

ZJ series high pressure piston grease pump

1. Composition and features

ZJ series high pressure piston grease pump are able to accept up to two outlets working separately, and each outlet needs a piston mechanism. There are two models of piston mechanism: ZJ-3602-05 (fixed output) and ZJ-3602-05V (variable output). The system is capable of handling lubricants up to NLGI 2# grease. The system generally runs at high pressure, typically rated at 30Mpa. The ZJ series pump can be combined with U-shaped progressive distributors, SD type block-type progressive distributors to form progressive lubrication system.

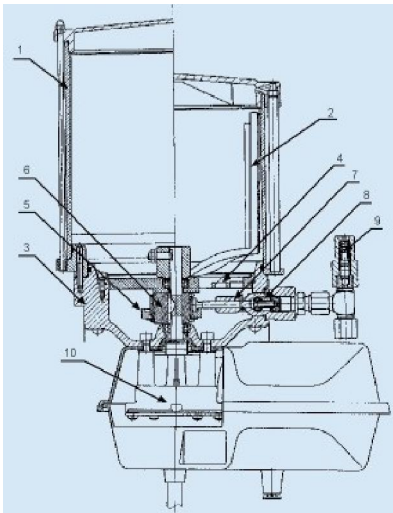
Features of ZJ series high pressure piston grease pump:

- a. Electrically operated at DC12/24V, can be connected with the power of the main equipment, (e.g. engineering machinery, mobile machinery, etc.)
- b. Special alloy steel piston mechanism, with high accuracy, stable pressure, low noise and long usage life.
- c. With paddle, can release the air of the grease through the working of paddle.
- d. Can offer pressure signal with pressure switch installed on the lubrication system; can offer liquid level signal with liquid level switch, so it can realize long-distance monitor.
- e. In the aspect of controller, it can use the controller of the pump to monitor the time of operating and intermittent; it can also choose the PLC from main equipment to control the time of operating and intermittent.
- f. Two ways of grease pump control: one way is Time-Programme control (ZJ-3602-08-02A) and the other is Time-Travel control (ZJ-3602-08-02B) (Further controller details in Page 14)

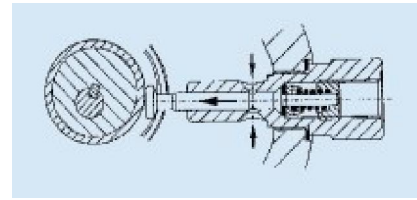
ZJ series high pressure piston pump are available in two types of reservoirs according to the material: PC type and metal type reservoir. For the capacity of PC reservoir, it is available with 2 liters,3 liters,4 liters,8 liters respectively; For the capacity of metal reservoir, it is available with 2 liters,4 liters.

2. Working principle

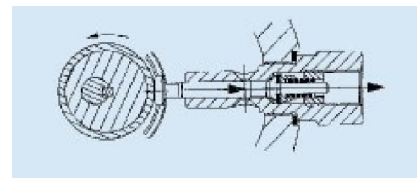
DC motor (10) continuously drives the eccentric mechanism (eccentric wheel <5> and shaft sleeve <6>). The piston of the eccentric mechanism (7) is pushed forward and backward to produce reciprocating movement to pump and deliver grease. And the integrated check valve (8) is to prevent any back flow from the main grease line. The paddle/ scraper (2) can press the grease from reservoir (1) along the grease baffle (4) into the suction section on the base of pump (3). The air bubbles are released out via the grease buffer, and ejected from the exhaust vent. The pressure of the safety valve (9) is preset at 30Mpa.



Working Principle



Suction Stroke Process



Pressure Stroke

(1) 2-liter piston grease pump (PC material)

A. Piston grease pump with single piston mechanism

a. Without controller

Model: ZJ-3502/ZJ-3602

Technical Parameters:

Reservoir Capacity: 2 L (1.9kg)

Material of Reservoir: PC

Piston mechanism (Outlet) : 1 set

Used lubricants: NLGI000# ~ 2 # grease and mineral oil: 40mm²/s (cst)

Paddle Rotation: counterclockwise

Controller: Without controller, controlled by external PLC

Operating voltage: DC12V/24V

Operating rotary speed: 22rpm

Operating Current: +20°C, idling current: 0.8A/0.4A
+20°C, full-load current: 4.0A/2.0A

Fusing current: 5A/3A

Rated operating pressure: 30 Mpa

Protection Rate: IP55



b. With controller (time-programme controller or time-travel controller)

Model: ZJ-3512/ZJ-3612/ZJ-3522/ZJ-3622

Technical Parameters:

Reservoir Capacity: 2 L (1.9kg)

