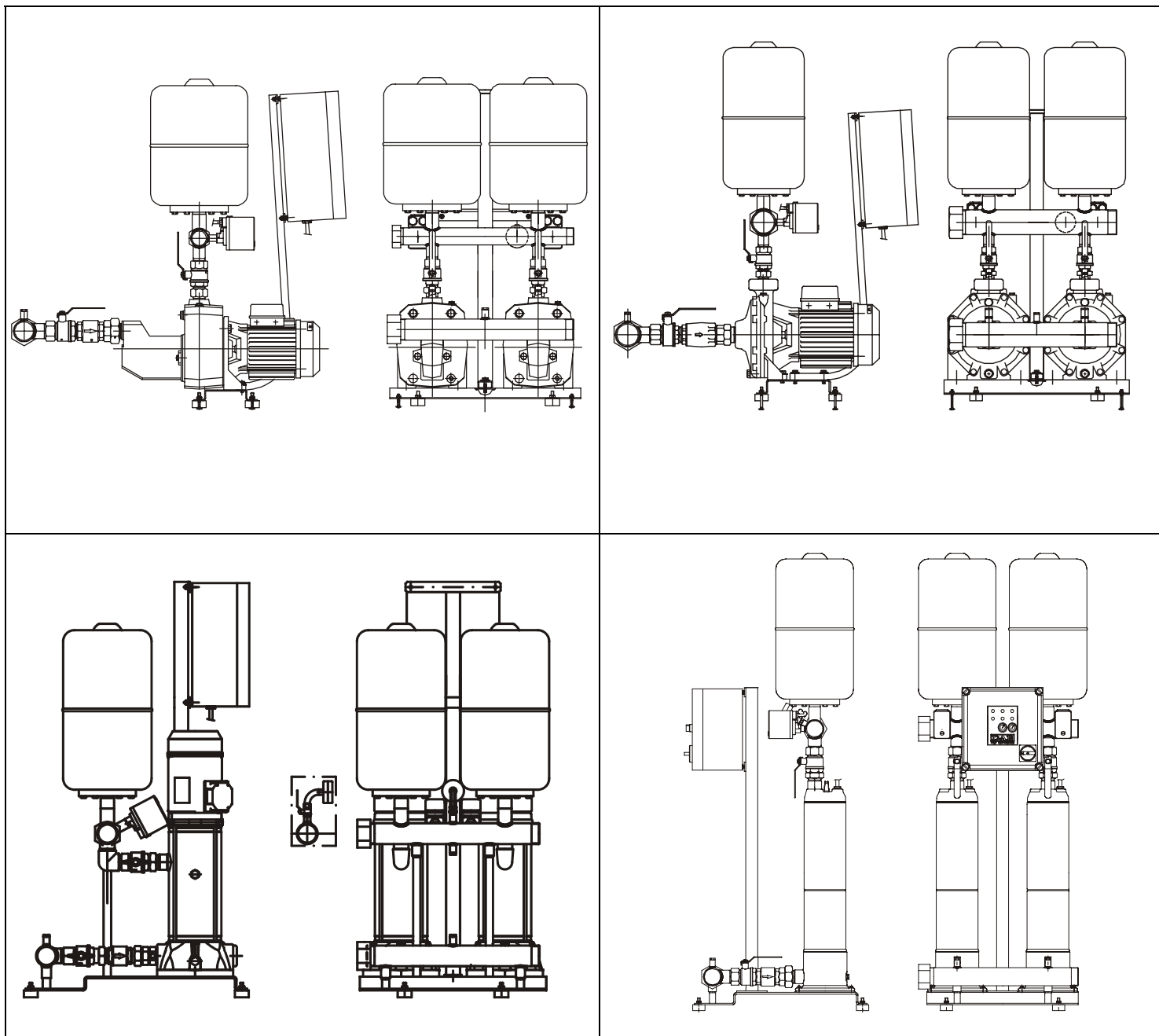


ISTRUZIONI PER L'INSTALLAZIONE E LA MANUTENZIONE
INSTRUCTIONS DE MISE EN SERVICE ET D'ENTRETIEN
INSTRUCTIONS FOR INSTALLATION AND MAINTENANCE
INSTALLATIONSANWEISUNG UND WARTUNG
INSTRUCTIES VOOR INGEBRUIKNAME EN ONDERHOUD
INSTRUCCIONES PARA LA INSTALACION Y EL MANTENIMIENTO
РУКОВОДСТВО ПО МОНТАЖУ И ТЕХНИЧЕСКОМУ ОБСЛУЖИВАНИЮ
INSTALLATIONS - OCH UNDERHÅLLSANVISNING

