BAOTN®

使用说明书

BTD型稀油电动润滑泵

CENTRALIZED LUBRICATION DEVICE

专注减摩增效，成就客户核心竞争力

宝腾智能润滑技术(东莞)有限公司
BAOTN INTELLIGENT LUBRICATION TECHNOLOGY (DONGGUAN) CO.,LTD.

ISO9001 CE

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Thank you for using BAOTN BTD type thin-oil electric lubricator! Our BAOTN centralized lubrication systems include manual and electric thin-oil lubricators, manual and electric grease lubricators, and NC gear lubricators as well as matching distributors. Before use, please read this manual carefully so that you can master correct usage of the lubricator and make the most of its outstanding performance. Thanks for your cooperation!

I. Application and Features

BTD type thin-oil electric lubricator is specially designed for the medium and small-sized machinery, economical and practical. This product can ensure the lubricating performance and improve their service life and precision, applicable to CNC machines, processing centers, production lines, light textiles, plastics, printing, chemical industry, woodworking, food industry, etc.

BTD type thin-oil electric lubricator and a quantitative volumetric distributor can compose a positive displacement type lubrication system which lubricates lubrication points quantitatively.Use with our company's BFA and BFD type quantitative volumetric distributor can bring the lubrication effect into full play. Alternatively, it can compose a resistance-type (damping) lubrication system with BSA, BSB, BSC, proportional adaptors, which lubricates lubrication points proportionally.

BTD type thin-oil electric lubricator is provided with 3L/4L/6L/8L high strength plastic tanks or metal tanks. You can select any model of lubricator, depending on the application and your host. Optional configurations include level switch and pressure switch, which can connect to the host computer system, realizing the integration of intermission, lubrication and alarm. If you purchase an MPU lubricator and a dual knob lubricator, you can set the intermission and lubrication time of lubrication system as you like. This beautiful product has a buzzer for giving abnormality alarms as well as abnormal outputs and provides NO and NC interfaces, easy to operate.

This product has the following characteristics:

1. Easy installation and easy wiring.

2. A special alloy steel gear pump featuring stable output pressure, low noise, and a long service life.

3. Giving alarms in case of insufficient liquid level or abnormal pressure.

4. A reliable and outstanding automatic pressure-release structure. It can bring the lubricate effect into full play when used in combination with our quantitative volumetric distributor.

5. Powered by a low-speed motor that can effectively reduce the wear of the gearpump. The motor is equipped with a overheating protection device that can stop the motor fromworking after a long period of work at high temperature so as to effectively protect the motor.

6. BTD-A high-quality micro computer as the IC control part of MPU lubricator, characterized by high reliability and stability, making it possible to set the intermission time, easy to operate. The strong anti-jamming capability makes use under tough conditions possible.

II. Product Specifications and Technical Parameters

Type	AC voltage	Power W	Control function	Rated pressure Mpa	Max. pressure Mpa	Output cc/min	Oil tank capacity L	Oil viscosity cSt
BTD-A2	Single-phase 220	45	PLC control	2.0	3.5	200	3(Resin) 4(Resin) 6(Metal plate) 8(Metal plate)	30～250
BTD-C2	DC-24V	20	PLC control					
BTD-O2			MPU control					

Continuous-type electric lubrication pump No. (serial number note to the corresponding position)

BTD – ① ② ③ ④ – ⑤ ⑥ ⑦ ⑧ ⑨

① Control type:
A: Digital display microcomputer controller
O: External PLC control
C: External PLC control (with IC circuit board inside)

② System type:
2: volumetric type

③ P: with a pressure switch
Blank: without a pressure switch

④ Oil tank capacity:
3: 3 L
4: 4 L
6: 6 L
8: 8 L

⑤ Motor type:
2: single-phase AC220 V

⑥ Output:
2: 200 cc/min

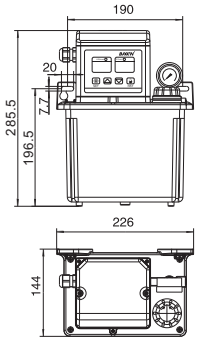
⑦ Output port diameter:
6: the output port is Ø6

