

UNDER TILE HEATING

INSTALLATION MANUAL

FEBRUARY 2016



- AFFORDABLE LUXURY HEATING
- FULLY PROGRAMMABLE
- FAST & EFFICIENT
- IDEAL FOR BATHROOMS & LIVING ROOMS

Please read this instruction manual.
It includes important information that will assist
you and save you time and money.

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STEP 1 READ THIS MANUAL

Please read this manual. It includes everything you need to know to successfully install DUNLOP Hotwire Under Tile Heating.

Incorrect installation of DUNLOP Hotwire Under Tile Heating may lead to any warranty claim being denied.

In some States and Territories of Australia the installation of DUNLOP Hotwire Under Tile Heating must be performed in its entirety by a licensed electrical contractor. Whilst in others a licensed contractor is only required for the connections to the thermostat. Please check with your local electrical authority or electrical contractor to verify the requirements applicable to your State or Territory.

The DUNLOP Hotwire Under Tile Heating element cannot be cut, shortened or lengthened in any way.

STEP 2 PRE WIRE OR "ROUGH IN"

Three things are required before DUNLOP Hotwire Under Tile Heating can be installed. Please see the diagram.

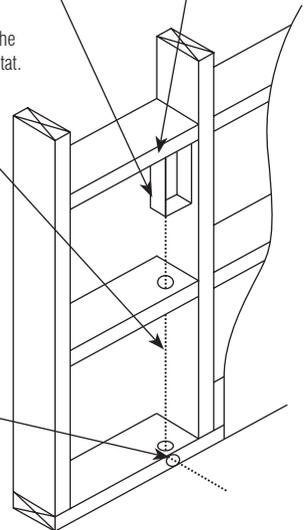
1. Power supply. You will need power capable of running the DUNLOP Hotwire element you are installing. E.g. 600 watts
2. A vertical light switch power point plate.
3. Draw wire. You will need a draw wire through the wall cavity or chased into wall (if brick) and run through conduit.

Provide power suitable for load of element to flush box. E.g. 800 watts

Mount Flush Box Vertically.

Insert draw wire from flush box to floor. This will enable you to pull the coldtails to the thermostat.

NSW:
(Optional in other states)
Install conduit 100mm out onto floor and 100mm into wall cavity. Run draw wire through conduit



This product is an Under Tile Heating system and not In Screed heating. If you require In Screed Heating please contact us 1300 340 346.

STEP 3 COLD TAIL CHANNELS

Before you do too much you will need to dig out three channels for the cold tails and for the floor probe. See the pictures following.

For concrete use your hammer drill for other surfaces such as Sheet timber (plywood and particleboard) or CFC Sheet use a hammer and small chisel. Each channel should be at least 150mm long.

The cold tails are conductive cables that are fitted to each end of the element. As the title says they are cold and it is this part of the cable that runs up the wall cavity. The join between the element and the cold tail is a bit thicker than the rest of the cable so you will need to dig a small channel. The Cold Tail join must be completely buried under the tile. Failure to do so will void your warranty.

The third channel is for the floor probe for the thermostat. We will explain about that when you are nearly finished the installation.



Marking out the cold tail channels



Finished cold tail channels

STEP 4 SURFACE PREPARATION

Concrete

Concrete shall be clean, sound and free from all contaminating materials e.g. paint, wax, curing compounds and oil. New concrete should be at least 4 weeks old. Remove laitance by mechanical means, followed by vacuuming to ensure removal of all loose particles.

Sheet Timber (particleboard or plywood)

All timber floors must be sanded followed by vacuuming to ensure removal of all loose particles. Sub-floors must be solid, clean and free of dust, plaster droppings, grease, paint, polish and any loosely adhered or water-softenable material. Prior to levelling wooden floors, re-nail and firmly fix all loose boards.

High density compressed fibre cement sheet

All compressed fibre cement sheeted floors must be sanded followed by vacuuming to ensure removal of all loose particles. Sub-floors must be solid, clean and free of dust, plaster droppings, grease, paint, polish and any loosely adhered or water-softenable material. Prior to levelling compressed fibre cement sheeted floors, re-nail and firmly fix all loose sheets.

STEP 5 PRIMER

The primer will depend on what surface or leveller you have for your project.

