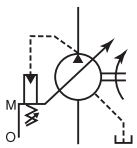
VDC Series
High Pressure Type Variable Volume Vane Pump

7.9 to 31.7 gpm
2000 psi



Features

Highly efficient and stable high-pressure operation
Innovative pressure control and pressure balance mechanisms combine with an original 3-point ring support system dramatically improves high-pressure operation. The result is outstanding performance at high pressures up to 2000 psi.

Low vibration and noise
A number of innovative new mechanisms are adopted to minimize vibration and noise. In particular, a 3-point support system is used for the control piston and bias piston to increase ring stability. This minimizes ring vibration and delivers quiet operation.

Outstanding response, high-precision operation
An innovative new ring stopper eliminates excessive ring displacement and improves response. The result is high precision operation at all times, including during starts, stops, and load changes.

Precise characteristics for a stable discharge rate
A revolutionary new pressure compensator type pressure control mechanism ensures a highly stable fixed discharge rate, even in the high pressure range.

High efficiency operation with minimal power loss
New mechanical innovations minimize power loss, especially at full cutoff.

Simplified maintenance and handling
Pressure adjusting and discharge rate adjusting mechanisms are located on the same side of the pump for simplified maintenance and handling.

Specifications

Single Pump

Model No.		Capacity in^3/rev	No-load Discharge Rate gpm		Pressure Adjustment Range kgf/cm (psi)	Allowable Peak Pressure kgf/cm (psi)	Revolution Speed min^{-1}		Weight lbs
Foot Mounting	Flange Mounting		1500min^{-1}	1800min^{-1}			Min.	Max.	
VDC-1A-1A2-*20 VDC-1A-1A3-*20 VDC-1A-1A4-*20 VDC-1A-1A5-*20	VDC-1B-1A2-*20/35 VDC-1B-1A3-*20/35 VDC-1B-1A4-*20/35 VDC-1B-1A5-*20/35	1.0	6.6	7.9	15.3 to 35.7 (217 to 507) 20.4 to 71.4 (290 to 1000) 51 to 107 (725 to 1500) 71.4 to 143 (1000 to 2000)	143 (2000) 214 (3000)	800	1800	21
VDC-1A-2A2-*20 VDC-1A-2A3-*20	VDC-1B-2A2-*20/35 VDC-1B-2A3-*20/35	1.3	8.7	10.5	15.3 to 35.7 (217 to 507) 20.4 to 71.4 (290 to 1000)	143 (2000)	800	1800	21
VDC-2A-1A2-*20 VDC-2A-1A3-*20 VDC-2A-1A4-*20 VDC-2A-1A5-*20	VDC-2B-1A2-*20/35 VDC-2B-1A3-*20/35 VDC-2B-1A4-*20/35 VDC-2B-1A5-*20/35	1.8	11.8	14.2	15.3 to 35.7 (217 to 507) 20.4 to 71.4 (290 to 1000) 51 to 107 (725 to 1500) 71.4 to 143 (1000 to 2000)	143 (2000) 214 (3000)	800	1800	55
VDC-2A-2A2-*20 VDC-2A-2A3-*20	VDC-2B-2A2-*20/35 VDC-2B-2A3-*20/35	2.3	15.3	18.4	15.3 to 35.7 (217 to 507) 20.4 to 71.4 (290 to 1000)	143 (2000)	800	1800	55
VDC-3A-1A2-*20 VDC-3A-1A3-*20 VDC-3A-1A4-*20 VDC-3A-1A5-*20	VDC-3B-1A2-*20 VDC-3B-1A3-*20 VDC-3B-1A4-*20 VDC-3B-1A5-*20	4.0	26.4	31.7	15.3 to 35.7 (217 to 507) 20.4 to 71.4 (290 to 1000) 51 to 107 (725 to 1500) 71.4 to 143 (1000 to 2000)	143 (2000) 214 (3000)	800	1800	103

Double Pump

Model No.	Vent Side			Shaft Side			Revolution Speed min^{-1}		Weight lbs
Foot Mounting Type (Flange Mounting)	Discharge Rate gpm		Pressure Adjustment Range kgf/cm (psi)	Discharge Rate gpm		Pressure Adjustment Range kgf/cm (psi)	Min.	Max.	
	1800min^{-1}	1500min^{-1}		1800min^{-1}	1500min^{-1}				
VDC-11A(B)-2A3-2A*20/35 VDC-11A(B)-2A3-1A*20/35	10.5	8.7	20.4 to 71.4 (290 to 1000)	10.5 7.9	8.7 6.6	20.4 to 71.4 (290 to 1000) 71.4 to 143 (1000 to 2000)	800	1800	Type A 59 Type B 44
VDC-12A(B)-2A3-2A*20/35 VDC-12A(B)-2A3-1A*20/35	10.5	8.7	20.4 to 71.4 (290 to 1000)	18.4 14.2	15.3 11.8	20.4 to 71.4 (290 to 1000) 71.4 to 143 (1000 to 2000)	800	1800	Type A 92 Type B 77
VDC-12A(B)-1A5-2A*20/35 VDC-12A(B)-1A5-1A*20/35	7.9	6.6	71.4 to 143 (1000 to 2000)	18.4 14.2	15.3 11.8	20.4 to 71.4 (290 to 1000) 71.4 to 143 (1000 to 2000)			
VDC-22A(B)-2A3-2A*20/35 VDC-22A(B)-2A3-1A*20/35	18.4	15.3	20.4 to 71.4 (290 to 1000)	18.4 17.2	15.3 11.8	20.4 to 71.4 (290 to 1000) 71.4 to 143 (1000 to 2000)	800	1800	Type A 136 Type B 110
VDC-13A(B)-2A3-1A*20 VDC-13A(B)-2A3-1A*20	10.5	8.7	20.4 to 71.4 (290 to 1000)	31.7	26.4	20.4 to 71.4 (290 to 1000) 71.4 to 143 (1000 to 2000)	800	1800	Type A 136 Type B 105
VDC-13A(B)-1A5-1A*20 VDC-13A(B)-1A5-1A*20	7.9	6.6	71.4 to 143 (1000 to 2000)			20.4 to 71.4 (290 to 1000) 71.4 to 143 (1000 to 2000)			

Note: 1. VDC-3A, VDC-11A, VDC-12A and VDC-13A are foot mounting types, and come with foot mountings.
2. VDC-1A and VDC-2A are sub plate types. Sub plates are not included.

• Handling

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

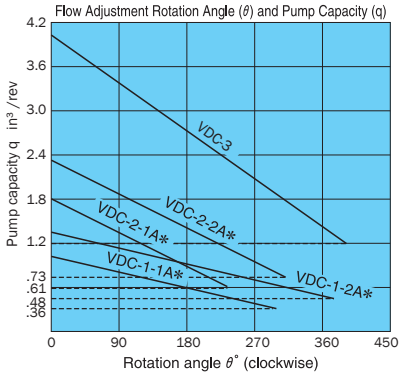
2 Drain Drain piping must be direct piping up to a point that is below the tank fluid level, and piping should comply with the conditions shown in the table below to ensure that back pressure due to pipe resistance does not exceed 14 psi. When using a pump that has drain ports at two locations, use the drain port that is higher after the pump is installed. In the case of a double pump, run separate pipes from both the shaft side and the head side drains directly connect to the tank, so the drain pipe is below the surface of the oil.

3 Discharge Volume Adjustment

Item \ Model No.	VDC-1	VDC-2	VDC-3
Pipe Joint Size	At least 1/4"	At least 1/4"	At least 3/8"
Pipe I.D.	At least .29	At least .29	At least .37
Pipe Length	1m or less	1m or less	1m or less

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.

Q: Flow rate gpm = $\frac{in^3 \times rpm}{231}$



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.

4 Pressure Adjustment Pressure is increased by clockwise (rightward) rotation of the discharge rate adjusting screw, and decreased by counterclockwise (leftward) rotation.
Loosen the lock nut before making adjustments. After adjustment is complete, re-tighten the lock nut.

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 below

6 Thrust Screw and Stopper
The thrust screw and stopper are precision adjusted at the factory during assembly. Never touch them.
See callouts 15/43 and 15/38 in the VDC-1A and 2A/3A cross-section diagrams on pages B-33 and B-34.

7 An unload circuit is required when the motor is started under condition WYE Delta. Contact your agent about the unload circuit.

8 Initial Operation
Before operating the pump for the first time, put the pump discharge side into the noload 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.

9 Sub Plate
Use the table below for to specify a sub plate type when one is required.

Factory Default Pressure Settings kgf/cm² (psi)
2: 35.7 (507)
3: 30.6 (435)
4: 5.1 (725)
5: 71.4 (1000)

10 Foot Mounting
For a double pump with VDC-3 foot mounting, the foot mounting kit and pump are sold as a set. When only the mounting feet are required, pump mounting bolts, washers and other parts are sold together as the Foot Mounting Kit.
See page B-36 for detailed dimensions.

11 For the hydraulic operating fluid, use type ISO VG32 or equivalent (viscosity index of at least 90) for pressures of 1000 psi or lower, and type ISO VG68 or equivalent (viscosity index of at least 90) for pressures greater than 1000 psi.

12 The operating temperature range is 59 to 140°F. When the oil temperature at startup is 59°F or less, perform a warm-up operation at low pressure until the oil temperature reaches 59°F. Use the pump in an area where the temperature is within the range of 32 to 140°F.

13 Suction pressure is 4.35 psi, and the suction port flow rate should be no greater than 6 ft/sec.

14 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.

15 Provide a suction strainer with a filtering grade of about 100µm (150 mesh). For the return line to the tank, use a 10µm line filter.

16 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 water has contaminated the fluid, and brownish fluid indicates the fluid is dirty.