⑧ W: without a liquid level switch
Blank: with a liquid level switch

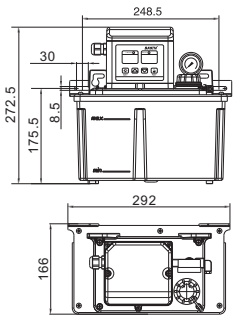
⑨ Blank: resin tank
A: metal tank without an oil return device
H: metal tank with an oil return device

III. Overall and Installation Dimensions

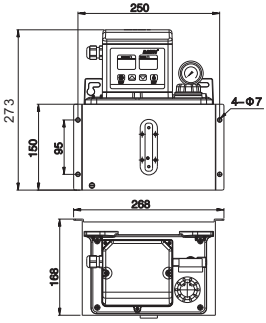
BTD-A2P3
(Resin oil tank)



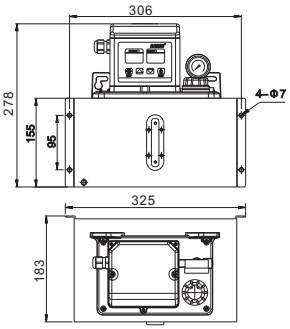
BTD-A2P4
(Resin oil tank)



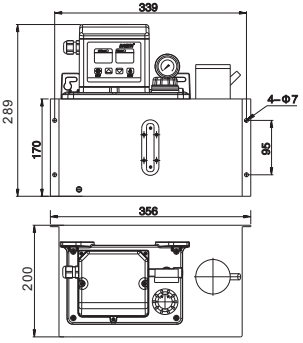
BTD-A2P4
(Sheet metal oil tank)



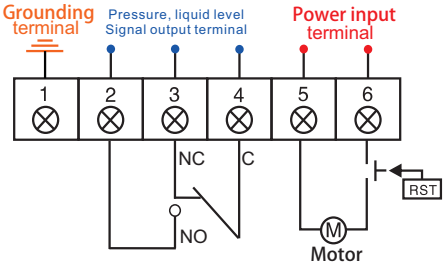
BTD-A2P6
(Sheet metal oil tank)



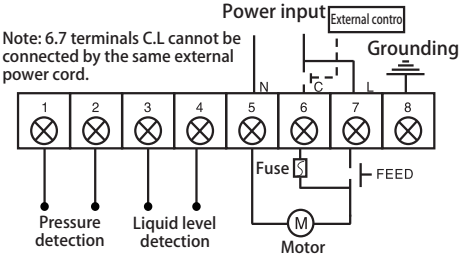
BTD-A2P8
(Sheet metal oil tank)



IV. Electrical Wiring Diagram:(inside of the junction box)

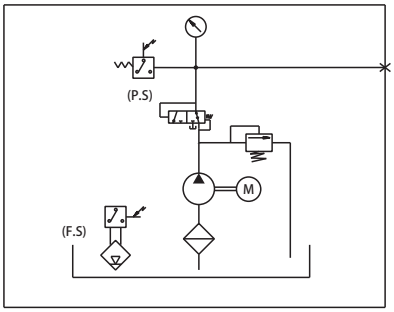


BTD-A



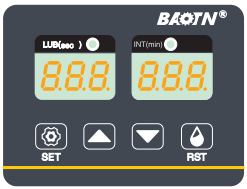
BTD-C

V. Working Principle Diagram

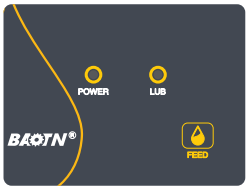


BTD-A/O/C2

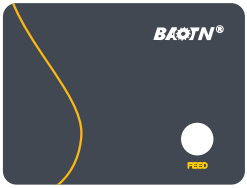
VI. Instructions for Use of Panels



Description of A-type panel



Description of C-type panel



Description of O-type panel

VII. Usage and Debugging of Lubricator

1、lubrication system composed by BTD-C2 and volumetric quantitative distributor

(1) Confirm that the purchased electric lubricator contains a pressure-release device.

