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Operation Manual

GEN\GEO Type Electric Grease Lubrication Pump

CENTRALIZED LUBRICATION DEVICE

Credit centered, Quality for future

BAOTN INTELLIGENT LUBRICATION TECHNOLOGY (DONGGUAN) CO.,LTD. ISO9001





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Thank you for purchase of BAOTN-GEN/GEO type electric grease lubrication pump. The BAOTN centralized lubrication devices we manufacture include manual and electric thin oil lubrication pumps; manual, electric and pneumatic grease lubrication pumps; oil mist and oil gas lubrication pumps as well as supporting distributors and components. Please read this operation manual carefully before use to know well how to use the lubrication pump properly and make full use of its excellent performance. Thanks for your cooperation!

I. Purposes and characteristics

The GEN\GEO type electric grease lubrication pump is designed and manufactured specially for various large and medium-sized machines, which isn't only economic and practical, but also applicable to engineering machinery, CNC machines, processing centers, production lines and industries of light textile, plastics, printing, chemicals, food, etc., so as to guarantee the lubrication performance and precision of various machinery devices and prolong their service lives.

A centralized lubrication system can be generated with the GEN\GEO type electric grease lubrication pump and the quantitative grease distributor to perform quantitative oil supply and lubrication for each lubricating point.

GEN/GEO-2 can be played more for accurate and quantitative oil supply and lubrication if it is used with the GFD/GFE type volumetric distributor we manufacture.

The GEN/GEO-1 type electric progressive lubrication pump can be used to form a resistant lubrication system together with the GSA type proportional joint, to supply oil in proportion for lubrication on each lubricating point, or use with GPA,GPB,GPC progressive distributor.

The AC110V, AC220V, and DC24V motors are available for the GEN\GEO type electric grease lubrication pump.

Users can choose different types of lubrication pumps based on different motors they use.

The pressure switch and the low oil level indicator can also be purchased for connection to the host system to realize the integrated pause, lubrication and alarming

Electric grease lubrication system

1. Functions and features of the lubrication system

1.1 This system consists of a GEN\GEO type electric lubrication pump, distributors, pipes and connectors accordingly.

1.2 The lubrication pump delivers the compressed lubrication oil to drive the distributor(measuring piece)'s internal structure to discharge (or distribute in proportion) the quantitative lubrication oil.

1.3 The lubrication pump is designed with a pressure switch for giving action signals to (the host PLC or digital display controller of) the lubrication pump within the set operation time, so as to detect the cutoff, loss of pressure or oil shortage, etc

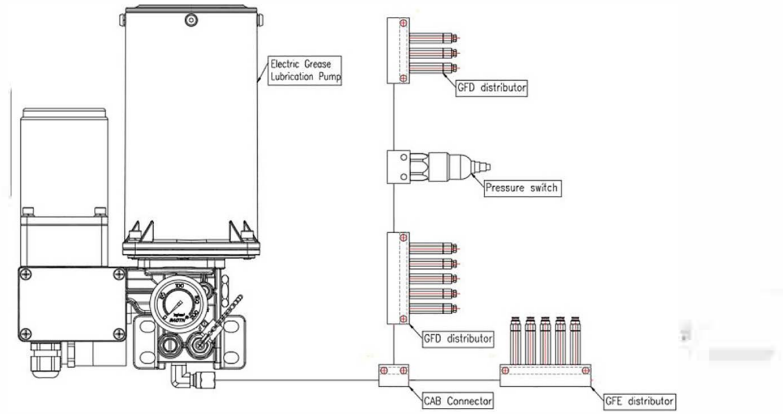
1.4 Please purchase the distributor (measuring piece) according to the actual need of oil for each lubricating point.

1.5 The measuring piece and its connectors can be easily and flexibly installed in parallel or series.

1.6 The electric grease lubrication system is designed and manufactured for large and medium-sized machines with more lubricating points, long (high) pipelines and accurate oil supply.



2. Diagram of lubrication system



- Note:**
1. The $\Phi 6$ main oil pipe is recommended if the piping distance of this lubrication system's main pipeline is short and there are about less than 50 lubricating points.
 2. The $\Phi 8$ main oil pipe is recommended if the piping distance of this lubrication system's main pipeline is long and there are about more than 50 lubricating points.
 3. For the main oil pipes, the aluminum pipe, copper pipe and the TUB heavy-duty hose we manufacture are recommended.
 4. It is recommended to supply the lubrication oil with the AFB type grease filter and the GEFtype manual oil gun we manufacture.

