Power Packages

YUKEN's Power Packages have compactly integrated with compact high pressure vane pump, relief valve and oil tank etc., also be able to built-in 01 series solenoid operated directional valve (or manually operated directional valve) and modular valve.
It is easy to construct hydraulic circuit only by stacking solenoid operated valves and modular valves, so widely applicable as for compact hydraulic unit. There are two types of drive system, one is the pulley drive type with flow adjustment and another is the motor drive type(motor built-in type).

Motor Drive Type



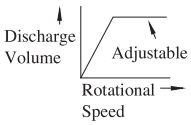
Pulley Drive Type with Flow Adjustment



Features

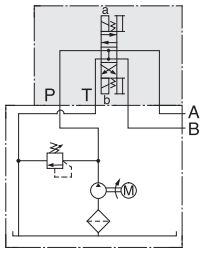
- Because of using YUKEN vane pumps with good reputation, so that achieved good performance and long life.
- Only by adding or changing modular valves stacked on the power package, it is able to add or change hydraulic circuit easily and quickly.
- Can use immediately after hydraulic piping between the power package and actuators.

Specifications

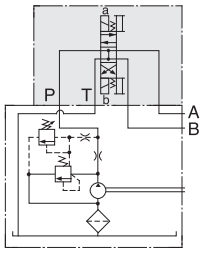
Type	Descriptions	Model Numbers	Geometric Displacement of Pump cm^3/rev	Max. Operating Pres. MPa	Rotational Speed r/min Max.	Rotational Speed r/min Min.	Reservoir Capacity L	Mass★2 kg
Motor Drive Type	This power package is driven at the voltage of 200/220 V AC. Suitable for using on cargo handling machine or general industrial machine, etc.	PMR2- 6	5.8	14	(Motor) 1.5 kW× 6 P 2.2 kW× 4 P 200 V AC, 50 Hz 220 V AC, 60 Hz		3.4	(1.5 kW×6P) 50 (2.2 kW×4P) 51.5
		PMR2- 8	8.0					
		PMR2-10	9.4					
		PMR2-12	12.2					
		PMR2-14	13.7					
		PMR2-17	16.6					
Pulley Drive Type with Flow Adjustment	This type is equipped with flow adjustment system that can keep discharge volume of the package stable regardless of increase or decrease of engine rotational speed, so that is suitable for using as power steering pump. 	PPF2- 6	5.8	10.5	4000	500 (1000)★1	3.4	(With V1S Type Pulley) 11.4 (With V1 Type Pulley) 11.8
		PPF2- 8	8.0					
		PPF2-10	9.4		3000			
		PPF2-12	12.2					
		PPF2-14	13.7		2800			
		PPF2-17	16.6		2500			

★1. Please set the minimum rotational speed on starting at the value in parenthesis.
★2. The values of mass are including hydraulic fluids in case of without control valves (circuit symbol “00”). In case of the mass with control valves, please add the additional mass of “standard circuit”on pages K-54 and K-55.

Graphic Symbols



PMR2 Type



PPF2 Type

Note) The graphic symbols of stacked solenoid operated directional valve (or manually operated directional valve) and modular valve are filled in the shaded parts of the graphic symbols left. The 15 kinds of circuit are available as standard. For details, refer to the standard circuit on pages K-54 and K-55.

Model Number Designation

PMR2	−6	——	−70	——	−A	−01	−A200	——	——	−40
PPF2	−6	−3	−70	−R	——	−01	−A200	−V1	−F	−35
Series Number	Geometric Displacement of Pump cm^3/rev	Adj. Flow L/min	Relief Valve Setting Pressure	Direction of Pump Rotation	Electric Motor Code	Circuit Symbol ★2	Directional Valve Type ★3	Pulley Type	Mounting Type	Design Number
PMR2 : Motor Drive Type	★4 6 : 5.8 8 : 8.0 10 : 9.4 12 : 12.2 14 : 13.7 17 : 16.6	——	★1 Please specify at the range of 3.5 - 14 MPa.	(Clockwise Viewed from the Motor Fan)	A : 1.5 kW×6 P B : 2.2 kW×4 P 200/220V AC N : Without Motor	00 01 02 03 04 05 06 07 08	M : Manually Operated Directional Valve Solenoid Operated Directional Valve : Coil Type (DC) D12, D24 (AC) A100, A200 Circuit Symbol "00" or "08" : None	——	——	40
PPF2 : Pulley Drive Type with Flow Adjustment	★4 2, 3, 4 7, 8, 9 10, 12 15, 20 25	★1 Please specify at the range of 3.5 - 10.5 MPa.	(Viewed from the Shaft End) R : Clockwise L : Anti-Clockwise	——				N : Without Pulley V1S : JIS 5 V Type 158.4 Dia. Single Pulley V1 : JIS 5 V Type 208.4 Dia. Single Pulley	F : Flange Mtg. Type L : Foot Mtg. Type	35

