

HLP3-20EX

Explosion-proof Hydraulic Pump

Operating and Maintenance Manual



WREN Hydraulics

This operator's manual covers operating procedures, warnings and precautions for HLP3-20EX explosion-proof hydraulic pumps, as well as troubleshooting. Before use, please read this manual carefully, understand its contents thoroughly, and keep it safe.

Safety instructions

The safe use of hydraulic electric pumps must require correct operation and regular inspection.

This electric pump should only be used after reading and thoroughly understanding the safety instructions in this manual.

Notice - to prevent direct economic loss or property loss.

Warning – to prevent personal injury.

Please observe both of the above items.

During use, if an abnormal situation occurs, please turn off the power, unplug the power connector, and then apply it to WREN or WREN Authorized Agent Consultation.

1. When using this electric pump, all personnel are prohibited from standing at the outlet of the hydraulic oil to prevent personal injury or property damage that may occur when the hydraulic oil is accidentally leaked; Electric pumps must be kept away from ignition.
2. Before pressurization, hoses or quick couplings should be installed to prevent high-pressure hydraulic oil from rushing out and causing personal injury.
3. The maximum working pressure of this hydraulic electric pump is 2000Bar; The factory has set the pressure to 2000Bar at the factory. Never adjust the pressure beyond the set pressure.
4. If this Hydraulic Pump is used to operate other supporting equipment, the working pressure of the supporting equipment should be less than 2000Bar, and the pressure should be adjusted to the working pressure of its supporting equipment, otherwise the supporting equipment may be damaged; The operation of adjusting the pressure regulating valve is described in items 6 and 7.
5. Fully consider safety, before maintenance, the power supply of hydraulic equipment should be cut off.
6. If the pressure is released quickly, the load of the tensioner in use will spring off, which may cause personal injury; Please consult WREN or an authorized WREN dealer who will recommend the right valve for you.
7. Turn off the pushbutton switch before plugging in the power; If the switch is on, the pressure will increase.
8. Make sure to ground and avoid electric shock.
9. Do not modify this hydraulic pump; If you really need to modify, you should consult WREN or WREN authorized agents first. Without WREN's written consent, modifications are not covered by the warranty.
10. Do not fill the hydraulic oil that exceeds the available oil amount, otherwise, the pressure in the oil tank will increase or overflow, and the oil storage tank may be damaged and cause environmental pollution.
11. tightening quick couplings; If it is not tightened enough, the device will not work properly; If you synchronize the system, one or more of the devices will not work properly. If this happens, quick connectors, equipment may be damaged, which may cause personal injury.
12. Stay away from where ultra-high pressure hydraulic oil may be sprayed; Hydraulic oil can penetrate your hands, causing serious injuries.
13. If hydraulic oil is sprayed into your eyes, rinse immediately with water for about 15 minutes and go to the hospital to clean your eyes.
14. Do not touch the hose with pressure; If the hydraulic oil is ejected, it can cause serious injury.

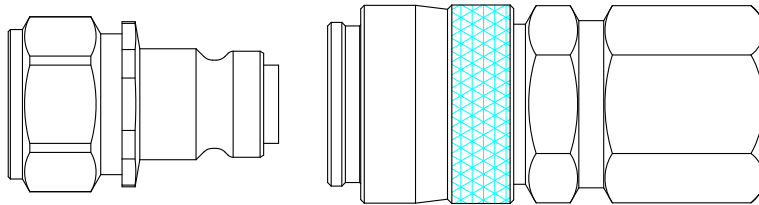


FIG 1

Safety instructions

1. Please use WREN recommend hydraulic tool.
2. Do not use pressure regulating valves as general adjustment valves or release valves.
3. It is necessary to treat the used waste hydraulic oil according to the anti-fouling conditioning

Notes:

1 HLP3-20EX explosion-proof hydraulic pump is assembled in an integrated way; An independent and complete hydraulic device composed of oil pump, control valve, oil tank, motor, cooler, instrument, etc., with the characteristics of small size, light weight, simple structure, convenient operation and high working pressure. The pump supplies oil to the high and low pressure oil pumps at the same time, and can obtain a large oil output. When high pressure, the low-pressure pump automatically returns oil without load through the unloading relief valve, which can reduce power consumption, and the oil outlet pressure at the (A) port can be adjusted max 2000Bar.

