

OPERATION AND MAINTENANCE

MANUAL HLP3-20X series

Electrical Tensioner Pump



WREN Hydraulics

It is operating manual of HLP3-20X series Electrical Tensioner Pump, please read carefully follow instructions warnings and cautions before using the tools.

Safety Guide

Electrical Tensioner Pump's safe usage requires correct operation and regular inspect, the user is always requested to follow always and carefully regular inspect.

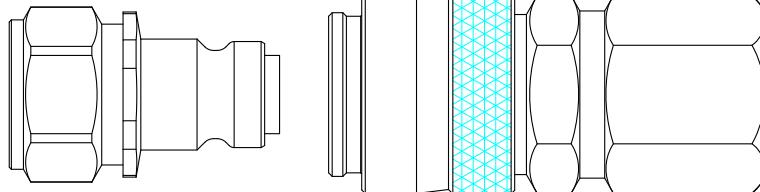
▲Precaution to avoid direct loss in economic or property.

▲Warning to avoid personal injury.

Please follow herein before!

When using, if something abnormal happens, please shut off the power immediately, and then consult WREN or WREN's agent.

1. When using, do not permit any person stand at the oil output in order to avoid personal injury and equipment damage. Please put the pump far away from the fire.
2. Make sure that the hose and quick coupler be connected before building up the pressure in order to avoid hydraulic fluid spouting out to cause personal injury.
3. The maximum operating pressure of this pump is 2000bar (29000psi), WREN has set up the pressure to 2000bar before selling this pump. Please do not adjust to a pressure higher than the maximum pressure which WREN has not set.
4. If this pump is used for operating other equipments, make sure the maximum operating pressure of the equipments will be less than 2000bar. Please adjust the pressure to which the equipment need, or else the equipment would be damaged.
5. Make sure the power of the pump is shut off before repairing it.
6. If the rapid release of pressure, lifting jack in the load will fall or spring open, may cause injuries; please refer to WREN or WREN authorized agents, they will recommend you the right valve.
7. Please shut off the switch before starting power; if the switch is on, the pressure may increase.
8. Make sure the equipment be connected with ground to avoid electric shock.
9. Please do not change any part of the pump; if it must be changed, please inform WREN or Wren's agent for help. Without allowance of WREN or its agent, any refit of it will be out of our warranty range.
10. Please do not fill the pump reservoir with too much oil, otherwise, the pressure of the reservoir will increase and the oil will spill over, so the reservoir will be broken and the environment will be polluted.
11. Make sure the quick coupler is tightened; if the quick coupler is not tightened enough, the equipment will not work normally; if it is a synchronic system, the problem may cause one or several pieces of equipment out of order and the quick coupler may be broken and it may cause personal injury or equipment damage.
12. Please stand away from the position where the hydraulic oil may be spurt out; hydraulic oil may penetrate your hand and hurt you.
13. If the hydraulic oil splashed in your eyes, please immediately wash your eyes about 15 minutes with clean water, then you must go to hospital for help right now.
14. Please do not touch the pressurized hose; if the hydraulic oil splashed out, it will cause serious injury.
15. Hydraulic hose is easily spoiled fitting; you inspect the hose with eyes regularly and find no problems, but the inner side may have crack and small hole; WREN suggests you should change the hose regularly.



PRECAUTION

1. Only WREN hydraulic special oil available.
2. Do not use pressure regulate valve as relief valve.
3. The used hydraulic oil should be put away according to the antipollution ordinance.

