

General Information

Design Standard

The distinctive features of Yuken Standard products is as shown below.

Feature	Domestic Standard	Remarks
Port Tapping	Rc(=PT)	Taper Pipe Thread (ISO 7/1)
Port Tapping (Partial)	G(=PF)	Straight Pipe Thread (ISO 228/1)
Pressure Gauge Tapping	Rc(=PT)	Taper Pipe Thread (ISO 7/1)
Mounting Bolts	Metric	General Purpose Thread (ISO 261)
Mounting Dimensions	Metric	
Conduit Entry	G(=PF)	Straight Pipe Thread (ISO 228/1)
Solenoid Voltages AC/DC	Domestic voltage	Voltage and frequency change according to country
Frequency	50/60 Hz	
Electronic Amplifier Input Supply	Domestic voltage 50/60 Hz	
Graphic Symbol	ISO Standard	ISO 1219
Valve Port Size	Inch	

Design Number

Yuken products have factory applied Design numbers, the key to which is as follows.

Example: 4222T68

42 22 T68

Major Design No. _____ Design No. for modified products in Taiwan
 Minor Design No. _____ Omitted: Domestic standard

Design numbers are subject to change. But installation dimensions and specifications remain unchanged for variation in second digit of design numbers (Minor Design No.).

Hydraulic Fluids

Type of hydraulic fluids

- Petroleum base oil-Please use anti-wear type hydraulic oil or R & O (Rust and Oxidation inhibitor) type hydraulic oil equivalent to ISO VG 32 or 46. Do not use VG 68 hydraulic oils in winter; it will cause suction failure or cavitation.
- Fire resistant or other special fluids-Please consult with our sales engineers for your requirement.

Fluid viscosity and temperature range

Please use hydraulic fluids in a range which satisfies the conditions of both viscosity and temperature (specified in table.)

Type of Components	Viscosity Range	Temperature Range
Piston Pumps	20 ~ 400 mm ² /s ★1	0 ~ +60°
Vane Pumps	20 ~ 400 mm ² /s ★1	0 ~ +70°
Pressure Control Valves	15 ~ 400 mm ² /s ★2	-15 ~ +70°
Flow Control Valves	FG、FCG : 20 ~ 400 mm ² /s Other : 15 ~ 400 mm ² /s	-15 ~ +70°
Directional Control Valves	15 ~ 400 mm ² /s	-15 ~ +70°
Proportional Electro-Hydraulic Control Valves	EDG、EBG : 15 ~ 400 mm ² /s EFBG : 20 ~ 400 mm ² /s EDFG、EDFHG、ECDFHG : 20 ~ 400 mm ² /s	-15 ~ +70° 0 ~ +60°

- ★1. When starting the pumps at low speed, maximum viscosity is restricted. (see table above right).
- ★2. If the valve is provided with a vent restrictor (ex.: A-BSG-03), the viscosity range should be 15-200 mm²/s.

Control of contamination

Contamination of the hydraulic fluids may cause any damage to the products or shorten the life of the products, therefore, please maintain the degree of contamination level lower than NAS Class Numbers as shown on the table 1 below

- The suction port line must have a reservoir type filter of 100 μm (150 mesh) and the filter should be installed minimum 50 mm higher than the bottom of the reservoir.
- The return line must have a line filter.

Line type filter ratings

Type of Components	Line Type Filter
Pump's Suction Port	100μm
Circuit System	Piston Pumps: below 10μm E series components: below 20μm Other components: below 25μm

General Information

■ Limitation of general properties of fluids

General hydraulic fluid, new fluid contains water 50~80 ppm (0.005~0.008%), there would be water coming from components or air filter so the water become more. Water could cause the rust inside the components and bad lubrication; then result in worse fluid. We use Karl-Fischer method to test the water in the fluid (use the reagent to analyze the reaction in the water.) the sensitivity is 10 ppm. Please refer to table 4 & 5 for the limitation of particle and water contamination.

● Table 3 Replacement standards of fluid

ITEM	FLUID	Petroleum base oil		Phosphate Easter
		standard	anti-wear	
Viscosity (40°C) mm ² /s ★		± 10 %		± 10 %
PH ★ mg KOH/g		a ☆	0.25	-
		b ☆	± 40 %	

★ : Difference

☆ : the kind of additive (a. non-Zinc, b. Zinc) Table 3 is the standards of replacing fluid, the details will differ from the suppliers. Besides the table, there would be some management items, please contact fluid manufacture for the details.

Ex.: the PH value of bad fluid index would be different from the kind of additives and the volume; the Phosphate Easter too.

● Table 4 The best contamination management standards

Type of components	Counting standards	
	JIS B 9933 (ISO 4406)	NAS
Servo Valves	18/16/13	7
Piston Valves	20/18/14	9
Proportional Valves	20/18/14	9
Components over 21MPa	20/18/14	9
Components 14~21MPa	21/19/15	10
Common Low Pressure Components	21/20/16	11

★ Reference for JIS B 9933(ISO 4406) and NAS.

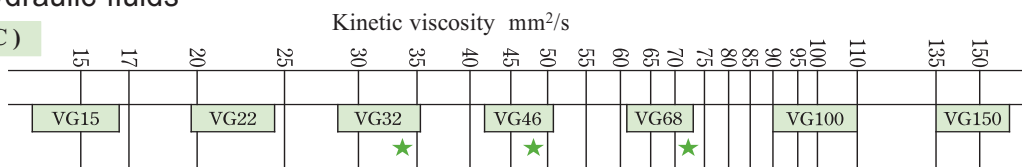
● Table 5 Limit of water content 1 ppm = 1/1 000 000

Conditions	Limit
Water mixed with the fluid so it become milky Replace immediately	To be replaced immediately.
Fluid in the system could return to the reservoir and the stopping period is short	500 ppm
The piping is longer and the fluid could not return completely	300 ppm
System (safety system) under long stopping period or the fluid is not moving and precision control system	200 ppm

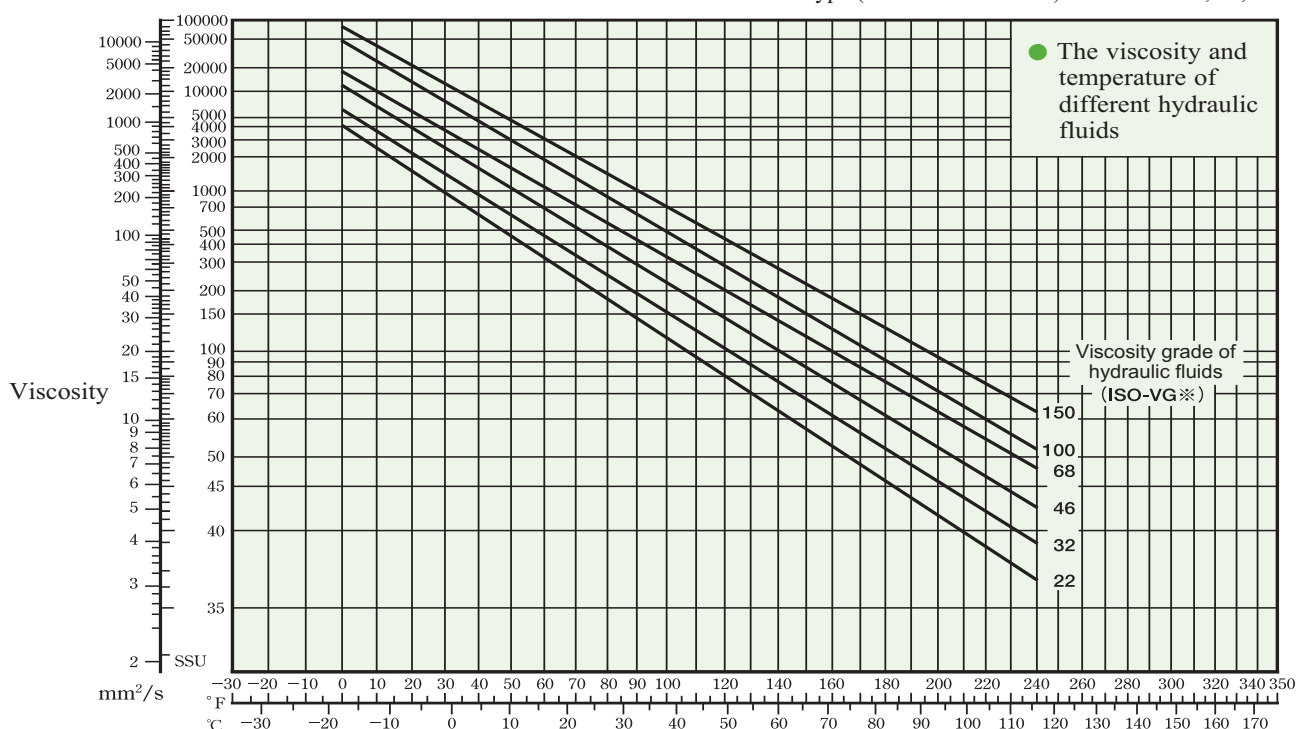
■ Viscosity of hydraulic fluids

Viscosity range (40°C)

● ISO Viscosity grade (ISO VG)



★ JIS K 2213 The Second Type (Added Turbine oil) for ISO VG32, 46, 68.



General Information

Instructions for hydraulic pump

1. Mounting

When installing piston pumps the filling port should be positioned upwards. When PV2R Single and Double Vane Pumps are operated below 1200 r/min; we recommend the suction port upwards to suck oil easily.

2. Alignment of Shaft

Employ a flexible coupling whenever possible, and avoid any stress from bending or thrust. Maximum permissible misalignment is less than 0.1 mm. TIR (Total Indicator Reading) and maximum permissible misangular is less than 0.2°.

3. Suction Pressure

★ 1 kPa = 0.01 kgf/cm² = 7.5 mmHg

Model		Suction Pressure Range		
		Min		Max.
		Petroleum base oils	Water containing phosphate esters	
Piston Pumps	ARL1 AR※	-16.7 kPa	—	+50 kPa
Single Pumps	50T 150T	-20 kPa	-16 kPa	+140 kPa
PV2R Single Vane Pumps	PV2R1 PV2R2	-20 kPa	-16 kPa	+30 kPa
	PV2R3 PV2R4	-20 kPa ★		
	PV2R12	-20 kPa		
PV2R Double Vane Pumps	PV2R13 PV2R23 PV2R24 (PV2R34)	-20 kPa ★		

- Make sure that the height of the pump suction port is within 1m from the oil level in the reservoir.
- Please follow the instructions of catalogue to choose suitable caliber of suction port pipes; otherwise, it might lead to dangerous cavitation. We suggest the suction port flow rate under 1 m/s.

★ For some displacement of pumps, the Min. suction pressure is restricted by the rotation speed. Please refer to Table 1.

4. Instructions of Piping

- ① In case the pump is installed above the oil level, the suction piping and suction line filter should be located lower than the pump position to prevent air in the suction line.
- ② When using steel pipes for the suction or discharge ports, excessive load from the piping to the pump generates excessive noise. Whenever there is fear of excessive load, please use rubber hoses.

5. Drain Piping

Install drain piping according to the chart and ensure that pressure within the pump housing should be maintained at a normal pressure of less than 0.1 MPa (14.5 PSI) and surge pressure of less than 0.5 MPa (72.5 PSI). Length of piping should be less than 1 m, and the pipe end should be submerged in oil.

Recommended Drain Piping Size:

Model	Piping Fitting Size	Internal Dia. of Pipe
ARL1, AR※	3/8 (Internal Dia. more than Ø8.5)	more than Ø10

6. Hydraulic Pumps Starting

- Before first starting, fill pump case with clean operating oil via the filling port.
- In order to avoid air blockage when starting pumps after long time shut down, to set up air bleeding valve on the discharge sides in advance or to loose discharge piping connection area for bleeding the air in the pipes. To the best of pumps' starting with no loading.
- When temperature is under 15°C in winter or viscosity is 200~400 mm²/s (1000SSU~1800SSU), please refer to the following instructions to start pumps in order to make better internal lubrication, and it will help the suction of the pump and extend the pump's life.
- Starting instructions: to start running pumps for 5 seconds, and then stop it for 10 seconds. To repeat this process 10 times, and then keep it running.

● Table 1: The limitation of Min. suction pressure for specific displacement of hydraulic pumps.

The following hydraulic pumps with rotation speed 1700 r/min are restricted by the Min. suction pressure. (Min. suction pressure of other hydraulic pumps is -150 mmHg)

Model No.	Min. Suction Pressure kPa	
	1700 r/min Below	1700-1800 r/min
PV2R3-116	-20	0
PV2R4-237	-20	-13.3
PV2R※3-※-76	-20	-6.7
PV2R※3-※-94	-20	-6.7
PV2R※3-※-116	-20	0
PV2R※4-※-237	-20	-13.3
PV2R34-76-※	-20	-6.7
PV2R34-94-※	-20	-6.7
PV2R34-116-※	-20	0
PV2R34-116-237	-20	0

● Table 2: Max. viscosity list of starting at low rotation speed

Model	Rotation speed of starting r/min	Max. viscosity mm ² /s
PV2R1 PV2R12 PV2R13 PV2R14	750	100
	950	200
50T PV2R2 PV2R23 PV2R24	600	100
	950	200

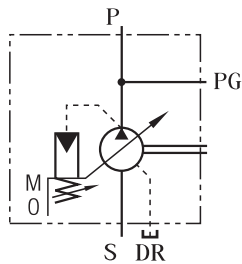
ARL1 Series Variable Piston Pumps

Max. Pressure 7 MPa

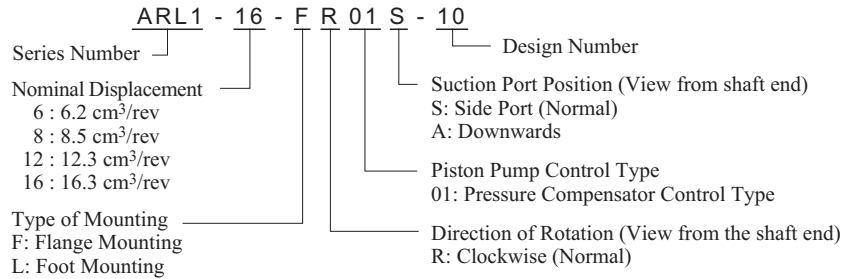


- **High Efficiency:** With long-term reliable technology of A & AR series piston pumps, Yuken designs high efficiency pressure control piston pumps.
- **Smaller in Size and Lighter in Mass:**
ARL1 is 40% smaller than A series and 30% lighter than A series.
- **Low Noise:** Pressure 7 MPa, speed 1500 r/min, one meter horizontally away from pump head cover, the noise level is as low as 55 dB(A) standards for ARL1-16 at the full cut-off.
- There is no flow adjustment screw in ARL1 series, please choose it according to the displacement.

Graphic Symbol



Model Number Designation

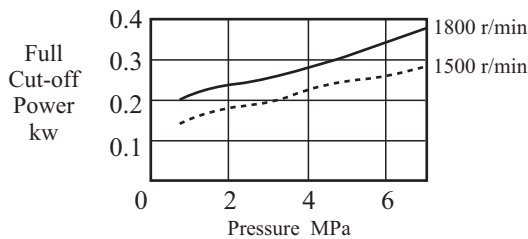


★ : To use foot mounting type, the direction of suction port can only be chosen S type.

Specifications

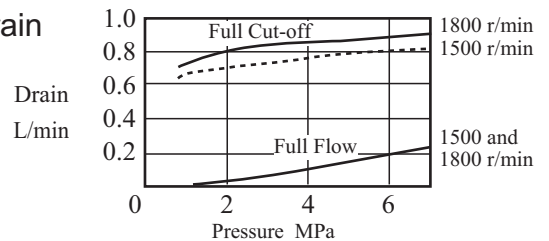
Model No.	Nominal Displacement cm ³ / rev	Minimum Pressure Adj. MPa (kgf/cm ²)	Max. Pressure MPa (kgf/cm ²)	Shaft Speed Range r / min		Mass kg
				Max	Min.	
ARL1-6-※R01※-10	6.2	1.2 (12)	7 (71)	1800	600	Flange Mtg 6.8 Foot Mtg 9.0
ARL1-8-※R01※-10	8.5					
ARL1-12-※R01※-10	12.3					
ARL1-16-※R01※-10	16.3					

Full Cut-off Power

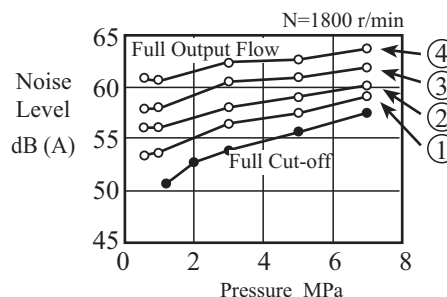
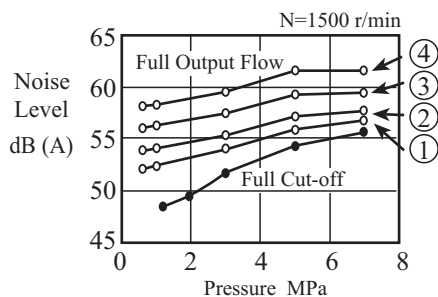


The above characteristics are based on fluid viscosity 32 mm²/s (ISO VG32 Oils, 40°C)

Drain



Noise Level (One meter horizontally away from pump head cover)



NO	Model No.
①	ARL1-6
②	ARL1-8
③	ARL1-12
④	ARL1-16

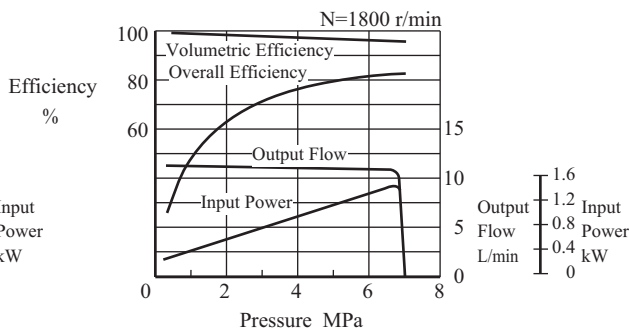
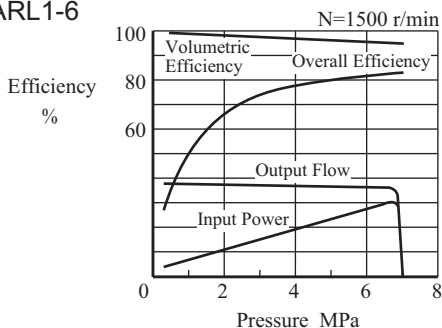
The above characteristics are based on fluid viscosity 32 mm²/s (ISO VG32 Oils, 40°C)

ARL1 Series Variable Piston Pumps

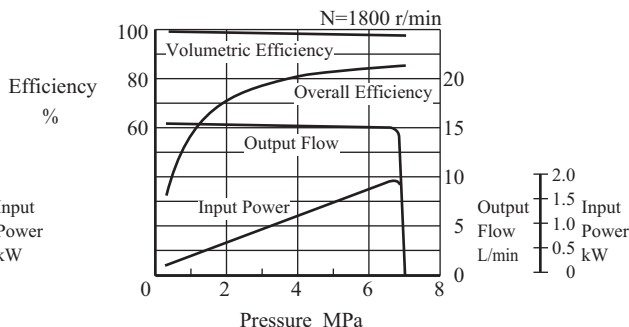
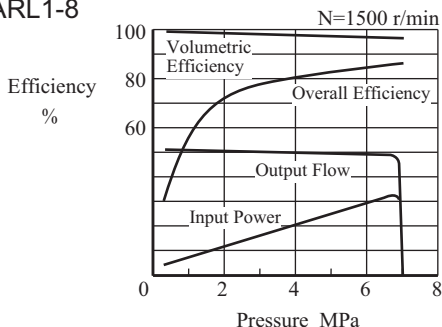
Max. Pressure 7 MPa

Performance Characteristic Curve

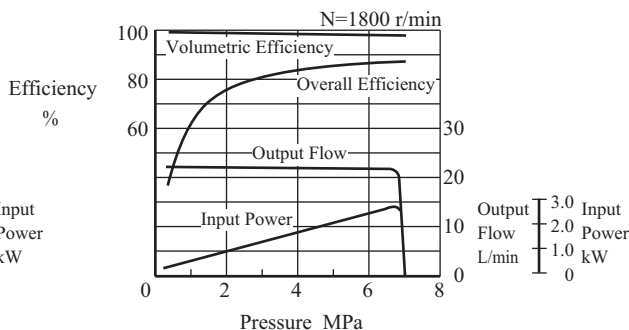
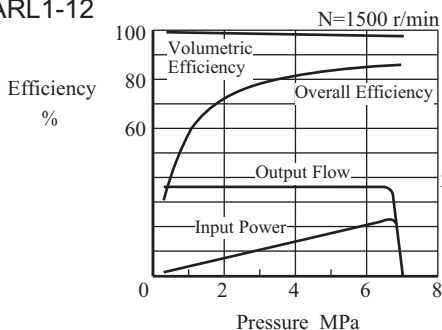
ARL1-6



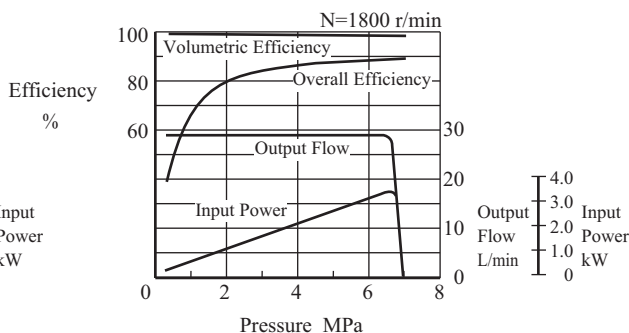
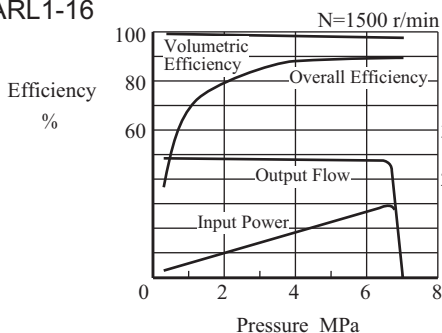
ARL1-8



ARL1-12



ARL1-16

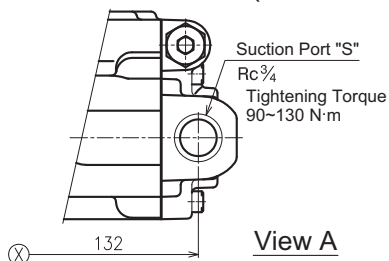


The above characteristics are based on fluid viscosity 32 mm²/s (ISO VG32 Oils, 40°C)

