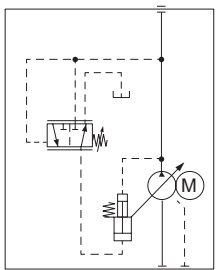
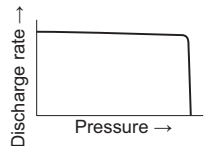
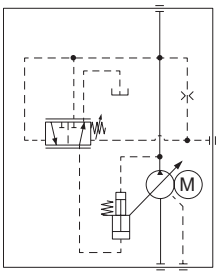
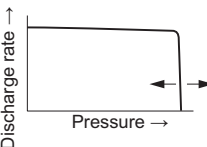
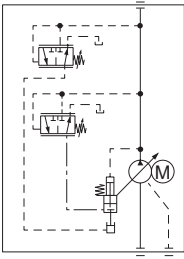
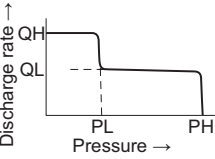
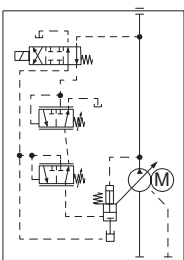
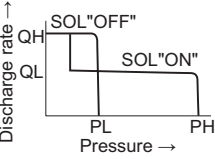
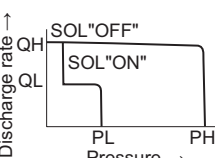


**Control method**

Control method		JIS graphic symbols for hydraulic system	Characteristics	Features/Application
Control	Code			
Pressure compensator control	A			<ul style="list-style-type: none"> <li>When the discharge pressure approaches the preset full-cutoff pressure, the discharge rate automatically decreases to the level required to maintain the preset pressure.</li> <li>The full-cutoff pressure and discharge rate can be manually adjusted.</li> </ul>
Remote pressure compensator control	A-RC			<ul style="list-style-type: none"> <li>The full-cutoff pressure can be adjusted through remote operation of the remote control relief valve.</li> <li>The discharge rate can be manually adjusted.</li> </ul>
Combination control (pressure feedback method)	CH			<ul style="list-style-type: none"> <li>This control method achieves both low-pressure high-flow-rate control and high-pressure low-flow-rate control with a single pump and this helps reduce power consumption and suppress oil temperature rise.</li> <li>When the discharge pressure approaches the preset pressure PL, the discharge rate automatically decreases to QL.</li> <li>The discharge rate automatically changes according to increase/decrease of the actuator pressure and this enables switching of the feedrate.</li> <li>The feedrate switches to a low value at the start of machining.</li> </ul>
Combination control (solenoid operated method)	CJ			<ul style="list-style-type: none"> <li>The control mode can be switched between high-pressure low-flow-rate control and low-pressure high-flow-rate control by turning the solenoid on and off and this enables switching between high and low actuator feedrates.</li> <li>Machining can be started after switching to the low feedrate.</li> </ul>
				

## Handling

### ● Ambient conditions

- Use the product under the following conditions. Ambient temperature: -20 to 40°C, Ambient humidity: 95 %RH maximum, Altitude: 4,000 m maximum

### ● Hydraulic oil

- Use a general-purpose hydraulic fluid (R&O) equivalent to ISO VG32 to 68 or wear-resistant hydraulic fluid (7 MPa {70 kgf/cm<sup>2</sup>}).  
Use of hydraulic fluids other than the petroleum-based type (e.g. hydrous/synthetic) is prohibited.  
Even when a petroleum-based hydraulic fluid is used, there is a danger of shorting or earth leakage if an excessive amount of water gets mixed into the fluid.
- Operate the unit in an environment where both the following conditions are satisfied: viscosity in the range 15 to 400 mm<sup>2</sup>/s {cSt} and fluid temperature in the range 0 to 60°C.
- Be sure to maintain the water content in the hydraulic fluid at 0.1% maximum by volume.
- Contamination of the hydraulic fluid causes pump trouble and reduces the service life, so pay due attention to controlling contamination and ensure that it goes no higher than NAS contamination class 9.

