

Contact Details

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VPU Series Vane Pack



Features

- Trouble-free conformance to regulations
A motor certified under American standards is incorporated as standard. (Consult DAIKIN for conformance to regulations in other countries.)
- Reduced oil temperature rise
The heat-exchange efficiency of the radiator has been improved. (Patent pending)
- No sealing tape required at oil changes
A straight screw is used as the drain plug.
- No more oil leakage from the tank
Each individual unit undergoes non-destructive testing and water leak testing stipulated by JIS and has the test certificate affixed.
- Minimum design change required
The compact design offers interchangeability.

Nomenclature

VPU ** N ** * - * 1 J * - 20 - * ***
 1 2 3 4 5 6 7 8 9 10 11 12

- 1 Model No.**
VPU: Hydraulic unit equipped with variable vane pump
- 2 Tank capacity**
10: 10 L
15: 15 L
20: 20 L
- 3 Tank specifications**
N: Standard tank
Dye penetrant tested (equivalent to JIS Z2330)
* Not conforming to the Fire Service Act
- 4 Pump capacity**
08: 8 cm³/rev
16: 16 cm³/rev
- 5 Pressure adjustment range**
3: 1.5 to 4.0 MPa
7: 4.0 to 7.0 MPa
- 6 Motor capacity**
1: 0.75 kW-4P
2: 1.5 kW-4P
3: 2.2 kW-4P

- 7 Motor voltage**
1: AC 3φ
200 V(50 Hz), 200 V(60 Hz),
220 V(60 Hz), 230 V(60 Hz)
- 8 Motor efficiency standard**
J : Conforming to the following two standards
 • Japanese standard: JIS C4213 : 2014 (efficiency level: IE3)
 • American Standard: Energy Independence and Security Act AC 230 V-60 Hz (efficiency level: IE3)
 *Consult DAIKIN for conformance to regulations in other countries.
- 9 Motor terminal box position**
U: Mounted above the motor
R: Mounted at right, viewed from the motor
- | | | |
|---|----------|-----------------|
| | 0.75 kW | 1.5 kW/2.2 kW |
| U | — | Standard |
| R | Standard | Consult DAIKIN. |
- 10 Design No.**
20: Design No. 20
(The design No. is subject to change.)
- 11 Manifold block**
N: None
(no designation for standard specification)
A: Control system installed
ABT1: 1-series block installed
ABT2: 2-series block installed
ABT3: 3-series block installed
*Retrofitting possible (Contact DAIKIN.)
- 12 Non-standard No.**

Specifications

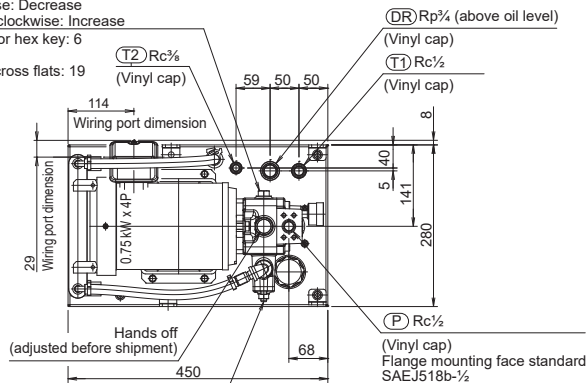
Model code	Pump capacity cm ³ /rev	Maximum operating pressure MPa	Pressure adjustment range MPa	Pressure at shipment MPa	Maximum discharge rate L/min		Motor capacity Output (kW) (Number of poles: 4P)	Tank capacity L	Mass (oil excluded) kg
					50 Hz	60 Hz			
VPU10N083-11JR-20	8	4.0	1.5 to 4.0	3.5	12.5	15.0	0.75	10	39
VPU10N087-11JR-20		7.0	4.0 to 7.0	5.0					
VPU15N083-11JR-20		4.0	1.5 to 4.0	3.5					
VPU15N087-11JR-20		7.0	4.0 to 7.0	5.0					
VPU10N083-21JU-20		4.0	1.5 to 4.0	3.5					
VPU10N087-21JU-20		7.0	4.0 to 7.0	5.0					
VPU15N163-21JU-20	16	4.0	1.5 to 4.0	3.5	25.0	30.0	1.5	15	46
VPU15N167-21JU-20		7.0	4.0 to 7.0	5.0					
VPU20N163-21JU-20		4.0	1.5 to 4.0	3.5					
VPU20N167-21JU-20		7.0	4.0 to 7.0	5.0					
VPU15N167-31JU-20		7.0	4.0 to 7.0	5.0					
VPU20N163-31JU-20		4.0	1.5 to 4.0	3.5					
VPU20N167-31JU-20	7.0	4.0 to 7.0	5.0	2.2	20	55			