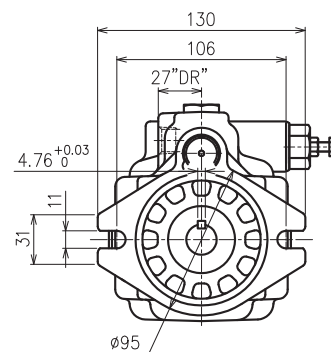
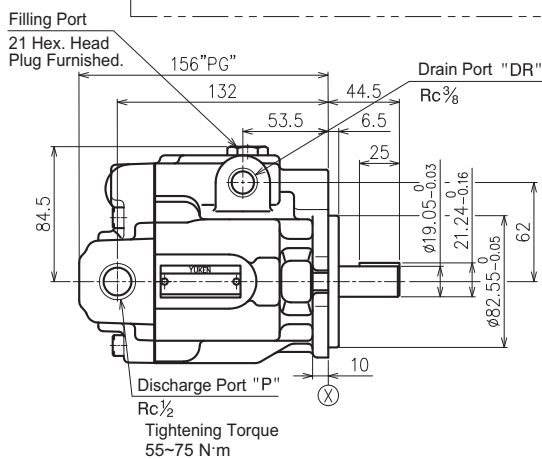
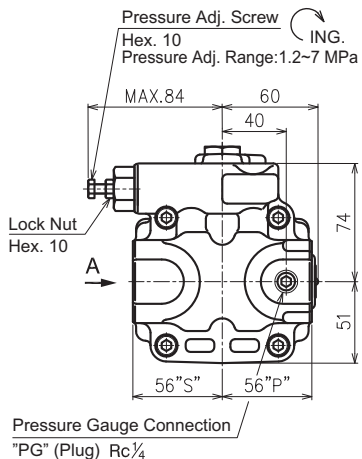
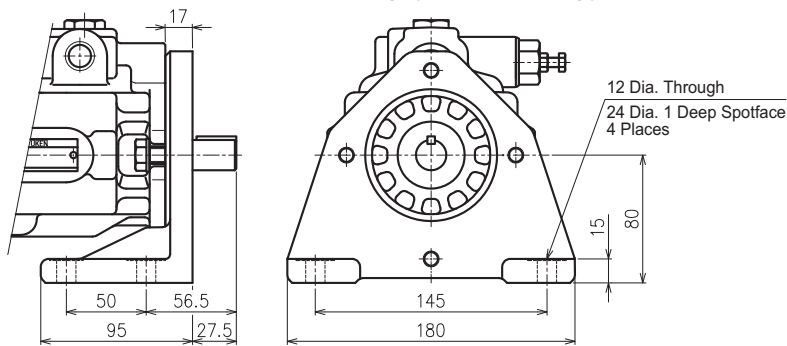
ARL1 Series Variable Piston Pumps

Max. Pressure 7 MPa

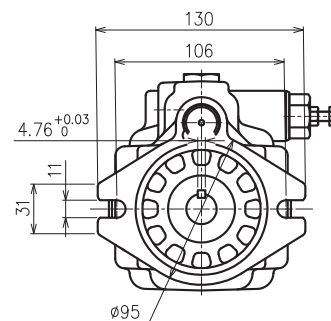
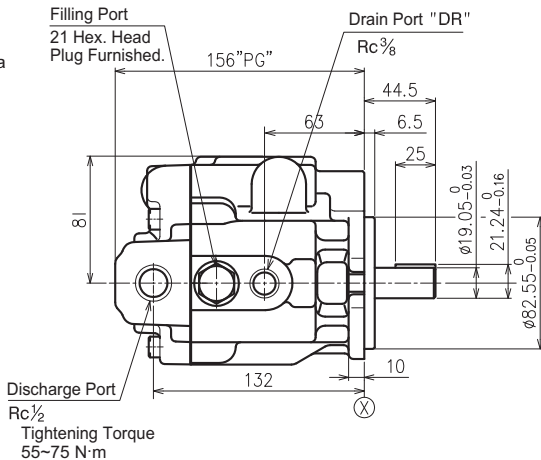
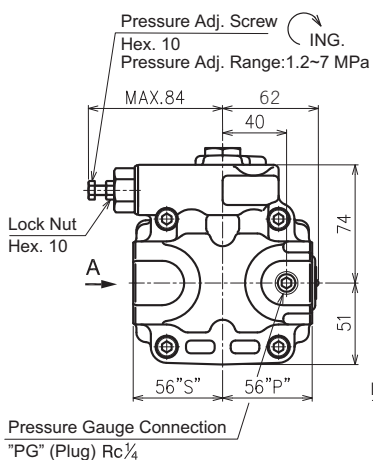
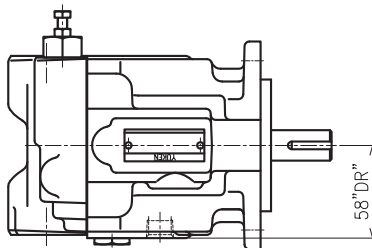
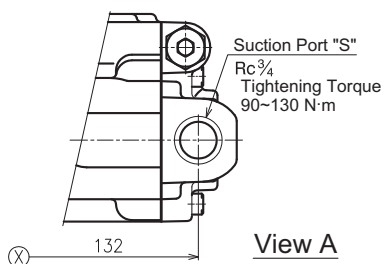
ARL1-※-FR01S-Flange Mtg (Mass: 6.8kg)



ARL1-※-LR01S-Foot Mtg (Mass: 9.0kg)



ARL1-※-FR01A-Flange Mtg (Mass: 6.8kg)

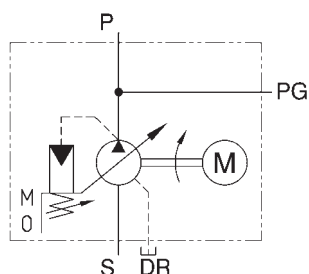


AML1 Series Motor-Pumps

Max. Pressure 7 MPa



Graphic Symbol



- ARL1 series Variable Piston Pumps with the characteristic, high efficiency, beautiful, light and low noise combined with ML1 series Electric Motors to make compact Power Unit more valuable.
- Smaller in size and lighter in mass. Electric Motors with light and beautiful aluminum bodies to be combined with ARL1, the size is 40% smaller and the mass is 20% lighter than ARM series.
- Low noise: low noise electric motors combined with low noise ARL1 hydraulic pumps; therefore, the working noise of AML1 series is very low.
- ARL1 is flow rate fixed pumps with non-adjustable flow control. Please choose AML1 series according to the displacement.

Applications :

- NC Lathes
- MC machines
- High efficiency special machines

Model Number Designation

AML1	- 16	- S	- 0.75	- 380	- A	- 1010
Series Number	Nominal Displacement	Suction Port Position	Electric Motors	Power Source	Frequency	Design No.
AML1	6 : 6.2 cm ³ / rev 8 : 8.5 cm ³ / rev 12 : 12.3 cm ³ / rev 16 : 16.3 cm ³ / rev	Suction Port Position (View from shaft end) S: Side port (Normal) A: Downwards	0.75 : 0.75 KW (Note 1) 1.5 : 1.5 KW 2.2 : 2.2 KW	None:200/200/220V(Normal) 400:400/400/440V 220:220V 380:380V	None: 50 / 60 / 60 Hz(Normal) A : 50 Hz B : 60 Hz D : 50 / 60 Hz	10 1010

Note 1: 12 and 16 displacement pumps are not suitable for 0.75 KW electric motors.

Note 2: Please contact us for other voltage of the power sources.

Specifications: (No. of Poles: 4P . Isolation Level : F)

Model No.	Power Source (V)	Frequency (Hz)	Rated Electric Flow (A)		Rotation Speed (r/min)		Starting Electric Flow (A)		
ML1-0.75-10	200	50	60	3.70	3.40	1410	1700	17.0	15.5
	220	-	60	-	3.35	-	1720	-	17.5
ML1-0.75-400-10	400	50	60	1.82	1.62	1420	1710	9.3	8.6
	440	-	60	-	1.62	-	1720	-	9.8
ML1-0.75-220-D-1010	220	50	60	3.52	3.35	1420	1720	18.7	17.3
ML1-0.75-380-D-1010	380	50	60	2.02	1.75	1420	1720	10.7	10.0
ML1-1.5-10	200	50	60	6.30	6.00	1410	1700	34.5	30.0
	220	-	60	-	5.60	-	1720	-	33.6
ML1-1.5-400-10	400	50	60	3.44	3.10	1420	1710	21.7	19.6
	440	-	60	-	3.02	-	1720	-	21.7
ML1-1.5-220-D-1010	220	50	60	6.27	5.62	1420	1720	37.6	35.6
ML1-1.5-380-D-1010	380	50	60	3.56	3.35	1420	1720	21.6	20.6
ML1-2.2-10	200	50	60	9.60	9.00	1410	1700	49.5	44.5
	220	-	60	-	8.50	-	1720	-	50.2
ML1-2.2-400-10	400	50	60	5.07	4.56	1420	1710	31.2	27.3
	440	-	60	-	4.41	-	1720	-	29.5
ML1-2.2-220-D-1010	220	50	60	9.15	8.45	1420	1720	57.4	50.1
ML1-2.2-380-D-1010	380	50	60	5.48	4.99	1420	1720	32.1	28.3

Note 3: Construction of the Case: Anti-foam sealed, the outside case can cool down automatically (Refer to IP54 J4C, EN60034-1:2010).

Ambient Environment Installing Place: Indoors, Elevation: Under 1000 m

Temperature: -20°C~40°C, Non-Corrosive: Explosive air or steam

Humidity: Related temperature under 100% will not become dew.

AML1 Series Motor-Pumps

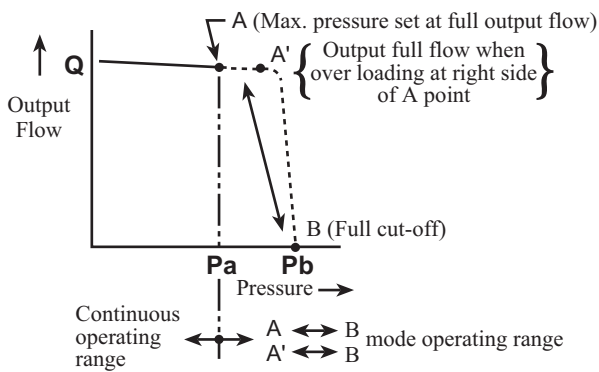
Max. Pressure 7 MPa

Piston Pumps and Electric Motor Specifications

Model No.	Geometric Displacement	Min. Adj. Flow MPa (kgf/cm ²)	Max. Operating Pressure MPa (kgf/cm ²)	Electric Motors	Suitable Pressure Range		Mass kg
	cm ³ /rev			KW	50 Hz	60 Hz	
AML1-6※-0.75-※-※-10/1010	6.2	1.2 (12)	7 (71)	0.75KW x 4P	Under 5.0	Under 4.1	19.8
AML1-6※-1.5-※-※-10/1010				1.5KW x 4P	Under 7.0	Under 7.0	24.8
AML1-8※-0.75-※-※-10/1010	8.5			0.75KW x 4P	Under 3.6	Under 3.0	19.8
AML1-8※-1.5-※-※-10/1010				1.5KW x 4P	Under 7.0	Under 7.0	24.8
AML1-12※-1.5-※-※-10/1010	12.3			2.2KW x 4P	Under 5.0	Under 4.0	27.3
AML1-12※-2.2-※-※-10/1010					Under 7.0	Under 7.0	
AML1-16※-2.2-※-※-10/1010	16.3	Under 6.0	Under 5.0				

Pressure Range

The below diagram is included allowable loading capacity of motor pumps. Please choose suitable motor pumps according to the information.

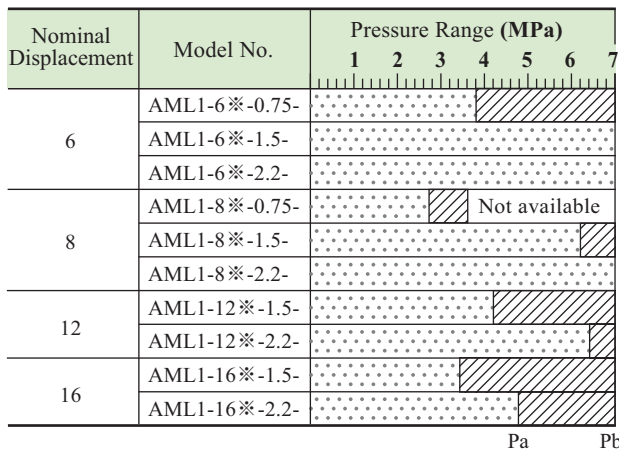


Unit : MPa

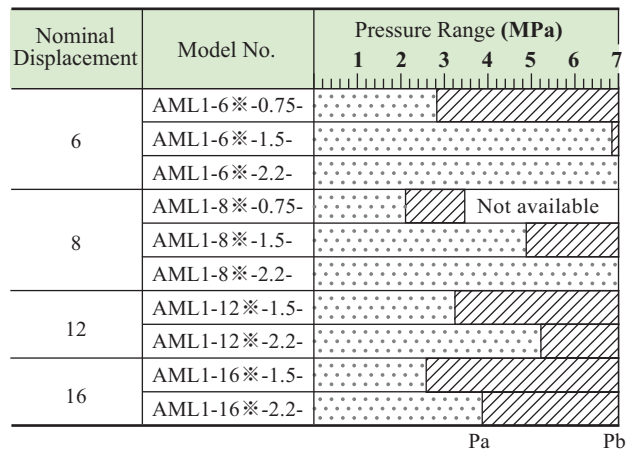
Model No.	50Hz		60Hz	
	Pa	Pb	Pa	Pb
AML1-6※-0.75-	3.8	7	2.9	7
AML1-6※-1.5-	--	7	6.9	7
AML1-6※-2.2-	--	7	--	7
AML1-8※-0.75-	2.7	3.5	2.1	3.5
AML1-8※-1.5-	6.3	7	4.9	7
AML1-8※-2.2-	--	7	--	7
AML1-12※-1.5-	4.2	7	3.4	7
AML1-12※-2.2-	6.4	7	5.2	7
AML1-16※-1.5-	3.3	7	2.6	7
AML1-16※-2.2-	4.9	7	3.9	7

- Pa: A point (When full output flow) Max setting pressure.
- Pb: B point (When full cut-off operated) Max setting pressure.

【50Hz】



【60Hz】

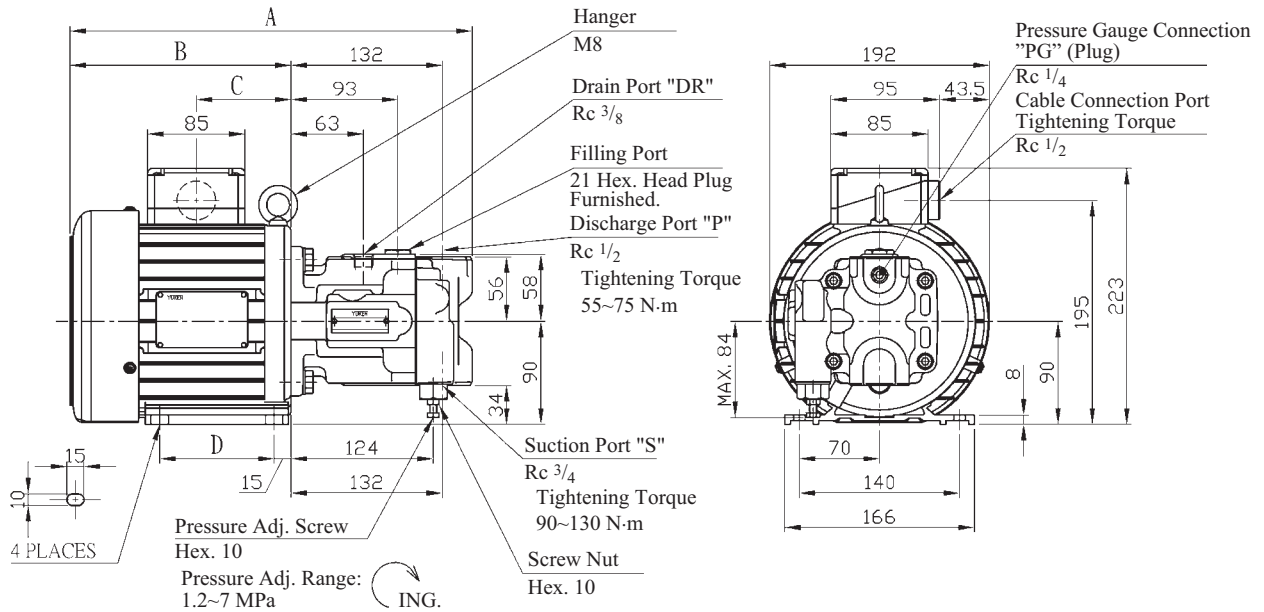


- Continuous operating range: The pressure range of full output flow
- A ↔ B operating range: Included pressure range of full cut-off operating

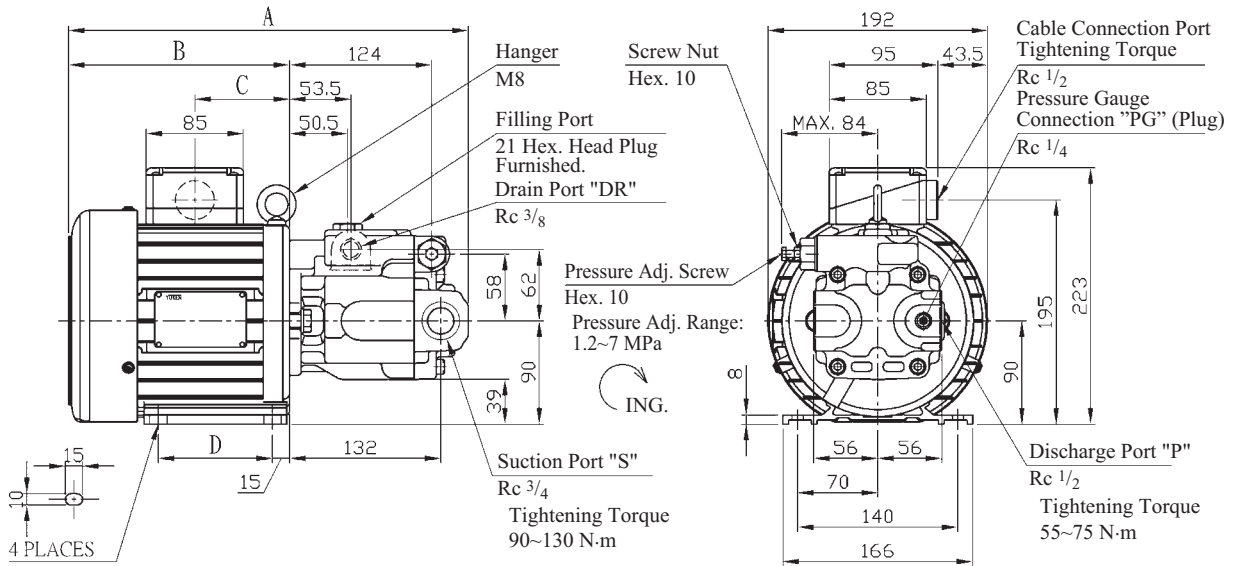
AML1 Series Motor-Pumps

Max. Pressure 7 MPa

AML1-※A-※-10/1010 :



AML1-※S-※-10/1010 :



Model No.	Size (cm)				Mass kg
	A	B	C	D	
AML1-※-0.75-※-※-10/1010	351.5	193.5	83	100	19.8
AML1-※-1.5-※-※-10/1010	381.7	223.7	113	125	24.8
AML1-※-2.2-※-※-10/1010	411.5	253.5	143	125	27.3

ML1 Series Electric Pumps



- Compact ML1 electric motors with high standard silicon steel have high efficiency than the ordinary electric motors and the total length is 40-50mm shorter than the standard electric motors.
- ML1 electric motors are made by light and beautiful aluminum pressed bodies. The mass is 16-35% lighter than the standard electric motors.
- Low noise: Precision-balanced adjustment, low vibration, and low noise.

Model Number Designation

ML1	- 0.75	- 380	- A	- 1010
Series Number	Electric Motors	Power Source	Frequency	Design No.
ML1	0.75 : 0.75 KW 1.5 : 1.5 KW 2.2 : 2.2 KW	None:200/200/220V (Normal) 400:400/400/440V	None: 50/60/60 Hz(Normal)	10
		220:220V 380:380V	A : 50 Hz B : 60 Hz D : 50 / 60 Hz	1010

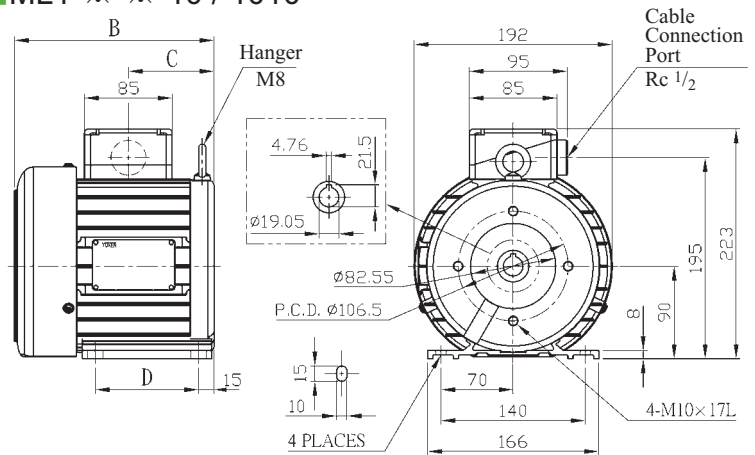
Note 1: Please contact us for other voltage of power sources.

Graphic Symbol



ML1-※-※-10 / 1010

Model	Size(cm)			Mass kg
	B	C	D	
ML1-0.75-※-※-10/1010	193.5	83	100	13.0
ML1-1.5-※-※-10/1010	223.7	113	125	18.0
ML1-2.2-※-※-10/1010	253.5	143	125	20.5



Specifications: (No. of Poles: 4P . Isolation Level : F)

Model	Power Source (V)	Frequency (Hz)	Rated Electric Flow (A)		Rotation Speed (r/min)	Starting Electric Flow (A)			
ML1-0.75-10	200	50	60	3.70	3.40	1410	1700	17.0	15.5
	220	-	60	-	3.35	-	1720	-	17.5
ML1-0.75-400-10	400	50	60	1.82	1.62	1420	1710	9.3	8.6
	440	-	60	-	1.62	-	1720	-	9.8
ML1-0.75-220-D-1010	220	50	60	3.52	3.35	1420	1720	18.7	17.3
ML1-0.75-380-D-1010	380	50	60	2.02	1.75	1420	1720	10.7	10.0
ML1-1.5-10	200	50	60	6.30	6.00	1410	1700	34.5	30.0
	220	-	60	-	5.60	-	1720	-	33.6
ML1-1.5-400-10	400	50	60	3.44	3.10	1420	1710	21.7	19.6
	440	-	60	-	3.02	-	1720	-	21.7
ML1-1.5-220-D-1010	220	50	60	6.27	5.62	1420	1720	37.6	35.6
ML1-1.5-380-D-1010	380	50	60	3.56	3.35	1420	1720	21.6	20.6
ML1-2.2-10	200	50	60	9.60	9.00	1410	1700	49.5	44.5
	220	-	60	-	8.50	-	1720	-	50.2
ML1-2.2-400-10	400	50	60	5.07	4.56	1420	1710	31.2	27.3
	440	-	60	-	4.41	-	1720	-	29.5
ML1-2.2-220-D-1010	220	50	60	9.15	8.45	1420	1720	57.4	50.1
ML1-2.2-380-D-1010	380	50	60	5.48	4.99	1420	1720	32.1	28.3

Note 3: Construction of the Case: Anti-foam sealed, The outside case can cool down automatically (Refer to IP54 JC4, EN60034-1:2010).

