



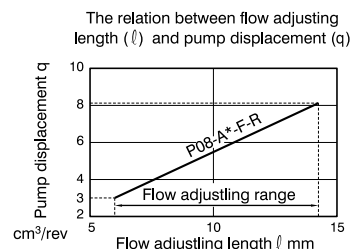
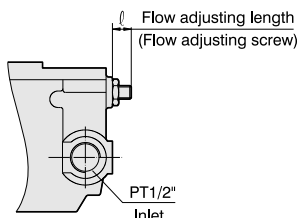
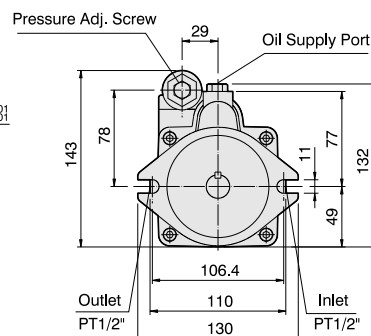
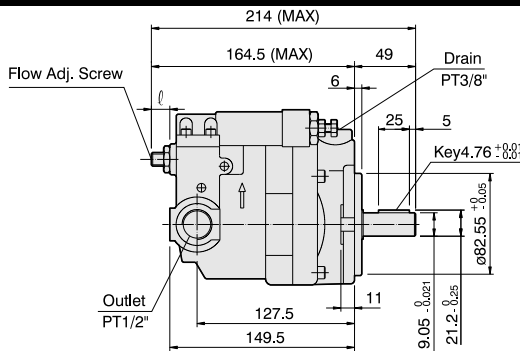
MODEL

P16-A3-F-R-S-01

1 Variable volume piston pump 2 Displacement 08, 16, 22, 36, 46, 70, 100, (cm ³ /rev)	4 Pressure adjusting range 0 : 1~4 Mpa (10~40 kgf/cm ²) 1 : 2~7 Mpa (20~73 kgf/cm ²) 2 : 3~14 Mpa (30~145 kgf/cm ²) 3 : 3~21 Mpa (30~215 kgf/cm ²) 4 : 3~28 Mpa (30~286 kgf/cm ²)	6 Rotation (Viewed from shaft end) R : CW L : CCW
3 Control options (Standard type) A : Pressure compensating type (Option type) B : Remote pressure control type C : Two pressure-two flow control type D : Solenoid cut-off control type E : Two pressure cut-off control type HL : Load sensing control type	5 Mounting F : Flange mounting L : Foot	7 Shaft options S : SAE Spline Cylindric, Key (Code omitted)
8 Design code		

Model	Volume cm ³ /rev	Delivery at no load ℓ/min				Pressure adj. range Mpa (kgf/cm ²)	Max setting pressure Mpa (kgf/cm ²)	Drive speed min ⁻¹		Mass kg
		1000 min ⁻¹	1200 min ⁻¹	1500 min ⁻¹	1800 min ⁻¹			Min	Max	
P08-A 0-F-R-01	8.0	8.0	9.6	12.0	14.4	2~4 (20~40)	25 (255)	500	2000	9
1						2~7 (20~73)				
2						3~14 (30~145)				
3						3~21 (30~215)				
P16-A 0-F-R-01	16.5	16.5	19.8	24.7	29.7	2~4 (20~40)	25 (255)	500	2000	12
1						2~7 (20~73)				
2						3~14 (30~145)				
3						3~21 (30~215)				
P22-A 0-F-R-01	22.0	22.0	26.4	33.0	39.6	2~4 (20~40)	25 (255)	500	2000	12
1						2~7 (20~73)				
2						3~14 (30~145)				
3						3~21 (30~215)				
P36-A 0-F-R-01	36.0	36.0	43.2	54.0	64.8	2~4 (20~40)	25 (255)	500	2000	23
1						2~7 (20~73)				
2						3~14 (30~145)				
3						3~21 (30~215)				
P46-A 0-F-R-01	46.0	46.0	55.2	69.0	82.8	2~4 (20~40)	25 (255)	500	2000	23
1						2~7 (20~73)				
2						3~14 (30~145)				
3						3~21 (30~215)				
P70-A 1-F-R-01	70.0	70.0	84.0	105.0	126.0	2~7 (20~73)	28 (286)	500	1800	41
3						3~21 (30~215)				
4						3~28 (30~286)				
						2~7 (20~73)				
P100-A 1-F-R-01	100.0	100.0	120.0	150.0	180.0	2~7 (20~73)	28 (286)	500	1800	60
3						3~21 (30~215)				
4						3~28 (30~286)				
						2~7 (20~73)				

P08-A-TYPE / PRESSURE COMPENSATING TYPE





Control Type

STANDARD TYPE

Symbol	External view	Performance Curves	Hydraulic Circuit	Description
A				<p>Pressure Compensating Type (Manual)</p> <ul style="list-style-type: none"> When the pressure reaches the value set with the compensator, the flow is reduced automatically and the set pressure is maintained. The pressure and flow are controlled manually.

OPTION TYPE

B				<p>Remote Pressure Control Type</p> <ul style="list-style-type: none"> The pressure can be controlled according to the pilot pressure. The flow can be controlled manually.
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C				<p>Two Pressure-Two Flow Control Type</p> <ul style="list-style-type: none"> By means of the sequence valve, two stage flow rate can be obtained and each flow rate has the different pressure eventually enabling energy savings.
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D				<p>Solenoid Cut-Off Control Type</p> <ul style="list-style-type: none"> An unloading solenoid valve is used to minimize the lost energy when the pump output is not required. Heat generated is very small.
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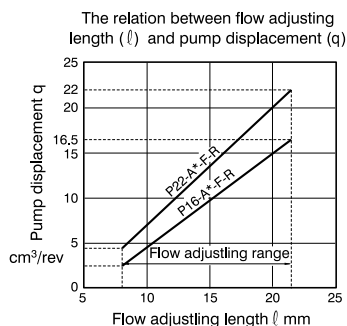
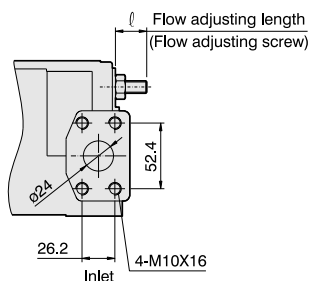
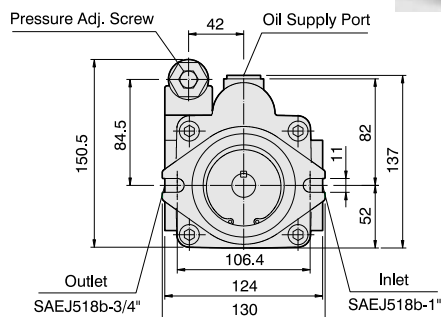
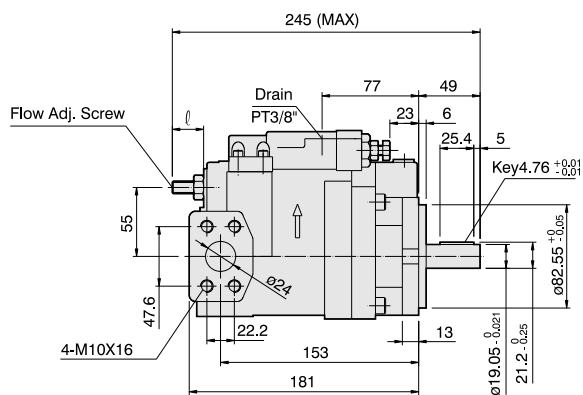
E				<p>Two Pressure Cut-Off Control Type</p> <ul style="list-style-type: none"> By means of "ON" "OFF" control of solenoid valves, two different pressure compensating types can be obtained.
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HL				<p>Load Sensing Control</p> <ul style="list-style-type: none"> The "HL" compensator is used for load sensing circuits and is a true load sensor. This is the "B" compensator with a pin in the compensator spool. The pin prevents pilot flow from entering the circuit which will eliminate creeping of the load. The "HL" compensator will let the pump deliver a constant flow rate to the circuit by providing an adjustable ΔP across the customer's orifice or valve. The pump will operate at 17.2~27.5 bar (250-400 psi) above "Load pressure".
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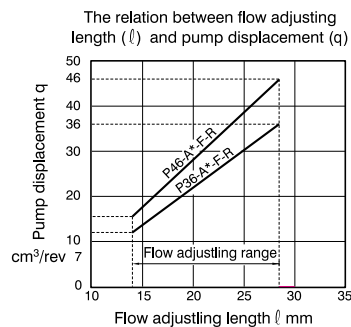
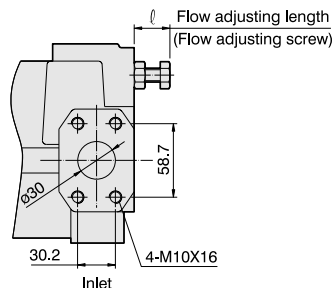
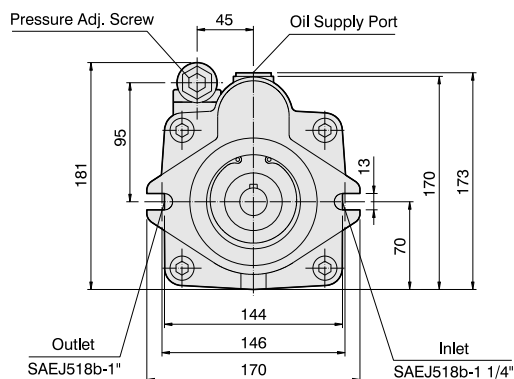
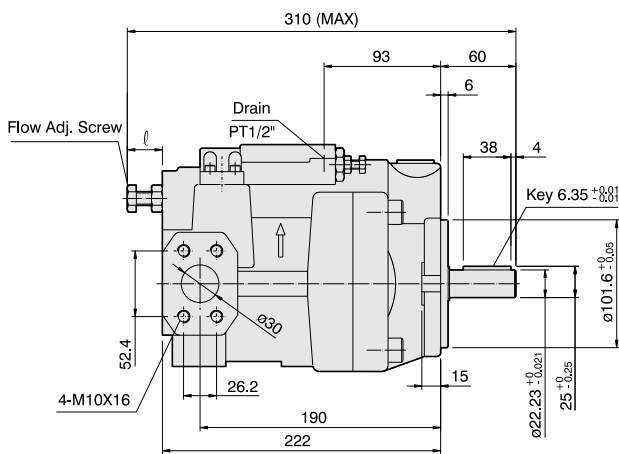