* The discharge rate is set to the maximum level at shipment.

Dimensional outline drawing

Motor terminal box: Mounted at right

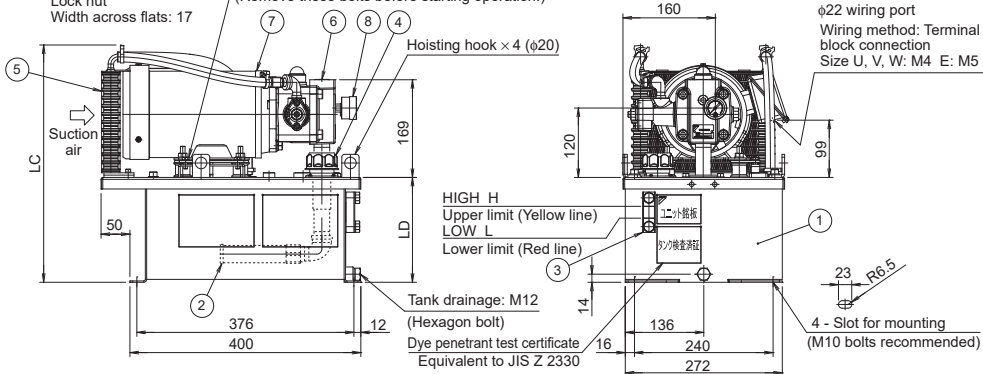
Discharge rate adjusting screw
 Clockwise: Decrease
 Counterclockwise: Increase
 Socket for hex key: 6
 Lock nut
 Width across flats: 19



Pressure adjusting screw

Clockwise: Increase
 Counterclockwise: Decrease
 Socket for hex key: 5
 Lock nut
 Width across flats: 17

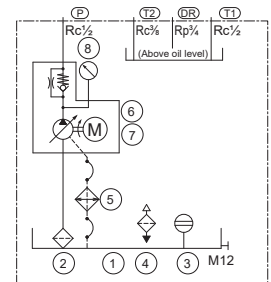
Bolt for fastening during transportation (both sides: 4 pcs.)
 (Remove these bolts before starting operation.)



Model code	Motor	LC	LD	H	L
VPU10N08*-11JR-20	0.75 kW-4P	411	182	10 L	8 L
VPU15N08*-11JR-20		458	228	15 L	11 L

•The suction filter is oriented horizontally for the 10 L tank (see figure to the left) and vertically for the 15 L tank.

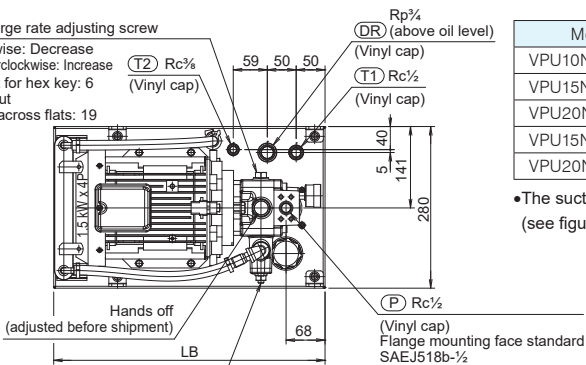
Hydraulic circuit diagram



Part No.	Name
1	Oil tank
2	Suction strainer
3	Oil level gauge
4	Oil filler port with air breather
5	Oil cooler
6	Variable vane pump
7	Motor
8	Pressure gauge

