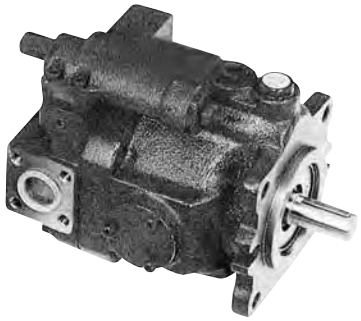
變量柱塞泵

Hydraulic Piston Pump

DAIWER®

Variable Volume Piston Pump

DAIWER



*Feature:

1. Combining special internal designs and strict engineering disciplines has reduced noise level to new lows in whole pressure zones.
2. Depending on variety of application needs multiple optional unique control methods are available. It does not only reduce a number of unnecessary hoses, pipes and control valves but also increase efficiency and save horsepower, and cost.
3. Less capacity reservoirs can be selected and applied because of performances of low pressure loss and less head generation.
4. Wide application ranges:it is very suitable for machine tools, plastic injection molding machines, forging machines and other industrial machines etc..
5. Mounting flanges are made to SAE A or B 2-bolt (V15, 18, 23, 38 types) and SAE-C 2 & 4-bolt (V50, V70 types).

Nomenclature:

V 15 A 1 R B S – 10
1 2 3 4 5 6 7 8

1. V: Variable displacement type

2. RATINGS

15, 18, 23, 38, 50, 70, (cm^3/rev)

3. Control Types:

A. pressure compensator
B. Multi-stage Flow & Single-stage Pressure Control Type
C. 2-stage Pressure &Flow Control Type
D. Solenoid Controlled Pressure Compensating Type With Unloading Device
E. Dual Pressure Control
F. 2 flow-2 pressure p.c by solenoid operated valve
G. Remote pressure compensator control
H. Power matching control

4. Pressure adjusting range

1 : 0.8 ~ 6.9MPa (8 ~ 70kgf/cm^2)
2 : 1.5 ~ 13.7MPa (15 ~ 140kgf/cm^2)
3 : 2.0 ~ 20.6MPa (20 ~ 210kgf/cm^2)
4 : 2.0 ~ 24.5MPa (20 ~ 250kgf/cm^2)

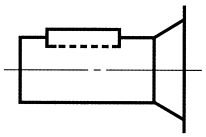
5 . Shaft rotation (Viewed form shaft end)

R : Clockwise L :Counterclockwise

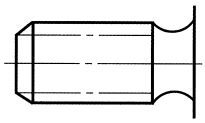
6. Direction Of Pipe Connections

None: Side Port B: Axial porto.

7. None:



S: SAE. J498b

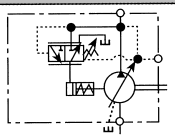
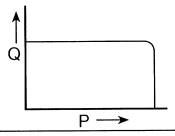
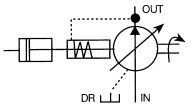
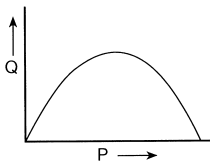
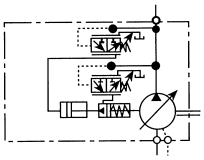
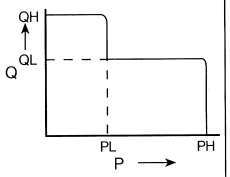
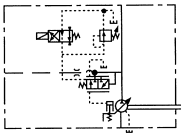
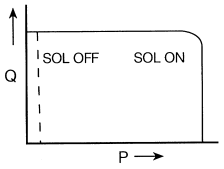
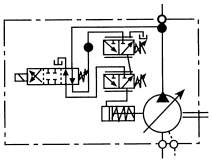
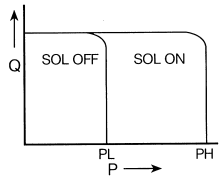
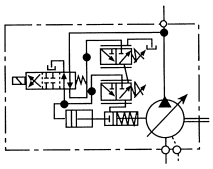
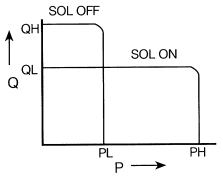
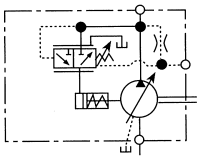
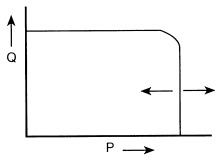
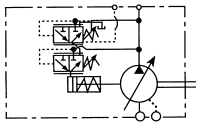
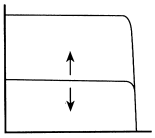


8. Design number

■ Specifications

Modle	Max,Pressure kgf/cm^2(psi)	Displacement cc/rev (in^3/rev)	Displacement Under Unloading Conditions l/min(GPM) 1500rpm	1800rpm	Pressure Adj. Range kgf/cm^2(psi)	Input Speed Range(rpm) Min	Max	Weight kg(lb)
V15	250(3500)	15(0.90)	22.5(5.78)	27.0(7.05)	A1:8~70(115~1000) A2:15~140(210~2000) A3:20~210(280~3000) A4:20~250(280~3500)	500	1800	11.5(25.3)
V18	140(2000)	17.8(1.09)	26.7(7.05)	32.0(8.45)				11.5(25.3)
V23	250(3500)	23.0(1.40)	35.4(9.11)	41.4(10.94)				20.0(50.7)
V38	250(3500)	37.8(2.31)	56.7(14.98)	68.0(17.96)				23.0(50.7)
V50	250(3500)	51.5(3.14)	77.2(20.37)	92.7(24.49)				50.0(110)
V70	250(3500)	69.7(4.25)	104.5(27.60)	125.4(33.13)				55.0(121)
15-15	250(3500)	15/15	22.5/22.5	27/27				24(52.8)
23-23	250(3500)	23.0/23	35.4/35.4	41.4/41.4				40
15-38	250(3500)	15/37.8	22.5/34.5	27/68				36.5(80.3)
38-38	250(3500)	37.8/37.8	56.7/56.7	68/68				49(107)
15-70	250(3500)	15/69.7	22.5/104.5	27/125.4				69.5(153)
38-70	250(3500)	37.8/69.7	56.7/104.5	68/125.4				78(172)

Control Types:

Control Type	JIS Symbols	Characteristics	Feature
A. Pressure compensator control			1. When system pressure increase and reach preset pressure the flow decrease automatically and pressure maintain without changing. 2. Flow and pressure can be adjusted manually.
B. Multi-stage Flow & Single-stage Pressure Control Type (With Cylinder)			1. Flow can be adjusted form 0 to maximum and pressure can have been maintaining at preset pressure. 2. Absorbing impact and vibration which are produced by up and down motions of actuators. It is suitable for lifting equipment etc..
C. 2-stage Pressure & Flow Control Type			1. Lo-consumption electric motor can be selected to save energy because of functions of high flow at low pressure and low flow at high pressure. 2. When pressure increase and reach preset pressure "PH" , flow is reduced to "QL". 3. Pressure "PH, PL" , and Flow "QH, QL" can be adjusted optionally. 4. It is applied to actuators requiring long unloaded or short loaded strokes. Speedy and horsepower efficient.
D. Solenoid Controlled Pressure Compensating Type With Unloading Device			1. Same as Type A and unloading function added. 2. It is applied to systems requiring longtermed unloading operation. 3. When solenoid is turned off, pump operates under unloading conditions. This results in less noise and heat generation.
E. Dual Pressure Control			1. High and low pressure can be controlled by switching directions of solenoid control valves. 2. This type is applied to actuators requiring 2-stage pressures with single speed. 3. One of "PL" and "PH" relief valves can optionally be high pressure.
F. 2 flow-2 pressure p.c. by solenoid operated valve			1. Actuators can be shifted slowly(high pressure low flow) and quickly(low pressure high flow) by switching directions of solenoid control valve. 2. This type is applied to actuator requiring operations to shift speed from high to low or low high. 3. Pressure "PL, PH" and flow "QL, QH" can be adjusted optionally.
G. Remote pressure compensator control			1. Same as Type A. 2. Pressure can be adjusted remotely by integrated remote pressure control valve.
H. Power matching control			* An ideal energy conservation system, "Power matching system",can be configurated by combining the proportional directional control valves with this control system.

Handling

*Cautions for selecting hydraulic oil

* In case hydraulic pressure is under 6.9MPa (70 krf/cm^2), use hydraulic oil which is corresponding to ISO VG32-60 in viscosity grade or wear resisting hydraulic oil.
* In case hydraulic pressure is over 6.9MPa (70kgf//cm^2), use wear resisting hydraulic oil which is corresponding to ISO VG32-68 in viscosity grade.
* In case the following oils are used, consult YEOSHE Phosphate ester family, Fatty acid ester family Water+ Glycol family, Water-in-oil emulsion, HWBF

*Viscosity and oil temperature

Oil viscosity ranging from 15mm^2/s to 400mm^2/s and oil temperature ranging from 0°C to 60°C are recommended.

*Alignment and installation of pumps

* Eccentricity between the driving shaft and pump shaft should be under 0.05 TIR, and operate the pump in such a way that the pump shaft is not subjected to orthogonal force. If centering between the driving shaft and pump shaft is incorrect, the bearing and oil seal may be damaged and noise and vibration may occur, which cause trouble with the pump.
* Avoid driving the pump in the lateral direction by belt, chain or gears. (This may cause noise and damage the bearing.)
* The pump can be operated with its shaft mounted perpendicularly.

*Piping work

* Use parallel thread pipe joints for the suction inlet and discharge outlet. Do not use taper thread piping joints, or air may intrude or abnormal noise be produced.
* In case where steel pipes are used, lay piping with care so as not to put force on the pump.
* Eccentricity of a pump being forced by piping may cause serious trouble with noise.

*Drain piping

* Lay the drain piping independently not joined with other return lines, in such a way that the pump internal pressure is under 0.04MPa (0.35kgf/cm^2).
* Lay the oil return piping under the oil level of the tank and as far as possible from the suction piping. (refer to the table below)

*Cautions for starting

* Before starting the pump, fill the pump case with hydraulic oil using the case drain charging port on the pump body.
* Do not operate the pump at full speed right away. Instead, turn the motor input switch on - off several times so as to extract air from the piping, then operate it continuously. At the start, be sure to reduce the pressure or operate it unloaded.

*Revolution direction

* Shaft rotation is clockwise viewed from the end of pump shaft. In case reverse revolution is required, indicate it by Model No. at a time of your order.

