

# UFH Premium Mat

**butech**

PORCELANOSA Grupo

By **Warmup**

## Repair Guide

**WARRANTY DISCLAIMER:** This guide and the repair kit included have been provided to aid in the repair of UFH Premium Mat systems damaged on-site. BUTECH cannot provide a warranty on the repair or guarantee the proper function of the heating system following a repair. BUTECH recommends that all repair work be carried out by a qualified electrician and conform with current IEE Wiring Regulations.

**CAUTION:** Before commencing with the repair, ensure that the heating system has been completely disconnected from the power source.

### TOOLS & ITEMS REQUIRED FOR REPAIR:

1. One Repair kit consisting of:
  - 2 x Large heat shrink
  - 12 x Small heat shrink
  - 12 x Small butt crimp
  - 1 x Length of bridge wire
2. Crimping Tool
3. Heat gun
4. Wire strippers
5. Wire cutters
6. Multimeter

## Testing the Repair

The repaired heater must be tested after the repair is complete but before the tiles or levelling compound has been laid and again before they are connected to the thermostat. The resistance (ohms) of each heater should be measured. You should carry out the following tests and should expect the results detailed below:

### • Heating Cable Resistance Test

Set a multimeter or ohmmeter to record resistance in the range of 0-500Ω. Measure the resistance across the live (brown) and neutral (blue) wires. Ensure the measured resistance is within the Reference Resistance Band shown on Page 2 for the cable size being tested.

### • Earth Fault Check

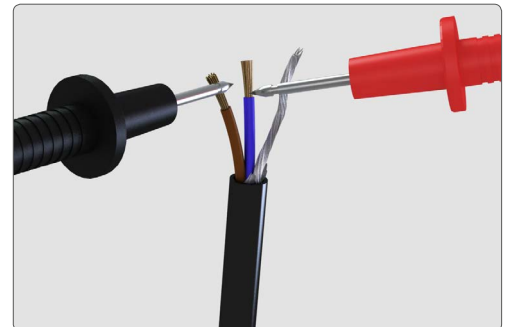
Set a multimeter or ohmmeter to record resistance in the range of 1MΩ or greater if available. Measure the resistance across the live (brown) and neutral (blue) wires to the earth (green/yellow) wire.

Ensure the measured resistance is showing as greater than 500MΩ or infinite if the meter cannot read this high.

### **Insulation resistance test**

Set an insulation resistance tester to 500VDC. Measure the resistance across the live (brown) and neutral (blue) wires to the earth (green/yellow) wire. Ensure the measured resistance is showing greater than 500MΩ to indicate a pass.

**NOTE:** Due to the high resistance of the heating element, it may not be possible to get a continuity reading from the heating cable and as such, continuity testers are not recommended. When checking resistance, make sure your hands do not touch the meter's probes as the measurement will include your internal body resistance and render the measurement inaccurate. If you do not get the expected results or at any time you believe there may be a problem, please contact BUTECH for guidance.



# Resistance Tables

UFH Premium Mat 150 W/m<sup>2</sup> System

UFH PREMIUM MAT 150W/m <sup>2</sup>		
MODEL	CODE	RESISTANCE (Ω)
BU-PM1-EU	100232008	353
BU-PM1.5-EU	100232081	235
BU-PM2-EU	100232053	176
BU-PM2.5-EU	100232009	141
BU-PM3-EU	100232090	118
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REFERENCE RESISTANCE BANDS (Ω)
335.4 - 370.7
223.3 - 246.8
167.2 - 184.8
134.0 - 148.1
112.1 - 123.9
83.6 - 92.4
67.5 - 74.6
33.3 - 36.8

## Repair Guide

1

Identify the location of the failure and expose the heater. Use wire cutters to remove between a minimum of approximately 50mm and maximum of 20cm of damaged heating wire.



2

Use the wire strippers to remove approximately 50mm of the outer sheath to expose the earth braid on both ends of the cut wire.  
**IMPORTANT:** DO NOT damage the earth braid.