Pressure Compensating Type

P16-A-TYPE / P22-A-TYPE



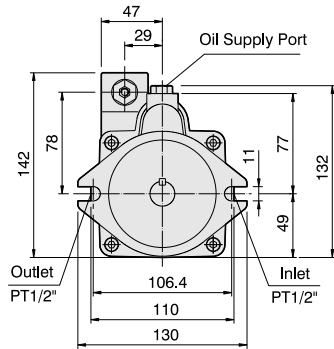
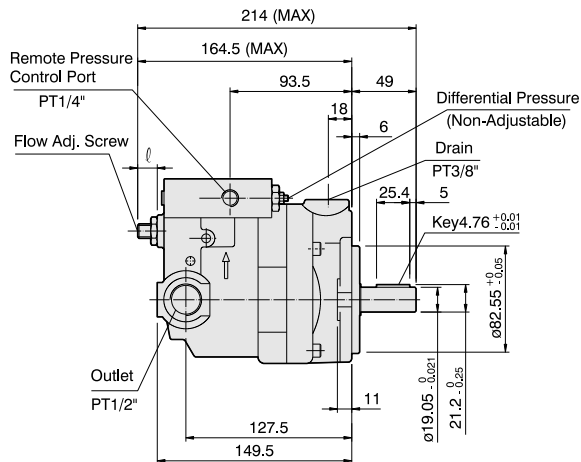
P36-A-TYPE / P46-A-TYPE



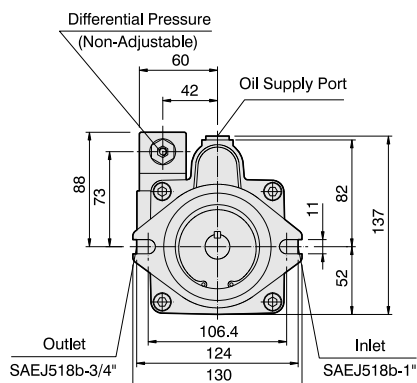
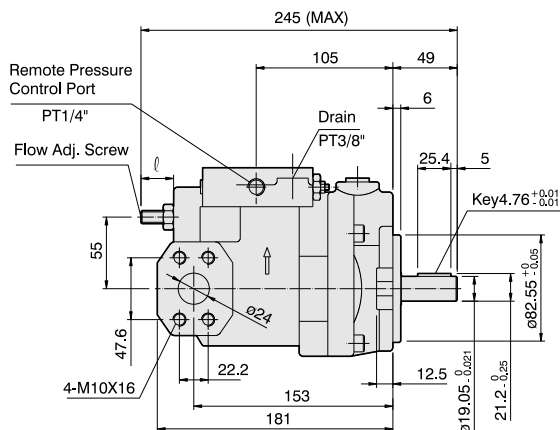


Remote pressure control type

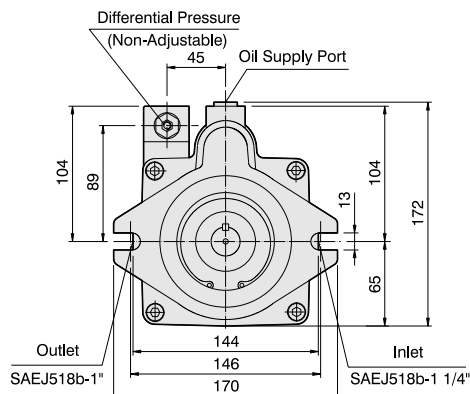
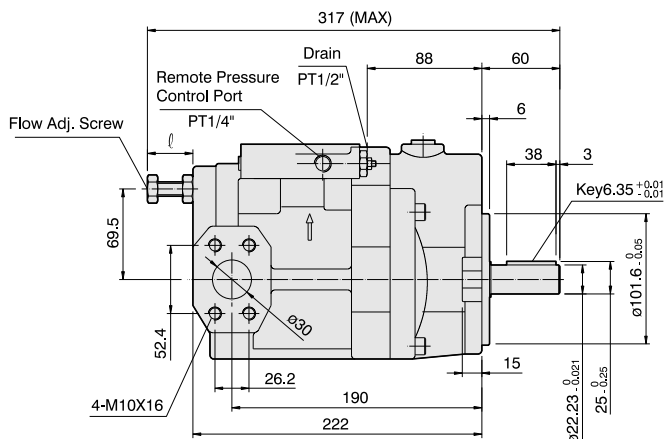
P08-B-TYPE



P16-B-TYPE / P22-B-TYPE



P36-B-TYPE / P46-B-TYPE





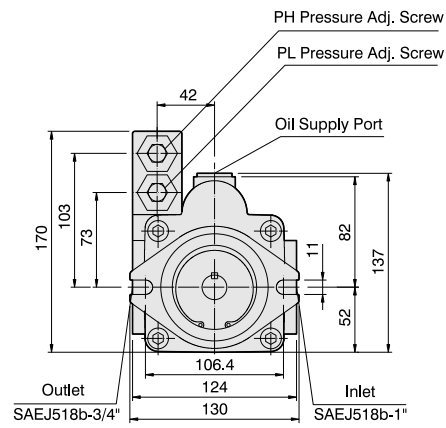
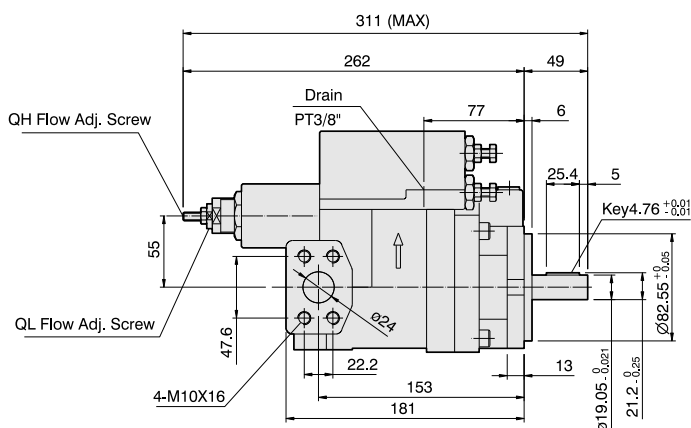
Two pressure-two flow control type

P16-C1A3-F-R-01

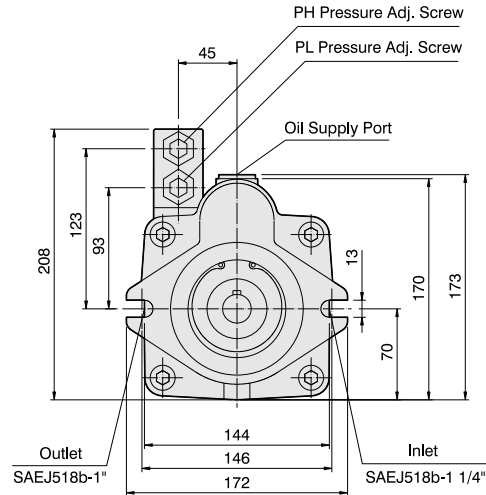
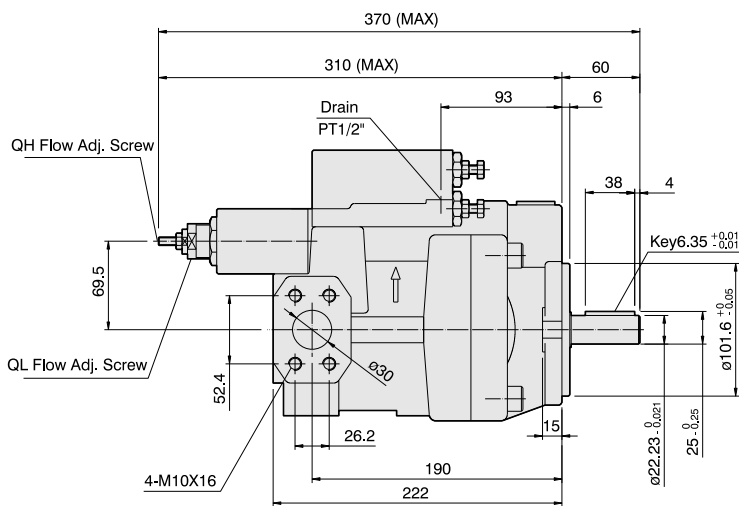
Design code		
Rotation	R : Clockwise(CW)	
Mounting	F : Flange mounting	L : Foot mounting
PH Pressure adj. range	A2 : 30~145kgf/cm ²	A3 : 30~215kgf/cm ²
PL Pressure adj. range	C0 : 20~40kgf/cm ²	C1 : 20~73kgf/cm ²
Displacement	16, 22, 36, 46, (cm ³ /rev)	