*Suction pressure

* Adjust suction pressure to within-16.7kPa (-125mmHg).
* High suction pressure may cause cavitation, damage of parts, noise and vib$^+$ation which greatly shorten the life of pumps.

*Filter

* Deterioration of the hydraulic oil may cause trouble with the pump and shorten its life. Carefully control the quality of the oil so as to maintain the deterioration of the oil within Grade NAS9.
* Be sure to attach a suction filter of 150 mesh to the suction side and a line filter of 25 to the return line of the discharge side.

*Max. working pressure

* Operating period at maximum working pressure should be under 10% of one cycle and the retaining period should be under 6 seconds.
* Other limits for the operation period at maximum working pressure are described in the operation manual.

	V15, V18, V23	V38	V50, V70
Size of pipe joints	3/8 (I.D. 8.5 or more)	1/2 (I.D. 12 or more)	3/4 (I.D. 16 or more)
I.D of pipes	Dia. 12 or more	Dia 15 or more	Dia. 19 or more
Length of drain pipes	Under 1m	Under 1m	Under 1m

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Variable Volume Piston Pump

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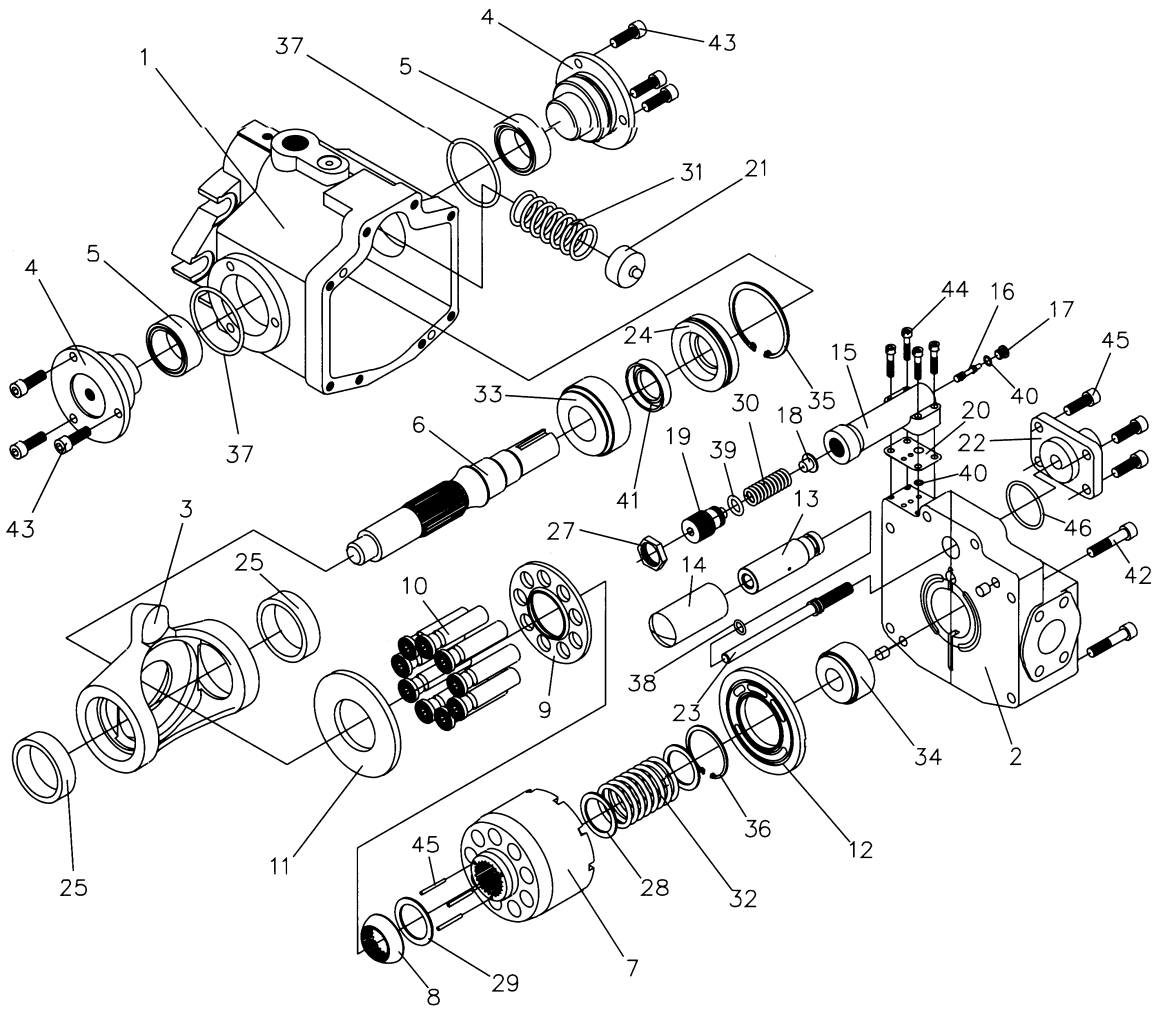
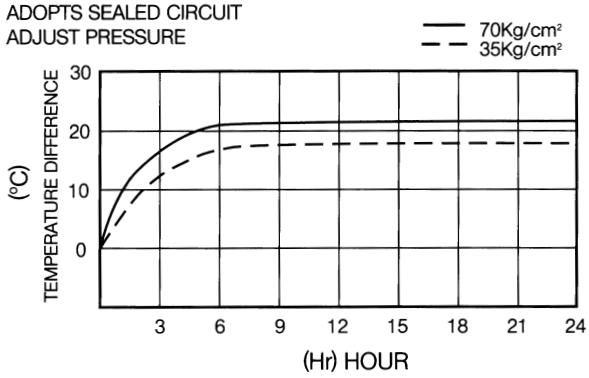
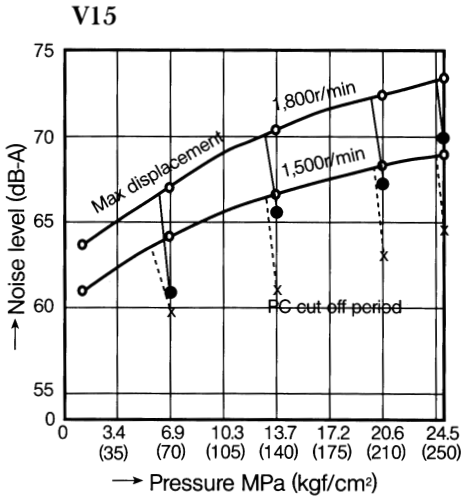


V15 Series

MEASURING CONDITIONS
ROOM TEMPERATURE ± 2°C
SPEED OF ROTATION 1800rpm
SPECIAL OIL-PRESSURE OIL:ISO VG 32-68
OIL CAPACITY:60
ADOPTS SEALED CIRCUIT
ADJUST PRESSURE

