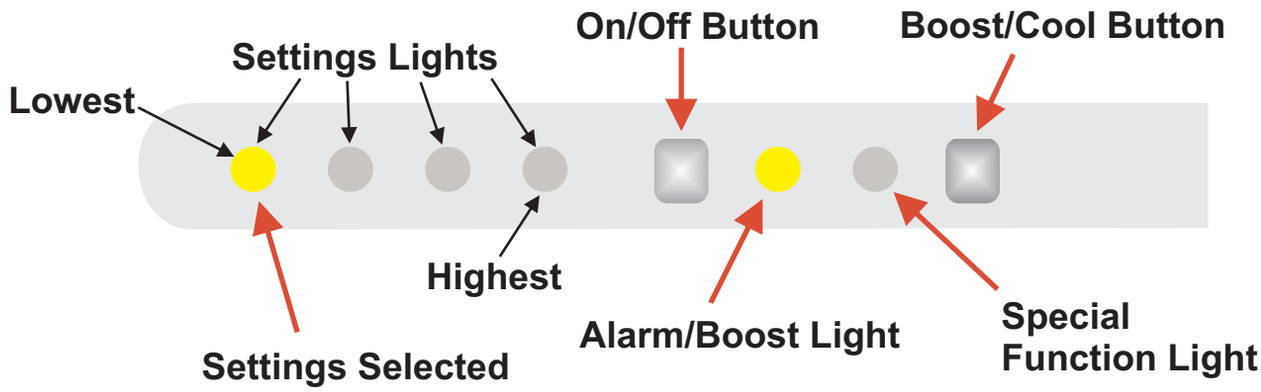
Technical Manual

Customer Instructions



Dear Customer,
Congratulations on purchasing this Solo heating unit. It will give you years of economic and controllable comfort while enhancing the decor and style of your home.
Please take a few minutes to read this as it will help you realize the full potential of this unique system of heating.

Please note
Do not allow Solo to be operated while building dust and dirt is present in your home, as operation of the Solo may be damaged

Mains on/off switch
This is located under the RHS edge of Solo and must be in the on position for Solo to operate.

Solo On/Off
When this is pressed for at least 1sec, if water temperature is greater than 26C, and if room temperature is low enough, Solo commences. If water is not warm enough, the alarm light flashes.

Comfort Setting
if this on/off button is depressed momentarily, the selected setting is incremented upwards. Repeated pressing will increment to the highest setting, and will scroll back to lowest again etc.

Boost
Momentary press will result in temperature control being abandoned for 20 minutes, and will enable a higher output setting not available in comfort settings. The Settings lights will extinguish at this point, and the Alarm Light will come on full to indicate Boost operation. Note, this also depends on water temperature being high enough to allow heating. System will revert to temperature control after 20 minutes when Alarm/Boost light will go off, and settings lights will revert to normal. Anytime during boost period that the boost button is pressed again, boost is halted, and system reverts to normal operation. Pressing again will resume boost etc.

Summer Cooling
In summer, it may be desirable to initiate air movement in warm conditions.
If the On/Off AND the Boost buttons are depressed simultaneously for more than 1 second, then the water temperature will be ignored, and the airflow will ramp up to boost levels until the Solo is switched off. The Boost light will also come on in this mode.

Light Indicators
The setting Lights from left to right represent target temperatures.

The selected Light will flash slowly while the temperature is being raised.
When the temperature reaches setpoint, the Light will go on full.

Alarm Light
This will flash if heating is requested, but the water temperature is less than 26C.

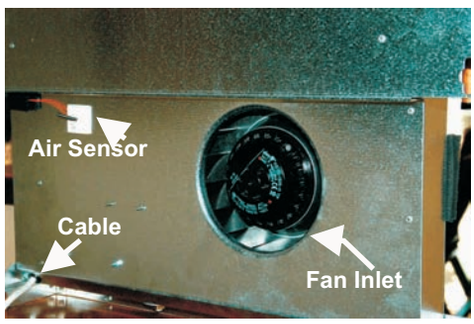
Special Function Light
If remote setback (optional extra) is selected internally, this Light will light continuously.
If setback is selected internally, this Light will flash slowly.