17 Contact your agent about using water- and glycol-based hydraulic operating fluids.

18 At startup, repeat the inching operation (start-stop) to bleed air from the pump and pipes.

(Continued on following page)

Sub Plate Number

Pump Model No.	Sub Plate Number	Motor (hp)
VDC-1A-1A*-20	MVD-1-115-10	1 - 2
	MVD-1-135-10	3 - 5
VDC-1A-2A*-20	MVD-1-115Y-10	1 - 2
	MVD-1-135Y-10	3 - 5
VDC-2A-*A*-20	MVD-2-135-10	3 - 5
	MVD-2-160-10	7
VDC-2A-2A*-20	MVD-2-160Z-10	7

Note: See pages B-17 and B-18 for detailed dimensions.

19 Equip an air bleed valve in circuits where it is difficult to bleed air before startup. See page C-13 for more information.
20 To ensure proper lubrication of the pump's rubbing surfaces, supply oil to the interior of the pump before starting operation.
21 When centering the pump shaft, eccentricity with the motor shaft should be no greater than 0.001 in. Use a pump mounting base of sufficient rigidity. The angle error should be no greater than 1°.

Understanding Model Numbers

Single Pump

VDC -- 2 A -- 1 A 2 * 20

- 20 Design Number Metric
  E20 - VDC-1A, 2A, 3A/B; Unified Threads
  E35 - VDC-1B, VDC-2B; Unified Threads
  * P - Remote Control Compensator
- Pressure Adjustment Range
  2: 15.3 to 35.7kgf/cm² (217 to 507)
  3: 20.4 to 71.4kgf/cm² (290 to 1015)
  4: 51 to 107kgf/cm² (725 to 1522)
  5: 71.4 to 143kgf/cm² (1015 to 2000)
  Note: Ring Size: In the case of 2, maximum setting pressure is 71.4kgf/cm² (1015).
- Flow Characteristics A: Constant DischargeType
- Ring Size

at 1800min^{-1}

Ring size	VDC-1	VDC-2	VDC-3
1	7.9 gpm	14.2 gpm	31 gpm
2	10.5 gpm	18.5 gpm	–

- Mounting Method
  A: Foot Type Mounting B: Flange Type Mounting
- Pump Size
  1, 2, 3
- Pump Type: VDC Series High-pressure Variable Discharge Rate Vane Pump

The ZR-T02-*-5895* is the recommended remote control valve. Provide piping to the remote control valve at a pipe volume of 9 cu in or less.

Double Pump

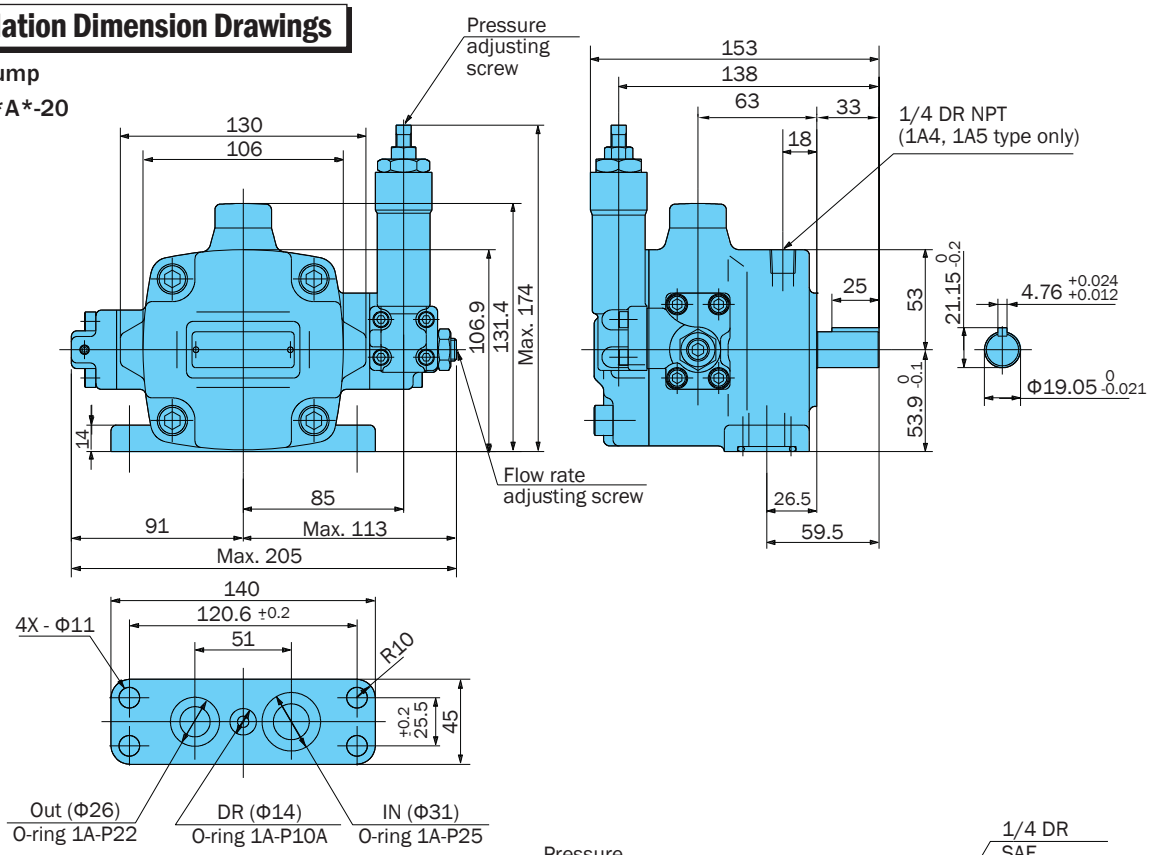
VDC -- 1 2 A -- 1 A 5 -- 2 A 3 -- 20

- Design Number Metric
  E35 - VDC-11B, 12B
  E20 - VDC-13B
- Shaft Side Pressure Adjustment Range
  3: 20.4 to 71.4kgf/cm² (290 to 1015)
  5: 71.4 to 143kgf/cm² (1015 to 2000)
- Shaft Side Flow Rate Characteristics A: Constant Discharge Rate Type
- Shaft Side Ring Size 1, 2
  (Size 1 only for VDC-3)
- Head Side Pressure Adjustment Range 3, 5
- Head Side Flow Rate Characteristics A: Constant Discharge Rate Type
- Head Side Ring Size 1, 2
- Mounting Method
  A: Foot Type Mounting B: Flange Type Mounting
- Shaft Side Pump Size 1, 2, 3
- Head Side Pump Size 1, 2
- Pump Type: VDC Series High-Pressure Variable Discharge Rate Vane Pump