★ 1. Please specify the controlled pressure as of MPa×10.
(Ex.) ●In Case of 3.5 MPa…… Please specify as of 35.

★ 2. For details of circuit symbol, please refer to the standard circuit on pages K-54 and K-55. In case of "00", no control valves embedded.

★ 3. As for solenoid operated directional valves, we use the DSG-01 series solenoid operated directional valves. For details of coil type, please refer to page K-76. As for manually operated directional valves, we use the DMG-01 models.

★ 4. For the combination possibility between the geometric displacement of pump and the adjustment flow, see the table below.

Geometric Displacement of Pump	Adj. Flow L/min										
	2	3	4	7	8	9	10	12	15	20	25
6	○	○	○	○	○	○					
8	○	○	○	○	○	○	○	○			
10	○	○	○	○	○	○	○	○	○		
12			○	○	○	○	○	○	○	○	
14				○	○	○	○	○	○	○	○
17						○	○	○	○	○	○

Instructions

Exchange Period of Hydraulic Fluid

Please exchange after having operated 100 hours at the first time.
After then, please exchange every 500 hours or one year of operation.

Fluid Supply and Oil Level Change

Please supply oil after the air breather removed.
Confirm the amount of supplied oil by the oil gauge attached on the air breather.
Please keep oil level between low limit and high limit mark at the range of 3.2 - 3.4 L. (Avoid over fluid supply that will cause the external oil leakage from the air breather with the oil level change.)
The low limit fluid level is on the center axial line (2.1 L), so use within approx. 1.3 L of the oil level change by the actuator operation.
If use as like as inclined oil level condition, please consult us separately because of the restriction of oil level change amount.

Mounting Position

As for mounting, please mount horizontally with the air breather upward.
(Avoid vertical mounting with the tank upward or downward.)

Axial Load (Pulley Drive Type with Flow Adjustment)

As for the axial load, please keep less than 1000 N for radial load and less than 100 N for thrust load.

Notice on Starting

On starting, please perform intermittent operation under unloaded condition.

Please avoid long time operation under whole amount relieving condition that will waste energy and cause oil temperature rise.

Relief Valve Setting Pressure

The discharge pressure on shipping is set by the "Relief Valve Setting Pressure"in the above table "Model Number Designation".
Regardless of the designation, the relief valve setting pressure is able to adjust at the range of 3.5 - 14 MPa (3.5 - 10.5 MPa only for PPF2 type).
When pressure increasing, please pay enough attention to the motor/engine overload by power requirement increase.

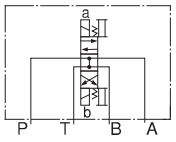
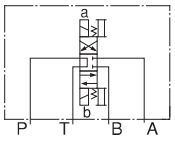
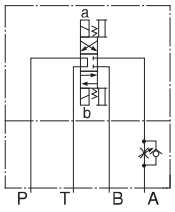
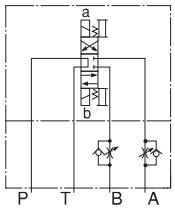
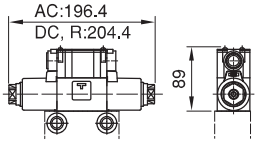
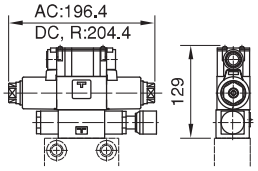
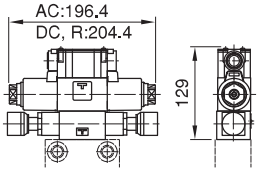
Standard Circuit