Motor terminal box: Mounted above

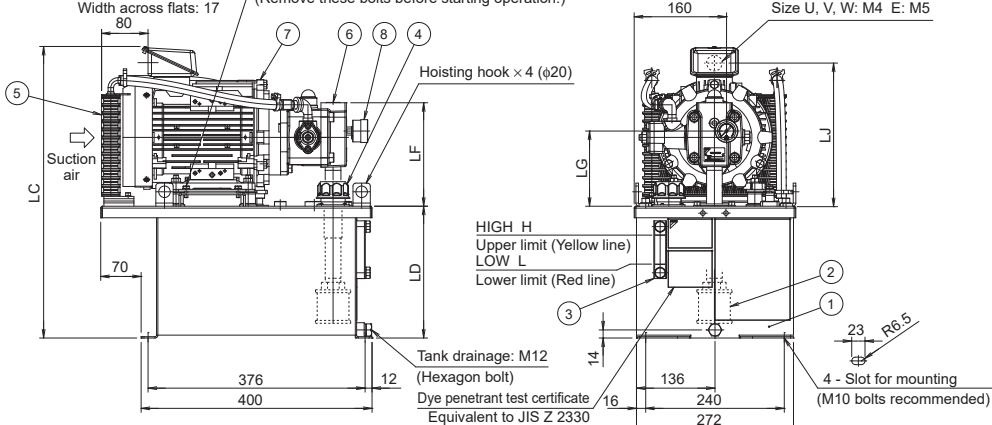
Discharge rate adjusting screw
 Clockwise: Decrease
 Counterclockwise: Increase
 Socket for hex key: 6
 Lock nut
 Width across flats: 19



Pressure adjusting screw

Clockwise: Increase
 Counterclockwise: Decrease
 Socket for hex key: 5
 Lock nut
 Width across flats: 17

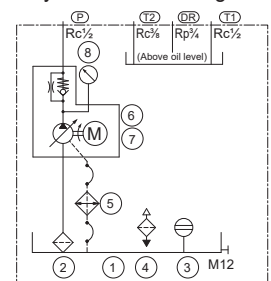
Bolt for fastening during transportation (both sides: 4 pcs.)
 (Remove these bolts before starting operation.)



Model code	Motor	LB	LC	LD	LF	LG	LJ	H	L
VPU10N08*-21JU-20	1.5 kW-4P		458	182				10 L	8 L
VPU15N16*-21JU-20		470	505	228	179	130	249	15 L	11 L
VPU20N16*-21JU-20			559	282				20 L	16 L
VPU15N167-31JU-20	2.2 kW-4P		515	228				15 L	11 L
VPU20N16*-31JU-20		508	569	282	189	140	259	20 L	16 L

•The suction filter is oriented horizontally for the 10 L tank and vertically for the 15/20 L tank (see figure to the left).

Hydraulic circuit diagram



Part No.	Name
1	Oil tank
2	Suction strainer
3	Oil level gauge
4	Oil filler port with air breather
5	Oil cooler
6	Variable vane pump
7	Motor
8	Pressure gauge

