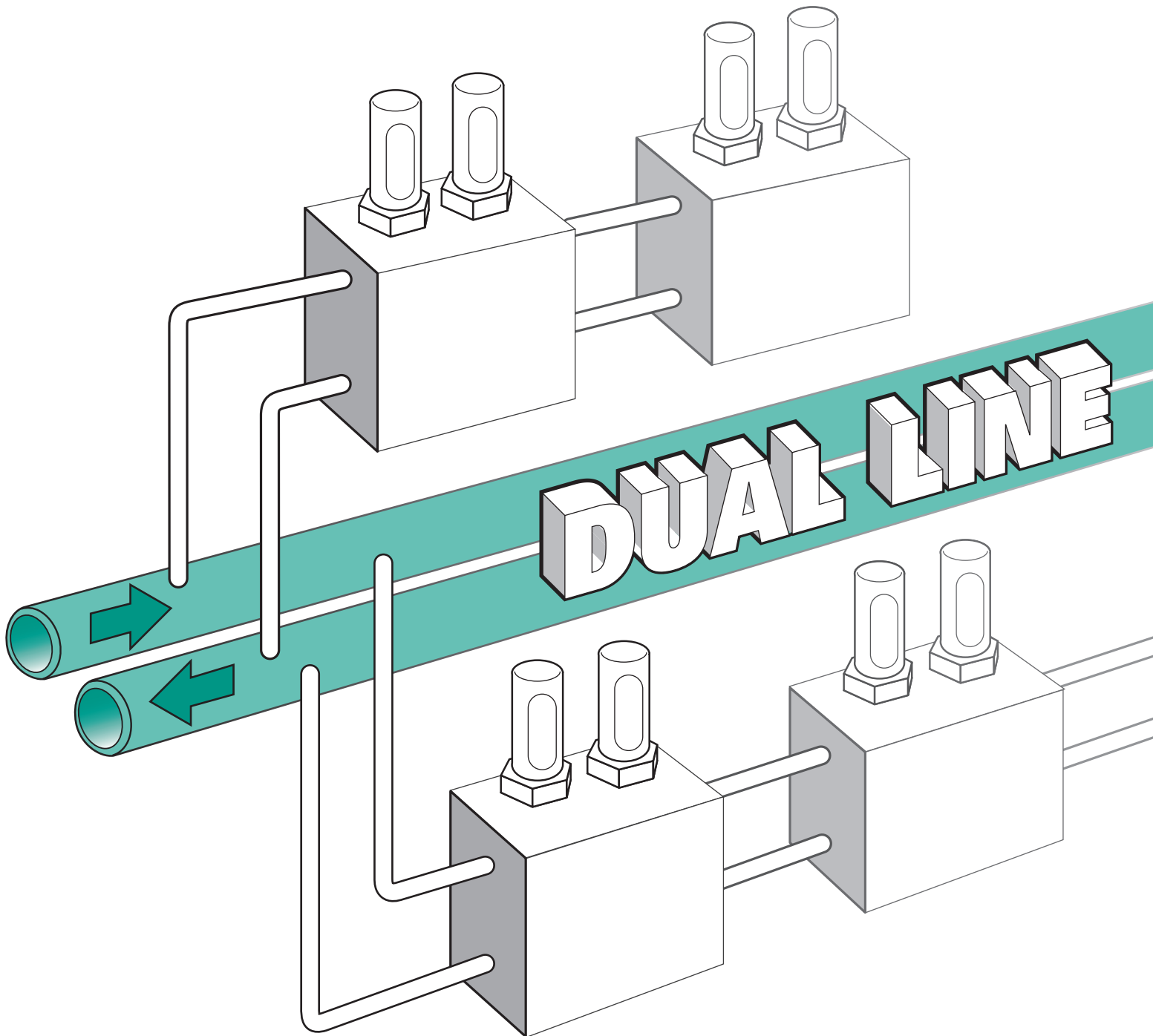


CENTRALIZED LUBRICATING SYSTEM**FB.UE.UEC.U****Dual Line****FB** (Manually Operated Grease Pump)**UE. UEC. U** (Motor Driven Grease Pump)

Dual Line Centralized Lubricating System

DUAL LINE SYSTEM

In recent years, large-scale manufacturing equipment and facilities such as steel machinery has steadily been growing in complexity and size. These facilities have an enormous number of lubrication points, and the conditions required for lubrication are becoming more severe under operating conditions such as high speeds, high loads, and extended operation. The dual line system is widely adopted as the most efficient and reliable centralized lubricating system capable of automatically supplying an appropriate amount of lubrication even in such a harsh environment.



●What is a "Dual Line Centralized Lubricating System?"

This lubrication system consists of one pump, multiple distributing valves and two pipes, and is suitable for facilities and machinery of up to 50 to 2000 locations. The lubricating amount for each bearing can be arbitrarily adjusted, and an extremely accurate lubricating amount can be realized.

Max. number of lubricating ports
2000 lubrication points
 Allowable piping length
150m

■Arbitrary selection of lubrication amount

Equipped with an adjustment mechanism that allows the amount of lubrication to be determined arbitrarily.

■Reliable quantitative distribution

The selected lubrication amount does not change regardless of environmental factors such as type of bearing, resistance and temperature.

■System operation assurance

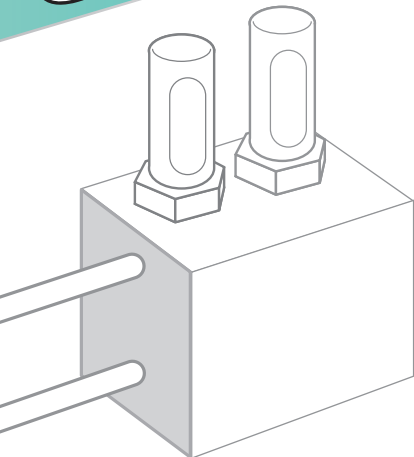
The structure guarantees the operation of the distributing valve by the pumping pressure of the lubricant.

■Simple piping, wider supply

Piping is simple, allowing lubricant to be supplied to a wider range of locations.

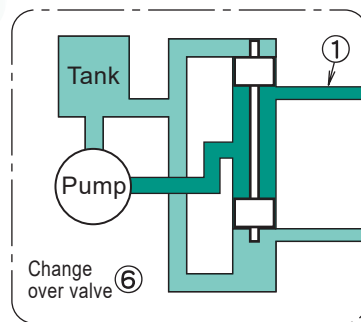
●Operating principle of Dual Line Centralized Lubricating System

SYSTEM



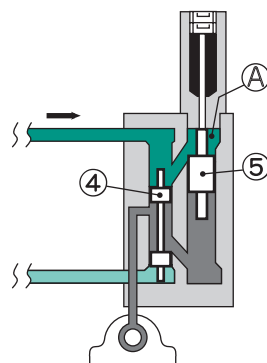
Pump

Distributing Valve



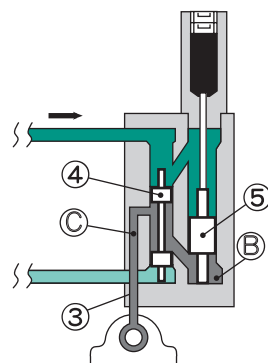
Step 1

Grease transported from the pump passes through the discharge supply line ① to reach the pilot piston ④ and pushes down the pilot piston ④. At this time, the grease on the opposite (lower) side passes through the discharge supply line ② to be released to the tank.



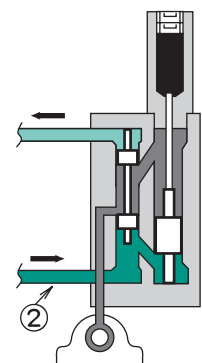
Step 2

As the pilot piston ④ is increasingly pushed down, the valve internal passage is opened to the upper chamber (A) of the main piston (5). As a result, pumped grease reaches the upper chamber and then pushes down the main piston (5).



Step 3

As the main piston ⑤ is increasingly pushed down, grease in its lower chamber (B) passes through the small-diameter section (C) of the pilot piston ④ to be supplied to the lubrication point from the discharging port ③. At this time, grease of the stroke amount of the main piston ⑤ is measured then supplied.



Step 4

Next, the change over valve (6) is switched to feed grease fed under pressure from the pump to the distributing valve from discharge supply line (2). From here, this series of operations from Step 1 is repeated, except that the upper and lower operations are reversed.

FB type Manually Operated Grease Pump

High pressure manually operated pump of 21MPa with light handle operation

FB-※※A

Overview

This compact pump is easy to handle, and is best suited to lubricating systems that have short pipes at relatively low lubrication frequency points and that have few lubricating ports.

Operation of the distributing valve is checked by indicator. Further, amount of grease can be adjusted as desired by the adjusting screw.

Features

●Simplified pipeline

These high-pressure pumps allow the pipe diameter to be made thinner and make lubrication possible in a wider area, which helps to save piping costs.

●Improved reliability of lubricating

Assurance of lubricating pressure is further enhanced by high pressure, which improves lubrication reliability.

●Easy Handling and Operation

Compact, easy to handle, light handle operation make it easy for operator to use.

●Tough and Simple Structure

A simple structure and an almost fault-free mechanism reduce the time and effort needed in maintenance.