Ambient Environment Installing Place: Indoors, Elevation: Under 1000 m
 Temperature: -20°C~40°C, Non-Corrosive: Explosive air or steam
 Humidity: Related temperature under 100% will not become dew.

AR Series Variable Piston Pumps Max. Pressure 16 MPa

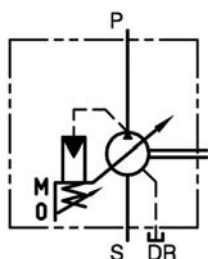


- Low noise and high efficiency.
- Options for Axial port and Side port.
- To save the piping of the tank and the space.

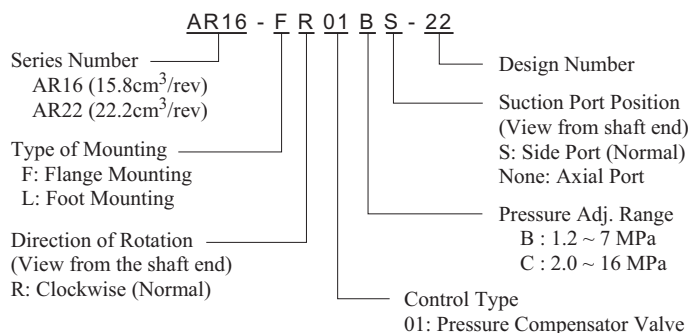
Applications:

- NC lathes, MC machines, Pipe-bending machines, Blow moulding machines, High efficiency special machines and Small hydraulic punching machines.

Graphic Symbol



Model Number Designation



Specifications

Model No.	Geometric Displacement cm ³ /rev	Min. Adj. Pressure MPa (kgf/cm ²)	Max Operating Pressure MPa (kgf/cm ²)	Rotation Speed Range r/min		Min. Adj. Flow cm ³ /rev	Mass kg	
				Min.	Max.		Flange Mounting	Foot Mounting
AR16※-※R01※-22	15.8	1.2 (12)	16 (163)	600	1800	AR16 : 6	12.3	14.5
AR22※-※R01※-22	22.2						13.0	15.5
AR16※-※R01※S-22	15.8					AR22 : 8.5		
AR22※-※R01※S-22	22.2							

● Pressure Adjustment

Turning the pressure adjustment screw clockwise, increases pressure.

Volume adjusted by each full turn of the pressure adjust screw. Please tighten the nut after adjusting.

Model No.	Adjustment Volume MPa
ARL1-FR01	1.5
AR16/AR22-FR01B	2.9
AR16/AR22-FR01C	5.4

● Flow Adjustment (Only for AR pumps)

Turning the flow adjustment screw clockwise, decreases flow.

Volume adjusted by each full turn of the flow adjust screw. Please tighten the nut after adjusting.

Model No.	Adjustable volume with each full turn of the adjustment screw cm ³ /rev	Minimum Adjustable flow cm ³ /rev
AR16	1.5	6.0
AR22	2.1	8.5

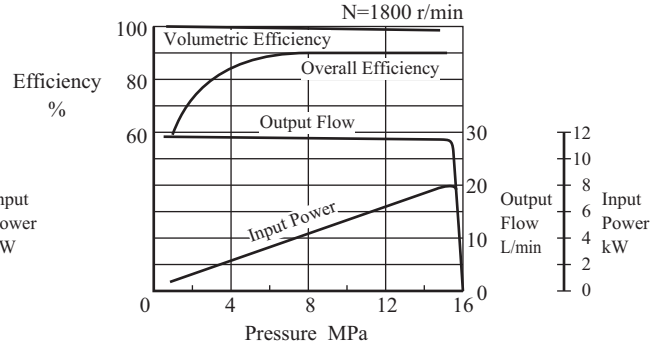
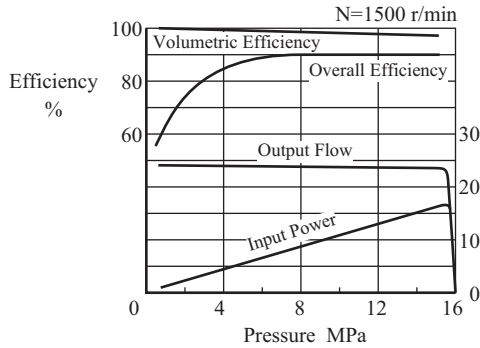
Please tighten the screw after adjusting

AR Series Variable Piston Pumps Max. Pressure 16 MPa

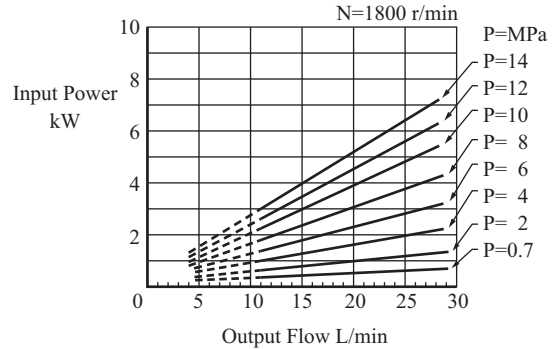
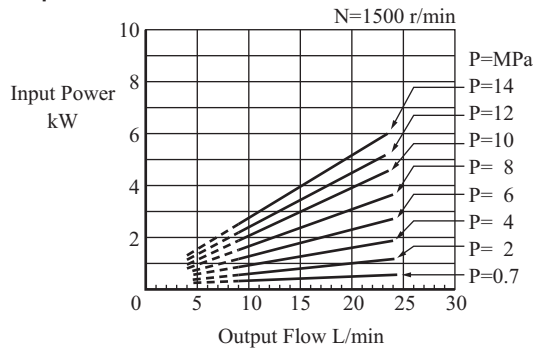
AR 16 Performance Characteristic Curve

Typical Pump Characteristics of "AR16" at Viscosity 20 mm²/s (ISO VG32 oils, 50°C)

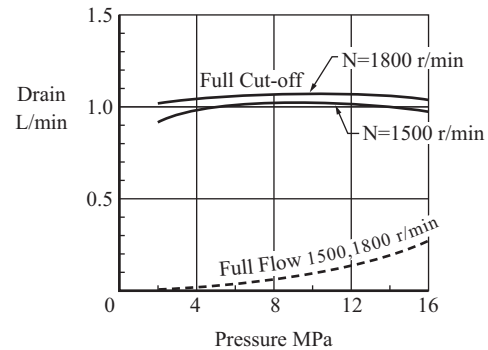
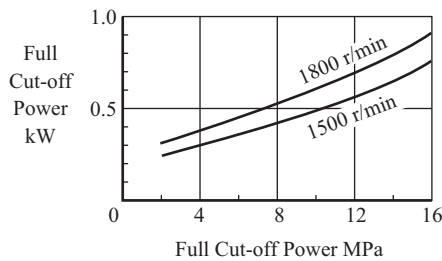
Performance Characteristic Curve



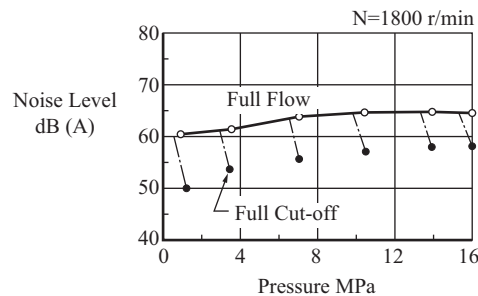
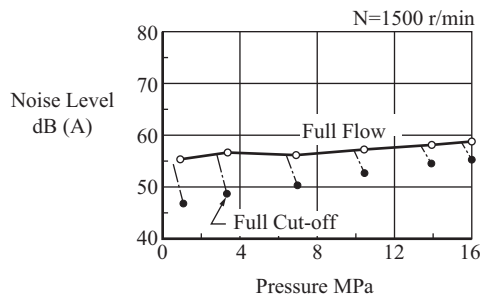
Input Power



Full Cut-off Power



Noise Level (One meter horizontally away from pump head cover)

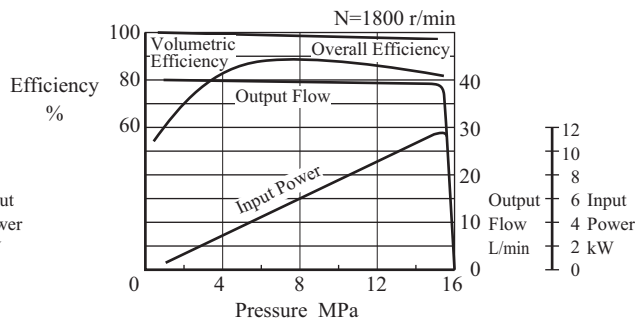
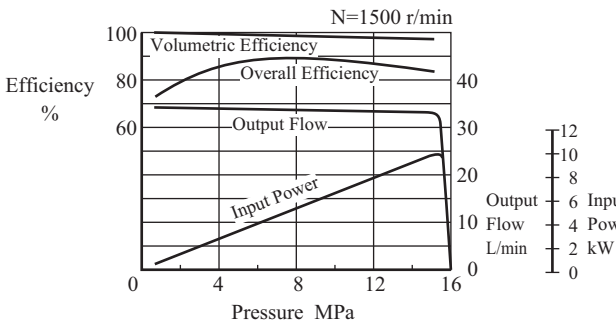


AR Series Variable Piston Pumps Max. Pressure 16 MPa

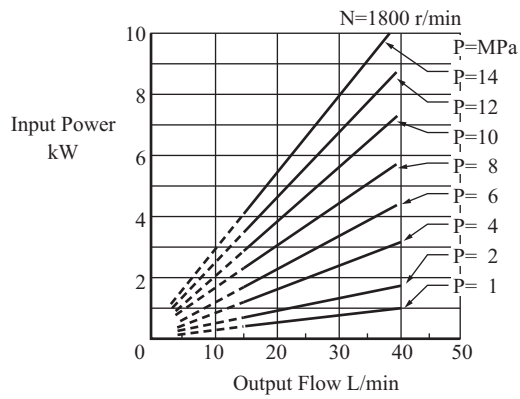
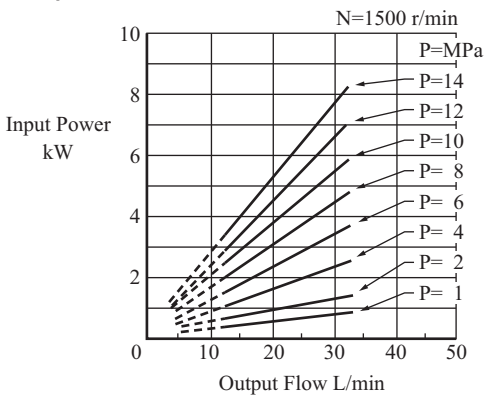
AR 22 Performance Characteristic Curve

Typical Pump Characteristics of "AR22" at Viscosity 20 mm²/s (ISO VG32 oils, 50°C)

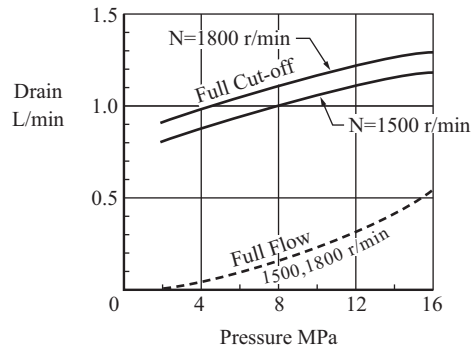
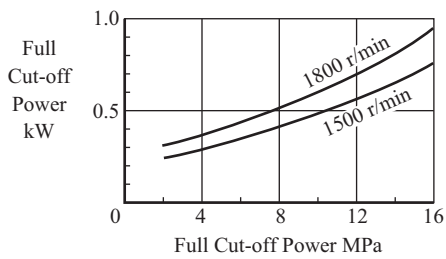
Performance Characteristic Curve



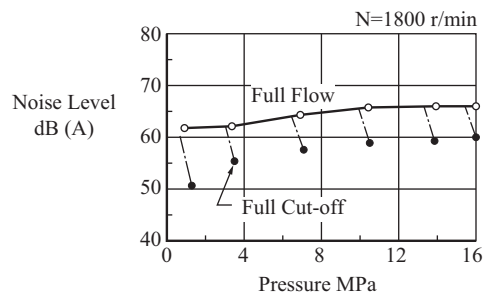
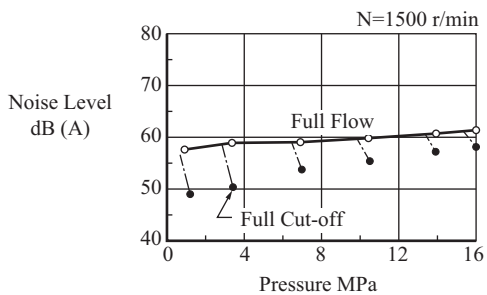
Input Power



Full Cut-off Power



Noise Level (One meter horizontally away from pump head cover)



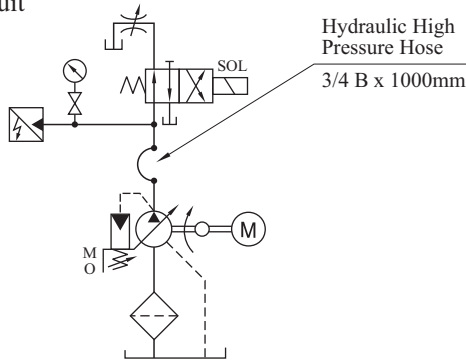
AR Series Variable Piston Pumps Max. Pressure 16 MPa

Response Characteristics

Response characteristics change in accordance with circuits and operating conditions. Please see below testing results.

Test Circuit and Conditions

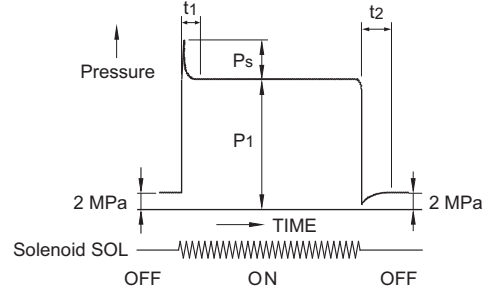
• Circuit



• Conditions

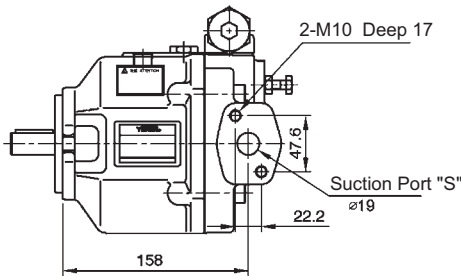
- Drive Speed: 1500 r/min
- Hydraulic Fluid: ISO VG32 oil
- Oil Temperature: 50 °C
- Viscosity: 20 mm²/s

Result of Measurement



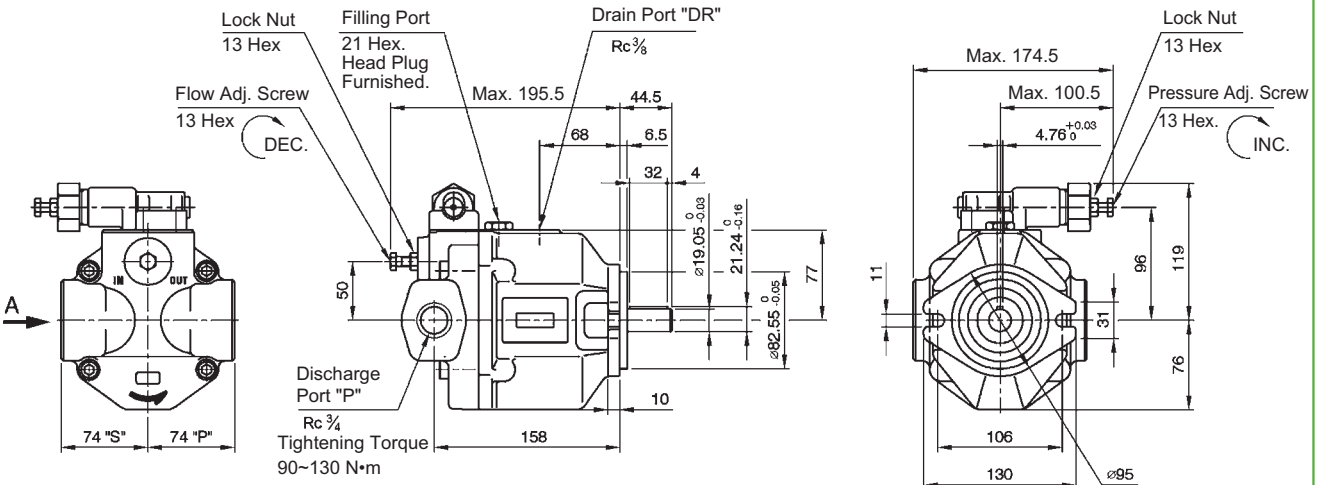
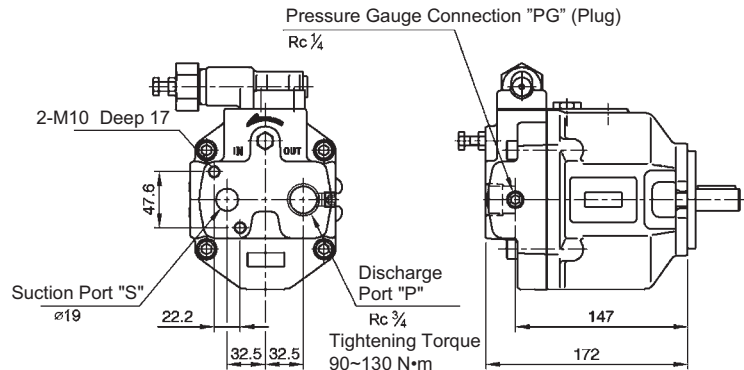
Model	Full Cut-off Pressure MPa	Response Time ms		Overshoot Pressure MPa
	P1	t1	t2	Ps
AR16	16	60	65	Under 5.6
AR22		70	70	Under 7.3

AR※-FR01※S-22



View A

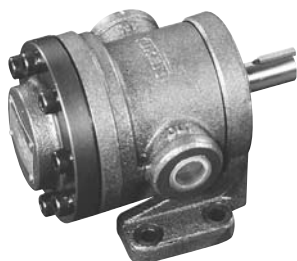
AR※-FR01※-22



Single Vane Pumps

Max. Pressure 7 MPa

These pumps are widely used as a source of hydraulic power, owing to their features of stable performance and robust construction with a wide range of displacement.

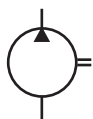


Specifications

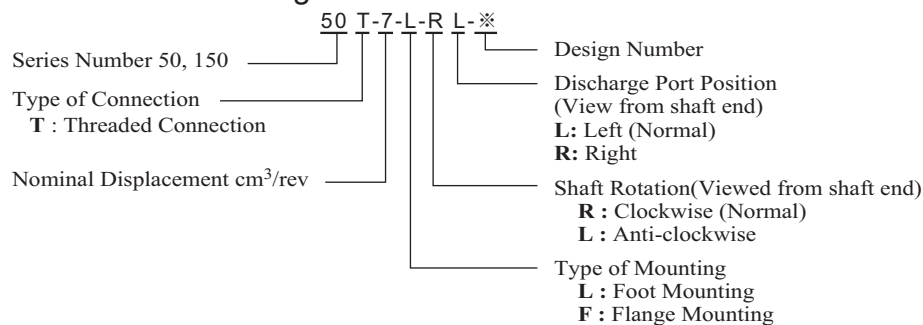
Model No.	Geometric Displacement cm ³ /rev	Max. Pressure MPa (kgf/cm ²)	Shaft Speed Range r/min	Mass kg	
				Flange Mtg	Foot Mtg
50T-7-※-※※-30	6.8	7 (71)	*800~2000	9	10.5
50T-12-※-※※-30	11.6		*600~2000		
50T-17-※-※※-30	16.5		*600~1800		
50T-23-※-※※-30	22.9				
50T-26-※-※※-30	25.9				
50T-36-※-※※-30	36.0				
150T-48-※-※※-40	47.7	7 (71)	600~1500	25	26
150T-61-※-※※-40	61.1				
150T-75-※-※※-40	74.9		600~1200		
150T-94-※-※※-40	93.6				
150T-116-※-※※-40	115.6				

*For starting at low speed, the maximum viscosity is limited. Please refer to page 8 for details (Table 2).

Graphic Symbol



Model Number Designation



50 T

Foot Mtg.

Flange Mtg.

For other dimensions, please refer to "Foot Mtg."

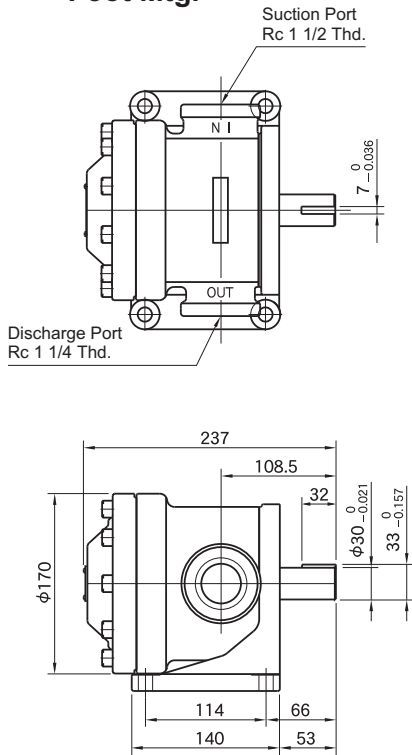
11 Dia. Through 24 Dia. Spotface 4 Places

Single Vane Pumps

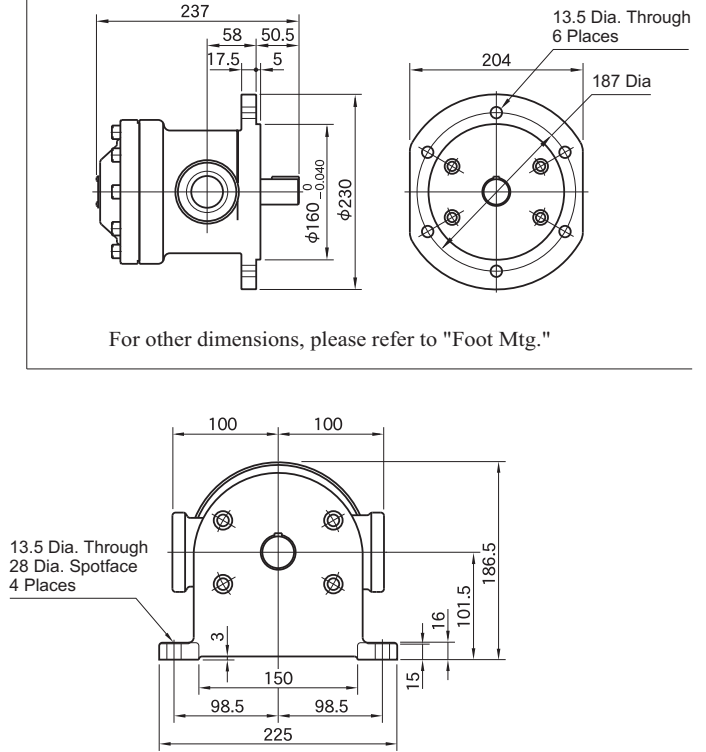
Max. Pressure 7 MPa

150 T

Foot Mtg.



