

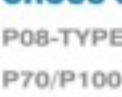
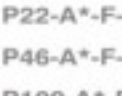
HPPC

HSU HONG PRECISION MACHINERY



***VARIABLE VOLUME
PISTON PUMPS***

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STANDARD TYPE

Symbol	External view	Performance Curves	Hydraulic Circuit	Description
A				Pressure Compensating Type (Manual) - 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				Remote Pressure Control Type - The pressure can be controlled according to the pilot pressure. - The flow can be controlled manually.
C				Two Pressure-Two Flow Control Type 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.
D				Solenoid Cut-Off Control Type - An unloading solenoid valve is used to minimize the lost energy when the pump output is not required. - Heat generated is very small.
E				Two Pressure Cut-Off Control Type By means of 'ON' 'OFF' control of solenoid valves, two different pressure compensating types can be obtained.
HL				Load Sensing Control - 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'.

MODEL

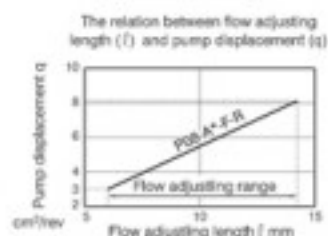
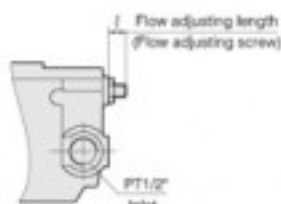
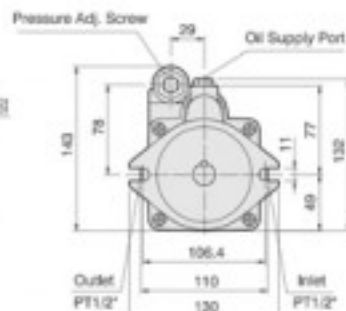
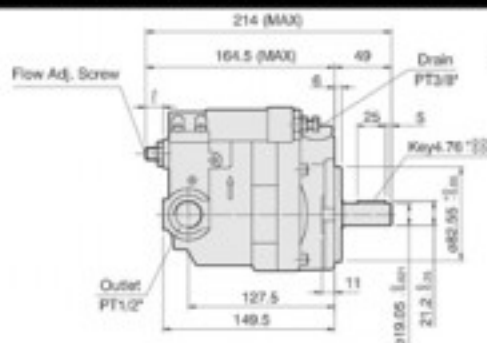
P16-A3-F-R-S-01

1 2 3 4 5 6 7 8

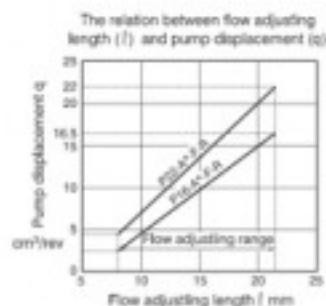
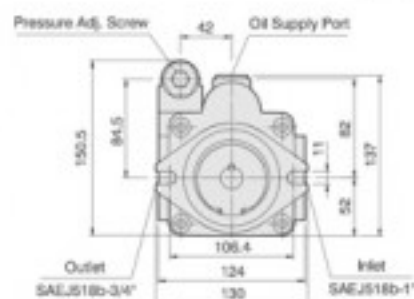
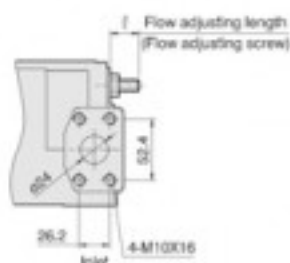
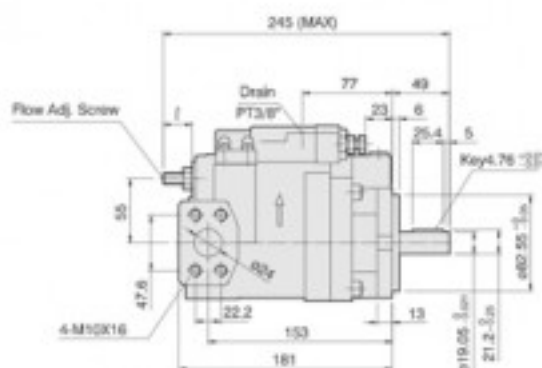
1 Variable volume piston pump	4 Pressure adjusting range	6 Rotation (Viewed from shaft end)
2 Displacement 08, 16, 22, 36, 46, 70, 100, (cm ³ /rev)	0 : 1~4 Mpa (10~40 kgf/cm ²) 1 : 2~7 Mpa (20~73 kgf/cm ²) 2 : 3~14 Mpa (30~145 kgf/cm ²) 3 : 3~21 Mpa (30~215 kgf/cm ²) 4 : 3~28 Mpa (30~286 kgf/cm ²)	R : 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 mounting	7 Shaft options S : SAE Spline Cylindric, Key (Code omitted)
		8 Design code

Model	Volume cm ³ /rev	Delivery at no load $\bar{Q}$ /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-A0-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)				
P16-A0-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)				
P22-A0-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)				
P36-A0-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)				
P46-A0-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)				
P70-A1-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)				
P100-A1-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)				

