



**IT - DICHIARAZIONE DI CONFORMITÀ**

Si dichiara che i prodotti in elenco (gruppo 1 e 2) sono conformi alle prescrizioni delle direttive [D-CE] e costruiti nel rispetto delle norme armonizzate [N-A].

**GB - DECLARATION OF CONFORMITY**

The listed products (group 1 and 2) comply with the requirements of the Directives [D-CE] and are built in accordance with the updated, current regulations [N-A].

**D - KONFORMITÄTSEKTLÄRUNG**

Wir bestätigen, dass die im Verzeichnis aufgeführten Produkte (Gruppe 1 und 2) den Vorschriftenrichtlinien [D-CE] entsprechen und laut der aktuellen und laufenden Normen hergestellt worden [N-A].

**F - DÉCLARATION DE CONFORMITÉ**

Nous déclarons que les produits cités dans la liste (groupe 1 et 2) sont conformes aux prescriptions des directives [D-CE] et sont fabriqués conformément aux normes harmonisées [N-A].

**S - ÖVERENSSTÄMSELSEINTYG**

Harmed intygas att produkterna i fö rteckningen (grupp 1 o uc 2) överensstämmer med föreskrifterna i direktiven [D-CE] och ar tillverkade i enlighet med normerna [N-A].

**NO - OVERENSSTEMMELSESERKLÆRING**

Vi erklærer at produktene i listen (gruppe 1 og 2) er i overensstemmelse med direktivene [D-CE] og de er laget i overensstemmelse med standardene [N-A].

**DK - OVERENSSTEMMELSESERKLÆRING**

Der erklæres at de listede produkter (gruppe 1 og 2) er i overensstemmelse med foranstaltninger i europadirektiverne [D-CE] og at de er bygget i overensstemmelse med de harmoniserede normer [N-A].

**NL - VERKLARING VAN CONFORMITEIT**

Hierbij verklaren wij dat de in de lijst genoemde artikelen (groep 1 en 2) conform de voorschriften van de richtlijnen [D-CE] zijn en gefabriceerd met inachtneming van de op elkaar afgestelde normen [N-A].

**FIN - YHDENMUKAISUUSTODISTUS**

Vakuutamme, että luettelossa mainitut tuotteet (ryhma 1 ja 2) vastaavat direktiivien [D-CE] vaatimuksia ja että ne on valmistettu yhdennettyjen saannosten [N-A].

**E - DECLARACION DE CONFORMIDAD**

Se declara que los productos en la lista (grupo 1 y 2) están conformes a las prescripciones de las directrices [D-CE] y construidos en el respecto de las normas armonizadas [N-A].

**P - DECLARAÇÃO DE CONFORMIDADE**

Se declara que os produtos elencados (grupo 1 e 2) são conformes com às prescrições das directrices [D-CE] e construidos no respeito das normas harmonizadas [N-A].

**GR - ΑΗΛΩΣ ΣΥΜΜΟΡΦΩΣΗΣ**

Δηλώνουμε ότι τα αναγραφόμενα προϊόντα (ομάδες 1 και 2) είναι κατασκευασμένα σε συμμόρφωση με τις προδιαγραφές των Οδηγιών [D-CE] και των εναρμονισμένων προτύπων [N-A].

**TR - UYGUNLUL BEYANI**

Listedeki (gruplar 1 ve 2) ürünlerin [D-CE] direktifleri yönergelerine uygun olduklari ve ilgili harmonize [N-A] direktiflere uyularak imal edildikleri beyan edilir.

**BG - ДЕКЛАРАЦИЯ ЗА СЪВМЕСТИМОСТ**

Декларира се че, продуктите в списъка (група 1 и 2) отговарят на разпоредбите на директивите [D-CE] и че са произведени, в съответствие с хармонизираните нормативи [N-A].