- For sheet timber such as particleboard and plywood or high density compressed fibre cement sheet apply the primer that is included in the kit of the DUNLOP TIMBER FLOOR LEVELLER as per packaging instructions.
- For concrete or sand and cement screeds apply the DUNLOP PRIMER AND ADDITIVE as per packaging instructions.
- Fibreglass mesh can also be used. However in either case the floor will need to be primed with a suitable DUNLOP primer depending on the surface to assist the tiler.

Now you have the preliminaries done you can get down to installing DUNLOP Hotwire Under Tile Heating.



Applying the primer

STEP 6 CABLE SPACING

This is really important to an excellent DUNLOP Hotwire Undertile Heating installation, so please read this carefully.

Calculate the EXACT m² of the area to be heated. We don't normally heat under anything that is fixed. For example Vanity's, WC's in bathrooms and kitchen cupboards and permanent entertainment units in living areas.

Take the m² you are left with and multiply it by 1000 (this is to bring the measurement to square millimeters). Then divide that answer by the length of the element. This is printed on the side of the spool. The answer will be the cable spacing and should be between 50 and 75mm. If your answer is outside this check your measurements again as you have made a mistake or have the wrong element. If this is the case do not proceed with the installation.



$$\text{Cable Spacing} = \frac{\text{M}^2 \text{ of floor} \times 1000}{\text{Length of Cable}}$$

The above formula is a good guide but does not take into account the loops at the end of the cable runs so take 5% off your answer. So for example if your answer was 65mm start installing the cable at 61.75mm apart.



Calculate the wire spacing

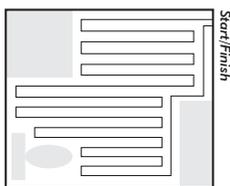
It is a good idea to cut a jig to the size you need it rather than use a tape measure the whole time. An off cut of wood is fine; in the picture we used an off cut of electrical cable.



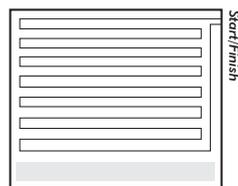
Cut a jig to the correct cable spacing

what is the most logical and simple way to run the cable around that room.

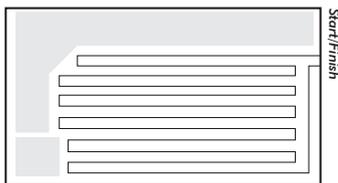
You want to be doing as many long runs as possible.



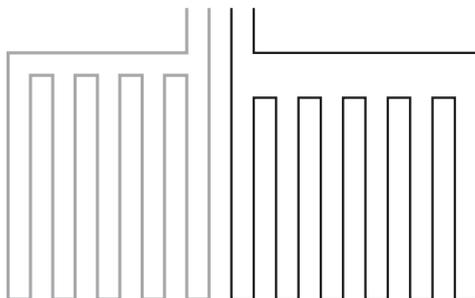
Bathroom



Living Area



Kitchen



STEP 7 THE INSTALLATION

This is a step where you can come undone if you don't plan properly.

The DUNLOP Hotwire element must start and finish in the same place and CANNOT be cut or shortened in any way. So have a look at the room and work out



Note for areas over 20m²
If your area is over 20m² you have been supplied with two elements. These must be run in parallel and not joined together. Basically you have to install one element on one half of the floor and the other on the other half. So do the above measurement with 50% of the m².

Try and leave the longest wall until last. That way if you have a little too much or too little cable left you can make an easy adjustment by coming a bit further away or going right up close to the wall. Neither option will affect the heating of the room in any way.

STEP 8 CHECK THE ELEMENT

Before installing the element it is always a good idea to ensure it has not been damaged during transit. We check every element before it leaves our warehouse but there is the possibility that it may get damaged by a courier.

If you have a multimeter then you can check the cable against the following table.

If you don't have a multimeter don't panic we have you covered too.

In the DUNLOP Hotwire Under Tile Heating Box is a continuity alarm. It is a small black box with 3 cables coming off the end.

1. Remove small white sticker over "On / Off" Switch
2. Fix the Black clip to the Brown wire of the element.
3. Fix the Red clip to the Blue wire of the element.
4. Fix the Green clip to one end of the Green (earth) wire.
5. Switch the tester on.
6. A Red Light then shows that the tester is on and working.
7. If you have a fault the tester will start "Beeping".

If the alarm does not beep you are good to keep installing. There is also another use for the alarm so keep it handy, more about that after the element is down.