Installation Dimension Drawings

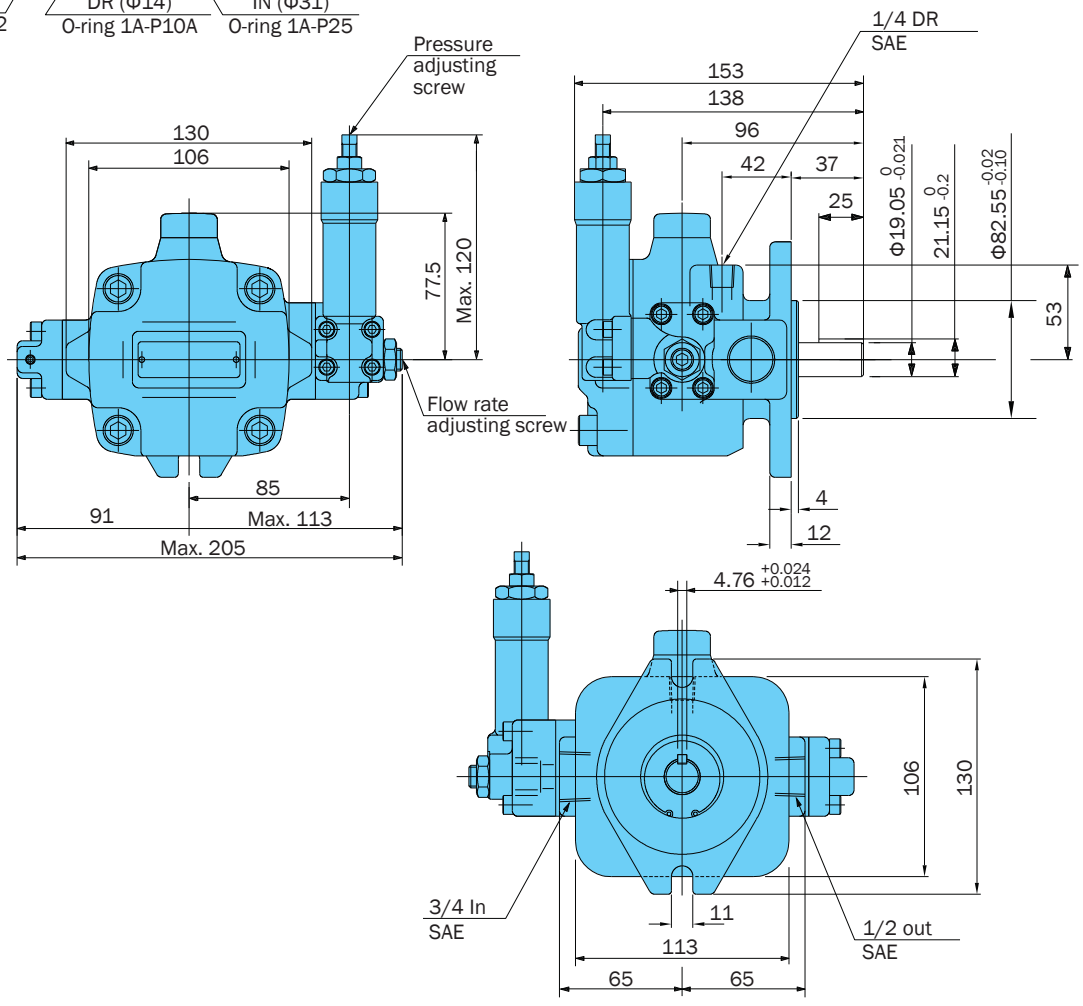
Single Pump

VDC-1A-*A*-20

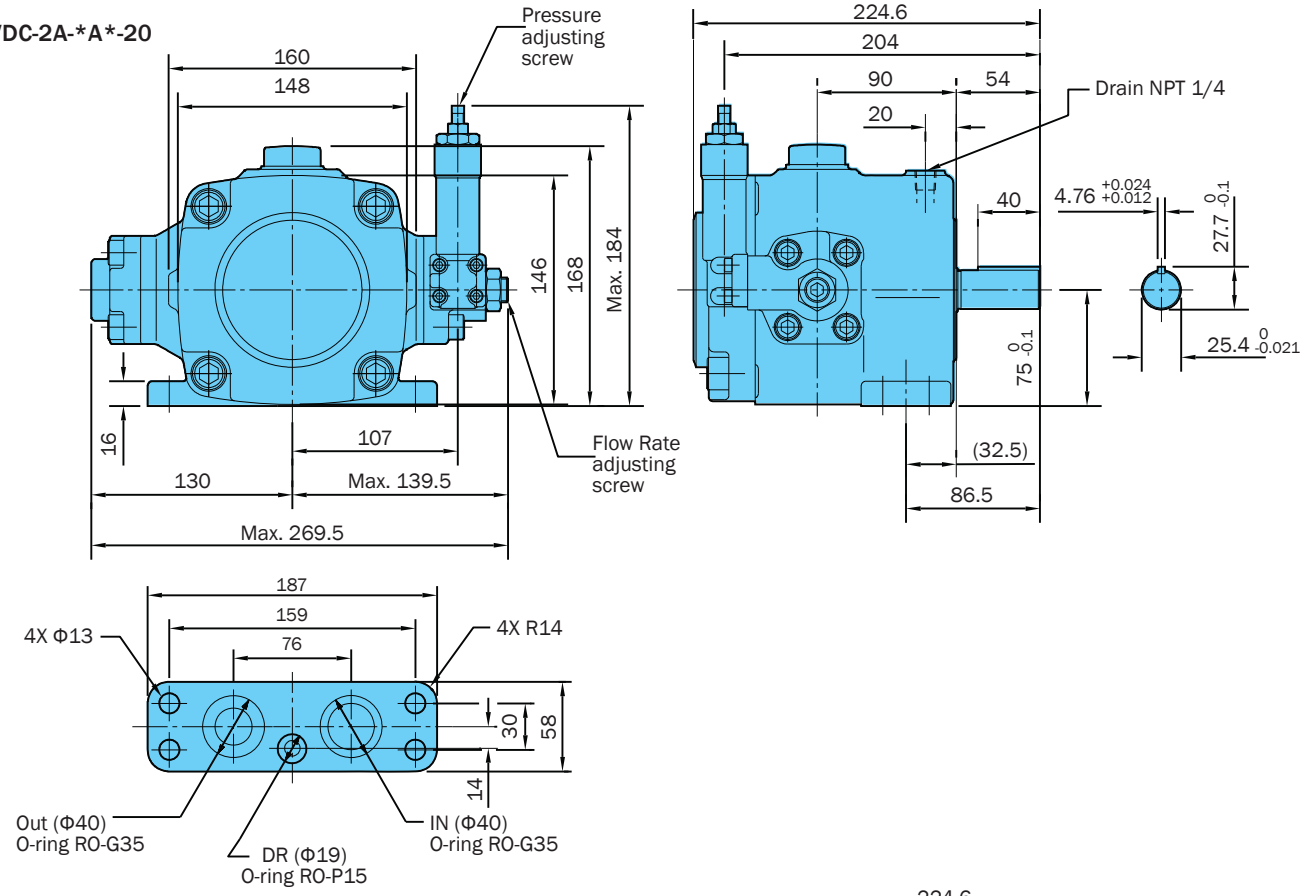


VDC-1B-*A*-E35

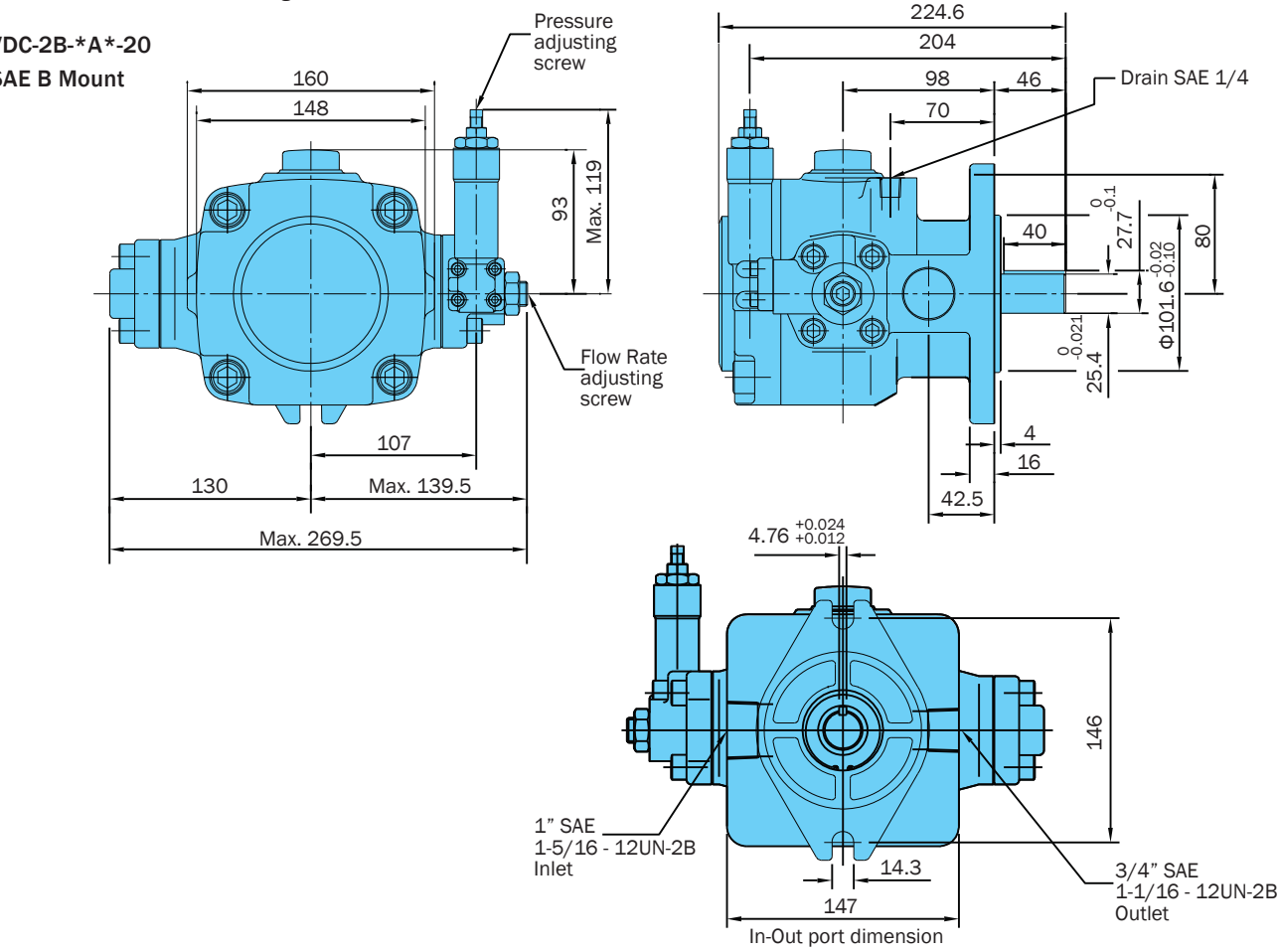
SAE A Mount



VDC-2A-*A*-20

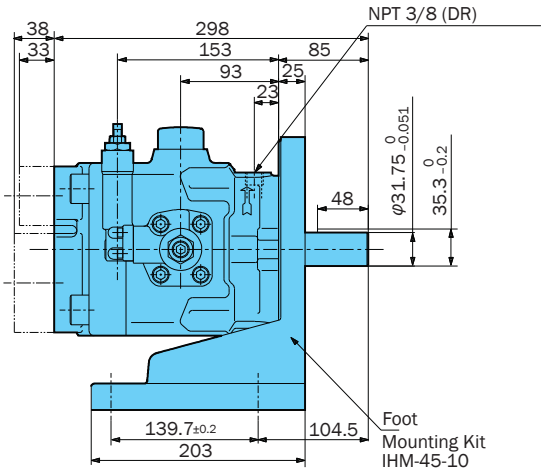


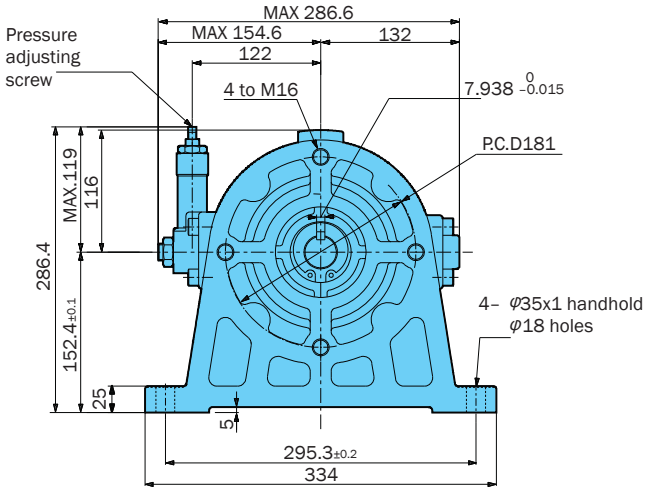
VDC-2B-*A*-20
SAE B Mount

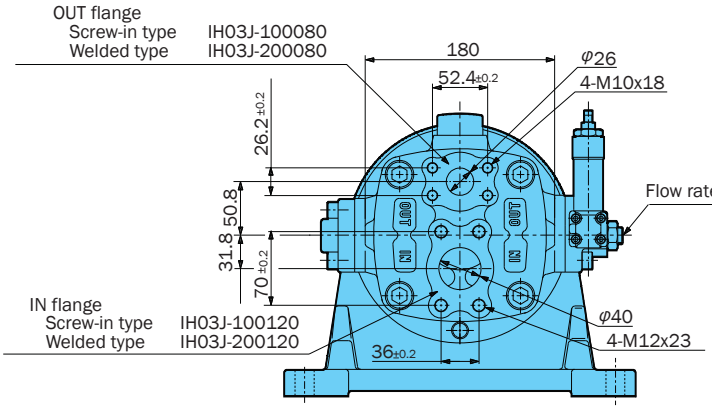


Installation Dimension Drawings

VDC-3A-1A*-20

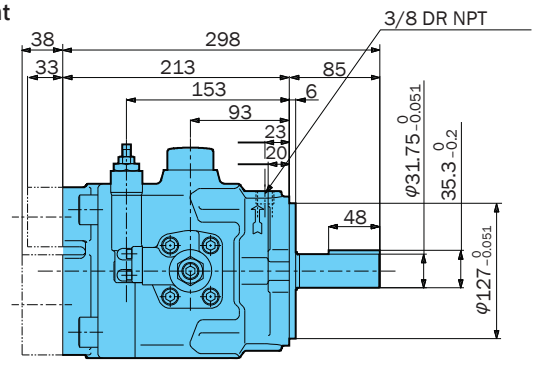


