

## **M SERIES**

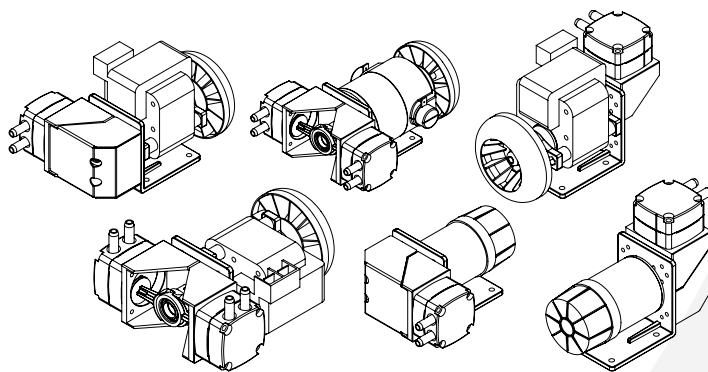
**M41S AC04/DC52**

**M41BX AC04/ DC53**

**M71S AC05/DC54**

**M71BX AC08/DC55**

***Diaphragm vacuum pumps  
and compressors***



***Operating and maintenance  
instructions***

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## 1. General information

This manual contains information necessary for the proper operation of the pump in order to prevent unsuitable use and for the safety of the operators. Do not attempt any other type of operation without having first contacted our **Service Department**. The information provided herewith does not intend to replace, integrate or change any rules, regulations, law by decree, directive or law of specific character in force in the Country where the installation takes place.

The suggestions given to the staff engaged in the installation and servicing assumes that the personnel is expert and prepared in facing any problem of servicing, both mechanical and electrical. For any questions or information not included in this manual, please contact our Service Department, always providing: model (type), serial number, year of manufacture, stated on the pump name plate.



Symbols used:



**WARNING:**  
Instructions that, if not followed,  
could result in serious  
personal injuries.



**ELECTRIC SAFETY**



**NOTE:**  
Instructions that, if not followed,  
could result in pump damages.



**HOT SURFACES**



**HARMFUL SUBSTANCES  
EMISSIONS**



**DO NOT DISPOSE INTO  
THE ENVIRONMENT**

## 2. Product specifications

### 2.1 Machine description

The machine is formed by the following main parts:

- The electric motor, which could be either a DC or an AC single phase motor.
- The pump itself, formed by its external housing and by a diaphragm operated by means of a rod.
- A cooling fan.
- The equipment is manufactured as a single stage pump or as a two-stage pump (two identical pumps, connected in series or in parallel).
- It is oil-free and any lubrication is required.

### 2.2 Expected use

Vacuum pumps or compressors series M have been designed to handle air and small quantity of water vapour. Used as a pump, it is suitable for the evacuation of closed systems or for the operation at a maximum 40 mbar continuous vacuum. Used as a compressor, it achieves a max. pressure of 3 bar. The recommended ambient temperature must be between 5°C and 40°C.

### 2.3 Forbidden use



#### **ATTENTION:**

This pump/compressor **MUST NOT** handle:

- Liquids or solid substances,
- Dangerous, explosive or aggressive gases and vapours.
- DO NOT install the equipment in a potentially explosive environment.

## 3. Safety measures



**ATTENTION:**

Despite of all the precautions adopted when designing the equipment, there are some risk elements that arise during operation and servicing.

**DANGERS OF MECHANICAL ORIGIN**

**(PRESSURE, VACUUM, CONTACT WITH THE FAN)**

The pump/compressor must be installed inside a protection housing.



**ATTENTION:**

It is forbidden to operate the pump/compressor before the machine where it has to be included or assembled has been declared suitable to comply with Directive 2006/42/EC (Machine Directive).



**ELECTRIC SAFETY**

Some components of the electric equipment are electrically charged during operation. To prevent serious injuries to persons or objects always check the terminal conditions prior to attempting any work on the equipment.

## 4. Transport – Handling

### 4.1 Unpacking and components control

When receiving the machine, check that the packing is intact or if it shows signs of damages occurred during transportation.

If there is no damage, proceed to the unpacking and check further check the machine. In case damages or defects are found, inform immediately PVR and the carrier, whose representative will contact you or it may be dispatched to the site to inspect and file full damage report.

## 5. Installation and operation

### 5.1 Location

The machine could be installed anywhere, taking care – if possible – to leave some room on the fan side to allow an easier air flow.

To prevent any condensate from entering the pump, the machine must be installed in the highest point of the system.

### 5.2 Electric connection

Connect the current to the motor terminals.