Watts*	Cable Length	Ohms	Amps
200	18	264.50	0.87
300	27	176.33	1.30
400	36	132.25	1.74
500	45	105.80	2.17
600	54	88.17	2.61
700	63	75.57	3.04
800	72	66.13	3.48
900	82	58.78	3.91
1000	90	52.90	4.35
1250	112	42.32	5.43
1500	136	35.27	6.52
1750	160	30.23	7.61
2000	180	26.45	8.70
2500	220	21.16	10.87
3000	272	17.63	13.04

STEP 9 TAPE

You will need lots of pieces of the cloth tape that are included in the box. Rip off pieces about 60mm long. A good rule of thumb is when you think you have enough rip off twice as much again and you should be good to go. Just stick the pieces up a door frame or window sill.



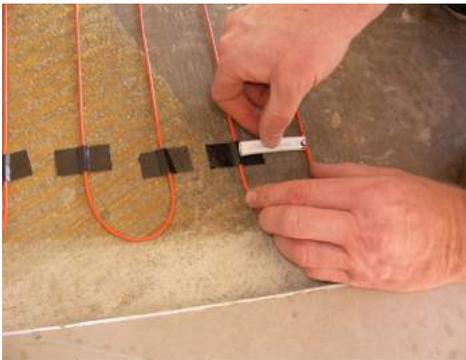
STEP 10 ROLL OUT ELEMENT

You are now ready to start rolling out the element and sticking it down.

Stick one end in the cold tail groove you cut earlier. Do not put any part of the cold tail joint inside the wall cavity. It must be completely buried in the floor.



Then start spreading the element around the floor using the jig you cut earlier.



STEP 11 HALFWAY

You will notice a half way marker. It is a little piece of tape around the element. When you see this stop and look at where you are up to. If you are not sure if you are half way through the floor check your measurements. Measure the remaining m^2 and use 50% of the cable length to check if you are on target. If you are a little more or under half way you can spread the cable runs out or close them up a bit. However only do this if the difference is a mm or 2. If it is greater than this you may need to roll the cable up and change the spacing.



STEP 12 NEARLY FINISHED INSTALLING THE ELEMENT

When you are nearly finished (only 4 or 5 metres of cable left) you will need to go in reverse. Roll off all the cable and stick the second cold tail down. Then make the remainder of the element fit in the remaining space.

You may find it necessary to make one run a little shorter or close the cables up a bit. This is okay as

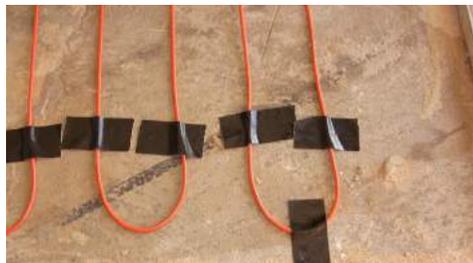
long as it is not a high traffic point. In the picture you will notice the last run is a little short. This is perfectly alright as long as it is not the cable run right in front of the vanity!

If you are really stuck you can eliminate an area such as behind a door or down the sides of a vanity unit. Just check with the homeowner to ensure they are aware so that you don't have any problems later.



STEP 13 MORE TAPE

Stick any proud bits of element down. Some of the loops may have popped up a bit. You will also need to run a strip of cable right across the whole floor to ensure the cable does not get moved when installing the leveller. It is a good idea to run right across the floor every metre.

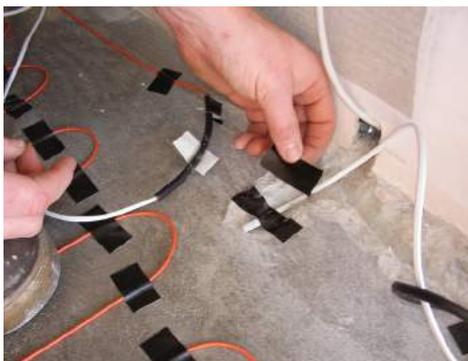


STEP 14 INSTALL THE FLOOR PROBE

You now need to install the floor probe. It should be in the box with the thermostat.

Stick the probe in the groove you cut earlier. Make sure you don't stick any tape over the end of the probe. It is also critical to ensure that the probe is exactly half way between two cable runs. i.e. if your measurement was 60mm. Ensure the end of the probe is 30mm from one run of element and 30mm from another.

The cold tails and the floor probe can be hard to stick down. Hot glue works really well if you have a problem.



