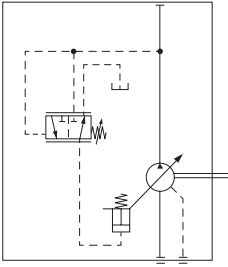
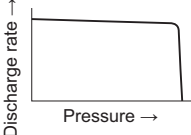
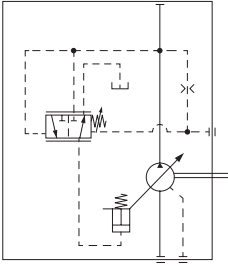
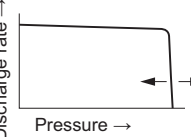
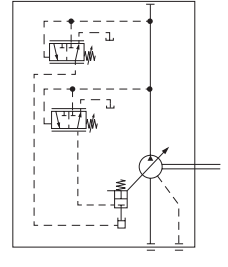
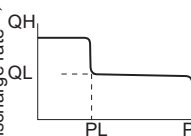
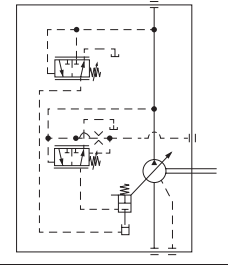
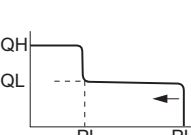
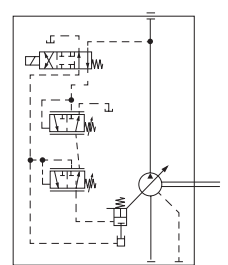
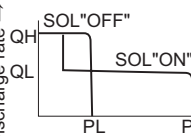
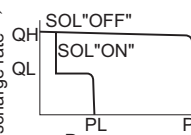
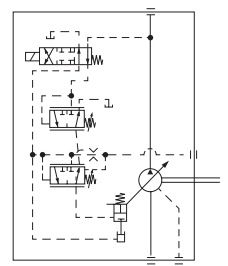
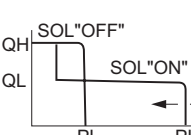
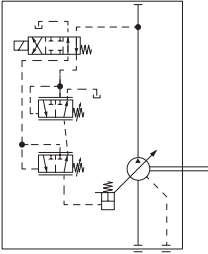
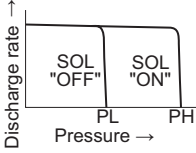
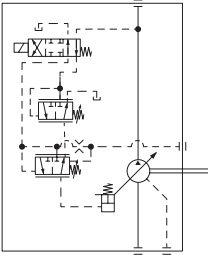
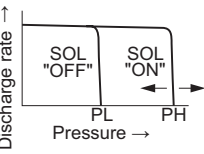
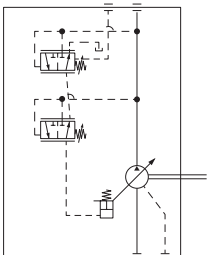
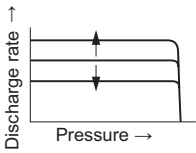
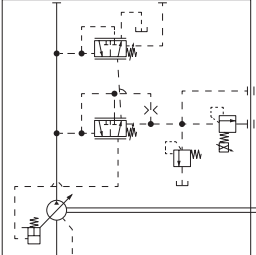
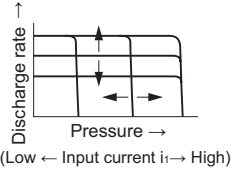


