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Tuhorse TH3-010-18

Tuhorse TH3-010-18 3-inch 1 HP Submersible Well Pump Instruction Manual

Model: TH3-010-18

Introduction

This manual provides comprehensive instructions for the installation, operation, and maintenance of the Tuhorse TH3-010-18 3-inch 1 HP Submersible Well Pump. This complete system includes an 18-stage pump-end, a 1 HP oil-cooled submersible motor, and a dual-capacitor metal-cased control box equipped with a motor overload protector. It is designed for use in well casings with an internal diameter of 3-1/4 inches or larger and operates on 230V, 60Hz, single-phase power.

Please read this manual thoroughly before installation and operation to ensure safe and efficient use of the product. Retain this manual for future reference.



Figure 1: Tuhorse TH3-010-18 Submersible Well Pump and Control Box. This image shows the complete pump assembly alongside its dedicated control box.

Safety Information

WARNING: Electrical shock hazard. Always disconnect power before servicing the pump or control box. Installation and maintenance should only be performed by qualified personnel.

- Ensure all electrical connections comply with local and national electrical codes.
- Do not operate the pump dry. Running the pump without water will cause severe damage and void the warranty.
- Wear appropriate personal protective equipment (PPE) during installation and maintenance.
- Verify the power supply voltage and frequency match the pump's requirements (230V, 60Hz).
- Securely fasten all components to prevent accidental movement or disconnection.

Product Components

The Tuhorse TH3-010-18 system consists of the following main components:

- **Submersible Pump-end:** The water-moving section with 18 stages.
- **1 HP Submersible Motor:** Oil-cooled, 230V, 60Hz, single-phase motor.
- **Control Box:** Metal-cased, dual-capacitor unit with motor overload protection.
- **Power Cable:** Integrated 3-wire plus ground cable for motor connection.


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Figure 2: Main components of the Tuhorse submersible well pump system. This image displays the pump-end, motor, and control box separately.

Specifications

Feature	Specification
Model Number	TH3-010-18
Horsepower (HP)	1 HP
Stages	18
Maximum Head	280 feet
Rated Flow Rate	10 GPM
Maximum Flow Rate	14 GPM
Voltage	230V
Frequency	60Hz
Phase	Single Phase
Motor Speed	3420 rpm
Pump Diameter	Approximately 3 inches (fits 3-1/4" I.D. and larger wells)
Discharge Outlet	1 inch NPT Stainless Steel
Control Box Capacitors	50uF Start, 20uF Run
Control Box Protection	Motor Overload Protector
Power Cable	3 wires + 1 ground wire
Net Weight	13 kg (28 lbs)
Net Length	1050 mm (42 inches)
Material	Stainless Steel Housing, Thermal Plastic Impellers
Standards	Meets NEMA industrial standards, ISO 9001:2000, IEC34-ICE