STEP 15

PULL CABLES TO POWER SUPPLY

Tape the ends of all three cables (each cold tail and the floor probe) to the draw wire and gently pull the cable up the wall cavity or through the conduit to the position of the power supply.

No part of the element can be run inside the wall. The entire cold tail join must be buried in the channel you dug at the start.



STEP 16

CONNECT CONTINUITY ALARM

Connect the continuity alarm again. This will ensure you have not damaged the cable during installation. It will also monitor the cable while you are laying the levelling compound or tiling.

1. Remove the small white sticker over the "On/Off" Switch (if you haven't already)
2. Fix the Black clip to the Brown wire of the element.

3. Fix the Red clip to the Blue wire of the element.
4. Fix the Green clip to one end of the Green (earth) wire.
5. Switch the tester on.
6. A Red Light then shows that the tester is on and working.
7. If you have a fault the tester will start "Beeping" If there is no "Beep" you can continue with the installation.
8. If the beep sounds at any time, before or during installation STOP IMMEDIATELY as this means that damage has occurred to the element and you will need to repair it before continuing.
9. Once you have finished the installation and before you start tiling reconnect the tester as above & turn on.
10. Keep the tester on until your tiling is complete.
11. If the tester light turns off you will need to replace the batteries.

It is a good idea to tape the alarm up with the tails so that it is not in your way while you finish the installation.

STEP 17

TAKE A PICTURE

Take a picture of the element layout. If there is ever a problem it will be handy to know how the element has been installed across the floor.

STEP 18

LEVELLER , WATERPROOFING & FIBREGLASS MESH

There are three options for protecting the heating element:

1. Cover using a DUNLOP Floor Leveller.
2. Cover using a DUNLOP Tile Adhesive after waterproofing over a screed.
3. Cover using a Fibreglass Mesh.

1. LEVELLING

We recommend using a DUNLOP leveller in all areas other than wet areas where a waterproofing membrane is required with falls to waste on a sand cement screed.

The thickness of the levelling compound should be 6mm total thickness from the floor substrate ensuring an even coverage over the heating cables. This will protect the heating cables and waterproofing (if required) during tiling.

For best results the following DUNLOP Floor Levellers are recommended:

Surface Type:

- Sheet timber such as particleboard and plywood or high density compressed fibre cement sheet use the DUNLOP TIMBER FLOOR LEVELLER as per packaging instructions.
- For concrete surfaces use the DUNLOP MULTIPURPOSE FLOOR LEVELLER as per packaging instructions.

Pour the leveller in the furthest corner from the door and work your way out of the room. To protect the cable ensure you only move the trowel along the cable and not across it. You can use the top of the cables as a guide for the depth. The outline of the cables should not be visible in the finished product.

Once the DUNLOP Floor Leveller has been left to dry for at least 48 hours, it is then recommended that the heating elements be turned on and left to reach maximum temperature for a minimum of 24 hours. After this procedure if cracking occurs apply the DUNLOP ARDIT FEATHER FINISH directly over the DUNLOP Floor Leveller to smooth over and repair any cracks. Please refer to the DUNLOP FEATHER FINISH packaging instructions and/or datasheet for more information.



Waterproofing over DUNLOP Floor Leveller

Waterproofing over the Floor Leveller is required for wet areas after the levelling compound has dried for 48 hours. Waterproof using either the DUNLOP UNDERTILE WATERPROOFING MEMBRANE or the DUNLOP EXPRESS WET AREA WATERPROOFING system, please refer to the DUNLOP packaging instructions and/or datasheet for more information on application.

2. WATERPROOFING

Waterproofing over a Sand Cement Screed:

Waterproofing over a sand cement screed that is a minimum of 7 days old where "falls to waste" is required in wet areas. Use a DUNLOP Waterproofing membrane such as DUNLOP EXPRESS WET AREA WATERPROOFING MEMBRANE or DUNLOP UNDERTILE WATERPROOFING MEMBRANE and follow the application instructions. Install the heating cables as per this installation guide. Apply a skim coat (1-2mm) of one of the following DUNLOP Tile Adhesives listed below using a flat trowel over the cables and allow to dry completely. When tiling apply the same tile adhesive using a flat trowel.

- Concrete or CFC: DUNLOP TILE-ALL, DUNLOP UNIVERSAL TILE ADHESIVE, DUNLOP TRADE RESAFLEX, DUNLOP RAPIDFLEX TILE ADHESIVE and DUNLOP WALL & FLOOR TILE ADHESIVE.
- Sheet Timber: DUNLOP WALL & FLOOR TILE ADHESIVE.

