



OPERATION AND MAINTENANCE MANUAL FOR MP Series Pump



WREN Hydraulic

It is operating manual of MP series pump, please read carefully follow instructions, warnings and cautions before using the tools.

Safety Guide

The hydraulic of MP series pump's safe usage requires correct operation and regular inspect. And the user is requested to follow always and carefully .

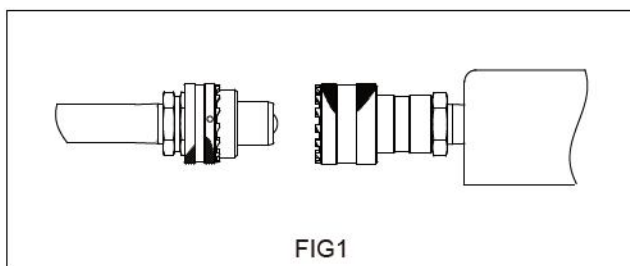
▲precaution to avoid direct loss in economic or property.

▲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 spurting out to cause personal injury.
3. The maximum operating pressure of this pump is 70Mpa(10,000Psi), WREN has set up the pressure to 70Mpa 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 70Mpa. 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 for

PRECAUTION

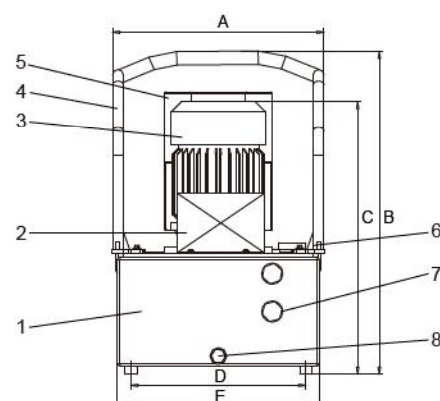
1. Only WREN hydraulic special oil available.
2. Do not use pressure regulate valve as relief valve.
3. The used hydraulic oil should be put away according to the antipollution ordinance.

DESCRIPTION

- 1 MP series electric pump adopts an integrated assembly; by the oil pump, control valve, fuel tank, pneumatic motors, 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, and (A) export oil pressure is 70 ~ 700Bar arbitrary regulation.
- 2 Electric hydraulic pump of the hydraulic oil used in: 46# wear-resistant hydraulic oil.
- 3 Hydraulic electric pump working environment temperature: - 10~60 C
- 4 Use WREN high-pressure hose, quick coupler. The maximum working pressure of high pressure hose WREN electric hydraulic pump used is 100Mpa, 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.

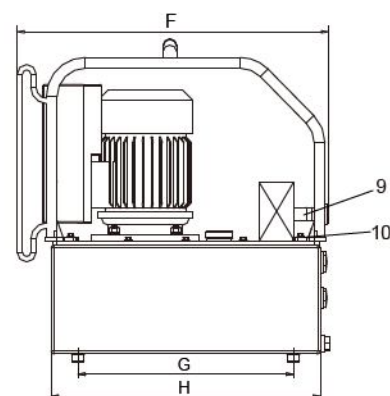
DESCRIPTION OF PARTS OF MP SERIES PUMP

ITEM	NAME	ITEM	NAME
1	Storage tank	6	Fuel tank cover
2	Valve block (A/B/C/D/H)	7	Cat's eye level gauge
3	Electrical moto	8	Oil drainage hole
4	Aluminum protection frame	9	Fast joint
5	Electronic control box	10	Six angle screws



EXTERNAL DIMENSION AND OF MP SERIES PUMP

ITEM	MP04	MP08	MP13	MP18	MP24	MP32	MP56
A	254mm	254mm	314mm	314mm	314mm	460mm	522mm
B	430mm	480mm	480mm	510mm	570mm	510mm	600mm
C	353mm	403mm	405mm	435mm	495mm	440mm	530mm
D	200mm	200mm	260mm	260mm	260mm	460mm	505mm
E	240mm	240mm	300mm	300mm	300mm	505mm	522mm
F	377mm	379mm	463mm	463mm	463mm	662mm	662mm
G	244mm	244mm	320mm	320mm	320mm	600mm	600mm
H	290mm	299mm	400mm	400mm	400mm	645mm	645mm



DESCRIPTIONS OF PARTS

- 1.Oil storage tank: working with hydraulic oil storage, to ensure the normal work of the system (must have enough oil), to provide the required pressure carrier system.
- 2.Cartridge valve blocks: a replaceable cartridge valve block (A / B / C / D / H) to achieve different control.
- 3.Motor: provide power source (based on the use of the voltage, frequency selecting motor, see specific parameters in the motor nameplate).
- 4.Pump protection frame: installed in the storage tank, used for carrying, protection of hydraulic pump station.

5. Electronic control box: Built-in micro electronic control system, control the entire pump.
6. Ventilation hole : The realization of hydraulic oil discharge tank (replacement of hydraulic oil used in oil); cover with ventilation holes, filling the oil cover, a filtering net is arranged to ensure that no impurities into the tank; tightening oil cover ensure system of air discharged smoothly.
7. Liquid level gauge: Observation of hydraulic oil to ensure that the number, provide the best use of oil; hydraulic oil below the oil standard 1 /3 position, must add WREN pumping station hydraulic oil, or may damage the pump station
8. Oil unloading hole: Plug G1/ 4", realize hydraulic oil discharge tank (replacement of hydraulic oil in use);
9. Fast joint : The realization of hydraulic oil output \ return oil function, fast connecting pipe built-in type check valve;
10. Six angle screws: Sealing connecting tank

CHARACTERISTIC


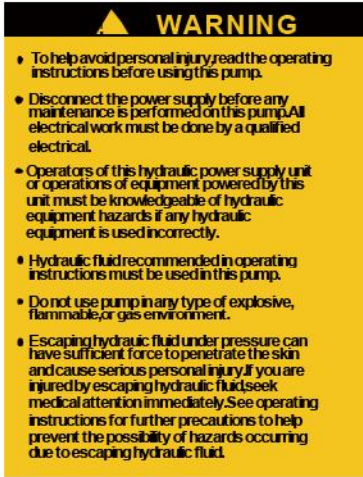
1. MP series electric pump is a double stage pump. High pressure outlet is provided with a pressure relief valve, a low-pressure outlet pressure is 5 ~ 7Mpa, in 70Mpa state flow 0.8L / m.
2. 70Mpa maximum operating pressure
3. Motor voltage: 100 ~ 120V, 200 ~ 240V, 350 ~ 420V optional
4. Temperature: - 10~80 C
5. The 6 storage tank (tank specifications models): 4 ~ 65L 7 specifications
6. ISO VG 46# hydraulic oil

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

Warning Plate

Warning plate is shown in table 1

warning table	Meaning	Affixed Position
	For Saft Operation, Please Read	The Equipment Enclosure
	Warning Notices	The Equipment Enclosure

MAINTENANCE AND INSPECTION

1. The inspection before operating

- (1).Please shut off the pump and inspect whether the position of the power connection is loose or not. If it is loose, please tighten it.
- (2).Please inspect whether the hydraulic oil in the oil reservoir is enough or not, if it is not enough, please fill the oil in time.
- (3).The pump is still working when the direction of the valve is changed, please build up pressure and inspect whether the whole equipment is normal or not.
- (4).Please inspect whether the house and other equipments are leaky or not, if this happened, please inspect to find the reason and repair it or replace it.

2.The inspection in operation

When inspecting the following items, if there is abnormal situation, please shut off the pump and repair it.

- (1)Please inspect whether there are abnormal condition or not in the course of raising the pressure.
- (2)Please inspect whether the houses and other equipments are leaky or not.
- (3)Please inspect whether there is some abnormal noise, rocking and smell or not during the operation of the motor.
- (4)Please inspect whether the temperature of hydraulic oil is too high or not.

3.The inspection after finishing the operation of the pump.

- (1)Making sure the pump must be turn down.
- (2)Please inspect whether there are leaky or abnormal condition or not. If there is abnormal situation,please inspect to find the reason and repair it
- (3)Please clean it after using the pump.

4.Refer to changing the hydraulic oil

The oil should be replaced once a year principally. If there are following abnormal conditions, please replace the oil immediately.

- (1)If dust mixes with the oil, please replace the oil.
- (2)If there is abnormal smell, please replace the oil.
- (3)If the water mixes with the oil, the colour of the oil has been changed into milkiness, please replace the oil.
- (4)If the colour of the oil has been changed into black-brown, please replace the oil.

