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Circomax® 3 datasheet

Product overview

Introducing the innovative Manifold Pumpset designed specifically for Underfloor Heating (UFH) applications. This cutting-edge pumpset is ready for immediate use straight out of the box, ensuring a hassle-free installation process. You can choose between two versatile options: a mixing version tailored for use with boilers, and a non-mixing version perfect for heat pumps.

- 2.54 KVA
- Made in the UK
- 5-Year warranty
- Ambidextrous mounting
- Pump set to UFH by default

Product Code: 41441

Mixing pumpset for boilers

Mixing hot and existing UFH water to provide a consistent 25-55°C flow temperature throughout the system.

Product Code: 41443

Non-mixing pumpset for heatpumps

The low-temperature heat pump system doesn't mix the water coming in, pumping it straight through the manifold.

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WORKING WAY

High efficiency pump

Mixed* water to the system. Constant pressure

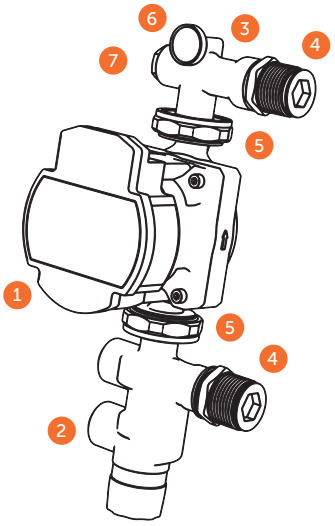
Return water to boiler

Hot water from boiler

Return water from system

PARTS DESCRIPTION

1. Pump
2. 4-Way thermostatic mixing valve* with pump connection
3. Elbow with pump connection and thermometer holder
4. Manifold fittings with integrated seal
5. Flat gaskets
6. Thermometer
7. Friction O-ring



WORKING WAY

Installation must be carried out by a qualified engineer in accordance with Ambiente Systems Limited UK supplied instructions. This product is a precision engineered component that is designed to handle high temperatures. Incorrect installation can be harmful and may also invalidate the warranty.

It is suggested, before installing the product, to verify working conditions of the installation e.g. pressure and temperature, to make sure they are suitable for the product working range. The installation area must be clean and free of debris prior to installation. If any debris gets into the system during installation, it can affect the unit's normal operation and void the warranty.

We recommend that suitable strainers and isolation valves should be installed on the pipework. If the product will be used in 'very hard water' areas, we recommend that water softeners are installed before installation. It is important that the product has free access for maintenance reasons.

To correctly install it please refer to the directional arrow marked on the valve's body.

F	**Flow**	Hot water inlet
R	**Return**	Cold water outlet from boiler
C	**Cold**	Cold water inlet from manifold
MIX		Mixed* water outlet

Technical data

Feature	Specification
CE Certified	
EEI	≤0.21
Expected lifetime	10 years
In-rush current	≤4A
Minimum inlet pressure	0.05 MPa (0.5 bar) at 95°C liquid temperature
Valve KVA	2.54

In order to avoid cavitation noise and damage to pump bearings, the following pressure should be maintained at the pump inlet

Liquid temp (°C)	85	90	110
Inlet pressure	≥0.5m head ≥0.05 bar	≥2.8m head ≥0.27 bar	≥11m head ≥1.08 bar
Storage temperature	-35~80°C		

Materials

Item	Part	Material
Thermostatic mixing valve	Body	Brass
	Gasket	EPDM
	Spring	Stainless Steel
Elbow	Body	Brass
	Gasket	EPDM
Pump	Body	Cast iron