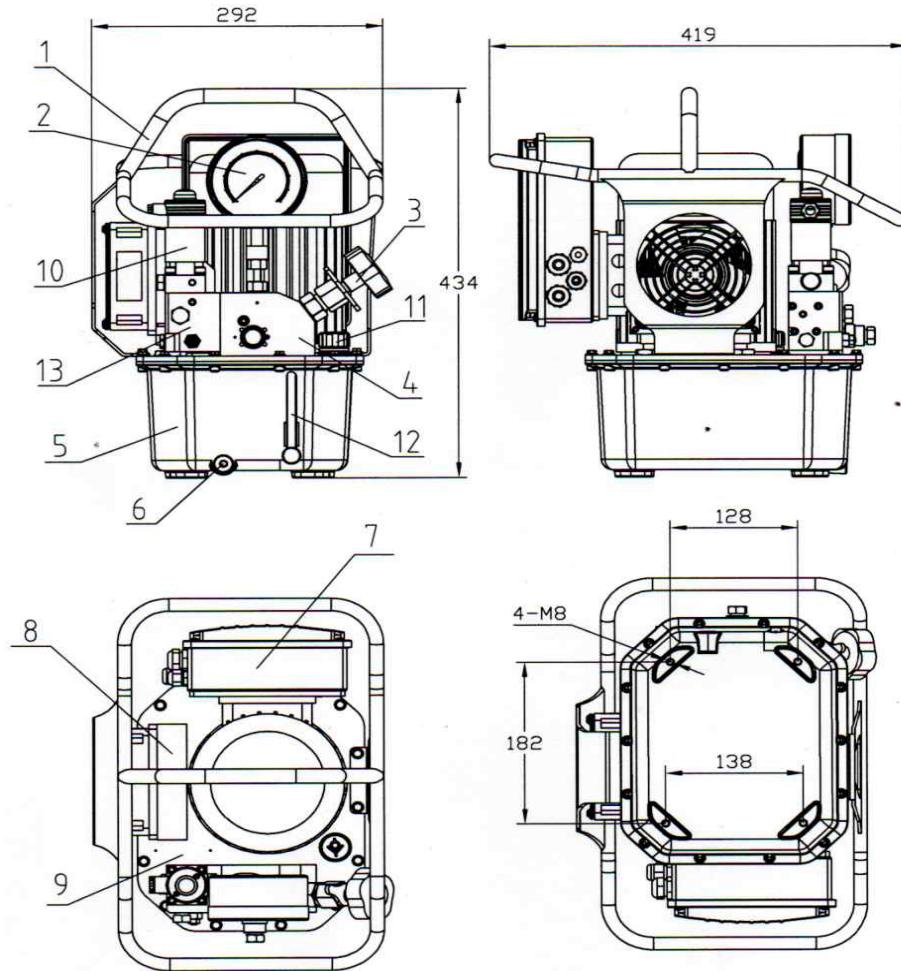
DESCRIPTION

1. Tensioner pump is an integrated assembly; by the oil pump, control valve, oil tank, Electrical motor, coolers, instrument consisting of an independent and complete hydraulic device, has the advantages of small volume, light weight, simple structure, convenient operation, high work pressure. Pump for high, low pressure oil pump and oil supply, it can obtain the larger oil output. High pressure, low pressure pump by unloading overflow valve automatic no-load return oil, can reduce the power consumption, output pressure is 90~2000bar arbitrary regulating.
2. Hydraulic oil:46# or 32# anti-wearing hydraulic oil.
3. working environment temperature: - 10~60 C
4. Use WREN high-pressure hose, quick coupler. The maximum using pressure of hose is 1800bar, please use the selection and matching pressure system.
5. This pump for use of hydraulic products, please consult the WREN engineer.
6. Please don't use the electric hydraulic pump near flame.
7. Please do not arbitrarily adjustable pressure regulating valve, in order to avoid the high pressure caused by equipment damage and personal injury.

DESCRIPTIONS OF PARTS

1. Frame: For carrying and protecting
2. Pressure guage: Gauge shows pressure at 2000bar max.
3. Pressure regulating valve: Regulating the pressure by this valve.
4. Valve Block: Part of valve system
5. Oil Tank: Oil tank: 5.5 Liters oil tank, usable oil: 4 Liters.
6. Oil Releasing port: G1/4 plug screw for releasing oil.
7. Electric Control Assembly
8. Oil Cooler: Cooling system for long operation.
9. Oil Tank Plate
10. Solenoid Valve: Solenoid control system
11. Oil Filling Port: Filling oil by this port.
12. Oil Gauge: Shows the oil level.
13. Block for Solenoid Valve: Part of valve system

HLP3-20X series profile drawing



ITEM	Name	ITEM	Name
1	Carry Case	8	Oil Cooler
2	Pressure Gauge	9	Oil Tank Plate
3	Pressure Regulator	10	Solenoid Valve
4	Valve Block	11	Oil Filling Port
5	Oil Tank	12	Oil Gauge
6	Oil Releasing Port	13	Block for Solenoid Valve
7	Electric Control Box		

WARNING

1. When operating, do not permit anyone stand at the oil output, The oil output must connect other components when adjusting the pressure.
2. When using, do not overpass the max operating pressure.
3. If need to check motor tank, please shut off the pump.
4. When working, the oil back to oil reservoir may add the pressure. If open the cover plate, unnecessary injury and damage will happen.
5. Prohibit to operate without oil.
6. Keep the pump clean, clean especially the oil inlet, quick couplers.
7. Suggestion: in the condition of not using the pump always, please remember to replace the hydraulic oil.

Maintenance inspection

1. Check items before use

- 1.1 Check if there is any looseness or incorrect connection in system. If the power connection part is found to be loosen, tighten the part.
- 1.2 Please check whether the hydraulic oil reaches the required value, and if it is insufficient, please add it immediately.
- 1.3 Check the piping or equipment for oil leakage. If such a phenomenon occurs, please find out the issue and deal with it.

2. Check items in operation During the inspection of the following items, if any abnormal situation is found, please stop the tool immediately and deal with the trouble.

- 2.1 Whether there are any abnormalities during the pressure increasing process.
- 2.2 Whether there is oil leakage in pipes and equipment.
- 2.3 Whether the motor has abnormal noise, vibration and odor during operation.
- 2.4 Whether the temperature of the hydraulic oil is too high.

3. Check items after operation

- 3.1 The power must be cut off.
- 3.2 Check for oil leaks or other abnormal conditions. If an abnormal situation occurs, please find out the issue and deal with it.
- 3.3 Please clean up after use.

4. About replacing hydraulic oil In principle, the hydraulic oil should be replaced once a year. If the following conditions occur, please replace it immediately.

4. 1 When dust enters.
4. 2 When there is a peculiar smell.
4. 3 When water enters, the oil appears milky white.
4. 4 When oil deterioration appears dark brown.