5.The way replacing the hydraulic oil

- (1)Please loosen the oil filler port of oil reservoir.
- (2)Please take down the screw on the flank of the oil reservoir, let hydraulic oil out.
- (3)Please clean the inner and filter of the oil reservoir.
- (4)Please install the screw and fill the oil reservoir with the hydraulic oil.

WARNING: If the oil splashes into your eyes, please wash with clean water for at least 15 minutes, and Then see doctor immediately. If the oil splashes to your skin, please wash it with clean water and soap.

WARNING: Waste hydraulic oil bellows to industrial waste, it should be dealt with by special companies.

Noise/Vibration And Transport information

1、 Hydraulic pump noise declaration

1) Hydraulic pump noise value: $\leq 70\text{db}$

2、 Hydraulic pump transport information.

1) Handle with care.

2)The shipment should be vertical upward, as shown in the figure 9-1.

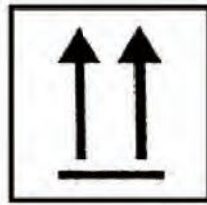


FIG 9-1

3) Product handling, generally using portable, car handling and lifting and moving, as shown in the figure 9-2

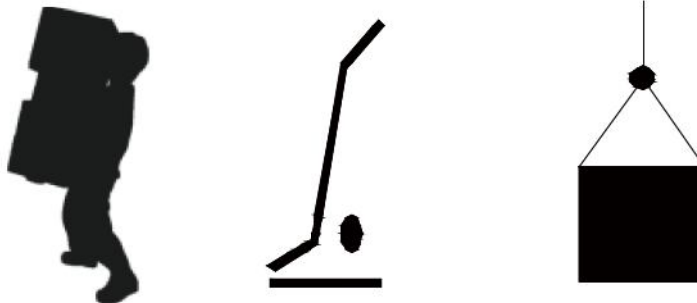


FIG 9-2

OPERATION INSTRUCTIONS

The type A valve block pump (hand double action):

1 .Ready

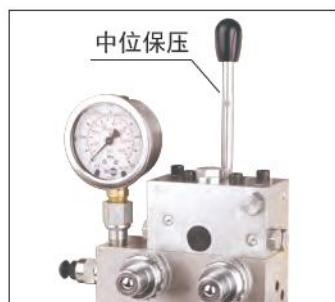
Starting motor before cleaning and inspection of the connector, and then injected into a special hydraulic oil, in ensure the use of pressure in the pressure range, connected by a hose pump and operating tools, check whether the correct connection of safety, such as incorrect, hydraulic pump can not work normally. Check the manual reversing valve to switch the direction shown, according to working need adjusting valve.

2 .Boot

Turn on the power, start the motor, regulating valve to the forward (backward) position, pressure is increased to the desired pressure value, manual reversing valve is pressure in.

3 .Removing

After the work is finished, stop the motor, cut power off, the manual reversing valve, remove hose.



The type B valve block pump (hand single action):

1 .Ready

Starting motor before cleaning and inspection of the connector, and then injected into a special hydraulic oil, in ensure the use of pressure in the pressure range, connected by a hose pump and operating tools, check whether the correct connection of safety, such as incorrect, hydraulic pump can not work normally. Check valve manually locking, according to working need adjusting valve manually (tighten packing, loosen the pressure relief).

2 .Boot

Turn on the power, start the motor, is a manual valve, pressure is increased to the desired pressure value and holding pressure.

3 .Removing

After the work is finished, the stop of the motor, cut off the power supply, loosen the hand valve pressure relief, remove hose.



The type C valve block pump (electric control single packing):

1 .Ready

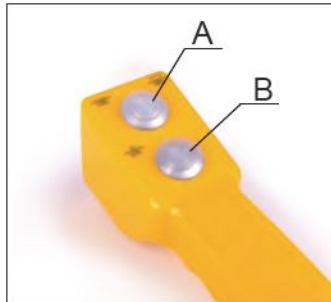
Starting motor before cleaning and inspection of the connector, and then injected into a special hydraulic oil, in ensure the use of pressure in the pressure range, connected by a hose pump and operating tools, check whether the correct connection of safety, such as incorrect, hydraulic pump can not work normally. Remote control switch has two buttons (the A key to move the boost, B key to move the pressure relief).

2 .Boot

Turn on the power, the motor is started, the A key to move the pressure, pressure is increased to the desired pressure value and pressure, the B key to move the pressure relief, pressure is reduced to a desired pressure value and holding pressure.

3 .Removing

After the work is finished, stop the motor, cut off the power, pull the electromagnetic valve top button and let the pressure relief, remove the hose.



The type D valve block pump (electric control single action without packing):

1 ready

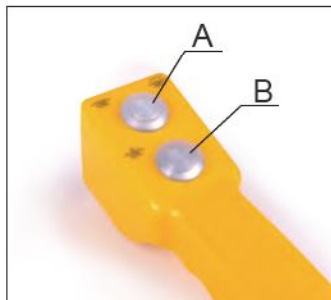
Starting motor before cleaning and inspection of the connector, and then injected into a special hydraulic oil, in ensure the use of pressure in the pressure range, connected by a hose pump and operating tools, check whether the correct connection of safety, such as incorrect, hydraulic pump can not work normally. Remote control switch has two buttons (the A key to move the boost, the B key spare).

2 boot

Turn on the power, the motor is started, the A key to move the pressure, pressure is increased to the desired pressure value, when the button is loosened and relief, the B key spare.

3 removing

After the work is finished, stop the motor, cut off the power supply, system pressure relief, remove hose.



The type H valve block pump (electronically controlled dual role):

1 ready

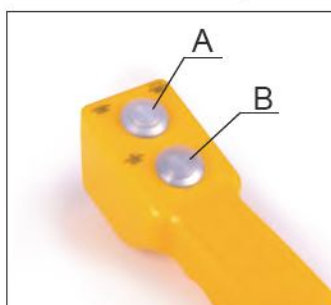
Starting motor before cleaning and inspection of the connector, and then injected into a special hydraulic oil, in ensure the use of pressure in the pressure range, connected by a hose pump and operating tools, check whether the correct connection of safety, such as incorrect, hydraulic pump can not work normally. Remote control switch has two buttons (the A key to move left to right out, B key instead).

2 boot

Turn on the power, the motor is started, the A key to move the pressure, pressure is increased to the desired pressure value and pressure, the B key. Hose connected in reverse, the B key to move the pressure, pressure is increased to the desired pressure value and pressure, the A key.

