

# RACINE/KOSHIN

FLUID POWER PRODUCTS

## ENGINEERING DATA BOOK

KOSHIN SEIKOSHO, LTD.

International Distribution

By

NISHIUMI INTERNATIONAL INC.

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FLUID POWER PRODUCTS

RELIABLE IN THE WORLD

RACINE

*SINCE* 1906

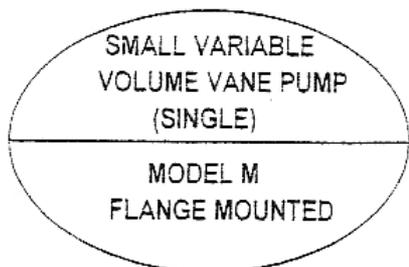
COMPLETE CATALOG

- Hydraulic Components
- Hydraulic Power Units
- Engineering Data

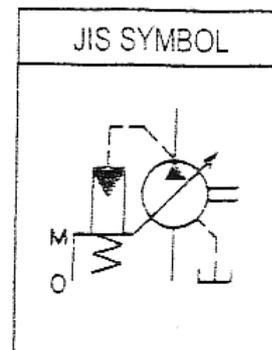
APRIL 2002

## VARIABLE VOLUME VANE PUMPS

PUMP MODEL		MAXIMUM SET PRES. Kgf/cm <sup>2</sup>	MAXIMUM SPEED R.P.M.	FLOW RATE			
				lit / min	100	200	300
M (PSM) FLG MTD	03	70	1800	12/1760r.p.m.			
	04	70	1800	15/1760r.p.m.			
	07	70	1800	28/1760r.p.m.			
-J20 DESIGN Q (DOUBLE) (PVQ) SUBPLT MTD	05	70	1800	20/1760r.p.m.			
	06	52.5	1800	26/1760r.p.m.			
-J20 DESIGN QQ (DOUBLE) (PVQ/PVQ) SUBPLT MTD	05	70	1800	20/1760r.p.m.			
	06	35	1800	26/1760r.p.m.			
	06	35	1800	26/1760r.p.m.			
	06	35	1800	26/1760r.p.m.			
-J22 DESIGN (PVQ) FLG MTD	05	70	1800	20/1760r.p.m.			
	06	52.5	1800	28/1760r.p.m.			
-J22 DESIGN (PVQ/PVQ) FLG MTD	05	70	1800	20/1760r.p.m.			
	06	35	1800	28/1760r.p.m.			
	06	35	1800	28/1760r.p.m.			
	06	35	1800	28/1760r.p.m.			
S (PVS) SUBPLT MTD	10	70	1800	40/1760r.p.m.			
	12	35	1800	45/1760r.p.m.			
FA (PVF) FOOT MTD	2FA	70	1200	56/1170r.p.m.			
	4FA	70	1200	85/1170r.p.m.			
	6FA	35	1200	120/1170r.p.m.			
FA Q (COMBINATION) (PVF/PVQ) FOOT MTD	2FA	70	1200	56/1170r.p.m.			
	Q	70	1200	13/1170r.p.m.			
	4FA	70	1200	85/1170r.p.m.			
	Q	70	1200	13/1170r.p.m.			
	6FA	35	1200	120/1170r.p.m.			
	Q	70	1200	13/1170r.p.m.			
RA (PVR) SUBPLT MTD	6RA	70	1200	125/1170r.p.m.			
	8RA	70	1200	163/1170r.p.m.			



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Description Model	Type Coding	Flow Rate lit/min		Pressure Range MPa {kgf/cm <sup>2</sup> }	Allowable Drive Speed {rpm}		Weight kg
		0.35 MPa	at 3.5 kgf/cm <sup>2</sup>		Max.	Min.	
		1500r/min{rpm}	1800r/min{rpm}				
Small Variable Vane Pump Model M (PSM Series Single)	PSM-PSAO-03 R-J30	10	12	0.7 ~ 7 {7 ~ 70}	1800	700	5
	PSM-PSAO-04 R-J30	12.5	15	0.7 ~ 7 {7 ~ 70}	1800	700	5
	PSM-PS O-07 R-J35	23	28	0.7 ~ 7 {7 ~ 70}	1800	700	5

**Pump Coding**

PSM - PSAO - 03 CR - J30 \*

<p><b>Series Number</b> _____</p> <p><b>Control</b> _____</p> <p>P; Standard pressure</p> <p><b>Volume Adjustment</b> _____</p> <p>S; Screw Volume Control (Standard)</p> <p><b>Port Position</b> _____</p> <p>D: Suction; Rear, Pressure; Side A: Both Suction and Pressure; Side Ported (However J30Type; Both Suction and Pressure locate at Rear and Side, Normally Plugged)</p> <p><b>Seals</b> _____</p> <p>O: Buna Seal Used Oil</p>	<p><b>Design Digit</b></p> <p><b>Rotation</b></p> <p>R; Right Hand Rotation (Clockwise)</p> <p><b>Pressure Rating MPa {kgf/cm<sup>2</sup>}</b></p> <p>B: 0.7 ~ 1.75 {7 ~ 17.5}</p> <p>C: 1.75 ~ 3.5 {17.5 ~ 35}</p> <p>E: 3.5 ~ 7 {35 ~ 70}</p> <p><b>Model Number; Flow Rate @ 1800rpm</b></p> <p>03: 12L/min (at 1800 r/min{rpm}) 04: 15L/min (at 1800 r/min{rpm}) 07: 28L/min (at 1800 r/min{rpm})</p>
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As for product improvement, design number is subject to change without notice. However, last digit change doesn't alter installation dimension and specification.

It is recommended to use high-grade, equivalent to ISO VG32 or 46 petroleum Type, Hydraulic fluid with its viscosity of 16 ~ 217mm<sup>2</sup> /s{cSt} at 5 ~ 55

**Caution**

Please maintain hydraulic fluid as clean as NAS 12 grade. Any substance getting into may cause pump failure. Furthermore at suction side, 100 ~ 200 mesh (standard 150 mesh 100 micron) -filter for tank shall be located at more than 50mm from the bottom of tank.

SMALL VARIABLE  
VOLUME VANE PUMP  
(SINGLE)

MODEL M  
FLANGE MOUNTED

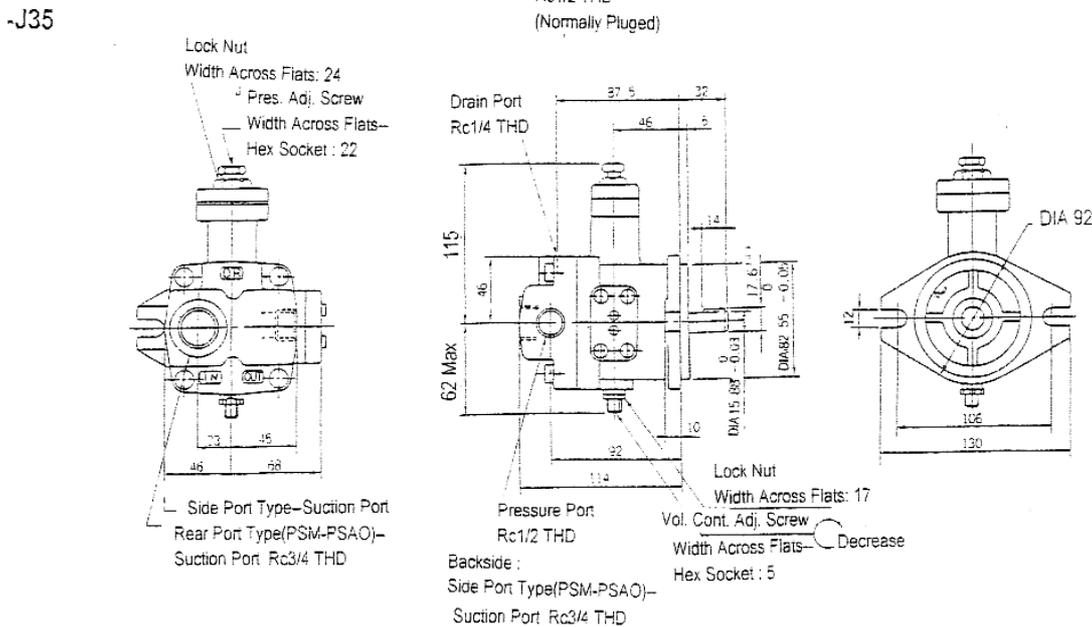
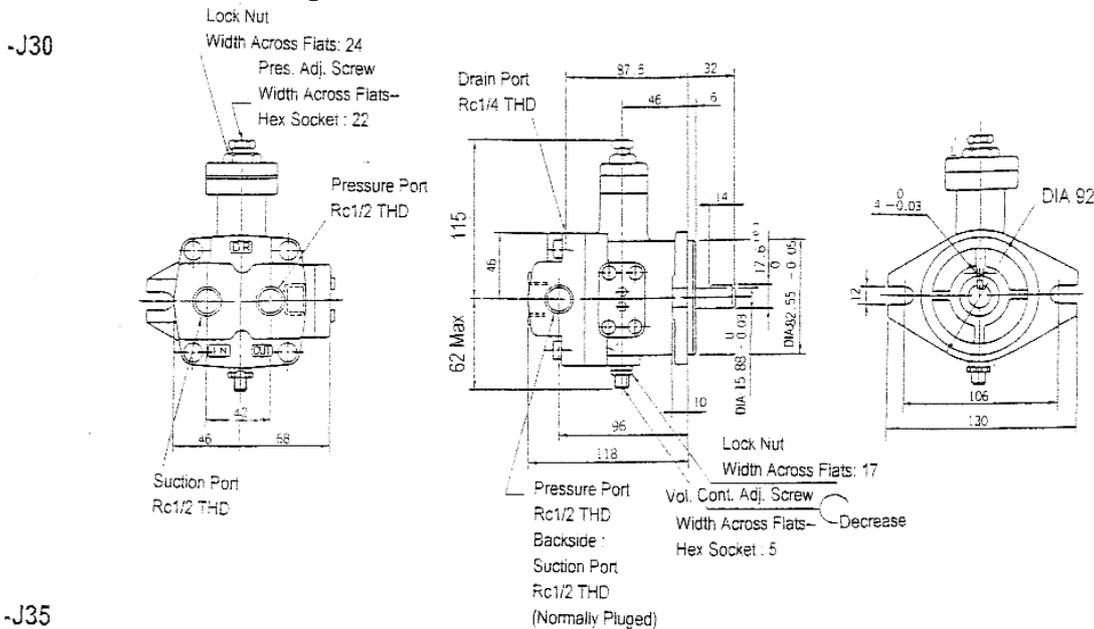
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For drain tube allowable back pressure  
It is maintained within - 50 kPa {0.5 kgf/cm<sup>2</sup>}. The end of tube should be in the reservoir.

Caution

Suction resistance should be maintained within - 18.9 kPa {142mmHg} at pump entrance.  
The suction port height should be maintained within 1.0 m from oil surface.

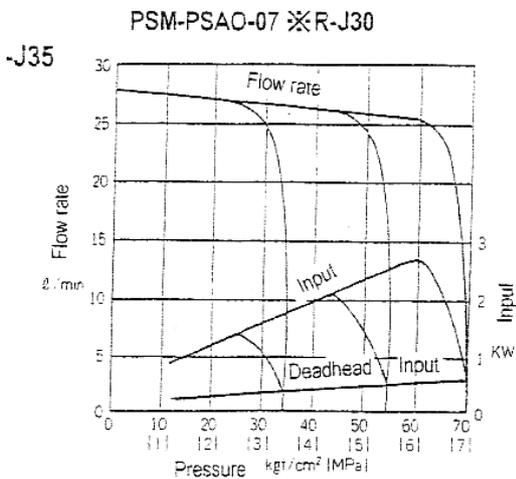
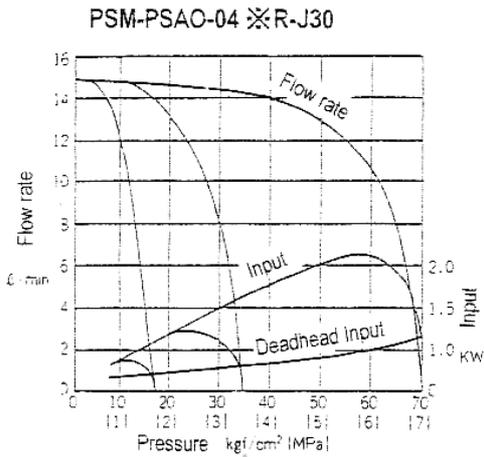
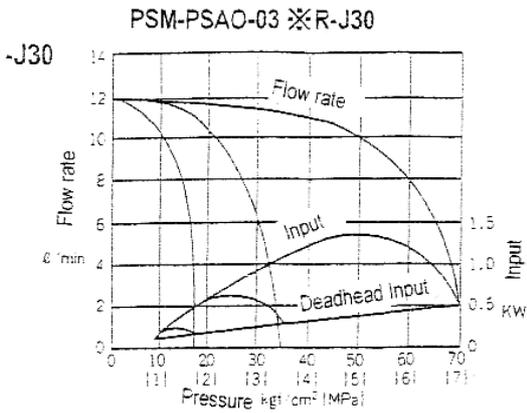
Dimensional Drawing



SMALL VARIABLE  
VOLUME VANE PUMP  
(SINGLE)

MODEL M  
FLANGE MOUNTED

KOSHIN SEIKOSHO, LTD.



The performance characteristic of both drive speed 1800r/min{rpm} and hydraulic fluid with it's viscosity of mm<sup>2</sup>/s {cSt} is as follows.  
The performance characteristic, apart from 1800r/min{rpm} is in proportion to it's chart show and also the performance characteristics of adjusted pressure/flow rate is in proportion to, it's shown.

Use the following formula for the calculation of pump input power in KW.

$$\text{Pump input power (KW)} = \frac{PQ}{612} + E_i$$

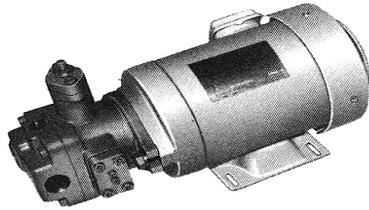
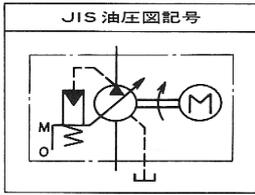
P : Pressure kgf/cm<sup>2</sup>

Q : Flow rate L/min

Pressure kgf/cm <sup>2</sup>	{ Mpa }	E <sub>i</sub> KW
5	{ 0.5 }	0.05
15	{ 1.5 }	0.11
25	{ 2.5 }	0.18
35	{ 3.5 }	0.25
45	{ 4.5 }	0.31
55	{ 5.5 }	0.38
65	{ 6.5 }	0.45
70	{ 7 }	0.48

Pressure kgf/cm <sup>2</sup>	{ Mpa }	E <sub>i</sub> KW
5	{ 0.5 }	0.11
15	{ 1.5 }	0.16
25	{ 2.5 }	0.21
35	{ 3.5 }	0.32
50	{ 5 }	0.38
70	{ 7 }	0.60

# SMALL VARIABLE VOLUME VANE PUMP SERIES HRM DIRECT DRIVE MODEL M PUMP & MOTOR COMBINATION



Description Model	Type Coding	Pump			Electric Motor		
		Flow Rate	lit/min	Pressure	Output	Speed (rpm)	
		at 0.35 MPa{3.5kgf/cm <sup>2</sup> }		Adjustment Range		50 Hz	60 Hz
1500 r/min{rpm}	1800 r/min{rpm}	MPa {kgf/cm <sup>2</sup> }	(kw)				
Small Variable Vane Pump Model HRM (Pump and Motor Combination)	HRM-12- -AS- A -J30	10	12	0.7 ~ 7 {7 ~ 70}	0.4 ~ 0.75	1450	1760
	HRM-15- -AS- A -J30	12.5	15	0.7 ~ 7 {7 ~ 70}	0.4 ~ 0.75	1450	1760
	HRM-28- -S- A -J35	23	28	0.7 ~ 7 {7 ~ 70}	0.75 ~ 1.5	1450	1760

## Pump Coding

**HRM - 28 - C - D S - 1.5 A R - J 3 5**

**Series Number**

**Flow Rate @ 1800rpm**

03:12L/min (at 1800r/min {rpm})

04:15L/min (at 1800r/min {rpm})

07:28L/min (at 1800r/min {rpm})

**Pressure Rating MPa {kgf/cm<sup>2</sup>}**

B: 0.7 ~ 1.75 7 ~ 17.5

C: 1.75 ~ 3.5 17.5 ~ 35

E: 3.5 ~ 7 35 ~ 70

**Mounting**

D; Suction Port Rear Side Pressure Port

A; Side Ported

**Design Digit**

**Terminal Box**

Unmark: Standard

R: Reverse Terminal

**Electric Motor Voltage**

A: AC200 200/220V

50,50/60Hz

**Electric Motor Output**

1.5 : 1.5 KW4P

0.75 : 0.75 KW4P

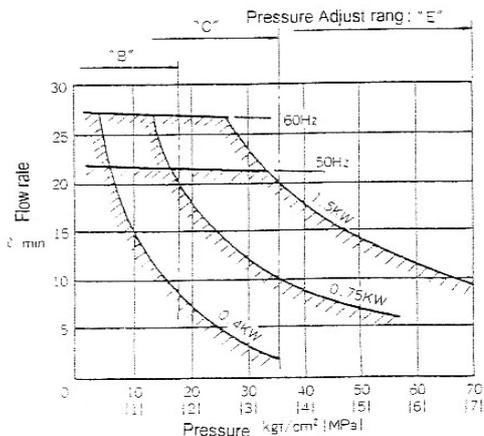
0.4 : 0.4 KW4P

**Volume Control**

S: Screw Volume Control

\* As for product improvement design number is subject to change without notice. However, last digit change doesn't alter installation dimension and specification.

\* Total weight includes pump weight and motor weight.



## Electric Motor reading graph

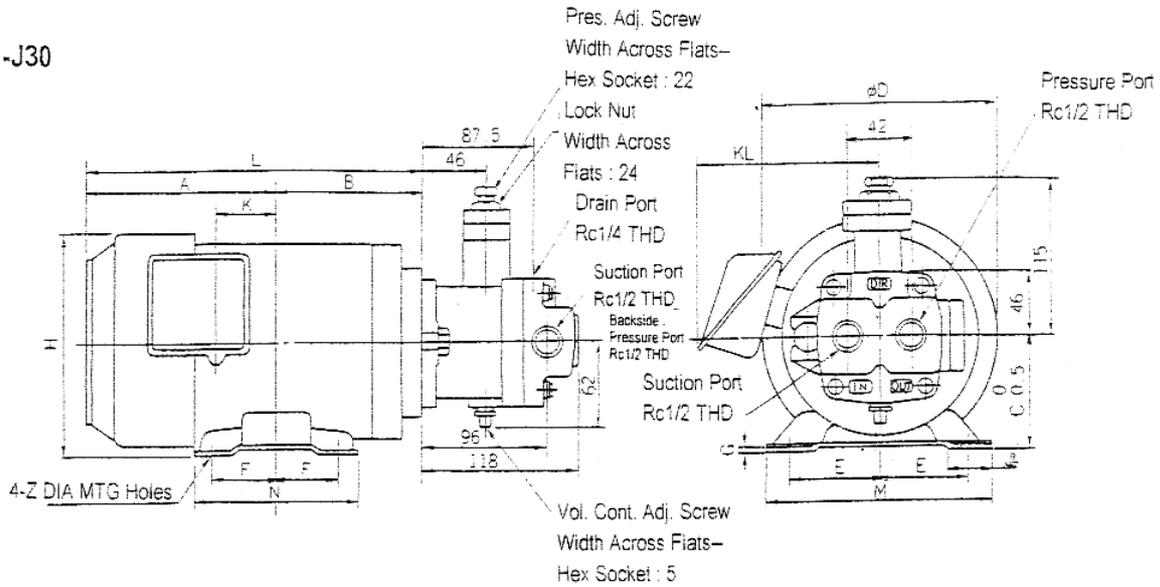
The end of graph curve is acceptable range at rated output.

SMALL VARIABLE  
VOLUME VANE PUMP SERIES  
HRM Direct Drive

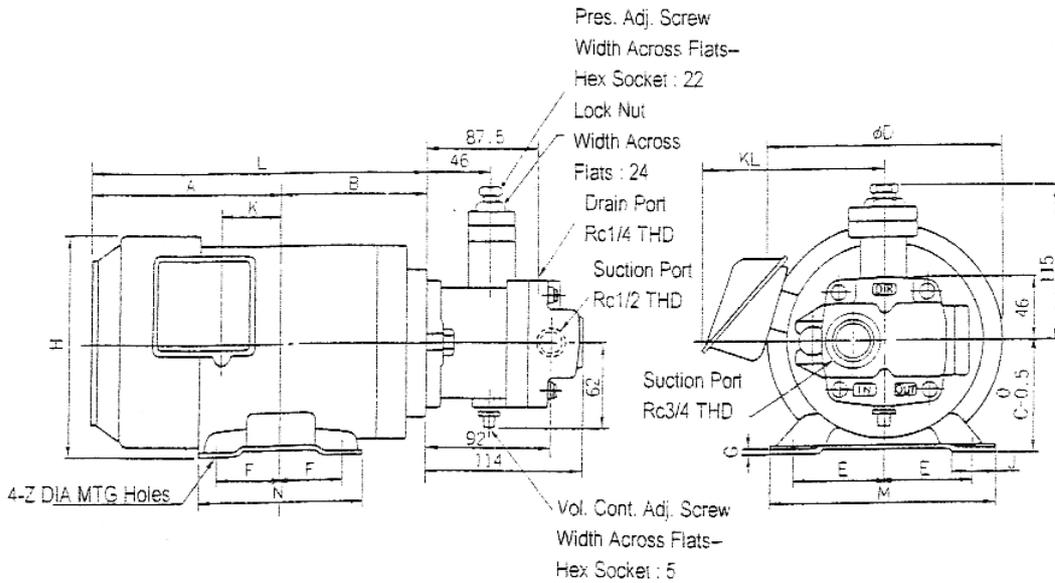
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MODEL M  
Pump-and-Motor  
Combination

-J30



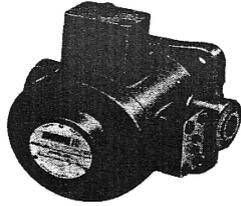
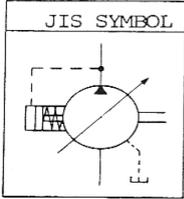
-J35



Motor Dimensions

Motor	A	B	C	D	E	F	G	H	J	K	L	M	N	Z	KL	Weigth(kg)
0.4 KW	118	110	71	148	56	45	3.2	115	36	46	228	148	110	7	126	13.5
0.75KW	122	110	80	173	62.5	50	9	167	35	0	232	165	125	10	145	21
1.5 KW	145	135	90	193	70	62.5	10	187	35	0	280	180	155	10	156	29

-J22  
 DESIGN SERIES  
 VARIABLE VOLUME  
 VANE PUMP  
 Model Q  
 Flange Mounted

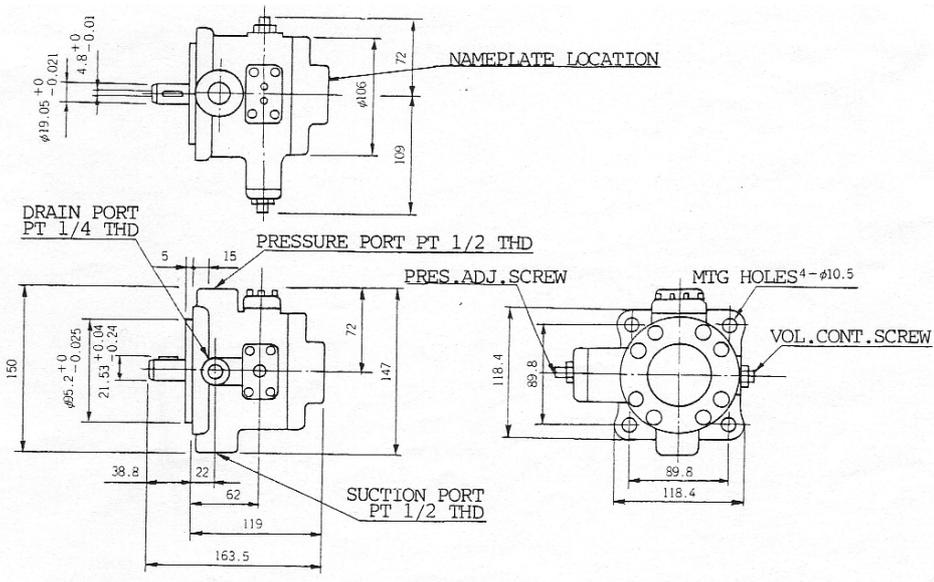


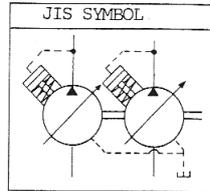
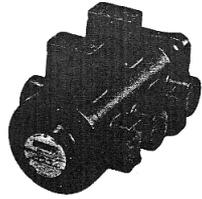
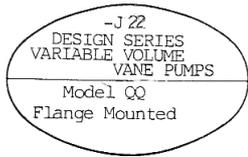
Model	Type Coding	Flow Rate Lit/min (1760 rpm)	Pressure Adjustment Range (kgf/cm <sup>2</sup> )	Speed (rpm)	
				Max.	Min.
- J22 Design Flange Mounted Q Pump	PVQ-PSAO-05ER-J22	20 at 7 kgf/ cm <sup>2</sup>	35 ~ 70	1800	400
	PVQ-PSAO-06DR-J22	28 at 7 kgf/ cm <sup>2</sup>	35 ~ 52	1800	400
	PVQ-PSAO-06CR-J22	28 at 7 kgf/ cm <sup>2</sup>	17.5 ~ 35	1800	400
	PVQ-PSAO-06BR-J22	28 at 3.5 kgf/ cm <sup>2</sup>	7 ~ 17.5	1800	400

Note : Our design number in two digits suffixed to the type codings is subject to change without notice.