*Mixed is referring to the product code with mixing function only

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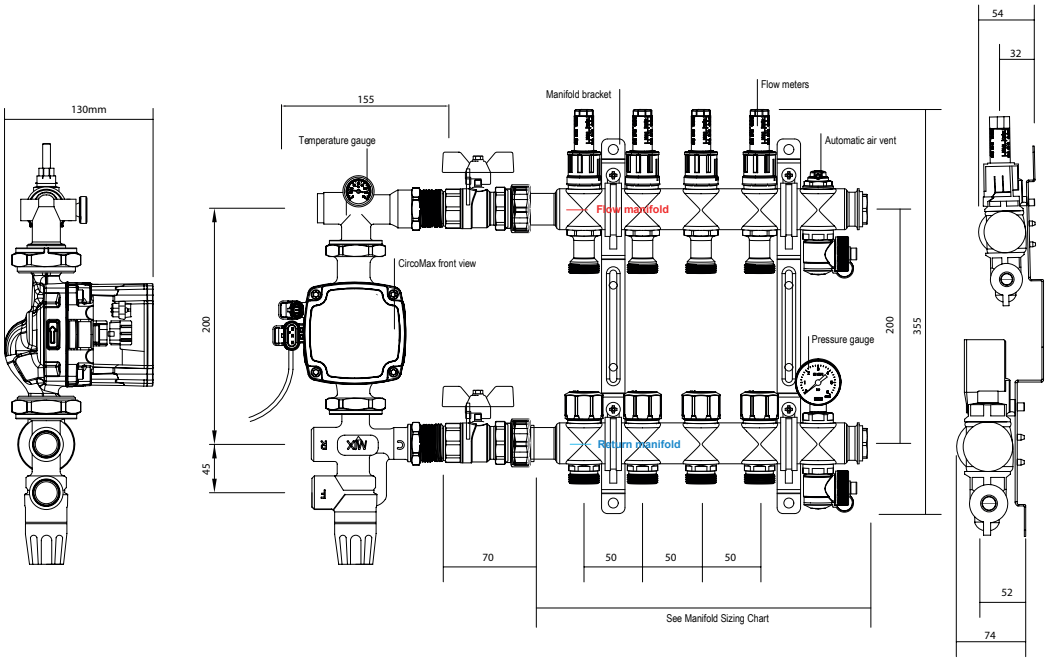
Manifold front view (4 port manifold shown for example purposes only)



Note: it is recommended a 2 port motorised valve be installed on the primary flow before each manifold to prevent excess water pressure.

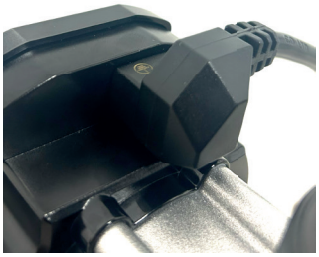
Manifold Sizing Chart

Number of ports	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Manifold length (mm)	142	192	242	292	342	392	442	492	542	592	642	692	750	805

Please Note: Recommended minimum installation clearances: 200mm between the finished floor level (FFL) and bottom of the manifold, 100mm above the manifold. 50mm to either side of the manifold and allow an extra 100mm for the supply pipe work.

PLUG AND POWER INLET

Plug Pre-Installed



Power Inlet

Plug Connector

This plug is supplied as standard with the CircoMax 3 pump and comes pre-installed for immediate use.

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CircoMax 3

Product code: 41440

Model: APE25-7-130 (T1)

EEI ≤ 0.21

-Ground motor before connecting to power supply.
-Earthing terminals must be connected before operation
-Do not run the pump without water.

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CONTENTS

Please read the instructions below carefully and follow them for installation and use.

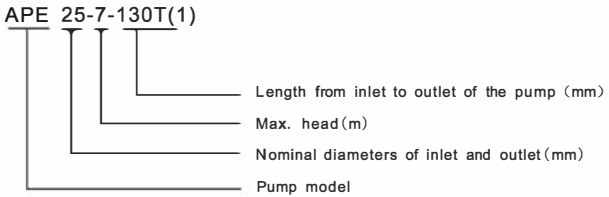
- The power supply voltage of the electric pump is single phase 230V, and the frequency is 50/60hz.
- Make sure that the pipe system is securely connected before installation and verify any impurities, soldering leftover or debris have been cleaned from the pipes.
- Make sure the pump is located in a dry and ventilated area (not a bathroom) to avoid risk of short circuit due to water vapour and moisture. This also allows for ease of access for service and replacement.
- Shutoff valves should be installed at inlet and outlet ports for service and maintenance.
- When the pump is installed, connect the power supply and set the pump speed to maximum to test the start up. Make sure it does not run for longer than 10 seconds as to avoid damaging the bearing.
- During operation, the pump may be hot, so do not touch it.
- Securely connect the Ground pin of the power plug to the wiring centre grounded terminal. Do not attempt to change the Ground plug of the pump. The power cord should only be replaced by dedicated components.
- The security caution markings must be installed to warn of any accident.
- Disconnect the power supply before touching or adjusting the pump location.
- Regularly check the pump for any damage or wear and tear.
- During colder weather, if the pump stops functioning and there is a possibility of freezing, drain all of the water out of the system to avoid cracking the pump.
- In hard water areas, there may be an accumulation of calcium in the pipe. This can be flushed out with fresh, soft water during maintenance of the system.

1 Introduction

APE25-7-130 (T1) High Efficiency Circulation Pump (CircoMax 3 Mixing Pumpset)
The pump is made up of two parts, the stator and the rotor. The stator is the stationary walls of the pump, which has a thin-wall around it to protect it. The rotor is made from ceramic, which is durable. It is immersed in water to lubricate it, cool it, and to reduce noise. This means that the pump should not require maintenance under normal use, and will not overload under full head/pressure.

