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> [Pedrollo 4-inch Submersible Borehole Rewindable Oil Motor 4PDm/0,75 User Manual](#)

Pedrollo 4PDm/0,75

Pedrollo 4-inch Submersible Borehole Rewindable Oil Motor

MODEL: 4PDm/0,75

1. Introduction

This manual provides essential information for the safe and efficient installation, operation, and maintenance of your Pedrollo 4-inch Submersible Borehole Rewindable Oil Motor, model 4PDm/0,75. Please read these instructions carefully before installation and use to ensure proper functioning and to prevent damage or injury. Keep this manual for future reference.

2. Product Overview and Technical Characteristics

The Pedrollo 4PDm/0,75 is a 4-inch submersible oil-filled motor designed for borehole applications. It features robust construction and specific technical attributes for reliable performance.



NEW

TECHNICAL CHARACTERISTICS

- ▶ 4" submersible oil filled motors
- ▶ Motor sleeve made of stainless steel AISI 316
- ▶ Shaft made of "DUPLEX" stainless steel (from 3 kW to 7.5 kW)
- ▶ High quality mechanical seal

PERFORMANCE RANGE

- Powers from 0.37 to 7.5 kW

APPLICATION LIMITS

- Maximum liquid temperature +35 °C
- 100 m immersion limit
- Starts/hour: 20 at regular intervals
- Minimum flow rate for motor cooling 8 cm/s
- Continuous service S1

ELECTRIC MOTOR

- 2 pole electric motor, 50 Hz (n = 2900 U/min)
- Voltage:
 - single phase 230 V
 - three phase 400 V
- Insulation F class • Protection IP 68

CONSTRUCTION AND SAFETY STANDARDS

Rewindable submersible oil filled motor (oil type vegetable).
Flange coupling dimensions in compliance with NEMA standards.
Complete with power cable of the following lengths:
- 1.7 m for powers from 0.37 to 3 kW
- 2.7 m for powers from 4 to 7.5 kW

→ Single phase versions come with a capacitor included in the packaging.

EN 60054-1
IEC 60034-1
CE

CERTIFICATIONS

COMPLY WITH MANAGEMENT SYSTEM
CERTIFIED BY DNV
ISO 9001: QUALITY
ISO 14001: ENVIRONMENT AND SAFETY





Domestic use
 Civil use
 Industrial use



the spring of life

PERFORMANCE DATA

Single-phase versions

| MODEL | Rated power P2 | Rated speed n | Rated torque Tn | Starting torque Tst | Rated current In | Starting current Ist | Efficiency η | Weight |
|---------------|-------------------|---------------------|-----------------------|---------------------------|------------------------|----------------------------|-----------------|--------|
| 330 V / 50 Hz | 1/2 HP | 2900 | 3.3 | 0.86 | 20 | 311 | 6.5 | |
| 4PDm/0.50 | 0.37 - 0.50 | 2830 | 3.5 | 0.89 | 25 | 331 | 7.2 | |
| 4PDm/0.75 | 0.55 - 0.75 | 2825 | 3.2 | 0.91 | 35 | 356 | 8.5 | |
| 4PDm/1 | 0.75 - 1 | 2840 | 3.2 | 0.93 | 40 | 366 | 10.2 | |
| 4PDm/1.5 | 1.1 - 1.5 | 2845 | 3.3 | 0.93 | 60 | 430 | 11.7 | |
| 4PDm/2 | 1.5 - 2 | 2830 | 3.1 | 0.94 | 75 | 481 | 14.0 | |