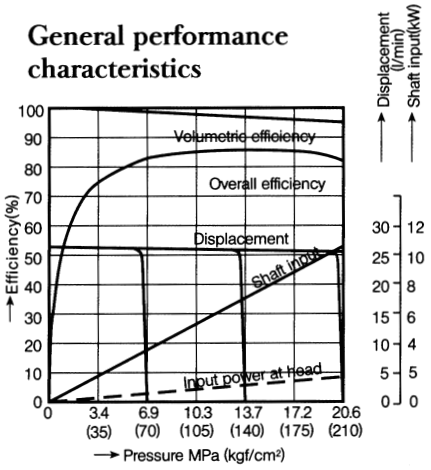




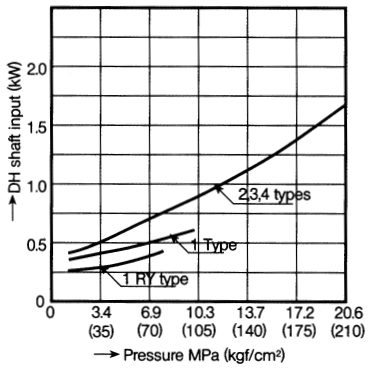
Typical performance characteristics

* Input speed : 1,800r/min
* Oil : ISO VG32
* Oil temperature : 50°C

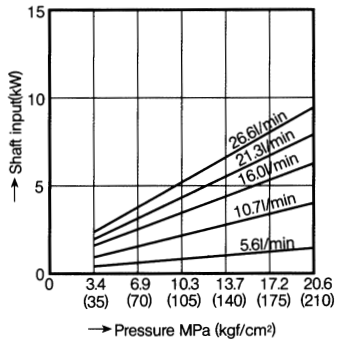
General performance characteristics



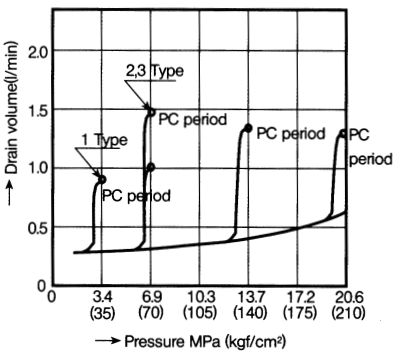
Dead head shaft input



Shaft input characteristic

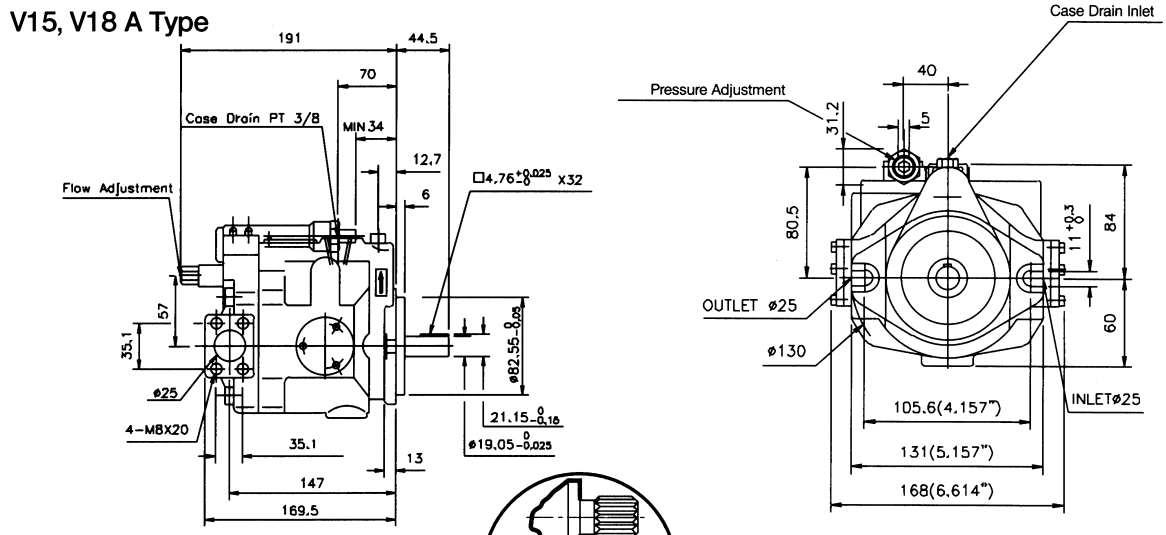


Drain volume characteristic

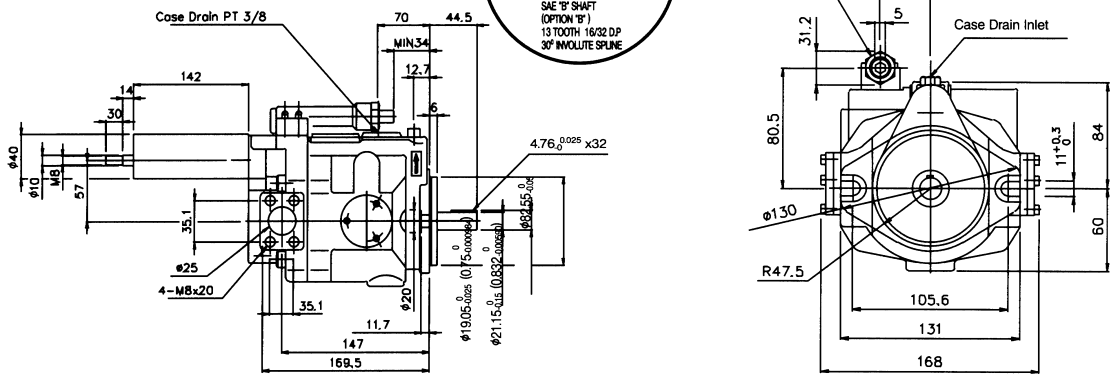


■Dimensions: (Mounting Surface: SAE "A" 2-bolt)

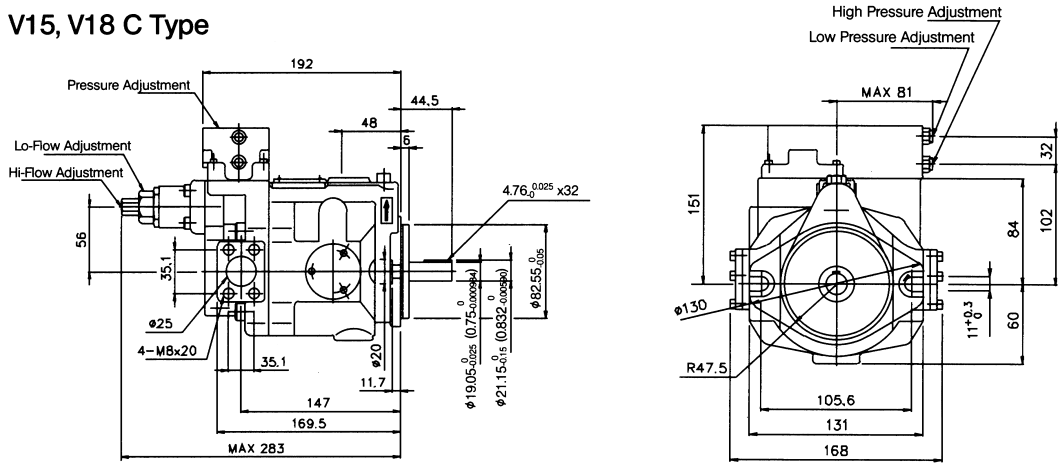
V15, V18 A Type



V15, V18 B Type

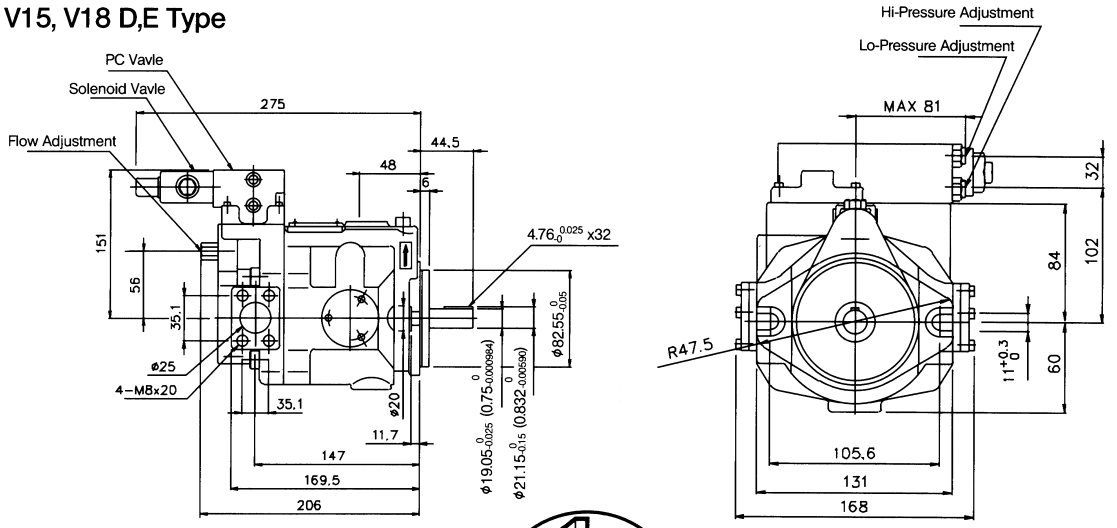


V15, V18 C Type

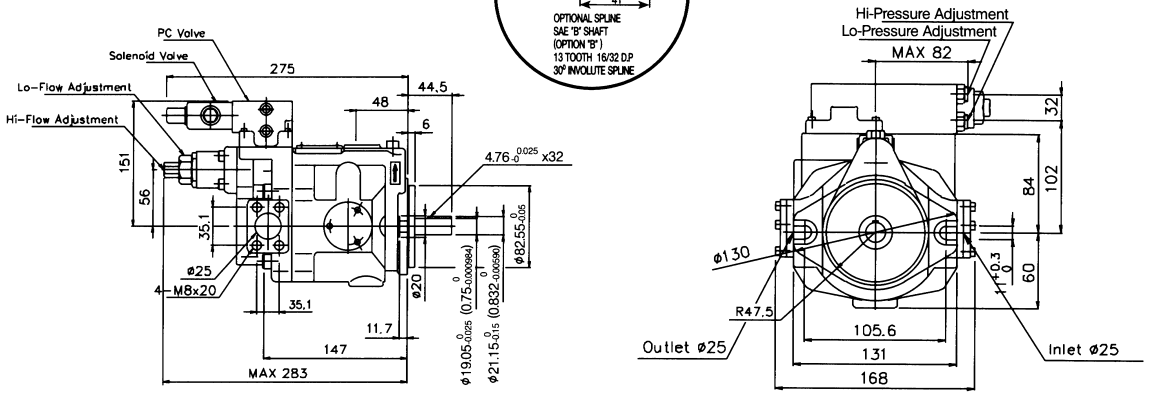


■Dimensions: (Mounting Surface: SAE "A" 2-bolt)