**SPECIFICATIONS:**

1. Drain: Blind the unused drain port with a plug. Directly route drain flow from a selected drain port to tank. Do not fail to terminate the tubing below the fluid level in the reservoir. Use a pipe with its inner resistance not exceeding 0.5 kgf/ cm<sup>2</sup>
2. Drive Shaft Alignment: Pump and prime mover shaft alignment must not exceed 0.06 mm in total indicator reading.
3. Rotation: Right-hand rotation is standard. (See the pump general view with external dimensions).
4. Initial Pump Start-up: If the system is equipped with a closed center valve, first allow the hydraulic fluid in use to return to tank at the time of initial pump start-up to avoid air-bound problem.
5. Fluid Recommendation: A premium quality hydraulic fluid. ISO VG32 or equivalent.
6. Fluid Temperature: Under normal continuous operating conditions, fluid temperature should not exceed 55 .
7. Fire Resisting Fluid: When a fire resisting fluid is required for operating the pump, it will need some special specification, in such a case, consult us or the nearest local distributor in advance.
8. Inlet Vacuum: (At See Level) Vacuum should not exceed 142 mmHg
9. Weight: Pump Complete 8.0 kg



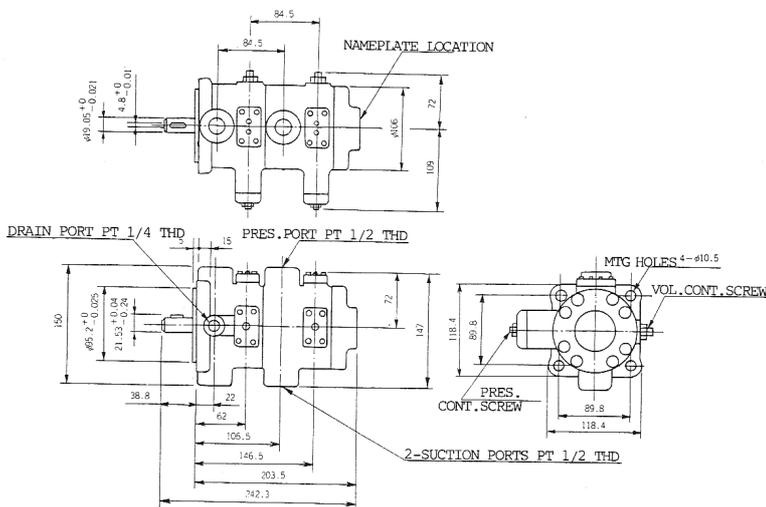


Note: Our design number in two digits suffixed to the type coding is subject to change without notice.

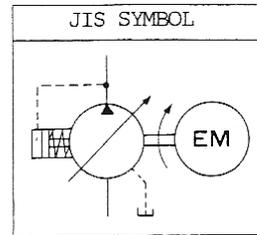
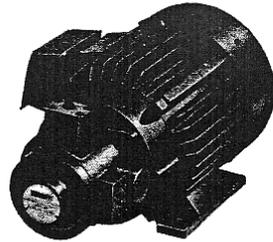
Model	Type Coding Upper Code: Drive Shaft Side Pump Lower Code: Cover Side Pump	Flow Rate Lit/min (1760 rpm.)	Pressure Adjustment Range (kgf/cm <sup>2</sup> )	Speed (rpm)	
				Max.	Min.
- J22 Design Flange Mounted QQ Pump	PVQ-PSAO-06BA-J22	28 at 3.5 kgf/cm <sup>2</sup>	7 ~ 17.5	1800	400
	PVQ-PSAO-06CA-J22	28 at 3.5 kgf/cm <sup>2</sup>	17.5 ~ 35	1800	400
	PVQ-PSAO-05EA-J22	20 at 3.5 kgf/cm <sup>2</sup>	35 ~ 70	1800	400
	PVQ-PSAO-06CA-J22	28 at 7 kgf/cm <sup>2</sup>	17.5 ~ 35	1800	400
	PVQ-PSAO-06BA-J22	28 at 3.5 kgf/cm <sup>2</sup>	7 ~ 17.5	1800	400
	PVQ-PSAO-05EA-J22	20 at 7 kgf/cm <sup>2</sup>	35 ~ 70	1800	400
	PVQ-PSAO-06CA-J22	28 at 7 kgf/cm <sup>2</sup>	17.5 ~ 35	1800	400

**SPECIFICATIONS :**

1. - J22 design series QQ pump is a combinations pump consisting of two – J20 series flange mounted Q pumps directly coupled with a common long shaft. Depending on applications, hydraulic power can be taken off, either in an independent stream from each pump or in a combined stream from the two pumps.
2. The input required for this double (QQ) pump equals to total of that for the two single (Q) pumps. The allowable maximum input is 3.7 KW. Accordingly, be careful about the pump operating pressure so the total input will not exceed this allowable limit.
3. For other specifications, see those for – J20 series Q pump.
4. Weight: Pump complete: 14.0 kg



-J22  
DESIGN SERIES  
VARIABLE VOLUME  
VANE PUMP  
Model HRQ Direct Drive  
Pump-and-Motor  
Combination

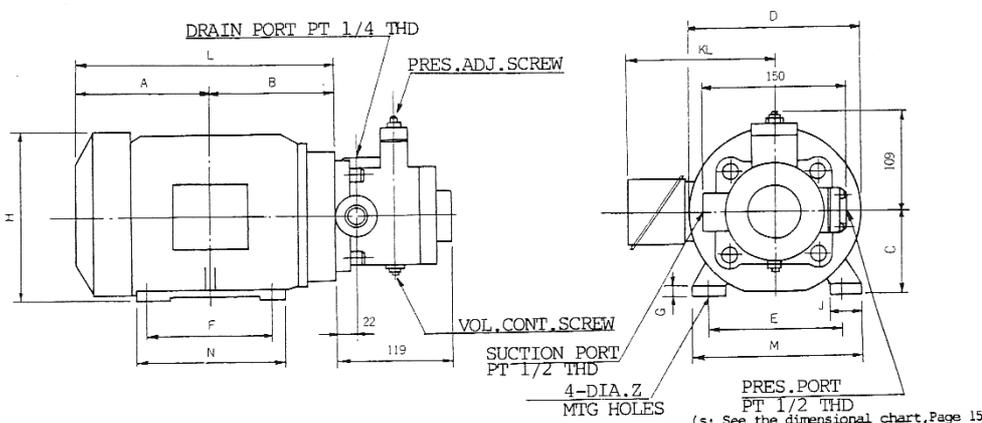


Type Code for Pump & Motor Combination	PUMP			ELECTRIC MOTOR		
	Flow Rate {1760 rpm }	Lit/min	Pressure Adjustment Range {kgf/cm <sup>2</sup> }	Output (kw)	Speed (rpm)	
					50 Hz	60 Hz
HRQ-28-B-0.75-J22	28 at	3.5 kgf/ cm <sup>2</sup>	7 ~ 17.5	0.75	1450	1760
HRQ-28-B-1.5-J22	28 at	3.5 kgf/ cm <sup>2</sup>	7 ~ 17.5	1.5	1450	1760
HRQ-28-C-1.5-J22	28 at	7 kgf/ cm <sup>2</sup>	17.5 ~ 35	1.5	1450	1760
HRQ-28-C-2.2-J22	28 at	7 kgf/ cm <sup>2</sup>	17.5 ~ 35	2.2	1450	1760
HRQ-28-D-2.2-J22	28 at	7 kgf/ cm <sup>2</sup>	35 ~ 52	2.2	1450	1760
HRQ-20-E-2.2-J22	20 at	7 kgf/ cm <sup>2</sup>	35 ~ 70	2.2	1450	1760
HRQ-20-E-3.7-J22	20 at	7 kgf/ cm <sup>2</sup>	35 ~ 70	3.7	1450	1760

Note: Select one of the above combinations, after checking the required pump input by the calculation based on the formula.

**SPECIFICATIONS:**

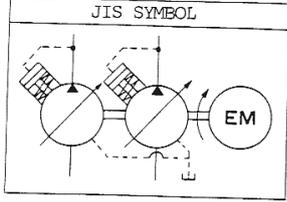
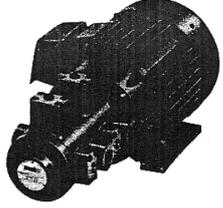
1. The hydraulic pump and the driving motor are coupled with each other in one piece, this allowing to eliminate a set of coupling, a common base, a coupling guard, etc. and accordingly to dispense with troublesome connecting and disconnecting operations.
2. Features: No noise and vibration caused by improper coupling connection-; small and light.
3. Specifications of electric motor: AC200V-50/60Hz, Totally-Enclosed-Fan-Cooled that for each of the two single pumps.
4. For other specifications: See those for -J20 series Q pump.



(s: See the dimensional chart)

Note: Motor dimensions somewhat differ, depending on its make. For the dimensions shown above with letters "A" to "KL", see the chart, clarifying each by make.

-J22  
DESIGN SERIES  
VARIABLE VOLUME  
VANE PUMP  
Model HRQQ  
Direct Drive  
Pump-and-Motor  
Combination



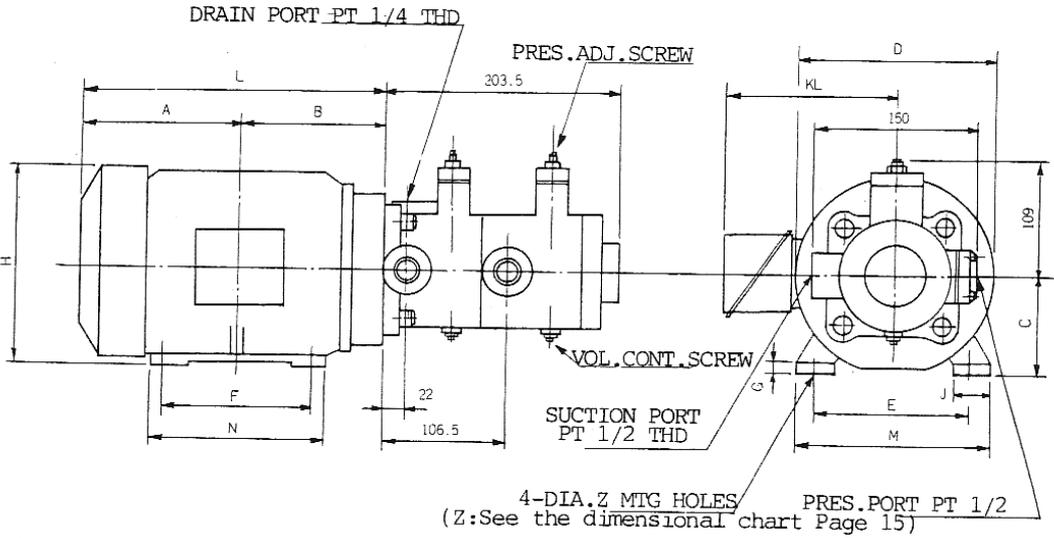
Type Code for Pump & Motor Combination	PUMP		ELECTRIC MOTOR		
	Flow Rate Lit/min (1760rpm)	Pressure Adjustment Range (kgf/cm <sup>2</sup> )	Output (kw)	Speed (rpm)	
				50 Hz	60 Hz
HRQQ-28-BB-1.5-J22	28 at 3.5 kgf/cm <sup>2</sup>	7 ~ 17.5	1.5	1450	1760
HRQQ-28-CC-2.2-J22	28 at 7 kgf/cm <sup>2</sup>	17.5 ~ 35	2.2	1450	1760
HRQQ-28-CC-3.7-J22	28 at 7 kgf/cm <sup>2</sup>	17.5 ~ 35	3.7	1450	1760
HRQQ-28-CB-2.2-J22	28 at 7 kgf/cm <sup>2</sup>	17.5 ~ 35 *	2.2	1450	1760
	28 at 3.5 kgf/cm <sup>2</sup>	7 ~ 17.5			

Note: 1) Select one of the above combinations, after checking the required pump input by the calculation based on the formula.

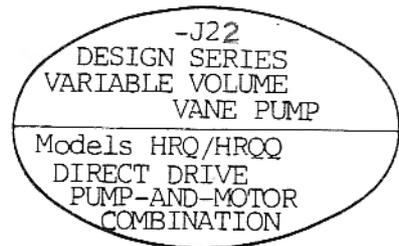
2) \* The upper values refer to the shaft side pump and the lower values, to the cover side pump.

**SPECIFICATION:**

1. The -J22 design QQ pump is a double pump composed of two single -J22 design Q pumps coupled with each other on a common through shaft, and depending on your purpose, you can take off hydraulic power either in an independent stream from each pump or in a combined stream from the two pumps.
2. Specifications of Electric Motor: AC 200V-50/60Hz, Totally-Enclosed -Fan-Cooled
3. The pump input required equals to the total of that for each of the two single pumps.
4. For other specifications, see those for -J20 series Q pump.



Note: Motor dimensions somewhat differ, depending on its make. For the dimensions shown above with letters "A" to "KL", see the chart, clarifying each by make.



**MOTOR DIMENSIONS**

- By Output and Make-

**Motor Power 0.75kw**

Make	A	B	C	D	E	F	G	H	J	L	M	N	Z	KL
Mitsubishi	122	110	80	173	125	100	9	167	35	232	165	125	10	145

**Motor Power 1.5kw**

Make	A	B	C	D	E	F	G	H	J	L	M	N	Z	KL
Mitsubishi	145	135	90	193	140	125	10	187	35	280	180	155	10	156

**Motor Power 2.2kw**

Make	A	B	C	D	E	F	G	H	J	L	M	N	Z	KL
Mitsubishi	169	140	100	212	160	140	12	238	40	309	200	175	12	161

**Motor Power 3.7kw**

Make	A	B	C	D	E	F	G	H	J	L	M	N	Z	KL
Mitsubishi	176	150	112	236	190	140	15	269	40	326	230	180	12	173

Note: You will find some differences depending on make for the date other than those shaded in the above and are requested to be careful in the selection of the motor to be specified when ordering a pump-and-motor combination.

Mitsubishi: Mitsubishi Electric Corporation

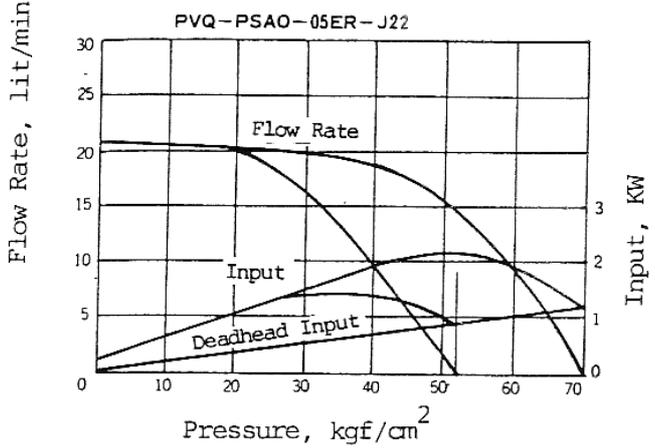
-J22  
 DESIGN SERIES  
 VARIABLE  
 VOLUME VANE PUMP

---

Model Q  
 Flange Mounted

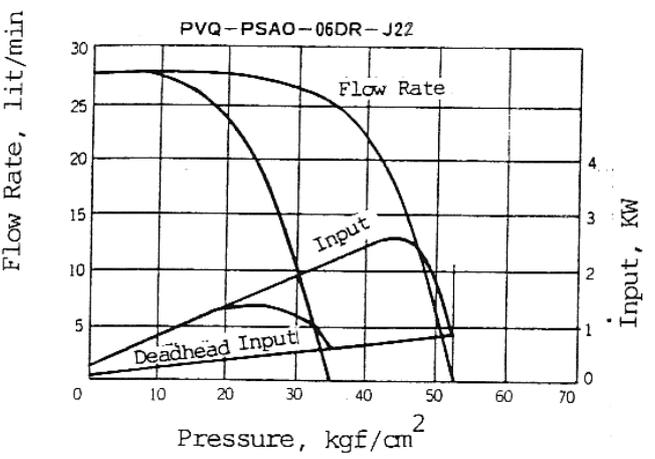
CHARACTERISTICS-CHART(1)

PERFORMANCE CHARACTERISTICS-CHART(1)



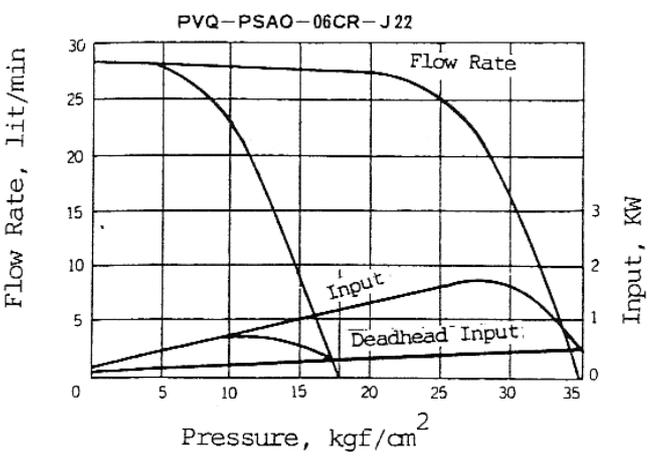
Ef VALUE, KW

Pressure kgf/cm <sup>2</sup>	Ef (KW)	Pressure kgf/cm <sup>2</sup>	Ef (KW)
5	0.13	50	0.70
10	0.17	55	0.79
15	0.22	60	0.89
20	0.28	65	0.98
25	0.32	70	1.16
30	0.41		
35	0.46		
40	0.54		
45	0.61		



Ef VALUE, KW

Pressure kgf/cm <sup>2</sup>	Ef (KW)	Pressure kgf/cm <sup>2</sup>	Ef (KW)
5	0.15	50	0.88
10	0.22	52	0.92
15	0.26		
20	0.32		
25	0.41		
30	0.48		
35	0.55		
40	0.67		
45	0.76		



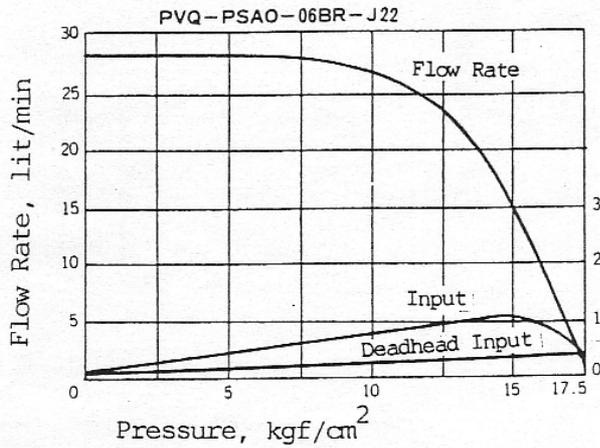
Ef VALUE, KW

Pressure kgf/cm <sup>2</sup>	Ef (KW)
5	0.17
10	0.22
15	0.27
20	0.33
25	0.38
30	0.43
35	0.50

-J22 DESIGN  
SERIES VARIABLE  
VOLUME VANE PUMP

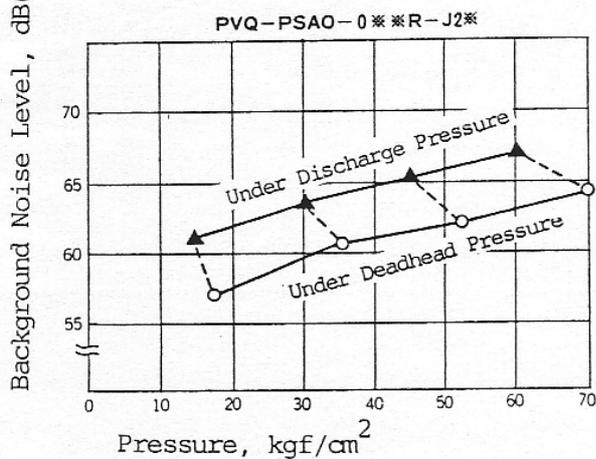
Model Q  
Flange Mounted

PERFORMANCE CHARACTERISTICS-CHART(2)

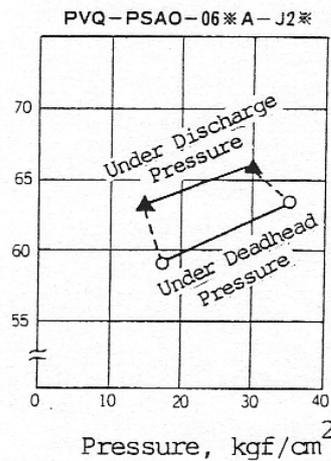


Pressure kgf/cm <sup>2</sup>	Ef (KW)
5	0.17
10	0.22
15	0.27
17.5	0.31

SOUND CHARACTERISTIC



Background Noise Level, dB(A)



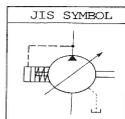
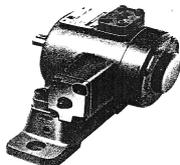
- The above performance diagrams are based on the test results obtained under the following conditions:

Working Fluid Used: Viscosity - 43cSt at 40°C  
 Fluid Temperature: 48°C  
 Pump Speed: 1,760 rpm  
 Pump Input: Shown in KW

- Calculation Formula for Obtaining Pump Input:

$$KW = \frac{\text{Flow Rate (lit/min)} \times \text{Pressure (kgf/cm}^2)}{612} + Ef$$

- In case you later adjusted the factory set pressure or flow rate of your pump and wish to know its performance characteristics after the adjustment, you are requested to proportionally calculate them, following the corresponding diagram among the above.
- The above noise data are based on the tests carried out by means of a microphone set 1m off at the rear of each specific pump under the background noise level of 40 dB(A).