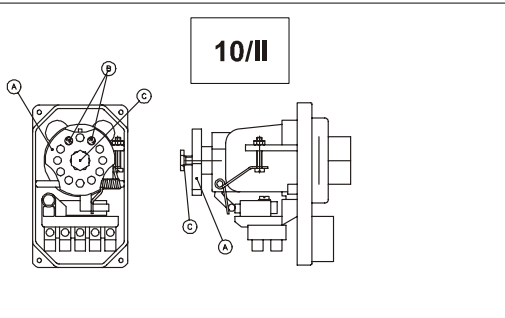
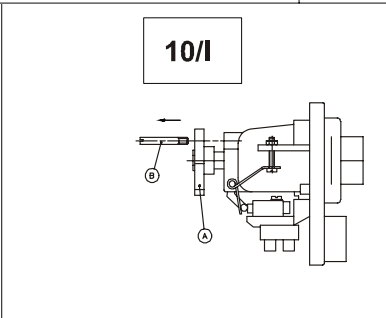
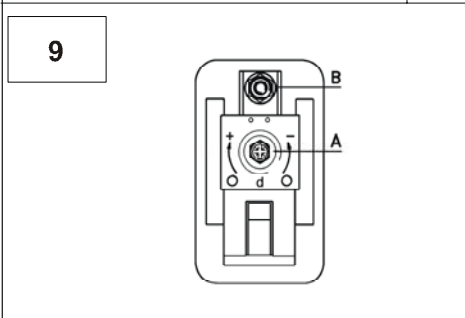
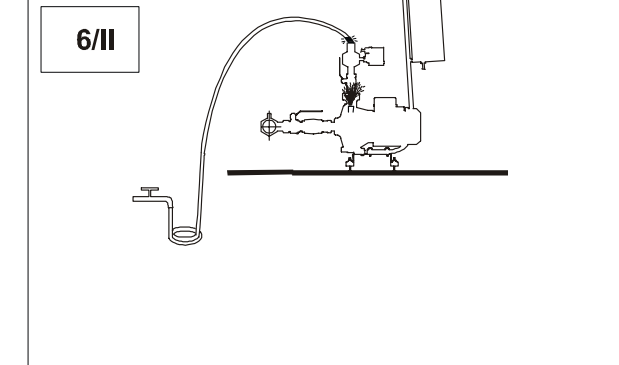
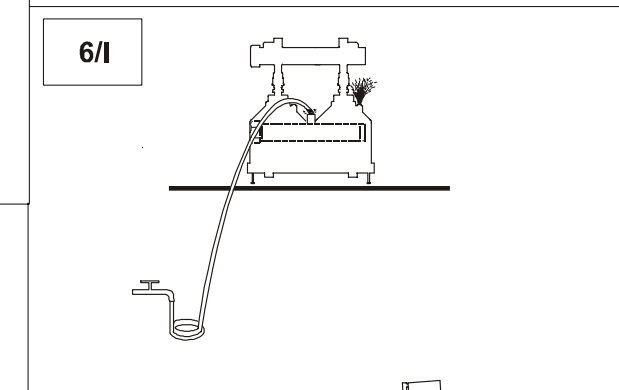
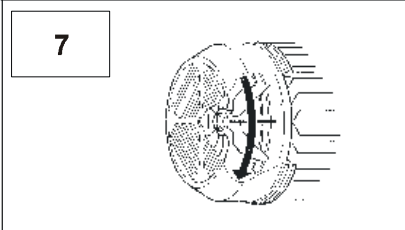
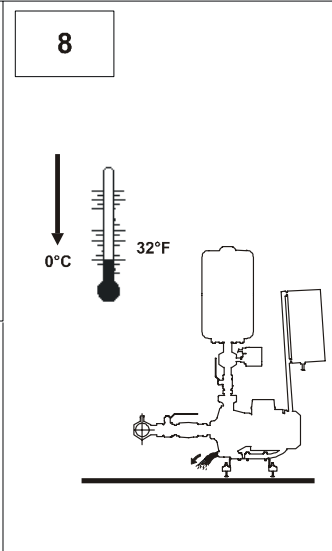
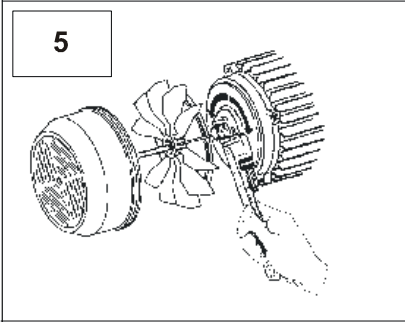
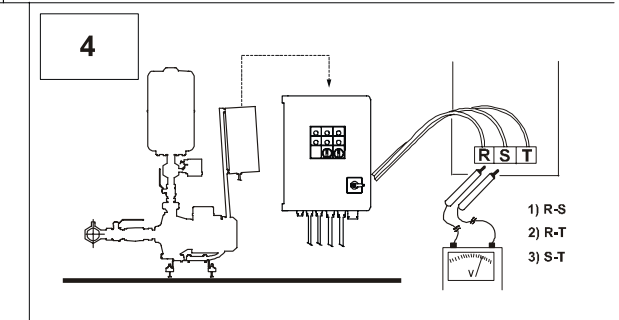
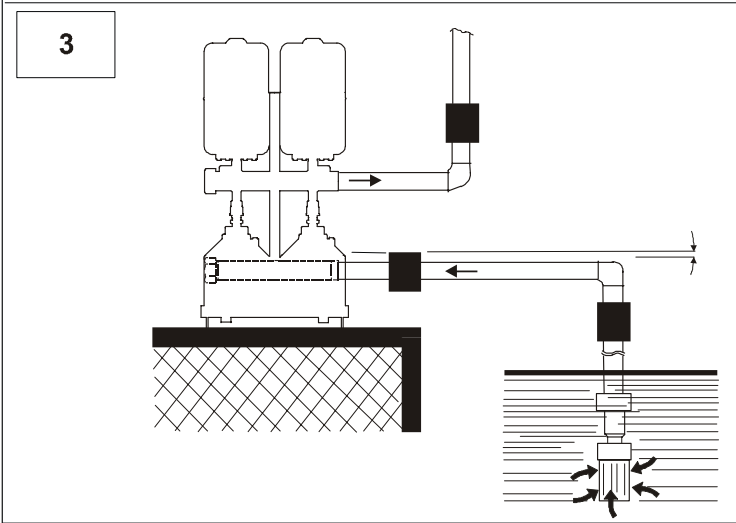
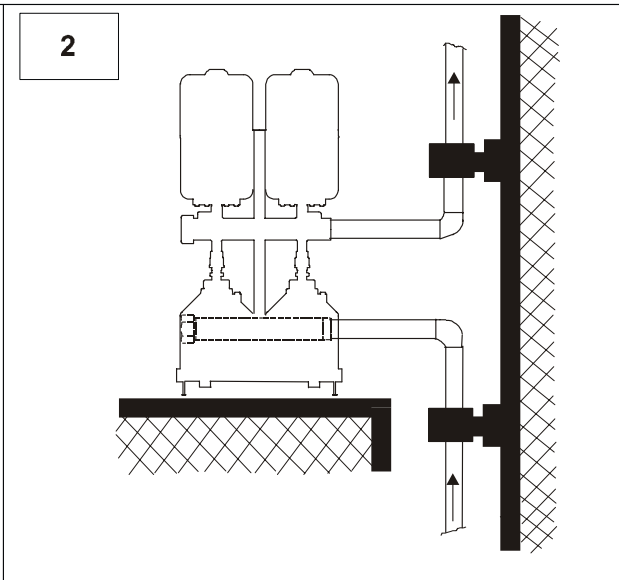
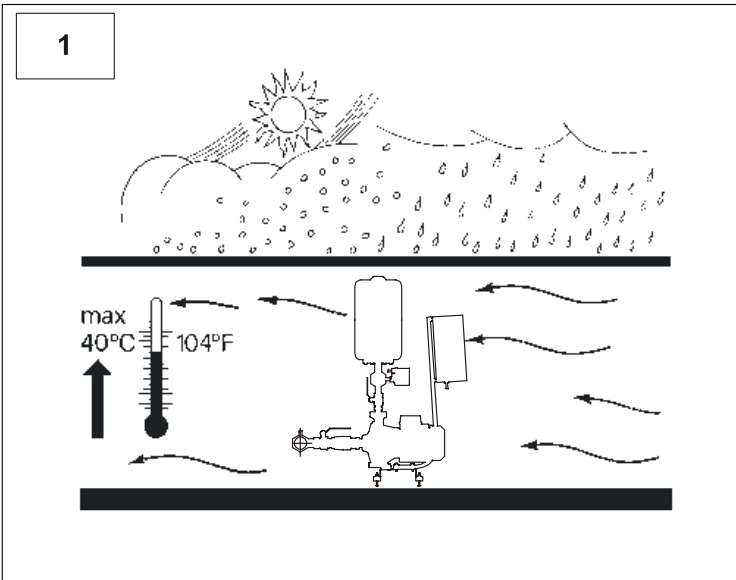
إرشادات للتكيب والعناية.



2 JET...
2 JETINOX ...
2 K ...
2 EURO ...
2 EUROINOX ...

1 PULSAR DRY ...
2 PULSAR DRY ...

1-2-3 KV 3-6-10
1-2-3 KVCX ...
2 KVC 3-6-10 ...