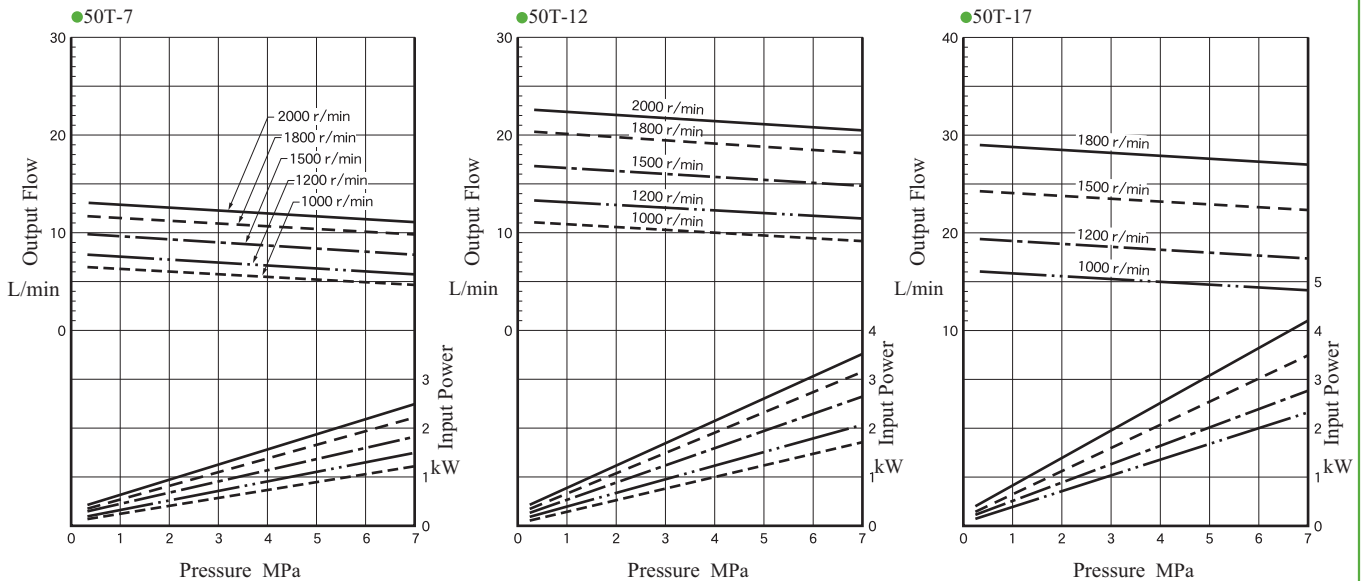
Flange Mtg.



For other dimensions, please refer to "Foot Mtg."

Pressure—Output Flow , Input Power Characteristics

Fluid Viscosity 20 mm²/s (ISO VG32 Oils, 50°C) 1 MPa=10.2 kgf/m²

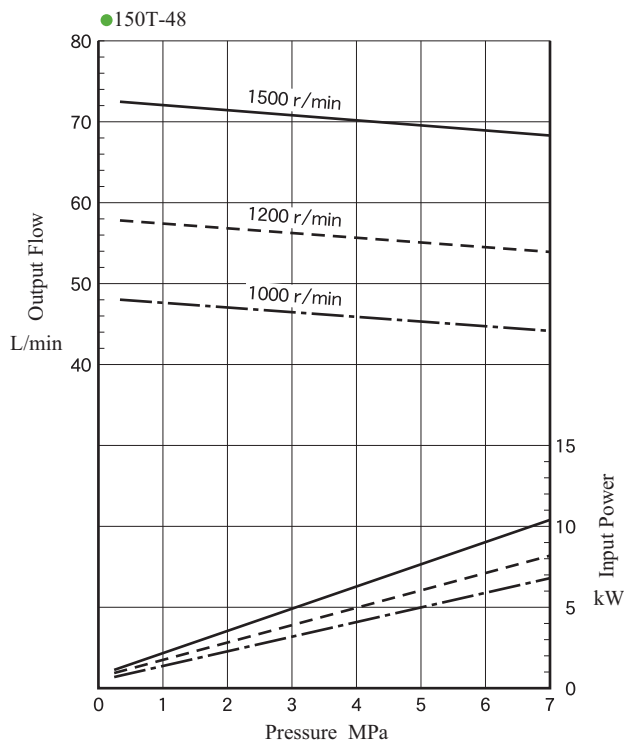
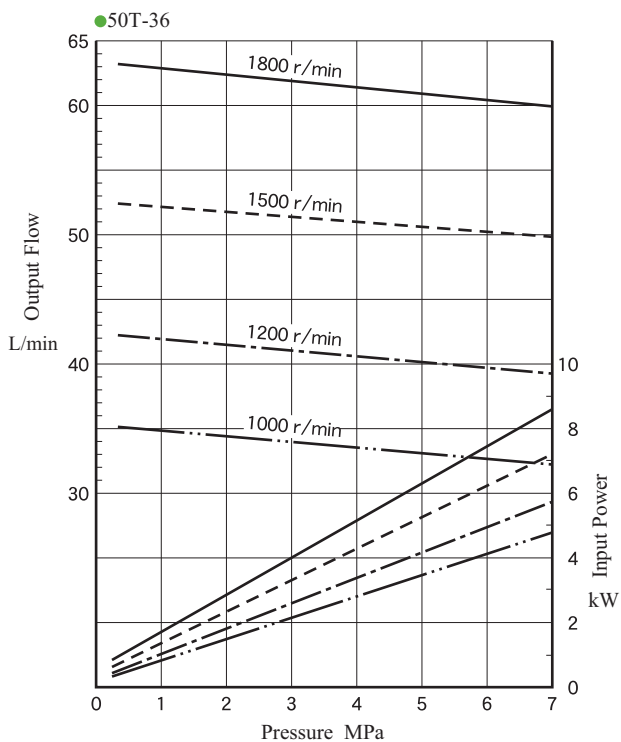
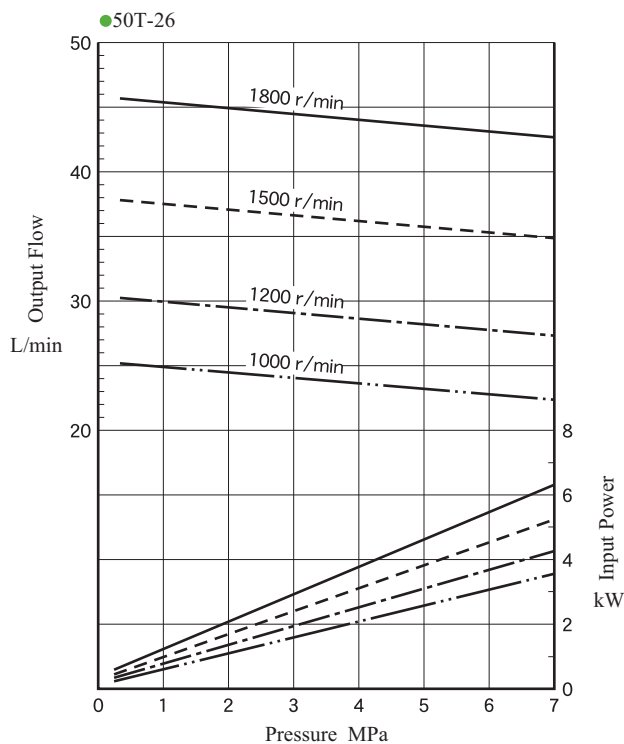
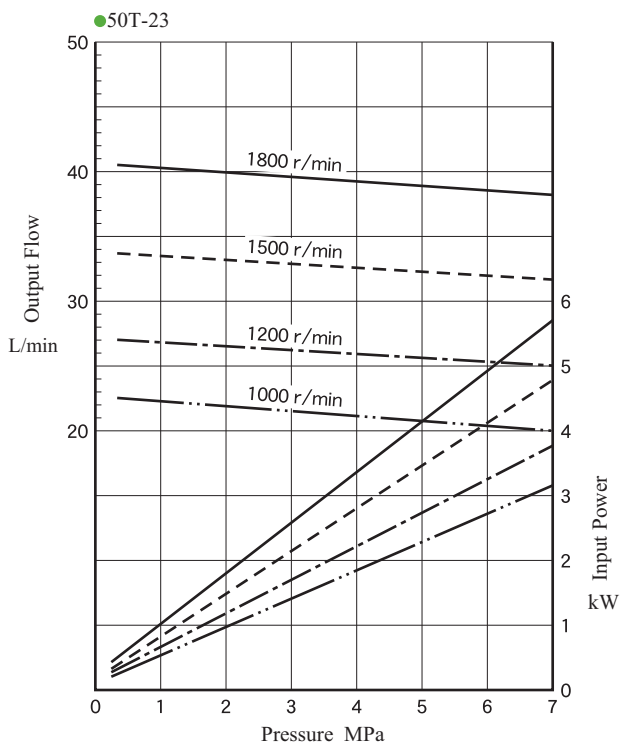


Single Vane Pumps

Max. Pressure 7 MPa

Pressure—Output Flow · Input Power Characteristics

Fluid Viscosity 20 mm²/s (ISO VG32 Oils, 50°C) 1 MPa=10.2 kgf/m²

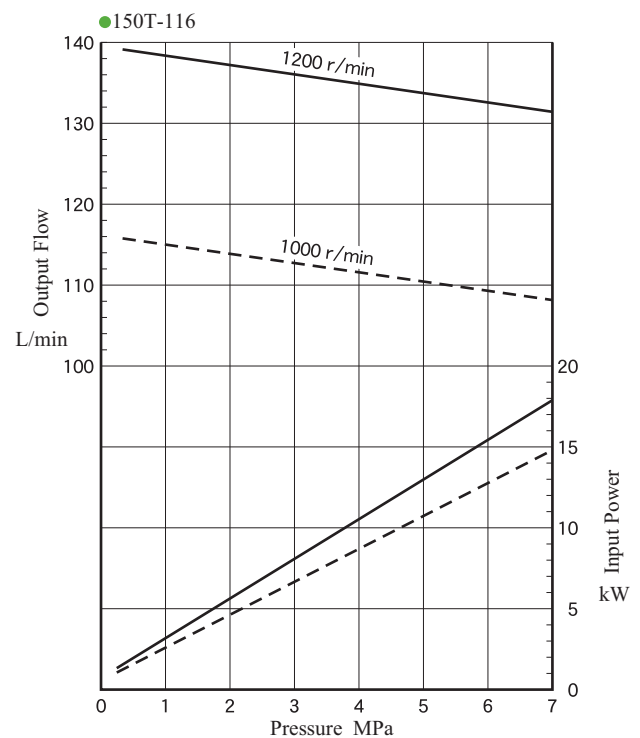
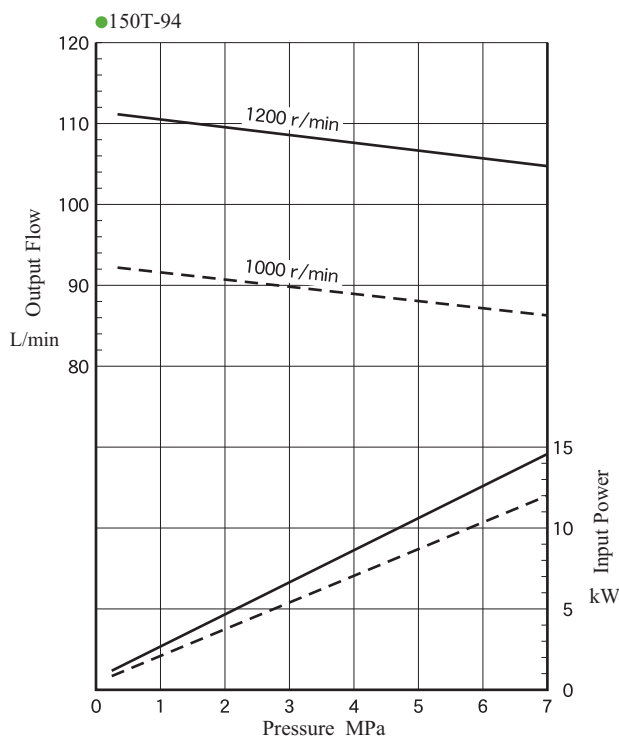
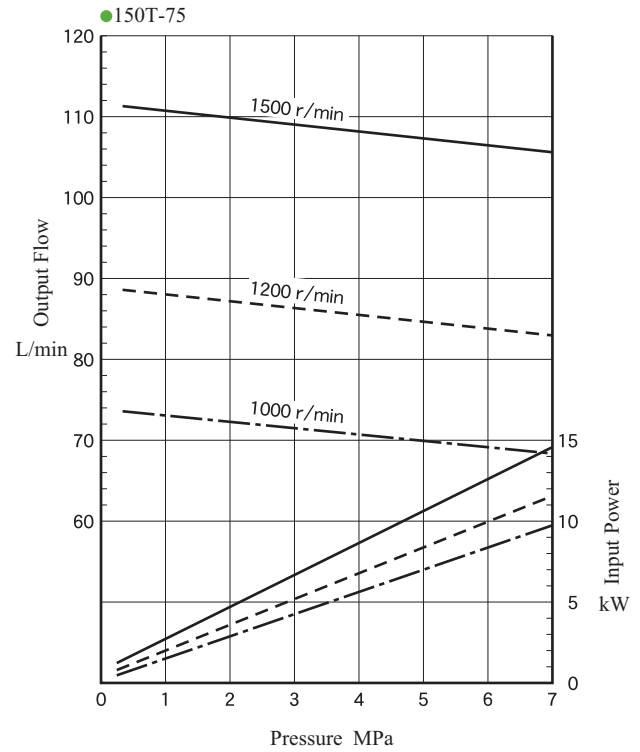
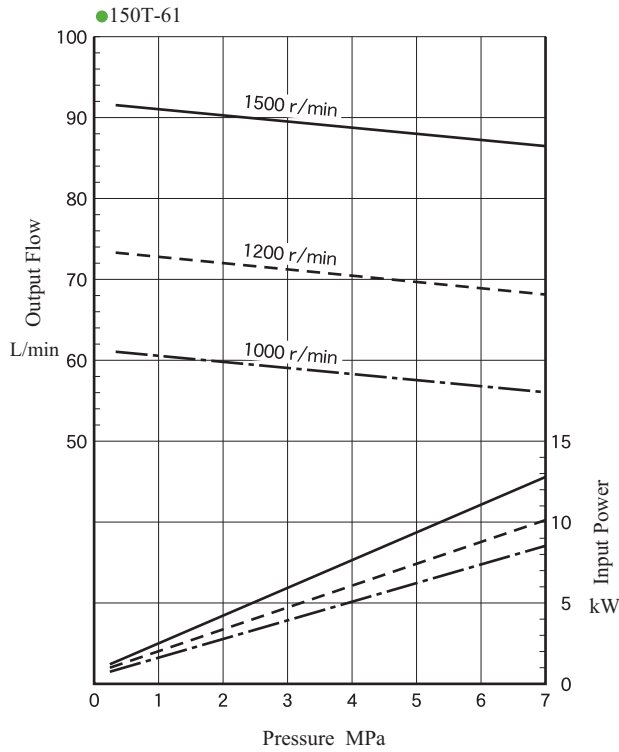


Single Vane Pumps

Max. Pressure 7 MPa

Pressure—Output Flow, Input Power Characteristics

Fluid Viscosity 20 mm²/s (ISO VG32 Oils, 50°C) 1 MPa=10.2 kgf/m²



PV2R Series Single Vane Pumps Max. Pressure 21 MPa



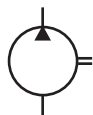
- The pumps with high pressure and high quality, have been developed especially for low noise operation.
- The pumps can be used on various applications including injection moulding machines and machine tools...etc, with output range: 5.8~237 cm³/rev.
- The pump cartridge kit is assembled by screws, so it is easy to assemble and maintain.

Specifications

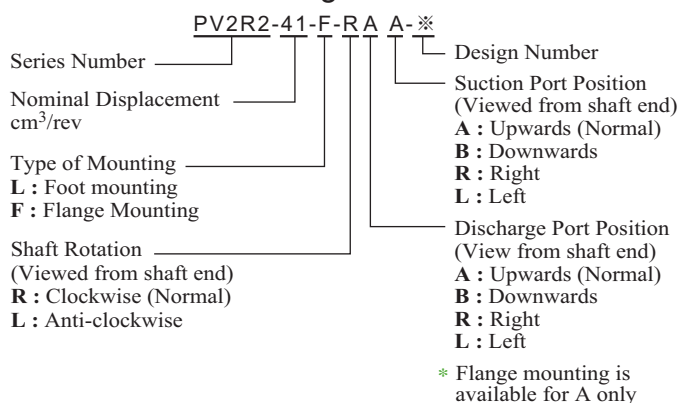
Model No.	Geometric Displacement cm ³ /rev	Max. Pressure MPa (kgf/cm ²)	Shaft Speed Range r/min	Mass kg					
				Flange Mtg	Foot Mtg				
*3 PV2R1- 6-※-※※※-4326	5.8	21 (214)	*1 750~1800	9.0	11.2				
*3 PV2R1- 8-※-※※※-4326	8.0								
PV2R1-10-※-※※※-4326	9.4								
PV2R1-12-※-※※※-4326	12.2								
PV2R1-14-※-※※※-4326	13.7								
PV2R1-17-※-※※※-4326	16.6								
PV2R1-19-※-※※※-4326	18.6								
PV2R1-23-※-※※※-4326	22.7								
PV2R1-25-※-※※※-4326	25.3								
PV2R1-31-※-※※※-4326	31.0					16 (163)			
PV2R2-26-※-※※※-41	26.6	21 (214)	*1 600~1800	19.0	23.3				
PV2R2-33-※-※※※-41	33.3								
PV2R2-41-※-※※※-41	41.3								
PV2R2-47-※-※※※-41	47.2								
PV2R2-53-※-※※※-41	52.5								
PV2R2-59-※-※※※-41	58.2								
PV2R2-65-※-※※※-41	64.7								
PV2R2-75-※-※※※-4103	75					16 (163)			
PV2R3-60-※-※※※-31	59.6					21 (210)	600~1800	36.7	46.7
PV2R3-66-※-※※※-31	66.3								
PV2R3-76-※-※※※-31	76.4								
PV2R3-85-※-※※※-3103	85								
PV2R3-94-※-※※※-31	93.6								
PV2R3-108-※-※※※-3103	108	17.5 (178)							
PV2R3-116-※-※※※-31 *2	115.6	16 (163)							
PV2R3-125-※-※※※-3103	125	14 (143)							
PV2R4-136-※-※※※-30	136	17.5 (178)	600~1800	68.5	93.5				
PV2R4-153-※-※※※-30	153								
PV2R4-184-※-※※※-30	184								
PV2R4-200-※-※※※-30	201								
PV2R4-237-※-※※※-30 ²	237								

- *1. For starting at low speed of shaft rotation, the maximum viscosity is limited. Please refer to page 8 (Table 2) for details.
 *2. When operating with a shaft speed exceeding 1700rpm, the suction pressure is restricted. Please refer to page 8 (Table 1) for details.
 *3. When pressure is over 16 MPa (160 kgf/cm²), raise the speed of shaft rotation to more than 1450 rpm.
- Anti-wear type petroleum hydraulic fluids are recommended to use with these pumps.
 - For pressure - output flow & input power characteristics, please refer to page 28-34.

Graphic Symbol



Model Number Designation



Pipe Flange Kits

Pump Model	Name of Ports	Pipe Flange Kit Model No.
PV2R1	Suction	F5-08-A-10T
	Discharge	F5-04-A-10T
PV2R2	Suction	F5-10-A-10T
	Discharge	F5-06-A-10T
PV2R3	Suction	F5-16-A-10T
	Discharge	F5-10-A-10T
PV2R4	Suction	F5-24-B-10T
	Discharge	F5-12-B-10T

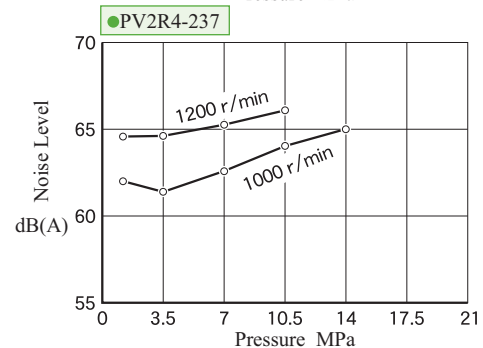
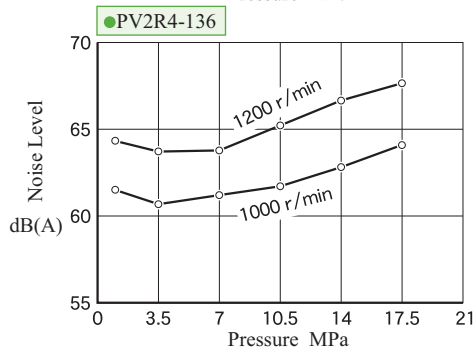
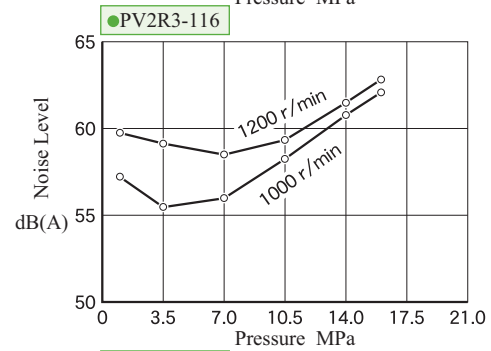
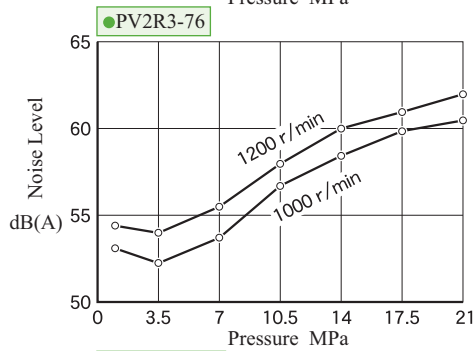
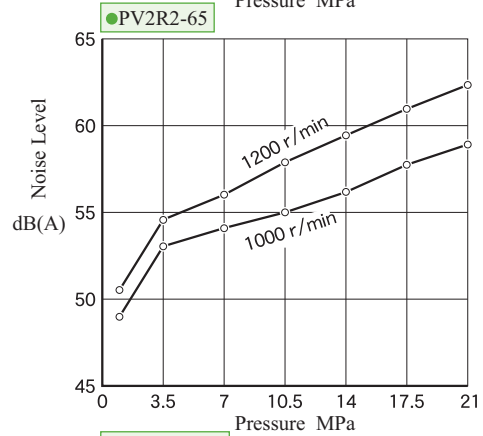
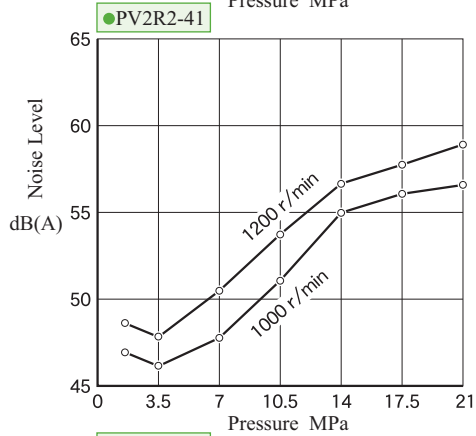
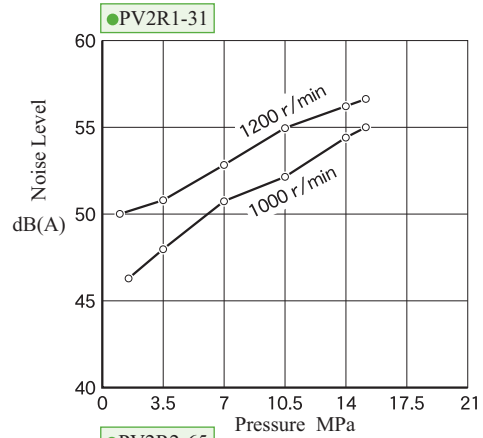
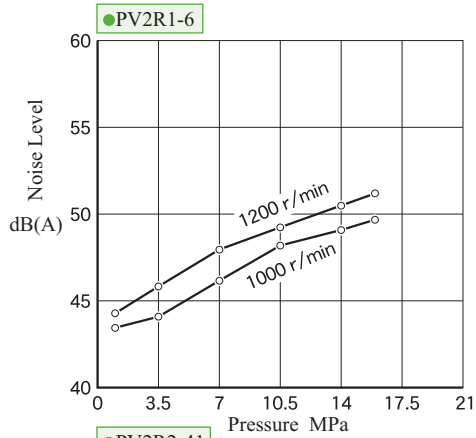
- In Pipe Flange Kit Model No. A: Threaded Connection / B: For Pipe Socket Welding.
- Details of the pipe flange kit please refer to page 41.
- When ordering, please specify pipe flange kit model.