5. Hydraulic oil replacement method

- 5.1 Loosely open the venting oil cap on the pump.
- 5.2 Remove the screw on the side of the oil tank to allow the hydraulic oil to flow out.
- 5.3 Clean the filter inside the oil tank and the suction port. Install the screw of the oil drain port and add the oil to the oil tank.

NOISE/VIBRATION AND TRANSPORT INFORMATION

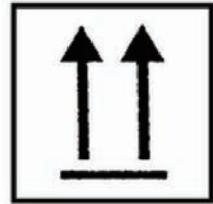
1. Electrical Tensioner Pump noise declaration 1.1.

Noise: \leq 65db

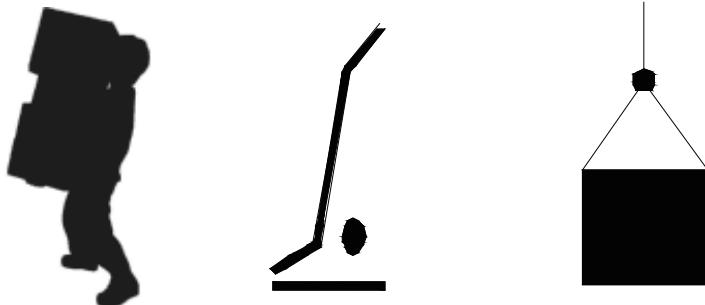
2. Electrical Tensioner Pump transport information.

2.1 Handle with care.

2.2 The shipment should be vertical upward as showed in right side picture.



2.3 Product handling, generally using portable, car handling and lifting and moving, as showed in below picture.



OPERATION INSTRUCTIONS

1. PREPARE

1.1 Use super high pressure hose to connect with the high pressure outlet of the pump and the high pressure outlet of the bolt Tensioner. Insert the quick coupler till to the end, Please make sure to achieve reliable connection.

1.2 Loosen the pressure regulating valve, then tighten the check valve to show it is working stage.

2. ADJUSTING THE HIGH PRESSURE

2.1 Put through the current source, turn the circuit breaker of the electrical box shell to "on" position.

2.2 Hold on the resettable buttons on the line switch, adjust the pressure regulating valve on the pump, to set the desired pressure; then loosen the resettable buttons on the line switch, Release cut-off valve to show the pressure gauge pointer to zero, re-tighten the cut-off valve; pressed the resettable button, observe the pressure gauge pointer, repeat the above steps, until transferred to the required pressure, lock the nut, complete the process of the pressure regulation.

3. OPERATION

3.1 Press on the wire control switch self-locking button, the pump will output the pressure, hydraulic bolt tensioner will start to work; when the pressure is close to the set value, release the self-locking button, Press the self resettable button on the control switch; to make the pressure reaches the desired pressure.

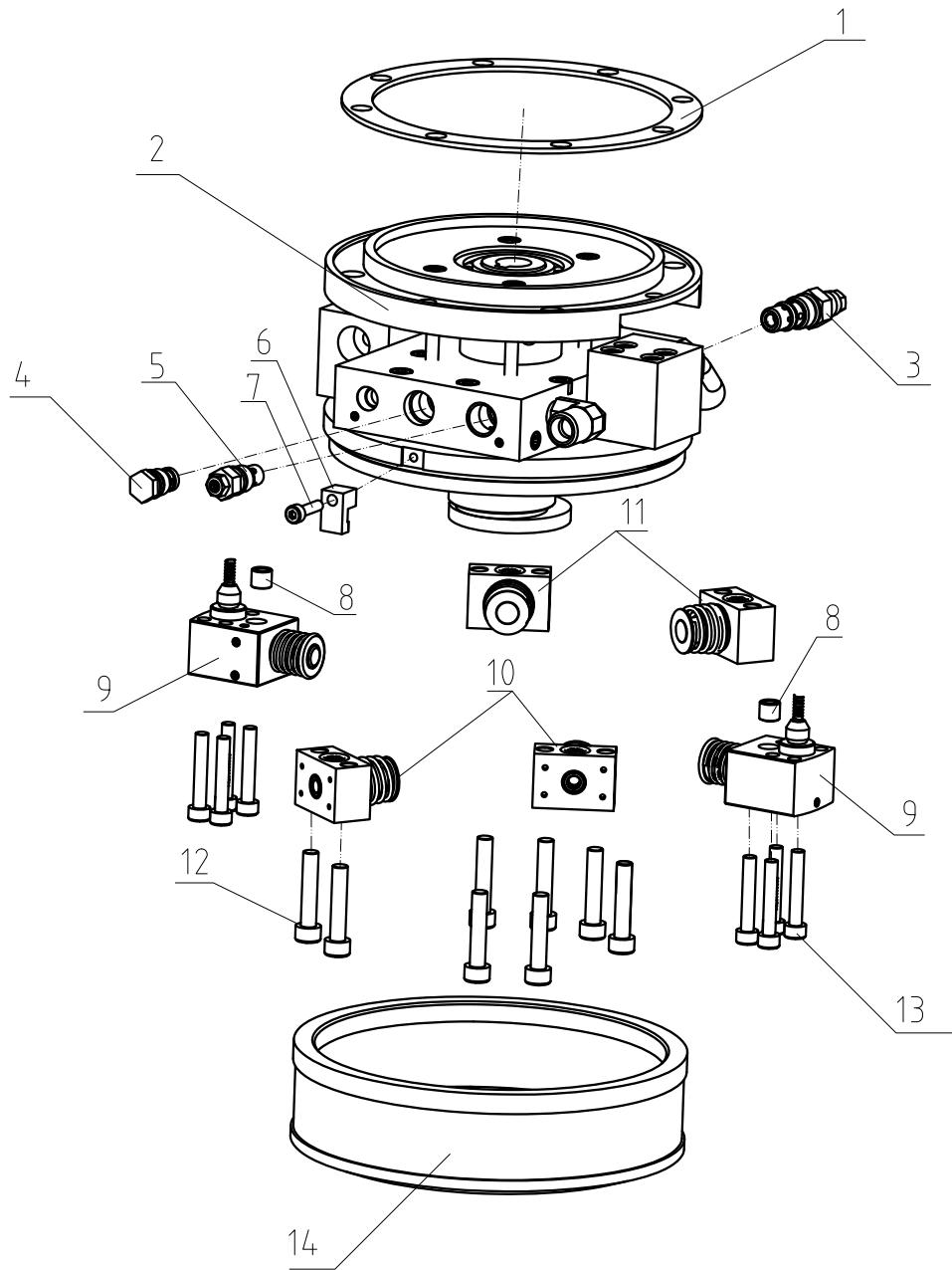
3.2 When the working pressure is same as the set required pressure, press the self-locking on the wire control switch, when gauge pointer stability, read the pump output pressure as the setting pressure, you may release the button.