P16-C-TYPE / P22-C-TYPE



P36-C-TYPE / P46-C-TYPE





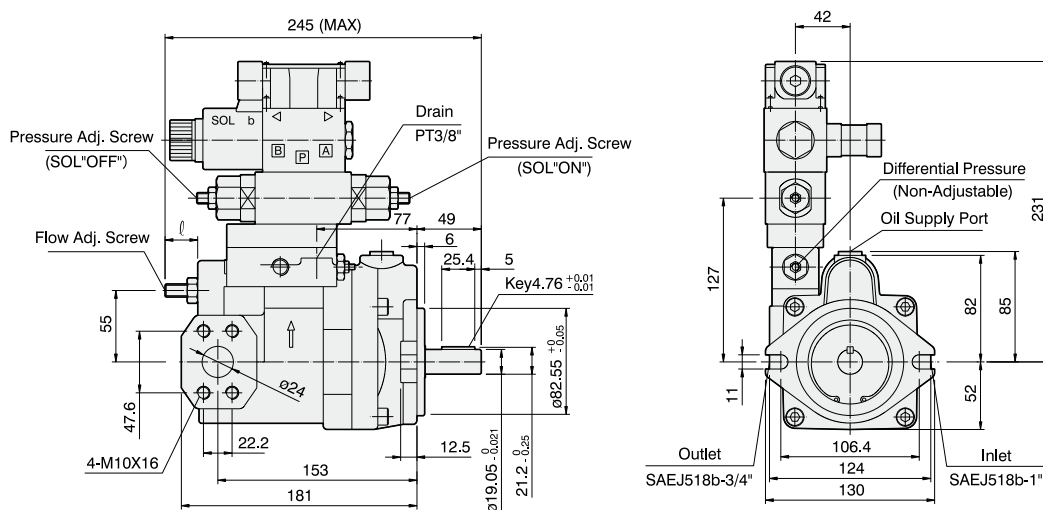
Two pressure cut-off control type

P16-E3-F-R-01

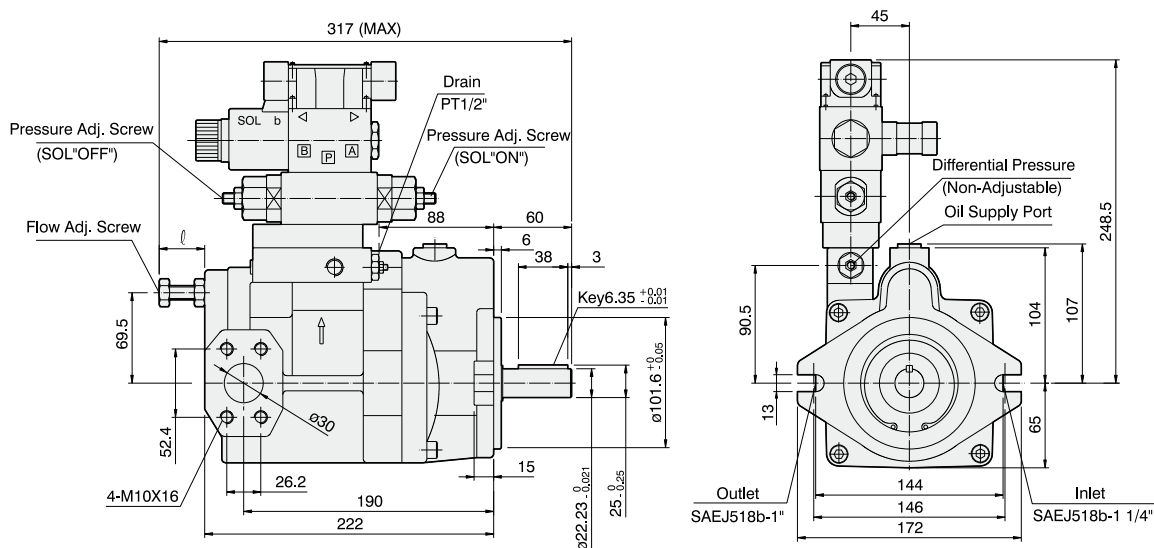
Design code		
Rotation	R : Clockwise(CW)	
Mounting	F : Flange mounting L : Foot mounting	
Pressure adj. range	2 : 30~145 kgf/cm ² 3 : 30~215 kgf/cm ²	
Two pressure cot-off control type		
Displacement	08,16, 22, 36, 46, 70, 100, (cm ³ /rev)	



P16-E-TYPE / P22-E-TYPE



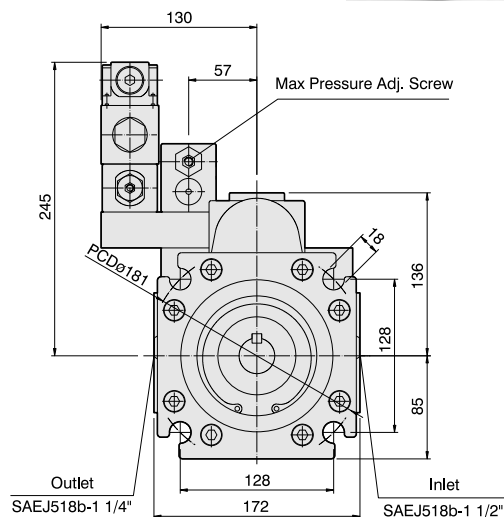
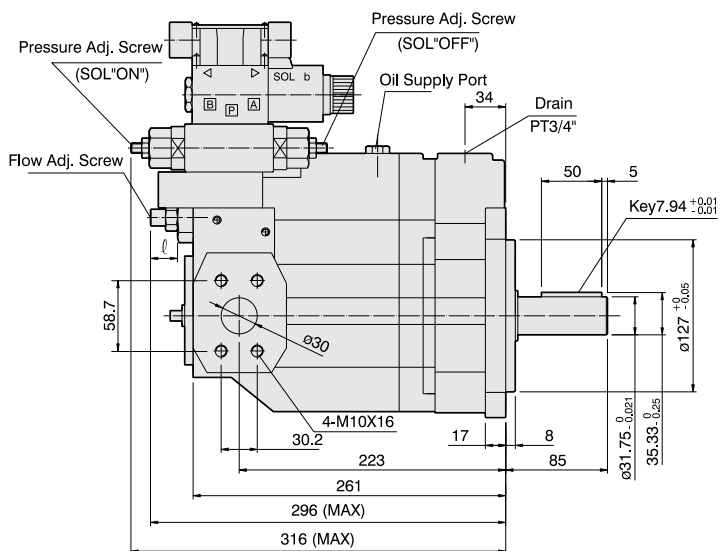
P36-E-TYPE / P46-E-TYPE



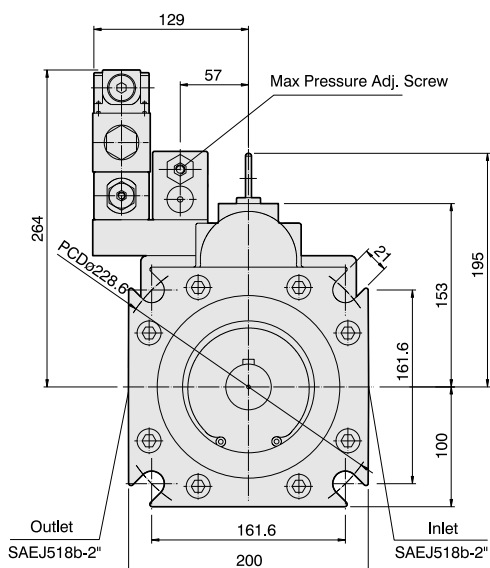
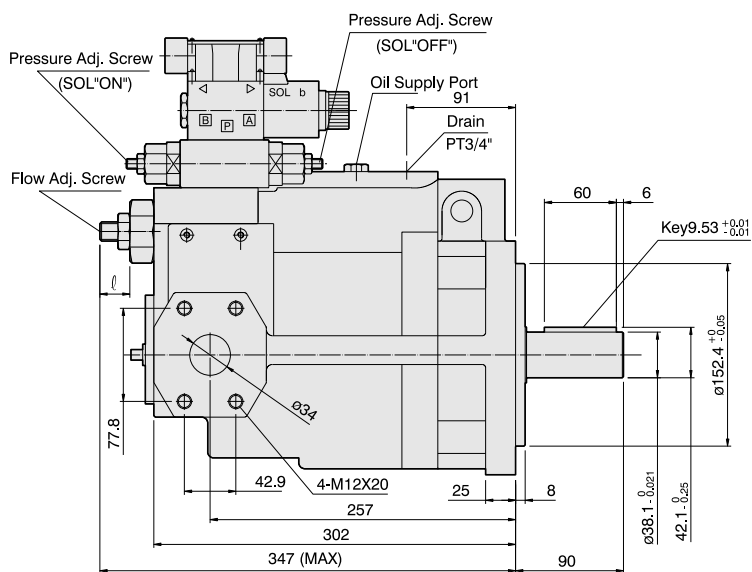


Two pressure cut-off control type

P70-E-TYPE



P100-E-TYPE





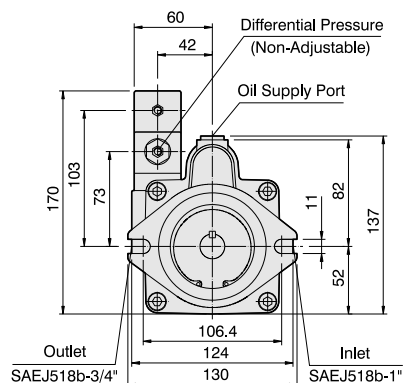
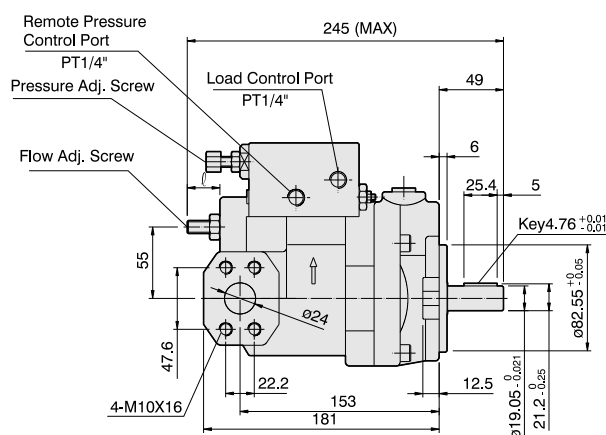
Load sensing control type

P16-HL3-F-R-01

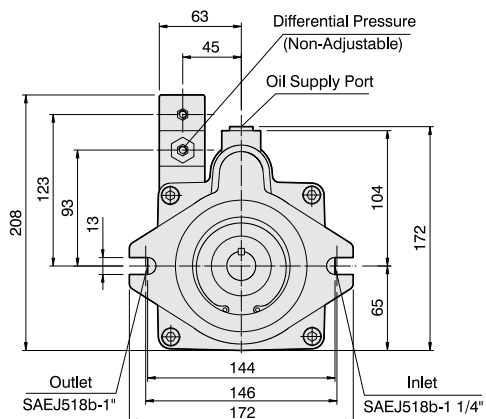
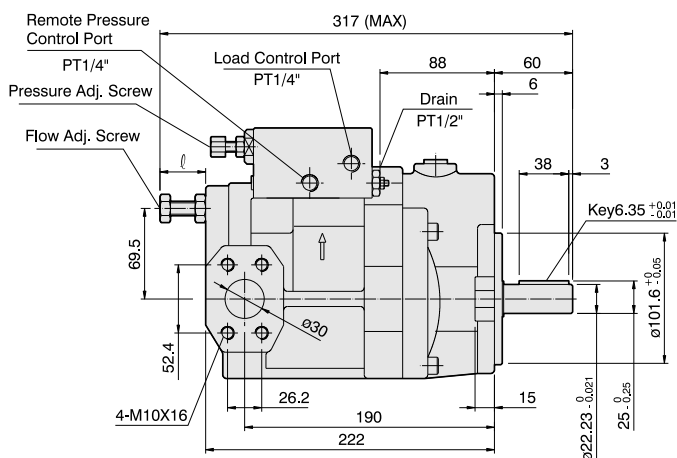
	Design code		
	Rotation	R : Clockwise(CW)	
	Mounting	F : Flange mounting	L : Foot mounting
	Pressure adj. range	2 : 30~145 kgf/cm ²	3 : 30~215 kgf/cm ²
	Load sensing control type		
	Displacement	08,16, 22, 36, 46, 70, 100, (cm ³ /rev)	