PV2R Series Single Vane Pumps Max. Pressure 21 MPa

Noise Level (Example) Measuring Conditions

Fluid viscosity: 20 cSt

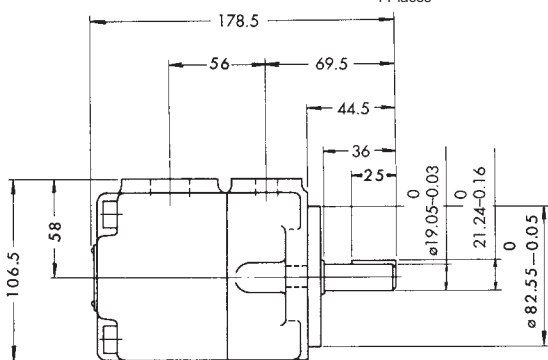
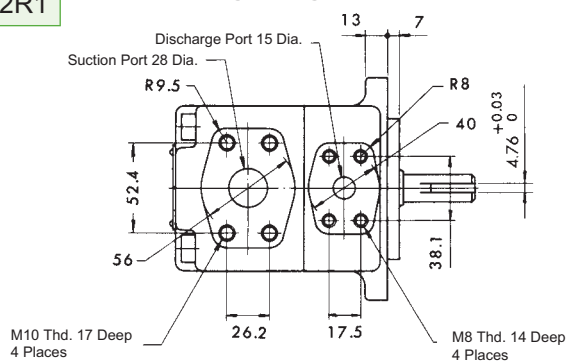
Measurement position: One meter horizontally from pump head cover
Background noise: 40 dB(A)



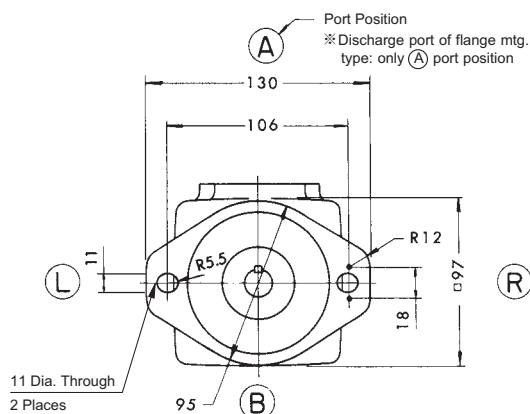
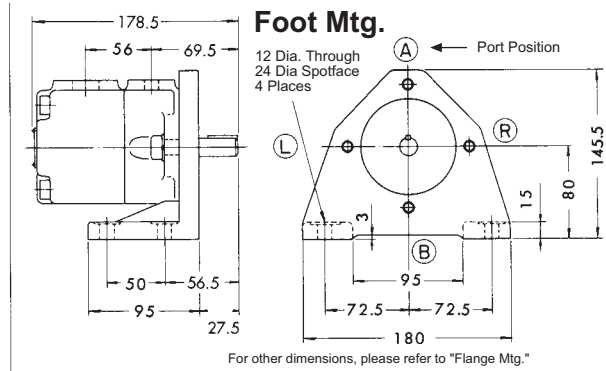
PV2R Series Single Vane Pumps Max. Pressure 21 MPa

PV2R1

Flange Mtg.

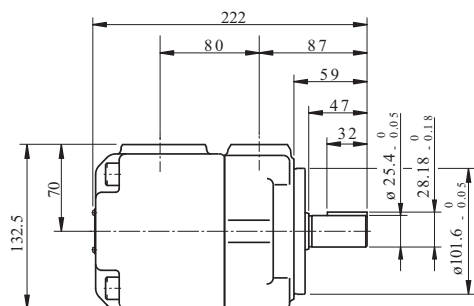
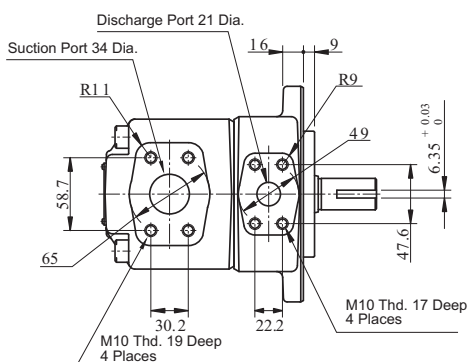


Foot Mtg.

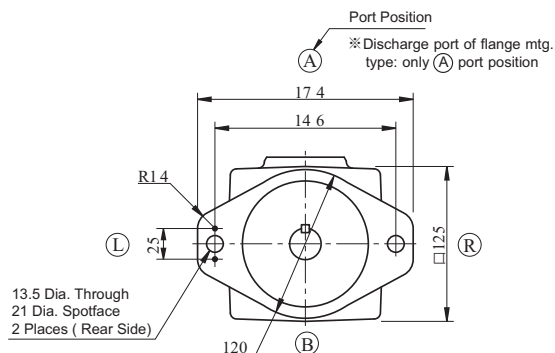
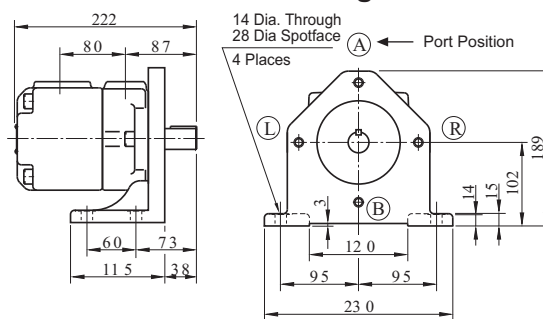


PV2R2

Flange Mtg.



Foot Mtg.

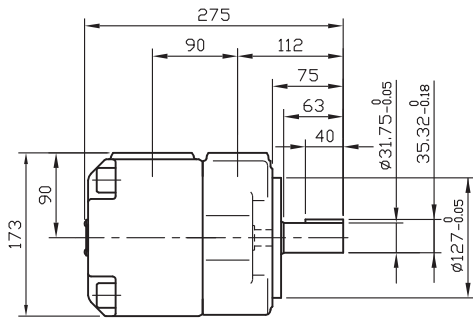
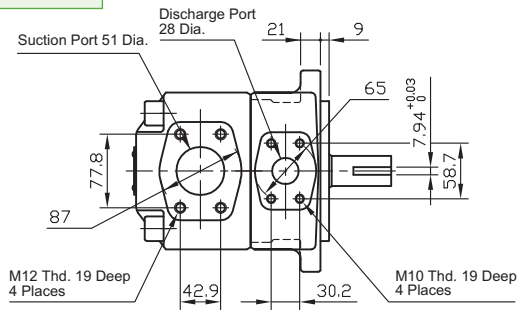


PV2R Series Single Vane Pumps

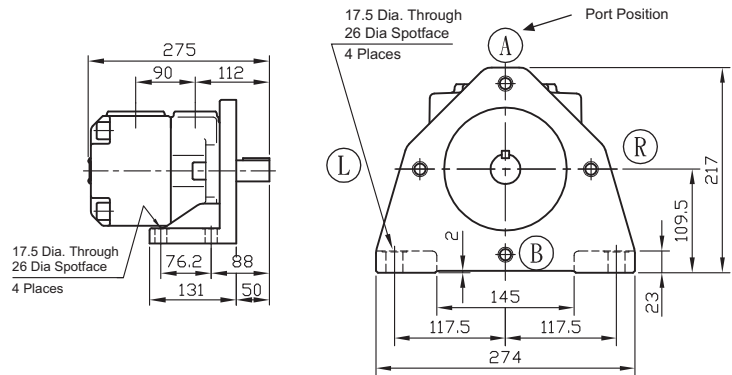
Max. Pressure 21 MPa

PV2R3

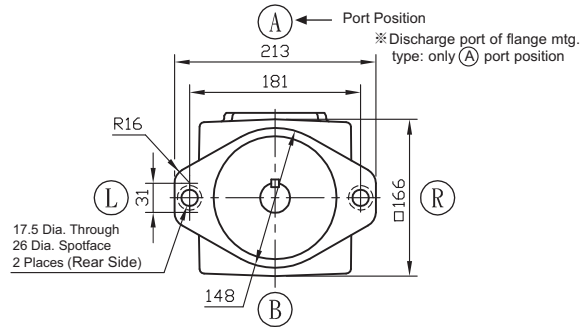
Flange Mtg.



Foot Mtg.

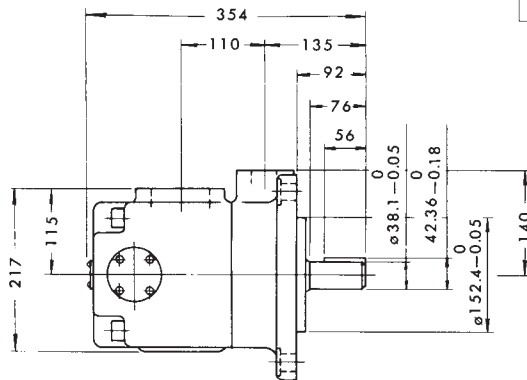
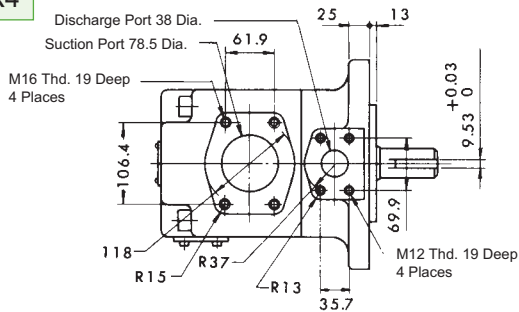


For other dimensions, please refer to "Flange Mtg."

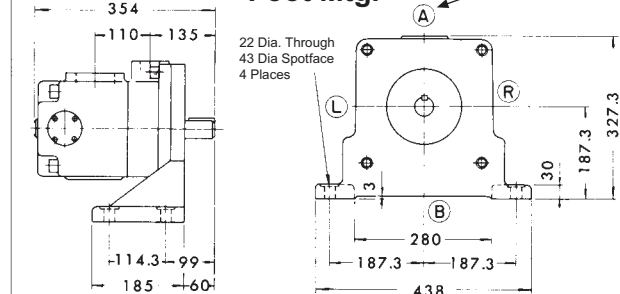


PV2R4

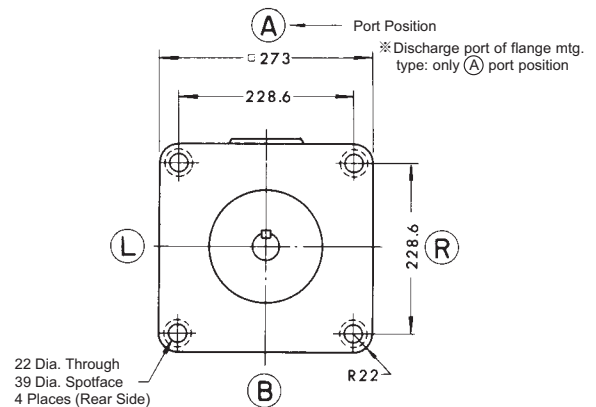
Flange Mtg.



Foot Mtg.



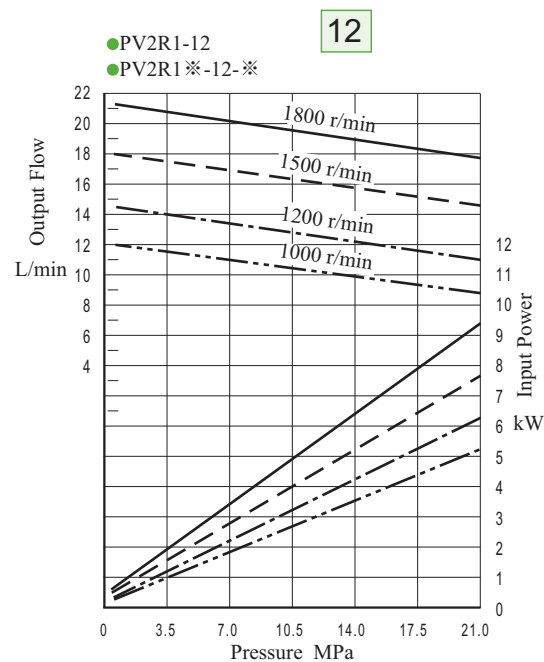
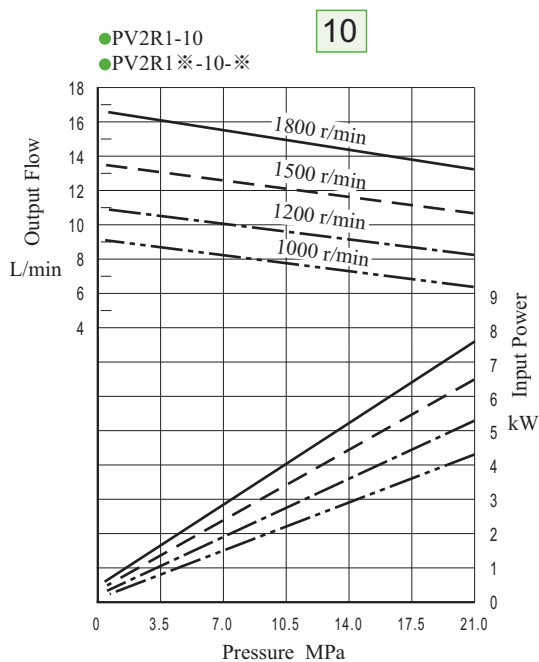
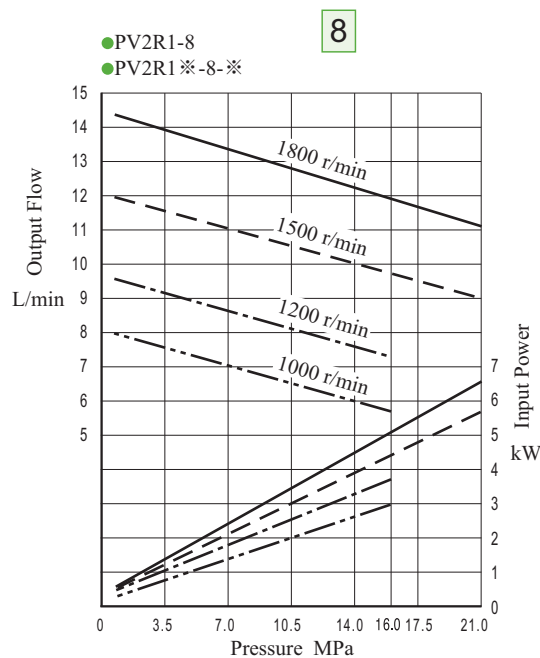
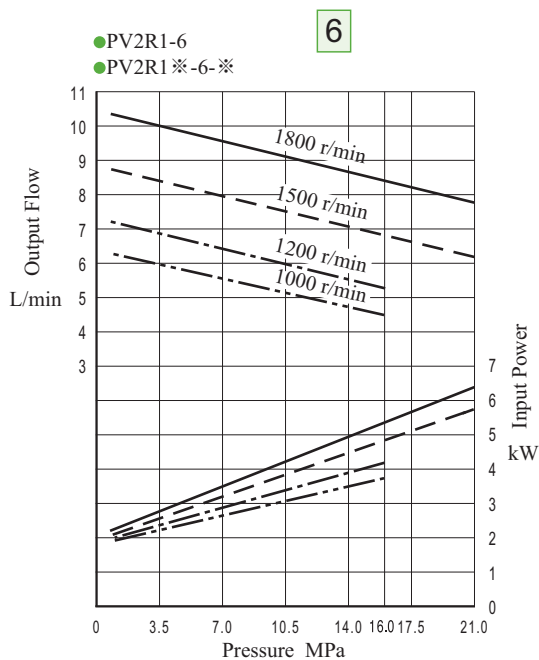
For other dimensions, please refer to "Flange Mtg."



PV2R Series Single Vane Pumps

Max. Pressure 21 MPa

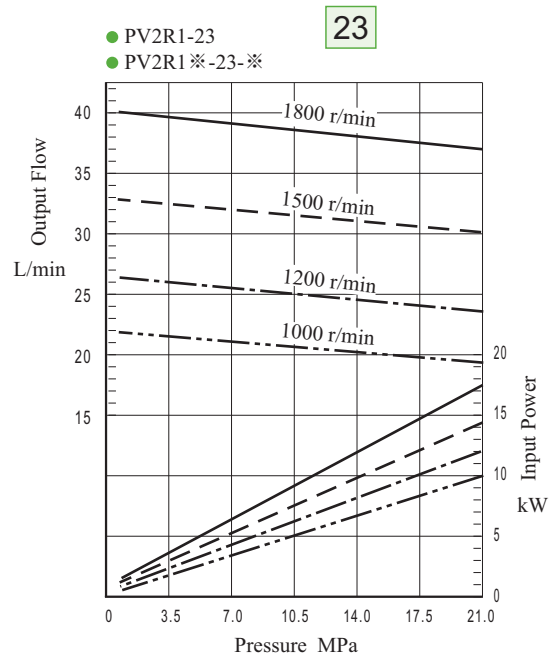
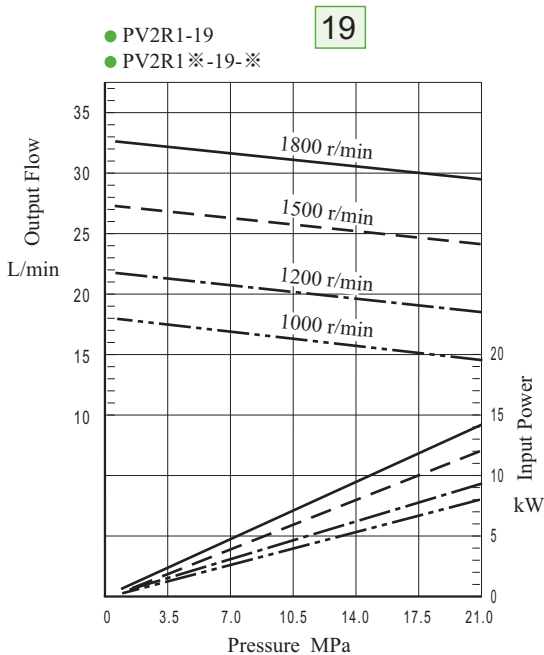
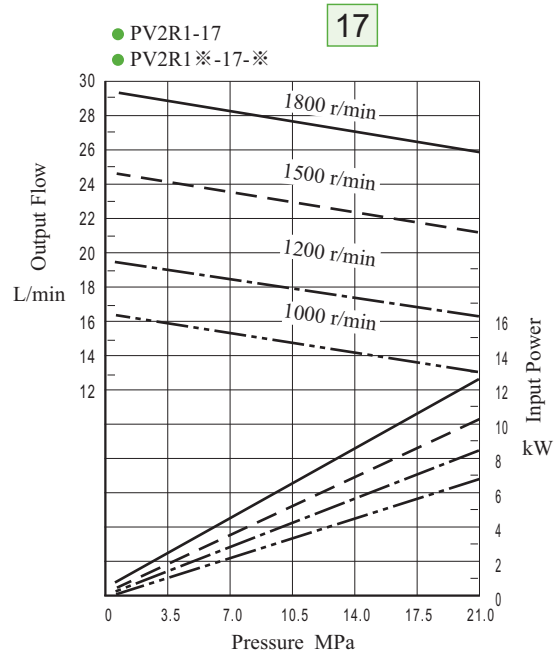
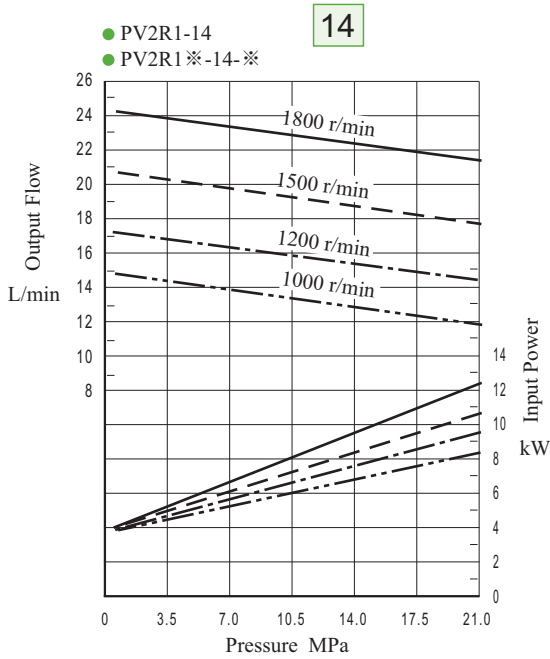
Pressure—Output Flow, Input Power Characteristics
Fluid Viscosity 20 mm²/s (ISO VG32 Oils, 50°C)