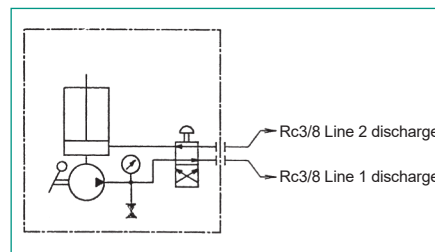


FB-4A

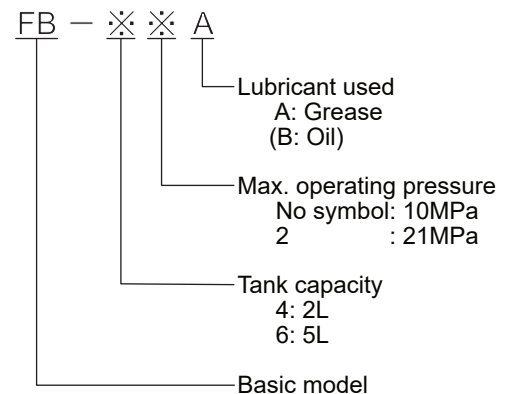


FB-62A

Circuit Diagram



Explanation of Model Symbols



Specifications

Model symbol	Discharge quantity (cm ³ /stroke max.)	Max. operating pressure (MPa)	Tank capacity (L)	Grease used	Weight (kg)
FB-4A	7	10	2	Centralized lubricating grease NLGI consistency number #0 to #2	18
FB-6A			5		21
FB-42A	3.5	21	2		18
FB-62A			5		21

Remarks: ☆Be sure to use this pump indoors. ☆Consult with us for a unit for oil.

☆When #2 grease is used, the grease used shall be unworked with the consistency of 240 or more at the operating temperature.

Handling

< Piping >

Perform End-type piping.

< Charging of grease >

Replenish the tank with grease by using a grease filling pump via the replenishing port. Pay attention to the position of the follower plate rod while replenishing, and stop charging when the upper limit red mark comes into sight.

< Operation of the change over valve >

Check the number of times the operation handle is operated and the lubricating completion pressure in normal condition, and make sure that the pressure gauge has risen abruptly above such pressure before operating the change over valve.

< When the pump pressure does not come up >

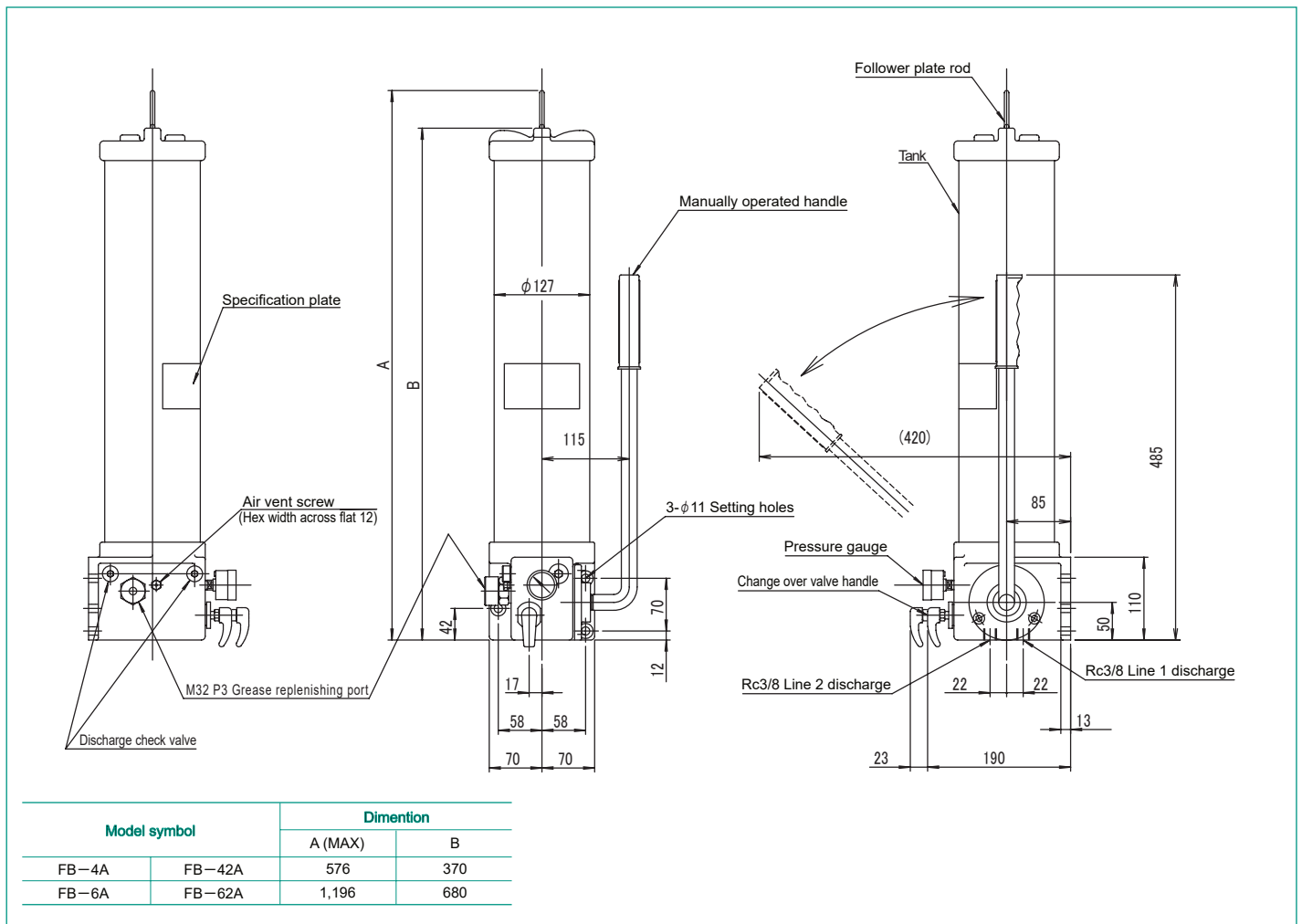
- Loosen the air vent screw and release the air.
- Remove the discharge check valve and clean it.
- Confirm if the piping has no leakage.

< When the pump pressure increases rapidly >

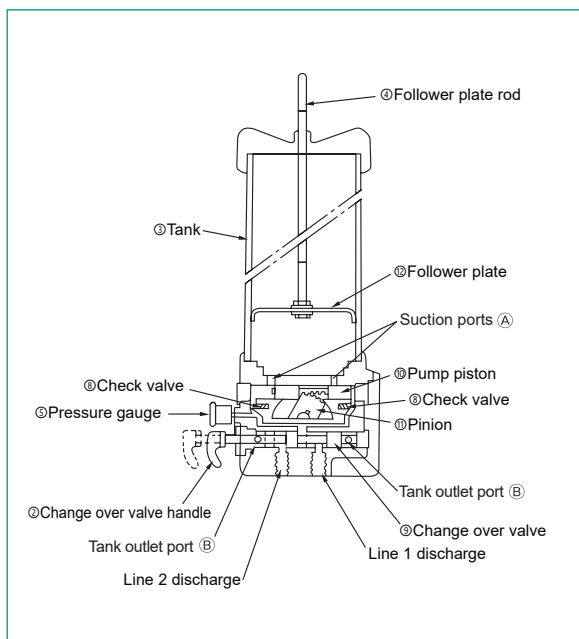
In case the pressure suddenly increases when the handle is operated in less times than normal condition

- Confirm if the distributing valve does certainly work.
- Confirm if the piping is choked.

Dimension drawings



Explanation of Operation



In the above and left drawings

● A pinion is built into the handle, and the pump piston moves left and right according to the movement of the handle.

● One of the two suction ports is opened and the other is blocked by the movement of the pump piston.

● In the left figure, the left side of the suction port is open, and the lubricant in the tank is sucked into this port.

● Next, when the pump piston moves to the left side opposite to the figure, the left side of the suction port is blocked. The sucked lubricant gradually increases in pressure, pushes open the left check valve, and flows into the passage leading to the change over valve. Then, it is sent out to the line 1 outlet connected to the supply pipe, and lubrication is performed. At the same time, it is also connected to the pressure gauge.

● In the figure on the left, the line 2 discharge passage is open to the tank through the tank outlet port. When lubricating from line 2 after lubrication from line 1 is completed, it can be switched by pulling the change over valve handle to the position indicated by the dotted line.

UE type Motor Driven Grease Pump

Compact series in pursuit of economy

UE※-04

Overview

This motor driven grease pump is used in dual line systems. This automatic lubricating system has been designed to be simple and streamlined, and uses a single-piston pump mechanism which is driven by a geared motor.

Features

Compact size

Compactification is achieved by adoption of a geared motor and integration of electromechanics achieves.

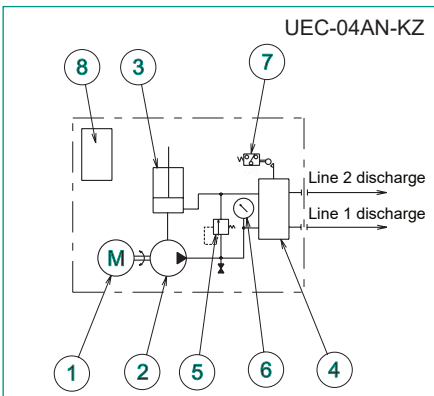
Simple pump mechanism

The non-spring check valve and single-piston pump mechanism enables a simple structure with few failure factors.