II. Boundary dimension and working principle

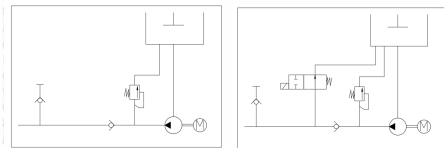
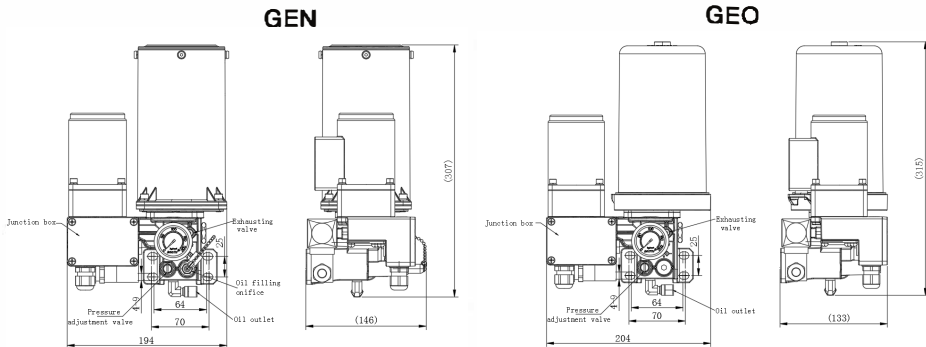
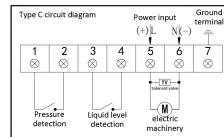


Diagram of resistant lubrication pump Diagram of volumetric lubrication pump

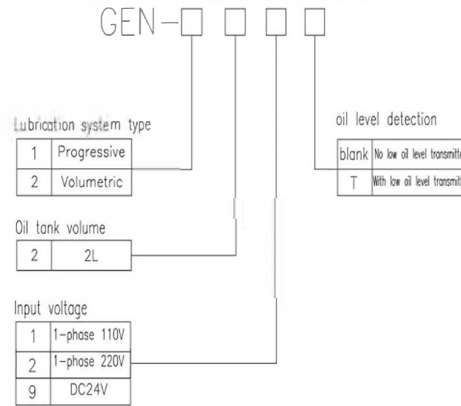


For details, please refer to the wiring layout shown in the junction box

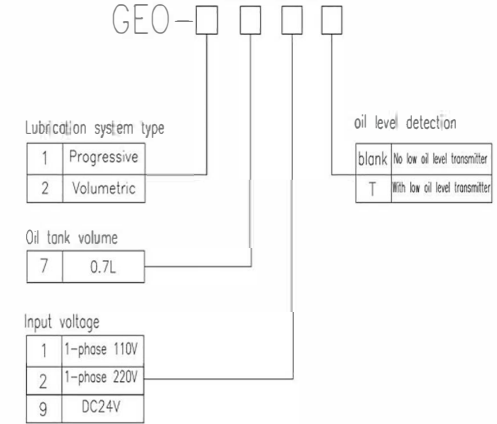


III. Type specification

Type specification of the GEN type electric grease lubrication pump



Type specification of the GEO type tank-shaped electric grease lubrication pump



IV. Product specification and technical parameters

Type	Max. discharge pressure (Mpa)	Output (cc/min)	Diameter of oil outlet pipe	Motor power (W)	Oil tank capacity (L)	Scope of grease
GEN-122T	8.0MPa	20	$\Phi 8$ or $\Phi 6$	35W	2L	000#-1#
GEN-129T				25W		
GEN-222T				35W		
GEN-229T				25W		
GEO-172T				35W	0.7L	
GEO-179T				25W		
GEO-272T				35W		
GEO-279T				35W		
				25W		

This product has the following features

1. This lubrication pump drives the plunger with its motor to reciprocate for oil absorption and discharge.
2. A pressure regulating valve is provided to control the working pressure of the lubrication pump system and ensure its work safety.
3. The GEN/ GEO type electric grease lubrication pump is equipped with a normally open electromagnetic relief valve that operates synchronously with the lubricating pump (the system operation cycle is controlled with a PLC or IC-substrate controller). When the lubrication pump starts working, the electromagnetic relief valve closes the oil return hole in the lubrication pump; and when the lubrication pump stops working, the electromagnetic relief valve opens the oil return hole to reduce the pressure relief time and increase the work efficiency.
4. An air outlet is provided to eliminate the air in the lubrication pump chamber, thus greatly reducing the air bubbles in the oil tank and ensuring smooth operation.
5. It uses an oil gun and an oil filter to fill the lubrication pump with oil to reduce impurities and air into the lubrication system.
6. It changes the traditional oil absorption into the closed vacuum oil compressing, which can greatly improve the oil absorption efficiency. (When adding lubricating oil, it is necessary to add to the highest position, making a small amount of oil flow out from the air outlet, so as to realize vacuum suction of oil)

V. Description on principle of distributor (measuring piece)

1. GFD type quantitative pressurized grease distributor

Type specification

Φ4 (diameter of oil outlet pipe) (casing cap M8x1.0)