2 Profile and dimensions

2.1 Model instructions

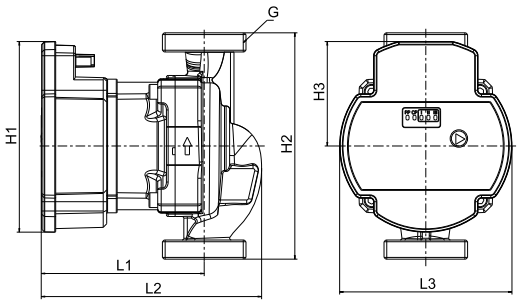


2.2 Profile

Model	Inlet/Outlet diameter	Thread	Max flow	Head	Voltage	Frequency	Power	Current
	mm		m³/h	m	V	Hz	W	A
APE25-7-130T(1)	25	G1.5	3.2	1~7	230	50/60	45	0.5

Model	Internally controlled		
	Proportional pressure	Constant pressure	Constant curve
APE25-7-130T(1)	I	I	I
	II	II	II
	III	III	III

2.3 Dimensions



Model	Size（mm）						
	L1	L2	L3	H1	H2	H3	G
APE25-7-130T(1)	94	127	99	110	130	60	G1.5

3 Cautions

Warning

- Ground motor before connecting to power supply.
- Do not touch the pump while it is running.
- Do not run the pump without water.

3.1 The power supply voltage of the electric pump is single phase 230V, and the frequency is 50/60hz.
3. 2 Make sure that the pipe system is securely connected before installation and verify that the impurities, soldering leftover and wastes have been cleaned within the pipes.
3.3 Make sure the pump is located in dry and ventilation environment to avoid short circuit due to moisture or splashing into the casing, and guarantee its availability to service and replacement.
3.4 The protection cover must be added, for the requirement of outdoor installation, while actions must be taken to avoid being splashed and to prevent electric shock risk in indoor installation. Warning: do not install in bathroom to prevent vapor or water or moisture from going into the junction box resulting in electric leakage.
3.5 It's strongly suggest that shutoff valves to be installed at inlet and outlet ports for the sake of following pump service and maintenance.
3.6 When complete installing the pump, connect the power supply as pilot run and set the speed adjusting switch at max grade to check if the starting is normal. But the pilot running time can not be over 10 seconds so as to avoid idle running influencing working life of the bearing.
3.7 When the pump is supplying water to the heating system, do not touch the pump and/or other pipes to avoid burning.
3.8 The power plug must be strictly grounded. Securely connect the GND pin of the power plug to the power plug grounded hole. Do not attempt to change the GND plug of the pump.
3.9 The striking security caution markings must be set up during pump working to avoid any accident.
3.10 The power supply must be firstly disconnected before adjusting pump location or before any action that may touch the pump when the pump is working to avoid any accident.
3.11 Regularly check the pump and timely replace in case of any damage.
3.12 The power cable can only be replaced with corresponding cords or dedicated components.
3.13 In winter, when the environment temperature is below 0℃, the water within the pipes must be exhausted thoroughly if the pump ceases working to avoid pump frost crack.
3.14 The heat supply pipes can not be frequently supplemented with non-soft water to avoid the accumulated calcium inside the pipe system that that may block the rotor.

4 Using environment and installation

4.1 Pumped liquids

The conveying medium is the softened water and thin, clean, non-corrosive, non-explosive liquid without solid particles, fiber and mineral oil. The PH is 6.5～8.5.

4.2 Compatible liquids

The pump should only be used with softened water, and/or clean, non-corrosive, non-explosive liquid not containing solid particles, fiber or mineral oil. The PH should be between 6.5~8.5.