Cleaning
Please only use a moist cloth with no cleaning fluids or abrasives for occasional cleaning of surfaces of Solo.

Technical Manual

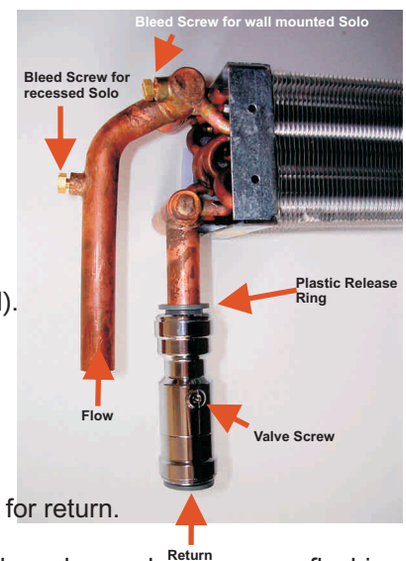
Please ensure that Solo is protected from dirt and rubble, and it is suggested that Solo is final fixed when all other building and decorating is complete .

Solo comes complete with trailing three core cable to allow for quick connection without any access to Solo required.



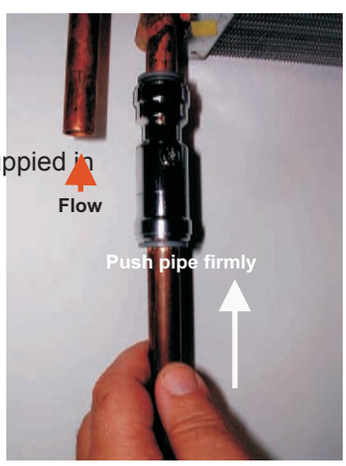
Connection and possible subsequent disconnection are simple. Final pipe connections to Solo are 15mm, whereas flow and return piping from boiler or Heat Pump must be 22mm The quick connect couplings(not supplied) are guaranteed watertight to 9 bar pressure between flow and return connections to Solo when the at least.

Repeated tests have shown that assuming 22mm flow and return pipes are in place as well as a local electrical source, then installation of a Solo takes approximately 5 minutes.



To install a Solo refer to the dimensional drawings in this doument, and drill three holes for the screws and dowels (not supplied). Mount the Solo so that the lower edge is approximately 75-100mm above skirting level.

Note flow and return connections, and push the flow pipe in as far as the end stop in the quick connect(not supplied). Repeat for return. Note that pipe should be cut with a ring cutter to avoid burrs damaging the valve seals. Open the in line valves. Connect the three core cable, and that's it.



To remove flow and return pipes, turn valves off, press downwards on the grey plastic ring on each quick connect(not suppied in turn, and pull out pipes. Once system is filled, open highest bleed screw until air is purged.

Piping and Pumps

Ensure that 22mm flow and return piping is used for all normal installations, and each circuit should have 6-7 Solo's max **on a 22mm circuit.**

Always use a 6m head pump.

Electrical

As Solo has an on-board 2-pole isolator, no fused spur is usually required, and simply connecting to a suitably backed up mains source is all that is needed. Solo only consumes less than 8-18 watts in normal operating mode.

Troubleshooting:

No Heat: Check if water temperature is high enough to allow operation, -alarm light should flash.

No Operation: Check if power is connected and on/off switch under RHS is switched on.

Inadequate heat: This is always a low flow issue, assuming the coil is correctly bled of all air. Please review piping and the pump selection.