3 removing

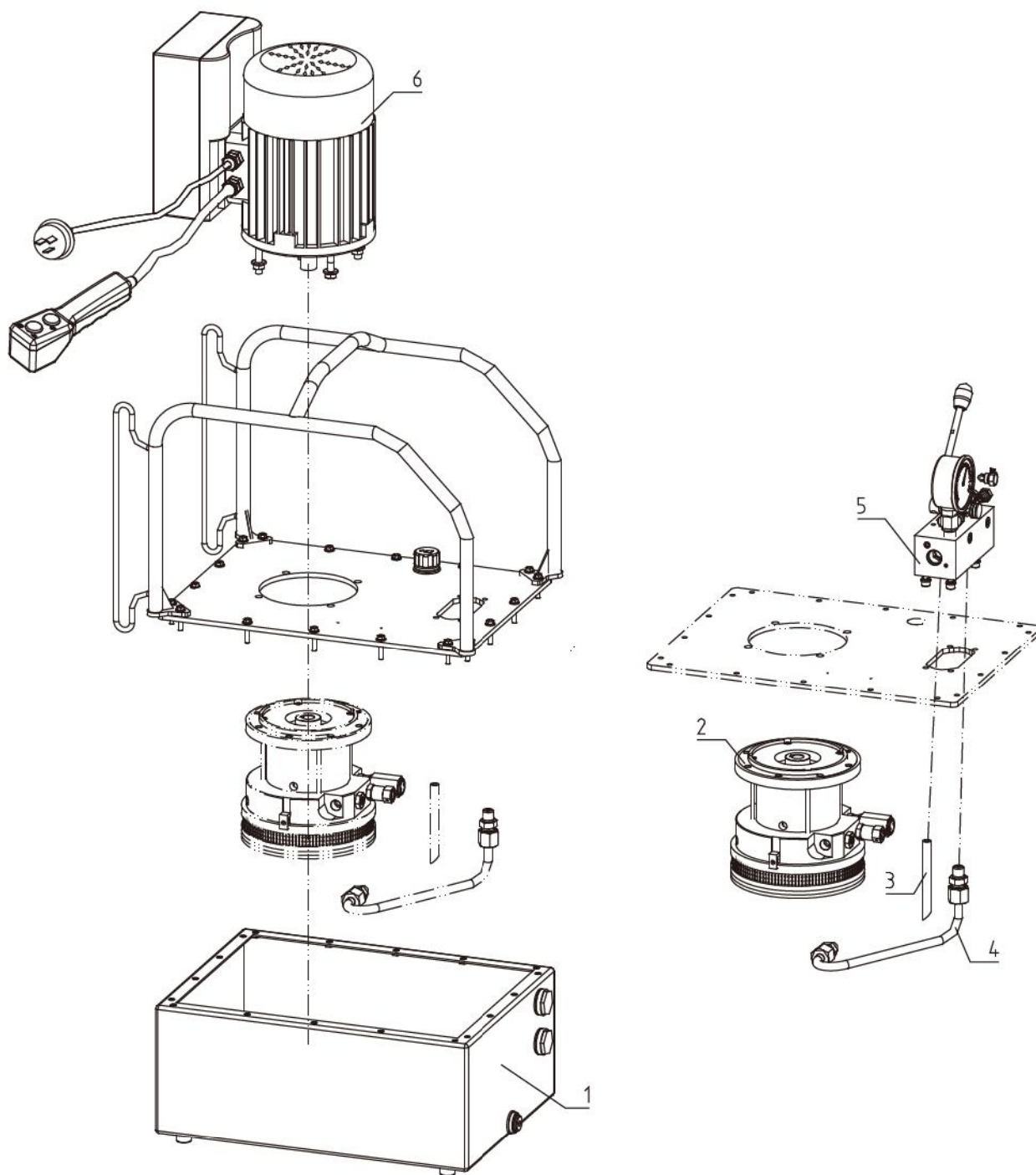
After the work is finished, stop the motor, cut off the power, tpull the electromagnetic valve top button and let the pressure relief, remove hose.



TROUBLE SHOOTING GUIDE OF HYDRAULIC PUMP

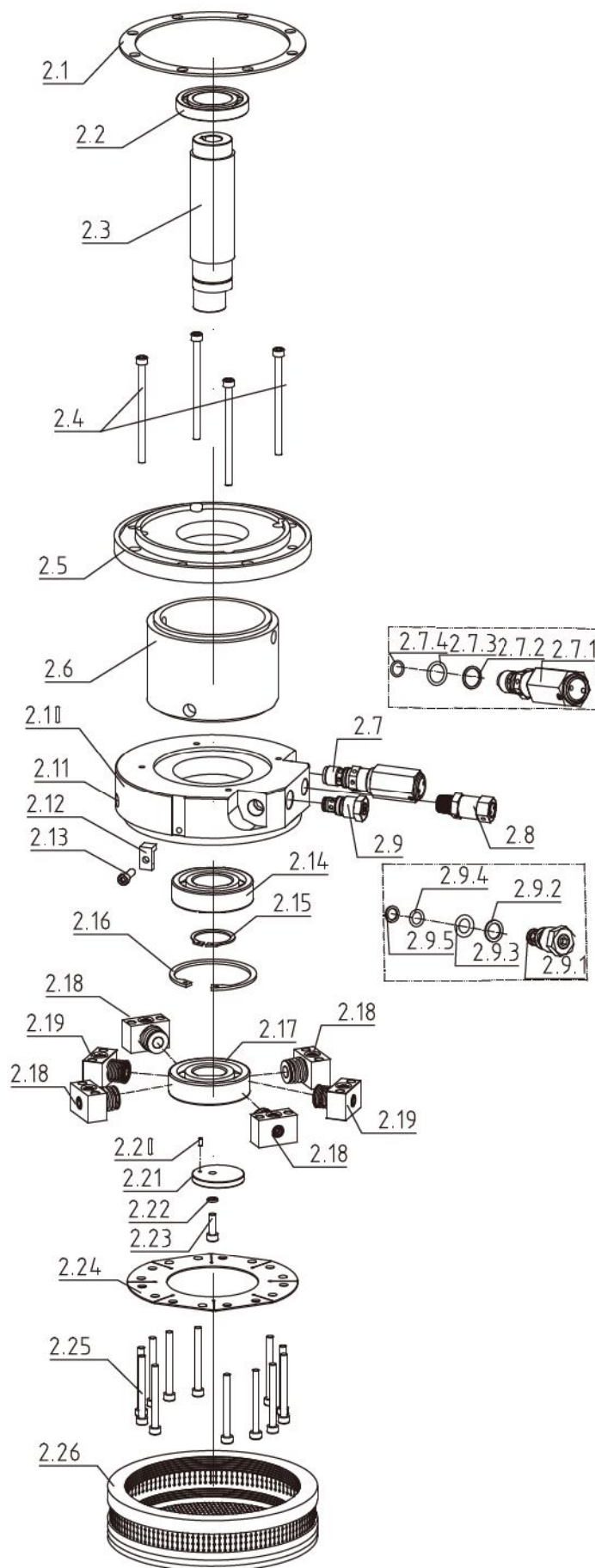
The pump can't be started	The voltage isn't suitable	Confirming whether the voltage is suitable for the pump's need
	The power hasn't be connected	Checked the input air, switch and distribution box and so on, and connect the air.
The system has no pressure	The quick coupler hasn't be connected to the 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 boll 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

EXPLOSION OF MP SERIES PUMP



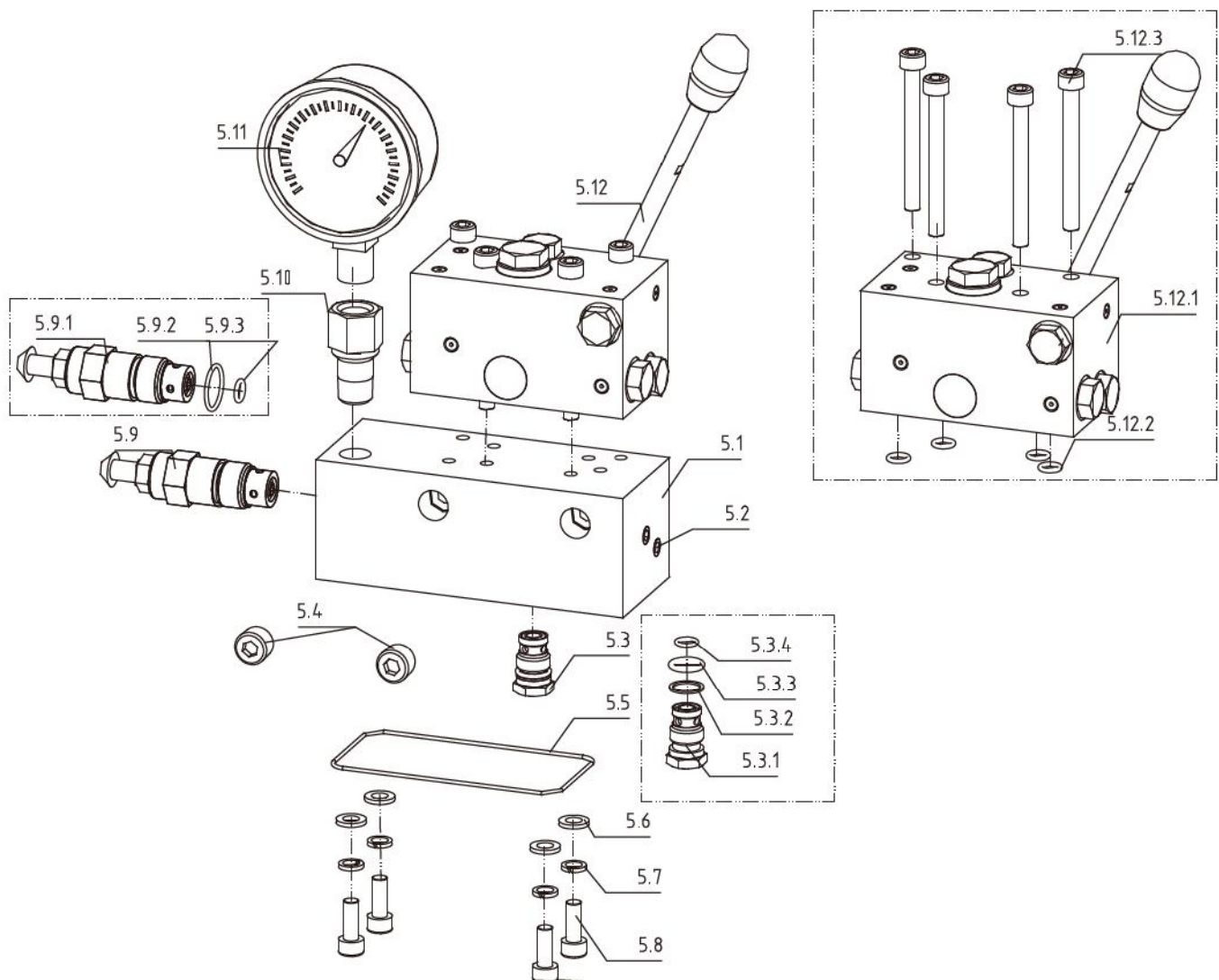
ITEM	NAME	ITEM	NAME
1	The tank module	4	Petroleum Pipeline
2	Pump module	5	Hydraulic control valve block
3	Oil return pipe(1)	6	Electric control valve block

