In Screed Heater Kit Installation Manual

Scan for Installation Support

We are here to support you

Contact Us
Call: 1800 85 75 65
Email: info@coldbuster.com.au
Visit: www.coldbuster.com.au

WARNING: Failure to read this guide prior to installing your COLDBUSTER heater(s) may result in installation problems that could void your heater warranty.

July 2023

Contents

Introduction

To ensure a simple and hassle-free installation*, read this guide before commencing installation.*

Coldbuster does not accept responsibility for any loss or consequential damage suffered because of installations that in any way contravene the instructions detailed in this guide.

If you require further assistance, please contact Coldbuster.

Installation Dos and Do Nots

Do:

- Ensure all heaters are installed as per these instructions
- Ensure the floor surface is smooth, clean and dry before installing heaters
- Start each heater cold tail on the floor below the thermostat point
- Calculate the cable spacing as specified and maintain his spacing during the install
- Plan installation layout before starting, especially when more than one heater is being installed
- Install the floor cover as soon as possible after heaters are installed
- Protect the heater with gyprock or board if the floor covering installation is delayed
- Test heaters before installing the floor covering (ensure monitor is connected, turned on, and no siren sounding)
- Ensure the heater is connected to an RCD (safety switch) protected circuit
- Retain your invoice as proof of purchase for warranty purposes
- Complete the last page of this booklet for future reference

Do Not:

- **Cut heating element EVER**
- Allow heating elements to touch or cross one another
- Place sharp or heavy objects on uncovered heaters
- Install heaters under any surface not suitable for that particular floor heating
- Install heating in shower recesses without builder's prior approval
- Commence installing the final floor cover before testing heaters
- Only run the heating after the adhesive & grout has cured for a week

Product Information

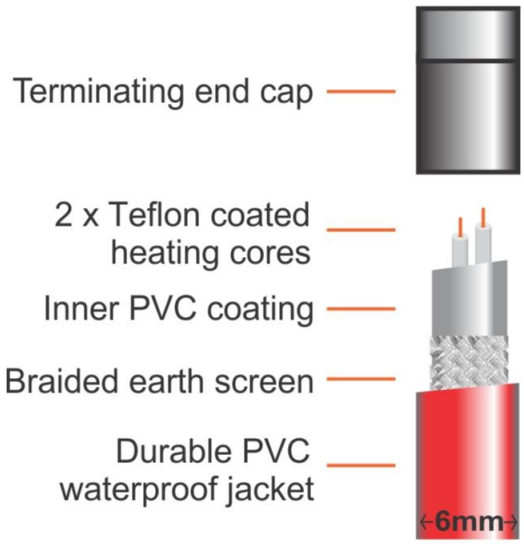
Coldbuster In-Screed Floor Heaters Consist of 2 Components:

- Heating cable (single ended, on reel)
- 3.0m cold tail

Coldbuster In-Screed Floor Heater Kits Contain:

- Heater
- Installation Alarm Monitor
- Installation Manual

The Heating Element is Made Up of 5 Parts:



Tools Required for Heater Installation

- Tape Measure
- Pencil, Crayon or Spray Paint
- Glue Gun (optional)
- Tape (alternative to glue gun)
  - Cloth or Duct Tape (if installing on waterproofing)
  - Ametalin Tape (if installing on polyurethane waterproofing)
- Cable Ties (if fixing to mesh)
- Tin Snips (to cut fixing rail when installing in dry areas)
- Drill or Nail Gun (for fixing down fixing rail)