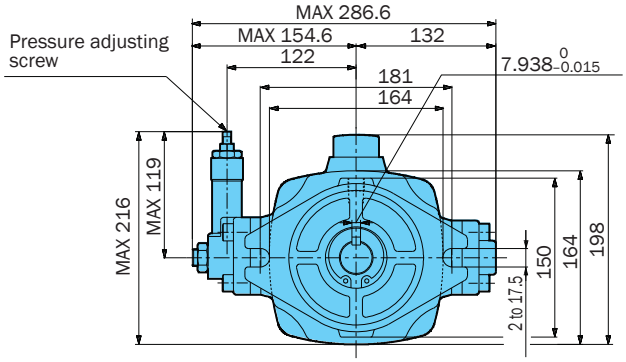


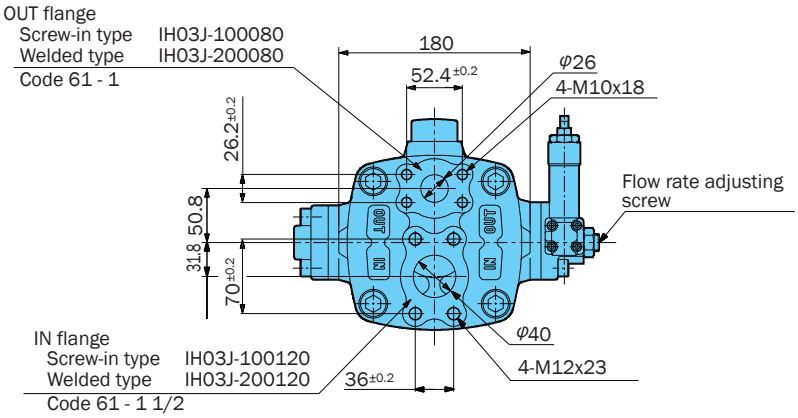


VDC-3B-1A*-E35

SAE C Mount





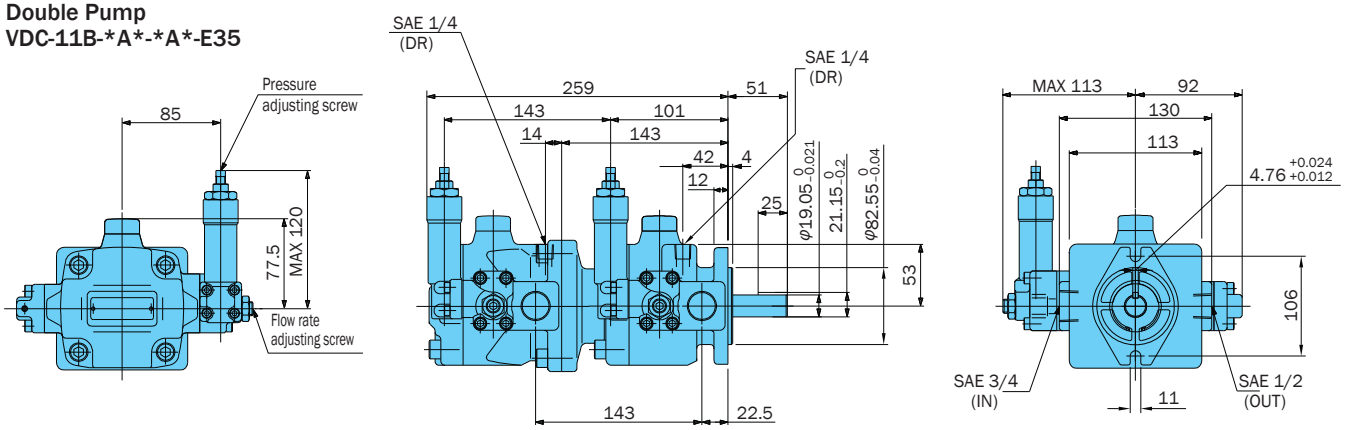


Note: Use the following table when specifying the piping flange kit.

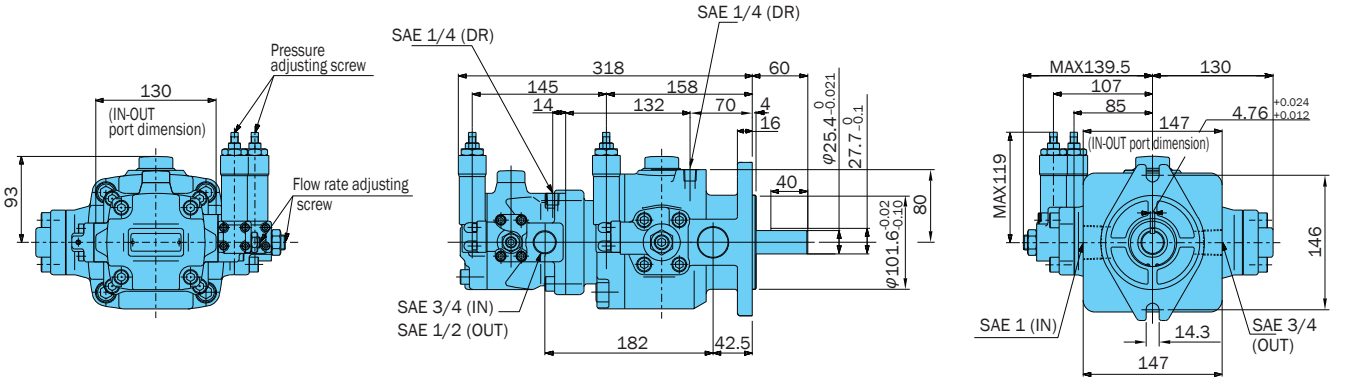
Type	Flange Kit model No.
Screw in type	IHF-5-T-20
Welded Type	IHF-5-E-20

For dimensions, components, and other details, see the IP pump piping flange kits on pages C-10 and C-11.

