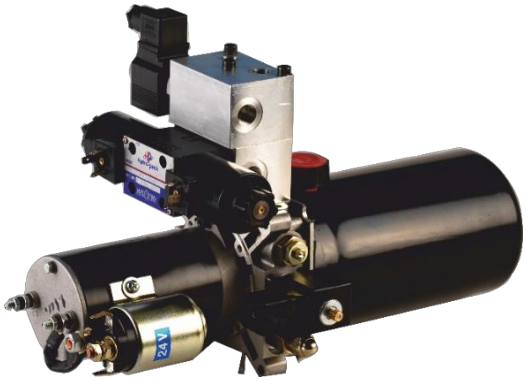
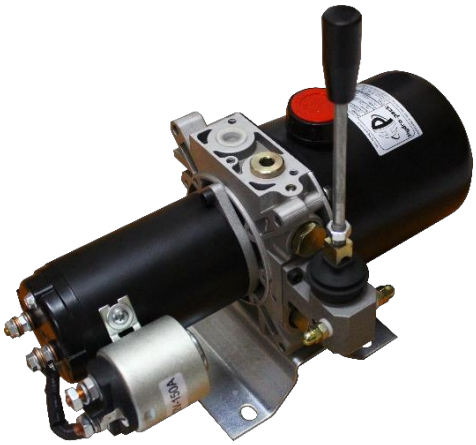
MINI POWER UNITS

DD.026 R(2) POWER UNIT USER MANUAL











Warning! Before operating the hydraulic power unit, the usage instructions specified in this manual must be read carefully.

Hydropack accepts no liability for damage resulting from improper use of the units or modifications made to the unit design.

SCOPE

I. SECTION A: GENERAL INFORMATION

A1 MANUFACTURER

A2 INTRODUCTION

A3 CONTACT

A4 LABEL

A5 APPLICATIONS

A6 OPERATING CONDITIONS

A7 TECHNICAL INFORMATION

A8 NOISE LEVEL

A9 FLUID USED

II. SECTION B: SAFETY

B1 SAFETY RULES

III. SECTION C: POWER UNIT COMPONENTS

C1 MAIN COMPONENTS

C2 ELECTRICAL COMPONENTS

IV. SECTION D: OPERATION OF THE POWER UNIT

V. SECTION E: INSTALLATION OF THE POWER UNIT

E1 WORKING AREA

E2 POWER UNIT DELIVERY

E3 POWER UNIT PROTECTION

E4 CONNECTION PORTS

E5 CONNECTION TO THE HYDRAULIC SYSTEM

E6 CONNECTION TO THE ELECTRICAL SYSTEM

VI. SECTION F: MAINTENANCE OF THE POWER UNIT

F1 CLEANING THE POWER UNIT

F2 PRESSURE ADJUSTMENT

F3 TROUBLESHOOTING

VII. SECTION G: WARRANTY TERMS

SECTION A: GENERAL INFORMATION

A1 MANUFACTURER

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A2 INTRODUCTION

This manual has been prepared for users of the hydraulic power unit. It contains the necessary information regarding the installation, initial start-up, maintenance and safe operation of the power unit.

The experiences of the manufacturer and its staff have also been taken into account in the preparation of this manual. It is recommended that the instructions regarding use set out in this manual be read carefully and followed.

The installation, dismantling and connection of electrical components of the power unit must only be carried out by qualified personnel. Maintenance and adjustments not specified in this guide must not be carried out without consulting the manufacturer.

A3 CONTACT

Should you encounter any technical issues, please contact the technical department. You can obtain information by calling +90 262 335 23 42 or by sending an email tosupport@hidros.com.tr .

Providing the following information regarding the purchased hydraulic power unit will enable us to provide you with better service:

- The hydraulic power unit code (indicated on the label affixed to the tank)
- Operating voltage and frequency
- Operating pressure
- Pump displacement
- Date of manufacture
- Brief description of the problem
- Operating time

A4 LABEL

Technical information regarding the power unit (such as motor power and voltage, pump delivery volume, and tank capacity) is provided on the label affixed to the oil tank.

