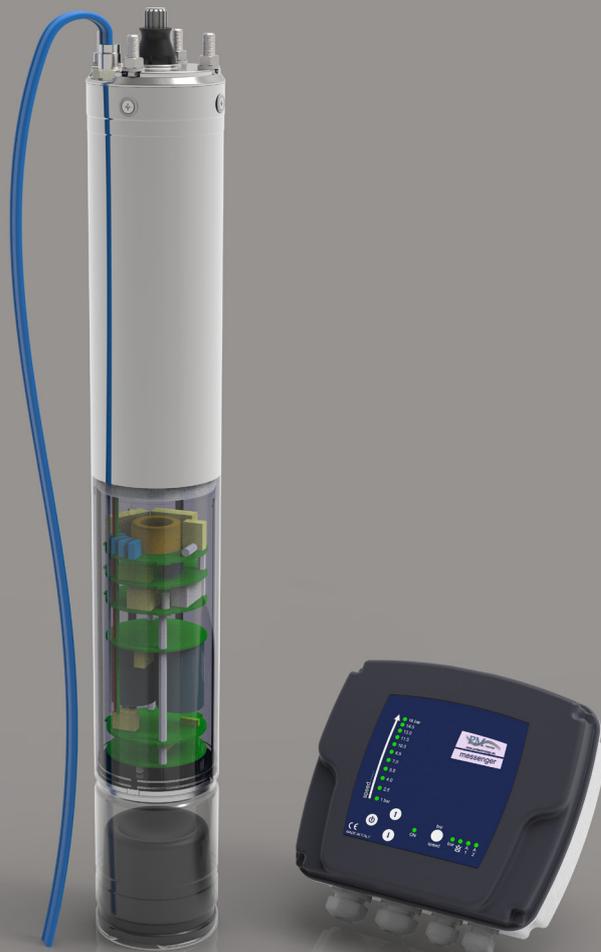


40ME

50 Hz - 60 Hz



**4" VARIABLE SPEED SUBMERSIBLE MOTORS
WITH INVERTER ON-BOARD**



Made in Italy



TECHNICAL SPECIFICATIONS

MOTORS ENDOWED WITH ELECTRONIC INVERTER INTEGRATED ON-BOARD

4" OIL FILLED SUBMERSIBLE MOTORS

MOTOR/PUMP FLANGE
4" NEMA STANDARD

POWERS
Max. motor's power output 1,1 kW at 55 Hz

VOLTAGE
Input power line 1 x 230 V 50 / 60 Hz
Three-phase motor

THRUST LOAD
3000 N

CONSTRUCTION FEATURES

EXTERNAL SLEEVE made in AISI 304L (Low Carbon) stainless steel.

UPPER BRACKET made in cast iron with cathaphoresis treatment.

MECHANICAL SEAL made in graphite/ceramic in the standard version; SIC/SIC version available upon request.

BALL BEARING duly oversized to ensure a long lasting motor.

SHAFT PROJECTION made in DUPLEX stainless steel.

REMOVABLE POWER CABLE-CONNECTOR to ensure a perfect sealing, also in the most critical conditions, and to aid maintenance operations. Homologated cable KTW, ACS, WRAS.

INVERTER placed under the motor and inside the same tube, fully resinated.

INTERFACE MESSENGER. Control panel endowed with pressure transducer 4-20 mA.

100% TESTED, all motors are tested at the end of the line. Seal and electrical checks are carried out on all motors.