Material of Reservoir: PC

Piston mechanism (Outlet) : 1 set

Used lubricants: NLGI000# ~ 2 # grease and mineral oil: 40mm²/s (cst)

Paddle Rotation: counterclockwise

Controller: With time-programme controller/with time-travel controller (Controlled by pump programme itself)

Operating voltage: DC12V/24V

Operating rotary speed: 22rpm

Operating Current: +20°C, idling current: 0.8A/0.4A
+20°C, full-load current: 4.0A/2.0A

Fusing current: 5A/3A

Rated operating pressure: 30 Mpa

Protection Rate: IP55



B. Piston grease pump with double piston mechanism

a. Without controller

Model: ZJ-6502/ZJ-6602

Technical Parameters:

Reservoir Capacity: 2 L (1.9kg)

Material of Reservoir: PC

Piston mechanism (Outlet) : 2 sets

Used lubricants: NLGI000# ~ 2 # grease and mineral oil: 40mm²/s (cst)

Paddle Rotation: counterclockwise

Controller: Without controller, controlled by external PLC

Operating voltage: DC12V/24V

Operating rotary speed: 22rpm

Operating Current: +20°C, idling current: 0.8A/0.4A
+20°C, full-load current: 4.0A/2.0A

Fusing current: 5A/3A

Rated operating pressure: 30 Mpa

Protection Rate: IP55



b. With controller (time-programme controller or time-travel controller)

Model: ZJ-6512/ZJ-6612/ZJ-6522/ZJ-6622

Technical Parameters:

Reservoir Capacity: 2 L (1.9kg)

Material of Reservoir: PC

Piston mechanism (Outlet) : 2 sets

Applicable lubricants: NLGI000# ~ 2 # grease and mineral oil:
40mm²/s (cst)

Paddle Rotation: counterclockwise

Controller: With time-programme controller/with time-travel
controller (Controlled by pump programme itself)

Operating voltage: DC12V/24V

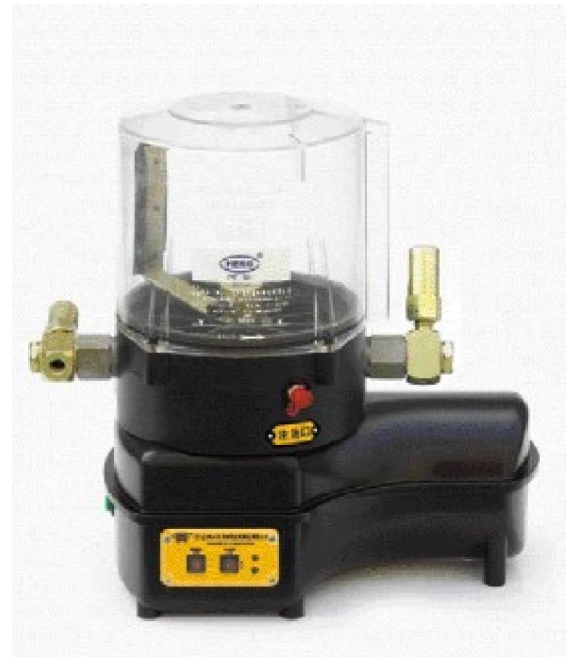
Operating rotary speed: 22rpm

Operating Current: +20°C, idling current:0.8A/0.4A
+20°C,full-load current: 4.0A/2.0A

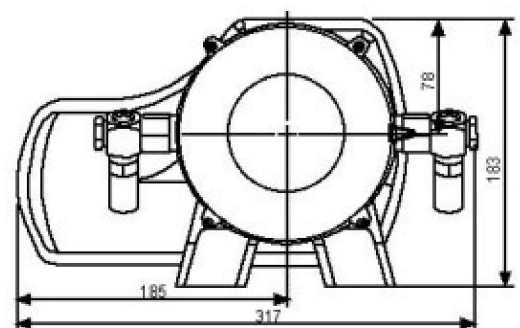
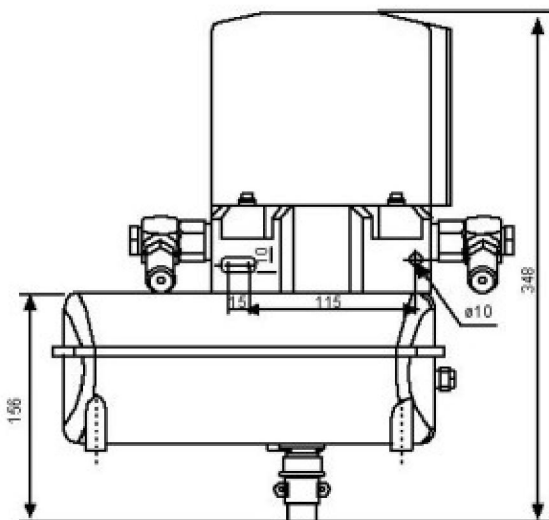
Fusing current: 5A/3A