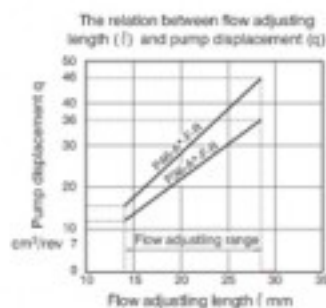
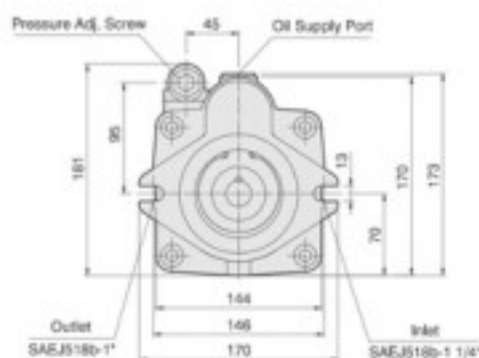
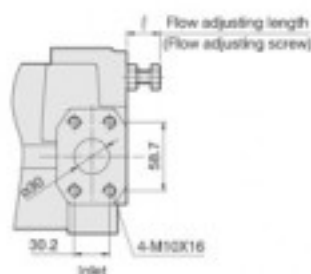
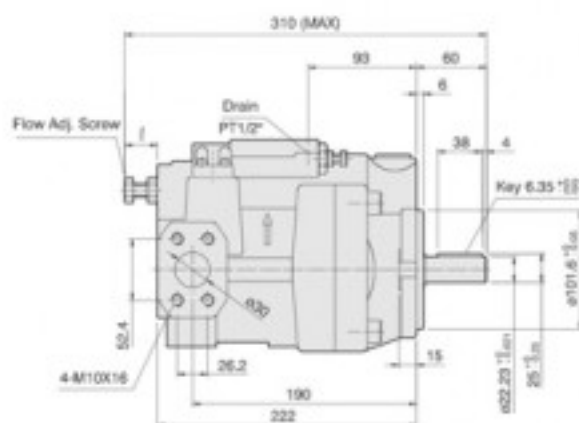
P08-A-TYPE / PRESSURE COMPENSATING TYPE



HPC

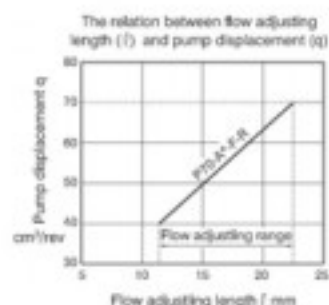
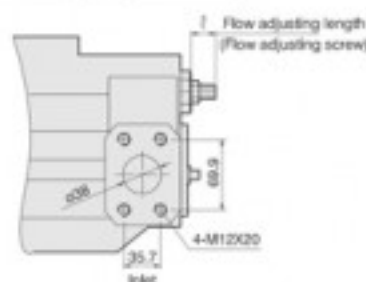
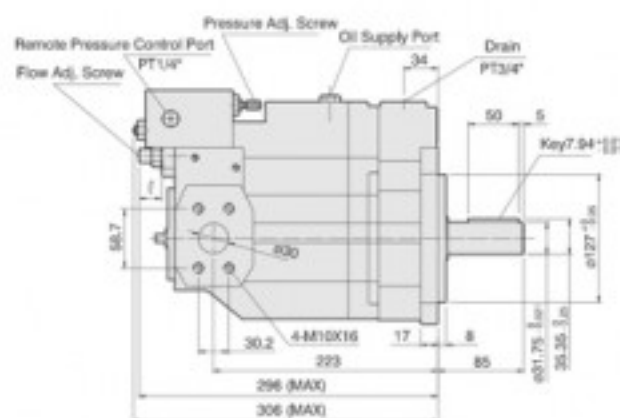


P36-A-TYPE / P46-A-TYPE

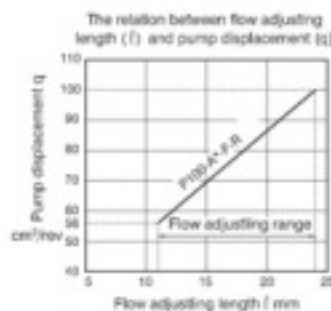
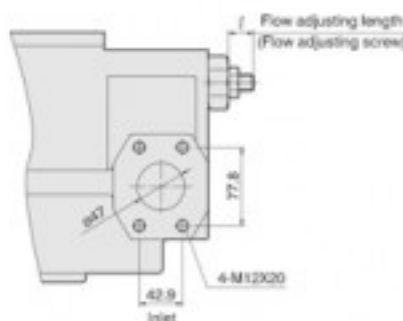
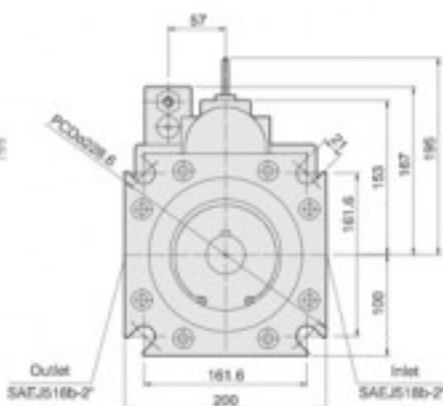
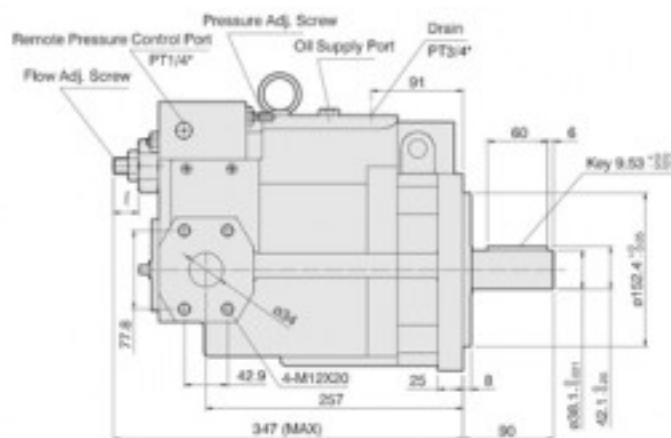