DICHIARAZIONE DI CONFORMITÀ

La Ditta DAB PUMPS s.p.a. - Via M. Polo,14 - Mestrino (PD) - ITALY - sotto la propria esclusiva responsabilità dichiara che i prodotti summenzionati sono conformi a:

- Direttiva del Consiglio n° 98/37/CE concernente il riavvicinamento delle legislazioni degli Stati membri CEE relative alle macchine e successive modifiche.
- Direttiva della Compatibilità elettromagnetica 89/336 e successive modifiche.
- Direttiva Bassa Tensione 73/23 e successive modifiche.

DECLARATION OF CONFORMITY

The Company DAB PUMPS s.p.a. - Via M. Polo,14 - Mestrino (PD) - ITALY - declares under its own responsibility that the above-mentioned products comply with:

- Council Directive no. 98/37/CE concerning the reconciliation of the legislations of EEC Member Countries with relation to machines and subsequent modifications .
- Directive on electromagnetic compatibility no. 89/336 and subsequent modifications .
- Directive on low voltage no. 73/23 and subsequent modifications .

CONFORMITEITSVERKLARING

De firma DAB PUMPS s.p.a. - Via M. Polo, 14 Mestrino (PD) - Italië, verklaart hierbij onder haar verantwoording dat hierbovengenoemde produkten conform zijn aan

- de Richtlijn van de Raad nr. 98/37/CE betreffende harmonisatie van de wetgeving in de EEG-lidstaten t.a.v. machines en daaropvolgende wijzigingen.
- De richtlijnen van de elektromagnetische overeenstemming 89/336 en latere veranderingen.
- De richtlijnen voor lage druk 73/23 en latere veranderingen

ЗАЯВЛЕНИЕ О СООТВЕТСТВИИ

Фирма DAB PUMPS s.p.a. – Via Marco Polo, 14 Mestrino (PD) ИТАЛИЯ- под собственную исключительную ответственность заявляет, что вышеуказанные агрегаты соответствуют:

- Директиве Совета n° 98/37/CE касательно сближения законодательств Государств членов ЕЭС в области агрегатов и последующим поправкам.
- Директиве об Электромагнитной совместимости 89/336 и последующим поправкам.
- Директиве о низком напряжении 73/23 и последующим поправкам.

DÉCLARATION DE CONFORMITÉ

L'entreprise DAB PUMPS s.p.a. - Via M. Polo,14 - Mestrino (PD) - ITALIE - déclare sous sa responsabilité exclusive que les produits susmentionnés sont conformes à:

- la Directive du Conseil n° 98/37/CE concernant l'harmonisation des législations des Etats membres de la CEE relatives aux machines et ses modifications successives .
- la Directive de la compatibilité électromagnétique 89/336 et ses modifications successives .
- la Directive basse tension 73/23 et ses modifications successives.

KONFORMITÄTSERKLÄRUNG

Die Firma DAB PUMPS s.p.a. - Via M. Polo,14 - Mestrino (PD) - ITALY - erklärt unter ihrer eigenen, ausschließlichen Verantwortung, daß die genannten Produkte den folgenden Verordnungen entsprechen:

- Ratsverordnung Nr. 98/37/CE über die Angleichung der Gesetzgebung der CEE-Staaten über Maschinen und folgende Abänderungen
- Verordnung über die elektromagnetische Kompatibilität 89/336 und folgende Abänderungen.
- Verordnung über Schwachstrom 73/23 und folgende Abänderungen.

DECLARACION DE CONFORMIDAD

La Empresa DAB PUMPS s.p.a. - Via M. Polo,14 - Mestrino (PD) - ITALY - bajo su propia y exclusiva responsabilidad declara que los productos anteriormente mencionados respetan:

- Las Directrices del Consejo n° 98/37/CE referentes a la homogeneización de las legislaciones de los Estados miembros de la CEE relativas a las máquinas y sucesivas modificaciones
- Directriz de la Compatibilidad electromagnética 89/336 y sucesivas modificaciones
- Directriz Baja Tensión 73/23 y sucesivas modificaciones

FÖRSÄKRAN OM ÖVERENSSTÄMMELSE

Bolaget DAB PUMPS s.p.a. - Via M. Polo,14 - Mestrino (PD) - ITALIEN - intygar på eget ansvar att ovannämnda produkter är i enlighet med:

- Rådets direktiv nr. 98/37/CE och efterföljande ändringar som innehåller en jämkning av EU-ländernas lagstiftning beträffande maskiner.
- EMC-direktivet nr. 89/336 och efterföljande ändringar.
- Lågspänningsdirektiv nr. 73/23 och efterföljande ändringar.

شهادة مطابقة

DAB PUMPS S.p.A. الشركة

VIA M. POLO 14

MESTRINO (PD)

ITALY

تحت مسؤوليتها الخاصة تشهد بأن المنتجات المذكورة أعلاه صنعت مطابقة إلى:

- قانون مجلس الوزراء المؤرخ رقم 98/37/CE وما لحقه من تغييرات.
- القانون الخاص بالمطابقة الإلكترومغناطيسية 89/336 وما لحقه من تغييرات.
- القانون الخاص بالجهد المنخفض 73/23 وما لحقه من تغييرات.

2 JET ...

2 JETINOX ...

2 K ...

2 EURO ...

2 EUROINOX ...

1 PULSAR DRY ...

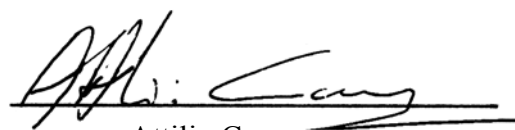
2 PULSAR DRY ...

1-2-3 KV 3-6-10

1-2-3 KVCX ...