Rated operating pressure: 30 Mpa

Protection Rate: IP55



C. Installation



(2) 3/4/8-liter piston grease pump (PC material)

A. Piston grease pump with single piston mechanism

a. Without controller

Model: ZJ-3503/ZJ-3603/ ZJ-3504/3604/ ZJ-3508/ZJ-3608

Technical Parameters:

Reservoir Capacity: 3 L (2.5kg), 4L (4kg), 8L (8kg)

Material of Reservoir: PC

Piston mechanism (Outlet) : 1 set

Applicable lubricants: NLGI000# ~ 2 # grease and mineral oil:

40mm²/s (cst)

Paddle Rotation: counterclockwise

Controller: Without controller, controlled by external PLC

Operating voltage: DC12V/24V

Operating rotary speed: 22rpm

Operating Current: +20°C, idling current: 0.8A/0.4A

+20°C, full-load current: 4.0A/2.0A

Fusing current: 5A/3A

Rated operating pressure: 30 Mpa

Protection Rate: IP55



b. With controller (time-programme controller or time-travel controller)

Model: ZJ-3513/ZJ-3613, ZJ-3514/ZJ-3614,

ZJ-3518/ZJ-3618 ZJ-3523/ ZJ-3623,

ZJ-3524/ZJ-3624, ZJ-3528/ZJ3628

Technical Parameters:

Reservoir Capacity: 3L (2.5kg), 4L (4kg), 8 L (8kg)

Material of Reservoir: PC

Piston mechanism (Outlet) : 1 set

Applicable lubricants: NLGI000# ~ 2 # grease and mineral

oil: 40mm²/s (cst)

Paddle Rotation: counterclockwise

Controller: With time-programme controller/with time-travel controller (Controlled by pump programme itself)

Operating voltage: DC12V/24V

Operating rotary speed: 22rpm

Operating Current: +20°C, idling current: 0.8A/0.4A

+20°C, full-load current: 4.0A/2.0A

Fusing current: 5A/3A

Rated operating pressure: 30 Mpa

Protection Rate: IP55



B. Piston grease pump with double piston mechanism

a. Without controller

Model: ZJ-6503/ZJ-6603, ZJ-6504/ZJ-6604, ZJ-6508/ZJ-6608

Technical Parameters:

Reservoir Capacity: 3 L (2.5kg), 4L (4kg), 8L (8kg)

Material of Reservoir: PC

Piston mechanism (Outlet) : 2 sets

Applicable lubricants: NLGI000# ~ 2 # grease and mineral oil:
40mm²/s (cst)

Paddle Rotation: counterclockwise

Controller: Without controller, controlled by external PLC

Motor:

Operating voltage: DC12V/24V

Operating rotary speed: 22rpm

Operating Current: +20°C, idling current: 0.8A/0.4A
+20°C, full-load current: 4.0A/2.0A

Fusing current: 5A/3A

Rated operating pressure: 30 Mpa

Protection Rate: IP55



b. With controller (time-programme controller or time-travel controller)

Model: ZJ-6513/ZJ-6613, ZJ-6514/ZJ-6614, ZJ-6518/ZJ-6618

ZJ-6523/ ZJ-6623, ZJ-6524/ZJ-6624, ZJ-6528/ZJ6628

Technical Parameters:

Reservoir Capacity: 3 L (2.5kg), 4L (4kg), 8L (8kg)

Material of Reservoir: PC

Piston mechanism (Outlet) : 2 sets

Applicable lubricants: NLGI000# ~ 2 # grease and mineral oil:
40mm²/s (cst)

Paddle Rotation: counterclockwise

Controller: Controlled by external PLC

Operating voltage: DC12V/24V

Operating rotary speed: 22rpm

Operating Current: +20°C, idling current: 0.8A/0.4A
+20°C, full-load current: 4.0A/2.0A

