

VDR22 Design Series Variable Volume Vane Pump

30 ℓ /min 14MPa
40 ℓ /min 7MPa

B

Vane Pumps

Features

① Stable, highly efficient operation up to 14MPa

A biased piston that minimizes ring vibration and leak-free pressure balance construction enables highly efficient high-pressure operation, and very stable performance up to 14MPa.

② High-precision instantaneous response

Response has been improved by a special bias piston mechanism. Prompt response at both ON-OFF and OFF-ON

ensures instantaneous, stable, high-precision operation.

③ Silent operation, even in the high pressure range

Quiet journal bearings, a bias piston that allows a 3-point support system, and new suction and discharge port shapes all contribute to minimize operation noise. Silent, vibration-free operation is ensured, even in the high pressure range.

④ Reduced power loss

A combination of NACHI-original mechanical innovations and precision machining create a pump that minimizes power loss, especially at full cutoff.

⑤ Solid construction stands up to harsh operating conditions

The tough and rugged construction of this pump is made possible by a long history of quality pump designs. This, in combination with specially selected materials and skilled workmanship, provides outstanding durability.

Specifications

Single Pump

Model No.	Capacity cm ³ /rev	No-load Discharge Rate (ℓ/min)				Pressure Adjustment Range MPa{kgf/cm ² }	Allowable Peak Pressure MPa{kgf/cm ² }	Revolution Speedmin ⁻¹		Weight kg
		1000min ⁻¹	1200min ⁻¹	1500min ⁻¹	1800min ⁻¹			Min.	Max.	
VDR-1A(B)-1A2-22 1A3 1A4 1A5	16.7	16.7	20	25	30	1.5 to 3.5 {15.3 to 35.7} 3 to 7 {30.6 to 71.4} 6.5 to 10.5 {66.3 to 107} 9 to 14 {91.8 to 143}	14 {143} 21 {214}	800	1800	9
VDR-1A(B)-2A2-22 2A3	22	22	27	33	40	1.5 to 3.5 {15.3 to 35.7} 3 to 7 {30.6 to 71.4}	14 {143}	800	1800	9

Double Pump

Model No.	Vent Side		Shaft Side		Vent Side	Shaft Side	Revolution Speedmin ⁻¹		Weight kg
	Discharge Rate ℓ/min	Pressure Adjustment Range MPa{kgf/cm ² }	Discharge Rate ℓ/min	Pressure Adjustment Range MPa{kgf/cm ² }			Allowable Peak Pressure MPa{kgf/cm ² }	Min.	
VDR-11A(B)-1A2-1A2-22 VDR-11A(B)-1A2-1A3-22	30	1.5 to 3.5 {15.3 to 35.7}	30	1.5 to 3.5{15.3 to 35.7} 3 to 7 {30.6 to 71.4}	14 {143}	800	1800	17	
VDR-11A(B)-1A3-1A3-22		3 to 7 {30.6 to 71.4}		3 to 7 {30.6 to 71.4}					
VDR-11A(B)-2A2-2A2-22 VDR-11A(B)-2A2-2A3-22	40	1.5 to 3.5 {15.3 to 35.7}	40	1.5 to 3.5{15.3 to 35.7} 3 to 7 {30.6 to 71.4}	14 {143}	800	1800	17	
VDR-11A(B)-2A3-2A3-22		3 to 7 {30.6 to 71.4}		3 to 7 {30.6 to 71.4}					

Note) 1. The discharge rate is the value at 1800min⁻¹ no-load.

2. The change from design number 21 to design number 22 represents a change in the shaft key width from 3.2mm to 4.76mm. This means that when using a 3.2mm key coupling, you need to use a stepped key (VD31J-302000) or add a new key groove at 4.76.

● Handling

① Rotation Direction

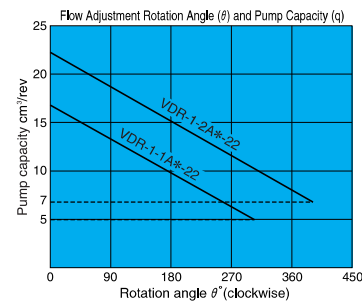
The direction of rotation is always clockwise (rightward) when viewed from the shaft side.

② Drain

Drain piping must be direct piping up to a point that is below the tank fluid level, and back pressure due to pipe resistance should not exceed 0.03MPa. When using a pump that has drain ports at two locations, use the drain port that is higher after the pump is installed.

③ Discharge Volume Adjustment

The discharge flow rate is decreased by clockwise (rightward) rotation of the discharge rate adjusting screw, and increased by counterclockwise (leftward) rotation. Loosen the lock nut before making adjustments. After adjustment is complete, re-tighten the lock nut. The graph on the right provides general guidelines for the relationship between the rotation angle of the flow rate adjusting screw and the no-load discharge rate.



(Continued on following page)

However: $Q=q \times n \times 10^{-3}$

Q :No-load Discharge Rate Q ℓ /min

q :Volume cm³/rev

N :Revolution Speed min⁻¹

The broken line shows the flow volume adjustment range lower limit value.

Note)

The values indicated above are at maximum discharge volume with the flow volume adjusting screw at the 0° position.

4] Pressure Adjustment

Pressure is decreased by clockwise (rightward) rotation of the discharge rate adjusting screw, and

increased by counterclockwise (leftward) rotation.

5] Factory Default P-Q Settings (Standard Model)

- Flow Rate Setting = Maximum flow rate for model as indicated in the catalog
- Pressure Setting = Pressure shown in table to the right

6] Thrust Screw

The thrust screw is precision adjusted at the factory during assembly. Never touch the thrust screw. See callout ② in the cross-section diagram on page B-11.

Factory Default Pressure Settings MPa(kgf/cm ²)	
2 : 3.5	{35.7}
3 : 3	{30.6}
4 : 6.5	{66.3}
5 : 9	{91.8}

7] Initial Operation

Before operating the pump for the first time, put the pump discharge side into the no-load state and then repeatedly start and stop the motor to bleed all air from inside the pump and the suction piping. After confirming that the pump is discharging oil, continue the no-load operation for at least 10 minutes to discharge all the air from the circuit.

Provide an air bleed valve in circuits where it is difficult to bleed air before startup.

8] Sub Plate

Use the following table for specification when a sub plate is required.

For detailed dimensions, see pages B-17 through B-19.

9] For the hydraulic operating fluid,

Pump Model No.	Sub Plate Number	Motor(kW)
VDR-1A-1A*-22	MVD-1-115-10	0.75 to 1.5
	MVD-1-135-10	2.2 to 3.7
VDR-1A-2A*-22	MVD-1-115Y-10	0.75 to 1.5
	MVD-1-135Y-10	2.2 to 3.7
VDR-11A-*A* -*A*-22	MVD-11-135-10	1.5 to 3.7
	MVD-11-135X-10	

use type ISO VG32 or equivalent (viscosity index of at least 90) for pressures of 7MPa or lower, and type ISO VG68 or equivalent (viscosity index of at least 90) for pressures greater than 7MP.

10] The operating temperature range is 15 to 60°C. When the oil temperature at startup is 15°C or less, perform a warm-up operation at low pressure until the oil temperature reaches 15°C. Use the pump in an area where the temperature is within the range of 0 to 60°C.

11] Suction pressure is -0.03 to +0.03MPa (-0.3 to +0.3kgf/cm²), and the suction port flow rate should be to greater than 2m/sec.

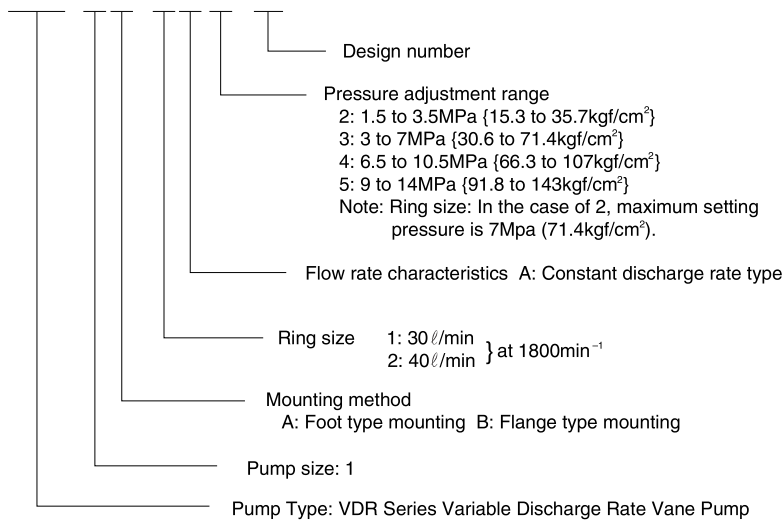
12] Avoid pulley, gear, and other drive systems that impart a radial or thrust load on the end of the pump shaft. Mount the pump so its pump shaft is oriented horizontally.

(Continued on following page)