2 Hydraulic Oil for Pump: #46 or #32 anti-wearing Hydraulic Oil.

3 Ambient temperature of hydraulic pump: -10~80°C.

4 Please use WREN high-pressure hoses, high-pressure fittings, etc. The maximum working pressure of the high-pressure hose equipped with WREN hydraulic pump is 2000Bar, please choose the matching pressure system when using.

5. If you need to use an accessory hydraulic product for this pump, please consult a WREN engineer.

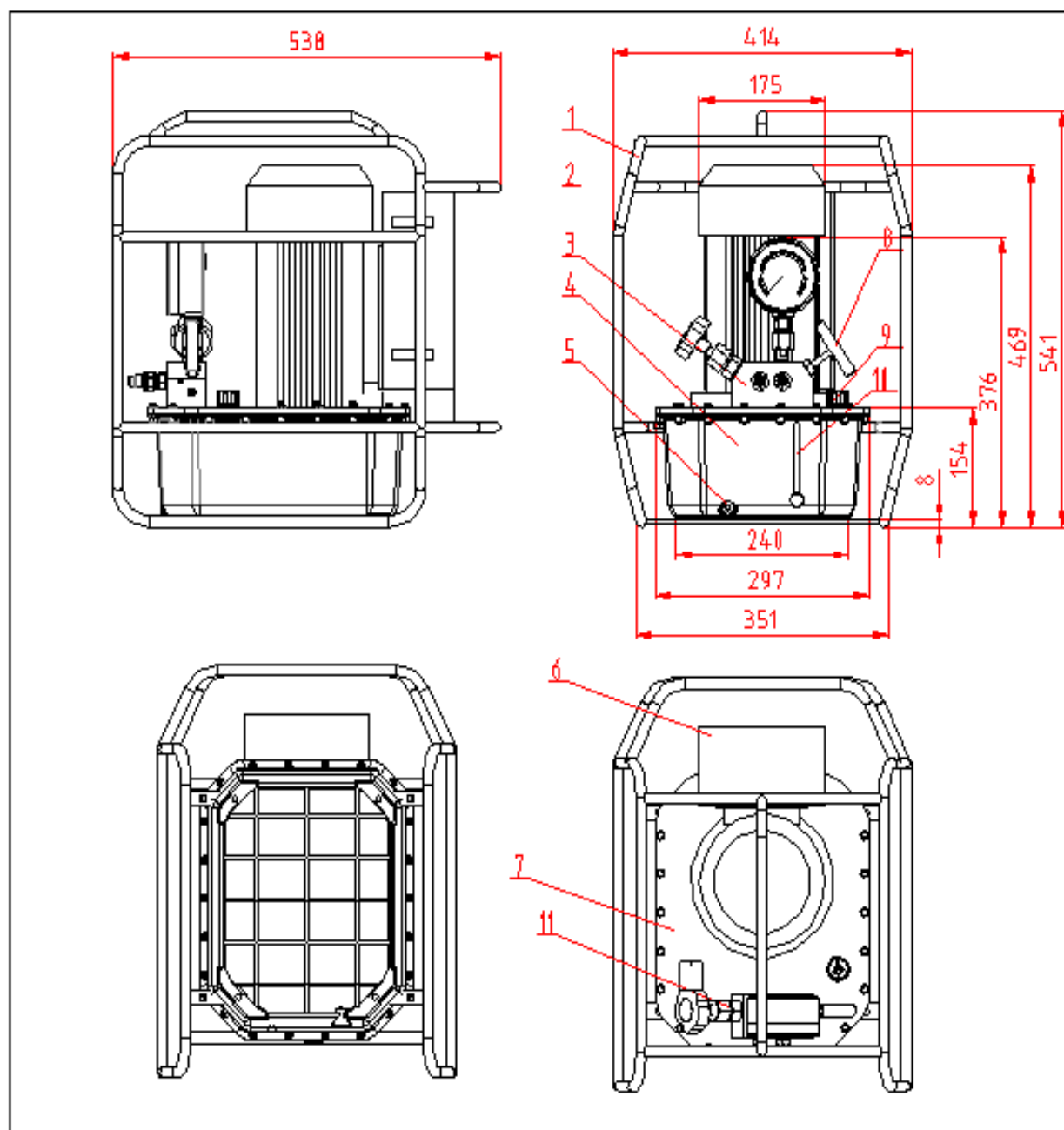
6. Do not use the hydraulic pump near the flame.

7. Please do not adjust the pressure regulating valve arbitrarily to avoid equipment damage and personal injury caused by ultra-high pressure.