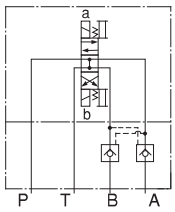
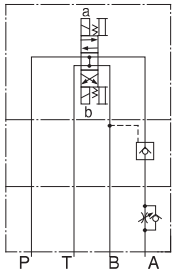
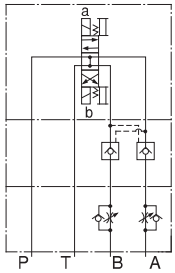
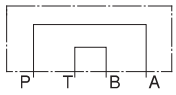
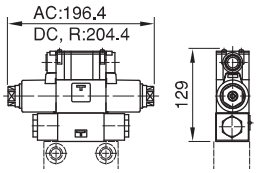
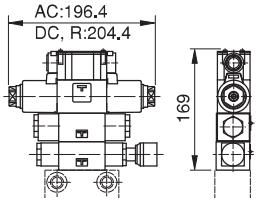
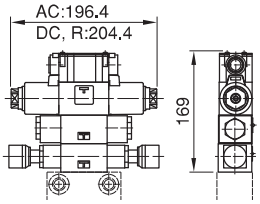
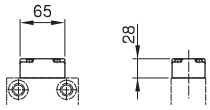
The hydraulic circuit configuration is easy only by stacking DSG-01 series solenoid operated directional valve or manually operated directional valve and modular valves on this power package.

There are 15 types of standard circuits for power package as the chart below. If need non-standard circuits, please specify the power package with no control valves (circuit symbol "00") and order DSG-01 series solenoid operated directional valve or manually operated directional valve and modular valves separately.

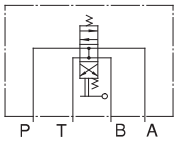
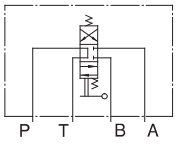
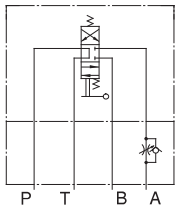
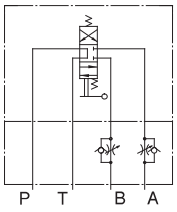
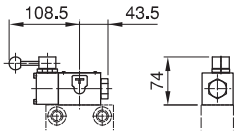
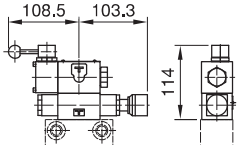
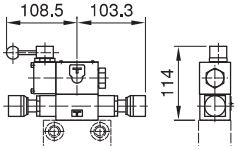
For details of DSG-01 series solenoid operated directional valve, manually operated directional valve and modular valves, please refer to the applicable pages on catalog of "E: DIRECTIONAL CONTROLS" and "F: MODULAR VALVES".

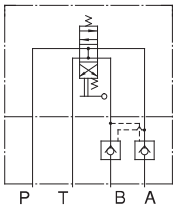
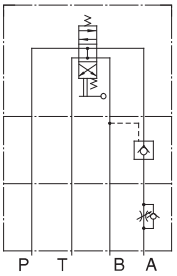
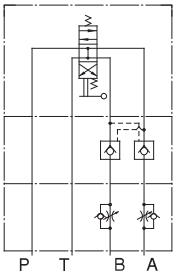
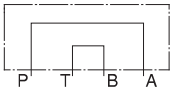
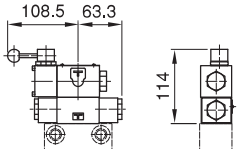
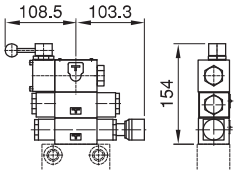
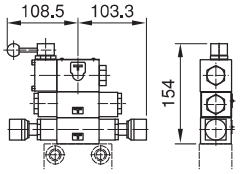
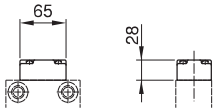
With Solenoid Operated Directional Valve