Understanding Model Numbers

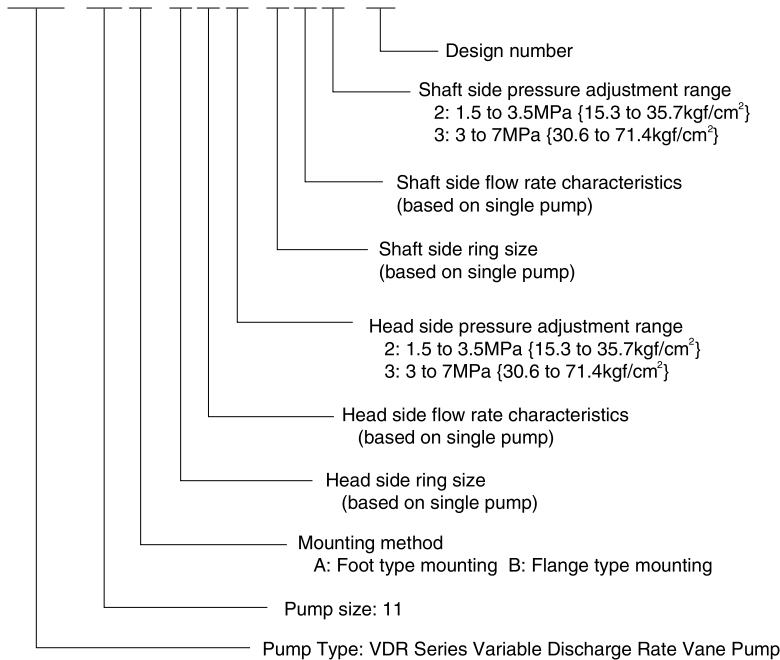
Single pump

VDR-1 A-1 A 2-22



Double pump

VDR-11 A-1 A 2-1 A 3-22



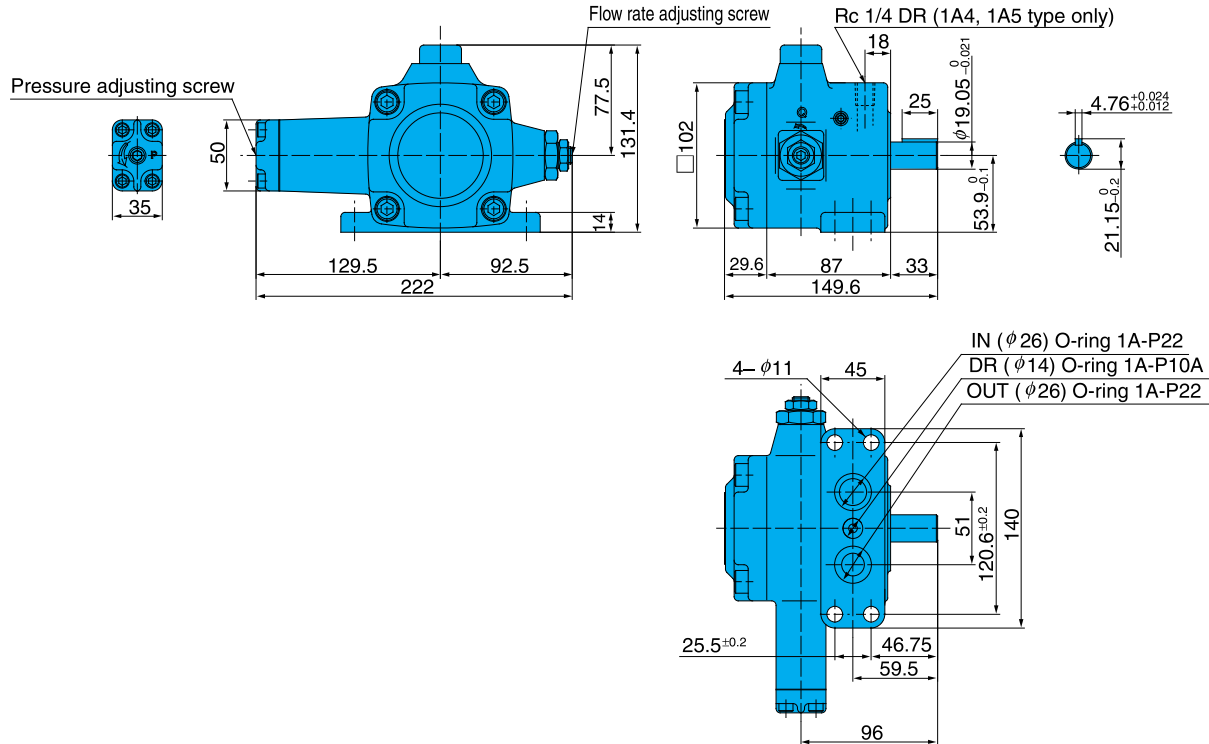
- 13 Provide a suction strainer with a filtering grade of about 100 μm (150 mesh). For the return line to the tank, use a 25μm line filter.
- 14 Manage hydraulic operating fluid so contamination is maintained at class NAS10 or lower. Take care to avoid contamination with water or other foreign matter, and watch out for discoloration. Whitish fluid indicates that air has contaminated the fluid, and brown-

- ish fluid indicates the fluid is dirty.
- 15 Contact your agent about using water- and glycol-based hydraulic operating fluids.
- 16 At startup, repeat the inching operation (start-stop) to bleed air from the pump and pipes.
- 17 Equip an air bleed valve in circuits where it is difficult to bleed air before startup. See page C-13 for more information.

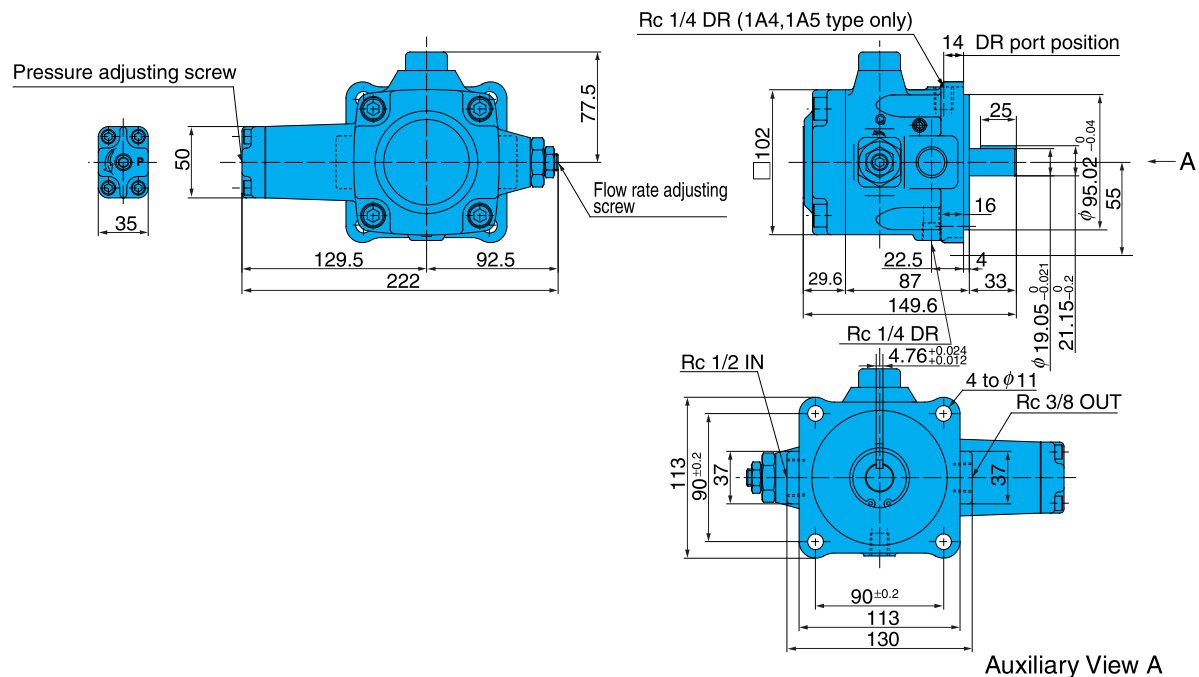
- 18 To ensure proper lubrication of the pump's rubbing surfaces, supply oil to the interior of the pump before starting operation.
- 19 When centering the pump shaft, eccentricity with the motor shaft should be no greater than 0.05mm. Use a pump mounting base of sufficient rigidity. The angle error should be no greater than 1°.

