



# AUSPEX RADIANT UNDERFLOOR HEATING



INSTALLATION MANUAL



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**The Auspex Radiant Underfloor Heating system MUST be installed by a trained installer. If you are interested in becoming a trained installer and would like more information on training sessions, please contact Auspex on (03) 9770 3600.**

## **Underfloor heating is the ultimate in comfort.**

With an evenly distributed temperature generated by the floor, underfloor heating surrounds the body with warmth. The temperature then tapers off around and above the head. This creates a supreme feeling of comfort that you have to experience to believe. By comparison, other heating appliances, such as ducted air, produce the highest temperatures around the head, with cooler, less comfortable temperatures around the body.



# **BENEFITS OF THE AUSPEX RADIANT UNDERFLOOR HEATING SYSTEM**

## **Underfloor heating is highly efficient.**

Using the thermal mass of the floor as the heating appliance, underfloor heating is able to achieve optimum thermal comfort at much lower temperatures. In the same way, overall heat losses are reduced with the floor generating rather than losing heat. This results in significantly reduced fuel costs with savings up to 20% on gas bills.

## **Underfloor heating creates a more pleasant living environment.**

Ducted air systems force air around the home, spreading dust and airborne particles such as pollen, and creating noise from air movement and from the appliance's operation. In contrast, underfloor heating creates a much quieter and healthier allergy-free environment. Additionally, the heating system is out of sight, not only protecting it from damage, but creating a more attractive, uninterrupted aesthetic in the room. With these features, coupled with ideal thermal comfort, underfloor heating creates a truly luxurious living space.

1. Reduced fuel costs can save on gas bills.
2. The dust and airborne particles like pollen are not spread so quickly through the building, when compared with forced air systems. The house is left a more healthy, allergy-free environment.
3. Quiet operation and no disturbance from background noise or air movement from ducted air heating systems.
4. Higher comfort level, with even heat.
5. The heating system is out of sight (protected from any external damage)

# INSTALLING THE AUSPEX RADIANT UNDERFLOOR SYSTEM

The below chart outlines the key phases involved in installing the Auspex Radiant Underfloor system. Each of these phases are then further explained in a step by step installation guide.

**Phase 1**  
Pre Installation

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**Phase 2**  
Installation

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**Phase 3**  
Filling & Venting

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**Phase 4**  
Pressure Testing

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**Phase 5**  
Slab is poured

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**Phase 6**  
Commissioning and System Start Up

# PRE INSTALLATION CHECKS

Before going to site to install your Auspex Radiant underfloor heating system, check you have the following:

- Plan of the house with circuit layout.
- All internal walls, doorways, fixed benches and sanitary fixtures marked out by the builder.
- Discussed with the builder overlapping of reinforcing mesh to ensure clips fit.
- Verified manifold location dimensions are adequate for the size of manifold selected. Refer dimension in Section 3 of Installation Instructions inside the kit.
- Confirmed allowance has been made for electrical supply and connections (240 V) to both boiler and manifold locations.
- Confirmed route for supply and return from boiler – overhead or under mesh.
- Confirmed the reinforcing mesh size to ensure that you have the correct clips and clip tool ([see next page](#))
- Auspex Radiant kit to match layout eg 6, 9 or 12 circuit.
- Auspex crimp tool.
- Adjustable spanner and pipe grips.
- High visibility aerosol markers in at least 2 colours.
- Cable ties in case of need to secure some pipe bends.
- Suitable water pressure tester.
- Pre-insulated 25mm pipe and printed sheathing if boiler supply and return lines are to be installed under the mesh.

# PRE INSTALLATION CLIP SELECTION GUIDE

**SL72**

MESH SIZE



RED CLIPS



CLIP TOOL



Standard Clip Tool  
fitted with  
Red Base:



(purchased separately)

**SL82**

MESH SIZE



YELLOW CLIPS



CLIP TOOL



Standard Clip Tool

**SL92**

MESH SIZE



YELLOW CLIPS



CLIP TOOL



Standard Clip Tool



# PRE INSTALLATION KIT CONTENTS

6 Circuit System	9 Circuit System	12 Circuit System
Pipe - 6 coils	Pipe - 9 coils	Pipe - 12 coils
Smart Clips - 2 boxes	Smart Clips - 3 boxes	Smart Clips - 4 boxes
Connectors - 12	Connectors - 18	Connectors - 24
Bend Stabilisers - 12	Bend Stabilisers - 18	Bend Stabilisers - 24

## Each kit also comes with:

1x UFH Mixer and Pump Station (inc. elbow & seal)

1x flow and return manifold 6 port pre-installed on wall mounting brackets

2x 1" union type isolating ball valves (one red and one blue), with 2 face seals

2x 1" end connection with manual air vent and filling point (one red and one blue), with 2 manual vent keys and 2 face seals

1x Auspex Radiant Manifold Stand

1x Auspex Radiant Thermostat

1x Auspex Radiant Wiring Box

2x Auspex Adaptor Fittings 20mm male to 25mm PEX, for connection to boiler

1x set Wall plugs and screws

1x Sheet room identity stickers

1x sheet red Flow Pipe label stickers

1x sheet blue Return Pipe label stickers

4x orange warning label stickers

1x warranty card

1x Instruction booklet

Note: Bosch boiler must be ordered separately

# INSTALLATION

## STEP BY STEP GUIDE

THE FOLLOWING IS A STEP BY STEP GUIDE TO LAYING PIPE CORRECTLY AND CONNECTING PIPE TO THE MANIFOLD.

