

ICECAST Compact

Technical Manual for plaster of Paris

- Transtibial poP Application with ICECAST Compact -

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Introduction

ICECAST Compact is a Pressurized Casting Instrument originally designed for use with ICEx.

(ICEx is a concept which produces a well fitting definitive socket for residual limbs. It consists of a specially prepared carbon braid and a socket lock. It enables production of an exceptionally well fitting direct formed socket in one single session.)

ICECAST Compact is also very well suited for plaster of Paris casting of transtibial amputees.

ICECAST Compact is intended for use with ICEROSS over which the cast is taken. The resulting cast provides a model which reflects the shape and volume of the residual limb when under equal pressure and distal displacement. This shape forms an excellent starting point in the design of a total weight bearing socket.

ICECAST Compact is easy to use. The casting pressure is applied by an inflatable silicone bladder which is rolled onto the prepared residual limb. A lock mechanism for a socket locking pin that is fitted to the ICEROSS connects the residual limb to the ICECAST Compact during the casting procedure. When casting, soft tissue is displaced distally, effectively elongating the residual limb. This eliminates pistoning in the final socket. The applied displacement can be monitored by a tension meter in the pump handle.

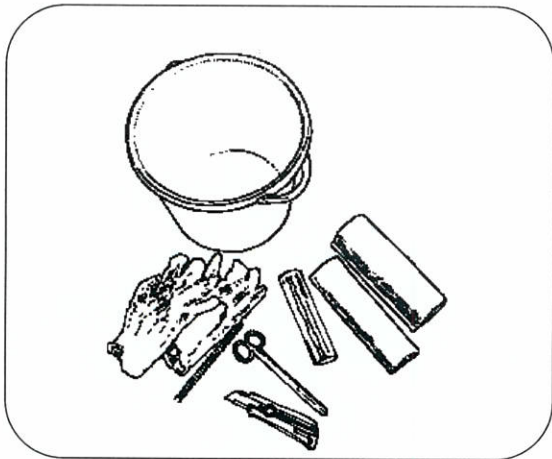
The pump unit, tension meter and pressure gauge are built into the pump handle to create a compact unit that is easy to use. The bladder and the pump handle are connected by a quick-release coupling. A pressure release valve is located by the pressure gauge.

Simple thermoplastic or laminated sockets can be manufactured following minimal cast rectifications. It is also possible to manufacture a socket without any rectification by using Pressure Pads. The Pressure Pads are positioned in the areas where typically plaster of Paris build ups would have been required.

Please read the following instructions carefully before starting the procedure.

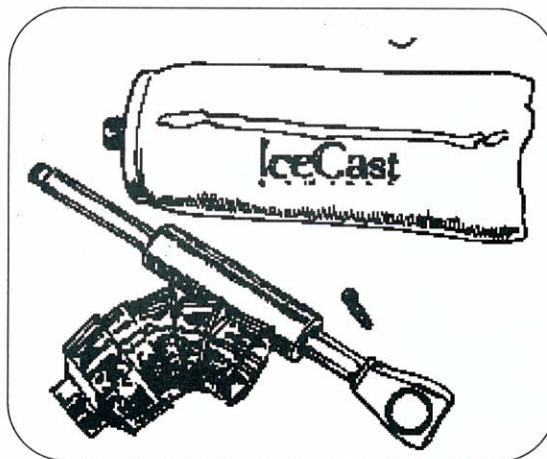
For a more detailed description of ICEROSS socket design criteria, see "The ICEROSS concept" in Össur's Training Binder.

Introduction



NECESSARY TOOLS

Bucket
Latex Gloves
Plaster scissors
Plastic tubing
Plaster bandage
Cling film
Indelible pencil
Knife



ICECAST Compact

The following items from ICECAST Compact unit are required for plaster of Paris casting.

