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CHAPTER 1 - INTRODUCTION

1.1 GENERAL SAFETY INSTRUCTIONS

Warnings for the safety of individuals and objects.

Carefully follow the instructions marked with the following symbols.


	DANGER	Warns that the failure to follow the directions given could cause serious risk to individuals or objects.
	DANGER Electric shock risk	Warns that the failure to follow the directions given may cause electric shock.
	WARNING	Warns that the failure to follow the directions given could damage the electropumps.

WARNING: Read this manual carefully before installing this pump. Any damage caused by failure to observe the directions contained in this manual will not be covered by warranty.

1.2 GENERAL INFORMATION


Series SSCX comprises single-bloc centrifugal electropumps, without self-priming device, with front suction, radial delivery and with 1 stage. Every electropump is carefully tested and packed during its assembly.

1.3 PRELIMINARY CHECKS

	WARNING	Always keep the original packaging for possible future transport of the machine.
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- Check the packaging is intact
- Open the packaging and remove the machine
- Check the machine corresponds to that ordered
- Check the machine is not damaged
- If you receive an incorrect or damaged machine, notify PENTAIR PUMPS or the authorised dealer within and not after 10 (ten) days from date of purchase



CHAPTER 2 - TECHNICAL FEATURES

	DANGER	Do not use the product in environments with acid, corrosive and/or inflammable gas Do not use the motor pump with dangerous liquids.
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2.1 LIMITATIONS


- Ambient temperature : +0°C to + 40°C
- Maximum temperature of liquid : 90 °C
- Level of protection : IP55
- Maximum operating pressure : 8 bar
- Power voltage : 1x230 Vac ± 10 % - 3x230/400 Vac ± 10 %
- Inbound frequency : 50 Hz ± 3%
- Maximum suction height : 5 mt with standing valve (recommended)

CHAPTER 3 - INSTALLATION

	DANGER	The installation operations must be performed by expert, qualified personnel Use specific guards and equipment as per safety standards Fully comply with safety and accident prevention standards in force.
	DANGER Electric shock risk	Warns that the failure to follow the directions given may cause electric shock.

3.1 HYDRAULIC CONNECTION

The system can be used with a direct connection to the aqueduct or suction from a first tank.


	DANGER	For connection to the aqueduct, pay full attention to local standards in force. Check the sum of the intake pressure and the maximum pressure of the motor pump do not exceed the maximum values allowed by the system.
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SSCX series electropumps are not self-priming. It is advisable to install it under the level of the water. If the electropump is to be installed above the water level then a suction pipe should be used with a diameter equal to that of the suction duct for electropump. If the height between the pump axis and the minimum basin level is over 4 meters use a tube with a larger diameter. The suction line should be perfectly airtight. No elbows and/or slopes should be present to prevent the formation of air locks that could affect the electropump efficiency. A standing valve with filter should be fitted at about half a metre below the fluid that has to be pumped on one end of the line.

Load losses can be reduced using delivery piping with a diameter equivalent or greater than the electropump mouth. It is advisable to install a check valve directly on the delivery line to prevent the electropump being damaged by "water hammer".

A cut-off valve should also be installed downstream from the check valve, to facilitate servicing operations. Piping should be fitted so that vibrations, when existing, tension and weight do not affect the pump. Piping should be routed along the shortest and straighter track, avoiding an excessive number of bends.

3.2 PRIMING

	DANGER	Never start the machine if it is not completely filled with water.
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3.2.1 NEGATIVE SUCTION HEAD

For negative suction head filling of a machine, proceed as follows:

- Close the gate on the delivery tubing
- Open the priming plug
- Slowly open the gate on the suction tubing
- When the liquid flows out of the priming plug continuously, tighten the plug.
- Fully open the gate on the delivery and suction tubing

3.2.2 POSITIVE SUCTION HEAD

For positive suction head filling of a machine, proceed as follows:

- Open the gate on the suction tubing
- Close the gate on the delivery tubing
- Open and remove the priming plug
- Pour the liquid into the machine through the priming plug hole until the liquid starts overflowing
- Close the priming plug
- Start the machine
- Open the gate on the delivery tubing.