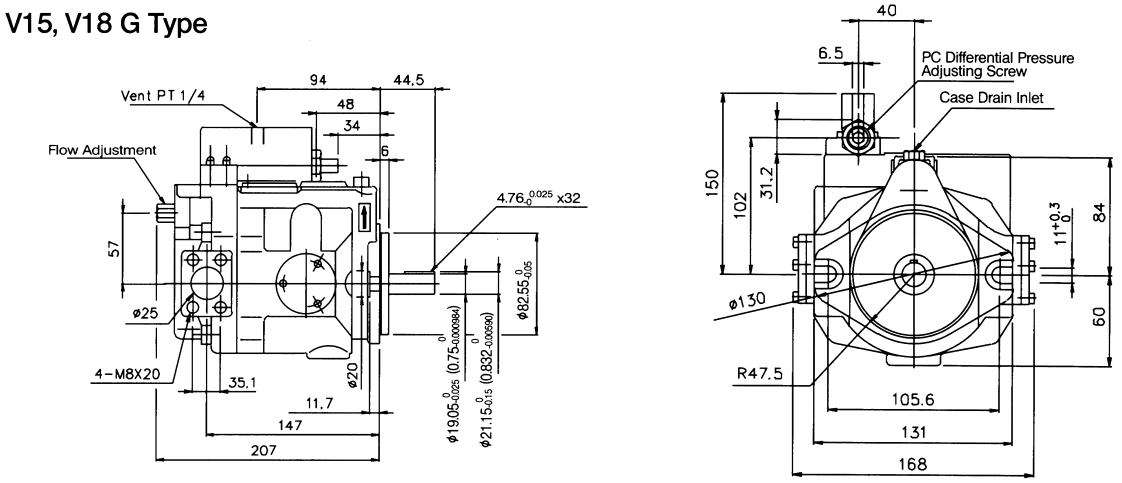
V15, V18 D,E Type



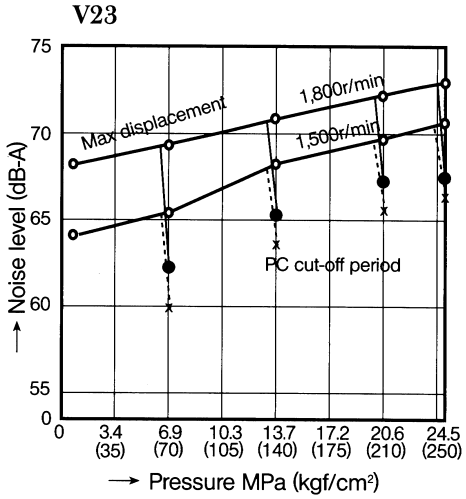
V15, V18 F Type



V15, V18 G Type



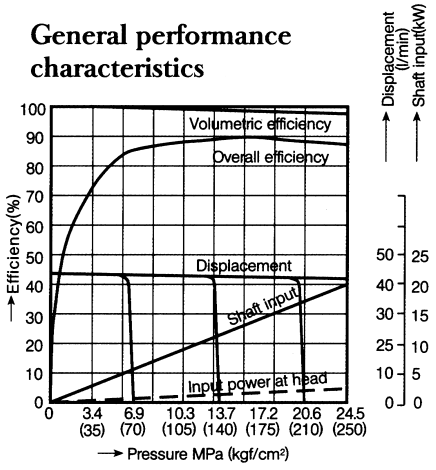
V23 Series



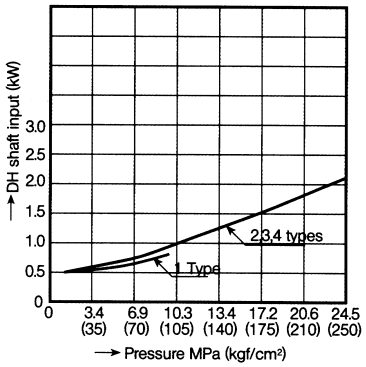
Typical performance characteristics

* Input speed : 1,800r/min
* Oil : ISO VG32
* Oil temperature : 50°C

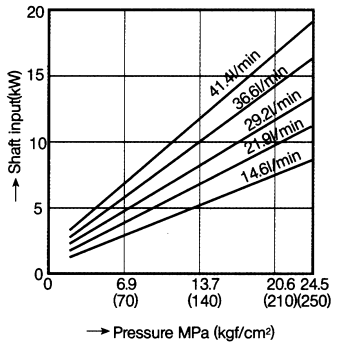
General performance characteristics



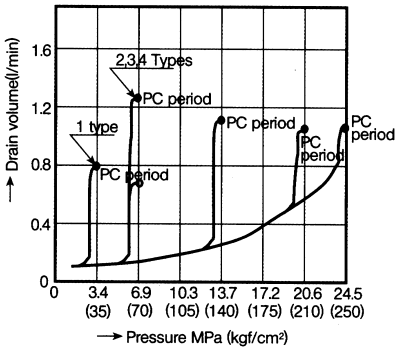
Dead head shaft input



Shaft input characteristic

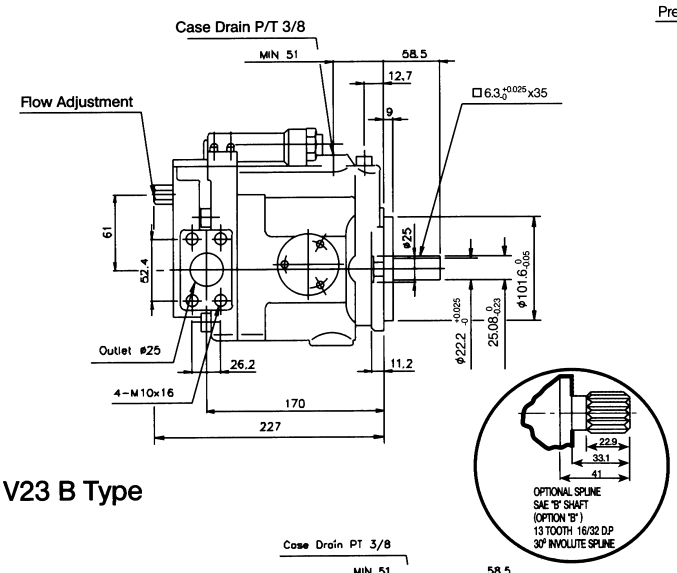


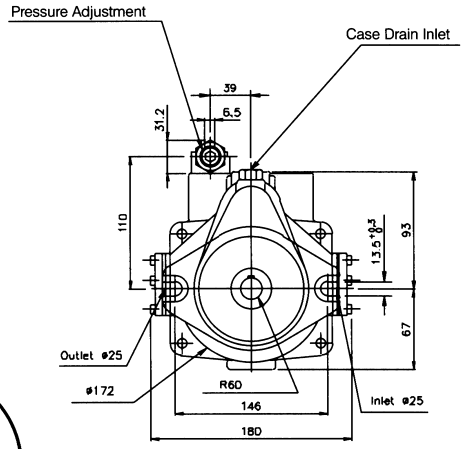
Drain volume characteristic



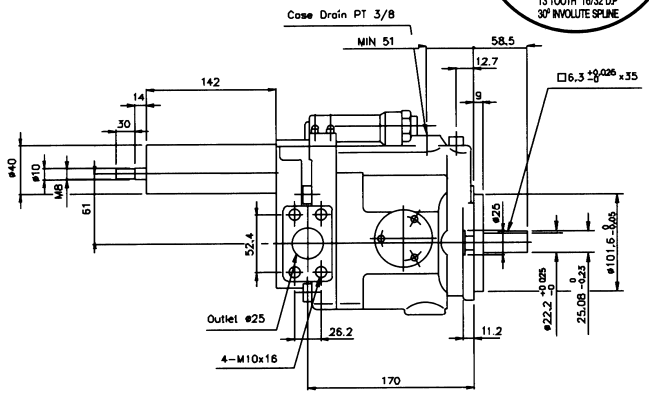
■Dimensions: (Mounting Surface: SAE "B" 2-bolt)

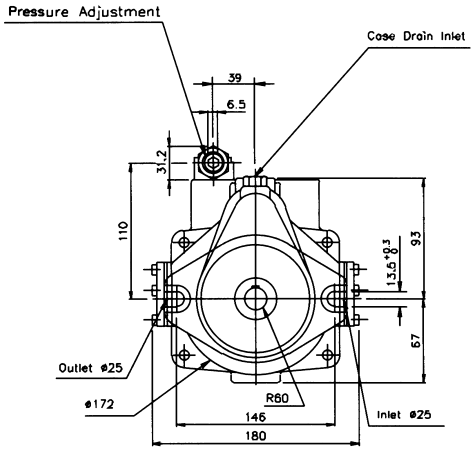
V23 A Type



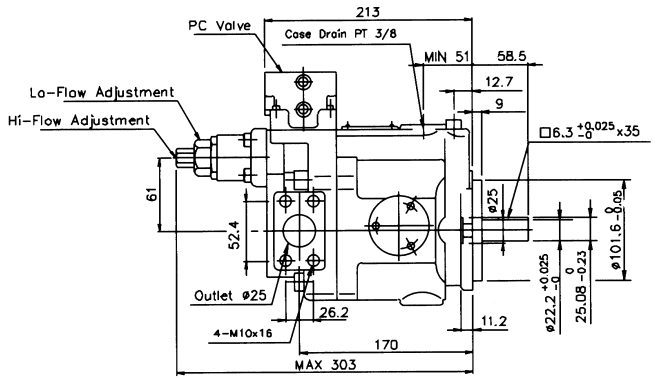


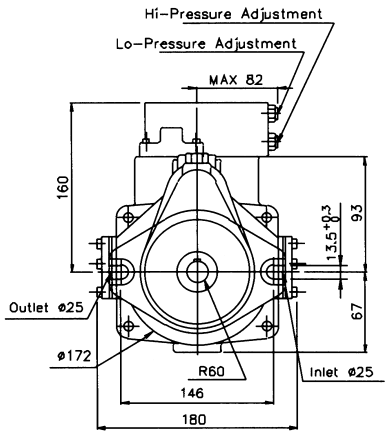
V23 B Type





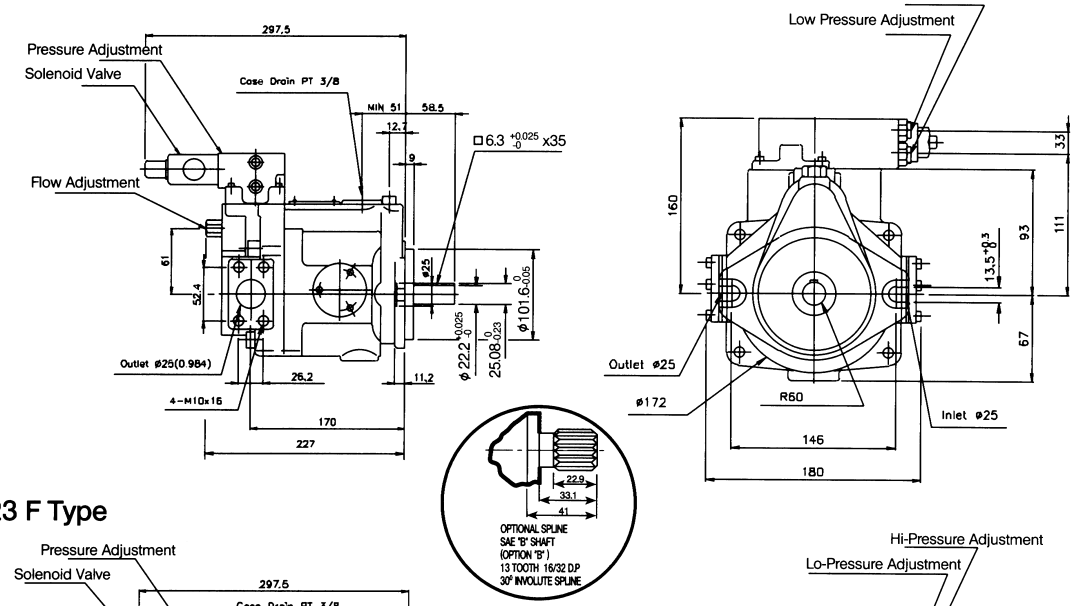
V23 C Type



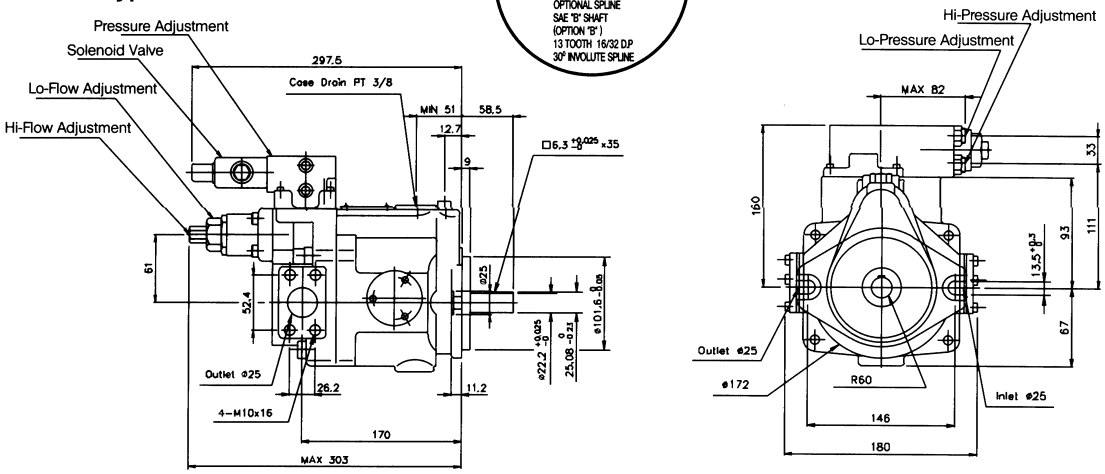


■Dimensions: (Mounting Surface: SAE "B" 2-bolt)