Installation Dimension Drawings

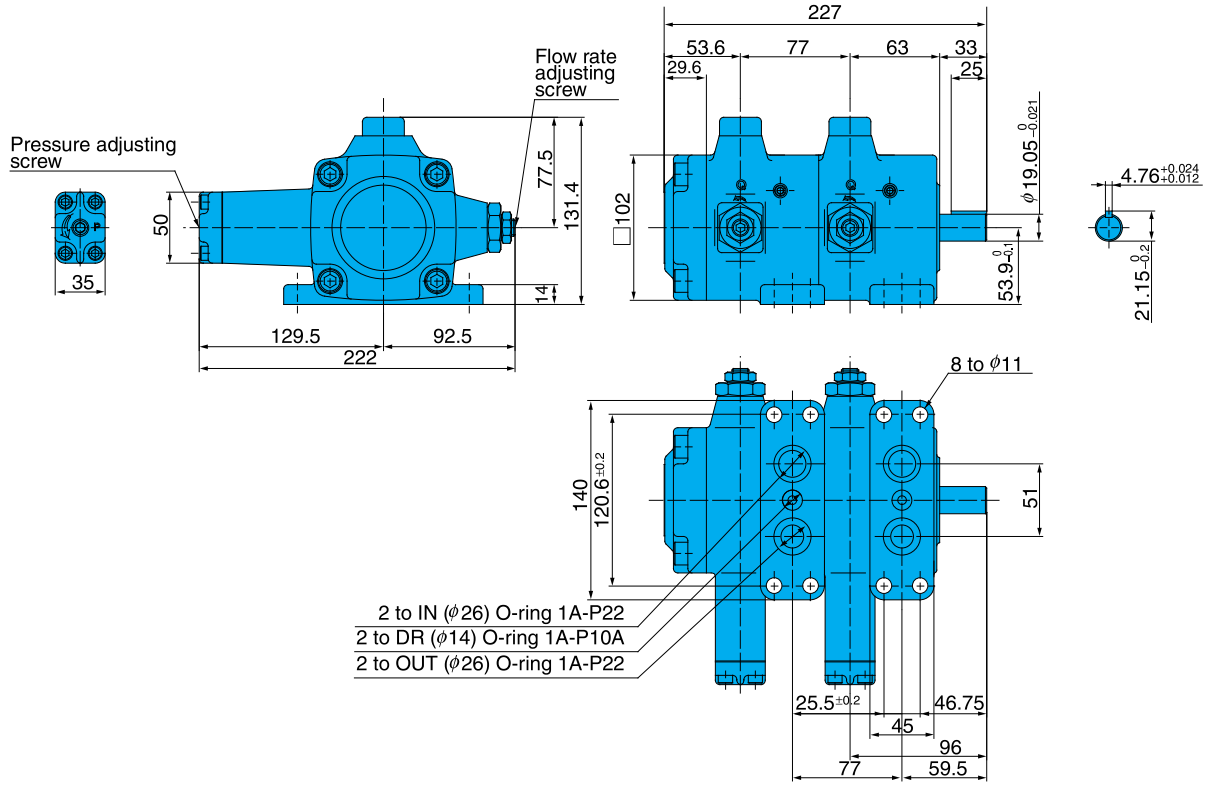
VDR-1A-*A*-22



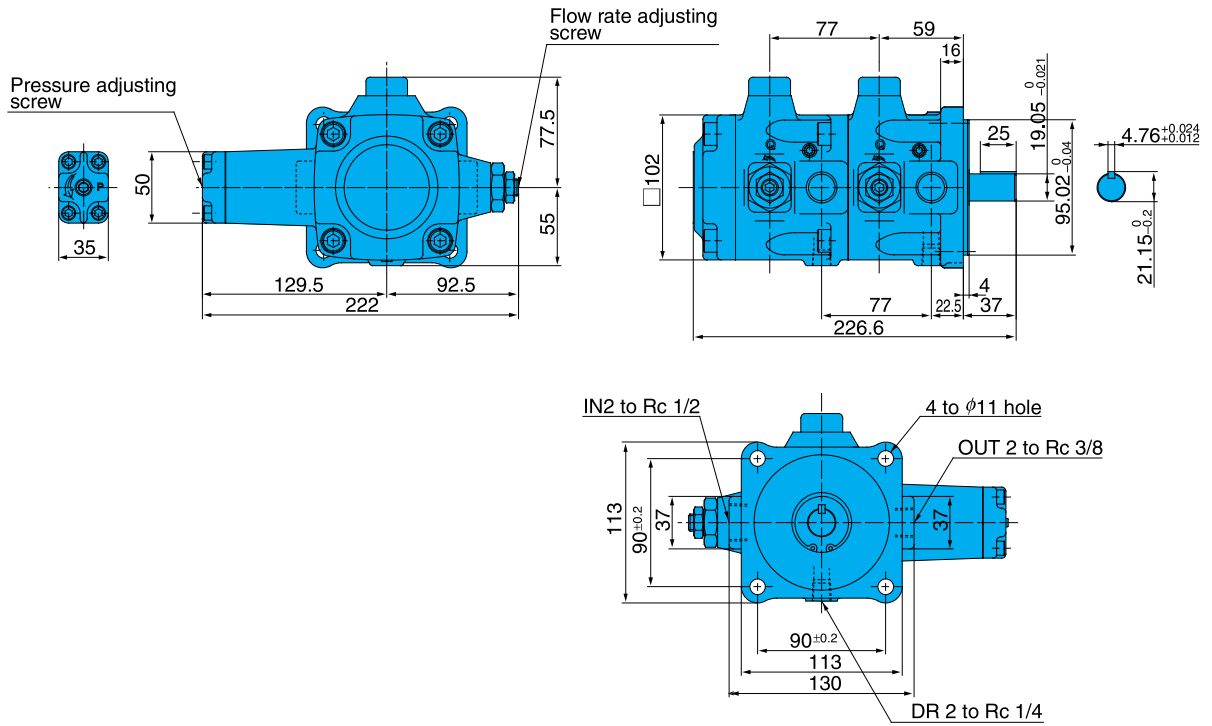
VDR-1B-*A*-22



VDR-11A-*-*-22

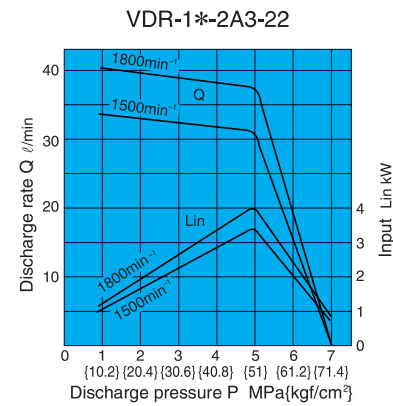
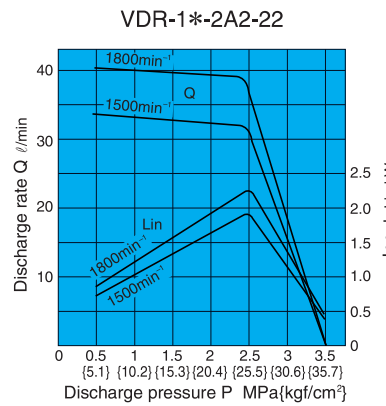
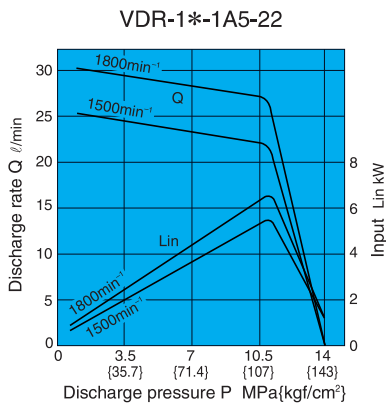
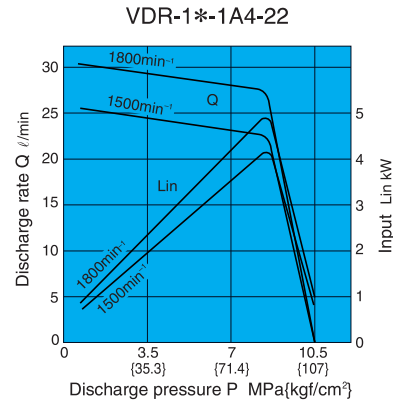
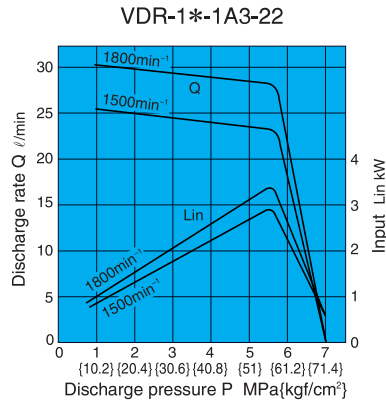
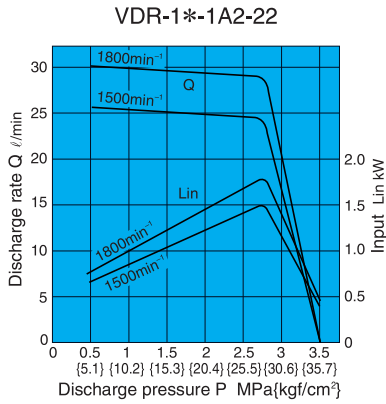


VDR-11B-*-*-22

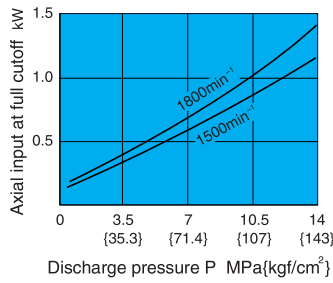


Performance Curves

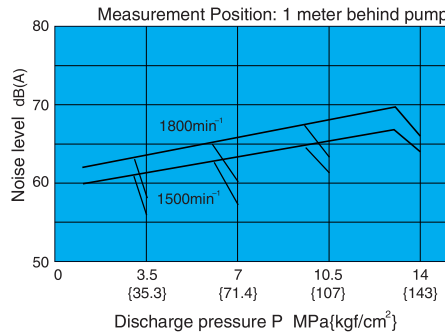
Typical characteristics at hydraulic operating fluid kinematic viscosity of 32 mm²/s



Axial Input At Full Cutoff

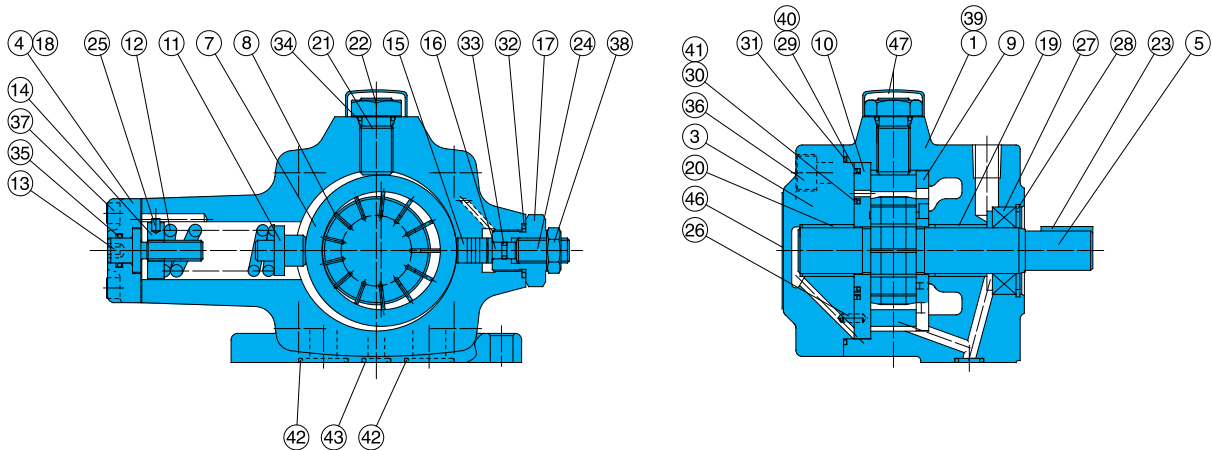


Noise Characteristics



Cross-sectional Drawing

VDR-1A-*A*-22



List of Sealing Parts

Single Pump

Part No.	Applicable Pump Model No.	VDR-1A-*A*-22	
	Seal Kit Number	VDBS-101A00	
	Part Name	Part Number	Q'ty
18	Packing	VDB32-101000	1
27	Oil seal	ISRD-224211	1
29	Backup ring	VDB34-101000	1
30	Backup ring	VDB34-201000	1
31	O-ring	S85(NOK)	1
32	O-ring	1A-P22	1
33	O-ring	1A-P5	1
34	O-ring	1A-P14	1
35	O-ring	1A-P12	1
40	O-ring	AS568-036	1
41	O-ring	AS568-029	1
42	O-ring	1A-P22	2
43	O-ring	1A-P10A	1

Note)

- Oil seals are manufactured by Nippon Oil Seal Industry Co. Ltd. (NOK).
- O-ring 1A-** refers to JIS B2401-1A-**.
- For VDR-1B-*A*-22, the seal kit number becomes VDBS-101B00, without the 42 and 43 O-rings.