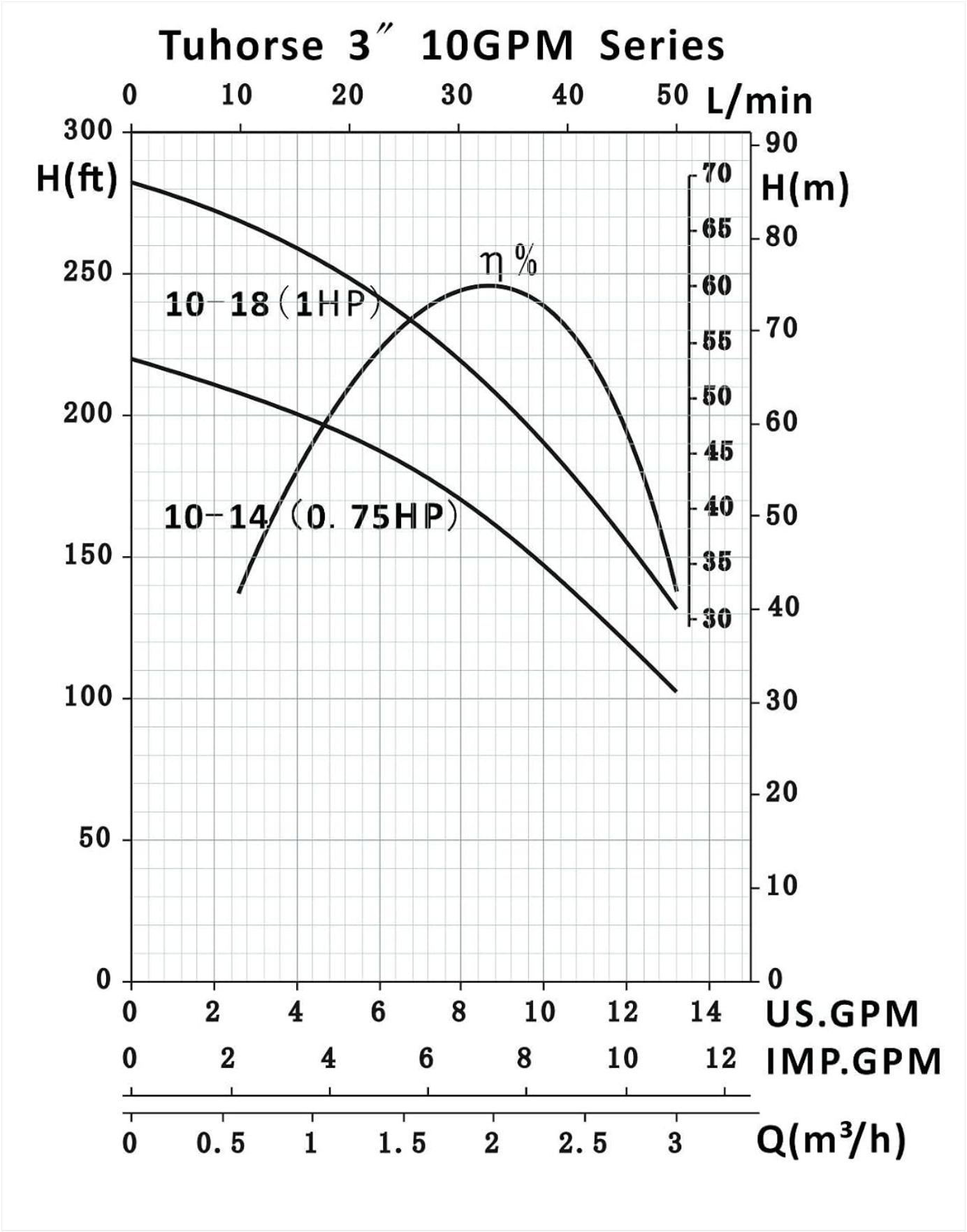

Figure 3: Tuhorse 10GPM Series Performance Curve. This graph illustrates the pump's head (H) versus flow rate (Q) and efficiency (η%) for different horsepower models.



Figure 4: Tuhorse Dual Capacitor Control Box Label. This image shows the technical specifications and warnings printed on the control box.

Setup and Installation

1. Pre-Installation Checks

- Verify that the well casing diameter is at least 3-1/4 inches.
- Confirm power supply matches pump requirements (230V, 60Hz, single phase).
- Inspect all components for any shipping damage.
- Ensure an external check valve (not included) is available if a water-tight system is required.

2. Control Box Wiring

The control box manages the pump motor's start and run capacitors and provides overload protection. Refer to the wiring diagram inside the control box cover for precise connections.

1. **Disconnect Power:** Ensure the main power supply is OFF before opening the control box.
2. **Open Control Box:** Carefully open the metal control box.
3. **Connect Motor Wires:** The pump motor uses 3 wires (typically Red, Yellow, Black) plus 1 ground wire (Green/Bare). Connect these to the corresponding terminals inside the control box. The connector terminal accepts up to AWG #6 wire.
4. **Connect Power Supply:** Connect the incoming 230V, 60Hz single-phase power supply wires to the designated terminals.
5. **Grounding:** Ensure proper grounding of the control box and pump system.
6. **Close Control Box:** Securely close the control box cover once wiring is complete and verified.



Figure 5: Internal view of the Tuhorse control box. This image shows the capacitors, terminal block, and wiring diagram for electrical connections.



Figure 6: Exterior view of the Tuhorse control box. This image highlights the cable entry points and overall robust construction.



Figure 7: Tuhorse pump motor power cable. This image shows the three insulated wires (Red, Yellow, Black) and the ground wire, ready for connection.