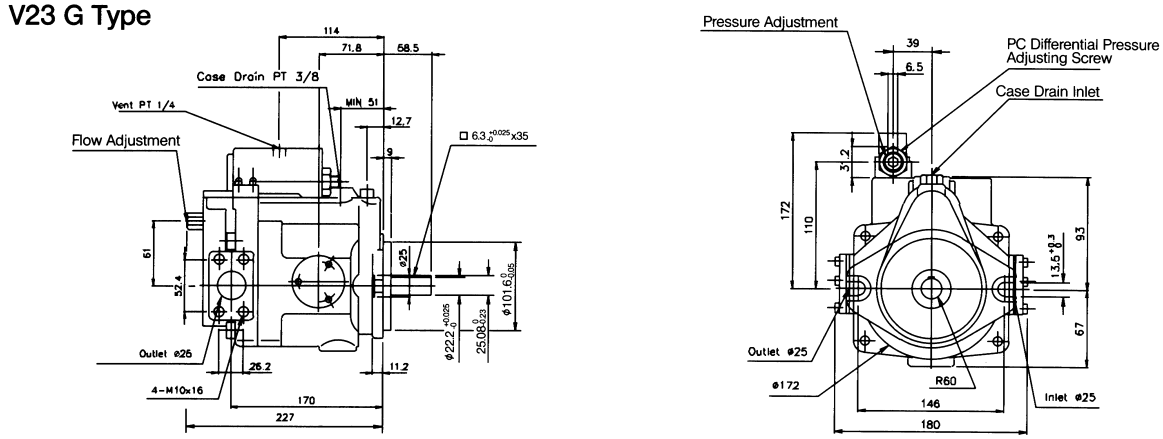
V23 D,E Type



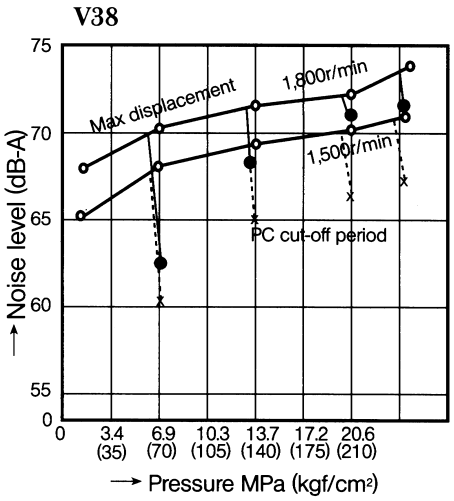
V23 F Type



V23 G Type



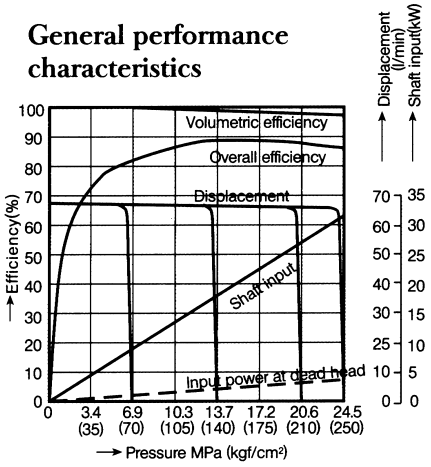
V38 Series



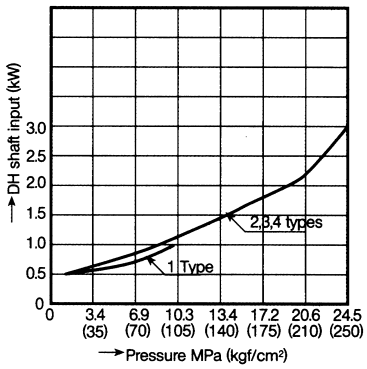
Typical performance characteristics

* Input speed : 1,800r/min
* Oil : ISO VG32
* Oil temperature : 50°C

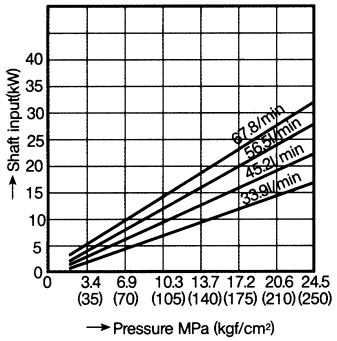
General performance characteristics



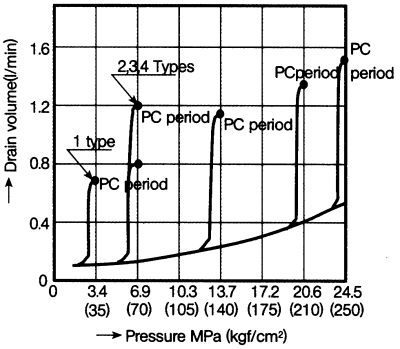
Dead head shaft input



Shaft input characteristic

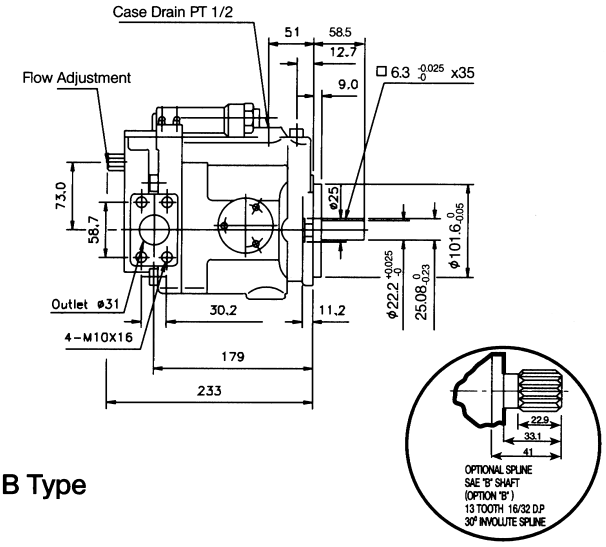


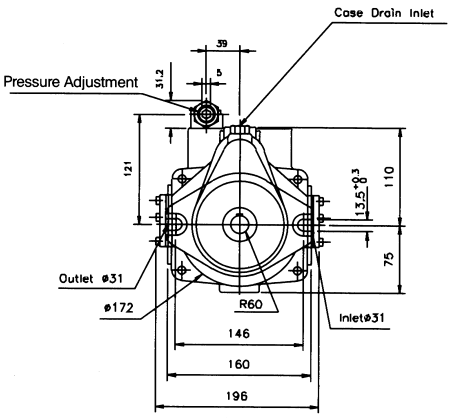
Drain volume characteristic



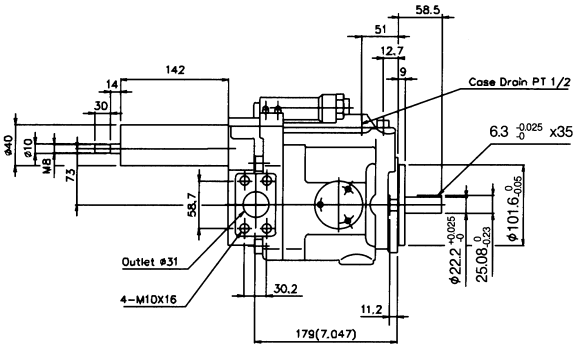
■Dimensions: (Mounting Surface: SAE "B" 2-bolt)