**CZ - PROHLÁŠENÍ O SHODĚ**

Prohlašuje se, že výrobky uvedeny na seznamu (skupina 1 a 2) jsou v souladu s nařízenými směrnici [D-CE] a realizovány s respektováním normativních odkazů [N-A].

**SL - IZJAVA O SKLADNOSTI**

Izjavljamo, da izdelki s seznama (skupini 1 in 2) izpolnjujejo zahteve direktiv [D-CE] in so izdelani ob upoštevanju harmoniziranih standardov [N-A].

**LV - ATBILSTĪBAS DEKLARĀCIJA**

Tiek deklarēts, ka produkti sarakstā (grupa 1 un 2) ir atbilstībā ar direktīvu [D-CE] nosacījumiem un ražoti ievērojot harmonizētās normas [N-A].

**LT - ATITIKTIES DEKLARACIJA**

Pareiškiamo, kad sąrašė nurodyti produktai (1 ir 2 grupės) atitinka direktyvų [D-CE] reikalavimus ir yra pagaminti laikantis harmonizuotų normų [N-A] nuostatų.

**PL - DEKLARACJA ZGODNOŚCI**

Oświadczam się, że produkty na liście (grupa 1 i 2) są zgodne z zaleceniami direktyw [D-CE] i wykonane z uwzględnieniem zharmonizowanych norm [N-A].

**RO - DECLARAȚIE DE CONFORMITATE**

Declarăm că produsele din listă (grupul 1 și 2) sunt conforme recomandărilor directivelor [D-CE] și sunt fabricate conform normelor armonizate [N-A].

**H - MEGFELELŐSÉGI NYILATKOZAT**

A gyártó kijelenti, hogy az itt felsorolt termékek (1 és 2 csoport) megfelelnek az európai unió irányelvek [D-CE] előírásainak valamint, hogy a termékeket a harmonizált szabványoknak [N-A] megfelelően gyártotta.

[D-CE]

2006/42/CE; 2006/95/CE; 2004/108/CE; 2000/14/CE (followed procedure: annex V); 87/404/CE; 97/23/CE (Cat.1, Mod.A).

[N-A]

EN 60034...; EN 60204-1; EN 60335-1; EN 60335-2-41; EN 61000; EN 55014; EN ISO 12100-1; EN ISO 12100-2; EN ISO 14121-1; EN ISO 3744

<b>GRUPPO 1</b>	<b>Measured sound power level LWA: 88 dB (A)</b> <b>Guaranteed sound power level LWA: 89 dB (A)</b> <b>Measured sound pressure level LpA: (R: 1,5m; H: 1,5m): ≤ 75 dB (A)</b> (rated voltage/frequency, maximum declared capacity).					
	<i>Modello</i>	<i>kW rated</i>	<i>kW absorbed</i>	<i>Modello</i>	<i>kW rated</i>	<i>kW absorbed</i>
	JMC	0,59÷0,74	0,78÷1	CS	0,59÷4	0,63÷5,05
	CAM	0,44÷2,2	0,59÷2,65	CH	1,1÷4	1,9÷5,1
	INOX	0,59÷0,74	0,78÷1	CR	0,59÷0,74	0,73÷1,2
	CAB	1,1÷2,2	1,65÷2,65	CB100÷900	0,74÷6,6	1,15÷7,6
	AP	0,59÷1,65	0,8÷2,22	MB	0,59÷0,88	0,83÷1,33
	PM-CP	0,37÷0,74	0,49÷1,13	ULTRA	0,37÷6,6	0,41÷7
	MD	0,59÷0,74	0,94÷1,17	MPX-MPA	0,59÷0,88	0,83÷1,33
	CM	0,37÷4	0,59÷5,1			