Bladder
Pump handle
Silicone Disc

Also necessary but not included:-

Attachment Pin ratchet, standard
(Prod.# L-192000)
ICECAST cups
(Prod. # C-120000)

ICECAST Compact Care Instructions

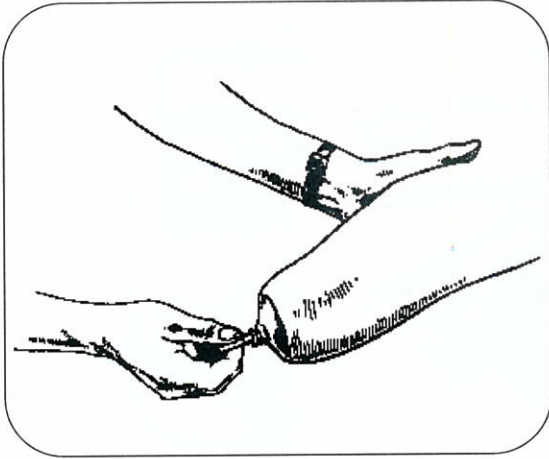
The ICECAST Compact Bladder unit may be cleaned using water, soap or isopropanol.

Acetone may be used to remove any resin left on the tube of the pump. It is important to ensure that acetone does not come into contact with the glass face of the pressure gauge.

The ICECAST Compact bladder should never be left in the reverse position for a long time. If the bladder is allowed to deflate in this position, it is difficult to reinflate.

It is also important to ensure that the ICECAST Compact unit does not fall on the floor. The disc at the end of the bladder can cause damage to the bladder. The pressure gauge could also break.

Preparation



Some ICEROSS users may be familiar with ICECAST Compact equipment and techniques. Nevertheless, it is important to explain to the amputee the nature of the procedure and verbal consent should be obtained to proceed. The prosthetist should mention that there is going to be considerable pressure during the casting process - between 40mmHg. and 100mmHg. This pressure should not be confused with how the finished socket feels.

At the same time, the prosthetist should ask for co-operation as the assistance of the amputee may be needed during the course of the procedure. The residual limb is checked for any contra-indications relating to the ICEROSS and ICECAST technique. If there are none, then it is safe to proceed.

If the amputee has not experienced ICECAST Compact pressure equipment before, it is advisable to carry out a full pre-casting procedure to establish that the intended casting pressure is tolerable.

The amputee should roll on ICEROSS. If it is a first time user the amputee should don and doff ICEROSS several times to practice.

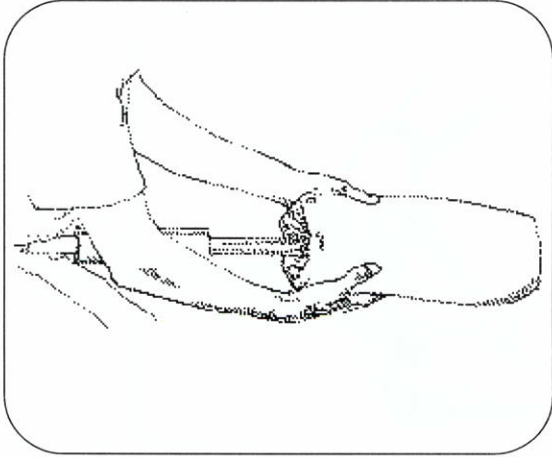
In preparation for the ICECAST procedure please note the following:

- * Ensure that the user is wearing the correct size of ICEROSS.
- * Fit the Attachment Pin ratchet, standard (prod.# L-192000) to ICEROSS and ensure it follows the longitudinal axis of the residual limb.

Hint: To select the correct ICEROSS size, measure approximately 40mm above the distal end. Choose size as measured or next below. For a more detailed description of ICEROSS Concept, see Össur Training Binder.

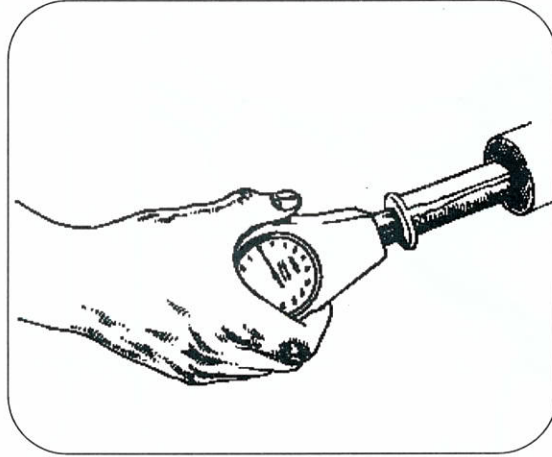
To trim the ICEROSS use the ICEROSS TRIMMER or CURVE MASTER for smooth, round edges. Trim after final socket is manufactured.

