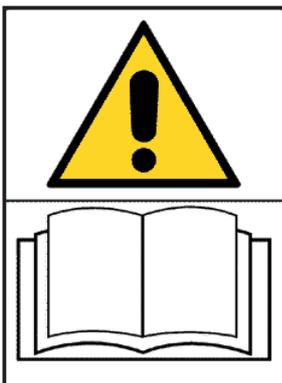


SUBMERSIBLE MOTOR OP 4"

OPERATING INSTRUCTION



ARVEN
W A T E R P U M P S

CONTENTS

1.00	Introduction
1.01	Warranty
1.02	Description of motor
1.03	Transport and installation
1.04	Technical particulars
1.05	Identification plate
1.06	General safety precautions
1.07	Operating conditions
2.00	Installation
2.01	Start-up
3.00	Maintenance and service
4.00	Spare parts
5.00	Descriptions of symbol

1.00 INTRODUCTION

This brochure gives important information concerning the installation, use and maintenance of the motors. The contents of this brochure refer to the standard product, and presented in the sales documentation. Please refer to the sales contract for the features of variants and special version. Always specify the exact type of motor and code when requesting our Sales and Service Department for technical information spare parts. For any instruction, situations and event not covered in this brochure or in the sales documentation, please contact the nearest Technical Assistance Center.

Read this manual carefully before installing and using the product.

The manufacturer shall not be held directly or indirectly liable for any negligence or failure to observe the instructions given in this brochure, nor for any damage caused by faulty installation and/or improper use of the motor.

At the time of purchase, check that the motor is intact and complete. Any complaints shall have to be presented in writing within seven (7) days of receiving the motor.

1.01 WARRANTY

The manufacturer guarantees its products for a period of twelve (12) months from the date of purchase. This warranty is only expressed in the repair or replacement free of charge of those parts that after careful examination by the manufacturer turn out to be defective. Warranty excluding all liability for direct or indirect damage, is considered to be restricted to material defects only (excluding electrical parts) and ceases to have effect if the parts returned anyhow turn out to have been dismantled, tampered with, or repaired outside the factory. Returned equipment, even if in warranty, shall have to be shipped with freight paid.

1.02 DESCRIPTION OF MOTOR (Fig.1)

- 1) Electric cable
- 2) Double ends studs, washer and nuts
- 3) Identifications plate

The 4OS range comprises a number of 4" submersible motors with stator and rotor in cooling filling fluid suitable for use with foodstuffs. The flange connection size meets NEMA standards.

Each motor includes a cable with removable connector.

1.03 TRANSPORT AND INSTALLATION

The motor is supplied completely with a power supply cable, in sturdy cardboard boxes suitable for transportation and storage. It is advisable, in the case of storage, not to exceed a stack of 4 units.



Before installation, carefully read this brochure and especially the safety precautions described in paragraph 1.06. Pay attention to the danger sign marked in this brochure which highlights a potential danger.