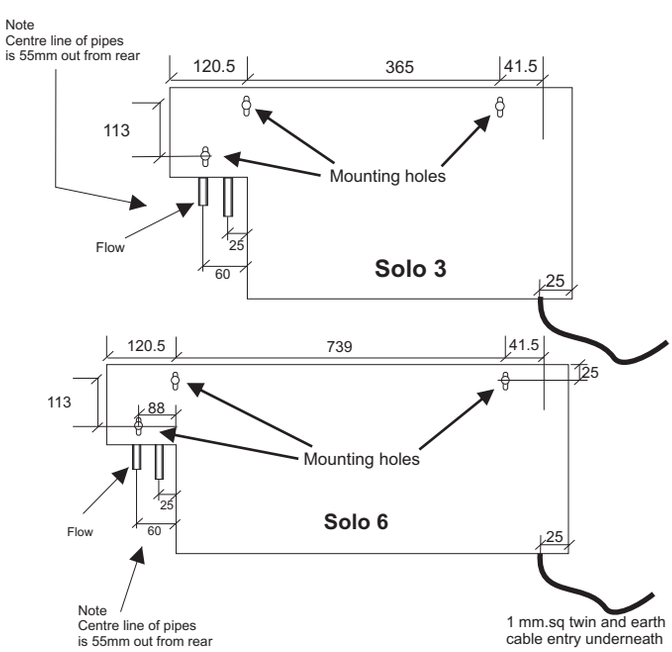
A simple test for low flow is, if a noticeable temperature difference can be hand felt between flow and return connections to Solo when the Solo is running.

Operation with Radiators: Solo's are ultra low water volume devices, and should ideally not share circuits with radiators, as radiators will starve the Solos of water.

If it is a requirement that Solos are added to a radiator circuit, firstly check to ensure that the flow and return pipework is 22mm. If it is 15mm or ½" poor or no performance will usually result.

When Solo is installed. initially turn off all radiators and check that Solo operates correctly. Next turn all radiators on, and adjust throttling valve on each radiator (opposite end to hand valve) and reduce flow until Solo operates.

Solo does not switch on: Check status of temperature selection lights. Select the highest setting, and if the light is on and not flashing, then some local heat source is artificially heating the temperature sensor.



Technical Manual

Solo Hydraulic Data

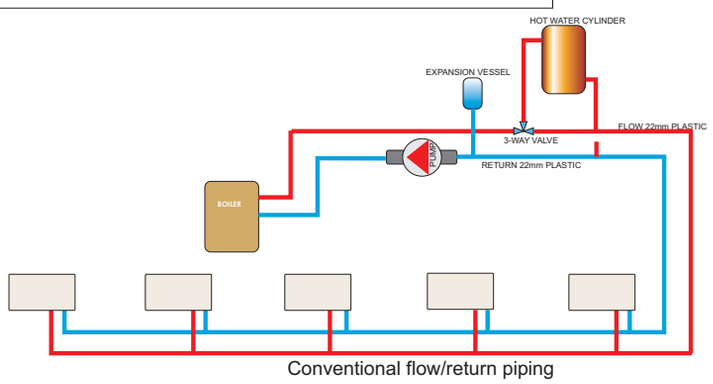
All data applies only to Solo Discreet Range

Water Flow Data

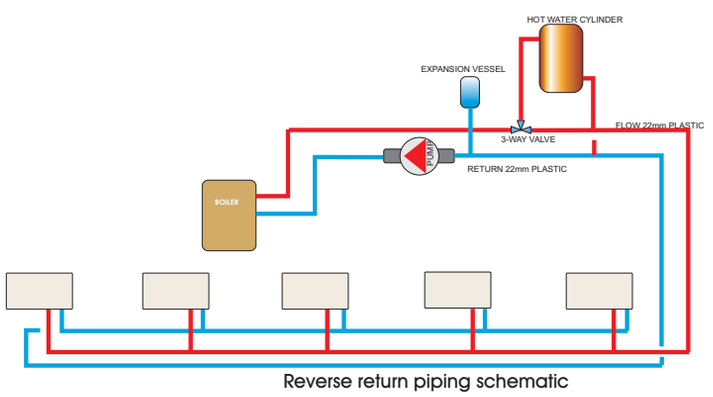
Water Flow Rate l/s	Model 6 Pressure Drop kPa	Model 3 Pressure Drop kPa	Capacity variation % Model 6	Model 3
0.12	9.9	7.5	101	101
0.10	6.9	5.4	100	100
0.08	4.5	3.6	98	99
0.06	2.7	2.1	96	97
0.05	1.8	1.5	94	96

The pressure characteristics of Solo were designed to facilitate even flow sharing by ensuring that the pressure drop at various flow rates considerably exceeds the piping friction loss.
Care must therefore be taken to ensure that adequate pumping capacity exists to guarantee adequate flow. A 6m head pump is suggested, and approximately 6-8 Solo units max per 22mm flow and return circuit is recommended.It is suggested that reverse return pipework be used where possible.