Overview of HLP3-20EX explosion-proof hydraulic pump components.

1. Hydraulic pump protection frame: installed on the oil storage tank, used to carry and protect the hydraulic pump.
2. Pressure gauge: shows the working pressure of the hydraulic pump, the range is 2000Bar.
3. Valve block: integrates pressure regulating Valve, Check valve, pressure gauge, oil outlet.
4. Oil tank: store the hydraulic oil for work, ensure the normal operation of the system (there must be enough oil), and provide the pressure carrier required by the system.
5. Oil releasing port: screw plug G1/4" to realize the discharge of hydraulic oil into the oil tank (used when replacing hydraulic oil).
6. Electrical control system: the electrical control part of the hydraulic pump to realize the control of the hydraulic pump to start pressing, high and low pressure conversion and stop pressing.
7. Oil TRank Plate: seal the oil tank and install hydraulic pump parts.
8. Check valve: locks and releases pressure.
9. Oil Filling Port: the passage for the tank to exchange air and inject hydraulic oil.
10. Oil Gauge: observe the amount of hydraulic oil to ensure the optimal amount of oil used; When the hydraulic oil is lower than 1/3 of the oil standard, the special hydraulic oil for the WREN pump must be added, otherwise the pump may be damaged.
11. Pressure Regulating Valve: adjust this valve to set the working pressure of the hydraulic pump, (the highest working pressure has been locked at the factory, and it is forbidden to increase the locking pressure.)

External drawing of explosion-proof hydraulic pump



| Item | Description | Item | Description |
|----------|---------------------------|-----------|---------------------------|
| 1 | Frame | 7 | Oil Tank Plate |
| 2 | Pressure Gauge | 8 | Check Valve |
| 3 | Valve Block | 9 | Oil Filling Cap |
| 4 | Oil Tank | 10 | Oil Gauge |
| 5 | Oil Releasing Port | 11 | Pressure Regulating Valve |
| 6 | Electrical Control System | | |

Characteristic

1 HLP3-20EX explosion-proof hydraulic pump

2 Max Operating Pressure: 2000Bar

3 Working Voltage: Three Phase 380V

4 Use temperature: -10~80℃

5 Usable Oil: 8L

The main causes of failure:

Please do not adjust the pressure regulating valve arbitrarily to avoid equipment damage and personal injury caused by ultra-high pressure.

Maintenance Inspect

1. Check things before use

1.1. Check whether the power connection line is loose or poorly connected, if it is found that the power wiring part is loose, the loose part should be tightened.

1.2. Please check whether the amount of hydraulic oil reaches the specified value, and add it immediately when it is insufficient.

1.3. Check the piping or equipment for oil leakage, and if such a phenomenon occurs, find out the cause and deal with it.

2. In-action Inspects

In the inspection of the following items, if you find any abnormal conditions, please stop the machine immediately to deal with the failure

Warning: If oil gets splashed in your eyes, rinse immediately with water for at least 15 minutes and see a doctor immediately after rinsing. If oil splashes on your skin, wash it with water and soap.

WARNING: Discarded hydraulic oil is industrial waste and should be entrusted to a company that has the ability to collect and process industrial waste.

Noise and Transportation

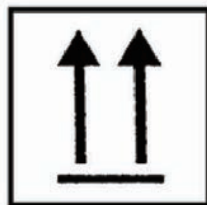
1. HLP3-20EX pump noise/vibration statement

HLP3-20EX uses noise value: $\leq 70\text{db}$

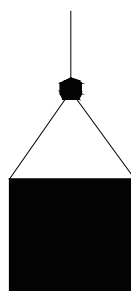
2. HLP3-20EX pump transportation information

2.1. Pay attention to handling with care.

2.2. The product should be vertically upward when shipped, as shown in the following figure.



2.3. Product handling generally adopts portable or trolley handling and lifting, as shown in the figure below



Operation Method (pressure adjustment)

1、Preparation

1.1 The high-pressure outlet of the pump is connected to the high-pressure outlet of the hydraulic bolt tensioner with the high-pressure hose. The quick couplings on the connecting hoses should be plugged in to the end for a reliable connection.