3.2 ELECTRICAL CONNECTIONS

	WARNING	Verify that the voltage and frequency of the electropump shown on the nameplate correspond to those available on the mains.
	DANGER Electric shock risk	The installer must make sure that the electric system is grounded in accordance with the law in force.
	DANGER Electric shock risk	Make sure that the electric system has a high-sensitivity circuit breaker D=30 mA (DIN VDE 0100T739).

Single-phase motors have a permanently inserted condenser and a thermal protection fitted on the motor winding. Customers will be responsible for protections of three-phase motors. Electric connections should be performed using cables H07RN-F (for external connections) or H05RN-F or H07RN-F (for internal connections).

CHAPTER 4 – STARTING THE UNIT

	WARNING	Use the electropump for the applications listed on the nameplate.
	WARNING	Do not operate the electropump without fluids.
	WARNING	Do not operate the electropump when the interception valve on the delivery side is completely closed.

Before starting the electropump fill the electropump body as indicated at item 3.2 “Priming”, check that it rotates clockwise when looking at the electropump from the side of the motor fan. On the three phase electropumps it is possible to invert the rotation by changing the order of two phases. It is advisable to empty the electropump and repeat the above-described operations, if the electropump is not used for long intervals of time.

CHAPTER 5 – MAINTENANCE AND TROUBLESHOOTING

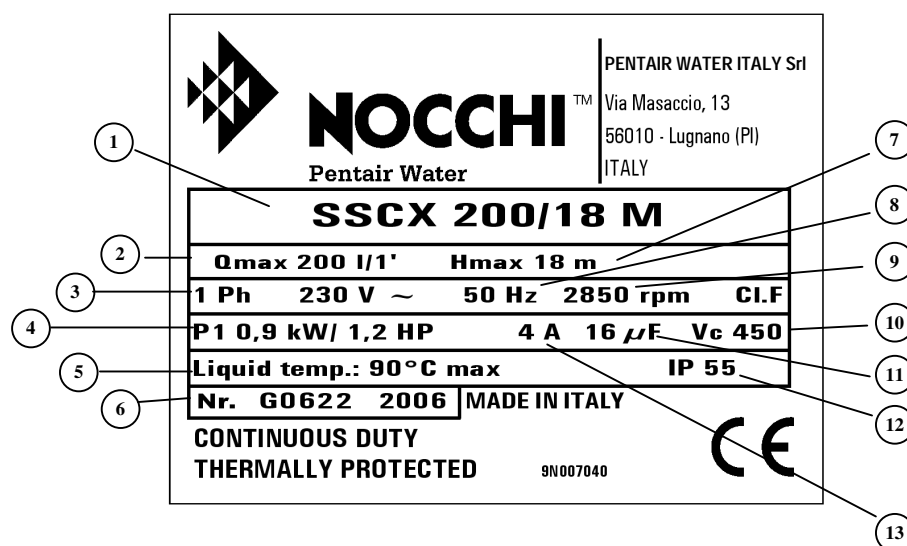
	WARNING	Make sure the machine is disconnected from electric power supply, before performing servicing operation
	DANGER Electric shock risk	

Under normal conditions SSCX electropumps do not need any type of maintenance. In order to avoid possible failures, it is advisable to periodically check the pressure supplied and current absorption. A decrease in pressure is a symptom of wear. An increase in current absorption is a sign of abnormal mechanical friction in the pump and/ or motor. If the electropump is not going to be used for long periods of time it should be emptied completely, rinsed with clean water and put in a dry place.

PROBLEM	POSSIBLE CAUSE	REMEDY
The electropump does not pump water, the motor does not run	1) No power 2) Motor protection tripped 3) Defective condenser 4) Shaft blocked	1) Verify the presence of voltage 2) Verify the cause and reset the switch. If the thermal circuit breaker has tripped wait for the system to cool down 3) Replace the defective condenser 4) Verify the cause and unblock the electropump
The motor runs but the electropump does not pump liquid	1) The pump is sucking air 2) Wrong rotation direction	1) a) Make sure that the joints are airtight. - b) Check that the level of liquid has not lowered - c) Check that the foot valve is airtight and is not blocked 2) Reset the direction of rotation