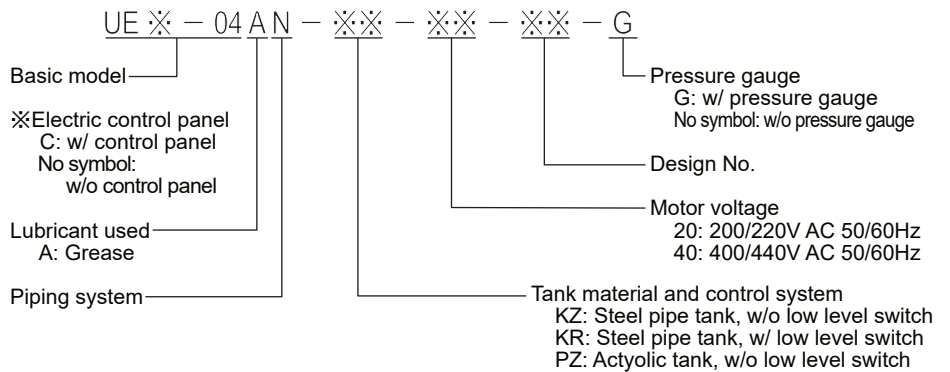
Low-cost automatic lubrication

The pump and control panel are integrated, which enables easy automatic lubrication. In addition, more substantial automatic lubrication can be performed by setting it with a separate standard electric control panel.

Unit circuit diagram



Explanation of Model Symbols



Note) When motor voltage is AC400/440V (equipped with transformer), electric control panel is separate.

Specifications

Model symbol	Discharge quantity (cm ³ /min)		Max. operating pressure (MPa)	Geared motor	Direction of rotation	Tank capacity (L)	Piping system	Weight (kg)
	50Hz	60Hz						
UE(※)-04AN-KZ-G	21	25	14	Speed reduction ratio 1/50 40W 4P 3-phase fully enclosed class E	Possible to make both left and right rotation	4	Lance type	22.5 (25)
UE(※)-04AN-KR-G								21.5 (24)
UE(※)-04AN-PZ-G						3		21.5 (24)

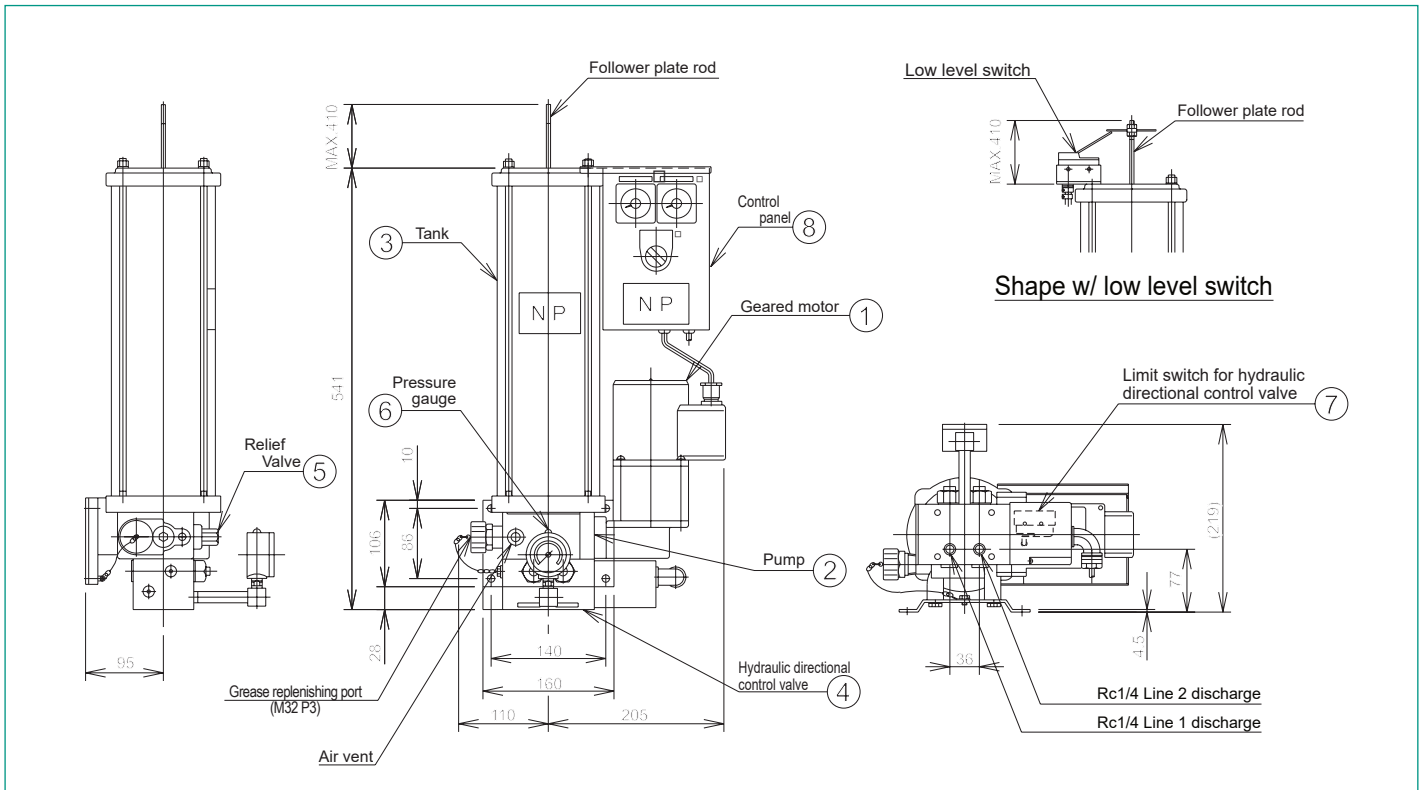
• Values in () are for models with a control panel.

Remarks

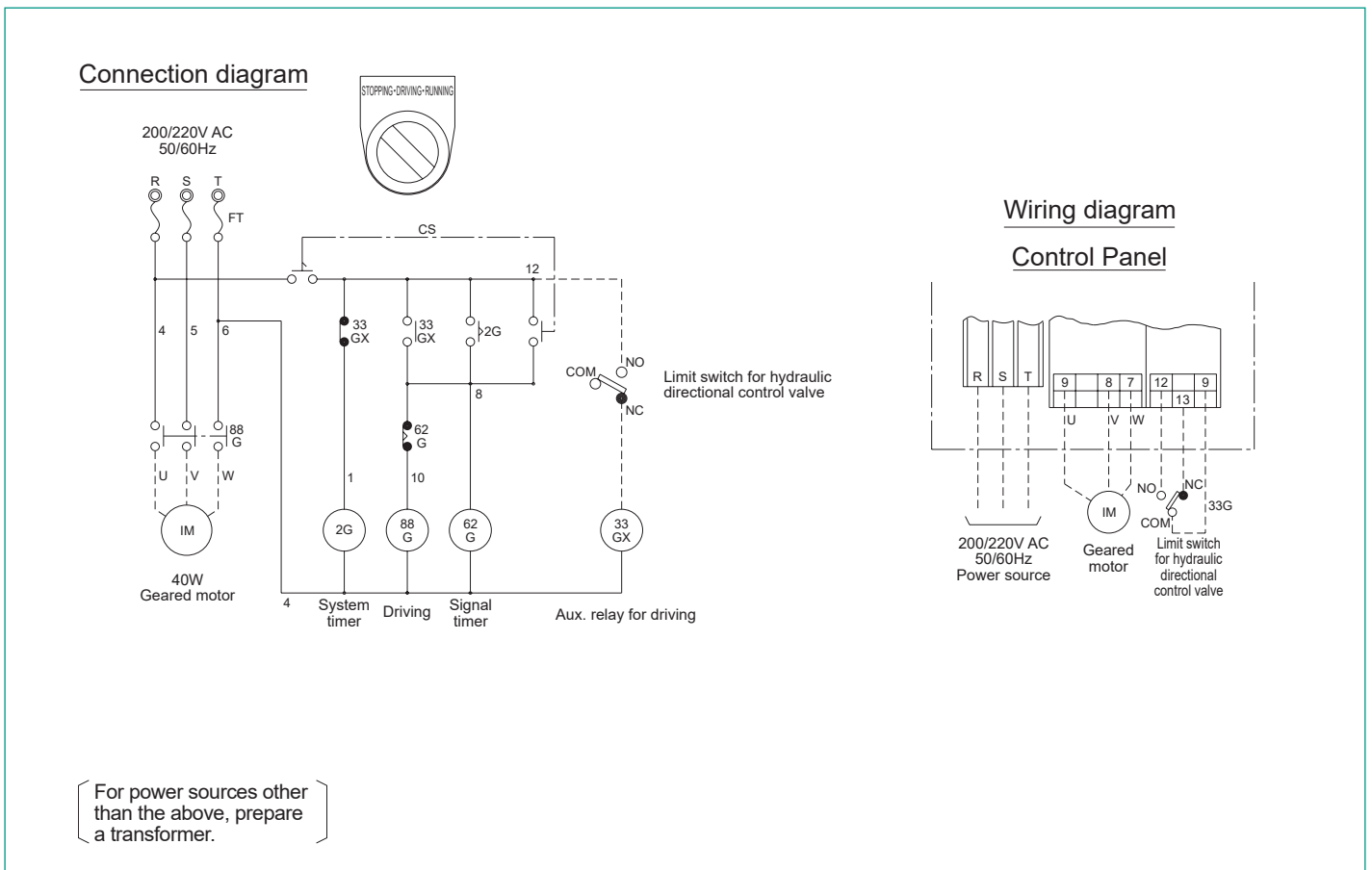
- The set pressures of the hydraulic directional control valve and the relief valve are adjusted as follows. The control system is 1/2 cycle lubrication.
- The set pressure of the hydraulic directional control valve is 10MPa.
- The set pressure of the relief valve is 16MPa.
- This pump is for indoor use. When using it outdoors or in places with poor environmental conditions, provide protection such as installation inside a cubicle.
- Select NLGI consistency #0 to #2 for centralized lubrication for the grease used. (Note, however, the grease used shall be unworked with the consistency of 240 or more at the operating temperature.)
- Foundation bolts are not included.