1.2 Release the regulating Valve and tighten the check valve so that it is closed and ready to work.

2、Adjust Pressure

2.1 Turn on the power supply and wrench the circuit breaker on the enclosure housing to the ON position.

2.2 Press and hold the self-reset button on remote control, and adjust regulating Valve to the required pressure; Then release the self-recovery button of remote control, loosen check valve to start releasing pressure till 0, and tighten the check valve again; Press the self-recovery button, observe the pressure gauge pointer, repeat the above steps till the required pressure is adjusted, lock the nut, and complete the pressure regulating process.

3、Use

3.1 Press the self-locking button on remote control, at this time the pump outputs pressure and the bolt tensioner starts to work; When the pressure is close to the required value, release the self-locking button, and jog the self-reset button; Let the pressure reach the desired pressure value.

3.2 When the required working pressure is the previous set value, press the self-locking button on remote control, wait for the pointer to stabilize, at this time the output pressure of the pump is the set value, release the self-locking button.

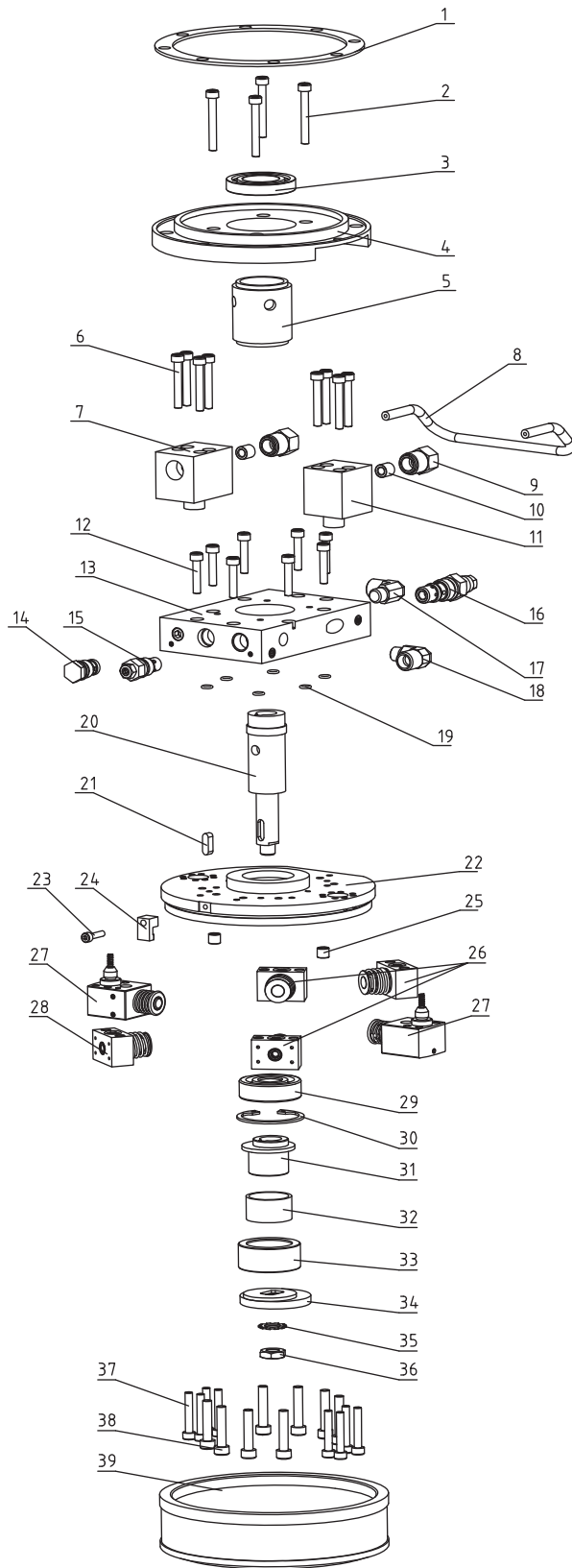
3.3 After loosening the check valve to release pressure to 0, re-tighten the check valve; Repeat the above steps until you are finished.

3.4 After the operation, loosen the check valve to release the pressure in the pipe and hydraulic tool, and remove the hose and put dust cap on; Disconnect the power supply and put breaker (at electrical Control Box) at OFF position.