<b>GRUPPO 2</b>	<b>Measured sound power level LWA: 98 dB (A)</b> <b>Guaranteed sound power level LWA: 99 dB (A)</b> <b>Measured sound pressure level LpA: (R: 1,5m; H: 1,5m): ≤ 90 dB (A)</b> (rated voltage/frequency, maximum declared capacity).					
	<i>Modello</i>	<i>kW rated</i>	<i>kW absorbed</i>	<i>Modello</i>	<i>kW rated</i>	<i>kW absorbed</i>
	CBT 800÷1500	5,5÷11	8,5÷12,1	normalized monobloc mod. CM	1,5÷37	2,3÷45

Manufacturer and depositary of technical documentation:

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Veronella (VR), 01/06/2011



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# INSTRUCTIONS FOR INSTALLATION AND USE OF PENTAX SURFACE ELECTRIC PUMPS

## Use an installation

The standard version of surface motor-driven pumps manufactured by Pentax:

- ✓ They are suited to pump clean water and liquids that are not chemically or mechanically aggressive for the materials of the pump and non-explosive liquids, at a temperature of:
  - from +5 °C to +50 °C for all the models fitted with Noryl hydraulics, except for ULTRA models, for which it is advisable not to exceed +35 °C
  - from -15 °C to +90 °C, for models with a metal rotor (brass, steel, cast iron);
  - from -15 °C to +110 °C, for the ULTRA S, SL and SLX models.

Bear in mind that a higher temperature of the liquid to pump, like the suitability of the installation side of the motor-driven pump, reduce the suction possibility/capability of the pumps.

- ✓ They should be installed in well ventilated, not dusty areas protected from the elements, with an ambient temperature between 5 e 40 °C; when installing the machine we recommend carefully examining the necessary space to conduct any repairs or to remove the pump itself. Remember that ambient temperature and the suitability of all the installation site of the motor-driven electric pump influence the cooling of the electric motor and, therefore, the possibility of operating it at full load.
- ✓ The machines are provided with threaded or flanged openings (fitted with counterflanges), horizontal or vertical rotor axis and supporting feet/base; for safety reasons we recommend fastening the motor-driven electric pump using the designated holes on the supporting feet/base; avoid installing the motor under the body of the pump.
- ✓ They should be subjected to more than:
  - 10 start-ups per hour at regular intervals: models with rated power from 10 to 37 kW;
  - 15 start-ups per hour at regular intervals: models with noryl hydraulics or with rated power from 3 to 7.5 kW;
  - 30 start-ups per hour at regular intervals: models with stainless steel hydraulics or with rated power up to 2.2 kW;

The greater the power of the machine and low where the maximum amount of tolerated start-ups. For pressurisation units, to regulate the no. start-ups per hour of the motor-driven pump, it is necessary to act on the calibration pressures of the pressure switch by increasing the "ΔP" differential (see related paragraph) or increase the capacity of the tank (by adding other tanks identical to the existing one or replacing it with one with a greater volume). Pay special attention to the operation of the motor-driven pumps with "press-control" and/or "press-flow switch" systems: minimal and imperceptible leaks in the system may lead to a large number of start-ups/stops of the motor-driven pump, thereby affecting in its durability. We recommend installing these devices in combination with an autoclave tank, even one with a limited capacity (0.5-1 litres).

- ✓ They can withstand maximum operating pressure (equal to the suction pressure + head with a closed outlet valve) of:

PUMP TYPE	bar
CAM550÷100/JMC/INOX/AP75-100/PM-CP45/MD/CB100/CM50-75-100/CS/CR/CH	6
CAM/CAB/AP150÷300/PM80/CP75/MB/CM160÷550/MPX/MPA	8
ULTRA 50Hz with rotors ≤7/ ULTRA 60Hz with rotors ≤5	
Normalised CM serie	10
CB160÷1500	11
ULTRA 50Hz with rotors ≥8/ ULTRA 60Hz with rotors ≥6	14

## Piping

The pipes must be fixed and anchored to their support and connected so that they do not transmit stress, strain and vibrations to the pump. -**Fig. 4**- For Garden motor-driven pumps (portable) we recommend using spiral pipes (non-deformable) which can be supplied as a kit together with the pumps. The internal diameter of the pipes depends on their length and the flow they need to deliver: this should be chosen so that the speed of the liquid does not exceed 1.4-1.5 m/s in suction mode and 2.4-2.5 m/s in delivery mode; in any case the diameter of the pipes should not be smaller in diameter than the pump's openings. Before installing them check that they are clean inside.