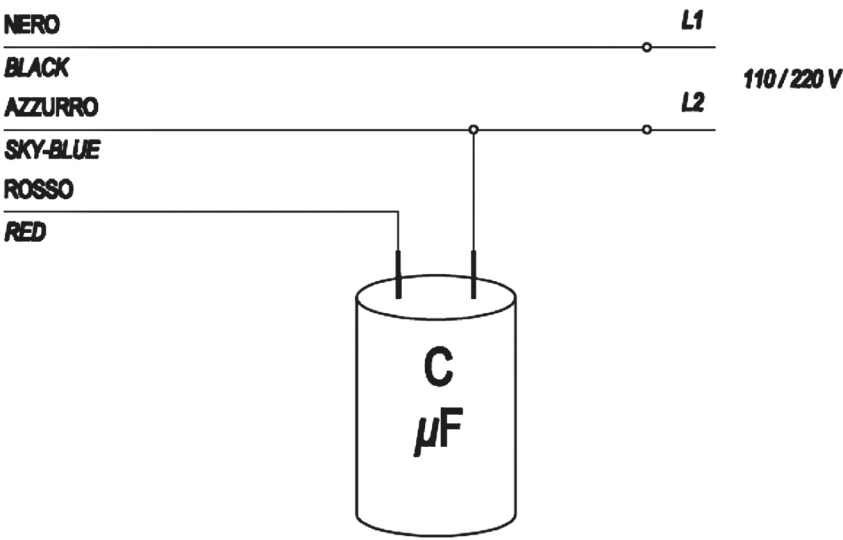
**ATTENTION:**

This operation must be carried out after having disconnected electric power.

# Operating and maintenance instructions

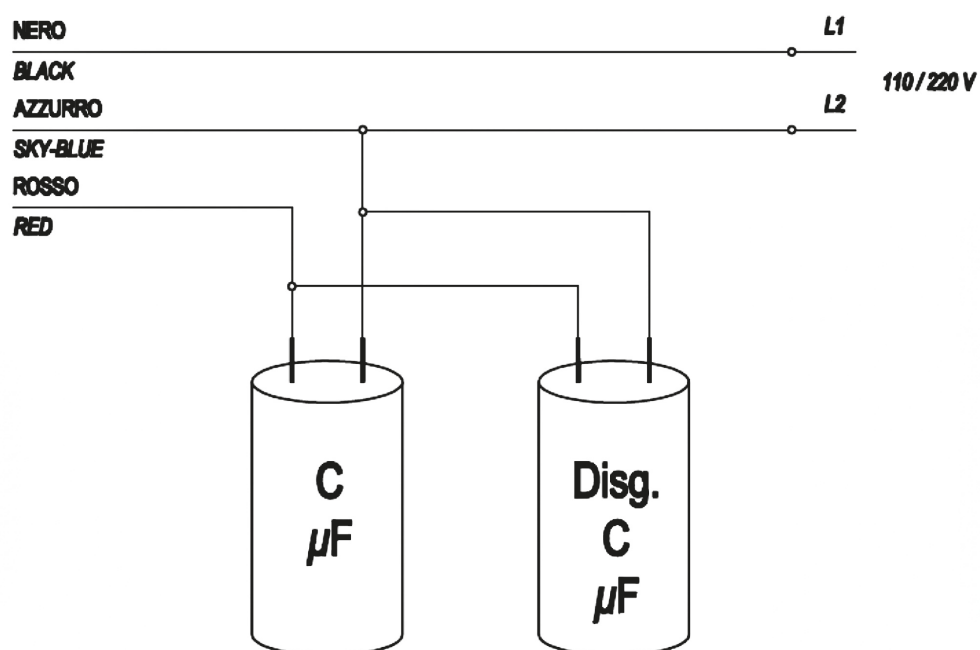
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### 5.3 Motor-condenser connection



CAPACITOR		
Item	Description	C $\mu$ F
MN3A01C1A	DIAPHRAGM PUMPS M41BX AC 01 230V 50HZ	4
MN3A01C1B	DIAPHRAGM PUMPS M41BX AC 01 230V 50HZ	4
MO1A05A2	DIAPHRAGM PUMPS M71S AC 05 110V 60HZ VITON	16
MO1A05A2I	DIAPHRAGM PUMPS M71S AC 05 110V 60HZ EPDM	16
MO1A05C1	DIAPHRAGM PUMPS M71S AC 05 230V 50HZ VITON	4
MO1A05C1I	DIAPHRAGM PUMPS M71S AC 05 230V 50HZ EPDM	3,15
MO1A07A2	DIAPHRAGM PUMPS M71S AC 07 110V 60HZ MEC 50 VITON	10
MO1A07A2I	DIAPHRAGM PUMPS M71S AC 07 110V 60HZ MEC 50 EPDM	10
MO1A07C1	DIAPHRAGM PUMPS M71S AC 07 230V 50HZ MEC 50 VITON	4
MO1A07C1I	DIAPHRAGM PUMPS M71S AC 07 230V 50HZ MEC 50 EPDM	4
MO3A08A2	DIAPHRAGM PUMPS M71 BX AC 08 110V 60HZ VITON	16
MO3A08C1	DIAPHRAGM PUMPS M71 BX AC 08 230V 50HZ VITON	5
MO3A08C1I	DIAPHRAGM PUMPS M71 BX AC 08 230V 50HZ EPDM	5
MO7A05C1G	DIAPHRAGM PUMPS M71S AC 05 230V 50HZ NBR	3,15
MQ1A08C1	DIAPHRAGM PUMPS M78S AC 08 230V 50HZ VITON	5