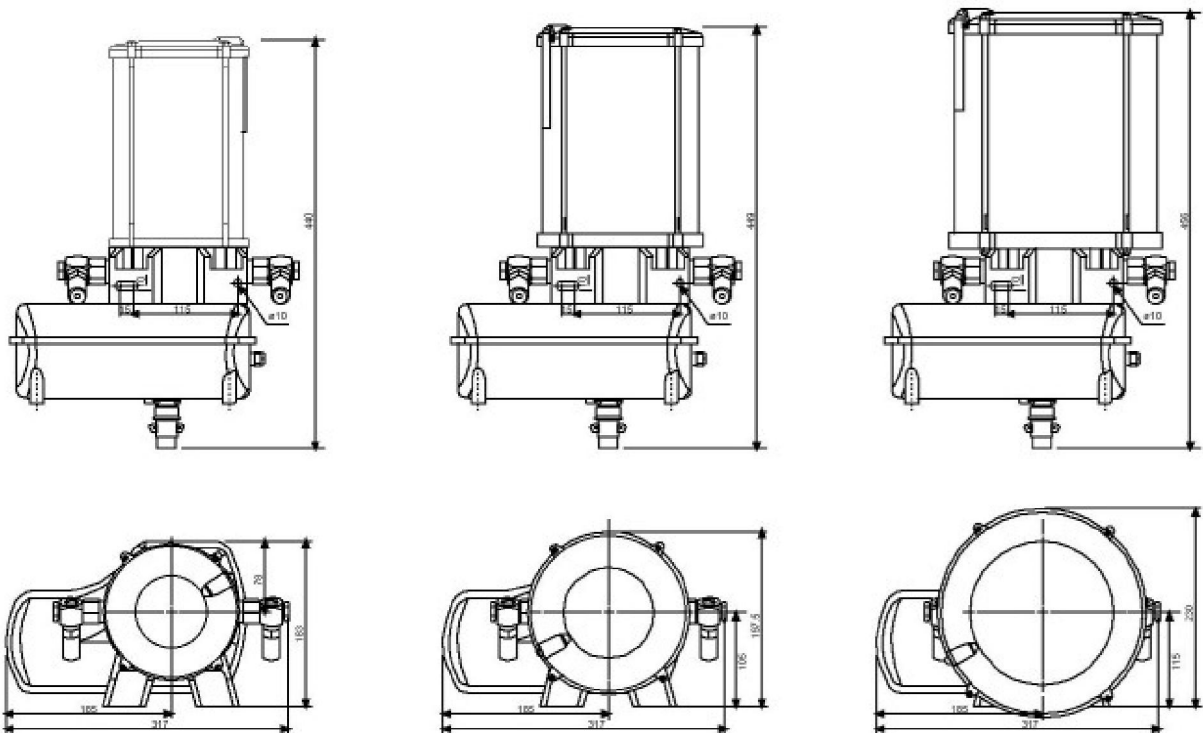
Fusing current: 5A/3A

Rated operating pressure: 30 Mpa

Protection Rate: IP55



C. Installation Size



Pump with 3L PC reservoir

Pump with 4L PC reservoir

Pump with 8L PC reservoir

(3) 2-Liter/4-Liter Grease Pump (Metal Reservoir)

A. Piston grease pump with single piston mechanism

a. Without controller

Model: ZJ-3502M/ZJ-3602M/ ZJ-3504M/3604M

Technical Parameters:

Reservoir Capacity: 2L (1.9kg), 4L (4kg)

Material of Reservoir: Metal

Piston mechanism (Outlet): 1 set

Applicable lubricants: NLGI 2#, NLGI 1#, NLGI 0#, NLGI 00#, NLGI000# grease and mineral oil: 40mm²/s (cst)

Paddle Rotation: counterclockwise

Controller: Controlled by external PLC

Operating voltage: DC12V/24V

Operating rotary speed: 22rpm

Operating Current: +20°C, idling current: 0.8A/0.4A
+20°C, full-load current: 4.0A/2.0A

Fusing current: 5A/3A

Rated operating pressure: 30 Mpa

Protection Rate: IP55



b. With controller (time-programme controller or time-travel controller)

Model: ZJ-3512M/ZJ-3612M, ZJ-3522M/ZJ-3622M,
ZJ-3514M/ZJ-3614M, ZJ-3524M/ ZJ-3624M

Technical Parameters:

Reservoir Capacity: 2L (1.9kg), 4L (4kg)

Material of Reservoir: Metal

Piston mechanism (Outlet): 1 set

Applicable lubricants: NLGI 2#, NLGI 1#, NLGI 0#, NLGI 00#,
NLGI000# grease and mineral oil: 40mm²/s (cst)

Paddle Rotation: counterclockwise

Controller: With time-programme controller/with time-travel
controller (Controlled by pump programme itself)

Operating voltage: DC12V/24V

Operating rotary speed: 22rpm

Operating Current: +20°C, idling current: 0.8A/0.4A
+20°C, full-load current: 4.0A/2.0A