Double Pump

Part Name	Applicable Pump Model No.	VDR-11A-*A*-22	
	Seal Kit Number	VDBS-111A00	
	Part Name	Part Number	Q'ty
18	Packing	VDB32-101000	2
27	Oil seal	ISRD-224211	1
29	Backup ring	VDB34-101000	2
30	Backup ring	VDB34-201000	2
31	O-ring	S85(NOK)	2
32	O-ring	1A-P22	2
33	O-ring	1A-P5	2
34	O-ring	1A-P14	2
35	O-ring	1A-P12	2
40	O-ring	AS568-036	2
41	O-ring	AS568-029	2
42	O-ring	1A-P22	4
43	O-ring	1A-P10A	2

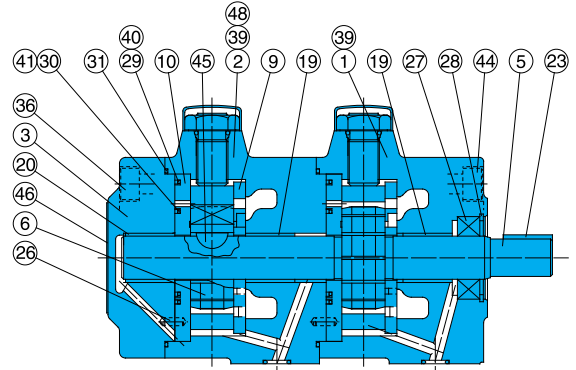
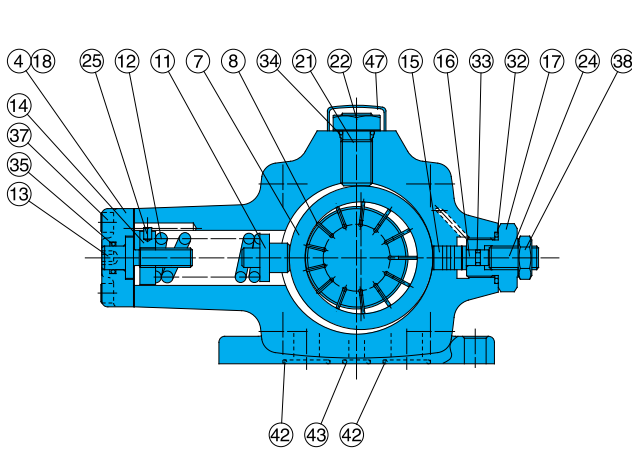
Note)

- Oil seals are manufactured by Nippon Oil Seal Industry Co. Ltd. (NOK).
- O-ring 1A-** refers to JIS B2401-1A-**.
- For VDR-11B-*A*-22, the seal kit number becomes VDBS-111B00, without the 42 and 43 O-rings.

Part No.	Part Name	Part No.	Part Name
1	Body (A)	25	Pin
2	Body (B)	26	Spring pin
3	Cover	27	Oil seal
4	Cover	28	Snap ring
5	Shaft	29	Backup ring
6	Rotor	30	Backup ring
7	Ring	31	O-ring
8	Vane	32	O-ring
9	Plate (S)	33	O-ring
10	Plate (H)	34	O-ring
11	Piston	35	O-ring
12	Spring	36	Screw
13	Screw	37	Screw
14	Nut	38	Nut
15	Piston	39	Plug
16	Holder	40	O-ring
17	Adapter	41	O-ring
18	Packing	42	O-ring
19	Bearing (S)	43	O-ring
20	Bearing (H)	44	Screw
21	Thrust screw	45	Key
22	Nut	46	Nameplate
23	Key	47	Cap
24	Screw	48	Pin

B

Vane Pumps

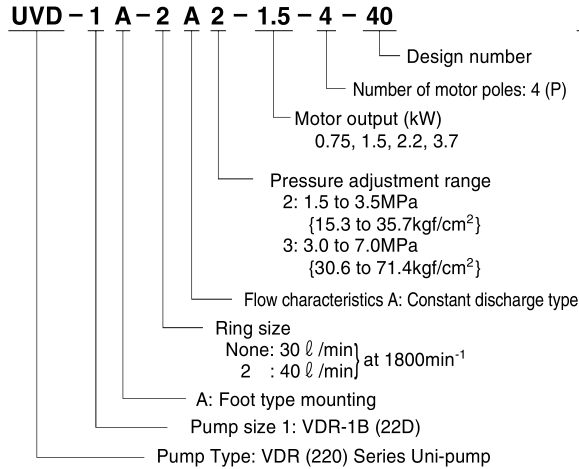


Uni-pump Specifications

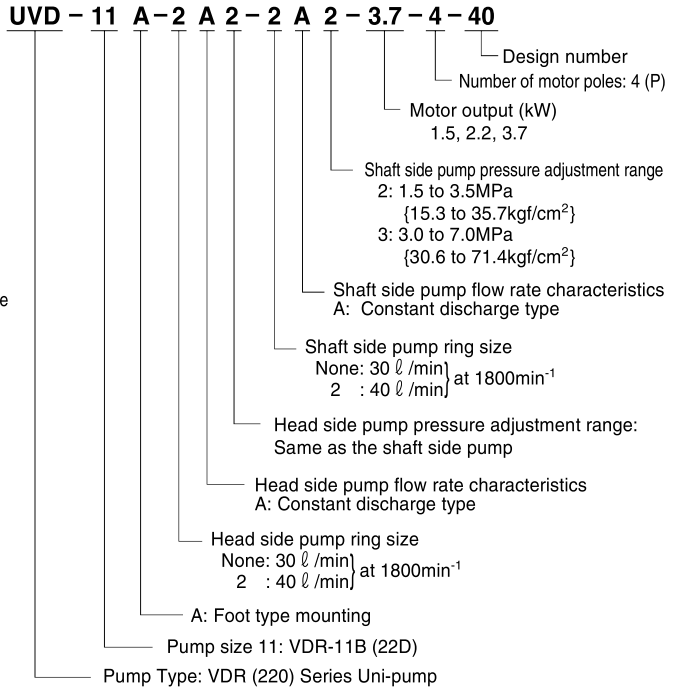
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Understanding Model Numbers

Single Pump



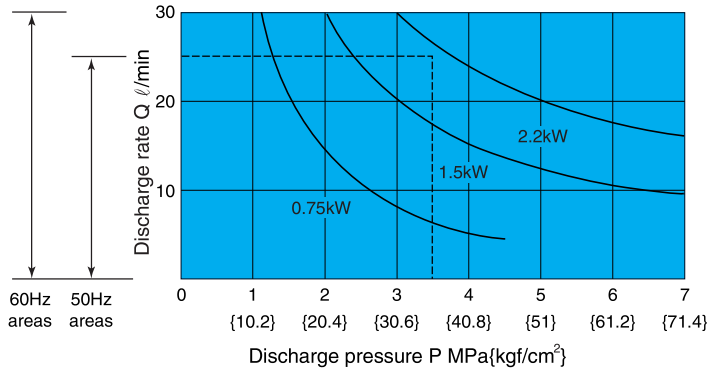
Double Pump



Specifications

Model No.	Maximum Working Pressure MPa(kgf/cm ²)	Maximum Flow Rate ℓ /min (A*)		Maximum Flow Rate ℓ /min (2A*)	
		50Hz	60Hz	50Hz	60Hz
UVD- 1A	7{71.4}	25	30	33	39
UVD-11A	7{71.4}	25-25	30-30	33-33	39-39

Motor selection curves



• Selecting a motor

The area under a motor output curve in the graph to the left is the operating range for that motor under the rated output for that motor.

Example:

To find the motor that can produce pressure of 3.5MPa and a discharge rate of 25 l/min.

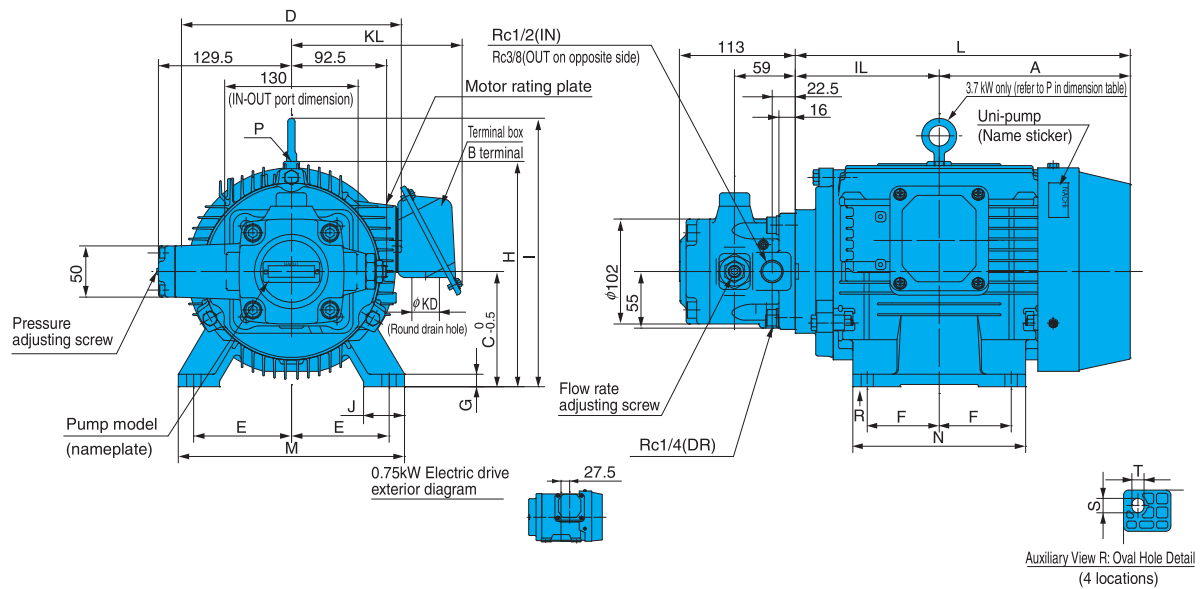
Selection Process

Since the intersection of the two broken lines from a pressure of 3.5MPa and discharge rate of 25 l/min intersect in the area under the 2.2kW curve, it means that a 2.2kW motor should be used. In the case of a double pump configuration, select a motor that is larger than the total power required by both pumps.

* Select a uni-pump that has a pressure and flow rate that is within the range of the drive so that the drive will not overload.