Circuit Symbols	01	02	03	04
Graphic Symbols				
Dimensions				
Additional Mass	1.9 kg		3.3 kg	3.5 kg

Circuit Symbols	05	06	07	08
Graphic Symbols				
Dimensions				
Additional Mass	3.2 kg	4.5 kg	4.7 kg	0.6 kg

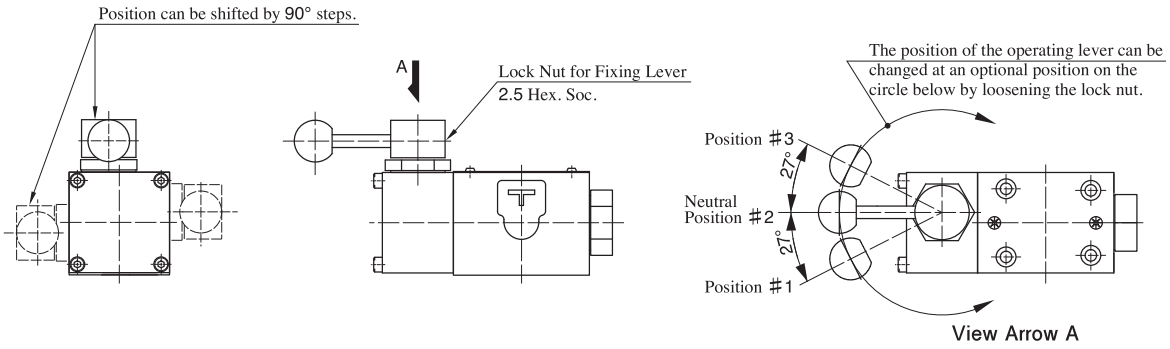
● With Manually Operated Directional Valve

Circuit Symbols	01	02	03	04
Graphic Symbols				
Dimensions				
Additional Mass	1.8 kg		3.2 kg	3.4 kg

Circuit Symbols	05	06	07	08
Graphic Symbols				
Dimensions				
Additional Mass	3.1 kg	4.4 kg	4.6 kg	0.6 kg

Note) The lever position of manually operated directional valve can be changed. (See the drawing below)

● Change The Lever Position of Manually Operated Directional Valve

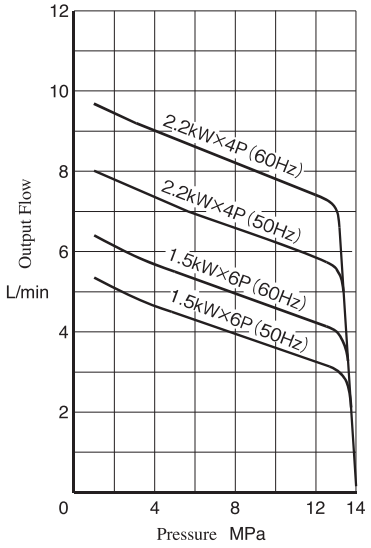


Characteristics of PMR2 Type

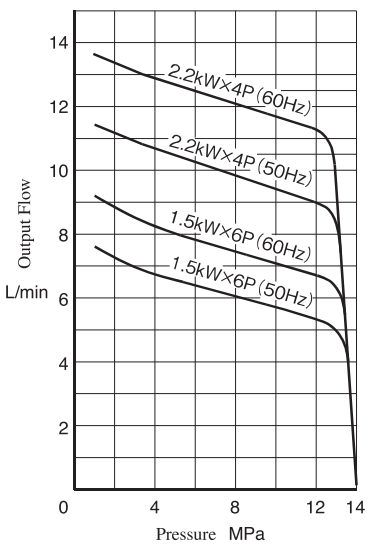
The below charts show the representative characteristics of viscosity 20 mm²/s.