3. Pump Installation in Well

1. **Attach Discharge Pipe:** Connect a suitable discharge pipe to the 1-inch NPT stainless steel outlet of the pump. Ensure a watertight seal.
2. **Install Check Valve:** If a water-tight system is required, install an external check valve (not included) above the pump.
3. **Secure Safety Rope/Cable:** Attach a non-corrosive safety rope or cable to the pump for lowering and retrieval. Do not rely solely on the power cable or discharge pipe for support.
4. **Lower Pump:** Carefully lower the pump into the well, ensuring it remains vertical and does not snag on the casing. Maintain sufficient clearance from the bottom of the well to avoid drawing sediment.
5. **Secure Well Head:** Once the pump is at the desired depth, secure the discharge pipe and safety rope/cable at the well head.



Figure 8: Close-up of the Tuhorse pump's 1-inch NPT stainless steel discharge outlet. This is where the water pipe connects.

Operating Instructions

1. **Initial Start-up:** After installation, ensure the pump is fully submerged in water.
2. **Apply Power:** Turn on the main power supply to the control box. The pump should start operating.
3. **Monitor Operation:** Observe the pump's initial operation for any unusual noises or vibrations. Allow the pump to run for a few minutes to purge air from the system.
4. **Check Flow:** Verify that water is flowing from the discharge point at the expected rate.
5. **Pressure Switch (if applicable):** If a pressure switch is installed, ensure it is correctly calibrated to maintain desired system pressure.

Note: The pump is designed for continuous duty when submerged. Avoid frequent on/off cycling, which can reduce motor life.

Maintenance

The Tuhorse submersible well pump is designed for minimal maintenance. However, periodic checks can help ensure long-term reliability.

- **Annual Inspection:** Annually inspect the control box for signs of corrosion, loose connections, or damaged components.
- **Check Capacitors:** If the pump struggles to start or runs inefficiently, the capacitors in the control box may need inspection or replacement by a qualified technician.
- **Well Water Quality:** Monitor well water quality. Excessive sediment can lead to premature wear of pump impellers.
- **Overload Protector:** The control box includes an overload protector. If the pump stops unexpectedly, check the overload protector in the control box. Reset if tripped, but investigate the cause of the overload if it recurs.
- **Winterization:** In regions prone to freezing, ensure the pump and associated piping are protected from freezing temperatures if the system is not in continuous use.

Troubleshooting

Problem	Possible Cause	Solution
Pump does not start	No power; tripped circuit breaker/overload; faulty control box component (capacitor); motor failure.	Check power supply; reset breaker/overload; inspect control box wiring and components; consult a technician.
Low water pressure/flow	Partially clogged intake/discharge; worn impellers; low well water level; air in system; faulty check valve.	Inspect and clear obstructions; check well water level; bleed air from system; inspect check valve.
Pump runs continuously	Leaking plumbing; faulty pressure switch; low well water level.	Check for leaks; inspect/replace pressure switch; check well water level.
Pump cycles on/off frequently	Waterlogged pressure tank; faulty pressure switch; small leak in system.	Check pressure tank air charge; inspect/replace pressure switch; check for leaks.
Motor hums but does not start	Faulty start capacitor in control box; motor obstruction.	Disconnect power and inspect/replace start capacitor; check for motor obstruction (requires pump removal).

If troubleshooting steps do not resolve the issue, contact qualified service personnel.

Warranty

The Tuhorse TH3-010-18 Submersible Well Pump comes with a **1-year warranty** from the date of purchase. This warranty covers defects in materials and workmanship under normal use and service.

The warranty does not cover damage resulting from improper installation, misuse, neglect, unauthorized repairs, operation without water (dry running), or acts of nature. Any modifications to the product will void the warranty.

For warranty claims, please retain your proof of purchase and contact Tuhorse customer support.

Support

For technical assistance, parts, or service inquiries, please contact Tuhorse customer support.

- **Website:** Visit the Tuhorse Store on Amazon
- **Email:** support@tuhorse.com (*Example, actual email not provided*)
- **Phone:** 1-800-XXX-XXXX (*Example, actual phone not provided*)

When contacting support, please have your model number (TH3-010-18) and date of purchase readily available.

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