P16-HL-TYPE / P22-HL-TYPE



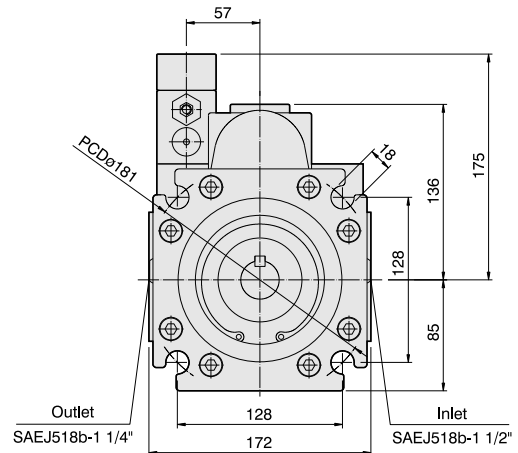
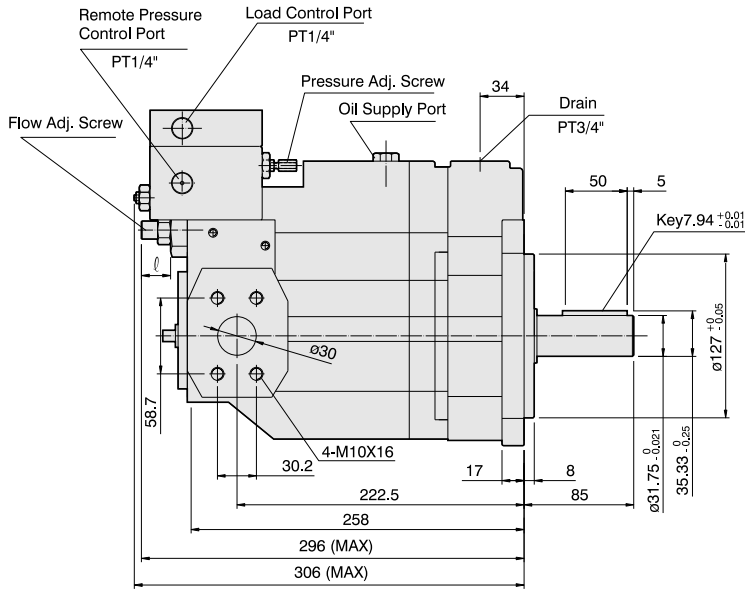
P36-HL-TYPE / P46-HL-TYPE



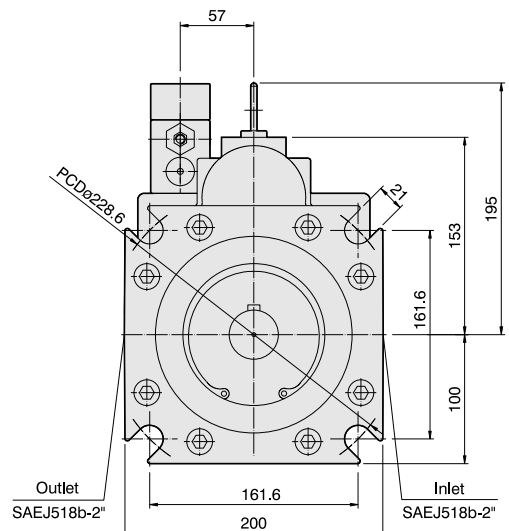
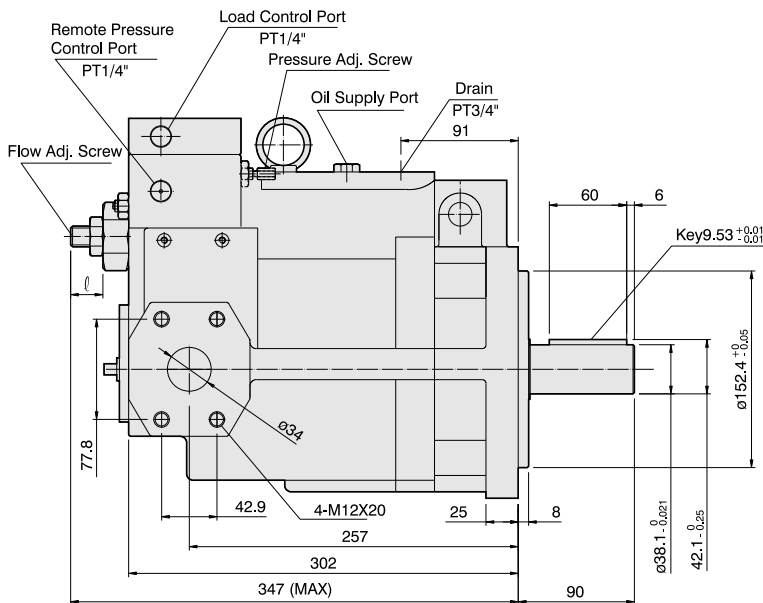


Load sensing control type

P70-HL-TYPE



P100-HL-TYPE





DOUBLE PUMPS

Shaft end pump model PP36-A3-F-R-2A

Cover end pump model P16-A3-S

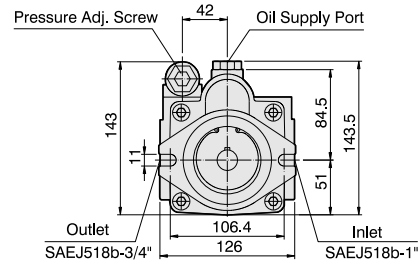
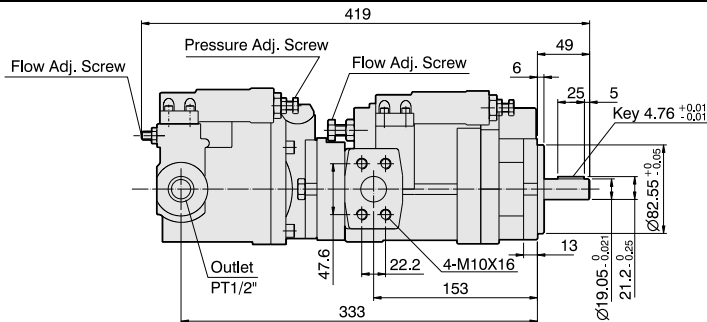
1 Variable volume piston pump-Double Pump	4 Pressure adjusting range 1 : 20~73 kgf/cm ² 2 : 30~145 kgf/cm ² 3 : 30~215 kgf/cm ²
2 Geometric displacement Shaft end pump(Ref Model Number)	5 Mounting F: Flange mounting L: Foot mounting
3 Control options A : Pressure compensating type B : Remote pressure control type D : Solenoid cut-off control type E : Two pressure cut-off control type HL : Load sensing control type	6 Rotation R : Clockwise(Viewed from shaft end)
	7 Thru-drive 2A:SAE A 2.55 2B:SAE B 01.6 (PP70+P36/46, PP100+P36/46)

1 Variable volume piston pump (Cover end pump)	4 Pressure adjusting range 1 : 20~73 kgf/cm ² 2 : 30~145 kgf/cm ² 3 : 30~215 kgf/cm ²
2 Geometric displacement Cover end pump(Ref Model Number)	5 Type of Shaft S : SAE A Spline K : Cylindric, key (PP70+P36/46, PP100+P36/46)
3 Control options A : Pressure compensating type B : Remote pressure control type D : Solenoid cut-off control type E : Two pressure cut-off control type HL : Load sensing control type	

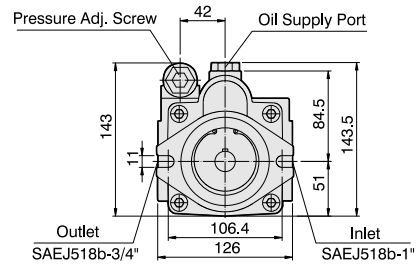
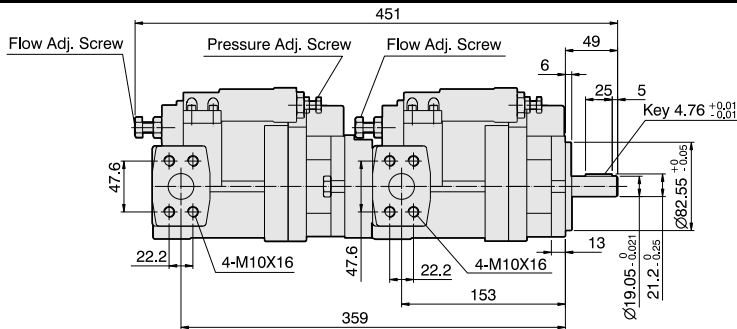
Model number :

Shaft end pump Cover end pump	PP16	PP22	PP36	PP46	PP70	PP100
P08	●	●	●	●	●	●
P16	●	●	●	●	●	●
P22		●	●		●	●
P36					●	●
P46					●	●

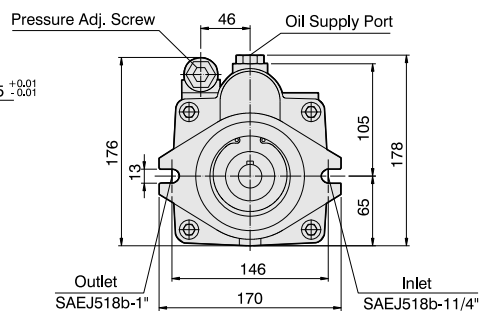
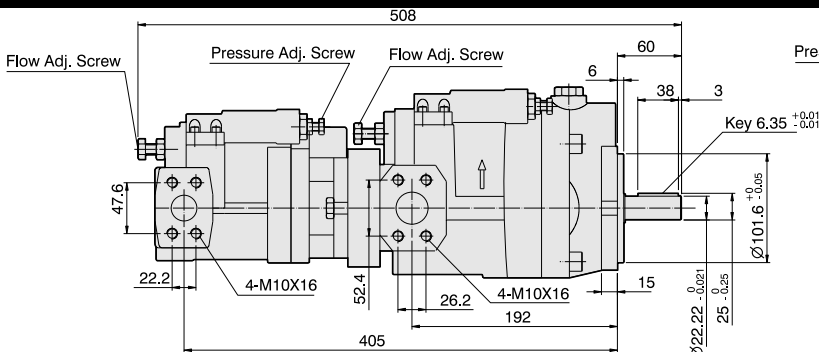
PP16/22-A*-F-R-2A+P08-A*-S



PP16/22-A*-F-R-2A+P16/22-A*-S



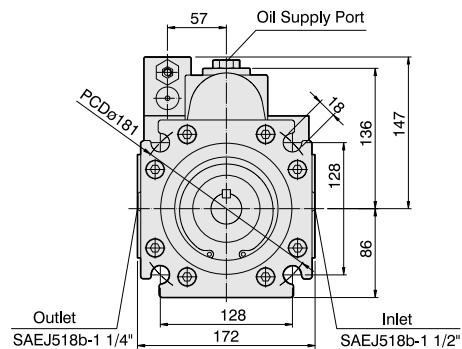
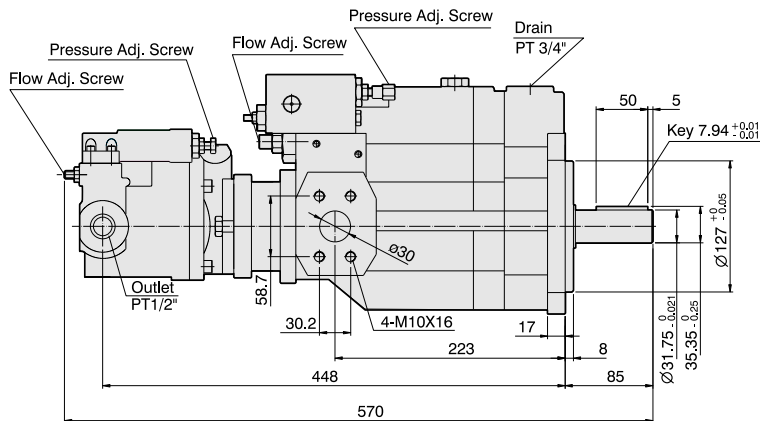
P36/46-A*-F-R-2A+P16/22-A*-S