Fusing current: 5A/3A

Rated operating pressure: 30 Mpa

Protection Rate: IP55



B. Piston grease pump with double piston mechanism

a. Without controller

Model: ZJ-6502M/ZJ-6602M, ZJ-6504M/ZJ-6604M

Technical Parameters:

Reservoir Capacity: 2L (1.9kg), 4L (4kg)

Material of Reservoir: Metal

Piston mechanism (Outlet) : 2 sets

Applicable lubricants: NLGI 2#, NLGI 1#, NLGI 0#, NLGI 00#,
NLGI000# grease and mineral oil: 40mm²/s (cst)

Paddle Rotation: counterclockwise

Controller: Controlled by external PLC

Operating voltage: DC12V/24V

Operating rotary speed: 22rpm

Operating Current: +20°C, idling current: 0.8A/0.4A
+20°C, full-load current: 4.0A/2.0A

Fusing current: 5A/3A

Rated operating pressure: 30 Mpa

Protection Rate: IP55



b. With controller (time-programme controller or time-travel controller)

Model: ZJ-6512M/ZJ-6612M, ZJ-6522M/ZJ-6622M,
ZJ-6514M/ZJ-6614M, ZJ-6524M/ZJ-6624M

Technical Parameters:

Reservoir Capacity: 2L (1.9kg), 4L (4kg)

Material of Reservoir: Metal

Piston mechanism (Outlet) : 2 sets

Applicable lubricants: NLGI 2#, NLGI 1#, NLGI 0#, NLGI 00#,
NLGI000# grease and mineral oil: 40mm²/s (cst)

Paddle Rotation: counterclockwise

Controller: With time-programme controller/with time-travel

Operating voltage: DC12V/24V

Operating rotary speed: 22rpm

Operating Current: +20°C, idling current: 0.8A/0.4A
+20°C, full-load current: 4.0A/2.0A