2 KVC 3-6-10 ...

Mestrino (PD), 07 Gennaio 1998

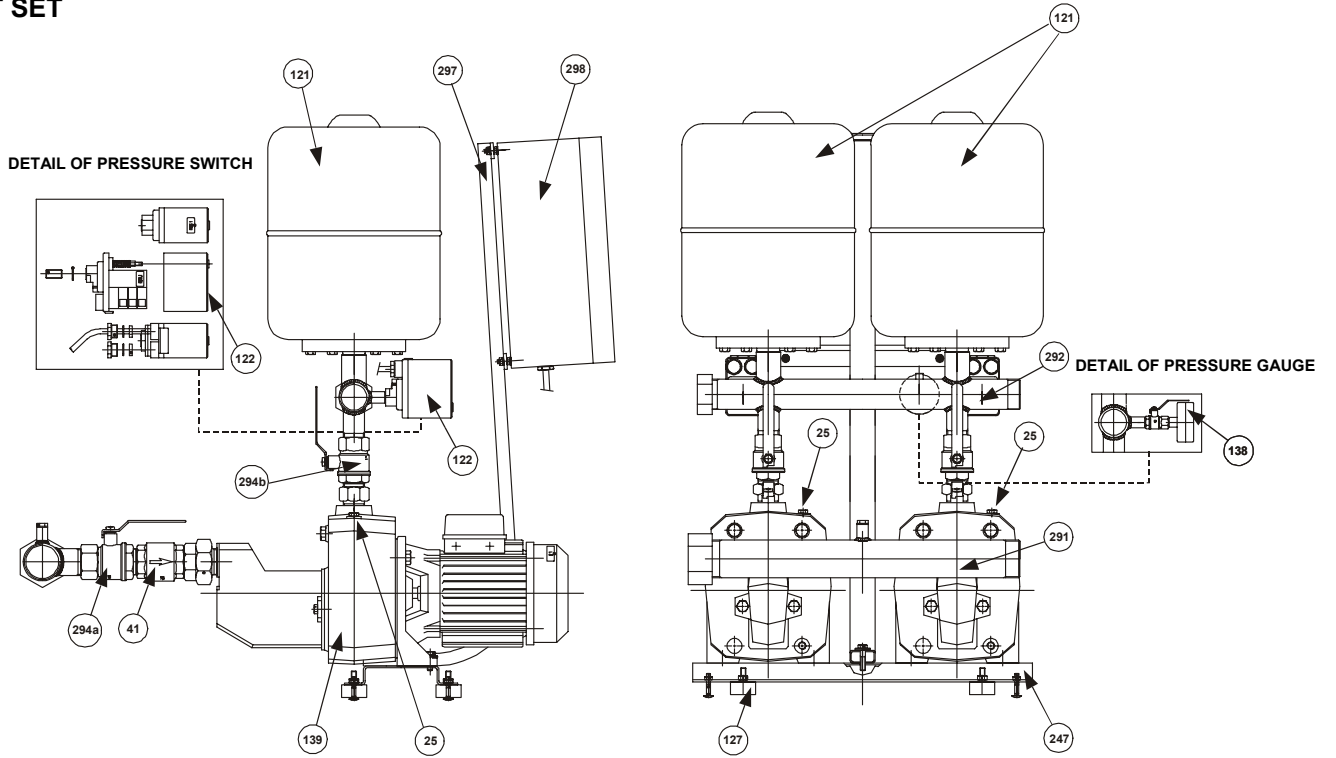


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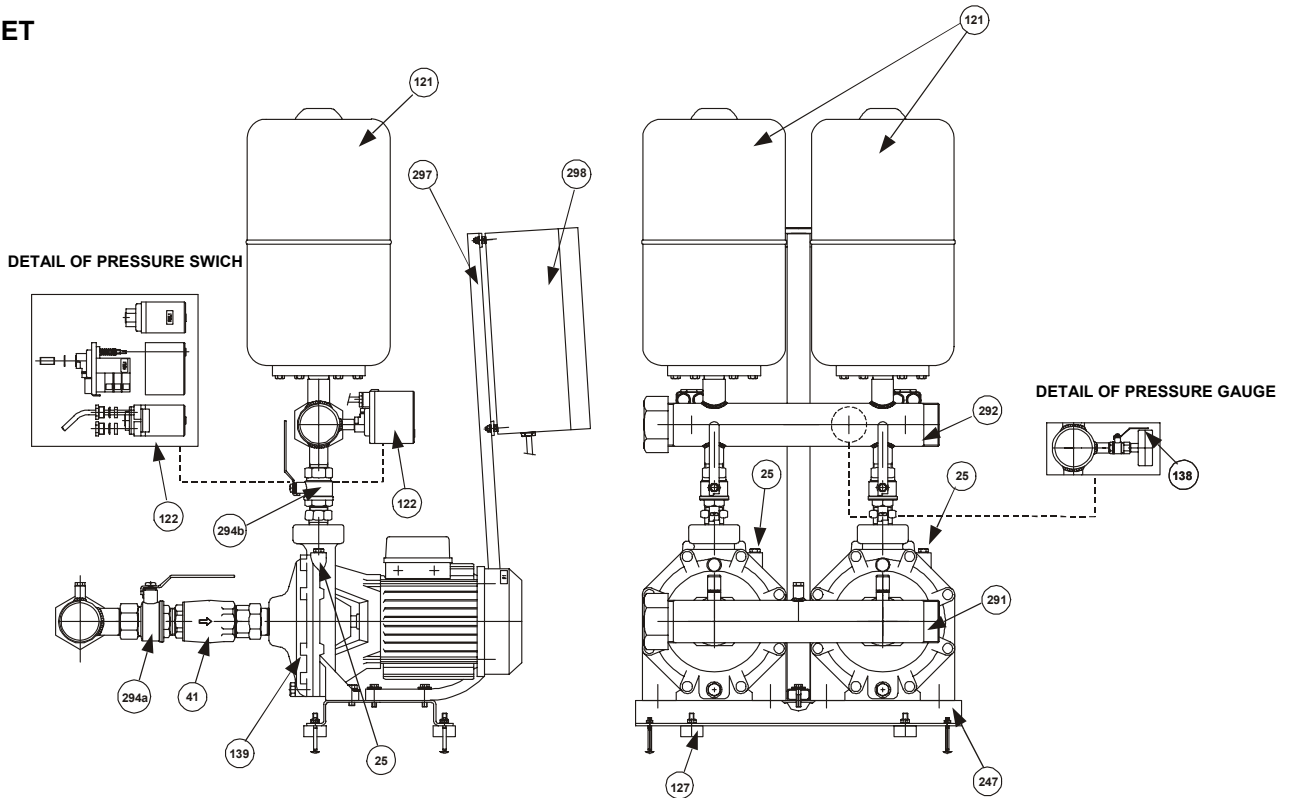
Legale Rappresentante

