



# Transradial Hand Casting

Version no. 2



## Socket design

The Iceross Upper-X can offer transradial amputees the option of a secure self-suspending prosthesis with increased range of movement at the elbow joint, enhanced comfort in the socket and protection of the residual limb. The selection and casting procedure outlined is designed to create a socket that enhances the functions of the Iceross Upper-X.

Read the instructions carefully before starting the procedure.

## Equipment

- 10cm Plaster of Paris Bandages (non elastic).
- Cling Film.
- Release Agent.
- Casting Sock or Stocking.
- Indelible Pencil.
- Tape Measure.
- Lanyard.
- Scissors.

Note: In cases where the residual limb does not facilitate easy cast removal please use plastic tubing and a scalpel to remove the negative cast.



## Preparation

Collect relevant prosthetic history & measurements.

Inspect residual limb. Knowledge of anatomical landmarks, scarring, & sensitive areas will aid in socket fitting.

Socket shape and trimlines may vary according to length and tissue consistency of residual limb.

- Long residual limb, trimlines can be kept below elbow. Rotational control can be enhanced by shaping socket accurately to radius and ulna.
- Short residual limb, trimlines should extend up over epicondyles to give rotational stability.

Use trimlines consistently throughout.



## Iceross selection

Measure circumference of residual limb 4cm from distal end.

Select Iceross as measured, or the next below.





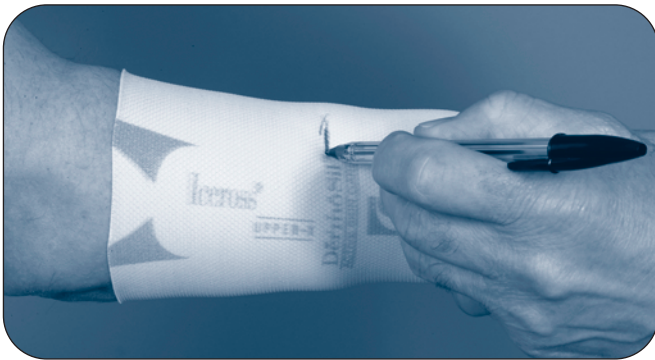
Invert Iceross liner, fully exposing distal end.



Place exposed distal end of liner centrally against residual limb and roll proximally.

Ensure that no air pockets are trapped during rolling; this could lead to skin or perspiration problems.

Leave Iceross on for a short time ensuring there is no discomfort.



Mark initial length of Iceross.

Leave a little extra length as final trimming can be done during delivery.



Trim the Iceross liner. An angle of 45° is recommended to cut the liner.

Note: Due to the size and construction of the Iceross Upper-X, sharp scissors are the best means of trimming. Ensure that the cut is smooth, jagged edges may cause premature wear of the liner.

If electrodes are to be used identify the sites and either trim Iceross distal to electrodes or create holes in the Iceross for electrodes.

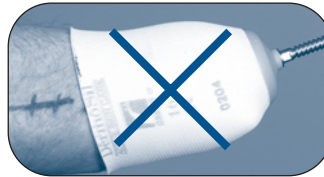
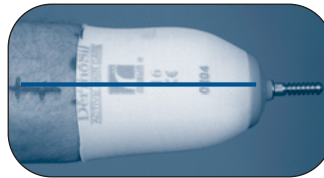


Ensure user can don Iceross independently.

Attach test pin.

Ensure pin alignment is correct, following long axis of residual limb in both planes.

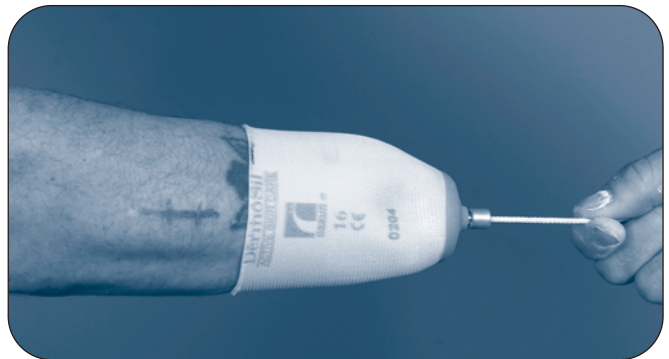
Note: Incorrect pin alignment can result in skin/interface problems.