PRESSURE COMPENSATING TYPE

P70-A-TYPE



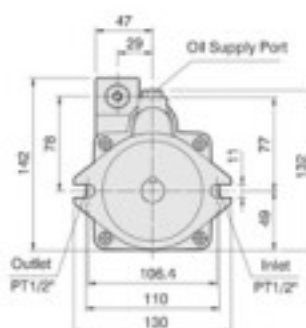
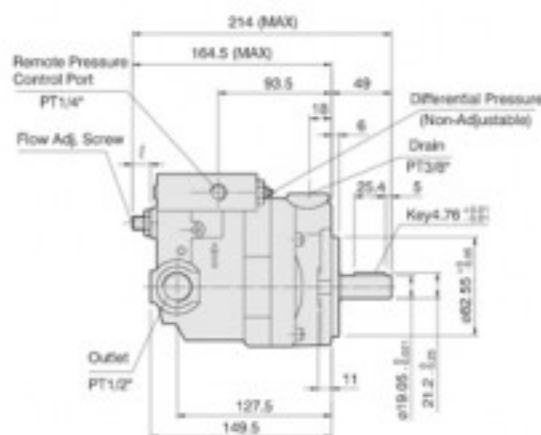
P100-A-TYPE



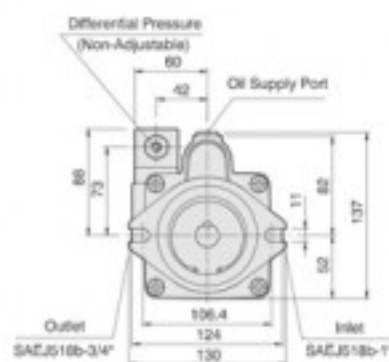
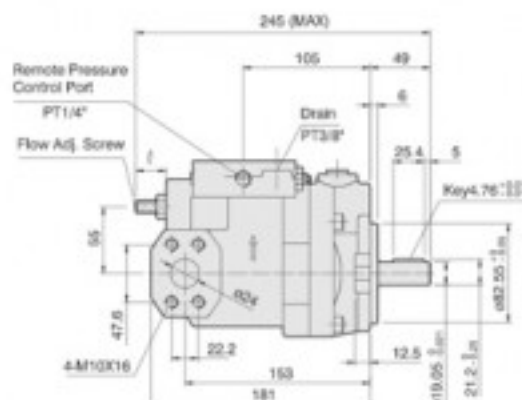
REMOTE PRESSURE CONTROL TYPE

HPC

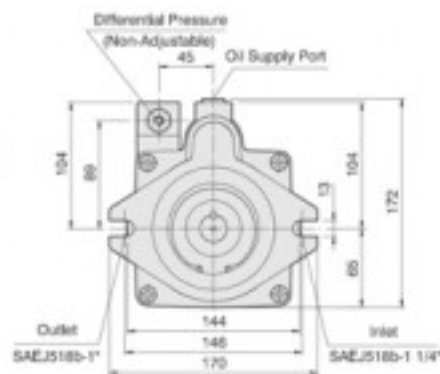
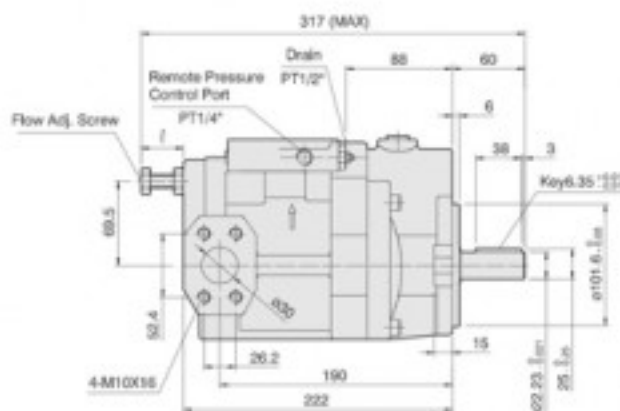
P08-B-TYPE



P16-B-TYPE / P22-B-TYPE



P36-B-TYPE / P46-B-TYPE



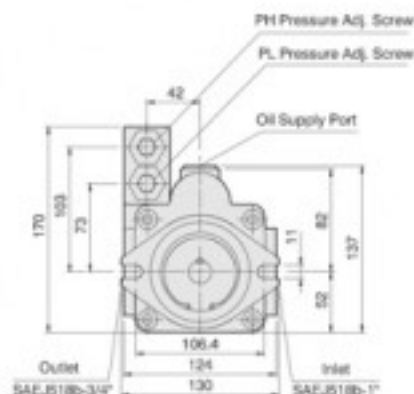
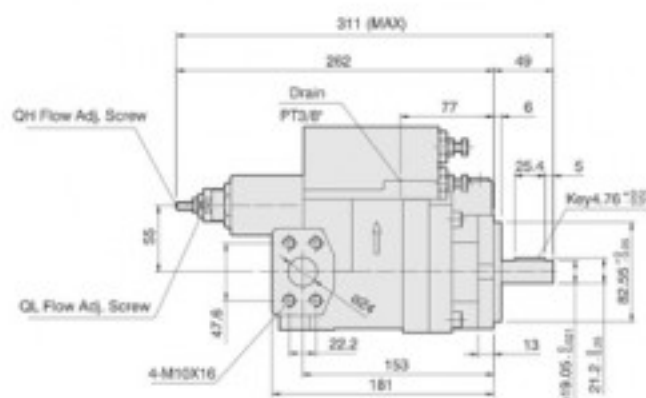
TWO PRESSURE-TWO FLOW CONTROL TYPE