Control method

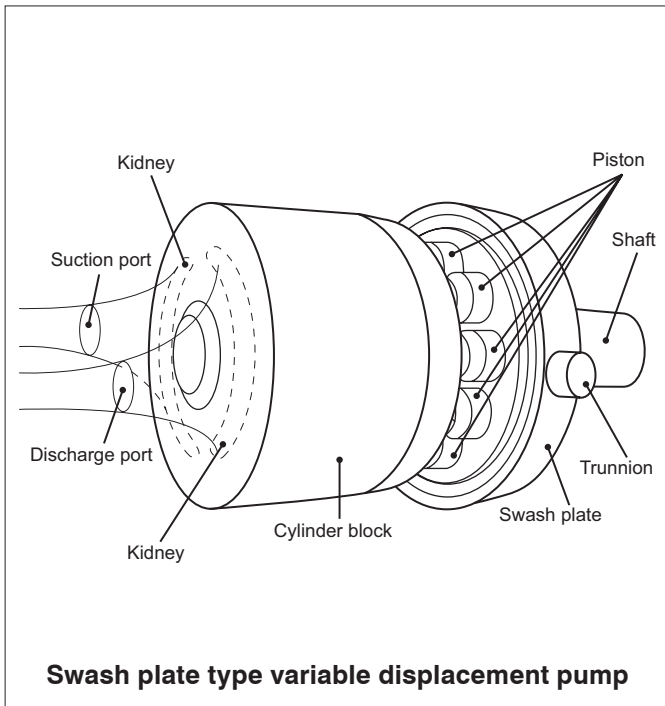
Control method		JIS graphic symbols for hydraulic system	Characteristics	Features/Application
Control	Code			
Pressure compensator control	A			<ul style="list-style-type: none"> When the discharge pressure approaches the preset full-cutoff pressure, the discharge rate automatically decreases to the level required to maintain the preset pressure. The full-cutoff pressure and discharge rate can be manually adjusted.
Remote pressure compensator control	A-RC			<ul style="list-style-type: none"> The full-cutoff pressure can be adjusted through remote operation of the remote control relief valve. The discharge rate can be manually adjusted.
Combination control (*1) (pressure feedback method)	CH			<ul style="list-style-type: none"> 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. When the discharge pressure approaches the preset pressure PL, the discharge rate automatically decreases to QL. The discharge rate automatically changes according to increase/decrease of the actuator pressure and this enables switching of the feedrate. The feedrate switches to a low value at the start of machining.
Combination control with remote pressure compensator (pressure feedback method)	CH-RC			<ul style="list-style-type: none"> The high pressure can be remotely adjusted using the remote control relief valve.
Combination control (*1) (solenoid operated method)	CJ			<ul style="list-style-type: none"> 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. Machining can be started after switching to the low feedrate.
				<ul style="list-style-type: none"> Two types of variable pump characteristics (high-pressure high-flow-rate and low-pressure low-flow-rate) can be selected by turning the solenoid on and off.
Combination control with remote pressure compensator (solenoid operated method)	CJ-RC			<ul style="list-style-type: none"> The high pressure can be remotely adjusted using the remote control relief valve.

Control method

Control method		JIS graphic symbols for hydraulic system	Characteristics	Features/Application
Control	Code			
Dual pressure control (*1)	D			<ul style="list-style-type: none"> Two different full-cutoff pressures (high/low) can be selected by turning the solenoid on and off. Two different pressures can be set while maintaining a constant actuator feedrate. The full-cutoff pressure and discharge rate can be manually adjusted.
Dual pressure control with remote pressure compensator	D-RC			<ul style="list-style-type: none"> The high pressure can be remotely adjusted using the remote control relief valve.
Power match control	SA			<ul style="list-style-type: none"> Combining this control method with a proportional control valve achieves energy efficient control of a pump, where the minimum pressure and flow rate to operate the actuator are supplied.
	SAJS			<ul style="list-style-type: none"> This control method enables control of the full-cutoff pressure in proportion to the current input to the electromagnetic proportional relief valve, in addition to the functions provided with the SA type control.

Note: *1 Some models are available with a control function to set the pump in a feathering status (status where low pressure is cut off) by operating a solenoid valve. This function is effective for saving energy while the machine is at a stop. Please consult us about detailed information.

Operating principle of variable displacement piston pumps



- When the shaft is rotated by an electric motor or an engine, the cylinder block is rotated on the valve plate surface while maintaining a slight clearance, and the pistons contained in the cylinder block reciprocate following the swash plate. The volume of the oil chamber varies with the reciprocating movement of the pistons, sucking in and discharging oil.
- When the piston executes the suction process from top dead center to bottom dead center, oil passes through the port in the valve plate from the suction side of the end cap and a volume equal to the piston displacement is drawn into the cylinder block. Then, when the piston goes from bottom dead center to top dead center, oil is forcibly discharged through the port in the valve plate to the discharge side of the end cap.
- One rotation of the cylinder block performs one suctioning and discharging cycle, and continuous pumping operation can be achieved by rotating the shaft connected to the cylinder block.