Installation Dimension Drawings

UVD-1A



Uni-pump	Motor Dimensions mm															Frame No.	Output kW (4 poles)	Weight kg		
	A	IL	C	D	E	F	G	H	I	J	L	M	N	S × T	KD				KL	O
UVD-1A-A2-0.75-4-40	133	105	80	170	62.5	50	4.5	165	—	35	238	165	130	18 × 10	φ27	157	27.5	80M	0.75	24
UVD-1A-A2-1.5-4-40	143	118.5	90	198	70	62.5	10	190	—	40	261.5	176	150	12 × 10	φ27	159	—	90L	1.5	25
UVD-1A-A3-1.5-4-40																				
UVD-1A-2A2-1.5-4-40	157.5	133	100	198	80	70	12	200	—	40	290.5	200	168	14 × 12	φ27	159	—	100L	2.2	30
UVD-1A-A2-2.2-4-40																				
UVD-1A-A3-2.2-4-40																				
UVD-1A-2A2-2.2-4-40	186	140	112	214	95	70	12	—	261	40	326	220	168	14 × 12	φ27	166	—	112M	3.7	36
UVD-1A-A3-3.7-4-40																				
UVD-1A-2A2-3.7-4-40																				
UVD-1A-2A3-3.7-4-40																				

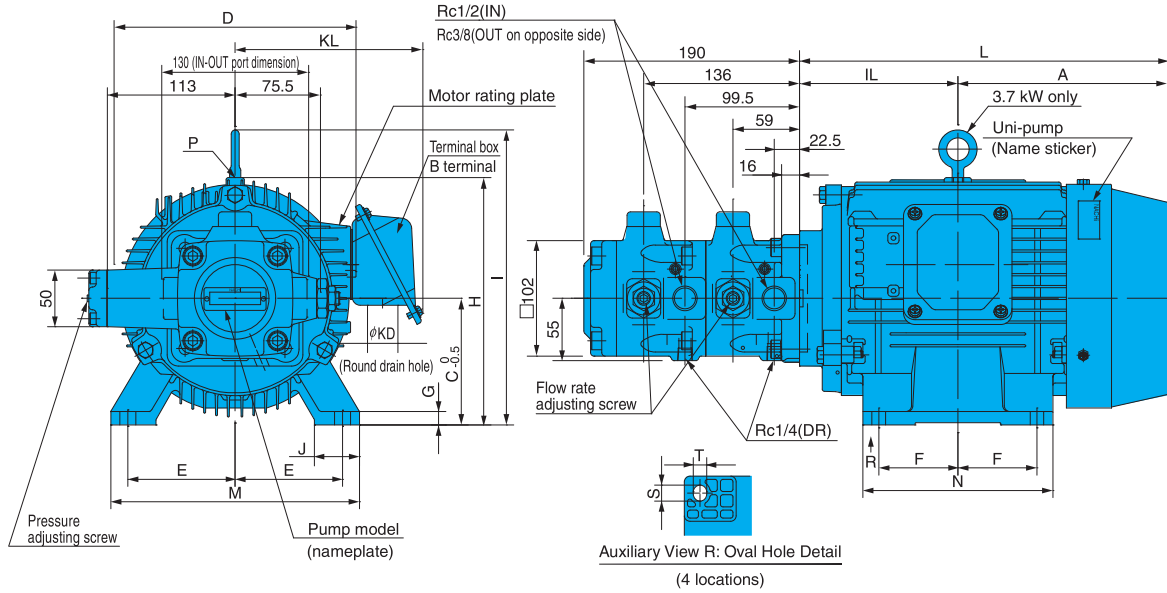
0.75 to 2.2kW model does not have hangers.

1. Standard drive motor is the fully enclosed fan-cooled B type.
2. Standard voltage for drive motor is 200 VAC, 50/60 Hz or 220 VAC, 60 Hz.
3. Standard terminal box is B terminal (right side viewed from pump).
4. See page A-21 for the characteristics of the drive motor for the unipump (domestic standard 3 rating).

UVD-11A

B

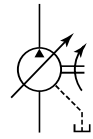
Vane Pumps



Uni-pump	Motor Dimensions mm																Frame No.	Output kW (4 poles)	Weight kg	
	A	IL	C	D	E	F	G	H	I	J	L	M	N	S × T	KD	KL				O
UVD-11A-A2-A2-1.5-4-40	143	118.5	90	198	70	62.5	10	190	-	40	261.5	176	150	12 × 10	ϕ27	159	-	90L	1.5	33
UVD-11A-A2-A3-1.5-4-40																				
UVD-11A-A3-A3-1.5-4-40																				
UVD-11A-A2-A2-2.2-4-40	157.5	133	100	198	80	70	12	200	-	40	290.5	200	168	14 × 12	ϕ27	159	-	100L	2.2	38
UVD-11A-A2-A3-2.2-4-40																				
UVD-11A-A3-A3-2.2-4-40																				
UVD-11A-2A2-2A2-2.2-4-40	186	140	112	214	95	70	12	-	261	40	326	220	168	14 × 12	ϕ27	166	-	112M	3.7	44
UVD-11A-A2-A2-3.7-4-40																				
UVD-11A-A2-A3-3.7-4-40																				
UVD-11A-A3-A3-3.7-4-40																				
UVD-11A-2A2-2A2-3.7-4-40																				
UVD-11A-2A2-2A3-3.7-4-40																				

1.5 to 2.2kW model does not have hangers.

- Standard drive motor is the fully enclosed fan-cooled B type.
- Standard voltage for drive motor is 200 VAC, 50/60 Hz or 220 VAC, 60 Hz.
- Standard terminal box is B terminal (right side viewed from pump).
- See page A-21 for the characteristics of the drive motor for the unipump (domestic standard 3 rating).



VDR13 Design Series Variable Volume Vane Pump

20 to 45 ℓ /min
6MPa

✚ The new design number 13 was created by modifying some of the components of old design numbers 11 and 12, and the new design installation compatible with the old design.

Features

- ① Energy efficient, economical operation
- ② Built-in high-precision temperature compensation mechanism
- ③ The ring is displaced by a spring, and a rise in pressure automatically moves it to the center to make the discharge rate zero.
- ④ Relief valve and unloading valve can be eliminated from the circuit.
- ⑤ It was possible to reduce the size of the unit because there was no increase of proportional input to pressure which prevented increases in the temperature of the fluid.
- ⑥ New design for lower noise and improved durability
- Handling
 - ① Rotation Direction The direction of rotation is always clockwise (rightward) when viewed from the shaft side.
 - ② Drain Drain piping must be direct piping up to a point that is below the tank fluid level, and back pressure due to pipe resistance

Specifications

Single Pump

Model No.	Capacity cm ³ /rev	No-load Discharge Rate (ℓ /min)				Pressure Adjustment Range MPa{kgf/cm ² }	Allowable Peak Pressure MPa {kgf/cm ² }	Revolution Speed min ⁻¹		Weight kg
		1000min ⁻¹	1200min ⁻¹	1500min ⁻¹	1800min ⁻¹			Min.	Max.	
VDR-1A(B)-1A1-13	13.9	14	16.5	21	25	1 to 2 {10.2 to 20.6}	14 {143}	800	1800	8
-1A2-	13.9	14	16.5	21	25	1.5 to 3.5 {15.3 to 35.7}				
-1A3-	11.1	11	13	17	20	3 to 6 {30.6 to 61.2}				
VDR-2A(B)-1A1-13	25	25	30	38	45	1 to 2 {10.2 to 20.4}	14 {143}	800	1800	21
-1A2-	25	25	30	38	45	1.5 to 3.5 {15.3 to 35.7}				
-1A3-	22.2	22	26.5	34	40	3 to 6 {30.6 to 61.2}				

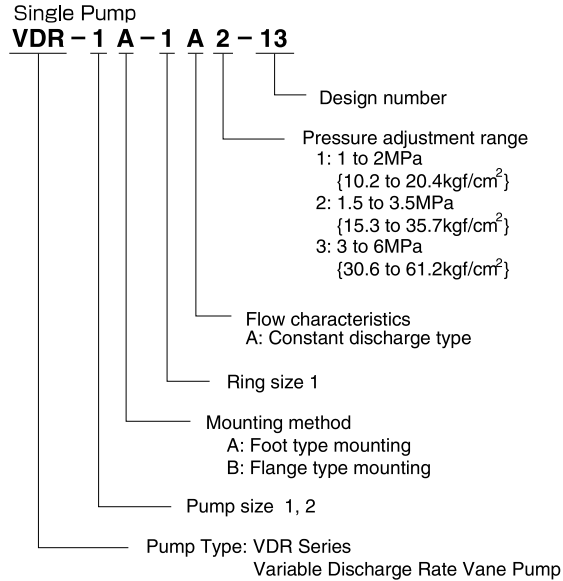
Double Pump

Model No.	Vent Side		Shaft Side		Vent Side	Shaft Side	Revolution Speed min ⁻¹		Weight kg
	Discharge Rate ℓ /min	Pressure Adjustment Range MPa{kgf/cm ² }	Discharge Rate ℓ /min	Pressure Adjustment Range MPa{kgf/cm ² }			Allowable Peak Pressure MPa{kgf/cm ² }	Min.	
VDR-11A(B)-1A1-1A1-13 VDR-11A(B)-1A1-1A2-13 VDR-11A(B)-1A1-1A3-13	25	1 to 2 {10.2 to 20.4}	25	1 to 2 {10.2 to 20.4} 1.5 to 3.5 {15.3 to 35.7}	14 {143}	800	1800	A : 13.6 B : 13.9	
VDR-11A(B)-1A2-1A2-13		1.5 to 3.5 {15.3 to 35.7}	25	1.5 to 3.5 {15.3 to 35.7} 3 to 5 {30.6 to 51}					14 {143}
VDR-11A(B)-1A3-1A3-13	20	3 to 5 {30.6 to 51}	20	3 to 5 {30.6 to 51}	14{143}				

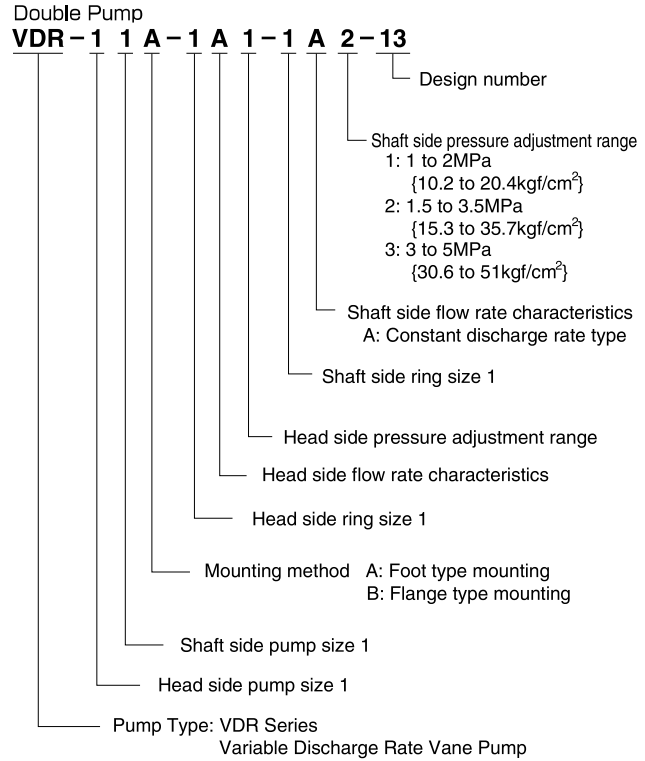
- Note) 1. The discharge rate is the value at 1800min⁻¹ no-load.
 2. In addition to this model, the VDC Series (maximum working pressure: 14MPa) high-pressure variable vane pump is also available. See page B-25 for more information.
 3. The change from VDR-1 Series design number 11 to design number 12 represents a change in the shaft key width from 3.2mm to 4.76mm. This means that when using a 3.2mm key coupling, you need to use a stepped key (VD31J-302000) or add a new key groove at 4.76.
 4. There is no change in the mounting method with the change from the VDR-1 size design number 12 and VDR-2 design number 11 to design number 13.