Model	Type Coding	Flow Rate Lit/min (1760rpm)	Max. Operation Pressure(kgf/cm <sup>2</sup> )	Speed (rpm)	
				Max.	Min.
Q Pump	PVQ-PSSO-05ER-J20	20 at 7 kgf/ cm <sup>2</sup>	70	1800	400
	PVQ-PSSO-06DR-J20	26 at 7kgf/ cm <sup>2</sup>	52	1800	400
	PVQ-PSSO-06CR-J20	26 at 7kgf/ cm	35	1800	400
	PVQ-PSSO-06BR-J20	26 at 3.5 kgf/ cm <sup>2</sup>	17.5	1800	400

**SPECIFICATIONS:**

- Flow Rate: 20 lit/min or 26 lit/min (Each at 1,760 rpm)
- Rated Pressure: Maximum 70 kgf/ cm<sup>2</sup>
- Pressure Adjustment Range: High-pressure Type, "E": 35 to 70 kgf/ cm<sup>2</sup>  
High-pressure Type, "D": 35 to 52 kgf/ cm<sup>2</sup>  
Medium-pressure Type, "C" 17.5 to 35 kgf/ cm<sup>2</sup>  
Low-pressure Type, "B": 7 to 17.5 kgf/ cm<sup>2</sup>
- Drain: Blind the unused drain port with a plug. Directly route drain flow from a selected drain port to tank. Do not fail to terminate the tubing below the fluid level in the reservoir. Use a pipe with its inner resistance not exceeding 0.5 kgf/ cm<sup>2</sup>
- Drive Shaft Alignment: Pump & prime mover shaft alignment must not exceed 0.06mm in total indicator reading.
- Rotation: Right-hand rotation is standard, (See the pump general view with external dimensions).
- Initial Pump Start-up: If the system is equipped with a closed center valve, first allow the hydraulic fluid in use to return to tank at the time of initial pump start-up to avoid air-bound problems.
- Fluid Recommendation: A premium quality hydraulic fluid with its viscosity of 43 to 54 cSt at 40 .
- Fluid Temperature: Under normal continuous operating conditions, fluid temperature should not exceed 55 .
- Fire Resisting Fluid: When a fire resisting fluid is required for operating the pump, it will need some special specification. In such a case, consult us or the nearest local distributor in advance.
- Inlet Vacuum: (At Sea Level) Vacuum should not exceed 142 mmHg.
- Weight: Pump Complete: 7.8 kg Subplate: 4.5 kg

**HOW TO ORDER**

Pump Complete      PVQ - PSSO - 05ER - J20      Subplate      PQS - 30SA

05: 20L/min      E: 70 kgf/cm<sup>2</sup>      Right-hand

06: 26L/min      D: 52 kgf/cm<sup>2</sup>      R:- Rotation (Std)

                         C: 35 kgf/cm<sup>2</sup>      Q :-Left-hand

                         B: 17.5 kgf/cm<sup>2</sup>      (Opposite Drive Shaft Type Only)

30: Height 61(Std)

**REMARKS:**

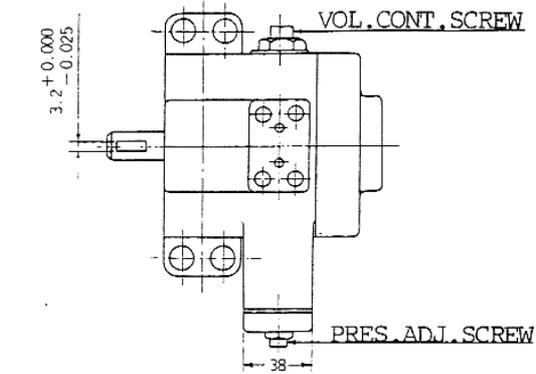
When ordering, describe as follows:

- Ex.1: When ordering a pump with subplate:  
PVQ-PSSO-06CR-J20(Pump) PQS-30SA(Subplate)
- Ex.2: When ordering a pump without subplate:  
PVQ-PSSO-06CR-J20(Pump)

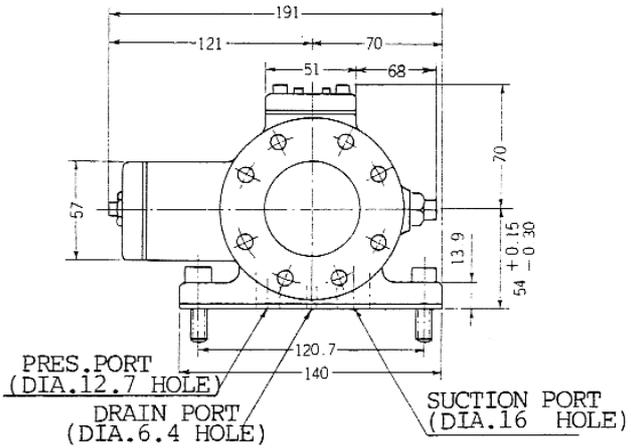
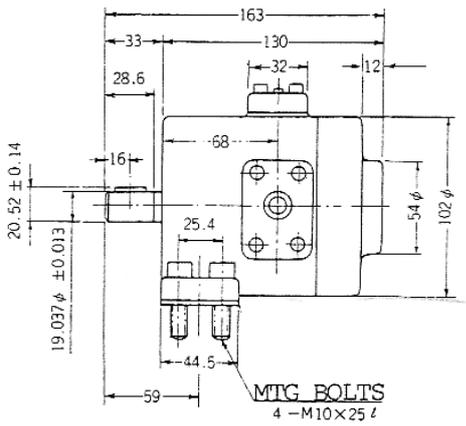
-J20  
DESIGN SERIES  
VARIABLE VOLUME  
VANE PUMP

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Model Q  
Subplate Mounted

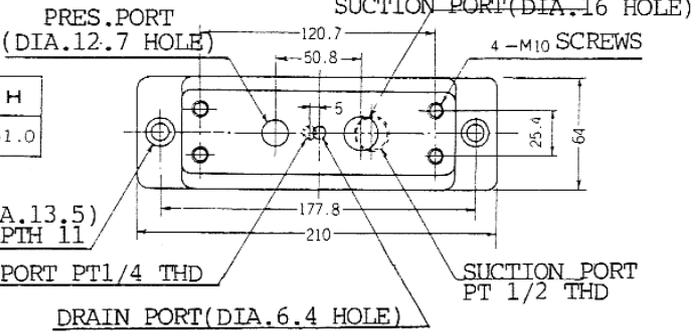


SUBPLATE MOUNTED  
RIGHT-HAND ROTATION

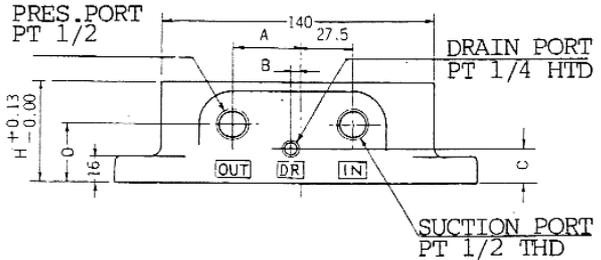
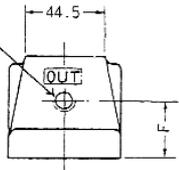


SUBPLATE

TYPE CODING	A	B	C	D	E	F	H
PQS-30SA	37.5	5.0	20.0	36.0	3/8	32.0	61.0



PRES. PORT PT 3/8 OR 1/2  
(See column "E" in the  
above chart.)

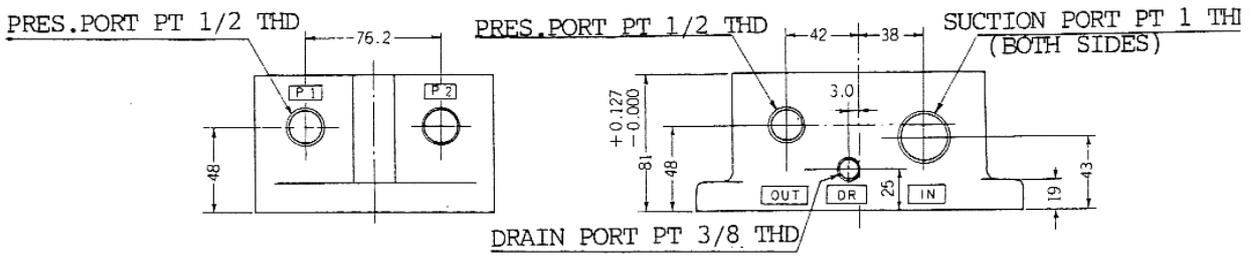
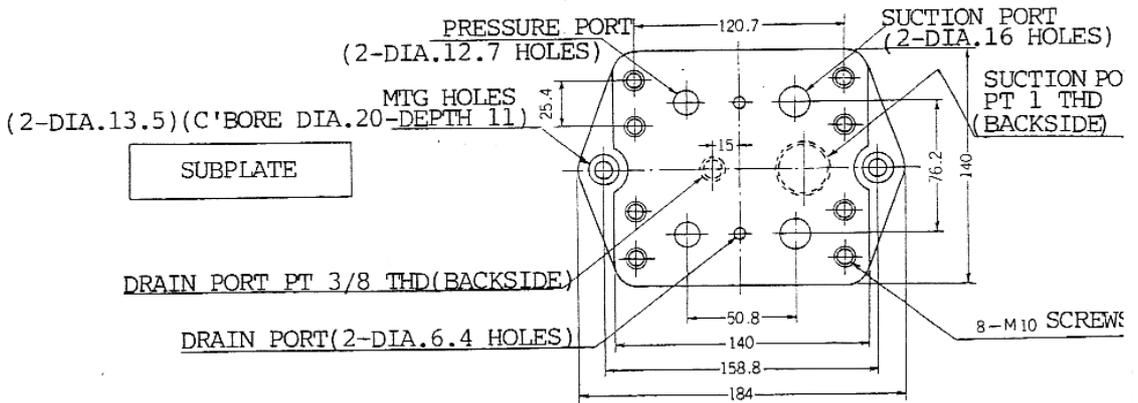
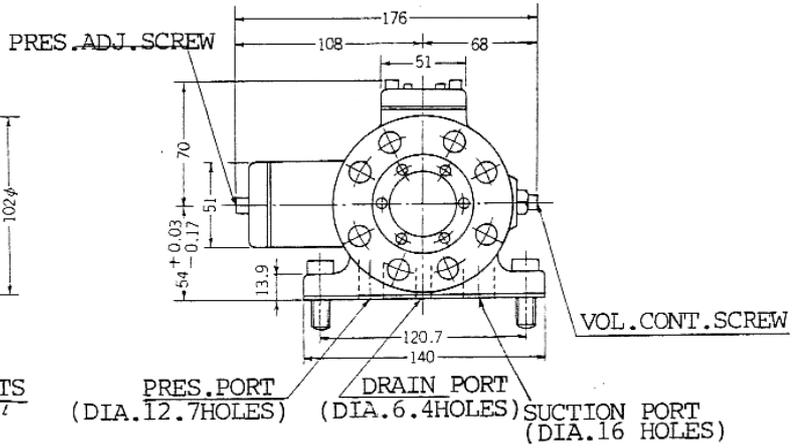
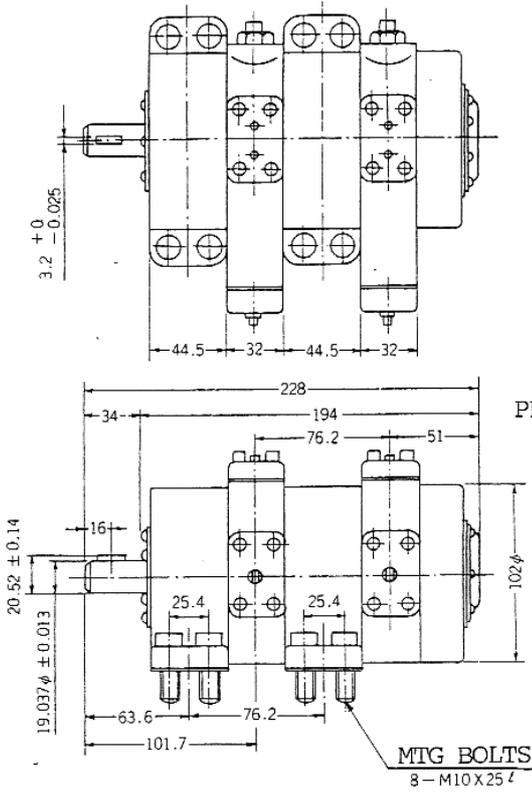




-J20  
DESIGN SERIES  
VARIABLE VOLUME  
VANE PUMP

Model QQ  
Subplate Mounted

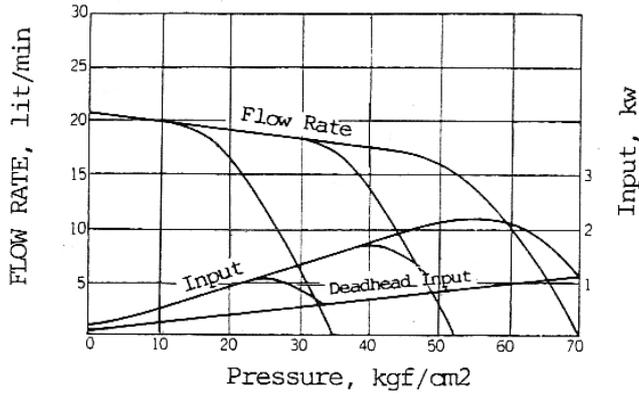
Subplate Mounted  
Right-hand Rotation



-J20  
DESIGN SERIES  
VARIABLE VOLUME  
VANE PUMP

Model Q  
PERFORMANCE  
CHARACTERISTICS

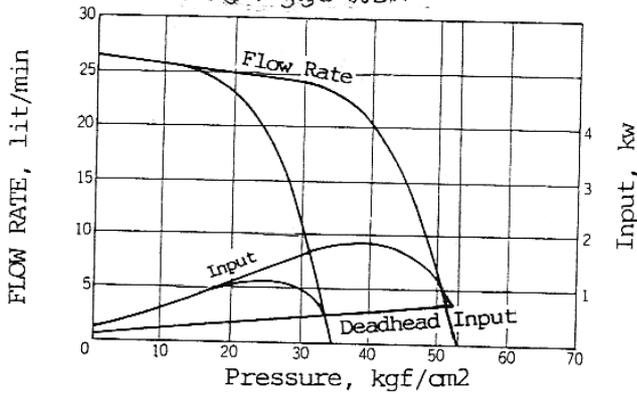
PVQ-PSSO-05E\*-\*



Ef VALUE, kw

Pressure, kgf/cm <sup>2</sup>	Ef(KW)	Pressure, kgf/cm <sup>2</sup>	Ef(KW)
5	0.22	50	0.71
10	0.23	55	0.81
15	0.26	60	0.92
20	0.31	65	1.00
25	0.36	70	1.11
30	0.43		
35	0.48		
40	0.56		
45	0.63		

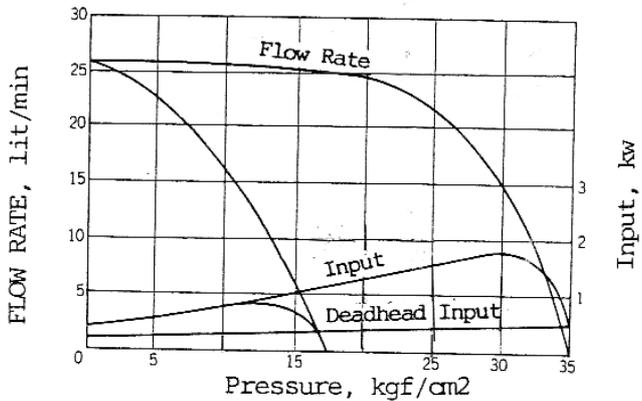
PVQ-PSSO-06DR



Ef VALUE, kw

Pressure, kgf/cm <sup>2</sup>	Ef(KW)	Pressure, kgf/cm <sup>2</sup>	Ef(KW)
5	0.22	50	0.71
10	0.23	52	0.76
15	0.26		
20	0.31		
25	0.36		
30	0.43		
35	0.48		
40	0.56		
45	0.63		

PVQ-PSSO-06C\*



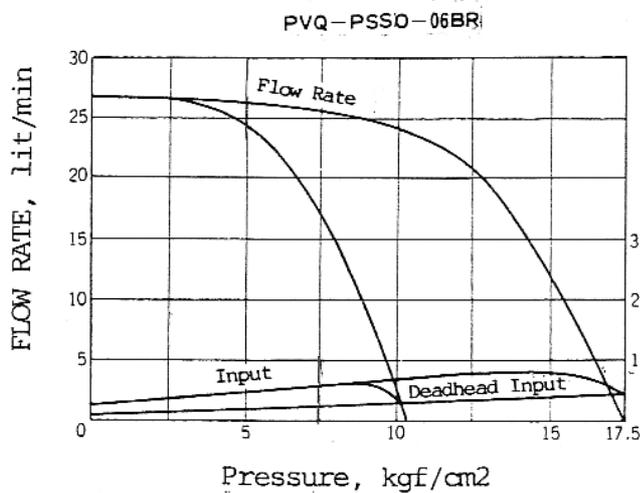
Ef VALUE, kw

Pressure, kgf/cm <sup>2</sup>	Ef(KW)
5	0.22
10	0.24
15	0.27
20	0.32
25	0.39
30	0.48
35	0.55

-J20  
 DESIGN SERIES  
 VARIABLE VOLUME  
 VANE PUMP

---

Model Q  
 PERFORMANCE  
 CHARACTERISTICS



Ef VALUE, kW

Pressure, kgf/cm <sup>2</sup>	Ef(KW)
5	0.20
10	0.26
15	0.36
17.5	0.45

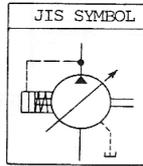
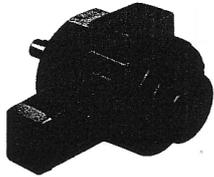
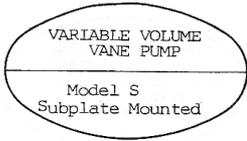
1. The above performance diagrams are based on the test results obtained under the following conditions;

- Working Fluid Used: Viscosity-43 cSt at 40°C.
- Fluid Temperature: 48°C
- Pump Speed: 1,760 rpm
- Pump Input: Shown in kW

2. Calculation Formula for Obtaining Pump Input:

$$kW = \frac{\text{Flow Rate (lit/min)} \times \text{Pressure (kgf/cm}^2\text{)}}{612} + Ef$$

3. In case you later adjusted the factory set pressure or flow rate of your pump and wish to know its performance characteristics after the adjustment, you are requested to proportionally calculate them, following the corresponding diagram among the above.



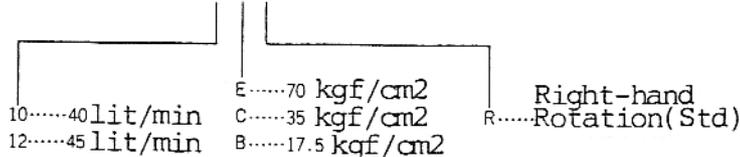
	Type Coding	Flow Rate Lit/min (1760 rpm)	Max. Operation Pressure(kgf/cm <sup>2</sup> )	Speed (rpm)	
				Max.	Min.
S Pump	PVS-PNSO-10ER-J	40 at 7 kgf/ cm <sup>2</sup>	70	1800	400
	PVS-PNSO-12CR-J	45 at 7kgf/ cm <sup>2</sup>	35	1800	400
	PVS-PNSO-12BR-J	45 at 7kgf/ cm	17.5	1800	400

**SPECIFICATIONS:**

1. Flow Rate: 40 lit/min or 45 lit/min (Each at 1,760 rpm)
2. Rated Pressure: Maximum 70 kgf/cm<sup>2</sup>
3. Pressure Adj. Range: High-Pressure Type, "E": 35 to 70 kgf/ cm<sup>2</sup>  
Medium-Pressure Type, "C": 17.5 to 35 kgf/cm<sup>2</sup>  
Low-Pressure Type, "B": 7 to 17.5 kgf/cm<sup>2</sup>
4. Drain: Blind the unused drain port with a plug. Directly route drain flow from a selected drain port to tank. Do not fail to terminate the tubing below the fluid level in the reservoir. Use a pipe with its inner resistance not exceeding 0.5 kgf/cm<sup>2</sup>.
5. Drive Shaft Alignment: Pump and prime mover shaft alignment must not exceed 0.06mm in total indicator reading.
6. Rotation: Right-hand rotation is standard. (See the pump general view with external dimensions).
7. Initial Pump start-up: If the system is equipped with a closed center valve, first allow the hydraulic fluid in use to return to tank at the time of initial pump start-up to avoid air-bound problems.
8. Fluid Recommendation: A premium quality hydraulic fluid with its viscosity of 43 to 54 cSt at 40 .
9. Fluid Temperature: Under normal continuous operating conditions, fluid temperature should not exceed 55 .
10. Fire Resisting Fluid: When a fire resisting fluid is required for operating the pump, it will need some special specification. In such a case, consult us or the nearest local distributor in advance.
11. Inlet Vacuum: (At Sea Level); Vacuum should not exceed 142 mmHg.
12. Weight: Pump Complete 20 kg

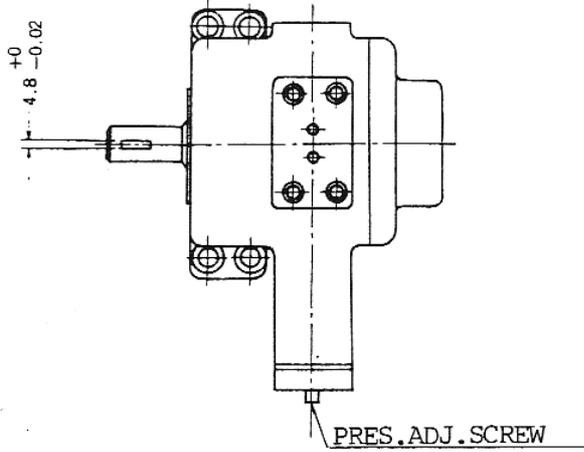
**HOW TO ORDER**

Pump Complete.....PVS-PNSO-10ER-J

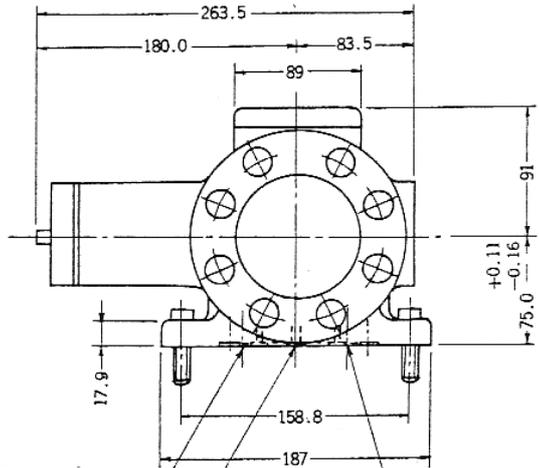
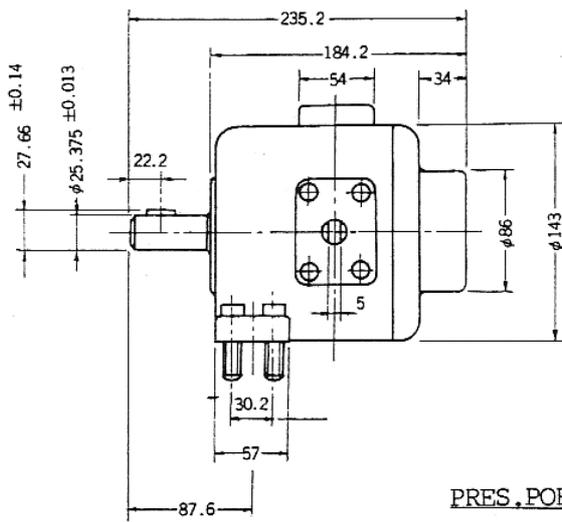


VARIABLE VOLUME  
VANE PUMP

Model S  
Subplate Mounted



Subplate Mounted  
Right-hand Rotation

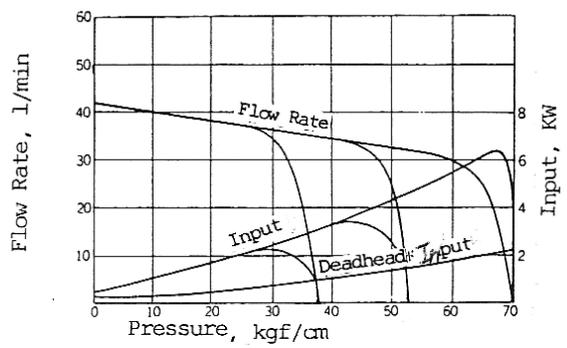


PRES. PORT (DIA. 19 HOLE)  
DRAIN PORT (DIA. 6.4 HOLE)  
SUCTION PORT (DIA. 25.4 HOLE)

VARIABLE  
VOLUME VANE PUMP  
Model S  
Subplate Mounted

PERFORMANCE CHARACTERISTICS

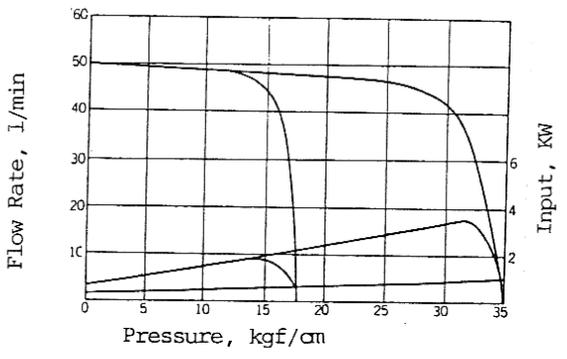
PVS-PNS0-10ER-J



Ef VALUE, KW

Pressure kgf/cm <sup>2</sup>	Ef(KW)	Pressure kgf/cm <sup>2</sup>	Ef(KW)
5	0.38	50	1.42
10	0.40	55	1.56
15	0.47	60	1.72
20	0.59	65	1.90
25	0.70	70	2.23
30	0.81		
35	0.94		
40	1.13		
45	1.24		

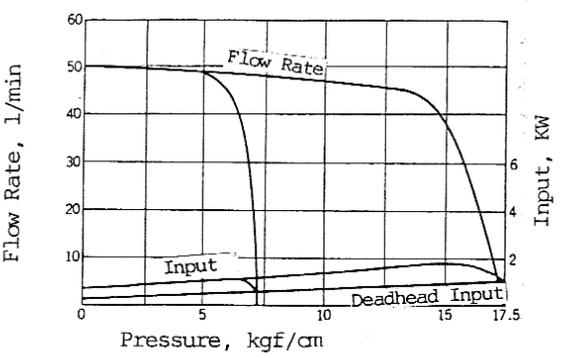
PVS-PNS0-12CR-J



Ef VALUE, KW

Pressure kgf/cm <sup>2</sup>	Ef(KW)
5	0.38
10	0.40
15	0.47
20	0.53
25	0.58
30	0.72
35	1.10

PVS-PNS0-12BR-J



Ef VALUE, KW

Pressure kgf/cm <sup>2</sup>	Ef(KW)
5	0.38
10	0.40
15	0.53
17.5	0.70

1. The above performance diagrams are based on the test results obtained under the following conditions:

- Working Fluid Used: Viscosity -43 cSt at 40°C
- Fluid Temperature: 48°C
- Pump Speed: 1,760 rpm
- Pump Input: Shown in KW

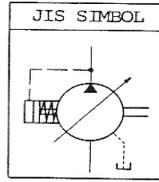
2. Calculation Formula for Obtaining Pump Input:

$$KW = \frac{\text{Flow Rate(lit/min)} \times \text{Pressure(kgf/cm}^2)}{61.2} + Ef$$

3. In case you later adjusted the factory set pressure or flow rate of your pump and wish to know its performance characteristics after the adjustment, you are requested to proportionally calculate them, following the corresponding diagram among the above.