3.3 Release cut-off valve so the pressure gauge will drop to zero, re-tighten the cut-off valve; Repeating above steps until the whole process is over.

TROUBLE SHOOTING GUIDE OF HYDRAULIC PUMP

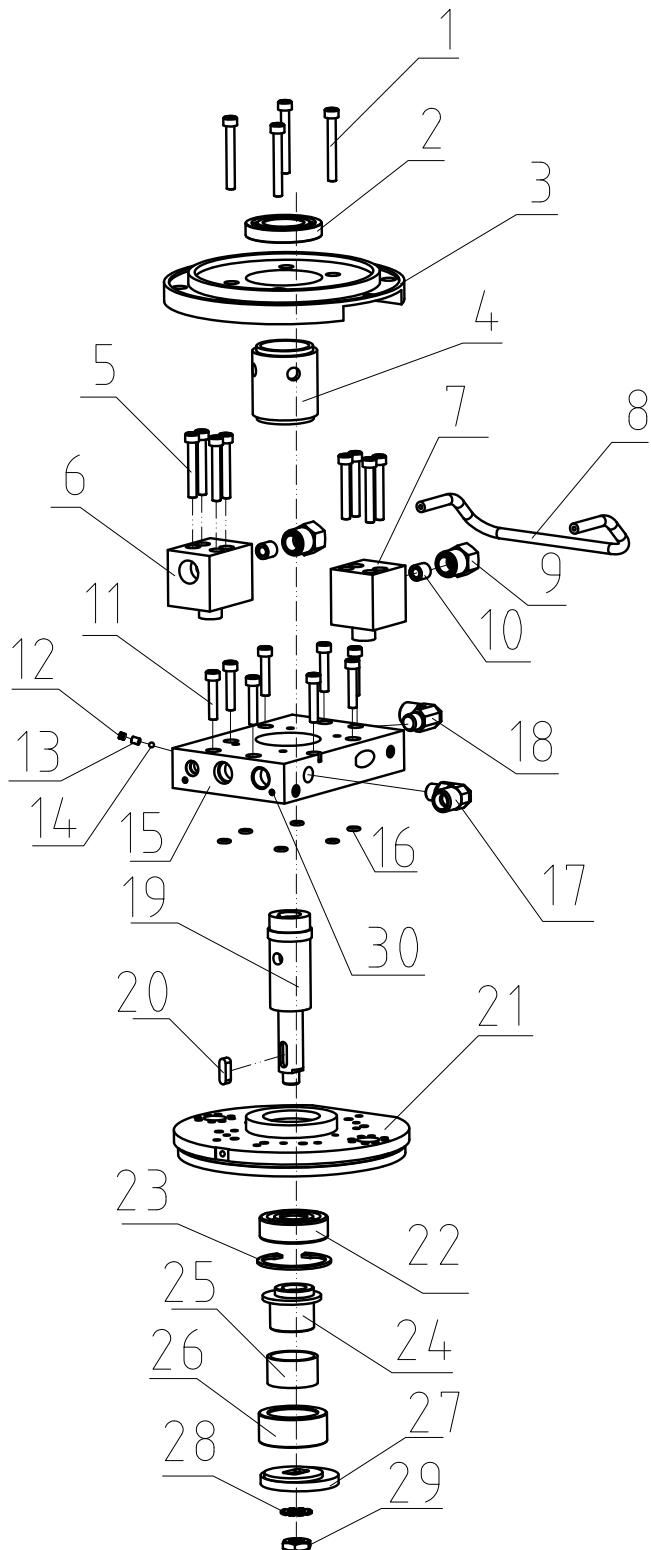
The pump can't be started	The voltage isn't suitable	Confirming whether the voltage is suitable for the pump's need
	The power hasn't be connected	Checked the input air, switch and distribution box and so on, and connect the air.
The system has no pressure	The quick coupler hasn't be connected to the correct position	Take down and reinstall it
	No oil in the oil reservoir	Fill in oil
	Not enough oil in the oil reservoir	Fill in oil
	If the system has a throttle and hand single-direction valve, please check if the valve are open	Open the throttle and hand single-direction valve, and make sure the system is a circle
After reinstalling the quick coupler, the system has no pressure	The quick coupler can't be connected to the correct position, which causes no pressure in the system	Take down the quick coupler, check if the ball is elastic with a rod, if it can't move, please knock it with a hammer to eliminate the mist hydraulic oil
Leakage in the quick coupler	The o ring and escape have worn out	Replace the quick coupler
The pressure can't reach to the set pressure	The relief valve is adjusted too low	Check with the gauge, and adjust the relief valve to the system set pressure
	Oil is mixed with water	Change oil
	Not enough oil in the reservoir	Fill in oil
	Suck in air to the system	Repeat operating the system with no load for several times to eliminate the air
	The throttle and hand single-direction valve haven't been tightened	Locking valve
	The throttle and hand single-direction valve haven't been adjusted to the correct position	Adjust to the correct position
	The throttle and hand single-direction valve have broken	Replace the valve
	There is foreign matter in the oil	Wash the pump valve and change clean oil
When using under static pressure, the pressure reduces slowly	The seal is out of control, please check all the seal	Replace the seal
Pump during operation with strong noise	Radial plunger pump bearing damage	Replace the radial plunger