Understanding Model Numbers

Single Pump



Double Pump



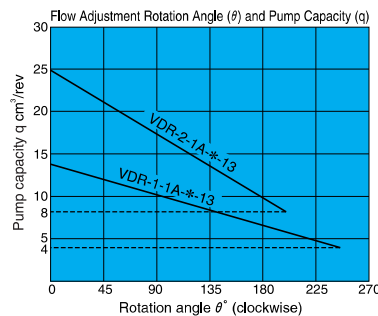
should not exceed 0.03MPa.

3] Discharge Volume Adjustment
 The discharge flow rate is decreased by clockwise (rightward) rotation of the discharge rate adjusting screw, and increased by counterclockwise (leftward) rotation. Loosen the lock nut before making adjustments. After adjustment is complete, re-tighten the lock nut. The graph below provides general guidelines for the relationship between the rotation angle of the flow rate adjusting screw and the no-load discharge rate.

However:
 Q: No-load Discharge Rate $Q \ell / \text{min}$
 q: Volume cm^3 / rev
 N: Revolution Speed min^{-1}

4] Pressure Adjustment Pressure is decreased by clockwise (rightward) rotation of the discharge rate adjusting screw, and increased by counterclockwise (leftward) rotation.

5] Factory Default P-Q Settings



(Standard Model)

- Flow Rate Setting = Maximum flow rate for model as indicated in the catalog
- Pressure Setting = Pressure shown in table to the right

Factory Default Pressure Settings MPa{kgf/cm ² }	
1 : 2	{20.4}
2 : 3.5	{35.7}
3 : 3	{30.6}

6] Initial Operation Before operating the pump for the first time, put the pump discharge side into the no-load state and then repeatedly start and stop the motor to bleed all air from inside the pump and the suction piping. After confirming that the pump is discharging oil, continue the no-load operation for at least 10 minutes to discharge all the air from the circuit.

Provide an air bleed valve in circuits where it is difficult to bleed air before startup.

7] Sub Plate When a sub plate is required, specify a sub-plate type from the table in the installation dimension diagram.

8] For the hydraulic operating fluid, use an R&O type and wear-resistant type of ISO VG32 to 68 or equivalent (viscosity index of at least 90). Use hydraulic operating

fluid that provides kinematic viscosity during operation in the range of 20 to 150mm²/s.

9] The operating temperature range is 15 to 60°C. When the oil temperature at startup is 15°C or less, perform a warm-up operation at low pressure and low speed until the oil temperature reaches 15°C. Use the pump in an area where the temperature is within the range of 0 to 60°C.

10] Suction pressure is -0.03 to +0.03MPa (-0.3 to +0.3kgf/cm²), and the suction port flow rate should be to greater than 2m/sec.

Note) The values indicated above are at maximum pump discharge volume with the flow volume adjusting screw at the 0° position. The broken line shows the flow volume adjustment range lower limit value.

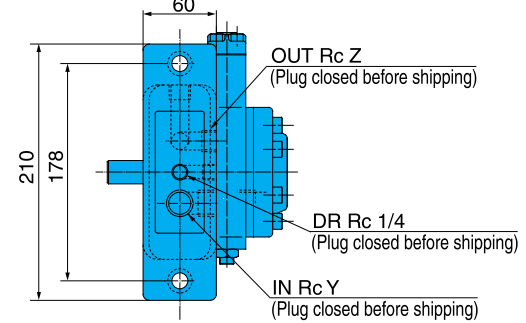
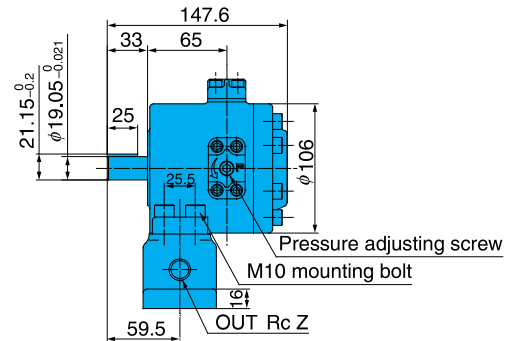
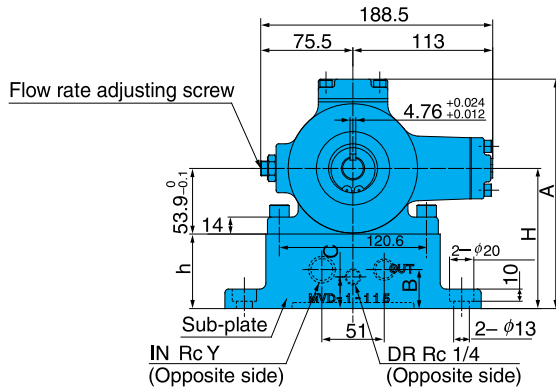
- 11 Avoid pulley, gear, and other drive systems that impart a radial or thrust load on the end of the pump shaft. Mount the pump so its pump shaft is oriented horizontally.
- 12 Provide a suction strainer with a filtering grade of about 100µm (150 mesh). For the return line to the tank, use a 25µm line filter.
- 13 Manage hydraulic operating fluid so contamination is maintained at class NAS10 or lower. Take care to avoid contamination with water and other foreign matter, and

- watch out for discoloration. Whitish fluid indicates that air has contaminated the fluid, and brownish fluid indicates the fluid is dirty.
- 14 At startup, repeat the inching operation (start-stop) to bleed air from the pump and pipes.
- 15 Equip an air bleed valve in circuits where it is difficult to bleed air before startup. See page C-13 for more information.
- 16 To ensure proper lubrication of the pump's rubbing surfaces, supply oil to the interior of the pump

- before starting operation.
- 17 When centering the pump shaft, eccentricity with the motor shaft should be no greater than 0.05mm. Use a pump mounting base of sufficient rigidity. The angle error should be no greater than 1°.

Installation Dimension Drawings

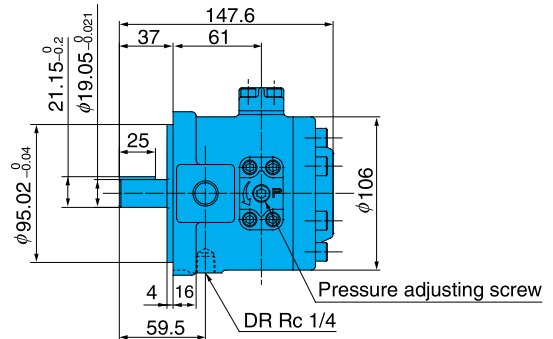
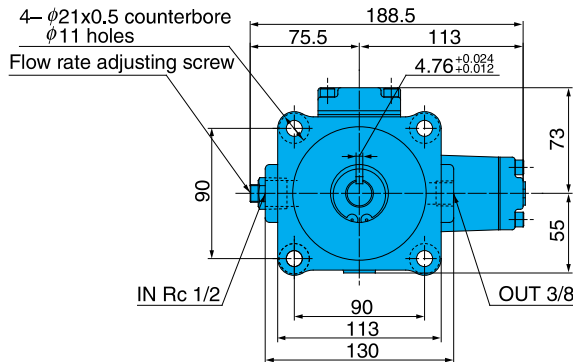
VDR-1A*-13 (Foot Mounting)



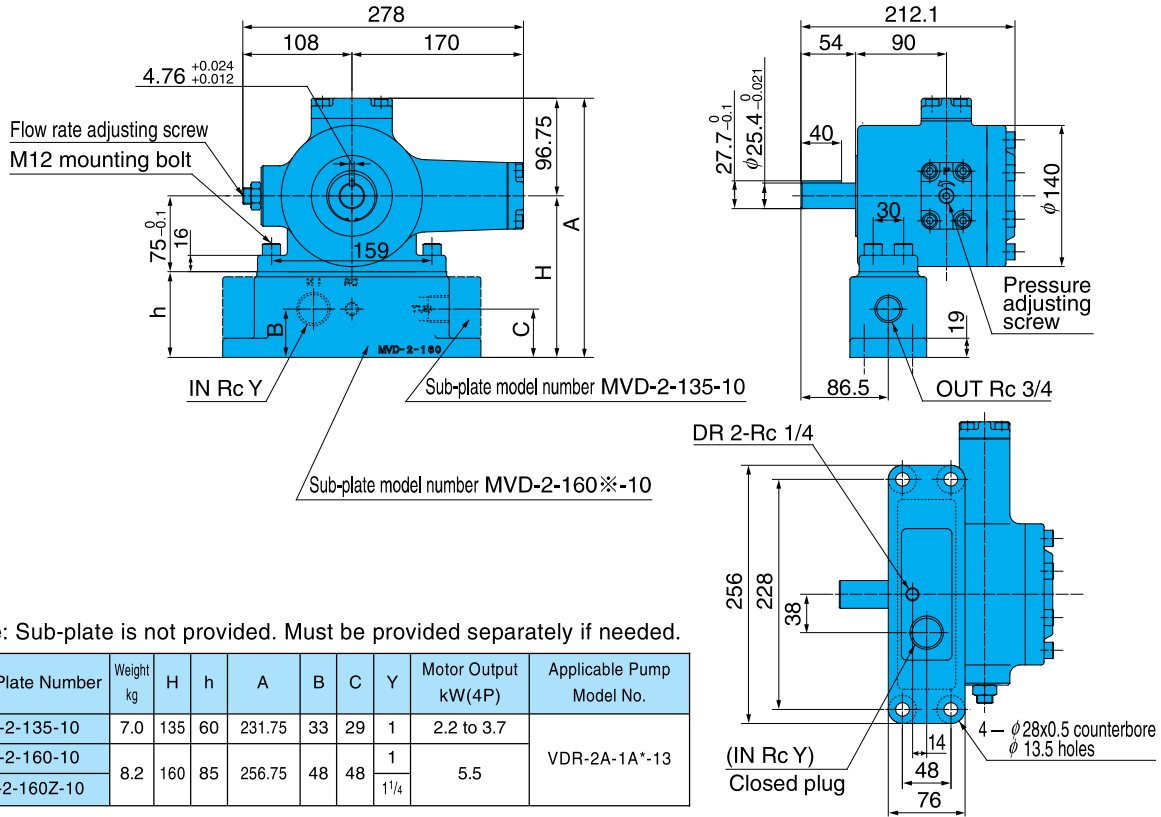
Note: Sub-plate is not provided. Must be provided separately if needed.