P16-C1 A3-F-R-01

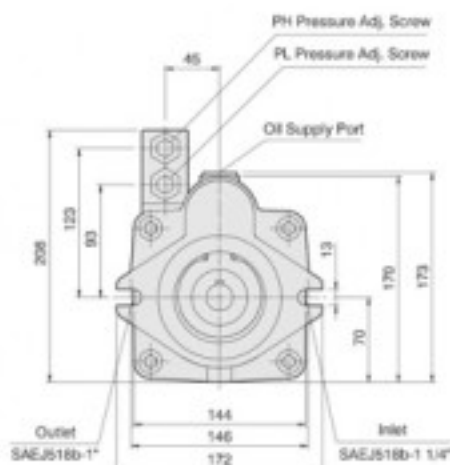
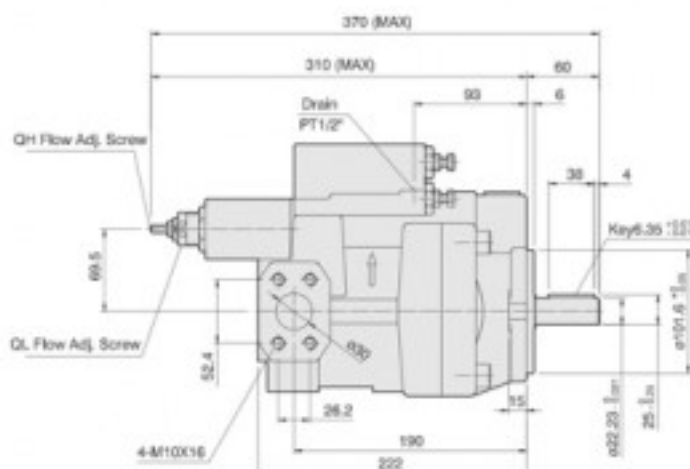
Design code		
Rotation	R : Clockwise(CW)	
Mounting	F : Flange mounting	L : Foot mounting
PH Pressure adj. range	A2 : 30~145kgf/cm ²	A3 : 30~215kgf/cm ²
PL Pressure adj. range	C0 : 20~40kgf/cm ²	C1 : 20~73kgf/cm ²
Displacement	16, 22, 36, 46, (cm ³ /rev)	



P16-C-TYPE / P22-C-TYPE



P36-C-TYPE / P46-C-TYPE



SOLENOID CUT-OFF CONTROL TYPE

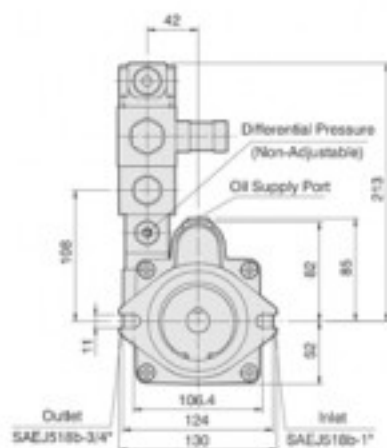
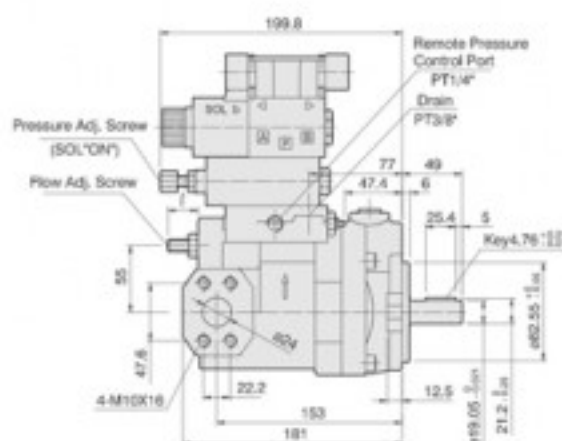
HPC

P16-D3-F-R-01

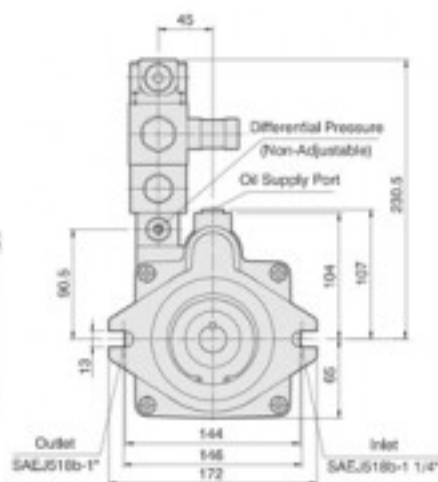
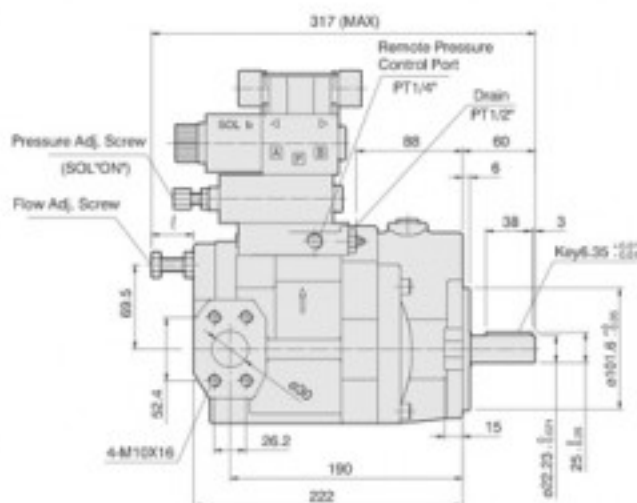
Design code	
Rotation	R : Clockwise(CW)
Mounting	F : Flange mounting L : Foot mounting
Pressure adj. range	2 : 30~145 kgf/cm ² 3 : 30~215 kgf/cm ²
Solenoid cut-off control type	
Displacement	08,16, 22, 36, 46, 70, 100, (cm ³ /rev)