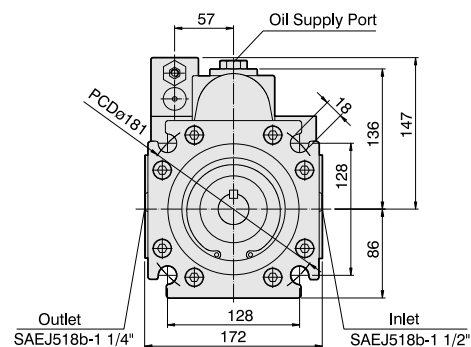
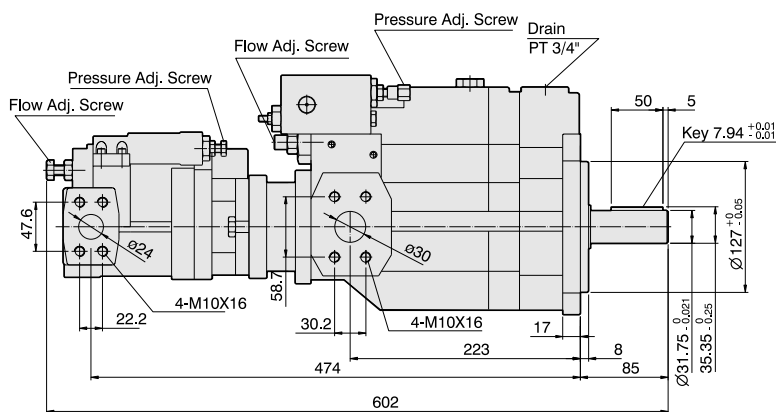


DOUBLE PUMPS

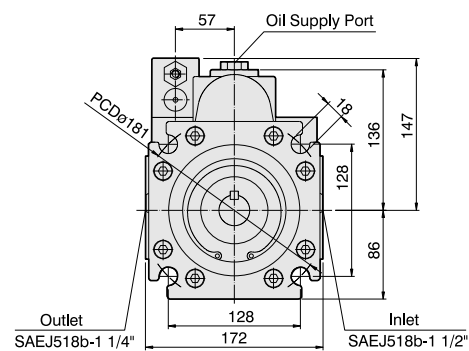
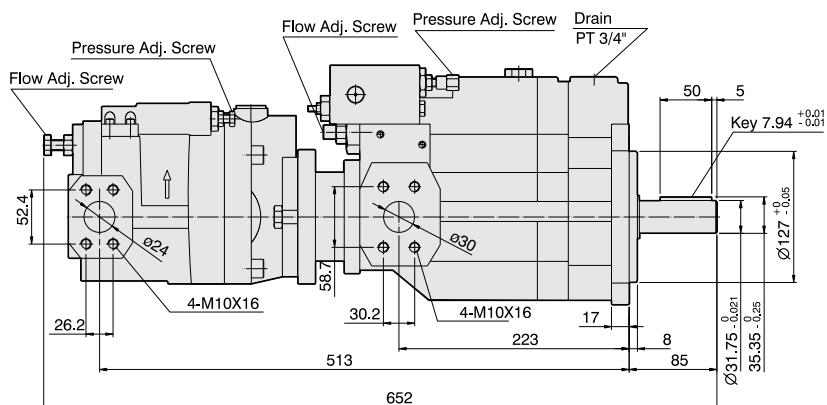
PP70-A*-F-R-2A+P08-A*-S



PP70-A*-F-R-2A+P16/22-A*-S



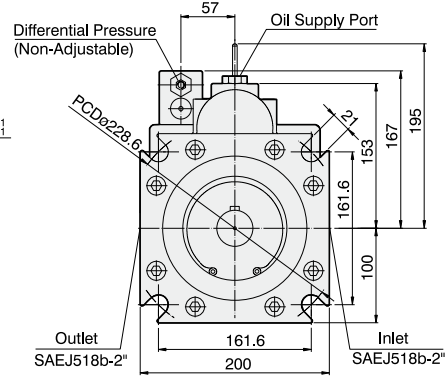
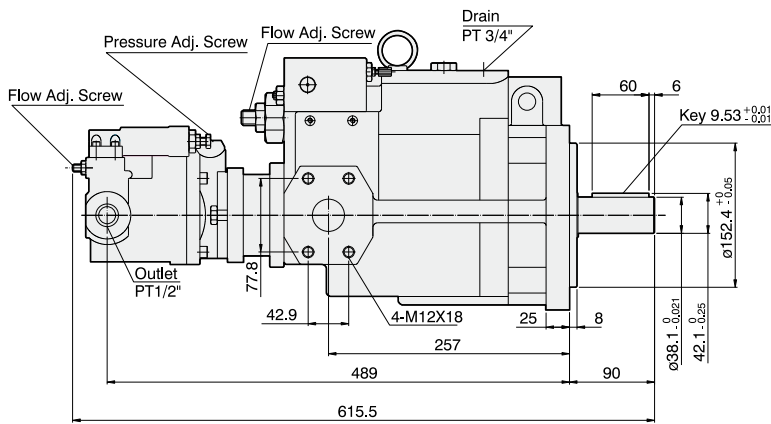
PP70-A*-F-R-2B+P36/46-A*-K



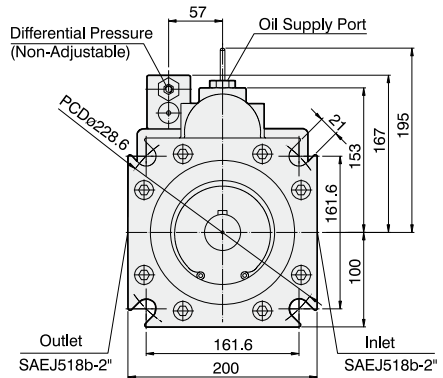
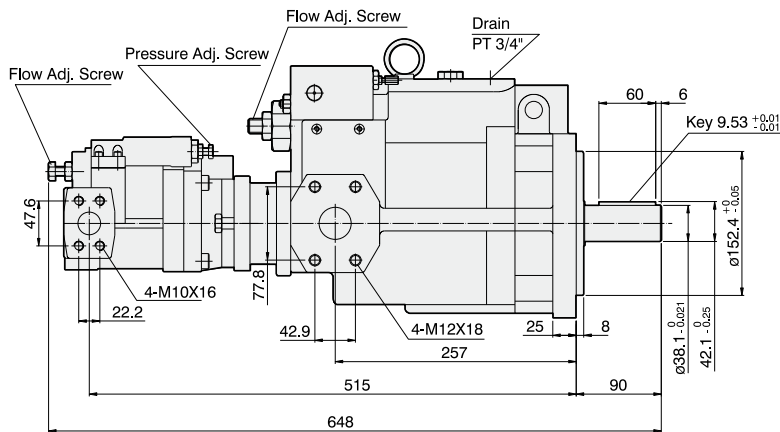


DOUBLE PUMPS

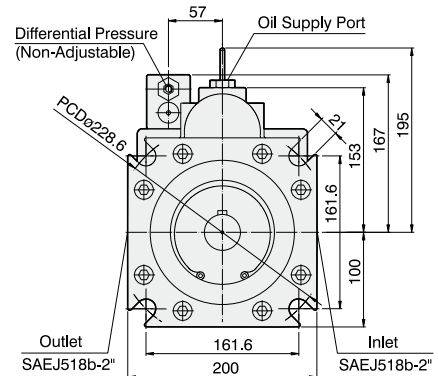
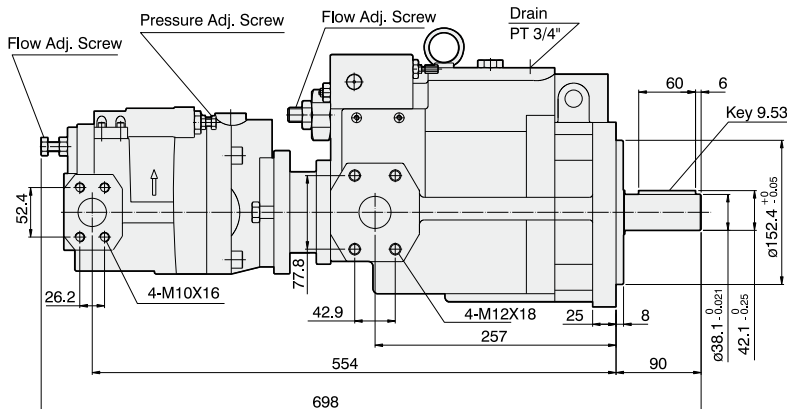
PP100-A*-F-R-2A+P08-A*-S



PP100-A*-F-R-2A+P16/22-A*-S



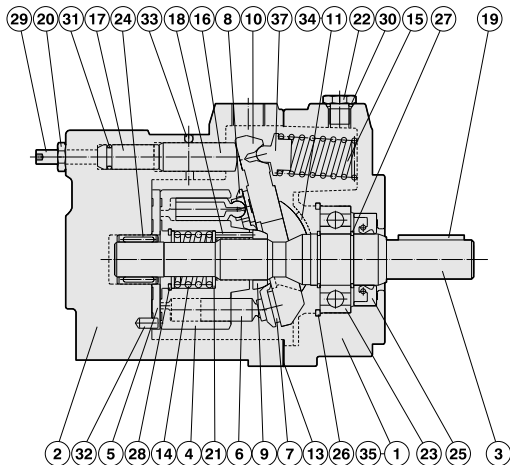
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Cross Section Drawing