### ● Installation

- To transport the rotor pump alone, use the two eyebolts at the top of the unit.  
Take care not to subject the unit to strong impact due to dropping or a collision during transportation.
- Install the unit using the four holes in the foot support, oriented with the oil filler port at the top and the vibration-absorbing rubber pad at the bottom, and make sure it is leveled.
- The fixing bracket is fitted between the unit body and the foot support to facilitate piping work and to protect the vibration-absorbing rubber pad, so do not remove it until the start of a trial run. Even after completing installation, refit the fixing bracket to protect the vibration-absorbing rubber pad before starting work where the pad may be subjected to strong vibration or force, such as transportation or re-piping.
- When installing a rotor pump, be sure to secure sufficient ambient space and avoid any object coming into contact with it since the temperature at its surface may rise up to around 80°C while it is running.

### ● Filters

- Use a suction filter with 150 meshes per inch at the inlet side.
- In the return line to the tank at the delivery side, use a line filter with a filtration accuracy of 25 μm or better.  
For delivery pressures of 14 MPa {140 kgf/cm<sup>2</sup>} or greater, use a line filter with a filtration accuracy of 10 μm or better.

### ● Piping

- To exploit the low-noise characteristics of the rotor pumps, they are equipped with a vibration-absorbing rubber pad between the unit body and the foot support. Therefore, use hoses for piping to the unit to provide flexibility.

Model No.	RP08, RP15	RP23, RP38
Suction port	SHA15, SSA20 (JIS B 2291)	Size 1¼ split flange boss (SAE J518 STANDARD PRESSURE SERIES)
Discharge port	Rc <sup>3</sup> / <sub>8</sub>	Rc <sup>3</sup> / <sub>4</sub>

### ● Drain piping

- Isolate drain piping from other returning lines (do not merge it with them) and arrange it such that the pressure inside the pump case can be maintained at no greater than 0.1 MPa {1 kgf/cm<sup>2</sup>}.
- Merge the return line of the drain piping lower than the tank oil level and as far as possible from the suction line.

Model No.	RP08, RP15	RP23, RP38
Size of pipe joint	Rc <sup>3</sup> / <sub>8</sub> I.D. φ8.5 minimum	Rc <sup>1</sup> / <sub>2</sub> I.D. φ12 minimum
Pipe I.D.	φ12 minimum	φ15 minimum
Drain pipe length	1 m maximum	1 m maximum

## Handling

### ● Electric wiring

- Install a no-fuse breaker in the main power supply to protect the power circuits against shorting and overcurrent, and install a ground fault interrupter to prevent electric shocks.
- Securely connect wires using crimp-style terminals of appropriate sizes in accordance with the wiring guide on the back of the terminal box cover to prevent shorting between the phases and current leakage to the unit. Be sure to provide a ground connection.

### ● At start

- Remove the filler cap on the pump, fill the pump case with hydraulic fluid through the filler port, and securely refit the filler cap before starting the pump. Use the same hydraulic fluid as for the hydraulic circuit. The filling volume is as follows.

Model No.	RP08	RP15	RP23-22	RP23-37	RP38
Pump case filling volume (cm <sup>3</sup> )	1100	2300	4500	4000	4000

- Remove the two fixing bolts that secure the foot support to the bottom part of both sides of the rotor pump.
- After checking that all hydraulic circuits and electrical circuits are ready for operation, set the hydraulic circuit at the load side in the no-load status or connect an unloading circuit before starting the pump.
- Set the discharge rate adjusting screw provided on the front cover of the rotor pump to no lower than two-thirds of the maximum discharge rate. The suction capacity at the start may be insufficient if the adjusting screw is tightened too far.
- When the pump is driven for the first time, turn the power switch to the motor on and off a few times to let the air out of the piping and then run it continuously at full speed. Noise may be observed until the air has been completely removed but this is not abnormal.
- When a rotor pump is driven for the first time, it may take some time before it discharges fluid due to its structure. If the pressure does not rise within 5 minutes after turning the power on, the phase order may be wrong. In that case, switch the wires for two phases among the three.  
Even if it takes time for discharge to start, this will not cause any abnormality of the rotor pump.

### ● Suction pressure

- Maintain the suction pressure no lower than  $-16.7 \text{ kPa}$   $\{-125 \text{ mmHg}\}$ .
- High suction pressures will generate cavitation and cause damage to the parts, noise, and vibration, resulting in a shorter pump service life.

### ● Maximum operating pressure

- This refers to the maximum pressure at which the unit can be operated.