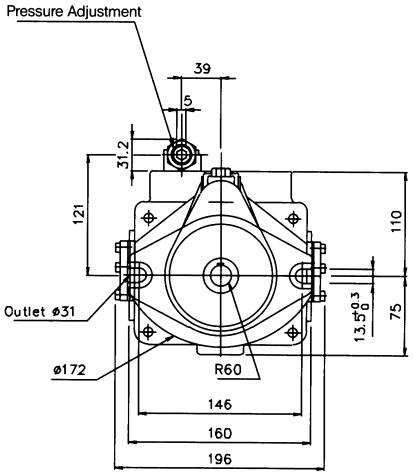
V38 A Type



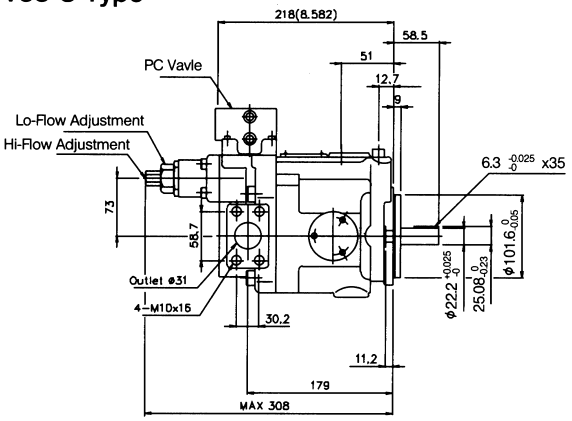


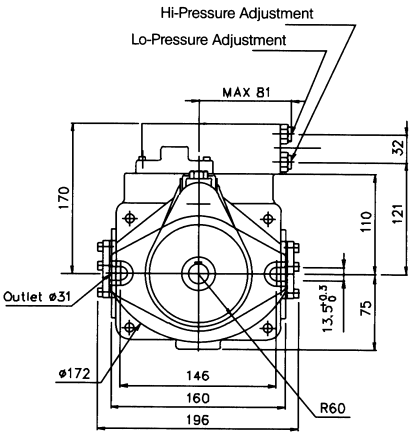
V38 B Type





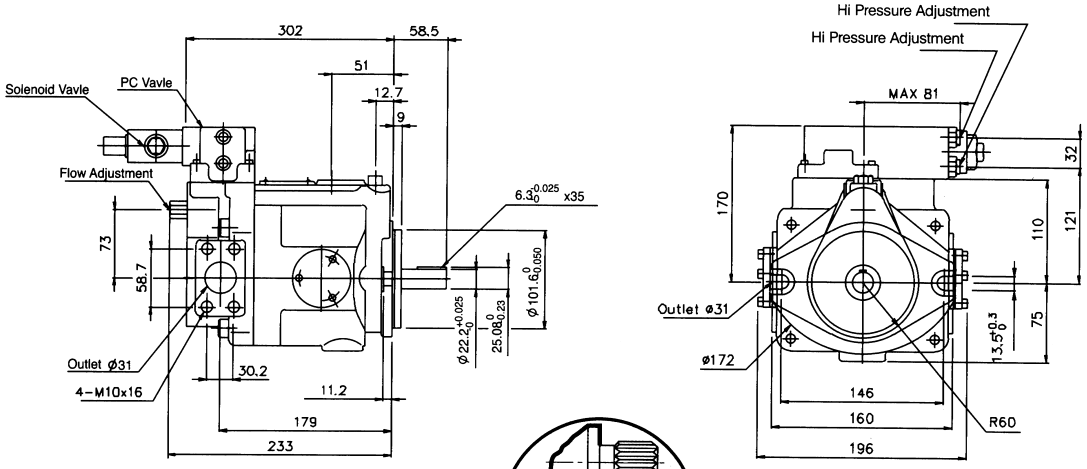
V38 C Type



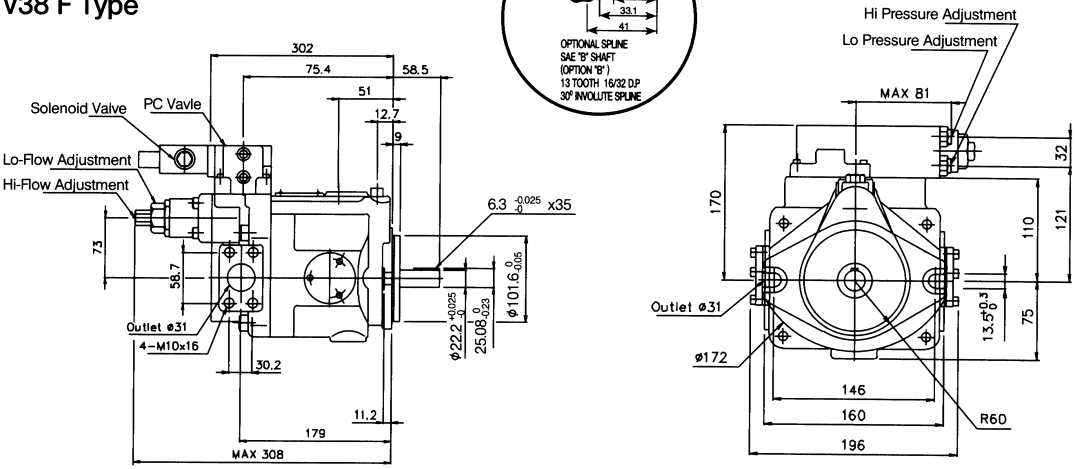


■Dimensions: (Mounting Surface: SAE "B" 2-bolt)

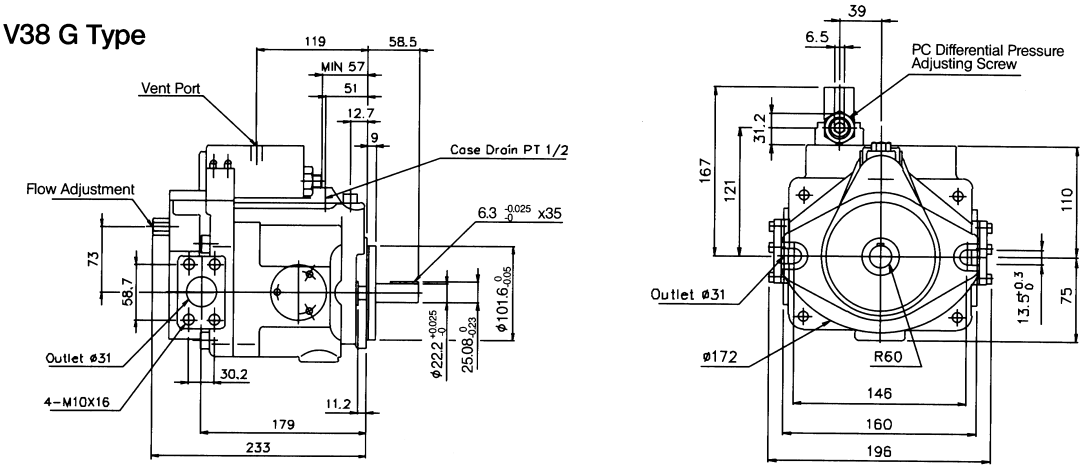
V38 D,E Type



V38 F Type



V38 G Type



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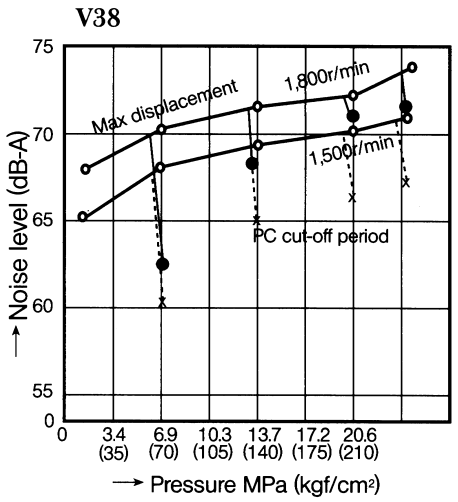
Hydraulic Piston Pump

DAIWER®

Variable Volume Piston Pump

DAIWER

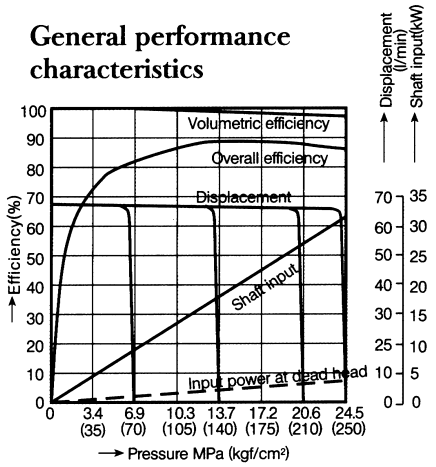
V38 Series



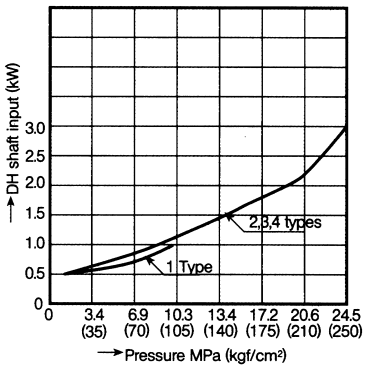
Typical performance characteristics

* Input speed : 1,800r/min
* Oil : ISO VG32
* Oil temperature : 50°C

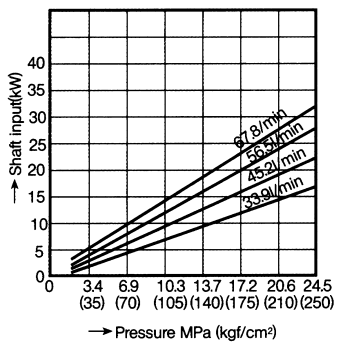
General performance characteristics



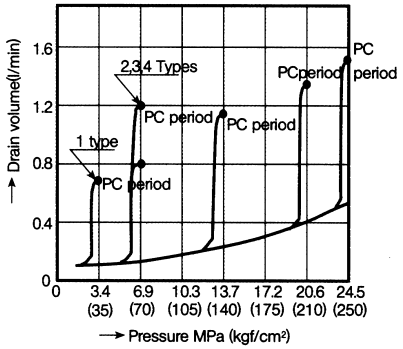
Dead head shaft input



Shaft input characteristic

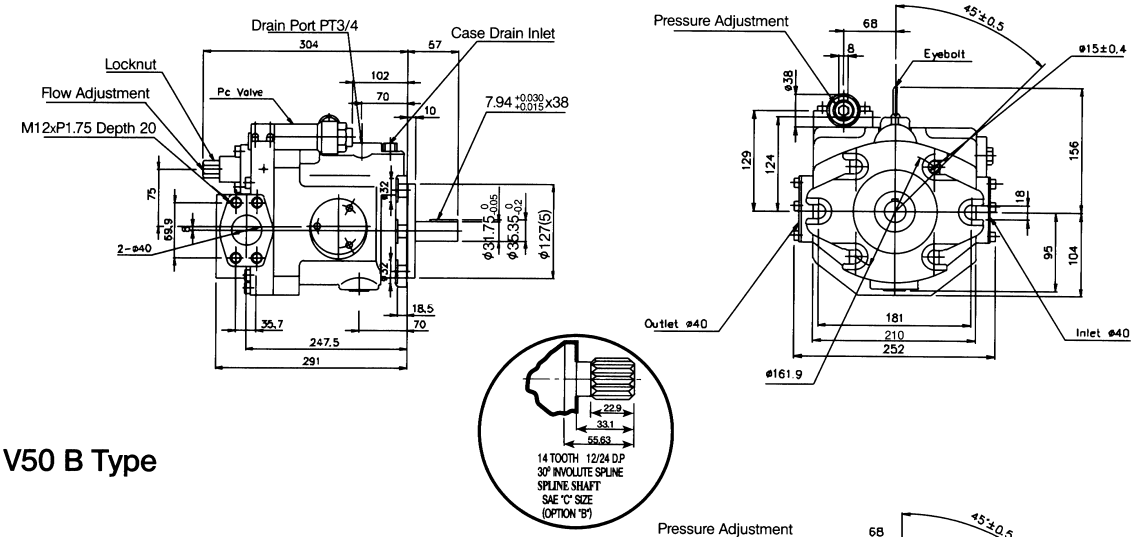


Drain volume characteristic

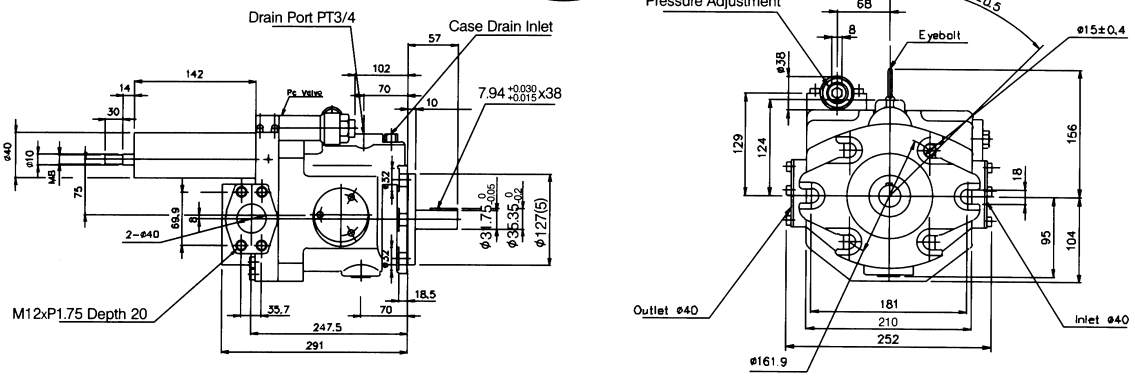


■Dimensions: (Mounting Surface: SAE "C" 2-bolt & 4-bolt)