3. FIBREGLASS MESH

Fibreglass mesh can also be used instead of a leveller. Ensure the tiler is aware you are using mesh.

STEP 19 NOTICE TO TILERS

If you have a tiler, inside this manual is a yellow flyer pointing out to tilers that DUNLOP Hotwire Under Tile Heating System has been installed. Stick it to the wall in a prominent place. The flyer also has a place to write your name and number for them to call with any questions.

STEP 20 CONNECT THE THERMOSTAT

It is a good idea to leave the continuity alarm connected during the tiling. This will ensure that any damage is noticed immediately. It will involve either a second trip to connect the thermostat or leaving the connection to the second fix electrician.

DUNLOP HOTWIRE MATERIALS CHECK LIST:

- DUNLOP Hotwire Element
- Thermostat: (including a floor sensing probe)
- Cloth Tape
- Continuity Alarm
- This Manual
- Relay if required

You will also need:

- Broom
- Hammer Drill
- Bucket
- Mixer
- Flat Trowel

- Tape Measure
- DUNLOP Floor Leveller either the DUNLOP TIMBER FLOOR LEVELLER or the DUNLOP MULTIPURPOSE FLOOR LEVELLER (depending on the surface)
- DUNLOP PRIMER & ADDITIVE (if using the DUNLOP MULTIPURPOSE FLOOR LEVELLER) and as an additive in the grout.
- DUNLOP Tile Adhesive
- DUNLOP Waterproofing (for wet areas)
- DUNLOP Grouts and Sealers

TILERS OR TILING INSTRUCTIONS

Tile using a suitable DUNLOP Tile Adhesive according to your tile and surface type.

DUNLOP TILE ADHESIVES

Tiling over Floor Levellers:

When tiling over a DUNLOP Floor Leveller use one of the following DUNLOP Tile Adhesives:

- Concrete or CFC: DUNLOP TILE-ALL, DUNLOP UNIVERSAL TILE ADHESIVE, DUNLOP TRADE RESAFLEX, DUNLOP RAPIDFLEX TILE ADHESIVE, DUNLOP MULTIPURPOSE MASTIC TILE ADHESIVE AND DUNLOP WALL & FLOOR TILE ADHESIVE.
- Sheet Timber: DUNLOP WALL & FLOOR TILE ADHESIVE.

Tiling over Waterproofing:

When tiling over a DUNLOP waterproofing membrane over the listed DUNLOP Floor Levellers use one of the following DUNLOP Tile Adhesives:

- **DUNLOP MULTIPURPOSE FLOOR LEVELLER (concrete floors):** DUNLOP TRADE RESAFLEX, DUNLOP RAPIDFLEX TILE ADHESIVE, DUNLOP WALL & FLOOR TILE ADHESIVE, DUNLOP TILE-ALL, DUNLOP MULTIPURPOSE MASTIC TILE ADHESIVE and DUNLOP UNIVERSAL TILE ADHESIVE.
- **DUNLOP TIMBER FLOOR LEVELLER (CFC):** DUNLOP TRADE RESAFLEX, DUNLOP RAPIDFLEX TILE ADHESIVE, DUNLOP WALL & FLOOR TILE ADHESIVE, DUNLOP TILE-ALL, DUNLOP MULTIPURPOSE MASTIC TILE ADHESIVE and DUNLOP UNIVERSAL TILE ADHESIVE.
- **DUNLOP TIMBER FLOOR LEVELLER (Sheet Timber):** DUNLOP WALL & FLOOR TILE ADHESIVE.

Note: Premixed tile adhesives are not suitable over waterproofing membranes.

Tiling over Fibreglass Mesh:

When tiling over Fibreglass Mesh use DUNLOP WALL & FLOOR TILE ADHESIVE.

Grouting:

For best results when grouting to provide maximum protection and increase the durability of the grout is to use the DUNLOP FLEXIBLE COLOURED GROUT mixed with the DUNLOP PRIMER & ADDITIVE (at a concentration of 80% DUNLOP PRIMER AND ADDITIVE to 20% water). For detailed instructions refer to the DUNLOP FLEXIBLE COLOURED GROUT packaging instructions and/or product datasheet for more information. For best results use DUNLOP Sealer to protect your surfaces and make them look better for longer.