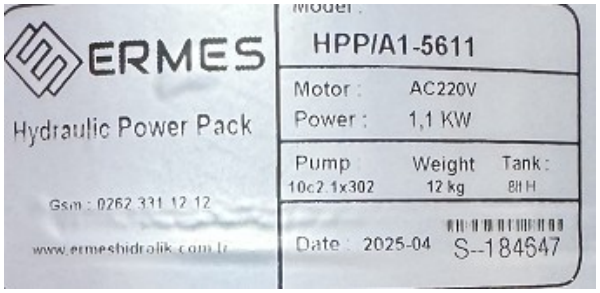


Figure 1. Power unit label

A5 APPLICATIONS

The power unit is used in various single and double-acting hydraulic systems. Examples of applications include dampers, hydraulic presses, vehicle lifting systems, loading ramps, wheelchair lifts, snow ploughs, forklifts and industrial automation.

A6 OPERATING CONDITIONS

The power unit can be operated in areas with ambient temperatures ranging from -25 to 50 degrees. (Up to 80% humidity)

A7 TECHNICAL INFORMATION

The hydraulic power unit can provide a flow rate of between 0.4 litres and 22 litres per minute, depending on the selected electric motor (from 0.5 kW to 5.5 kW) and hydraulic pump (from 0.25 cc to 9 cc). The operating pressure can reach a maximum of 220 bar, again depending on the components used.

A8 NOISE LEVEL

The hydraulic power unit emits a sound level of up to 85 dB. (Compliant with the EN 60034-9 standard)

A9 FLUID USED

The oil tank must be filled with a new, filtered mineral-based hydraulic oil compliant with the ISO 6743/4 standard, with a viscosity range of 15 cSt to 68 cSt (at 40°C). The hydraulic fluid may vary depending on the climate of the location where the unit is used. Please do not use engine oil, diesel or water in your system. (Filtration class NAS 1638)

The hydraulic fluid should be changed every six months or once a year, depending on usage. The suction filter may also need to be cleaned. If the fluid level has dropped, top up as required.

SECTION B: SAFETY

B1 SAFETY RULES

Due to the presence of electrical components and pressurised parts, only qualified personnel should be involved in operating the power unit.

For your safety, please read the following instructions carefully.

- When operating the power unit, parts that do not comply with the technical specifications must never be used in the electric motor's terminal box, or on the coils and sockets used on the unit.
- Connections must be made by an experienced electrician. The direction of rotation of the electric motor must be checked. (The arrow indicating the direction of rotation is shown on the electric motor's fan cover.) In Hydropack power units, unless otherwise specified, the direction of rotation of the electric motor, as viewed from the fan, is clockwise. Only in some special ramp blocks is the direction counter-clockwise when viewed from the fan.
- Hydraulic connections must be made with care. The letters "P" and "T" are marked on the main block of the power unit. "P" denotes the pressure line (the port to be connected to the pressure line of the directional control valve), whilst "T" denotes the tank line.
- The hoses or pipes used must be compatible with the system pressure and flow rate.
- Pipe connections must be tightened carefully, suitable sealing elements must be used, and oil leakage must not be permitted.
- The vent cap on the oil tank must not be removed, and a blind plug must not be fitted.
- It is not recommended to set the pressure relief valve on the main block to a pressure higher than the recommended level. Please contact the technical department.
- The power unit must be securely mounted in a balanced manner, free from vibration.
- The power unit must not be used in an explosive or flammable environment.
- Insufficient fluid in the oil tank may damage the hydraulic pump.
- The terminal box covers of AC motors must remain closed during operation.
- Insulated cables must be used for connections.
- The power unit must not be installed in a damp or wet environment.
- In DC electric motors, the positive and negative terminals must not come into contact with one another.
- The terminals of a DC motor must be insulated.
- A DC motor must not be operated without a contactor fitted.
- Hose diameters must not be smaller than required.

