



Lubrication Equipment for Large Facilities

(Dual Line/Single Line Lubrication Equipment)



Guide to Lubrication System Products

Our company provides sales and after-sales service for individual products such as Lubrication pumps and distributors for our lubrication system products.

We are unable to provide the services listed below, so we ask that customers prepare and handle these matters themselves. If you have any questions regarding services other than those listed below, please contact us.

① Overall lubrication system design ② Sales of pipes and fittings ③ Piping work ④ Support for trial operations

We can meet all your lubrication system needs.

Lubrication is an essential part of **machine maintenance**, and the **choice of lubrication equipment is key** to solving these challenges.

With today's machines becoming larger and more complex, lubrication processes have also become more intricate. More **advanced lubrication management, regularly supplying the right amount of grease to the right locations**, is increasingly necessary, replacing labor-intensive manual lubrication that can also create safety hazards.

Our lubrication equipment can meet a wide range of your lubrication needs. We hope you will consider Koganei lubrication products.

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Before Use

Be sure to read the "Safety Precautions" on page ② or on our website, as well as the "Instruction Manual" included with the product.

Before selecting and using products, please read all the Safety Precautions carefully to ensure proper product use.

Our products are designed and manufactured as parts for use in general industrial machinery.

The Safety Precautions shown below are to help you use the product safely and correctly, and to prevent injury or damage to assets.

Safety regulations related to the overall design and management of equipment and devices must be observed in conjunction with the latest applicable standards, regulations, and other safety regulations.

- ISO 4414 (JIS B 8370: General rules for pneumatic systems) • ISO 12100 (JIS B 9700: Safety of machinery - General principles for design)
- ISO 4413 (JIS B 8361: General rules for hydraulic systems) • IEC60204 (JIS B 9960: Safety of machinery - Electrical equipment for machines)
- Labor standards laws, occupational safety and health laws • ISO10218 (JIS B8433: Safety requirements for industrial robots)

The directions are ranked according to degree of potential danger or damage: “DANGER”, “WARNING”, and “CAUTION”.

 DANGER	Incorrect handling can create a hazardous situation and immediate danger that can result in death or serious injury ^{Note 1} to the user.
 WARNING	Incorrect handling can create a hazardous situation that can result in death or serious injury ^{Note 1} to the user.
 CAUTION	Incorrect handling can create a hazardous situation that can result in minor injury ^{Note 2} to the user or damage to property ^{Note 3} .

Note 1: Serious injury refers to injuries such as blindness, physical injury, burns (high or low temperature), electric shock, fractures, or poisoning that result in lasting aftereffects, or that require hospitalization or long-term outpatient treatment.

2: Minor injury refers to injuries such as physical injury, burns, or electric shock that do not require hospitalization or long-term outpatient treatment.

3: Property damage refers to consequential damage involving buildings, household goods, mounted equipment, livestock, pets, etc.

The danger, warning, and caution items listed under these “Safety Precautions” do not cover all possible cases. Read the Catalog and Owner’s Manual carefully, and always keep safety first.

WARNING

- Do not use the product under conditions, environments, or for purposes not specified in the catalogs, instruction manuals, or other documentation.
- This product is not designed or intended for the following applications. If you are considering such applications, please consult our sales representative.
 1. Medical equipment related to maintenance or management of human lives or bodies
 2. Mechanical devices or equipment designed for the purpose of moving or transporting people
 3. Critical safety components in mechanical devices
 4. Applications requiring a particularly high level of safety
- (nuclear power, aerospace equipment, railways, aviation, marine vessels, vehicles, military equipment, medical devices, food and beverage manufacturing equipment, combustion equipment, entertainment equipment, functional safety equipment, etc.)
- The product should be selected and handled by people with sufficient knowledge and experience, such as a system designer or other responsible person, who have read the safety precautions and specifications in the catalogs and instruction manuals. Additionally, compliance should be verified as needed.
- Because these products can be used under a wide variety of conditions, decisions concerning conformance with a particular system should be made upon the careful evaluation by the person in charge of system design. Assurances concerning expected system performance and safety are the responsibility of the designer who decides system conformity. Be sure to consider the possibility of machine breakdown, and to configure a system that ensures safety and reliability, such as by using fail-safes.
- When using this product in a system, use only genuine Koganei parts or compatible parts (recommended parts). Also, when doing maintenance and repairs, always use genuine Koganei parts or compatible parts (recommended parts) and follow the prescribed methods and procedures.
- Never attempt to modify the product. Also, never attempt inappropriate disassembly or assembly of the product relating to its basic configuration, or its performance or functions.
- Before applying energy (compressed air, electricity, etc.) to the product and before operating the equipment, be sure to check the safety of the state of the equipment connections and operating range.
- Non-routine operations involving the product, such as maintenance inspections, servicing, or replacement, must only be performed after implementing safety measures to confirm there is no danger from any energy that exists inside the equipment or facilities.

CAUTION

- Use safety circuits or system designs to prevent damage to machinery or injury to personnel, etc. when the machine is shut down abnormally due to emergency stop or power failure.
- The product can exhibit degraded performance and function over its operating life. Always conduct daily inspections, and confirm that all requisite system functions are satisfied, to prevent accidents from happening.

After reading these materials, always store them where they are easily available for reference by users of the product.

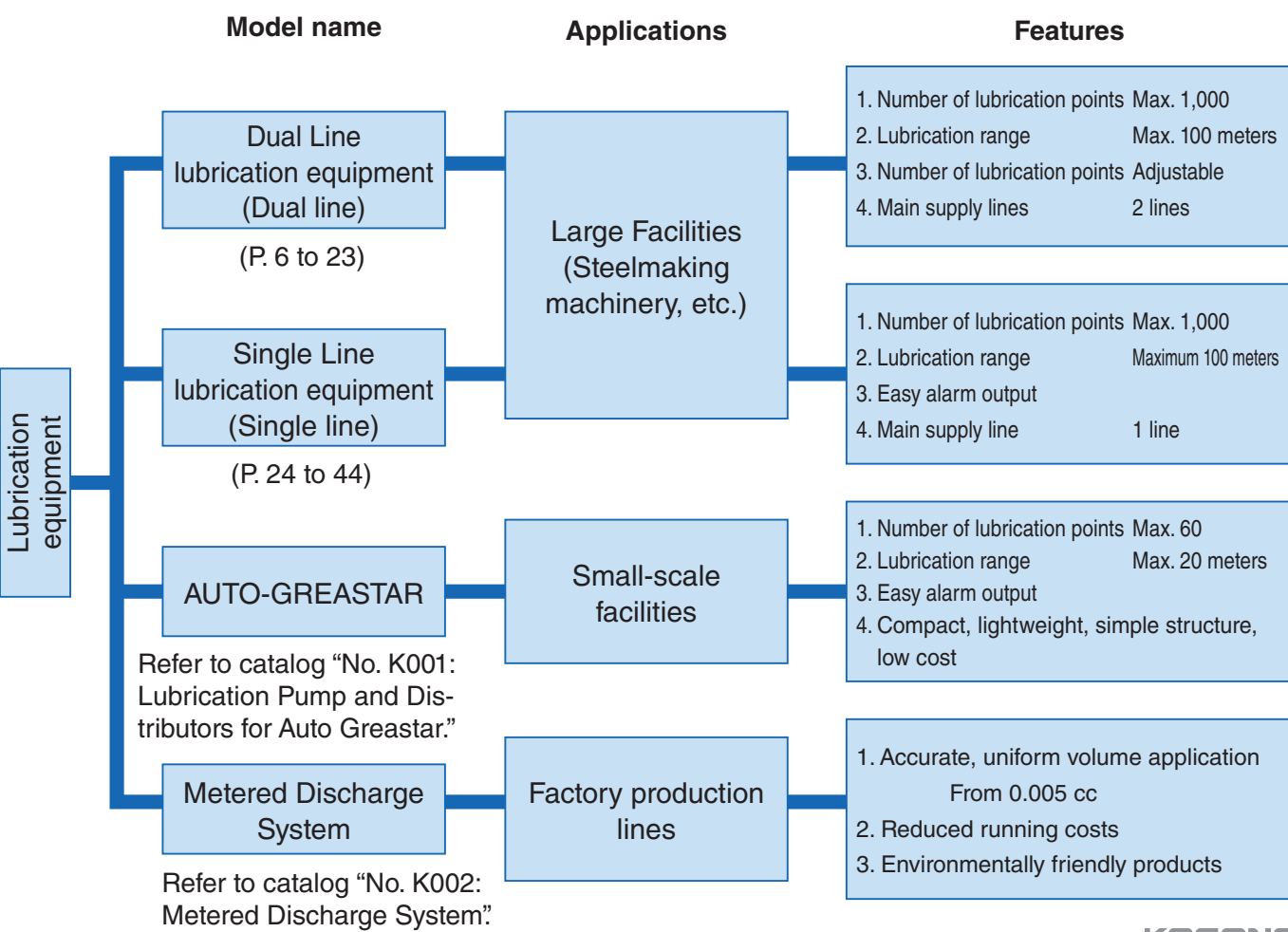
Features

- ① **Labor-saving lubrication work**
Dual Line lubrication saves labor
- ② **No downtime required for lubrication**
Automated lubrication ensures proper lubrication even while machines are operating.
- ③ **Accident prevention**
Prevents accidents associated with lubrication by eliminating the need for lubrication point checks.
- ④ **Prevents missed lubrication points**
Mechanized lubrication reduces missed lubrication points due to carelessness.
- ⑤ **Accurate lubricant delivery**
Distributors ensure proper amounts of lubricant, preventing over- or under-lubrication and reducing lubricant waste.
- ⑥ **Energy Savings**
Proper lubrication reduces power consumed by machinery.
- ⑦ **Prevents contamination from foreign matter**
Lubricants are not exposed to outside air, so lubricant supply is always clean.
- ⑧ **Extended Bearing Life**
Proper and reliable lubrication extends bearing life. Extended bearing life reduces replacement costs and labor, and improves machine uptime.

Applicable Fields

Koganei lubrication systems can be used with a wide range of machines and equipment, including steelmaking and rolling machinery, auxiliary facilities, presses, cranes, conveyors and material handling equipment, chemical processing machines and devices, food processing equipment, mining equipment, paper manufacturing machines, machine tools, construction machinery, textile machinery, and printing equipment.

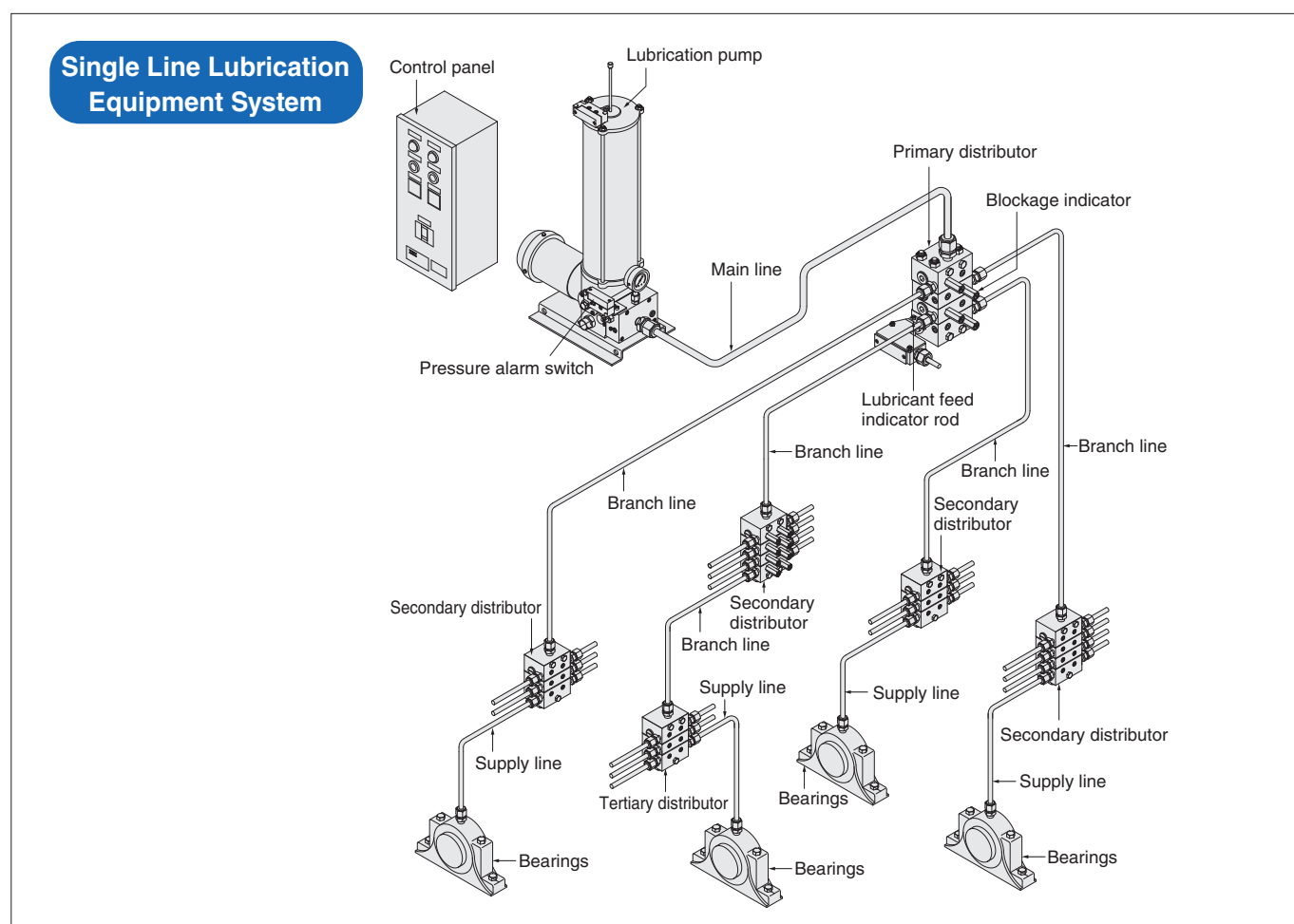
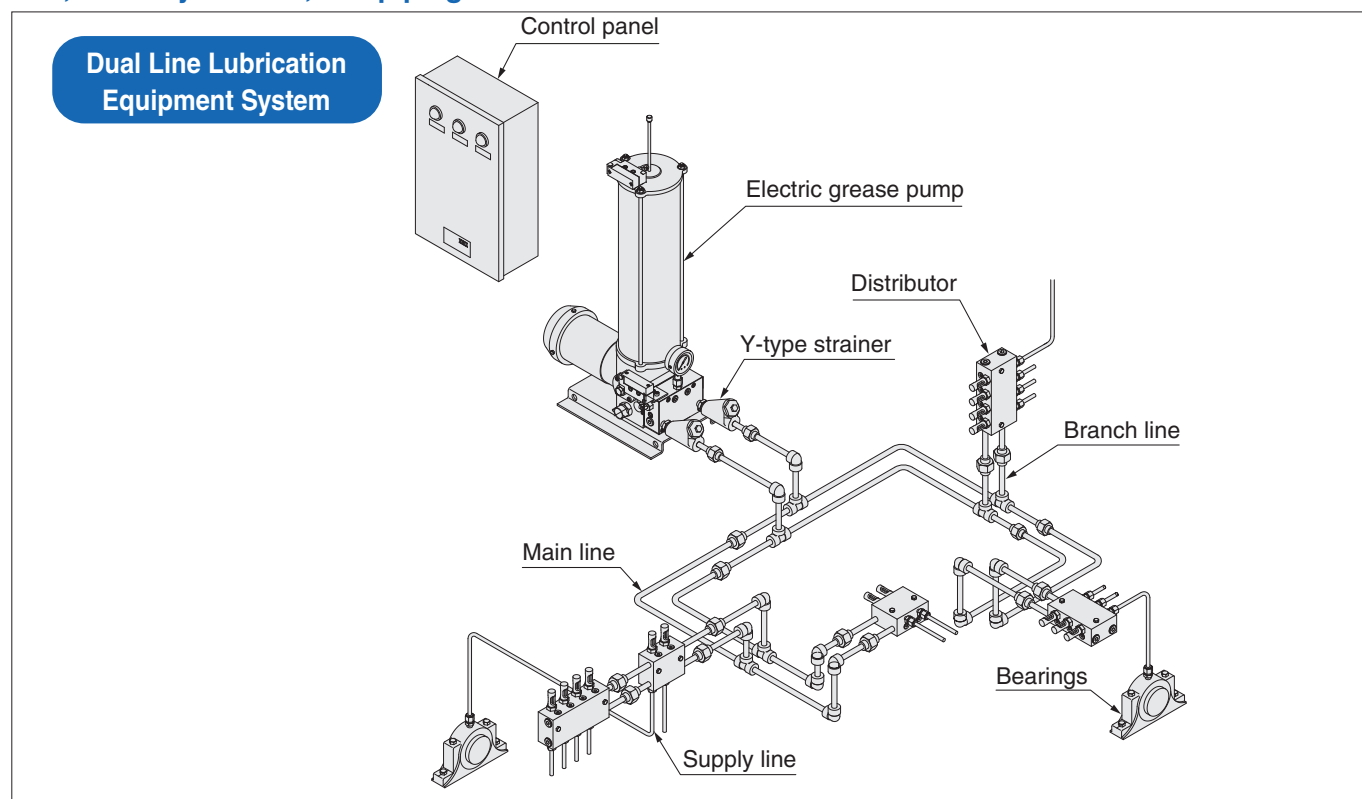
Types of Lubrication Equipment



System diagrams

What Is a Dual Line/Single Line Lubrication System?

A dual line/single line lubrication system is composed of a lubrication pump, distributors, a control unit, auxiliary devices, and piping.



[Dual Line Lubrication Equipment]

Classifications of Dual Line Lubrication Equipment

Dual Line lubrication systems are categorized by drive system and piping method. Additionally, lubrication pumps and distributors are further classified according to discharge volume.

Drive system	Piping method	Lubrication pump							Suitable control panel	Lubrication range		Distributor	
		Model	Tank capacity L	Discharge volume cm³/min		Motor output kW	Maximum discharge pressure MPa	Lubricant channel switching method		Number of outlets	Piping length m	Model	Discharge rate cm³/stroke
				50Hz	60Hz								
Manual	End type	MP-123	3	4.8 cm³/cycle		—	20.6	Manual switching	—	40	100	VS-30 models VS-40 models VS-50 models VS-60 models VW-10 models VW-30 models VW-50 models	1.2 to 0.2 2.2 to 0.6 5.0 to 0.6 14.0 to 3.0 0.3 to 0.03 1.2 to 0.2 5.0 to 0.6
		MP-126	6										
		MP-122P	2										
		MP-113	3	8.4 cm³/cycle		—	9.8			80	50		
		MP-116	6										
		MP-112P	2										
Electric	Loop type	EP-11L	6	40	48	0.1	20.6	Automatic hydraulic switching by hydraulic selector valve	FTS model Others	100	100		
		EPA-25L	25	70	84	0.4				200	140		
		EPA-4L	40	210	252	0.75				500	170		
	End type	EPA-25E	25	70	84	0.4		Automatic switching by solenoid selector valve and pressure adjustment valve		200	140		
		EPA-4E	40	210	252	0.75				500	170		

Note 1. For details on each device, refer to the corresponding section.

2. Electric lubrication pumps are also available in 9.8 MPa maximum discharge pressure specifications and for systems that use oil. For these options, please contact us separately.

3. The lubrication range shown indicates typical numbers of lubrication points or piping lengths, but may vary depending on distributor size, type of grease used, pipe diameter, temperature conditions, etc. Please take these factors into account.

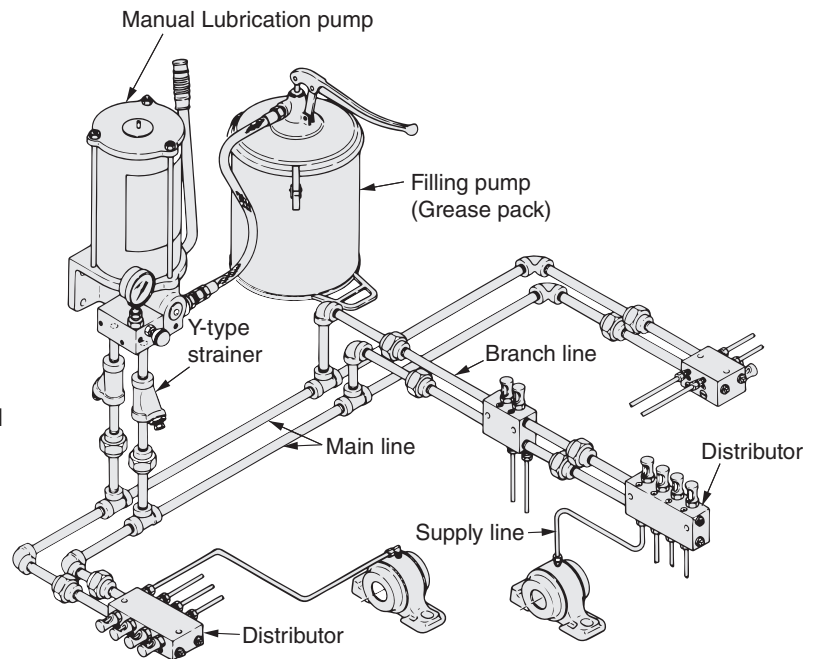
4. For EP-11L, EPA-25L, and 4L models, a loop-end type (also known as short-loop type) piping system is also possible. (See page ⑬)

Manual Lubrication Equipment

A manual lubrication system is the simplest and least expensive.