(2) Inject an appropriate amount of unused clean lubricating oil into the oil tank.

(3) Connect wires properly according to the electrical wiring diagram inside the top shell.

(4) Usage of pressure switch: Set the operation pressure of pressure switch to 2.0MPa, which is equal to the operation pressure of volumetric distributor.

The pressure switch can be used in two ways:

① If the pressure switch is connected, it means the operating pressure of lubrication system is up to 1.2 MPa, system runs properly and vice versa. In this way, oil supply time of BTD-C/O2 type electric lubricator is set by external PLC control; lubrication time is the oil injection time required for the operating pressure of lubricating system to reach the rating 2.0MPa. Intermission time can be set freely, depending on time or the number of operation (closing) times needed for oil consumption.

② Use the pressure switch to control lubricating oil supply time. That is, give the host computer controller a signal ordering the lubricator motor to stop, by turning on the pressure switch (operation pressure: about 1.2 MPa).But it is required to set a delay of 10 s before stopping the lubricator motor so that system pressure can reach the rating 2.0MPa. In this case, the oil cylinder inside the distributor has sufficient time to store oil and ensure the accuracy of oil amount. Intermission time of electric lubricator is set freely by the external PLC, depending on time or the number of operation (closing) times.Notably, once lubrication system pressure cannot reach 1.2 Mpa, the pressure switch cannot work. In this case, the motor would run endlessly.To protect the motor, programming should allow motor protection. That is, when the motor cannot stop after a period of (generally 4 minutes) continuous operation, the lubrication system is deemed to be in abnormal state and will give an alarm. Then, it is required to stop the motor, for convenience of maintenance.

(5) Confirm the pump is connected by earth wire or null wire, as a precaution against electric shock and fire accidents.

(6) Switch on the lubricator and start the motor inch by inch till air is drained out of the lubrication system. Inspect the pipeline to ensure there is no leakage. Inject oil until each lubrication point output oil.

※ Note: During inspection or use, every time oil is injected, system pressure must rise to the rating 2.0Mpa.

Meanwhile, the signal indicating bar at each tail of distributor should protrude. Otherwise, it is required to inspect system pressure and the piston of distributor in time.If system pressure is lower than 2.0MPa, then extend lubrication time or adjust the overflow valve. Adjustment steps:

A. Switch off the lubricator. Take down the oil tank and block the main oil outlet.

B. Screw adjusting bolts clockwise to a proper position. Switch on the lubricator. Confirm lubricator pressure is up to the rating 2.0MPa.

C. Tighten lock nuts. Mount the oil tank and put back the main oil pipe.If system pressure reaches the rating 2.0MPa but the signal bar at the tail of some point protrudes, then take down the copper adaptor as well as the signal bar piston from this point and replace the seal, adaptor or piston.

(7) Start the lubricator and enter the normal operating conditions.

2、lubrication system composed by BTD-O2 and volumetric quantitative distributor

(1) Confirm that the purchased electric lubricator contains a pressure-release device.

(2) Inject an appropriate amount of unused clean lubricating oil into the oil tank.

(3) Connect wires properly according to the electrical wiring diagram inside the top shell.

(4) Usage of pressure switch: Set the operation pressure of pressure switch to 2.0MPa, which is equal to the operation pressure of volumetric distributor.

The pressure switch can be used in two ways:

① If the pressure switch is connected, it means the operating pressure of lubrication system is up to 1.2 MPa, system runs properly and vice versa. In this way, oil supply time of BTD-C/O2 type electric lubricator is set by external PLC control; lubrication time is the oil injection time required for the operating pressure of lubricating system to reach the rating 2.0MPa. Intermission time can be set freely, depending on time or the number of operation (closing) times needed for oil consumption.

