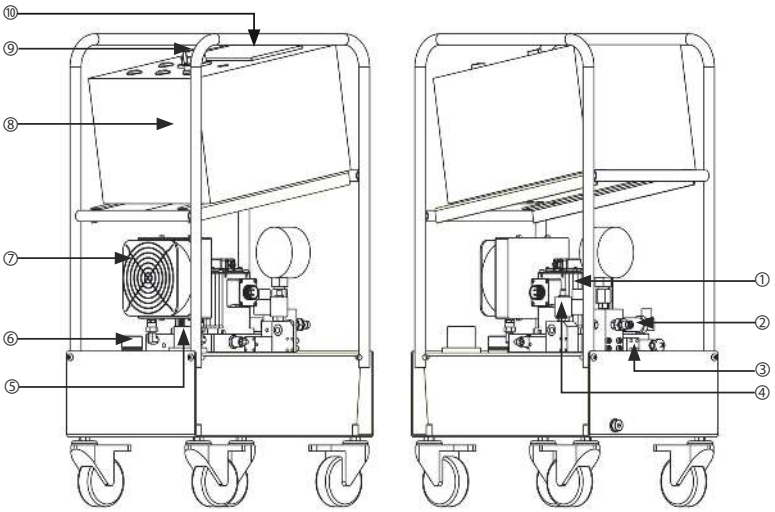
ESP Introduction Of Product Components:



NO	Name
1	Servo motor
2	Pressure sensor
3	Pressure retaining valve block
4	Electromagnetic unloading valve
5	Liquid level temperature sensor
6	Refueling And Exhaust Outlet
7	Air Cooling Radiator
8	Electric Cabinet
9	Mains switch
10	PLC touch screen

Function Introduction Of the Components:

The Main Interface

Power status indicator: real-time display of the power connection status of the device.
Press button: start the motor, and the equipment will automatically increase the voltage according to the preset parameters.
Release button: used to manually trigger the system pressure relief to ensure that the pressure is zero.
Emergency stop button (red mushroom head button): In case of emergency, press it to immediately stop the motor and relieve pressure.
Power on/off switch: control the main power supply of the equipment. Rotate the power on/off switch to ON/OFF position to connect/disconnect the main power supply of the pumping station.

Solenoid Unloading Valve

The on-off of the electromagnetic unloading valve is controlled by the unloading button on the main interface.
The electromagnetic unloading valve is not energized the hydraulic oil flows to the outlet, the pressure is established after the motor starts, and the pressure is maintained after the motor is closed.
Electromagnetic unloading valve energized hydraulic oil back to the tank, pressure cannot be established.

Pressure Sensor

The pressure sensor can convert the pressure signal into an electrical signal to monitor the pressure in real time. In terms of control operation, it can feed back signals to the control system to adjust the output parameters of the pump and realize automatic start and stop.

▶ Level Temperature Sensor

Level monitoring: the oil tank level height is displayed in real time to prevent overflow or pump idling due to too high or too low level, and ensure stable oil supply.

Temperature monitoring: dynamically detect the temperature of oil to avoid high oil temperature causing viscosity drop, seal aging or overheating of equipment, and ensure safe operation. Digital integration: real-time display of liquid level height and temperature data.

▶ Exhaust Valve

This port is a non-sealed port, and the slight leakage of hydraulic oil during transportation is normal. The exhaust plug should be installed when using to ensure good ventilation of the tank.

▶ Oil Level Indicator

This port is a non-sealed port, and the slight leakage of hydraulic oil during transportation is normal. The exhaust plug should be installed when using to ensure good ventilation of the tank.

- The oil level should be observed after all actuating elements have returned to their positions.

▶ Product Usage Steps:

1.Preparation Before Use

-Check that all parts (frame, motor, pressure gauge, etc.) are undamaged, the feet are stable, and all connections are not loose.

-Check the rated voltage. The standard voltage of ESP ultra high pressure electric pump is 220V/50Hz.

-Check the hydraulic oil level of the pump. The oil level should be above 2/3 of the upper oil gauge. If the hydraulic oil is insufficient, open the filling port and inject the same type of anti-wear hydraulic oil as the original pump (it is recommended to use hydraulic oil grade ISO VG46). The maximum filling amount is the top of the oil gauge.

Hydraulic oil level gauge

If the oil level is below 2/ 3, please rotate out the plug of this outlet and carry out the operation of refueling.

-Install the exhaust plug, align the exhaust plug with the fuel filling exhaust port, and then rotate it slowly in a clockwise direction until it is tightened to the appropriate degree. Ensure that the tank is ventilated; replace the exhaust plug during handling or transportation, and reinstall the sealing plug to ensure that the seal prevents oil leakage.

Exhaust plug

Install the exhaust plug

◆ If the exhaust plug is not installed to discharge air, it will seriously affect the normal operation of the equipment. The air in the oil tank will cause pressure fluctuation and flow deviation, cause wear and failure of components, and reduce the stability and accuracy of operation.