The system includes a grease tank, a manual selector valve, a pressure gauge-equipped manual lubrication pump, two main lines connected to the pump, and distributors matched to the lubrication points.

Manual lubrication systems are used in sectors where maintenance personnel are available, and they demonstrate excellent performance when applied to various equipment, such as cranes, water turbines, sluice gates, industrial furnaces, papermaking machinery, and other industrial machines.



(Connection example)

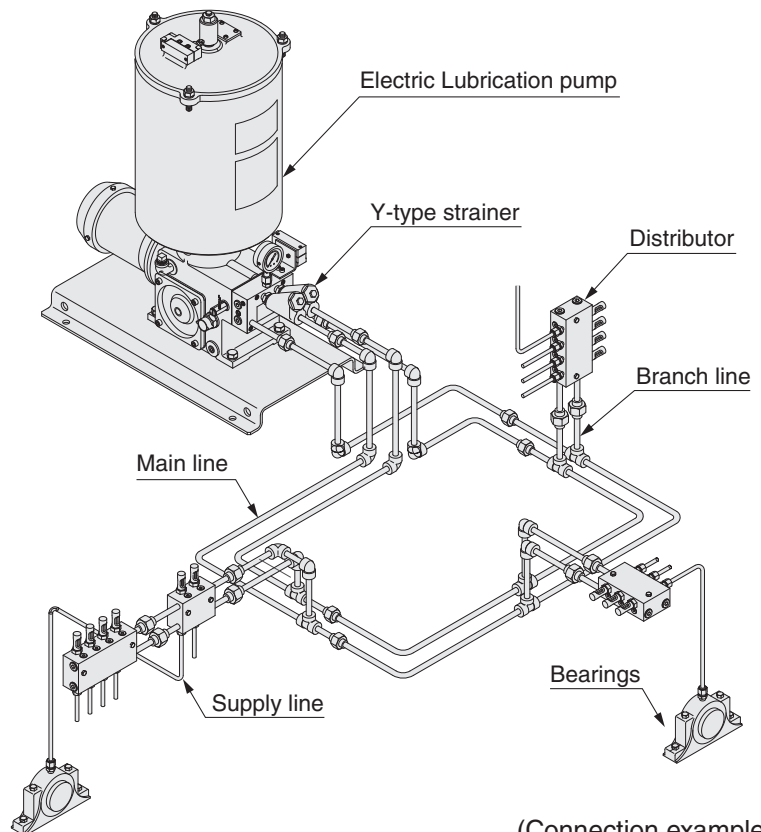
Electric Loop Type Lubrication Equipment

This system is a loop type in which the main lubrication line runs from the pump and then back to the pump.

The pump is equipped with a grease tank, motor, reduction gear, hydraulic selector valve, pressure gauge, and relief valve on a common base, and includes a micro switch that checks for low lubrication level and completion of lubrication.

Distributors appropriate for the lubrication points are connected to the main lubrication line, and the pump operates to supply a fixed amount of lubricant.

The loop-type system is suitable for applications where lubrication points are relatively concentrated in one area, such as rolling mills, levelers, presses, and water turbines, since the main line is installed in a loop configuration.

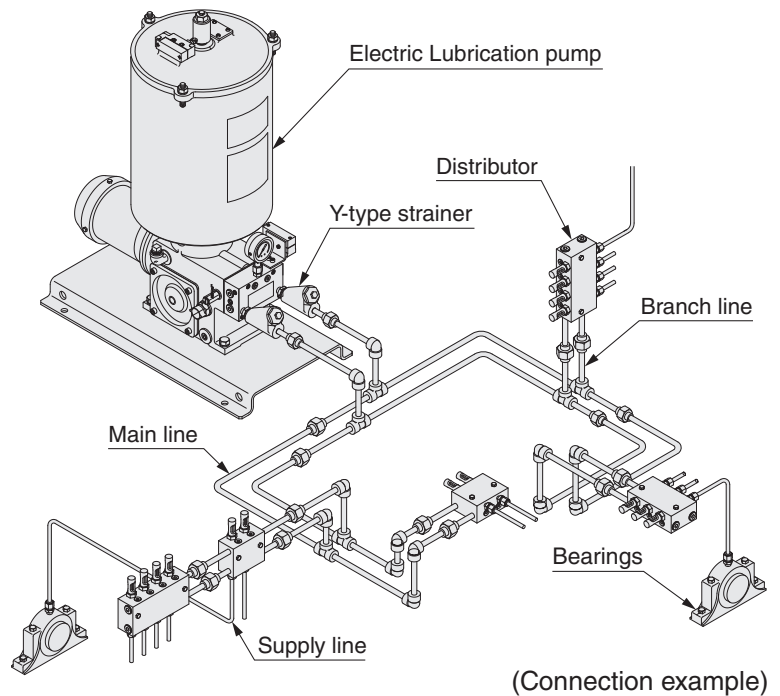


(Connection example)

Electric Loop-End Type Lubricating Equipment

This system features a loop-end type (short loop type) main lubricant supply line without a return line.

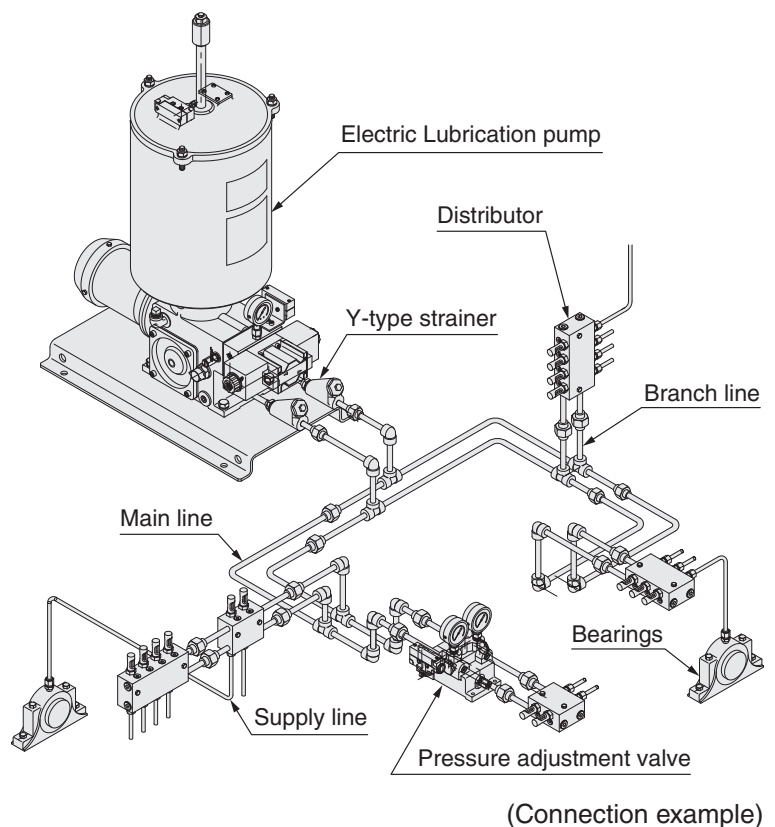
The components and applications are the same as the electric loop-type lubrication equipment (with the hydraulic selector valve designed for the loop-end type), but this piping method is especially suitable for relatively small-scale equipment and machinery.



Electric End Type Lubrication Equipment

This system is an end type in which the main lubrication line runs from the pump and then ends at the pressure adjustment valve.

The pump is equipped with a grease tank, motor, reduction gear, solenoid selector valve, pressure gauge, and relief valve on a base, and includes a micro switch that checks for low lubrication level. Distributors appropriate for the lubrication points are connected to the main lubrication line, and the pump operates to supply a fixed amount of lubricant. A pressure adjustment valve is installed at the end of the main line to check for completion of lubrication. Because the end-type system's main line runs from the pump to the terminal pressure adjustment valve in a straight-through arrangement, it is ideal for applications where lubrication points are aligned in a relatively long, straight line (such as rolling mill table lines).



Lubrication Pumps

Depending on the drive system: Manual and electric drive pumps are available.

● Manual Pumps

This lubrication pump requires staff to operate and maintain it, so it is generally used when there are relatively few lubrication points and long intervals between lubrication.

It can also be used as a backup pump for electric pumps.

Part Code	Model	Operating fluid	Maximum discharge pressure MPa	Discharge rate cm³/cycle	Tank capacity L	Mass (Approx.) kg
RK111600	MP-123	Grease	20.6	4.8	3	15
RK111800	MP-123W				6	19
RK113600	MP-126					
RK113700	MP-126W				2	12
RK111700	MP-122P					
RK111100	MP-113	Grease	9.8	8.4	3	15
RK111400	MP-113W					
RK111500	MP-113L	Oil				
RK113100	MP-116	Grease			6	19
RK113300	MP-116W					
RK113200	MP-116L	Oil				
RK111200	MP-112P	Grease				
RK111300	MP-112PL	Oil				

Explanation of model codes

MP-1 1 2 P L

- Grease/Oil Type (None: For grease, L: For oil)
- Tank Type (None: Iron, P: Plastic, W: Simple outdoor type)
- Tank Capacity (2: 2L, 3: 3L, 6: 6L)
- Discharge Output (1: 9.8MPa and for oil, 2: 20.6MPa)
- Type (1: Dual Line)
- Manual Pump (MP Series)

Consider the following points when selecting a pump model.

① Type of lubricant (grease or oil)

The tank structure differs between models for grease and models for oil. For grease, use types suitable for dual line lubrication with an NLGI grade of No. 00 to No. 1.

② Discharge pressure

Lubrication pumps with a 20.6 MPa specification can supply lubricant over a wider area using thinner piping.

③ Discharge rate

Pumps with a larger discharge volume means that lubrication work can be done with fewer handle operations.

④ Tank capacity

Calculate consumption based on the number of lubrication points and lubrication frequency, and select a pump with a tank capacity suitable for the desired refill interval.

⑤ Tank material

Plastic tanks have the advantage of being small and lightweight, and allow you to visually check the remaining lubricant from the outside. Plus, if a cover is required, it can be smaller than that needed for a steel tank.

However, plastic tanks are not suitable for locations where they may be damaged by impacts or where temperatures are high.

⑥ Installation location

Lubrication pumps should be used indoors. If used outdoors, place it inside a cover to protect it from rainwater, or use the simplified outdoor specification with a level rod in the case on the tank.

⑦ Other

If you require a specific paint color, they are available as an option (standard is Munsell 2.5G6/3).

M10 × 40L bolts, nuts, and spring washers are included.



MP-112P model

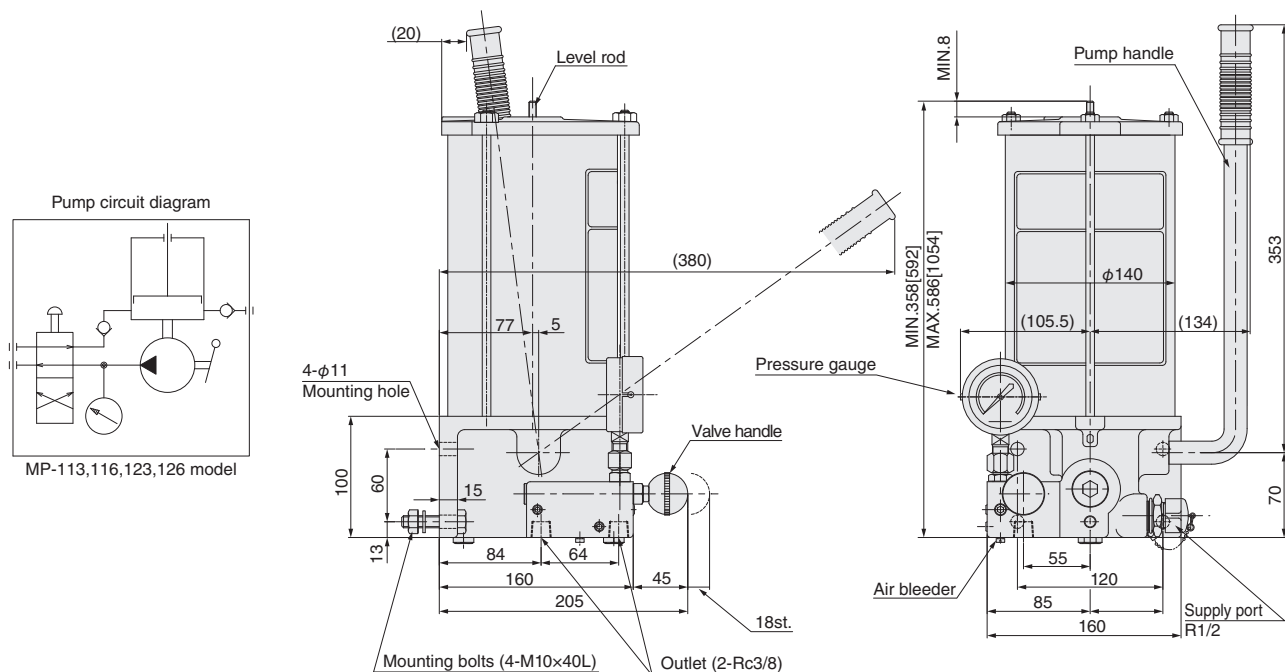


MP-126 model

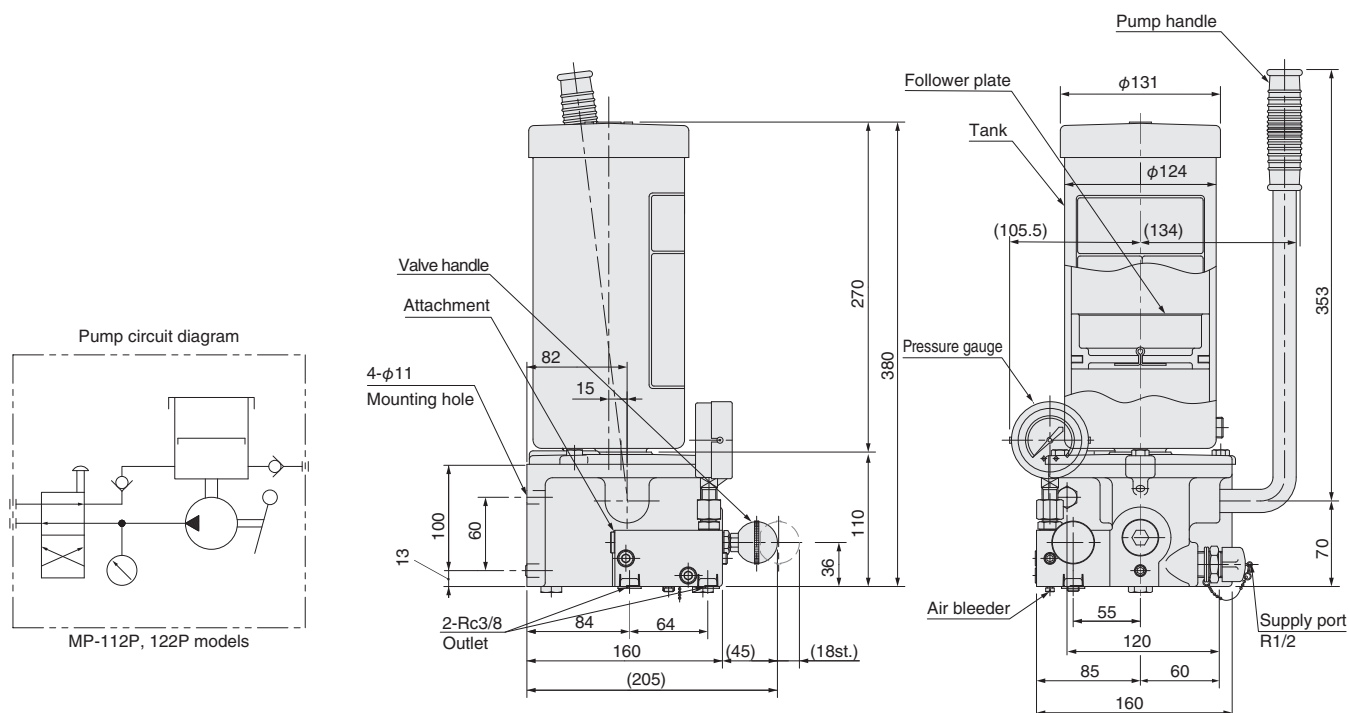
Manual Pump Dimensions (mm)

• MP-113, 116, 123, 126 models (with steel tank)

Note: Values in [] are dimensions for the MP-116 and 126 models.



• MP-112P, 122P models (with plastic tank)



- Attachments for the lubrication pumps above include a built-in line selector valve.
- Steel tanks for oil are equipped with a float instead of a follower plate.
- Plastic tanks for oil do not have a float, but are equipped with a filter instead.

● Electric Pumps

These Lubrication pumps are used for automatic lubrication or when frequent lubrication is required.

Lubrication pumps specifications

Model	Piping method	Tank capacity L	Discharge rate cm³/min		Maximum discharge pressure MPa	Motor		Mass (Approx.) kg
			50Hz	60Hz		Output kW	Number of poles P	
EP-11L	Loop type	6	40	48	20.6	0.1	4	35
EP-11L-CT2 ^{Note 6}								47
EP-11L-CT4 ^{Note 6}								49
EPA-25L	Loop type	25	70	84		0.4	4	103
EPA-25E	End type							108
EPA-4L	Loop type	40	210	252		0.75	4	160
EPA-4E	End type							165

Note 1. Standard motors use class E insulation, AC 200 V or AC 400 V (50/60 Hz). When ordering, please specify your power supply voltage and frequency.

2. The standard solenoid selector valve for end-type pumps is AC 200 V (50/60 Hz). If a different voltage is required, please specify when ordering.

3. The standard paint color is Munsell 2.5G6/3.

4. For discharge pressure of 9.8 MPa, or when using oil (9.8 MPa specification), please inquire separately.

5. The EP-11L model can be supplied with an integrated electrical control panel. EP-11L-CT2: with control panel for AC 200/220V

EP-11L-CT4: with control panel for AC 400/440V

6. Terminal box material for the motor; the EP models use resin and the EPA models use metal.

7. For the EP-11 model, if the orientation of one pump cylinder is reversed (arrow facing the motor), the discharge volume will be halved, 20/24 cm³/min.

Part Code

Model	Part Code (from level switch models)		
	Blank	S1	S2
EP-11L	RK914100	—	—
EP-11L-CT2	RK914400	—	—
EP-11L-CT4	RK914500	—	—
EPA-25L	RK915100	RK915200	RK915300
EPA-25E	RK916100	RK916200	RK916300
EPA-4L	RK917100	RK917200	RK917300
EPA-4E	RK917600	RK917700	RK917800

※ Level switch models

S1: With High-level switch (HLS)

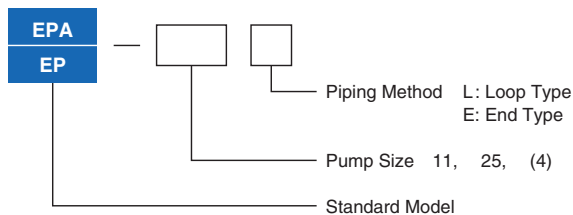
S2: With Central low-level switch (CLLS),

High-level switch (HLS), and

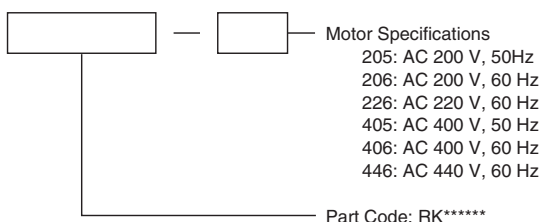
Central high-level switch (CHLS)

* When ordering, please indicate the Part Code and motor specifications. (Refer to the order numbers below.)

Explanation of model codes

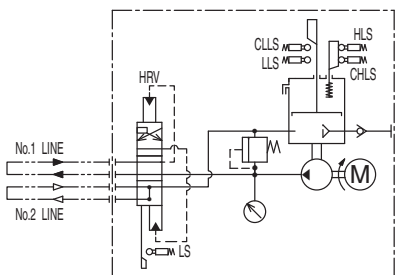


Order Codes

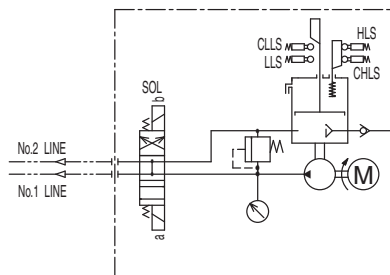


Note: A metal terminal box is also available for EP motors.