EXPLOSION OF THE PUMP MODULE



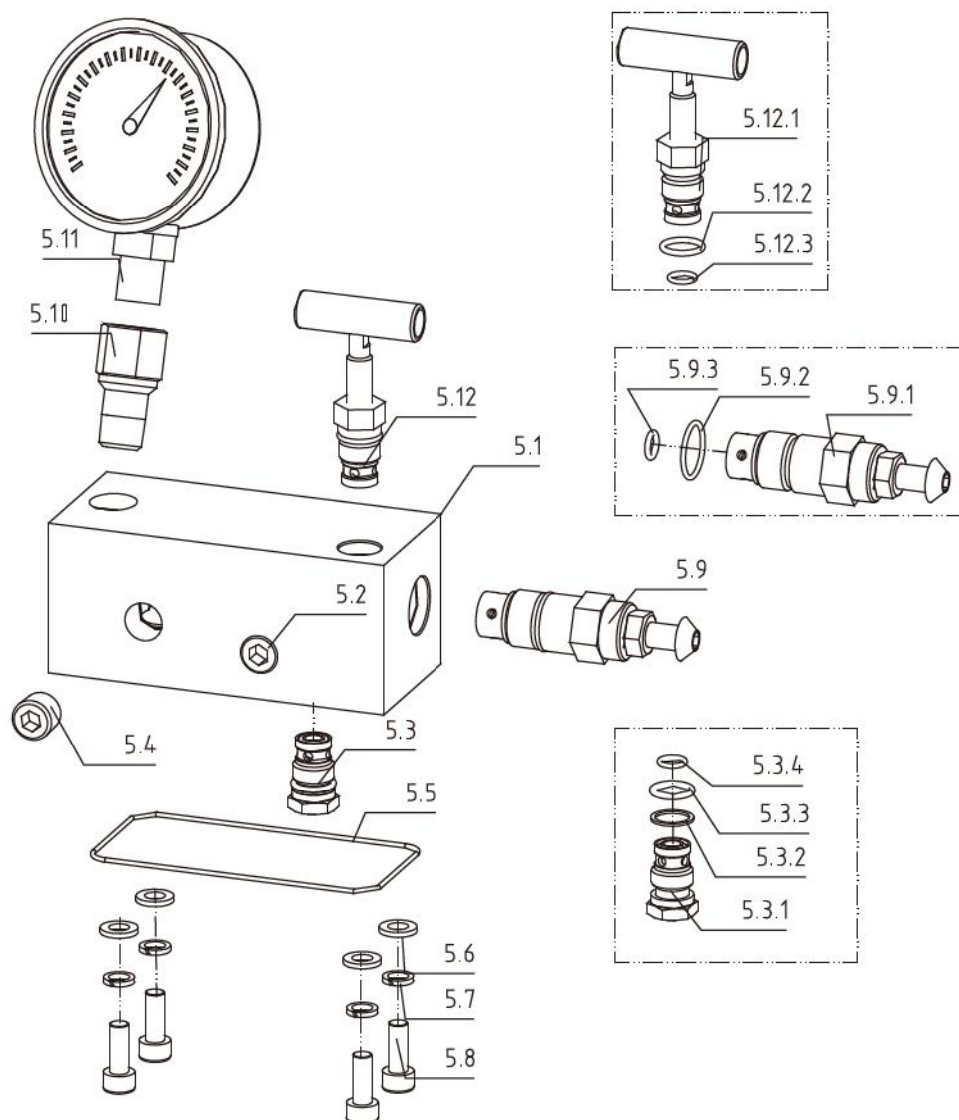
ITEM	NAME	NUM
2.1	Seal	1
2.2	Deep groove ball bearing	1
2.3	Bearing	1
2.4	Screw	4
2.5	Pump flange	1
2.6	The pump body set	1
2.7	Unloading valve	1
2.7.1	Unloading valve body	1/1
2.7.2	Ring	1/1
2.7.3	O Ring	1/1
2.7.4	O Ring	1/1
2.8	Overpressure valve	1
2.9	Check valve	2
2.9.1	The one-way valve body	1/1
2.9.2	Ring	1/1
2.9.3	O Ring	1/1
2.9.4	O Ring	1/1
2.9.5	Ring	1/1
2.10	Separation type pump body	1
2.11	Plug	6
2.12	Filter plate	1
2.13	Screw	1
2.14	Deep groove ball bearing	1
2.15	The circlip for shaft	1
2.16	Empty of elastic ring	1
2.17	Deep groove ball bearing	1
2.18	Plunger 1	4
2.19	Plunger 2	2
2.20	Pin	1
2.21	Bearing end plate	1
2.22	Elastic washer	1
2.23	Screw	1
2.24	Connecting piece	1
2.25	Screw	12
2.26	Fitter	1