SECTION C POWER UNIT COMPONENTS

C1 MAIN COMPONENTS

The power unit consists of the main components listed below:

- Electric motor
- Main block (die-cast aluminium alloy)
- Hydraulic gear pump
- Oil tank
- Filter

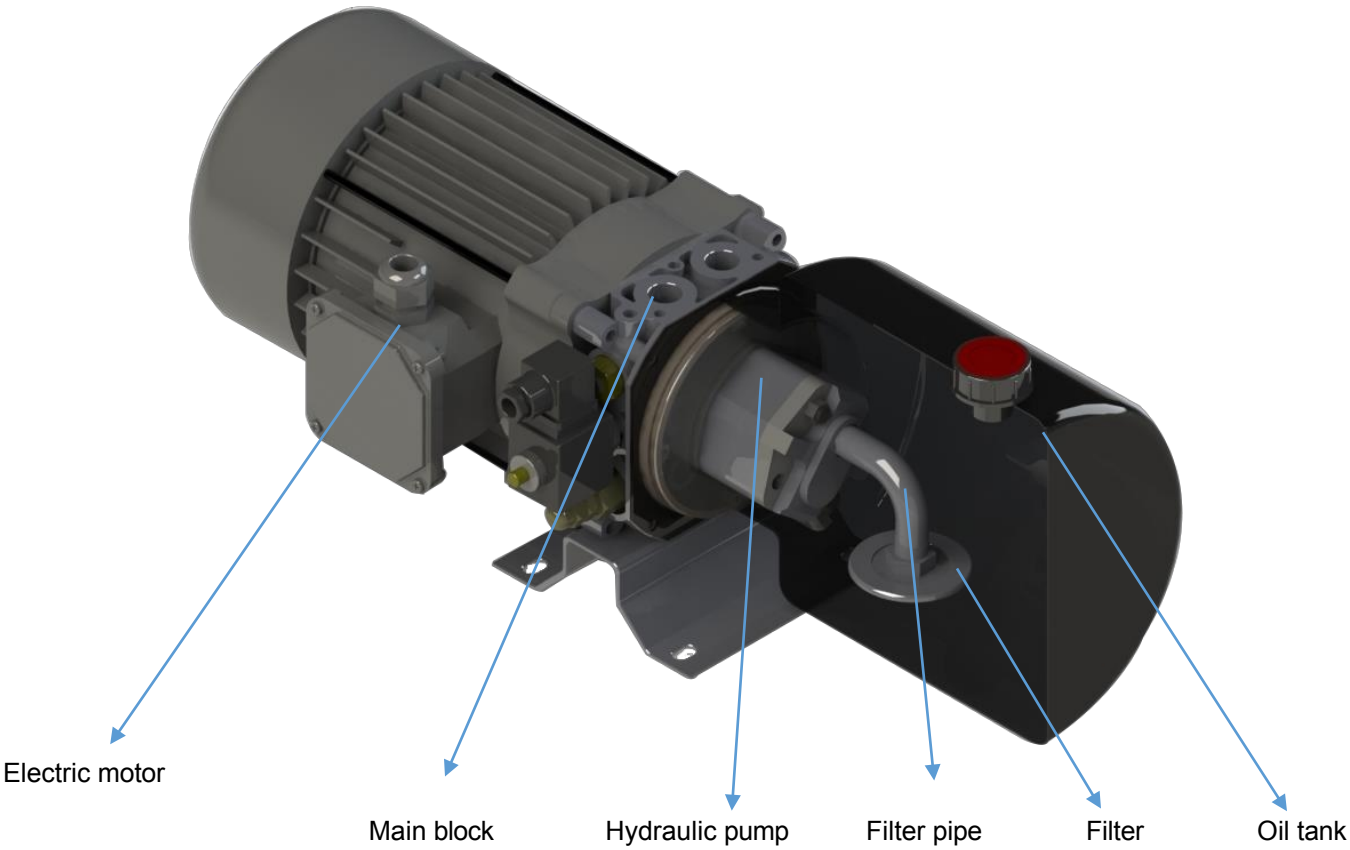


Figure 2. Main components of the power unit

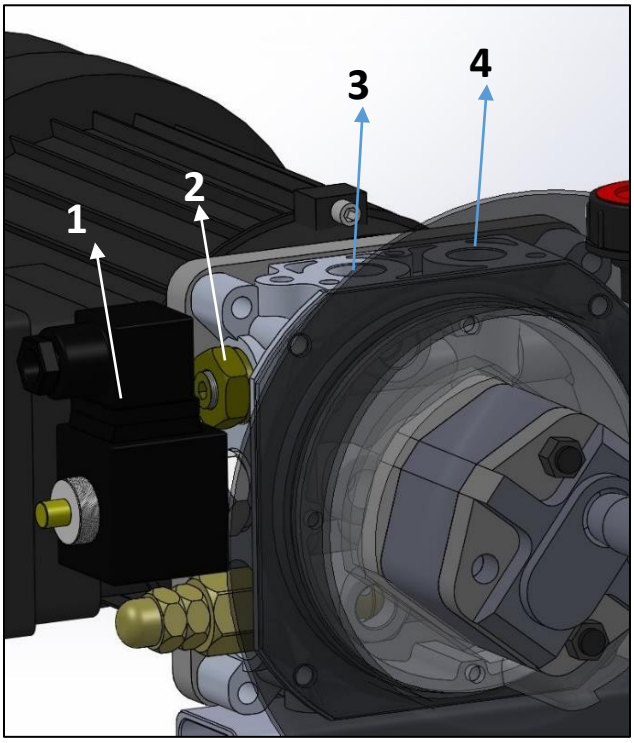


Figure 3. Single-phase mini power unit

No	Description	Notes
1	2/2-way poppet valve	2/2 SAE8, solenoid-controlled poppet valve. Normally closed and normally open valve options are available. A manual poppet valve is also available.
2	Speed control valve	The speed control valve is used to adjust the cylinder's rotational speed. Two models are available: standard and pressure-compensated.
3	Tank port	Blinded (G 3/8")
4	Pressure port	The outlet port is connected to a single-acting cylinder. (G 3/8")