Electrical Information

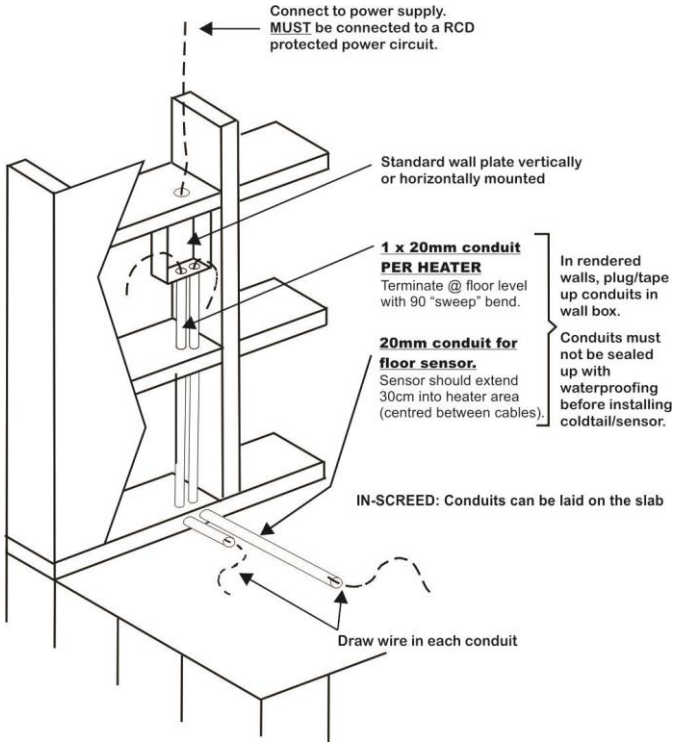
Electrical Preparation

The Coldbuster heater element has been classified as an electrical appliance. You must engage a licensed electrician for the heater installation if this is required by your state regulations.

However, all electrical connections, including setting up the conduits (more detail below) and the connection of the thermostat must be undertaken by a licensed electrician in accordance with current electrical codes of practice, AS/NZS3000: 2007 and state codes.

Residual Current Device (RCD)

1. The heater element must be connected to a circuit with RCD protection.
2. Consult with your electrician to ensure any existing cabling and RCD already installed are working and capable of handling the additional load.

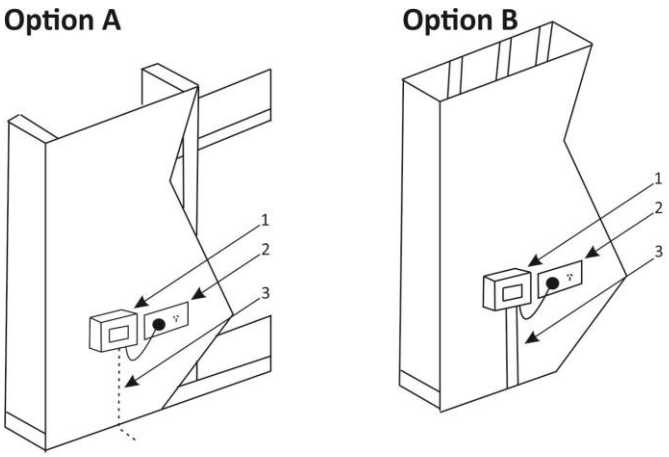


Hardwire Connection

- Power supply must be RCD protected
- Standard flush box or C-bracket mounted horizontally or vertically, height between 1000mm - 1500mm above the floor
- 20mm conduit for the heater leads
  - Number of leads per conduit depends on size of conduit
  - Maximum 2 heaters per conduit
- 20mm conduit for floor sensor extended into the room (optional: most thermostats have a built-in sensor and can be set up for air sensor)

Plug-In Connections

- Thermostat mounted between 300 - 600mm from the floor
- Power point must be RCD protected
- **Option A:** For cavity walls, fit heater lead and floor temperature sensor inside the cavity
- **Option B:** For brick walls, fit heater lead and floor temperature sensor inside PVC trunking and notch out the thermostat baseplate for cable access



Floor Preparation

This guide intends to serve only as an outline for the most common floor preparation required. Please contact us for any additional advice.

Concrete Subfloor Preparation

- The concrete must be completely cured (this can take up to 8 weeks)
- The floor should be rigid and free from movement
- Clean and sweep or vacuum floor surface

Timber Subfloor Preparation

- If necessary, install a fibre cement underlay or insulation board over the timber structural floor before installing the heating cable and putting the screed down
- The floor should be rigid and free from movement
- Clean and sweep or vacuum floor surface

Floor Sensor Preparation (typically provided with your thermostat)

- Install the floor sensor as shown in the electrical connection drawing, particularly if another form of heating such as air conditioning or a fireplace will also be used in the area
- Floor sensor is essential where the thermostat is mounted inside a cupboard or outside the area being heated
- Additional benefit will be achieved by extending the conduit with corrugated flexi conduit ±50cm in between the runs of the element

Planning Heater Layout

Heater Choice

Ensure the heater(s) you have purchased is/are correct size for the area. Installing a heater too small may not produce enough heat to warm the area sufficiently, whereas too big a heater simply won't fit!