### STEP 1

Check all components in the pack against the checklist supplied in the box (refer to page 9).

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### STEP 2

Find all the required information from the detailed circuit floor plan layout (supplied by Auspex Radiant if requested).

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### STEP 3

Locate the manifold and install using the manifold stand supplied.

At this point, consider where supply and return lines for the boiler are to be run. If running these under the concrete, allowance needs to be made.



### STEP 4

If not already done, mark out walls, doorways, fixed benches and sanitary fixtures. Then if needed, mark piping flow and returns in a different colour or method.

**IMPORTANT:** Lay pipe a minimum of 15cm from walls and route the pipe loops through doorways to prevent nails from damaging pipe work when wall plates are secured to the concrete.

## STEP 5

Adjust the clip tool to a height that allows you to operate it when standing upright. Load clips in the tool.



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## STEP 6

Fix clips onto the mesh by pushing down firmly on the handle.

**IMPORTANT:** The mesh is spaced at 200mm wire centres. If you wish to lay pipes at 300mm centres then you need to fix at every 1.5 mesh squares.



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## STEP 7

Walk around the area fixing the clips at the required pipe centres. Space the clips at three mesh squares along straight runs, or at closer spacing where more support is needed.

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## STEP 8

Load the first pipe coil onto the decoiler and bring one end to the manifold. Feed the pipe gently up behind the lower manifold leaving enough length to allow for crimping and connecting the hose tail. Affix a red flow sticker with the corresponding circuit number to the pipe.

# INSTALLATION

## STEP BY STEP GUIDE

### STEP 9

Provide support to the pipe and a neat and even fit off to the manifold using Auspex bend stabilisers.



### STEP 10

Start laying the pipe for the first circuit. Ensure you form bends carefully with your hands and work the pipe around rather than forcing it. To avoid bowing pipe it is best to feed the pipe from behind and step it into the clips.



Using the decoiler



Completing a snail circuit

#### DON'T



#### DO



## STEP 11

Return to the manifold and feed the pipe gently up behind the lower manifold. Cut pipe leaving enough length for crimping and connecting the hose tail. Affix a blue return sticker with the corresponding circuit number to the pipe.

---

## STEP 12

Repeat steps 8 to 11 for all circuits.



## STEP 13

Start by connecting the first pipe coil to the manifold. Cut the pipe square with a suitable plastic pipe cutter.

**IMPORTANT:** Do not cut with a hack saw.



Cut pipe square

# INSTALLATION

## STEP BY STEP GUIDE

### STEP 14

Connect the Auspex manifold hose tail connector to the pipe. Push the pipe into the fitting until firm and the pipe is visible in the viewing circle. Crimp using the Auspex crimp tool.



**Step 14a.** After deburring pipe, push fitting onto pipe



**Step 14b.** Slide fitting onto pipe, ensure the pipe is visible in viewing circle



**Step 14c.** Crimp fitting

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### STEP 15

Tighten the hose tail fitting onto the manifold using a suitable spanner. Check rubber washer is in place prior to fitting and replace with spare if needed.



## STEP 16

Using the room label stickers supplied in the kit, affix a sticker with the most suitable name to each circuit.



## STEP 17

Repeat steps 13 to 16 for all circuits.



**YOU ARE NOW READY  
TO FILL AND VENT YOUR  
AUSPEX RADIANT SYSTEM.**

# FILLING AND VENTING STEP BY STEP GUIDE

THE FOLLOWING IS A STEP BY STEP GUIDE ON FILLING AND VENTING THE SYSTEM.

The Auspex Radiant manifold is supplied with two  $\frac{3}{4}$ " hose unions for filling and testing.

## STEP 1

Disconnect caps on drain/fill valves and connect two hose unions to both end caps, or alternatively connect two hoses onto drain/fill valves with hose clamps.



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## STEP 2

Open both the blue and red isolation valves on the drain points.

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## STEP 3

Close both of the main isolation valves on the left hand side of the manifold.





## STEP 4

Close all valves on the flow and return manifolds.

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## STEP 5

Connect the hose from the mains water tap to the flow manifold. And run a hose from the return manifold to a suitable drain.



## STEP 6

Working from left to right on the manifold, one loop at a time, remove the air from each loop by opening the flow and return valve for that circuit.

To open the return valve (white cap) turn it anti-clockwise until it stops.

