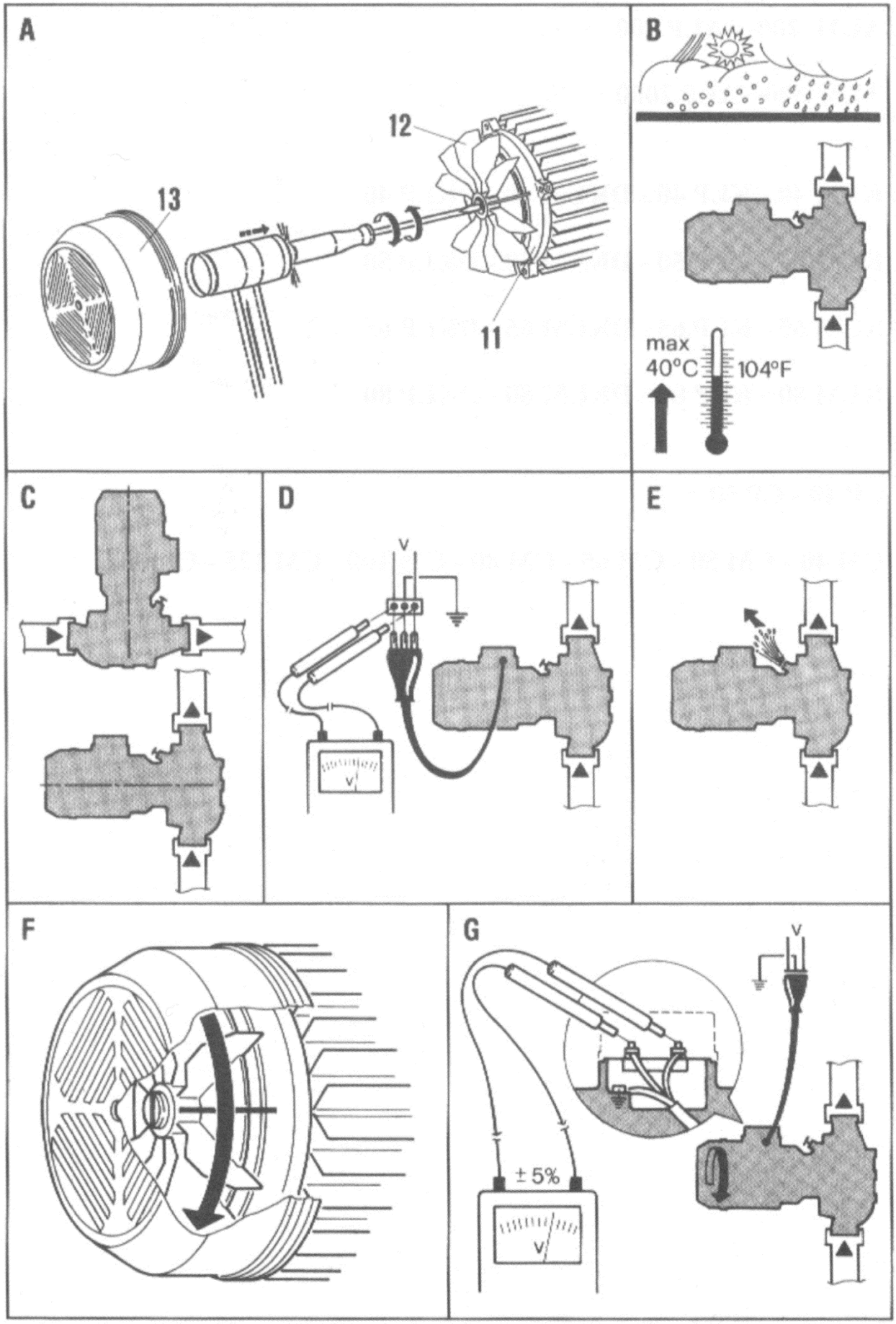
ISTRUZIONI PER L'INSTALLAZIONE E LA MANUTENZIONE (IT)
INSTRUCTIONS DE MISE EN SERVICE ET D'ENTRETIEN (FR)
INSTRUCTIONS FOR INSTALLATION AND MAINTENANCE (GB)
INSTALLATIONSANWEISUNG UND WARTUNG (DE)
INSTRUCTIES VOOR INGEBRUIKNAME EN ONDERHOUD (NL)
INSTRUCCIONES PARA LA INSTALACIÓN Y EL MANTENIMIENTO(ES)
INSTALLATIONS - OCH UNDERHÅLLSANVISNING(SE)
ИНСТРУКЦИИ ПО МОНТАЖУ И ТЕХНИЧЕСКОМУ БСЛУЖИВАНИЮ(RU)
KULLANIM VE BAKIM TALİMATLARI(TR)
INSTRUCTIUNI DE INSTALARE SI INTRETINERE(RO)
APTARNAVIMO IR MONTAŽO INSTRUKCIJA(LT)
INSTRUÇÕES PARA A INSTALAÇÃO E A MANUTENÇÃO(PT)
INSTALLÁCIÓS ÉS KARBANTARTÁSI KÉZIKÖNYV(HU)
(AR)إرشادات للتركيب والعناية.
ИНСТРУКЦИЯ ЗА МОНТАЖ И ПОДРЪЖКА(BG)
(IR)دفترچه راهنمای نصب و نگهداری پمپ ایزی باکس مینی
КЕРІВНИЦТВО З МОНТАЖУ ТА ТЕХНІЧНОГО ОБСЛУГОВУВАННЯ (UA)