Sub Plate Number	Weight kg	H	h	A	B	C	Y	Z	Motor Output kW(4P)
MVD-1-115-10	3.7	115	61.1	188	32	26	1/2	3/8	0.75 to 1.5
MVD-1-115Y-10							3/4	1/2	
MVD-1-135-10	4.9	135	81.1	208	40	40	1/2	3/8	2.2 to 3.7
MVD-1-135Y-10							3/4	1/2	

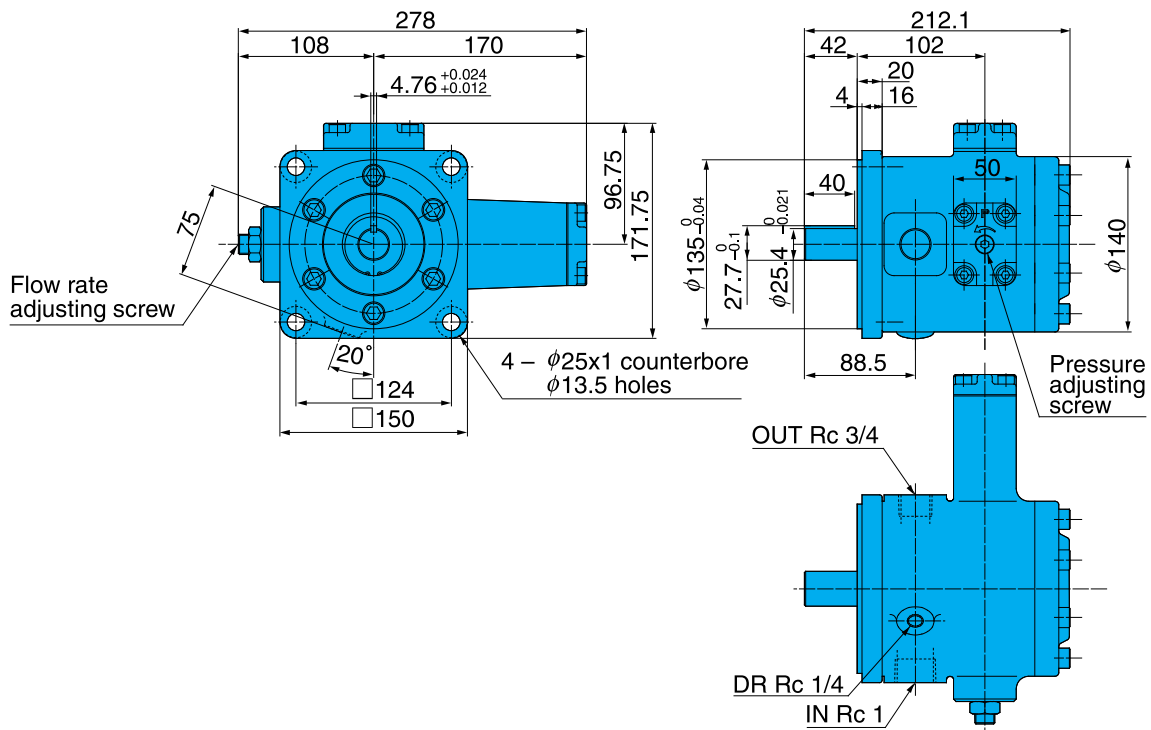
VDR-1B*-13 (Flange Mounting)



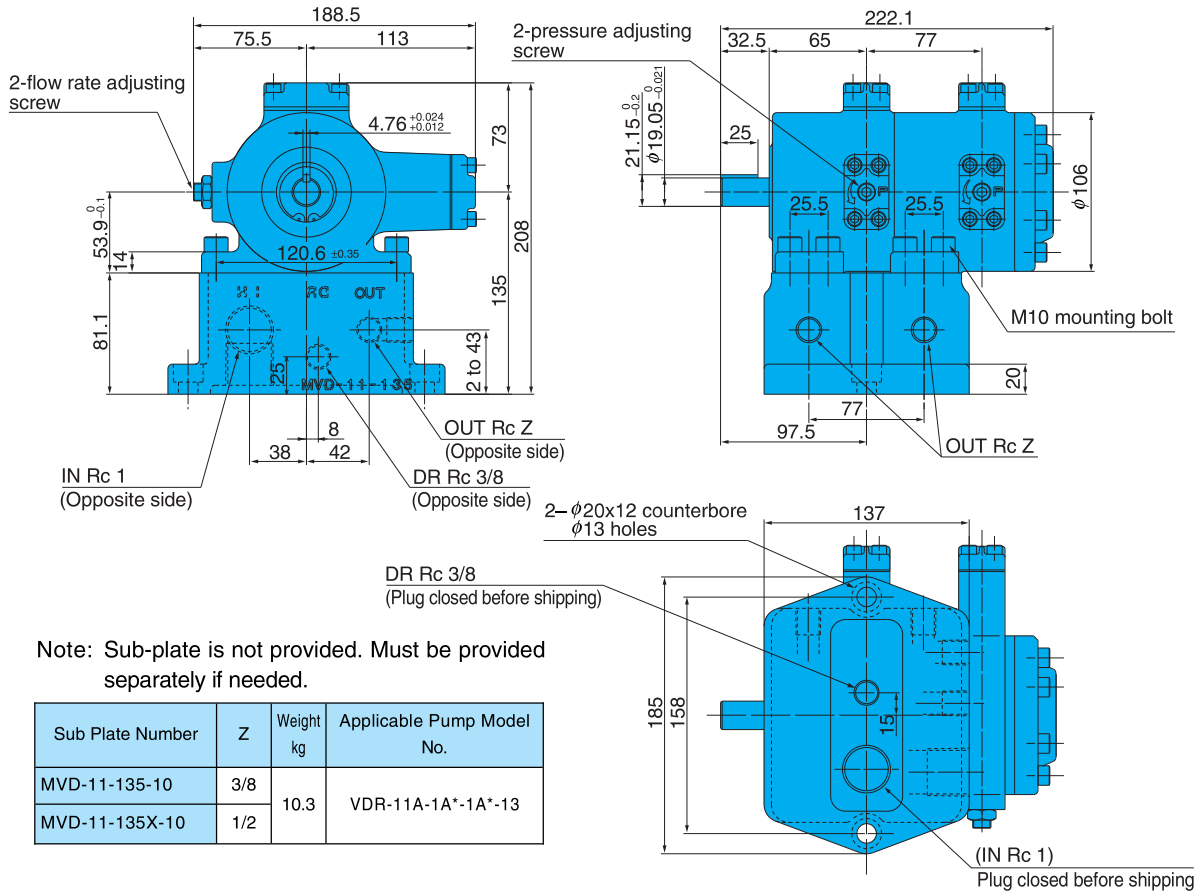
VDR-2A*-13 (Foot Mounting)



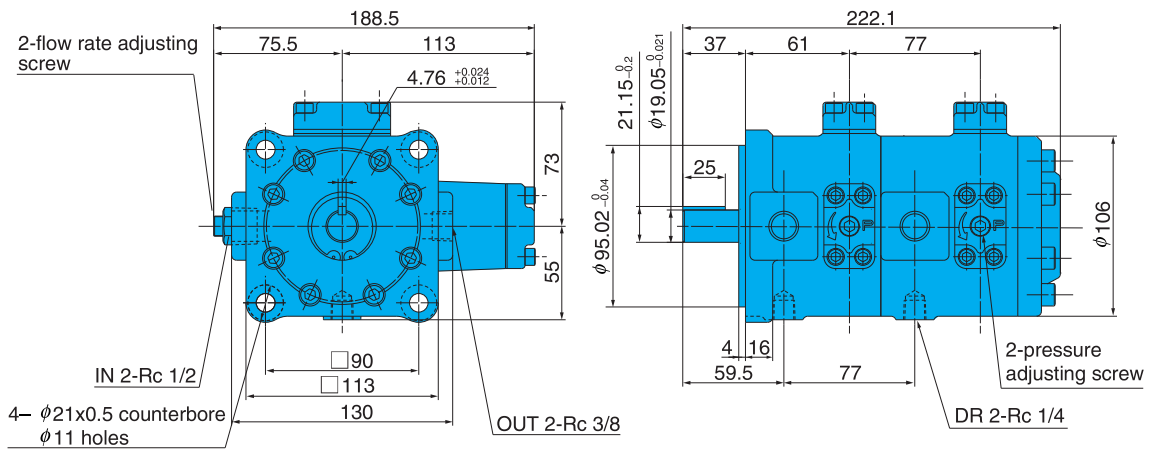
VDR-2B*-13 (Flange Mounting)



VDR-11A-*-13 (Foot Mounting)



VDR-11B-*-13 (Flange Mounting)

