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Warranty

If any material defect arising from the manufacturing process is found in a new tap or valve Waterware Services Ltd. will undertake to repair or replace it (at its option). This undertaking will not apply if:

1. The defect is brought to Waterware's attention later than 1 year from the date of manufacture.
2. Failure by any person to follow installation instructions or installation in an environment outside the recommended limitations or relevant NZ and or Australian Standards and local plumbing codes. No installation should proceed without installation instructions and claims instructions were missing are not accepted as a means of avoiding this condition.
3. Evidence cannot be produced which confirms that the relevant tap or valve was purchased from a known customer of Waterware Services Ltd.
4. Repair work is undertaken without prior arrangement with Waterware Services Ltd.
5. Normal maintenance requirements, refer to specific product maintenance guides.

Waterware Services Ltd. shall in no way be liable for any loss, damage (direct, indirect or consequential), cost or expense suffered or incurred by the purchaser. Obligations accepted by Waterware Products Ltd. are.....

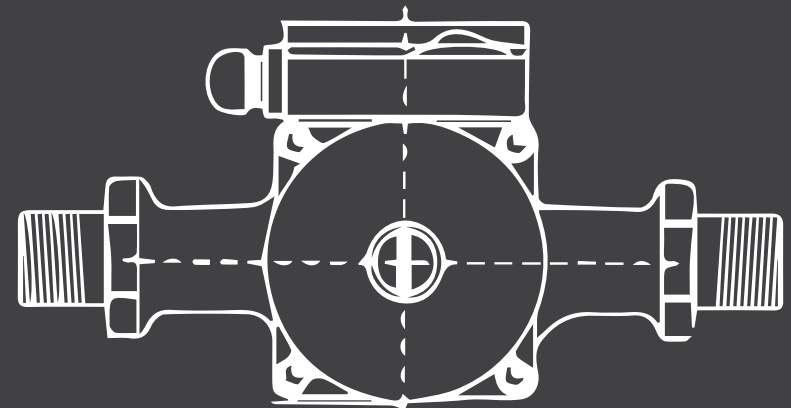
..... in addition to all other rights and remedies had by the Purchaser in law in respect of the valve and does not limit the right the Consumer may have under the Consumers Guarantee Act 1993.

..... subject to the exceptions and conditions previously listed. All expressed or implied conditions, statements or warranties as to the quality or fitness on any purpose of a tap or valve or otherwise are hereby expressly excluded to the fullest extent permitted by law except under conditions and warrants which cannot be legally excluded by law and which are intended in the contract for the supply of the valve by the Trade Practises and any other Act of Law.

WATERWARE

SPCO Circulating Pumps

Installation and Operation Manual



PUSPC25C6, PUSPC32C (Cast iron)

PUSPC25SS, PUSPC32SS (Stainless Steel)

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DESCRIPTION

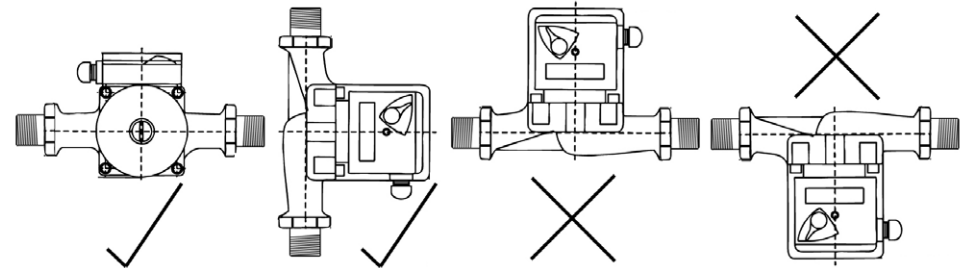
SPCO circulating pumps are designed for use in central heating or potable hot water systems with cast iron or bronze body respectively. Pumps supplied with union nuts and tails.

TECHNICAL DATA

Description:	Bronze	Cast Iron
Code:	PUSPC25B	PUSPC25C
Body/Union size (mm)	40/25	40/25
Power supply (V/Hz):	230/50	230/50
Power consumption speed 3 (W/A)	62/0.28	62/0.28
Power consumption speed 2 (W/A)	48/0.22	48/0.22
Power consumption speed 1 (W/A)	32/0.15	32/0.15
Maximum system pressure (bar):	10	10
Minimum inlet pressure (bar):	1	1
Max/Min water temperature (°C):	65/2	110/2
Max/Min ambient temperature (°C):	40/-10	40/-10
Max. water impurity by volume (%)	0.1	0.1
Max. water impurity by size (mm)	0.2	0.2

Installation Requirements

- The pump must always be installed with the pump shaft horizontal.



- Direction of flow through the pump casing is indicated by an arrow.
- Ensure pipework alignment is correct and the pump and pipework are adequately supported. Sharp bends should be avoided adjacent to the pump.
- If pump is mounted in vertical pipework, flow should be upwards. If pump is downwards, an airvent must be fitted at the highest point before pump suction.
- Pumps bearings are lubricated by the water and should never be operated for more than 10 seconds dry nor be allowed to operate in a closed position for the same.
- Pumps should never be installed with a terminal box facing downwards.
- To avoid accumulation of impurities in the pump, ensure it is not mounted at the lowest point in a system.
- Systems should be thoroughly flushed out to clear any solder, steel wool, plaster or any other foreign matter that may be lodged in the pump.

DIRECTION OF ROTATION

After wiring, direction of rotation should be checked by removing plug in the center of the nameplate which will reveal the motor shaft. A small amount of water will dribble past the shaft while the vent plug is removed.

PURGING SYSTEM AIR

Once the system has been filled and pressurised and before operating the pump; air must be vented by removing the plug positioned in the center of the motor end. This process should be repeated periodically, until all air held in suspension in the system, has been removed.

SPEED SELECTION

Pumps have 3 possible speed settings. Speed should always be readjusted to minimum speed, compatible with efficient operation of the system.

MAINTENANCE

PUSPC pumps are maintenance free and in a well designed system will give many years of service. The pump shaft can seize if the pump is left unused for a long period of time or by the accumulation of magnetic or other impurities. To free the motor shaft, insert a screw driver through the vent plug hole into the slot in the end of the shaft and rotate.

FAULT FINDING

Fault	Cause	Action
Pump running but no flow	Air in system	Purge air from the system and run the pump
Pump will not start	Power supp Loose elect Connection Seized shaf	
Pump Noisy	Incorrect rc Pump speed Static head Air in syste	