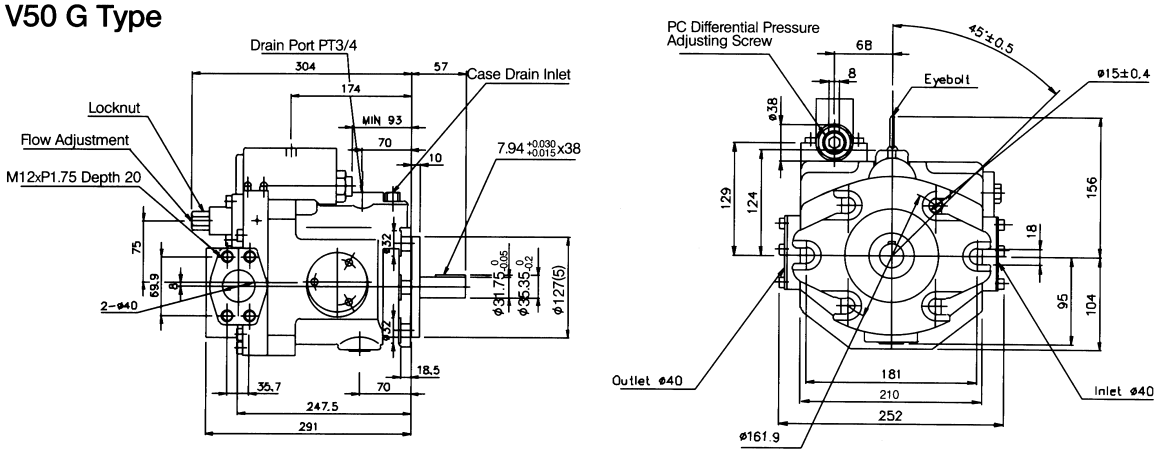
V50 A Type



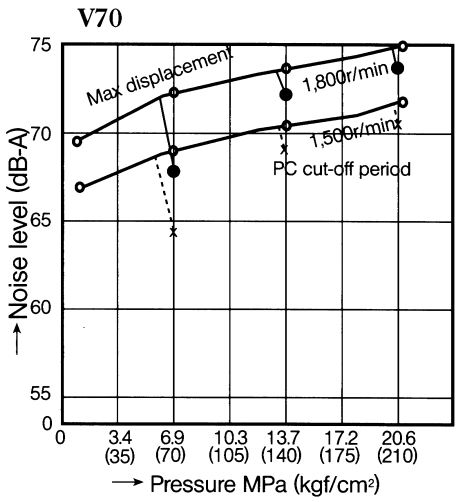
V50 B Type



V50 G Type



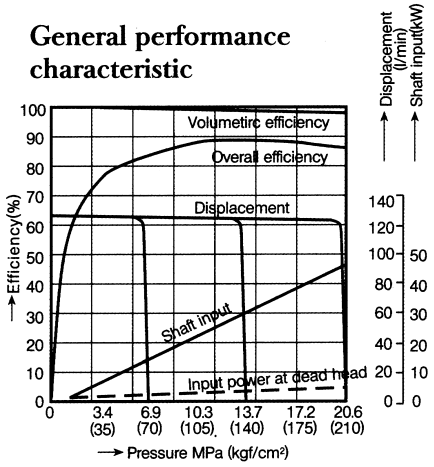
V70 Series



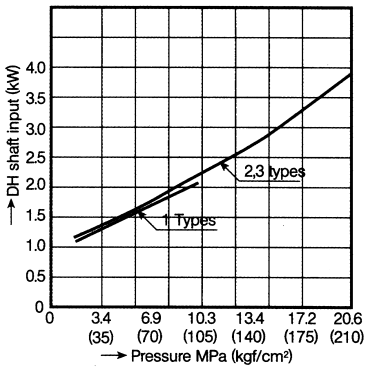
Typical performance characteristics

* Input speed : 1,800r/min
* Oil : ISO VG32
* Oil temperature : 50°C

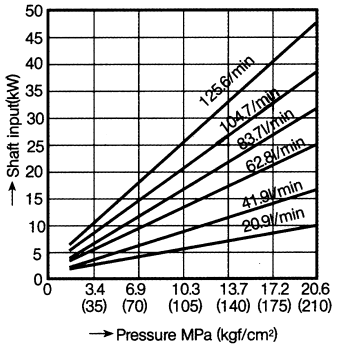
General performance characteristic



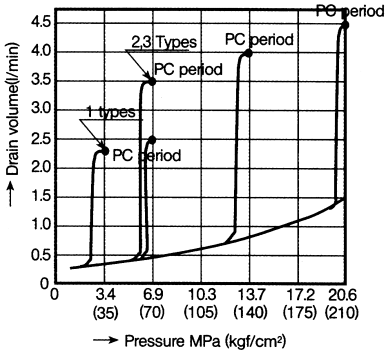
Dead head shaft input



Shaft input characteristic

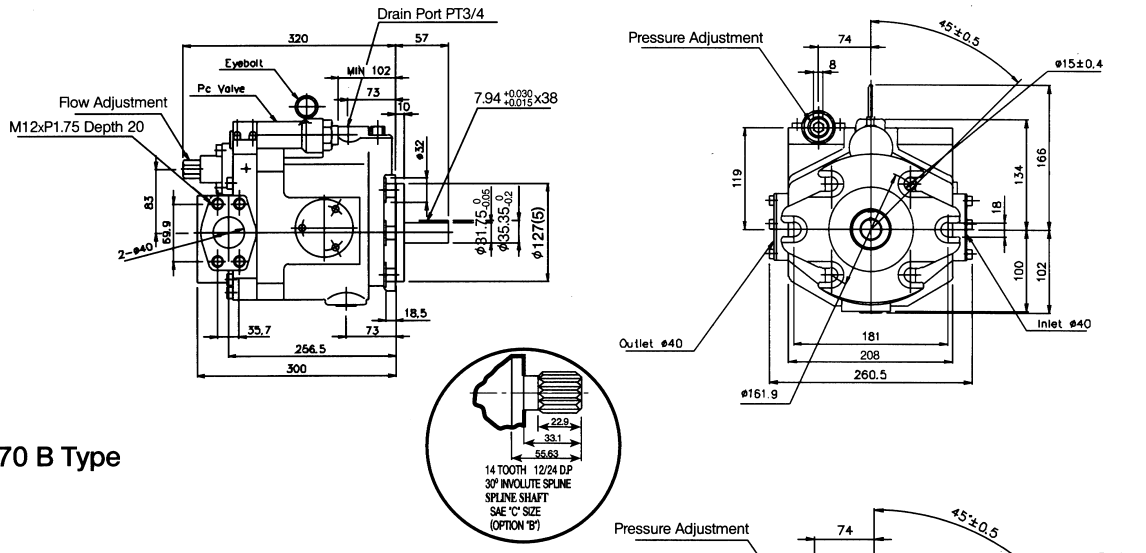


Drain volume characteristic

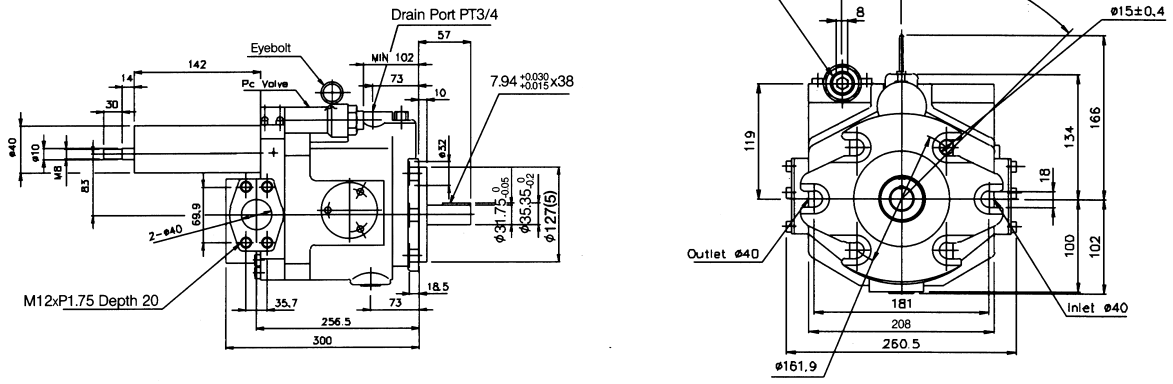


■Dimensions: (Mounting Surface: SAE "B" 2-bolt & 4-bolt)