Preparation



- * The pump handle is connected to the bladder. The pressure release valve should be closed.
- * The bladder is inflated to 20mmHg.
- * The bladder is reversed to expose the socket lock by resting the pressure gauge on the prosthetist's hip and pulling the bladder towards him/her with both hands.
- * In order to prevent excessive pressure at the distal end during casting, it is recommended to use ICECAST Cups (Prod. #C-120000). An ICECAST cup with 8-10 mm clearance circumferentially around the residual limb should be selected. The ICECAST cup is attached to the delrin plate, located at the distal end of the COMPACT Bladder Unit. The release hole should correspond to the pin release button.

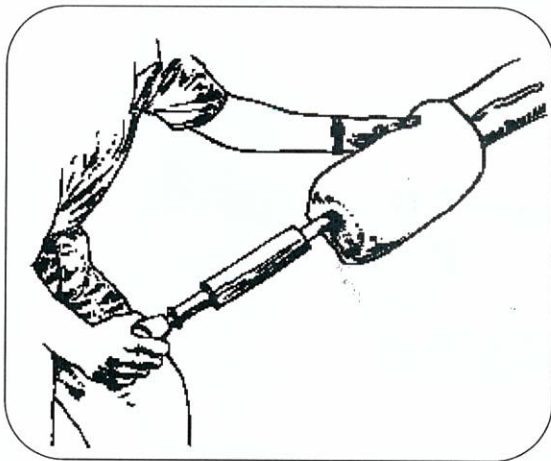
Note: The bladder should not be stored in the reverse position.



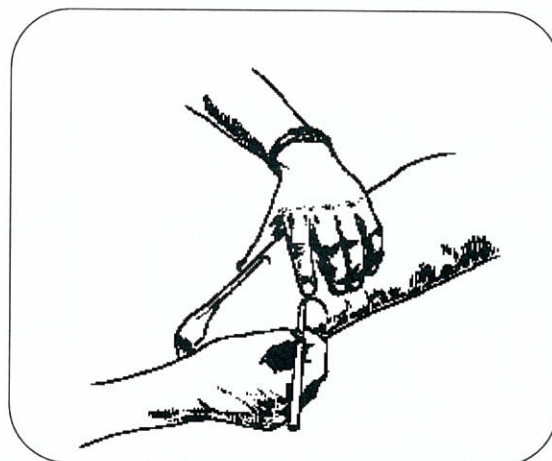
- * ICECAST Compact is connected to ICEROSS by pushing the pin fully into the locking unit on the end of the ICECAST Compact.
- * Assess the distal displacement required during casting by pulling the pressure gauge.
- * Make a note of the value shown when the preferred distal elongation is achieved.

Note: The correct value is shown when most of the movement of distal tissue has been removed by pulling distally, but without causing discomfort to the amputee.

Preparation

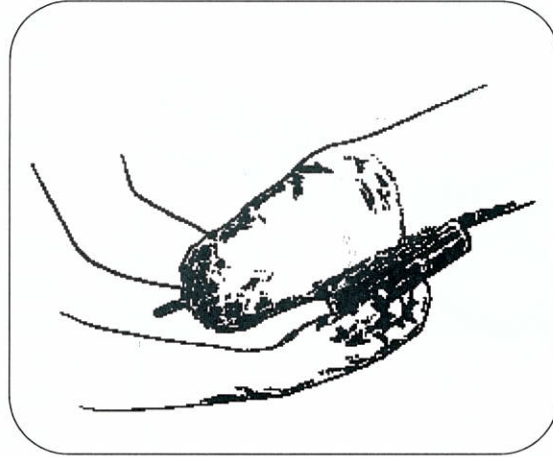
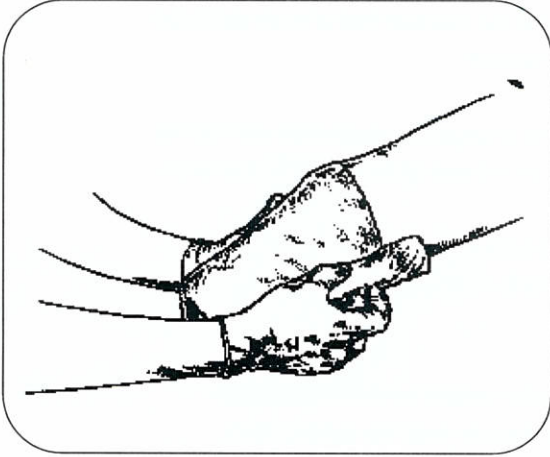