GFD-00-5

Quantitative pressurized grease distributor

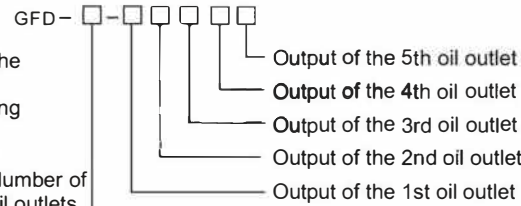
Φ4 (diameter of oil outlet pipe) (casing cap M8x1.0)



2-Φ6 (diameter of the main oil inlet and outlet pipes) (casing cap M10x1.0)

GFD

Number of oil outlets



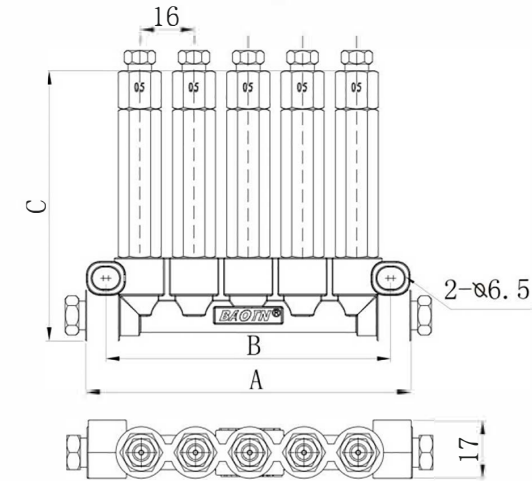
02	02 indicates 2 oil outlets;
03	03 indicates 3 oil outlets;
04	04 indicates 4 oil outlets;
05	05 indicates 5 oil outlets;

Specifications and technical parameters

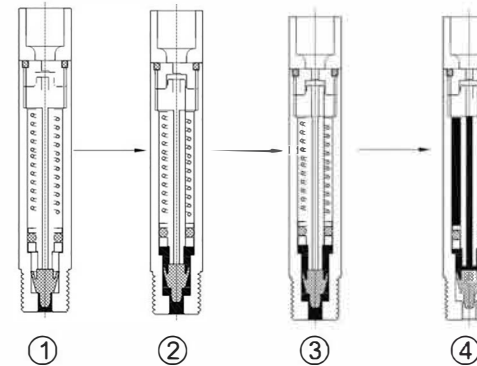
Types	Number of oil outlets	A	B	C	Output (cc/cy)	Weight (g)
GFD-02	2	48	39	68-86	0.05	168
GFD-03	3	64	54	68-86	0.1;0.2;	232
GFD-04	4	80	69	68-86	0.3;0.4;	299
GFD-05	5	96	84	68-86	0.5	359

Remark: for dimension C, 0.1cc is 68mm, 0.2-0.3cc is 75mm and 0.4-0.5cc is 86mm.

Outline dimensional drawing



Schematic diagram of GFD type distributor



- ① Before oil absorption (starting of pressurization)
- ② During oil absorption (pressurizing)
- ③ After oil absorption (end of pressurization)
- ④ During oil discharge (reciprocation of the plunger)

Description on the GFD type distributor working principle:

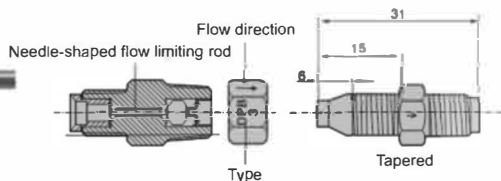
- The lubricating oil sent out from the pump causes the umbrella-shaped rubber in the GFD type dispenser to start pushing up.
- After the umbrella-shaped valve closes the center hole of the core bar, the piston is forced to rise against the spring force.
- The lubricating oil originally stored in the oil chamber is discharged.
- When the piston moves to the apex of the oil chamber, the oil discharge is completed. When the oil pump stops supplying oil, the relief valve is automatically opened, so that the lubricating oil in the main oil pipe is returned through the relief valve. Then, the system pressure drops. The piston in the distributor starts to recover under the action of the spring. When the umbrella-shaped valve returns and the closed distributor starts supplying oil, the piston presses the lubricating oil stored in the oil chamber to the oil chamber through the small hole of the core rod, for preparing well for next supply of oil.