## Preparation for casting

Test longitudinal stability. Attach casting lanyard and apply tension until distal shape stabilizes.

This will be recreated during casting.



Position of elbow for casting:

- Neutral pro/supination.
- 45 degrees elbow flexion.



Rehearse hand position.

- Long residual limbs: Use palm to form rotational control areas between radius and ulna.
- Short residual limbs: Form rotational control areas proximal and anterior to the humeral epicondyles.



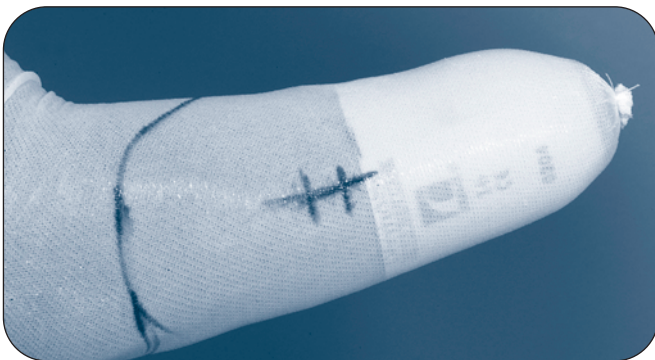


Apply tension to lanyard, record circumference measures at 2cm intervals down length of residual limb.



Wrap residual limb with cling film.

## Casting procedure



Apply thin casting sock or stocking.

Mark trimlines:

Short residual limbs:

- Anteriorly, distal to joint line.
- Posteriorly, distal to olecranon.
- Medial/lateral, above epicondyles.

Long residual limbs:

- Anterior, distal to joint line.
- Posterior, distal to olecranon.
- Medial/lateral, below epicondyles.

Mark all bony prominences and tendons.

Define and mark electrode sites if necessary.



Prepare a 3-ply slab of bandage, trim to cover distal surface of Iceross.

Cut a small hole in center to allow lanyard to exit.

Wet, apply and smooth slab, ensuring accurate definition of distal profile of Iceross.

Wrap remainder of residual limb ensuring full coverage.

Attach lanyard and apply pre-determined tension.



Short residual limbs: pinch proximal and anterior to the humeral epicondyles to provide rotational control.



Long residual limbs: apply control pressures to either side of radius and ulna.

Continue molding until plaster has set.



Remove the cast without distorting.





Trim cast to pre-determined trimlines.



Re-apply cast to assess:

- Resistance to rotation.
- Control and comfort.
- Range of motion.

Trimlines should be adjusted to give maximum range of motion.

Fill with plaster of Paris in preparation for modification.

## Modification procedure

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Compare circumferential measures to those taken prior to casting.

Reduce model to measures taken; ensure all reductions are made in areas of soft tissue.



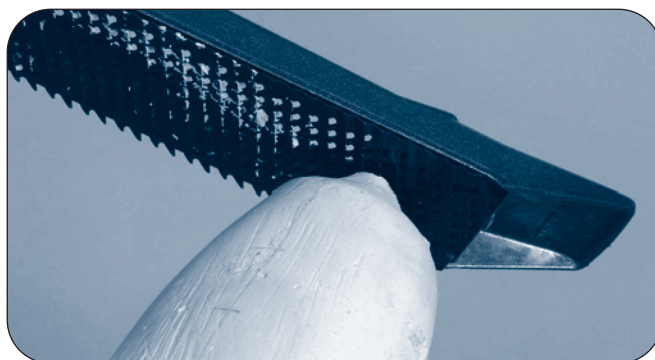
Identify and define trimlines.

Flare socket edges to turn away from skin around full trimline.

Build-ups should be kept to a minimum.  
If socket extends over epicondyles add relief if prominent.



Remove protruding distal connector from Iceross.  
Flatten distal end of cast for steel guide from Icelock 700 Series fabrication kit (see Icelock instructions).



## Check socket fitting

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It is recommended that a check socket is manufactured and used to assess:

- Trimlines.
- Volume of socket.
- Ease of donning.
- Joint range of motion.





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