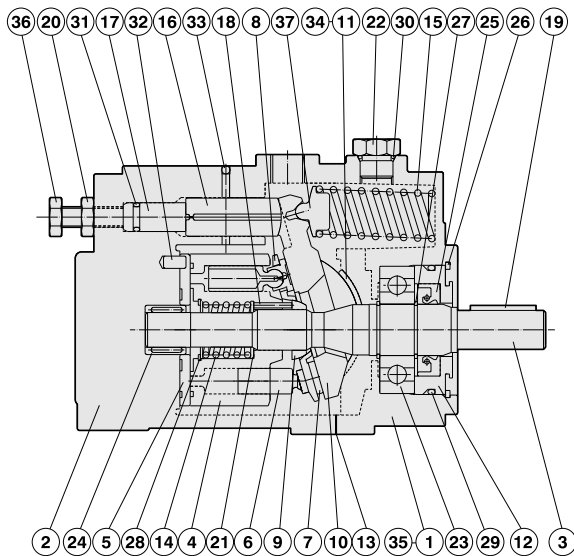
PO8-TYPE



PO8-TYPE

Part No.	Part Name	Size	Q"ty
13	Gasket	—	1
23	Ball Bearing	6205	1
24	Ball Bearing	TA 1720	1
25	Oil seal	TCN 25 45 11	1
30	Oil-ring	P11	1
31	Oil-ring	P9	1

P16/22/36/46-TYPE



P16/22/36/46-TYPE

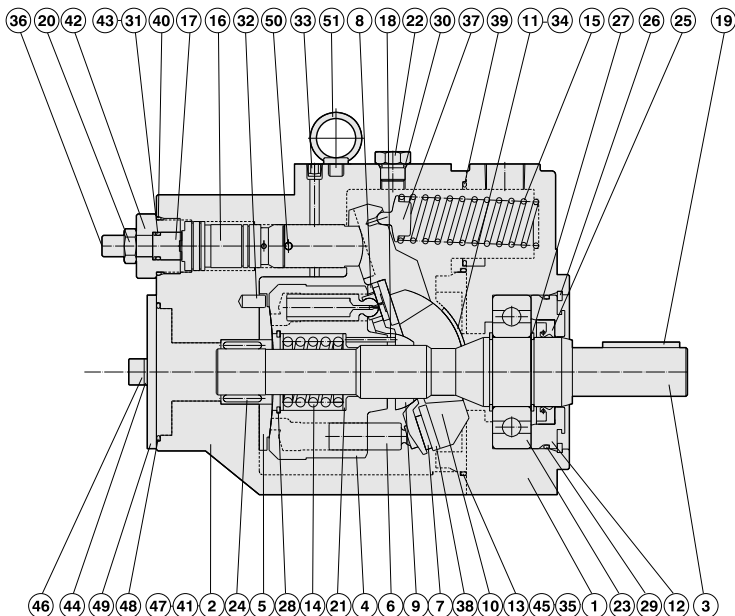
Part No.	Part Name	P16/22-TYPE	P36/46-TYPE	Q"ty
		Size	Size	
13	Gasket	—	—	1
23	Ball bearing	6305	6306	1
24	Needle Bearing	TA 1720	TA 2025	1
25	Oil seal	TCN 25 45 11	TCN 30 50 11	1
29	Oil-ring	G58	G70	1
30	Oil-ring	P14	P14	1
31	Oil-ring	P10A	P14	1

Part No.	Part Name	Part No.	Part Name	Part No.	Part Name	Part No.	Part Name	Part No.	Part Name
1	Body	9	Barrel holder	17	Guide	25	Oil seal	33	Expander plug
2	Case	10	Swash plate	18	Needle	26	Snap ring	34	Machine screw
3	Shaft	11	Thrust bush	19	Key	27	Snap ring	35	Machine screw
4	Cylinder barrel	12	Seal holder	20	Nut	28	Snap ring	36	Flow adj. screw
5	Valve plate	13	Gasket	21	Retainer	29	O-ring	37	Spring Holder
6	Piston	14	Spring	22	Plug	30	O-ring		
7	Shoe	15	Spring	23	Ball bearing	31	O-ring		
8	Shoe holder	16	Control Piston	24	Needle bearing	32	Pin		



Cross Section Drawing

P70/100-TYPE

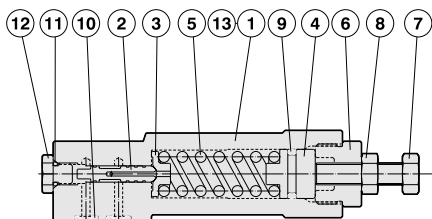


P70/100-TYPE

Part No.	Part Name	P16/22-TYPE	P36/46-TYPE	Q"ty
		Size	Size	
13	Oil-ring	G130	G155	1
23	Ball bearing	6309	6310	1
24	Needle bearing	RNA 6905	TR 35 48 30	1
25	Oil seal	TCN 45 68 12	TCN 50 72 12	1
29	Oil-ring	G95	G105	1
30	Oil-ring	P14	P14	1
31	Oil-ring	P14	P16	1
39	Oil-ring	G50	G50	1
40	Oil-ring	P34	P36	1
41	Oil-ring	P9	P9	1
48	Oil-ring	G85	G85	1

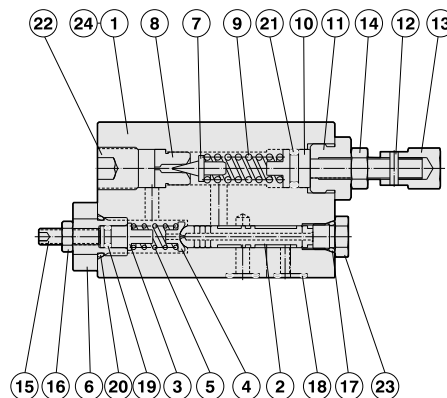
Pressure compensator Cross Section Drawing

P08/16/22/36/46-A-TYPE



Part No.	Part Name	Size	Q"ty
9	Oil-ring	P14	1
10	Oil-ring	P6	3
11	Oil-ring	P6	1

P70/100-A-TYPE



Part No.	Part Name	Size	Q"ty
17	Oil-ring	P8	1
18	Oil-ring	P9	3
19	Oil-ring	P5	1
20	Oil-ring	P12	1
21	Oil-ring	P10A	1