It is important to plan the position and layout shape of the heater(s) *before starting the installation*. The last thing you want to do is to have to pull up your installed heater(s) and restart because you ran out of room or otherwise placed the heater(s) incorrectly.

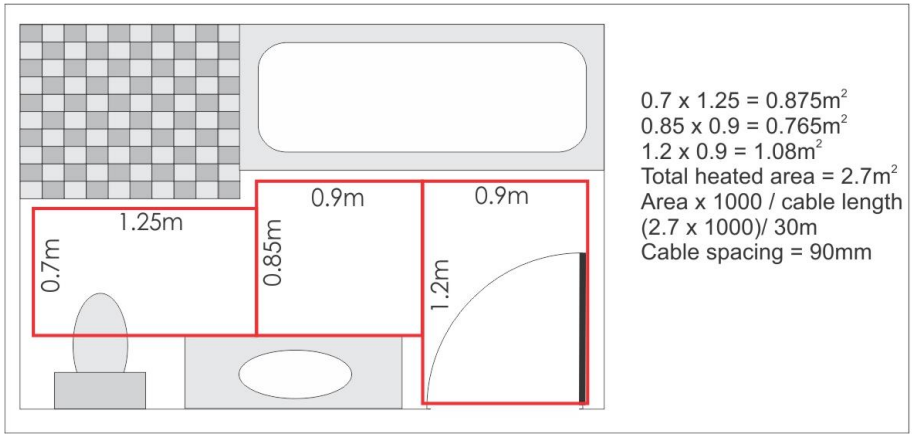
Step 1: Mark Out Permanent Fixtures

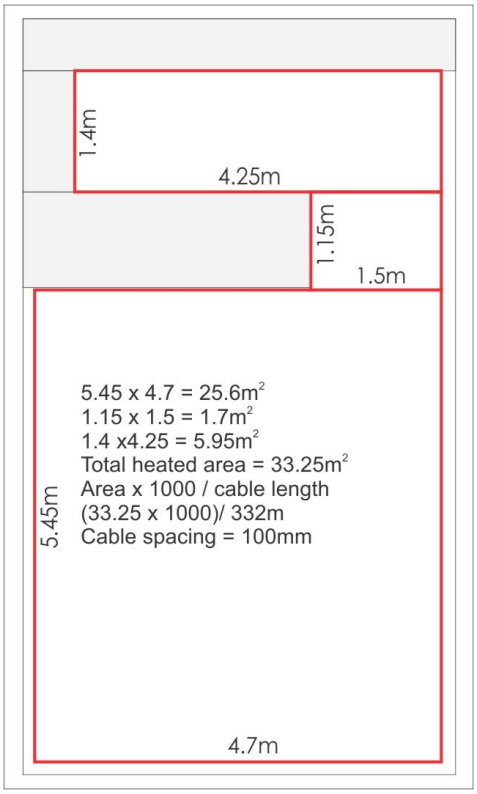
Using the tape measure and crayon, pencil or spray paint:

- Reference a floor plan for accurate dimensions and mark out permanent fixtures (e.g. shower, toilet, kitchen bench, closet, etc.)
    - If your permanent fixtures are wall hung, you have the option to heat underneath in order to ensure your feet keep warm when standing up against them
- Mark a 10-20cm distance from walls
    - Coldbuster recommends a 10cm distance from walls however the distance you use will depend on the dimensions of the room and the size and layout shape of the heater(s)

Step 2: Calculate Cable Spacing

- Calculate the heated floor area accurately and use the formula to calculate your cable spacing
- Cable Spacing Formula: (Heated Area × 1000) ÷ Cable Length
- Answer is in mm
- To be conservative, you can add 10mm to your answer
- Bathroom cable spacing should be 70 – 120mm. In bathrooms it is strongly advisable NOT TO HAVE cable spacing greater than 120mm
- Large living areas can have cable spacing up to 150mm