If a metal terminal box is required, please add "S" to the end of the code.



Loop-type pump circuit diagram
(EP-11L, EPA-25L, (4L))



End-type pump circuit diagram
(EPA-25E, (4E))

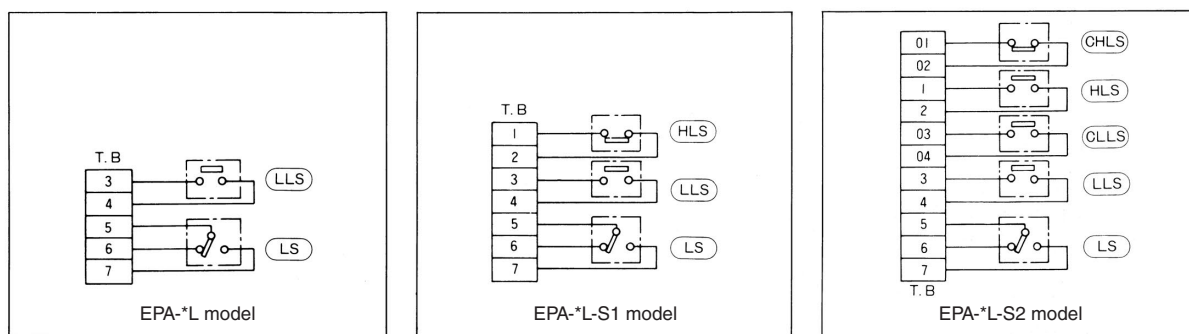
Structure of Electric Pumps

1. Electric pumps consist of a motor, reduction gear, lubrication pump, tank, and selector valve, all assembled on a base. For loop-type systems, a hydraulic selector valve is used, while end-type systems utilize a solenoid valve.
2. The pump system is a plunger type, and the EPA model employs a double plunger type that boasts particularly outstanding reliability and proven performance. While the pump has a specified rotation direction, our proprietary mechanism prevents pump damage even if it is accidentally reversed during trial operation or similar situations. The EP model features a single plunger twin system utilizing our uniquely reliable pump check valve, allowing rotation in either direction.
3. All models have a built-in filter in the grease supply port to prevent foreign matter from getting in.
4. The switching pressure of the hydraulic selector valve assembled to the loop-type pump can be adjusted over a wide range from 3.9 to 20.6 MPa. This allows the pressure of the main lubrication line to be set higher depending on the equipment, ensuring reliable lubrication operation. Piping layouts using a primary/secondary distributor system are also possible.
5. The grease tank is designed so that the level of the grease can be checked using a follower plate with a level rod.
6. The circuit diagrams on page ⑪ show basic loop type and end type pump circuit diagrams.

Electric Wiring for Electric Pumps

The standard wiring for the switches and solenoid selector valves in electric pumps is connected to the terminal box as shown below. However, the motor is installed separately.

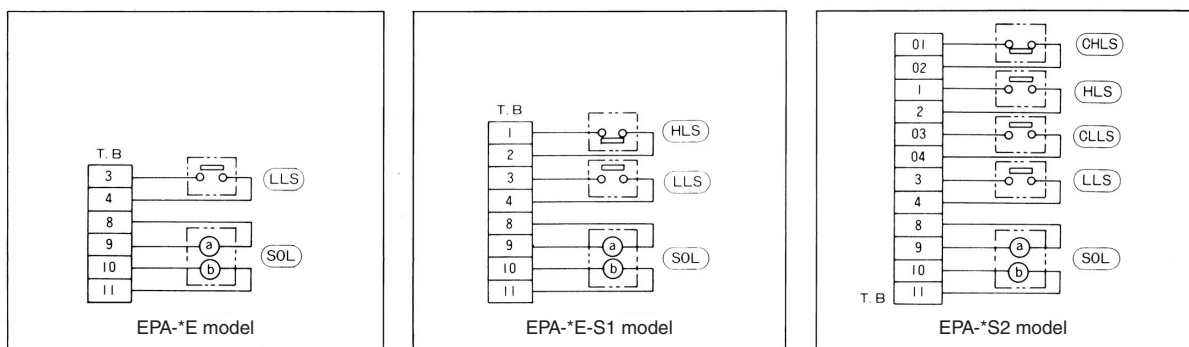
① Internal wiring for loop-type pumps



Symbol	Name	Remark
LS	Hydraulic selector valve switch	Switching operation when lubrication ends
LLS	Low-level switch	Turns on when lubricant level drops below lower limit
CLLS	Central low-level switch	Turns on when lubricant level is low
HLS	High-level switch	Turns on when lubricant is at upper limit, turns off for S1 models
CHLS	Central high-level switch	Turns off when lubricant level rises

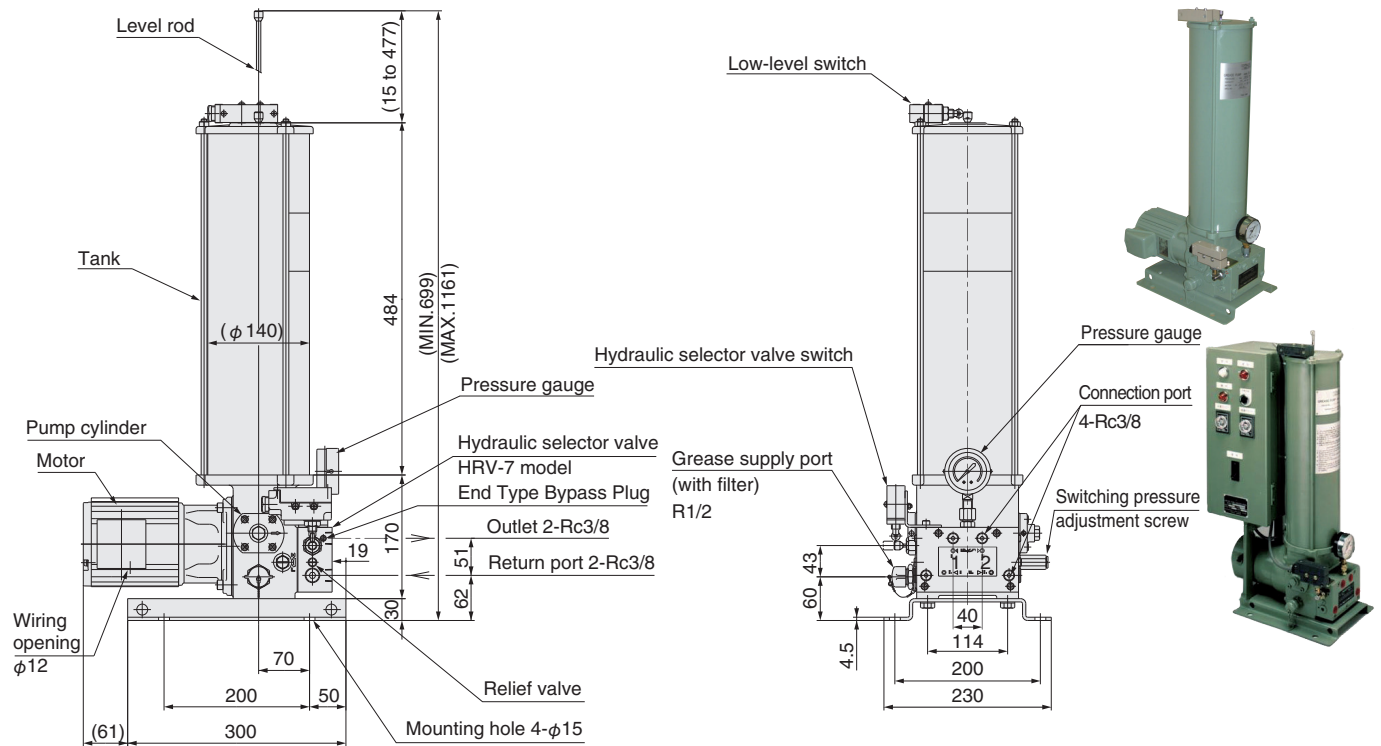
Note: The EP-11L model does not include terminal blocks or wiring. (If included, they are optional.) For the EP-11L-C model with control panel, refer to page ⑬.

② Internal wiring for end-type pumps



Symbol	Name	Remark
SOL	Solenoid selector valve	Alternates operations when lubricating
LLS	Low-level switch	Turns on when lubricant level drops below lower limit
CLLS	Central low-level switch	Turns on when lubricant level is low
HLS	High-level switch	Turns on when lubricant is at upper limit, turns off for S1 models
CHLS	Central high-level switch	Turns off when lubricant level rises

EP-11 Model Electric Pump Dimensions (mm)

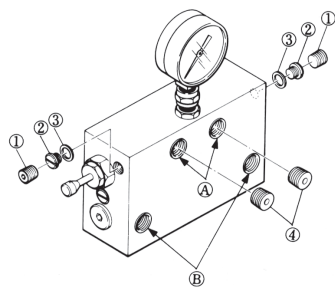


To allow selection of the most efficient piping system for the equipment, a hydraulic selector valve compatible with both loop-type and loop-end type configurations is used.

When using the loop-end type (short loop type) piping method (EP-11L, EPA-25L, 4L type)

The unit is shipped with loop-type piping.

If you intend to use the loop-end type piping, modify the hydraulic selector valve as follows before connecting the piping.

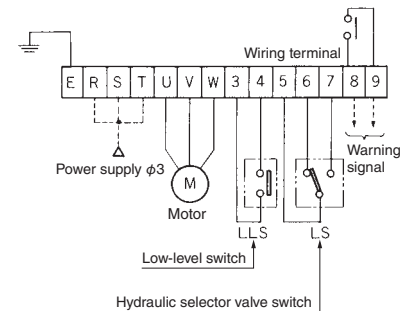


(Illustration shows the 11L model.)

- (1) Remove both R1/8 plugs ①. Use a flat-head screwdriver to remove the internal bypass screw plug ② and packing ③. Then reinstall the plugs ①.
- (2) Next, install an R3/8 plug ④ (prepare separately) onto the external piping connection port (A or B).
- (3) Readjust and set the switching pressure to a value higher than the pressure at which all the distributors operate.

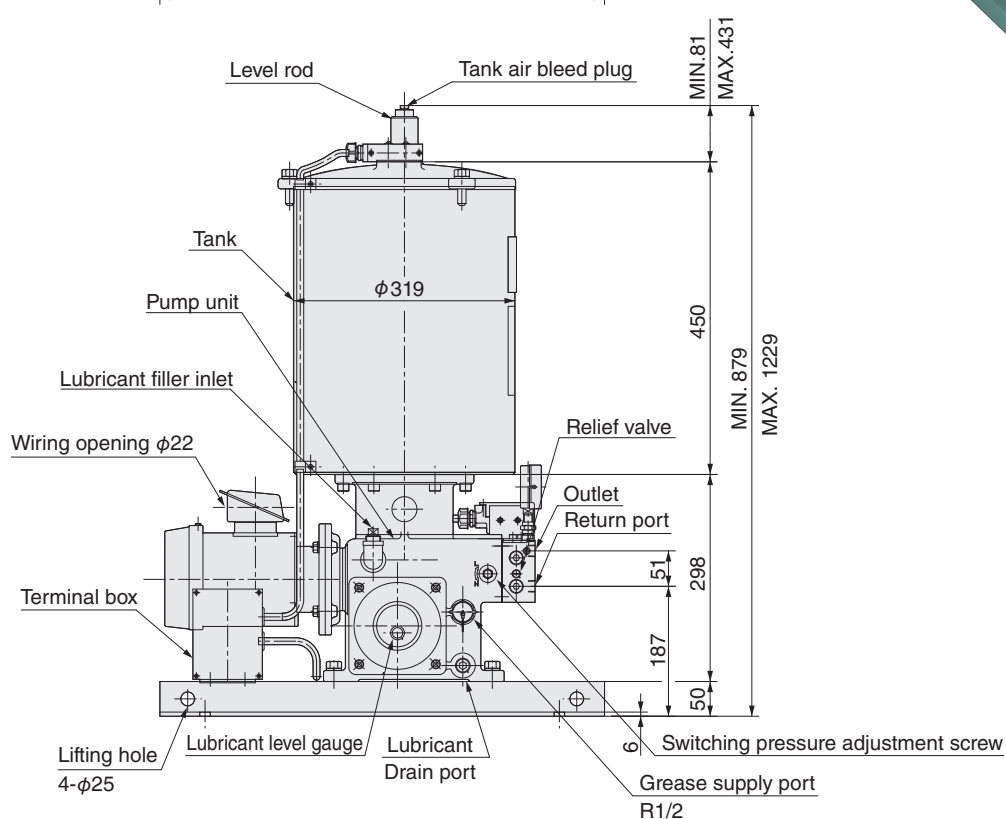
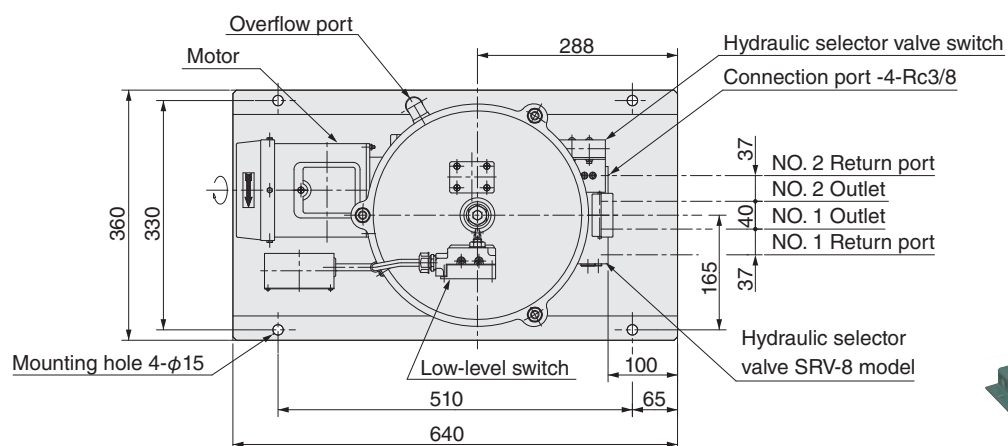
* Conversion to end-type piping is not possible.

Wiring Diagram (EP-11L-C Model)

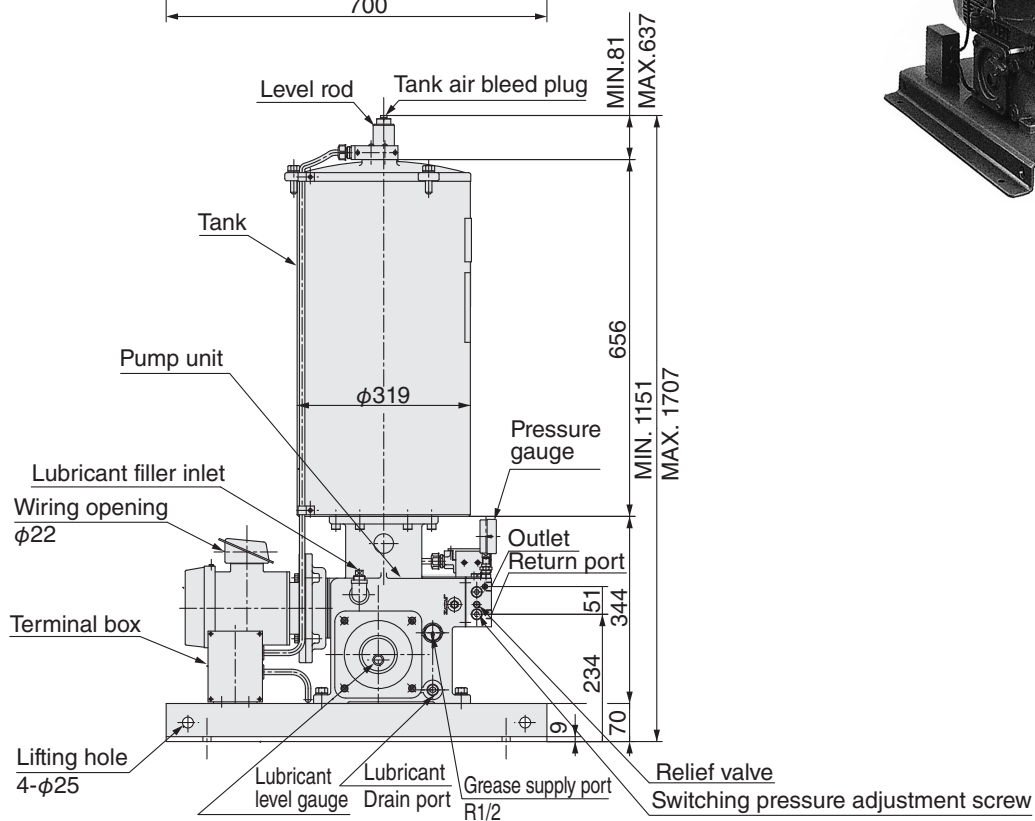
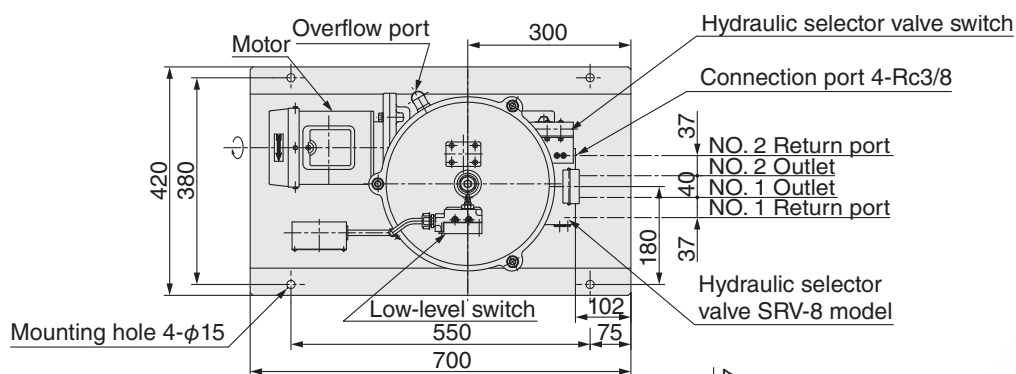


- (1) The EP-11L-C model electric control panel is pre-wired internally, so the pump can be operated simply by connecting the power supply.
- (2) Operation is automatic: the pump starts at intervals set by the timer, and stops automatically when lubrication is complete. Manual operation is also possible.
- (3) If an abnormal condition occurs, such as "lubrication time overrun," "empty tank," or "motor overload," a lamp lights and the pump stops.
- (4) For details, see electric control panels on pages ④⑤ and ④⑥.