2. GSA type proportional grease joint and BU type progressive grease distributor

Grease measuring piece



Outline dimensional drawing



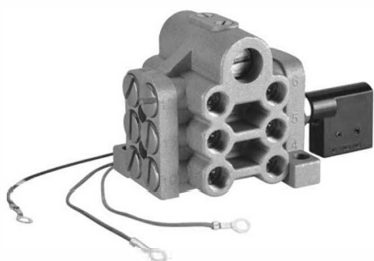
Specifications and technical parameters

	Types	Mark	Flow rate (cc/mm)	
G	GSA-1	DPB1	30	Connection mode Connect with the (JQC-BB type) oil distributing block at the oil inlet. Connect with (the JQC-BB04 casing) and (the JQC-BP04 casing cap) at the oil outlet. (Commonly used pipe branches and terminals)
S	GSA-2	DPB2	35	
A	GSA-3	DPB3	42	
Remark: flow test values for the proportional joint (please refer to the #000 oil).				Assembly schematic

Performance and features

- The GSA type joint is also called proportional joint.
- It is of a tubular structure with a flow limiting rod inside.
- Cracking pressure: 8kgf/cm²
- The flow is controlled according to the throttling principle and proportionally distributed according to the flow capacity (flow rate).
- The same types of measuring pieces have a certain difference in oil output in actual use according to the distance among them in the lubrication system or the installation mode, that is, horizontal or vertical.
- Flow ratio: the flow rate of the same models will change due to changes in ambient temperature and viscosity of the oil during actual use.

GPA type grease distributor



GPA type grease distributor

Type specification

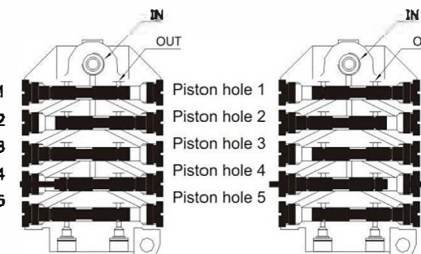
GPA-	<input type="checkbox"/>	<input type="checkbox"/>	
	M		Circulating indicator equipped
	F		No circulating indicator

Number of oil outlets	Type
02	2 oil outlets
03	3 oil outlets
04	4 oil outlets
05	5 oil outlets
06	6 oil outlets
07	7 oil outlets
08	8 oil outlets
09	9 oil outlets
10	10 oil outlets
11	11 oil outlets
12	12 oil outlets

Scope of application

• The progressive grease distributor is an advanced, well-structured oil distributor. It can be combined with manual, electric or pneumatic lubrication pump to form a single-line lubrication system, being an ideal product suitable for a variety of small and medium-sized machine tools and plastic machines and equipments as well as similar applications. A set of GPA type distributors can usually provide lubrication for 4, 6, 8, 10 or 12 lubrication points. The flow rate of the GPA type distributor is always 0.3cc/cy.

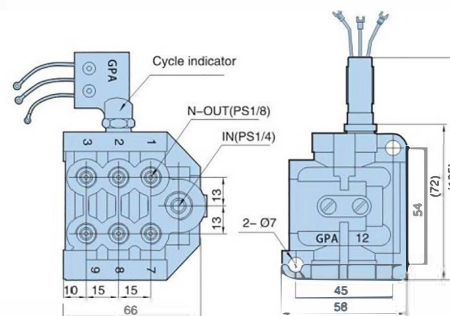
*Remark: the oil outlets of the oil distributor cannot be blocked, otherwise the normal operation will be affected and the distributor will be damaged.



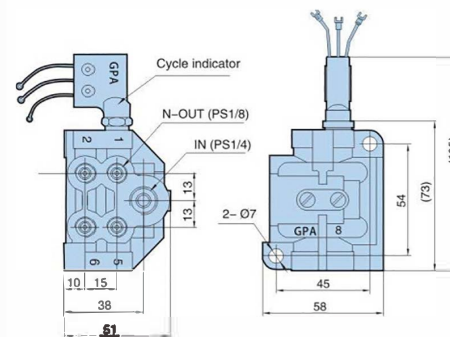
Action graph

Technical parameters of GPA type distributor

- Max. nominal pressure: 60kgf/cm²
- Standard capacity: 0.3cc/cy
- Range of applicable lubricants (at standard temperature): lubricating oil ≥ R68, grease 000° -0°.
- Working environment temperature: -10 °C ~ +60 °C
- Max. circulation speed of piston pair with mechanical circulation indicator: 60cy/min
- Max. circulation speed of piston pair: 200cy/min
- Number of lubricating points that can be lubricated by a set of distributors: 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
- Optimal diameter and length of distributor output pipe: Φ4mm; 0.5m to 2.5m long.
- Housing material: aluminum alloy



GPA-10R/GPA-12R type grease distributor



GPA-4R/GPA-6R/GPA-8R type grease distributor

Type	Detection distance	Number of outlets	Theoretical output (cc/cy)	Weight (g)
GPA-2R	0	2	0.3	300
GPA-3R	0	3		300
GPA-4R	0	4		300
GPA-5R	0	5		300
GPA-6R	0	6		300
GPA-7R	0	7		300
GPA-8R	0	8		300
GPA-9R	0	9		400
GPA-10R	0	10		400
GPA-11R	0	11		400
GPA-12R	0	12		400

VI. Oil supply cycle and installation instructions of the lubrication system

1. Setting on oil supply cycle of lubrication system

The oil supply cycle of the lubrication system (the running time and the intermittent time of the lubrication pump) is set according to the number of lubrication points, the oil demand of each lubrication point and the length (height) of the main pipe.