EXPLOSION OF THE A TYPE VALVE SET MODULE



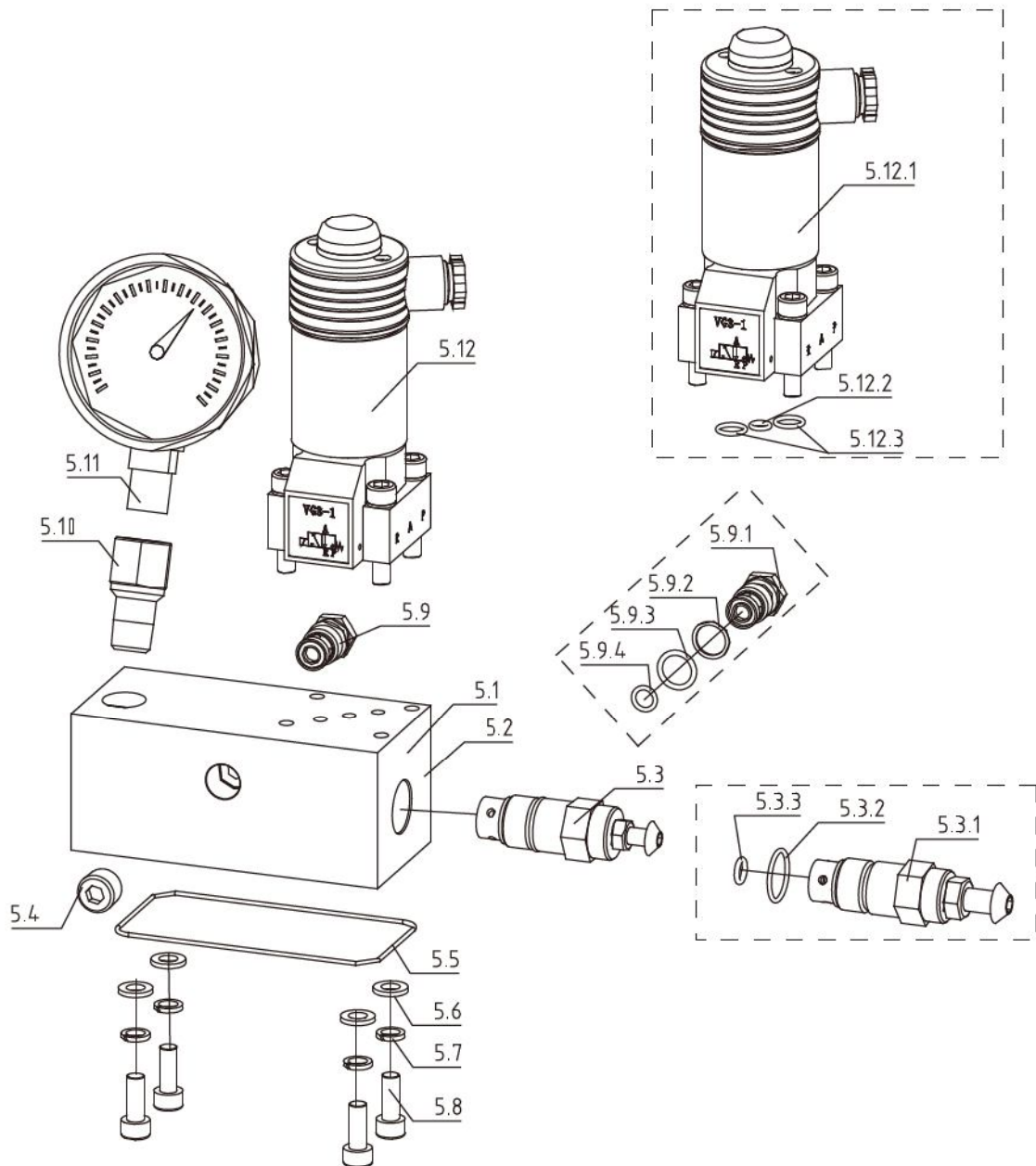
ITEN	NAME	NUM	ITEN	NAME	NUM	ITEN	NAME	NUM
5.1	The WA connection block	1	5.6	Flat washer	4/1	5.12	Reversing valve	1
5.2	Plug	7	5.7	Elastic washer	4/1	5.12.1	Reversing valve body	1/1
5.3	Check valve	1	5.8	Screw	4	5.12.2	O Ring	4/1
5.3.1	Valve body	1/1	5.9	Pressure regulating valve	1	5.12.3	Screw	4/1
5.3.2	Ring	1/1	5.9.1	Valve body	1			
5.3.3	O Ring	1/1	5.9.2	O Ring	1/1			
5.3.4	O Ring	1/1	5.9.3	O Ring	1/1			
5.4	Ring NPT1/4	1/1	5.10	Pressure meter joint	1			
5.5	Ring	1/1	5.11	Pressure gauge	1			

EXPLOSION OF THE B TYPE VALVE SET MODULE



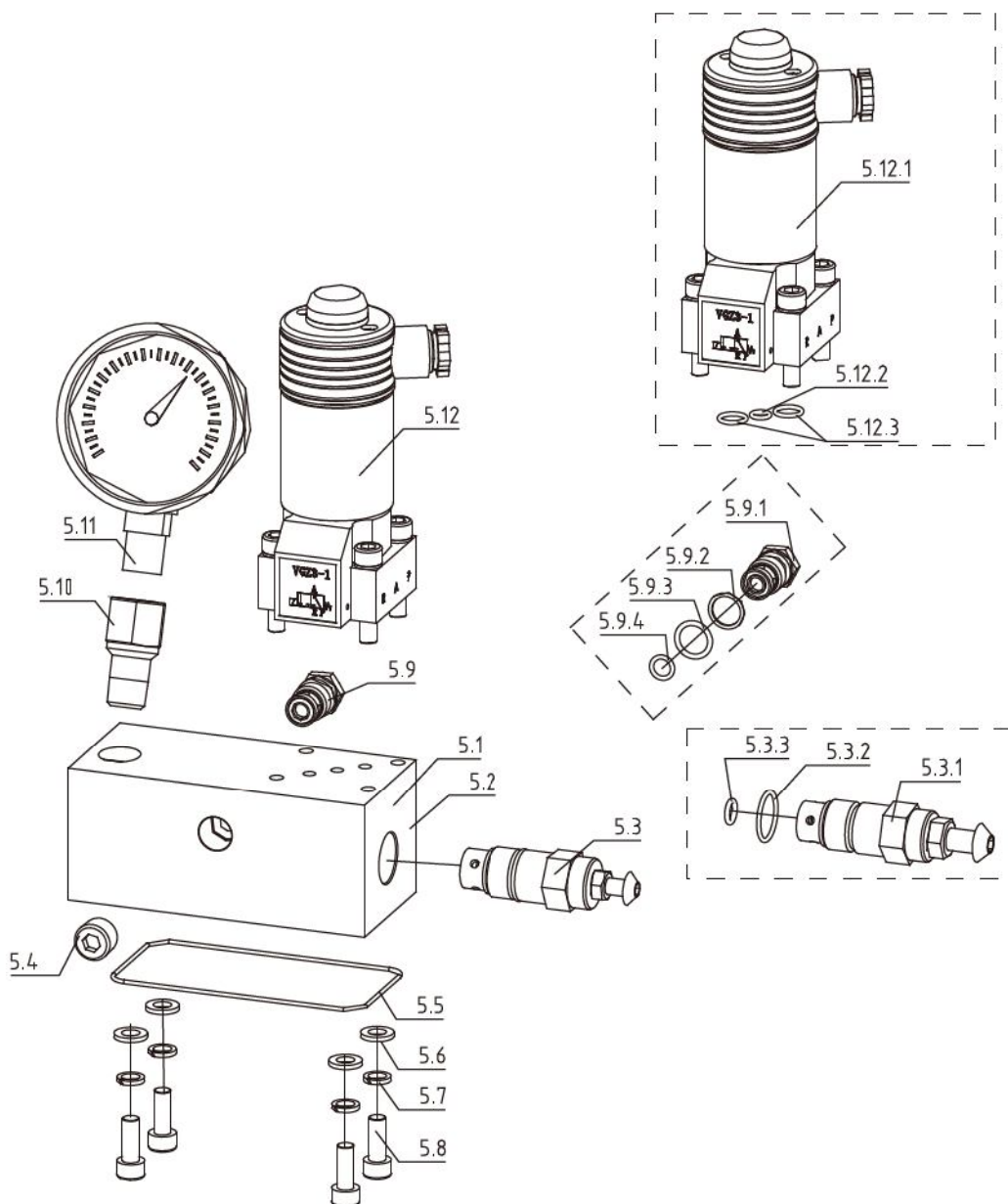
ITEN	NAME	NUM	ITEN	NAME	NUM	ITEN	NAME	NUM
5.1	The WA connection block	1	5.6	Flat washer	4/1	5.12	Stop valve	1
5.2	Plug	7	5.7	Elastic washer	4/1	5.12.1	Stop valve body	1/1
5.3	Check valve	1	5.8	Screw	4	5.12.2	O Ring	1/1
5.3.1	Valve body	1/1	5.9	Pressure regulating valve	1	5.12.3	O Ring	1/1
5.3.2	Ring	1/1	5.9.1	Valve bdy	1			
5.3.3	O Ring	1/1	5.9.2	O Ring	1/1			
5.3.4	O Ring	1/1	5.9.3	O Ring	1/1			
5.4	Ring NPT1/4	1	5.10	Pressure meter joint	1			
5.5	Ring	1	5.11	Pressure gauge	1			