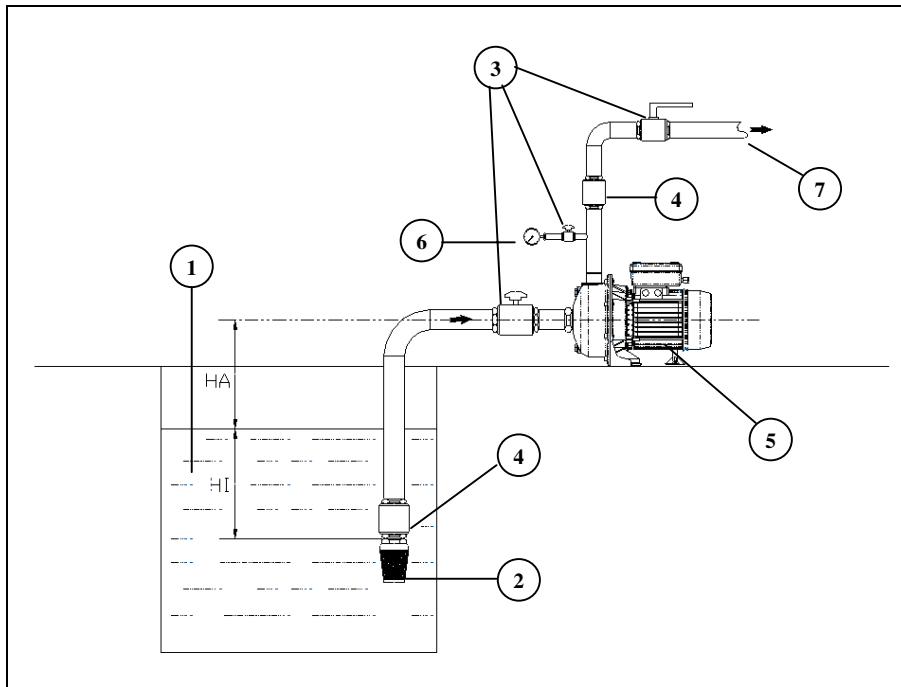
CHAPTER 6 - TABLES AND DESIGNS

6.1 DATA PLATE



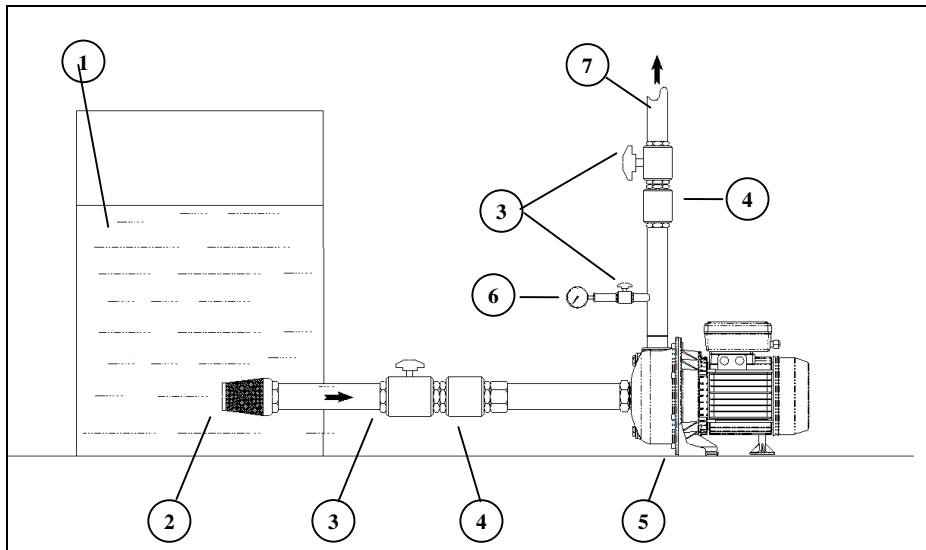
- | | |
|------------------------------------|---|
| 1 Type of motor pump | 7 Maximum head in metres |
| 2 Maximum flow rate l/min | 8 Frequency |
| 3 Number of phases / Power voltage | 9 Rotating speed |
| 4 Absorbed power (Kw – Hp) | 10 Condenser voltage |
| 5 Maximum temperature of liquid | 11 Condenser capacity (ver. 1~230V) |
| 6 Date and year of production | 12 Insulation class and level of protection |
| | 13 Absorbed current |

6.2 POSITIVE SUCTION HEAD INSTALLATION



- | | |
|--------------------|-----------------|
| 1 Basin or tank | 5 Motor pump |
| 2 Filter | 6 Gauge |
| 3 Shut-off valve | 7 Outlet tubing |
| 4 Non return valve | |