The following methods are recommended to determine the oil supply cycle of the lubrication system:

1.1 Determine the running time of the lubrication pump: after the lubrication pump starts to run, the lubrication system pressure gradually rises. When the pressure switch of the lubrication system is triggered up to 8 MPa, it lasts for 30-60 seconds, this period of time is the lubrication time of the lubrication system.

1.2 Determine the minimum intermittent time of the lubrication system: after the lubrication pump stops working in the lubrication system, the pressure of the lubrication system will drop to position 0 and last for 2~5min (depending on the length of the pipeline). This period of time is the minimum intermittent time of the lubrication system.

Note: the lubrication pump motor is only suitable for intermittent operation and must not be used for a long time.

2. Installation instructions of the lubrication system

2.1 The lubrication pump should be installed vertically and stably, in a place with less environmental pollution, convenient oil filling and maintenance and easy observation (applicable ambient temperature: -20 °C ~ 50 °C).

2.2 The lubrication pump should be installed in the center of the lubrication system, which can make the lubrication system pipeline short, save the piping cost and reduce the system pressure loss.

2.3 Distributors and measuring pieces should be mounted in a place with easy installation, maintenance and observation.

2.4 The grease filter is an essential lubrication element for grease lubrication systems, which is recommended to be installed in the front of the oil filler of the lubrication pump.

2.5 The pressure switch should be installed at the end of the lubrication system piping. A set of distributors (or measuring pieces) should be provided behind the pressure switch to promote the flow of grease, prevent the grease from aging and avoid the pressure switch malfunction.

2.6 The main pipe and its branches should be short and avoided to be provided with too many elbows (the pipe is prohibited from buckling when it is bent) to reduce the pressure loss of the lubrication system and ensure the smooth flow in the pipe.

2.7 When the heavy-duty hose is used in a straight line, it should be slightly slack. If the moving part is bent, it must be larger than the specified, and meanwhile the hose cannot be twisted too much.

2.8 When assembling the pipe, it is necessary to remove the chips and dirt in and out the pipe and keep the pipe clean.

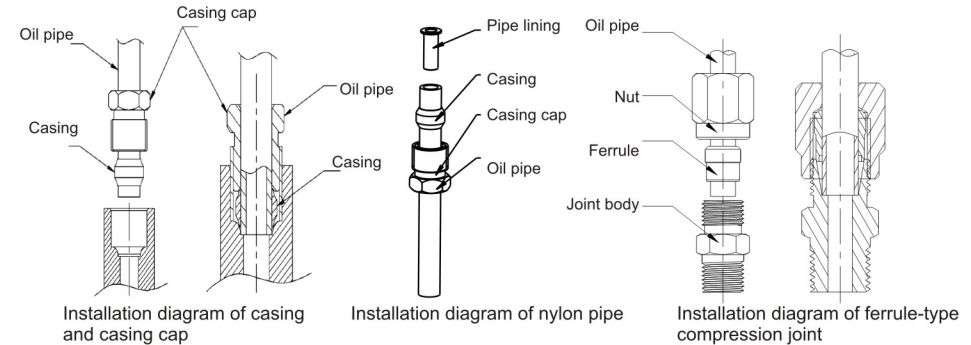
2.9 The pipe connectors must be installed firmly, without any oil leakage at joints.

2.10 All pipes of the system must be fixed with pipe clamps to prevent vibration when supplying the grease.

2.11 The pipe must be cut at a right angle with a pipe cutter. Be careful not to crack or scratch the pipe, or to crush or bend it.

2.12 Method to lock and install the pipe lining, casing and casing cap: first, insert the casing cap into the oil pipe (copper pipe, heavy-duty hose), and then insert the casing (for the nylon pipe, it needs to insert the pipe lining into the inner wall of the pipe). Then, extrude the front end of the oil pipe out of the casing by 2~3mm, then, reinsert it into the connector body. The oil pipe should be tightly attached to the top of the connector body and then locked.

2.13 Method to install the ferrule-type compression joint: first, insert the joint into the pipe, and then put it into the ferrule. At this time, the front end of the oil pipe should be exposed to the ferrule by 2-3mm or inserted into the joint body. The pipe end should be tightly attached to the top of the joint body and then locked.



VII. Usage and debugging instructions of the lubrication pump

1. The power supply must be connected and tightened first. Then, check whether the system's pressure switch is sensitive. (GEB \ GEC-2 type lubrication pump's magnetic valve works synchronously with the lubrication pump. The magnetic valve and the motor work in parallel. When the magnetic valve works normally, its indicator is on.