OTHER

It is the tiler's responsibility to check the floor for suitability for tiling and to complete any floor preparation and waterproofing etc. Before the heating element is installed.

The heating element incorporates double insulation with a multi stranded conductor and will withstand normal tiling practices. However we do ask you to note and take care of the following:

- Wear soft soled shoes while tiling.
- Do not carry out any other work on top of the elements such as cutting.
- Do not place ladders on the elements.
- Close off the area to other trades before the tiling has taken place.
- We recommend a 10mm notched trowel be used to spread adhesive and that trowelling is done in the direction of the element wire. (If a steel trowel is used check for any sharp edges which should be filed and removed).
- Do not position tiles or other machinery on the heated floor area, and care must be taken not to drop anything.

ELECTRICAL CONNECTION OF THE THERMOSTAT

All circuit wiring supply and thermostat connection must be undertaken in accordance with the current electrical standards and regulations. The heating units

must be separated from other heating sources. The maximum thermal resistance between the heating element and the room = $0.4m^2K/w$ and all electrical supply circuits must be RCD (Residual Current Device) protected with a rated residual operation current not exceeding 30mA.

OPERATION

Wait 7 days for the tile adhesive to dry before you turn on your heating. Once the heating is commissioned the initial heat up time will vary depending on the subfloor type, (concrete or timber) insulation, thermal characteristics and ambient temperature. Performance will improve with use.

DO'S AND DON'TS

DO'S

- Carefully read the installation instructions prior to commencing your installation.
- Check the element is working before you start.
- Ensure the surface is clean and clear of obstructions.
- Pre plan your element layout and stay with the recommended element spacing.
- Maintain even element spacing.
- Protect the heating element from damage at all times.
- Plan required pre work and drilling before you lay the element.
- Take care when tiling to make sure that you do not

damage the element.

- Ensure that enough tile adhesive is used so not to leave gaps or voids under the tiles.

DONT'S

- Don't cut or shorten the heating element.
- Don't commence installation on concrete floors that are not fully cured.
- Don't allow the heating elements to cross or touch.
- Don't allow traffic over the heating element until the flooring has been laid.
- Don't remove the heating element off the spool except during installation.
- Don't store tiles sharp or heavy objects on the elements while tiling.
- Don't switch on the heating until the tile adhesive has fully cured. Don't install the element over uneven floor surfaces.

PRECAUTIONS

- Do not install DUNLOP products when the surface and air temperature is under 10°C or over 32°C or if freezing temperatures could occur within 24 hours.
- The minimum radius for bending the heating element equals 20mm.
- Contact the manufacturer for advice if materials other than those recommended are used, refer to the packaging instructions, product datasheets and

Safety Data Sheets.

- The appliance is not intended for use by young children, or infirm persons, without supervision.
- Young children should be supervised to ensure they do not play with the appliance.
- Laws in different states and territories of Australia differ. Please check with your local electrical authority if someone other than a licensed electrician is able to lay the cable in your state or territory. In all states and territories all electrical connections including the thermostat must be carried out by a registered electrician.
- All circuit wiring supply and thermostat connection must be undertaken in accordance with the current electrical standards and national wiring regulations.
- The heating units must be separated from other heat sources.

CUSTOMER WARRANTY AGAINST DEFECTS FOR DUNLOP HOTWIRE UNDER TILE HEATING PRODUCTS

Turnkey International Pty Ltd (ABN 36 086 830 766)
trading as Hotwire Heating (Hotwire)

This document contains the Warranty against defects for goods (Goods) supplied by or on behalf of Hotwire to the customer, whether an individual or company, (Customer), who purchased the Goods through an authorised distributor of Hotwire.

1) General:

- a) Hotwire's Goods come with guarantees that cannot be excluded under the Australian Consumer Law as set out in Schedule 2 of the Competition and Consumer Act 2010 (Cth). The Customer is entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. The Customer is also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure. What constitutes a major failure is set out in the Australian Consumer Law.
- b) The benefits under this Warranty are in addition to the Customer's other rights and remedies under the Australian Consumer Law. If the Customer is not a "consumer" or the Goods are not "of a kind ordinarily acquired for personal, domestic or household use or consumption" for the purposes of the Australian Consumer Law, then to the extent permitted by law, Hotwire will not be liable for any direct or indirect or consequential loss in relation

to any product defects.