EXPLOSION OF THE C TYPE VALVE SET MODULE



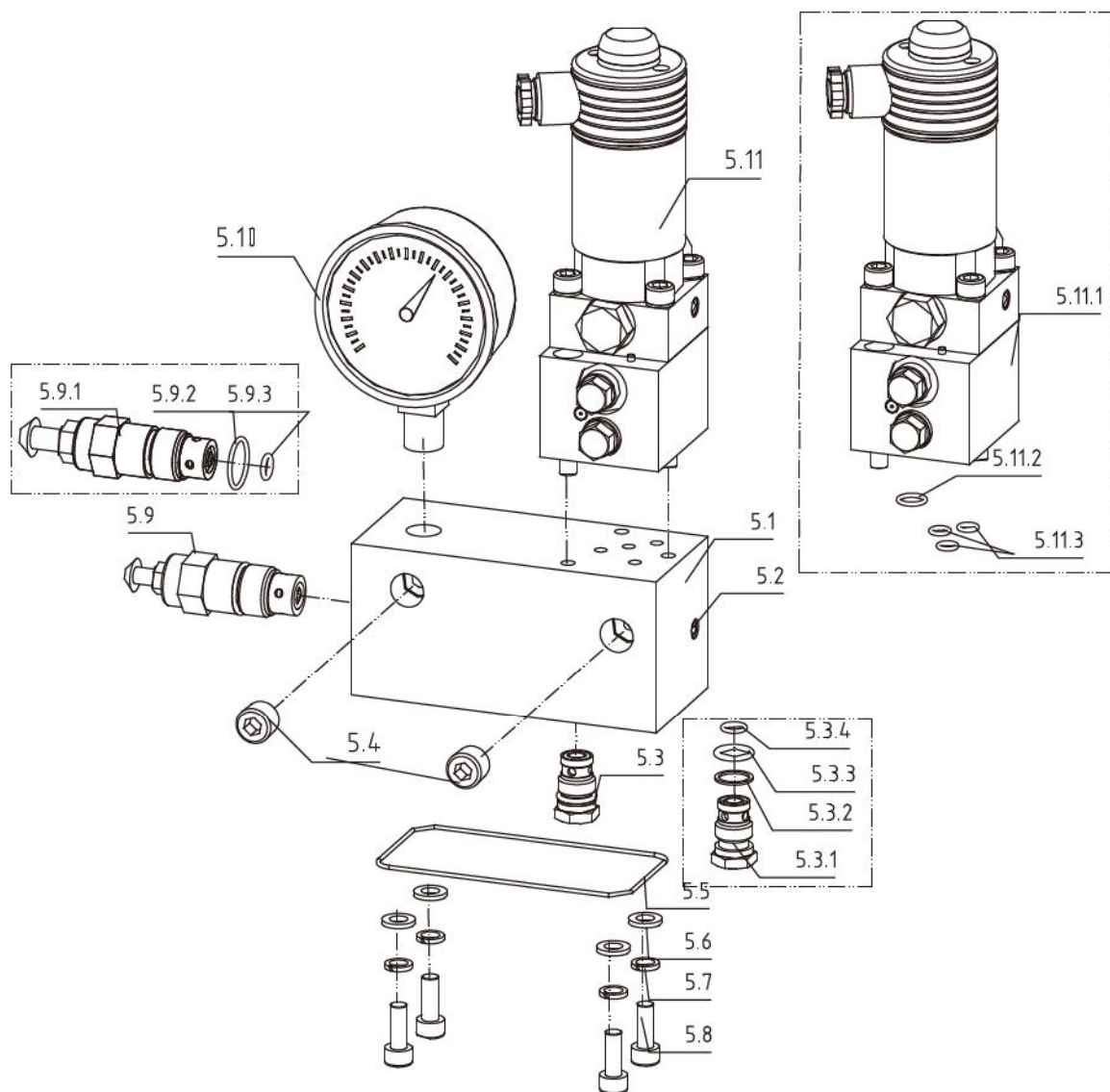
ITEN	NAME	NUM	ITEN	NAME	NUM	ITEN	NAME	NUM
5.1	The WC connection block	1	5.7	Elastic washer	4	5.12	Electromagnetic valve (VG-3)	1
5.2	Plug	4	5.8	Screw	4	5.12.1	Electromagnetic valve body	1/1
5.3	Pressure regulating valve	1	5.9	Check valve	1	5.12.2	O Ring	1/1
5.3.1	Valve body	1/1	5.9.1	Check valve bdy	1/1	5.12.3	O Ring	2/1
5.3.2	O Ring	1/1	5.9.2	Ring	1/1			
5.3.3	O Ring	1/1	5.9.3	O Ring	1/1			
5.4	Ring NPT1/4	1	5.9.4	O Ring	1/1			
5.5	Sealing ring	1	5.10	Pressure meter joint	1			
5.6	Flat washer	4	5.11	Pressure gauge	1			

EXPLOSION OF THE D TYPE VALVE SET MODULE



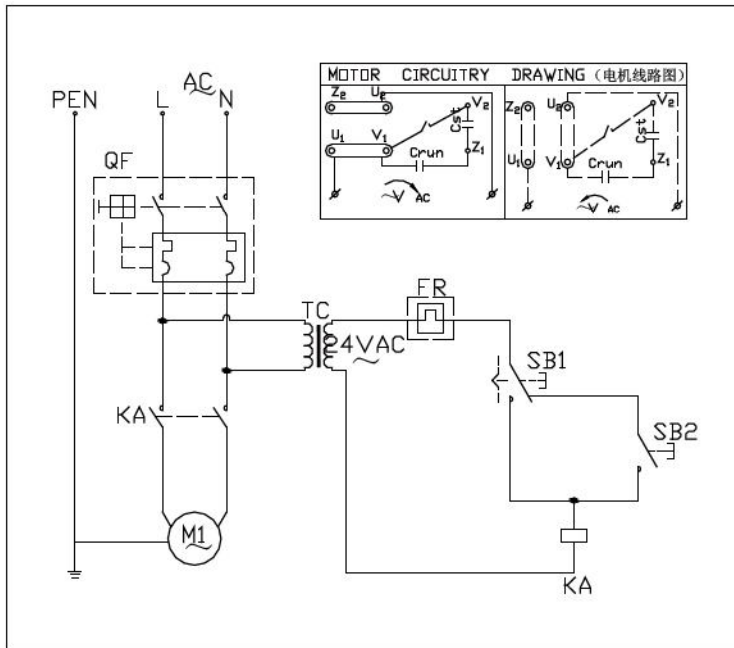
ITEN	NAME	NUM	ITEN	NAME	NUM	ITEN	NAME	NUM
5.1	The WC connection block	1	5.7	Elastic washer	4	5.12	Electromagnetic valve(VGZ-3)	1
5.2	Plug	4	5.8	Screw	4	5.12.1	Electromagnetic valve body	1/1
5.3	Check valve	1	5.9	Check valve	1	5.12.2	O Ring	1/1
5.3.1	Valve body	1/1	5.9.1	Check valve bidy	1/1	5.12.3	O Ring	2/1
5.3.2	O Ring	1/1	5.9.2	Ring	1/1			
5.3.3	O Ring	1/1	5.9.3	O Ring	1/1			
5.4	Ring NPT1/4	1	5.9.4	O Ring	1/1			
5.5	Sealing ring	1	5.10	Pressure meter joint	1			
5.6	Flat washer	4	5.11	Pressure gauge	1			

EXPLOSION OF THE H TYPE VALVE SET MODULE

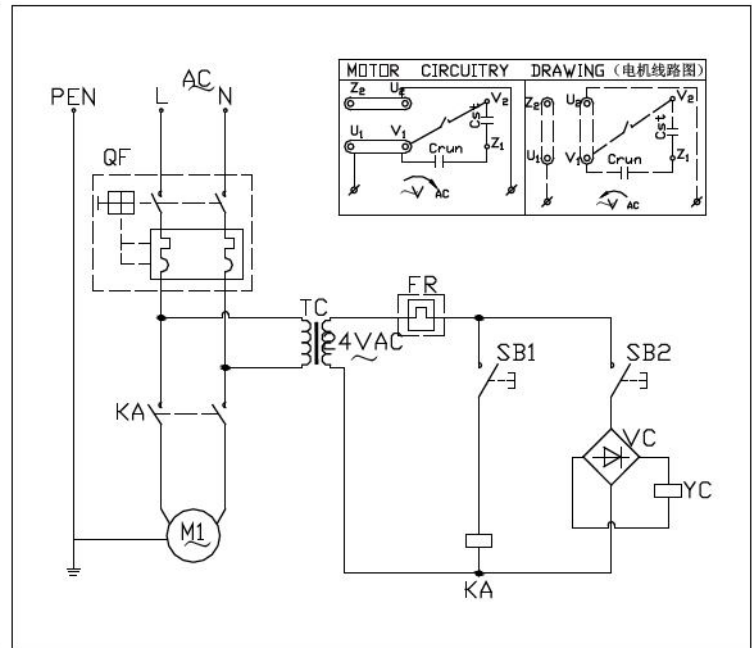


ITEN	NAME	NUM	ITEN	NAME	NUM	ITEN	NAME	NUM
5.1	The WH connection block	1	5.6	Flat washer	4	5.11.1	Valve body	1
5.2	Plug	5	5.7	Elastic washer	4	5.11.2	O Ring	1/1
5.3	Check valve	1	5.8	Screw	4	5.11.3	O Ring	4/1
5.3.1	Valve body	1/1	5.9	Pressure regulating valve	1			4/1
5.3.2	Ring	1/1	5.9.1	Valve bidy	1/1			
5.3.3	O Ring	1/1	5.9.2	O Ring	1/1			
5.3.4	O Ring	1/1	5.9.3	O Ring	1/1			
5.4	Ring NPT1/4	2	5.10	Pressure gauge	1			
5.5	Ring	1/1	5.11	Electromagnetic valve	1			