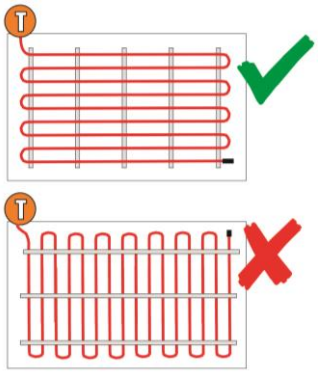


It is <u>ESSENTIAL</u> to calculate the heated area and work out the cable spacing

The heating cable must NEVER be cut

The heating cable must NEVER be crossed over

Step 3: Plan Heater Layout



- When considering layout, keep in mind:
  - It is always easier and more economical to run the heating cable parallel to the longest wall of the room
  - The heater will start on the floor below the thermostat position (for multiple heaters on one thermostat see page 11)
  - Distance from walls
  - It is ideal to end the heater at an area where there is extra space in case of left-over heater length (e.g. can place left-over heating under wall hung fixtures or along the perimeter of the room)
- Be sure to check the layout plan with the total heater length. If you have more than one heater, the total length of runs should add up to the total of the heater lengths
- The heating cable has a fixed length and a self-terminating end-cap

Step 4: Fixing Rails (only suitable for dry areas)

- Fixing rails are only to be used where there is no waterproofing
- Mark where you will be placing the fixing rail lengths based on your heating area and layout plan. You will require fixing rails secured where your runs will begin and end and through the middle of the runs approximately 1 – 1.5m apart (depending on the heating area).
- Using the Tin Snips cut the required lengths of fixing rail
- Nail or screw them to the subfloor

Step 4: Tape (only necessary when installing on waterproofing)

- The type of tape used will depend on the type of waterproofing
- If the glue gun sufficiently secures the heating cable to the waterproofing, then tape may not be necessary
- Mark where you will be placing the tape lengths based on your heating area and layout plan. You will require tape secured where your runs will begin and end and through the middle of the runs approximately 1 – 1.5m apart (depending on the heating area).

Pre-Heater Installation

Step 1: Place Cold Tail

- Connect (e.g. using tape) the cold tail to the draw wire and pull it up through the pre-installed conduit or wall cavity to the thermostat position
- Secure (using either hot glue or tape) the connector joint(s) onto the subfloor below the thermostat position

Step 3: Connect Monitor

- The purpose of the monitor is to confirm that the heater is working and not been compromised.
- The monitor should remain connected until the floor has been installed and your electrician connects the thermostat.
- Test the monitor before connecting to heater: Switching the monitor on with no heater connection should sound the alarm and turn on the red light. If these things don't occur, check that the battery is connected properly or replace the battery.
- Ensure the heaters to be monitored are not connected to a power source
- Connect the various wires to the alligator clips and pull the rubber boots over the metal clips:
  - Green alligator clip – green wire
  - Red alligator clip – brown wire
  - Black alligator clip – blue wire
  - Recommendation: Each clip can be taped up with insulation tape to prevent the clips from touching and setting off the alarm
- Once connected, there should be a white light which indicates that the monitor is checking the heater for damage.
- Hang or place the monitor where it can be seen and heard during the installation
- Should the white light go out, batteries will need to be replaced
- The alarm sounding and a red light indicates that, either:
  - A lead wire has come loose from the terminals;
  - The red or black alligator clip is touching the green alligator clip; or
  - Damage has occurred to the heater.
- It is important to stop work and identify the cause of the alarm sounding immediately.
- In the event of damage to the heater, call Coldbuster on 1800 85 75 65 for assistance.


Heater Installation

Step 1: Begin Laying the Heater

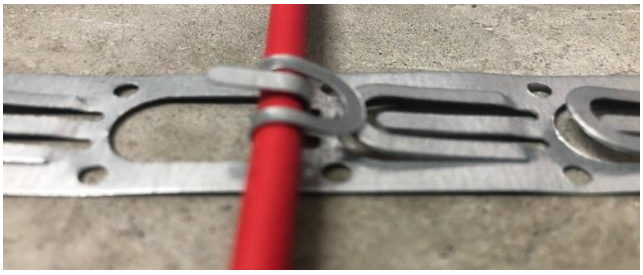
- With the heater layout in mind and the fixing rail or tape placed appropriately, the overall process is to unravel the heater and secure the heater to the subfloor. Whenever moving onto the next run, ensure that the heater cable is pulled taut.