- ✓ The suction piping should: -**Fig. 5**-
    - be as short as possible, there should be no twists or sudden changes of direction;
    - be in perfect conditions and resist to the depression created when the pump is sucking in;
    - slope upward to the pump inlet, to prevent air bubbles that may obstruct priming or cause unpriming.
- If the pump is operating under suction conditions, insert a foot valve with a strainer; if installing a self-priming pump, the foot valve can be replaced by a check valve mounted directly on the suction opening. For the motor-driven pump to operate correctly, the end of the suction pipe should be submerged in water at a depth of at least twice the diameter of the pipe itself. For overhead operation insert a lock gate. -**Fig. 3**-
- ✓ The flow piping should be fitted with a check valve (positioned upstream to protect the pump from the water hammer and prevent reversed flow through the rotor) and a control valve (positioned downstream to control the flow, the head and the power absorbed). -**Fig. 3**-. For self-priming motor-driven pumps, for considerable self-priming - suction heights (greater than 5 m, though in any case less than 9 m), the flow piping should have a straight and vertical section of at least 1.0 m.



## Electrical connection

The autoclaves ( motor-driven pumps with membrane and precharge tank) and the Gardens supplied are ready to be installed and used. Any replacement of the power supply cable, related plug, switch and pressure switch should be conducted by expert personnel; in any case use components identical to existing ones For all other pumps it is necessary to use adequate electric power supply cables based on their length and the electric currents reported on the claim that of the motor-driven pump: prepare the ends of the power supply and earth conductors so that when they are connected the conductors themselves are tightly secured when the corresponding nuts of the terminal and the earth screw are tightened. The electrical connection should, in any case, be conducted by expert personnel, in compliance with local regulations. Check the voltage/frequency of the mains power supply and the data on the plate of the motor-driven pump: then connect the terminals according to the indications in the diagram reported on page.4 and/or inside the lid of the terminal board. Conduct the grounding of the motor-driven pump using the designated terminal. Make sure that the

mains power supply has an efficient grounding connection and that the motor-driven pump has been actually connected to it. The motors of some single-phase motor-driven pumps are protected by a thermal break device with automatic closure inserted in the winding: before conducting any maintenance and/or repair on the motor-driven pump disconnect it from the mains power supply as the motor, perhaps on standby following intervention of the thermal device, may suddenly restart. In any case, for both three-phase and single-phase pumps, it is necessary to install an adequate electrical protection (circuit breaker and differential switch with an intervention threshold of  $\leq 30$  mA) that can ensure an omnipolar disconnection from the power supply with their opening distance between the contacts of at least 3 mm. The maximum admitted shift between the actual voltage of the power supply and the rated value indicated on the plate of the motor-driven pump is of  $\pm 10\%$  for three-phase motor-driven pumps and  $\pm 6\%$  for single-phase motor-driven pumps.



