

⚠ 4.3 Electrical Connections ATTENTION

Electrical work to be carried out by competent qualified and licensed electricians in strict conformity to ruling national conditions and local regulations. All wiring and external switchgear to comply with the ruling local regulations in accordance with the latest edition of IEE wiring regulations.

Observe pump name plate data.

For pump fuse protection use a 3 Amp fuse.

A means of disconnection from the power supply having a contact separation of at least 3mm in all poles must be provided.

If the pump already has a cable fitted to it, ensure the pump is isolated from the mains before removing the terminal cover.

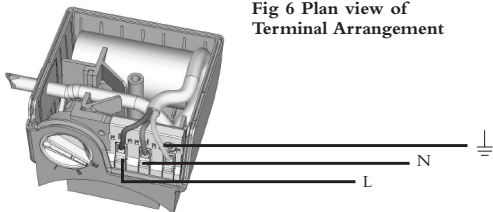
Wiring Procedure

1. Use heat resisting 3 x 0.75mm² core cable with rubber insulation rated at 110°C minimum.
2. Cut cable to required length.
3. Remove terminal cover.
4. Thread cable through grommet.
5. Depress levers to open cable clamps. Connect cable - Brown to L, Blue to N, Yellow/Green to \perp see Fig 6.
6. Adjust cable position and press outer sheath into clamp. See Fig 6.
7. Refit terminal cover, locating cover onto motor and tighten screws.

⚠ The cable must not come in contact with the pump body or pipework.

WARNING - 'THIS PUMP MUST BE EARTHED'

Fig 6 Plan view of Terminal Arrangement



5. Commissioning/Operation ATTENTION

Open both valves either side of the pump.

⚠ In normal operation the pump surface can be hot (up to 125°C) creating a risk of being burnt.

⚠ **Manual Restart (First Commissioning)**
During this operation be aware of the risk of scalding from escaping hot water or steam.

Before switching the pump on the manual restart Fig 7 should be unscrewed and withdrawn to engage in the motor shaft. Check that the shaft rotates freely, and that the knob can be seen rotating on initial start up of the circulator. Screw manual restart back in.

Fig 7 Manual Restart Knob and Speed Regulator Knob Location (CP23/CP43/CP53/CP63 only).

Venting

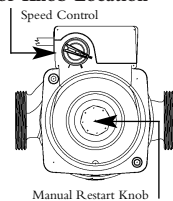
When the system is filled with water the pump will normally self vent air within a short while of switching on.

In cases where the pump venting is slow (identified by pump noise) the pump bearings may be quickly vented by using the manual restart knob.

⚠ During this operation be aware of the risk of scalding from escaping hot water or steam.

⚠ During this operation ensure the pump is switched off.

Once the system has filled, switch off the pump, unscrew the manual restart knob applying sideways pressure to the screw until water emerges from it. Screw the manual restart knob back in. Switch pump back on.



Note, a system may take 24 hours to vent all the air in the system to atmosphere.
ATTENTION DO NOT run the pump dry as this will result in bearing failure.

Speed Regulator

Output of the CP range of domestic circulators is by 3 speed control. (Single speed versions are also available)

⚠ **Speed regulator adjustment should only be made with electrical supply switched off.**

1. It is always preferable to use the lowest performance where this gives circulation sufficient to heat all the heat emitters evenly (uneven distribution of heat may be due to the need to balance the flow of water in each heat emitter).
2. If the pump performance requirement is not known start with the lowest pump setting. If heat emitters remain cold, or if the boiler inlet and outlet temperature differential (specified by the manufacturers of the boiler) is not achieved increase the flow by adjusting the speed control as shown in fig.7.

ATTENTION too high a speed setting may result in pumping over or drawing in air.

Important - DO NOT use pump isolating valves for performance control.

6. Maintenance

No routine maintenance is necessary, however, during prolonged shutdown e.g. summer months, it is advisable to run the pump for a few minutes every few weeks.

Locked Pump

Should the pump fail to start, switch to maximum setting. If the pump still does not start, the manual restart knob can be used to free a locked pump (see manual restart procedure - section 5). Once the pump is running the regulator should be reset to its original position.

7. Trouble Shooting Guide

Faults and Remedies

Pump Fails to Start

Check power supply fuses.
Check voltage at pump terminals (see pump nameplate data).
Check electrical connection wiring procedure (see section 4.3).
Check rotor free to rotate (see section 6).