The performance data must be derated as outlined above if lower flow rates are opted for.
Pipe connections to Solo are 15mm dia. and space exists internally in the units to allow for flow isolators if required



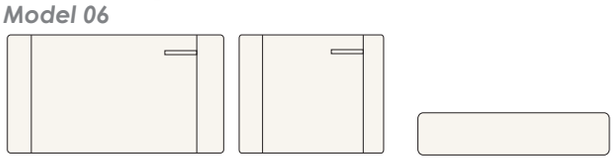
Conventional flow/return piping



Reverse return piping schematic

Solo configurations

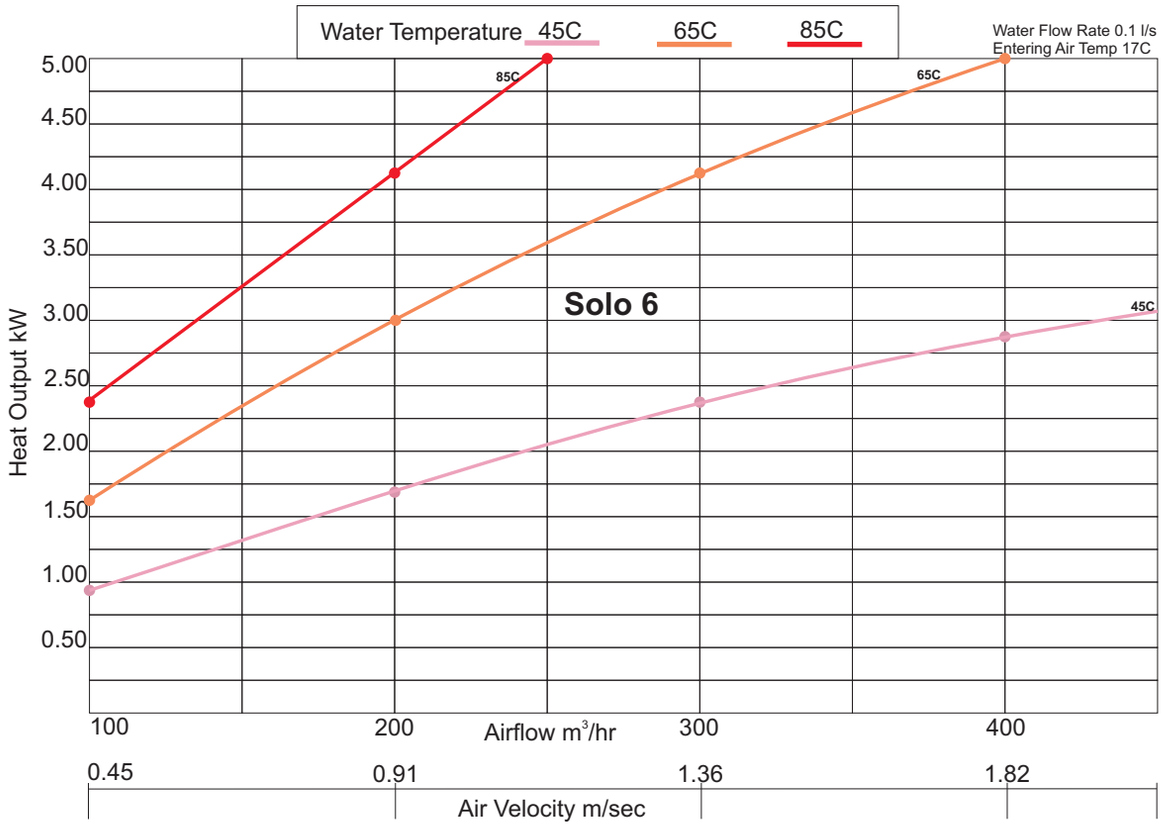
Model 06

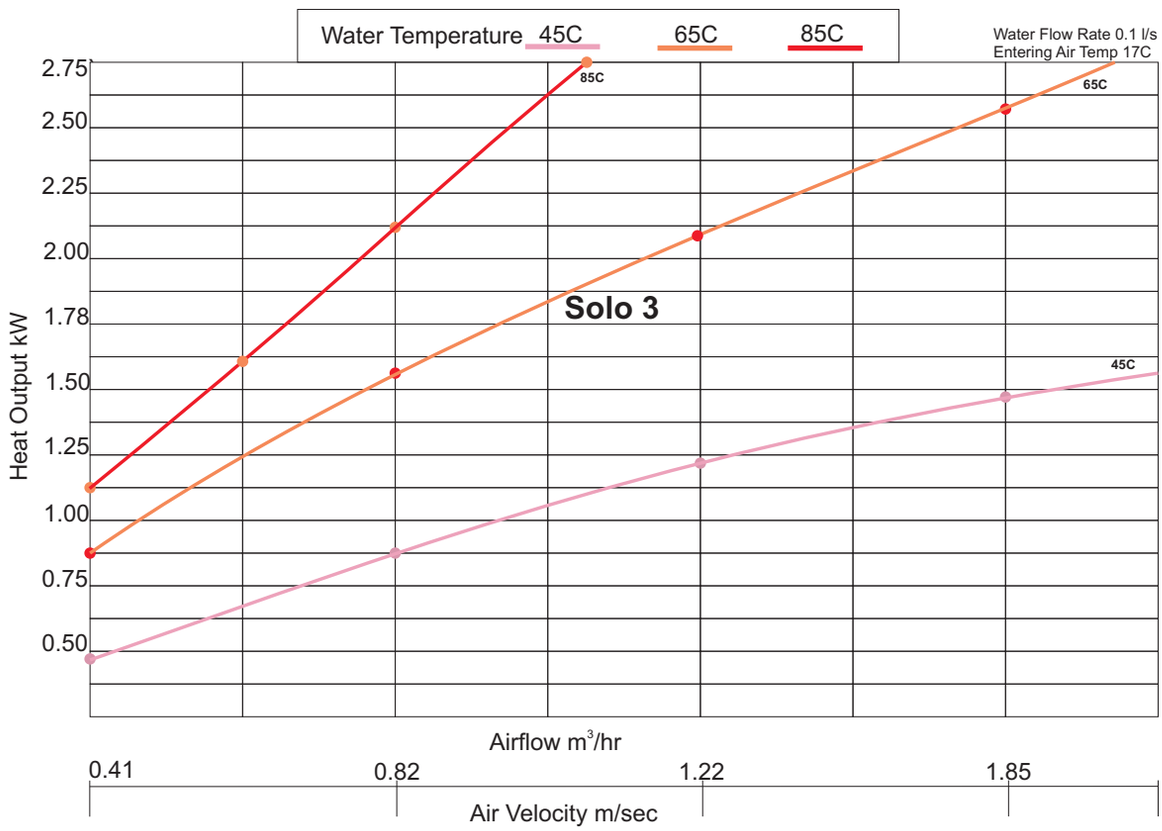


The standard configuration features:
On board air temperature sensing
External temperature selection via keypad

Solo Hydraulic and Airflow Data

All data applies only to Solo Discreet Range





Technical Manual

Sound and Application Data

All data applies only to Solo Discreet Range

As manufactured, **Solo 6** is set such that the various capacities are as follows:

	Airflow m3/hr	Velocity	Capacity @85C	Capacity @65C	Capacity@45C
Low	100	0.45m/sec	2.4kW	1.6kW	0.9kW
High	155	0.68m/sec	3.4kW	2.5kW	1.4kW
Boost	200	0.81m/sec	4.2kW	3.0kW	1.7kW

Based on entering air temperature 17C

As manufactured, **Solo 3** is set such that the various capacities are as follows:

	Airflow m3/hr	Velocity	Capacity @85C	Capacity @65C	Capacity@45C
Low	50	0.40m/sec	1.13kW	0.87kW	0.40kW
High	62	0.53m/sec	1.35kW	1.10kW	0.60kW
Boost	82	0.70m/sec	1.90kW	1.36kW	0.77kW