CP-G **CM-G**
DCP-G **DCM-G**
DCP-GE **DCM-GE**

DAB
WATER•TECHNOLOGY


A
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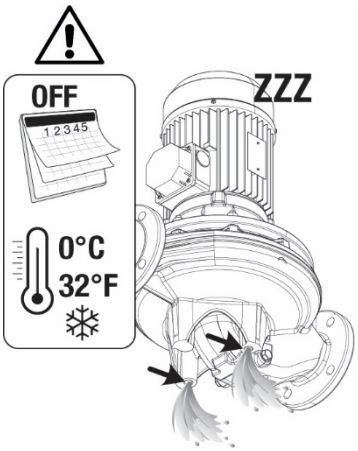

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CM-G 65-660	DCM-G 65-660	CP-G 65-2280	DCP-G 65-2280
CM-G 65-760	DCM-G 65-760	CP-G 65-2640	DCP-G 65-2640
CM-G 65-800	DCM-G 65-920	CP-G 65-3400	DCP-G 65-3400
CM-G 65-920	DCM-G 65-1080	CP-G 65-4100	DCP-G 65-4100
CM-G 65-1080	DCM-G 65-1200	CP-G 65-4700	DCP-G 65-4700
CM-G 65-1200	DCM-G 65-1530	CP-G 65-5500	DCP-G 65-5500
CM-G 65-1530	DCM-G 65-1680	CP-G 65-6150	DCP-G 65-6150
CM-G 65-1680	DCM-G 65-2380	CP-G 65-6750	DCP-G 65-6750
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CM-G 65-3100	DCM-G 80-740	CP-G 65-10500	DCP-G 80-1400
CM-G 65-3500	DCM-G 80-890	CP-G 80-1400	DCP-G 80-1700
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CM-G 80-650	DCM-G 80-1530	CP-G 80-2050	DCP-G 80-2400
CM-G 80-740	DCM-G 80-1700	CP-G 80-2400	DCP-G 80-2770
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CM-G 100-3400		CP-G 100-8300	
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CM-G 125-1560			
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CM-G 150-1600	DCM-G 150-2200		
CM-G 150-1900	DCM-G 150-2405		
CM-G 150-1950			
CM-G 150-2200			
CM-G 150-2405			

CM-GE	DCM-GE	CP-GE	DCP-GE
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CM-GE 65-920	DCM-GE 65- 920	CP-GE 65-2280	DCP-GE 65-5500
CM-GE 65-1200	DCM-GE 65-1200	CP-GE 65-2640	DCP-GE 80-1400
CM-GE 65-1680	DCM-GE 65-1680	CP-GE 65-3400	DCP-GE 80-2050
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CM-GE 80-890	DCM-GE 80- 890	CP-GE 65-5500	DCP-GE 80-3250
CM-GE 80-1530	DCM-GE 80-1530	CP-GE 80-1400	DCP-GE 80-4000
CM-GE 80-1700	DCM-GE 80-1700	CP-GE 80-2050	
CM-GE 80-2410	DCM-GE 80-2410	CP-GE 80-2400	
CM-GE 80-2700	DCM-GE 80-2700	CP-GE 80-2770	
CM-GE 80-3420	DCM-GE 80-3420	CP-GE 80-3250	
CM-GE 100-510	DCM-GE 100- 510	CP-GE 80-4000	
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CM-GE 100-2050	DCM-GE 100-2050	CP-GE 100-3050	
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CM-GE 150-1322	DCM-GE 150-1322		
CM-GE 150-1600	DCM-GE 150-1600		
CM-GE 150-1950	DCM-GE 150-1950		