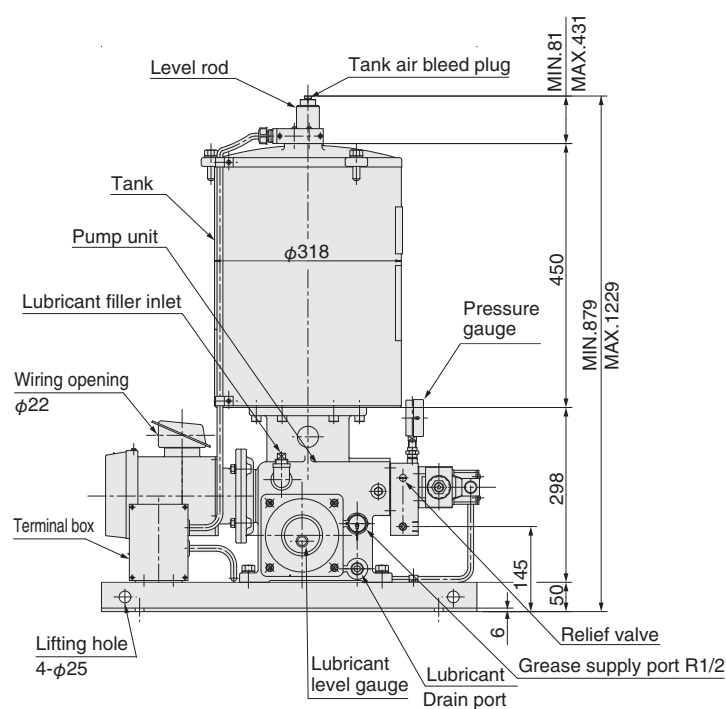
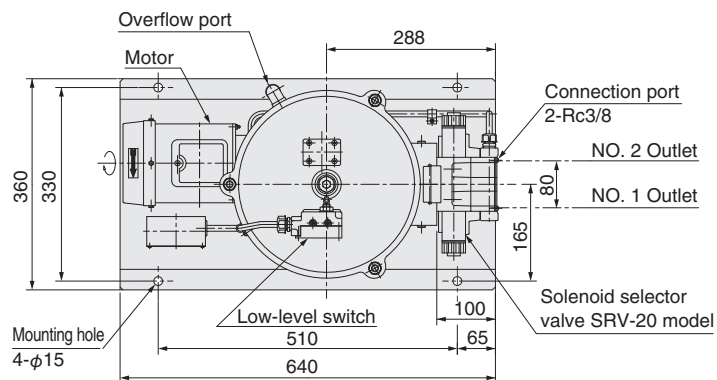
EP-25L Model Electric Pump Dimensions (mm)



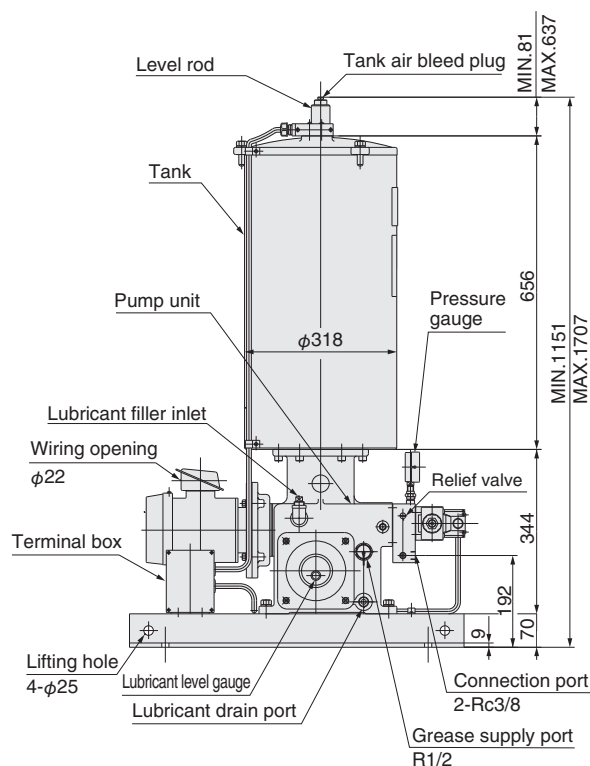
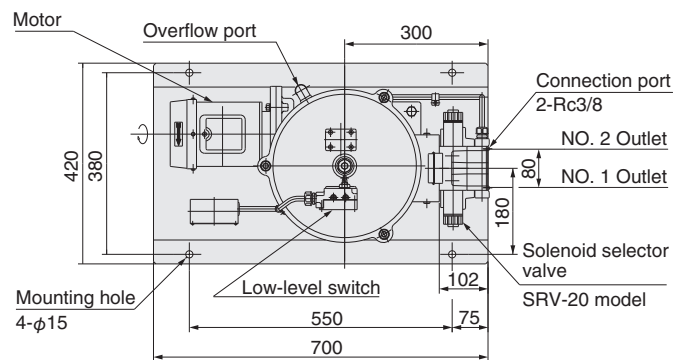
EP-4L Model Electric Pump Dimensions (mm)



EPA-25E Model Electric Pump Dimensions (mm)



EP-4E Model Electric Pump Dimensions (mm)



Pressure adjustment valve

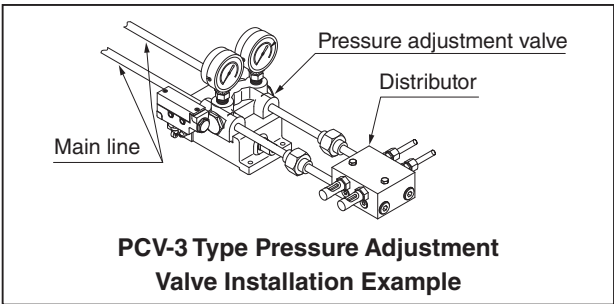
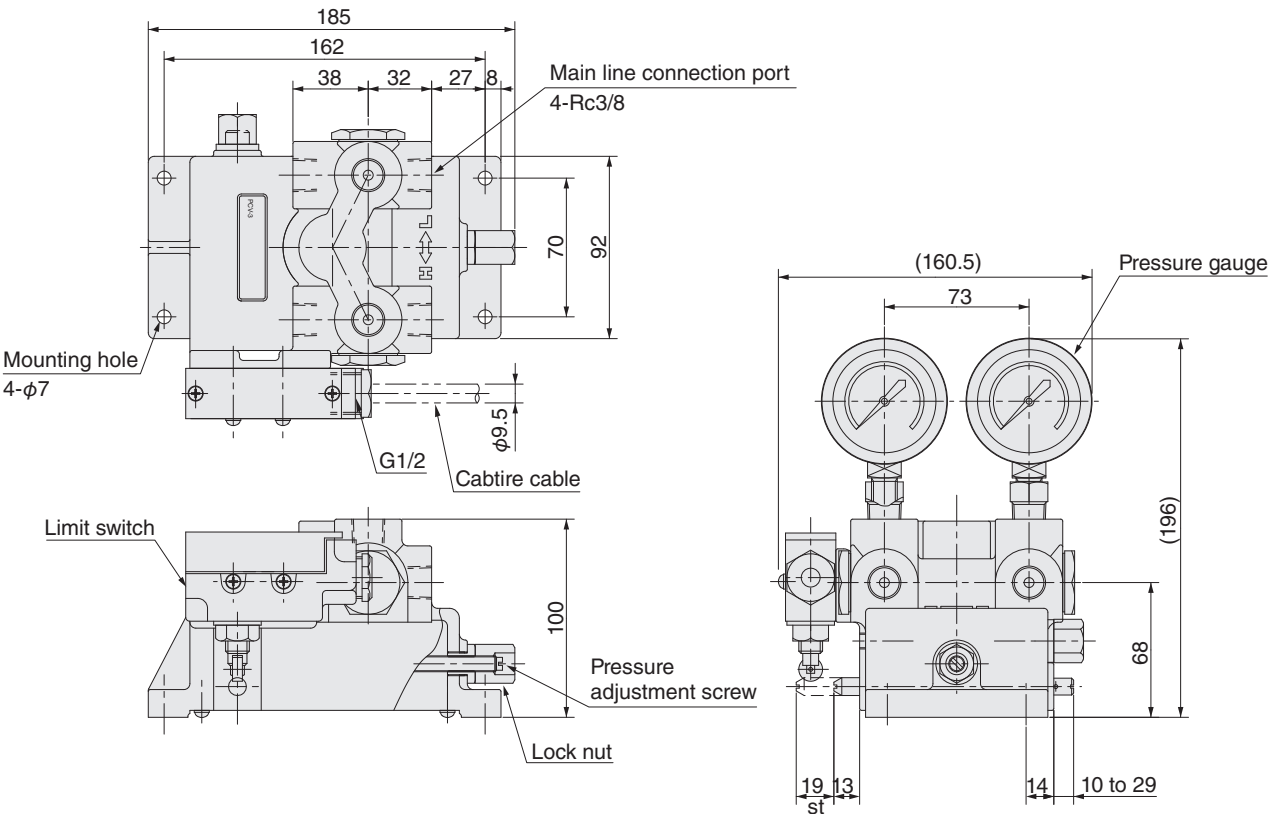
The pressure adjustment valve is used in lubrication systems with end-type electric pumps. It detects the fluid pressure in the main lubrication line, and when the pressure reaches the value set on the pressure adjustment valve, the built-in limit switch activates, stopping the electric pump and sending a switching signal to the pump’s solenoid selector valve. Typically, one valve is installed near the end of the main lubrication line. (Refer to the diagram on page ⑧ and the installation example below) The structure of the pressure adjustment valve consists of a piston operated by hydraulic pressure, a switch-actuating mechanism linked to the piston, and a limit switch. The switching pressure can be set using the adjustment screw.

Specifications

Model	PCV-3	PCV-3K
Maximum operating pressure	20.6MPa	9.8MPa
Switching pressure	3.9 to 17.6 MPa	2.9 to 8.8 MPa
Display range of included pressure gauge	Up to 35 MPa	Up to 20 MPa
Mass	Approx. 5.3 kg	
Part Code	RK885800	RK885700

Note: For 9.8 MPa specification Lubrication pumps and for oil, use the PCV-3K type.

Pressure Adjustment Valve Dimensions (mm)



Distributor

● Features

Distributors are used to dispense a precise quantity of grease, delivered through piping from the lubrication pump, to each lubrication point. The type of valve is determined by factors such as the number of outlets, the discharge volume per cycle, and the operation method.

The VS and VW series distributors utilize a mechanism in which the lubrication pistons operate in parallel. Instead of using springs, the pistons are actuated and measured solely by hydraulic pressure, ensuring outstanding durability and reliability. In addition, each lubrication piston has an operation indicator rod, allowing the lubrication amount to be adjusted within a certain range for each lubrication port.



VS Model Distributors



VW Model Distributors

● Types of distributors

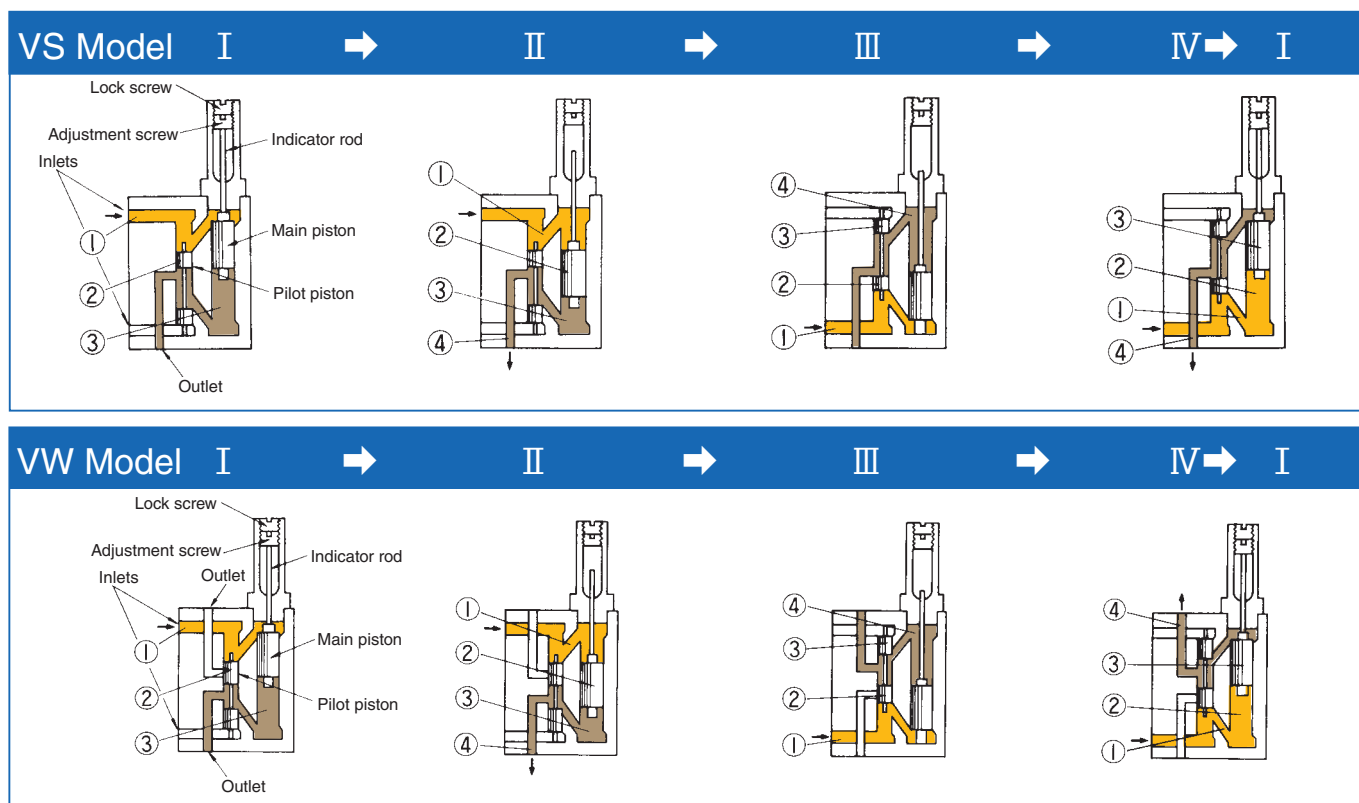
Model								Amount of lubricant per outlet cm³/stroke	Operating method		Operating indicator	Discharge rate adjustment	Grease inlet		Outlet	
Number of lubrication ports with valves									Parallel	Sequential			Double	Single	Twin	Single
1 port	2 port	3 port	4 port	6 port	8 port	10 port										
VS	31	32	33	34				1.2 to 0.2	○		○	○	○			○
	41	42	43	44				2.2 to 0.6	○		○	○	○			○
	51	52	53	54				5.0 to 0.6	○		○	○	○			○
	61	62						14.0 to 3.0	○		○	○	○			○
VW		12		14	16	18		0.3 to 0.03	○		○	○	○		○	
		32		34	36	38	310	1.2 to 0.2	○		○	○	○		○	
		52		54	56	58		5.0 to 0.6	○		○	○	○		○	

Note 1. In the twin-outlet type distributor, each lubrication piston unit is configured with two outlets. Grease is discharged from the outlet corresponding to the direction of the piston's movement. The single type is a distributor with one outlet that discharges grease with each piston operation, regardless of the direction of piston operation.

2. Stainless steel specifications for the body are also available. Please contact us for details.

● Description of Distributor Operations

I	II	III	IV
① High-pressure grease flows in from the main lubrication line. ② The pilot piston moves to this position. ③ This chamber is filled with grease from the previous operation.	① Grease passes through this port and enters the main chamber. ② The main piston is pressed down by hydraulic pressure. ③ Grease in the main chamber is pushed out. ④ Grease is supplied to the bearings through this outlet. Lubrication continues until the piston stroke is complete.	① For the next lubrication cycle, grease from the main lubrication line enters through this port. ② The pilot piston moves to this position. ③ At this position, the upper port is closed off. ④ This chamber is filled with grease from the previous operation.	① Grease from the main lubrication line enters through this port. ② Grease fills the main chamber. ③ The piston moves upward. ④ Grease that has filled the area above the piston is supplied to the bearing through this port.



Safety Precautions

1. Adjust the discharge volume using the adjustment screw inside the indicator rod case. Screwing it in to reduce the main piston stroke decreases the discharge volume. After adjustment, secure it firmly by using the lock screw.
2. Install a protective cover against outdoor conditions, dust, and radiant heat.

Model Codes

VS-34

Number of outlets	(VS Model..... 1, 2, 3, 4, 2-1: VS-6 only) (VW Model..... 2, 4, 6, 8, 10)
Size	(VS Model..... 3, 4, 5, 6) (VW Model..... 1, 3, 5)
Type	(S, W Type)
Basic Distributor Model (V Series)	

● VS-30·40·50·60 Model Distributors

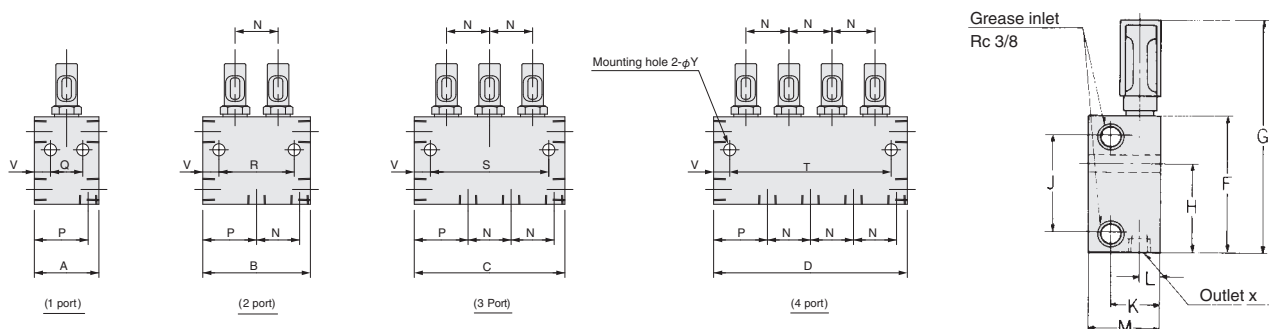
Specifications

Part Code	Model	Number of outlet ports	Discharge volume cm³/stroke		Discharge volume per adjustment screw rotation (cm³)	Maximum operating pressure MPa	Operating temperature range °C	Provided mounting bolts	Mass (Approx.) kg
			MAX.	MIN.					
RK806600	VS-31	1	1.2	0.2	0.07	20.6	From -20 to +70	M8×55L	0.8
RK806700	VS-32	2							1.4
RK806800	VS-33	3							2.0
RK806900	VS-34	4							2.6
RK807000	VS-41	1	2.2	0.6	0.07			M8×55L	0.9
RK807100	VS-42	2							1.6
RK807200	VS-43	3							2.3
RK807300	VS-44	4							3.0
RK807400	VS-51	1	5.0	0.6	0.14			M8×60L	1.2
RK807500	VS-52	2							2.1
RK807600	VS-53	3							3.0
RK807700	VS-54	4							3.9
RK807800	VS-61	1	14.0	3.0	0.45			M8×75L	2.2
RK807900	VS-62	2							4.0
RK808000	VS-62-1	1	28.0	6.0					

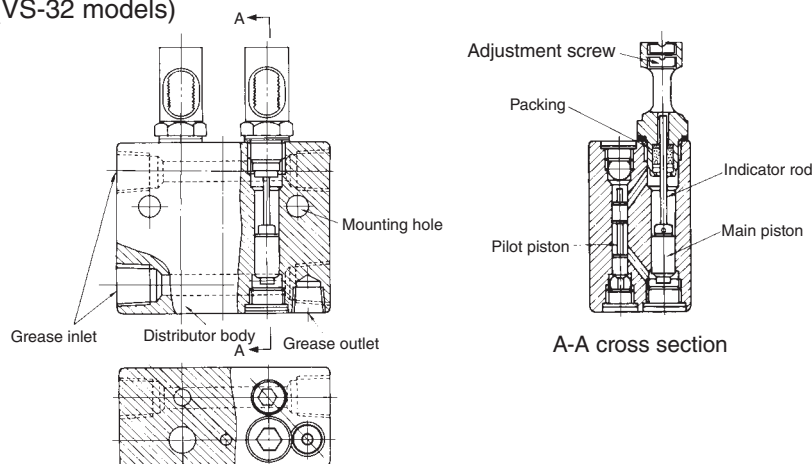
Note 1. The last digit in the model number indicates the number of grease outlets on the distributor. (Example: VS-32 model has 2 outlets)

2. The maximum operating pressure when used with oil is 9.8 MPa.

VS-30·40·50·60 Model Distributors Dimensions (mm)



Structural drawing (VS-32 models)



Model	A	B	C	D	F	G	H	J	K	L	M	N	P	Q	R	S	T	V	X	Y
VS-30	48	80	112	144	65	106	40.5	43	26.5	10.5	38	32	40	24	56	88	120	12	Rc1/4	9
VS-40	48	80	112	144	75	124.5	47.5	52	26.5	10.5	38	32	40	27	59	91	123	10.5		
VS-50	54	91	128	165	79	135.5	50.5	57	30	11.5	41.5	37	43.5	33	70	107	144	10.5		
VS-60	61	108			89	153	56	57	45.5	19	57	47	52	40	87			10.5		

● VW-10·30·50 Model Distributors

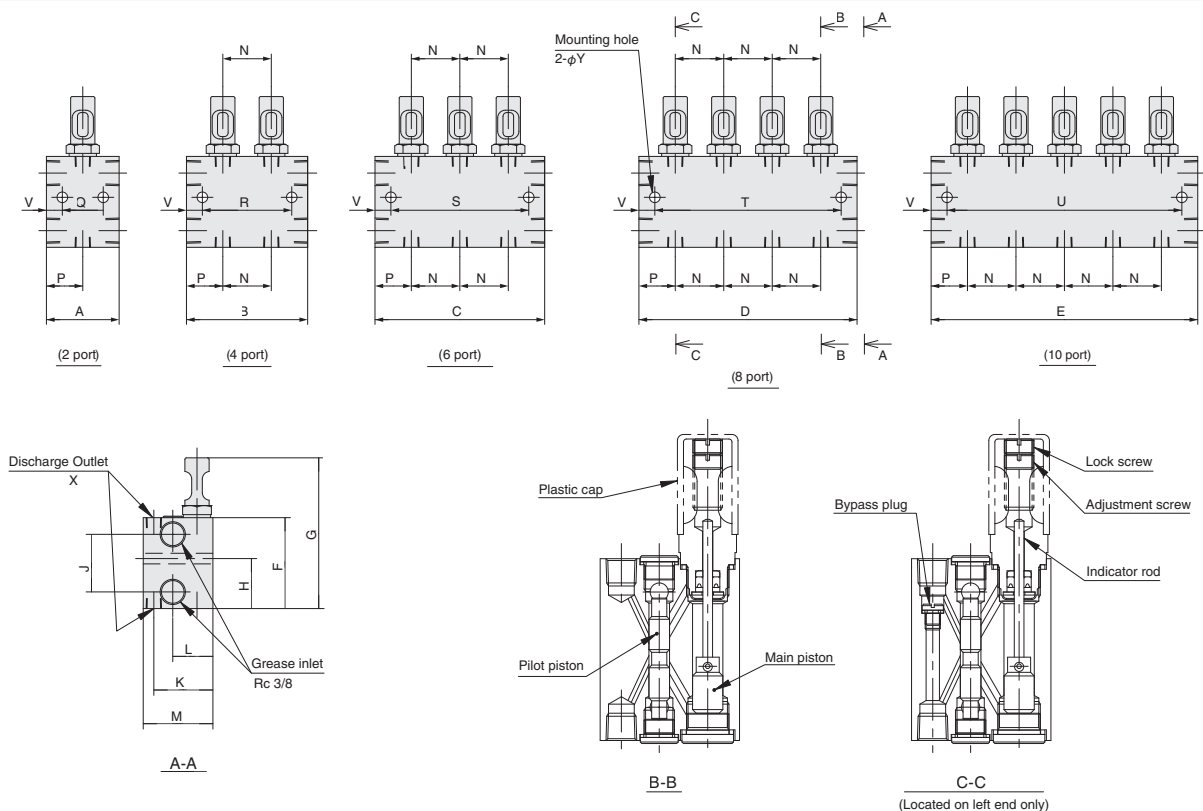
Specifications

Part Code	Model	Number of outlet ports	Discharge volume cm³/stroke		Discharge volume per adjustment screw rotation (cm³)	Maximum operating pressure MPa	Operating temperature range °C	Provided mounting bolts	Mass (Approx.) kg				
			MAX.	MIN.									
RK805100	VW-12	2	0.3	0.03	0.03	20.6	From -20 to +70	M6×60L	0.7				
RK805200	VW-14	4							1.2				
RK805300	VW-16	6							1.7				
RK805400	VW-18	8							2.2				
RK805600	VW-32	2	1.2	0.2	0.07			20.6	From -20 to +70	M6×60L	1.0		
RK805700	VW-34	4									1.7		
RK805800	VW-36	6									2.3		
RK805900	VW-38	8									3.0		
RK806000	VW-310	10									3.7		
RK806100	VW-52	2	5.0	0.6	0.14					20.6	From -20 to +70	M8×75L	1.7
RK806200	VW-54	4											3.0
RK806300	VW-56	6											4.3
RK806400	VW-58	8											5.6

Note 1. In the VW models, plugging either of the opposing upper or lower ports will prevent discharge from both ports. When the number of lubrication ports is odd, remove the bypass plug (only one location on the left side, see above cross-section C-C), connect the upper and lower ports together, and plug the unused port. In this case, the discharge volume for this section will double.