Trouble Shooting Guide

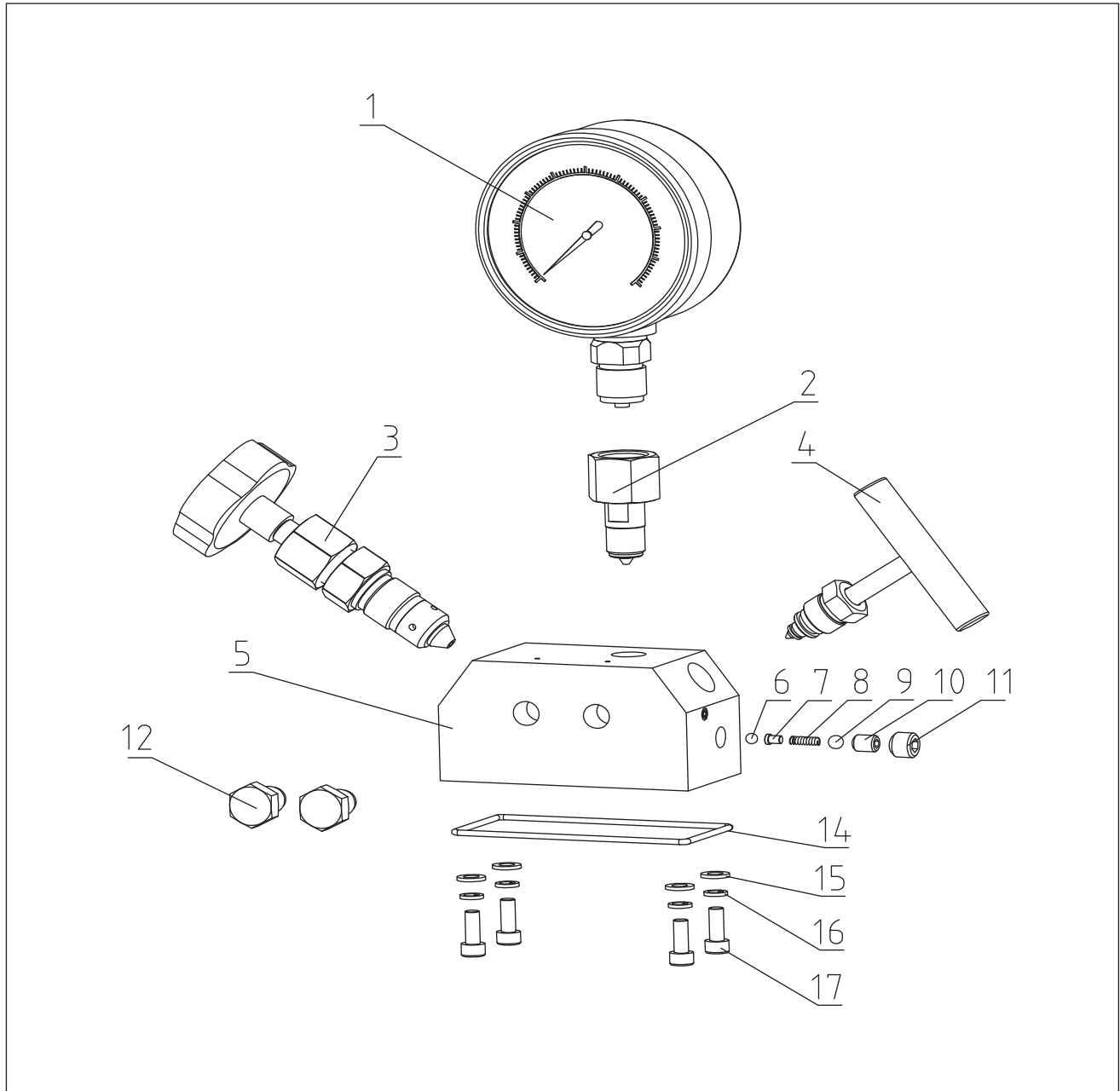
| | | |
|--|--|--|
| Unable to start Hydraulic Pump | The supply voltage does not match | Determine whether the supply voltage meets the requirements of regulations |
| | The power supply is not plugged in | Check the power supply, power connectors, sockets, etc., and turn on the power |
| The system is without pressure | The quick couplings are not seated | Disassemble, reinstall |
| | There is no oil in oil tank | Fill oil |
| | Oil is not enough | Fill oil |
| | If the system has a needle valve and a manual check valve, check whether the valve is open | Open the needle valve and manual check valve to determine that the system is in the open |
| Reinstall the quick coupling, the system is without pressure | The quick couplings cannot be connected in place, cause pressure in the system increasing | Disassemble the quick couplings, use the top rod to check whether the steel balls in quick couplings are elastic, if the top does not move, hit the steel ball with a small hammer to drain the mist hydraulic oil |
| Oil leakage at the quick couplings | O-Rings in quick couplings are worn | Replace the quick couplings |
| The system pressure does not reach the rated value | The relief valve is adjusted too low | The pressure gauge is detected, and the relief valve is adjusted to the system value |
| | Water and oil mixed | Replace oil |
| | Oil in the oil tank is not enough | Fill oil |
| | Inhale air | The system is repeatedly empty several times to exhaust the air |
| | The needle valve and manual check valve are not closed | Lock Valve |
| | The needle valve and manual check valve are not adjusted in place | Adjust to the correct position |
| | Needle valves, manual check valves are damaged | Replace Valve |
| | The hydraulic oil contains impurities | Clean the pump valve and replace the cleaning hydraulic oil |
| When static pressure is used, the pressure drops slowly | Seals May fail, please check seals | Replace the seals |
| The pump has strong noise during operation | Pump bearing is damaged | Replace the bearing |