- c) Nothing in this Warranty is intended to exclude or attempt to restrict or modify the operation of the Australian Consumer Law or any other applicable law that cannot be excluded, restricted or modified by agreement. For the avoidance of doubt, Hotwire's liability in connection with the Goods is limited and excluded except to the extent that the limitation and exclusion is not permitted under the Australian Consumer Law and as set out in this Warranty.

2) Installation Manual:

- a) The Hotwire installation manual (**Installation Manual**) is provided for the benefit of the Customer. The Goods and installation of the Goods ordinarily requires the technical skills of a qualified installer. Do not take any steps to install the Goods without a copy of the Installation Manual.

3) Installation:

- a) Hotwire recommends that the Goods be installed by a registered Hotwire Installer (Authorised Installer).
- b) Any installation by a person who is not an Authorised Installer must be carried out strictly in accordance with the Installation Manual taking into account the individual circumstances of the place of installation and a failure to do so may void or exclude the Customer's ability to claim under the Warranty.

4) Warranty:

- a) Subject to clause 7(b), Hotwire undertakes to repair or at its sole discretion to replace any part of the Goods manufactured by Hotwire which is found to have a manufacturing defect for a period

of ten (10) years from the date of purchase.

b) The period of the Warranty described at clause 7(a) does not apply to the part of the Goods comprising (or being) the thermostat and the controller. The Warranty period in relation to the thermostat and the controller of the Goods is limited to two (2) years.

5) Exclusion and Limitation of Liability:

a) Hotwire excludes all conditions and warranties implied by custom, the general law or statute, except for:

i) Any implied condition or warranty the exclusion of which would contravene any statute or cause any part of this clause to be void; and

ii) The Warranty.

b) The Warranty does not apply if:

i) Unauthorised repairs or alterations are made to the Goods;

ii) The Customer fails to comply with all instructions of Hotwire (whether written or verbal) in relation to the fitting, installation and use of the Goods;

iii) The Goods are subjected to improper voltage or power surges, misused, damaged by accident, force of nature or any other acts beyond Hotwire's reasonable control; and/or

iv) The Goods are improperly installed or installed other than strictly in accordance with the Installation Manual (other than where such improper or other installation is carried out by an Authorised Installer).

c) The Warranty does not include calls to replace batteries, programme or re-programme thermostats and/or controllers, replace fuses or reset residual current devices or circuit breakers.

d) The total maximum liability of Hotwire under the Warranty is limited to replacing the Goods, repairing the Goods or payment of the replacement cost of the Goods.

e) Except as otherwise expressly provided in this Warranty, Hotwire will not be liable for any incidental expenses (including costs of inspection, testing, removal, reinstallation, storage or transportation), any other charges, costs or expenses of the Customer or any third party, personal injury, incidental damages, consequential losses, loss of profit, costs of business interruption, loss of opportunities or any like claims whatsoever arising from any use of, or incidental to, the Goods or their failure to operate, or arising out of Hotwire's negligence or breach of the Warranty.

f) If any component part of the Goods is manufactured by a third party or supplied to Hotwire by a third party, any warranty offered by Hotwire in relation to the Goods or a component part of the Goods will be limited to Hotwire's right of redress (if any) against the manufacturer or supplier of the component part of the Goods.

g) The Customer must keep Hotwire indemnified against:

i) All claims, expenses and liabilities of whatever nature including but not limited to loss of profit, which may be made against or which Hotwire may sustain, pay or incur arising out of the manufacture or sale of the Goods to the Customer, except in so far as the same arises from Hotwire's negligence or breach of the Warranty or a proper claim under the Warranty; and

ii) Hotwire's costs in attending to a Warranty call by a Customer which is without merit, excluded by this clause or where no Warranty is otherwise available to the Customer together with Hotwire's costs of defending any such claim by a Customer against Hotwire (including legal costs incurred by Hotwire).

To claim on this Warranty contact:

Turnkey International Pty Ltd

(ABN 36 086 830 766) trading as Hotwire Heating

Factory 3, 756 Burwood Highway,
Ferntree Gully, Victoria 3156

Telephone: 1300 HOTWIRE

Email: info@hotwireheating.com.au

ARDEX Australia Pty Ltd

ABN 82 000 550 005

7/20 Powers Road

Seven Hills, NSW 2147

1300 788 780

www.dunlopdirect.com/hotwire

Turnkey International Pty Ltd

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Factory 3, 756 Burwood Highway,

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