PV2R Series Single Vane Pumps

Max. Pressure 21 MPa

Pressure—Output Flow , Input Power Characteristics
Fluid Viscosity 20 mm²/s (ISO VG32 Oils, 50°C)

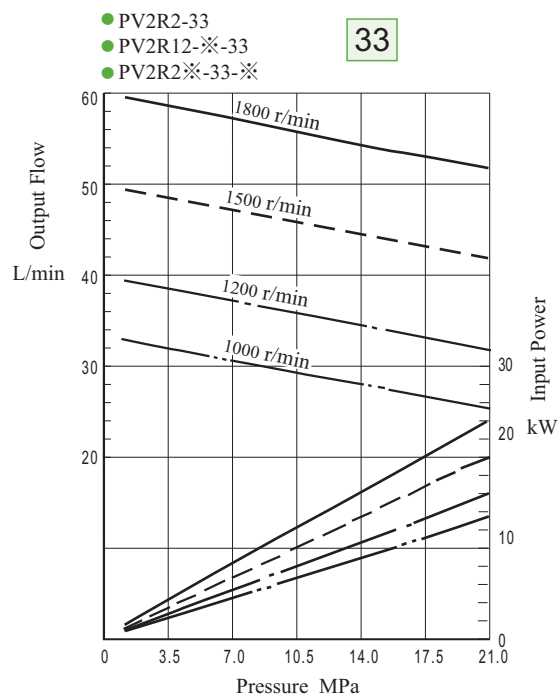
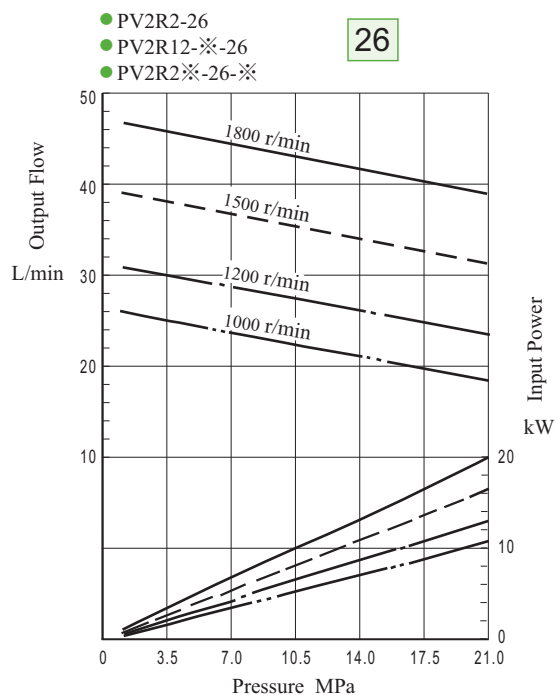
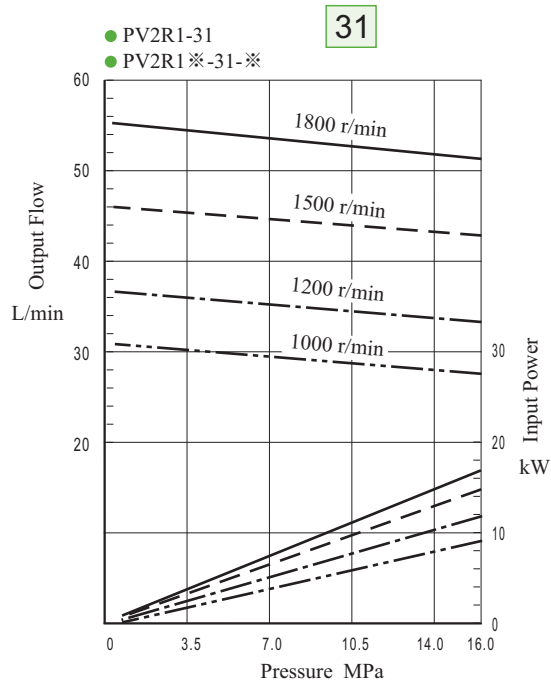
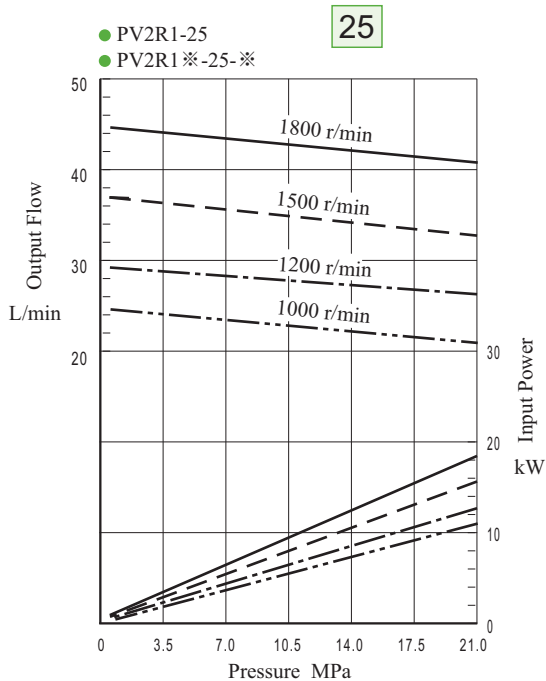


PV2R Series Single Vane Pumps

Max. Pressure 21 MPa

Pressure—Output Flow · Input Power Characteristics

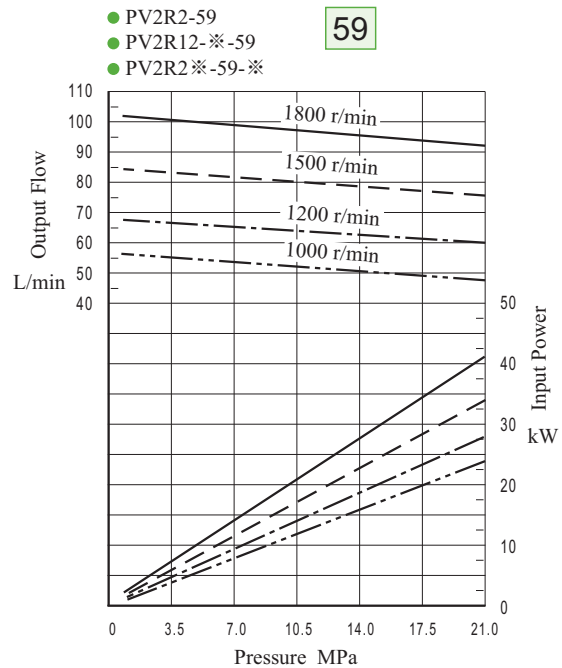
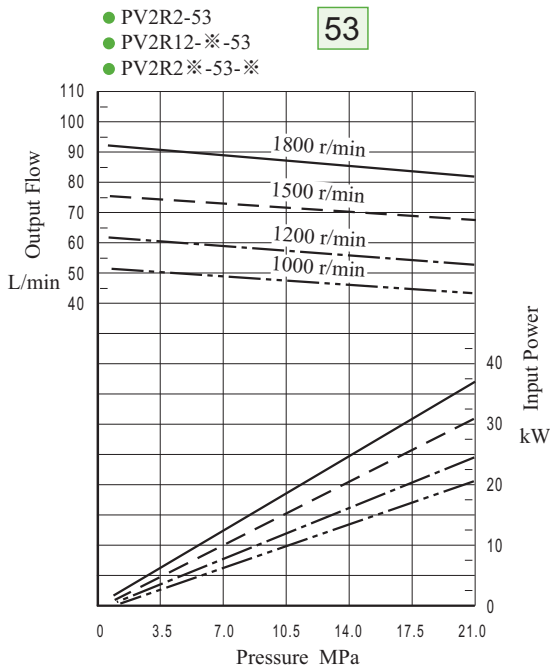
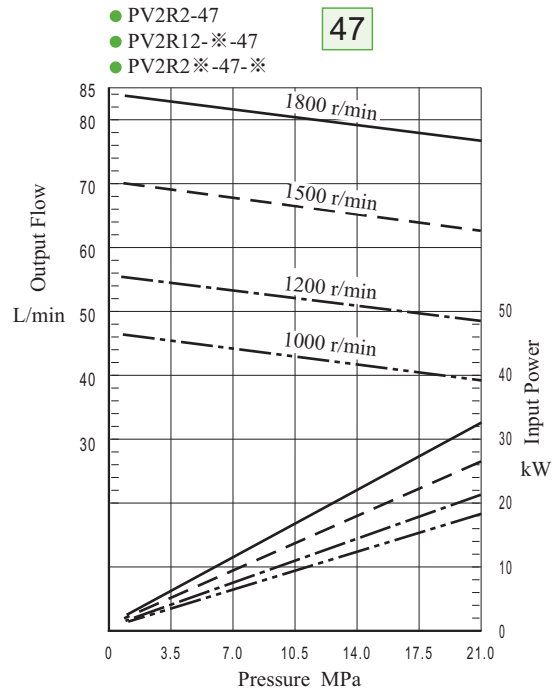
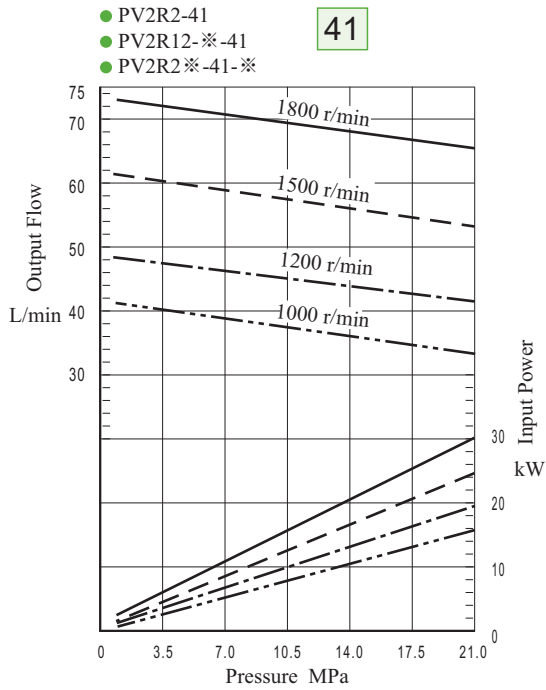
Fluid Viscosity 20 mm²/s (ISO VG32 Oils, 50°C)



PV2R Series Single Vane Pumps

Max. Pressure 21 MPa

Pressure—Output Flow , Input Power Characteristics
 Fluid Viscosity 20 mm²/s (ISO VG32 Oils, 50°C)

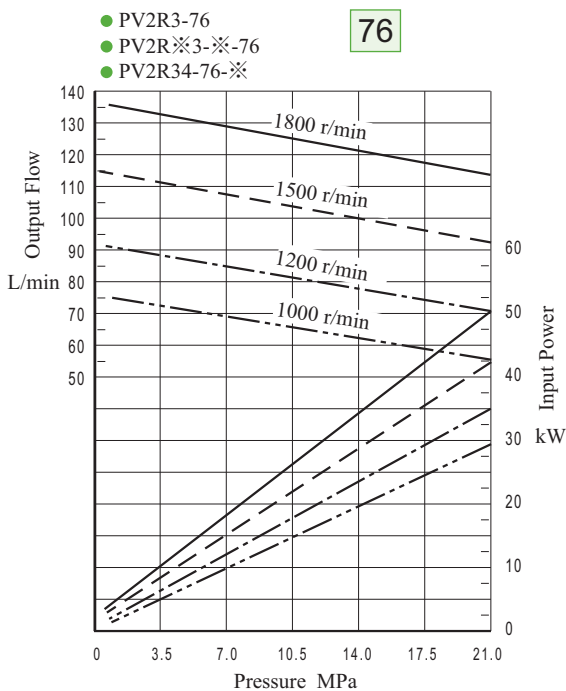
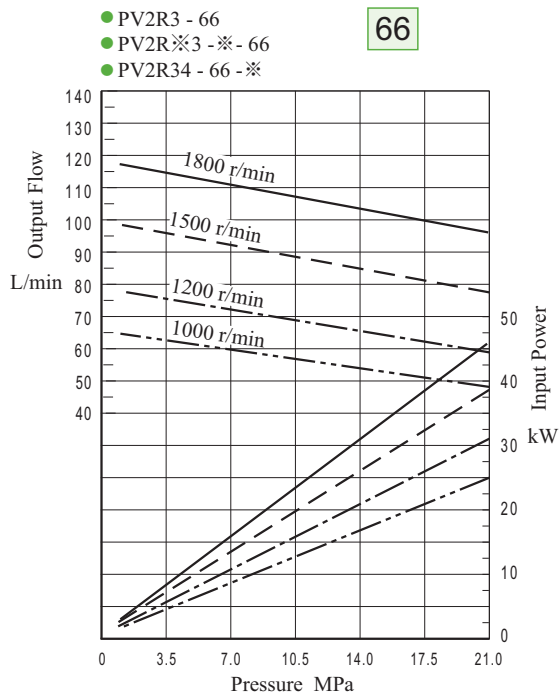
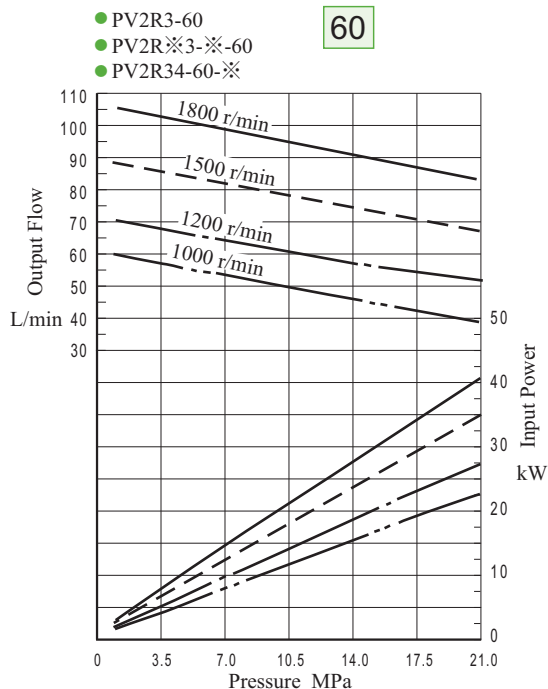
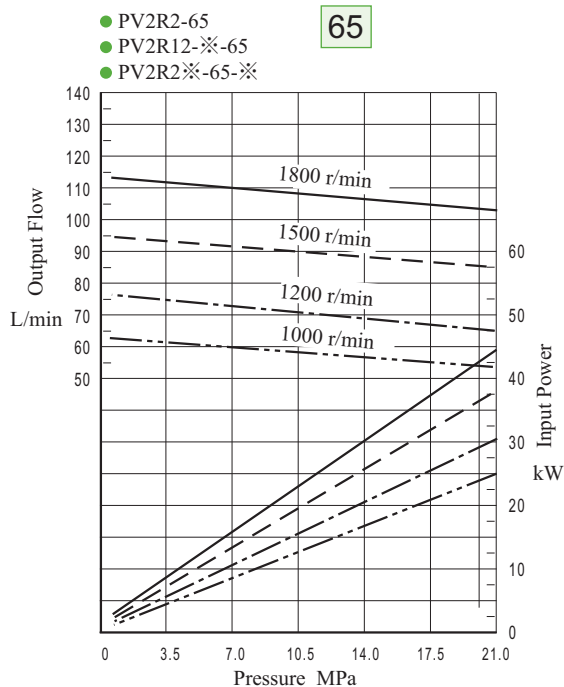


PV2R Series Single Vane Pumps

Max. Pressure 21 MPa

Pressure—Output Flow · Input Power Characteristics

Fluid Viscosity 20 mm²/s (ISO VG32 Oils, 50°C)

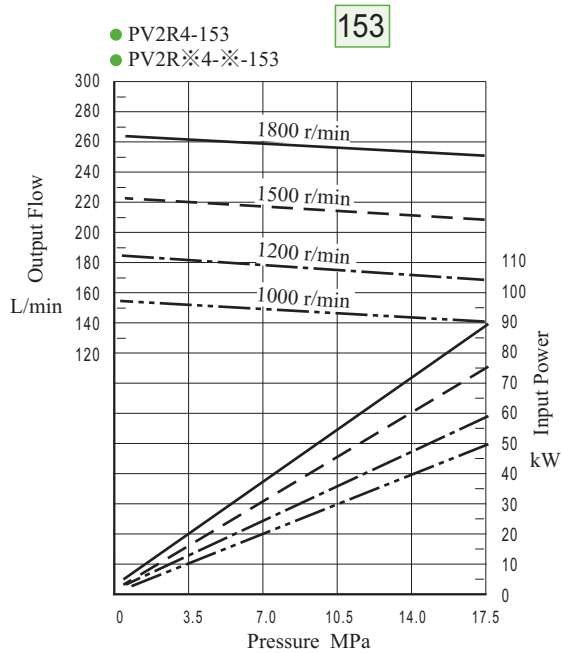
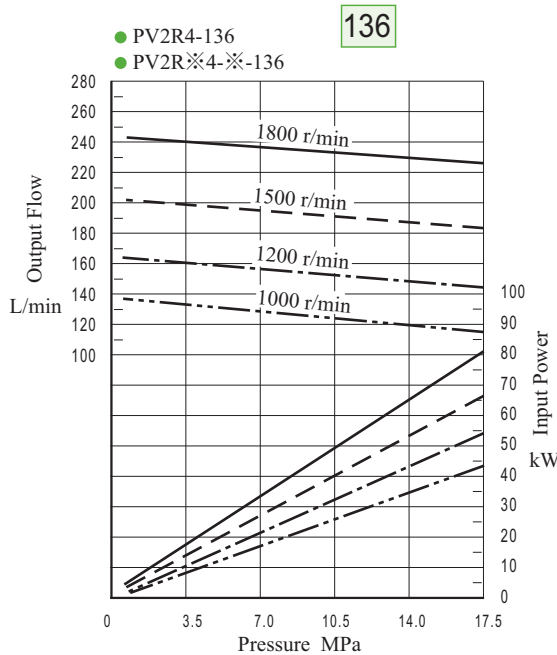
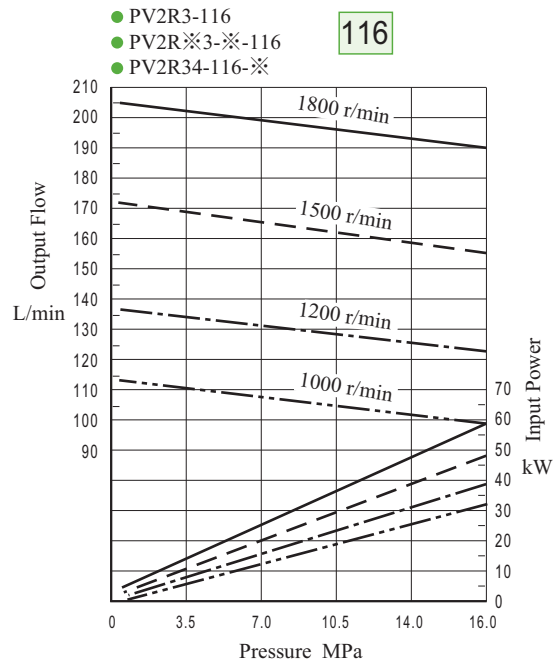
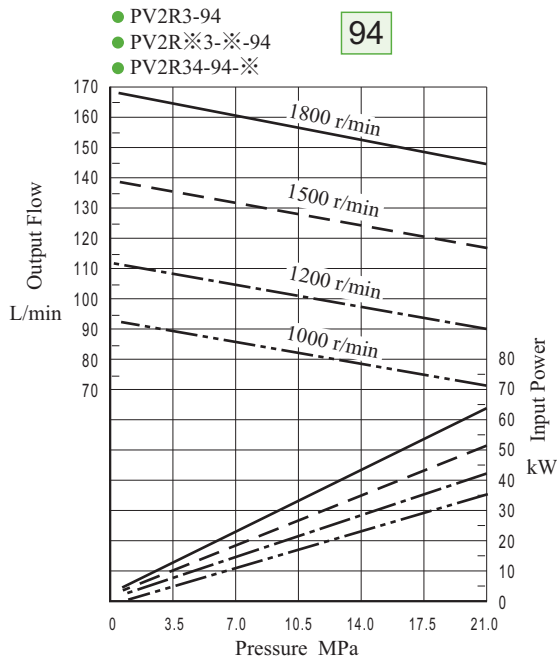


PV2R Series Single Vane Pumps

Max. Pressure 21 MPa

Pressure—Output Flow , Input Power Characteristics

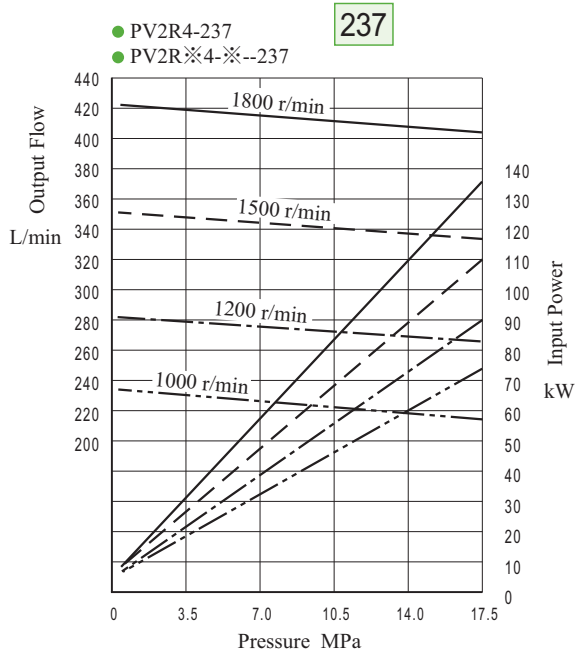
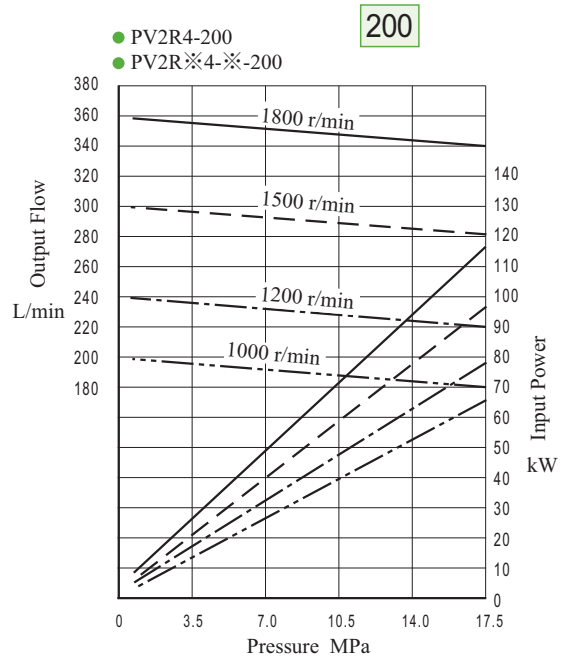
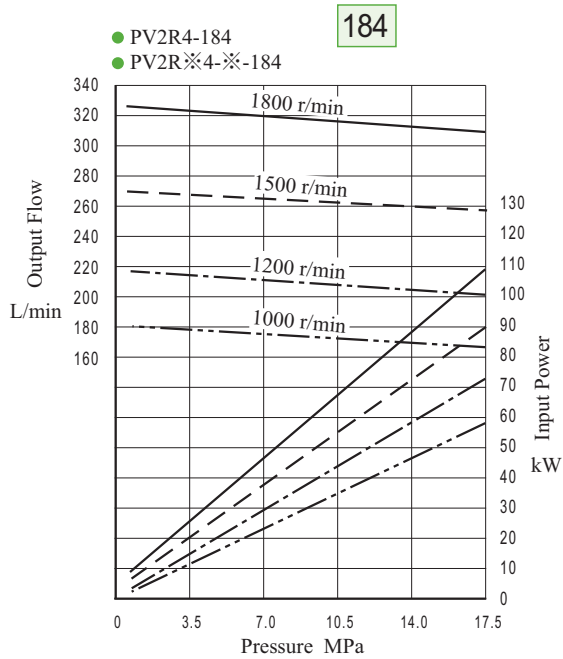
Fluid Viscosity 20 mm²/s (ISO VG32 Oils, 50°C)



PV2R Series Single Vane Pumps

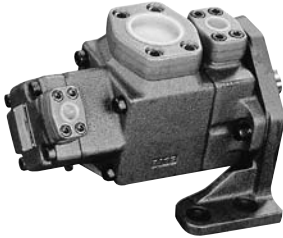
Max. Pressure 21 MPa

Pressure—Output Flow · Input Power Characteristics
 Fluid Viscosity 20 mm²/s (ISO VG32 Oils, 50°C)



PV2R Series Double Vane Pumps

Max. Pressure 21 MPa

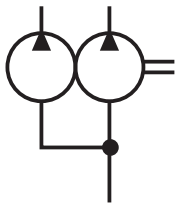


- These double pumps consist of two PV2R series single pumps combined in tandem within a single housing and driven by a common shaft.
- Fluid delivered from the two separate ports can be either supplied to separate or common circuits.