PATENTED MOTOR

Patent N. 0001397548
Patent N. US 9,353,766 B2

ACCESSORIES

Sacrificial anode
Different cable lengths

OPERATING LIMITS

DEGREE OF PROTECTION
Motor: IP 68
MESSENGER: IP 55

INSULATION CLASS
F

VOLTAGE TOLERANCE
-10% / +10%

PUMPED LIQUID TEMPERATURE
0°C – 35°C

MIN. COOLING FLOW
0,1 m/s

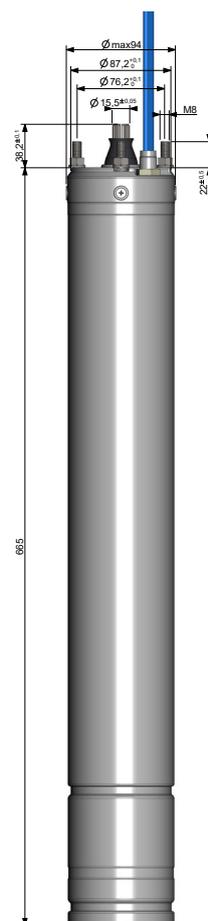
MAX. STARTS / HOUR
30

MOUNTING
Vertical and/or horizontal

MAX. IMMERSION DEPTH
200m

PRESSURE TRANSDUCER
4-20 mA 0-16 bar

DIMENSIONS



ELECTRICAL DATA 4OME - 50/60Hz

Type	P ₂ [Hp]	P ₂ [kW]	Voltage [V]	Ph	I _{max} [A]	P _{1 max} [kW]	rpm _{max}	cos φ	Thrust Load [N]	Length A [mm]	Weight [kg]	Cable Length [m]	Cable Section [mm ²]
4OME-150	1,5	1,1	230	1	14,5	1,6	3100	0,80	3000	665	14,1	1,5	1,5

THE ELECTRONIC REVOLUTION...

The 4OME submersible motor allows to keep the desired pressure constant in the installation ranging its speed of rotation. This is possible thanks to the electronic inverter integrated on-board and positioned immediately under the motor.

4OME respects NEMA standards and it can be therefore coupled with any kind of pump on the market having equal or inferior power to the maximum power of the motor.

HOW THE PRODUCT IS COMPOSED:

4OME SUBMERSIBLE MOTOR

The submersible motor is three-phase oil filled with rotor made in copper, specifically designed in order to guarantee high efficiency and electric elasticity. The motor, together with the inverter integrated on-board, allows to have an operation range from 15 to 55 Hz by modulating continuously the speed, in order to keep the desired pressure, set by the user through the device *MESSENGER*, constant.

MESSENGER: CONTROL AND MANAGEMENT DEVICE

MESSENGER is a panel composed of plastic and aluminium box containing an electronic card, used in surface to control pump by the operator. Through this device, user can set the pressure (automatic operation) or the rotation speed of the motor (manual operation), in addition to manage any alarms.

MESSENGER panel, in addition to being connected to the power line and to the motor, is also connected to a pressure gauge, necessary for reading pressure in the system.

MESSENGER device and the 4OME submersible motor communicate using the power line technology (**PLC, Power-line communication**). For this reason, it's not necessary to add any cable to allow communication between the two devices, since the same cables of motor power supply are used for communication.

PRESSURE TRANSDUCER

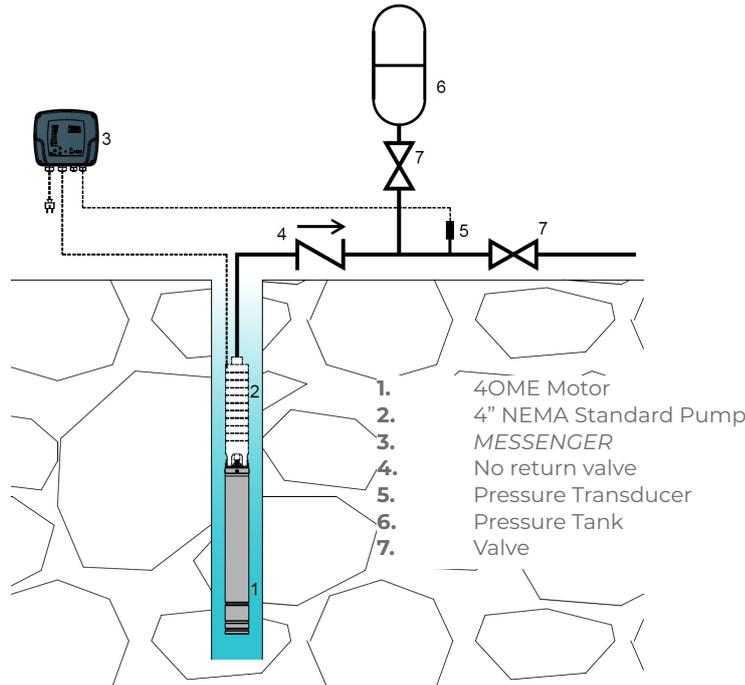
0-16 bar 4-20 mA IP 65 included in the package supplied.



MOTOR'S PROTECTIONS

- Protection against dry running and automatic reset of protection after 10-20-40-80-(120x10 times) minutes
- Electric protection against motor overload
- Phase failure protection
- Overvoltage protection
- Motor temperature protection

CONNECTION DIAGRAM



As you can see in the above connection diagram, hydraulic system is considerably simplified too. Indeed you just need to install a small pressure tank and a no return valve in order to keep the plant full of water.