Part List with drawing for Pump Body Assembly



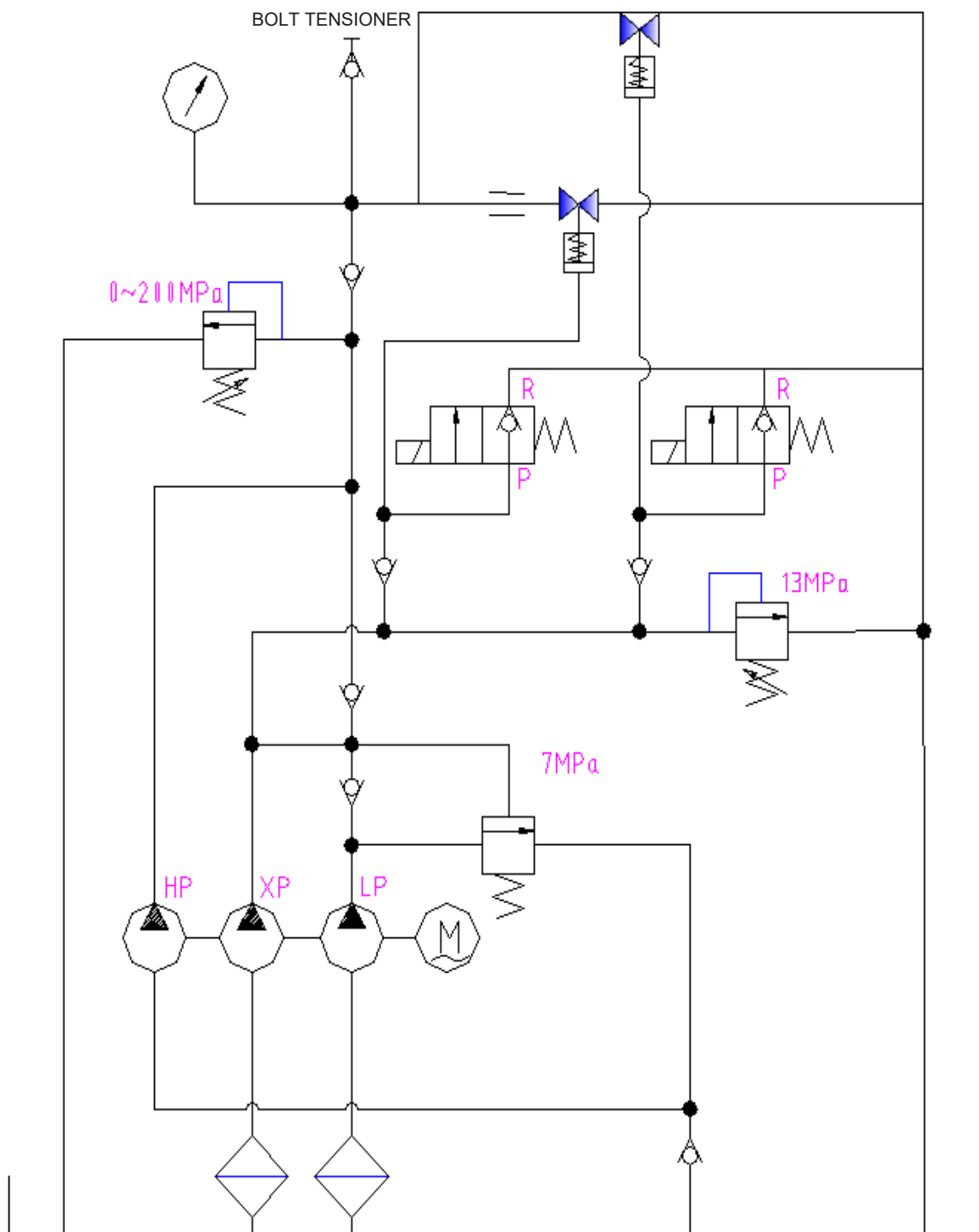
| Item | Name | QTY |
|------|----------------------------|-----|
| 1 | Seal Gasket | 1 |
| 2 | Screw | 4 |
| 3 | Bearing | 1 |
| 4 | Connect Flange | 1 |
| 5 | Body Sleeve | 1 |
| 6 | Screw | 8 |
| 7 | Block for High Pressure | 1 |
| 8 | Pipe | 1 |
| 9 | Pipe Fitting | 1 |
| 10 | Connect Fitting | 1 |
| 11 | Connector 2(high pressure) | 1 |
| 12 | Screw 2 | 8 |
| 13 | Pump head(low pressure) | 1 |
| 14 | Checking valve | 1 |
| 15 | Regulating valve | 1 |
| 16 | Relief valve(low pressure) | 1 |
| 17 | Fitting | 1 |
| 18 | Fitting | 1 |
| 19 | O ring | 1 |
| 20 | Bearing | 1 |
| 21 | Sleeve | 1 |
| 22 | Pump head(high pressure) | 1 |
| 23 | Screw 3 | 1 |
| 24 | Fliter press | 1 |
| 25 | Retaining ring | 1 |
| 26 | piston 1 | 3 |
| 27 | High pressure piston | 2 |
| 28 | Piston 2 | 1 |
| 29 | Deep groove ball bearing 2 | 1 |
| 30 | Retaining ring | 1 |
| 31 | Eccentric sleeve | 1 |
| 32 | Copper sleeve | 1 |
| 33 | Bearing outer ring | 1 |
| 34 | Eccentric block | 1 |
| 35 | Multi-tooth gasket | 1 |
| 36 | Nut | 1 |
| 37 | Screw 4 | 8 |
| 38 | Screw 5 | 8 |
| 39 | Filter cover | 1 |
| | | |
| | | |
| | | |