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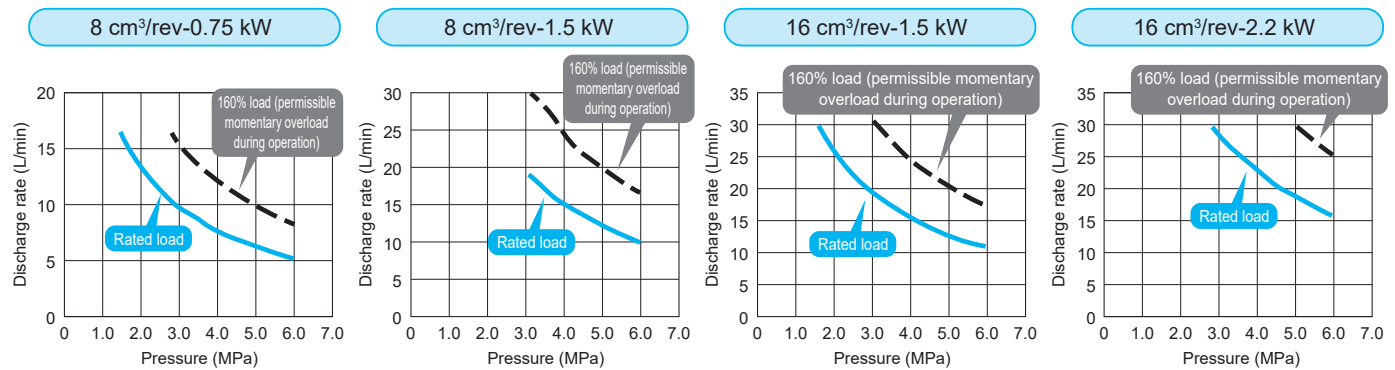
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Pump shaft input curves



- Adjust the pressure and discharge rate within the abovementioned ranges according to the capacity of the motor and use the unit under the following conditions.
 - Maximum load: 160% of rated load or lower for 15 seconds maximum
 - Average load: Within rated load
 - Tank oil temperature: 60°C or lower

Handling

● Ambient conditions

- Use the unit indoors under the following conditions.
 - Ambient temperature: 5 to 35°C, Ambient humidity: 20 to 90%RH (with no condensation)
- If using the unit where there is a lot of dust or oil mist, clean the oil cooler by applying compressed air or by other means since the oil cooler is prone to clogging in such environments.

● Hydraulic oil

- Use general petroleum-based hydraulic oil (R&O). Use of hydrous or synthetic hydraulic oil is prohibited.
- Use hydraulic oil equivalent to ISO VG32 to 46. Keep oil temperatures within the range from 5 to 60°C for VG32 or 15 to 60°C for VG46.
- Be sure to maintain the water content in the hydraulic fluid at 0.1% maximum by volume.
- Contamination of the hydraulic fluid causes device trouble and reduces the service life, so ensure that the contamination of the hydraulic fluid goes no higher than NAS contamination class 10.

● Transportation

- Use the hoisting hooks (φ20-hole at 4 locations) when transporting or hoisting the unit.

● Installation

- The unit is a stationary type. Secure it at a level location that is free of vibration.
- Be sure to secure the unit to the floor to prevent it from toppling over.
- Distance any obstacles to oil cooler air intake at least 50 mm from the oil cooler. Install the unit at a location with good air flow so that heated air can be vented.

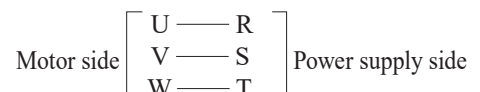
● Electric wiring

- Install safety devices, such as a no-fuse breaker and ground fault interrupter, in the main power supply, to protect the electrical circuits against shorting and overcurrent, and to prevent electric shocks. (Electrical ratings are given in the table below.)

Motor capacity Output (kW) (Number of poles: 4P)	Rated current (A)				Starting current (A)			
	AC200 V (50 Hz)	AC200 V (60 Hz)	AC220 V (60 Hz)	AC230 V (60 Hz)	AC200 V (50 Hz)	AC200 V (60 Hz)	AC220 V (60 Hz)	AC230 V (60 Hz)
0.75	3.8	3.4	3.4	3.4	27.3	23.8	26.2	27.4
1.5	6.8	6.4	6.0	6.0	46.6	41	45.1	47.2
2.2	10.6	9.4	9.2	9.2	96	81	89.1	93.2

*American Standard: Energy Independence and Security Act AC 230V-60 Hz (efficiency level: IE3)

- Connect the power cable such that the phases at the pump motor and power supply sides are as shown to the right.
 - If the motor rotates in the reverse direction, switch the connection between two phases among the three to correct the direction of rotation.
- Be sure to connect the ground terminal.



● At start

- 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.
- 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.
- Check that the pressure rises at the pressure gauge.