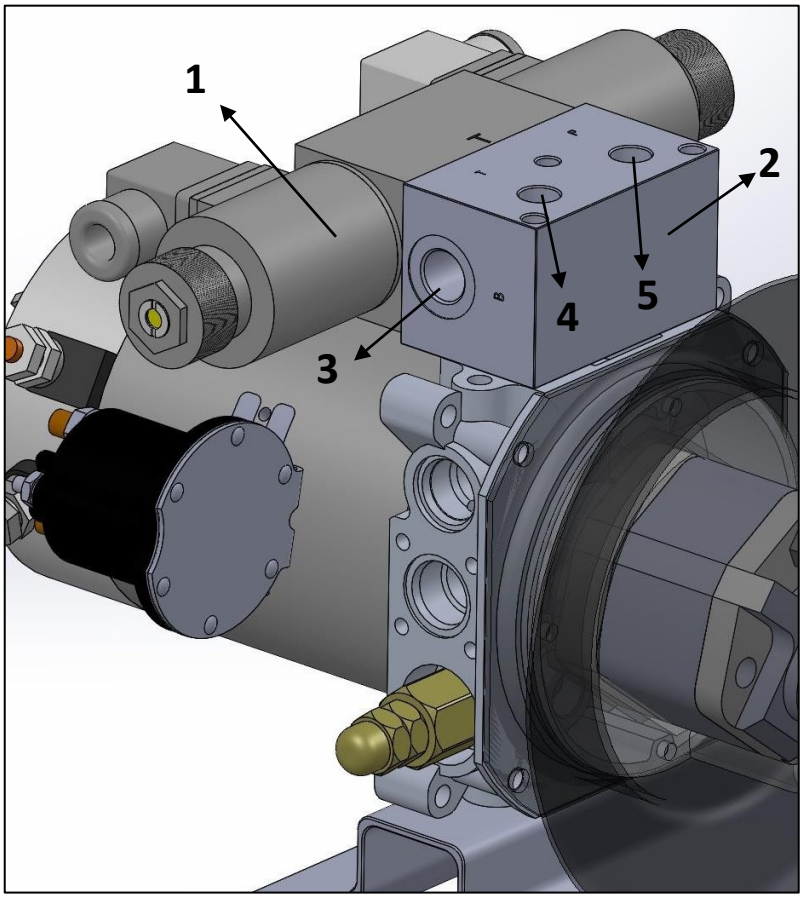


Figure 4. Dual-effect mini power unit

No	Description	Notes
1	4/3-way solenoid valve	NG6, solenoid-controlled directional control valve. Various spool options are available.
2	NG6 valve connection block	These blocks are used for mounting NG6 valves. Two models are available: with a check valve and without a check valve.
3	Outlet ports	The outlet ports connect to the ports of the double-acting cylinder. (G 3/8")
4	Tank port	Blinded (G 1/4")
5	Pressure port	Blinded, can be used for a pressure gauge connection if required (G 1/4")

When the electric motor is started, the gear pump is driven. The pump draws oil from the reservoir and pressurises it towards the valve block and from there to the power unit's application components. The pressure in the system is regulated by the pressure relief valve located in the main block. Other hydraulic blocks can be mounted on the power unit according to the customer's requirements.

C2 ELECTRICAL COMPONENTS

Electrical components in the hydraulic power unit:

- Electric motor
- Contactor (for DC motors only)
- Solenoid Valves (optional)

The electric motor is either a three-phase type for AC or single-phase. For DC motors, the operating voltages are standard at 12 or 24 V.

Poppet valves are cartridge type. Coils can operate at 12, 24 V or 220 V voltages. Connection sockets are manufactured to the DIN 43650 standard.

SECTION D OPERATION OF THE POWER UNIT

The operation of the power unit is determined by the machine into which it is integrated. Whilst the power unit is in operation, hydraulic fluid leakage onto surfaces is not permitted. The power unit operates when the motor is supplied with the required voltage. Control is achieved through the appropriate combination of motor and solenoid valve operation.

SECTION E: INSTALLATION OF THE POWER UNIT

E1 WORKING AREA

The power unit must be installed using M10 holes if no mounting plate is provided. The environment in which the power unit is located must not restrict access to the oil filler plug or the drain valve. The environment must not prevent the power unit from cooling. The unit must not come into contact with parts that vibrate or transmit noise.

E2 POWER UNIT DELIVERY

The power unit is transported and shipped wrapped in plastic within a sealed cardboard box. It is supported by foam. As it contains sensitive components, it must be handled with care and must not be dropped. If the oil tank is full, a blind plug must be fitted in place of the vent cap, or the oil must be drained prior to shipment.

E3 POWER UNIT PROTECTION

Once the power unit has been removed from its box, the packaging is removed, the safety plugs are removed and it is connected to the supply line.

E4 CONNECTION PORTS

There are two letters on the main block indicating the pump (pressure) and tank lines. 'P' denotes the pump line and 'T' denotes the tank line. The thread size for both ports is standard G 3/8". When fitting hydraulic connection fittings to the ports, the tightening torque must not exceed 65 Nm.