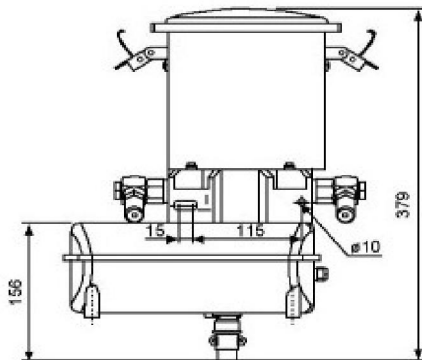
Fusing current: 5A/3A

Rated operating pressure: 30 Mpa

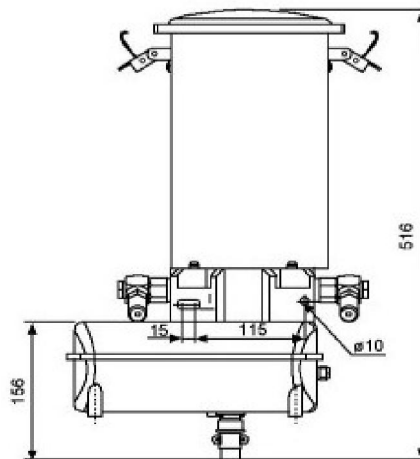
Protection Rate: IP55



C. Installation Size

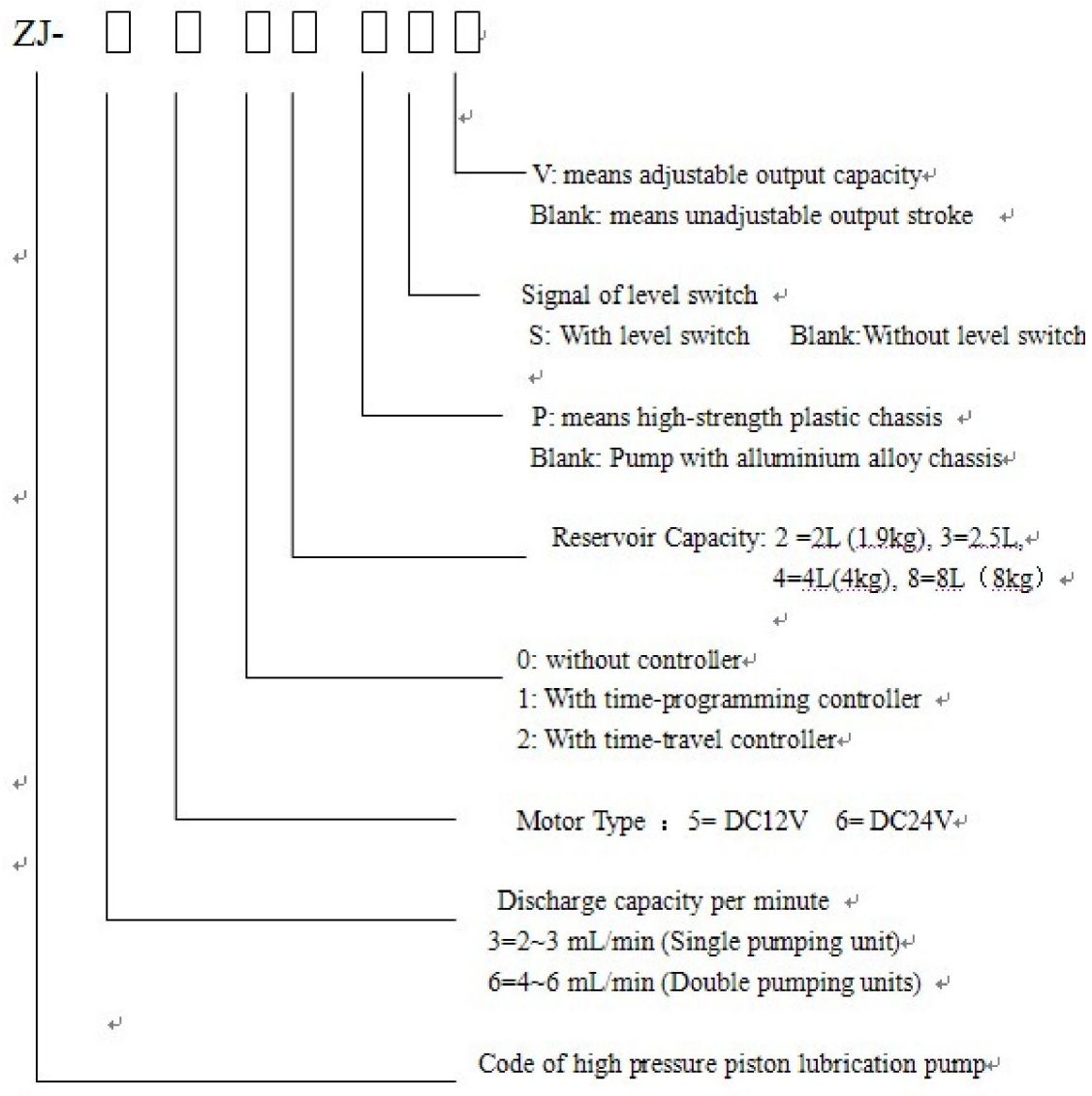


Pump with 2 Liters Meter Reservoir



Pump with 4 Liters Meter Reservoir

(1) Model Number and explanations to guide how to order:



Examples: ZJ3612S indicates that it is a grease pump with aluminum alloy chassis, DC24V motor, with time-programme controller, with level switch, discharge capacity of 2-3mL/min, and it is an unadjustable high pressure piston grease pump.

(5). Product Specifications

Model	Ambient Temperature	Discharge Capacity	Output Pressure	Voltage	Current	Reservoir Capacity	Used Grease	Outlet Thread	Controller
ZJ350※	-35℃－ +80℃	2-3 mL/min	30Mpa	12V	4.0A	PC Material :2 L,3L, 4L,8L	NLGI000#-2#	M10 X 1	No
ZJ351※									Time-Programme Controller
ZJ352※									Time-Travel Controller
ZJ360※				24V	2.0A				No
ZJ361※									Time-Programme Controller
ZJ362※									Time-Travel Controller
ZJ650※		4-6 mL/min		12V	4.0A	Metal Material: 2L, 4L			No
ZJ651※									Time-Programme Controller
ZJ652※									Time-Travel Controller
ZJ660※				24V	2.0A				No
ZJ661※									Time-Programme Controller
ZJ662※									Time-Travel Controller

(6) Main components of ZJ series high pressure piston grease pump

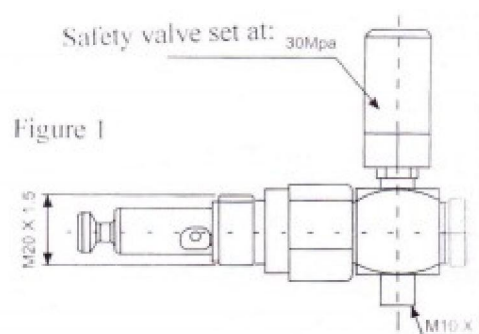
Piston mechanism

A. Types of piston mechanism

a . Piston mechanism: ZJ-3602-05 type (Fig 1)