VARIABLE VOLUME  
VANE PUMP

Model FA  
Foot Mounted



Model	Type Coding	Pressure kgf/cm <sup>2</sup>	Flow Rate Lit/min At Left- Shown Pressure 1170(rpm)	Max. Operation Pressure (kgf/cm <sup>2</sup> )	Speed (rpm)		Performance Curve symbol
					Max.	Min.	
2 FA Pump	PVF- PNT0-12-ER-J	10.5	56	70	1200	400	Standard A
	PVF- PNT0-12-CR-J	7	56	35	1200	400	Standard A
	PVF- PNT0-12-BR-J	7	56	17.5	1200	400	Standard A
	PVF- BNT0-12-ER-J	10.5	56	70	1200	400	B
	PVF- CNT0-12-ER-J	7	56	70	1200	400	C
4 FA Pump	PVF-PNT0-20ER-J	10.5	85	70	1200	400	Standard A
	PVF-PNT0-20CR-J	7	85	35	1200	400	Standard A
	PVF-PNT0-20BR-J	7	85	17.5	1200	400	Standard A
	PVF-BNT0-20ER-J	10.5	85	70	1200	400	B
	PVF-CNT0-20ER-J	10.5	85	70	1200	400	C
6 FA Pump	PVF-PNT0-30CR-J	7	120	35	1200	400	Standard A
	PVF-PNT0-30BR-J	7	120	17.5	1200	400	Standard A
	PVF-BNT0-30CR-J	3.5	110	35	1200	400	B
	PVF-CNT0-30CR-J	3.5	60	35	1200	400	C

Note: If you wish to use a 2FA or 4FA Pump at 1450 rpm, consult us or the nearest distributor in advance,  
But no pump speed higher than 1200 rpm is applicable to the 6FA Pump.

HOW TO ORDER

PVF-PNT0-12ER-J

P: W/Std.(A Type) Pressure  
Compensator  
B: W/Opt.(B Type)P.C.  
C: W/Opt.(C Type)P.C.  
H: W/Opt.Hyd.2-press-Gov.  
(Internal Pilot)  
J: W/Opt.Hyd.2-press.Gov.  
(External Pilot)  
S: Sol.Oper.2-press.Gov.

O: Mineral Oil  
W: Water Glycol  
N: W/No.Vol.Cont.Screw  
S: W/Vol.Cont.Screw

12: 52lit/min  
20: 85lit/min  
30:120lit/min  
(Each in the  
case of std.  
"A" perf. curve  
Spec.)

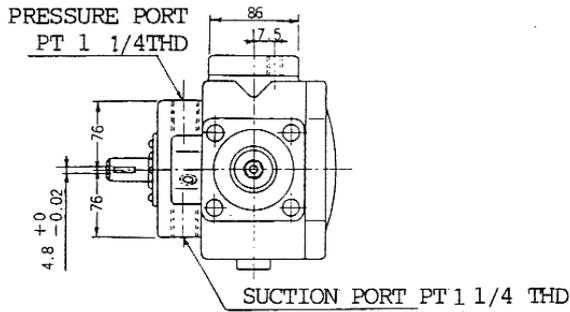
J: Suffix meaning Japan-made.

E: 70kgf/cm<sup>2</sup>  
C: 35kgf/cm<sup>2</sup>  
B: 17.5kgf/cm<sup>2</sup>

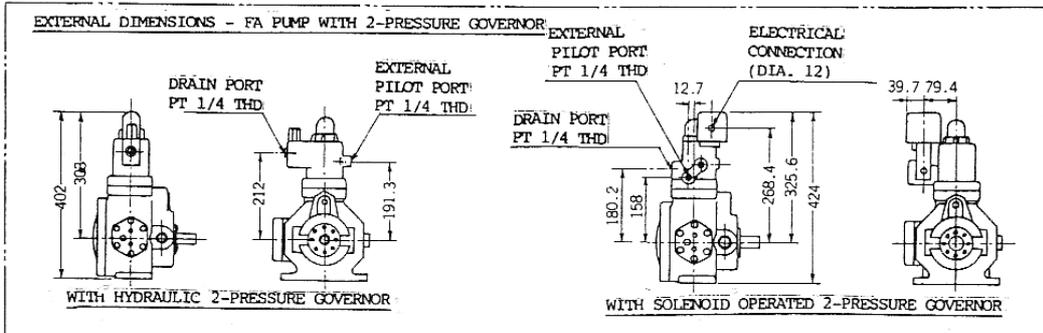
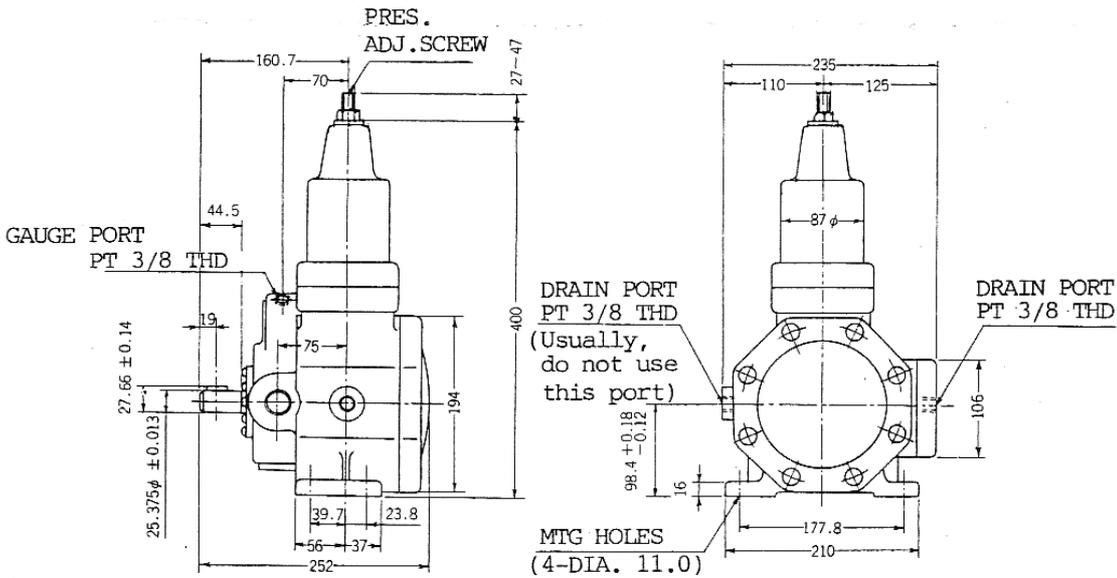
R: RH Rotation  
(Std.)  
L: LH Rotation  
(Opt.)

VARIABLE VOLUME  
VANE PUMP

MODEL FA  
Foot Mounted

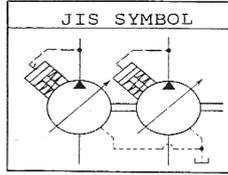
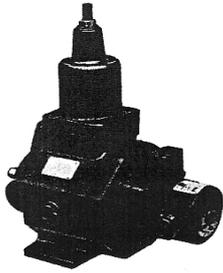


Foot Type  
Right-hand  
Rotation



VARIABLE VOLUME  
VANE PUMP

Model FAQ(Combination)  
Foot Type

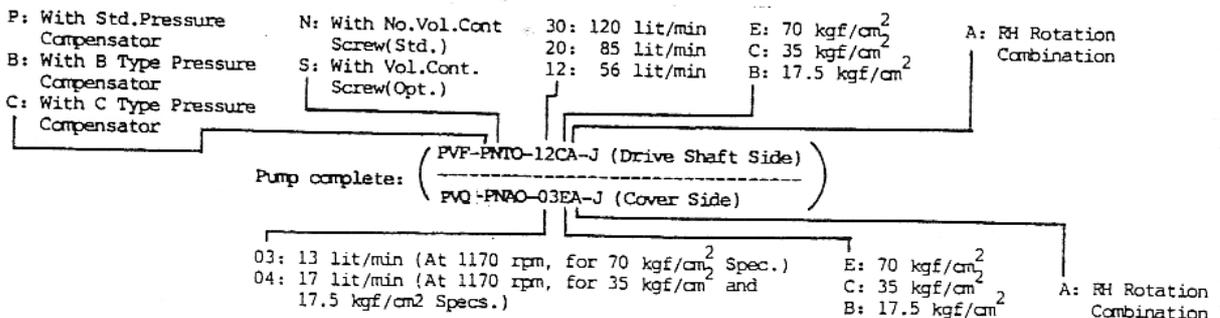


Model	Type Coding	Pressure kgf/cm <sup>2</sup>	Flow Rate Lit/min At 7 kgf/cm <sup>2</sup> & 1170(rpm)	Max. Operation Pressure (kgf/cm <sup>2</sup> )	Speed (rpm)	
					Max.	Min.
FAQ Pump	PVF-PNTO-12CA-J	7	56	35	1200	400
	PVQ-PNTO-03EA-J	7	13	70		
	PVF-PNTO-20CA-J	7	85	35	1200	400
	PVQ-PNAO-03EA-J	7	13	70		
	PVF-PNTO-30CA-J	7	120	35	1200	400
	PVQ-PNAO-03EA-J	7	13	70		

(Different combinations other than the above are also available.)

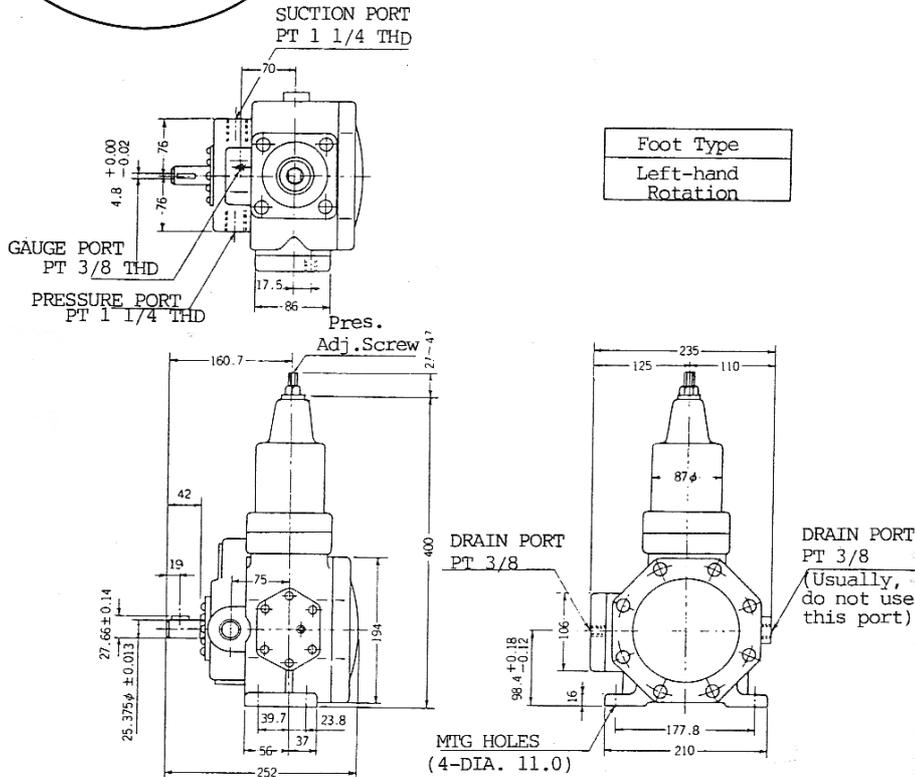
- SPECIFICATIONS:**
- FAQ pump is a combination pump consisting of a FA pump and a flange mounted Q pump directly coupled with each other on the same center axis. Depending on applications, hydraulic power can be taken off, either in an independent stream from each pump or in a combined stream from the two pumps.
  - The pump input required for this combination pump equals to total of that for the FA pump and the flange mounted Q pump combined with.
  - For other specifications, see those for FA pump and flange mounted Q pump, respectively.
  - Weight: 48kg.

HOW TO ORDER



VARIABLE VOLUME  
VANE PUMP

Model FA  
Foot Mounted



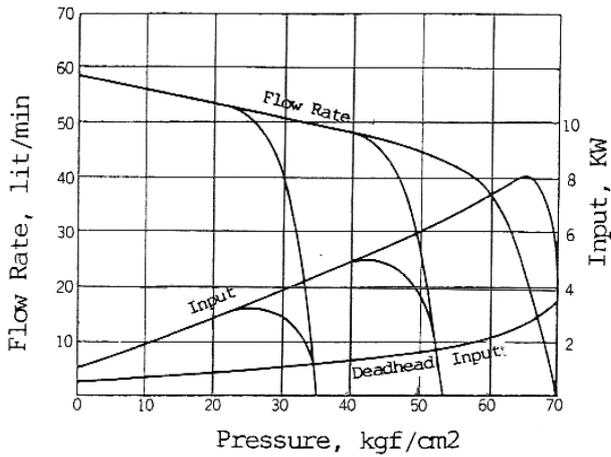
**SPECIFICATIONS:**

1. Flow Rate: 2FA:56 lit/min; 4FA:85 lit/min and 6FA:120 lit/min-Each at 1170 rpm.
2. Rated Pressure: Maximum 70 kgf/cm<sup>2</sup> for 2FA and 4FA. Max. 35kgf/cm<sup>2</sup> for 6FA.
3. Pressure Adjustment Range: 5 different specs are available for 2FA and 4FA, respectively, and 4 types of spring governor, for 6FA. A-curve spec. governor is standard for each of 2FA,4FA and 6FA pumps.
  - 1) High-pressure Type, "E": 35 to 70kgf/cm<sup>2</sup> (A-,B- and C-curves)
  - 2) Medium -pressure Type, "C": 17.5 to 35kgf/cm<sup>2</sup> (A-curves only)
  - 3) Low-pressure Type, "B": 7 to 17.5kgf/cm<sup>2</sup> (A-curves only)
4. Drain: Blind the unused drain port with a plug. Directly route drain flow from a selected drain port to tank. Do not fail to terminate the tubing below the fluid level in the reservoir. Use a pipe with its inner resistance not exceeding 0.5kgf/ cm<sup>2</sup>
5. Drive Shaft Alignment: Pump and prime mover shaft alignment must not exceed 0.06 mm in total indicator reading.
6. Rotation: Right-hand rotation is standard. (See the pump general view with external dimensions).
7. Initial Pump Start-up: If the system is equipped with a closed center valve, first allow the hydraulic fluid in use to return to tank at the time of initial pump start-up to avoid air-bound problems.
8. Fluid Recommendation: A premium quality hydraulic fluid with its viscosity of 43 to 54 cSt at 40 .
9. Fluid Temperature: Under normal continuous operating conditions, fluid temperature should not exceed 55 .
10. Fire Resisting Fluid: When a fire resisting fluid is required for operating the pump, it will need some special specification. In such a case, consult us or the nearest local distributor in advance.
11. Inlet Vacuum: (At Sea Level) Vacuum should not exceed 142 mmHg
12. Weight: Pump Complete: 41kg.



VARIABLE VOLUME  
 VANE PUMP  
 MODEL 2FA  
 PERFORMANCE  
 CHARACTERISTICS  
 (1)

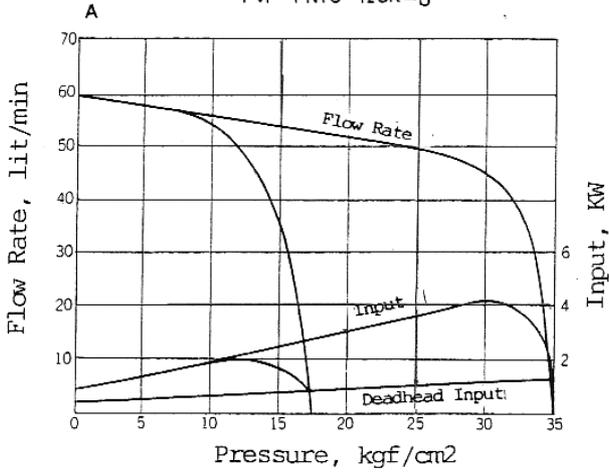
A-CHARACTERISTIC PVF-PNTO-12ER-J



Ef VALUE (KW)

Pressure (kgf/cm <sup>2</sup> )	Ef(KW)	Pressure (kgf/cm <sup>2</sup> )	Ef(KW)
5	0.74	50	1.70
10	0.78	55	2.00
15	0.84	60	2.30
20	0.89	65	2.85
25	1.00	70	3.60
30	1.12		
35	1.20		
40	1.32		
45	1.49		

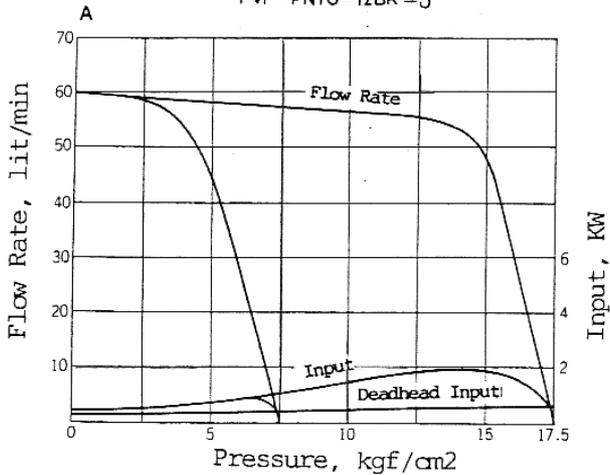
A-CHARACTERISTIC PVF-PNTO-12CR-J



Ef VALUE (KW)

Pressure (kgf/cm <sup>2</sup> )	Ef(KW)
5	0.55
10	0.60
15	0.65
20	0.73
25	0.85
30	0.96
35	1.13

A-CHARACTERISTIC PVF-PNTO-12BR-J



Ef VALUE (KW)

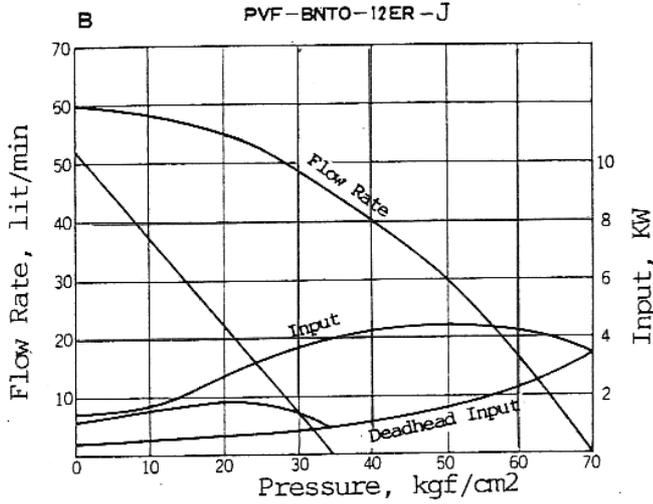
Pressure (kgf/cm <sup>2</sup> )	Ef(KW)
5	0.30
10	0.37
15	0.53
17.5	0.70

VARIABLE VOLUME  
VANE PUMP

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MODEL 2FA  
PERFORMANCE  
CHARACTERISTICS  
(2)

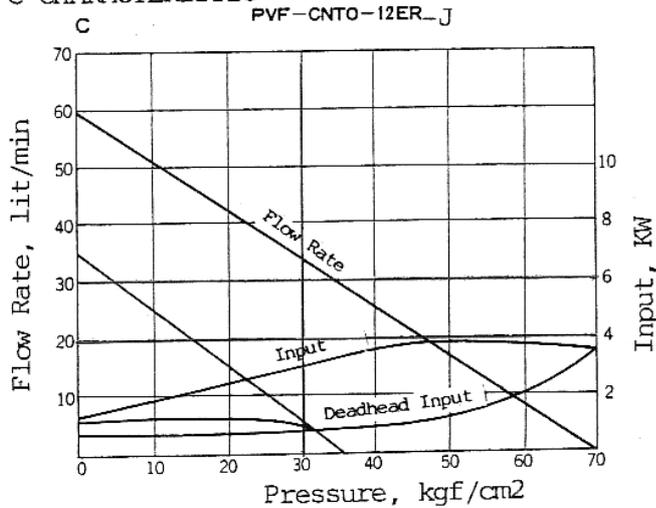
B-CHARACTERISTIC



Ef VALUE (KW)

Pressure (kgf/cm <sup>2</sup> )	Ef (KW)	Pressure (kgf/cm <sup>2</sup> )	Ef (KW)
5	0.74	50	1.70
10	0.78	55	2.00
15	0.84	60	2.30
20	0.89	65	2.85
25	1.00	70	3.60
30	1.12		
35	1.20		
40	1.32		
45	1.49		

C-CHARACTERISTIC



1. The above performance diagrams are based on the test results obtained under the following conditions:

Working Fluid Used:      Viscosity -- 43 cSt at 40°C  
 Fluid Temperature:      48°C  
 Pump Speed:              1,170 rpm  
 Pump Input:              Shown in KW

2. Calculation Formula for Obtaining Pump Input:

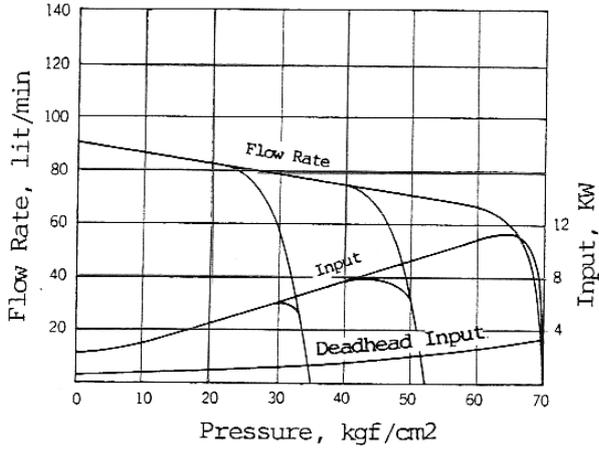
$$KW = \frac{\text{Flow Rate (lit/min)} \times \text{Pressure (kgf/cm}^2\text{)}}{612} + Ef$$

3. In case you later adjusted the factory set pressure or flow rate of your pump and wish to know its performance characteristics after the adjustment, you are requested to proportionally calculate them, following the corresponding diagram among the above.