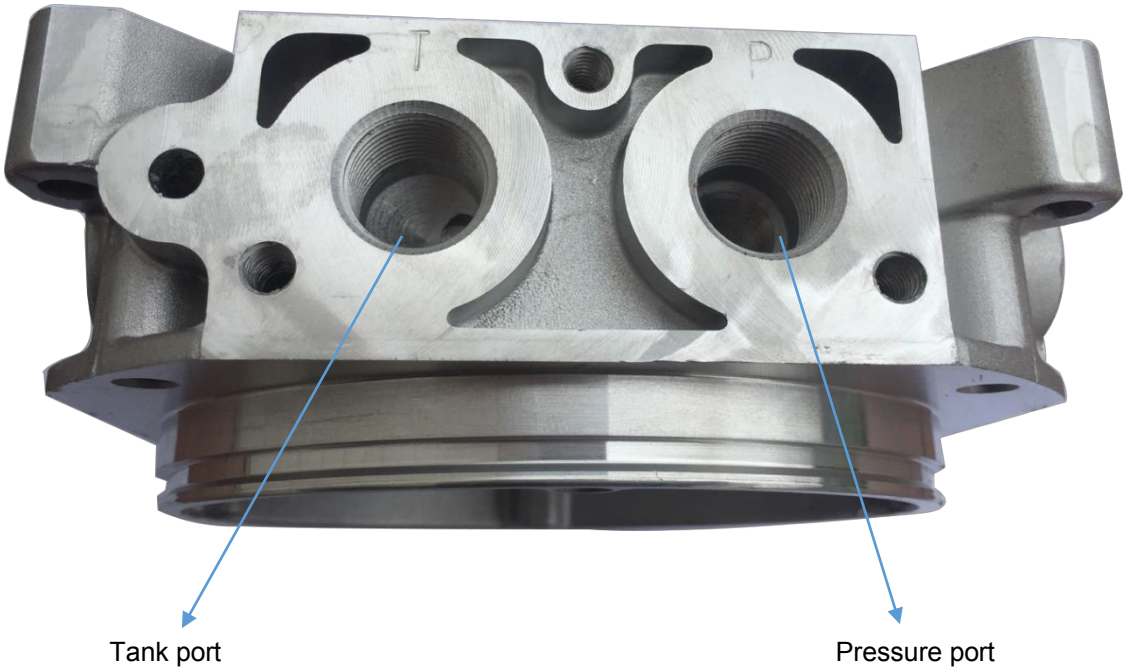


Figure 5. Connection ports on the main block

E5 CONNECTION TO THE HYDRAULIC SYSTEM

The pipes in the power unit are connected to the machine's (system's) application lines. The hydraulic circuit and technical information are shown on the technical drawing. After final installation of the power unit, clean hydraulic fluid is filled to the level indicated on the tank.

E6 CONNECTION TO THE ELECTRICAL SYSTEM

The cover of the motor terminal box is removed. The nuts on the terminals are unscrewed. Cable lugs are connected to the terminals. The nuts are then screwed on and tightened securely. The cover is placed back onto the terminal connection box. The coils of the solenoid valves are connected in the same manner. The direction of rotation of the motor must be carefully checked.

Connection of the power unit to the electrical system must be carried out by an experienced electrician, and safety regulations regarding electrical equipment must be observed. Please consult the manufacturer for electrical connection diagrams. A current relay (100 mA), thermal relay and main circuit breaker must be used to protect the electric motor. Once the electrical connection has been made, the motor rotation must be checked by the fan.