2. The working pressure of the lubrication pump should be adjusted within the range of ≤ 8 MPa. The working pressure of the lubrication pump has been adjusted to about 8MPa at the factory, which must not be adjusted without authorization.

3. Grease applicable: below 1# (excluding 1#) extreme pressure lithium-based grease. It is strictly forbidden to use lubricating oil with impurities and to bring dirt into the lubrication system when adding lubricating oil. (It is recommended to use the extreme pressure lithium-based grease under the ambient temperature of -5 °C ~ 0 °C and the 00# to -1# extreme pressure lithium grease under the ambient temperature of 20 °C ~ 50 °C).

4. When adding lubricating oil for the first time, please add the 32#~68# hydraulic oil and then the lubricating grease. (Because of the good fluidity, the hydraulic oil is beneficial to remove the air in the lubrication system pipeline and the impurities on the friction surface of lubrication points.)

5. When supplying lubricating oil for the lubrication pump, the lubrication pump must be fed with oil through the oil filter. It is strictly forbidden to open the oil tank cap to add the lubricating oil.

This is to avoid bringing dirt and air into the oil tank, causing the lubrication pump to get stuck or the lubricant to contain air bubbles.

6. When first use of the GEB \ GEC-2 type lubrication pump: start the lubrication pump and make the oil fill with the main oil pipe → unscrew the plug at the end of the system → discharge the oil from the plug screw hole (to remove the impurities and air in the pipe) → work → the working pressure of the lubrication pump rises to about 8MPa (observing the pressure gauge) or the pressure switch collects signal for 5~10S → turn off the power supply and the lubrication pump stops working → keep for 2~5min after the system pressure is relieved to position 0 → start the lubrication pump again → connect the distributor (measuring piece) with the pipe branch and then fasten after observing that the distributor (measuring piece) discharges oil normally → repeat this operation for several times to supply the ends of all pipe branches with oil and without air bubbles → connect lubrication points one by one → set the oil supply cycle for automatic oil supply.

7. When first use of the BDG/BDGS-1 type lubrication pump: start the lubrication pump and make the oil fill with the main oil pipe → observe whether there are air bubbles in the oil discharged → start the lubrication pump again → connect the distributor (measuring piece) with the pipe branch and then fasten after observing the distributor (measuring piece) discharges oil normally → repeat this operation for several times to feed the ends of all pipe branches with oil and without air bubbles → connect lubrication points one by one → set the oil supply cycle for automatic oil supply.

8. According to the different oil demands of lubricating points, the corresponding distributor (measuring piece) is used as needed. But when the distributor (measuring piece) used is of small flow and the distance from the oil pipe to the lubrication point is long, it is extremely time-consuming to feed the longest oil pipe completely with automatic cyclic oil supply of the lubrication pump. Therefore, it is recommended to fill the pipebranches with oil before assembly of them.

9. When the lubrication pump is not in use for a long time, the grease stored in it and in the pipeline will be hardened. So it is necessary to add the 32#-68# hydraulic oil to clear the conduit and remove the air when restarting the lubrication pump.

10. It is strictly forbidden to operate without oil in the oil tank, as which can cause malfunction of the lubrication pump or air bubbles in the lubricating oil drained. When the oil block in the oil tank drops to the low oil level (or the low level indicator sends a signal), the lubricating oil should be added immediately.

11. Check the joints of various parts to prevent oil leakage. If any oil leakage, the connecting parts must be tightened (check oil leakage through visual inspection or touching the joints with finger).

VIII. Checking and prompts for system failures

1. The pressure switch is a protective element to detect the work of the lubrication system.

1.1 When the pressure switch of the lubrication pump acts within the set running time, the system pressure is established and the lubrication system is in a normal state.

1.2 When the pressure switch of the lubrication pump doesn't act within the set running time, the system pressure isn't established and the lubrication system is in an abnormal state. (Lubrication system is interrupted and loses pressure)

2. Inspect the abnormality (failure) of the lubrication system

2.1 Check to confirm the running time set for the lubrication pump.

2.2 Check the joints of the main pipe connectors for oil leakage.

2.3 Check the lubrication pump. Unscrew the three-way connector at the oil outlet of the pressure gauge, and then plug the oil outlet (PT1/8 or M10*1.0) with the plug and switch on the power supply to make the lubrication pump run.

(1) If the pressure displayed on the pressure gauge is about 8 MPa, the lubrication pump supplies oil normally;

(2) If no pressure displayed, the check valve or pressure regulating valve may be stuck by impurities and needs to be cleaned.

2.4 Failure of distributor (measuring piece): the measuring piece is not working properly due to failure, causing the lubricating oil to be directly discharged (intermittent oil leakage).