VARIABLE VOLUME  
VANE PUMP

Model 4FA  
PERFORMANCE  
CHARACTERISTICS  
(1)

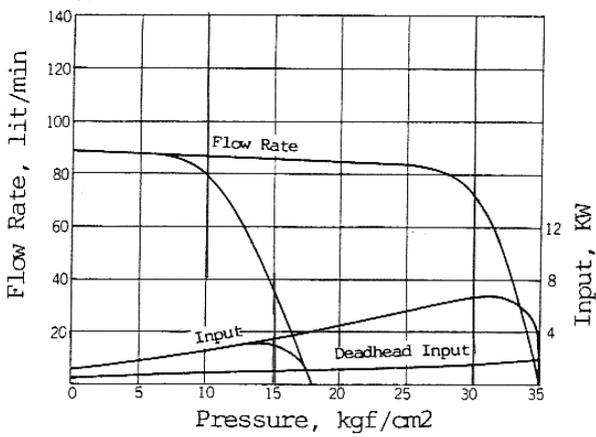
A-CHARACTERISTICS PVF-PNT0-20ER-J



Ef VALUE(KW)

Pressure (kgf/cm <sup>2</sup> )	Ef(KW)	Pressure (kgf/cm <sup>2</sup> )	Ef(KW)
5	0.74	50	2.15
10	0.79	55	2.43
15	0.85	60	2.85
20	0.89	65	3.20
25	1.10	70	3.60
30	1.15		
35	1.35		
40	1.60		
45	1.74		

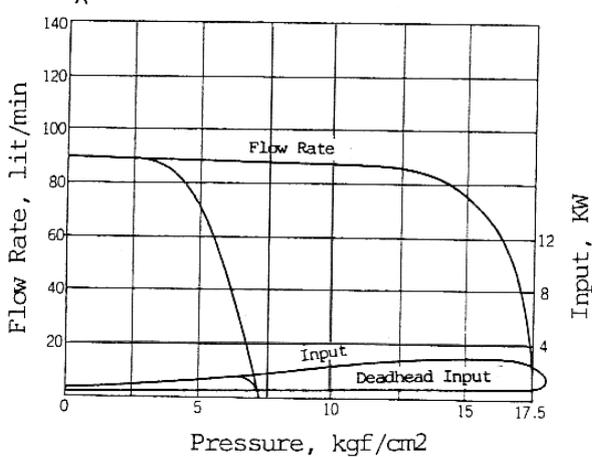
A-CHARACTERISTIC PVF-PNT0-20CR-J



Ef VALUE(KW)

Pressure (kgf/cm <sup>2</sup> )	Ef(KW)
5	0.74
10	0.82
25	0.93
20	1.03
25	1.15
30	1.33
35	1.80

A-CHARACTERISTIC PVF-PNT0-20BR-J

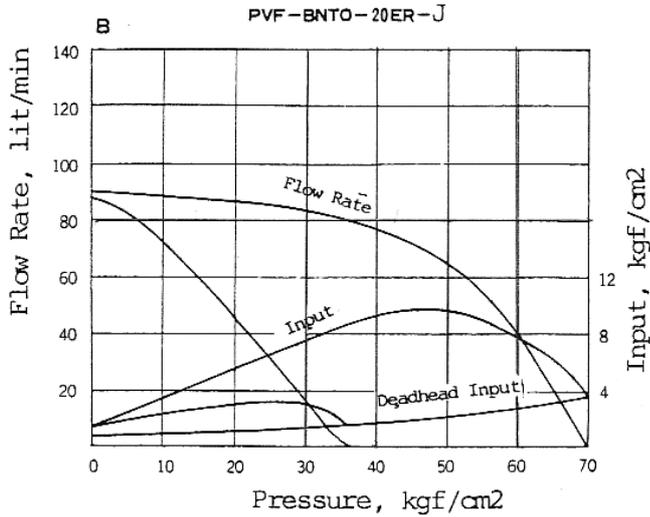


Ef VALUE(KW)

Pressure (kgf/cm <sup>2</sup> )	Ef(KW)
5	0.74
10	0.82
15	0.93
17.5	1.00

VARIABLE VOLUME  
VANE PUMP  
Model 4FA  
PERFORMANCE  
CHARACTERISTICS  
(2)

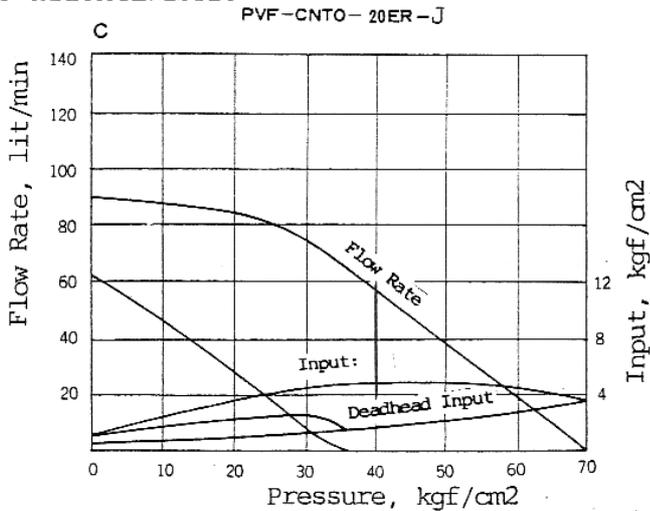
B-CHARACTERISTIC



Ef VALUE (KW)

Pressure (kgf/cm <sup>2</sup> )	Ef(KW)	Pressure (kgf/cm <sup>2</sup> )	Ef(KW)
5	0.74	50	2.15
10	0.79	55	2.43
15	0.85	60	2.85
20	0.89	65	3.20
25	1.10	70	3.60
30	1.15		
35	1.35		
40	1.60		
45	1.74		

C-CHARACTERISTIC



1. The above performance diagrams are based on the test results obtained under the following conditions:

Working Fluid Used:      Viscosity --43 cSt at 40°C  
 Fluid Temperature:      48°C  
 Pump Speed:              1,170 rpm  
 Pump Input:              Shown in KW

2. Calculation Formula for Obtaining Pump Input:

$$KW = \frac{\text{Flow Rate (lit/min)} \times \text{Pressure (kgf/cm}^2\text{)}}{612} + Ef$$

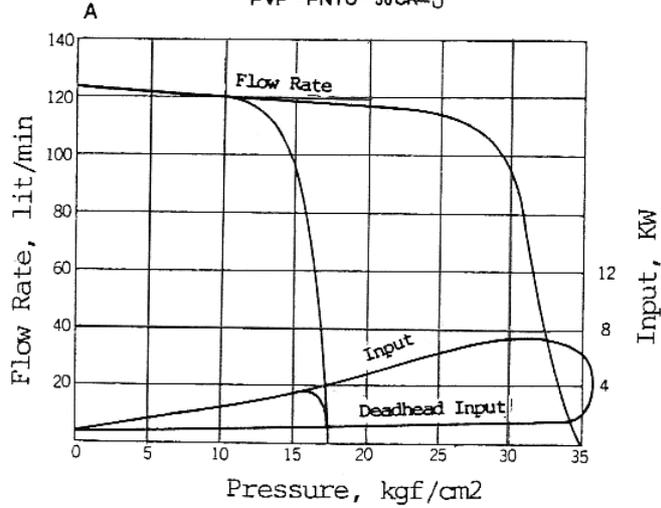
3. In case you later adjusted the factory set pressure or flow rate of your pump and wish to know its performance characteristics after the adjustment, you are requested to proportionally calculate them, following the corresponding diagram among the above.

VARIABLE VOLUME  
VANE PUMP

Model 6FA  
PERFORMANCE  
CHARACTERISTICS  
(1)

A-CHARACTERISTIC

PVF-PNTO-30CR-J

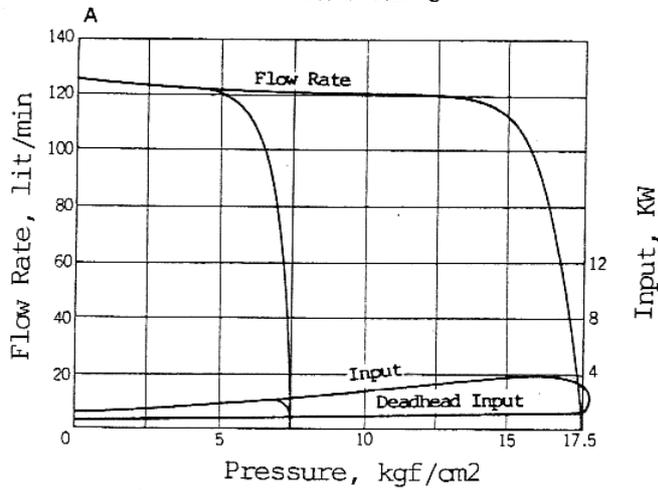


Ef VALUE(KW)

Pressure (kgf/cm <sup>2</sup> )	Ef(KW)
5	0.74
10	0.83
15	0.93
20	1.10
25	1.33
30	1.53
35	2.22

A-CHARACTERISTIC

PVF-PNTO-30BR-J

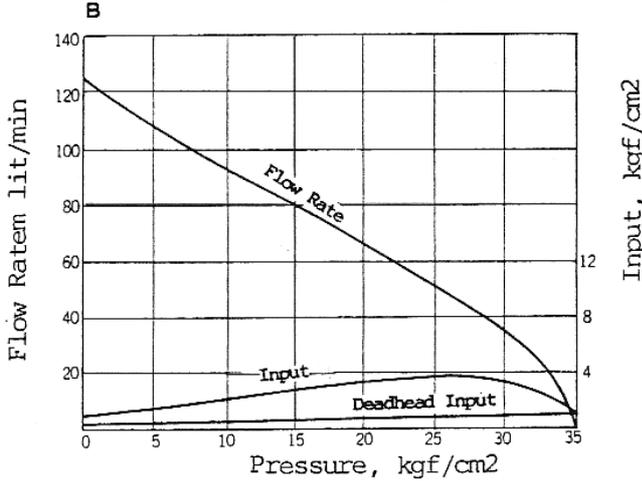


Ef VALUE(KW)

Pressure (kgf/cm <sup>2</sup> )	Ef(KW)
5	0.75
10	0.83
15	1.18
17.5	1.30

VARIABLE VOLUME  
 VANE PUMP  
 Model 6FA  
 PERFORMANCE  
 CHARACTERISTICS  
 (2)

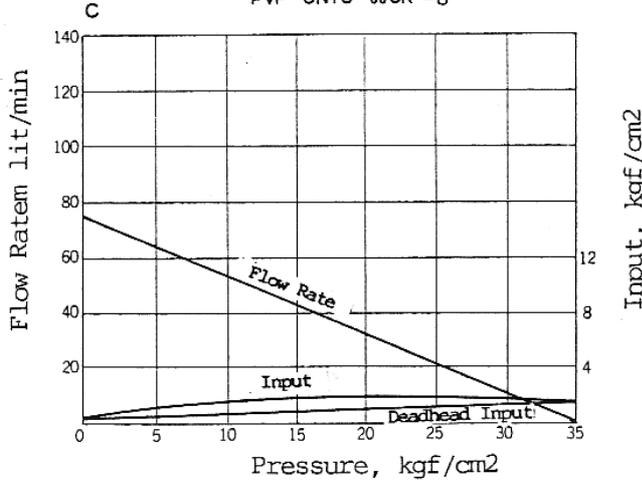
B-CHARACTERISTIC PVF-BNT0-30CR-J



Ef VALUE (KW)

Pressure (kgf/cm <sup>2</sup> )	Ef(KW)
5	0.74
10	0.83
15	0.93
20	1.10
25	1.33
30	1.53
35	2.22

C-CHARACTERISTIC PVF-CNT0-30CR-J



1. The above performance diagrams are based on the test results obtained under the following conditions:

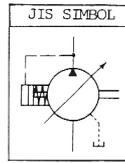
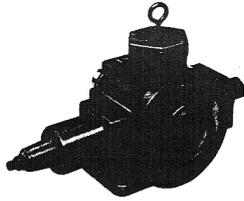
- Working Fluid Used: Viscosity --43 cSt at 40°C
- Fluid Temperature: 48°C
- Pump Speed: 1,170 rpm
- Pump Input: Shown in KW

2. Calculation Formula for Obtaining Pump Input:

$$KW = \frac{\text{Flow Rate (lit/min)} \times \text{Pressure (kgf/cm}^2)}{612} + Ef$$

3. In case you later adjusted the factory set pressure or flow rate of your pump and wish to know its performance characteristics after the adjustment, you are requested to proportionally calculate them, following the corresponding diagram among the above.

VARIABLE VOLUME  
VANE PUMP  
Model RA  
Subplate  
Mounted

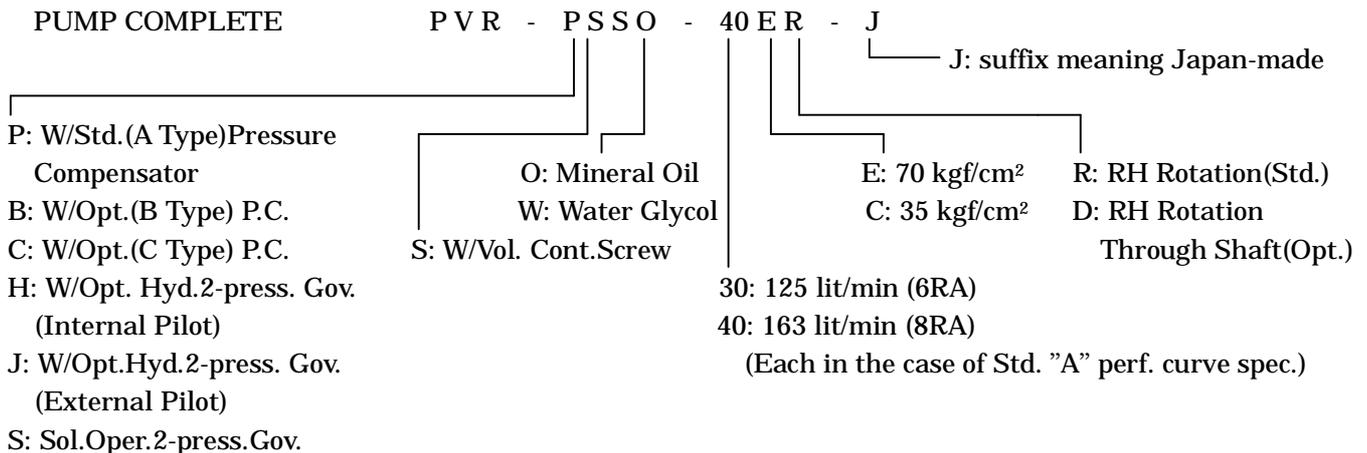


Model	Type Coding	Flow Rate Lit/min at 10kgf/cm <sup>2</sup> Pressure and 1170(rpm)	Max. Operation Pressure (kgf/cm <sup>2</sup> )	Speed (rpm)		Performance Curve symbol
				Max.	Min.	
6 RA Pump	PVR-PSSO-30ER	125	70	1200	400	Standard A
	PVR-BSSO-30ER	125	70	1200	400	Option B
	PVR-CSSO-30ER	125	70	1200	400	Option C
	PVR-PSSO-30CR	125	35	1200	400	Standard A
8 RA Pump	PVR-PSSO-40ER	163	70	1200	400	Standard A
	PVR-BSSO-40ER	163	70	1200	400	Option B
	PVR-CSSO-40ER-	163	70	1200	400	Option C
	PVR-PSSO-40CR-	163	35	1200	400	Standard A

**SPECIFICATIONS:**

- 1.Flow Rate: 6RA: 125 lit/min, 8RA: 163 lit/min (Each at 1,170 rpm)
- 2.Rated Pressure: Maximum 70 kgf/ cm<sup>2</sup>
- 3.Pressure Adj. Range: High-pressure Type, "E": 35 to 70 kgf/ cm<sup>2</sup>  
Medium-pressure Type, "C": 17.5 to 35 kgf/cm<sup>2</sup>
- 4.Drain: Blind the unused drain port with a plug. Directly route drain flow from a selected drain port to tank. Do not fail to terminate the tubing below the fluid level in the reservoir. Use a pipe with its inner resistance not exceeding 0.5 kgf/cm<sup>2</sup>.
- 5.Drive Shaft Alignment: Pump and prime mover shaft alignment must not exceed 0.06mm in total indicator reading.
- 6.Rotation: Right-hand rotation is standard. (See the pump general view with external dimensions).
- 7.Initial Pump start-up: If the system is equipped with a closed center valve, first allow the hydraulic fluid in use to return to tank at the time of initial pump start-up to avoid air-bound problems.
- 8.Fluid Recommendation: A premium quality hydraulic fluid with its viscosity of 43 to 54 cSt at 40 .
9. Fluid Temperature: Under normal continuous operating conditions, fluid temperature should not exceed 55 .
- 10.Fire Resisting Fluid: When a fire resisting fluid is required for operating the pump, it will need some special specification. In such a case, consult us or the nearest local distributor in advance.
- 11.Inlet Vacuum: (At Sea Level) Vacuum should not exceed 142 mmHg.
- 12.Weight: Pump Complete 64 kg

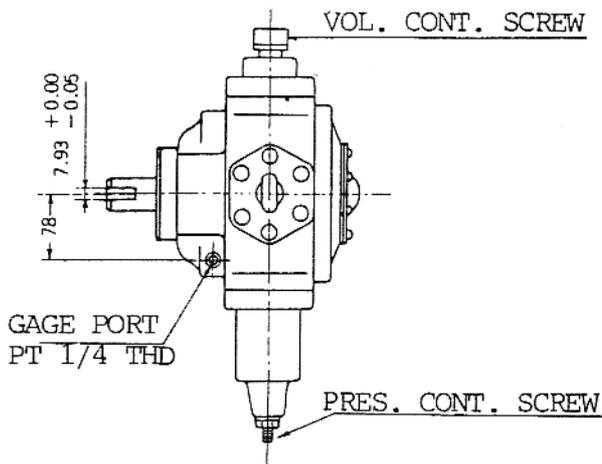
**HOW TO ORDER**



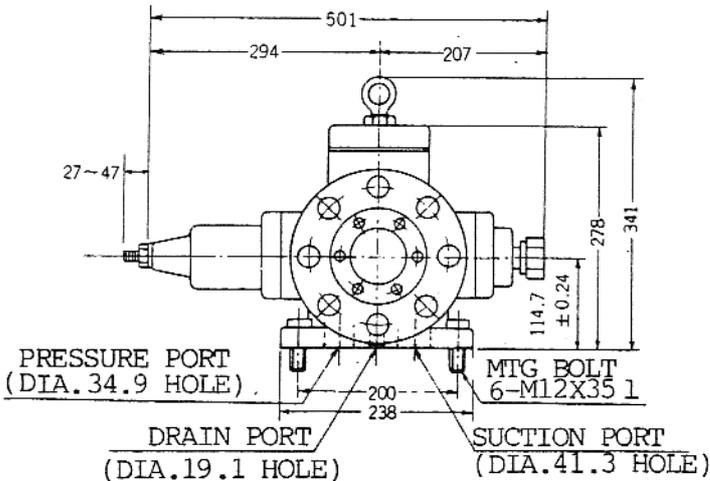
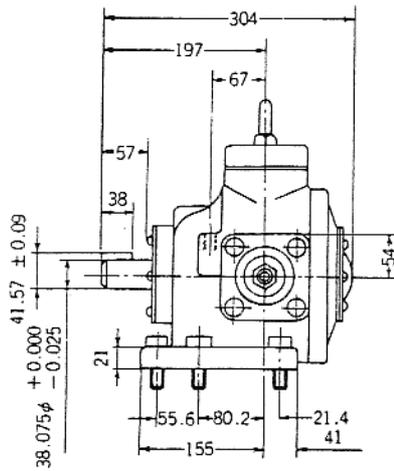
VARIABLE VOLUME  
VANE PUMP

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Model RA  
Subplate Mounted



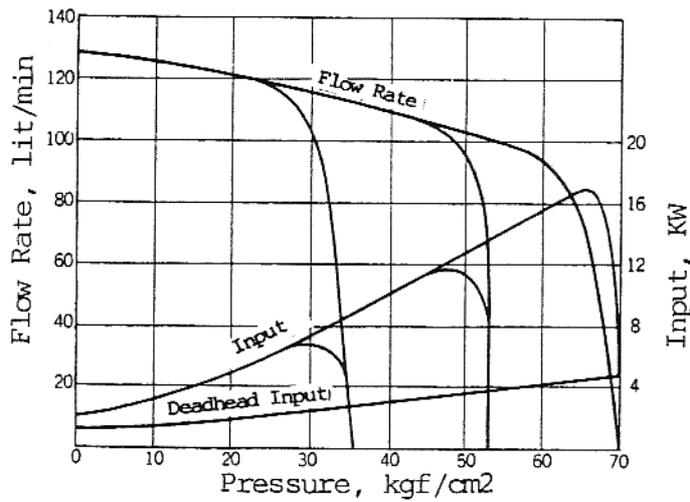
Subplate Mounted
Right-hand Rotation



VARIABLE VOLUME  
VANE PUMP

MODEL 6RA  
PERFORMANCE  
CHARACTERISTICS  
(1)

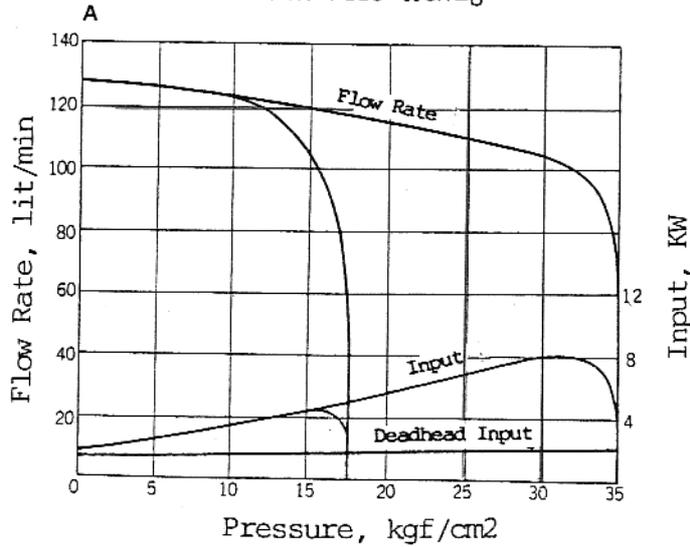
A-CHARACTERISTIC PVR-PSSO-30ER-J



Ef VALUE(KW)

Pressure (kgf/cm <sup>2</sup> )	Ef(KW)	Pressure (kgf/cm <sup>2</sup> )	Ef(KW)
5	1.34	50	3.60
10	1.35	55	4.20
15	1.50	60	4.62
20	1.51	65	5.20
25	1.62	70	5.63
30	2.00		
35	2.25		
40	2.81		
45	3.15		

A-CHARACTERISTIC PVR-PSSO-30CR-J

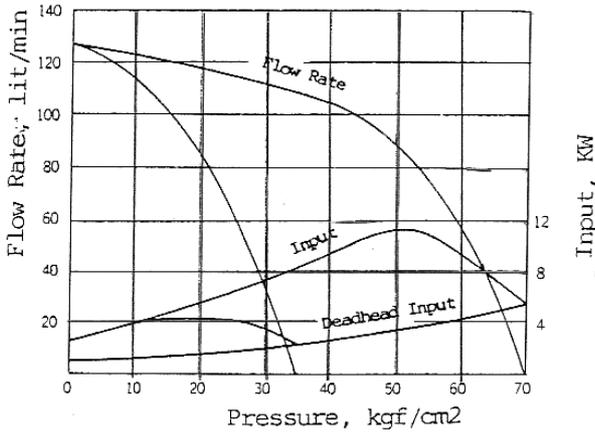


Ef VALUE(KW)

Pressure (kgf/cm <sup>2</sup> )	Ef(KW)
5	1.5
10	1.57
15	1.67
20	1.78
25	2.10
30	2.23
35	2.55

VARIABLE VOLUME  
VANE PUMP  
MODEL 6RA  
PERFORMANCE  
CHARACTERISTICS  
(2)

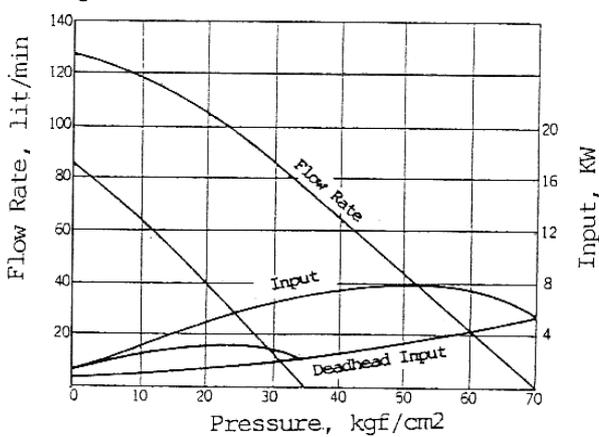
B-CHARACTERISTIC  
B PVR-BSSO-30ER-J



Ef VALUE (KW)

Pressure (kgf/cm <sup>2</sup> )	Ef(KW)	Pressure (kgf/cm <sup>2</sup> )	Ef(KW)
5	1.34	50	3.60
10	1.35	55	4.20
15	1.50	60	4.62
20	1.51	65	5.20
25	1.62	70	5.63
30	2.00		
35	2.25		
40	2.81		
45	3.15		

C-CHARACTERISTIC  
C PVR-CSSO-30ER-J



1. The above performance diagrams are based on the test results obtained under the following conditions:

- Working Fluid Used: Viscosity -- 43 cSt at 40°C
- Fluid Temperature: 48°C
- Pump Speed: 1,170 rpm
- Pump Input: Shown in KW

2. Calculation Formula for Obtaining Pump Input:

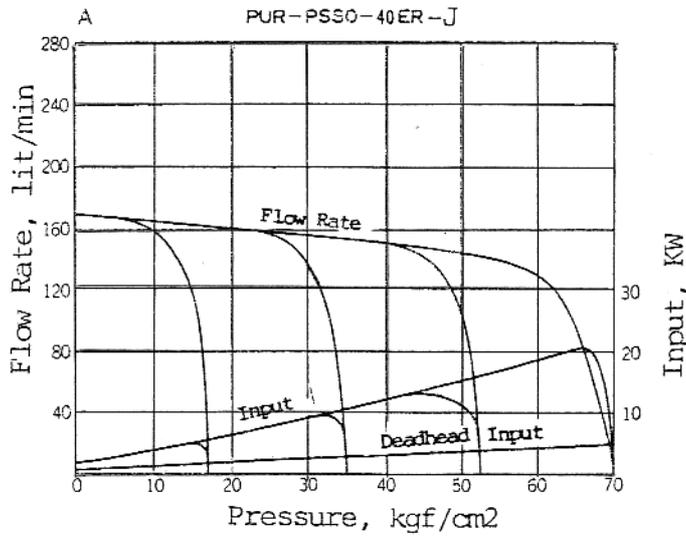
$$KW = \frac{\text{Flow Rate (lit/min)} \times \text{Pressure (kgf/cm}^2\text{)}}{612} + Ef$$

3. In case you later adjusted the factory set pressure or flow rate of your pump and wish to know its performance characteristics after the adjustment, you are requested to proportionally calculate them, following the corresponding diagram among the above.