2. The maximum operating pressure when used with oil is 9.8 MPa.

VW-10·30·50 Model Distributors Dimensions (mm)



Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	X	Y
VW-10	38	63	88	113		60	88	33	38	39	26.5	46	25	19	22	47	72	97		8	Rc1/8	7
VW-30	48	80	112	144	176	60	101	33	38	39	26.5	46	32	24	27	59	91	123	155	10.5		
VW-50	50	87	124	161		79	135.5	50.5	57	48	30	57	37	25	29	66	103	140		10.5	Rc1/4	9

Piping equipment

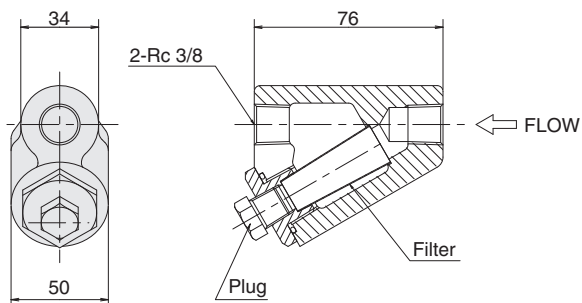
Y-type strainer

The Y-type strainer is a device that filters out foreign matter in fluids. It is installed near the pump outlet.

Specifications

Part Code	RK865106
Maximum operating pressure	20.6MPa
Mass	1.0kg
Material (body)	FCD400
Filter	10 mesh

Y-type strainer Dimensions (mm)



Two-Way Check Valve

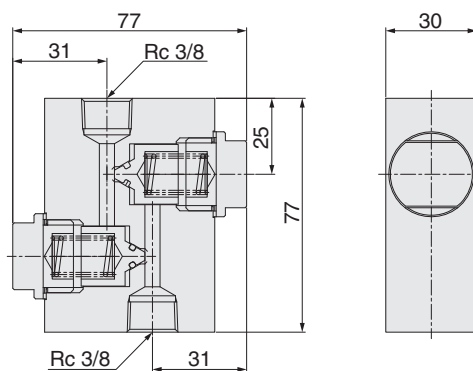
A two-way check valve is a device installed at the pump inlet and outlet to prevent backflow when there is a height difference of 5 meters or more in the piping or when oil is being supplied.

(No specified flow direction)

Specifications

Part Code	RK860303
Maximum operating pressure	20.6MPa
Valve release pressure	0.3 to 0.5 MPa
Mass	0.9kg
Material	SS400

Two-Way Check Valve Dimensions (mm)



[Single Line Lubrication Equipment]

Classifications of Single Line Lubrication Equipment

Single Line lubrication systems are categorized by lubrication method and drive system. Additionally, lubrication pumps and distributors are further classified according to discharge volume.

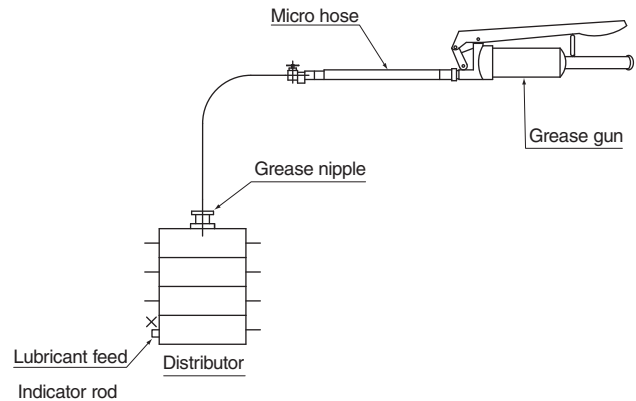
These are outlined in the table below.

Lubrication system	Drive system	Pump model	Distributor model	Maximum operating pressure MPa	Remark
Grease gun system	Manual	Grease gun (commercially available)	BJ	20.6	Use when the lubricant feed indicator rod on the distributor is visible.
Manual Lubrication pump system	Manual	SKA-214	BJ	14.7	Same as above
		MP-322P	BJ to BK	20.6	Same as above
		MP-323			Equipped with lubrication cycle completion indicator rod.
		MP-326			
Electric Lubrication pump system	Electric	SKA-521	BJ to BK	14.7	Pressure switch is installed separately.
		EP-11B		20.6	Pressure switch is included.
		EP-11B-5			
Mechanical drive pump system	Mechanical	SKA-722	BJ	5.9	Oil only
Pneumatic Lubrication pump system	Pneumatic	SKB-881	BJ	19.6	If an electric control panel is not used, a manual valve is provided instead of a solenoid valve.
		SKC-800		14.7	
Barrel pump system	Pneumatic	APA-334	BJ to BK	Pump ratio 34:1	Pressure switch is installed separately. Direct suction and pressure feeding from a drum.
		APA-540		Pump ratio 40:1	
		APA-840			
Spray type	Either of the above methods is available	Any of the above lubricant feed pumps can be used.	Use one with a discharge capacity of 1 cm ³ /st. or more	20.6	The grease (or oil) discharged from the distributor is introduced into the spray valve and simultaneously sprayed onto the gear tooth surface together with compressed air.

Note: The lubrication pumps and distributors in this table are for general use.

Grease gun system is economical!

Lubrication with a grease gun allows for a combination of up to 8 blocks per unit. Therefore, it is possible to lubricate up to sixteen points. First, calculate the required lubrication amount for each bearing, and combine blocks to match the amount of lubricant needed for each bearing. The completion of lubrication is indicated by the cycle count of the lubricant feed indicator rod. This grease gun method uses a grease gun for the lubrication pump, which keeps equipment costs low. The amount of oil is optimized because the distributor blocks are arranged according to each bearing, which eliminates waste and ensures reliable lubrication as long as the indicator rod is working. This system is the most economical way to manage lubrication as well as equipment.

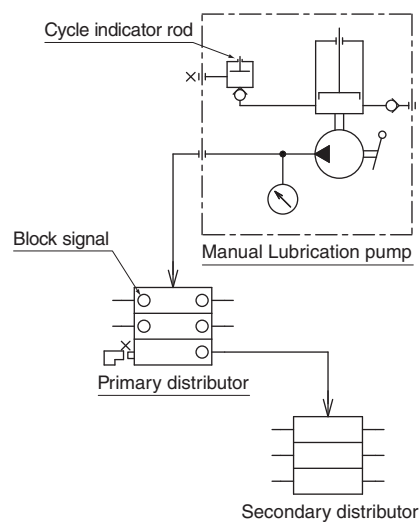


Grease gun system
(example connection)

* Our company does not sell grease guns or micro hoses.
Please purchase commercially available products as needed.

Manual Lubrication pump system can lubricate 100 points!

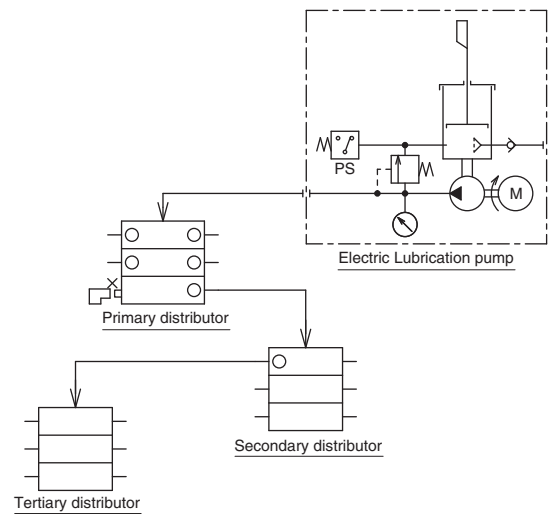
A single lubrication pump can lubricate up to 100 points. The completion of lubrication is reliably indicated by the cycle indicator rod. If even one out of the 100 points is not lubricated, the handle of the lubrication pump will become very heavy, alerting the operator. If the cycle indicator rod does not pop out even when pressure rises to 20.6 MPa, inspecting the block signal on the main distributor immediately identifies the location of the blockage. This lubrication pump is designed to achieve a maximum discharge pressure of 20.6 MPa, making it fully capable of lubricating bearings with high back pressure.



Manual Lubrication Pump System
(Connection Example)

Electric Lubrication Pump System Matches All Models!

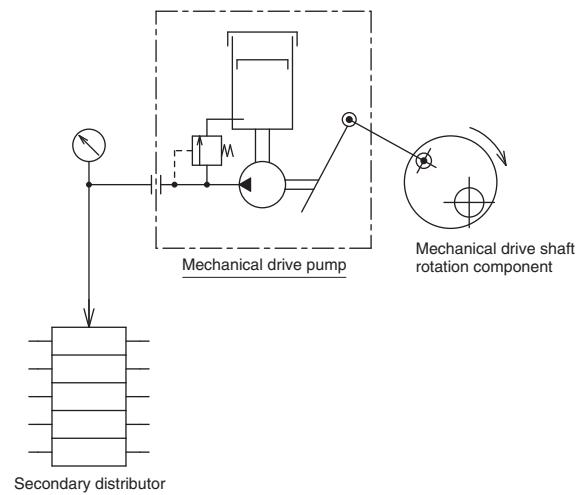
Automatic operation is possible via an electric control panel. Full automation can be achieved by equipping the system with alarm devices such as pressure switches and low-level switches. Start-up can be performed manually, by timer, or through mechanical interlock, while stopping can be performed manually, by timer, by mechanical interlock, or with a cycle L switch. This versatile system can be widely used with all types of machinery.



Electric Lubrication pump System
(Connection Example)

Mechanical Drive Pump Systems Are Ideal for Presses, Cranes, and Similar Machinery!

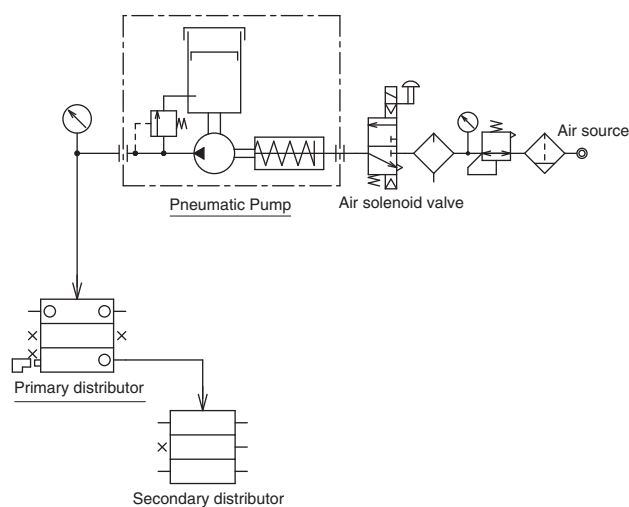
The mechanical drive pump operates using the motion of the machine itself, actuated by a cam lever or chain drive. By adjusting the length of the cam lever and the number of teeth on the chain sprocket, the total amount of oil supplied to each bearing over several hours can be set. This continuously supplies a small amount of oil to the bearings, achieving optimal lubrication. There is no need for a separate power source such as a motor or an electrical control panel, and automatic lubrication is still possible. This system is ideal for presses, cranes, and similar applications.



Mechanical drive pump system
(connection example)

Pneumatic Lubrication pump system has outstanding versatility!

This air-driven pump is controlled by opening and closing the solenoid valve in the air supply line to the lubrication pump. Start, stop, and alarm functions can be arranged in the same way as with the electric lubrication pump system.

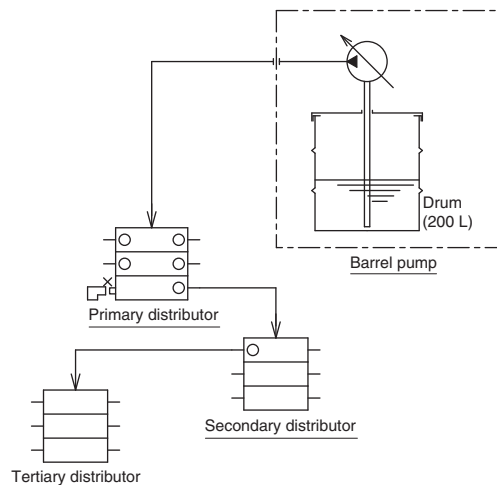


Pneumatic Lubrication pump system
(connection example)

Barrel Pump System for Large Machinery!

The lubrication pump unit can be directly connected to the drum, making installation and setup easy. No need to transfer lubricant from the drum to the pump. Control method is the same as on page ⑧. Ideal for large machinery, blast furnaces, rolling mills, cement plants, and similar applications.

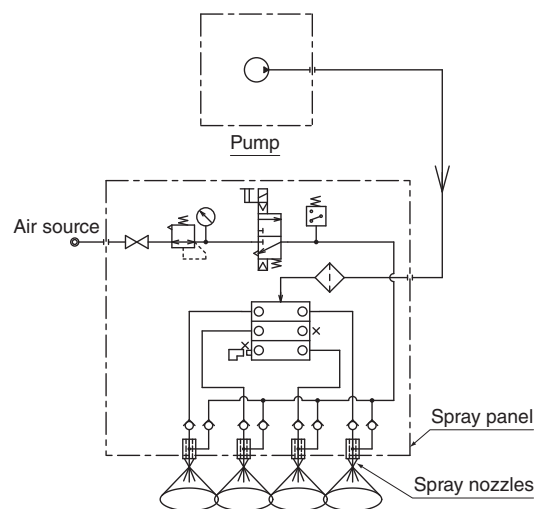
* Only pneumatic Lubrication pumps can be used with this system.



Barrel pump system
(connection example)

Spray System Sprays Lubricant onto Gear Tooth Surfaces!

For large gears, the spray system introduces lubricant discharged from the distributor into the spray valve's mixing nozzle. It then sprays the lubricant together with compressed air, forming an oil film on the gear tooth surfaces.



Spray system
(connection example)

Lubrication Pumps

Lubrication pumps come in a wide variety of types, including manual, electric, pneumatic, mechanically driven, and hydraulic models, with broad applications. This allows you to select one according to your specific needs.

Manual Lubrication Pumps

Manual Lubrication pumps pressurize and deliver lubricant by the operation of the pump handle. The MP-323 and 326 models are Lubrication pumps designed for medium to large machinery and are classified by tank capacity. These pumps feature a cycle indicator rod that allows visual confirmation when lubrication is complete. They also incorporate a pressure gauge to detect abnormal discharge pressure. Model SKA-214 is a Lubrication pump for small machines and has a transparent synthetic resin tank structure that allows you to check the amount of lubricant held in the tank from the outside.

Specifications

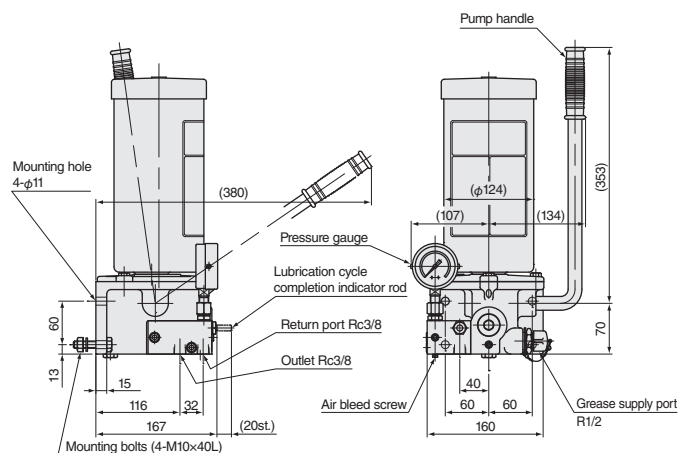
Part Code	Lubrication pump model	Lubricant used	Maximum operating pressure MPa	Discharge rate	Tank capacity L	Mass (Approx.) kg
RK116300	MP-322P	Grease	20.6	4.8 cm³/cycle	2	12
RK116200	MP-323				3	15
RK116500	MP-323W				6	19
RK116600	MP-326					
RK116800	MP-326W					
RK116400	MP-322PL	Oil	9.8	8.4 cm³/cycle	2	12
RK117100	MP-323L				3	15
RK116700	MP-326L				6	19
RK942800	SKA-214-04	Grease	14.7	1 cm³/stroke	0.4	1.3
RK943000	SKA-214-1				1	2.8
RK943700	SKA-214L-04	Oil			0.4	2
RK943800	SKA-214L-1				1	2.8

Note 1: The MP-32* model Lubrication pumps are equipped with a lubrication cycle completion indicator rod. (For details, see page 30.)

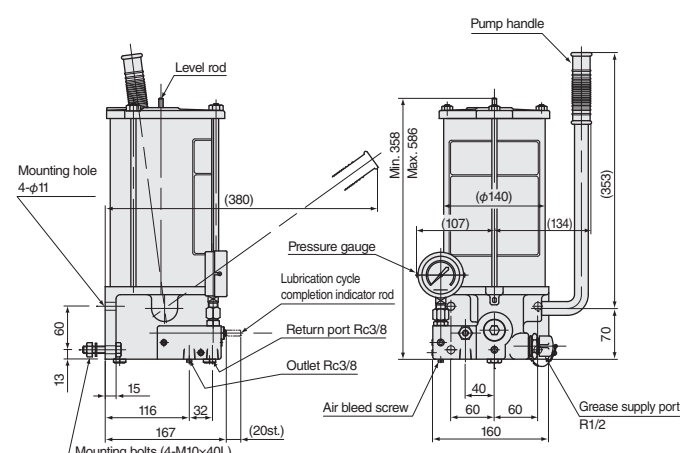
2: The SKA-214 model Lubrication pump is a cost-effective model that confirms lubrication by using an indicator rod on the distributor.