P16-D-TYPE / P22-D-TYPE

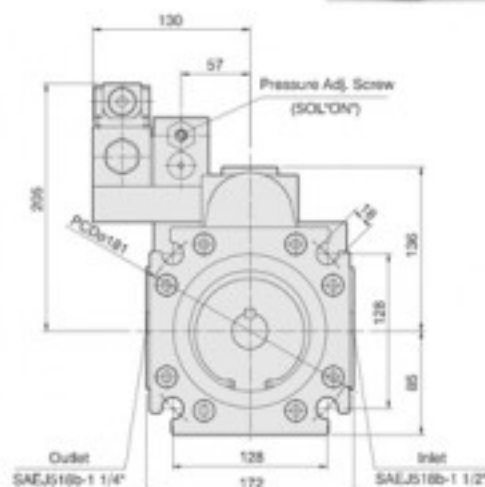
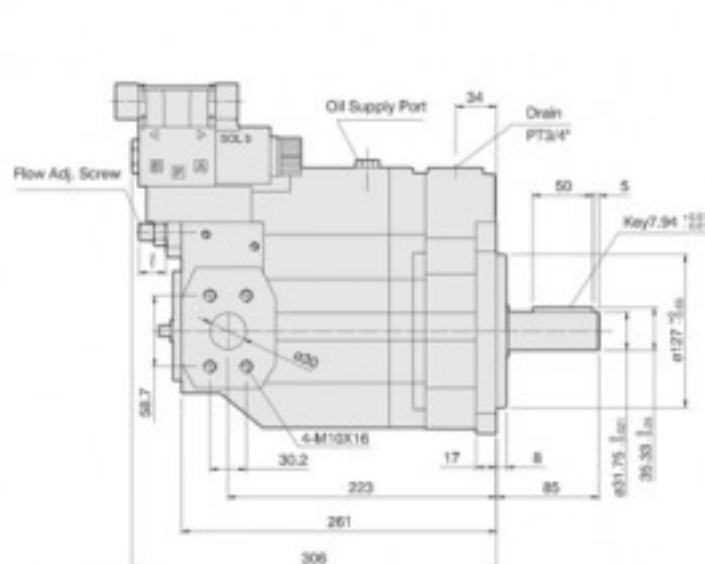


P36-D-TYPE / P46-D-TYPE

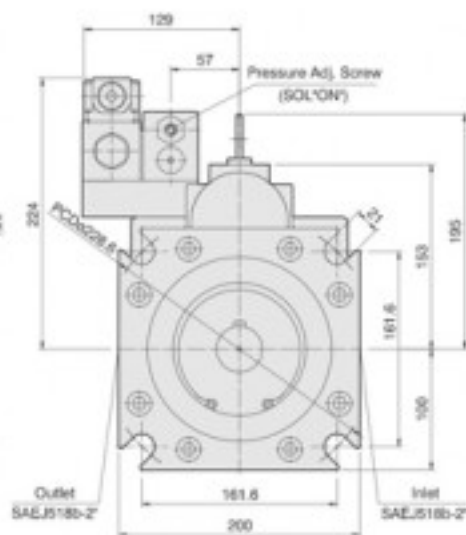
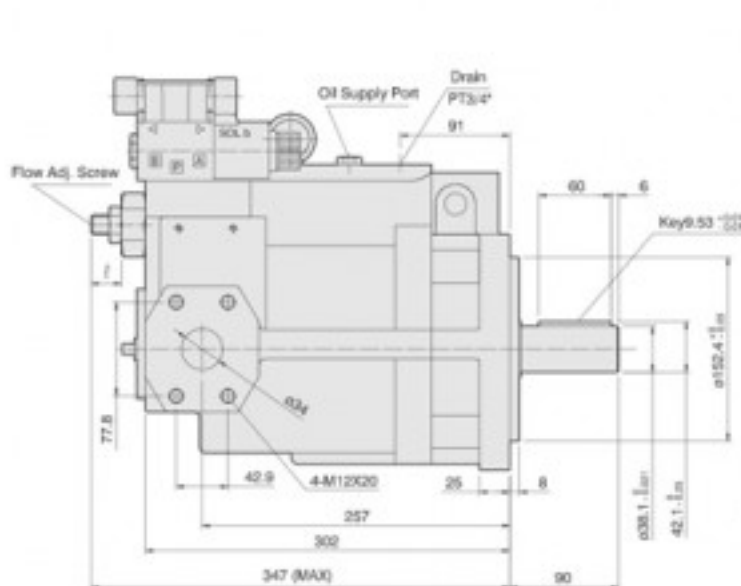


SOLENOID CUT-OFF CONTROL TYPE

P70-D-TYPE



P100-D-TYPE



TWO PRESSURE CUT-OFF CONTROL TYPE

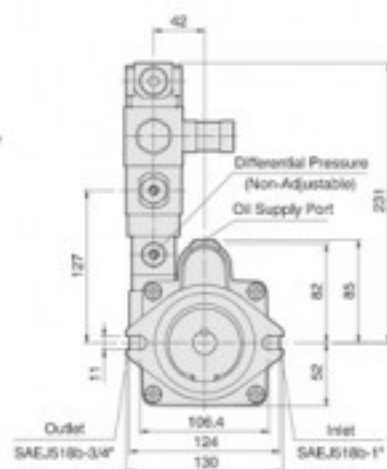
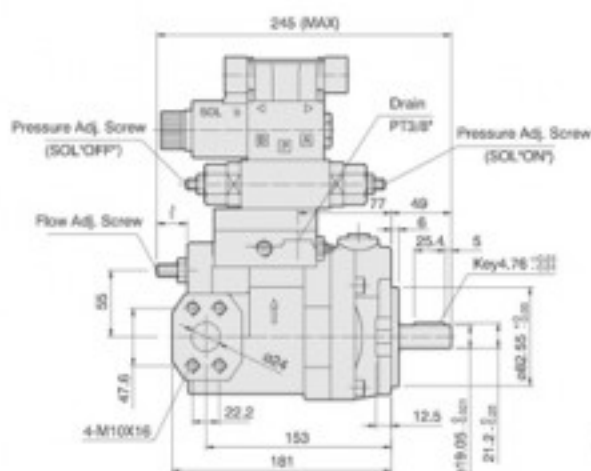
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P16-E3-F-R-01