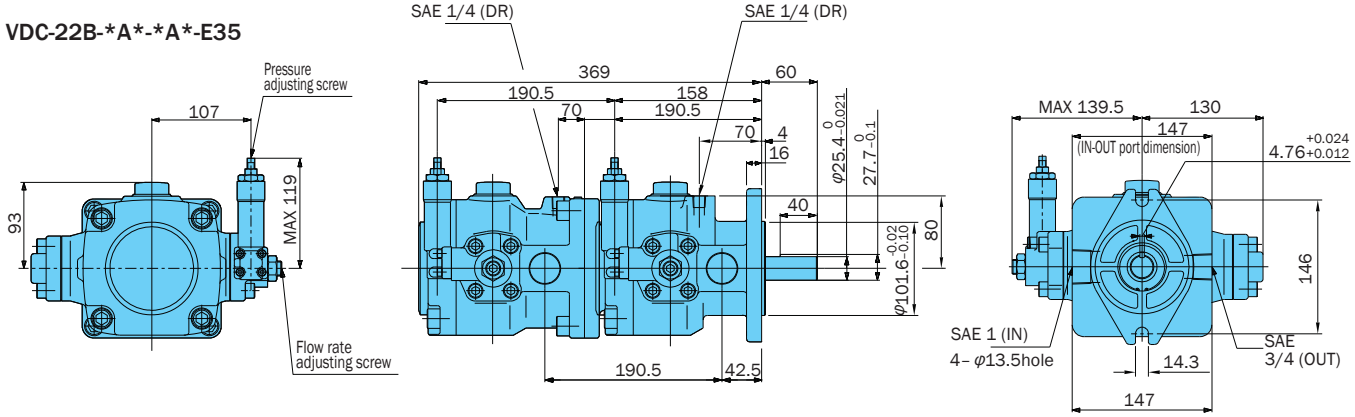
Double Pump
VDC-11B-*A*-*A*-E35



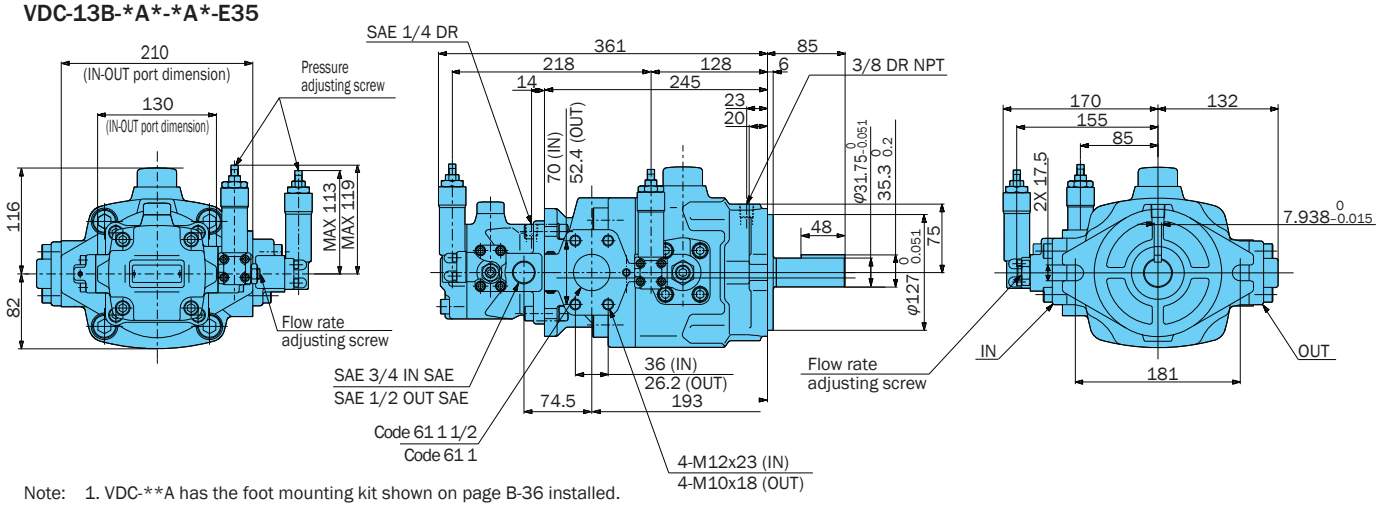
VDC-12B-*A*-*A*-E35



VDC-22B-*A*-*A*-E35



VDC-13B-*A*-*A*-E35

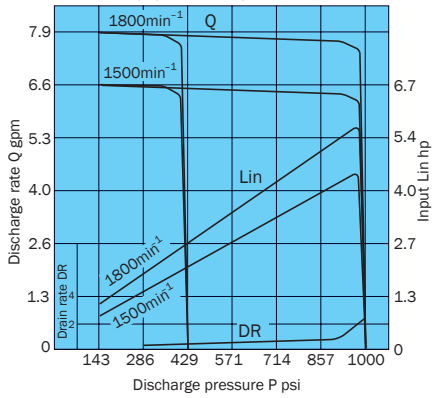


Note: 1. VDC-**A has the foot mounting kit shown on page B-36 installed.

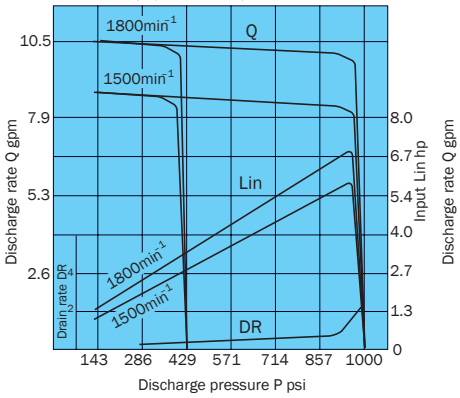
Performance Curves

Typical characteristics at hydraulic operating fluid kinematic viscosity of 32 centistokes