Manual Lubrication Pumps Dimensions (mm)

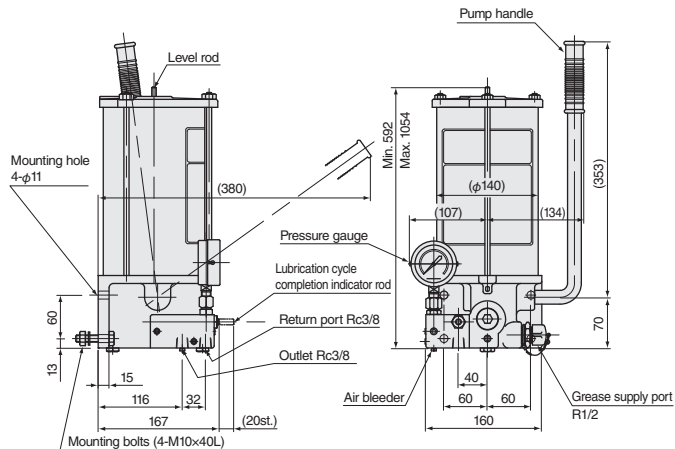
MP-322 model



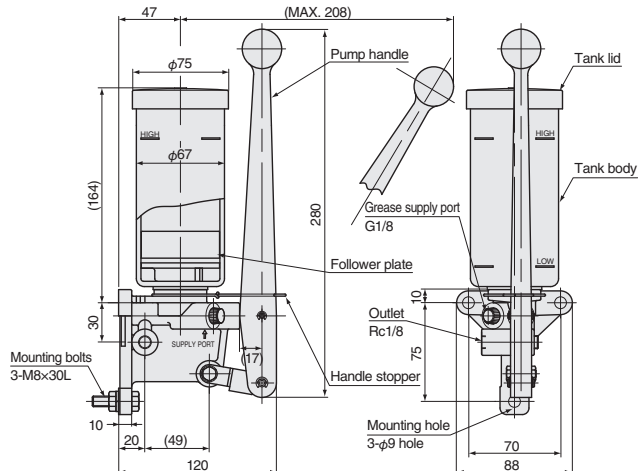
MP-323 model



MP-326 model



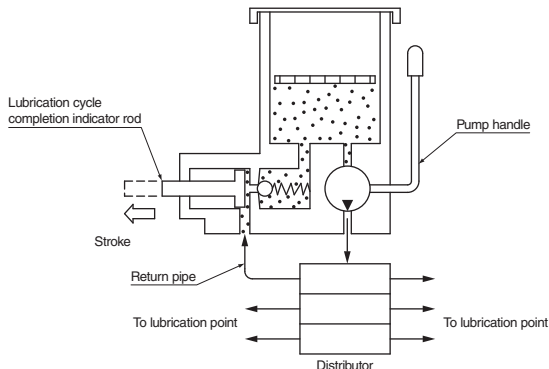
SKA-214 model



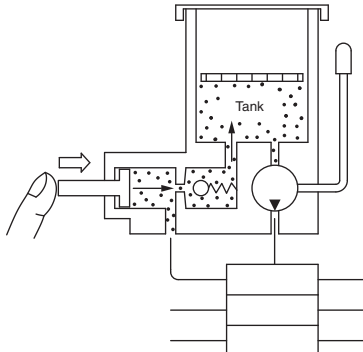
About the Lubrication Cycle Completion Indicator Rod

The indicator rod on manual lubrication pumps (models MP-322P, 323, 326) is used to confirm that the unit has operated correctly and that the lubrication cycle (the number of distributor valve actuations) has been completed. As shown in the diagram on the right, connect the discharge port of the distributor to the indicator rod component of the Lubrication pump. The indicator rod is activated by the discharged oil (which moves the rod through its full stroke with 1 cm³ of oil) from the distributor, which allows you to confirm the operating status without directly viewing the distributor. After lubrication is completed, press the indicator rod with your finger to return it to its original position.

If the discharge pressure reaches the maximum operating pressure but the indicator rod does not pop out, it may indicate a clog in the distributor or elsewhere. Inspect and repair the clogged area.



While lubricating



After lubrication is complete

● Electric Lubrication Pumps

Electric Lubrication pumps automate lubrication systems and, with a control device, can be operated by timer control or continuous operation. Generally, the SKA-521 type is intended for small machines, the EP-11B type for medium-sized machines, and the EP-11B-5 type for large machines. They are classified according to whether they are for grease or oil and by tank capacity.

Specifications

Part Code	Model	Lubricant used	Maximum operating pressure MPa	Discharge rate cm ³ /min		Tank capacity L	Motor ^{Note 5}	Mass (Approx.) kg
				50 Hz	60 Hz			
RK913100	EP-11B	Grease	20.6	40 ^{Note 1}	48 ^{Note 1}	6	AC 200 V-3φ 0.1kW-4P	35
RK913300	EP-11B-5					25		68
RK981500	SKA-521 no tank		14.7	20×2 ports ^{Note 3}	25×2 ports ^{Note 3}	No tank	AC 200 V-3φ 0.1kW continuous rating	10
RK981600	SKA-521-2		(relief pressure 15.7±1)			2		11
RK981700	SKA-521-2-LLS	Oil		2.5 to 20×2 ports ^{Note 3}	3 to 25×2 ports ^{Note 3}	No tank		11.5
RK981800	SKA-521L no tank		5.9			2		10
RK981900	SKA-521L-2		(relief pressure 6.9±1)			2		11
RK982000	SKA-521L-2-LLS					10		11.5
RK981000	SKA-521L-10LS							21

Note 1: For the EP-11 model, if the orientation of one pump cylinder is reversed (arrow facing the motor), the discharge volume will be halved, 20/24 cm³/min.

2: For the EP-11 for oil, please contact us separately.

3: SKA-521 and SKA-521L models have two outlet ports, which can be bypassed internally to create a single port. When a bypass creates a single port, the discharge volume doubles.

4: The standard paint color is Munsell 2.5G6/3.

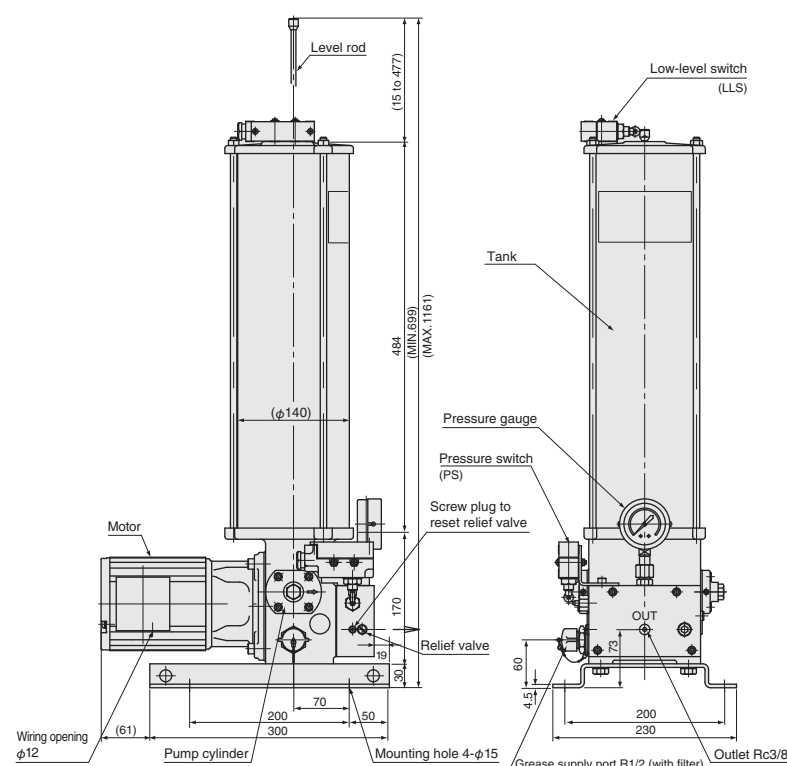
5: Please specify if the voltage is AC 400 V.

6: The EP-11B can be supplied with an integrated electrical control panel. For details, see pages 45 and 46.

7: SKA-521 type -LLS and LS are equipped with a lower-limit limit switch for grease and oil in the tank.

Electric Lubrication Pumps Dimensions (mm)

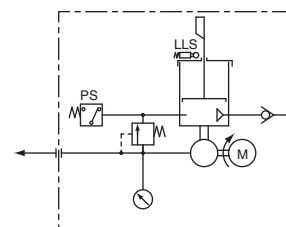
EP-11B models



EP-11B model Lubrication pump

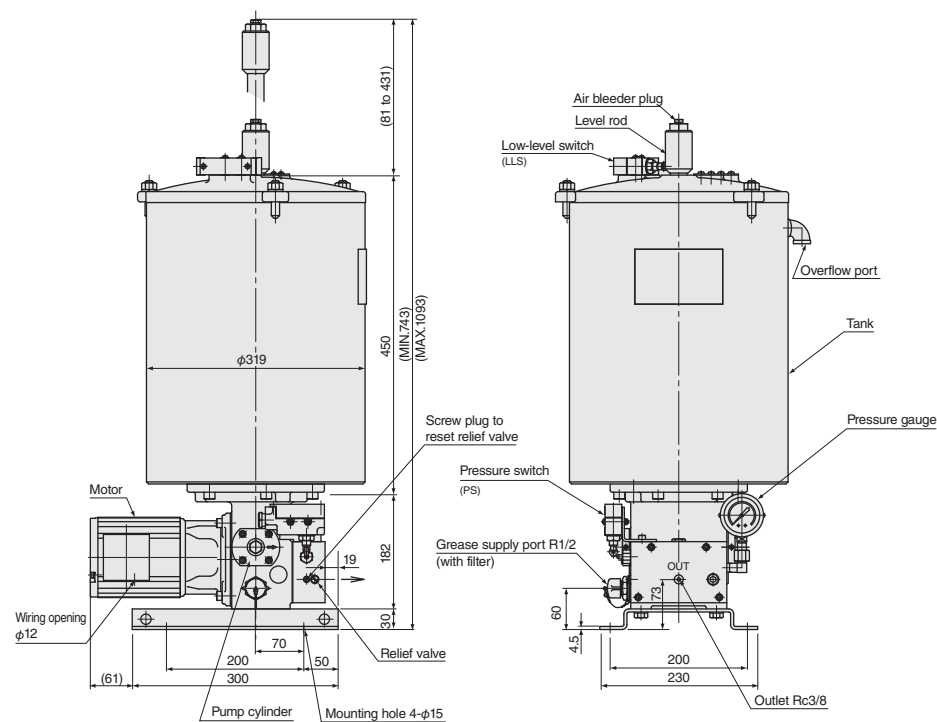
The pump uses a simple plunger-type mechanism, offering excellent reliability and durability. The reduction gear component is lubricated with grease, eliminating the need for lubricant replacement or replenishment. The motor can be used in either clockwise or counterclockwise rotation.

Circuit Diagram



Electric Lubrication Pumps Dimensions (mm)

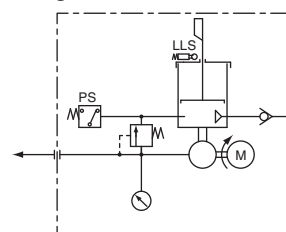
EP-11B-5 models



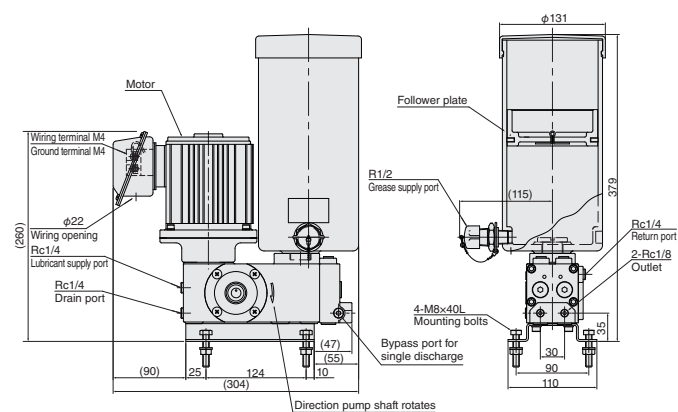
EP-11B-5 model Lubrication pump

The structure of the Lubrication pump is the same as that of the EP-11B model. The tank capacity is just large capacity, at 25 L.

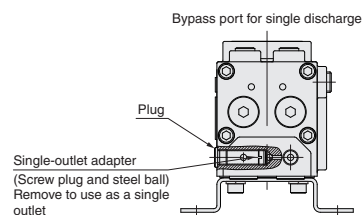
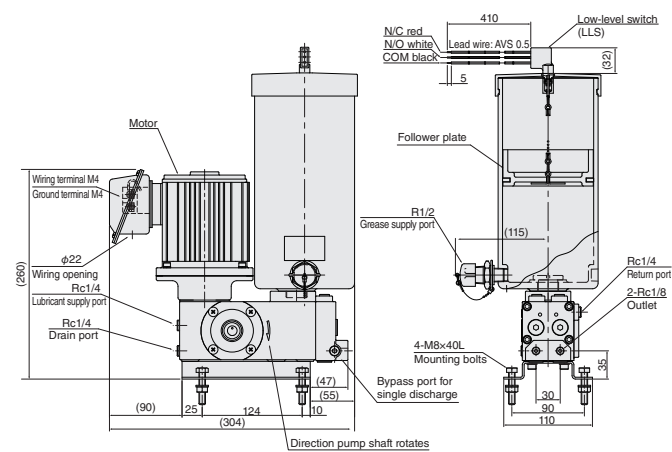
Circuit Diagram



SKA-521-2 model



SKA-521-2-LLS model



● Mechanical Drive Lubrication Pumps (Oil Only)

This pump is a ratchet feed type pump that automatically pressurizes and delivers oil in link with the machine. (Can also be chain-driven.)

The SKA-722 model consists of a pump section that pressurizes and discharges oil, a cam that operates the pump, and a lever and ratchet that move the cam shaft. The cam, plunger, and cylinder are arranged in two sets, so there are two outlet ports; however, it is also possible to use only one port.

Note: Install safety covers on the drive unit levers and rotating parts.

Specifications

Part Code	Model	Number of outlet ports	Maximum discharge pressure MPa	Discharge rate cm ³ /stroke	Tank capacity L	Lever angle °	Maximum pump shaft speed min ⁻¹	Minimum pump shaft speed min ⁻¹	Mass (Approx.) kg
RK293300	SKA-722R	1 port or 2 ports	5.9	1 port: 0 to 1.8	2	Min. 9	80	10	4.2
RK293400	SKA-722L			2 ports: 0 to 0.9x2	(1.9)				

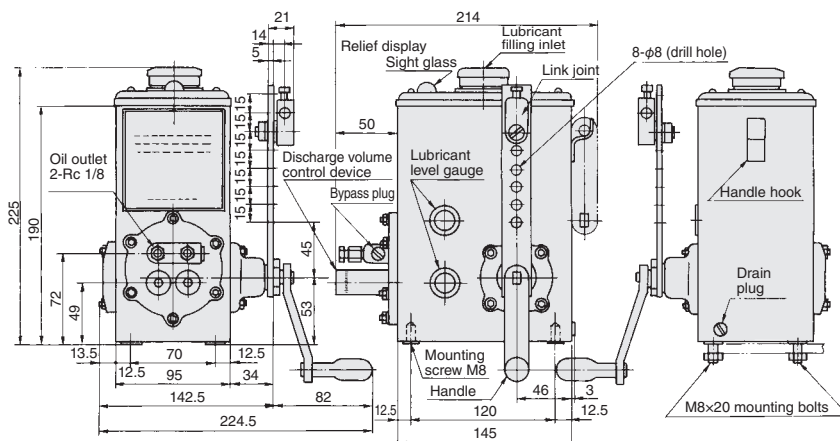
Note 1: Figures in parentheses () indicate the effective capacity of the tank.

2: When using a single outlet, remove the steel ball from the bypass plug.

3: The SKA-722L has the handle position reversed left to right compared to the SKA-722R.

Mechanical Lubrication Pumps	Dimensions (mm)
1. Gear Pump	100 x 100 x 100
2. Vane Pump	120 x 120 x 120
3. Piston Pump	150 x 150 x 150
4. Diaphragm Pump	80 x 80 x 80
5. Peristaltic Pump	60 x 60 x 60
6. Progressive Cavity Pump	180 x 180 x 180
7. Screw Pump	200 x 200 x 200
8. Lobe Pump	140 x 140 x 140
9. Sliding Vane Pump	110 x 110 x 110
10. External Gear Pump	90 x 90 x 90

SKA-722R



● Pneumatic Lubrication Pumps

Pneumatic Lubrication pumps operate by a compressed air supply to pump grease or oil, and can be controlled as desired by opening and closing the air supply line.

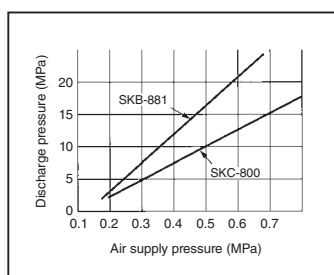
The SKB-881 and SKC-800 models discharge pressure can be set as desired from 2.9 MPa to 19.6 MPa depending on the supplied air pressure. They are compact yet powerful pumps.

The SKB-881 model is a reciprocating Lubrication pump that operates continuously as long as air is supplied; its operating speed varies according to the air pressure. The required discharge volume can be obtained by adjusting the supplied air pressure. The relationship between the air supply pressure and the discharge pressure, and the relationship between the discharge pressure and the discharge volume are shown in the figures below.

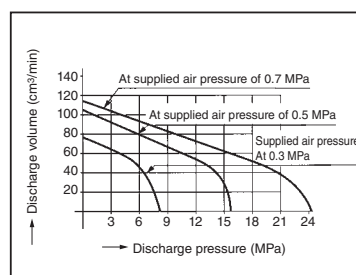
The SKC-800 model is a single-acting Lubrication pump that operates once each time air is supplied.

The APA model is a pump that directly draws grease (or oil) from a drum or pail and delivers it at high pressure.

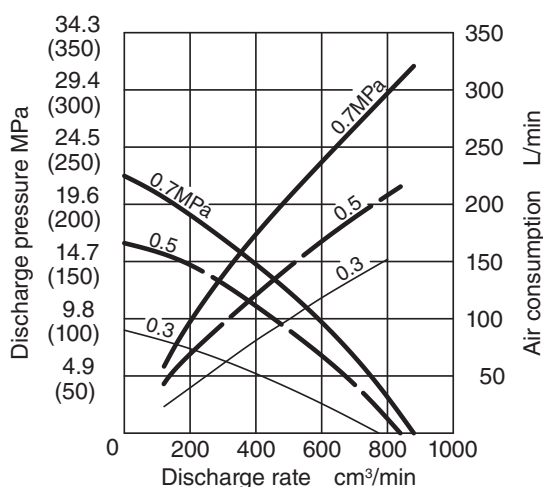
When compressed air is supplied to the APA model pump, the air valve mechanism and air cylinder inside the pump body activate the plunger in the suction tube, continuously discharging grease as long as air is supplied. Refer to the performance curves below for the relationship between pump discharge volume and discharge pressure.



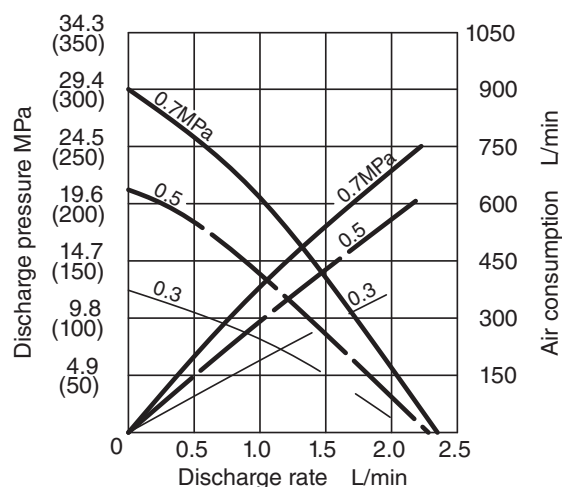
Discharge pressure and air supply pressure



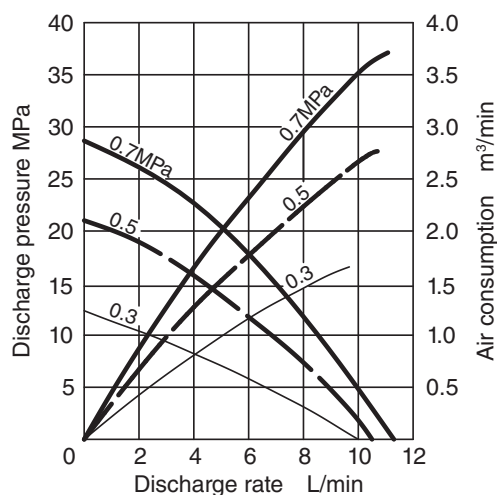
Discharge volume and discharge pressure (SKB-881) (reference)



APA-334, -334B Performance Curves



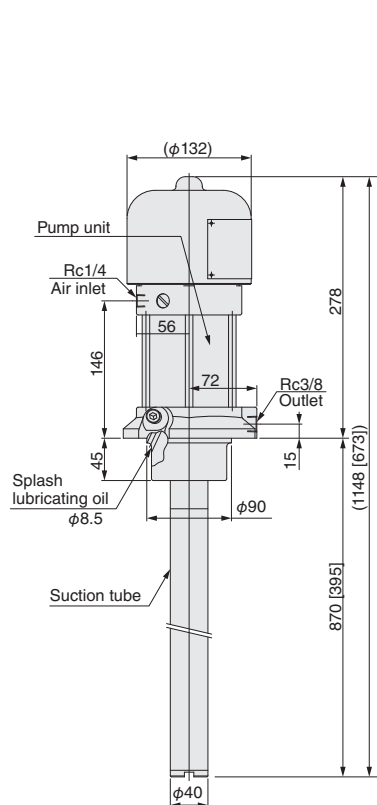
APA-540, -540B Performance Curves



APA-840, -840B Performance Curves

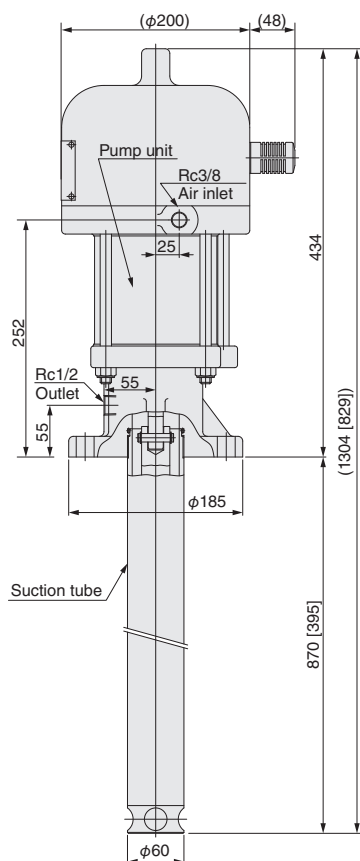
● APA-334, -334B

Note: Values in brackets [] are dimensions for APA-334B



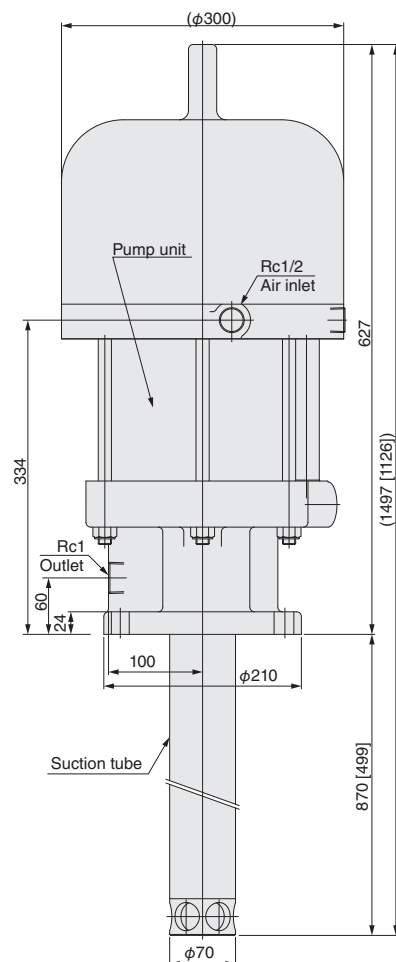
● APA-540, -540B

Note: Values in brackets [] are dimensions for APA-540B.