### Start-up

Before starting up the pump check that the shaft of the motor rotates freely. This is why smaller motor-driven pumps have a slot for screwdrivers on the end of the shaft on the fan side; in case of blockage, tap gently with the plastic hammer on the screwdriver inserted in the slot. **-Fig. 6-** Start the motor-driven pump only after having filled out the body of the pump and the suction piping with liquid, through the designated hole. **-Fig. 1-** [for vertical ULTRA models loosen the "a" outlet (positioned at the top) to let the air out and move away the "b" bypass plunger of the drain plug (positioned at the bottom)]. Once completed the operation, gently screw the plunger and the outlet. **DO NOT operate the machine in dry conditions.** Likewise, do not operate the machine with the flow opening fully closed for exceedingly long periods of time (2-3 minutes): this would cause the pump liquid to overheat and as a result damage the motor-driven or some of its components. We also recommend to ensure that minimum flow equal to or greater than 10% of the rated flow of the pump. If the machine is operated with no water coming in suction mode, the liquid in the body of the pump may overheat: pay attention before conducting any operation on the machine itself (draining it, topping it up, etc.). All motor-driven pumps, except for the ULTRA models of the 18 series, should rotate clockwise towards the fan side of the motor. In the case of three-phase motor-driven pumps check the rotation direction is correct and, if necessary, reverse the power supply cables of two phases. Instead single-phase motor-driven pumps have just one direction of rotation, set directly by the manufacturer. Check that the motor-driven from operates within a rated performance shown on the plaques; otherwise adjust as necessary the lock gates located on the flow piping and/or the intervention pressures of the pressure switch, if any. For autoclaves check the precharge pressure of the tank: this should never be greater than the minimum calibrated pressure of the pressure switch open bracket week recommend a tolerance between the two values of approximately  $0,2 \div 0,5$  bar).

### Maintenance

The motor-driven pumps do not require any particular maintenance. If there is a danger of frost or should the machine not be used for extended periods of time, we recommend filling draining the body of the pump, the tank and the piping **-Fig. 2-** Before restarting the motor-driven on check that the shaft is not blocked by scaling or other materials and fill up the body of the pump and the suction piping with liquid. In the case of intervention on the machine, close the lock gates positions on the suction and flow piping and drain the liquid in the motor-driven pump through the designated holes on the body of the pump: pay attention to the features of the liquid pumped (temperature and pressure): Any replacement of the tank and/or other hydraulic components (flexible hose, fitting, etc.) should be conducted by expert personnel; in any case use components identical to existing ones.



**NOTE** Before conducting any maintenance and/or repair disconnect the machine from the power supply.

- This equipment should not be used by children or retarded people. Only professional person and well trained individuals are intended to use such equipment;
- keep equipment away from the children for their safety;
- do not use the device while people are swimming in swimming pools or in the ponds.

### Decommissioning and/or dismantling

No particular procedures are required; please comply with local legal provisions in terms of dismantling, recovery reuse and recycling of the materials.

### Adjusting the pressure switch

Each pressure switch is pre-calibrated by the manufacturer based on the unit on which it is fitted; for any adjustments, once you have identified the pressure switch model, follow the instructions below making sure the motor-driven pump always operates within the range of rated performance shown on the plate.

**NOTE** the connection and stop pressure can be adjusted only when the machine is under pressure.

**Single-phase pressure switch "ITALTECNICA PM/5 - PM/12" - "SQUARE D FSG" - "CONDOR MDR 2/6" models**

Remove the lid to access the control nuts. By acting on the "P" calibration nut (or nuts), you adjust the connection pressure (also called minimum): a clockwise rotation (of both in the CONDOR MDR 2/6) increases the value, while an anticlockwise rotation decreases it. The "ΔP" nut instead controls the pressure differential: By rotating clockwise the calibration differential increases and, as a result, once the connection pressure is fixed, also the stop pressure value (also called maximum) increases.

**"CONDOR 4S/6" model three-phase pressure switch**

Remove the lid to access the control nuts/screws. The "P" screw controls the stop pressure (also called maximum): a clockwise rotation increases the value, while an anticlockwise rotation decreases it. The "ΔP" screw instead controls the pressure differential: by rotating clockwise the calibration differential increases and, as a result, the value of the connection pressure decreases (also called minimum).