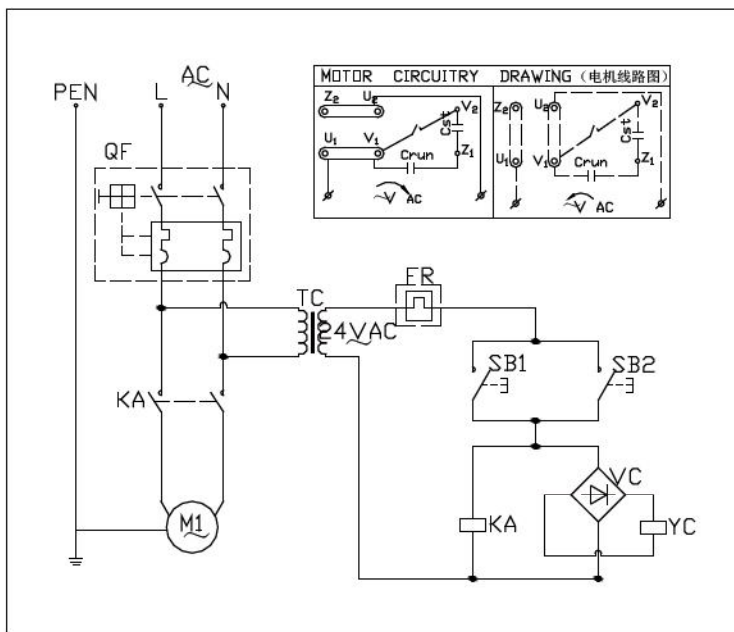
MP series electric pump control circuit principle diagram (Single-phase 220V)



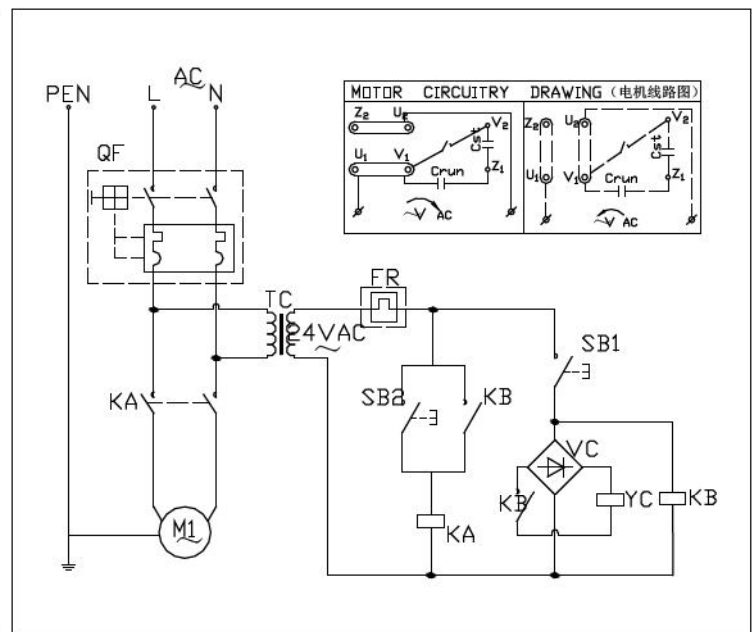
A TYPE VALVE PUMP
B TYPE VALVE PUMP



C TYPE VALVE PUMP

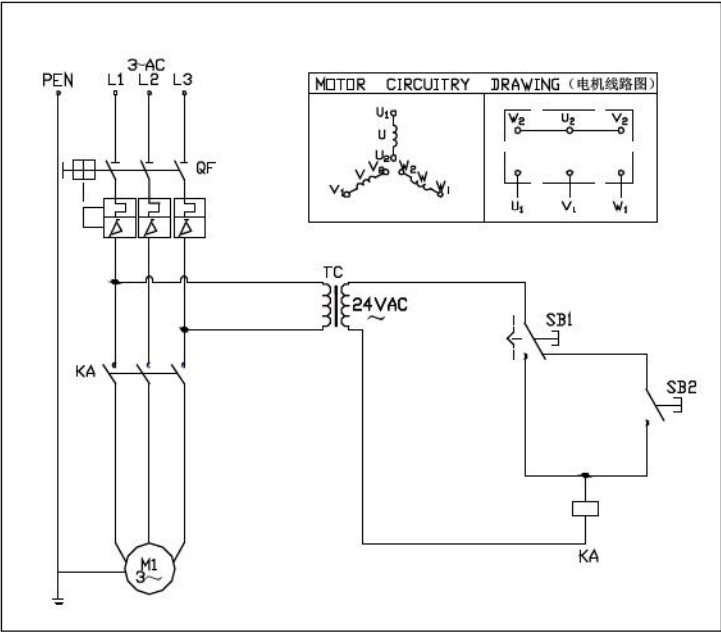


D TYPE VALVE PUMP

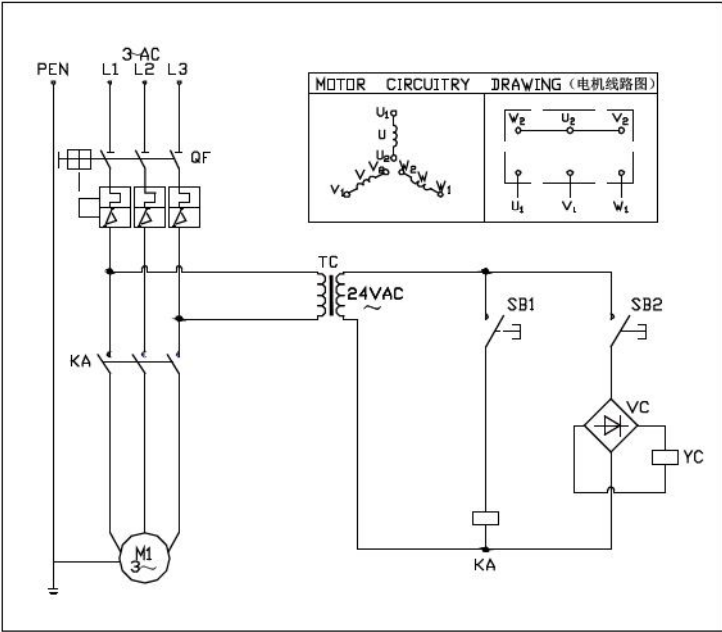


H TYPE VALVE PUMP

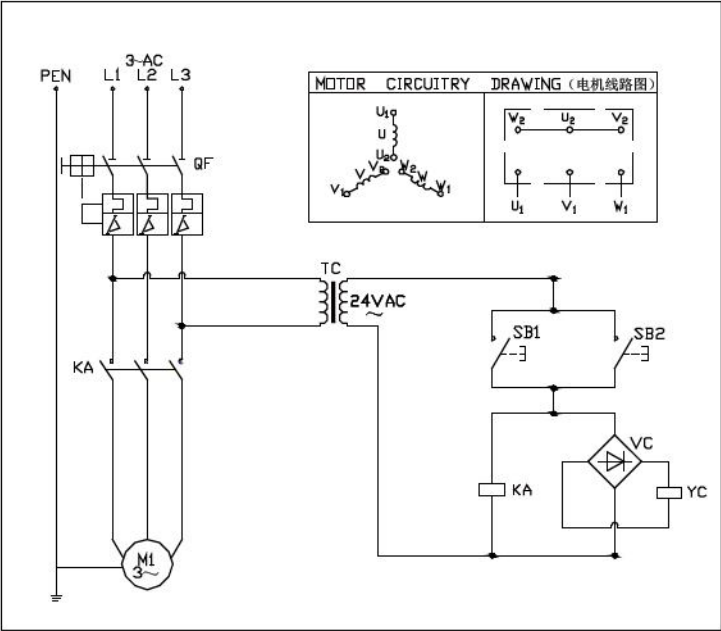
MP series electric pump control circuit principle diagram (Three-phase 380V)