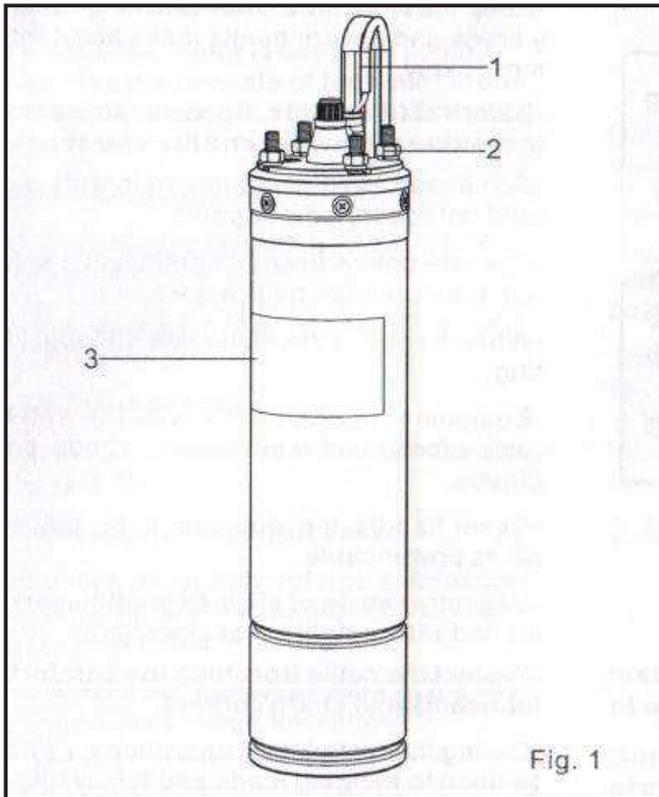
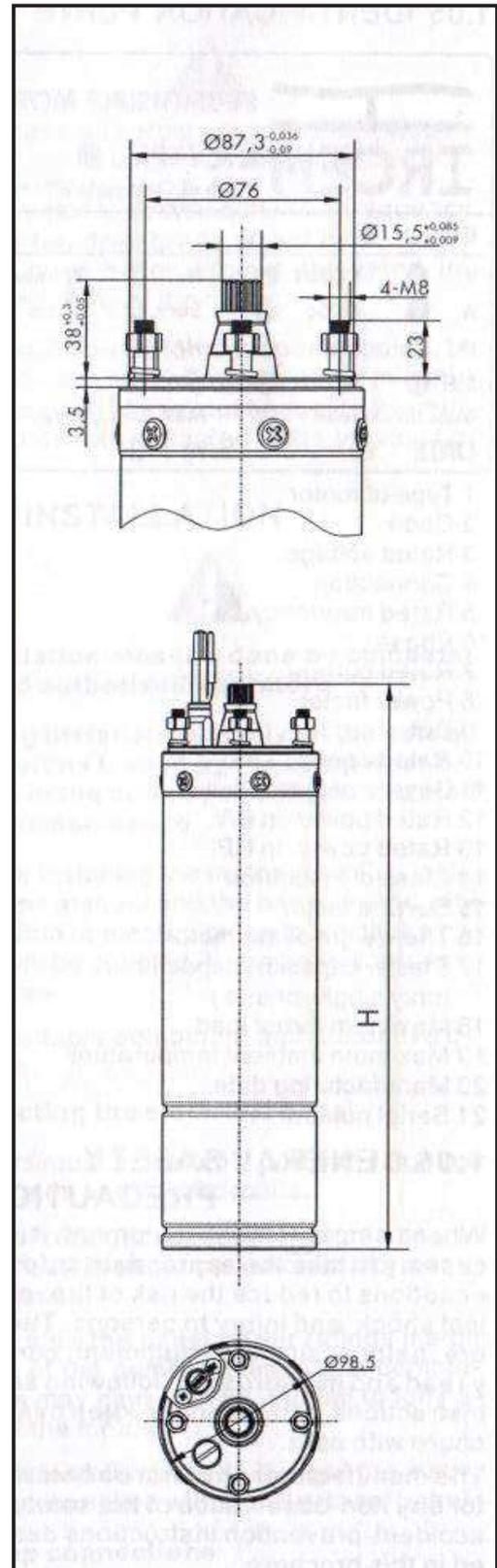


Fig. 1

1.04 TECHNICAL PARTICULARS

MOTOR TYPE	POWER		H mm	WEIGHT Kg
	kW	Hp		
OPM00750	0.55	0.75	381.5	8.5
OPT00750			386.5	8
OPM01000	0.75	1.0	401.5	9.4
OPT01000			406.5	9
OPM01500	1.1	1.5	432.5	10.7
OPT01500			442.5	10.4
OPM02000	1.5	2.0	472.5	12.6
OPT02000			482.5	12.1
OPM03000	2.2	3.0	585	17.3
OPT03000			560	16.9
OPT04000	3.0	4.0	635	20
OPT05500	4.0	5.5	684	22.3
OPT07500	5.5	7.5	804	27.9
OPT10000	7.5	10	919	33.6