Step 2: Secure the Heater in Place

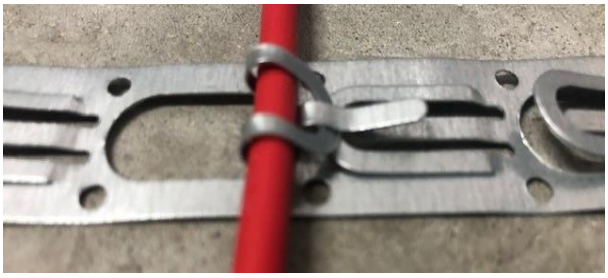
- If using tape, either:
  - Place the heating cable on the ground where it will be placed and tape over it securely OR
  - If waterproofing is polyurethane then use the Ametalin tape directly on the subfloor and glue or tape the heating cable onto the Ametalin tape
- If using fixing rails:

1. Lift loop and “middle finger” into a V shape

2. Place the cable in the V and fold the “middle finger” over the cable



3. Fold the loop all the way over the cable and the “middle finger”



4. Fold the “middle finger” back over the loop to lock everything in place

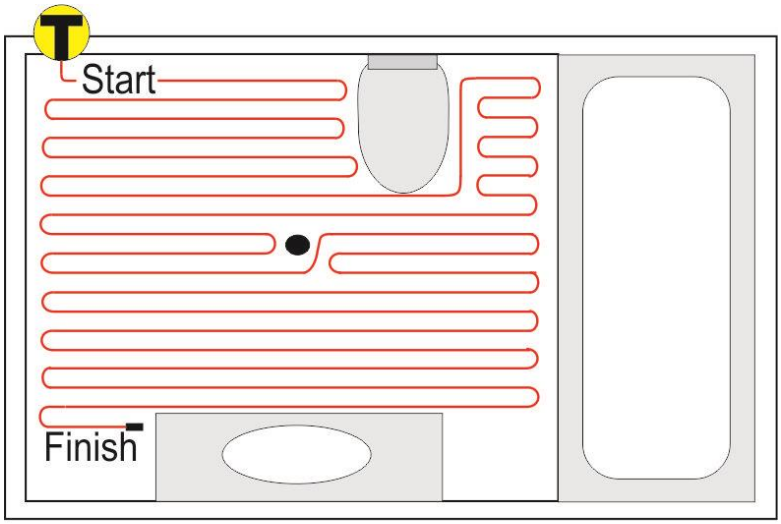
5. Place thumb on the secured cable and bend the cable in the direction of the next loop

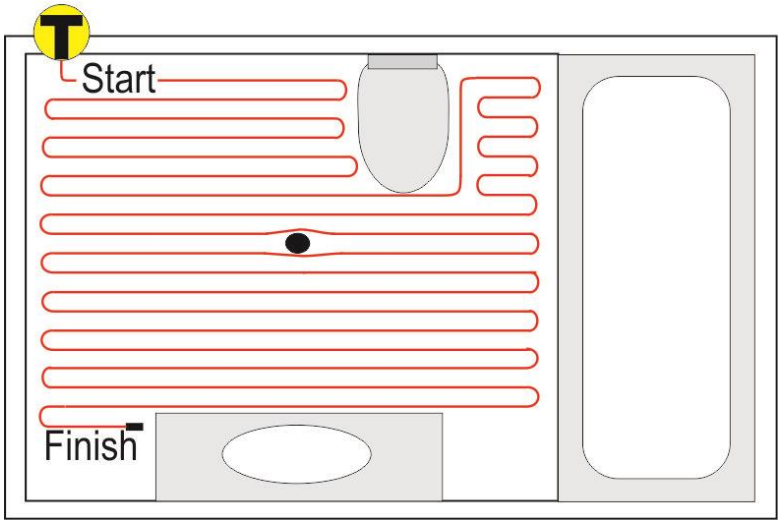
Step 3: Finish Laying Heater

- Repeat above steps until the heated area is covered as per your heater layout
- If there is extra heater length left over, you can either:
  - Lay under wall hung fixtures
  - Lay along the perimeter of the room, around where the heater is already laid

Step 4: If there are obstacles (e.g. floor waste or posts)