Based on entering air temperature 17C

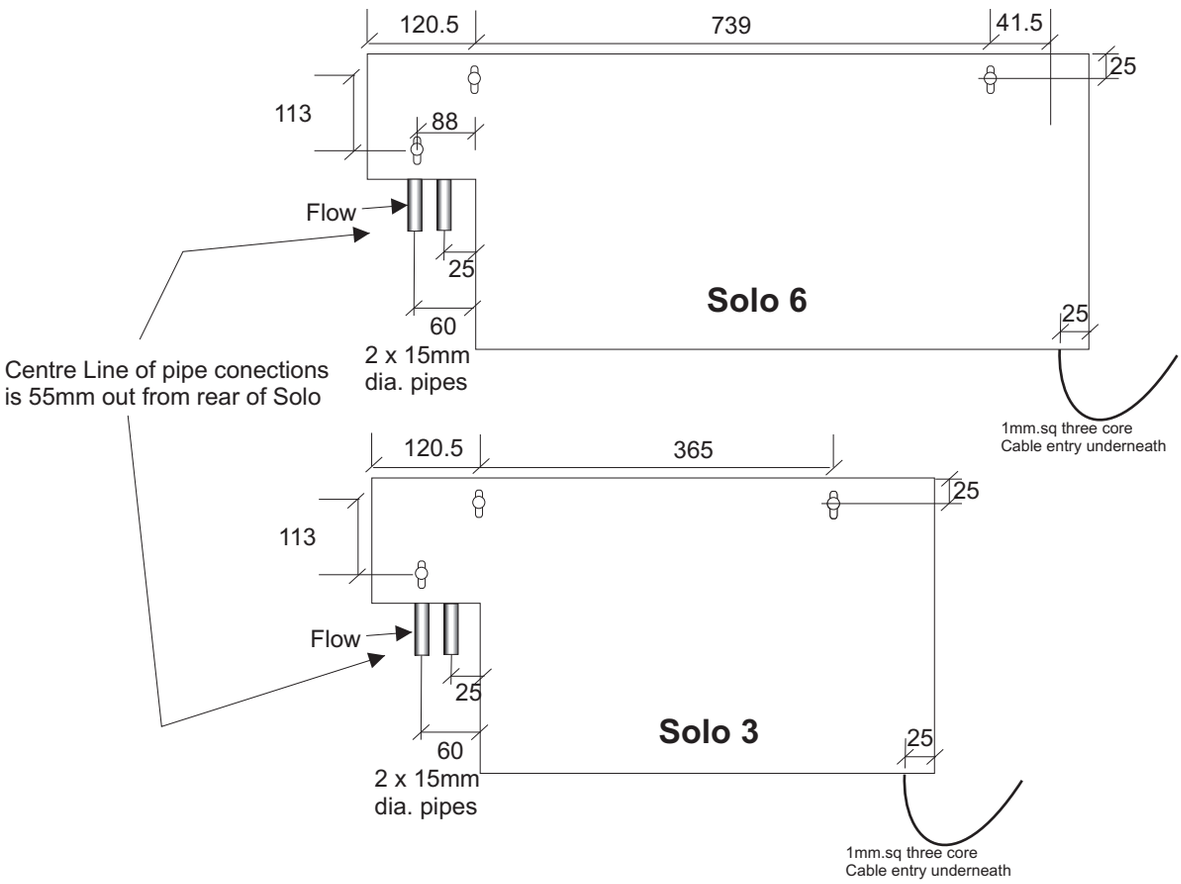
Sound Data	Model 6	Model 3
Capacity Setting	dBA	dBA
Low	22.2	22.4
High	33.9	33.2
Boost	49.6	49.3

Note: All sound test were performed in an anechoic environment at 0.25m from the Solo in question.
Significant improvement can be expected in a normal residential or commercial environment with absorbent materials and surfaces

Technical Manual

Solo installation details

All data applies only to Solo Discreet Range



Pipe connections are as shown, and are either 15mm dia. Plastic or copper.
Please note flow connection on LHS.

Electrical connection is via 3-core 1mm.sq or 1.5mm.sq
Trailing cable supplied with the Solo.
This is connected to a junction box or similar, and Solo is
equipped with a double pole isolator located underneath lower edge on RHS.