Legal Representative

2 JET SET



2 K SET



139 - Electropump

294a/294b - Interception valve

121 - Aquabox

25 - Electropump filling cap

41 - Non return valve

127 - Vibration-damping foot

247 - Base

122 - Control pressure switch

297 - Panel support stand

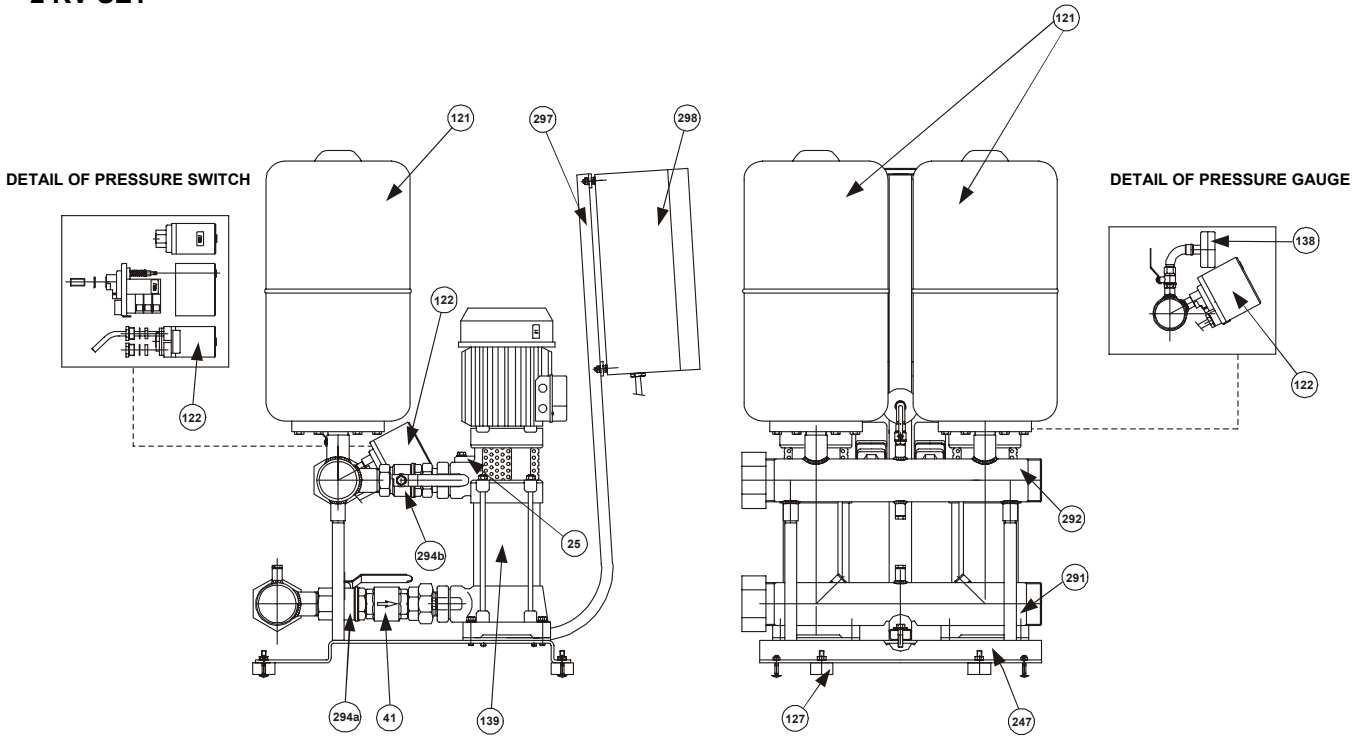
291 - Suction manifold

138 - Pressure gauge

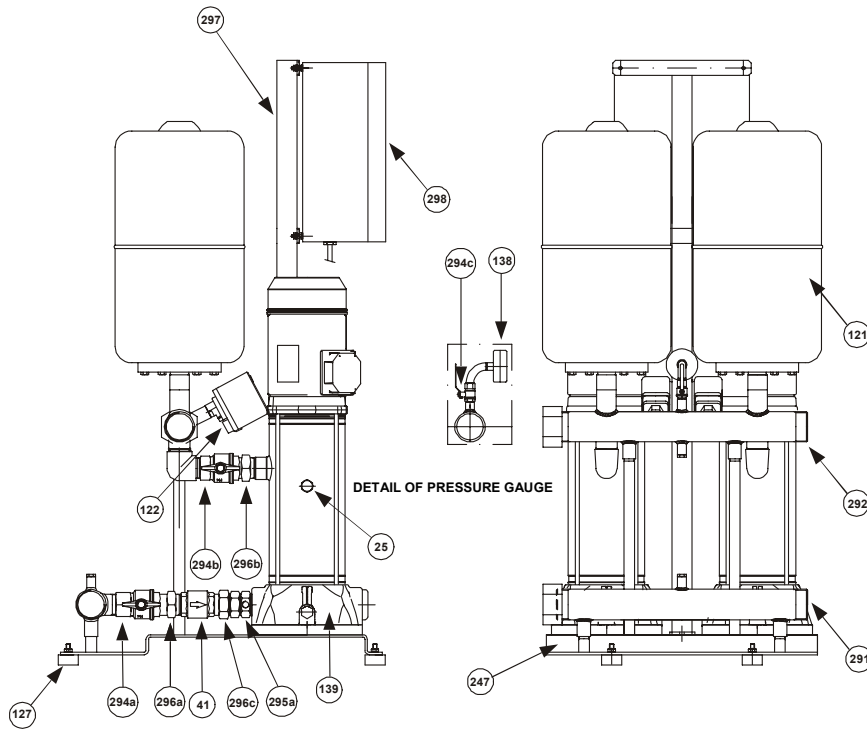
298 - Electric panel

292 - Delivery manifold

2 KV SET



2 KVCX SET



139 - Electropump

294a/294b/294c - Interception valve

138 - Pressure gauge

25 - Electropump filling cap

295a - Air intake nipple

121 - Aquabox

247 - Base

296a/296b/296c - 3-piece coupling

127 - Vibration-damping foot

291 - Suction manifold

41 - Non return valve

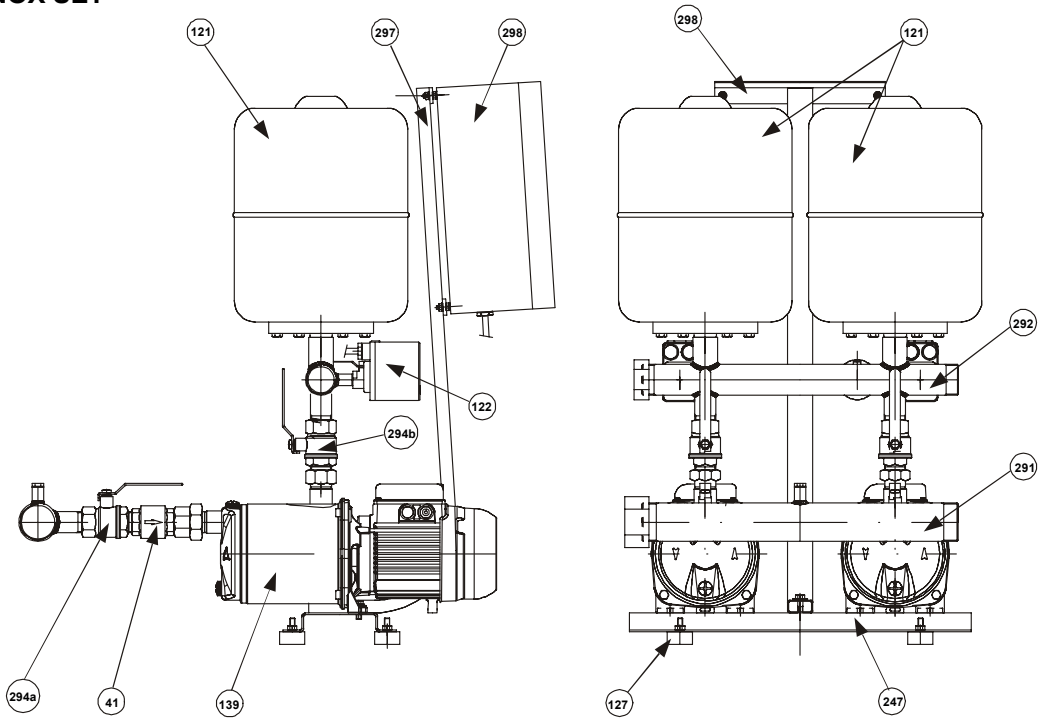
297 - Panel support stand

292 - Delivery manifold

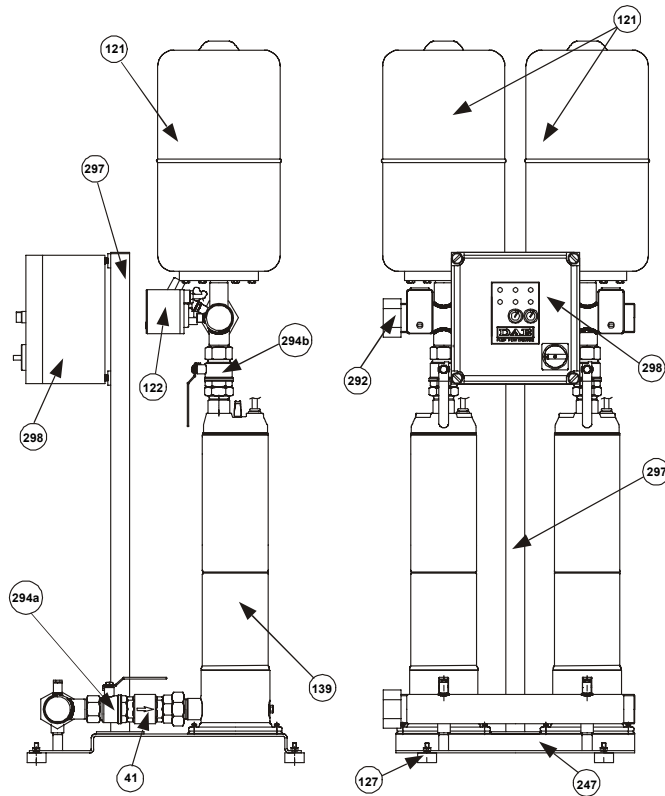
122 - Control pressure switch

298 - Electric panel

2 EUROINOX SET



2 PULSAR DRY SET



139 - Electropump

294a/294b - Interception valve

121 - Aquabox

25 - Electropump filling cap

41 - Non return valve

127 - Vibration-damping foot

247 - Base

122 - Control pressure switch

297 - Panel support stand

291 - Suction manifold

138 - Pressure gauge

298 - Electric panel

292 - Delivery manifold

CONTENTS		page
1.	GENERAL	22
2.	WARNINGS	22
2.1.	Skilled technical personnel	22
2.2.	Safety	22
2.3.	Responsibility	22
3.	INSTALLATION	22
4.	ELECTRICAL CONNECTION	23
5.	STARTING UP	23
5.6.	Checking calibration of the pump control pressure switches	24
5.7.	Checking operation of the automatic inverter SZ2 – SZ3	25
6.	INSTRUCTIONS FOR RUNNING THE SET	25
7.	REGULATING THE SET	25
7.1.	Calibration of the pressure switches	25
8.	MAINTENANCE	26
8.2.	Troubleshooting	26

1. GENERAL



Read this documentation carefully before installation. Installation and functioning must comply with the safety regulations in force in the country in which the product is installed. The entire operation must be carried out in a workmanlike manner and exclusively by skilled technical personnel (paragraph 2.1.) in possession of the qualifications requested by the regulations in force. Failure to comply with the safety regulations not only causes risk to personal safety and damage to the equipment, but invalidates every right to assistance under guarantee.

Keep this manual with care for further consultation even after the first installation.

2. WARNINGS

2.1. Skilled technical personnel



It is indispensable that installation be carried out by competent, skilled personnel in possession of the technical qualifications required by the specific legislation in force.

The term **skilled personnel** means persons whose training, experience and instruction, as well as their knowledge of the respective standards and requirements for accident prevention and working conditions, have been approved by the person in charge of plant safety, authorizing them to perform all the necessary activities, during which they are able to recognize and avoid all dangers. (Definition for technical personnel IEC 364).

2.2. Safety

Use is allowed only if the electric system is in possession of safety precautions in accordance with the regulations in force in the country where the product is installed (for Italy, CEI 64/2).


2.3. Responsibility




The Manufacturer does not vouch for correct operation of the set or for any damage that it may cause if it has been tampered with, modified and/or run outside the recommended work range or without the aid of our control and protection panels.