HLP3-20X series Pump Body Assembly



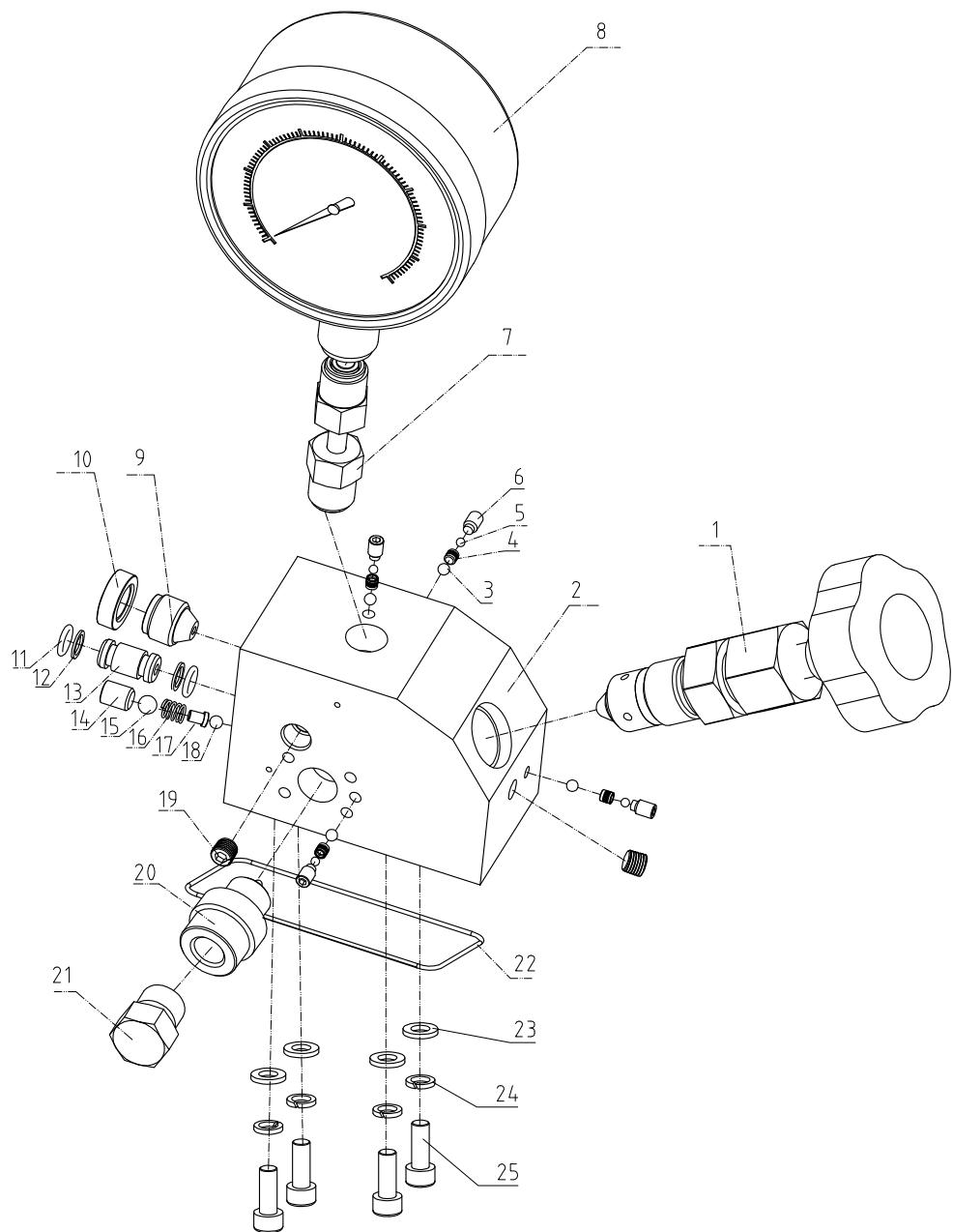
Item	Name	QTY	Remark	Item	Name	QTY	Remark	Item	Name	QTY	Remark
1	Gasket Seal	1		6	Fixing Plate	1		11	Piston	2	
2	Pump Body	1		7	M4X16 Screw	1		12	M6X30 Screw	8	
3	Releasing Valve	1		8	Backup Ring	2		13	M5X30 Screw	8	
4	Check Valve	1		9	Piston (High)	2		14	Filter	1	
5	Pressure Regulator	1		10	Piston	2					