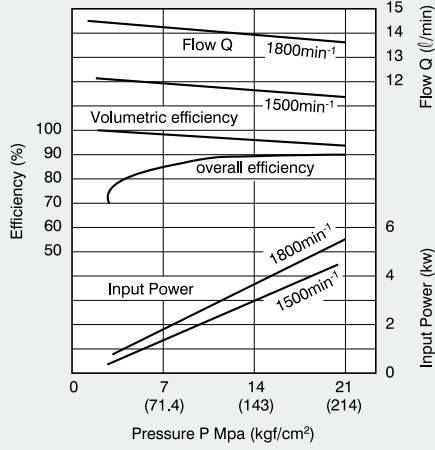


PERFORMANCE DATA

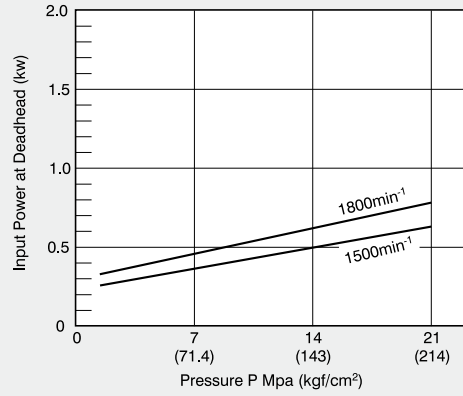
P08-A*-F-01

, OIL VISCOSITY ISO VG32

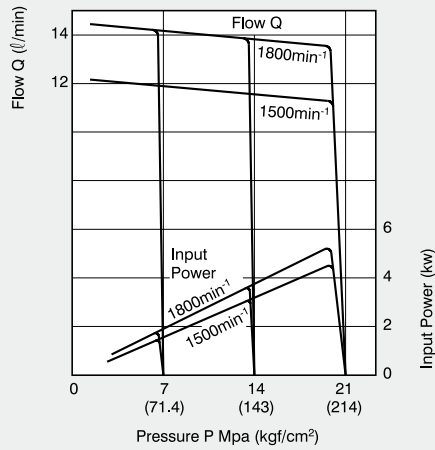
Efficiency Curves



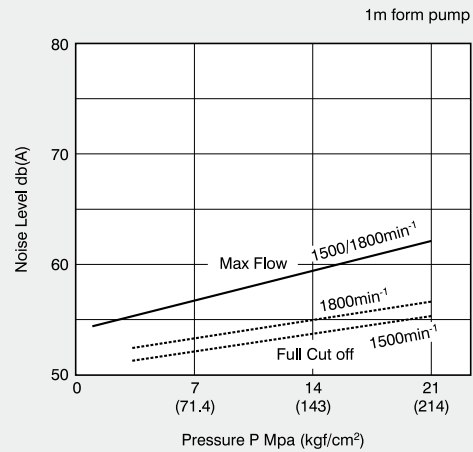
Input power at Deadhead



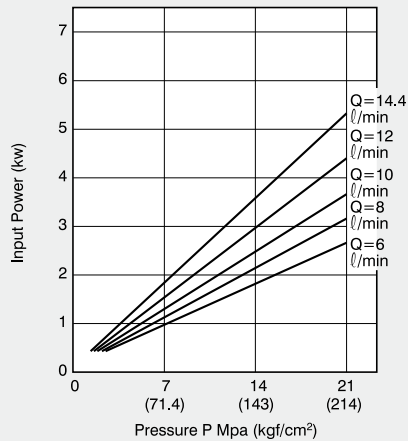
Pressure-Flow Curves



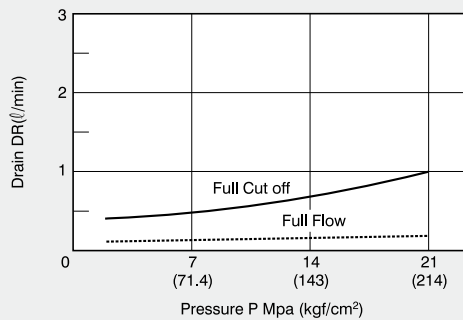
Noise Level



Input Power Curves



Drain curve



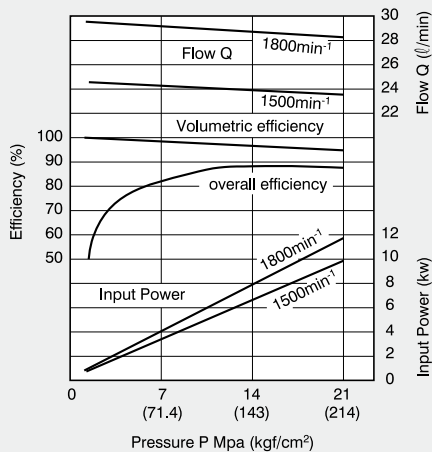


PERFORMANCE DATA

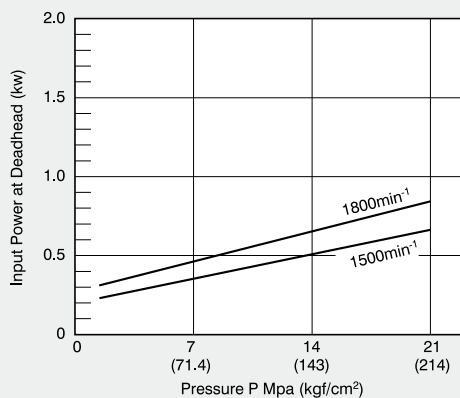
P16-A*-F-01

OIL VISCOSITY ISO VG32

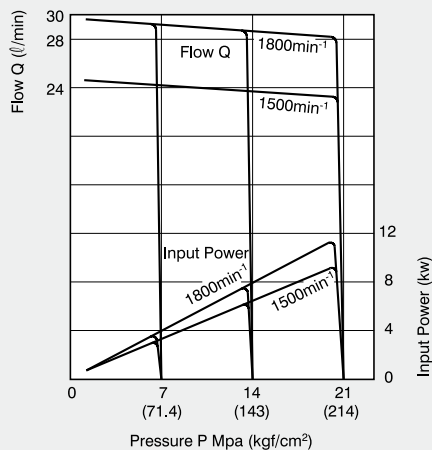
Efficiency Curves



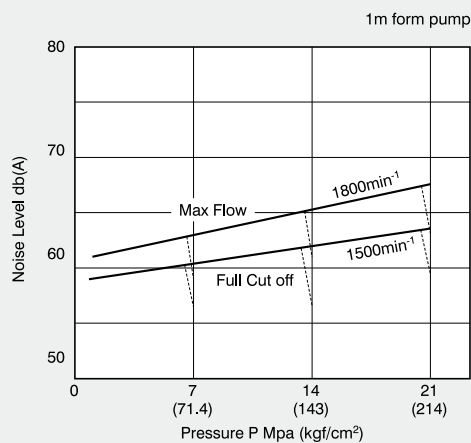
Input power at Deadhead



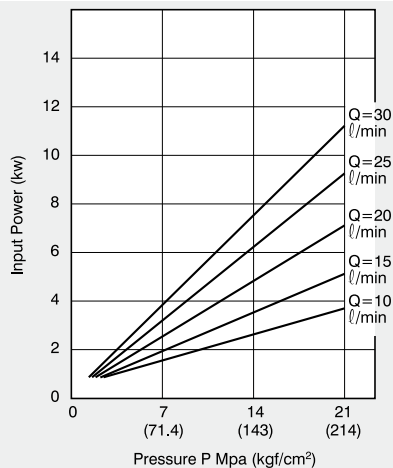
Pressure-Flow Curves



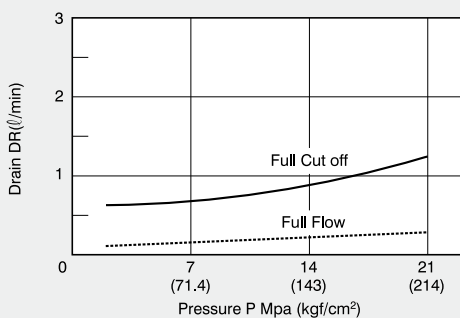
Noise Level



Input Power Curves



Drain curve



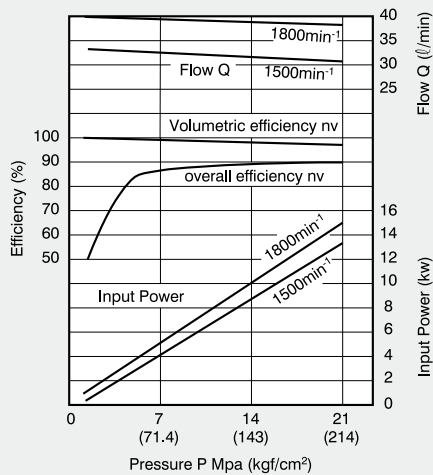


PERFORMANCE DATA

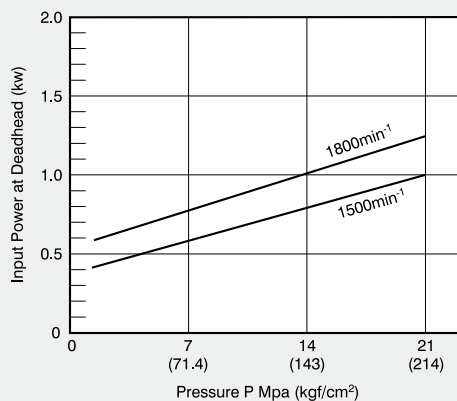
P22-A*-F-01

OIL VISCOSITY ISO VG32

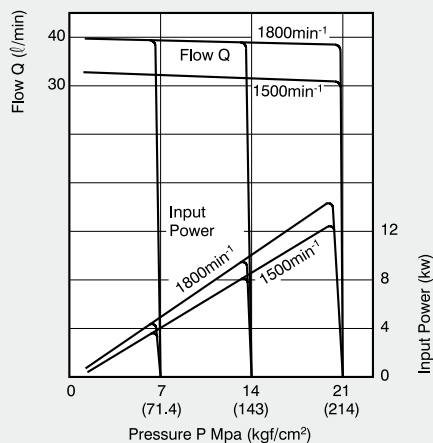
Efficiency Curves



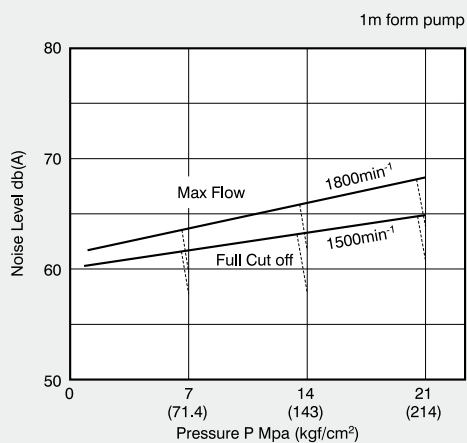
Input power at Deadhead



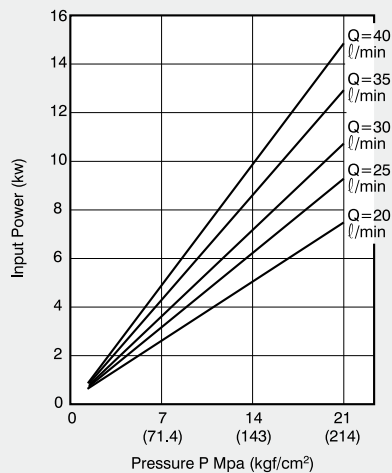
Pressure-Flow Curves



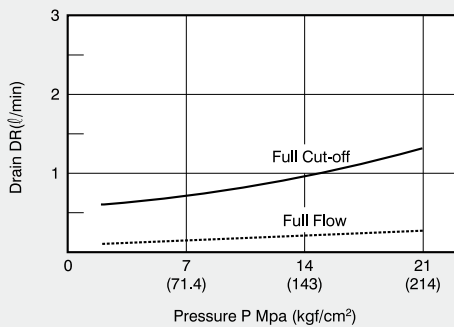
Noise Level