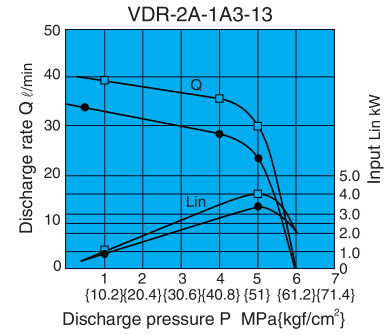
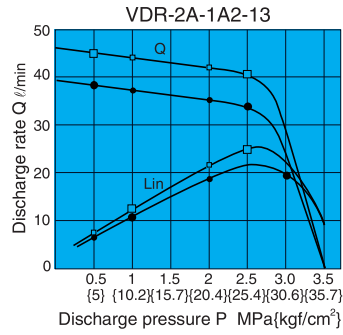
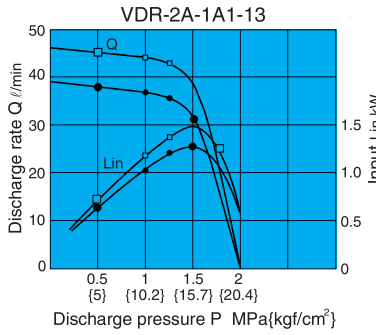
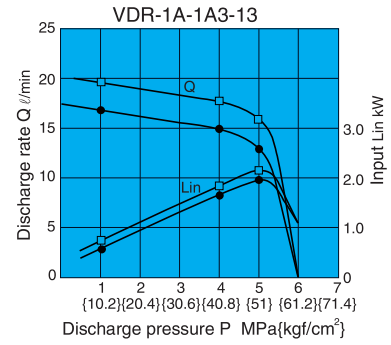
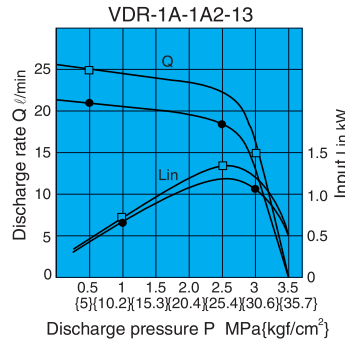
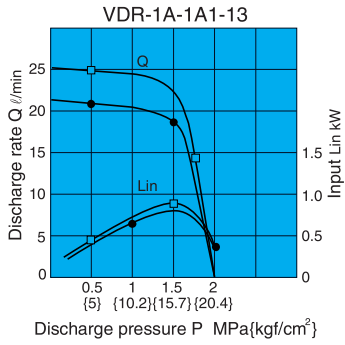


Performance Curves

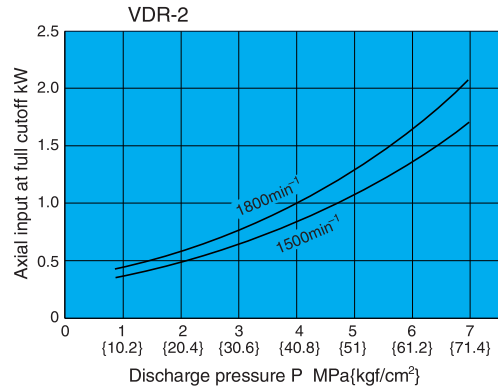
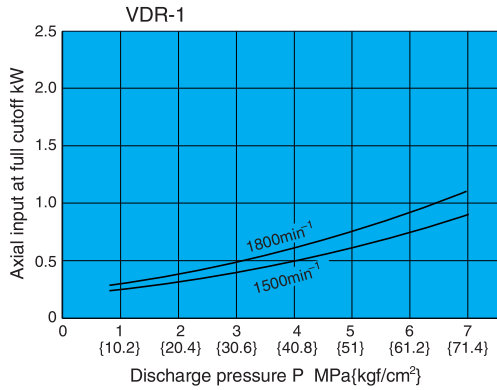
Typical characteristics at hydraulic operating fluid kinematic viscosity of 32 mm²/s

Revolution Speed 1500min⁻¹ —●—
1800min⁻¹ —□—

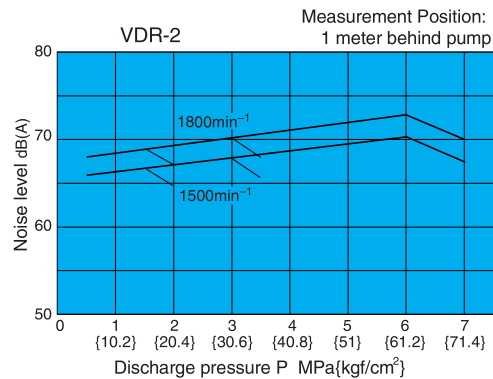
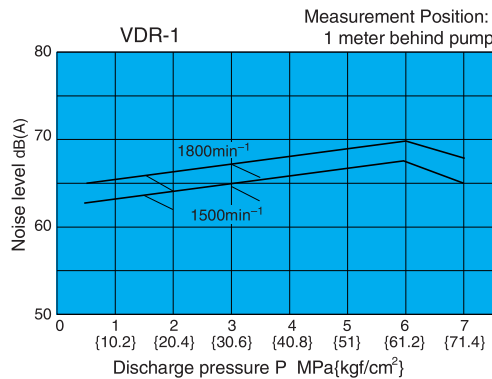
B
Vane Pumps



Axial Input At Full Cutoff

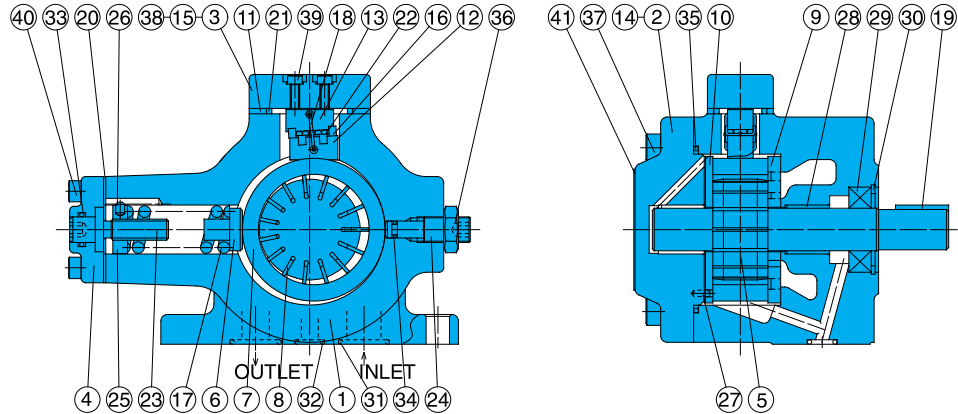


Noise Characteristics



Cross-sectional Drawing

VDR-1A-*-13
VDR-2A-*-13



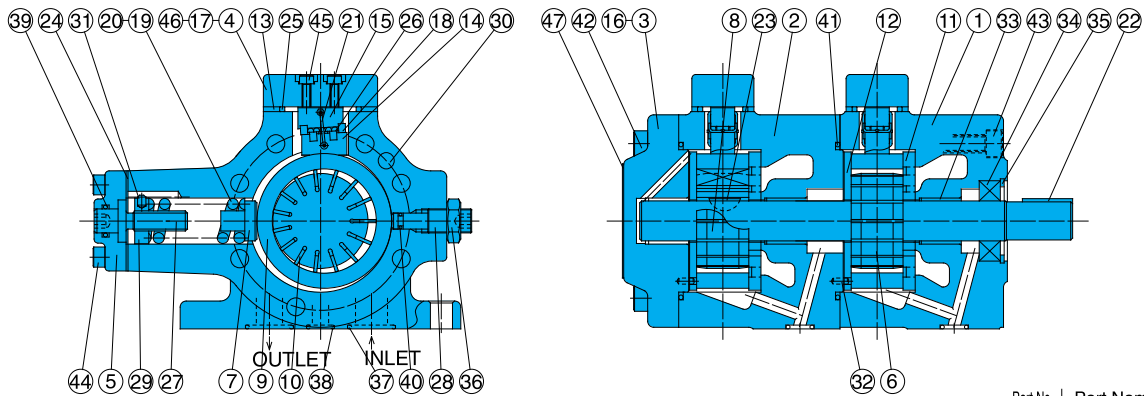
List of Sealing Parts

Part No.	Applicable Pump Model No.	VDR-1A-*-13		VDR-2A-*-13	
	Seal Kit Number	VDAS-101A00		VDAS-102A00	
	Part Name	Part Number	Q'ty	Part Number	Q'ty
20	Packing	VD32J-101000	1	VD32J-102000	1
21	Square ring	VD33J-101000	1	1A-G45	1
29	Oil seal	ISRD-204010	1	ISP-284811	1
31	O-ring	1A-P20	2	1A-G30	2
32	O-ring	1A-P10A	1	1A-P12	1
33	O-ring	1A-P12	1	1A-P14	1
34	O-ring	1A-P5	1	1A-P9	1
35	O-ring	1A-G70	1	1A-G100	1

- Note) 1. Oil seals are manufactured by Nippon Oil Seal Industry Co. Ltd. (NOK).
 2. O-ring 1A-** refers to JIS B2401-1A-**.
 3. For VDR-*B-*-13, the seal kit number becomes VDBS-10*B00, without the 31 and 32 O-rings.

Part No.	Part Name	Part No.	Part Name	Part No.	Part Name
1	Body	15	Shim	29	Oil seal
2	Cover	16	Retainer	30	Snap ring
3	Cover	17	Spring	31	O-ring
4	Cover	18	Spring	32	O-ring
5	Shaft	19	Key	33	O-ring
6	Piston	20	Packing	34	O-ring
7	Ring	21	Square ring (O-ring)	35	O-ring
8	Vane	22	Needle	36	Nut
9	Plate (S)	23	Screw	37	Screw
10	Plate (H)	24	Screw	38	Screw
11	Plate	25	Nut	39	Screw
12	Holder	26	Pin	40	Screw
13	Holder	27	Pin	41	Nameplate
14	Shim	28	Bearing		

VDR-11A-*-13



List of Sealing Parts

Part No.	Applicable Pump Model No.	VDR-11A-*-13	
	Seal Kit Number	VDAS-111A00	
	Part Name	Part Number	Q'ty
24	Packing	VD32J-101000	2
25	Square ring	VD33J-101000	2
34	Oil seal	ISRD-204010	1
37	O-ring	1A-P20	4
38	O-ring	1A-P10A	2
39	O-ring	1A-P12	2
40	O-ring	1A-P5	2
41	O-ring	1A-G70	2

- Note) 1. Oil seals are manufactured by Nippon Oil Seal Industry Co. Ltd. (NOK).
 2. O-ring 1A-** refers to JIS B2401-1A-**.
 3. For VDR-11B-*-13, the seal kit number becomes VDBS-111B00, without the 37 and 38 O-rings.

Part No.	Part Name	Part No.	Part Name	Part No.	Part Name
1	Body	11	Plate (S)	21	Spring
2	Body	12	Plate (H)	22	Key
3	Cover	13	Plate	23	Key
4	Cover	14	Holder	24	Packing
5	Cover	15	Holder	25	Square ring
6	Shaft	16	Shim	26	Needle
7	Piston	17	Shim	27	Screw
8	Rotor	18	Retainer	28	Screw
9	Ring	19	Spring	29	Nut
10	Vane	20	Spring	30	Pin

Part No.	Part Name
31	Pin
32	Pin
33	Bearing
34	Oil seal
35	Snap ring
36	Nut
37	O-ring
38	O-ring
39	O-ring
40	O-ring
41	O-ring
42	Screw
43	Screw
44	Screw
45	Screw
46	Screw
47	Nameplate