4. In the above performance diagrams, each flow rate curve shows its minimum values, and each input curve, its maximum values. Each flow rate may increase by up to approx. 6%.

VARIABLE VOLUME  
 VANEPUMP MODEL 8RA  
 PERFORMANCE  
 CHARACTERISTICS

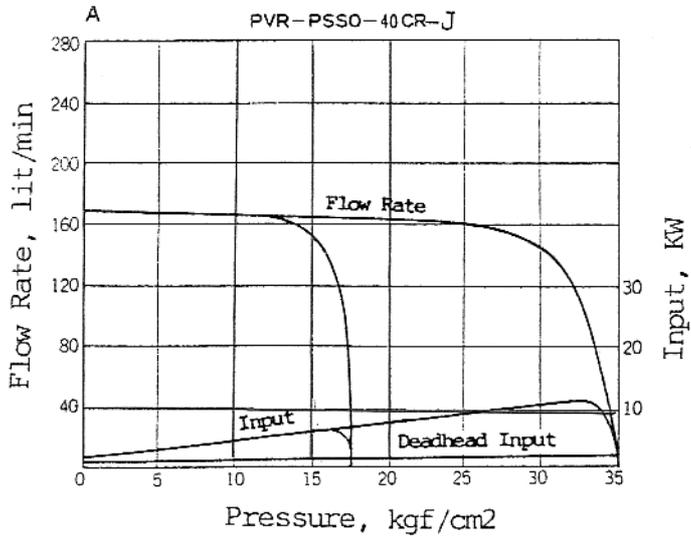
A-CHARACTERISTIC



Ef VALUE (KW)

Pressure (kgf/cm <sup>2</sup> )	Ef (KW)	Pressure (kgf/cm <sup>2</sup> )	Ef (KW)
5	1.35	50	3.05
10	1.42	55	3.30
15	1.60	60	3.55
20	1.90	65	4.30
25	2.10	70	5.25
30	2.18		
35	2.40		
40	2.65		
45	2.83		

A-CHARACTERISTIC



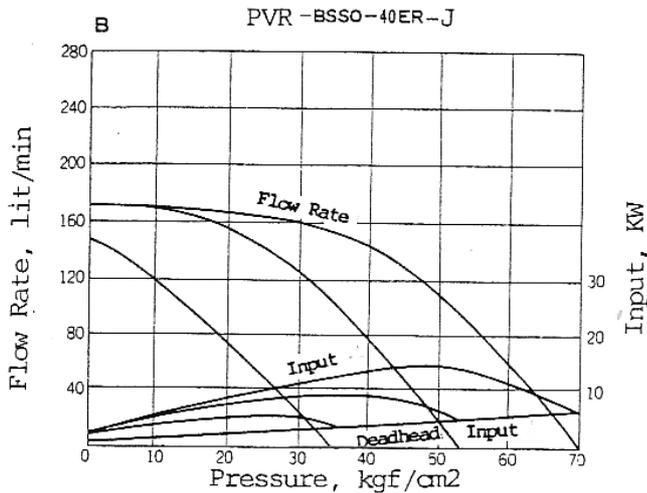
Ef VALUE (KW)

Pressure (kgf/cm <sup>2</sup> )	Ef (KW)
5	1.50
10	1.58
15	1.69
20	1.78
25	1.98
30	2.20
35	2.55

VARIABLE VOLUME  
VANE PUMP

Model 8RA  
PERFORMANCE  
CHARACTERISTICS  
(2)

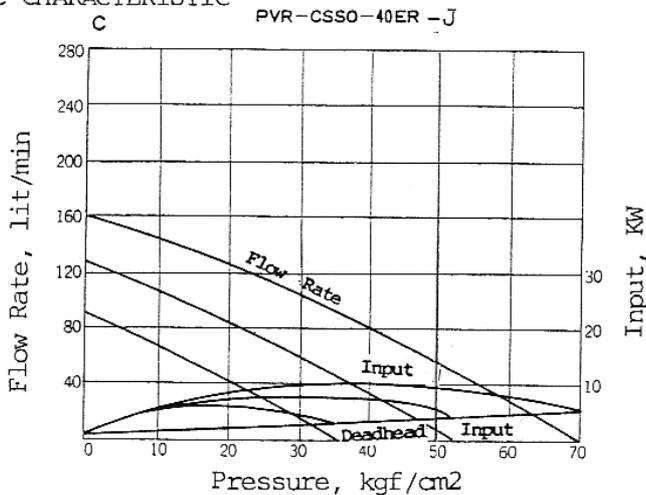
B-CHARACTERISTIC



Ef VALUE (KW)

Pressure (kgf/cm2)	Ef(KW)	Pressure (kgf/cm2)	Ef(KW)
5	1.35	50	3.05
10	1.42	55	3.30
15	1.60	60	3.55
20	1.90	65	4.30
25	2.10	70	5.25
30	2.18		
35	2.40		
40	2.65		
45	2.83		

C-CHARACTERISTIC



- The above performance diagrams are based on the test results obtained under the following conditions:

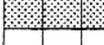
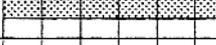
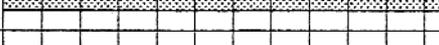
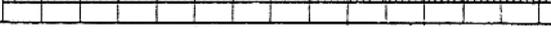
Working Fluid Used: Viscosity -- 43 cSt at 40°C  
 Fluid Temperature: 48°C  
 Pump Speed: 1,170 rpm  
 Pump Input: Shown in KW

- Calculation Formula for Obtaining Pump Input:

$$KW = \frac{\text{Flow Rate (lit/min)} \times \text{Pressure (kgf/cm2)}}{612} + Ef$$

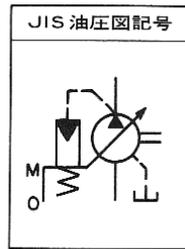
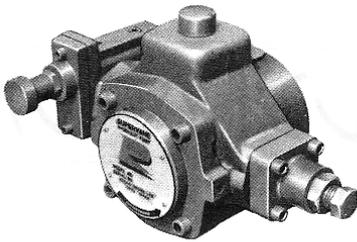
- In case you later adjusted the factory set pressure or flow rate of your pump and wish to know its performance characteristics after the adjustment, you are requested to proportionally calculate them, following the corresponding diagram among the above.

# SILENTVANE PUMPS

SERIES	MAXIMUM SET PRES. (kgf/cm <sup>2</sup> )	MAXIMUM PUMP SPEED r.p.m.	FLOW RATE lit/min		
			100	200	300
SV	10	1800	 28/1760rpm		
	15	1800	 42/1760rpm		
	20	1800	 56/1760rpm		
	25	1800	 70/1760rpm		
	40	1800	 114/1760rpm		
	80	1800	 227/1760 rpm		
	100	1800	 288/1760rpm		

NOTE: SV-15 pumps are available only for servicing purpose

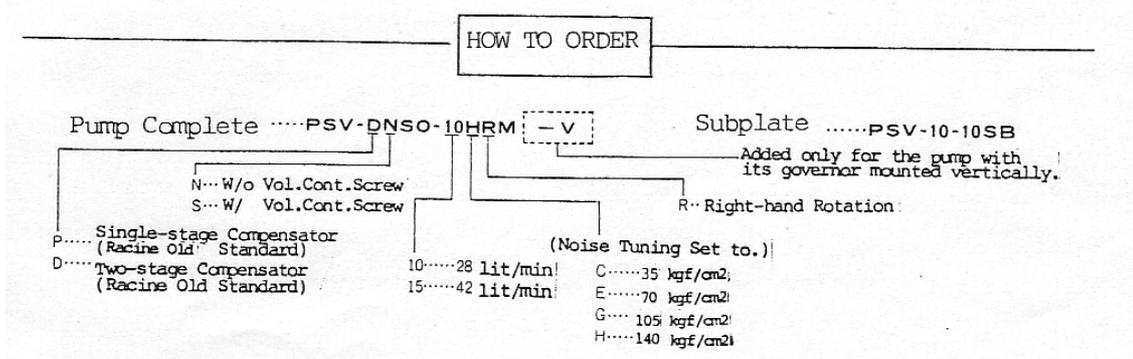
SILENT VANE PUMPS SV-10 & SV-15 SUBPLATE MOUNTED : PATENT NOS.:810596 & 838550.  
 DESIGN REGISTRATION NO.: 341191 LICENSED PRODUCTS



Model		Type Coding	Flow Rate Lit/min (1760 rpm)	Max. Operation Pressure (kgf/cm <sup>2</sup> )	Driving Speed (rpm)	
					Max.	Min.
Subplate Mounted	SV-10	PSV- * NSO-10ERM	28 at 35 kgf/cm <sup>2</sup>	70	1800	600
		PSV- * NSO-10HRM	28 at 70 kgf/cm <sup>2</sup>	140	1800	600
	SV-15	PSV- * NSO-15ERM	42 at 70 kgf/cm <sup>2</sup>	70	1800	600

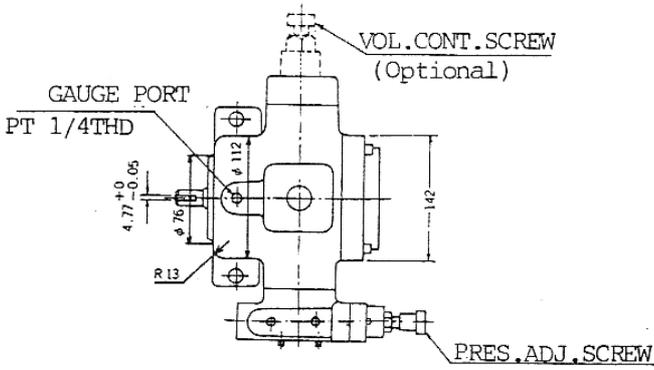
**SPECIFICATIONS:**

- 1.Flow Rate: 28 lit/min(SV-10) and 42 lit/min(SV-15)
- 2.Rated Pressure: Maximum 40 kgf/ cm<sup>2</sup>(SV-10) and 70 kgf/ cm<sup>2</sup>(SV-15)
- 3.Pressure Adj. Range: High-pressure Type, : 25 to 140 kgf/ cm<sup>2</sup>(SV-10 only)  
 Low-pressure Type, : 10.5 to 70 kgf/cm<sup>2</sup>(SV-10) and 21 to 70 kgf/ cm<sup>2</sup>(SV-15)
- 4.Drain: Blind the unused drain port with a plug. Directly route drain flow from a selected drain port to tank. Do not fail to terminate the tubing below the fluid level in the reservoir. Use a pipe with its inner resistance not exceeding 0.5 kgf/cm<sup>2</sup>.
- 5.Drive Shaft Alignment: Pump and prime mover shaft alignment must not exceed 0.06mm in total indicator reading.
- 6.Rotation: Right-hand rotation is standard. (See the pump general view with external dimensions).
- 7.Initial Pump start-up: If the system is equipped with a closed center valve, first allow the hydraulic fluid in use to return to tank at the time of initial pump start-up to avoid air-bound problems.
- 8.Fluid Recommendation: A premium quality hydraulic fluid with its viscosity of 43 to 54 cSt at 40 .
9. Fluid Temperature: Under normal continuous operating conditions, fluid temperature should not exceed 55 .
- 10.Fire Resisting Fluid: When a fire resisting fluid is required for operating the pump, it will need some special specification. In such a case, consult us or the nearest local distributor in advance.
- 11.Inlet Vacuum: (At Sea Level) Vacuum should not exceed 142 mmHg.
- 12.Weight: Pump Complete 17 kg Subplate: 4.8 kg



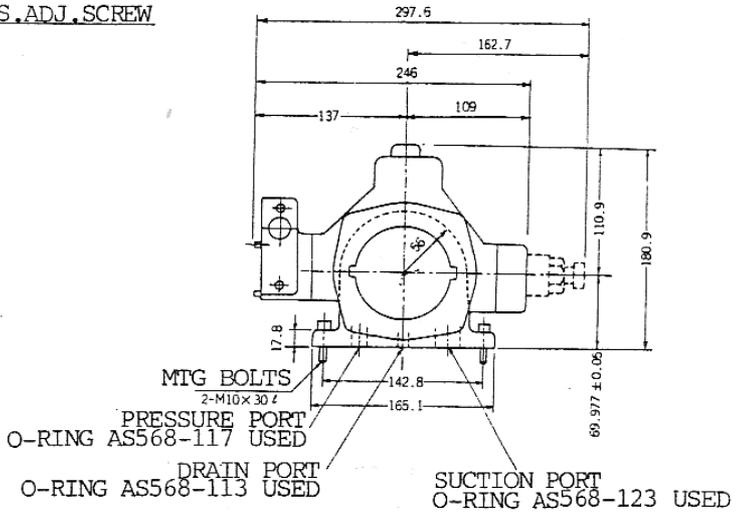
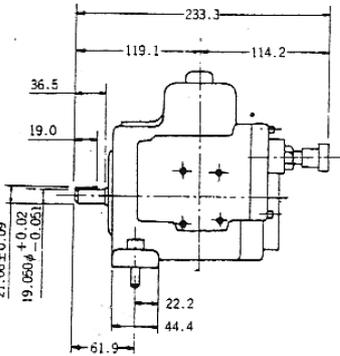
NOTE: SV-15 pumps are available only for servicing purpose.

SILENTVANE PUMPS  
SV-10 & SV-15  
Subplate Mounted



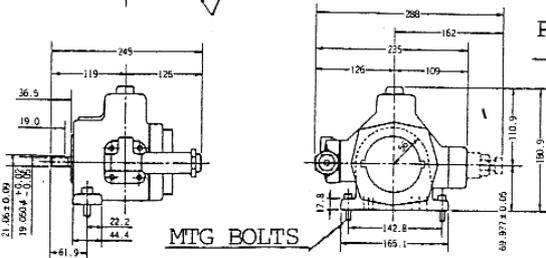
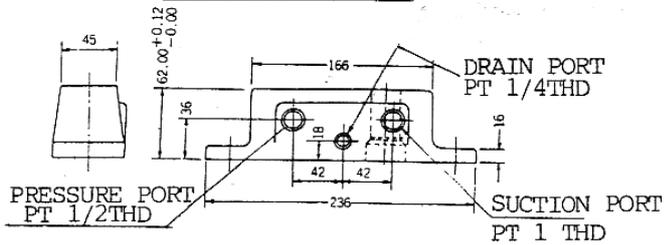
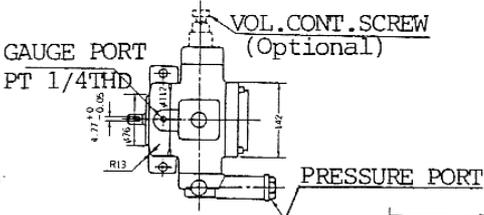
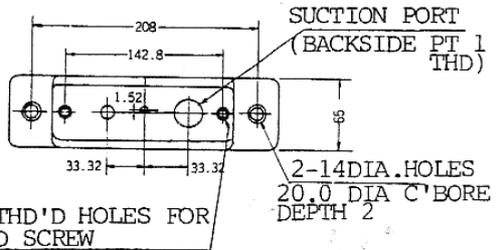
Subplate Mounted  
Right-hand Rotation

With Two-stage  
Compensator



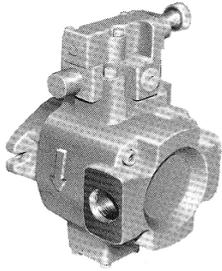
With Optional Single-stage  
Compensator

Subplate

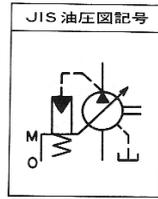


NOTE: SV-15 pumps are available only for servicing purpose.

SILENTVANE PUMPS SV-10/SV-15 FLANGE MOUNTED :PATENT NOS. 810596 & 838550.  
DESIGN REGISTRATION NO. 341191 LICENSED PRODUCTS



写真は50デザイン

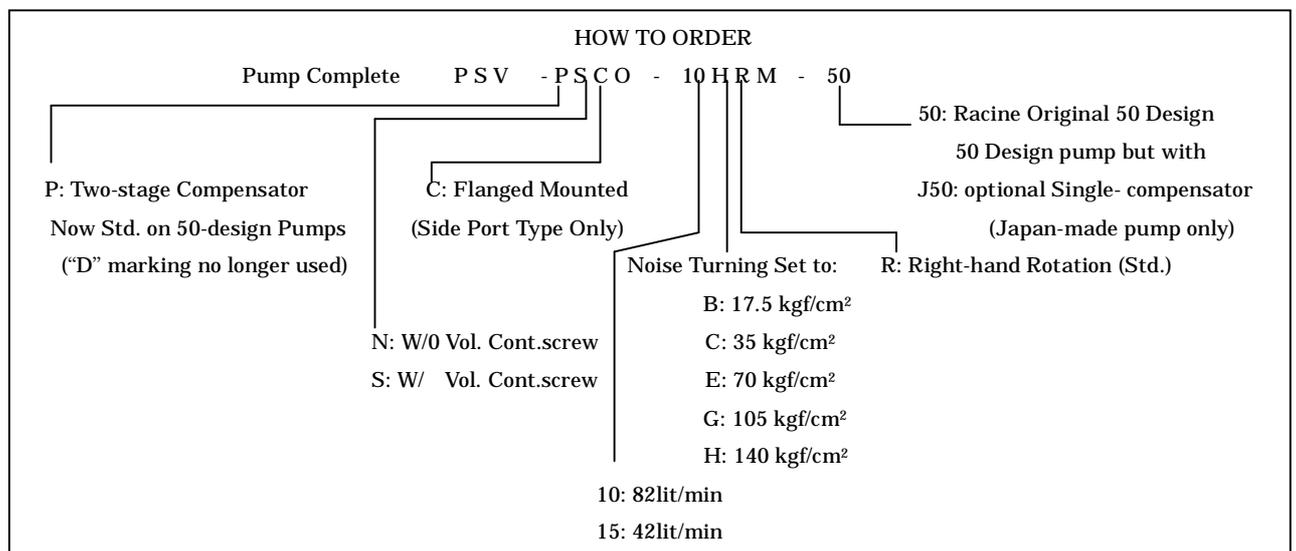


(The photo shows a -50 design SV-10 pump)

Model		Type Coding	Flow Rate Lit/min (1760 rpm)	Max. Operation Pressure (kgf/cm <sup>2</sup> )	Driving Speed (rpm)	
					Max.	Min.
Flange Mounted	SV-10	PSV-PNCO-10ERM	28 at 35 kgf/cm <sup>2</sup>	70	1800	600
		PSV-PNCO-10GRM	28 at 53 kgf/cm <sup>2</sup>	105	1800	600
		PSV-PNCO-10HRM	28 at 70 kgf/cm <sup>2</sup>	140	1800	600
	SV-15	PSV-PNCO-15ERM	42 at 35 kgf/cm <sup>2</sup>	70	1800	600

**SPECIFICATIONS:**

- 1.Flow Rate: 28 lit/min(SV-10) and 42 lit/min(SV-15)
- 2.Rated Pressure: Maximum 40 kgf/ cm<sup>2</sup>(SV-10) and 70 kgf/ cm<sup>2</sup>(SV-15)
- 3.Pressure Adj. Range: High-pressure Type, : 25 to 140 kgf/ cm<sup>2</sup>(SV-10 only)  
Low-pressure Type, : 21 to 70 kgf/cm<sup>2</sup>(SV-10) and(SV-15)
- 4.Drain: Blind the unused drain port with a plug. Directly route drain flow from a selected drain port to tank. Do not fail to terminate the tubing below the fluid level in the reservoir.  
Use a pipe with its inner resistance not exceeding 0.5 kgf/cm<sup>2</sup>.
- 5.Drive Shaft Alignment: Pump and prime mover shaft alignment must not exceed 0.06mm in total indicator reading.
- 6.Rotation: Right-hand rotation is standard. (See the pump general view with external dimensions).
- 7.Initial Pump start-up: If the system is equipped with a closed center valve, first allow the hydraulic fluid in use to return to tank at the time of initial pump start-up to avoid air-bound problems.
- 8.Fluid Recommendation: A premium quality hydraulic fluid with its viscosity of 43 to 54 cSt at 40 .
9. Fluid Temperature: Under normal continuous operating conditions, fluid temperature should not exceed 55 .
- 10.Fire Resisting Fluid: When a fire resisting fluid is required for operating the pump, it will need some special specification. In such a case, consult us or the nearest local distributor in advance.
- 11.Inlet Vacuum: (At Sea Level) Vacuum should not exceed 142 mmHg.
- 12.Weight: Pump Complete 18 kg



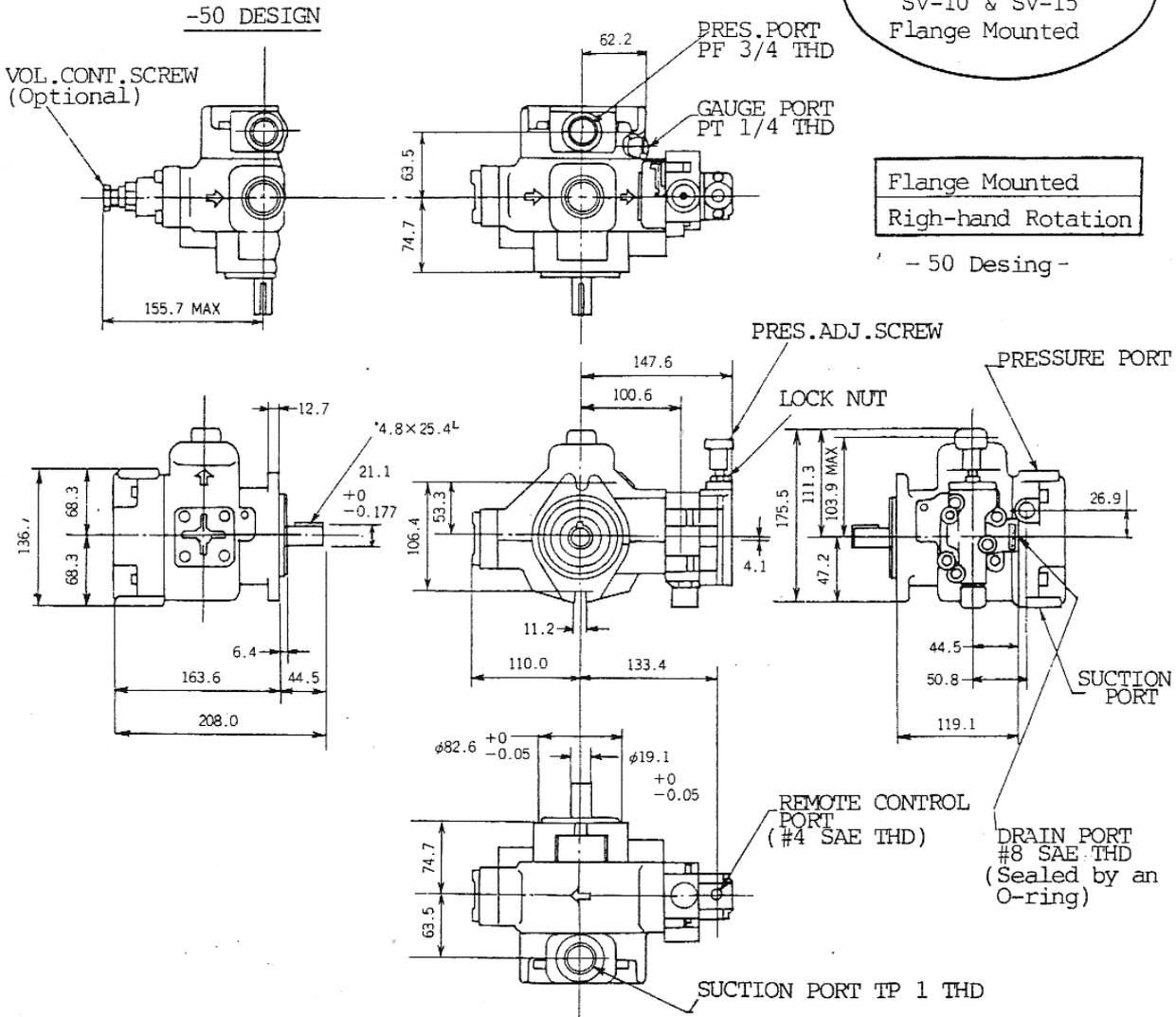
NOTE: SV-15 pumps are available only for servicing purpose.