- Obstacles must be avoided
- It is ideal to place the heating around the obstacle in a way that will ensure the heating will line up to allow for full runs after the obstacle
- If the obstacle is small enough then you can also just widen the cable around the obstacle and then continue with the original line
  - Note: Doing it this way may result in slightly warmer spots



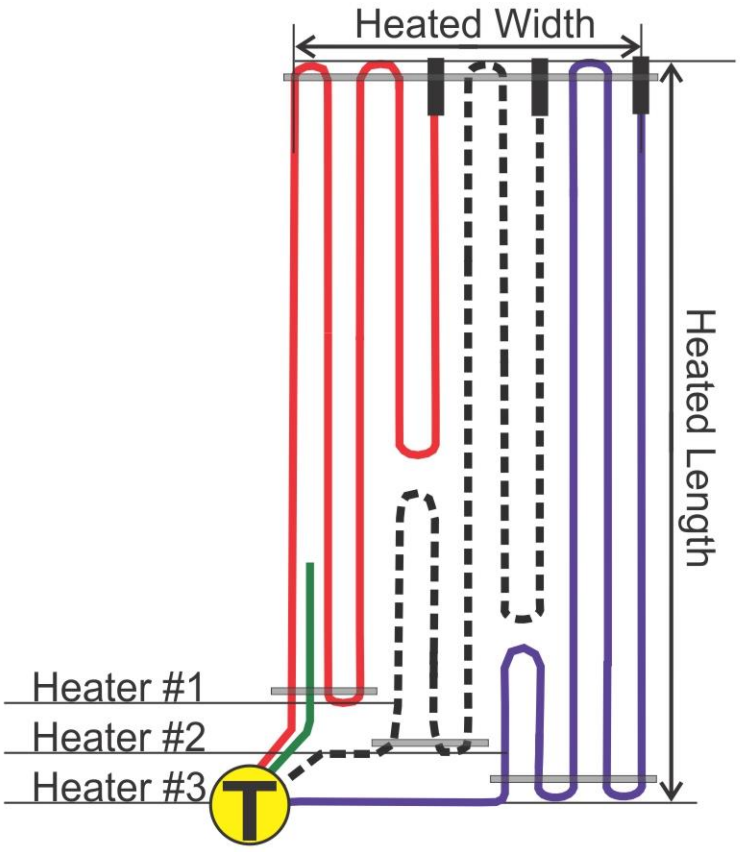


Multiple Heater Installation

- If you are installing multiple heaters into one single heat zone (and thus using one thermostat), each heater will need to start at the thermostat location
- The heaters can be laid in any order however, it is important to bear in mind the other heaters to be laid
- See diagram as example
    - The 3 heaters are taking up a similar amount of space so at the planning stage the heated area was split into thirds
    - Runs of heater #1 start closest to the thermostat point but space had to be left for heaters #2 and #3 to start at the thermostat point as well
    - Prior to placing the heaters, the fixing rails should be secured appropriately so that the end of each run is the correct cable spacing distance from the next one
    - i.e. #1 will be 1 cable spacing from #2 and 2 cable spacings from #3

MULTIPLE heaters must be connected in PARALLEL

Do not allow different elements or factory connections (from cold tail to heating element) to touch or cross each other



Laying Floor Covering over Coldbuster Floor Heating:

- It is recommended that a piece of cardboard or carpet is used to temporarily cover the heaters to avoid accidental damage to the heaters while laying floor covering in other areas
- If the monitor sounds an alarm:
  - Stop work immediately and check monitor connections (see page 6)
  - If connections are secure but alarm still sounding, then check the heater element and insulation resistance
  - Test yourself if you have a multimeter, otherwise contact Coldbuster or your electrician.
- Do not allow any heavy or sharp objects to fall, stand upon, run over or be dragged across exposed heating elements
  - Place buckets of tile glue on a piece of hardy sheet to protect the element from the weight of the bucket
  - Do not use an angle grinder to create expansion joints
- Do not turn heaters on until tile adhesive has cured in accordance with adhesive & grout manufacturer's guidelines (usually about 7 days)

IMPORTANT: The monitor will detect damage to the element needing to be repaired immediately (if there are cuts to the element). Bruising damage will only manifest at 240V. An insulation (Megger) test by an electrician is recommended.