Dimension drawings

UEC - 04AN - KZ - 20 - ※※ - G



Electrical control panell connection/wiring diagrams (EQ-3)



UE type Motor Driven Grease Pump

Compact series in pursuit of economy

UE-108, UE-225

Overview

This motor driven grease pump is used in dual line systems. This automatic lubricating system has been designed to be simple and streamlined, and uses a single-piston pump mechanism which is driven by a geared motor.

Features

●Reduced motor capacity by improving efficiency

The electric motor output has been reduced to 1/2 of our conventional type (in-house comparison) by improving the efficiency of the geared motor drive.

●Simple pump mechanism

The non-spring check valve and single-piston pump mechanism enables a simple structure with few failure factors.

●Meet a wide range of applications

The most suitable pump which meets your special requirements can be selected with two different discharge quantity and two types of piping systems and applications.

●Low-cost automatic lubrication

The pump and control panel are integrated, which enables easy automatic lubrication. In addition, more substantial automatic lubrication can be performed by setting it with a separate standard electric control panel.

Remarks

- The set pressures of the hydraulic directional control valve and the relief valve are adjusted as follows;

Type	Set pressure(Mpa)	
	Hydraulic directional valve	Relief valve
UE-108, 225AN	17	23
UE-108, 225AL	5	

The control system is 1/2 cycle lubrication.

- This pump is for indoor use. When using it outdoors or in places with poor environmental conditions, provide protection such as installation inside a cubicle.
- The motor installed in the standard model is
 - Fully enclosed Class B UE-108
 - Fully enclosed fan cooled Class B ... UE-225
 - Indoor type

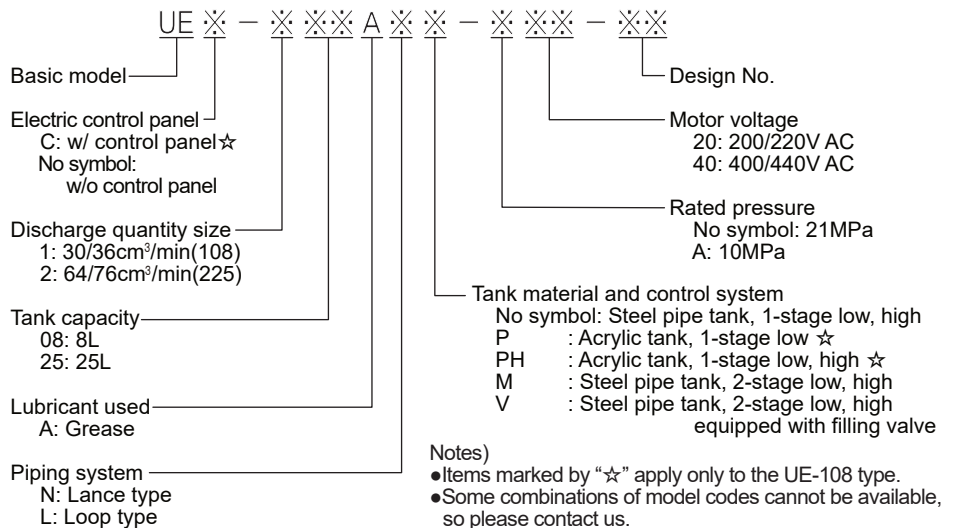


UEC-108ANP (w/ Control panel)



UE-225AN

Explanation of Model Symbols



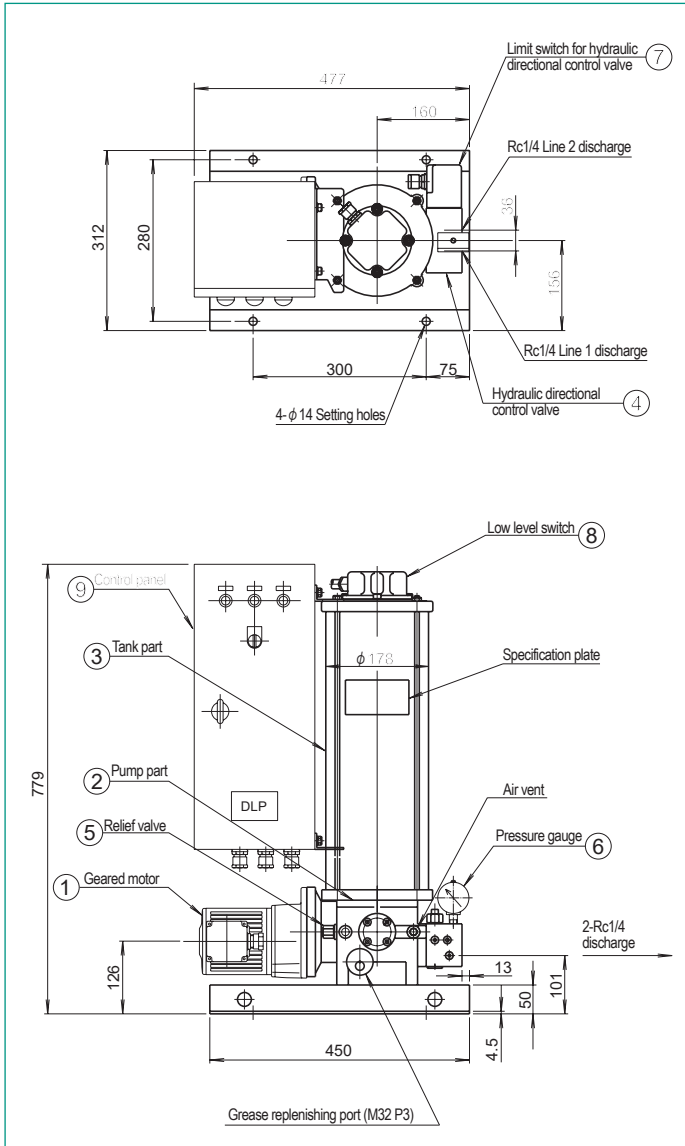
Specifications

Model symbol	Discharge quantity (cm ³ /min)		Max. operating pressure (MPa)	Geared motor			Tank capacity (L)	Piping system	Weight (kg)	
	50Hz	60Hz		Rotation speed (min ⁻¹)		Capacity				Direction of rotation
	50Hz	60Hz		50Hz	60Hz					
UE-108AN	30	36	21	37	45	0.1kW 4P	8	Lance type	52	
UE-108AL										78
UE-225AN	64	76		25	Lance type	102				
UE-225AL								Loop type		

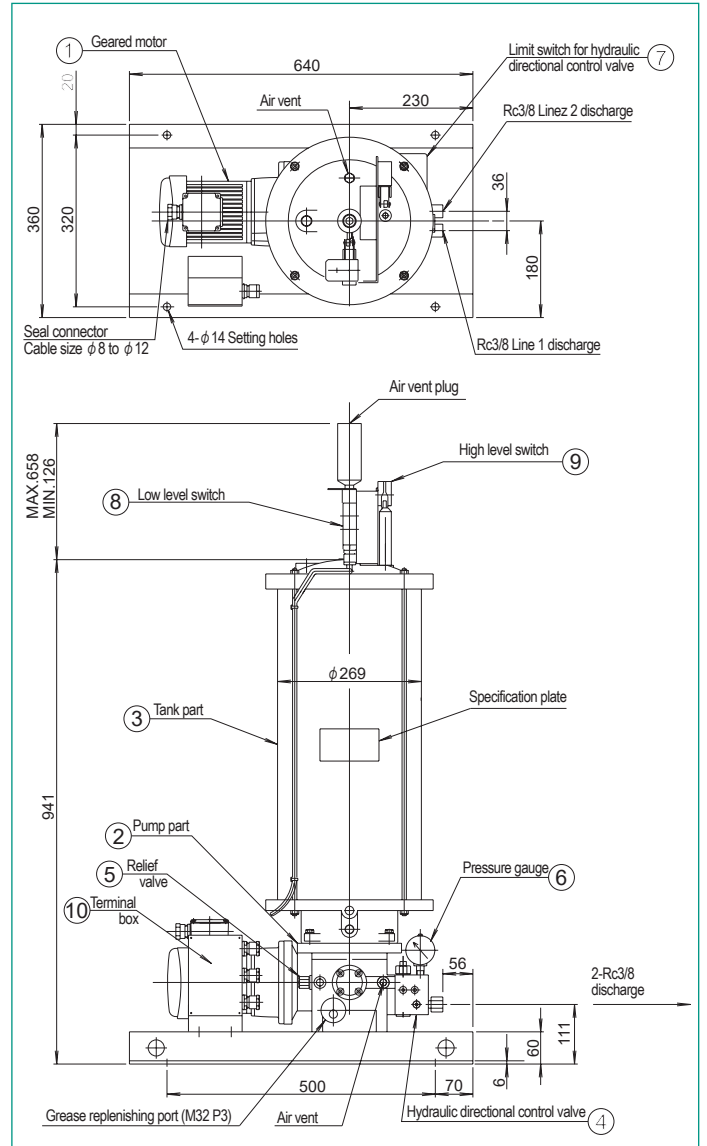
- Select NLGI consistency #0 to #2 for centralized lubrication for the grease used. (Note, however, the grease used shall be unworked with the consistency of 240 or more at the operating temperature.)
- Consult with us for a unit for oil.
- Foundation bolts are not included.