The Manufacturer declines all responsibility for possible errors in this instructions manual, if due to misprints or errors in copying. The company reserves the right to make any modifications to products that it may consider necessary or useful, without affecting the essential characteristics.

3. INSTALLATION

3.1.  The set must be fitted in a well ventilated place, protected from unfavourable weather conditions and with an environment temperature not exceeding 40°C (fig.1).
Position the set in such a way that any maintenance jobs can be carried out without difficulty.

- 3.2.  Ensure that the system pipes are independently supported and do not weigh down on the set manifolds so as to avoid deformation or breaking of any of its components (fig.2).
It is also advisable to insert vibration-damping couplings on the system manifolds.
- 3.3. Make the intake section following all the precautions necessary to keep load losses to a minimum and to avoid the formation of air pockets, for example:
- Position the set as close as possible to the power supply source.
 - Consider a suction pipe diameter never smaller than that of the manifold.
 - Lay the suction pipe horizontally or sloping slightly upwards towards the set. (fig.3).
 - Avoid using elbows or couplings that cause sudden changes in direction. If necessary, use bends with a wide radius.
 -



Avoid the “siphon” effect at intake: it risks unpriming the pumps!




- 3.4. Ensure that the characteristics of the water supply source are in proportion to those of the set installed.
- SUCTION FROM A WELL (PUMP ABOVE HEAD): It is advisable to use protection against dry operation to prevent the set from operating in abnormal conditions.
 - SUCTION FROM A TANK (PUMP BELOW HEAD OR ABOVE HEAD): It is advisable to protect the pump against dry operation, for example using float switches.
 - DIRECT CONNECTION TO THE MAINS: If the pressure could fall to values that are too low, it is advisable to fit a minimum pressure switch on intake to protect the set.



Dry operation damages the electropumps.

4. ELECTRICAL CONNECTION


CAUTION! ALWAYS FOLLOW THE SAFETY REGULATIONS!

- 4.1.  **The electrical installation must be carried out by a qualified, skilled electrician (see point 2.1.) in compliance with the Safety Regulations in force in the country where the product is installed.**
- 4.2.  Check the power supply voltage and frequency (fig.4).
Values differing from those on the motor plate could cause irremediable damage.
- 4.3.  Connect the leads of the power supply cable to the terminal board on the control panel, **giving priority to the earth lead.**

For the wiring diagram of the control panel and the respective informative notes, see the enclosed documentation.


5. STARTING

To start the set correctly, perform the procedure below following the sequence indicated:

- 5.1.  **Perform the following operation without switching on the power to the panel.**

Check that the moving parts turn freely. To do this, remove the fan cover and, if necessary, the fan; then turn the shaft with a suitable tool (screw driver, offset adjustable spanner, etc.). (fig. 5)

If it is blocked, tap lightly with a hammer on the end of the tool, then try to turn the shaft again.

- 5.2.  **Perform the following operation without switching on the power to the panel.**

Prime the set as follows:

- Slowly pour in clean water through a sleeve of the suction manifold, keeping open the filling cap (ref.25) of one of the electropumps to allow the air inside to get out, until the manifold is filled (fig.6/I).
- Slowly pour in clean water through a sleeve of the delivery manifold (for example the one connected to the aquabox), until water comes out of the pump filling hole from which the tap has previously been removed. (fig.6/II)

5.3.