IX. Troubleshooting

Serial No.	Trouble	Cause	Solution
1	The oil pump does not discharge lubricating oil or the lubricating oil discharged with air bubbles.	1. Air enters into the lubrication system.	Please refer to the Article 6 & 7 of Part VII to remove air bubbles in the lubrication pump. Please refer to the Article 9 of Part VII to remove the hardened lubricating oil in the lubrication pump. Please refer to the Article 3 & 5 of Part VII to add the lubrication oil.
		2. The lubrication pump is not in use for a long time, causing the lubricating oil into be hardened.	
		3. The lubricating oil used does not meet the technical requirements	
		4. Air bubbles exist in the main pipe.	
2	The oil pump works with in the specified running time and the system pressure is stable (the pressure switch can collect signals), but the individual distributor (measuring piece) does not discharge oil or the oil flow is not accurate.	1. Inaccurate running time.	Please refer to the Article 1 of Part V to readjust the running time of the lubrication system.
		2. The sealing surface in the check valve or pressure regulating valve of the lubrication pump is stuck by debris.	Please refer to the Article 1.1 & 1.2 of Part X to clean the check valve or the pressure regulating valve.
		3. The pressure of the pressure regulating valve is not set properly.	Please refer to the Article 1.2 of Part X to adjust the set pressure of the pressure regulating valve.
		4. The electromagnetic relief valve is stuck by debris.	Please refer to the Article 1.1 of Part X to remove the debris; if any damage of the sealing element, please replace in time.
		5. Oil leakage at the joints of pipes.	Please refer to the Article 11 of Part VII to handle and replace the connectors with poor tightness.
		6. The dispenser (metering part) acts insensitively and directly discharges oil without metering.	Please refer to the Article 2 of Part X to clean the measuring piece; if any damage to the umbrella-shaped rubber or O-ring, please replace in time.
3	The oil pump works with in the specified running time and the lubrication system pressure is established, but the individual distributor (measuring piece) does not discharge oil or the oil flow is not accurate (the pressure switch can collect signals).	1. The set pressure relief time (intermittent time) is not accurate.	Please refer to the Article 2 of Part V to readjust the intermittent time of the lubrication system.
		2. The sealing surface of the measuring piece is stuck by debris.	Please refer to the Article 2 of Part V to clean the sealing element; if there is any damage, please replace in time.
4	The lubrication pump stops working, the system cannot depressurize or the pressure relieving lasts too long.	1. The electromagnetic relief valve cannot depressurize since it is stuck by debris.	Please refer to the Article 4 of Part X to clean it and remove the debris; if any damage to the sealing element, please replace in time.
		2. The lubricating oil in pipes is hardened since the lubrication pump is not in use for a long time.	Please refer to the Article 9 of Part X to remove it.
		3. Pipes are flattened or blocked.	Replace the pipes.
5	The lubricating oil discharged by the lubrication pump has air bubbles.	The main pipe has air bubbles in it.	Please refer to the Article 6 & 7 of Part VII to remove the air bubbles in the lubrication pump.
6	The motor and the magnetic valve are abnormal.	The power supply is cut off.	Check the power supply and replace it if necessary.
		The motor or magnetic valve is damaged.	Check and replace it.
7	It is difficult to supply lubricating oil with the oil filter.	The oil filter is blocked.	Demount the copper nut and then remove and clean the filter element; then, reassemble and fasten it as originally assembled.

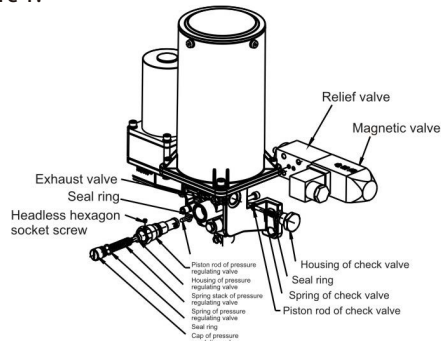
- Note: 1. if a certain lubrication point requires more or less oil in the normal operation of the lubrication system, the distributor (measuring piece) that meets the actual oil demand can be used for replacement.
2. In the event of rupture, be sure to follow the instructions in this manual to replace.