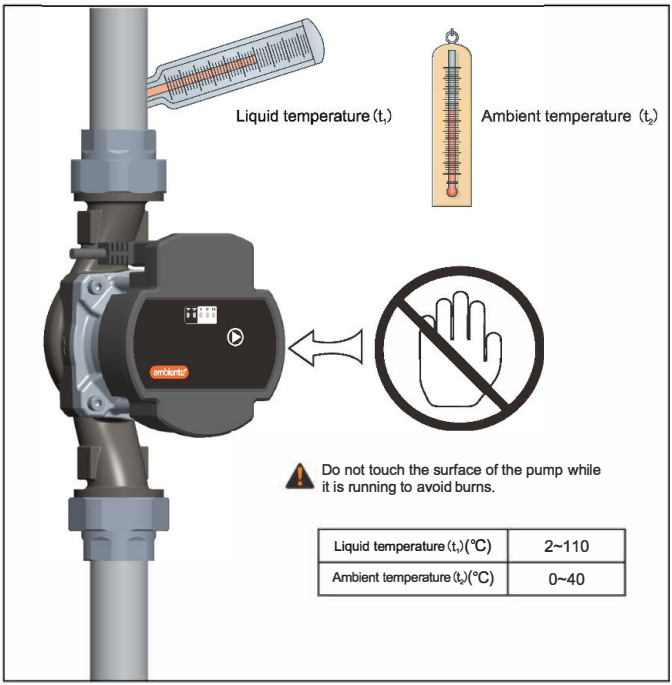
Maximum pressure 1.0MPa(10bar)

Maximum pressure of electric pump: 1. 0MPa (10bar)

In order to avoid the gas etching noise and damages to the pump bearing, the minimum pressure must be maintained at the pump intake port.

Liquid temperature	85℃	90℃	110℃
Intake pressure	0. 5m	2.8m	11.0m
	0.0 5bar	0.28bar	1.08bar

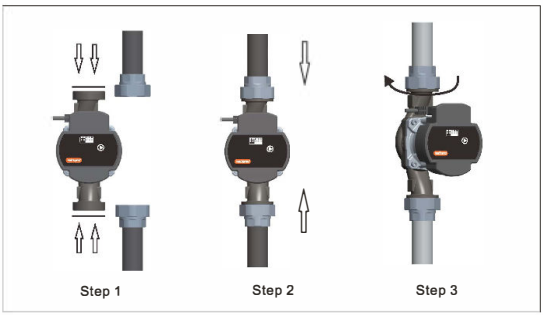
4.3 Liquid temperature and ambient temperature

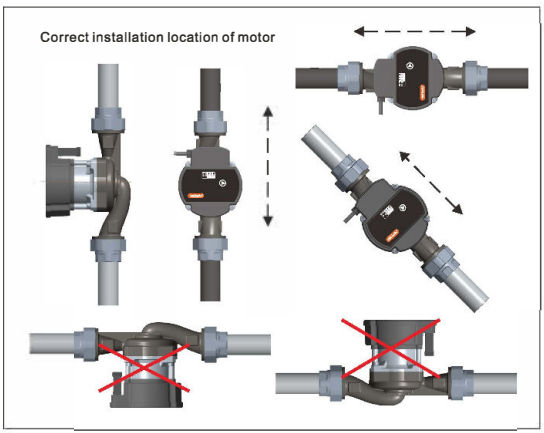


Liquid temperature (t_1)(℃)	2~110
Ambient temperature (t_2)(℃)	0~40

4.4 Installation

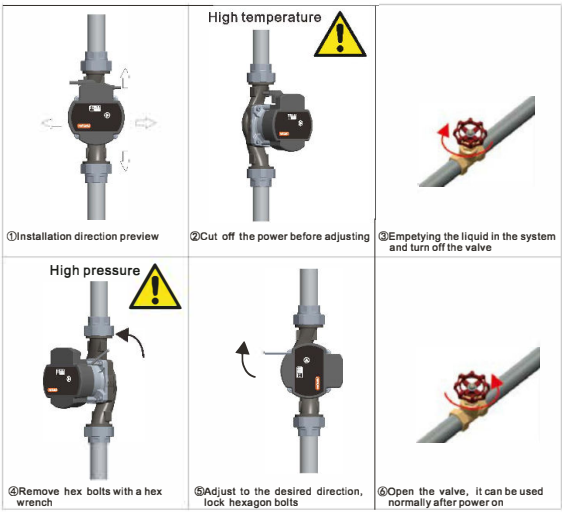
The motor shaft must be kept horizontal when installing, and the liquid flow direction should match the arrow on the pump body.





4.5 Control box positions

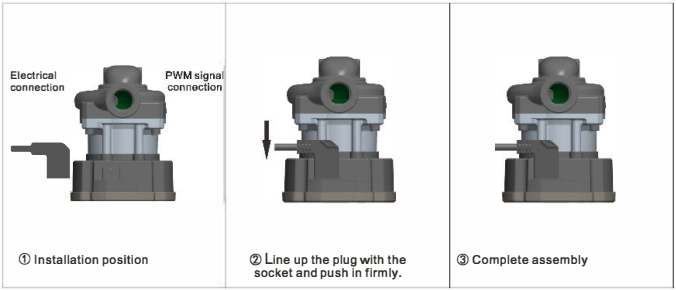
These operations should only be completed by qualified personnel.