Perform the following operation without switching on the power to the panel.

Fit the aquaboxes on the special sleeves of the delivery manifold.

It is possible to increase the storage capacity by connecting other tanks to “T” couplings, fitted beforehand between the aquabox connecting sleeve and the aquabox.

5.4. Open the electric panel and check that the respective magnetothermal switches that protect the pumps (only for three-phase motors) are calibrated according to the following indications:

- Direct start: maximum current absorbed by the pump increased by 5-10%

For other data concerning the electric connection, feeding of the panel and starting of the set see the Panel Instructions Manual – Paragraphs 9.4 / 9.5 / 9.6 / 9.7.

The sets with a three-phase electropump 1 KV 3-6-10 and 1 KVCX... are equipped with a simple motor protection panel.

The sets with a single-phase electropump 1 KV 3-6-10 and 1 KVCX... are equipped with only one plug for connection to the system; the single-phase electropump is already equipped with built-in thermal overload protection.

5.5.



Check that the pumps are turning in the correct direction (Only for three-phase motors)

Start each pump for a few moments, turning the respective AUT-0-MAN control selector to MAN, and check, looking from the fan side, whether the motor is turning in a clockwise direction. (fig. 7)

If it is turning in the wrong direction, invert on the panel terminal board any two leads of the power cable.

5.6. CHECKING CALIBRATION OF THE PUMP CONTROL PRESSURE SWITCHES:

Proceed as follows:

- a) Switch off the electric power supply, turning the main switch to “0” and open the panel.
- b) In sets with two (or three) pumps, remove the automatic inverter SZ2 (or SZ3) and connect together the input and output connectors XC1 and XC2 of the inverting device.
- c) Close the electric panel and switch the power on again, turning the main switch to “1”.
- d) Turn the AUT-0-MAN selector of pump No.1 to AUT and, in sets with two or three pumps, turn the selectors of pumps No.2 and No.3 to 0.
- e) Partly turn on the flow at delivery (*) and wait for pressure switch No. 1 to give the command to start pump No. 1. On the pressure gauge, check that that the pump starting pressure is as required..
- f) Turn off the flow, checking that the pump stops at the required pressure (**).
- g) In sets with two (or three) pumps, turn the AUT-0-MAN selector of pump No. 2 to AUT and the selector of pump No. 1 (and No. 3) to 0.
- h) Partly turn on the flow at delivery (*) and wait for pressure switch No. 2 to give the command to start pump No. 2. On the pressure gauge, check that that the pump starting pressure is as required.
- i) Turn off the flow, checking that the pump stops at the required pressure (**).
- l) In sets with three pumps turn the AUT-0-MAN selector of pump No. 3 to AUT and the selectors of pumps No. 1 and No. 2 to 0.
- m) Partly turn on the flow at delivery (*) and wait for pressure switch No. 3 to give the command to start pump No. 3. On the pressure gauge, check that that the pump starting pressure is as required.
- n) Turn off the flow, checking that the pump stops at the required pressure (**).

o) **Switch off the electric power supply, turning the main switch to “0”, open the electric panel and:**



- 1) **In sets with two (or three) pumps open the connection between XC1 and XC2, reconnecting them to the automatic inverter SZ2 (or SZ3).**
- 2) **Close the electric panel and switch the power on again, turning the main switch to “1”.**

p)



Check that all the AUT-0-MAN selectors of the main pumps have been turned back to “AUT”.

q)



Completely reopen all the interception valves that may have been choked.

(*) When turned on only partly the pressure in the system will decrease slowly and gradually, allowing a more precise reading of the pressure gauge at the time of closing the pressure switch.

(**) If the operating electropump puts the system back under pressure too quickly, partly turn off the interception valve on the delivery of the pump. In this way the pressure will increase slowly and gradually, allowing a more precise reading of the pressure gauge at the time of opening the pressure switch.

5.7. CHECKING OPERATION OF THE AUTOMATIC INVERTER SZ2 (FOR SETS WITH TWO PUMPS) - SZ3 (FOR SETS WITH THREE PUMPS).





- a) Turn the AUT-0-MAN selector of pump No.1 to AUT and the selector of pump No. 2 (and No. 3 for sets with three pumps) to 0.
- b) Partly turn on the flow at delivery and wait for pressure switch No. 1 to give the command to start pump No. 1.
- c) Turn off the flow.
- d) Turn the AUT-0-MAN selector of pump No.2 to AUT and the selector of pump No. 1 (and No. 3 for sets with three pumps) to 0.
- e) Partly turn on the flow at delivery, checking that, in this second case, at the starting pressure of pump No. 1 the automatic inverter SZ2 (or SZ3 for sets with three pumps) starts pump No.2.
- f) Turn off the flow.
- g) Finally, in sets with three pumps, turn the AUT-0-MAN selector of pump No. 3 to AUT and the selectors of pumps No. 1 and No. 2 to 0.
- h) Partly turn on the flow at delivery, checking that, in this case, at the starting pressure of pump No. 1 the automatic inverter SZ3 starts pump No. 3.
- i) Turn off the flow.



**Once the above control has been completed:
Reposition all the AUT-0-MAN selectors of the main pumps in position AUT.**

To test CASCADE operation of all the pumps, completely turn on the flow so as to bring the pressure down below the starting pressure of the second pump (for sets with two pumps) or of the third pump (for sets with three pumps). In this case all the pumps in the set start at intervals of about 0,4 seconds from one another.

6. INSTRUCTIONS FOR RUNNING THE SET

- 6.1.  Each pump in the set should not be started more than 20 times in one hour to avoid subjecting the motor to excessive thermal stress.
- 6.2.  If the set should remain inactive for long periods, periodically perform manual starting of the set to check its state of efficiency.
- 6.3.  When the set remains inactive for long periods at a temperature below 0°C, it must be drained completely. (fig.8)
- 6.4.  At least every 4-6 months, **with the system empty**, check the preloading of the aquaboxes, ensuring that it remains 0.2-0.3 bar below the lowest of the starting pressures of the electropumps. The frequency of this check must be increased, the greater the frequency of starting and the maximum working pressure of the set.

7. REGULATING THE SET

7.1. CALIBRATION OF THE PRESSURE SWITCHES

If you wish to obtain a calibration of the pressure switches different that from that performed in the factory, during testing of the booster set, follow the instructions below, considering:

- the type of pressure switch installed in the booster set;
- the pressure limits indicated n the data plates of each pump;
- the preloading of the aquaboxes.

Telemecanique pressure switch type XMP (fig.9)

Slacken the black screw and remove the cover.

When the metal screw "A" in the centre of the pressure switch is turned clockwise, the pump starting and stopping pressures are increased at the same time.

When it is turned counter-clockwise they are decreased.

When the black screw "B" at the end of the pressure switch is turned clockwise, the differential between the starting and the stopping pressure of the pump is increased (the starting pressure decreases while the stopping pressure remains fixed).

When it is turned counter-clockwise, the differential is decreased.

Replace the cover and tighten the black screw.

Klockner Moeller pressure switch type MCS (fig.10)

Slacken the 4 screws and remove the transparent cover.