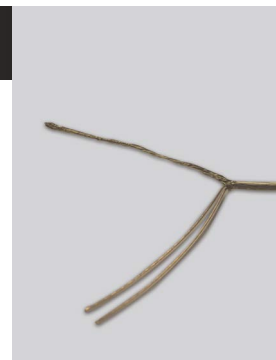
3

Unravel the earth braid on both ends of the wire.



4

Twist the earth braid.



5

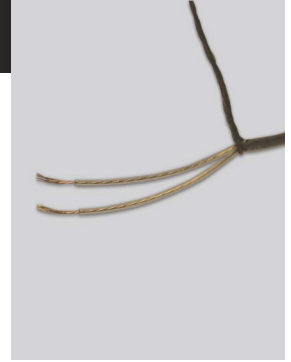
Slide one piece of the large black heat shrink over one end of the heating element.



6

At both ends of the cut heating element, use the wire strippers to strip off approximately 7mm of the insulation covering the heater cores.

**IMPORTANT:** DO NOT damage the heating cores.



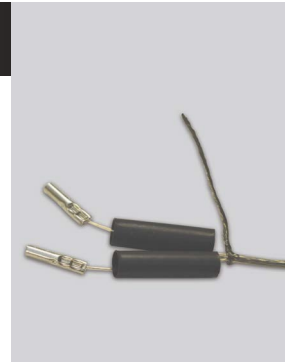
7

Attach a butt crimp to the 4 exposed ends of the heater cores using a crimping tool.



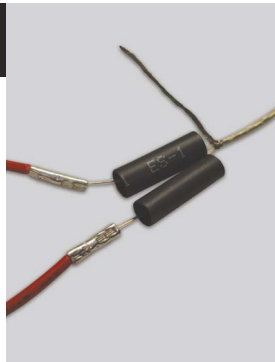
8

Slide the small heat shrink over each end of the heating elements up to the earth braid.



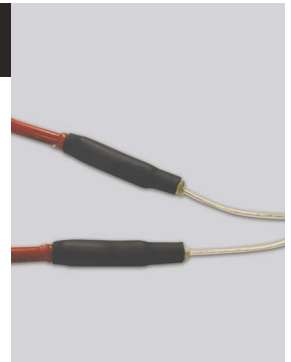
9

Cut a section of the "bridge" wire provided to a length suitable to replace the cut section of damaged heating element. Strip 7mm from either end of the bridge wire and fit these ends into the butt crimps located on the heating cores and crimp using the crimping tool. Test the resistance of the heater at this stage.



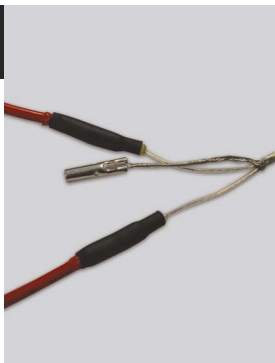
10

Slide the small heat shrink over the butt crimps so that any bare metal is covered. Use a heat gun in order to activate the heat shrink.



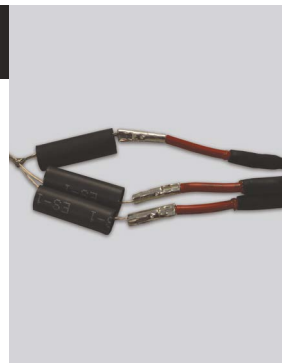
11

Attach a butt crimp to both ends of the earth braid using a crimping tool.



12

Slide one small piece of heat shrink over both sections of exposed earth braid. Cut a section of the "bridge" wire provided to a length suitable to replace the cut section of damaged heating element. Strip 7mm from either end of the bridge wire and fit these ends into the butt crimps located on the earth braid and crimp using the crimping tool.