Part List with drawing for Valve Block Assembly



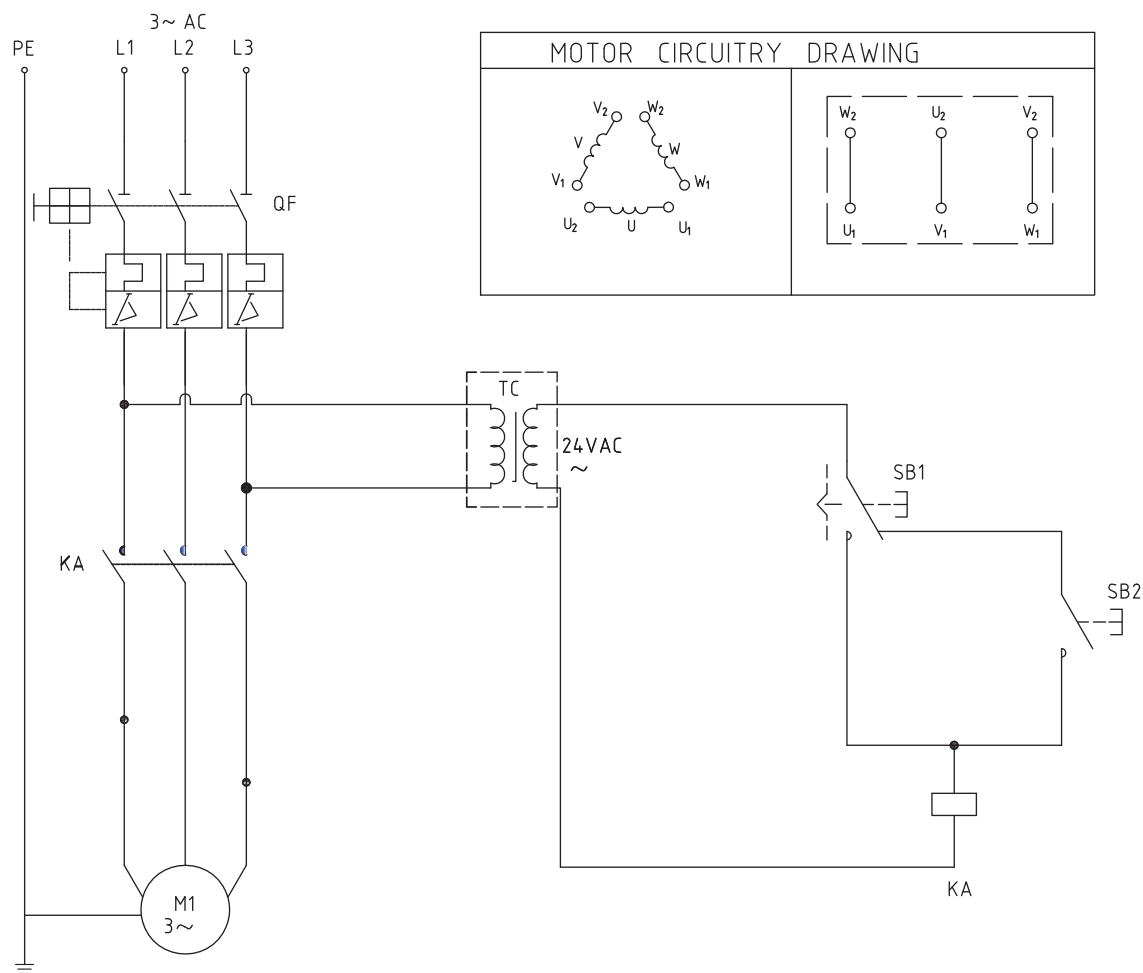
| Item | Description | Quantity | Item | Description | Quantity |
|------|------------------|----------|------|---------------|----------|
| 1 | Gauge | 1 | 10 | Screw 1 | 1 |
| 2 | Gauge adaptor | 1 | 11 | Screw 2 | 1 |
| 3 | Regulating valve | 1 | 12 | Plug | 2 |
| 4 | Needle valve | 1 | 13 | O ring | 1 |
| 5 | Connector | 1 | 14 | Flat gasket | 4 |
| 6 | Steel ball 5 | 1 | 15 | Spring gasket | 4 |
| 7 | Ejector pin | 1 | 16 | Screw | 4 |
| 8 | Spring | 1 | | | |
| 9 | Steel ball 6.35 | 1 | | | |

Hydraulic Principle



Electronic Principle (Three Phase 380V)

ELECTRICAL PRINCIPLE DRAWING



| work components | | M1 Motor | SB1 | SB2 | Symbol | Description |
|--|--------|----------|-----|-----|--------|-------------------------|
| control components | | | | | QF | Breaker |
| Self locking | SB1(+) | + | | O | TC | transfomer |
| Self locking | SB1(-) | - | | O | SB1 | remote control button 1 |
| Self retract | SB2(+) | + | - | | SB2 | remote control button 2 |
| Self retract | SB2(-) | - | - | | KA | high flow relay |
| Remark:+ means connect and work - means break and stop ○ means no connection,does not work | | | | | M1 | motor |
| | | | | | | |
| | | | | | | |

Use warning for High pressure hose

1. Please use WREN recommended high pressure hose.
2. Minimum bending radius: $R > 120\text{mm}$. A bend radius that is too small will seriously damage the high-pressure hose.
3. The operating pressure is 2000Bar Max, and overpressure is prohibited.
4. The hose must not be wound during operation, otherwise the oil pipe will produce excessive back pressure, so that the inside of the hose will be damaged, and the hose will be reported prematurely.
5. Do not drop or press heavy objects onto the hose; Severe impacts can cause damage to the hose, burst when used, and cause personal injury.
6. Do not use hoses to drag, pull or lift heavy objects.
7. It is forbidden to use in conditions such as excessive heat, flame, machine rolling, sharp edges and chemical corrosion. When the hose is arranged on the channel, a cover must be installed. 8 . WREN BH series high pressure hose allows operating pressure of 1800Bar max, and use for overpressure is prohibited.

Service after sales

1. From the date of customer purchase of WREN brand hydraulic tools, we will provide users with 13 months warranty.
2. WREN products during the warranty period due to quality problems caused by materials and manufacturing defects will be replaced and repaired by WREN free of charge.
3. Product damage caused by non-compliance with regulations, accidents, abuse, improper operation, unauthorized product modification or repair, and non-compliance with specifications is not covered by this warranty.



All WREN products are guaranteed against defects in workmanship and materials for as long as you own them. Under this guarantee, free repair or replacement will be made to your satisfaction.

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