Three-phase versions

| MODEL | Rated power P2 | Rated speed n | Rated torque Tn | Starting torque Tst | Rated current In | Starting current Ist | η | Weight |
|---------------|-------------------|---------------------|-----------------------|---------------------------|------------------------|----------------------------|------|--------|
| 450 V / 50 Hz | 1/2 HP | 2900 | 3.3 | 0.86 | 20 | 311 | 6.5 | |
| 4PD/1.6-30 | 0.37 - 0.50 | 2835 | 3.2 | 0.92 | 30 | 371 | 6.5 | |
| 4PD/0.75 | 0.55 - 0.75 | 2835 | 3.8 | 0.71 | 156 | 8.5 | | |
| 4PD/1 | 0.75 - 1 | 2825 | 3.8 | 0.71 | 156 | 8.5 | | |
| 4PD/1.5 | 1.1 - 1.5 | 2825 | 4.8 | 0.79 | 371 | 9.4 | | |
| 4PD/2 | 1.5 - 2 | 2835 | 3.8 | 0.66 | 386 | 10.2 | | |
| 4PD/3 | 2.2 - 3 | 2830 | 6.5 | 0.73 | 436 | 11.7 | | |
| 4PD/4 | 3 - 4 | 3000 | 2040 | 5.6 | 0.79 | 525 | 15.0 | |
| 4PD/5.5 | 4 - 5.5 | 2835 | 5.4 | 0.77 | 610 | 20.1 | | |
| 4PD/7.5 | 5.5 - 7.5 | 2830 | 5.5 | 0.87 | 700 | 24.9 | | |
| 4PD/10 | 7.5 - 10 | 2840 | 5.4 | 0.76 | 800 | 29.0 | | |

ABSORPTION

| MODEL | VOLTAGE (single-phase) | MODEL | VOLTAGE (three-phase) |
|--------------|------------------------|-------------|-----------------------|
| Single-phase | 230 V | Three-phase | 230 V |
| 4PDm/0.50 | 3.4 A | 4PD/1.6-30 | 2.2 A |
| 4PDm/0.75 | 4.7 A | 4PD/0.75 | 3.4 A |
| 4PDm/1 | 5.8 A | 4PD/1 | 4.1 A |
| 4PDm/1.5 | 8.3 A | 4PD/1.5 | 5.8 A |
| 4PDm/2 | 10.7 A | 4PD/2 | 8.1 A |
| 4PDm/3 | 15.2 A | 4PD/3 | 10.6 A |
| | | 4PD/4 | 12.8 A |
| | | 4PD/5.5 | 15.8 A |
| | | 4PD/7.5 | 22.7 A |
| | | 4PD/10 | 34.4 A |



Figure 1: Pedrollo 4PDm/0,75 Submersible Motor. This image displays the overall design of the 4-inch submersible motor, highlighting its compact and cylindrical form factor suitable for borehole installation.

Key Technical Characteristics:

- **Motor Type:** 4-inch submersible oil-filled motor.
- **Motor Sleeve:** Constructed from stainless steel AISI 316 for durability and corrosion resistance.
- **Shaft Material:** Made of "DUPLEX" stainless steel, specifically for models from 3 kW to 7.5 kW, ensuring high strength.
- **Sealing:** Equipped with a high-quality mechanical seal to prevent water ingress.

3. Construction and Safety Standards

The motor is built to high standards, ensuring safety and longevity in demanding environments.

- **Motor Design:** Rewindable submersible motor, filled with vegetable-type oil.
- **Flange Coupling:** Dimensions comply with NEMA standards for broad compatibility.
- **Power Cable:**
 - 1.7 meters for powers ranging from 0.37 kW to 3 kW.
 - 2.7 meters for powers ranging from 4 kW to 7.5 kW.
- **Single-Phase Versions:** Include a capacitor within the packaging for immediate use.
- **Certifications:** Complies with EN 60034-1, IEC 60034-1, and CEI 2-3 standards, indicated by the CE mark.

4. Electric Motor Specifications

- **Motor Type:** 2-pole electric motor.
- **Frequency:** 50 Hz (nominal speed ~2900 rpm).
- **Voltage Options:**
 - Single-phase: 230 V
 - Three-phase: 400 V
- **Insulation Class:** F class.
- **Protection Rating:** IP 68, ensuring protection against dust and continuous immersion in water.

5. Application Limits

To ensure optimal performance and longevity, adhere to the following application limits:

- **Maximum Liquid Temperature:** +35 °C.
- **Maximum Immersion Depth:** 100 meters.
- **Starts Per Hour:** Up to 20 at regular intervals.
- **Minimum Flow Rate for Motor Cooling:** 8 cm/s.
- **Service Type:** Continuous service S1.