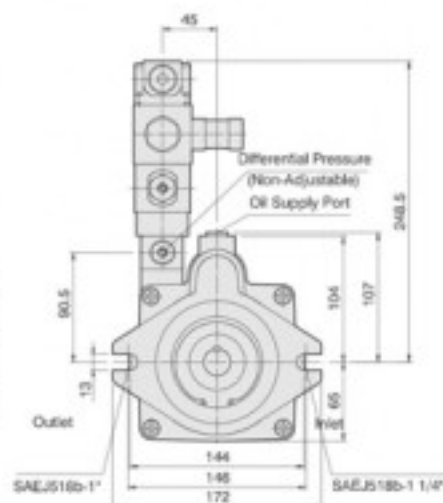
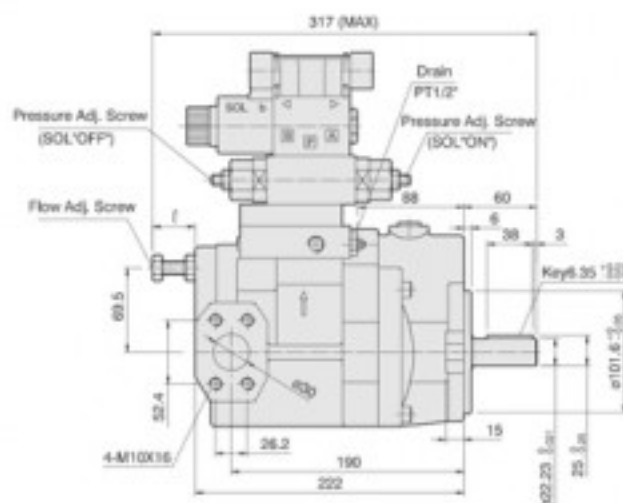
Design code	
Rotation	R : Clockwise(CW)
Mounting	F : Flange mounting L : Foot mounting
Pressure adj. range	2 : 30~145 kgf/cm ² 3 : 30~215 kgf/cm ²
Two pressure cut-off control type	
Displacement	08, 16, 22, 36, 46, 70, 100, (cm ³ /rev)