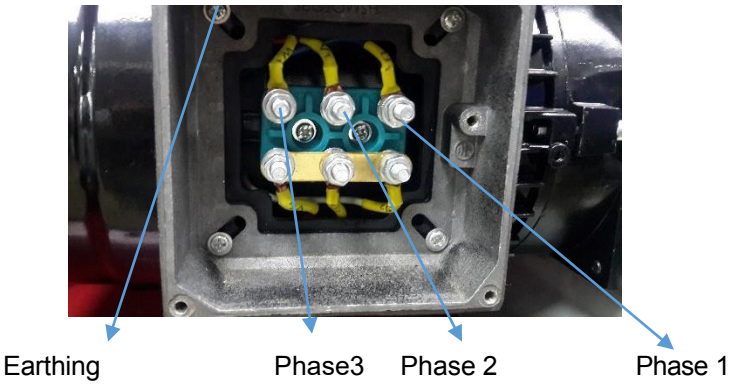


Figure 6. Connection for 380 V AC motors

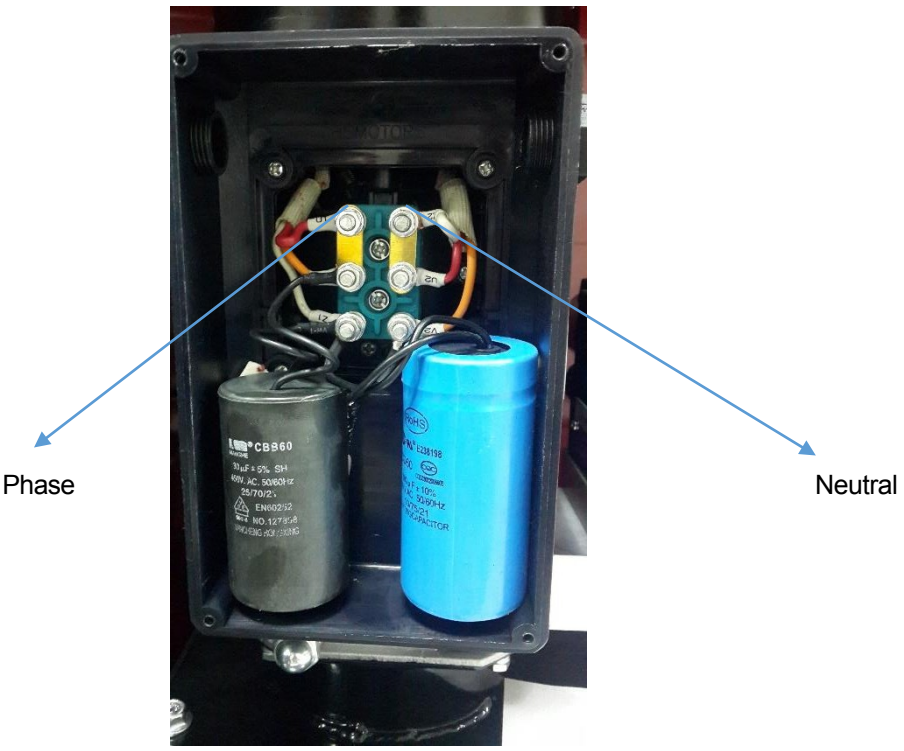


Figure 7. Wiring for 220 V AC single-phase motors*

* If the single-phase motor is rotating in the opposite direction to the clockwise direction, please check the instructions on the terminal box cover to ensure correct rotation.

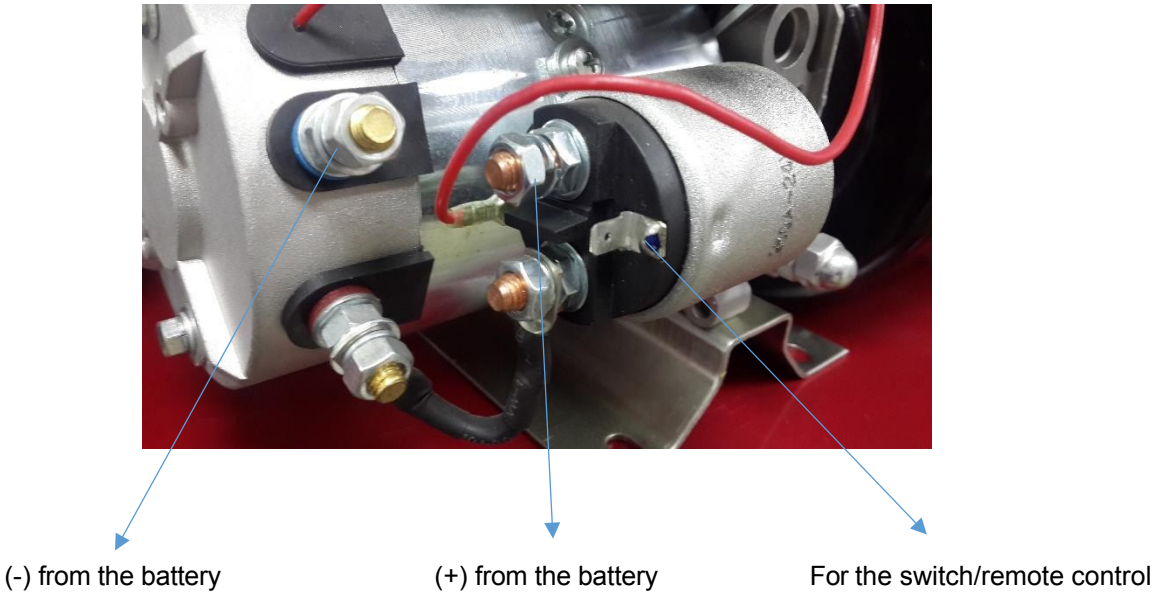


Figure 8. Connection in a DC motor

SECTION F MAINTENANCE OF THE POWER UNIT

F1 CLEANING THE POWER UNIT

The power unit should be cleaned using a soft cloth without any cleaning agents or solvents. The cloth must not leave any fibres on the treated surfaces. Depending on usage, the oil must be changed every six months or once a year. The oil change is carried out as follows:

- The pressure is released from the system.
- The power unit is switched off.
- The piping is disconnected. The bolts securing the power unit to the floor are removed.
- The power unit is positioned vertically on the tank and the fixing bolts are removed.
- The electric motor, main manifold and pump are removed as a single unit. The old oil is drained and the inside of the tank is cleaned. The suction filter is also cleaned.

After cleaning, the main block and electric motor are placed in the tank. The fixing bolts are tightened. The assembled power unit is returned to its operating position. Hydraulic fluid is filled to the specified level. The vent cap must be tightly closed. The pipework is fitted and the power unit is connected to the electrical system in accordance with the application.

Contaminated oil significantly reduces the service life of the power unit.

F2 PRESSURE ADJUSTMENT

The pressure adjustment on the hydraulic power unit is carried out via the pressure relief valve located on the main block. The pressure adjustment is carried out in the following order:

- A pressure gauge is fitted to the “P” port.
- Loosen the nut on the adjustment screw. Unscrew the adjustment screw fully.
- The power unit is started, and the adjustment screw is turned (clockwise to increase, anticlockwise to decrease) until the desired pressure is reached. The nut is then tightened.

For further information, please refer to the support document *“DD.030 ENG R(0) Adjusting relief valve pressure on power pack*”.



Figure 9. Pressure relief valve on the main block

Warning! Please do not exceed the maximum operating pressure specified on the technical drawing.

F3 TROUBLESHOOTING

PROBLEM	CAUSES	SOLUTION
Insufficient pressure	• Lack of oil in the tank • Faulty pressure relief valve • Faulty solenoid valve • Faulty hydraulic pump • Incorrect filter pipe • Clogged filter • Air in the suction line • Contaminants in the system	• Top up the oil • Replacement • Replacement • Replacement • Replacement • Replacement • Air venting
Pressure not detected	• The gear pump is not working properly • The direction of rotation of the electric motor is incorrect • The electrical connection is incorrect	• Repair or replacement • The correct direction must be determined • The electrical connection must be checked
Performance issues	• Faulty solenoid valve • Faulty check valve • Faulty pressure relief valve • Faulty hydraulic pump	• Replacement

All power units are 100% tested before delivery to the customer. Please contact us if you have any questions.

For any special requests regarding mini power units, please complete and submit the form below.

Application	
Number of cylinders	
Type of cylinders	☐ ***Single-acting*** ☐ ***Double-acting*** ☐ ***Telescopic***
If the cylinder is telescopic, the number of stages	
Cylinder mounting	☐ ***Vertical*** ☐ ***Horizontal*** ☐ ***Angled***
If the cylinders are mounted at an angle, the angle in degrees	
Operation of the cylinders	☐ ***. The cylinders operate simultaneously*** ☐ ***The cylinders operate separately***
Maximum load in the system	
Cylinder barrel diameter (If the cylinder is telescopic, specify the barrel diameters and strokes for each stage.)	
Cylinder stroke	
Cylinder opening time	
Required motor voltage	
Unit mounting configuration	☐ ***Vertical*** ☐ ***Horizontal***

SECTION G WARRANTY TERMS

The manufacturer guarantees that the product complies with the standard and technical documentation and will operate under the conditions specified in the current manual.

Please do not remove the product label from the oil tank during the warranty period.

The warranty period is 12 months from the date the unit is first put into operation, but shall not exceed 18 months from the date of purchase.

The manufacturer undertakes to rectify any problems arising from production and assembly.

If the user has carried out repairs without authorisation and has not followed the instructions set out in this manual, the warranty conditions will not apply.

The manufacturer's warranty conditions are enforced by authorised maintenance/repair personnel at the factory.

PRODUCT CODE	HPP …
SERIAL NO	
DATE OF MANUFACTURE	

The warranty is valid only on documents bearing the date, stamp and signature.