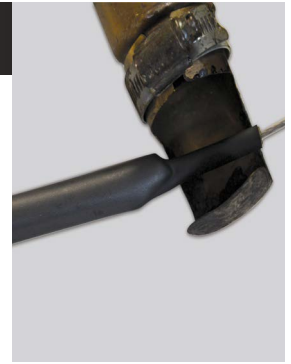
## 13

Slide the small heat shrink pieces over the butt crimps so that the entire crimp is covered. Use a heat gun in order to activate the heat shrink.



## 14

Slide the large pieces of heat shrink over the small heat shrink and apply the heat gun. Allow the new joints to cool. Test resistance of the heater and then repair the floor finish as required.



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# UFH Premium Mat

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## Coldtail Repair Guide

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**CAUTION:** Before commencing with the repair, ensure that the heating system has been completely disconnected from the power source.

### TOOLS & ITEMS REQUIRED FOR REPAIR:

1. One Repair kit consisting of:
  - 1 x Large heat shrink
  - 2 x Small heat shrink
  - 2 x Butt crimp
  - 1 x Solder sleeve
2. Crimping Tool
3. Heat gun
4. Wire strippers
5. Wire cutters
6. Multimeter

## Testing the Repair

The repaired heater must be tested after the repair is complete but before the tiles or levelling compound has been laid and again before they are connected to the thermostat. The resistance (ohms) of each heater should be measured. You should carry out the following tests and should expect the results detailed below:

### • Heating Cable Resistance Test

Set a multimeter or ohmmeter to record resistance in the range of 0-500Ω. Measure the resistance across the live (brown) and neutral (blue) wires. Ensure the measured resistance is within the Reference Resistance Band shown on Page 2 for the cable size being tested.

### • Earth Fault Check

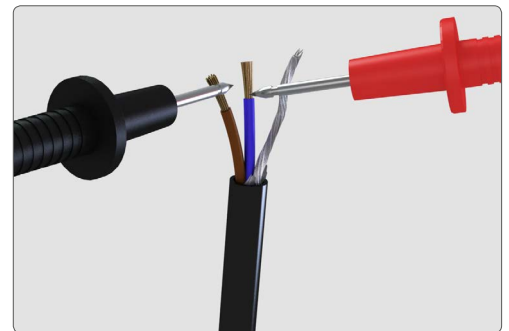
Set a multimeter or ohmmeter to record resistance in the range of 1MΩ or greater if available. Measure the resistance across the live (brown) and neutral (blue) wires to the earth (green/yellow) wire.

Ensure the measured resistance is showing as greater than 500MΩ or infinite if the meter cannot read this high.

### **Insulation resistance test**

Set an insulation resistance tester to 500VDC. Measure the resistance across the live (brown) and neutral (blue) wires to the earth (green/yellow) wire. Ensure the measured resistance is showing greater than 500MΩ to indicate a pass.

**NOTE:** Due to the high resistance of the heating element, it may not be possible to get a continuity reading from the heating cable and as such, continuity testers are not recommended. When checking resistance, make sure your hands do not touch the meter's probes as the measurement will include your internal body resistance and render the measurement inaccurate. If you do not get the expected results or at any time you believe there may be a problem, please contact BUTECH for guidance.



# Resistance Tables

UFH Premium Mat 150 W/m<sup>2</sup> System

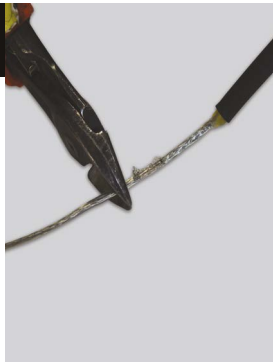
UFH PREMIUM MAT 150W/m <sup>2</sup>		
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## Repair Guide

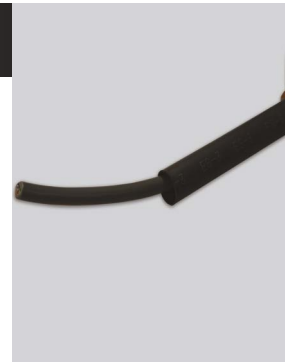
1

Identify the location of the failure and expose the heater. Use wire cutters to remove the damaged section of heating wire.