HLP3-20X series Pump body section



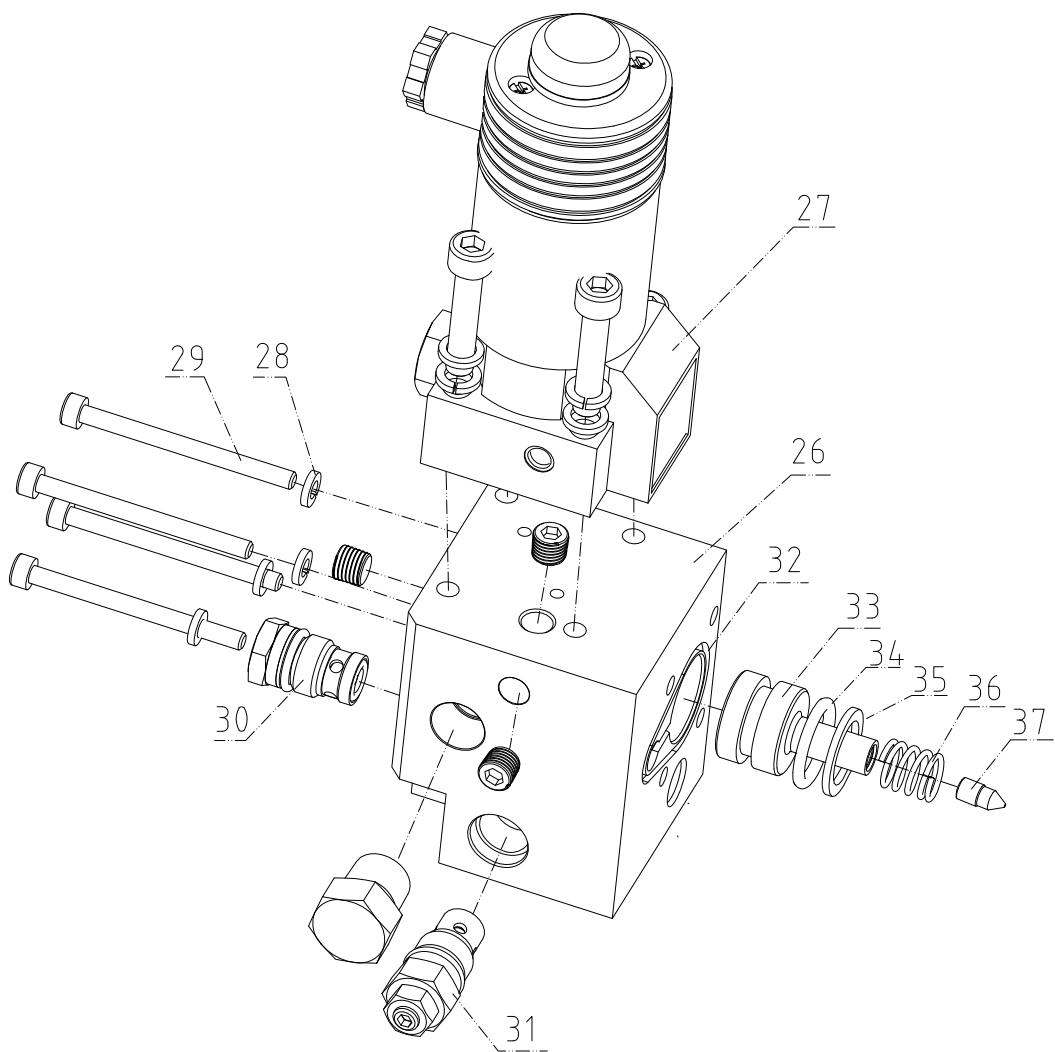
Item	Name	QTY	Remark
1	M5X40	4	
2	Bearing 16005	1	
3	Pump Body Flange	1	
4	Connect Sleeve	1	
5	M5X35	8	
6	Connect Block	1	For High Pressure
7	Connect Block	1	For High Pressure
8	Thread Pipe	1	
9	Lock Fitting	2	
10	Lock Sleeve	2	
11	M5X25	8	
12	Plug Screw	7	NPT1/16
13	Screw	1	M6X6
14	Steel Ball	1	4.763mm
15	Pump Body Block	1	
16	O-Ring	6	5x15
17	Fitting	1	90 degree
18	Fitting	1	
19	Shaft	1	
20	Insert Key	1	5X16
21	Pump Body	1	
22	Bearing	1	
23	Metal Circle	1	
24	Acentric Sleeve	1	
25	Copper Sleeve	1	
26	Bearing Cover	1	
27	Acentric Block	1	
28	Metal Gasket	1	
29	Nut	1	M10
30	Screw	3	M4X6