1.05 IDENTIFICATION PLATE

			MADE IN ITALY					
Type 1				D.P. 2				
V ~ 3				IP 4				
P2 5 kW		HP 6		Hz 7		A 8		
Cosφ 9		10 ~		min ⁻¹ 11		Tmax ambient		
Serv. 19		μF 12		Vc 13		14 °C		
Ins.C 15 kg 16		Cod. 17		20 				
Max thrust load 18								

- 1** **Type of motor**
- 2** **Manufacturing date**
- 3** **Rated voltage**
- 4** **Protection class**
- 5** **Rated power in kW**
- 6** **Rated power in Hp**
- 7** **Frequency**
- 8** **Rated current**
- 9** **Power factor**
- 10** **Phase**
- 11** **Rated speed**
- 12** **Starter capacitor capacity**
- 13** **Capacitor voltage**
- 14** **Maximum ambient temperature**
- 15** **Class of insulation**
- 16** **The weight of the motor**
- 17** **Code**
- 18** **Maximum thrust load**
- 19** **Service factor**
- 20** **Symbol RAEE**

1.06 GENERAL SAFETY PRECAUTIONS

When using electrical equipment, it is necessary to take the appropriate safety precautions to reduce the risk of fire, electrical shock, and injury to person. Therefore, before using the equipment, carefully read and memorize the following safety instructions. After reading, keep this brochure with care. The manufacturer shall not be held liable for any non-observance of the safety and accident-prevention instructions described in this brochure.

- Keep the work area clean and tidy. Untidy areas and environments make accidents more likely.

- Before starting work, become familiar with the control devices and their functions.
- Do not subject the equipment to work it could not reasonably support.
- Operate only with good lighting, in a safe position free from hindrances.
- When handling the motor use suitable lifting.
- Equipment in conformity with the safety regulations, and wear safety shoes and gloves.
- Never handle the equipment by pulling in its power cable.
- Use only cables of allowed length, marked and with suitable cross-sections.
- Protect the cable from high temperature, lubricants and sharp corners.
- During the installation operations, pay attention to hanging loads and follow the corresponding safety instructions.
- Make the control panel and the electrical system in accordance with current regulations.
- It is essential to use skilled personnel since motor are machines that due to their type of installations and starting to require precise technical knowledge.

1.07 OPERATING CONDITIONS



-Liquids in which the motor can operate

This motor can be used in cold water. Do not use this motor with corrosive or explosive liquids, or particularly dirty or hard water (impurities may deposit on the outer casing).

-Water temperature

Minimum water temperature is 0°C

Maximum water temperature is +35°C as long as the flowrate of the water around the motor does not fall below 0.16m/s

-Cooling the motor

To ensure the motor is correctly cooled, make sure the plowrate of the water around the outer casing is at least 0.16m/s when positioning the motor in wells or tanks.

-Installation position

All the motors in the range can be installed vertically.

Motors up to 2.2 kW power can be installed horizontally.

-Depth of immersion

The maximum depth of immersion for all motors is 150m.

-Power supply requirements

Make sure the supply voltage and frequency match yhose indicated on the rating plate of the motor.

The motors can generally work at the following supply voltage tolerances.

f		UN
Hz	~	V ± %
50	1	220V ± 10%
50	3	220V ± 10%
50	3	380V ± 10%

-Number of starts per hour

To get the best operation and longest service life out of your motor and pump, the maximum number of starting times is not more than 30 times.

-Compatible pumps

Make sure the motor is compatible with the pump.

Incompatible combinations may cause problems.

In particular, before coupling the motor to the pump check that:

- the power of the pump to couple to the motor is less than or equal to that of the motor.
- the supply voltage and frequency match those indicated on the identification plate of the motor.

-the motor and pump shafts turn freely.

-Motor powered by a frequency converter



Only specially ordered motors can be powered with a frequency converter.

If the motor is combined with a frequency converter, downgrade power by 10% and make sure never exceed the rated input frequency of the motor.

To ensure the motor is properly cooled, the minimum water flowrate at the minimum frequency of use must equal to the minimum flowrate indicated in the previous points.