② Use the pressure switch to control lubricating oil supply time. That is, give the host computer controller a signal ordering the lubricator motor to stop, by turning on the pressure switch (operation pressure: about 1.2 MPa).But it is required to set a delay of 10 s before stopping the lubricator motor so that system pressure can reach the rating 2.0MPa. In this case, the oil cylinder inside the distributor has sufficient time to store oil and ensure the accuracy of oil amount. Intermission time of electric lubricator is set freely by the external PLC, depending on time or the number of operation (closing) times.Notably, once lubrication system pressure cannot reach 1.2 Mpa, the pressure switch cannot work. In this case, the motor would run endlessly.To protect the motor, programming should allow motor protection. That is, when the motor cannot stop after a period of (generally 4 minutes) continuous operation, the lubrication system is deemed to be in abnormal state and will give an alarm. Then, it is required to stop the motor, for convenience of maintenance.

(5) Confirm the pump is connected by earth wire or null wire, as a precaution against electric shock and fire accidents.

(6) Switch on the lubricator and start the motor inch by inch till air is drained out of the lubrication system. Inspect the pipeline to ensure there is no leakage. Inject oil until each lubrication point output oil.

※ Note: During inspection or use, every time oil is injected, system pressure must rise to the rating 2.0Mpa.

Meanwhile, the signal indicating bar at each tail of distributor should protrude. Otherwise, it is required to inspect system pressure and the piston of distributor in time.If system pressure is lower than 2.0MPa, then extend lubrication time or adjust the overflow valve. Adjustment steps:

A. Switch off the lubricator. Take down the oil tank and block the main oil outlet.

B. Screw adjusting bolts clockwise to a proper position. Switch on the lubricator. Confirm lubricator pressure is up to the rating 2.0MPa.

C. Tighten lock nuts. Mount the oil tank and put back the main oil pipe.If system pressure reaches the rating 2.0MPa but the signal bar at the tail of some point protrudes, then take down the copper adaptor as well as the signal bar piston from this point and replace the seal, adaptor or piston.

(7) Start the lubricator and enter the normal operating conditions.

3、 lubrication system composed by BTD-A2 and volumetric quantitative distributor

(1) Confirm that the purchased electric lubricator contains a pressure-release device.

(2) Inject an appropriate amount of unused clean lubricating oil into the oil tank.

(3) Connect wires properly according to the electrical wiring diagram inside the top shell.

(4) Confirm the pump is reliably connected by earth wire or null wire, as a precaution against electric shock and fire accidents.

(5) Characteristics and technical parameters of A-type light-touch digital display microcomputer controller:

The light-touch digital display microcomputer controller is a new generation of MPU time controller with double settings and double timers. It is characterized by easy setting, digital display, multiple fault alarms, high timing accuracy, and outstanding reliability.

① The system has three action modes:

a. Lubrication: When started, the system performs lubrication timing first.

b. Intermission: After lubrication, the system performs intermission timing.

c. Memory: In case of power on again after power failure, the system can continue the unfinished intermission timing.

② Lubrication time and intermission time can be set freely within the range as given below (The system is provided with a button lock function to lock the set lubrication time and intermission time):LUB lubrication time: 1~999 s; INT intermission time: 1~999 min

It is suggested that intermission time should be over 5 times the duration of lubrication.

③In case of any of the following cases, device alarm go off and buzzing.

a. Erp is displayed in case of insufficient pressure.

b. Ero is displayed in case of insufficient liquid level.

④ The panel indicator can indicate the lubrication and intermission states of system.

⑤ In any case, when "RST" button is pressed, the controller can start lubrication or eliminate the alarm of abnormal state in a forced way.

⑥ Output of control relay: AC 250V, 5A; output of fault relay: AC250V, 0.5A.

⑦ Operating pressure of controller: AC110/220±20% 50/60 Hz.

(6) Usage of A-type light-touch digital display microcomputer controller:

① Lubrication time setting: Hold down SET for 2 seconds to enter the setting state, and the digital tube displays the original lubrication time. Press PLUS (Up Arrow) or MINUS (Down Arrow) until the time is set to value needed, then hold down SET for 2 seconds to enter the intermission time setting state. In this case, the digital tube blinks and displays the original intermission time. Press PLUS or MINUS to set intermission time as needed. Hold down SET for 2 seconds for confirmation. Data are written in the memory. The digital tube displays lubrication time and intermission time as normal. In real time, the system starts working according to new time settings.
② Once the controller is connected to a power source of AC110V/220V, it starts working in cycles immediately according to lubrication and intermission time settings.