- * Hold the required tension.
- * Roll the bladder onto the residual limb.
- * The amputee can be of assistance if necessary, using both hands on either side of the bladder.
- * Recommended pressure ranges from 40-100 mm Hg. The pressure should be kept as high as possible within this range without causing discomfort.
- * Reverse the bladder again to expose the lock unit.
- * Disconnect the ICECAST Compact from the connecting pin by pushing the release button on the side of the socket lock.



- * Leave the ICECAST Cup on the ICECAST Compact Unit.
- * Place the ICECAST Compact close by ready for use.
- * If required position a 4mm PVC tube along the anterior aspect of the residual limb, extending along the thigh. This is to enable cutting of cast on removal.
- * Cover the ICEROSS and tube with cling film starting from distal to proximal end.

Casting

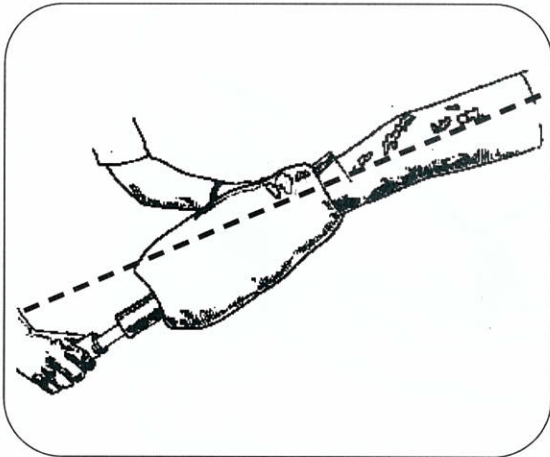


- * Wet and apply the silicone disc to the distal end of the residual limb, making sure the edges conform well around the distal edge of the ICEROSS.
- * Apply plaster bandages to the rest of the residual limb, overlapping the distal disc.
- * If the SmartCast Tool (L-192025) from ICELOCK Fabrication kit w/o braid (L-180001) or ICELOCK Fabrication Kit with braid (L-180002) is used, ensure that the metal washer is incorporated during the molding procedure (see instructions with ICELOCK products).

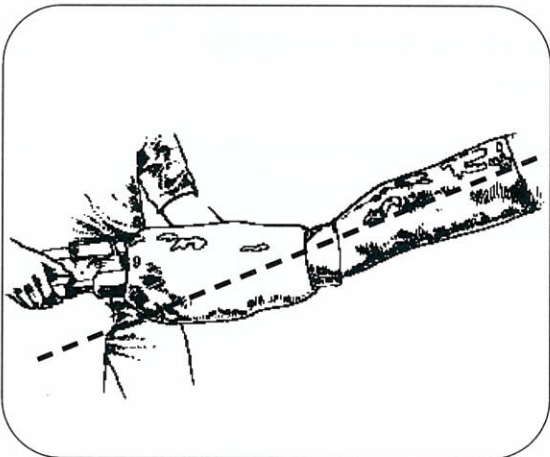
- * Cover plaster with cling film to keep casting equipment clean.

Note: Should the cast be above the knee (on short residual limbs) or have protruding bony landmarks, always use tubing as a cutting strip.