Pump Starts but Provides Incorrect Circulation

Check pump valves open.
Check pump case and system adequately vented (see section 5).
Check correct electrical regulator setting (see section 5).

Noise

Check electrical regulator setting and readjust as required (see section 5).
Noise due to cavitation can be subdued by increasing the system pressure within the permissible limits.

Pump may require 48 hours to attain normal quiet operation.

8. Relevant Documentation

Spare Parts

No non-approved replacement parts may be used.



CirculatingPumps

COMPACT

DOMESTIC CIRCULATOR PUMP

Installation and Operating Instructions



CirculatingPumps



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In accordance with our policy of continual product improvement, we reserve the right to amend the specification of these products without prior notice.

1. General Safety Rules

These instructions are of fundamental importance for the installation, use and maintenance of these products and must therefore be read before commencing work and then carried out accurately by the installer and end user. Installation and maintenance must be carried out by qualified personnel only. Failure to comply with these safety instructions will cause risk to people and equipment and may invalidate the guarantee.

Identified hazards are highlighted by the following symbols:-

Danger from general causes: 

Danger from electrical causes: 

Instructions which if ignored could cause damage or impair the function of the pump are highlighted by the word: **ATTENTION**

1.1 Field of Application

The CP range is suitable for open vented or pressurised domestic central heating systems only.

1.2 Product Data

Weight CP21/23/41/43/51/53	2.8Kg	(6.3lbs)
Weight CP61/63	2.9Kg	(6.5lbs)
Maximum water temperature	110°C	(230°F)
Maximum Ambient temperature	55°C	
Maximum static pressure	10 bar	(147p.s.i.) (102m water gauge)
Max system pressure =	Max head m wg from Fig 1 to Fig 4 + Max static pressure 102mwg	
Minimum recommended flow rate	5 l/min	

Operating conditions - When pumping water at 110°C the minimum dynamic head should be 11 meters water gauge to avoid cavitation and ensure quiet running.

Minimum static head - open vented systems CP pumps may be fitted to systems with a minimum static head of 300mm provided the pump inlet is adjacent to the neutral point and the water temperature does not exceed 80°C.

Fig 1 CP21/23 Performance Curve - 230V ~ 50Hz

Water Temperature - 20°C. For CP21 use speed 3.

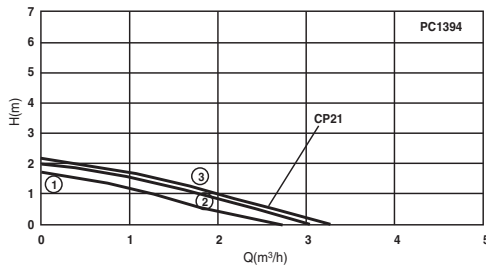


Fig 2 CP41/43 Performance Curve - 230V ~ 50Hz

Water Temperature - 20°C. For CP41 use speed 3.

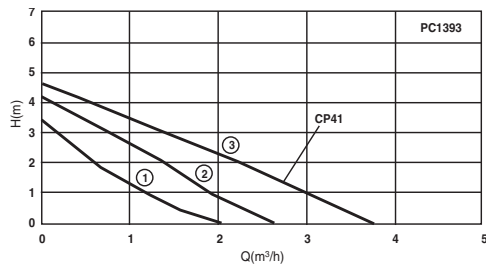


Fig 3 CP51/53 Performance Curve - 230V ~ 50Hz

Water Temperature - 20°C. For CP51 use speed 3.

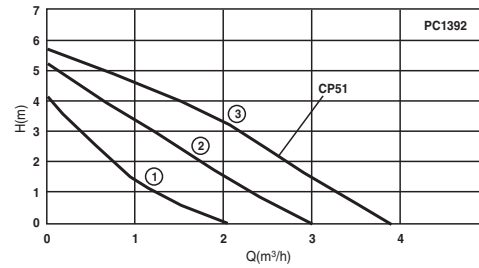
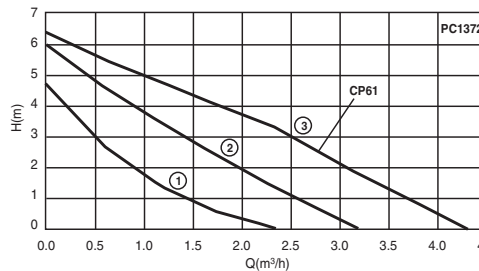