Pressure tank is used to compensate any load losses and to limit the number of pump starts in case of a limited water demand.

MESSENGER panel is the user interface of the product. It's connected to the pressure gauge and to the motor.

WHY SHOULD YOU USE A SUBMERSIBLE MOTOR WITH INVERTER INTEGRATED ON BOARD AND NOT AN EXTERNAL INVERTER?

- Inverter has been specifically designed to control that specific motor, not any pump, so the control is certainly more precise and efficient.
- External inverter connected with submersible electropumps, when the distance between inverter and electropump is greater than 20 meters, force you to install expensive filters to reduce the voltage peaks that occur. Furthermore, even if you install them, in some cases the filters are not sufficient and motor winding is irreparably damaged.

ADVANTAGES

Inverter electric drive allows:

- to change the engine RPM (15-55 Hz) in order to keep the desired pressure in the system constant;
- to turn the motor on and off autonomously according to water demand;
- to start and stop the motor softly, avoiding water hammers and electrical absorption peaks;
- a great energy saving. Thanks to the variation of speed, it consumes just what exactly is used;
- sizing the system is even more easy;
- to have more pumps in one thanks to the variation of motor RPM. As consequence, it allows a remarkable reduction of the stock for distributors of the sector.

Using 4OME motor, **hydraulic operating curve** will no longer be the one indicated in the catalogue of the pump manufacturer but it **will be the whole area below the curve**.

Talking about a work area and no longer a curve, it allows to consume just what is required in that very moment and so it means an important electricity saving.