## 5.4 Motor-breaker-condenser connection

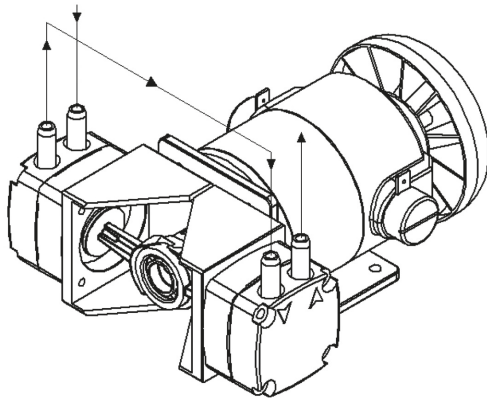


CAPACITOR		Cond.	Disg.
Item	Description	C	C μF
MO3A08C1	DIAPHRAGM PUMPS M71 BX AC 08 230V 50HZ VITON	5	10

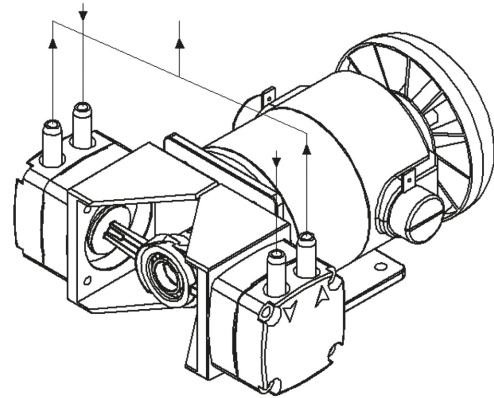
# Operating and maintenance instructions

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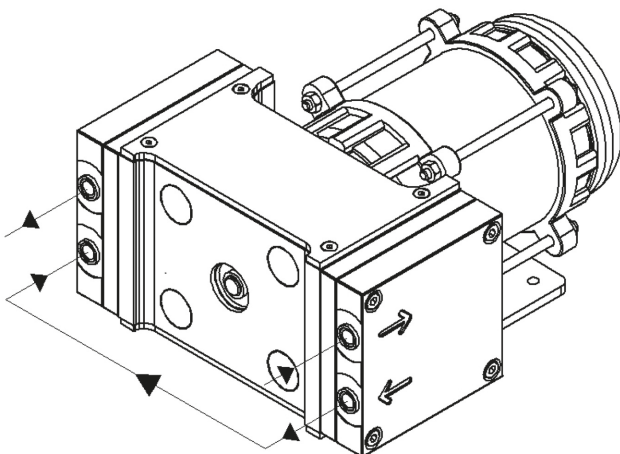
### 5.5 Series and parallel connection



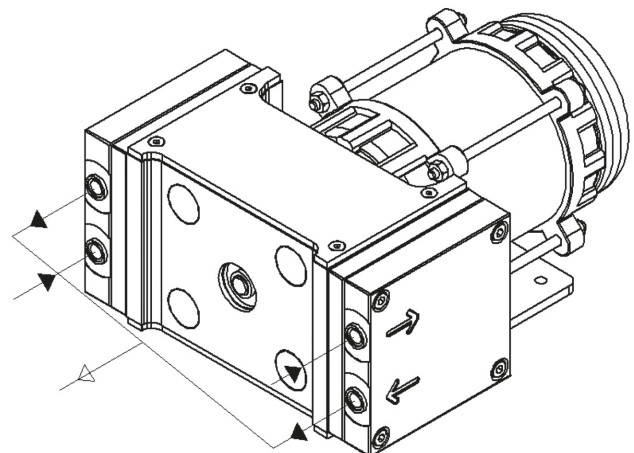
M41 BX SERIE  
M41 BX SERIES



M41 BX PARALLELO  
M41 BX PARALLEL



M71 BX SERIE  
M71 BX SERIES



M71 BX PARALLELO  
M71 BX PARALLEL

## 6. Servicing and spare parts

### 6.1 Servicing

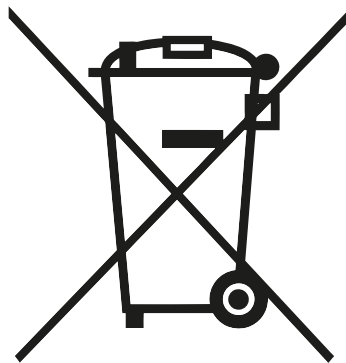
Depending on the expected use, a regular and periodical control of all the parts in movement and therefore subject to wear must be checked.

### 6.2 Spare parts

Pump sectional drawing and parts list are available upon request.

## 7. De-commissioning

In case of pump disposal, separate the pump parts by materials and trash the parts in accordance with the local regulations in the Country of use.





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