■ Dimension drawings

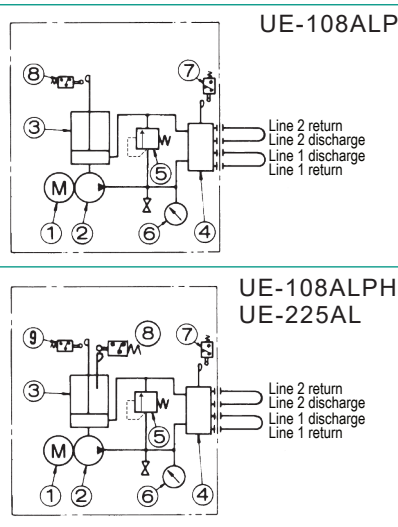
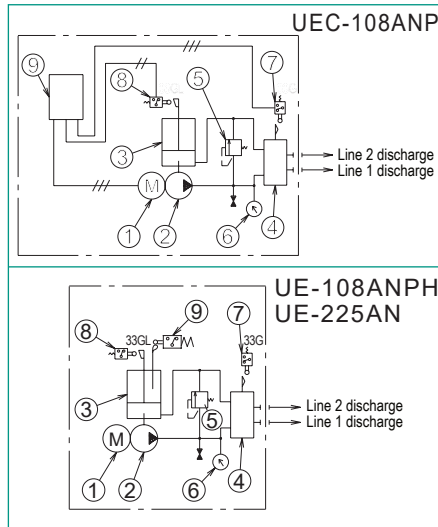
UEC-108ANP



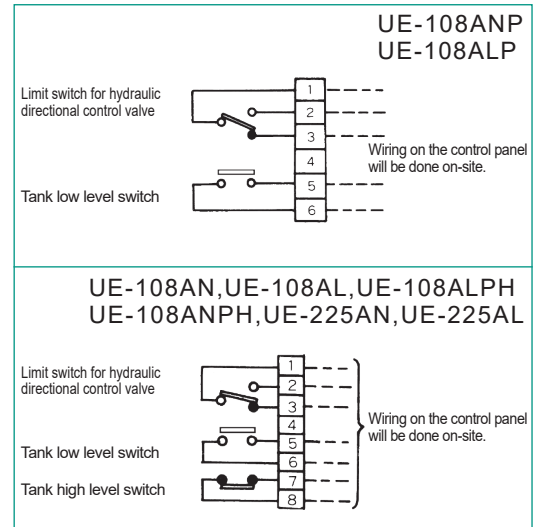
UE-225AN



■ Unit circuit diagram



■ Terminal connection



U type Motor Driven Grease Pump

Automatic lubrication over a wider area by application of high pressure



Overview

This motor driven grease pump is used in dual line systems. It supports larger mechanical equipments and faster speeds to aid the streamlining of facilities.

Features

●Simplified pipeline

The pipe diameter can be made thinner due to the application of higher pump pressure, which helps to save piping costs.

●Compact size

The pump has a built-in reduction gear and is directly coupled to an electric motor. As a result, the installation area is small and compact.

●Improved lubrication reliability

Lubrication pressure can be further assured by higher pressure, which ensures that grease is fed reliably to the end of the supply line.

●Lubrication over a wide area

Supply lines can be extended proportionately to the lubrication pressure, which makes it possible to lubricate wider (longer) area.

●Low-cost automatic lubrication

Automatic operated lubrication can be easily performed at low cost by setting with the electric control panel (exclusive standard product).

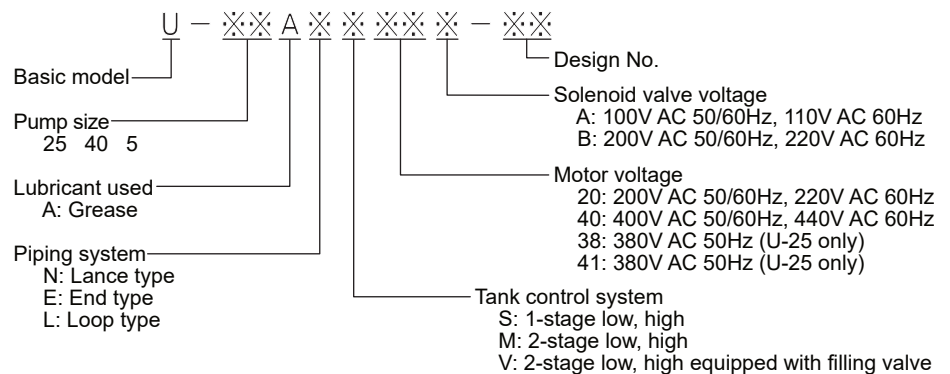


U-25A



U-40A

Explanation of Model Symbols



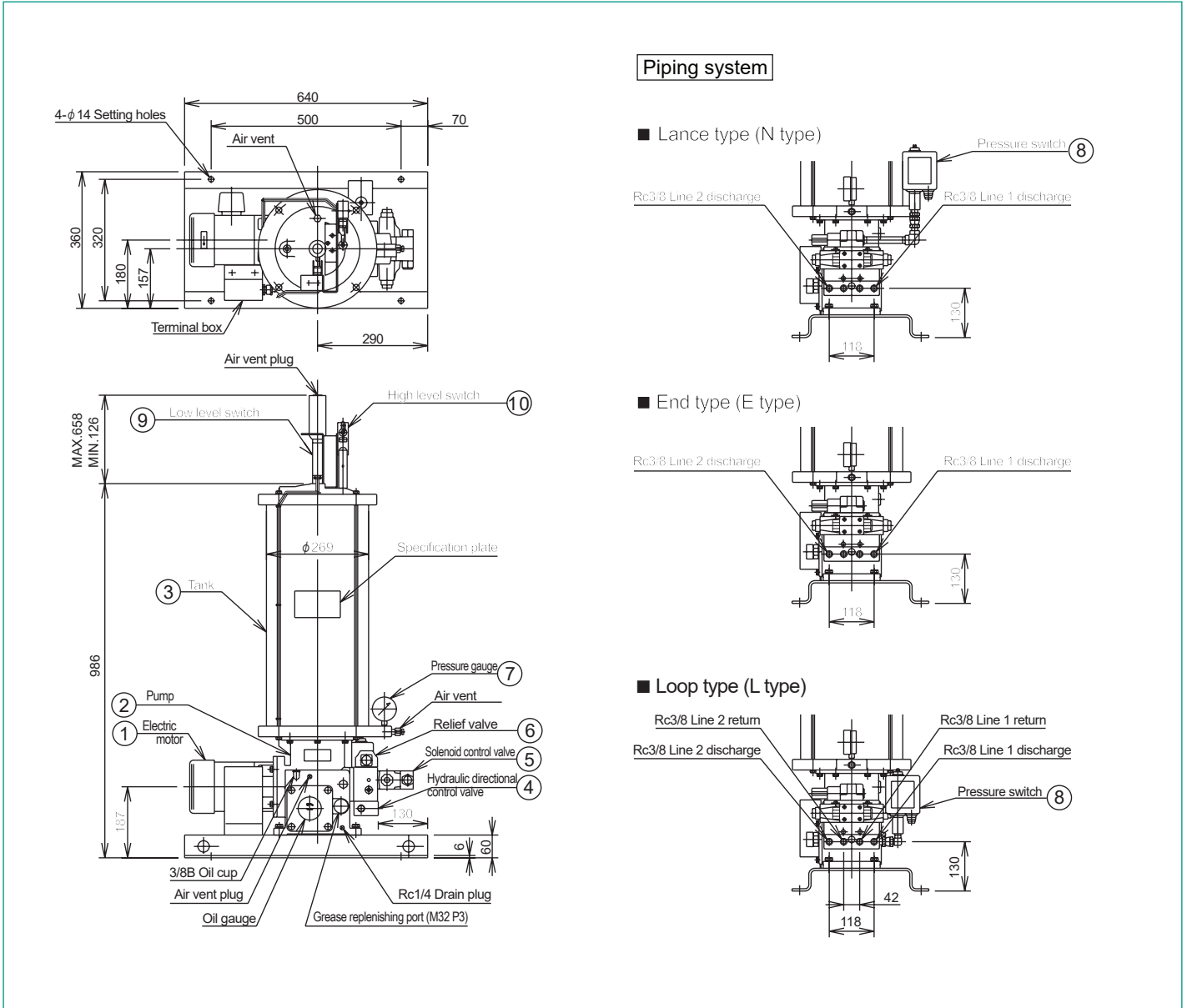
Specifications

Model symbol	Discharge quantity (cm ³ /min)		Max. operating pressure (MPa)	Pump rotation speed (min ⁻¹)			Direction of motor rotation	Electric motor Output/kW number of poles	Tank capacity (L)	Crank chamber lubricating oil amount (L)	Piping system	Weight (kg)	
	50Hz	60Hz		50Hz	60Hz	Speed reduction ratio							
U-25AN	60	72	21	100	120	1/15 (built-in)	Clockwise	0.4 4P	25	1	Lance type	140	
U-25AE											End type		
U-25AL											Loop type		
U-40AN	195	234		75	90	1/20 (built-in)		Counter clockwise	0.75 4P	35	2	Lance type	210
U-40AE												End type	
U-40AL												Loop type	
U-5AL	585	702		75	90	1/20 (built-in)	Counter clockwise	1.5 4P	90	5	Loop type	350	
U-5AE											End type	340	