● APA-840, -840B

Note: Values in brackets [] are dimensions for APA-840B.

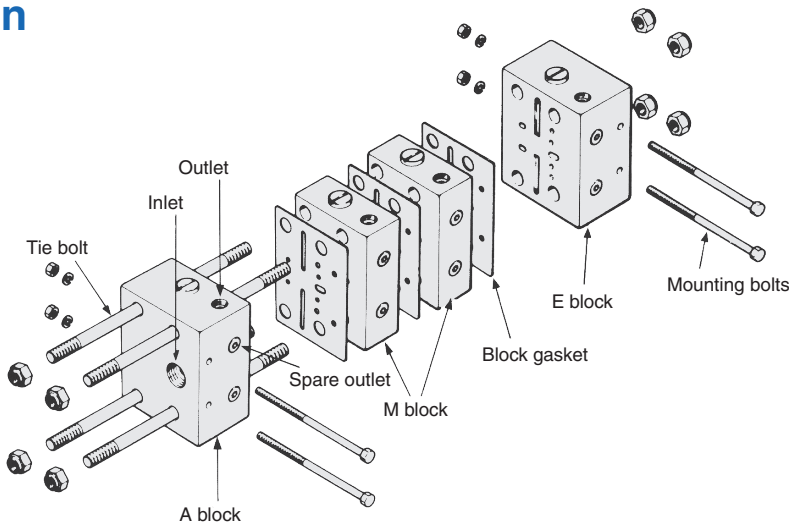


B Model Distributors

● Features

The B model distributors feature a robust iron construction and consist of three types of blocks: A, M, and E. Each block incorporates a piston. The mating surfaces between blocks are sealed with gaskets. Units can be assembled with a minimum of 3 blocks and a maximum of 8 blocks, allowing flexible combinations. Connections are made using tie bolts. Units are configured by adding or removing M blocks, allowing the number of oil supply (discharge) ports to range from a minimum of 1 to a maximum of 16. A check valve is installed at the outlet port of each block to prevent backflow of discharged lubricant. Distributors are classified according to size and discharge volume as shown in the specification table. All share the exact same basic structure and operating principle.

● Configuration



Note: The spare outlet can be used in place of the side outlet and can also accommodate the included blockage indicator. (with plug)

● Type

The discharge volume of the distributor is determined by the piston diameter and stroke. Various pistons are available for each model of distributor, and their respective discharge volumes are shown below. (The discharge volumes in this table are per port for the “T” type.)

Specifications

Model	Piston size	Discharge rate cm³/stroke	Number of blocks	Number of outlet ports
BJ	10	0.10	3 to 8 blocks (M block 1 to 6 blocks)	1 to 16 ports
	15	0.15		
	30	0.30		
	45	0.45		
	60	0.60		
BL	60	0.60		
	120	1.20		
	180	1.80		
	240	2.40		
BK	500	5.00		
	750	7.50		
	1000	10.00		

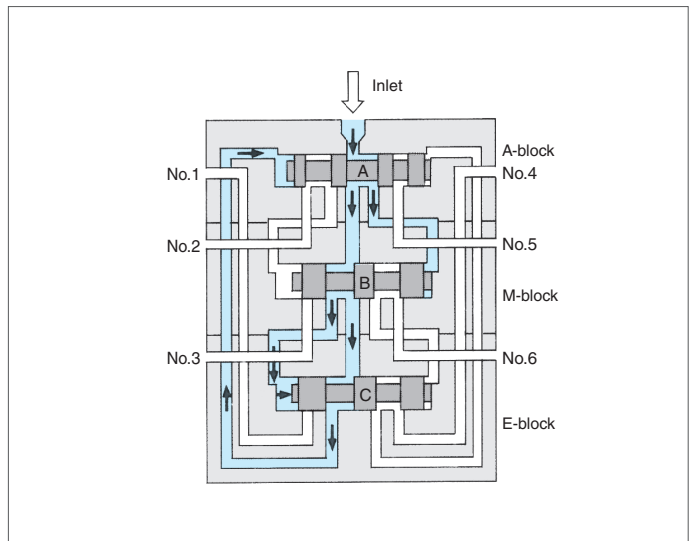
Distributor Discharge Ratio^{Note 5}

Model Ratio	BJ		BL		BK
1	10T		60T		500T
1.5	15T				750T
2		10S	120T	60S	1000T, 500S
3	30T	15S	180T		750S
4			240T	120S	1000S
4.5	45T				
6	60T	30S		180S	
8				240S	
9		45S			
12		60S			

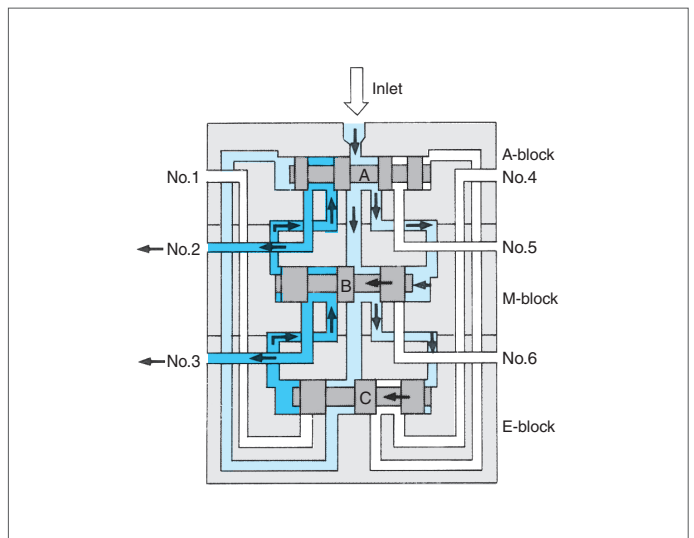
Note 1: “T” indicates a twin type with two outlets per block. “S” indicates a single type with outlets on one side only. Discharge volume: S=2×T cm³
 2: In addition to the models listed in the table above, the ratios can be changed by combining “C”, “2C”, and “SC” types. See page 42.
 3: Maximum operating pressure is 20.6 MPa. (For oil, it must be below 9.8 MPa)
 4: Operating temperature range is -20 to +70°C.
 5: The ratios are relative to the minimum discharge volume for each model.

● Description of B Model Distributor Operations

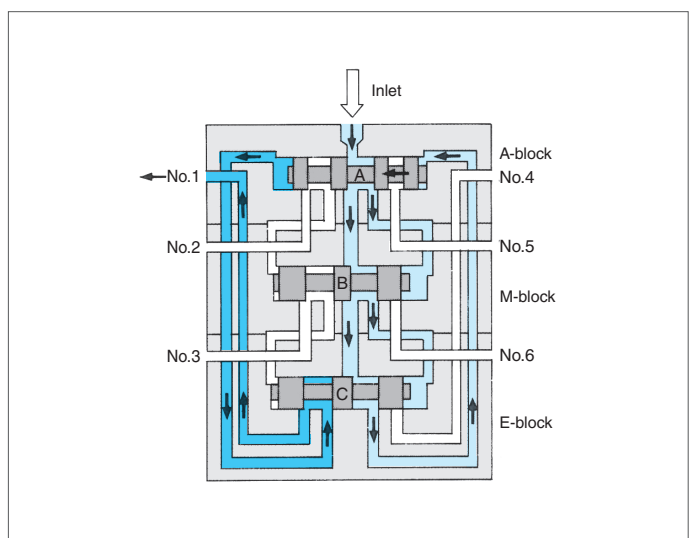
- 1 The lubricant pressurized by the Lubrication pump flows in through the inlet, moves in the direction of the arrows, and pushes pistons A, B, and C. At this time, pistons A and C are pressed to the right side and do not move. Piston B moves to the left.



- 2 As piston B moves left due to the inflow of lubricant, the lubricant on its left side is pushed out through outlet No.2. Once piston B has completed its movement, pressure is applied to the right side of piston C, causing piston C to move to the left and pushing the lubricant on its left side out through outlet No.3.

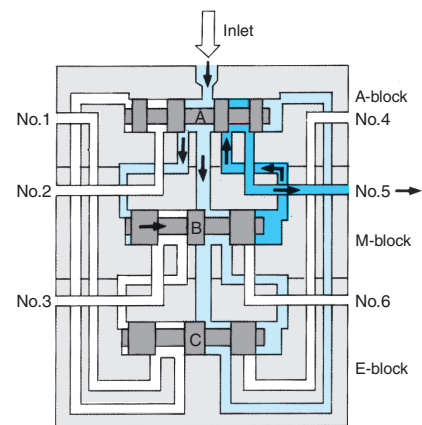


- 3 When piston C moves to the left, pressure is applied to the right side of piston A. As piston A moves to the left, the lubricant on its left side is pushed out through outlet No.1.



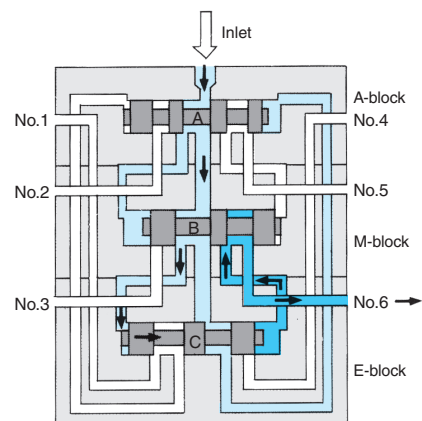
4

When piston A moves to the left, pressure is applied to the left side of piston B, moving piston B to the right. Lubricant on the right side is pushed out through outlet No. 5 to the outside.



5

When piston B moves to the right, pressure is applied to the left side of piston C, moving piston C to the right. Lubricant on the right side is pushed out through outlet No. 6 to the outside.



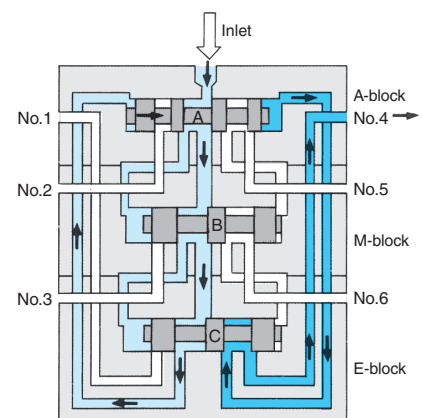
6

When piston C moves to the right, pressure is applied to the left side of piston A, moving piston A to the right. Lubricant on the right side is pushed out through outlet No. 4 to the outside.

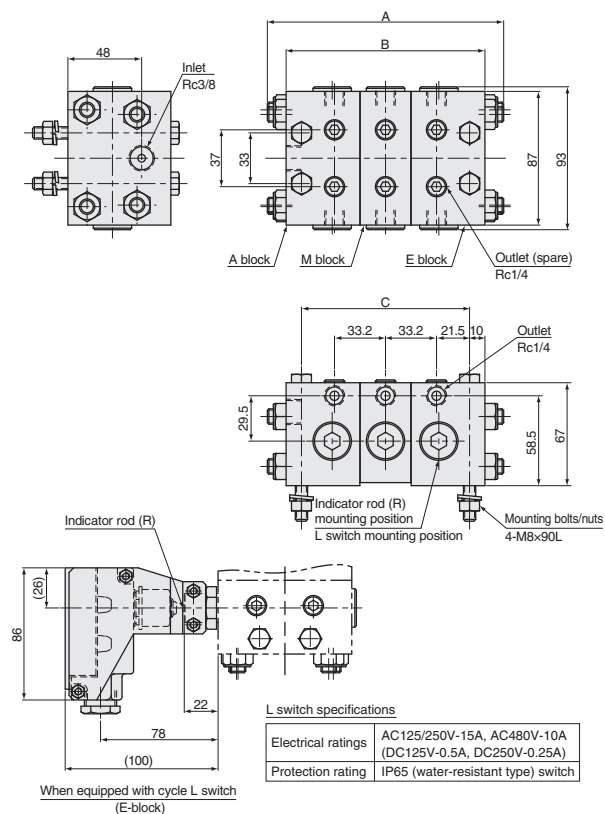
This completes discharge through ports No. 1 to No. 6. If pressurization continues from the supply pump, the sequence from 1 to 6 is repeated continuously.

Note 1: The illustration shows a 3-block type. For 4 to 8-block types, the number of M-blocks is 2 to 6, but the operating principle remains the same.

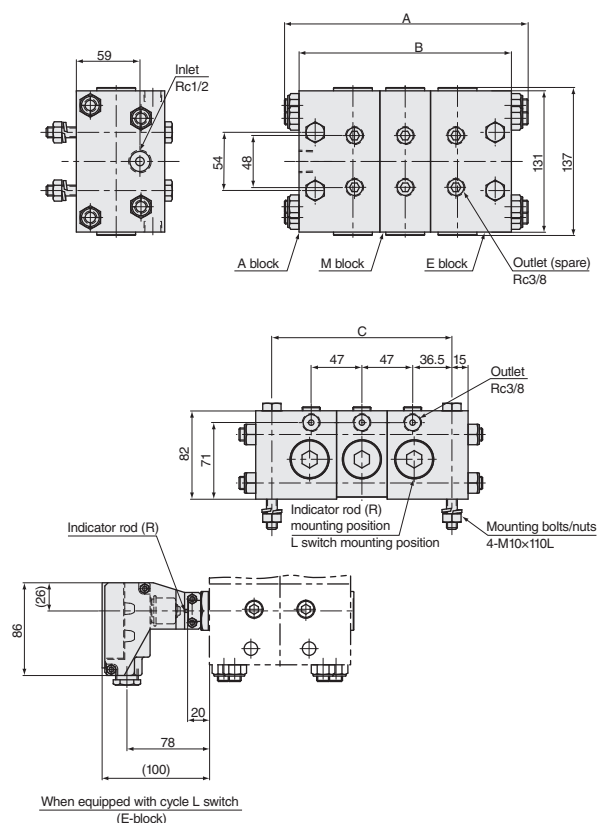
2: As explained here, a distributor in which each piston operates one after another is called a series-type sequential operation. In this type of distributor, if even one outlet becomes clogged, the internal pressure in that oil passage will rise, to quickly trigger an alarm. Also, since the lubrication is done reliably and metered, there is no risk of burnout of important bearings due to inadequate lubrication.



BL Model



BK Model



Model	Number of blocks			A	B	C	Inlet diameter	Outlet diameter	Maximum number of outlet ports	Mass (Approx.) kg
	A	M	E							
BL-3	1	1	1	153	129.4	109.4	Rc3/8	Rc1/4	6	5.6
BL-4	1	2	1	187	162.6	142.6			8	7.0
BL-5	1	3	1	220	195.8	175.8			10	8.3
BL-6	1	4	1	254	229	209			12	9.7
BL-7	1	5	1	287	262.2	242.2			14	11.0
BL-8	1	6	1	321	295.4	275.4			16	12.4

Model	Number of blocks			A	B	C	Inlet diameter	Outlet diameter	Maximum number of outlet ports	Mass (Approx.) kg
	A	M	E							
BK-3	1	1	1	226	197	167	Rc1/2	Rc3/8	6	15.3
BK-4	1	2	1	273	244	214			8	18.9
BK-5	1	3	1	320	291	261			10	22.5
BK-6	1	4	1	367	338	308			12	26.1
BK-7	1	5	1	414	385	355			14	29.7
BK-8	1	6	1	461	432	402			16	33.3

Note 1: The lubricant feed indicator rod can only be installed on an E block.
(Let us know what you need.)

2: BL models and BK models cannot be equipped with a cycle M switch.

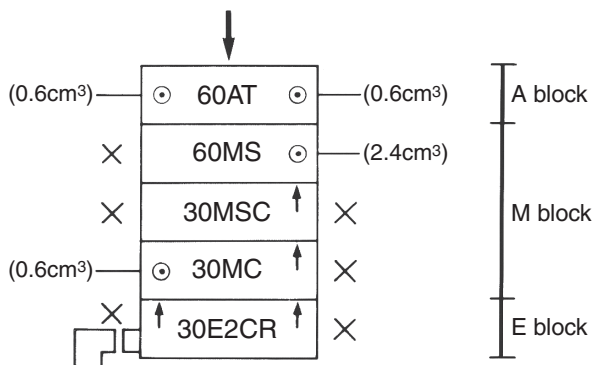
● How to Specify B-Type Distributor Units

When ordering, please indicate your requirements using a “unit diagram.” (Note: This is not a product code.)

A selection sheet is available upon request.
If you need one, please contact our sales office.

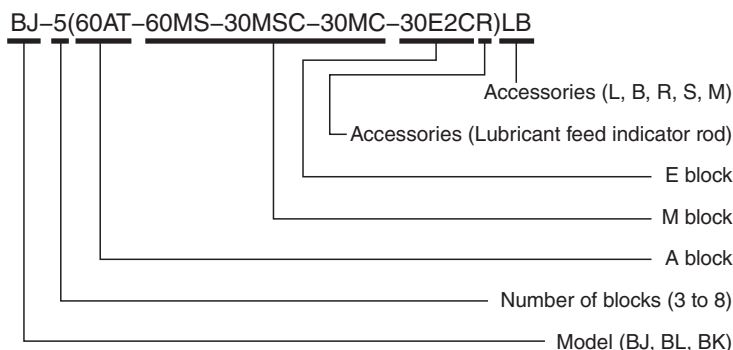
* In some cases, we can also process orders using the unit designation.

Please consult us for details.



Unit diagram (example entry)

① Unit designation (example)



- ② **Number of blocks:** 3 to 8 (M block is 1 to 6)
- ③ **Number of outlet ports:** 1 to 16
- ④ **Numbers in block:** Piston type + bypass state

Piston size

(BJ: 10, 15, 30, 45, 60
BL: 60, 120, 180, 240 BK: 500, 750, 1000)

Discharge volume = piston size $\times \frac{1}{100}$ cm³

⑤ Outlets bypassed

T: 2 outlets

S: 1 outlet (discharge volume = T $\times$ 2)

C: Bypass to inlet-side block (for 1 port)

2C: Bypass to inlet-side block (for 2 ports, this block has no outlet)

SC: Has 1 outlet, and bypass to inlet-side block.

(No outlet on this block)

⑥ Bypass direction

Schematic	Symbol	Standard bypass direction
	S	Outlet on right side.
	C	↑ direction is to the right side. Outlet is on the left side. Cannot be A block.
	2C	Bypass is on both sides. Cannot be A block.
	SC	Bypass direction is to the right side. Cannot be A block.

Note 1: Direction is viewed with the unit's inlet at the top.

2: Products are not engraved with arrows “↑”.

3: As a rule, the bypass directions (S, C, SC) are as shown at left, but the opposite direction can also be produced.

4: For the T type of BJ model, changing to other types is possible by removing the internal bypass plug.

5: Compared to what is shown in the catalog, the products will not be engraved with A, M, or E as in the <Examples> in the following table. However, the A block will be engraved with the model (BJ).