EXAMPLE

Figure 1

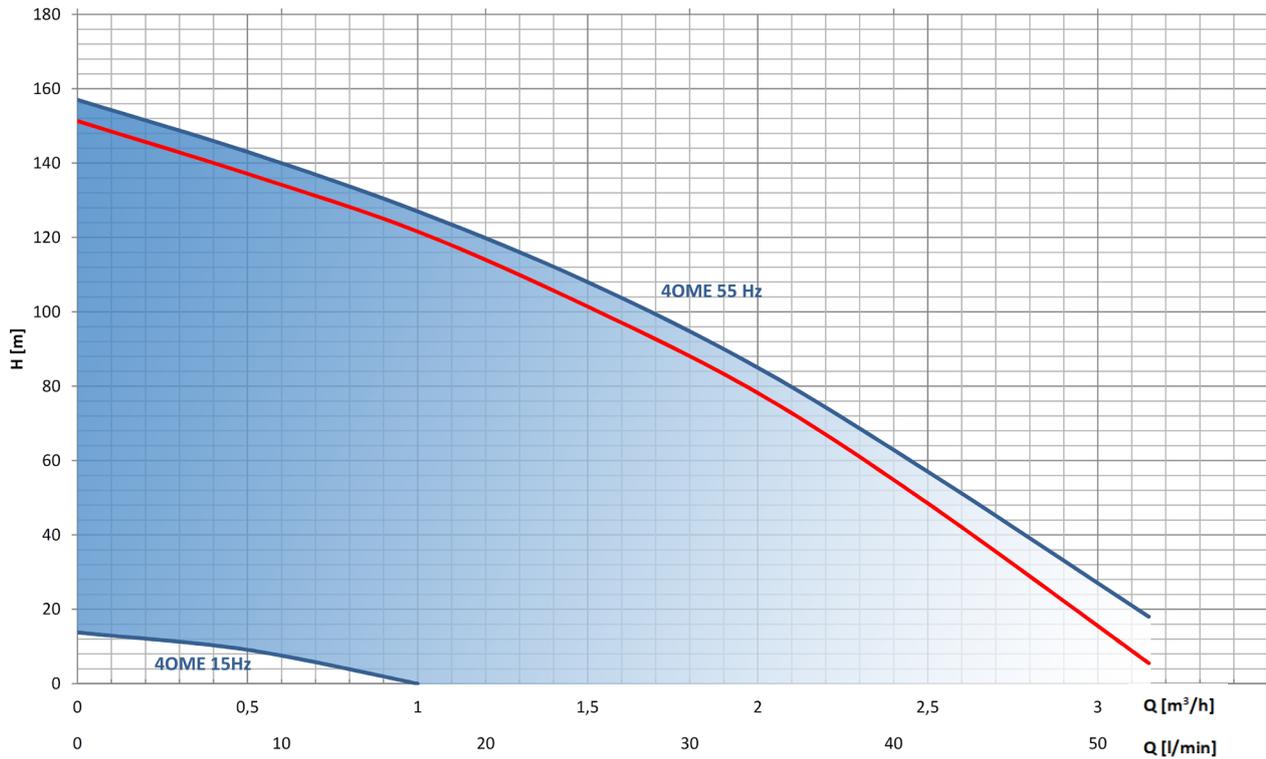
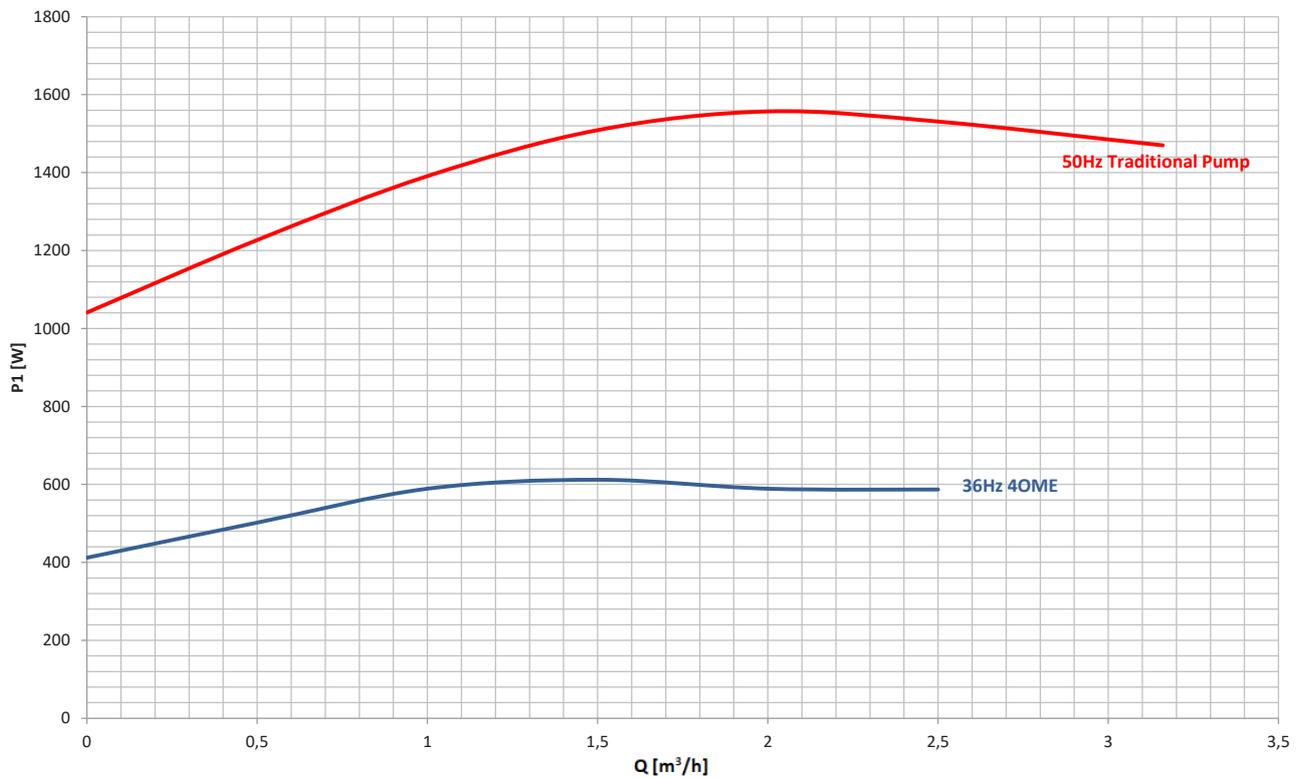


Figure 2



As you can see in the first diagram (Figure 1), the red curve represents a traditional 50Hz pump connected to standard motor without inverter. The blue area is the whole area of use of the same pump connected to the submersible 4OME motor, having 15 - 55Hz as operating range.

In the second diagram (Figure 2), you find an example of the difference of electrical absorption, at the same flow rate, between a pump connected to a traditional submersible motor and a pump connected to 4OME submersible motor. In this example, it is supposed that the operating point of the pump requires a motor rotation speed of 36Hz.



PM S.r.l.

Via A. Volta, 8
36040 Brendola (VI) - Italy
T. +39 0444 673043
F. +39 0444 677273
info@pmtechnology.eu
www.pmtechnology.eu



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