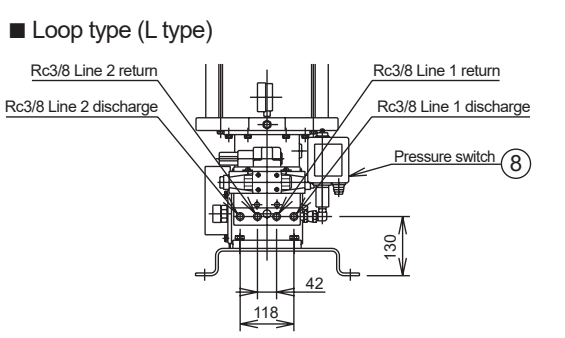
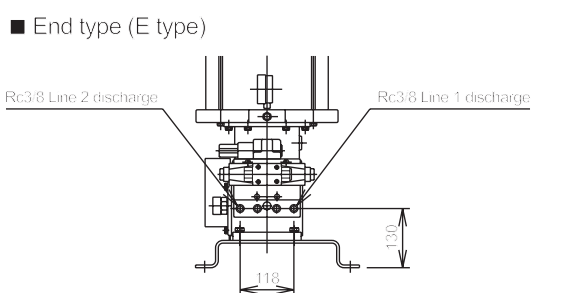
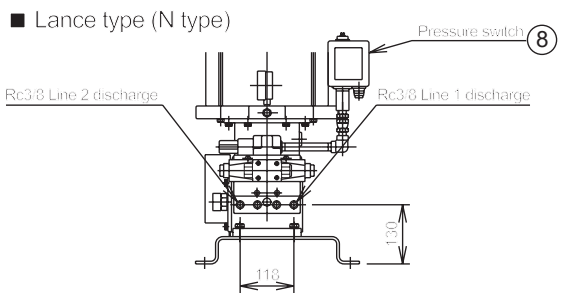
Notes) 1. When the tank oil amount is automatically controlled, the actual tank capacity decreases approximately by 15%.
2. Continuous rating is applied for the electric motor.

Handling

- Select NLGI consistency #0 to #2 for centralized lubrication for the grease used. (Note, however, the grease used shall be unworked with the consistency of 240 or more at the operating temperature.)
- Be sure to use a filling pump to prevent air and dust from entering when filling lubricant.
- Before operating the pump, fill lubricating oil (equivalent to gear oil class 2 VG220 JIS K2219) into the crank chamber built into the bottom of the tank up to the specified oil level (approx. 5L) indicated by the red mark.
- Check and replace the lubricating oil in the crank chamber 200 hours after starting operation, and every 2000 hours thereafter.
- The set pressure for the loop type is adjusted to 5MPa, and for the lance type, 17MPa.
- The set pressure of the relief valve is 23MPa.
- The motor installed in the standard model is fully enclosed fan cooled Class E.
- This pump is for indoor use. When using it outdoors or in places with poor environmental conditions, provide protection such as installation inside a cubicle.

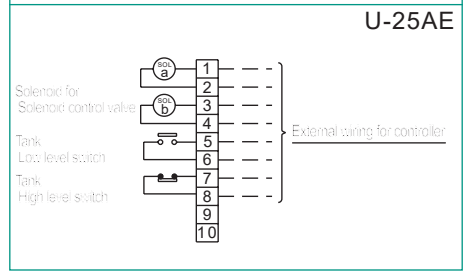
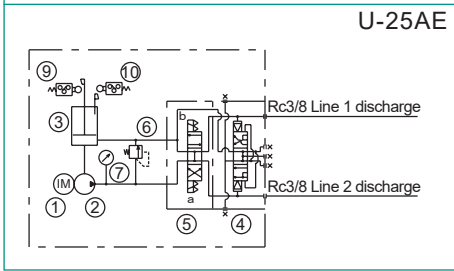
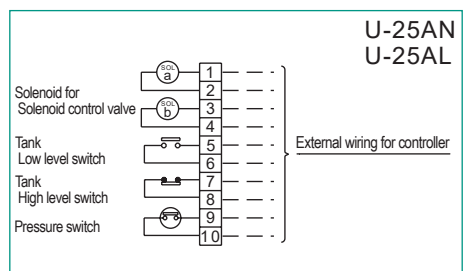
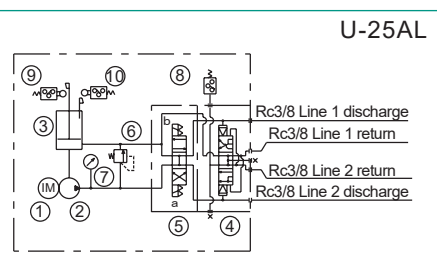
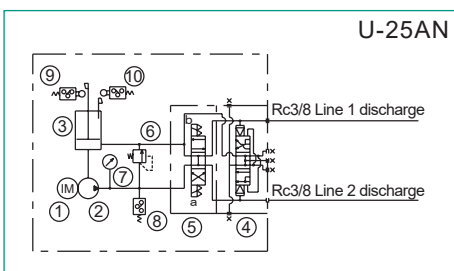


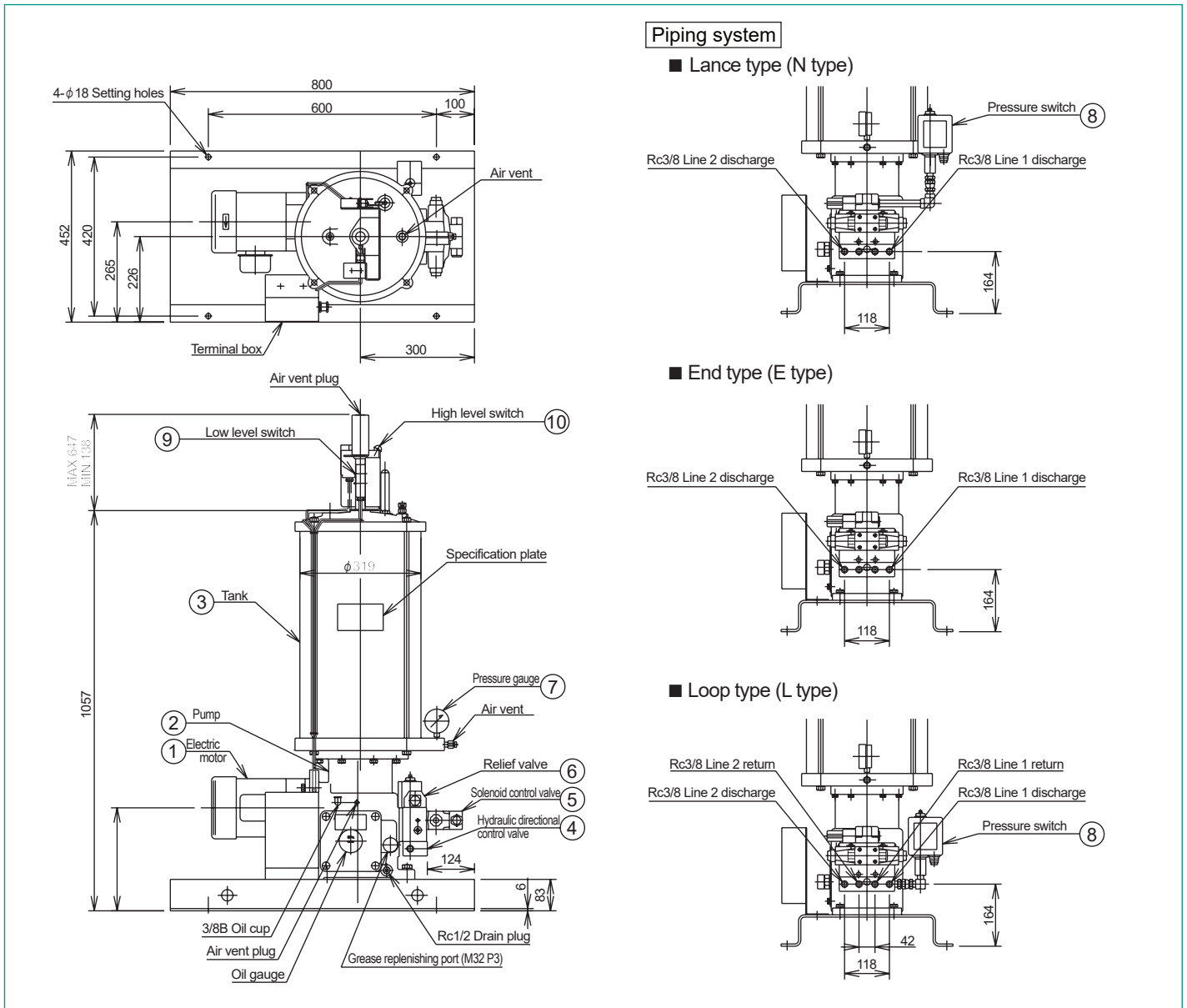
Piping system



Unit circuit diagram

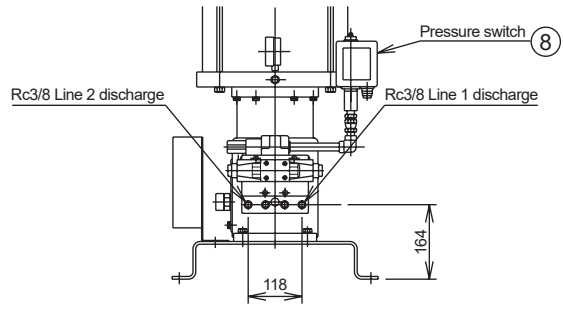
Terminal connection (Terminal box)