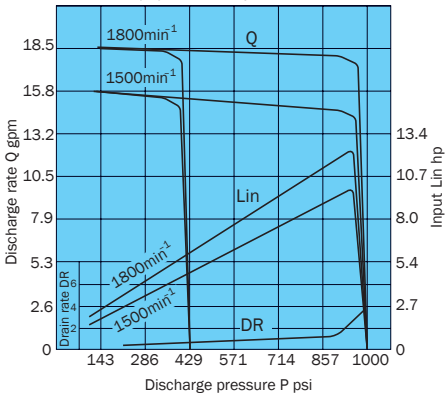
VDC-1A(B)-1A3-20/35



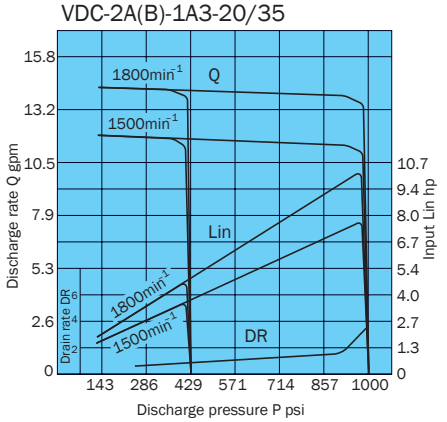
VDC-1A(B)-2A3-20/35



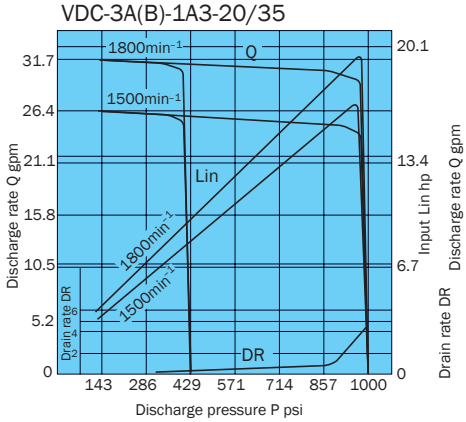
VDC-2A(B)-2A3-20/35



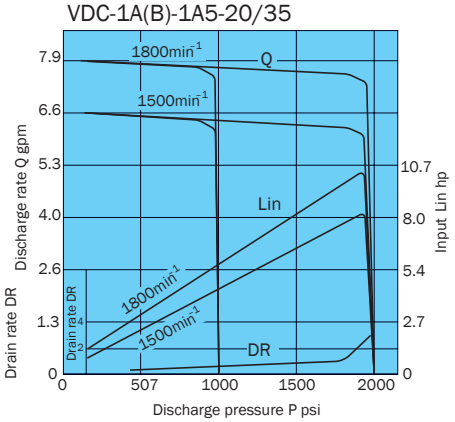
VDC-2A(B)-1A3-20/35



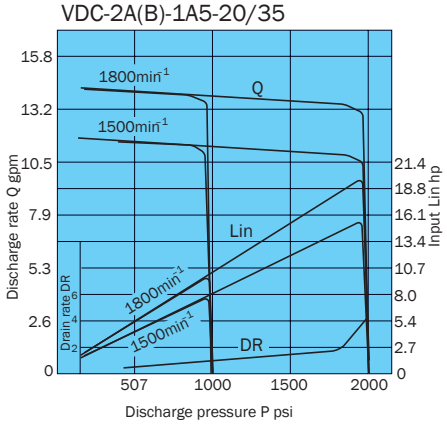
VDC-3A(B)-1A3-20/35



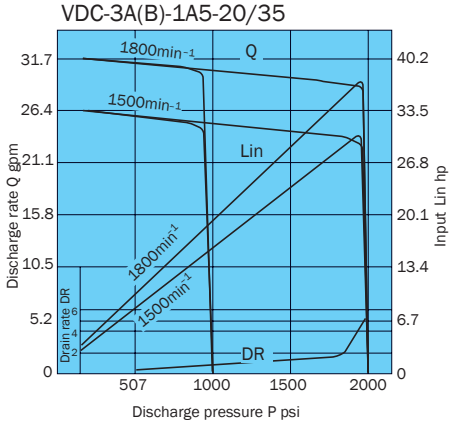
VDC-1A(B)-1A5-20/35



VDC-2A(B)-1A5-20/35

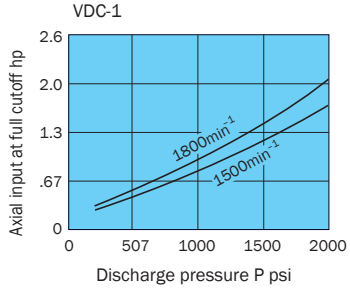


VDC-3A(B)-1A5-20/35

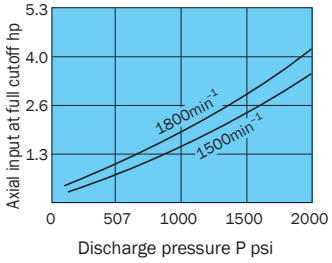


Axial input at full cutoff

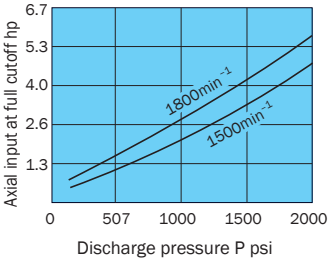
VDC-1



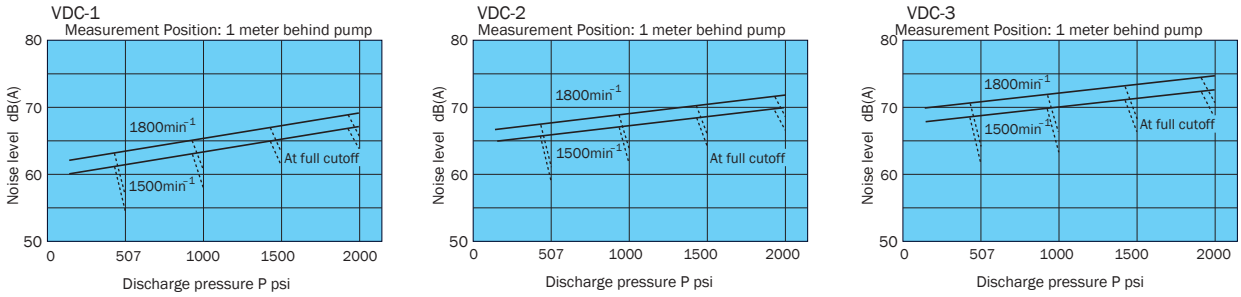
VDC-2



VDC-3

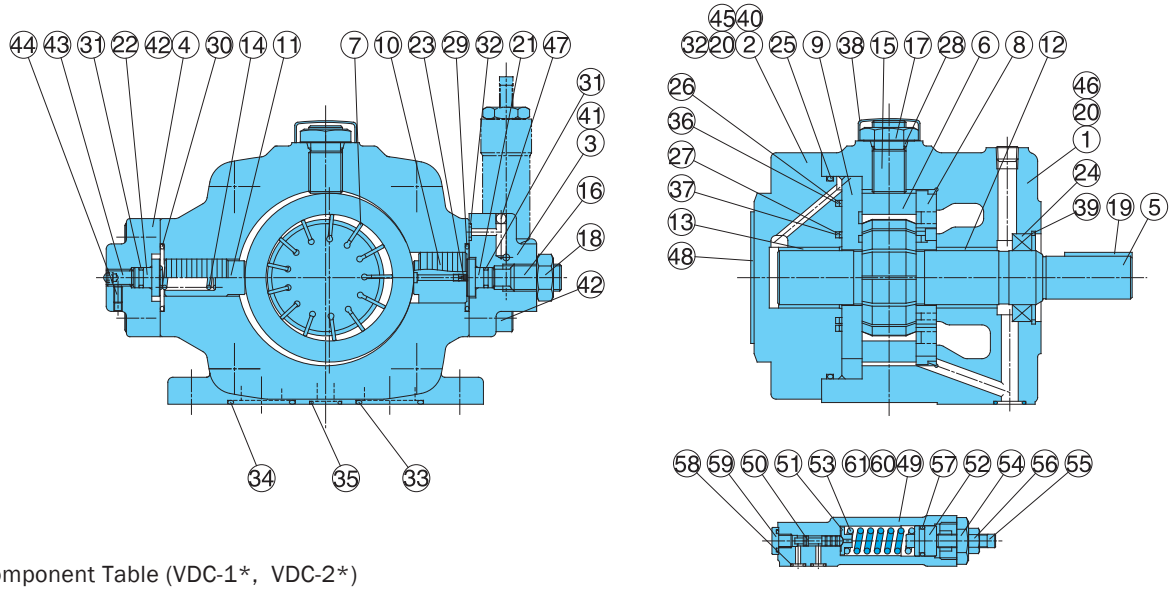


Noise Characteristics



Cross-sectional Drawing

VDC-1A-*A*-20
VDC-2A-*A*-20



Seal Component Table (VDC-1*, VDC-2*)

Part No.	Applicable Pump Model No.	VDC-1A-*-20		VDC-2A-*-20	
	Seal Kit Number	VCBS-101A00		VCBS-102A00	
	Part Name	Part Number	Q'ty	Part Number	Q'ty
24	Oil seal	TCV-224211	1	TCN-325211	1
25	O-ring	S85(NOK)	1	1A-G115	1
26	O-ring	AS568-034	1	AS568-150	1
27	O-ring	AS568-026	1	AS568-134	1
28	O-ring	1A-P14	1	1A-P18	1
29	O-ring	1A-P22	1	1A-G35	1
30	O-ring	1A-P20	1	1A-G35	1
31	O-ring	1A-P5	2	1A-P9	2
32	O-ring	1A-P6	4	1A-P7	4
33	O-ring	1A-P25	1	1A-G35	1
34	O-ring	1A-P22	1	1A-G35	1
35	O-ring	1A-P10A	1	1A-P15	1
36	Backup ring	VCB34-101000	1	VCB34-102000	1
37	Backup ring	VCB34-201000	1	VCB34-202000	1
57	O-ring	1A-P14	1	1A-P14	1
58	O-ring	1B-P6(Hs90)	3	1B-P6(Hs90)	3

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-*-20, the seal kit number becomes VDBS-10*B00, without the 33, 24, and 35 O-rings.

Part No.	Part Name
1	Body (1)
2	Body (2)
3	Cover (1)
4	Cover (2)
5	Shaft
6	Ring
7	Vane
8	Plate (S)
9	Plate (H)
10	Piston (1)
11	Piston (2)
12	Bearing
13	Bearing
14	Spring
15	Thrust screw
16	Screw
17	Nut
18	Nut
19	Key
20	Pin

Part No.	Part Name
21	Holder
22	Holder
23	Orifice
24	Oil seal
25	O-ring
26	O-ring
27	O-ring
28	O-ring
29	O-ring
30	O-ring
31	O-ring
32	O-ring
33	O-ring
34	O-ring
35	O-ring
36	Backup ring
37	Backup ring
38	Cap
39	Snap ring
40	Screw

Part No.	Part Name
41	Screw
42	Screw
43	Screw (stopper)
44	Screw
45	Plug
46	Plug
47	Pole
48	Nameplate
49	Valve body
50	Spool
51	Holder
52	Plunger
53	Spring
54	Retainer
55	Screw
56	Nut
57	O-ring
58	O-ring
59	Plug
60	Plug
61	Screw

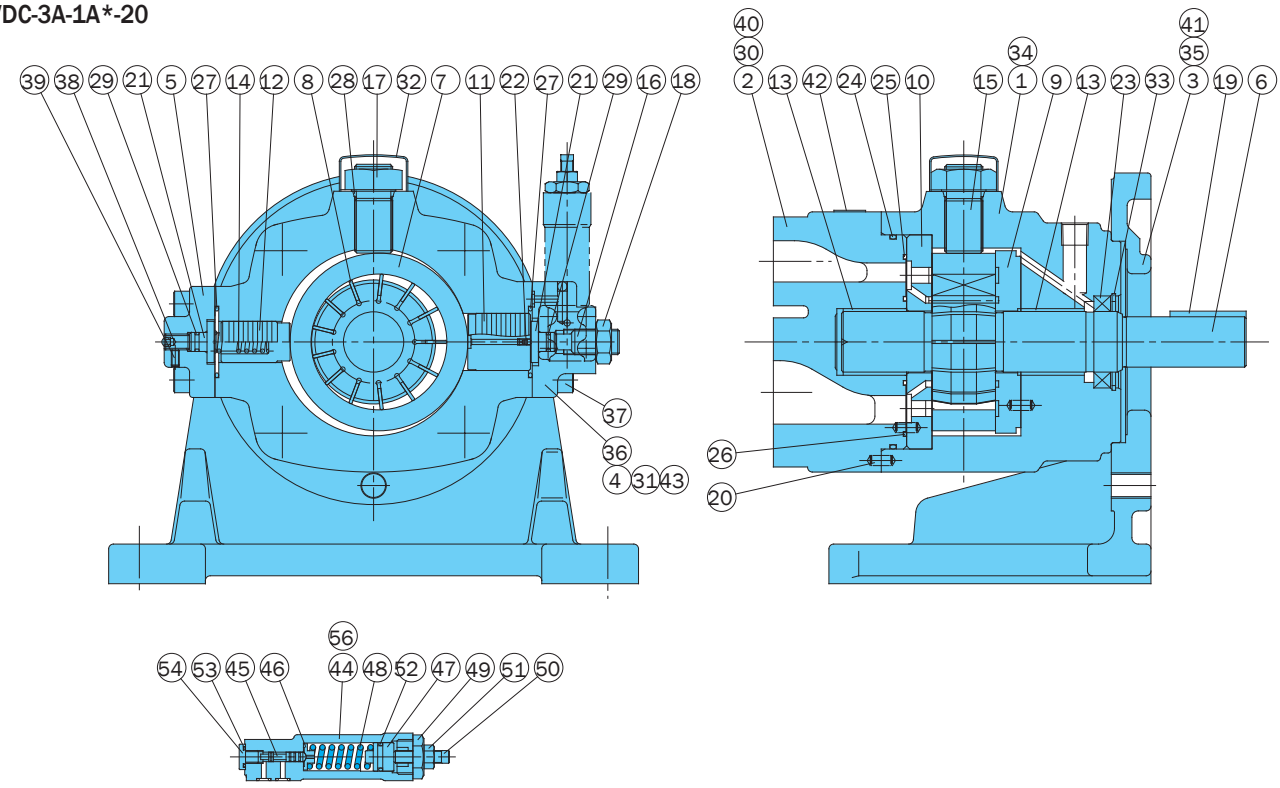
Cartridge Kits:

VDC-1	VCBC-101*A*
VDC-2	VCBC-102*A*

Includes Items: 5, 6, 7, 8, 9, 19, 20

Performance Curves

VDC-3A-1A*-20



Seal Component Table (VDC-3*)

Part No.	Applicable Pump Model No.	VDC-3A(B)-*-20	
	Seal Kit Number	VCBS-103B00	
	Part Name	Part Number	Q'ty
23	Oil seal	TCN-385811	1
24	O-ring	1A-G130	1
25	O-ring	AS568-154(Hs90)	1
26	O-ring	AS568-151(Hs90)	1
27	O-ring	1A-G40	2
28	O-ring	1A-P22	1
29	O-ring	1A-P9	2
30	O-ring	1A-P7	2
31	O-ring	1A-P7	2
52	O-ring	1A-P14	1
53	O-ring	1B-P6(Hs90)	3

Note: 1. Oil seals are manufactured by Nippon Oil Seal Industry Co. Ltd. (NOK).
2. O-ring 1A-** refers to JIS B2401-1A-**.

Part No.	Part Name	Part No.	Part Name	Part No.	Part Name
1	Body (1)	20	Pin	39	Screw
2	Body (2)	21	Holder	40	Plug
3	Mounting	22	Orifice	41	Washer
4	Cover (1)	23	Oil seal	42	Nameplate
5	Cover (2)	24	O-ring	43	Pole
6	Shaft	25	O-ring	44	Valve body
7	Ring	26	O-ring	45	Spool
8	Vane	27	O-ring	46	Holder
9	Plate (S)	28	O-ring	47	Plunger
10	Plate (H)	29	O-ring	48	Spring
11	Piston (1)	30	O-ring	49	Retainer
12	Piston (2)	31	O-ring	50	Screw
13	Bearing	32	Cap	51	Nut
14	Spring	33	Snap ring	52	O-ring
15	Thrust screw	34	Screw	53	O-ring
16	Screw	35	Screw	54	Plug
17	Nut	36	Screw	55	Plug
18	Nut	37	Screw	56	Screw
19	Key	38	Screw (stopper)		

Compensator Kits:

VDC-1 Thru -3 are same
VDC-A2 ZR-G01-A2-1688C
-A3 ZR-G01-A3-1688C
-A4 ZR-G01-A4-1688C
-A5 ZR-G01-A5-1688C
P-Remote ZR-G01-P-E1235A

Cartridge Kits:

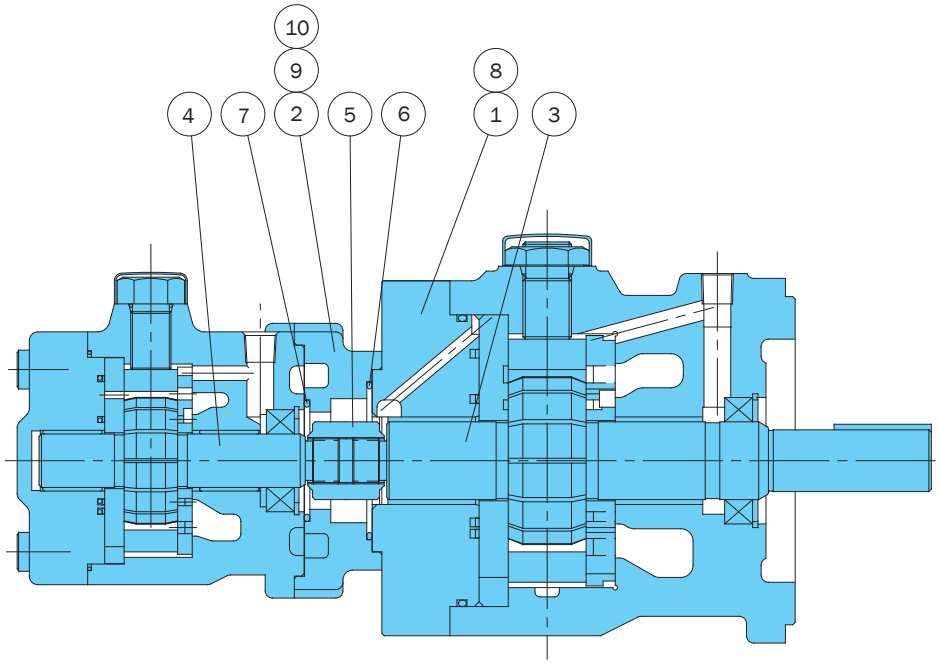
VDC-1-20/35
VCBC-1011A2 (A2,A3)
VCBC-1011A4 (A4,A5)
VCBC-1012A2 (2A2,2A3)

VDC-2-20/35
VCBC-1021A2 (A2,A3)
VCBC-1021A4 (A4,A5)
VCBC-1022A2 (2A2,2A3)

VDC-3-20/35
VCBC-1031A2 (A2,A3)
VCBC-1031A4 (A4,A5)

Includes Items: 6, 7, 8, 9, 10, 19, 20

VDC Series
Double Pump



Part No.	Part Name
1	Body (2)
2	Body (3)
3	Shaft (S)
4	Shaft (H)
5	Joint
6	O-ring
7	O-ring
8	Screw
9	Screw
10	Screw

Note:
In the case of a double pump, use single pump parts in addition to the 10 parts listed above.

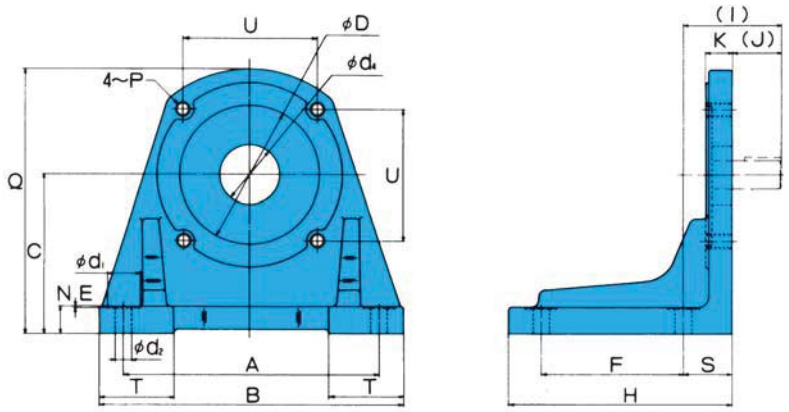
List of Sealing Parts

Part No.	Part Name	VDC-11A-*-*-20		VDC-12A-*-*-20		VDC-22A-*-*-20		VDC-13A-*-*-20	
		Part Number	Q'ty	Part Number	Q'ty	Part Number	Q'ty	Part Number	Q'ty
6	O-ring	□		1A-G60	1	1A-G60	1	□	
7	O-ring	1A-G85	1	1A-G45	1	1A-G60	1	1A-G85	1

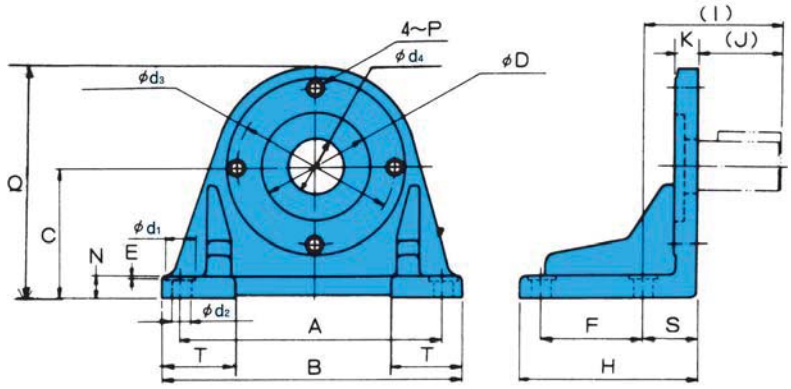
Note: 1. See the description of the single pump for seal parts that are not included in the list.
2. O-ring 1A-** refers to JIS B2401-1A-**.

Foot Mounting Installation Measurement Chart

For VDC-11A, VDC-12 and VDC-22 (for double pump)



For VDC-3A and VDC-13A



Foot Mounting Kit Model No.	Applicable Pump Model No.	Accessories				Dimensions (mm)					
		Bolt	Q'ty	Washer	Q'ty	A	B	C	E	F	H
VCM-11-20	VDC-1 (20) VDC-11 (20)	TH-10 × 30	4	WS-B-10	4	171.45	204	107.95	1	95.25	150
VCM-22-20	VDC-2 (20) VDC-12 (20) VDC-22 (20)	TH-12 × 35	4	WS-B-12	4	235	267	139.7	1	127	193
IHM-45-10	VDC-3 (20) VDC-13 (20)	TB-16 × 40	2	WP-16	2	295.3	334	152.4	1	139.7	203

Foot Mounting Kit Model No.	Dimensions (mm)														Weight lbs
	(I)	(J)	K	N	P	Q	S	T	U	φD	φ d_1	φ d_2	φ d_3	φ d_4	
VCM-11-20	66.5	33	18	18	M10	180	32.5	50	90	95.02	22	11	☒	40	14.3
VCM-22-20	84.5	40	20	20	M12	232	44.5	57.5	124	135	22	14	☒	40	26.4
IHM-45-10	104.5	60	25	25	M16	259	44.5	61	☒	127	35	18	181	86	29.7

Uni-Pump Specifications

(CE mark standard compliant)

Single Pump

UVC – 1 A – 2 A 2 – 1.5 - 4 * 30

- Design Number
- E=NPT
- Number of Motor Poles: 4(P) 200V, 4(M) 230V, 4(G) 460V
- Motor Output (hp): 1, 2, 3, 5
- Pressure Adjustment Range: 2: 15.3 to 35.7kgf/cm² (217 to 507); 3: 20.4 to 71.4kgf/cm² (290 to 1015)
- Flow Characteristics A: Constant Discharge Type
- Ring Size: None: 7.9 gpm, 2: 10.5 gpm } at 1800min^{-1}
- A: Foot Type Mounting
- Pump Size 1: VDC-1B(20D)
- Pump Type: VDC Series Uni-Pump

Double Pump

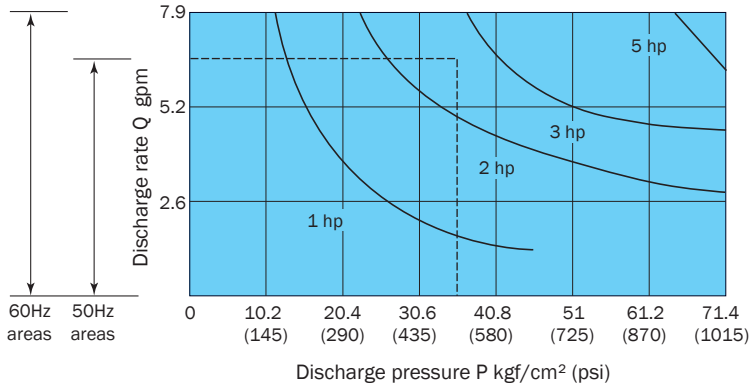
UVC – 11 A – 2 A 2 – 2 A 2 – 3.7 – 4 * 30

- Design Number
- E=NPT
- Number of Motor Poles: 4(P) 200V, 4(M) 230V, 4(G) 460V
- Motor Output (hp): 2, 3, 5
- Shaft Side Pump Pressure Adjustment Range: 2: 15.3 to 35.7kgf/cm² (217 to 507); 3: 20.4 to 71.4kgf/cm² (290 to 1015)
- Shaft Side Pump Flow Rate Characteristics: A: Constant Discharge Type
- Shaft side pump ring size: None: 7.9 gpm, 2: 10.5 gpm } at 1800min^{-1}
- Head Side Pump Pressure Adjustment Range: Same as the Shaft Side Pump
- Head Side Pump Flow Rate Characteristics: A: Constant Discharge Type
- Head Side Pump Ring Size: None: 7.9 gpm, 2: 10.5 gpm } at 1800min^{-1}
- A: Foot Type Mounting
- Pump Size 11: VDC-11B (20D)
- Pump Type: VDC Series Uni-Pump

Specifications

Model No.	Maximum Working Pressure kgf/cm² (psi)	Maximum Flow Rate gpm (A*)		Maximum Flow Rate gpm(2A*)	
		50Hz	60Hz	50Hz	60Hz
UVC- 1A UVC-11A	71.4 (1015)	6.6	7.9	8.7	10.3

Motor selection curves



* 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.