Fig 4 CP61/63 Performance Curve - 230V ~ 50Hz

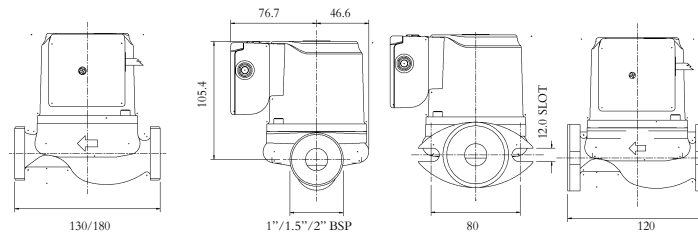
Water Temperature - 20°C. For CP61 use speed 3.



Supply voltage 230V ~ 50Hz

Model	Speed Setting	Speed RPM	Watts Input	Amps
CP21		2600	60	0.28
CP41		1950	71	0.30
CP51		1850	104	0.45
CP61		1800	110	0.48
CP23	3	2600	60	0.28
	2	2450	45	0.20
	1	2100	35	0.16
CP43	3	1950	71	0.30
	2	1550	55	0.24
	1	1150	40	0.18
CP53	3	1850	104	0.45
	2	1400	78	0.35
	1	950	56	0.26
CP63	3	1800	110	0.48
	2	1400	83	0.37
	1	1050	60	0.27

Dimensions



2. Packaging & Handling

2.1 Transport and Storage ATTENTION

The pump must be protected from moisture, and must not be subjected to temperatures outside -10°C and 50°C.

2.2 Handling ATTENTION

Care must be taken when handling and installing the pump to avoid damaging components. If damage occurs the pump must not be used. Abnormal handling may invalidate the warranty.

3. Description of Pump

3.1 General Description

The pumps are of a drum motor design using hard coated shaft and bearings supporting a moulded impeller and rotor. Motor cooling and bearing lubrication is carried out by the pumped water. Models offer a single or variable speed setting to allow system requirements to be accurately met.

Design and Function/Safety Devices

The motor windings are impedance protected. A provision for earthing the outer casing is provided.

Prohibited Use ATTENTION

The pump must not be used on secondary hot water services or handling drinking water or handling food related liquids.

4. Installation

4.1 Electrical Connection Block Positioning

If the electrical connection block is not in a convenient position when the circulator is delivered, the motor head may be rotated prior to fitting. Release the screws on the pump casing and rotate the motor head to its new position.

If this is done please check the following :-

1. Take care not to remove or damage the 'O' ring seal between motor head and pump casing.
2. Tighten the fixing screws in a diagonal pattern in stages to a final torque of 25Kg cm (22lb in).
3. Check the motor is still moving freely by loosening the Manual Restart Knob (fig.7) and then withdrawing until it engages in the motor shaft. The motor should then be free to turn with the finger tips.


N.B. After use the Manual Restart Knob should be screwed back finger tight into its original position.

4.2 System ATTENTION

The pump must not be installed against wood or any other material which may be effected by heat from the pump.

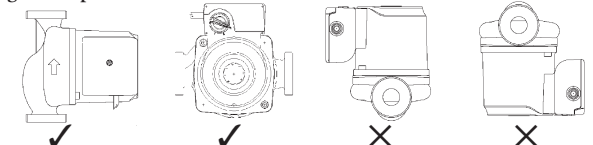
Before installing the circulator ensure all soldering/welding adjacent to the pump is complete, the system has been thoroughly flushed out to remove any foreign matter and that vent and feed pipes are positioned so that the pump will not draw in air or pump over. It is advisable to ensure the impeller is free by rotating manually through the outlet.

The pump should not be installed in either a high point in the system where air could collect or a low point where sediment could build up.

 Pipes on both sides of the pump should be supported to reduce strain and must be correctly aligned prior to installing the pump to reduce the risk of scalding.


The pump must be installed with the rotating shaft horizontal (see fig.5)

Fig 5 Pump Installation Positions



Check the direction of flow indicated by an arrow on the pump casing and install the pump between the isolating valves. When replacing a pump maintain the same direction of flow.

Use approved makes of additives with corrosion inhibitors only and follow manufacturer's instructions. Do not leave system empty without protection from corrosion inhibitor.

 Ensure no fluid drips onto the pump motor or its electrical connections during installation, venting or operation as when the pump is energised this may create a risk of electric shock.