2. Pressure Setting And Connection

-Connect the power supply, rotate the switch button on the operation interface to the ON position, the display screen lights up, enter the pump station operation interface, and set the system parameters.

Connect the power supply to the pumping station

Enter the control main interface

-Digital Display Core Functional Module

1. Real-time pressure monitoring

-Main interface display:

- Current pressure value (unit: bar/MPa)
- Target pressure set point
- Output power conversion value

-Pressure accuracy feedback:

- The pressure fluctuation range indicates (e.g., ±1% full scale), and the automatic pressure replenishment or unloading is triggered when the limit is exceeded.

2.Running Status Display

- Power status (on/off)
- Motor operation status display: the corresponding cursor is lit to indicate the current state of the pump station, which is pressurization, pressure preservation and pressure reduction respectively. Pressing pressurization start or pressure reduction can switch the state.

3. Historical Data Query

-Historical curve interface:

- View the history of pressure changes (time-pressure curve) using the fast forward/ rewind button.
- Support data trace back at critical time points (such as alarm trigger time).

4. Alarm message warning

- Alarm trigger and shutdown: When the system detects abnormal conditions (such as overpressure, high temperature, abnormal liquid level, etc.), the main interface will highlight the alarm information, and the pressurization function will be automatically cut off.
- Troubleshooting and repair: Check the corresponding fault according to the alarm code.
- Prohibit forced start: Do not attempt to restart the pumping station before troubleshooting is excluded.
- Clear alarm: After the fault is repaired, return to the main interface and click the "alarm clear" option.
- Restart the pumping station: After the alarm is cleared, the pressurization operation can be restarted.

5.Parameter setting interface

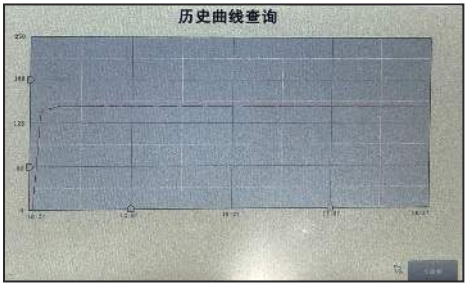
-Adjustable parameters are displayed in real time:

- Target pressure, pressure accuracy, high and low pressure speed, advance deceleration value, etc.
- Sensor range calibration value and compensation parameters.

The main interface is displayed

Parameter Settings page

Alarm message warning



Historical curve query

-Setting The System Time

- When the screen is on, pr essure the bottom of the screen to enter the system Settings page.
- **Access the system settings interface:** Tap the "System Settings" option on the main screen to enter.
- **Set the time:** Select the "Time" option from the menu bar to enter the editing interface. Then, adjust the year, month, day, hour, minute, and second in order as prompted on the screen. Touch input is supported.
- **Save and synchronize:** Click the "OK" option to save the settings. The system will automatically synchronize them to the log - recording module. Return to the main screen and check if the time display has been updated.

Tap the "System Settings" option

Select the "Time" option

After entering the time, click OK to save

-Set Work Pressure

1. Enter the parameter setting interface

After starting the device, switch to the "parameter Settings interface" through the touch screen.

2. Set target pressure

Select the "Target Pressure Setting" option and enter the required pressure value (unit: bar or MPa) with reference to the safe pressure range indicated on the equipment nameplate (e.g., 150MPa -250MPa).

3. Set pressure accuracy

Set the pressure accuracy (such as ±1%) to avoid excessive pressure fluctuation that leads to frequent pressure replenishment or automatic pressure relief.

4. Configure the boost control parameters

Low speed: the motor speed when the cylinder does not reach the target pressure (the higher the value, the faster the pressure rise).

High speed: reduce the speed when close to the target pressure (the smaller the cylinder, the smaller the value) to prevent overpressure.

Early deceleration value: the starting point of deceleration before the set pressure reaches the target value (e.g., 95% of the target value).

5. Set alarm protection

Enter the alarm time. If the target pressure is not reached after the timeout, the system will automatically alarm and motor will stop .

6. Save and test

After saving the parameters, return to the main interface, press/click the pressure button to start the pressure increase, and observe whether the pressure gauge and digital data are stable and meet the standard.

-How To Perform Unloading Operations

1. Stop the operation of the equipment

Click the pressure relief button on the main interface / press the unloading button to trigger the manual unloading program of the system.

If an emergency stop is required, press the emergency stop button (red mushroom button), the motor stops and the pump will unload.

2. Monitor pressure release

Observe the digital pressure value or mechanical pressure gauge on the main interface to confirm that the pressure is gradually reduced to zero.

-Connect The Extender: Install a CEJN female connector (or male connector) at the outlet. The outlet thread is G1/4, with standard plug. The rated pressure of the electric pump is 1500Bar or 2500Bar.