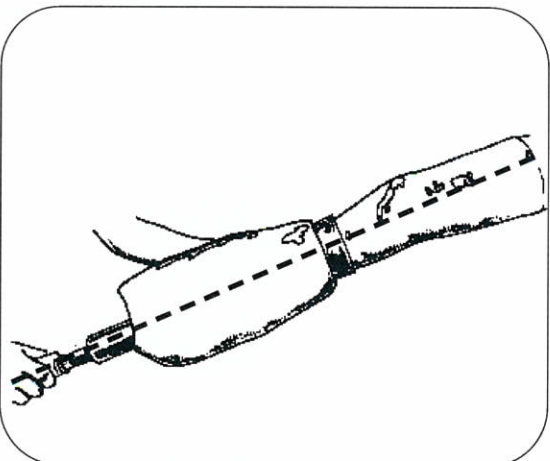
Casting



Wrong alignment



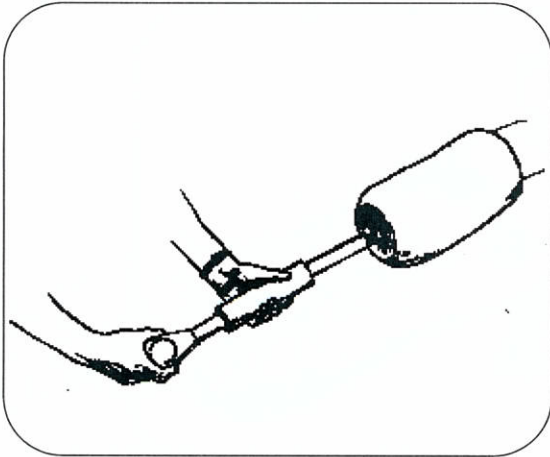
Wrong alignment



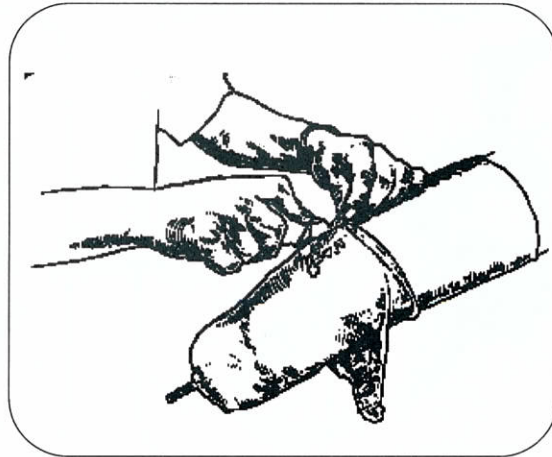
Correct alignment

- * Make sure that the residual limb is in an extended but relaxed position.
- * Introduce and engage the attachment pin into the locking unit on the end of the ICECAST Compact.
- * Take care to position the pump handle along the longitudinal axis of the residual limb (see diagrams).
- * Apply recorded tension on the handle while pushing the bladder over the residual limb.
- * Ask the amputee for assistance if necessary.

Casting

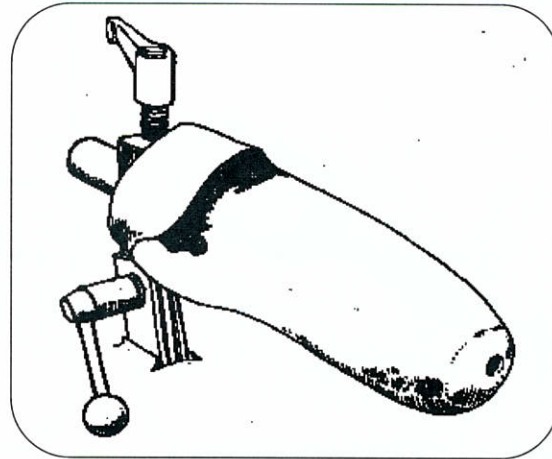
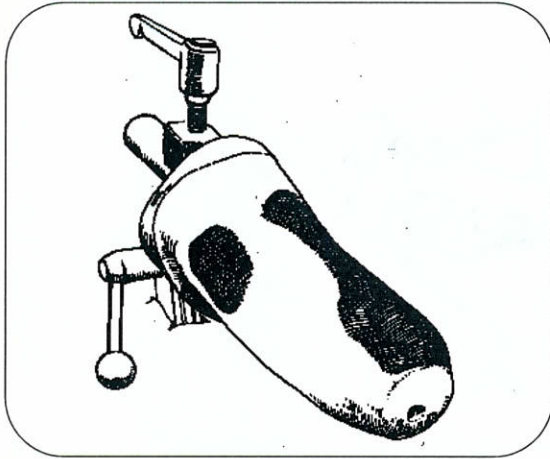


- * Adjust the pressure to the selected level and disconnect the pump handle.
- * Support the bladder under the middle as the plaster sets.
- * Small sample of plaster set a side as guage.
- * When the plaster has set re-connect the pump handle and reduce the pressure slightly.
- * Reverse the bladder, exposing the release button for the lock.
- * Release the ICECAST Compact, remove it and return the bladder to the normal position.