Pump piston diameter: ϕ 6mm

Stroke Speed: 0.12 cm³ /stroke, unadjustable output stroke



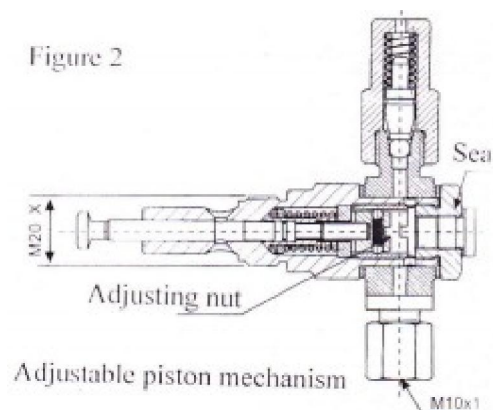
b. Piston mechanism: ZJ-3602-05V type (Fig 2)

Pump discharge default to maximized value

Pump piston diameter: ϕ 6mm

Speed: 0.044-0.12 cm³/Stroke

Velocity of grease is adjustable, each adjustable position (1/2 rpm) means the a change of grease volume of 0.013cm³.



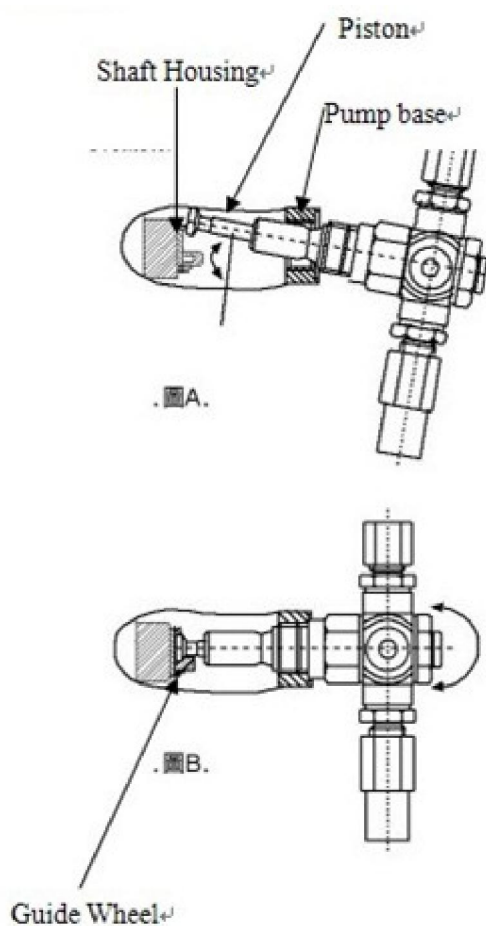
Adjustment Method:

1. Remove sealing plug, and adjust the adjustment nut using screwdriver.
2. Reduce the amount of grease by adjusting clockwise, and increase the amount of grease by adjusting counterclockwise. When adjusting the nut, the maximum stroke is 2.4 =6 adjustment positions. One adjustment cycle of the nut is 0.8mm =2 adjustment positions. Adjust the nut to the right position, and tighten the sealing plug.

B. Installation of piston mechanism

Installation Guide:

1. Disconnect the power to the pump if you need to assemble or dismantle the pump.
2. At installation, insert the piston in the pump base in an upward-tilting angle (See Fig. A)
3. The piston mechanism should be moved to the horizontal position when the piston head is seated into the camshaft.
4. Piston head movement must be inside the the guide ring of the guide wheel
5. Tighten the piston mechanism.
6. Dismantle in reverse order.
7. Make sure not to leave the piston in the pumping body when dismantling.

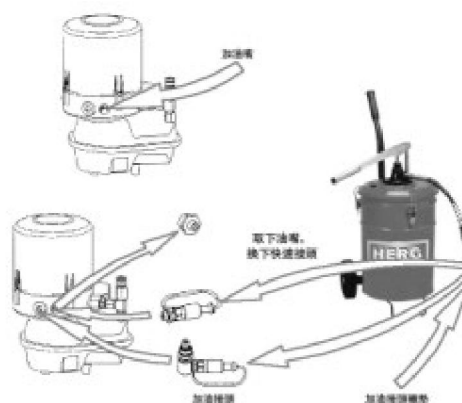


(7) Methods for Filling Reservoir

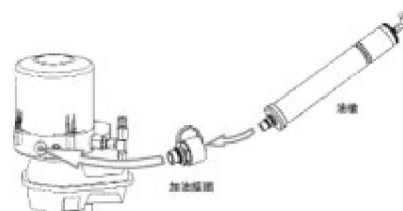
● Standard Method

The piston pump is filled through ball-type nozzle on the pump body using manual or pneumatic grease gun.