Model Number Designation

PV2R12	—6	—65	—L	—R	E	A	A	—※		
Series Number	Small Volume Pump Nominal Displacement cm ³ /rev	Large Volume Pump Nominal Displacement cm ³ /rev	Mounting	Direction of Rotation (viewed from shaft end)	Small Volume Pump Discharge port position (viewed from shaft end)	Large Volume Pump Discharge port position (viewed from shaft end)	Suction Port Position (viewed from shaft end)	Design Number		
PV2R12		26 33 41 47 53 59 65 75	L: Foot Mounting F: Flange Mounting	R: Clockwise (Normal) L: Anti-clockwise	E: Left up (Normal) F: Right up G: Right down H: Left down	A: Upwards (Normal) B: Downwards	A: Upwards (Normal) B: Downwards	★4		
PV2R13	6 8 10 12 14 17 19 23 25 31	60 66 76 85 94 108 116 125			★4					
★1 PV2R14		136 153 184 200 237			3326					
PV2R22		26 33 41 47 53 59 65 75 (Close to shaft end)			40					
PV2R23	26 33 41 47 53 59 65 75	60 66 76 85 94 108 116 125			E: Left up (Normal) F: Right up G: Right down H: Left down			R: Right	R: Right	41
★1 PV2R24		136 153 184 200 237			A: Upwards(Normal) B: Downwards R: Right L: Left			L: Left	L: Left	31
★1 PV2R34	60 66 76 85 94 108 116 125				E: Left up (Normal) F: Right up G: Right down H: Left down					31
★1 PV2R33		60 66 76 85 94 108 116 125			A: Upwards (Normal) B: Right down R: Right L: Left					31

Graphic Symbol



- ★1 : Delivery is longer, if you have any requirement, please contact our sales engineers.
- 2 : The limit of the maximum operation pressure for each nominal displacement, please refer to the next page (P36)
- 3 : Pressure-Output Flow, Input Power Characteristics, please refer to page 28-34.
- 4 :

Pipe Flange Kits

Pump Model No.	Pipe Flange Kit Model No.		
	Suction	Large Pump Discharge	Small Pump Discharge
PV2R12	F5-16 -A- 10T	F5-06 -A- 10T	F5-04 -A- 10T
PV2R13	F5-24 -B- 10T	F5-10 -A- 10T	F5-04 -A- 10T
PV2R14	F5-28 -B- 10T	F5-12 -A- 10T	F5-04 -A- 10T
PV2R22	F5-20 -A- 10T	F5-06 -A- 10T	F5-06 -A- 10T
PV2R23	F5-24 -B- 10T	F5-10 -A- 10T	F5-06 -A- 10T
PV2R24	F5-28 -B- 10T	F5-12 -A- 10T	F5-06 -A- 10T
PV2R33	F5-28 -B- 10T	F5-10 -A- 10T	F5-10 -A- 10T
PV2R34	F5-32 -B- 10T	F5-12 -B- 10T	F5-10 -B- 10T

Series Number	Small Volume Pump Nominal Displacement cm ³ /rev	Large Volume Pump Nominal Displacement cm ³ /rev	Design Number
PV2R12	6, 8, 10, 12, 14 17, 19, 23, 25, 31	26, 33, 41, 47, 53, 59, 65	4326
	6, 8, 10, 12, 14 17, 19, 23, 25, 31	75	43123
PV2R13	6, 8, 10, 12, 14 17, 19, 23, 25, 31	60, 66, 76, 94, 116	4326
	6, 8, 10, 12, 14 17, 19, 23, 25, 31	85, 108, 125	43123

- In Pipe Flange Kit Model No. A: Threaded Connection / B: For Pipe Socket Welding.
- Details of the pipe flange kit, please refer to page 41.
- When ordering, please specify pipe flange kit model.

PV2R Series Double Vane Pumps

Max. Pressure 21 MPa

Specifications

Maximum Operation Pressure

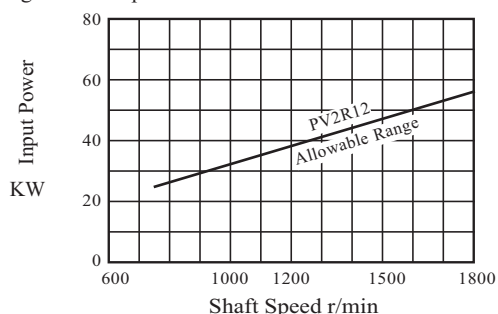
Nominal Displacement	Geometric Displacement cm ³ /rev	Maximum Operation Pressure MPa (kgf/cm ²)
6	5.8	★1 21 (214)
8	8.0	
10	9.4	
12	12.2	
14	13.7	
17	16.6	
19	18.6	
23	22.7	
25	25.3	
31	31.0	
26	26.6	21 (214)
33	33.3	
41	41.3	
47	47.2	
53	52.5	
59	58.2	
65	64.7	
75	75	
60	59.6	21 (214)
66	66.3	
76	76.4	
85	85	
94	93.6	
108	108	★2 17.5 (178)
116	115.6	★2 16 (163)
125	125	★2 14 (143)
136	136	★2 17.5 (178)
153	153	
184	184	
200	201	
237	237	

★1. When small volume pump pressure above 16 MPa (160kgf/cm²), shaft rotation speed must raise more than 1450rpm.

★2. When you choose Nominal Displacement, the Maximum operation pressure is limited at 14/16/17.5 MPa.

Limit of the Input Power

PV2R12 series, the sum of the input power to small volume pump and large volume pump is limited against the speed of shaft rotation as follows:



Shaft Speed Range

Model Numbers	Shaft Speed Range r/min	
	Maximum ★3	Minimum ★4
PV2R12	1800	750
PV2R13	1800	750
PV2R14	1800	750
PV2R23	1800	600
PV2R24	1800	600
PV2R34	1800	600

★3. The minimum suction pressure is limited in accordance with the speed. Please refer to page 8 (Table 1) for details.

★4. The Limit of Maximum Viscosity when starting at low speed of shaft rotation. Please refer to page 8 (Table 2) for details.

Mass

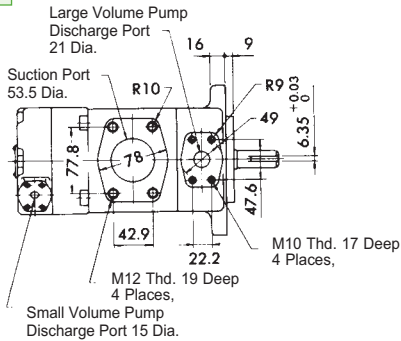
Pump Model No.	Mass kg	
	Flange Mtg.	Foot Mtg.
PV2R12	25	29.3
PV2R13	45.6	55.6
PV2R14	75	100
PV2R22	57	61
PV2R23	51	61
PV2R24	78	103
PV2R33	84	94
PV2R34	98	123

PV2R Series Double Vane Pumps

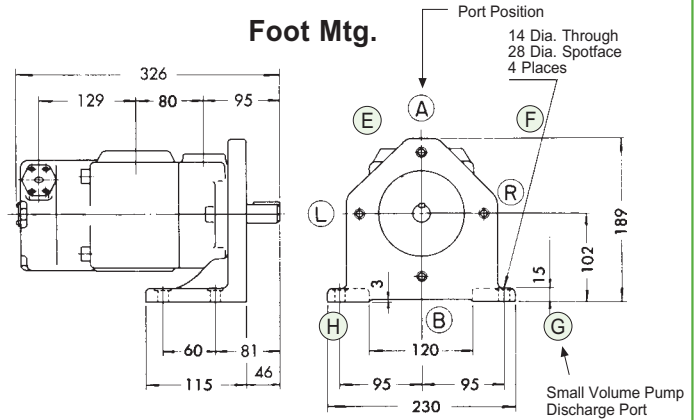
Max. Pressure 21 MPa

PV2R12

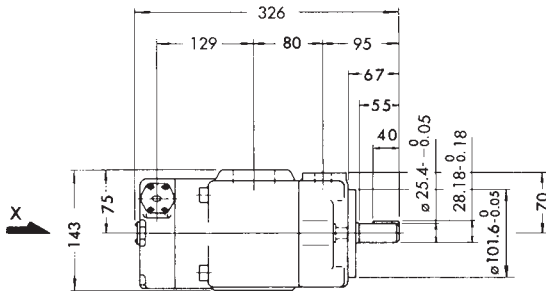
Flange Mtg.



Foot Mtg.

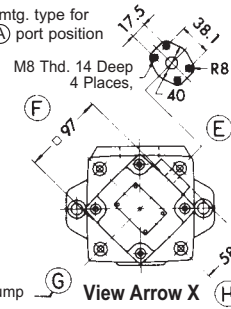
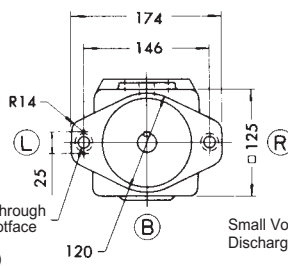


For other dimensions, please refer to "Flange Mtg."



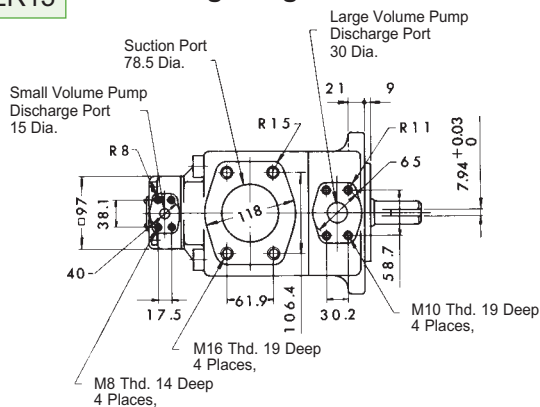
Suction Port & Large Volume Pump Discharge Port Position (A)

※ Discharge port of flange mtg. type for the large volume: only (A) port position

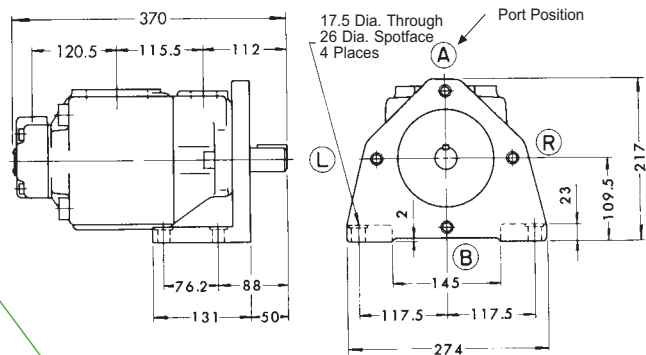


PV2R13

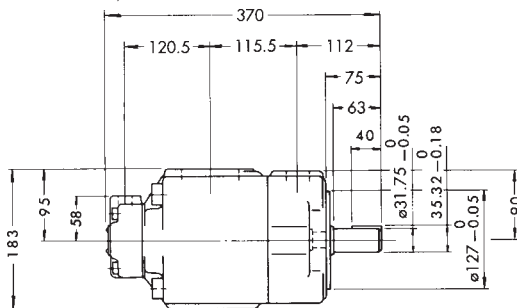
Flange Mtg.



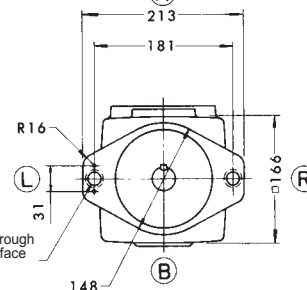
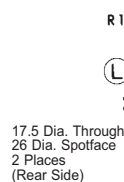
Foot Mtg.



For other dimensions, please refer to "Flange Mtg."



Port Position ※ Discharge port of flange mtg. type for the large volume: only (A) port position

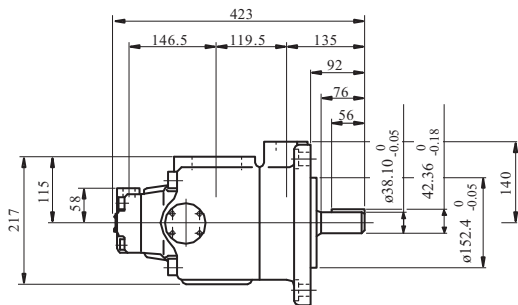
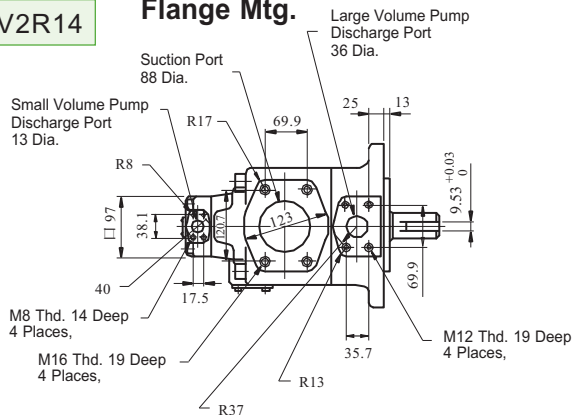


PV2R Series Double Vane Pumps

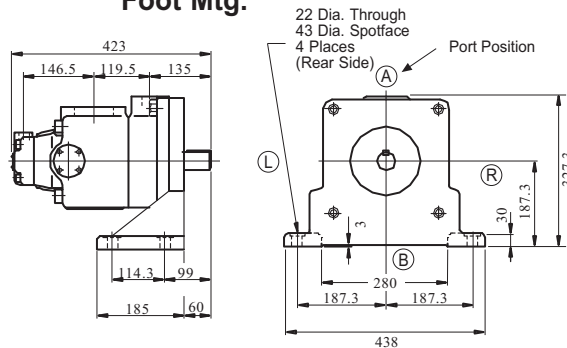
Max. Pressure 21 MPa

PV2R14

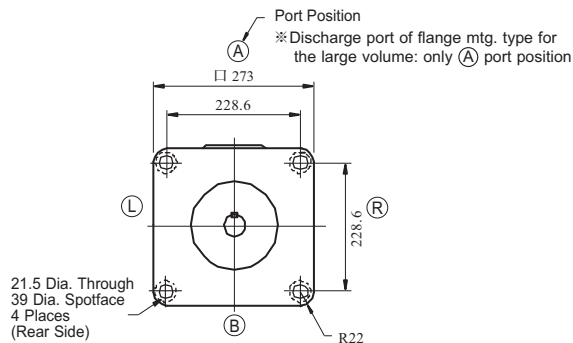
Flange Mtg.



Foot Mtg.

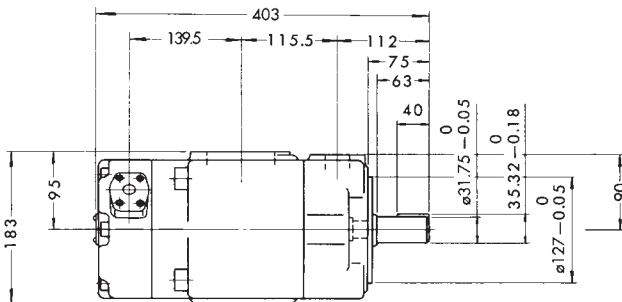
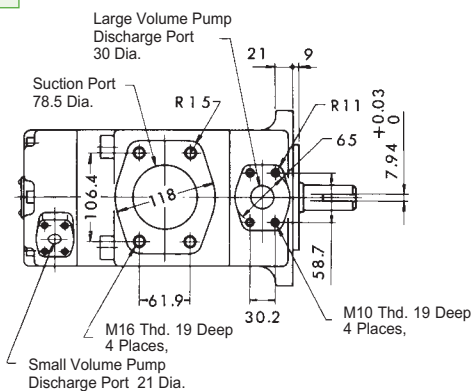


For other dimensions, please refer to "Flange Mtg."



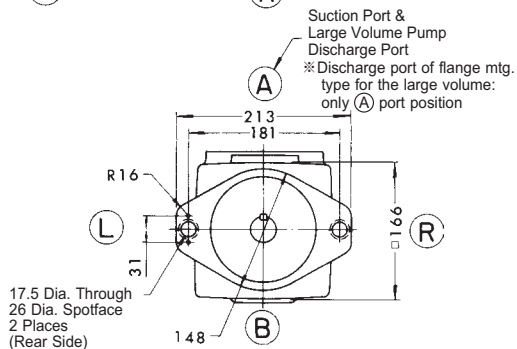
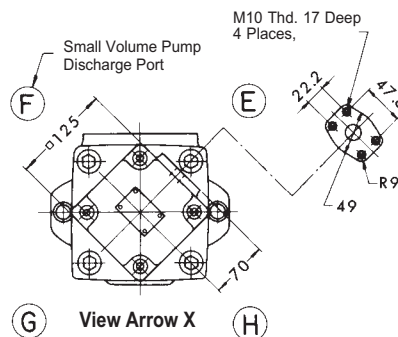
PV2R23

Flange Mtg.



Foot Mtg.

Foot mounting is as same as PV2R13.

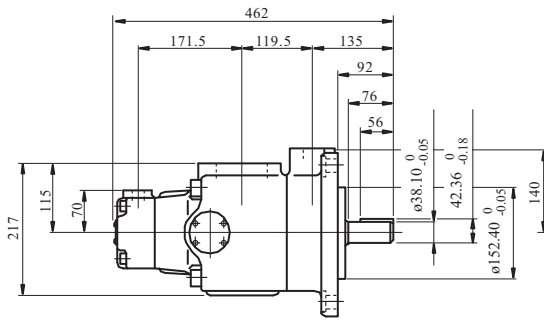
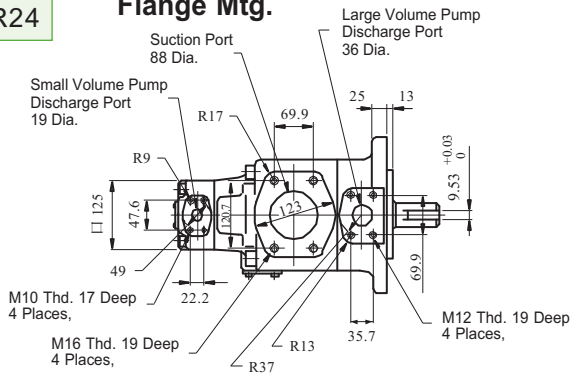


PV2R Series Double Vane Pumps

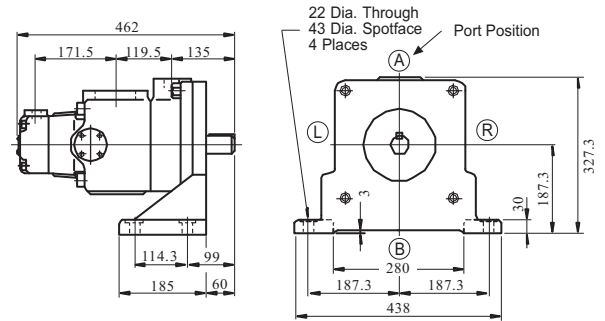
Max. Pressure 21 MPa

PV2R24

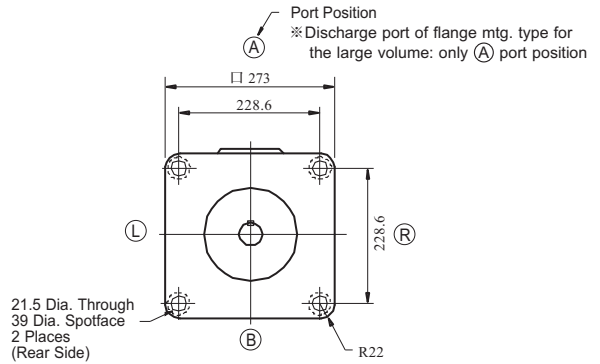
Flange Mtg.



Foot Mtg.

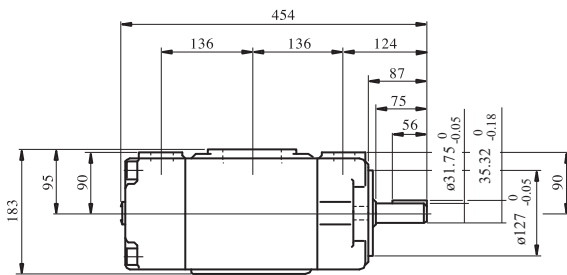
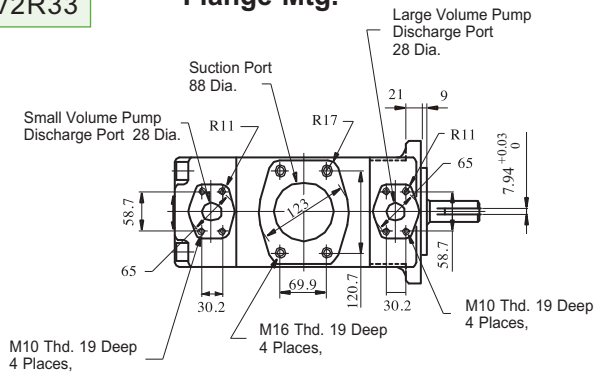


For other dimensions, please refer to "Flange Mtg."