CONTENTS

1. PUMPED FLUIDS

The machine has been designed and built for pumping water, free from explosive substances and solid particles or fibres, with a density of 1000 kg/m³ and a kinematic viscosity of 1 mm²/s, and chemically non-aggressive liquids. Use with other fluids is allowed only with the manufacturer's authorization.

2. TECHNICAL DATA AND OPERATING CONDITIONS

Supply voltage:	3 x 230-400V 50/60 Hz up to 2.2 KW inclusive	3 x 230-400V 50/60 Hz over 2.2 KW
– Delivery:	see electric data plate	
– Head up - Hmax (m):	pag. 74	
– Degree of motor protection:	see plate on package	
– Thermal class:	F	
– Absorbed power:	see electric data plate	
– Liquid temperature range:	-10 ÷ 140°C	
– Max. working pressure:	16 bar (1600 kPa)	
– Environment temperature:	0 ÷ 40°C	
– Storage temperature:	-10°C ÷ 40°C	
– Noise level:	noise level in accordance with the Directive EC 89/392/CEE and the following updates.	
– Relative humidity of the air:	Max. 95%	
Standard apertures:	DN 65÷150 - PN 16	

3. MANAGEMENT

3.1 Storage

All the pumps must be stored indoors, in a dry, vibration-free and dust-free environment, possibly with constant air humidity.
They are supplied in their original packaging and must remain there until the time of installation. If this is not possible, the intake and delivery aperture must be accurately closed.

3.2 Transport

Avoid subjecting the electropumps to needless jolts or collisions. The figures below indicate respectively how to lift single electropumps – Fig. 5A-6A-7 pag.78– and twin versions – Fig. 5B-6B-7 pag.78 – during installation, after they have been removed from the packaging

3.3 Weights

The adhesive label on the package indicates the total weight of the electropump**.**

4. WARNINGS

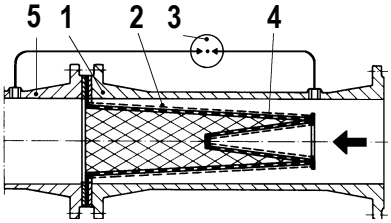
4.1 Checking motor shaft rotation

Before installing the pump you must check that the rotating parts turn freely. For this purpose, proceed as follows on the pump concerned: remove the fan cover from its seat in the motor end cover, loosening the nuts. Move the fan by hand to turn the motor shaft a few times. If this is not possible, dismantle the pump body, slackening the screws to check whether there are any foreign bodies inside it. To disassemble, proceed in the inverse order to assembly.

Do not force the fan with pliers or other tools to try to free the pump as this could cause deformation or breakage of the pump.

4.2 New systems

Before running new systems the valves, pipes, tanks and couplings must be cleaned accurately. Often welding waste, flakes of oxide or other impurities fall off after only a certain period of time. To prevent them from getting into the pump they must be caught by suitable filters. The free surface of the filter must have a section at least 3 times larger than the section of the pipe on which the filter is fitted, so as not to create excessive load losses. We recommend the use of TRUNCATED CONICAL filters made of corrosion-resistant materials (SEE DIN 4181):



1- Filter body
2- Narrow mesh filter
3- Differential pressure gauge
4- Perforated sheet
5 Pump intake aperture

5. PROTECTIONS

5.1 Moving parts

In accordance with accident-prevention regulations, all moving parts (fans, couplings, etc.) must be accurately protected with special devices (fan covers,ecc.) before operating the pump.

During pump operation, keep well away from the moving parts (shaft, fan, etc.)
unless it is absolutely necessary, and only then wearing suitable clothing as required by law, to avoid being caught.

5.2 Noise level

The noise levels of pumps with standard supply motors are indicated in table A on page 73.
Remember that, in cases where the LpA noise levels exceed 85 Db(A), suitable HEARING PROTECTION must be used in the place of installation, as required by the regulations in force**.**

5.3 Hot and cold parts

DANGER OF BURNING!!
As well as being at high temperature and high pressure, the fluid in the system may also be in the form of steam!
It may be dangerous even to touch the pump or parts of the system.