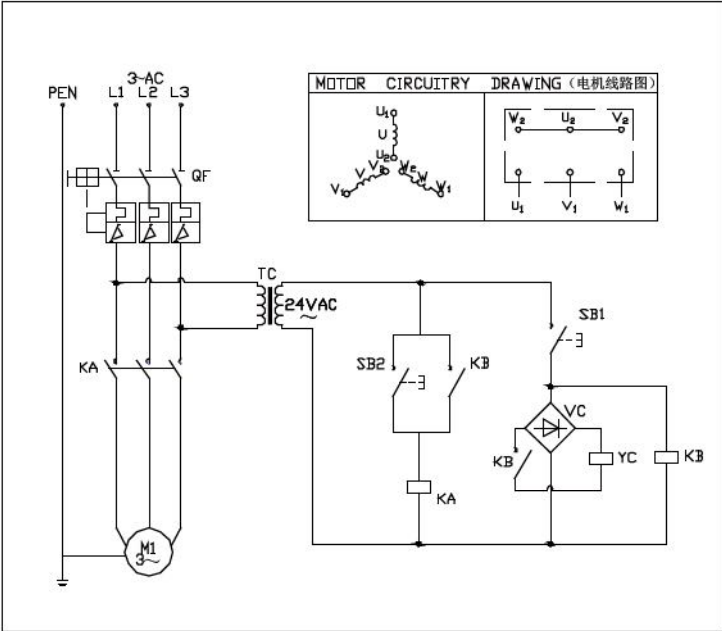
A TYPE VALVE PUMP
B TYPE VALVE PUMP



C TYPE VALVE PUMP

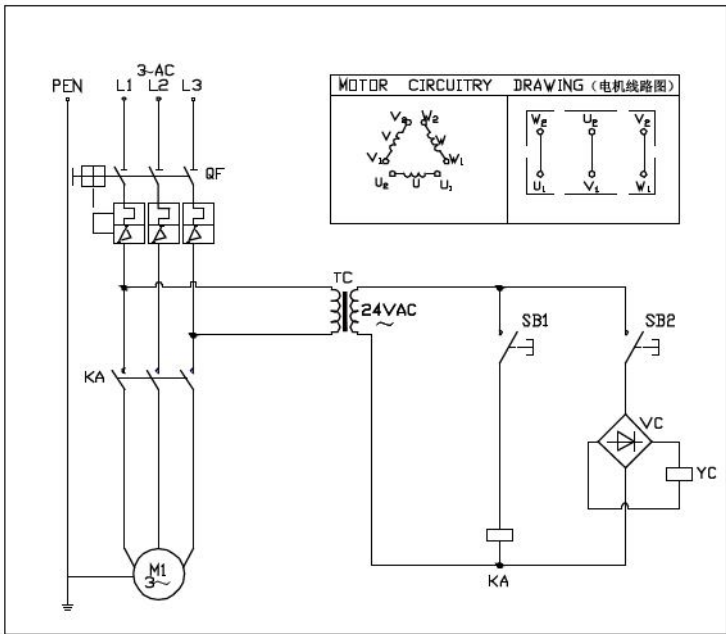


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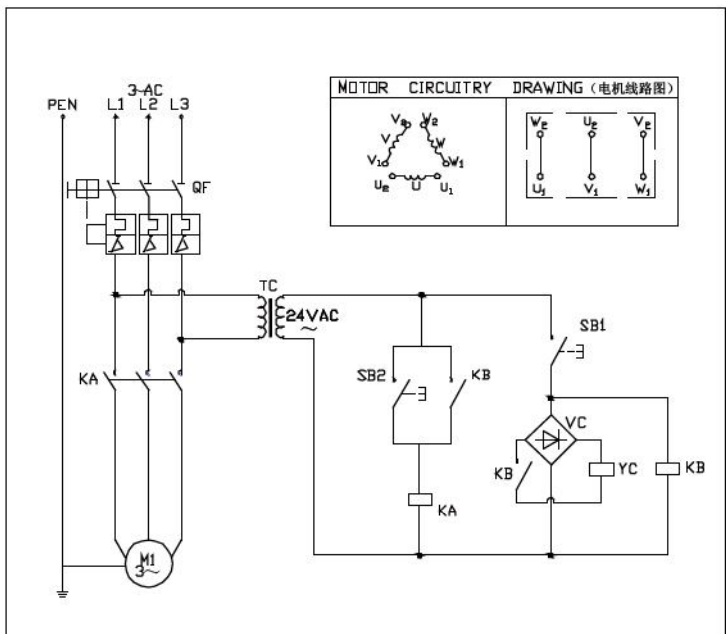


H TYPE VALVE PUMP

MP series electric pump control circuit principle diagram (Three-phase 220V)

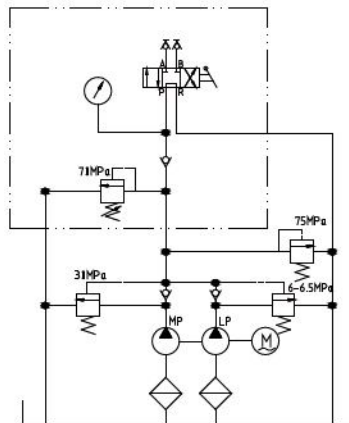


C TYPE VALVE PUMP

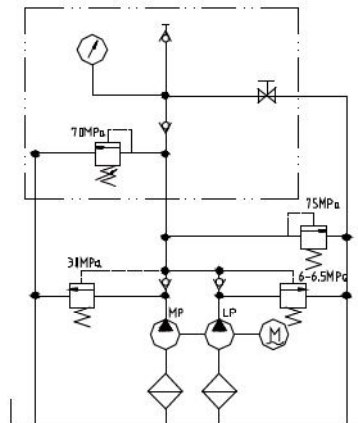


H TYPE VALVE PUMP

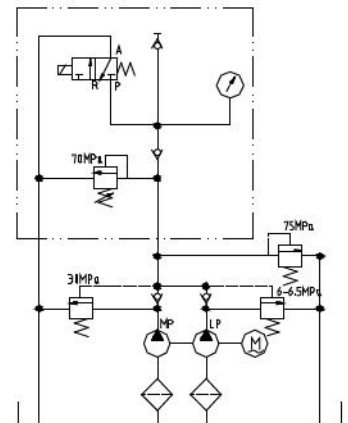
HYDRAULIC PRINCIPLE



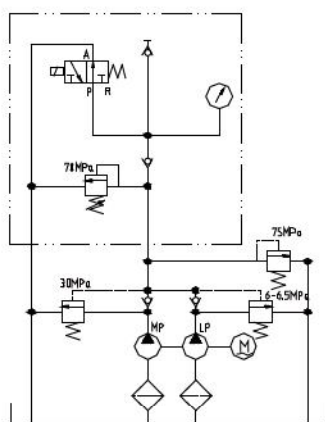
A TYPE VALVE PUMP



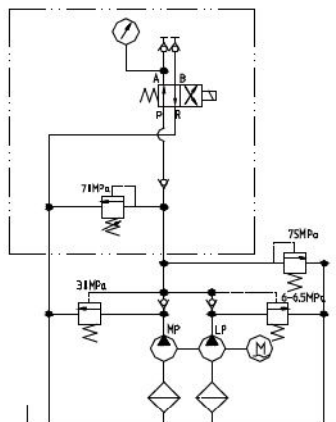
B TYPE VALVE PUMP



C TYPE VALVE PUMP



D TYPE VALVE PUMP



H TYPE VALVE PUMP

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 70 Mpa, and 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. 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.
6. Do not use the hose to remove attached equipment. Stress can damage the hose, causing personal injury.
7. 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.
8. WREN JH series 100Mpa high pressure hose's operating pressure is 100Mpa,. Overpass this pressure is forbidden.

AFTER-SALES SERVICE

1. WREN guarantees quality of the material used for manufacturing products and quality of your technical fulfillment. The guarantee period of the products is 12 months from the date of selling.
2. If any quality issue due to the defects of the materials or craftsmanship is found within the guarantee period. WREN will be responsible and repair or replace the defective products for free.
3. If the equipment is damaged because of happenstance, wrong operating and modifying or repairing the parts without consulting WREN's technical service department, WREN will not guarantee these cases.