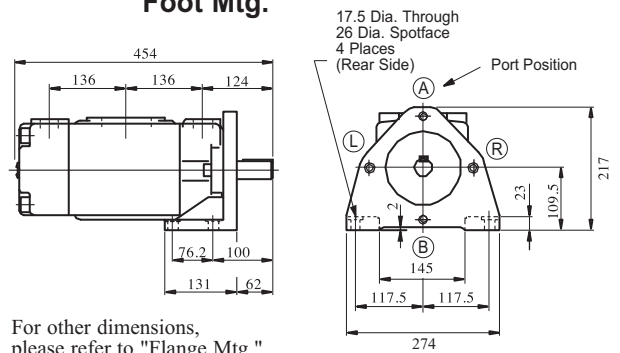


PV2R33

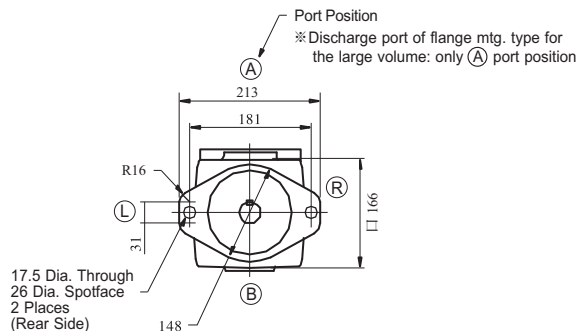
Flange Mtg.



Foot Mtg.



For other dimensions, please refer to "Flange Mtg."

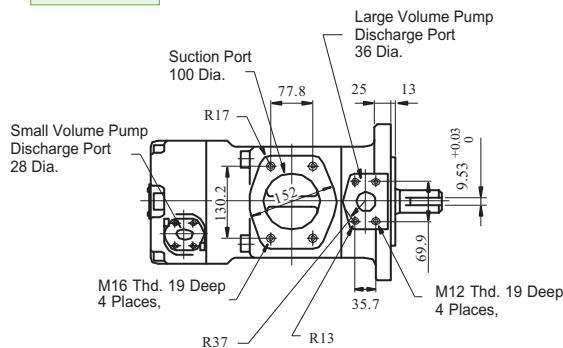


PV2R Series Double Vane Pumps

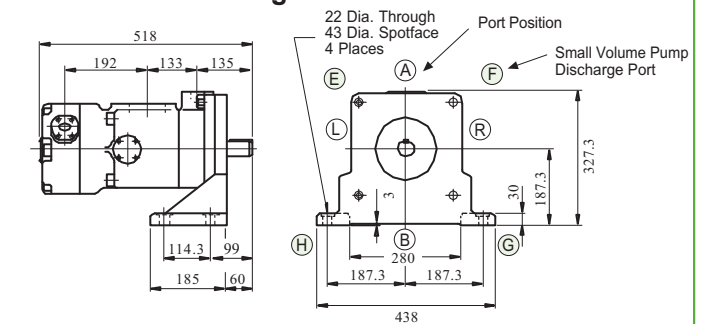
Max. Pressure 21 MPa

PV2R34

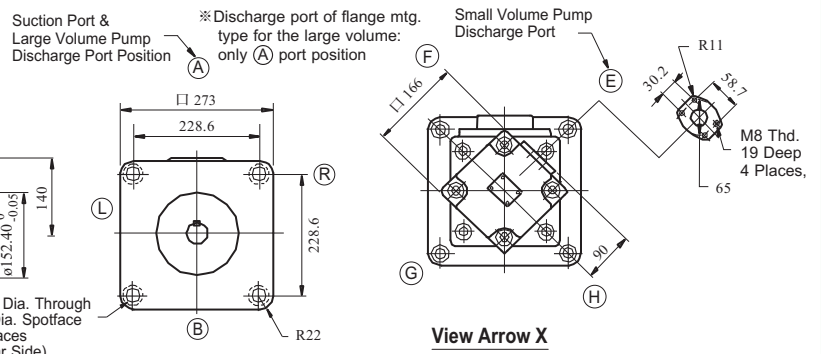
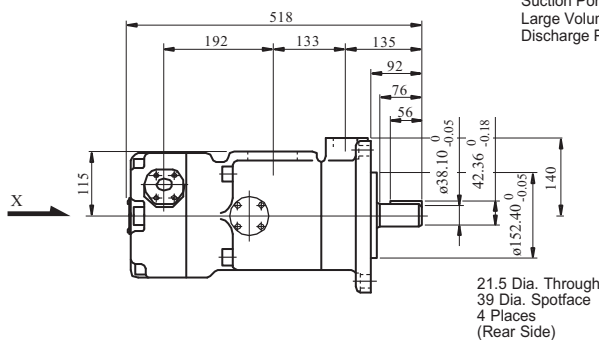
Flange Mtg.



Foot Mtg.

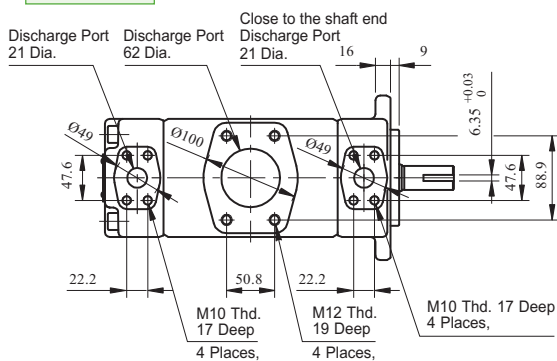


For other dimensions, please refer to "Flange Mtg."

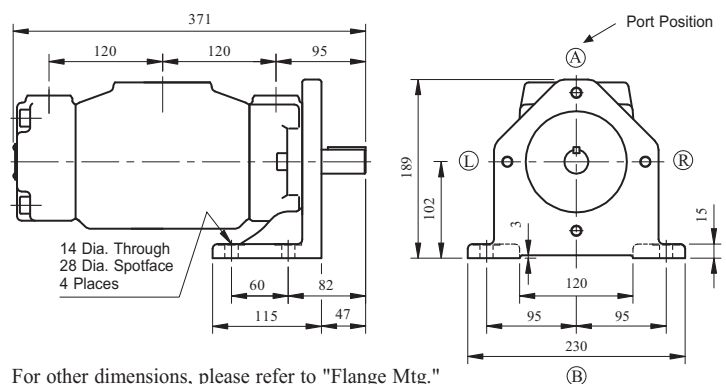


PV2R22

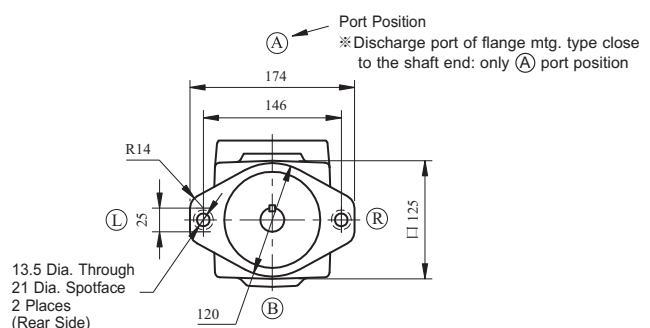
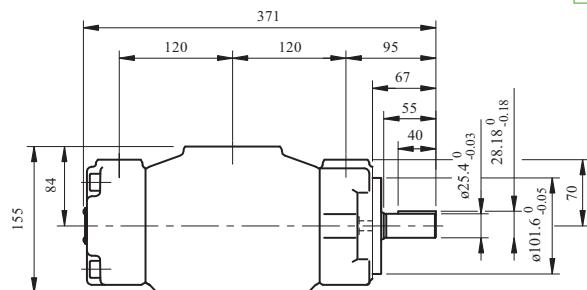
Flange Mtg.



Foot Mtg.



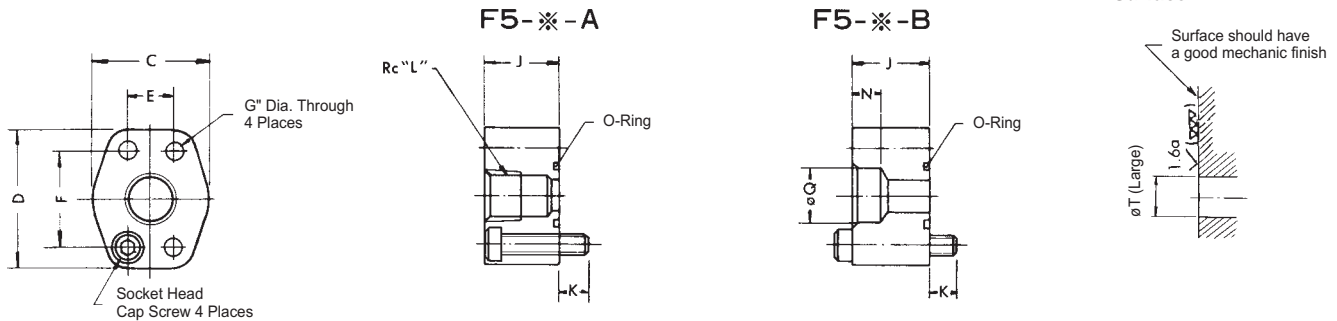
For other dimensions, please refer to "Flange Mtg."



F5 Series Pipe Flange Kits

Max. Pressure 21 MPa

Flange Mtg. Dimensions: SAE 4 Bolt Solid Flanges

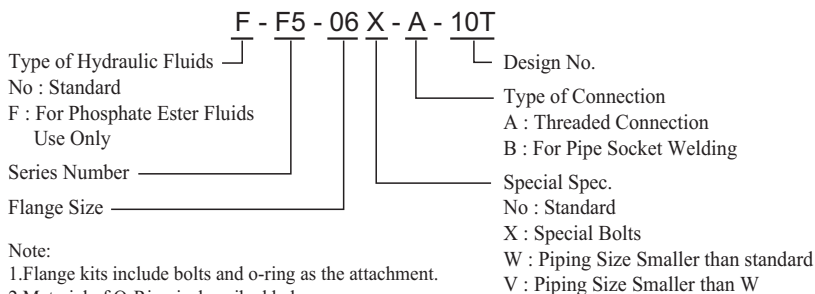


Specifications

1 MPa = 10.2 kgf/cm²

Model No.	Piping Size	Dimension mm										O-Ring	Socket Head Cap Screw	Max. Pressure MPa	Mass kg	
		C	D	E	F	G	J	K	L	N	Q					T
F5-04W-A	3/8	40	56	17.5	38.1	8.8	26	12	3/8	-	-	16	P22	M 8 x 30	21	0.5
F5-04W-B								9	-	9	17.8					
F5-04 -A	1/2	40	56	17.5	38.1	8.8	26	12	1/2	-	-	16	P22	M 8 x 30	21	0.5
F5-04 -B								9	-	11	22.2					
F5-06X-A	3/4	54	71	22.2	47.6	8.8	28.5	12	3/4	-	-	20	G30	M 8 x 30	21	0.7
F5-06X-B								-	12	27.7						
F5-06 -A	3/4	54	71	22.2	47.6	11	28.5	17	3/4	-	-	20	G30	M10 x 35	21	0.7
F5-06 -B								-	12	27.7						
F5-08W-A	3/4	56	76	26.2	52.4	11	28.5	17	3/4	-	-	26	G35	M10 x 35	21	0.9
F5-08W-B									-	12	27.7					
F5-08 -A	1	56	76	26.2	52.4	11	28.5	17	1	-	-	26	G35	M10 x 35	21	0.9
F5-08 -B									-	14	34.5					
F5-10 -A	1-1/4	72	84	30.2	58.7	11	28.5	17	1-1/4	-	-	32	G40	M10 x 35	21	1.2
F5-10 -B									-	16	43.2					
F5-12 -A	1-1/2	74	96	35.7	69.9	13.5	30	17	1-1/2	-	-	38	G50	M12 x 35	21	1.5
F5-12 -B									-	18	49.1					
F5-16W-A	1-1/2	96	107	42.9	77.8	13.5	29.5	15.5	1-1/2	-	-	48	G65	M12 x 30	21	1.8
F5-16W-B									-	18	49.1					
F5-16 -A	2	96	107	42.9	77.8	13.5	29.5	15.5	2	-	-	51	G65	M12 x 30	17.5	1.7
F5-16 -B									-	20	61.1					
F5-20W-B	2	100	117	50.8	88.9	13.5	38	17	-	20	61.1	51	G70	M12 x 55	17.5	2
F5-20 -B	2-1/2								-	20	77.1					
F5-24 -B	3	116	135	61.9	106.4	17.5	38	17	-	20	90.0	76	G85	M16 x 55	3.5	2.7
F5-28 -B	3-1/2	134	153	69.9	120.7	17.5	38	17	-	28	102.8	88	G100	M16 x 55	3.5	3.4
F5-32 -B	4	150	162	77.8	130.2	17.5	43	17	-	28	115.5	101	G115	M16 x 60	3.5	3.7

Model Number Designation



Tightening Torque for Bolts

Bolt Size	Tightening Torque N·m (kgf·m)	
	Recommendation	Tolerance
M8	34.3 (3.5)	±10%
M10	67.2 (6.9)	
M12	115.7 (11.8)	
M16	281.5 (28.7)	

Tightening Torque above is applicable to pressure line only.

SVPF Series Variable Vane Pump

Max. Pressure 7 MPa

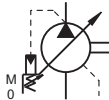


This pump is quiet, small, high efficiency, longevity, and quick response, the pressure and flow of this pump are adjustable and it is suitable for small and light equipment such as machine tools and shoes machine.

Model Number Designation

SVPF	-12	-70	-B	-20
Series number	Geometric Displacement. L/min (1800 rpm)	Max. Operating Pressure MPa (kgf/cm ²)	Shaft size (mm)	Design number
SVPF	12	20 : 2.0 (20 kgf/cm ²)	B : shaft size ø15.875 (suggestion) None : shaft size ø12.7	20
	20	35 : 3.5 (36 kgf/cm ²)		
	30	55 : 5.5 (56 kgf/cm ²)		
	40	70 : 7.0 (71 kgf/cm ²)	None : ø19.05 mm	

Graphic Symbol



Piping for Drain

The piping of the drain port should not be set over 0.05 MPa of the body. The length of Piping should not be over 1 m and please do not mix the return piping with other solenoid valves. The end of the piping should be put into the fluid. Recommend the size of the drain piping is as follows:

The fitting of the piping: 1/4 (internal diameter Ø6.6 plus)
The internal diameter of the piping: Ø7 plus

Setting of the pressure and displacement

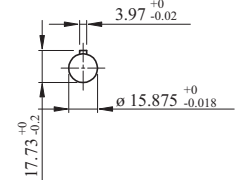
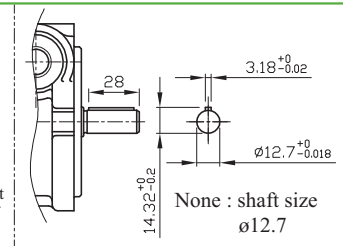
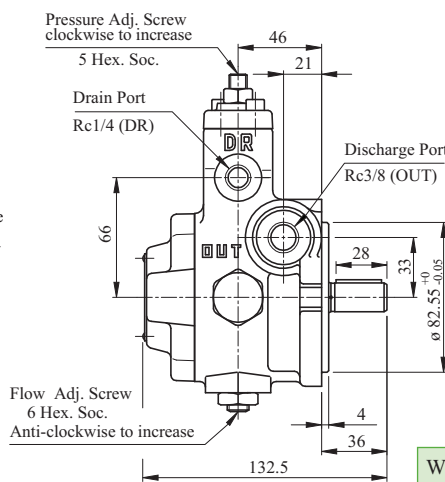
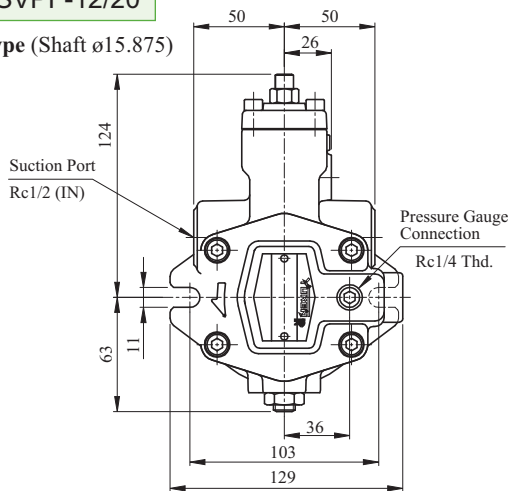
The flow of this pump is set at the Max. and the pressure of this pump is set at the lowest while the pump dispatched. Please reset the pressure and flow according to real working condition after receiving the pump.

■ Please refer to page 43 for other characteristics.

■ Please contact sales for the spline type, coupling and shaft in details.

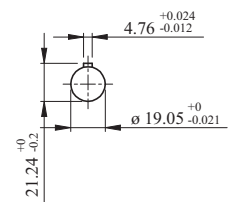
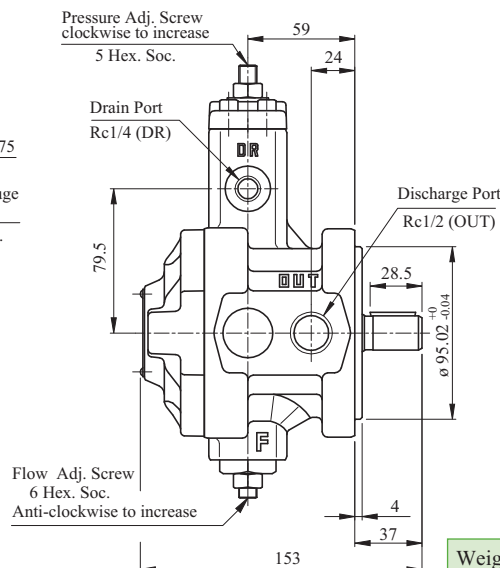
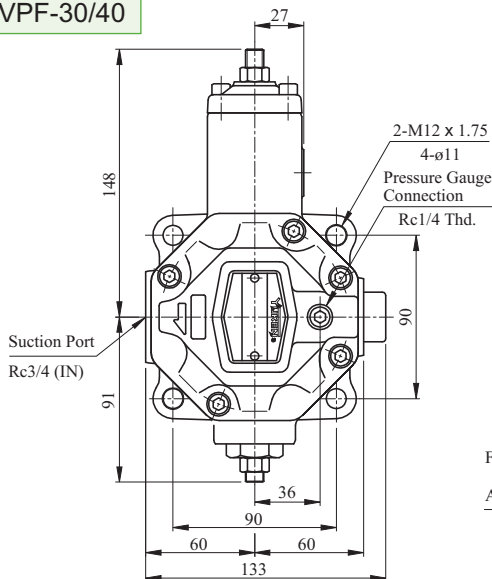
SVPF-12/20

B Type (Shaft ø15.875)



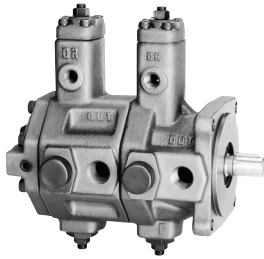
Weight 5.5 kg

SVPF-30/40

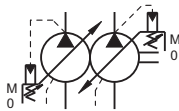


Weight 8 kg

SVPDF Series Double Variable Vane Pump Max. Pressure 7 MPa



Graphic Symbol



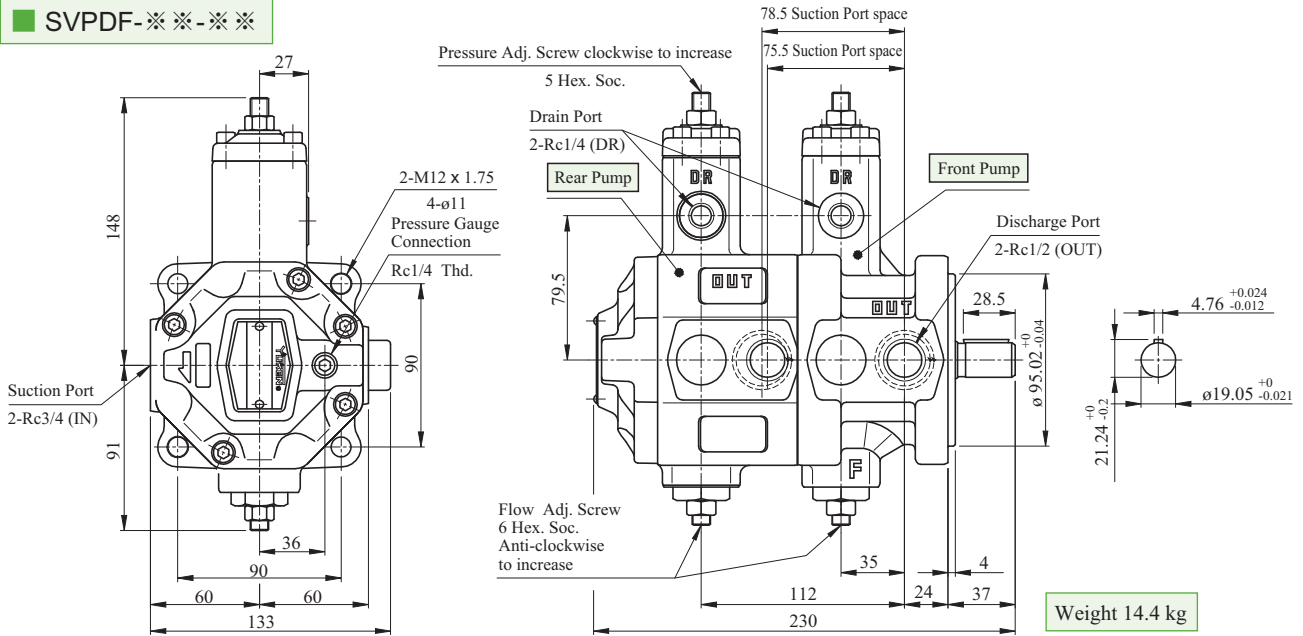
This pump is quiet, small, high efficiency, longevity, and quick response. The double variable vane pump can save the installing space, the suction port and discharge port is separate.

Model Number Designation

SVPDF	-30	70	-30	70	-20
Series Number	Front Pump Geometric Displacement L/min (1800 rpm)	Front Pump Max. Operating Pressure MPa (kgf/cm ²)	Rear Pump Geometric Displacement L/min (1800 rpm)	Rear Pump Max. Operating Pressure MPa (kgf/cm ²)	Design Number
SVPDF	30	20 : 2.0 (20 kgf/cm ²) 35 : 3.5 (36 kgf/cm ²)	30	20 : 20 (20 kgf/cm ²) 35 : 35 (36 kgf/cm ²) 55 : 55 (56 kgf/cm ²)	20
	40	55 : 5.5 (56 kgf/cm ²) 70 : 7.0 (71 kgf/cm ²)	40	70 : 70 (71 kgf/cm ²)	

Please refer to page 42 for the piping of the drain port, the setting of the pressure and displacement

SVPDF-**-**-**



Characteristics : The following characteristics are based on fluid viscosity 46 mm²/s (ISO VG-46 40°C)