Warning

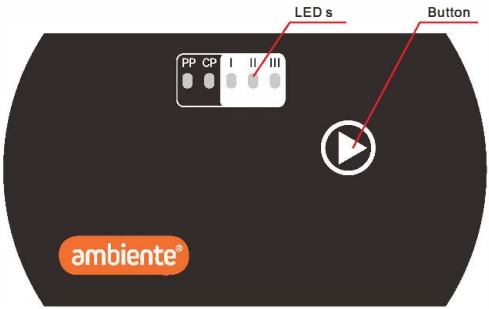
Before removing the hexagon socket screw, drain the hot water in the system and close the intercepting valve on both sides of the pump. The liquid may be high temperature and high pressure.

4.6 Electrical connection



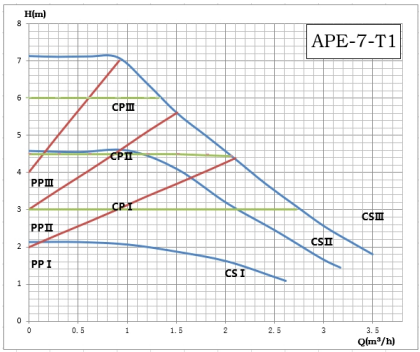
5 Operation instructions

5.1 The control panel



5.2 Performance curve

APE25-7-130T(1)



5.3 Relationship between electric pump setting and lighted area

Electric pump mode is setup with different display areas like below:

Pressing times	Model	Descriptions	Display
0	CS III (Factory Settings)	Constant curve, speed III	
1	PP I	Proportional pressure curve, speed I	
2	PP II	Proportional pressure curve, speed II	
3	PP III	Proportional pressure curve, speed III	
4	CP I	Constant pressure curve, speed I	
5	CP II	Constant pressure curve, speed II	
6	CP III	Constant pressure curve, speed III	
7	CS I	Constant curve, speed I	
8	CS II	Constant curve, speed II	
9	CS III	Constant curve, speed III	

5.4 Other functions

No.	Function	Description	Operation	Operation
1	Venting	**Purge air from inside the pump to ensure proper operation (this function does not vent the entire heating system)**	Press and hold the button for 5 seconds until LED 1, 2 and 3 are all lit and then release. The pump will vent automatically for 5 minutes.	
2	Manual restart	Restart the pump manually	Press and hold the button for 8 sec until all five LEDs are lit and then release. The pump will automatically start and stop repeatedly for 5 minutes to perform the unlocking process	

6 Technical data

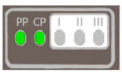
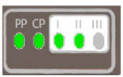
Supply voltage	230 V, 50/60 Hz			
Motor protection	Doesn't need external motor protection			
Protection class	IP44			
Insulation class	F			
Relative ambient humidity	Max. 95%			
System pressure	Max. 1.0 MPa, 10 bar			
Suction inlet pressure	Liquid temperature	≤ +75℃	Min. Inlet pressure	0.05bar , 0.005MPa
		+90℃		0.28bar , 0.028MPa
		+110℃		1.08bar , 0.108MPa
EMC Standard	GB 4343.1 GB 4343.2 GB 17625.1 GB 17625.2			
Ambient temperature	0℃~40℃			
Surface temperature	Max. +125℃			
Liquid temperature	+2℃~+110℃			

7 Trouble shooting

Symptom	Likely causes	What to do
The pump is not working	Loose power cable connection	Make sure the power cable is firmly seated
	Controls damaged	Replace the control box
	The rotor may be jammed or obstructed	Unlock the hexscrews to open the pump to remove any obstructions
Rattling or bubbling noise	Impurities or debris in the pump	Unlock the hexscrews to open the pump to remove any obstructions
	Air or gas within the system	Exhaust the system
Pump is on but not generating any pressure	Intake valve is closed	Open the valve
	Air or gas within pipes or pump	Exhaust the system

In case of failures, the control box will protect the pump and show an error code.

See table below:

Protection type	Display	Likely causes	What to do
Locked-rotor protection		The rotor may be jammed or obstructed	Unlock the hexscrews to open the pump and check if the rotor can rotate normally. Clear any obstructions.
Over/under voltage protection		Input voltage is too high or too low	Check if the voltage is within normal range and adjust if necessary
Open phase protection		One or more internal links in the circuit is disconnected	Replace the pump
Over current protection		There has been an internal short circuit	Replace the pump

Notes:

- All the figures in this manual are schematic diagrams. Your product may differ.
- These products are continuously improving, so may not match exactly those shown, and changes may be made without prior notice.

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