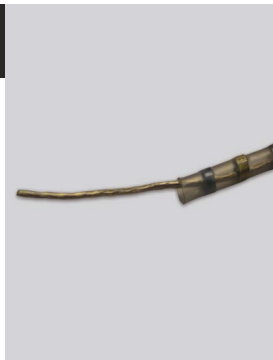
2

Slide one piece of the large black heat shrink over the coldtail.



3

Slide the solder sleeve shrink over the heating element.



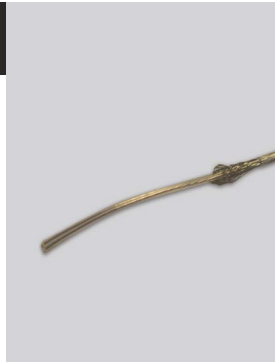
4

Use the wire strippers to carefully remove approximately 40mm of the outer sheath to expose the earth braid which surrounds the heating cores.



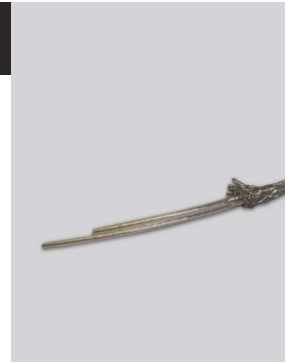
**5**

Remove the earth braid leaving approximately 10mm of braid exposed covering the heater cores.



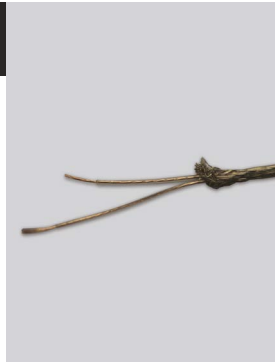
**6**

Cut one of the cores so that the final crimped joints are staggered. This will reduce the final thickness of the joint.



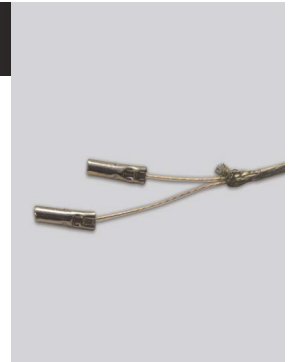
**7**

Use the wire strippers to carefully strip off approximately 7mm of the insulation covering both heater cores.



**8**

Position the butt crimps over the heating cores and crimp once using a crimping tool.



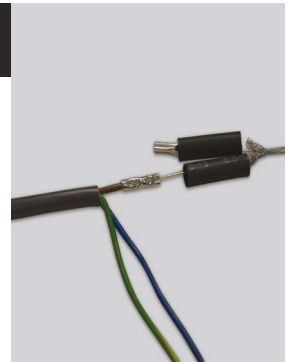
**9**

Slide the small heating shrink over each heating core.



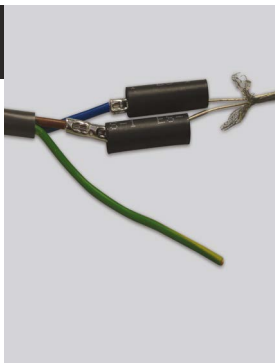
**10**

Position the crimp that is attached to one of the heating cores onto the Live of the coldtail and crimp once using a crimping tool.



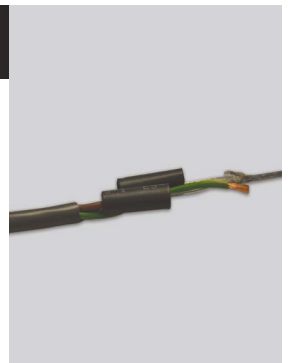
**11**

Position the remaining crimp that is attached to the heating core onto the Neutral of the coldtail and crimp once using a crimping tool. Test the resistance of the heater at this stage.