Thermostat Fit off & Connection to Mains Power

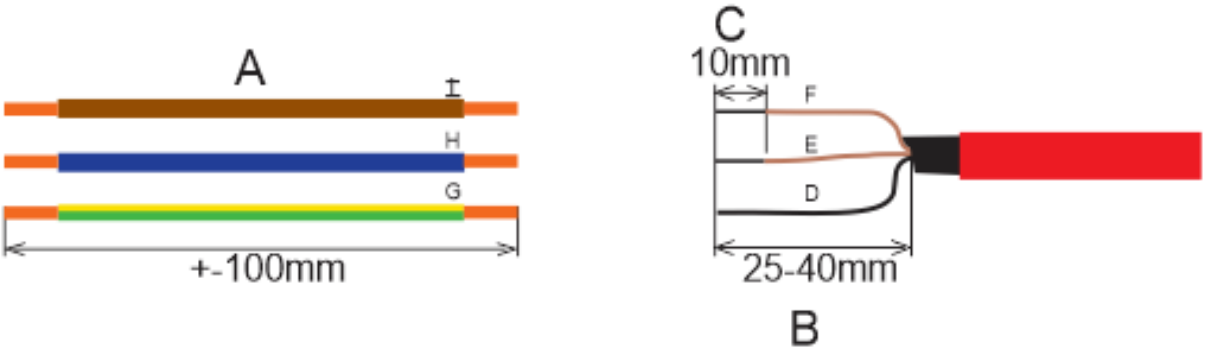
- IMPORTANT: THESE STEPS MUST BE DONE BY A LICENSED ELECTRICIAN
  - Check thermostat instructions for wiring details
  - All heaters must be connected to RCD protected supply circuit
- Disconnect monitor from heater before connecting heater and floor sensor to thermostat and thermostat to mains
- *Multiple* heaters must be connected in *parallel*
- Use of the floor sensor is optional but recommended
- The floor sensor is essential when the thermostat is mounted inside a cupboard/vanity or outside the area being heated (air sensor won't pick up correct temperature)
- Remember:
  - These are double insulated devices – there is no earth connection to the thermostat
  - The earth of the heater connects directly to the earth of the supply in a screw connector

Damage and Repair

If the monitor sounds an alarm and the LED lights up red during installation, stop work immediately and remove the screed where the damage has occurred

If the damage is not clearly visible, use an insulation tester set at 1000V connected to the element and the earth screen. This should create a spark where the damage has occurred

The repair can be done in the following manner:



1. Strip back (A) the outer insulation of the cold tail & cut off about 100mm of (non-resistive wire) brown(I), blue(H) & earth(G) wire. On each of these lengths, strip off the insulation to expose about 10mm of copper at each end
2. Using a blade, strip about 25-40mm (B) of the outer RED/ORANGE Nylon coating off the heating cable.
3. Separate the earth screen from the insulated inner core (E&F) and twist the strands of the earth screen (D) together
4. The inner core that protects the 2 elements is BLACK. Very carefully strip about 20-35mm of this insulation away. Be careful not to cut into the insulation protecting the 2 elements. You should then have the 2 elements exposed
5. Strip about 10mm of the Polymer coating of the 2 elements (E&F) by heating it with a flame until it melts, then pull it off
6. One at a time (2 elements & earth wire), slip a crimp tube over the end. Then insert respectively the non-resistive wire into the crimp tube. i.e. I&F, E&H and D&G. The green/yellow earth wire (G) is the only wire that must be connected to the outer earth screen braided wires (D) that were twisted together earlier. The 10mm ends of the non-resistive wire & the element end should now be side by side with the crimp tube over it. The crimp tube can now be crimped together with the correct crimping tool. If crimps are not available, the connection can be soldered
7. Before doing the other ends, slip a 2 x 25mm heat shrink tube over the crimp of each wire (H&I) of the heating element and shrink with heat. The earth wire (G) does not need a heat shrink tube over it
8. Recess the repair joins and cover with hot melt glue or non-conductive silicone
9. Do a continuity test across active and neutral and an insulation test between active/neutral and earth. Continuity readings can be obtained from Coldbuster office

Electrical connections and repairs must be undertaken by a licensed electrician
Coldbuster sells repair kits

Safety & Operating Instructions

This is an electrical heating system and must be used strictly in accordance with the manufacturer's instructions:

- DO NOT drill holes or drive sharp objects (i.e. nails or screws) into your floor without knowing with absolute certainty that you will not touch the heating elements
- Replacing damaged tiles may, if not done properly, cause damage to the heaters
- Heaters **must** be connected through an RCD (safety switch) circuit breaker
- In case of damage or the unlikely event of heater failure, the RCD switch will trip and cut off power to the heating
    - In this case, turn off the thermostat and contact Coldbuster
    - Do not attempt to repair the heater
- Inform new owners or tenants about the position of the heaters and pass these safety and operating instructions on

Economy Tips

The ideal temperature of the floor depends on the heat required to maintain the desired room temperature. If it is very cold outside, the floor will have to be warmer to maintain the same room temperature than when it is moderately cold outside.

Ideal temperature also depends on size of area, ventilation, insulation, ceiling height, etc. Another important factor is whether you are intending to use the floor heating to heat just the floor or to be the primary heat source for the room area.

The lower the temperature you set on the thermostat, the less electricity the heating uses. We advise you to experiment to find the most comfortable setting. Start at a low temperature first, so if you find this desirable you know you're not using more electricity to maintain higher temperatures than needed.

A cold area will not heat up any faster by setting the thermostat to its maximum setting. Simply set the thermostat to your desired temperature and the heater will draw maximum power until the selected temperature is reached.

Reducing heat losses will make your heating system run more efficiently and economically.

Heat is lost through sub floor, windows, doors, ceiling and walls. Ways you can reduce heat loss:

- Install insulation in the floor, ceiling and walls
- Keep doors, windows and curtains closed

Other common sources of heat loss include:

- Open chimneys/fireplaces
- Stairwells
- A/C ceiling grilles

Warranty

Every heater is thoroughly tested before shipping and is guaranteed to be in good working order on dispatch. Coldbuster guarantees its products subject to the following conditions:

1. The product is free of defects at the time it was supplied. The product will be deemed to be defect-free if no defect has been detected and reported to Coldbuster:
   a) within 25 years (300 months) from date of purchase (for heaters); or
   b) 3 years (36 months) from date of purchase (for thermostats).

2. The following are conditions of this guarantee:
   a) a competent person installed the product;
   b) the installation was carried out according to the directions as supplied by Coldbuster;
   c) the installation was carried out in accordance with all applicable electrical regulations; and
   d) the heater has been connected to RCD protected supply circuit.

3. Damage during installation by others is not covered by warranty.

4. Damage or repair to a product by any party voids this guarantee. Repairs done by Coldbuster to rectify any damage cannot be guaranteed and the client will be charged regardless of the result.

5. Claims under this guarantee must be lodged with Coldbuster in writing within the period prescribed. Full particulars must be given and a copy of the invoice as proof of purchase must be enclosed.

6. In settlement of its obligations under the guarantee set out above, Coldbuster shall, at its option, either:
   a) repair or replace the defective part without charge; or
   b) pay the purchaser a sum equal to the price paid for the defective part at the time of purchase.

7. Coldbuster's liability to the purchaser is limited to amounts referred to herein. The purchaser agrees that Coldbuster shall not be liable for any other or additional damages suffered by the purchaser caused by any defects in the product, the installation itself or any constituent part of it. Coldbuster shall not be liable to compensate the purchaser for any floor coverings or any other item damaged or destroyed as a result of any such defects.

8. This guarantee is subject to the purchaser adhering to all safety and operating instructions.

9. This warranty is non-transferable.

Heater position/layout sketch
KEEP FOR FUTURE REFERENCE
Record heating layout and test readings on this page to comply with the 25-year warranty.

Sketch out the position of your heater(s), walls and other fixed fittings. Keep this manual and diagram for your reference and pass on to future occupants. Record the details below, as this can be used to validate the heater and thermostat warranties.

Date of Purchase_____ Heater Model Number(s) _____

Invoice Number_____ Installed By_____

Date Installed:	Element Resistance Test			"Megger" Insulation test @ 500V	Sensor Resistance Test
/ /	A - N	A - E	N - E		
Date Connected:	Ohm	Ohm	Ohm	M Ohm	K Ohm
/ /	Ω	Ω	Ω	MΩ	KΩ

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