③ When the system gives an abnormality alarm, press 'RST' to recover the value to the setting, after troubleshooting.

(7) Settings of lubrication time and intermission time

Power on, and the lubricator enters LUB lubrication state. At this point, the working state of lubricator is lubrication time, unit is second(S).Allow the lubricator to conduct pre-injection for several times through setting an appropriate period (15–30 S) of oil supply or several times of re-lubrication, so as to drain air from the l.ubrication system. Inspect the main pipe to ensure there is no oil leak. Inject oil until there is oil at each lubrication point.

Lubrication time setting: The lubrication time setting must be larger than time needed for the lubricator to distribute oil until the signal bar at the tail of each distributor protrudes (i.e., time needed for system pressure to reach the rating 2.0 MPa). At this time, the lubricator stops, and the pressure-release device works. The spring driven piston inside distributor feeds a certain amount of lubricating oil to each lubrication point.

Intermission time setting: According to the lubrication conditions at different points, take a proper period as intermission time, which is generally 15 min ~ 4 h. It takes long to feed oil to the main pipe distributor for the first time. It is required to press RST repeatedly so that the pressure gauge indicates the rated pressure of lubricator. At the same time, inspect the main pipe to ensure there is no leakage. Feed oil until each lubrication point shows oil. There is buzzing alarm in this operation because of insufficient pressure instead of other device faults.

(8) Start the host, and the controller will work in cycles according to time settings.

VIII. Maintenance

1. To ensure your machine and lubrication system can work normally, you should use clean 30–250 cSt lubricating oil and keep oil clean.

2. Every month, inspect and clean oil pipes and the screen at the oil suction port, so as to avoid blocking filter screen at oil suction port and causing reduction in oil pump displacement or insufficient pressure

3. Every day when the host is started, check the lubrication system for whether it feeds oil in set cycles.In case of time control system failure but motor continuous running, eliminate abnormality in time to avoid motor damages or serious losses.

4. When switched on, any person is prohibited from opening the top shell of lubricator, as a precaution against electric shock and fire accidents.

IX. Common Faults and Troubleshooting

S/N	Phenomenon	Cause	Troubleshooting
1	Motor of does not run	Improper working voltage	Apply correct voltage
		Loose or incorrect wiring	Connect wires in the right way
		Suction fine sand stuck pump	Remove the bottom gear pump for cleaning This item must be operated by professionals
2	Insufficient pressure	The pressure gauge is damaged	Replace the pressure gauge
		Main oil pipe leakage	Inspect the main oil pipe to eliminate oil leaks.
		When the lubrication pump is compressed, a branch oil pipe leaks seriously.	Inspect and replace the branch oil pipe
		Sealing of lubrication pump overflow valve is not good.	Remove for cleaning
		Oil suction port blocked	Clean oil tank and filter at the oil suction port
3	No oil output	Air is not drained out of the pump.	Repeat pumping. When necessary, loosen the main oil output before pumping.
		Dead motor	See S/N 1.
4	Reduced oil output	Oil suction port blocked	Clean the filter screen at the suction port.
		Sealing of lubrication pump overflow valve is not good.	Remove for cleaning
5	Pressure switch failure	Insufficient system pressure	Check wth pipeline pressure, BTD-A1/C1/O1 should reach 10kg/cm^2, BTD-A2/C2/O2 should reach 12kg/cm^2
		Wrong wiring	Connect wires in the right way
6	Motor of digital display lubrication pump does not run	①.Wires connecting the motor and control pane get loosened ②. Motor overheated and stops automatically	①.connet and tightened the wires. ②.When motor temperature drops to normal , the motor will recover on its own. It is suggested to adjust the lubrication time below 2 min and intermission time above 3min, or adjust intermission time above 5 times of lubrication time.

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Note: The words.desians and techincal parameters are subject to change along with the development of technologies without prior notice.

企业官网

微信公众号

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