Input Power Curves



Drain curve



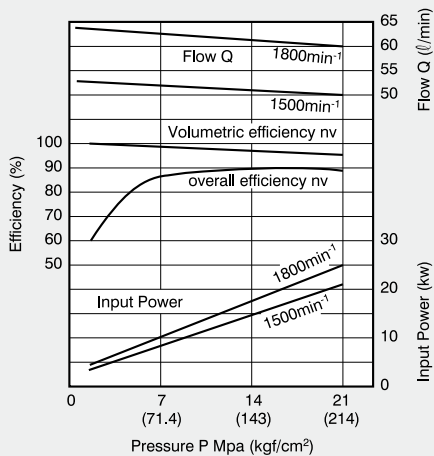


PERFORMANCE DATA

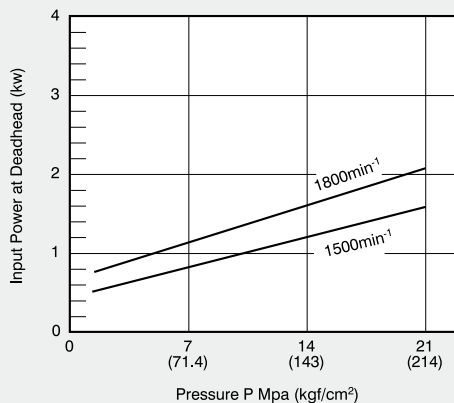
P36-A*-F-01

OIL VISCOSITY ISO VG32

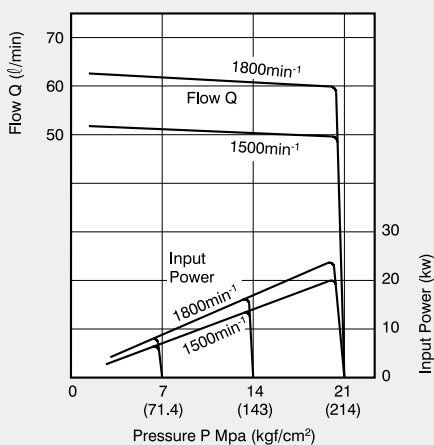
Efficiency Curves



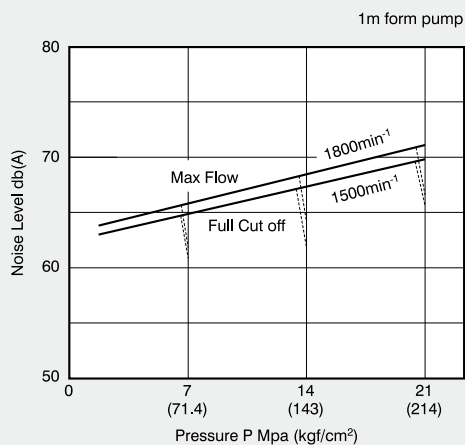
Input power at Deadhead



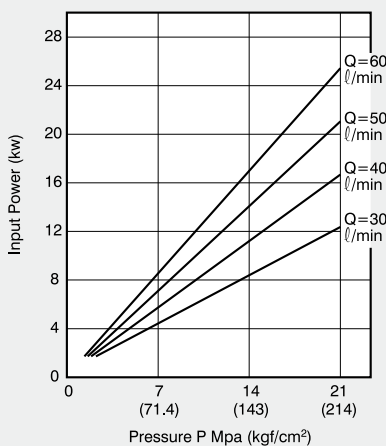
Pressure-Flow Curves



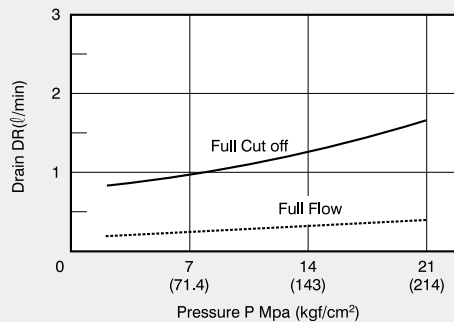
Noise Level



Input Power Curves



Drain curve



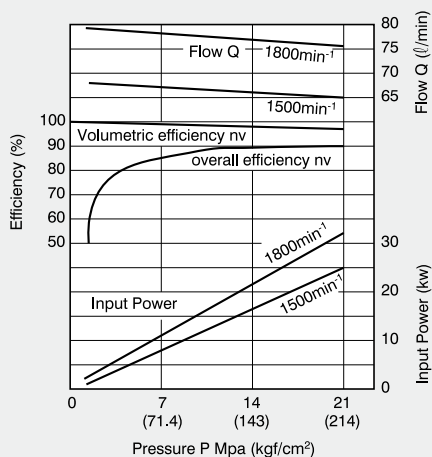


PERFORMANCE DATA

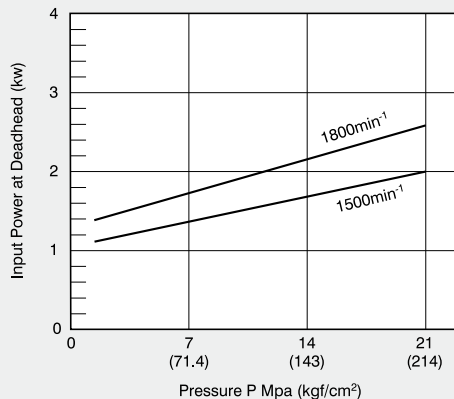
P46-A*-F-01

OIL VISCOSITY ISO VG32

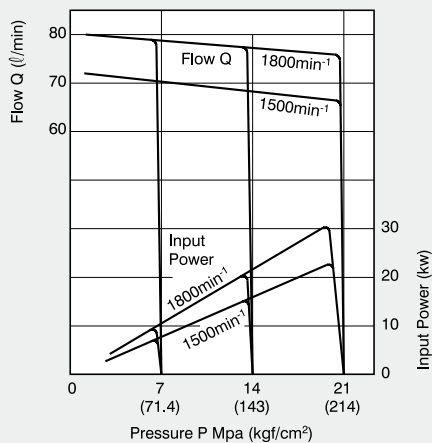
Efficiency Curves



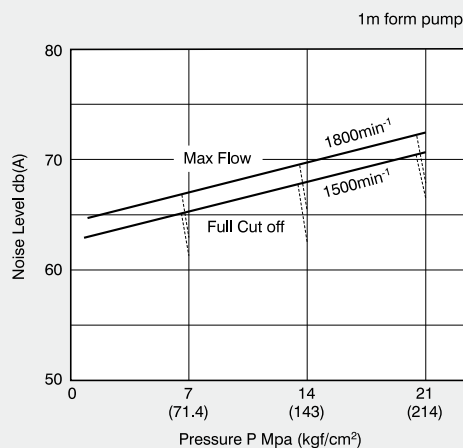
Input power at Deadhead



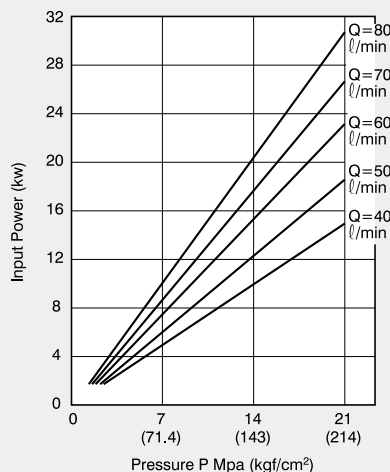
Pressure-Flow Curves



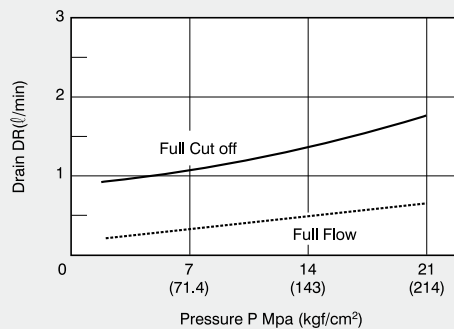
Noise Level



Input Power Curves



Drain curve

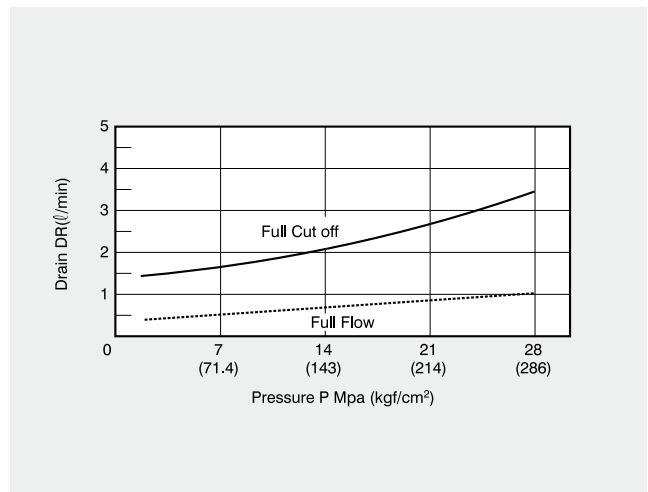
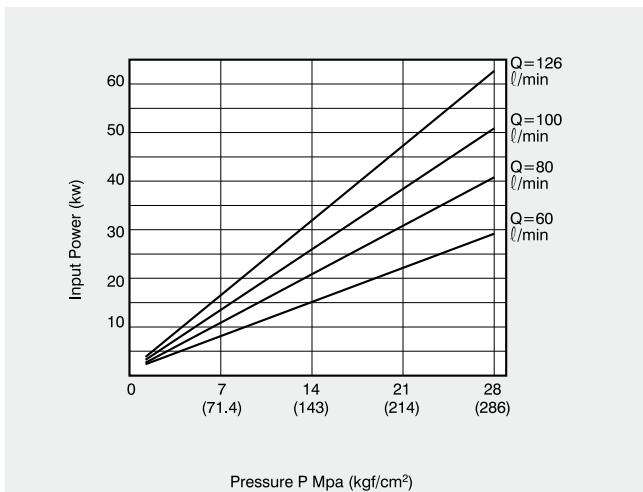
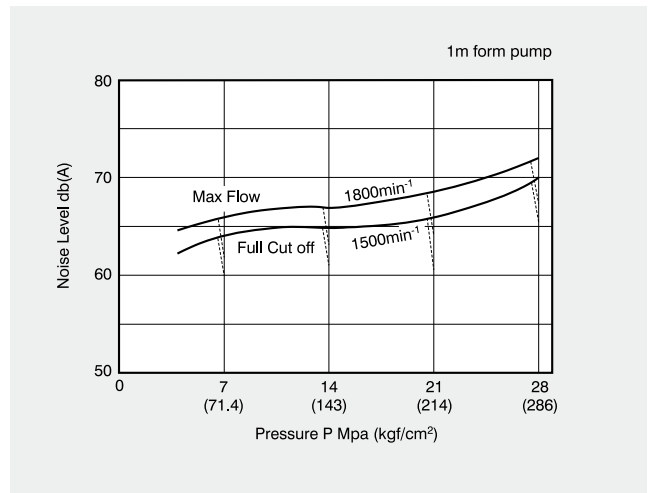
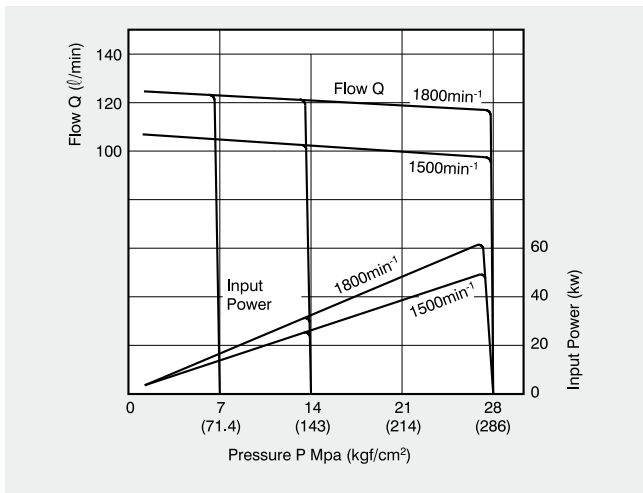
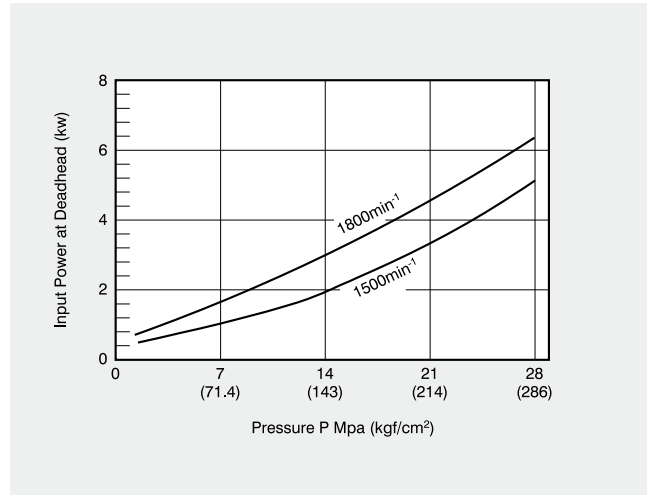
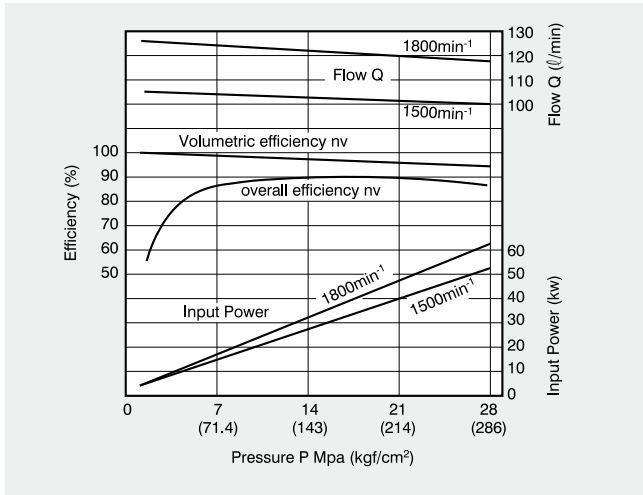




PERFORMANCE DATA

P70-A*-F-01

OIL VISCOSITY ISO VG32





PERFORMANCE DATA

P100-A*-F-01

OIL VISCOSITY ISO VG32