• 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:

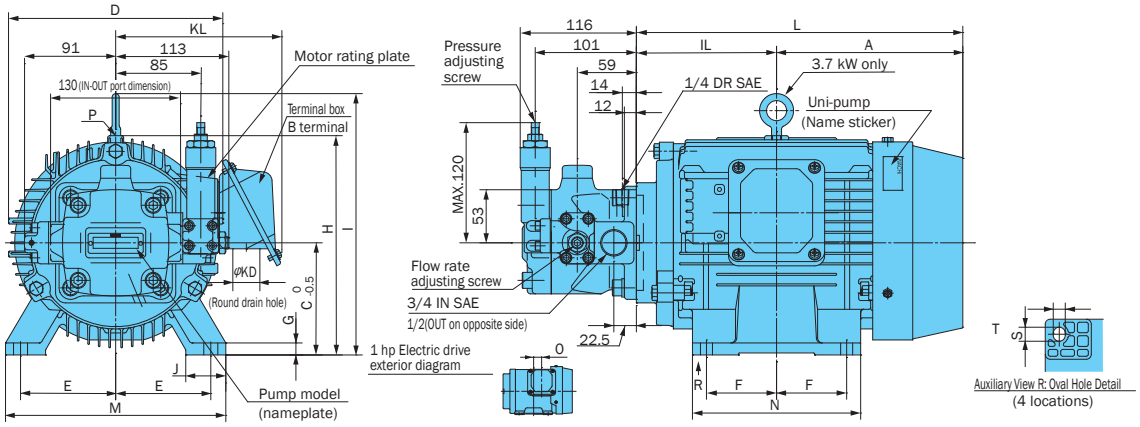
To find the motor that can produce pressure of 507 psi and a discharge rate of 6.6 gpm.

Selection Process:

Since the intersection of the two broken lines from a pressure of 507 psi and discharge rate of 6.6 gpm intersect in the area under the 3 hp curve, it means that a 3 hp 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.

Installation Dimension Drawings

UVC-1A

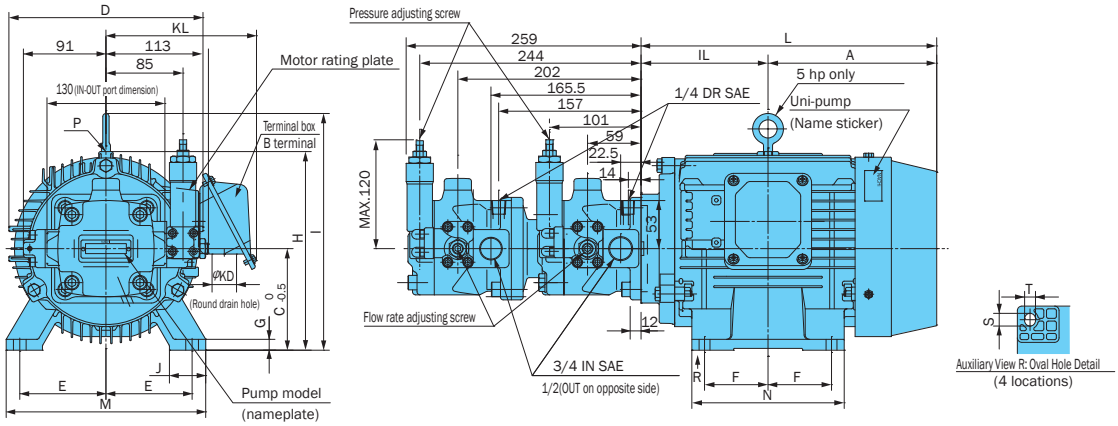


Uni-pump	Motor Dimensions mm																	Frame No.	Output hp (4 poles)	Weight lbs
	A	IL	C	D	E	F	G	H	I	J	L	M	N	S × T	KD	KL	O			
UVC-1A-A2-0.75-4-30	133	105	80	170	62.5	50	4.5	165	–	35	238	165	130	18 × 10	φ27	157	27.5	80M	1	53
UVC-1A-A2-1.5-4-30	143	118.5	90	198	70	62.5	10	190	–	40	261.5	176	150	12 × 10	φ27	159	–	90L	2	56
UVC-1A-A3-1.5-4-30																				
UVC-1A-2A2-1.5-4-30																				
UVC-1A-A2-2.2-4-30	157.5	133	100	198	80	70	12	200	–	40	290.5	200	168	14 × 12	φ27	159	–	100L	3	67
UVC-1A-A3-2.2-4-30																				
UVC-1A-2A2-2.2-4-30																				
UVC-1A-A3-3.7-4-30	186	140	112	214	95	70	12	–	261	40	326	220	168	14 × 12	φ27	166	–	112M	5	80
UVC-1A-A4-3.7-4-30																				
UVC-1A-2A2-3.7-4-30																				
UVC-1A-2A3-3.7-4-30																				

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).

UVC-11A



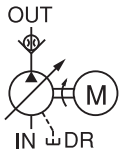
Uni-pump	Motor Dimensions mm																Frame No.	Output hp (4 poles)	Weight lbs
	A	IL	C	D	E	F	G	H	I	J	L	M	N	S × T	KD	KL			
UVC-11A-A2-A2-1.5-4-30	143	118.5	90	198	70	62.5	10	190	–	40	261.5	176	150	12 × 10	φ27	159	90L	2	79
UVC-11A-A2-A3-1.5-4-30																			
UVC-11A-A3-A3-1.5-4-30																			
UVC-11A-A2-A2-2.2-4-30	157.5	133	100	198	80	70	12	200	–	40	290.5	200	168	14 × 12	φ27	159	100L	3	90
UVC-11A-A2-A3-2.2-4-30																			
UVC-11A-A3-A3-2.2-4-30																			
UVC-11A-2A2-2A2-2.2-4-30																			
UVC-11A-A2-A2-3.7-4-30	186	140	112	214	95	70	12	–	261	40	326	220	168	14 × 12	φ27	166	112M	5	103
UVC-11A-A2-A3-3.7-4-30																			
UVC-11A-A3-A3-3.7-4-30																			
UVC-11A-2A2-2A2-3.7-4-30																			
UVC-11A-2A2-2A3-3.7-4-30																			

No hanger on 2 and 3 hp models.

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).

UVN Series Variable Volume Vane Uni-Pump
NSP Uni-Pump

7.9 to 31.7 gpm
2000 psi



Features

Energy efficient high performance
All the performance of a vane pump, right from the low pressure range, is enhanced even further by eliminating the external drain and optimizing the pressure balance, creating a design that generates little heat. The result is a pump that contributes to the energy efficiency of the mother machine, as well as to process precision.

Lightweight, compact design
The pump and motor are designed for exclusive uni-pump use, making them lightweight, compact, easy to handle, and suitable for a wide range of applications.

Low noise, long life
The pump and motor shaft are linked by a joint, which minimizes noise by eliminating the effects of shaft vibration and an off-center shaft. The coupling is constructed to allow constant lubrication, for friction-free long life.

Specifications

Model No.	Pump Capacity in³/rev	Pressure Adjustment Range kgf/cm² (psi)	No-load Discharge Rate gpm	
			50Hz	60Hz
UVN-1A-0A2-$^{0.7}_{1.5}$-4-11	.49	15.3 to 40.8 (217 to 580)	3.1	3.8
UVN-1A-0A3-$^{0.7}_{1.5}$-4-11		35.7 to 61.2 (507 to 870)		
UVN-1A-0A4-$^{0.7}_{1.5}$-4-11		56.1 to 81.6 (797 to 1160)		
UVN-1A-1A2-$^{1.5}_{2.2}$-4-11	.98	15.3 to 40.8 (217 to 580)	6.3	7.6
UVN-1A-1A3-$^{1.5}_{2.2}$-4-11		35.7 to 61.2 (507 to 870)		
UVN-1A-1A4-$^{1.5}_{2.2}$-4-11		56.1 to 81.6 (797 to 1160)		
UVN-1A-2A3-$^{2.2}_{3.7}$-4-11	1.59	(507 to 870)	10	3.7 - 12
UVN-1A-2A4-$^{2.2}_{3.7}$-4-11		(797 to 1160)		

Note: Contact your agent for combinations other than those noted above.

Understanding Model Numbers

UVN – 1 A – 1 A 4 – 1.5 – 4 – 11

- 11: Design Number
- 4: Number of Motor Poles: 4 (P) 200V, 4 (M) 230V, 4 (G) 460V
- 1.5: Motor Output (hp) 1, 2, 3 — *Power Supply AC200V-50/60Hz AC220V-60Hz
- 4: Pressure Adjustment Range — 2: 15.3 to 40.8kgf/cm² (217 to 580) 3: 35.7 to 61.2kgf/cm² (507 to 870) 4: 56.1 to 81.6kgf/cm² (797 to 1160)
- A: Flow Characteristics A: Constant Discharge Type
- 1: Discharge Rate (At N=1800min⁻¹) 0: 3.8 gpm (max) 1: 7.6 gpm (max) 2: 12 gpm (max)
- A: A: Foot Type Mounting
- 1: Pump Size 1: VDN-1B
- UVN: UVN Series Uni-Pump

• Handling

1. Installation and Piping Precautions

1 Provide a mounting base of sufficient rigidity, and install so that the pump shaft is oriented horizontally.
2 Make sure the flow rate of the suction piping is no more than 6 ft/s, and that the suction pressure at the pump suction port is in the range of 4.35 psi.
3 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 14 psi.
Provide a suction strainer with a filtering grade of about 100 µm (150 mesh).

2.Running Precautions

1 The direction of rotation is clockwise (rightward) when viewed from the motor fan side.
2 At startup, repeat the inching operation (start-stop) with the pump discharge side at no-load to bleed air from the pump and suction piping.
3 Equip an air bleed valve in circuits where it is difficult to bleed air before startup.
4 Make sure the maximum peak pressure (setting pressure + surge pressure) during operation does not exceed 2000 psi.
Refer to the following piping conditions as a guideline to keep the maximum peak pressure below 2000 psi.
1/2" x 2 m rubber hose (for 2000 psi)
(pipe volume: approximately 15 in³)
5 Install a relief valve to cut surges in the circuit if pressure exceeds 2000 psi.