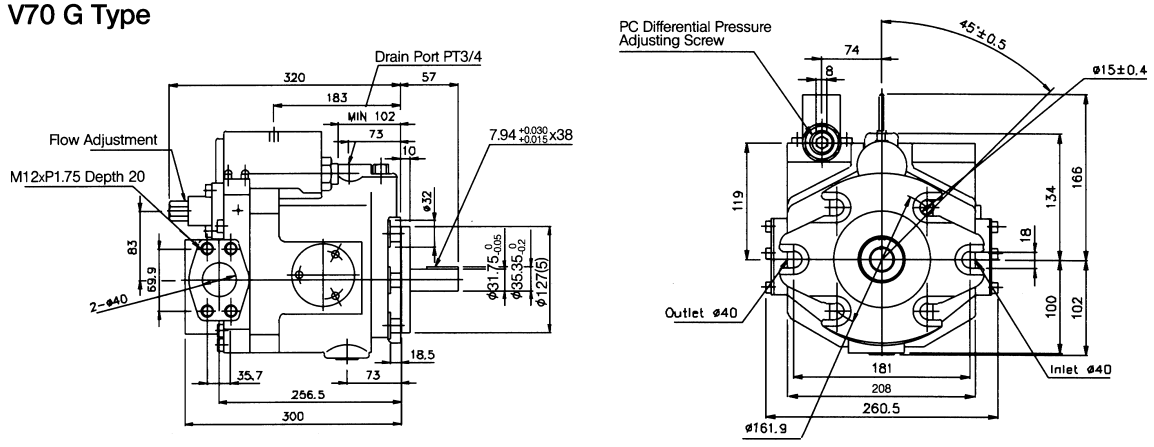
V70 A Type



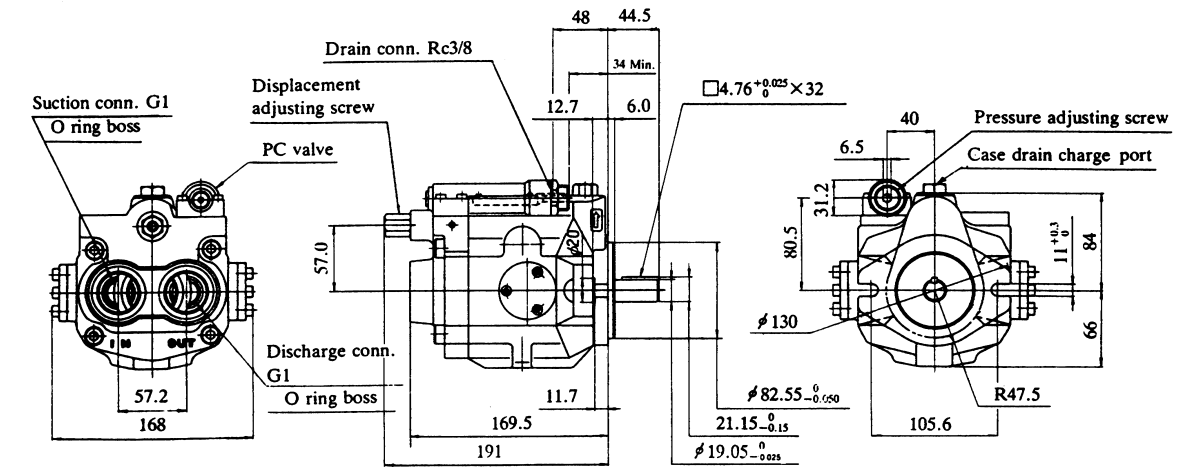
V70 B Type



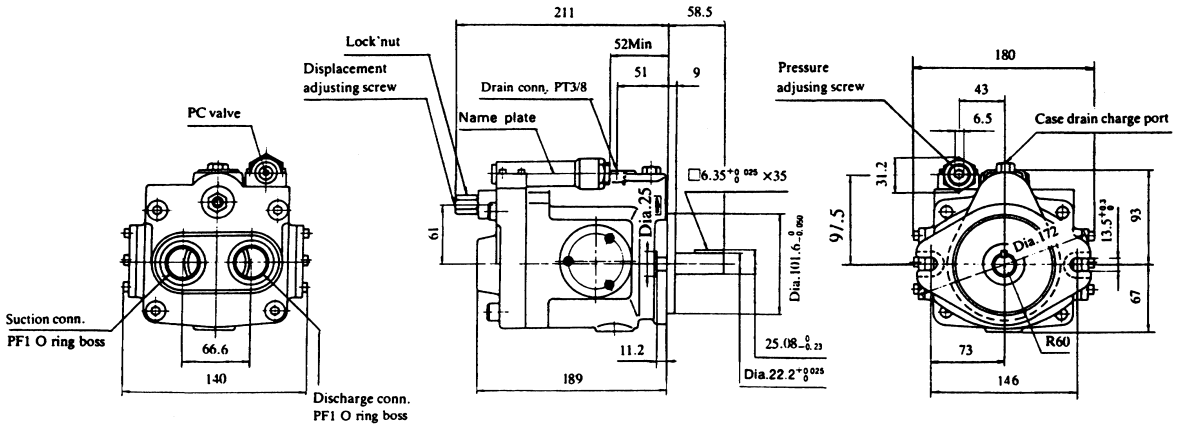
V70 G Type



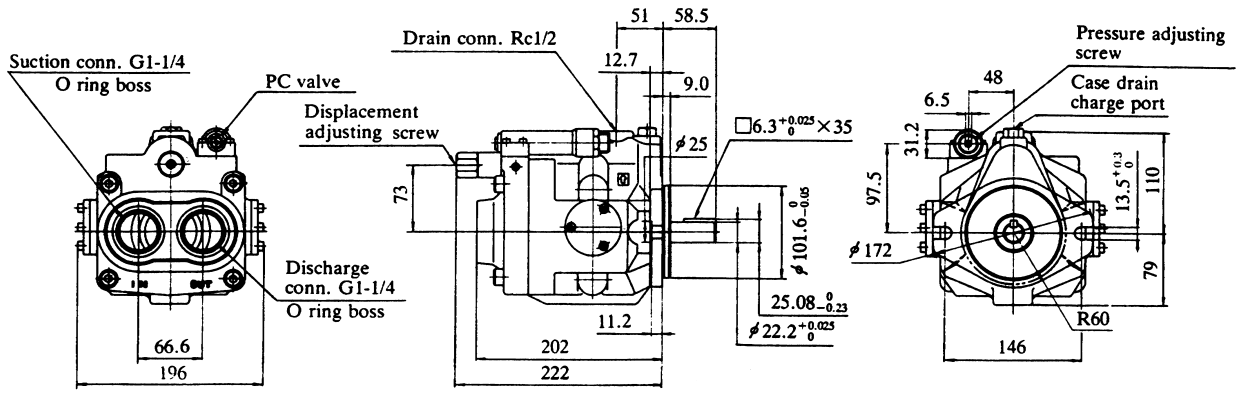
■Dimensions:PV15A※※B-10 (Axial Port)



■Dimensions:PV23A※※B-10 (Axial Port)



■Dimensions:PV38A※※B-10 (Axial Port)



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Hydraulic Piston Pump

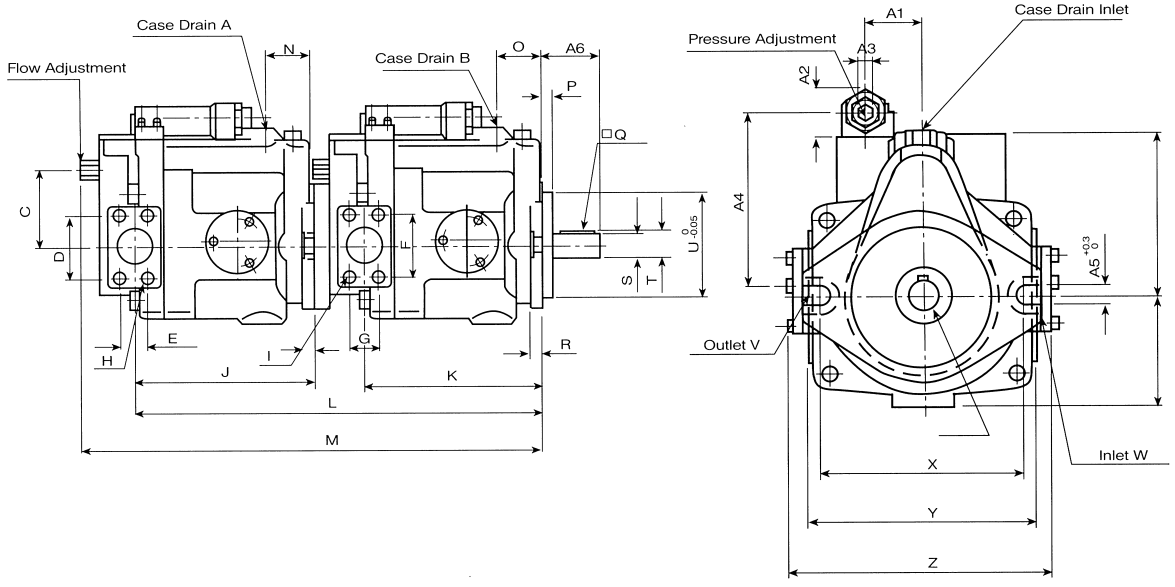
DAIWER®

Variable Volume Piston Pump

DAIWER

■Piston Double Pump Type

Model	V15x15	V23x23	V15x38	V23-38	V38x38	V15x70	V23x70	V38x70
A	3/8-PT	3/8-PT	3/8-PT	3/8-PT	1/2-PT	3/8-PT	3/8-PT	1/2-PT
B	3/8-PT	3/8-PT	1/2-PT	1/2-PT	1/2-PT	3/4-PT	3/4-PT	3/4-PT
C	57	61	57	61	73	57	61	73
D	35.1	52.4	35.1	52.4	58.7	35.1	52.4	58.7
E	35.1	26.2	35.1	26.2	30.2	35.1	26.2	30.2
F	35.1	52.4	58.7	58.7	58.7	69.9	69.9	69.9
G	35.1	26.2	30.2	30.2	30.2	35.7	35.7	35.7
H	M8x20	M10x16	M8x20	M10x16	M10x16	M8x20	M10x16	M10x16
I	M8x20	M10x16	M10x16	M10x16	M10x16	M12x20	M12x20	M12x20
J	147	170	147	170	170	147	170	179
K	147	170	179	179	179	256.5	256.5	256.5
L	335	393	373	404	413	447	470	479
M	381	443	419	454	465	493	520	531
N	34	51	34	34	51	34	51	51
O	34	51	51	51	51	73	73	73
P	6	9	9	9	9	10	10	10
Q	4.76x32	6.5x35	6.5x35	6.5x35	6.5x35	7.94x38	7.94x38	7.94x38
R	13	13	13	13	13	18.5	18.5	18.5
S	ϕ 19.05	ϕ 22.22	ϕ 22.22	ϕ 22.22	ϕ 22.22	ϕ 31.75	ϕ 31.75	ϕ 31.75
T	21.15	25.08	25.08	25.08	25.08	35.35	35.35	35.35
U	ϕ 82.55	ϕ 101.6	ϕ 101.6	ϕ 101.6	ϕ 101.6	ϕ 127	ϕ 127	ϕ 127
V	ϕ 24	ϕ 25	ϕ 31	ϕ 31	ϕ 31	ϕ 40	ϕ 40	ϕ 40
W	ϕ 24	ϕ 25	ϕ 31	ϕ 31	ϕ 31	ϕ 40	ϕ 40	ϕ 40
X	106	146	146	146	146	181	181	181
Y	131	145.5	160	160	160	208	208	208
Z	168	180	196	196	196	260.5	260.5	260.5
A1	40	39	39	39	39	74	74	74
A2	31.2	31.2	31.2	31.2	31.2	40	40	40
A3	5	5	5	5	5	8	8	8
A4	80.5	110	121	121	121	119	119	119
A5	11	13.5	13.5	13.5	13.5	18	18	18
A6	44.5	58.5	58.5	58.5	58.5	57	57	57



*Available to supply pump with anti-clockwise rotation.
Consult Yuken for details.