If the hot or cold parts are a source of danger, they must be accurately protected to avoid contact with them.

6. INSTALLATION

- To protect the pump against deposits, it is advisable to install it in the lowest point of the system. Fit the pump in the plant only after having completed the welding works and checked that the plant is quite clean.
- The electropump must be fitted in a well ventilated place, protected from unfavourable weather conditions and with an environment temperature not exceeding 40°C.(**Fig.B**). Electropumps with degree of protection IP55 may be installed in dusty and damp environments. If installed in the open, generally it is not necessary to take any particular steps to protect them against unfavourable weather conditions.
- The pump may be fitted either on the delivery or on the return pipe, with the motor axis in horizontal or vertical position, as long as the terminal board box is never facing downwards **(Fig.C)** so as to avoid dangerous water infiltrations in the case of leaks.
- It is possible to install the pump with the standard brackets (fig. 8)
- To facilitate checking and replacement operations, install the pump in a position with easy access.
- The arrows on the pump body indicate the direction of flow. It is recommended to use interception gate valves on the intake and delivery pipes, to prevent drainage of the system when it is to be repaired. Fit also a by-pass circuit between delivery and intake to guarantee minimum recycling if electrovalves are used in the pipes, so as to avoid the creation of dangerous temperature rises.
- Ensure that the plant is provided with an air bleeding system and that the expansion chamber (if provided) is installed before the intake aperture. If the pump is installed on the delivery of an open vessel circuit, ensure that the safety pipe is connected before the pump.
- When fitting the pump on the system, ensure that the metal pipes do not weigh down on the pump body, transmitting excess forces or stress that could cause cracks or breakages.
- To avoid transmitting noise and vibrations, fit **vibration-damping couplings** on the intake and delivery apertures**.**

7. ELECTRICAL CONNECTION

Scrupulously follow the wiring diagrams inside the terminal board box and those on page 74 of this manual.
The electrical connections must be made exclusively by skilled personnel as required by the safety regulations in force.
The requirements of the electric energy supply company must be scrupulously complied with. In the case of three-phase motors with star-delta start, ensure that the switch-over time from star to delta is as short as possible and that it falls within table B on page 73.

- Before opening the terminal board and working on the pump, ensure that the **power has been switched off.**
- Check the mains voltage before making any connection. If it is the same as the voltage on the data plate, proceed to connect the wires to the terminal board, **giving priority to the earth lead. (Fig. D**).
- The pumps must always be connected to an external switch**.**
- Single-phase motors are provided with thermal overload protection and may be connected directly to the mains.
- Three-phase motors must be protected with special remote-control motor-protectors calibrated for the current shown on the plate.

– In systems where twin pumps are fitted, provide separate wiring and switches for each pump so as to ensure continuous service.

8. STARTING UP

As well as being at high temperature and high pressure, the fluid in the system may also be in the form of steam! DANGER OF BURNING!
It may be dangerous even to touch the pump or parts of the system.

Before starting up you must fill the system with water and bleed the air. Bleed the residual air from the pump body through the bleeding cock provided until only water comes out **(Fig. E)**. This ensures that the mechanical seal is well lubricated and that the pump immediately starts to work regularly. **Dry operation, even for brief periods, causes irreparable damage to the mechanical seal.**

– Switch on the power and, on three-phase versions, check that the motor is turning in the right direction, that is clockwise when viewed from the fan side, **(Fig. F)**. Otherwise invert any two phase leads, after having disconnected the pump from the mains.
– With the pump running, check the supply voltage at the motor terminals, which must not differ from the rated value by +/- 5% (**Fig. G**).
– With the unit at regular running speed, check that the current absorbed by the motor does not exceed the value on the data plate.

9. PRECAUTIONS

– The electropump should not be started an excessive number of times in one hour. The maximum admissible value is as follows:

	Maximum number of start per hour
Single-Phase Motors	30
Three-Phase Mot. up to 5.5 HP	20 ÷ 30
Three-Phase Mot. from 7.5 to 60 HP	5 ÷ 10

9.1 Danger of frost: Fig. H

Check that the leakage of liquid does not damage persons or things, especially in plants that use hot water. The system must be drained only once the fluid temperature has reached environment temperature.