SILENTVANE PUMPS

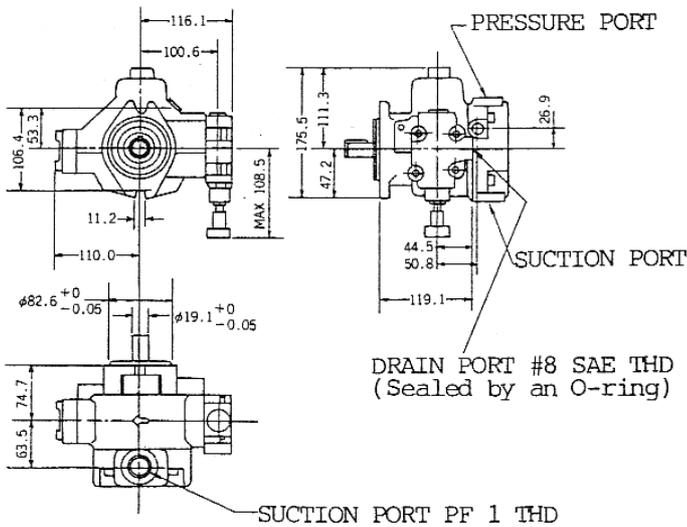
SV-10 & SV-15  
Flange Mounted

Flange Mounted  
Righ-hand Rotation

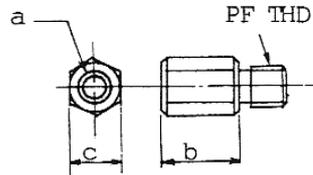
- 50 Desing -



-J50 DESIGN

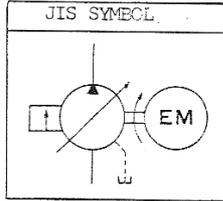
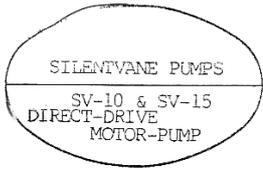


AVAILABLE ADAPTORS FOR PT  
THREAD PIPE CONNECTION



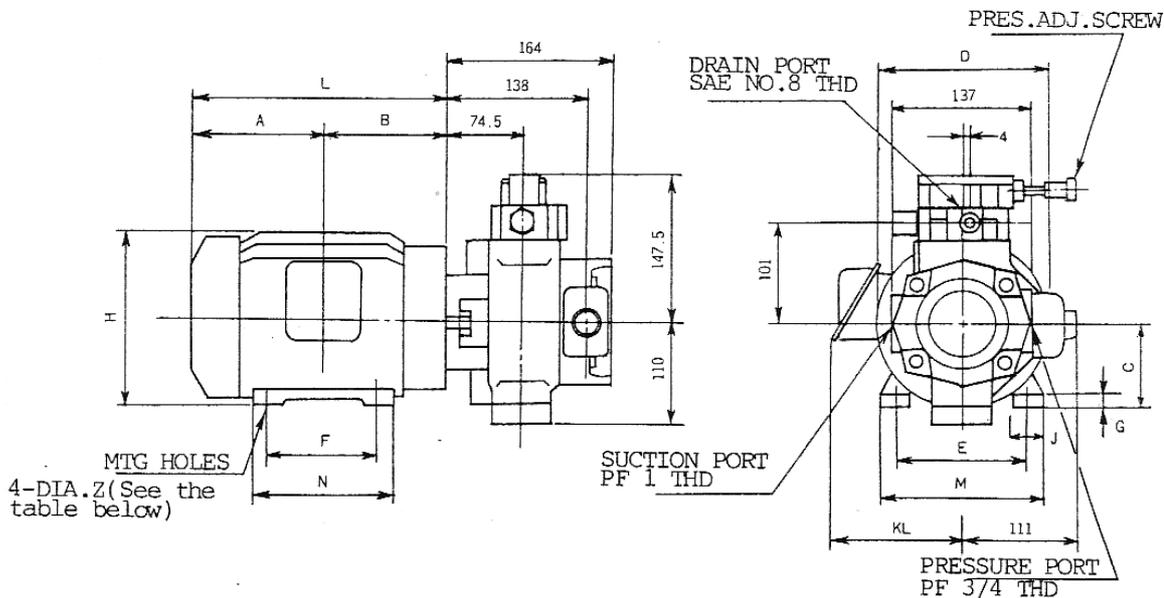
	PF 3/4"	PF 1"
a	PT 3/4"	PT 1"
b	33	40
c	36	46

NOTE: SV-15 pumps are available only for servicing purpose.



Type Coding (For Integral Motor-pumps Combined with a -50 Design pump)	PUMP		MOTOR		
	FLOW RATE Lit/min (1760 rpm)	PRESSURE COMP. RANGE (kgf/cm <sup>2</sup> )	Output (kw)	rpm	
				50 Hz	60 Hz
HRSV-28-C-1.5-4-00	28	18 ~ 35	1.5	1470	1760
HRSV-28-C-2.2-4-00			2.2		
HRSV-28-E-3.7-4-00			3.7		
HRSV-28-G-5.5-4-00	24 ~ 105	5.5			
HRSV-42-C-1.5-4-00	42	18 ~ 35	1.5		
HRSV-42-C-2.2-4-00			2.2		
HRSV-42-E-3.7-4-00			3.7		

NOTE: 1) The pump dimensions given below show those of -J50 design pump. For the dimensions of -J50 design pump, see the drawing.  
 2) For a motor pump combined with a -J50 design pump, the last digits of its type coding 10 is used in lieu of -00.



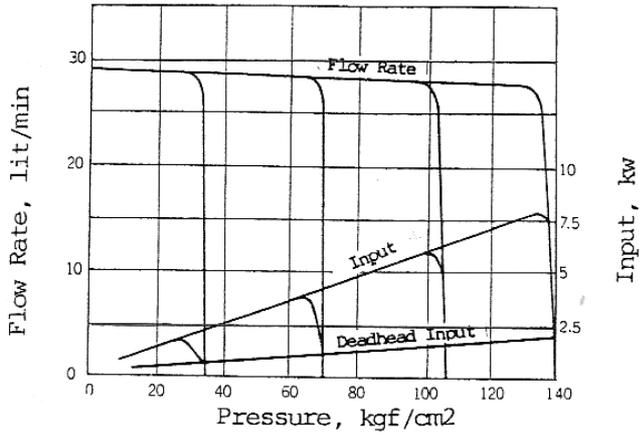
DIMENSIONS OF ELECTRIC MOTORS

	A	B	C	D $\phi$	E	F	G	H	J	L	M	N	Z $\phi$	KL
1.5kW	145	135	90	187	140	125	10	186.5	35	280	180	155	10	156
2.2kW	168.5	140	100	212	160	140	12	237.5	40	308.5	200	175	12	161
3.7kW	176	150	112	235.5	190	140	15	269	40	326	230	180	12	173
5.5kW	207.5	161.5	132	267.5	216	140	17	304.5	45	369	260	180	12	215

NOTE: SV-15 pumps are available only for servicing purpose.

SILENTVANE PUMPS  
SV-10 & SV-15  
PERFORMANCE  
CHARACTERISTICS

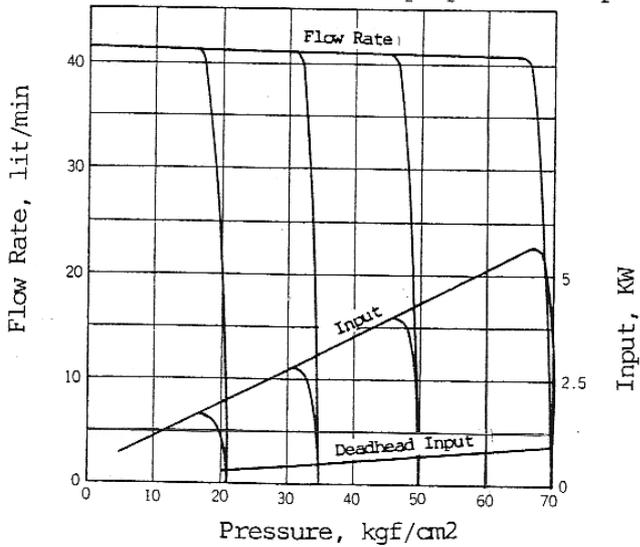
PSV-5\*0-10\*RM Pump Speed:1760 r.p.m.



Ef VALUE(KW)

Pressure kgf/cm2	Ef (KW)	Pressure kgf/cm2	Ef (KW)
25	0.35	90	1.15
35	0.46	105	1.35
50	0.64	120	1.60
60	0.76	130	1.80
70	0.89	140	2.03
80	1.01		

PSV-5\*0-15ERM Pump Speed:1760r.p.m.



1. The above performance diagrams are based on the test results obtained under the following conditions:

Working Fluid Used: Viscosity- 43 cSt at 40°C  
 Fluid Temperature: 48°C  
 Pump Speed: 1,760 rpm  
 Pump Input: Shown in KW

2. Calculation Formula for Obtaining Pump Input:

$$KW = \frac{\text{Flow Rate(lit/min)} \times \text{Pressure(kgf/cm}^2)}{612} + Ef$$

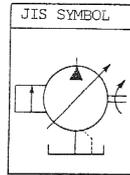
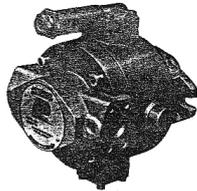
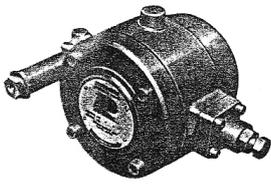
3. In case you later adjusted the factory set pressure or flow rate of your pump and wish to know its performance characteristics after the adjustment, you are requested to proportionally calculate them, following the corresponding diagram among the above.

NOTE: SV-15 pumps are available only for servicing purpose.

SILENTVALE PUMPS

SV-20 & SV-25  
Subplate Mounted/  
Flange Mounted

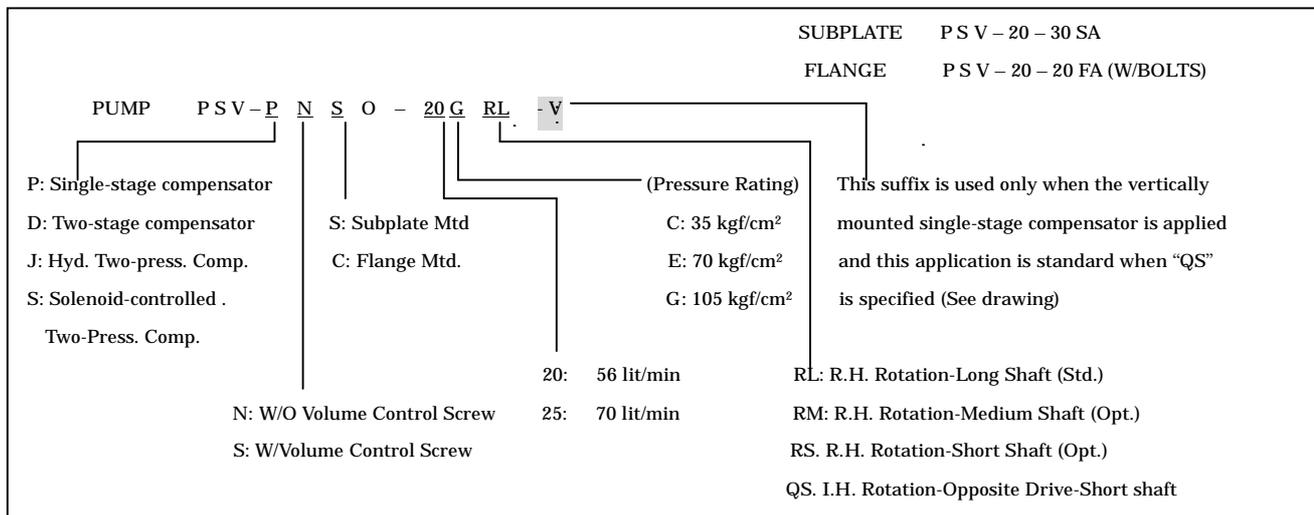
PATENT NOS.810596/838550 DESIGN REGISTRATION NO.341191  
LICENSED PRODUCTS



Model		Type Coding	Flow Rate Lit/min (1760 rpm)	Max. Operation Pressure (kgf/cm <sup>2</sup> )	Driving Speed (rpm)	
					Max.	Min.
Subplate Mounted	SV-20	PSV-PNSO-20ERL	56 at 35 kgf/cm <sup>2</sup>	70	1800	600
		PSV-PNSO-20GRL	56 at 53 kgf/cm <sup>2</sup>	105	1800	600
	SV-25	PSV-PNSO-25ERL	70 at 35 kgf/cm <sup>2</sup>	70	1800	600
Flange Mounted	SV-20	PSV-PNCO-20ERL	56 at 35 kgf/cm <sup>2</sup>	70	1800	600
		PSV-PNCO-20GRL	56 at 53 kgf/cm <sup>2</sup>	105	1800	600
	SV-25	PSV-PNCO-25ERL	70 at 35 kgf/cm <sup>2</sup>	70	1800	600

**SPECIFICATIONS:**

- Flow Rate: 56 lit/min(70lit/min...For SV-25)
- Rated Pressure: Maximum continuous working pressure 105kgf/cm<sup>2</sup> (70kgf/cm<sup>2</sup> for SV-25)
- Pressure Adj. Range: High-pressure Type 5 ~ 105kgf/cm<sup>2</sup> Low-pressure Type 10.5 ~ 70kgf/cm<sup>2</sup> (28 to 70kgf/cm<sup>2</sup>, for SV-25)
- Drain: Stop up the pump drain port you do not use and then do not fail to apply to the pump drain port you use a complete tubing attainable to a point in the reservoir lower than the fluid level.  
The internal resistance of tubing should be limited to within 0.5kgf/cm<sup>2</sup>.
- Pump & Motor Shaft Alignment: Tolerance of deviation in shaft alignment when mounting should be within 0.06mm.
- Rotation Direction: Clockwise is standard (See external dimensions drawing).
- Start-up of the pump: When a closed center valve is used in the circuit, allow the working fluid to return to the reservoir to avoid air-bound condition.
- Working Fluid : It is recommended to use a high grade working fluid with its viscosity of 43 to 54 cSt. at 40 .
- Fluid Temperature: For continuous operation, retain the fluid temperature so as not to exceed 55 .
- Fire Resisting Fluid: When any fire resisting working fluid is used, you are requested to consult us or one of our distributors in advance since special pump specification is required..
- Inlet Vacuum: Retain the negative pressure so as not to exceed 142 mmHg.
- Weight: Pump: 30 kg Subplate: 8 kg



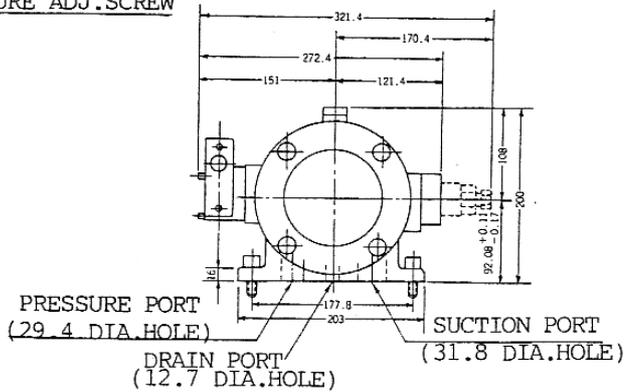
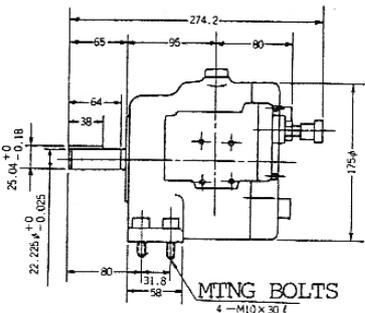
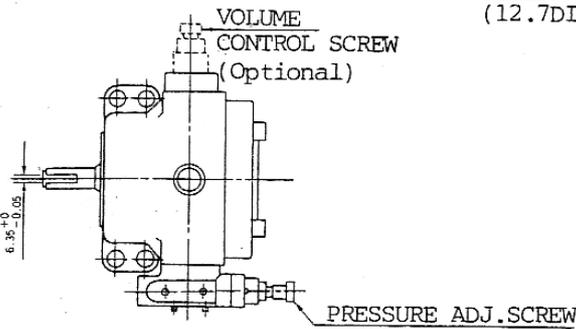
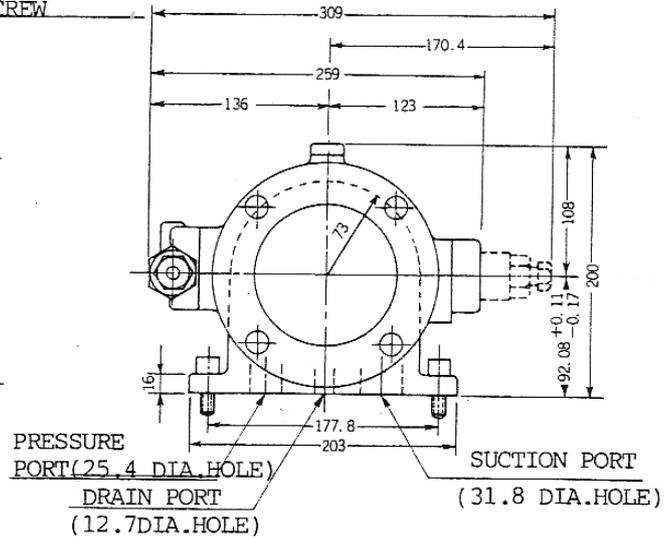
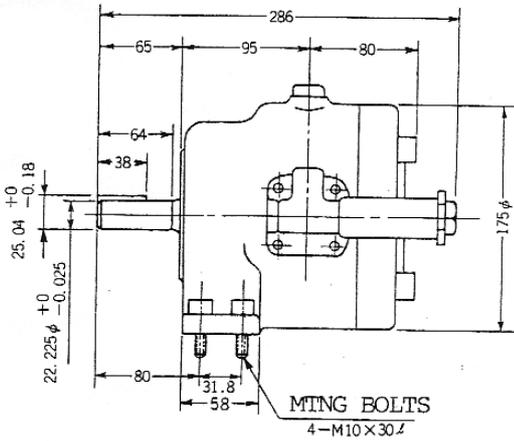
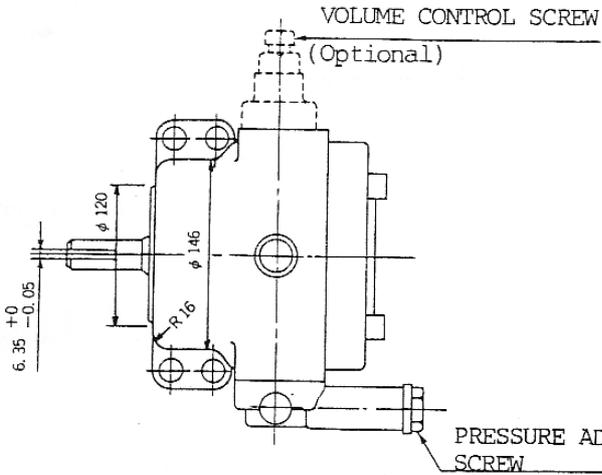
SILENTVANE PUMPS

SV-20 & SV-25  
Subplate Mounted

SUBPLATE MOUNTED

RH Rotation

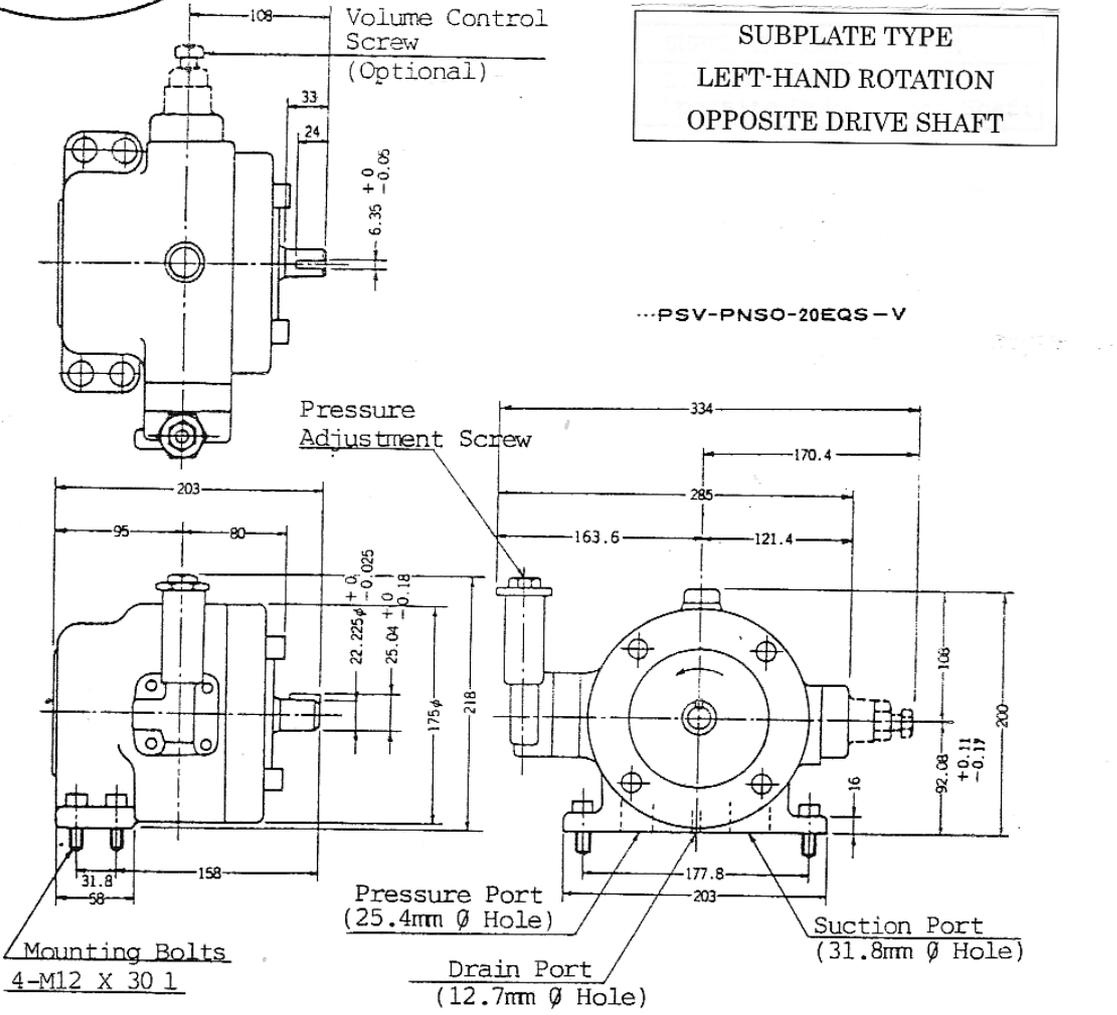
WITH SINGLE  
STAGE COMPENSATOR



SILENTVANE PUMPS

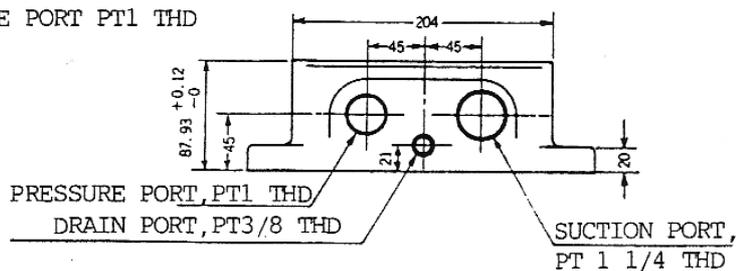
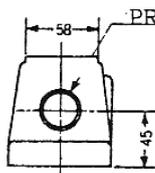
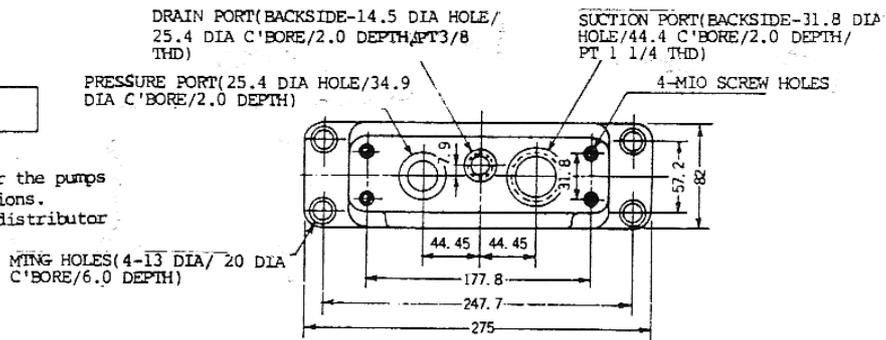
SV-20 & SV-25  
Subplate Mounted