<Examples>

Catalog	60AT	60MS	30MSC	30MC	30E2CR
Engraved on product	BJ60	60S	30SC	30C	302C

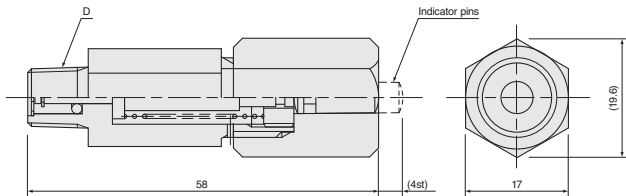
⑦ Accessories

Schematic	Symbol	Name	Standard installation positions
	B	Block signal	● When installing, always specify the set pressure. ● Install it on the spare outlet (upper) on the outlet side. ● If using several types of models in one unit, enter the models and numbers. (Example: For a block signal, if the pressure is 2.9 MPa, enter “$\overset{3}{\odot}$”)
	R	Auto relief	
	S	Reset signal	
	(R) Inside ()	Lubricant feed indicator rod	Right side of E block as seen from inlet side.
	L (M)	Cycle L switch (cycle M switch)	Installed with (R) attachment. Cycle M switch can only be installed on the BJ distributor.
		Plug	Enter only for bypass type
		Outlet	T for both sides, C for left side, S for right side

Reset signal

Just like the block signal, when a blockage occurs in the outlet line, the indicator pin pops out to indicate a blockage. The indicator pin remains popped out, even if the pressure is released, making visual inspection easy.

Reset Signal Dimensions (mm)



Specifications

Part Code	Model	Applicable distributors	Screw diameter (D)	Set pressure MPa
*RK889101	S1/8-3	BJ Model	R1/8	2.9
RK889102	S1/8-5			4.9
RK889103	S1/8-9			8.8
RK889104	S1/8-15			14.7
*RK889105	S1/8-20			19.6
*RK889111	S1/4-3	BL Model	R1/4	2.9
*RK889112	S1/4-5			4.9
RK889113	S1/4-9			8.8
RK889114	S1/4-15			14.7
*RK889115	S1/4-20			19.6

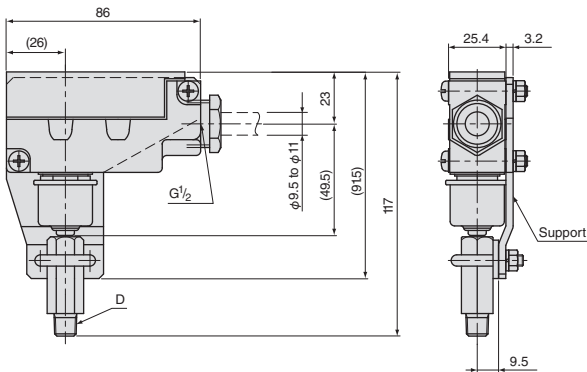
BK models use a 3/8x1/4 bushing.

* An asterisk indicates custom-ordered products.

Pressure switch

This device is used to give an alarm when there is an abnormal pressure increase, such as clogging, in the outlet line on devices using a Lubrication pump without a built-in pressure switch (except for the EP-11B and 11B-5 models). A T-joint is installed in the piping to mount it.

Pressure Switch Dimensions (mm)



Specifications

Part Code	Model	Applicable distributors	Screw diameter (D)	Set pressure MPa
*RK888706	PSB1/8-3	BJ Model	R1/8	2.9
*RK888707	PSB1/8-5			4.9
RK888708	PSB1/8-9			8.8
*RK888709	PSB1/8-15			14.7
*RK888710	PSB1/8-20			19.6
*RK888716	PSB1/4-3	BL Model	R1/4	2.9
*RK888717	PSB1/4-5			4.9
RK888718	PSB1/4-9			8.8
RK888719	PSB1/4-15			14.7
*RK888720	PSB1/4-20			19.6

* An asterisk indicates custom-ordered products.

Electric Control Panel

The electric control panel used for the automatic lubrication system is equipped with a timer (counter), relays, switches, and lamps to control the operation of the Lubrication pump. It also features an alarm function for malfunctions.

Note: The electric control panel is a non-stock item.

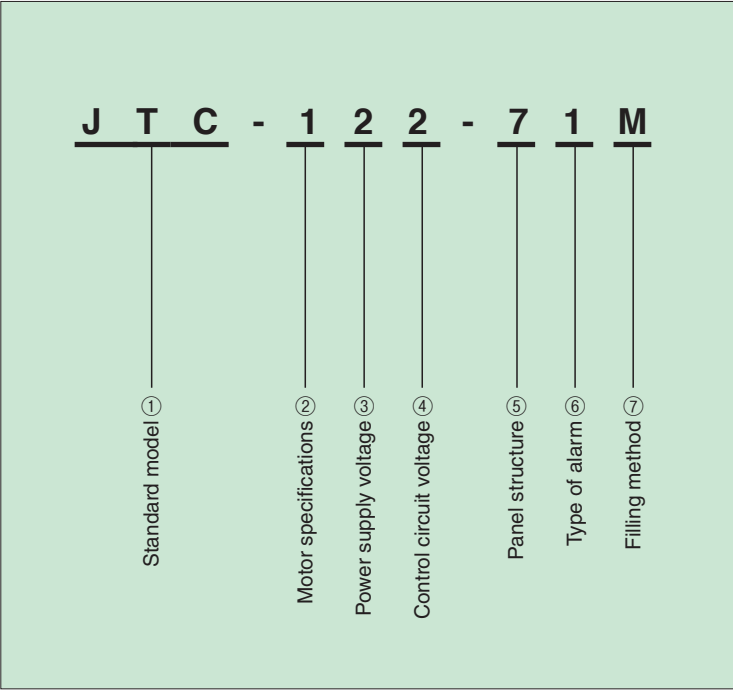
Control panel

Part Code	Model	Abbreviation	Operation control		Alarm function				Remark
			Start	Stop	Extension of time	Tank low-level	Abnormal high pressure	Motor overload	
RK841100	JTC-122-71M	CC2	Automated by timer	Automated by counter	○	○	○	○	For single line (EP-11B)
RK841200	JTC-142-71M	CC4	Automated by timer	Automated by counter	○	○	○	○	
RK841500	JTT-122-71M	CT2	Automated by timer	Automated by timer		○	○	○	
RK841600	JTT-142-71M	CT4	Automated by timer	Automated by timer		○	○	○	
RK840100	FTS-122-71M	CT2	Automated by timer	Automated by selector switch	○	○	○	○	Dual Line (EP-11L)
RK840200	FTS-142-71M	CT4	Automated by timer	Automated by selector switch	○	○	○	○	

Note 1: In the event of an accident, the alarm lamp lights and the Lubrication pump automatically stops.

2: The standard paint color is Munsell 2.5G6/3.

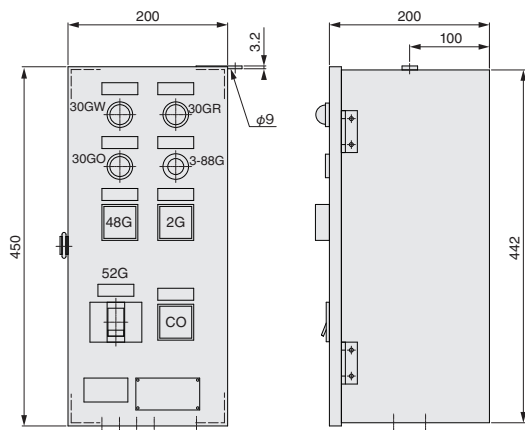
Explanation of codes



- ① Standard model JTC : Single Line (timer start - counter stop)
JTT : Single Line (timer start - timer stop)
FTS : Dual Line (timer start - automatic stop)
- ② Motor specifications 1 : 0.1 kW
- ③ Power supply voltage 2 : AC 200/220 V
4 : AC 400/440 V (50/60 Hz)
- ④ Control circuit voltage 2 : AC 200/220 V
- ⑤ Panel structure 7 : Mounted on base of pump
- ⑥ Type of alarm 1 : General alarm
- ⑦ Filling method M : Manual type (no filling function)

* Orders cannot be placed using the model codes.
Use the product name codes.

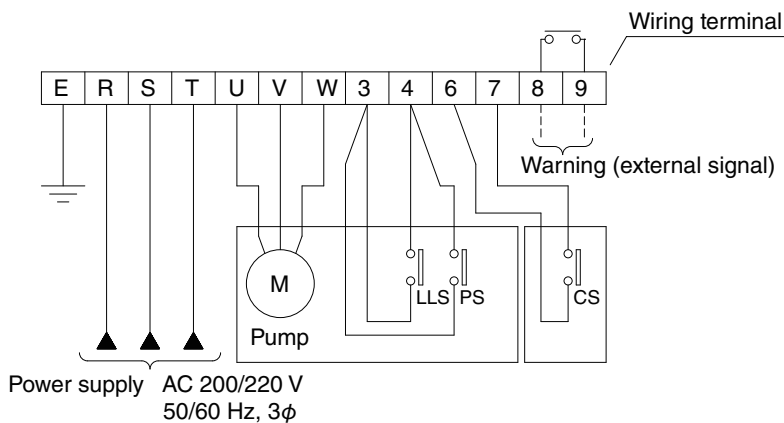
Control panel (JTC-122-71M model) Dimensions (mm)



Nameplate

Symbol	Label text
52G	Power supply
48G	Protection timer
2G	Start timer
30GW	Power supply
30GR	Operation
30GO	Malfunction
3-88G	Manual start
CO	Cycle counter

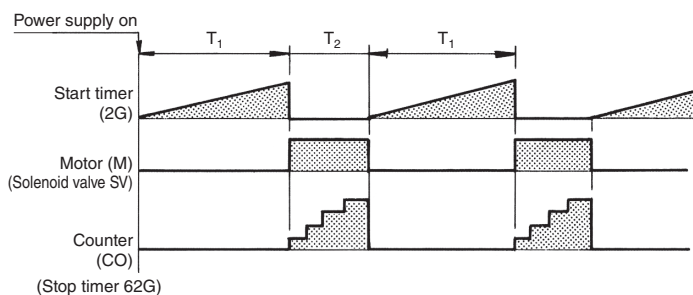
External Wiring Diagram (JTC-122-71M Model) Dimensions (mm)



Equipment not on panel

Symbol	Name
M	Motor 0.1 kW
LLS	Low-level switch
PS	Pressure switch
CS	Cycle L switch (included with distributor)
SV	Solenoid valve

Operation Description



- Note 1: The external dimensions of the JTT-122-71M model are the same as in the dimension drawings above, but (48G) is replaced by a stop timer (62G), and there is no counter (CO).
- 2: The external dimensions of the FTS-122-71M model are the same as in the dimension drawing above, but there is no counter (CO).
- 3: The external wiring for the JTT-122-71M model lacks the CS wiring shown in the above wiring diagram.
- 4: The external wiring for the FTS-122-71M model lacks the PS and CS wiring shown in the above wiring diagram; instead, a hydraulic selector valve (LS) is added.
- 5: The above descriptions are for reference only (example).
- 6: For the 2G and 62G (48G) timers: Our standard maximum is 500 hours. (varies depending on the timer manufacturer).
- 7: For the CO (counter): Our standard maximum is 999,999.

JTC model (counter stop system)

- ① When the power is turned on, the start timer activates.
- ② When the start timer reaches the set time (T_1), the electric Lubrication pump motor (M) starts, and lubrication begins.
- ③ The cycle L switch attached to the distributor detects the number of operations, which is counted by the counter (CO).
- ④ When the counter reaches the preset number of cycles, the motor stops and lubrication is complete.
- ⑤ The start timer is then activated again, repeating steps (2) to (4).

JTT model (timer stop system)

- ① When the power is turned on, the start timer activates.
- ② When the start timer reaches the set time (T_1), the electric Lubrication pump motor (M) starts, and lubrication begins.
- ③ When the stop timer (62G) reaches its set time, the motor stops and lubrication is complete.
- ④ The start timer is then activated again, repeating steps (2) to (3).

FTS model (switch stop system)

- ① When the power is turned on, the start timer activates.
- ② When the start timer reaches the set time (T_1), the electric Lubrication pump motor (M) starts, and lubrication begins.
- ③ When the hydraulic selector valve switch (LS) completes a half-cycle operation, the motor stops and lubrication is complete.
- ④ The start timer is then activated again, repeating steps (2) to (3).

Grease Filling Pump

The grease filling pump is a manual Lubrication pump designed for replenishing and refilling Lubrication pump tanks with grease or oil.

Simply place a commercially available pail or square can inside the lubricant tank, then by moving the handle up and down, grease is dispensed efficiently.

When delivered, the flexible hose is stored inside the lubricant tank, so be sure to remove the hose and connect it to the discharge port before use.

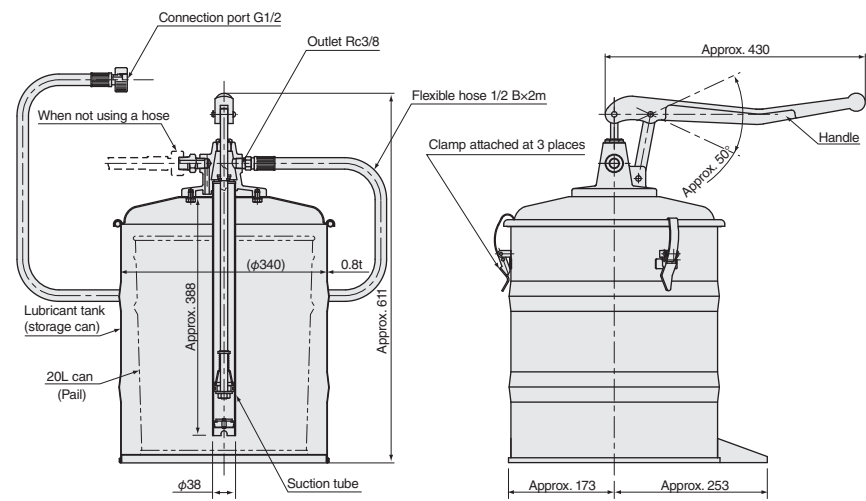
Because grease is not exposed to air during filling, contamination from dust and other particles is effectively prevented.

Specifications

Part Code	Product name	Model	Discharge rate cm ³ /stroke	Discharge pressure MPa	Hose length m	Mass (Approx.) kg	Applicable container
RK700100	Grease Filling Pump	SGP-104	40	1.0	2	12	Pail (18 L, 20 L) Square can (18 L)

Note 1: Compatible with grease of NLGI consistency No. 00 to No. 1. May also be used with oil.

Grease Filling Pump Dimensions (mm)



About Piping Materials (Reference)

Select piping for lubrication systems that can sufficiently withstand the anticipated pressure within the lubrication circuit and has an inner diameter that accounts for lubricant flow resistance. Also, use pressure-resistant fittings.

* Our company does not sell piping materials.

Product name	Symbol	Standards number	Applications			Pipe fittings
			Main line	Branch line	Supply line	
Carbon steel pipe for high pressure piping	STPG370	JISG3454	○	○		Bite-type or welded fittings
Precision carbon steel pipe for hydraulic piping	OST2	JOHS102	○	○	○	Bite-type fittings
Seamless copper pipe	C1220T	JISH3300			○	Copper pipe fittings
H polyethylene tubing	($\phi 6 \times \phi 4$)	Pressure resistance: 2.9 Mpa or higher			○	SF or LF fitting

Note 1: For oil use (9.8 MPa or less), copper pipes can also be used for main and branch lines.

2: The applications and pipe fittings shown in the above table are general guidelines. Select products that can fully withstand the pressure of your equipment.

Steel pipe (STPG370)

Nominal size		Nominal thickness	Outer diameter mm	Inner diameter mm	Volume cm ³ /m	Mass kg/m
A	B					
8	1/4	Sch40	13.8	9.4	69.4	0.629
10	3/8		17.3	12.7	126.7	0.851
15	1/2		21.7	16.1	203.6	1.31
8	1/4	Sch80	13.8	7.8	47.8	0.799
10	3/8		17.3	10.9	93.3	1.11
15	1/2		21.7	14.3	160.6	1.64
20	3/4		27.2	19.4	295.6	2.24
25	1		34.0	25.0	490.9	3.27
32	1 1/4		42.7	32.9	850.1	4.57
40	1 1/2		48.6	38.4	1158.1	5.47

Steel pipe (OST2)

Outer diameter mm	Wall thickness mm	Inner diameter mm	Volume cm ³ /m	Mass kg/m
6	1.0	4	12.6	0.123
8	1.0	6	28.3	0.173
10	1.5	7	38.5	0.32
12	1.5	9	63.6	0.39
15	1.5	12	113.1	0.50

Copper pipe (C1200T)

Outer diameter mm	Wall thickness mm	Inner diameter mm	Volume cm ³ /m	Mass kg/m
6	0.8	4.4	15.2	0.135
8	1.0	6	28.3	0.195
10	1.2	7.6	45.4	0.294
14	2.0	10.0	78.5	0.670

Note 1: In addition to the above, JIS G3455 carbon steel pipe for high pressure piping (STS370) can also be used.

2: For Sch40 pipes (8 to 15A) in equipment rated at 20.6 MPa, welded fittings should generally be used. If using threaded fittings, Sch80 pipes should be used.

3: For pipe sizes 20A (Sch80) and above, welded fittings should generally be used.

4: For 32A and 40A (Sch80), limit the piping pressure of the equipment to 19.6 MPa or less, respectively. For 20.6 MPa, use Sch160 pipes.

5: Use seamless steel pipe.

About Grease (Reference)

When selecting grease for use in lubrication equipment, it is necessary to consider not only the conditions required by the lubrication points of the machinery to be lubricated, but also the properties required by the lubrication equipment.

*** Our company does not sell grease.**

Properties required for a dual line/single line lubrication system are as follows.

① High Stability

In large-scale lubrication systems, several months may pass from the time the grease is put in the tank until it is consumed at lubrication points such as bearings.

Furthermore, the grease in the piping is pressurized each time lubrication occurs.

Therefore, stability with respect to environmental resistance, such as heat, and mechanical properties is essential.

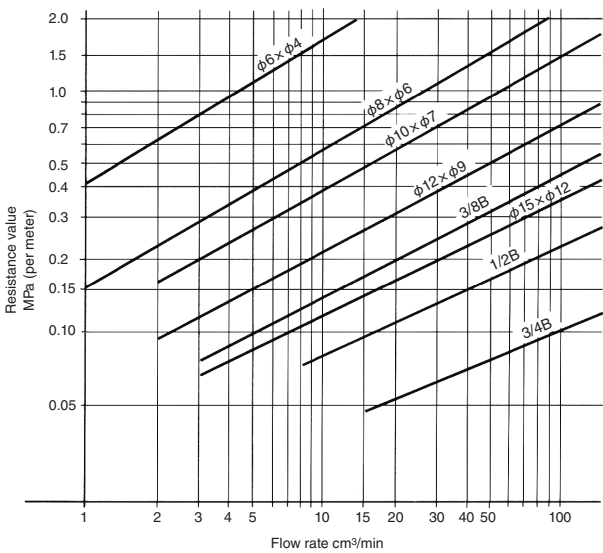
② Excellent Suction and Delivery Characteristics

In lubrication systems, the grease in the grease tank must be reliably drawn into the suction port of the lubrication pump. Additionally, the grease must flow smoothly from the lubrication pump to the lubrication points, with minimal pressure loss.

Generally, grease conforming to NLGI standards No. 00 to No. 1 (consistency 310 or higher) is suitable.

(For oil, a viscosity of 40 to 5,000 mm²/s is appropriate.)

Piping Flow Resistance Table



Conditions: ① Grease No. 1 (Company K's M Grease)
② Temperature: 0°C
③ Nominal thickness for inch steel pipe is Sch80

[illegible]

Limited Warranty

KOGANEI CORP. warrants its products to be free from defects in material and workmanship subject to the following provisions.

Warranty Period The warranty period is 180 days from the date of delivery.

Koganei Responsibility If a defect in material or workmanship is found during the warranty period, KOGANEI CORP. will replace any part proved defective under normal use free of charge and will provide the service necessary to replace such a part.

Limitations ● This warranty is in lieu of all other warranties, expressed or implied, and is limited to the original cost of the product and shall not include any transportation fee, the cost of installation or any liability for direct, indirect or consequential damage or delay resulting from the defects.

● KOGANEI CORP. shall in no way be liable or responsible for injuries or damage to persons or property arising out of the use or operation of the manufacturer's product.

● This warranty shall be void if the engineered safety devices are removed, made inoperative or not periodically checked for proper functioning.

● Any operation beyond the rated capacity, any improper use or application, or any improper installation of the product, or any substitution upon it with parts not furnished or approved by KOGANEI CORP., shall void this warranty.

● This warranty covers only such items supplied by KOGANEI CORP. The products of other manufacturers are covered only by such warranties made by those original manufacturers, even though such items may have been included as the components.

The specifications are subject to change without notice.

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