HLP3-20X series Valve Block Assembly



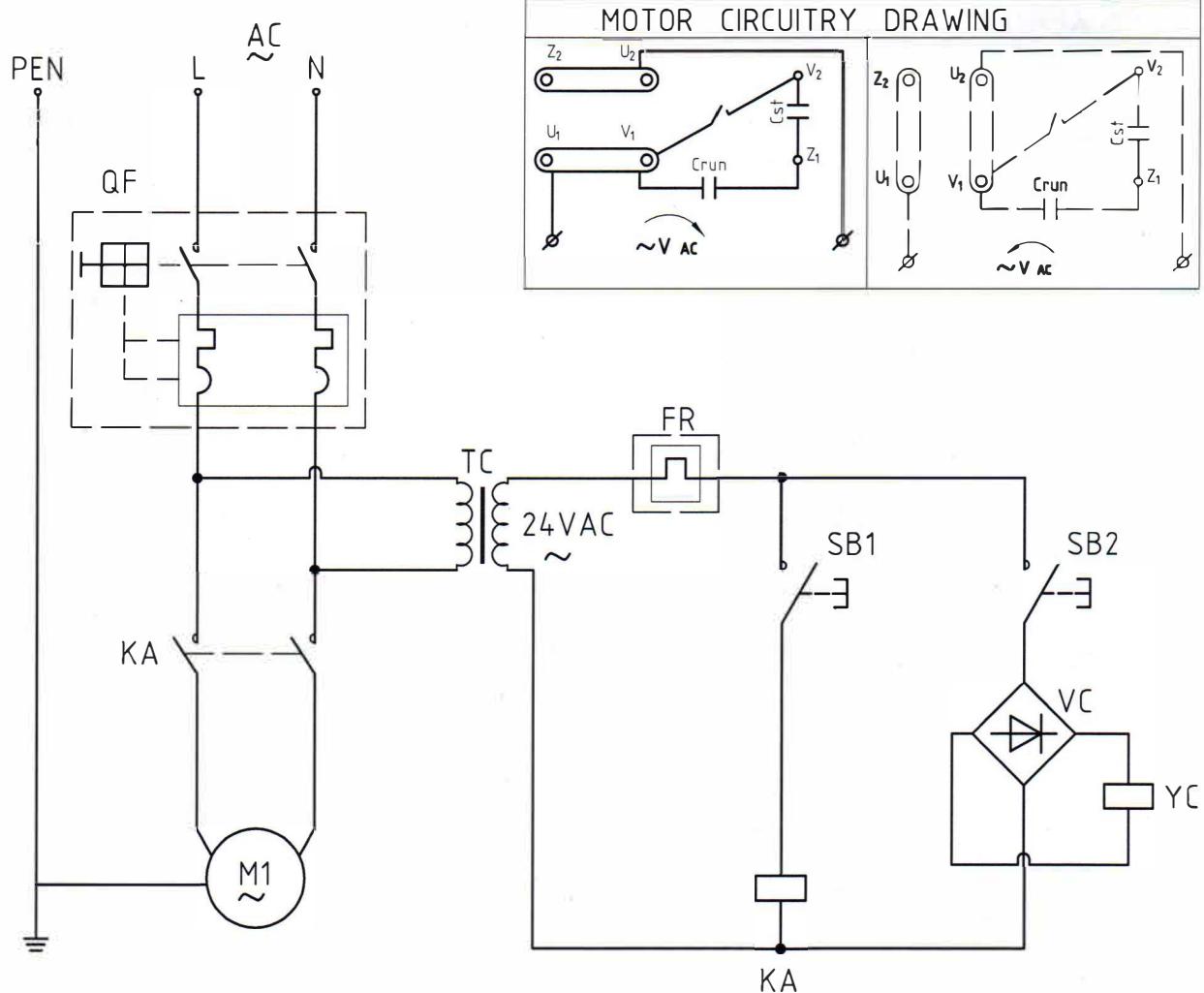
Item	Name	QTY	Remark	Item	Name	QTY	Remark	Item	Name	QTY	Remark
1	Pressure Gauge	1		10	Guide Sleeve	1		19	Screw Plug	5	
2	Valve Block	1		11	O-Ring	2		20	Coupler Fitting	1	
3	Ball	4		12	Backup Ring	2		21	Screw Plug	2	
4	Screw Plug	4		13	Connect Pipe	1		22	Seal Ring	1	
5	Ball	4		14	Screw	1		23	Gasket Ring	4	
6	Screw	4		15	Ball	1		24	Spring Gasket	4	
7	Gauge Fitting	1		16	Spring	1		25	Screw	4	
8	Pressure Gauge	1		17	Mandrel	1					
9	Valve Seat	1		18	Ball	1					

