. Remove the circular disc from inside the arm,** and the remaining cut section of the forearm and cutting fixture (Figure 7).



Figure 7.

- 8. Gently deburr the edges of the forearm section** with a deburring tool, or knife (Figure 8). Lightly sand a flat surface that will receive the end cap with a fine 220 grit sandpaper, making sure the sanded surface remains square to the long axis of the forearm, so the end cap seats nicely. Use care to not allow slivers of plastic to fall into the elbow.

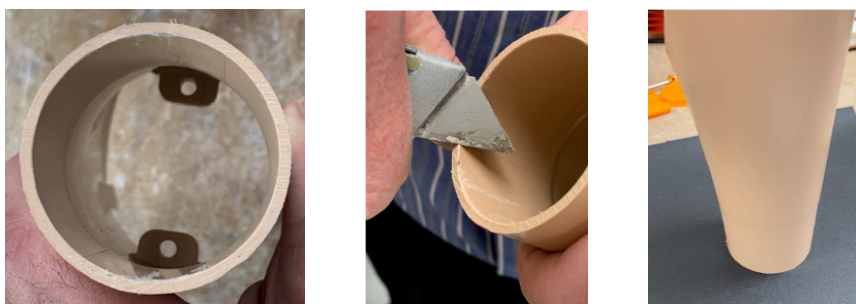


Figure 8. Deburr the edges and sand. Use caution with debris.

- 9. Attach the appropriate wires on the back of the coaxial plug.**

It is suggested to hook up the terminal device and test the connections *before* gluing the End Cap in place. It will be very difficult to access the connections once the End Cap is permanently attached.

- 10. Using the two-part Urethane glue provided, glue the end cap into the distal end of the forearm section.** Apply the Urethane glue to the inside of the forearm, not the end cap. Insert the end cap, then twist a $\frac{1}{4}$ turn (disregard the threaded holes in the end cap). The End Cap should seat fully without any of the O-ring showing. If the End Cap does not seat completely or the O-ring is visible, the wrist may not be waterproof.



Figure 9. You should not see the O-ring when fully seated and glued in place.

- 11. Please wait 1 hour before applying rigorous loads to the end cap.** (Urethane will setup in about 5 minutes. Full strength is achieved in 1 hour.)

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