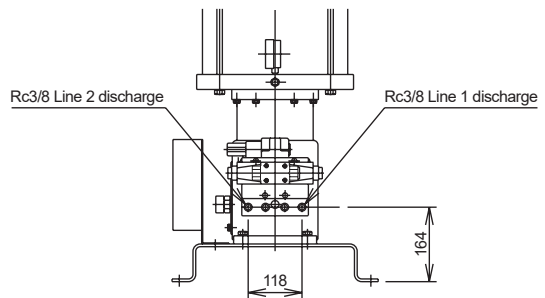


Piping system

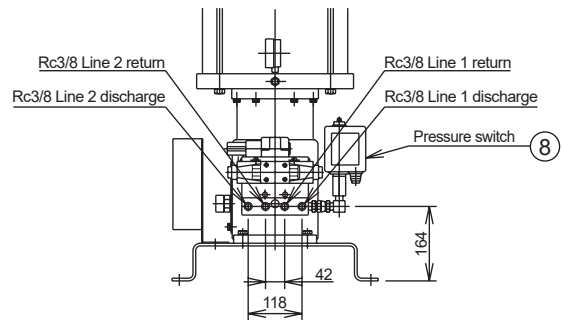
■ Lance type (N type)



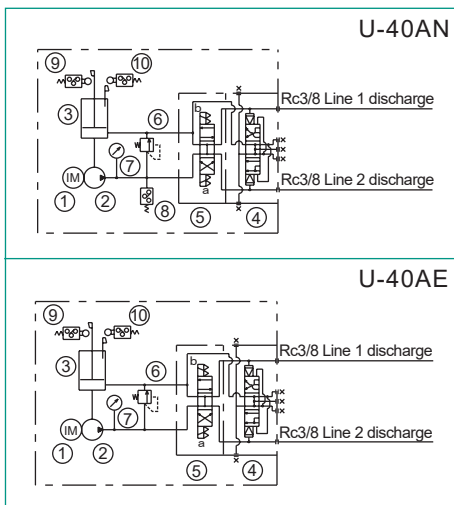
■ End type (E type)



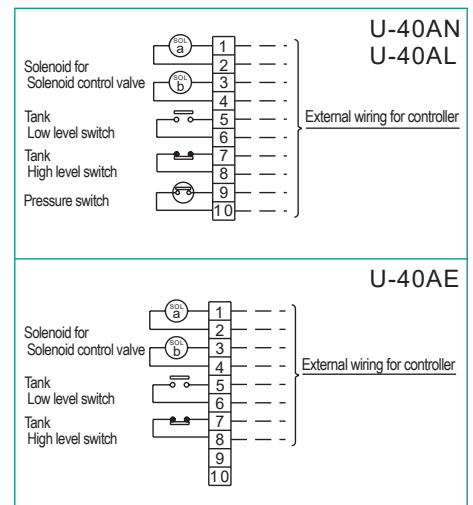
■ Loop type (L type)



Unit circuit diagram

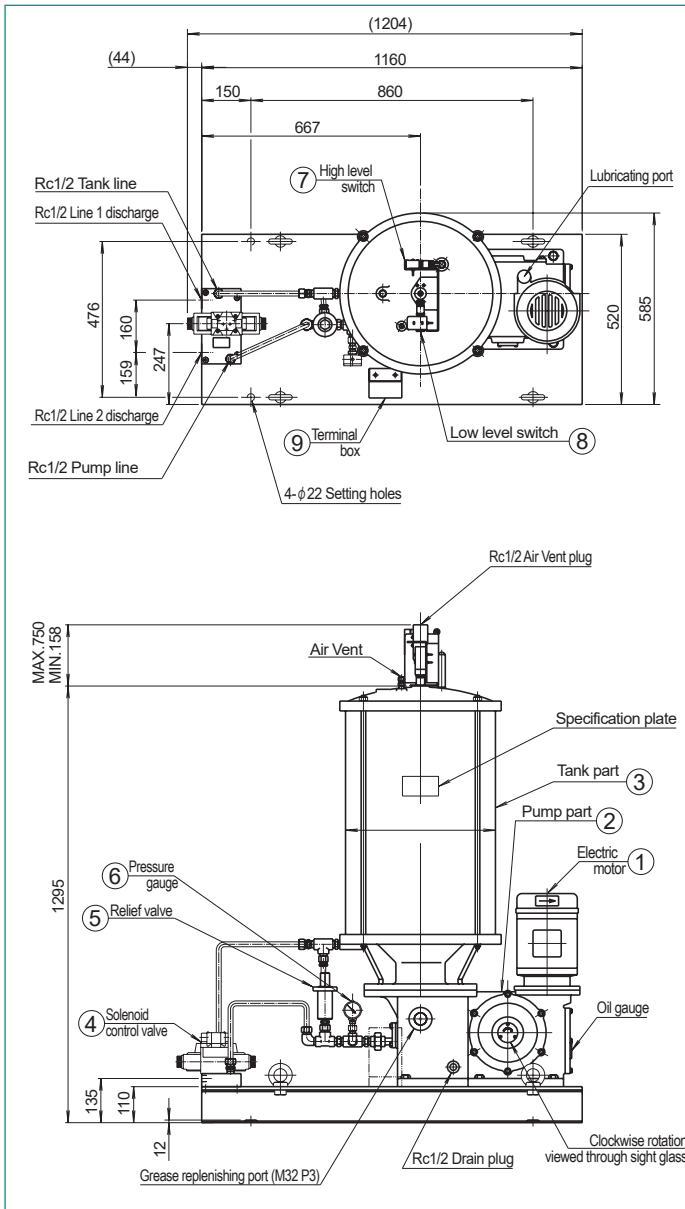


Terminal connection (Terminal box)

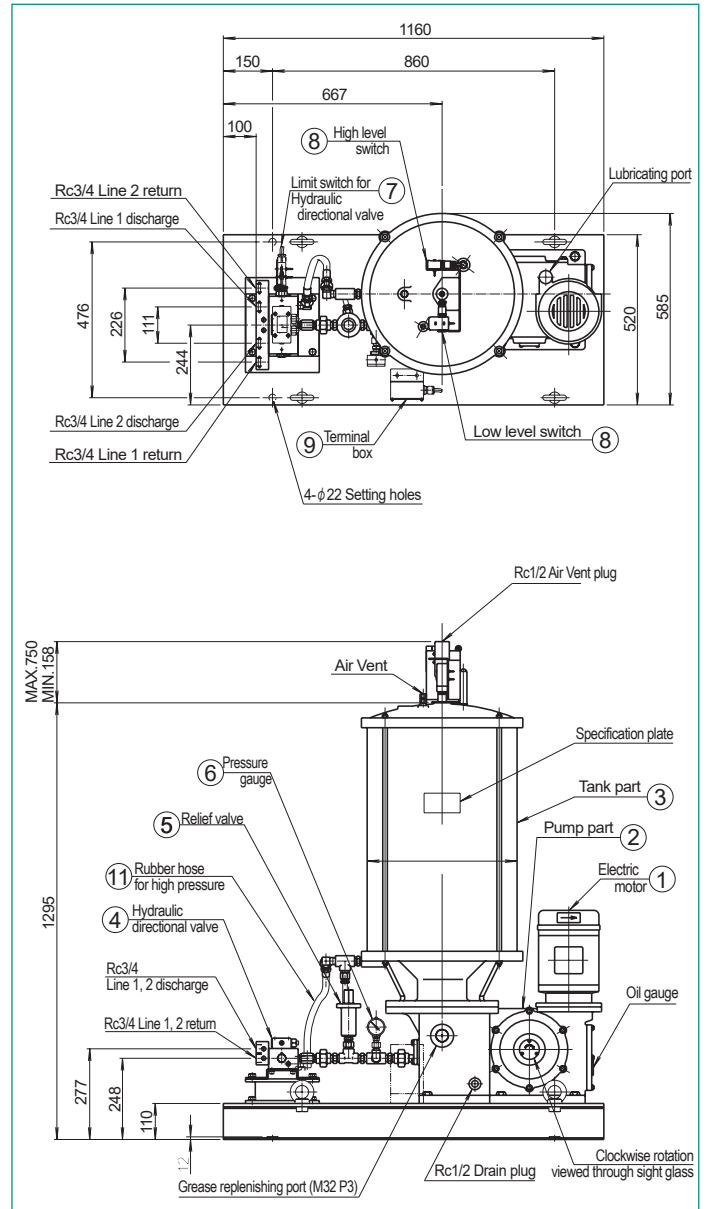


Dimension drawings

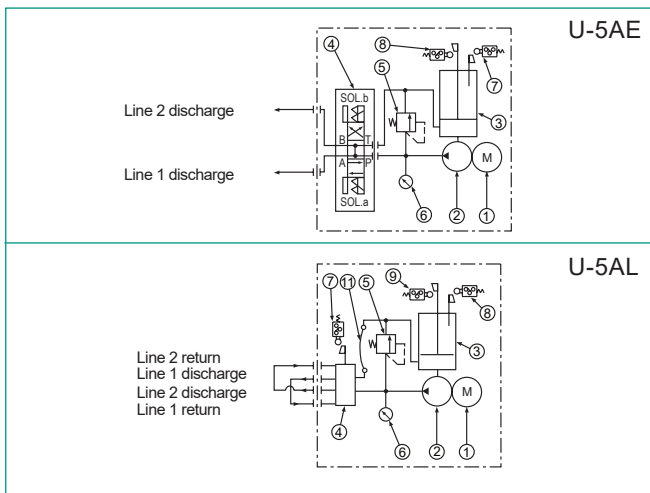
U-5AE



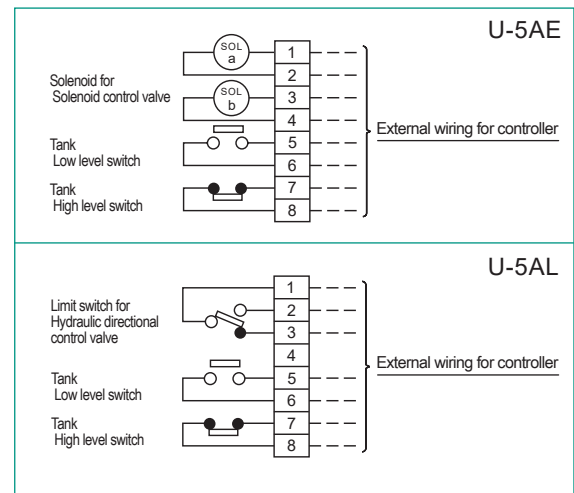
U-5AL



Unit circuit diagram



Terminal connection



PV type Pressure Control Valve

Accurate control of system pressure

PV-2E

Overview

Installed at the end of the main supply line of the End type system, it controls the pressure of the main supply line and sends a switching signal to the electric control panel to switch the solenoid control valve.