P16-E-TYPE / P22-E-TYPE

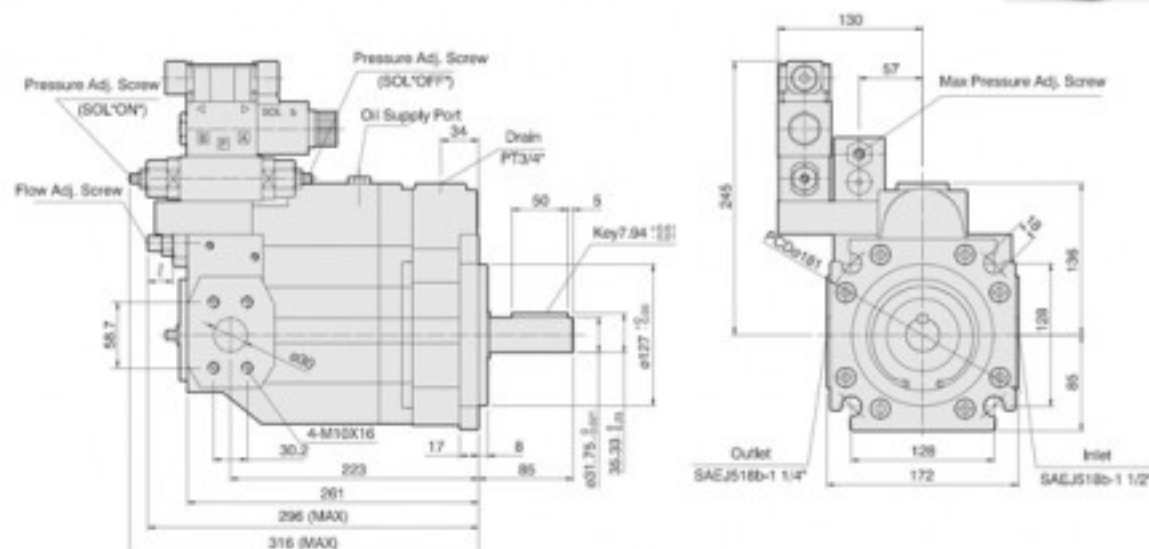


P36-E-TYPE / P46-E-TYPE

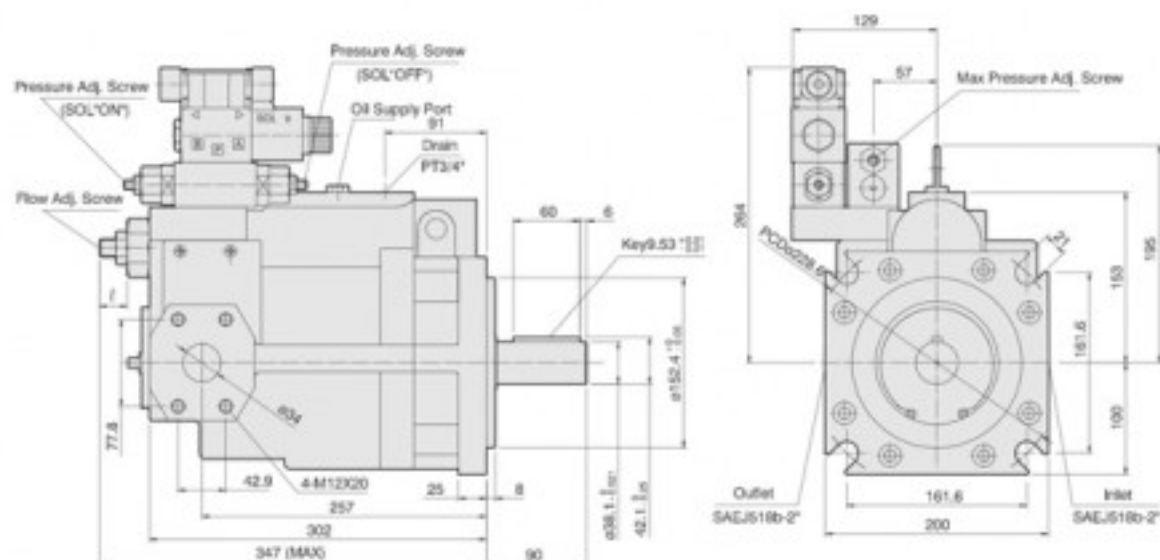


TWO PRESSURE CUT-OFF CONTROL TYPE

P70-E-TYPE



P100-E-TYPE



Shaft end pump model

PP36-A3-F-R-2A

1 2 3 4 5 6 7

1 Variable volume piston pump-Double Pump

2 Geometric displacement
Shaft end pump(Ref Model Number)

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

4 Pressure adjusting range

1 : 20~73 kgf/cm²
2 : 30~145 kgf/cm²
3 : 30~215 kgf/cm²

5 Mounting

F: Flange mounting L: Foot mounting

6 Rotation

R : Clockwise(Viewed from shaft end)

7 Thru-drive

2A:SAE A ø82.55
2B:SAE B ø101.6
(PP70+P36/46, PP100+P36/46)

Cover end pump model

P16-A3-S

1 2 3

1 Variable volume piston pump
(Cover end pump)

2 Geometric displacement
Cover end pump(Ref Model Number)

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

4 Pressure adjusting range

1 : 20~73 kgf/cm²
2 : 30~145 kgf/cm²
3 : 30~215 kgf/cm²

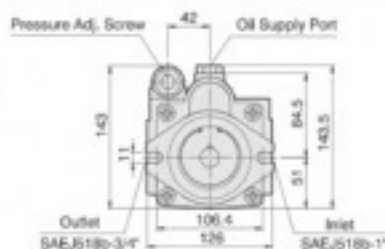
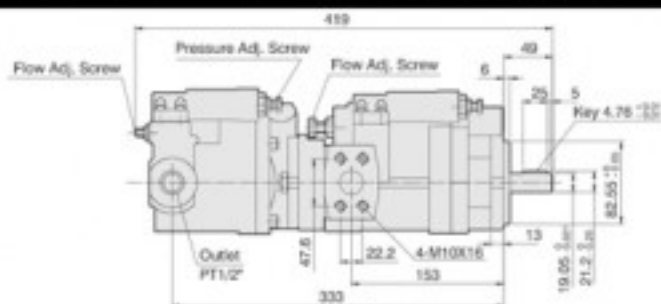
5 Type of Shaft

S : SAE A Spline
K : Cylindric key
(PP70+P36/46, PP100+P36/46)

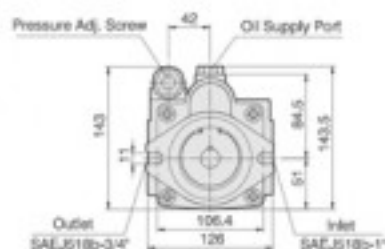
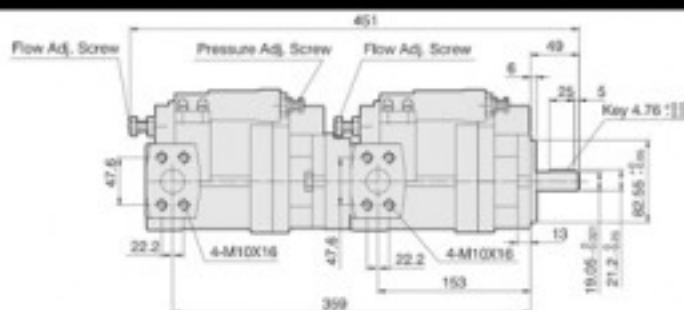
Model number :

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

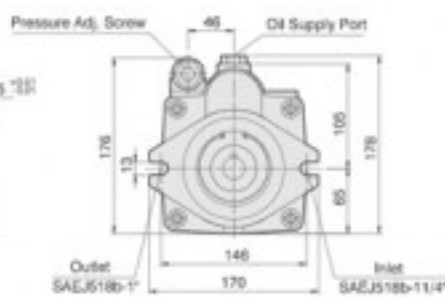
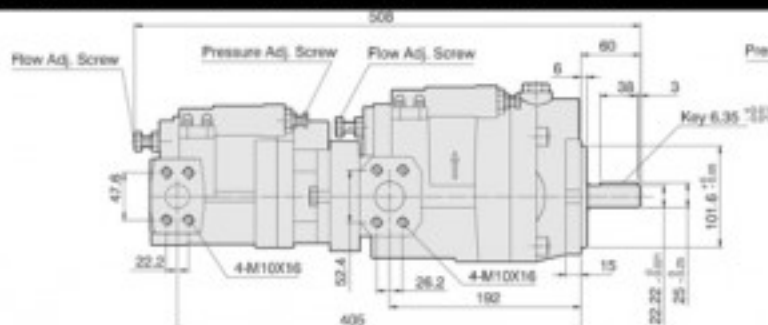
PP16/22-A*-F-R-2A+P08-A*-S