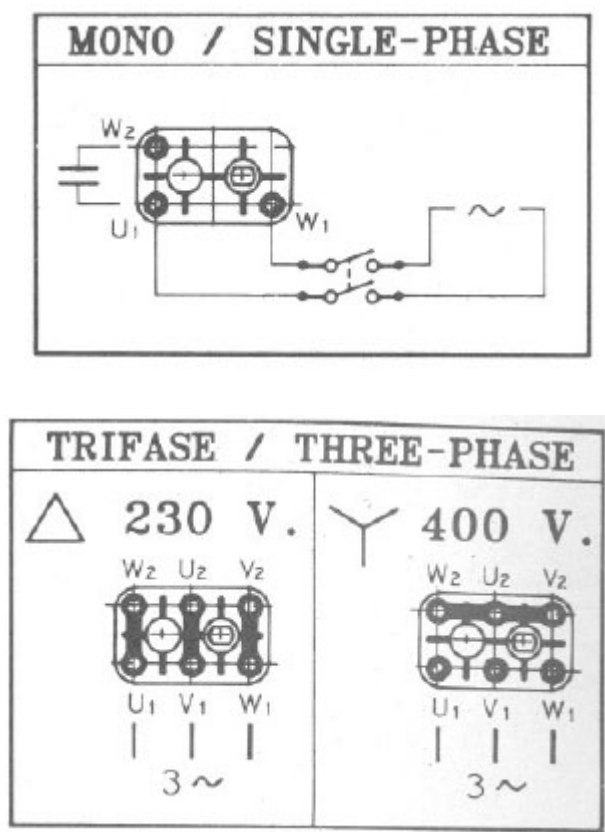
6.3 NEGATIVE SUCTION HEAD INSTALLATION



- | | |
|--------------------|-----------------|
| 1 Basin or tank | 5 Motor pump |
| 2 Filter | 6 Gauge |
| 3 Shut-off valve | 7 Outlet tubing |
| 4 Non return valve | |

For the installation of the positive suction head, ensure the correct inclination of the suction piping until the air present in the tubing can exit the outlet tubing.

6.4 ELECTRICAL CONNECTION BOARD



CHAPTER 8 – GUARANTEE

This device is covered by legal guarantee based on the current standards in force for the country of purchase, relating to manufacturing malfunctions and defects and/or those of the material used. The guarantee is limited to repairs or replacements, in the assistance centres authorised by Pentair PENTAIR WATER ITALY Srl, for the pump or parts deemed malfunctioning or faulty. The components subject to wear, for example, the mechanical seal and counter face, rings and seals, rotors and hydraulic parts and membrane and electric cables are guaranteed for a period not exceeding their useful life. For the correct use and duration of the product, as well as to avail of your right to guarantee, it is necessary to have parts serviced based on their use by authorised assistance centres, as well as their possible replacement. To exercise your right to guarantee, in the case of malfunctioning, directly contact the authorised dealer and/or the assistance centre. Possible notification of the faulty product must be sent immediately after finding the anomaly and within and not after the terms specified by law. The right to guarantee runs from the date of purchase and must be proven by the purchaser by presenting the proof of purchase document: receipt, invoice or delivery document. **The guarantee is forfeited:** if the fault is caused by incorrect treatment or operations or incorrect implementation or storage, incorrect electrical or hydraulic connections or no or inadequate protection or if the system or installation of the device was not carried out correctly - if the fault is due to acts of God or other external or uncontrollable factors - if the product is used with abrasive or corrosive liquids or different from those authorised or are incompatible with the materials used in the construction of the pumps - in relation to product use, those beyond the plaque limits or conditions not allowed and intervention by the purchaser or unauthorised personnel to fully or partially dismantle the product, as well as changes made or tampering - if the materials are damaged due to normal wear - and any use different from those indicated in the use and maintenance manual is not guaranteed if not expressly indicated in writing by the manufacturer. We recommend you carefully read the instructions booklet in advance. **Warning:** If your device doesn't work, check the fault is not caused for other reasons, for example a power supply cut to the control or command device or mishandling. Remember to attach the following documentation to the faulty device: receipt of purchase (invoice, receipt) and a detailed description of the fault.