6. Performance Data

Refer to the tables below for detailed performance specifications for single-phase and three-phase versions of the Pedrollo 4PDm motor series.

Single-Phase Versions (230 V / 50 Hz)

| MODEL | Rated power P2 | | n 1/min | Starting current ratio I _{start} /I _n | Power factor cos φ | Capacitor (μF) | h | | Weight | |
|-----------|----------------|------|------------|---|--------------------|----------------|-----|------|--------|--|
| | kW | Hp | | | | | mm | kg | | |
| 4PDm/0.50 | 0.37 | 0.50 | 2800 | 3.3 | 0.86 | 20 | 311 | 6.5 | | |
| 4PDm/0.75 | 0.55 | 0.75 | 2830 | 3.5 | 0.89 | 25 | 331 | 7.2 | | |
| 4PDm/1 | 0.75 | 1 | 2825 | 3.2 | 0.91 | 35 | 356 | 8.5 | | |
| 4PDm/1.5 | 1.1 | 1.5 | 2840 | 3.2 | 0.93 | 40 | 386 | 10.2 | | |
| 4PDm/2 | 1.5 | 2 | 2845 | 3.3 | 0.93 | 60 | 436 | 11.7 | | |

| MODEL | Rated power P2 | | n | Starting current ratio Istart/In | Power factor cos φ | Capacitor (μF) | h | Weight |
|--------|----------------|----|------|----------------------------------|--------------------|----------------|-----|--------|
| | kW | Hp | | | | | | |
| 4PDm/3 | 2.2 | 3 | 2830 | 3.1 | 0.94 | 75 | 481 | 14.9 |

Three-Phase Versions (400 V / 50 Hz)

| MODEL | Rated power P2 | | n | Starting current ratio Istart/In | Power factor cos φ | h | Weight |
|----------|----------------|------|------|----------------------------------|--------------------|-----|--------|
| | kW | Hp | | | | | |
| 4PD/0.50 | 0.37 | 0.50 | 2835 | 3.2 | 0.82 | 311 | 6.5 |
| 4PD/0.75 | 0.55 | 0.75 | 2835 | 3.8 | 0.83 | 331 | 7.2 |
| 4PD/1 | 0.75 | 1 | 2835 | 3.8 | 0.71 | 356 | 8.5 |
| 4PD/1.5 | 1.1 | 1.5 | 2835 | 4.4 | 0.79 | 371 | 9.4 |
| 4PD/2 | 1.5 | 2 | 2835 | 3.8 | 0.86 | 386 | 10.2 |
| 4PD/3 | 2.2 | 3 | 2835 | 6.5 | 0.73 | 436 | 11.7 |
| 4PD/4 | 3 | 4 | 2840 | 5.4 | 0.79 | 505 | 15.0 |
| 4PD/5.5 | 4 | 5.5 | 2835 | 5.4 | 0.77 | 610 | 20.1 |
| 4PD/7.5 | 5.5 | 7.5 | 2830 | 5.5 | 0.87 | 700 | 24.7 |
| 4PD/10 | 7.5 | 10 | 2840 | 5.4 | 0.76 | 800 | 29.0 |

7. Absorption Data

The following tables detail the current absorption for both single-phase and three-phase motor models.

Single-Phase Versions (230 V)

| MODEL | VOLTAGE (single-phase) |
|-----------|------------------------|
| | 230 V |
| 4PDm/0.50 | 3.4 A |
| 4PDm/0.75 | 4.7 A |
| 4PDm/1 | 5.9 A |
| 4PDm/1.5 | 8.3 A |
| 4PDm/2 | 10.7 A |
| 4PDm/3 | 15.2 A |

Three-Phase Versions (400 V)

| MODEL | VOLTAGE (three-phase) | |
|-------|-----------------------|-------|
| | 230 V | 400 V |

| MODEL | VOLTAGE (three-phase) | |
|----------|-----------------------|--------|
| | 230 V | 400 V |
| 4PD/0.50 | 2.2 A | 1.8 A |
| 4PD/0.75 | 3.4 A | 2.0 A |
| 4PD/1 | 4.1 A | 2.4 A |
| 4PD/1.5 | 5.9 A | 3.4 A |
| 4PD/2 | 8.1 A | 4.7 A |
| 4PD/3 | 10.6 A | 6.1 A |
| 4PD/4 | 13.4 A | 7.7 A |
| 4PD/5.5 | 15.4 A | 8.9 A |
| 4PD/7.5 | 22.7 A | 11.2 A |
| 4PD/10 | - | 16.4 A |

8. Installation and Setup

Proper installation is crucial for the motor's performance and longevity. It is recommended that installation be performed by qualified personnel.