Features

● Accurate control of system pressure

It holds the pressure necessary for all distributing valves to fully operate, and accurately sends a signal to switch the main supply line.

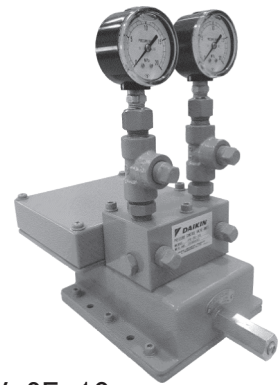
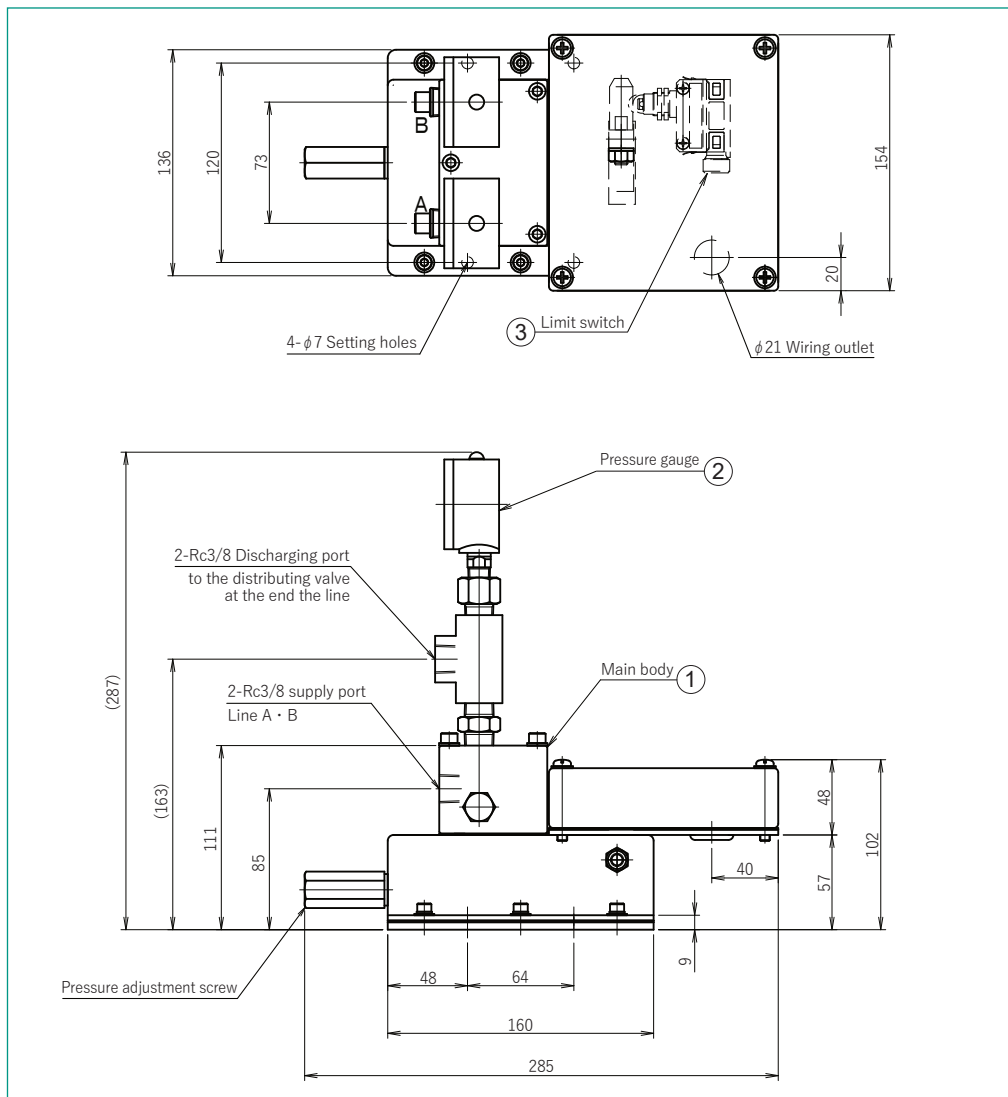
● Easy adjustment of pressure

The set pressure can be easily adjusted from the outside.

Specifications

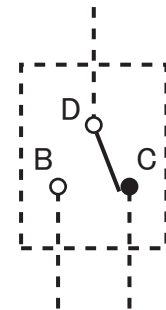
Model	PV-2E-10
Max. operating pressure (MPa)	21
Set pressure	4 (standard)
Pressure adjustment range (MPa)	3~6
Nominal diameter	Rc3/8
Loss (cm ³)	1.5
Grease used	Centralized lubricating grease NLGI consistency number #0 to #2
Weight (kg)	7.2

Dimension drawings



PV-2E-10

Electrical wiring diagram



Handling

< Piping >

- Install the valve at the end of the two main supply lines of End type system. (at the lowest pressure point)
- Attach another distributing valve at further point of the pressure control valve to make sure that grease in the control valve can be replaced.

< Pressure adjustment >

- The set pressure is adjusted to 4 MPa in advance.
- To adjust the pressure, turn the adjustment screw clockwise to lower it, and counter-clockwise to raise it.

■ Memo

■ Memo

■ Memo

When Inquiring With Us

■ Please inform us of the following items when inquiring about lubricating equipment.

1. The overall drawing or a sketch including overall dimensions of the machine equipment
2. Quantity and location of lubrication points
In particular, please specify the points to be lubricated on the drawing (sketch).
3. Types and characteristics of the above lubrication points
 - (a) Types of bearings and sliding parts (flat bearings, ball bearings, etc.)
 - (b) Dimensions and number of revolutions
 - (c) Whether the lubrication ports are fixed, movable, or rotatable, the movement, and the number of revolutions
 - (d) diameter of the lubrication ports' thread
 - (e) Special attentions to be paid in determining the amount of lubrication
 - (f) Types of lubricants (grease and oil)
4. In case the product will be exposed to high or low temperatures (50°C or higher, 0°C or lower), provide us the detailed information of the environment.
5. Whether it will be for outdoor or indoor, or particular status environment.
6. Planned pump type and control method.
Pneumatic/hydraulic pump, fully automatic control, semi-automatic control, with/without control panel, with/without spare pump.
7. Plans or instructions for the location of pumps and main pipes.
8. Power supply for motor driven pump control panel (voltage, frequency)
9. Special requirements regarding the control panel (remote display, remote operation, etc.)
10. Specification of drive pneumatic source and hydraulic source
11. Other important points regarding quotations
(If you do not specify about items 3, 4 and below, we will estimate based on our standards.)
12. Drawings, documents and their number of copies to be submitted for quotation.
Note that, if construction is included, please specify the following items.
 1. Construction site
 2. Scope of construction (In principle we do not provide electricity or foundation work.)
 3. Supplies
For example, electricity, water (if nearby), lubricants used, oxygen, acetylene, etc.

Safety Precautions

This section describes items that require special attention for the safety of the lubrication system before using this product.

The safety precautions listed here are intended to prevent injury or damage to the customer. In addition, the precautions are divided into two categories, "Warning" and "Caution", according to what may occur if the product is handled incorrectly. Be sure to follow all of these instructions as they include important safety information.



Warning

In case where the product operation is mishandled ignoring this indication, a dangerous situation may occur leading to fatal or serious injuries.



Caution

In case where the product operation is mishandled ignoring this indication, a dangerous situation may occur leading to injuries or property damage.

Warning

1. Turn off the power switch on the control panel before installing, removing, or repairing the product. Otherwise, the pump will automatically operate, causing the grease to leak and stain the surroundings.
2. Do not step on the lubricating equipment, piping, etc. attached to the machine as a foothold or pull as a handrail. It may cause slips and falls or damage the lubrication system.
3. Do not disassemble or remodel the lubrication equipment. Please consult us if necessary. In the unlikely event that maintenance work is required at the site, it should be performed by a person with specialized knowledge (Hydraulic adjuster level 2).
4. Injury may occur when handling lubricating equipment, so wear protective equipment depending on the situation.

Caution

1. When venting air from the pump, protect it with a plastic bag and so on. Grease (oil) mixed with air may scatter and get into your eyes or stain the surroundings.
2. Use protective equipment when handling grease. If it gets in your eyes or touches your skin, it may cause visual impairment or inflammation.
3. Carry out periodic inspections of the lubrication system (grease/oil consumption control, operation check, etc.). If you forget inspections, it may cause machine failure due to seizure in bearings, etc.
4. Use the product within the rated specifications and the usable environmental conditions. Using the product outside of the rated specifications or in a special atmosphere (next to fire, explosive atmosphere, etc.) may cause mechanical failure or fire.

Point of contact



**DAIKIN LUBRICATION PRODUCTS &
ENGINEERING CO., LTD.**

<https://www.daikin-lubrication.co.jp/en/>