HLP3-20X series Connecting Block Assembly



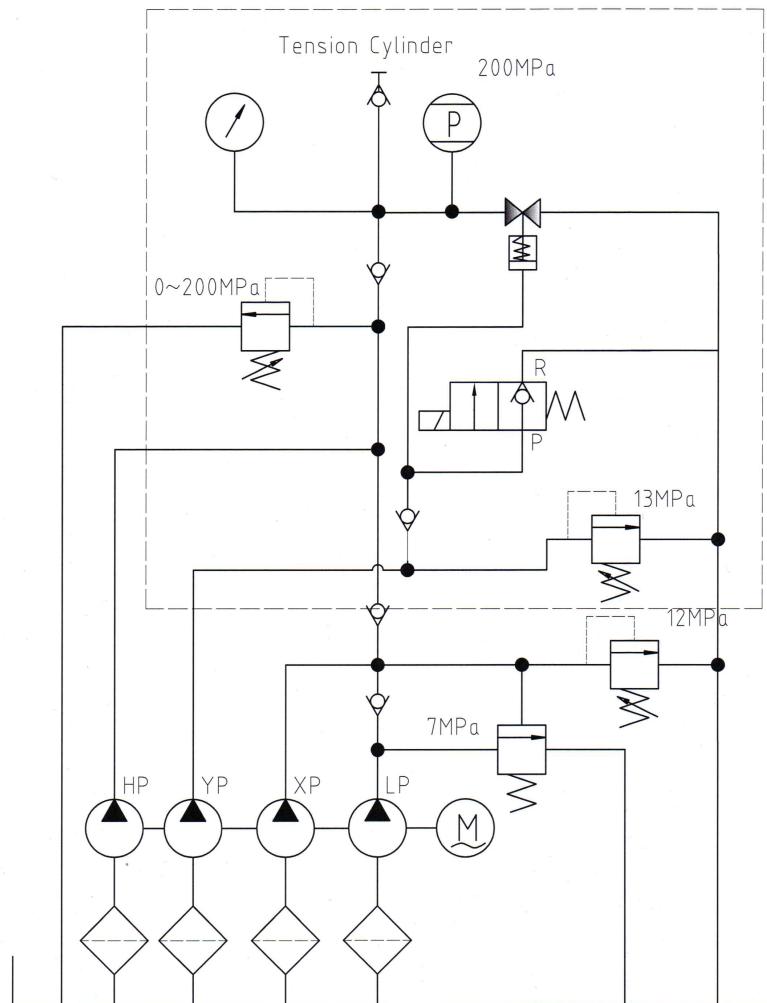
Item	Name	QTY	Remark	Item	Name	QTY	Remark	Item	Name	QTY	Remark
26	Connect Block	1		34	O-Ring	1					
27	Solenoid Valve	1		35	Backup Ring	1					
28	Spring Gasket	4		36	Spring	1					
29	Screw	4		37	Valve core	1					
30	Check Valve	1									
31	Pressure Regulator	1									
32	Seal Ring	1									
33	Hydraulic Piston	1									

ELECTRICAL PRINCIPLE DRAWING



Work Control	M1 Motor	YC Coil	SB1	SB2
SB1(+)	+	0	0	0
SB1(-)	-	0	0	0
SB2(+)	0	+	0	0
SB2(-)	0	-	0	0

HLP3-20X Hydraulic Principle

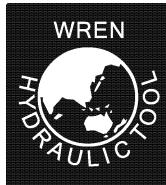


Warning for using high pressure hose

1. Please use Wren's JH series high pressure hoses.
2. The minimum bending radius: $R > 120\text{mm}$. Too small bending radius will destroy the high pressure hoses.
3. The maximum operating pressure is 1800bar, it is forbidden to overpass the pressure.
4. Do not tighten hoses excessively. Over tightening can cause to premature thread failure or high pressure fittings to split at a pressure lower than their rated capacities.
5. Do not use the hose to remove attached equipment. Stress can damage the hose, causing personal injury.
6. Do not subject the hose to potential hazard such as fire, sharp surfaces, extreme heat or cold or heavy impact. Do not kink, twist, or bend the hose so tightly that oil flowing in the hose is blocked or reduced. Periodically inspect the hose for wearing, because any of these conditions can damage the hose.
7. Should any hydraulic hose rupture, burst, or need to be disconnected, immediately shut off the pump. Never attempt to grasp a leaking pressurized hose with your hands. The force of escaping hydraulic fluid could cause serious injury.

HLP3-20X Parameter Chart

Type	Oil Tank (L)	Control Valve	Engine (Voltage/Hz)	Power (Kw)	Flow (L/min)	Oil Port	Max Pressure Bar
HLP3-20X	5.5	BV	220V/50Hz	1.1	4.2 - 0.45	G1/4	2000



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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