Retreat of the outer lock ring: Push the outer lock ring of the joint axially backward to make the joint in a state of connection.

Axial alignment insertion: Keep the tubing and fitting aligned axially, and slowly and smoothly insert the tubing into the fitting along the axial direction.

Forward push rotation lock of the outer lock ring: When the tubing is fully inserted into the joint, push the outer lock ring forward along the axial direction until the outer lock ring reaches the locking position and is firmly locked. The fixing condition of the outer lock ring can be checked by pushing it appropriately to ensure that it is locked in place.

The outer lock ring is pushed back, and the oil pipe is fully pushed into the outlet by axial alignment.

After pushing the oil pipe, push the outer lock ring forward and rotate it clockwise to lock.

3.Start Running

- Start the electric pump: After confirming that the pressure is set and the load device is connected correctly, press the pressure button to start the electric pump.
- During the working process, pay attention to the pressure gauge value in real time, maintain the system working pressure at the target value stably, and ensure that the pressure fluctuation is controlled within a reasonable range.

Press the pressure button and the motor starts

4.Monitoring During Operation

Pressure Monitoring: Continuously monitor the pressure gauge readings in real-time and observe the pressure holding operation status of the system. Keep the system working pressure stable at the target value, and ensure that the pressure fluctuation is controlled within ±0.5 MPa of the target value.

Oil Level Monitoring: Pay attention to the oil level gauge when the pump station is in operation. If the oil level is below one-third, stop the pump station and refuel. Slowly inject an appropriate amount of ISO VG46 anti-wear hydraulic oil through the oil-filling and venting port to restore the oil level to the normal range. During the refueling process, take care to prevent impurities from mixing into the hydraulic oil.

Temperature Monitoring: When the "High Oil Temperature" alarm is displayed on the main interface, stop the operation of the pump station. After the equipment has cooled down naturally, confirm that the oil temperature value has returned to normal and there are no alarm prompts, then restart the pump station.

5. Pressure Relief and Shutdown

Pressure Relief Operation: After the work is completed, press the pressure release button to trigger the system's manual pressure release procedure. Reduce the system pressure until the pressure gauge reads 0, thus achieving system pressure release.

Turn off the Motor: Rotate the main power switch counter-clockwise to the "OFF" position to cut off the main power supply, and then unplug the power plug.

Remove the Oil Pipe: After completing the above two steps, carefully pull out the hydraulic oil pipe. When removing the oil pipe, be careful to avoid the splashing of the residual hydraulic oil inside the pipe to prevent injury to personnel or contamination of the working environment. After removing the oil pipe, arrange and store it properly for future use.

Troubleshooting:

Troubleshooting Guide		
Issue	Possible causes.	Solution
1. The pump does not start	Not connected to a power source.	Check whether the circuit is connected normally and restart.
	The electrical circuit of the pump is short-circuited or tripped.	Check whether the circuit is connected normally and restart.
	The voltage is too low.	Check the voltage and turn off other electrical loads.
	The socket cord is too long and too thin	Replace the high-power socket strip
	The handle button is damaged.	Contact the manufacturer for repair.
	Pump components are damaged.	Contact the manufacturer for repair.
2. The motor stops during pressurization	The voltage is too low.	Check the voltage and turn off other electrical loads. Replace the strip and check the input voltage.
	Servo alarm.	Restart the motor after eliminating the alarm items.
3. The pump is not pressurized or the upper pressure is too low	Insufficient amount of oil.	Check the oil level and inject new hydraulic oil.
	Electromagnetic relief valve is energized.	Check the operating status of the relief valve.
	Leakage from the outside of the pump.	Observe leaks and carry out repairs or replacement of accessories.
	The hydraulic oil is too dirty and blocking the suction port.	Change the hydraulic oil and clean the suction port.
	Leakage inside the pump.	Contact the manufacturer for repair.
	System leaks.	Check for system leaks and repair them.
4. The system establishes pressure, and the tool does not move	Overloaded.	Check and select the right load.
	System congestion.	Check if the system is clogged and unblock the system.
5. The flow is too small	The hydraulic oil is too dirty and blocking the suction port.	Change the hydraulic oil and clean the suction port.
	There is a throttle valve in the system	Adjust the throttle flow.
	System congestion.	Check if the system is clogged and unblock the system.
6. The tool cannot be returned normally	The tool backstroke has a large damping	Check and remove the large damping term.
	The system has a return throttle valve.	Check the system and adjust the throttle valve.
	The system throttle valve adjustment is smaller.	Check the circuit and readjust the flow valve.
	Motor failure.	Contact the manufacturer for repair.
7. Severe fever	The system throttle valve adjustment is smaller.	Check the circuit and readjust the flow valve.
	Motor failure.	Contact the manufacturer for repair.