SUBPLATE TYPE  
LEFT-HAND ROTATION  
OPPOSITE DRIVE SHAFT



SUBPLATE

Dimensions differ for the pumps of export specifications. Ask us or our local distributor

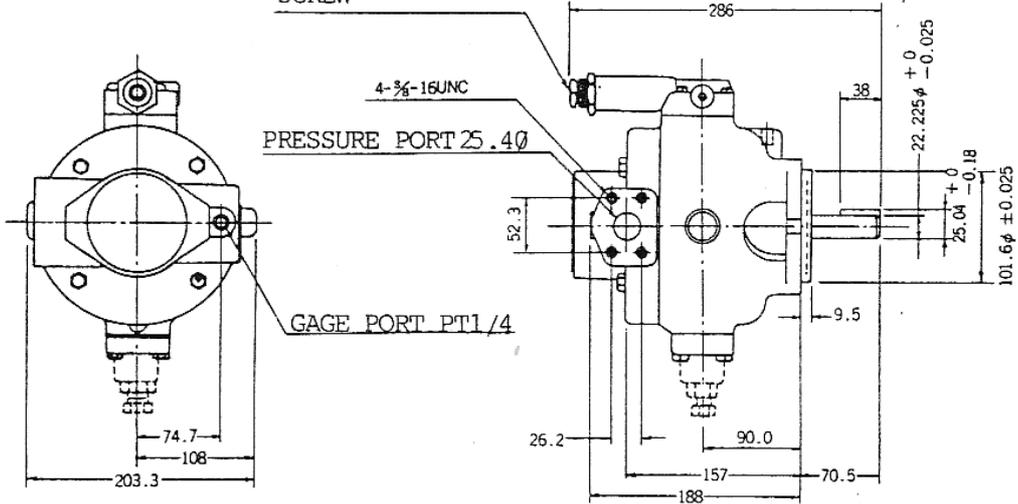


SILENTVANE PUMPS

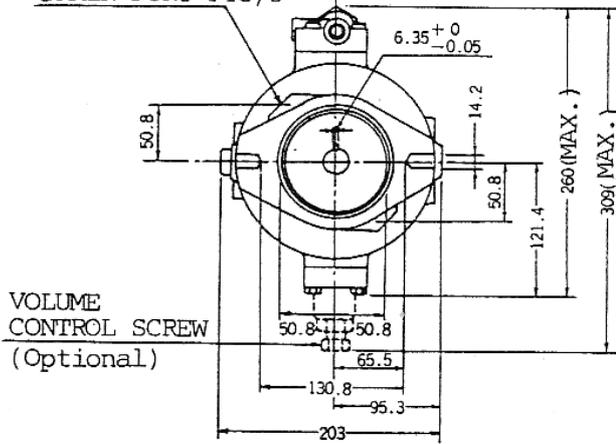
SV-20 & SV-25  
Flange Mounted

FLANGE MOUNTED  
R.H. ROTATION

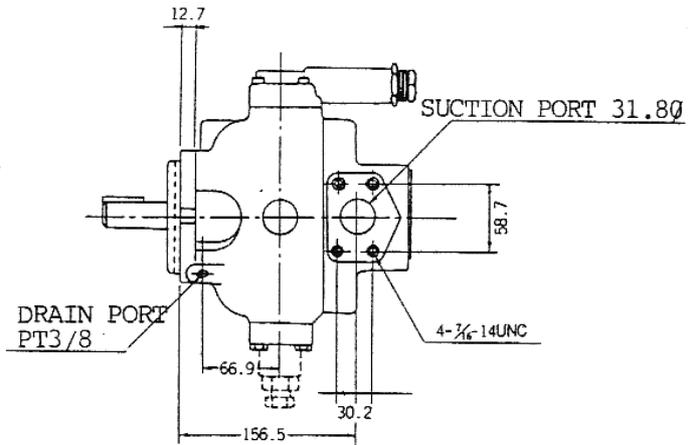
PRESSURE ADJUSTMENT  
SCREW



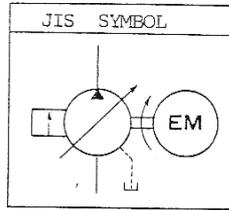
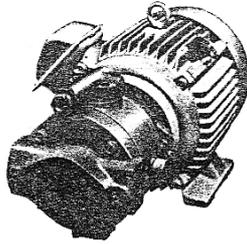
DRAIN PORT PT3/8



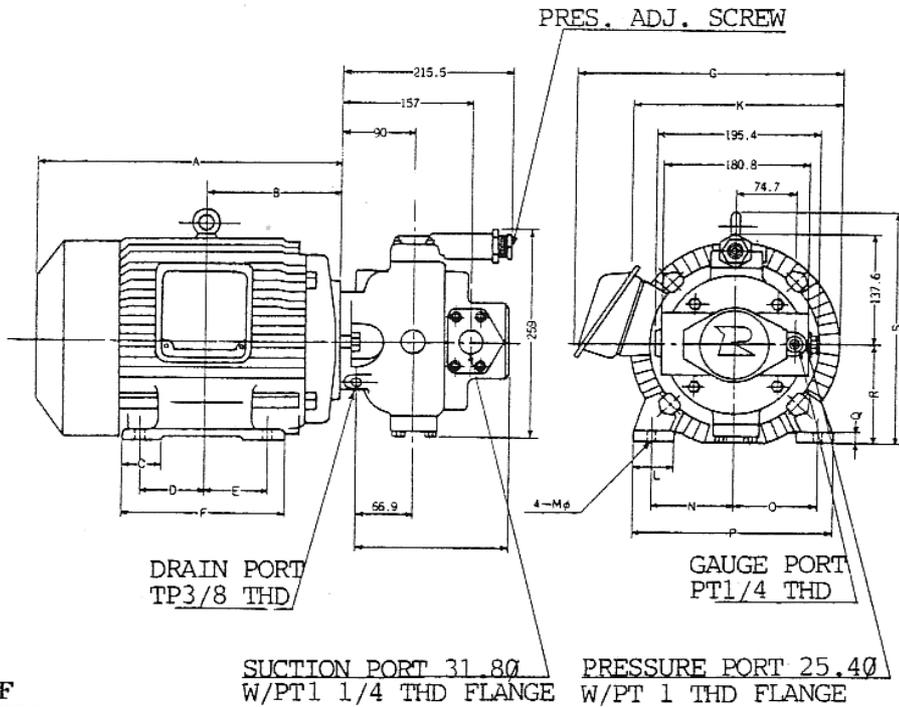
12.7



SILENTVANE PUMPS  
SV-20 & SV-25  
DIRECT-DRIVE  
MOTOR-PUMP



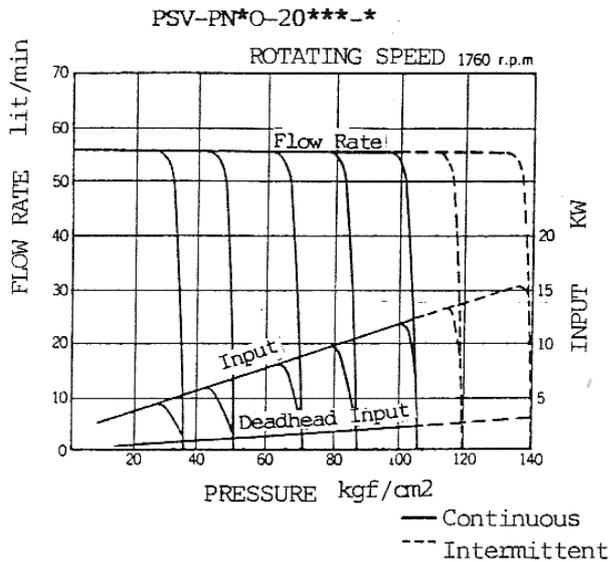
Type Coding (For Integral Motor-pumps)	PUMP		MOTOR		
	FLOW RATE	PRESSURE COMP.	Output (kw)	rpm	
	Lit/min (1760 rpm)	RANGE (kgf/cm <sup>2</sup> )		50 Hz	60 Hz
HRSV-56-C-3.7-4-00	56	10.5 ~ 35	3.7	1470	1760
HRSV-56-E-5.5-4-00		10.5 ~ 70	5.5		
HRSV-56-G-7.5-4-00		25 ~ 105	7.5		
HRSV-70-C-3.7-4-00	70	10.5 ~ 35	3.7		
HRSV-70-C-5.5-4-00		5.5			
HRSV-70-E-7.5-4-00		28 ~ 70	7.5		



DIMENSIONS OF  
ELECTRIC MOTORS

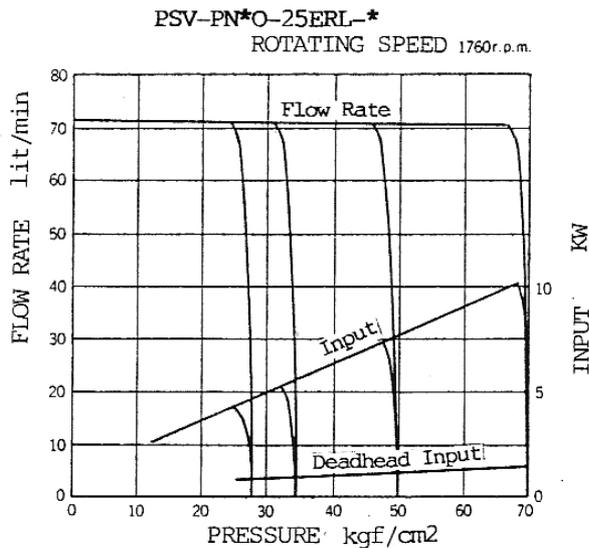
	A	B	C	D	E	F	G	K	L	M	N	O	P	Q	R	S
3.7 kW	326	150.5	45	70	70	180	279	220.5	45	12	95	95	230	15	112	264.5
5.5 kW	367	161.5	50	70	70	180	345	257.5	45	12	108	108	260	17	132	302.5
7.5 kW	405	180.5	50	89	89	218	345	257.5	45	12	108	108	260	17	132	302.5

SILENT VANE PUMP  
SV-20 & SV-25  
PERFORMANCE  
CHARACTERISTICS



VALUE OF EFFICIENCY

Pressure kgf/cm <sup>2</sup>	Ef (KW)	Pressure kgf/cm <sup>2</sup>	Ef (KW)
25	0.77	90	2.00
35	0.96	105	2.29
50	1.23	120	2.58
60	1.42	130	2.79
70	1.61	140	3.00
80	1.80		



- The above performance characteristics are based on our test results obtained in the undermentioned test conditions.

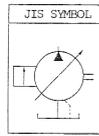
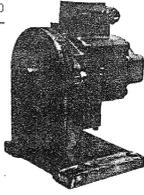
WORKING FLUID                      Viscosity: 43 cSt at 40°C  
 FLUID TEMPERATURE               48°C  
 ROTATING SPEED                   1760 r.p.m.  
 PUMP INPUT                         KW

- CALCULATION FORMULA FOR PUMP INPUT

$$KW = \frac{\text{Flow Rate}(l/min) \times \text{Pressure}(kg/cm^2)}{612} + \text{Efficiency}$$

- Regarding the performance curves when pressure or flow rate is readjusted, you are requested to calculate in proportion to the above shown characteristic curves.

The photo shows the -J60 design pump with single-stage compensator, standard at Koshin-Racine and mounted on its foot bracket PSV-40-10BA.



Model	Type Coding	Flow Rate Lit/min (1760rpm)	Max. Operation Pressure (kgf/cm <sup>2</sup> )	Driving Speed (rpm)	
				Max.	Min.
SV-40	PSV-PNRO-40ERM-J60 (-60)	114 at 35 kgf/cm <sup>2</sup>	70	1800	600
Flange	PSV-PNRO-40GRM-J60 (-60)	114 at 52 kgf/cm <sup>2</sup>	105	1800	600
Mounted	PSV-PNRO-40HRM-J60 (-60)	114 at 70 kgf/cm <sup>2</sup>	140	1800	600

**SPECIFICATIONS:**

1. Flow Rate: 77 lit/min at 1,170 rpm and 114 lit/min at 1,760 rpm
2. Rated Pressure: Maximum Operating Pressure - 140kgf/cm<sup>2</sup>
3. Pressure Adj. Range: 25 to 140kgf/cm<sup>2</sup> (For application under 25kgf/cm<sup>2</sup>, you are requested to consult factory).  
These pumps are sound tunable to any circuit pressure after it has been set.
4. Drain: Blind the unused drain port with a plug. Directly route drain flow from a selected drain port to tank. Do not fail to terminate the tubing below the fluid level in the reservoir.  
Use a pipe with its inner resistance not exceeding 0.5kgf/cm<sup>2</sup>.
5. Drive Shaft Alignment: Pump and prime mover shaft alignment must not exceed 0.06mm in total indicator reading
6. Rotation Direction: Right-hand rotation is standard. (See the pump general view with external dimensions).
7. Initial pump start-up: If the system is equipped with a closed center valve, first allow the hydraulic fluid in use to return to tank at the time of initial pump start-up to avoid air-bound problems.
8. Fluid Recommendation : A premium quality hydraulic fluid with its viscosity of 43 to 54 cSt at 40 .
9. Fluid Temperature: Under normal continuous operating conditions, fluid temperature should not exceed 55 .
10. Fire Resisting Fluid: When a fire resisting fluid is required for operating the pump, it will need some special specification. In such a case, consult us or the nearest local distributor in advance.
11. Inlet Vacuum: Vacuum should not exceed 142 mmHg.
12. Weight: Pump Complete: 63.5 kg Foot Bracket: 18.5 kg

**HOW TO ORDER**

PUMP COMPLETE    P S V - P N R O - 4 0 E R M - J 6 0

**COMPENSATOR OPTIONS**

\* P: Two-stage-Racine Std. but  
Opt. at K-R (-60)  
Single-stage-Std. at K-R (- J60)

S: Solenoid Two-pressure Opt.

FOOT BRACKET: PSV-40-10BA

4-BOLT FLANGE: PSV-40-60 FA(W/BOLTS)

Inlet Port (PT 2 Thd)

Outlet Port (PT1 1/4 Thd.  
(For Thd. Connection)

PSV-40-60FB (W/BOLTS)

Inlet Port (For 2<sup>nd</sup> Tubing)

Outlet Port (For 1 1/4<sup>th</sup> Tubing)  
(For Welded Connection)

R: Rear Ported W/4-bolt  
Flange Connection

N: W/0 Vol. Cont. Screw  
S: W/ Vol. Cont. Screw

R: Right-hand Rotation (Std)

**NOISE ADJUSTMENT PRES.**

E: 70 kgf/cm<sup>2</sup>

G: 105 kgf/cm<sup>2</sup> (Factory Set)

H: 140 kgf/cm<sup>2</sup>

J60: Std. at K-R with K-R Redesigned  
Singled-stage Compensator

60: Opt. at K-R with Racine Std.  
Two-stage Compensator

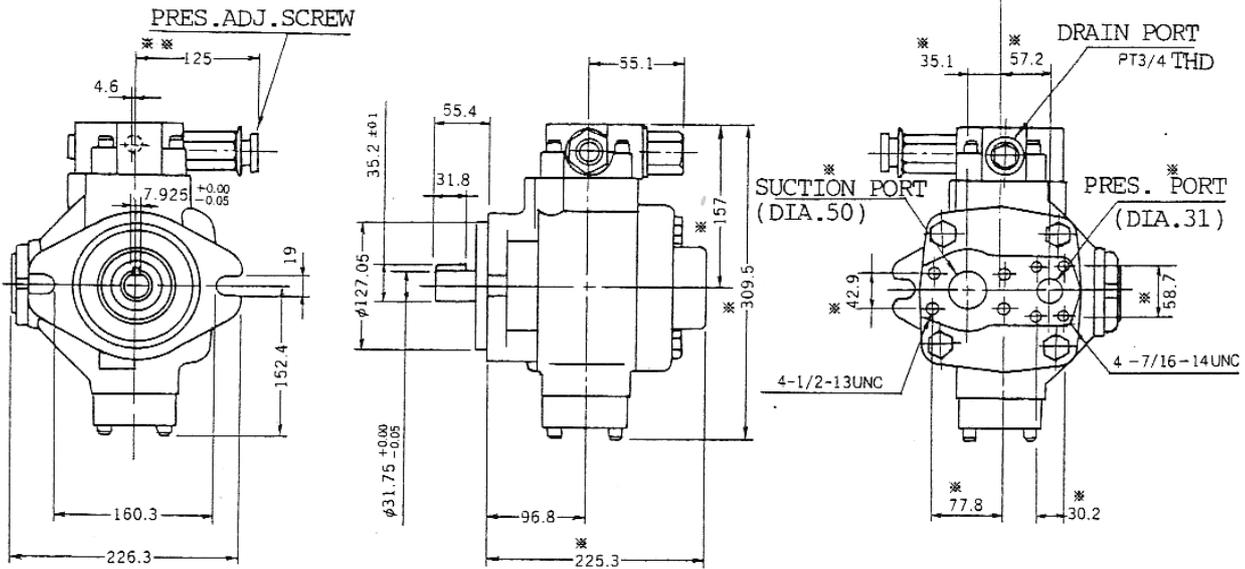
NOTE: \* At Racine, single-stage spec coded with "P" has been discontinued, and two-stage spec is now standard with "P" coding, resulting in the disappearance of "D" coding previously used for the two-stage spec, for instance, earlier SV-10/15/20/25 series. Therefore, for the Koshin-Racine. made SV-40 pumps, application of single-stage spec or two-stage spec is distinguished only by its suffix in type coding -J60 or - 60

SILENTVANE PUMPS

SV-40  
Flange Mounted  
-J60 Design  
-60 "

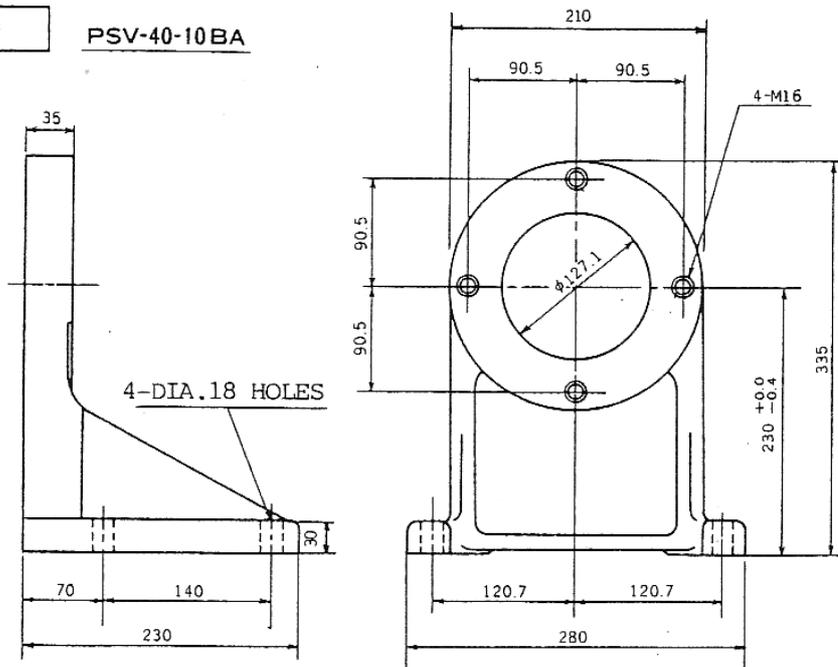
FLANGE MOUNTED

RH Rotation



FOOT BRACKET

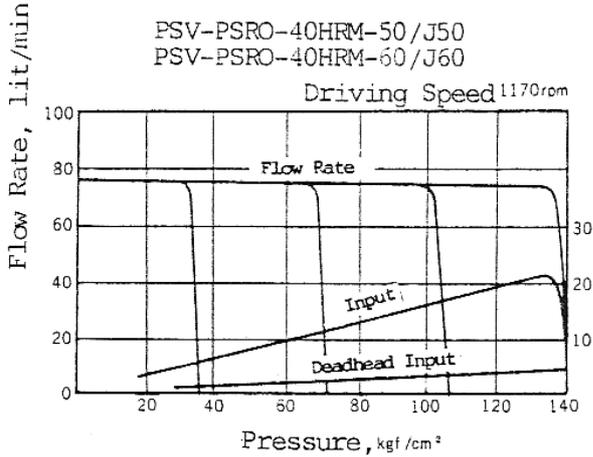
PSV-40-10BA



- ACCESSORIES:
- (1) Hex Head Bolts: M16 x 50l: 2pcs.
  - (2) Spring Washer M16: 2pcs.
  - (3) Plain Washer M16: 2pcs.

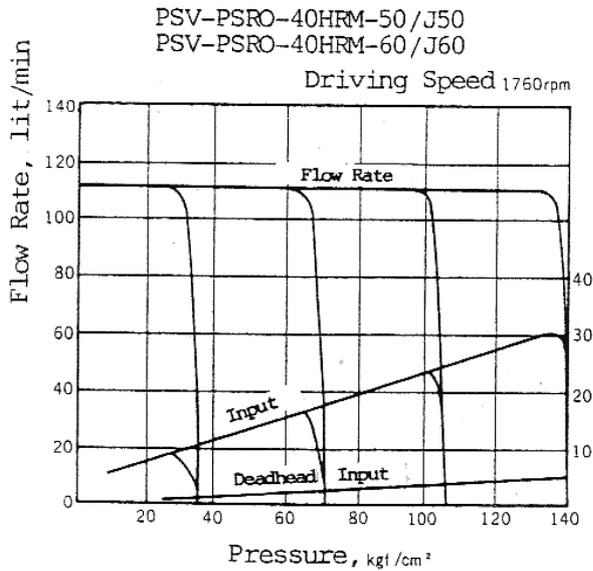
SILENTVANE PUMPS

SV-40  
PERFORMANCE  
CHARACTERISTICS



EF VALUE (KW)

Pressure kgf/cm <sup>2</sup>	Ef (kW)	Pressure kgf/cm <sup>2</sup>	Ef (kW)
35	0.8	90	2.4
50	1.2	105	2.9
60	1.4	120	3.1
70	1.7	130	3.7
80	2.1	140	4.1



EF VALUE (KW)

Pressure kgf/cm <sup>2</sup>	Ef (kW)	Pressure kgf/cm <sup>2</sup>	Ef (kW)
25	0.9	90	2.9
35	1.2	105	3.4
50	1.6	120	3.9
60	1.9	130	4.3
70	2.2	140	4.9
80	2.5		

- The above performance diagrams are based on the test results obtained under the following conditions:

Working Fluid Used: Viscosity -43 cSt at 40°C  
 Fluid Temperature: 48°C  
 Pump Speed: 1,760 rpm  
 Pump Input: Shown in KW

- Calculation Formula for Obtaining Pump Input:

$$KW = \frac{\text{Flow Rate(lit/min)} \times \text{Pressure(kgf/cm}^2)}{612} + EF$$

- In case you later adjusted the factory set pressure or flow rate of your pump and with to know its performance characteristics after the adjustment, you are requested to proportionally calculate them, following the corresponding diagram among the above.