Models

	Model No.	Piping direction	Control method										
			A	A-RC	CH	CH-RC	CJ	CJ-RC	D	D-RC	SA	SAJS	
V series	V8	Side port	R	-	-	-	-	-	-	-	-	-	-
	V15	Side port	R (L)	R (L)	R	R	R	R	R	R	R	R (L)	-
		Axial port	R (L)	R (L)	-	-	-	-	-	-	-	R (L)	-
	V23	Side port	R (L)	R (L)	R	R	R	R	R	R	R	R (L)	R
		Axial port	R (L)	R (L)	-	-	-	-	-	-	-	R (L)	-
	V38	Side port	R (L)	R (L)	R	R	R	R	R	R	R	R (L)	R (L)
		Axial port	R (L)	R (L)	-	-	-	-	-	-	-	R (L)	-
V50	Side port	R (L)	R (L)	-	-	-	-	-	-	-	R (L)	R (L)	
V70	Side port	R (L)	R (L)	R	-	-	-	-	-	-	R (L)	R	
VZ series	VZ50	Side port	R	R	R	-	R	-	-	-	-	-	-
	VZ63	Side port	R	R	R	-	R	-	-	-	-	-	-
	VZ80	Side port	R	R	R	-	R	-	-	-	-	-	-
	VZ100	Side port	R	R	R	-	R	-	-	-	-	-	-
	VZ130	Side port	R	R	-	-	-	-	-	-	-	-	-

Note: R in the table indicates clockwise rotation of the shaft and L indicates counterclockwise rotation, when viewed from the shaft end.

Models compatible with fire-resistant hydraulic oil

Model No.	Hydraulic oil	Control method									
		A	A-RC	CH	CH-RC	CJ	CJ-RC	D	D-RC	SA	SAJS
V8	Water-glycol hydraulic fluid (W)	-	-	-	-	-	-	-	-	-	-
	Phosphate ester hydraulic fluid (F)	-	-	-	-	-	-	-	-	-	-
V15	Water-glycol hydraulic fluid (W)	✓	✓	✓	✓	✓	✓	✓	✓	✓	-
	Phosphate ester hydraulic fluid (F)	✓	✓	✓	✓	✓	✓	✓	✓	✓	-
V23	Water-glycol hydraulic fluid (W)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Phosphate ester hydraulic fluid (F)	✓	✓	✓	✓	✓	✓	✓	✓	✓	-
V38	Water-glycol hydraulic fluid (W)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Phosphate ester hydraulic fluid (F)	✓	✓	✓	✓	✓	✓	✓	✓	✓	-
V50	Water-glycol hydraulic fluid (W)	✓	✓	-	-	-	-	-	-	✓	✓
	Phosphate ester hydraulic fluid (F)	✓	✓	-	-	-	-	-	-	✓	-
V70	Water-glycol hydraulic fluid (W)	✓	✓	✓	-	-	-	-	-	✓	✓
	Phosphate ester hydraulic fluid (F)	✓	✓	✓	-	-	-	-	-	✓	-

Note: There are no models for flame-resistant hydraulic oil in the VZ series.

● Conditions of use

When using flame-resistant hydraulic oil, use the product under the following conditions.

Hydraulic oil	Rotational Speed min ⁻¹	Operating pressure MPa {kgf/cm ² }		Oil temperature	Suction filter Filter	Suction pressure kPa {mmHg}
		Maximum	Rated			
Water-glycol hydraulic fluid (W)	800 to 1200	17.5 {175}	14 {140}	45°C maximum	100 meshes per inch	No lower than -10 {-75}
	1200 to 1800	14 {140}	14 {140}			
Phosphate ester hydraulic fluid (F)	800 to 1800	21 {210}	14 {140}	50°C maximum	100 meshes per inch	No lower than -10 {-75}

● Maximum operating pressure

- The maximum operating pressure refers to the maximum pressure at which the product can be operated where the duration of operation is restricted.
- Restrict the duration of operation at the maximum operating pressure to within 10% of the total operating time and within 6 seconds per minute.

● Rated pressure

- The rated pressure refers to the maximum pressure at which the product can be operated continuously.

Handling

● Hydraulic oil

- For pressures of up to 7 MPa {70 kgf/cm²}, use a general-purpose hydraulic oil (R&O) or wear-resistant hydraulic oil equivalent to ISO VG32 to 68.
- For pressures higher than 7 MPa {70 kgf/cm²} use wear-resistant hydraulic oil equivalent to ISO VG32 to 68.
- Operate the unit in an environment where both the following conditions are satisfied: viscosity range from 15 to 400 mm²/s {cSt} and oil temperature from 0 to 60°C.
- 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 and alignment

- Ensure that the eccentricity of the drive shaft and pump shaft is no greater than 0.05 mm (TIR), and run the pump with no force acting perpendicularly on the pump shaft.
Misalignment between the shaft centers will cause damage to bearings and oil seals, generate noise and vibration, and lead to pump accidents.
- Avoid crosswise drive using a belt, chain or gears (it will cause noise generation or damage to the bearings).