- * If a cutting tube was required, cut the cast on the tube to aid removal.
- * Open the cast very carefully and remove.
- * Close the cast immediately with a strip of plaster bandage.

Rectification



- * Remove the protruding distal end formed by the distal connector on ICEROSS.
- * Remove the ridge created by the plastic cutting tube.
- * Relieve tibia crest and fibula head ensuring that the build up extends underneath the bones to compensate for any distal movement inside the socket.
- * Relieve the tibia crest by extending the medial aspect laterally and meet from the lateral side to form a narrow triangle along the length of the bone.
- * Relieve the fibula head and if needed any other bony prominences.

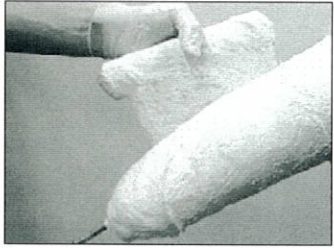
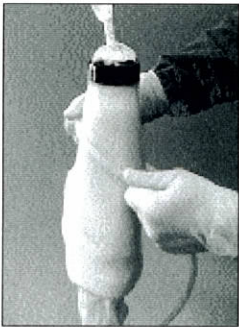
Note: ICECAST Compact will create a cast of very precise volume. This is an important feature and exaggerated rectification can destroy the volume matching achieved in the cast. In general terms, any build ups over bony prominences must be precise and well blended in.

- * Relieve the hamstrings insertions with a small build up ending in a flare at the proximal trim line.
- * Smooth the cast but leave the edge created around the distal end of ICEROSS. It will serve as a guide during production of the socket.

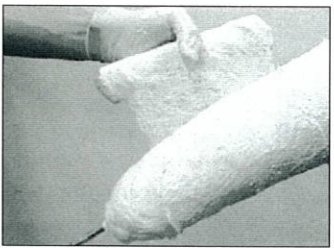
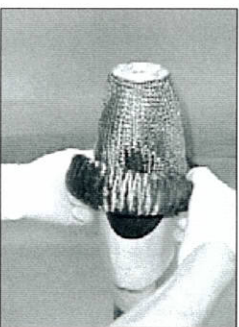
Note: If Pressure Pads are to be used in the manufacture of the socket, the only rectification required is flaring of the posterior trim line. The Pressure Pads should be positioned directly on the inner PVA bag when laminating. As the Pressure Pads do not affect the volume of the socket they can be generously applied in areas where traditionally a plaster build up would be applied.

Suggested use of ICECAST Compact:

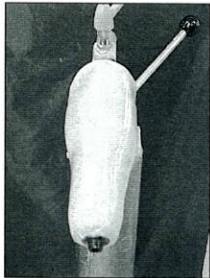
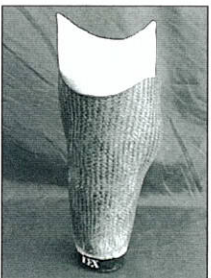
- Casting for laminated sockets with the ICELOCK Fabrication kit w/o braid (L-180001)

 Complete the plaster cast as normal. 3	 Leave the Icecast on for approx. 5 min. 5	 Laminate as normal... 10	 Trim the socket and smooth edges. 12
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- Casting for lamination with the ICELOCK Fabrication Kit with braid (L-180002)

 Complete the plaster cast as normal. 3	 Leave the Icecast on for approx. 5 min. 5	 Roll on the carbon fiber braid and trim the excess PVA bag in the puck. 6	 Trim the socket to the desired trim line and finish the edges. Remove the clay from the puck and mount the socket lock according to the instructions. 12
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- Manufacturing of ICEx socket over Pelite liner

 Cover the plaster cast with cling film. 1	 Apply ICEx as per manual. 7	 Remove from cast, trim, fit components and assemble. 8
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