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

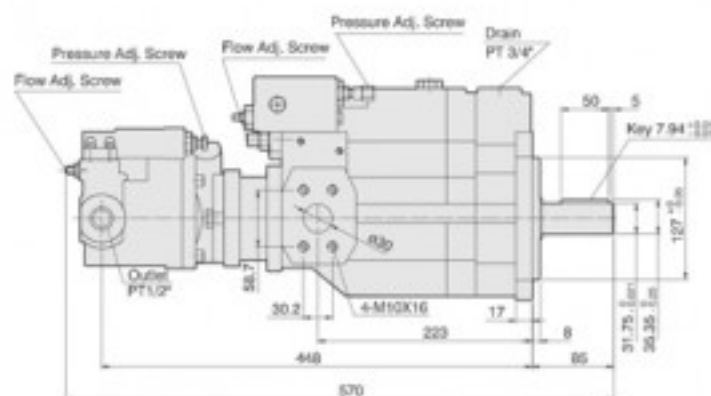


P36/46-A*-F-R-2A+P16/22-A*-S

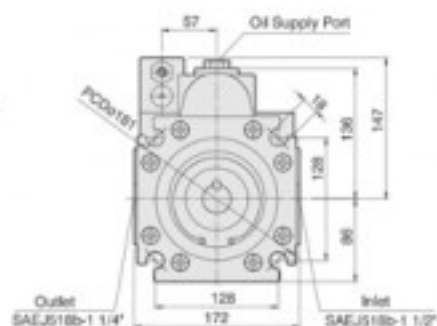
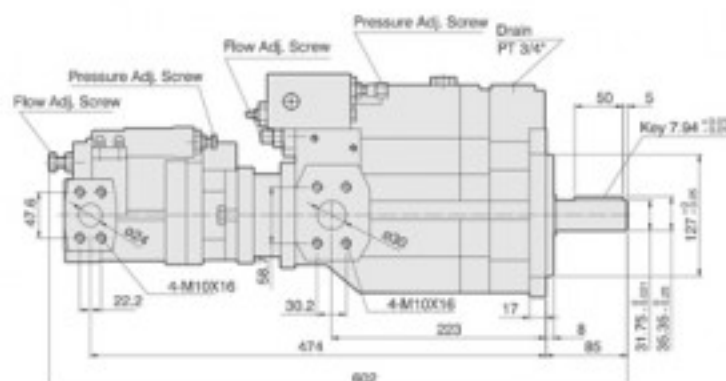


DOUBLE PUMPS

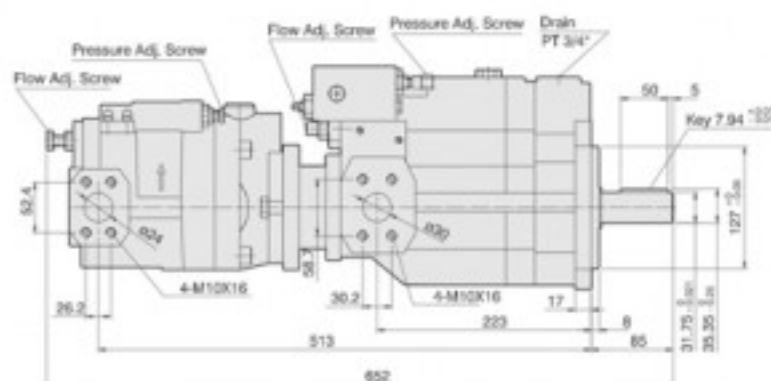
PP70-A*-F-R-2A+P08-A*-S



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

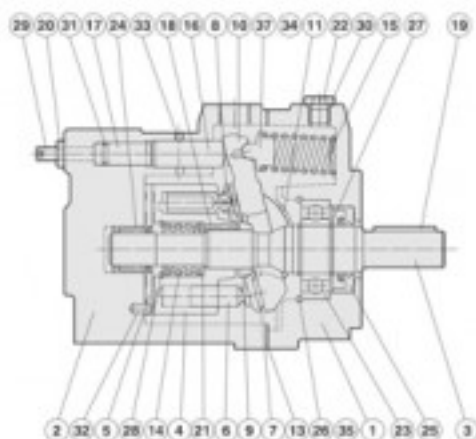


PP70-A*-F-R-2B+P36/46-A*-K



CROSS SECTION DRAWING

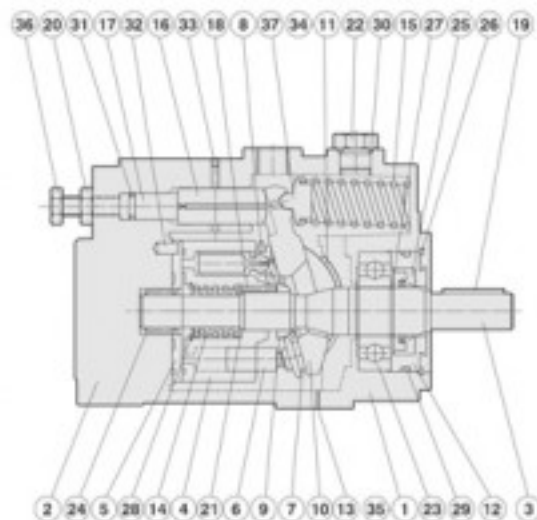
P08-TYPE



P08-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		