Do not close the drainage cap until the pump is to be used again.
When restarting after long periods of inactivity it is necessary to repeat the operations described above in the paragraphs **"WARNINGS"** and **"STARTING UP"**.

10. MAINTENANCE AND CLEANING

As well as being at high temperature and high pressure, the fluid in the system may also be in the form of steam! DANGER OF BURNING!
It may be dangerous even to touch the pump or parts of the system.

The electropump can only be dismantled by competent skilled personnel, in possession of the qualifications required by the legislation in force.
In any case, all repair and maintenance jobs must be carried out only after having disconnected the pump from the power mains. Ensure that it cannot be switched on accidentally.
If possible, keep to a maintenance schedule: expensive repairs or machine down times can be avoided with a minimum expense. During maintenance schedule discharge the condensate, if necessary present into the motor, through the hole, removing the exhaust port plug no (electropumps with IP55 Degree of motor protection only).

Nel If the liquid has to be drained out maintenance, ensure that the liquid coming out cannot harm persons or things, especially in using hot water.
The legal requirements on the disposal of any harmful fluids must also be complied with.

– In normal operation, the pump does not require any kind of maintenance. However, from time to time it is advisable to check the plate data, which will enable you to have advance warning of any faults or wear.
– **After any operation involving the removal of the motor head from the pump body, it is advisable to change the O-ring between the pump body and the support.**

10.1 Blanking flanges

For twin-head pumps, a blanking flange with a pump housing gasket is available. See fig. 4
If one pump requires service, the blanking flange is fitted to allow the other pump to continue operating.

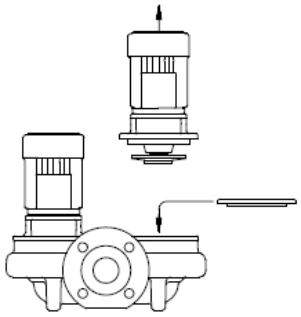


Fig. 4 Fitting the blanking flange

Carry out maintenance based on the type of bearing indicated on the technical data plate.

11. TROUBLESHOOTING

Fault	Check (possible cause)	Remedy
The motor does not start and makes no noise.	– Check the protection fuses.	If they are burnt-out, change them.
	– Check the electric connections.	If the fault is repeated immediately this means that the motor is short circuiting.
	– Check that the motor is live.	
The pump supplies insufficient flow.	– The impeller is worn or blocked.	Change the impeller or remove the obstruction.
	– Check that the direction of rotation on three-phase versions is correct.	Invert the connection of two supply wires.

The motor does not start but makes noise.	– Ensure that the mains voltage corresponds to the voltage on the data plate.	
	– Check that the connections have been made correctly.	Correct any errors.
	– Check that all the phases are present on the terminal board.	If not, restore the missing phase.
	– The shaft is blocked. Look for possible obstructions in the pump or motor.	Remove any obstructions.
	– Capacitor short-circuiting or broken.	Change the capacitor.
The motor turns with difficulty.	– Check the supply voltage which may be insufficient.	
	– Check whether any moving parts are scraping against fixed parts.	Eliminate the cause of the scraping.
	– Check the state of the bearings.	Change any worn bearings.
The (external) motor protection trips immediately after starting.	– Check that all the phases are present on the terminal board (on three-phase models).	If not, restore the missing phase.
	– Look for possible open or dirty contacts in the protection.	Change or clean the component concerned.
	– Look for possible faulty insulation of the motor, checking the phase resistance and insulation to earth.	Change the motor casing with the stator or reset any cables discharging to earth.
The motor protection trips too frequently.	– Ensure that the environment temperature is not too high.	Provide suitable ventilation in the environment where the pump is installed.
	– Check the calibration of the protection.	Calibrate at a current value suitable for the motor absorption at full load.
	– Check the motor rotation speed.	Consult the motor data plate.
	– Check the state of the bearings.	Change any worn bearings.
The pump vibrates and operates noisily.	– Check that the pump and/or the pipes are firmly anchored.	Fasten any loose parts.
	– There is cavitation in the pump.	Increase the system pressure, keeping within the allowed limits.
	– The pump is running above its plate characteristics.	Reduce the flow rate.
	– Ensure that the mains voltage corresponds to the voltage on the data plate.	