**"CONDOR 5/5K" model three-phase pressure switch**

This is three-phase pressure switch connected with an overload cut-out controlled by two buttons located on the lid of the appliance. Do not tamper with the "I" screw that controls the current settings of the overload cut-out: This is already been adequately pre-calibrated by the manufacturer. Remove the lid to access the control handwheel. By acting on the handwheel itself, you can adjust the "P" stop pressure (also called maximum): a clockwise rotation increases the value, while an anticlockwise rotation decreases it. The "ΔP" pressure differential is controlled by pressing the handwheel downwards so that it is released from the split pin: by rotating anti clockwise the calibration differential increases, i.e. the value of the connection pressure (also called minimum) decreases, while it increases by rotating it clockwise.

PUMP TYPE	PRE-CALIBRATION min÷max (bar)
CAM550, CAM50, CM100, U3-5.../2-3, U7.../2	1.4 ÷ 2.8
CAM575, AP75-100, JMRC, JMC, INOXR, INOX, MPA, MPX U3.../4-5-6, U5.../4, U7.../3, U3.../7, U5.../5-6-7, U7.../4-5	2.5 ÷ 4
CAB150÷300, AP150-200, CAM150÷300	3.5 ÷ 5

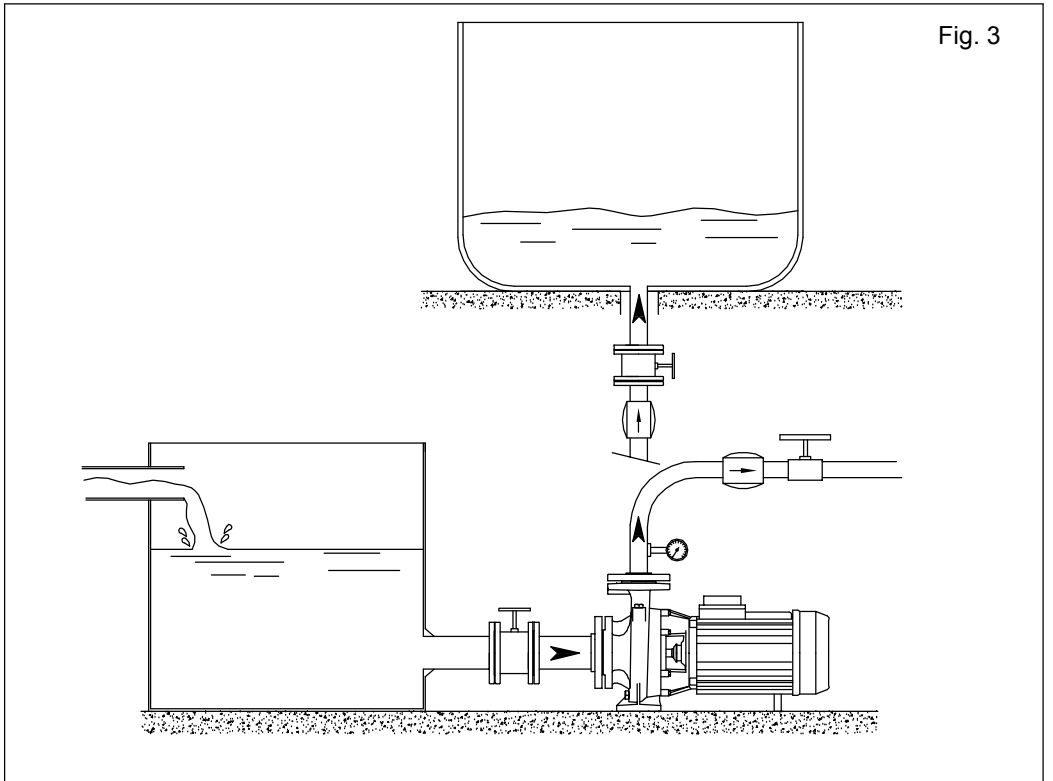
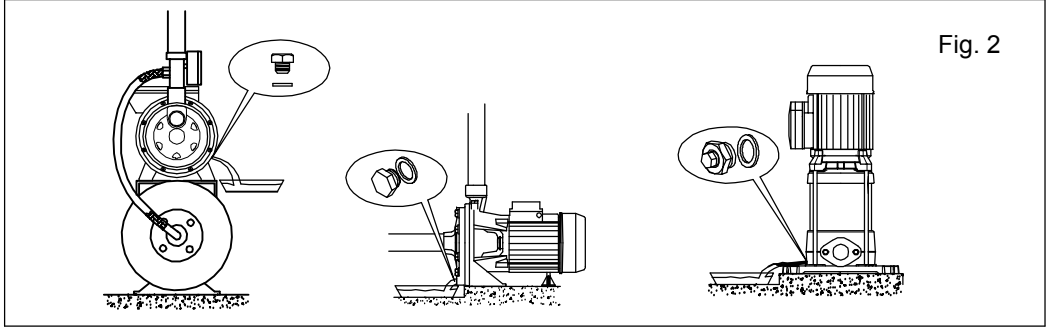
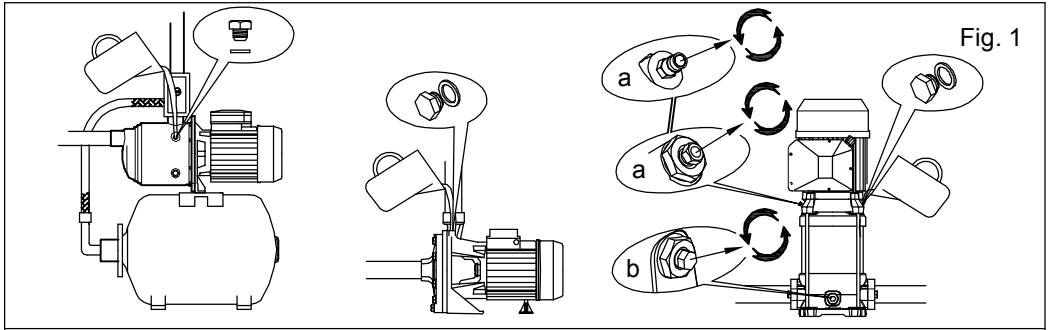