- Pre-Installation Check:** Verify that the motor and all components are free from damage. Ensure the power supply matches the motor's voltage requirements (230V single-phase or 400V three-phase).
- Cable Connection:** Connect the power cable securely, ensuring watertight seals. For single-phase models, integrate the provided capacitor as per wiring diagrams (not included in this general manual, refer to product-specific wiring instructions).
- Flange Coupling:** Securely attach the motor to the pump using NEMA-compliant flange connections.
- Lowering into Borehole:** Carefully lower the motor and pump assembly into the borehole, ensuring it remains vertical and does not snag on the casing. Maintain the minimum flow rate for motor cooling (8 cm/s) around the motor.
- Immersion Depth:** Do not exceed the maximum immersion limit of 100 meters. Ensure the motor is fully submerged during operation.
- Electrical Connection:** Connect the power cable to a suitable control panel with appropriate overload protection. Ensure proper grounding.

9. Operating Instructions

Once installed, the motor is designed for continuous service (S1) within its specified application limits.

- Initial Start-up:** After installation, perform a brief test run to ensure correct rotation and operation. Monitor current draw.
- Continuous Operation:** The motor is designed for continuous duty. Avoid frequent starts and stops; limit to 20 starts per hour at regular intervals.
- Temperature Monitoring:** Ensure the liquid temperature does not exceed +35 °C to prevent overheating.
- Dry Running:** Never operate the motor without being fully submerged in water, as this will cause severe damage.

10. Maintenance

The Pedrollo submersible motor is designed for minimal maintenance. However, periodic checks are recommended.

- **Regular Inspection:** Periodically check the control panel for proper functioning of protection devices.
- **Cable Integrity:** Inspect the power cable for any signs of wear or damage during any retrieval of the pump.
- **Oil Check:** The motor is oil-filled and sealed. No user-serviceable oil changes are required. If oil leakage is suspected, contact qualified service personnel.
- **Cleaning:** If the pump assembly is retrieved, clean any accumulated debris from the motor's exterior to ensure efficient cooling.

11. Troubleshooting

This section provides general guidance for common issues. For complex problems, contact a qualified technician.

- **Motor Does Not Start:**
 - Check power supply and circuit breakers.
 - Verify electrical connections and ensure the capacitor (for single-phase) is correctly wired.
 - Check for tripped overload protection.
- **Motor Runs But No Water/Low Flow:**
 - Ensure the pump is properly connected to the motor and is not blocked.
 - Check water level in the borehole; ensure motor is fully submerged.
 - Inspect piping for blockages or leaks.
- **Motor Overheats/Trips Overload:**
 - Verify the liquid temperature is within limits (+35 °C max).
 - Ensure sufficient water flow for motor cooling (min 8 cm/s).
 - Check for excessive starts per hour.
 - Inspect for mechanical binding in the pump or motor.

12. General Specifications

- **Brand:** Pedrollo
- **Model Number:** 4ZPC07A1 (Internal reference, corresponds to 4PDm/0,75)
- **Product Weight:** 7.2 kg
- **Material:** Stainless Steel
- **Maximum Lifting Height:** 2.7 Meters (Note: This value seems low for a borehole pump motor and might refer to a specific pump head, not the motor's capability. Always refer to the pump's specifications for actual head.)

13. Warranty and Support

Pedrollo products are manufactured to high-quality standards. For warranty information, please refer to the warranty card included with your purchase or contact your authorized Pedrollo dealer. For technical support or service, please contact your local Pedrollo service center or the retailer from whom you purchased the product.