Slacken and remove the locking screw “B” positioned in one of the 12 holes in the regulating knob “A”. (fig. 10/I)

When the regulating knob “A” is turned clockwise, the pump starting and stopping pressures are increased at the same time.

When it is turned counter-clockwise they are decreased.

When the regulating knob “A” is pressed to the bottom and turned counter-clockwise, checking that the screw “C” does not turn, the differential between the starting and the stopping pressure of the pump is increased (the starting pressure decreases while the stopping pressure remains fixed). (fig. 10/II)

When the regulating knob “A” is pressed and turned clockwise, the differential is decreased.

Replace and tighten the locking screw “B” in the hole in the regulating knob “A” that is most aligned with one of the two threads under the knob.

Replace the transparent cover and tighten the 4 screws.

Once the pressure switches have been recalibrated, to check the new starting and stopping pressures of the pumps in the booster set, perform the procedure “Checking calibration of the pressure switches” described on page 21.

In sets with 2 or 3 pumps, it is advisable to keep the control pressure switch of pump No. 1 set with starting and stopping pressures greater than those of pump No. 2; and, in sets with 3 pumps, also the control pressure switch of pump No. 2 set with starting and stopping pressures greater than those of pump No. 3.

8. MAINTENANCE

8.1. All our sets are subjected to strict testing of both the electrical and the hydraulic part.

It is unusual for malfunctions to occur, unless due to external or completely accidental causes.

8.2. Below is a table with some suggestions on regulating the set in the event of irregularities in operation.

FAULTS	POSSIBLE CAUSES	REMEDIES
THE SET DOES NOT PRIME	<ol style="list-style-type: none"> 1. Suction pipe with insufficient diameter; excessive use of couplings which cause sudden variations in direction of the suction pipe; siphon effect. 2. Suction pipe clogged. 3. Air infiltrations in the suction pipe of the set. 4. Foot valve clogged or blocked. 5. Water recycling between the pumps in the set. 6. Interception valves on suction of each pump partly closed. 	<ol style="list-style-type: none"> 1. Check that the suction pipe is correctly made, as indicated in the paragraph on "Installation". 2. Clean it or change it. 3. Testing under pressure, check the perfect seal in the couplings, the joints and the pipes. 4. Clean it or change it. 5. Check correct operation of the non return valves on suction of each pipe. 6. Open them completely.
THE SET DOES NOT START	<ol style="list-style-type: none"> 1. Main motive power switch and/or main auxiliary circuit switch off (in position “0”). 2. Magnetothermal protection switches of the transformer and/or of the auxiliary circuit faulty or tripped. 3. Automatic electropump inverter SZ2 or SZ3 faulty. 4. Electric power supply is not reaching the pump remote control switches. 5. Electric circuit interrupted. 	<ol style="list-style-type: none"> 1. Switch them on, turning them to position “1” and check that the green light comes on indicating that the panel is live. 2. If faulty, change them. If tripped, reset them. 3. Connect together the input and output connectors XC1 and XC2 of the inverting device and immediately order a new automatic inverter. 4. Check correct operation of the following controls placed in series: remote control; minimum pressure switch; minimum level float. 5. Use a tester to find the point of interruption and repair it.
THE SET DOES NOT STOP	<ol style="list-style-type: none"> 1. Important water leaks in the system. 	<ol style="list-style-type: none"> 1. Check the joints, couplings and pipes.

FAULTS	POSSIBLE CAUSES	REMEDIES
DURING OPERATION OF THE SET THE PUMPS START AND STOP TOO FREQUENTLY	<ol style="list-style-type: none"> 1. One or more aquaboxes filled with water. 2. The differentials of the pump control pressure switches are too small. 	<ol style="list-style-type: none"> 1. Empty it and restore preloading of the aquabox, if insufficient (see paragraph "Instructions for running the set"). Change the diaphragm in the aquabox or the aquabox itself, if there is a hole in the diaphragm. 2. Increase them (see paragraph "Regulating the set"). Recommended minimum value: 1 bar.
THE SET DOES NOT SUPPLY THE REQUIRED CHARACTERISTICS.	<ol style="list-style-type: none"> 1. The set chosen is undersized for the characteristics of the system. 2. Excessive water consumption for the flow rate of the well (set above head) or of the first collection tank (set below head or above head). 3. Motors turning in inverse direction. 4. One or more pumps clogged. 5. Pipes clogged. 6. Foot valve clogged or blocked (set above head). 7. Water recycling between the pumps in the set. 8. Interception valves at suction and delivery of each pump partly closed. 9. Air infiltrations in the suction pipe of the set. 	<ol style="list-style-type: none"> 1. Change it, consulting the Technical Catalogue. 2. Increase the flow rate that can be supplied by the well or by the first collection tank. 3. Change it, performing the operation described in point 5.5. of the paragraph "Starting up". 4. Dismantle them and clean the pump body and the impellers, ensuring that they are in good condition. 5. Clean them or change them. 6. Clean it or change it. 7. Check correct operation of the non return valves at suction of each pump. 8. Open them completely. 9. Testing under pressure, check the perfect seal in the couplings, the joints and the pipes.
ONE OR MORE PUMPS IN THE SET, WHEN STOPPED, TURN IN THE OPPOSITE DIRECTION	<ol style="list-style-type: none"> 1. The respective non return or foot valves do not close well or are blocked. 2. The respective suction pipe is not hermetically sealed. 	<ol style="list-style-type: none"> 1. Check its seal and correct operation. 2. Testing under pressure, check the seal.
THE MOTOR OF A PUMP IN THE SET IS VIBRATING	<ol style="list-style-type: none"> 1. Contacts of the respective remote control switch worn or faulty. 2. Pump blocked. 3. Bearings worn. 4. Electric wires broken. 	<ol style="list-style-type: none"> 1. Change the remote control switch. 2. Free it. 3. Change it. 4. Check and repair them.
WATER HAMMER IN THE SYSTEM	<ol style="list-style-type: none"> 1. Water hammer during operation of the set. 2. Water hammer when turning off the flow. 	<ol style="list-style-type: none"> 1. Check the non return valve of the hot water distribution mains. 2. Install other aquaboxes or water hammer deadening devices at the end of the pipe where the phenomenon occurs.
A PUMP IN THE SET STOPS AND DOES NOT START AGAIN	<ol style="list-style-type: none"> 1. Motor thermal protection tripped (only for single-phase motors). Respective magnetothermal switch tripped (for three-phase and single-phase motors). 2. Excessive energy consumption. 3. No current is reaching the coil of the respective remote control switch. 4. Remote control switch coil interrupted. 5. The system pressure is not reaching the respective control pressure switch. 6. Faulty control pressure switch. 	<ol style="list-style-type: none"> 1. Wait for the motor to cool down. See the Panel Instructions Manual Paragraph 9.8 – point 1 – 2. The pump turns under excessive force, due to dirt, lack of a phase, dry operation, worn bearings etc... Eliminate the cause. 3. Use an tester to check the electric circuit as far as the coil itself and repair any interruption found. 4. Change it. 5. Remove it and clean the connecting sleeve. 6. Change it.

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