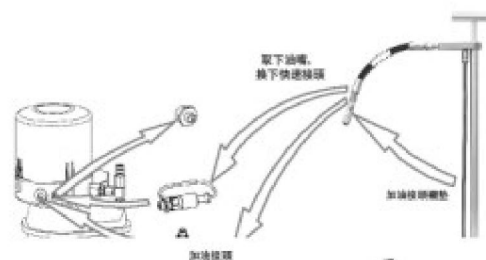
Filling via connector



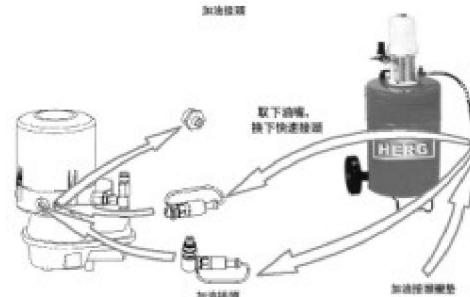
Filling with grease gun



Filling with Herg special grease gun



Filling with pneumatic grease replenish machines



(8) Controller usage and explanation guidelines

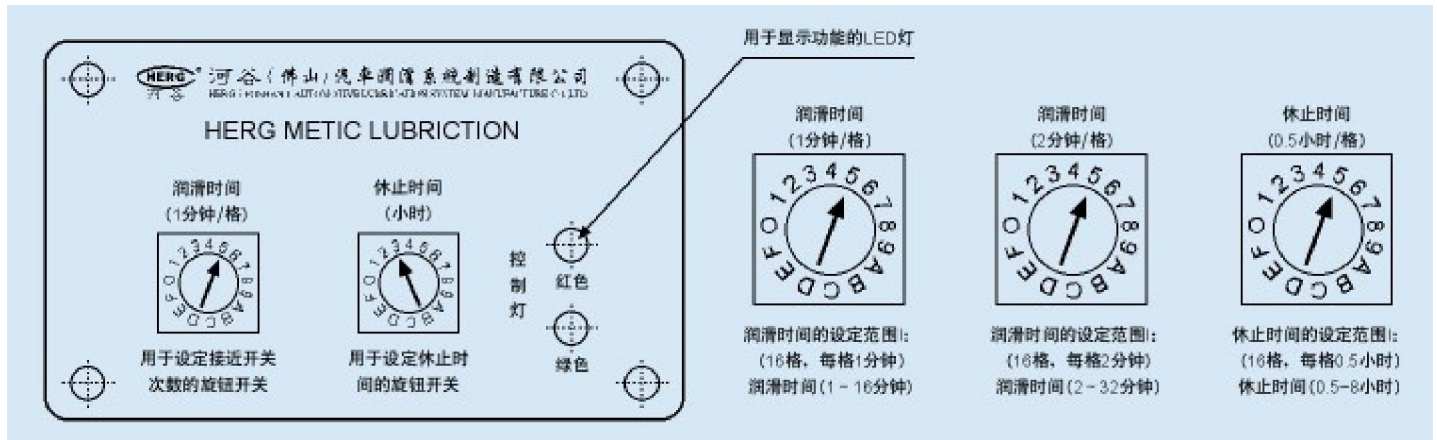
(1) Time-programming controller (ZJ-3602-08-02A)

It is available to set the lubrication time and intermittent time.

The indicator green light is on during operation

- Reset switch-action-start a lubrication cycle- back to the original settings after completing the cycle.
- Memory function: Capable of memorizing the action before power-off.

- c. Level Switch: When the grease level is lower the set level, the red light flash quickly and pump shuts down automatically.
- d. Pressure Switch: The red light flashes slowly (Intermittent time : 1 second) until the pressure problem is solved.
- e. Motor doesn't work: The indicator red light is on until trouble is solved.
- f. Time setting: Lubricating time can be set as 1-16 minutes or 2-32 minutes; Intermittent time is 0.5-8 hours.



(2) Time-travel controller (ZJ-3602-08-02B)

It is available to set the lubrication times and intermittent time.

The indicator green light is on during operation

- a. Reset switch-action-start a lubrication cycle- back to the original settings after completing the cycle.
- b. Memory function: Capable of memorizing the action before power-off.
- c. Level Switch: When the grease level is lower the set level, the red light flash quickly and pump shuts down automatically.
- d. Pressure Switch: The red light flashes slowly (Intermittent time: 1 second) until the pressure problem is solved.
- e. Motor doesn't work: The indicator red light is on until trouble is solved.
- f. Time setting: Lubricating time can be set as 1-16 times or 2-32 times; Intermittent time is 0.5-8 hours.