2.00 INSTALLATION



Installation must be done by competent and authorized operators.

During installation, apply all the safety provisions issued by the competent bodies in the country of use and dictated by common sense.

Before installing the motor, read this instructions manual and the one supplied the pump or electric pump to wich the motor will be coupled. Keep both manuals with care.

Use suitable equipment and protective devices.

-Selecting the electrical panel

Motors must be suitably protected against overloads and short circuits.

The following starting systems can be used: direct, impedance, autotransformer, soft-start.

Make sure the panel power ratings match those of the pump. Incompatible combinations may cause faults and fail to fully protect the motor.

Before installing, carefully read the instructions supplied with the electrical panel.

- Pump connections

Before connecting the motor to the pump, read this instructions manual and the one supplied with the pump or electric pump to which the motor will be coupled.

Keep both manuals with care.

-Installing the motor in a well or tank

Follow the instructions in the pump or electric pump brochure.

When installing the electric pump vertically, make sure the motor does not rest on the bottom of the well or tank.

When installing the electric pump horizontally, make sure the motor does not rest on the bottom of the tank.

2.01 START-UP

Follow the instructions in the pump or electric pump manual

-Electrical connections to the electric pump



Electrical connections may only be performed by a qualified installer in compliance with current regulations.

Make sure that the supply voltage and frequency are compatible with the electrical panel. The relative information is shown on the motor identification plate and in the documents supplied with the panel. Provide suitable short circuit protection on the supply line.



Before proceeding, make sure that all the connections (even if they are potential-free) are voltage-free.

Unless otherwise specified in local by laws, the supply line must be fitted with:

- a short circuit protection device.

- a high sensitivity residual current circuit breaker (30mA) for additional protection from electrocution in case of inefficient grounding.

- a general switch with a contact aperture of at least 3 millimeters.

Ground the system in compliance with current regulations.

Single-phase version



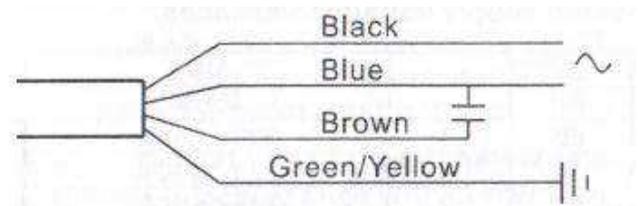
Connect the electric pump to a supply line via a suitable electrical control panel containing the overload protection and the capacitor.

Refer to the wiring diagram in figure 2 and the documentation supplied with the electrical panel.

Refer to the motor rating plate for the capacity of capacitor.

Install the electrical panel in a sheltered area.

Figure 2: Single-phase wiring diagram



Three-phase version



Connect the electrical pump to a supply line via a suitable electrical control panel.

Install the electrical panel in a sheltered area.

Refer to the documentation supplied with the electrical panel.

For connections to any external control follow the instructions supplied with these devices.

3.00 MAINTENANCE AND SERVICE



Before proceeding, always make sure the motor is disconnected from the supply line.



Maintenance operations may only be performed by experts and qualified people. Use suitable equipment and protective devices. Observe all accident prevention regulations.

Do not attempt to disconnect the connector from the motor hand cable.

This may only be done by authorised personnel. Only use original spare parts to replace faulty components.

The motor does not require any scheduled routine maintenance.

Users wishing to prepare a maintenance schedule should bear in mind that maintenance cycle depends on the conditions of use.

For any requirements, please contact our Sales and Service Department.

4.00 SPARE PARTS

Always specify the exact type of motor and code when requesting our Sales and Assistance Service for technical information or spare parts.

Only use spare parts to replace faulty components. Unsuitable spare parts may cause the product to work incorrectly and cause hazards for people and property.

For further information, please contact our Sales and Service Department.

5.00 DESCRIPTIONS OF SYMBOL



Read this brochure carefully before proceeding



Electric shock failure to observe this warning may result in the *electric shock*



Warning sign indicates a potential *hazard*



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