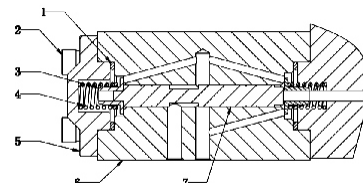
X. Troubleshooting for check valve and pressure regulating valve of lubrication pump

1. Clean the check valve (Fig. 1): unscrew the check valve, take out the gasket and clean them separately; then use a tool to open the steel ball of the check valve to blow it off with an air gun (or clean it with kerosene).
2. Clean the pressure regulating valve and adjust its pressure
 - 2.1 Clean the pressure regulating valve (Fig. 1): unscrew the housing and cap of the pressure regulating valve, loosen the headless hexagon socket screw and take out the spring, spring stack, piston rod, etc. one by one, and then clean them with kerosene separately. After completion, install and fasten them as originally assembled.
 - 2.2 Adjust the pressure of the pressure regulating valve: start the lubrication pump to supply oil and then adjust the cap of the pressure regulating valve (turn clockwise to increase the pressure while counterclockwise to decrease the pressure).
3. Exhaust valve: when the lubricating oil discharged by the lubrication pump has air bubbles, adjust the air vent screw to allow the lubricating oil to be drained from the exhaust hole until the lubricating oil has no air bubbles and then tighten the air vent screw
4. Clean the electromagnetic relief valve: unscrew the screw 2 and then remove and clean the nut cap 5, the spring 4, the piston cap 3, the sealing ring 1 and the plunger 7 in turn; then, clean the casing. After completion, install them as originally assembled.

Note: when removing the magnetic valve components, be careful not to lose the O-ring shown in Figure 1.



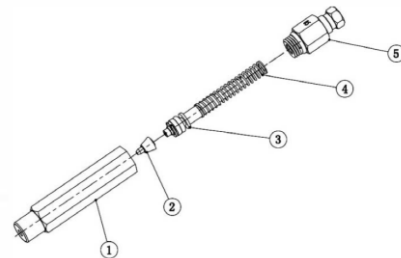
(Fig. 1) Structure diagram of lubrication pump



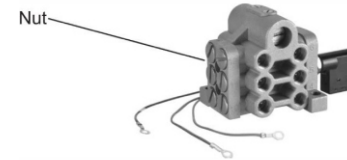
(Fig. 2) Structure diagram of magnetic valve

5. Troubleshooting of distributor (measuring piece)

- 5.1 Clean the GFD type quantitative pressurized grease distributor: unscrew the part 5, take out the part 4, 3 and 2 and then clean them with kerosene. If the part 2 is damaged, replace it in time. These parts must be installed as originally assembled. After completion of cleaning, install them as originally assembled. Be careful not to lose any components



- 5.2 If any failure of the GFD type proportional grease connector, please replace it in time
- 5.3 Clean the GPA type progressive grease distributor: unscrew all the nuts on both sides, take out the plunger and then clean them with kerosene. Do not damage the plunger and its surface. After cleaning, install them as originally assembled and do not lose any components

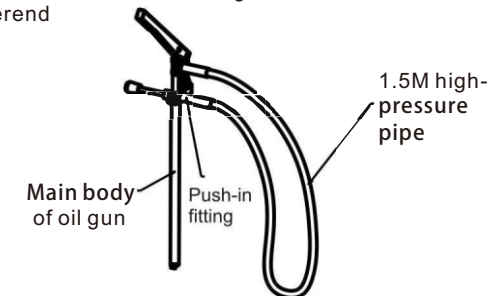


XI. Maintenance and care

1. It is necessary to follow relevant instructions in the manual to operate; to avoid malfunction of the lubrication system, no operation in violation of instructions is allowed.
2. Always check the operation of the lubrication system (working status of pressure switch). If any abnormality found, please refer to the instructions to handle.
3. Add the lubricating oil regularly. It is strictly forbidden that the level of oil in the oil tank is lower than the low oil level mark, as which can cause damage to the lubrication pump and air to enter the lubrication pump and the pipeline, thus resulting in oil supply failure of the lubrication system
4. Always check for oil leakage at the joints and whether the pipe clamps on pipes are tight, to prevent vibration during oil supply

XII. GEF type manual oil gun

1. The oil gun uses a push-in fitting to quickly fill the lubrication pump with oil
2. Technical parameters: working pressure: 1.5MPa; maximum displacement: 20ml / time; used medium: thin oil (mechanical oil ≥32#; grease (lithium-based grease) 000 # -1#
3. How to use the push-in fitting:
 - 3.1 Insert the oil gun into the oil tank, operate it to discharge the oil from the oil outlet (push-in fitting nut); then insert the lubrication pump's push-in fitting and operate the oil gun to supply oil to the lubrication pump
 - 3.2 GEN type pump is a closed vacuum lubrication pump. When the injected oil gradually lifts the oil cover in the oil tank to the highest position (exhaust hole), please operate the oil gun slowly to supply oil to the lubricating pump to make the oil with air bubbles discharged from the vent hole. The supplied oil must be pressed against the lower end of the oil cover to generate a vacuum state, thus realizing the vacuum suction of oil without air bubbles
 - 3.3 Exit: push forward the nut of the push-in fitting to the end to exit.
 - 3.4. Please strictly follow the instructions for use, and the warranty will be invalid for operation in violation to the instructions.



Pipe diameter of oil gun: 20mm
Pipe length of oil gun: 430mm