● Filters

- Use a suction filter with 150 meshes per inch at the inlet side.
- In the return line to the tank at the discharge side, use a line filter with a filtration accuracy of 25 μm or better.
For discharge pressures of 14 MPa {140 kgf/cm²} and greater, use a line filter with a filtration accuracy of 10 μm.

Contact Details

Before using the product, please check the guide pages at the front of this catalog.

Internet

<https://www.daikinpmc.com/en/>

For latest information, PDF catalogs and operation manuals

Handling

● Piping

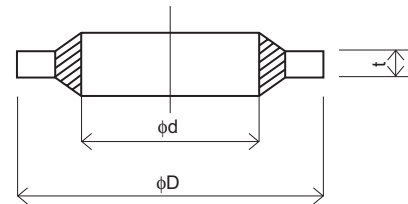
- When using steel pipes for piping, take care not to force the pump off center.
Forcing the pump off center with pipes may cause abnormal noise.

Model No.	V series				
	V8	V15, V23	V15 (Type Y)	V38	V50, 70
Suction port	G $\frac{3}{4}$ Bonded seal	G1 O-ring boss	SHA15/SSA20 (JIS B 2291)	G1 $\frac{1}{4}$ O-ring boss	Size 1 $\frac{1}{2}$ split flange boss (SAE J518 STANDARD) (PRESSURE SERIES)
Discharge port	G $\frac{3}{4}$ Bonded seal	G1 O-ring boss	Rc $\frac{3}{8}$	G1 $\frac{1}{4}$ O-ring boss	Size 1 $\frac{1}{2}$ split flange boss (SAE J518 STANDARD) (PRESSURE SERIES)
O-ring used	-	JIS B 2401 1BP29	-	JIS B 2401 1BP38	-

Model No.	VZ series		
	VZ50, VZ63	VZ80, VZ100	VZ130
Suction port	Size 1 $\frac{1}{2}$ split flange boss (SAE J518 STANDARD) (PRESSURE SERIES)	Size 2 split flange boss (SAE J518 STANDARD) (PRESSURE SERIES)	Size 2 $\frac{1}{2}$ split flange boss (SAE J518 STANDARD) (PRESSURE SERIES)
Discharge port	Size 1 split flange boss (SAE J518 STANDARD) (PRESSURE SERIES)	Size 1 $\frac{1}{2}$ split flange boss (SAE J518 STANDARD) (PRESSURE SERIES)	Size 1 $\frac{1}{2}$ split flange boss (SAE J518 STANDARD) (PRESSURE SERIES)

- Bonded seal model (manufacturer: IHARA SCIENCE CORPORATION)

Nominal model	Nominal designation of applicable thread	d	D	t
KP-C-05	G $\frac{3}{4}$	26.6	34.5	2
KP-C-06	G1	33.4	41.5	2.3
KP-C-07	G1 $\frac{1}{4}$	42.1	50.5	2.3



● 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 0.035 MPa {0.35 kgf/cm²} for the V series and 0.1 MPa {1 kgf/cm²} for the VZ series.
- 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.	V series			VZ series	
	V8, V15, V23	V38	V50, V70	VZ50	VZ63, VZ80 VZ100, VZ130
Size of pipe joint	Rc $\frac{3}{8}$ I.D. φ8.5 minimum	Rc $\frac{1}{2}$ I.D. φ12 minimum	Rc $\frac{3}{4}$ I.D. φ16 minimum	Rc $\frac{1}{2}$ I.D. φ2 minimum	Rc $\frac{3}{4}$ I.D. φ16 minimum
Pipe I.D.	φ12 minimum	φ15 minimum	φ19 minimum	φ15 minimum	φ19 minimum
Drain pipe length	1 m maximum	1 m maximum	1 m maximum	1 m maximum	1 m maximum

● At start

- Fill the pump case with hydraulic fluid through the filler port before starting the pump. Use the same hydraulic fluid as for the hydraulic circuit.

Model No.	V series						VZ series				
	V8	V15	V23	V38	V50	V70	VZ50	VZ63	VZ80	VZ100	VZ130
Pump case filling volume cm ³	250	500	500	900	2000	2000	1000	1400	1500	2000	2500

- 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.

Handling

● At start

- Check that the pump rotates in the direction of the arrow showing the direction of rotation.
- 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.

● Suction pressure

- Maintain the suction pressure no lower than -16.7 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.