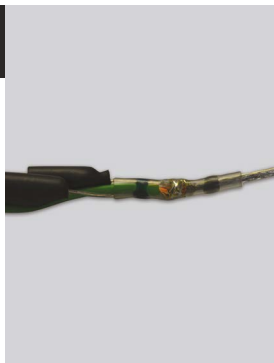
**12**

Position the Earth of the coldtail onto the exposed 10mm earth braid. Slide the solder sleeve we had left on the heating element over the earth wire and earth braid.



## 13

Ensuring the solder sleeve covers the earth connection use a heat gun to shrink the solder sleeve.



## 14

For the heater cores, slide the small heat shrink pieces over the butt crimps so that the entire crimp is covered. Use a heat gun in order to activate the heat shrink.



## 15

Slide the large piece of heat shrink over the small heat shrink and apply the heat gun. Allow the new joints to cool. Test resistance of the heater.



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## End Cap Repair Guide

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**CAUTION:** Before commencing with the repair, ensure that the heating system has been completely disconnected from the power source.

### TOOLS & ITEMS REQUIRED FOR REPAIR:

1. One Repair kit consisting of:
  - 1 x Large end capped heat shrink
  - 1 x Small heat shrink
  - 1 x Small butt crimp
2. Crimping Tool
3. Heat gun
4. Wire strippers
5. Wire cutters
6. Multimeter

## Testing the Repair

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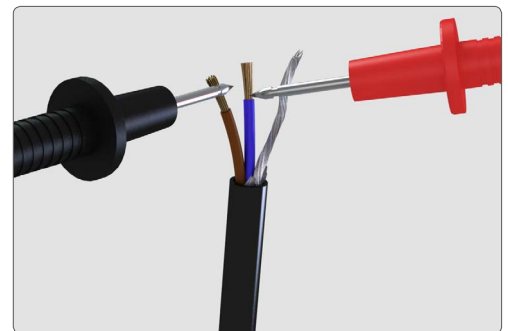
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## Repair Guide

1

Identify the location of the failure and expose the heater. Use the wire strippers to carefully remove approximately 20mm of the outer sheath to expose the earth braid.  
**IMPORTANT:** DO NOT damage the earth braid



2

Unravel the earth braid.



3

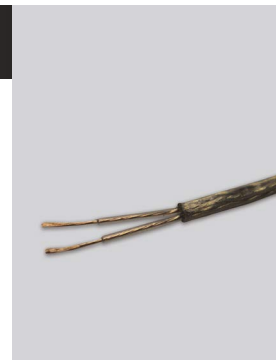
Cut back the earth braid close to the outer insulation so that you are left with two heating element cores.



4

Using wire strippers strip back approximately 7mm of the insulation from the heater cores.

**IMPORTANT:** DO NOT damage the heating cores.



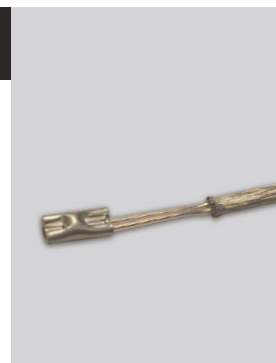
5

Twist the cores of the heating element together.



6

Slide a butt crimp over the heating element cores and crimp using a crimping tool. Test the resistance of the heating element at this stage.



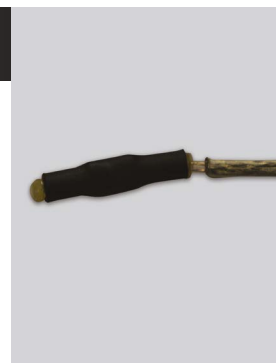
7

Slide the small heat shrink over the butt crimp so that any bare metal is covered.



8

Activate the heat shrink by applying heat using a heat gun.



9

Slide the larger end cap heat shrink over the small heat shrink and apply heat once more using a heat gun.



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