To open the flow valve (flow meter) lift up the black nut and turn valve at the base anti-clockwise approximately 3 turns.

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## STEP 7

Turn on the mains water supply and observe water flowing into the drain until water runs clear with no bubbles. Repeat steps 6 and 7 for each loop.

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## STEP 8

Re-open all circuits and close off water supply on both drain valves.

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**YOUR AUSPEX RADIANT  
UNDERFLOOR SYSTEM IS NOW  
READY TO BE PRESSURE TESTED.**

# PRESSURE TESTING

## STEP BY STEP GUIDE

THE FOLLOWING IS A STEP BY STEP GUIDE ON PRESSURE TESTING THE SYSTEM.

**IMPORTANT:** Before any concrete is laid over the pipe work a pressure test must be carried out and witnessed by a site manager.

Upon completion of the test the Auspex Radiant test certificate needs to be filled out and signed by both the installer and a witness. A pressure test kit is required to carry out the test.

### STEP 1

Check main flow and return ball valves are closed and all circuit flow and return valves on the manifold are open.

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### STEP 2

Check drain valve connected to the lower return manifold is closed and leave drain hose connected so that pressure can be safely discharged in the case of a leak.

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### STEP 3

Connect the water pressure tester to the drain valve on the upper flow manifold.



## STEP 4

Open up the drain valve connected to the water pressure tester and pressurise the system to between 400 and 600 kPa.



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## STEP 5

Allow ten minutes for the water pressure level to stabilise, then leave the system under this pressure for one hour. Check that the pressure has remained stable during the test period.

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## STEP 6

Decrease the pressure to 200 kPa. Leave for a further hour. If there is no visual pressure drop then the system is pressure tight.

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## STEP 7

Ask the site manager to sign off the test.

**IMPORTANT:** Before handover for the pour, ensure allowance has been made for required electrical and boiler connections.

# PRESSURE TESTING

## STEP BY STEP GUIDE

### STEP 8

Leave the system under pressure at 200 kPa, with water supply connected and flowing, whilst the concrete is being poured. It is strongly recommended that the installer is available on site during pour, with a repair kit and Auspex crimp tool at hand.

**IMPORTANT:** Before handover for the pour, ensure allowance has been made for required electrical and boiler connections.



#### TIP

If in the event of a damaged pipe then you must use the Auspex Radiant repair kit, installed according to enclosed instructions. This is only to be used in an emergency as we do not recommend the use of joints under the floor. It is strongly recommended that the installer is available on site during pour, with the repair kit and Auspex crimp tool at hand.

**YOU ARE NOW READY TO  
HAND OVER FOR POURING  
OF THE SLAB.**

# COMMISSIONING AND SYSTEM START UP STEP BY STEP GUIDE

THE FOLLOWING IS A STEP BY STEP GUIDE ON COMMISSIONING THE SYSTEM, CONNECTING TO BOILER AND SYSTEM START UP.

## STEP 1

Assemble the mixer and pump station, as per enclosed instructions.

**IMPORTANT:** Always ensure that the screed has sufficient time to cure and dry before applying heat into the system. You must allow at least a minimum of 28 days for the concrete to dry.



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## STEP 2

Connect the supply from the boiler to the mixer inlet and the return to the boiler from the mixer outlet, using the adaptors in the kit and Auspex pre-insulated pipe, supplied separately. To prevent misuse of system water, fit Auspex printed sheathing, supplied separately.

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## STEP 3

Ensure all manifold circuit flow and return valves are closed.

# COMMISSIONING AND SYSTEM START UP STEP BY STEP GUIDE

## STEP 4

When the Bosch boiler and all associated controls, wiring and pipe work have been filled, tested and connected to the mixer and pump station you can proceed to start up the system.

Check that the whole system pressure is up to 150 kPa. Re-pressurise from the Bosch boiler if the pressure is too low.

## STEP 5

Turn up the room thermostat until a demand for heat is recognised. The Bosch boiler and UFH pump should start.

**IMPORTANT:** work on one loop at a time. Check the Auspex Radiant design CAD drawing for the relevant flow rate in l/min for the particular circuit you are working on. Adjust the flow meter gradually by lifting up the cap and turning the valve anti clockwise until the required flow rate is achieved.

**IMPORTANT:** Check the return pipe to make sure it is getting warm. Write the flow rate onto the supplied Auspex Radiant test certificate for future reference.



**Step 5a**  
Lift black cap

**Step 5b**  
Turn flow meter  
anti clockwise

**Step 5c**  
Push down  
black cap

## STEP 6

Repeat this for all circuits until all return pipes are getting warm.

### TIP

If any of the flow meters are bouncing up and down then this is a sign of air in the system. If after a while this fails to stop then shut down system, close off main isolators and repeat the filling procedure again.

**YOUR AUSPEX RADIANT  
UNDERFLOOR SYSTEM IS NOW  
INSTALLED AND READY FOR USE.**

[www.reece.com.au/auspex-radiant](http://www.reece.com.au/auspex-radiant)

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