Fig. 4

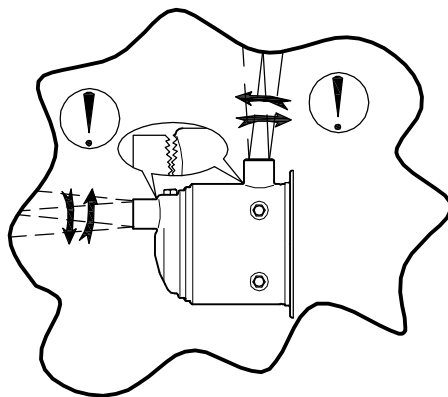
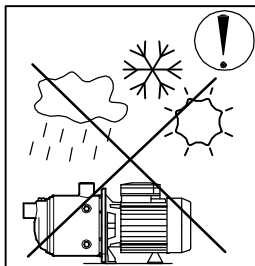
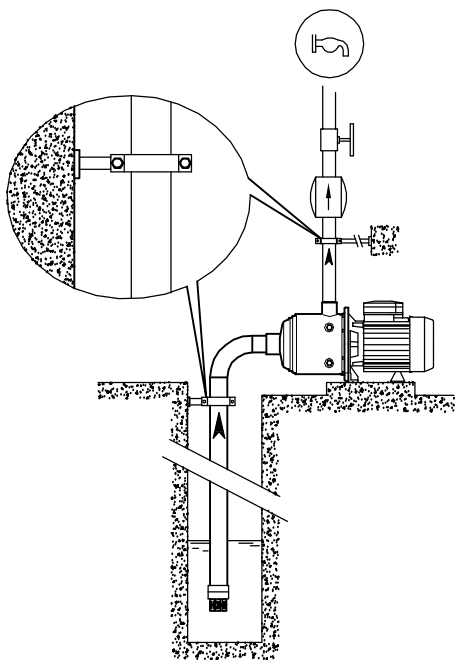
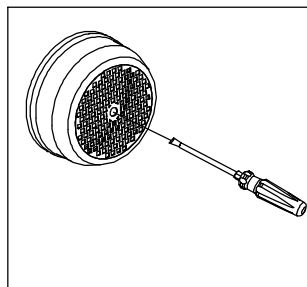
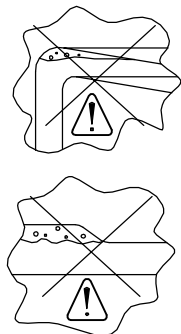
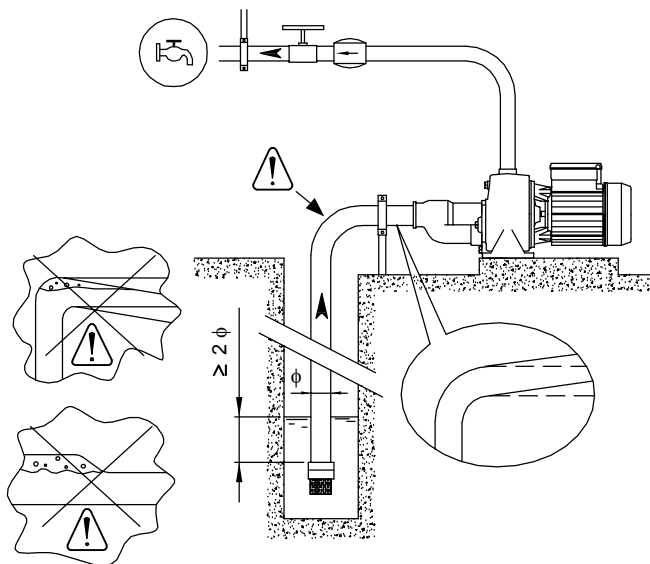
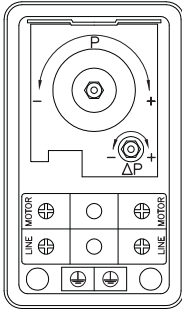
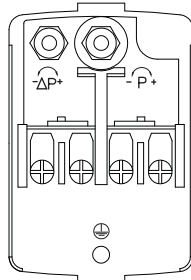


Fig. 5

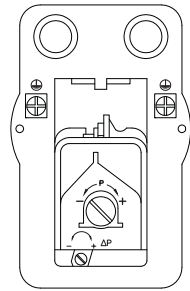




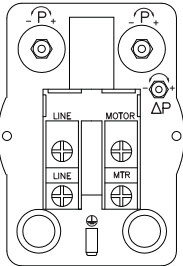
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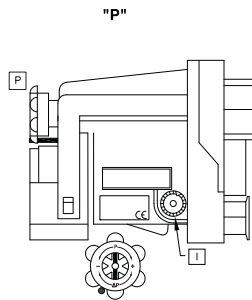
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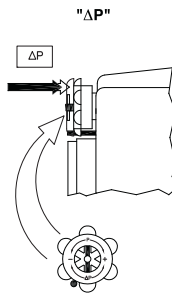
CONDOR MDR 4S/6



CONDOR MDR 2/6



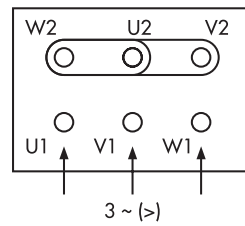
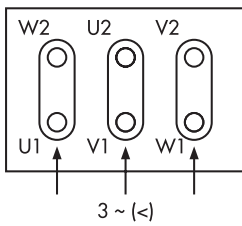
"P"



"ΔP"

CONDOR MDR 5/5K

**TRIFASE - THREE-PHASE**



**MONOFASE - SINGLE-PHASE**