Pressure vs. Output Flow

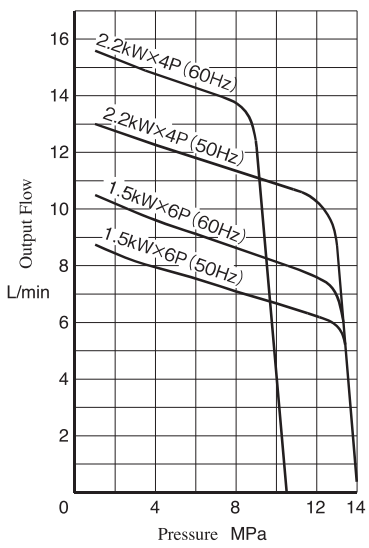
PMR2-6



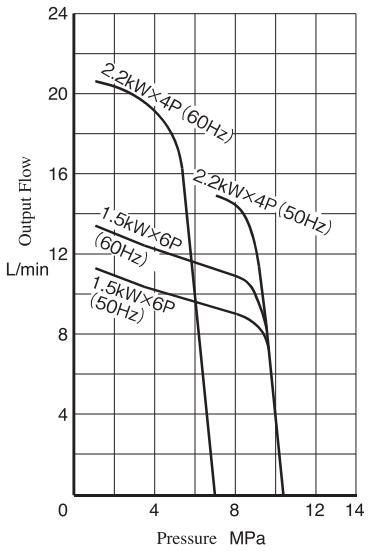
PMR2-8



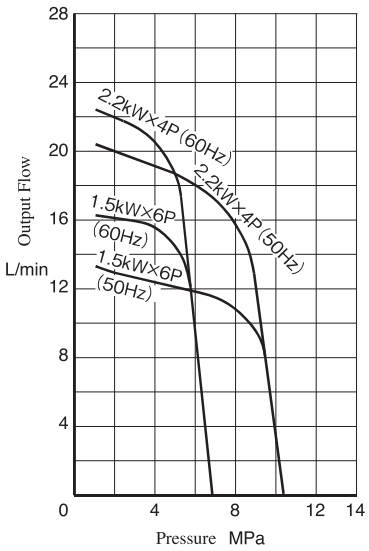
PMR2-10



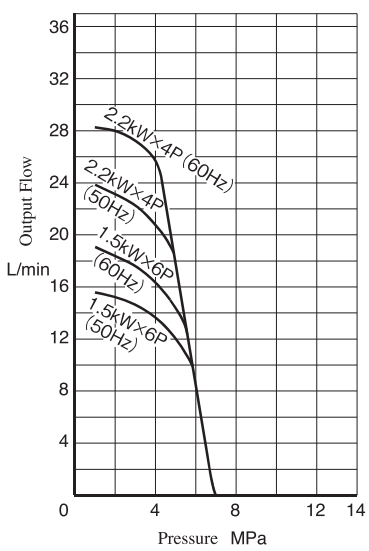
PMR2-12



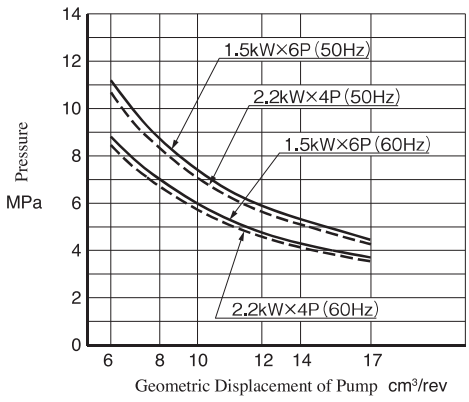
PMR2-14



PMR2-17



Max. Operating Pressure at Rated Motor Power



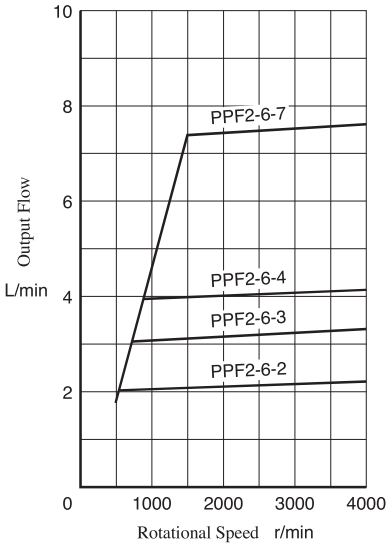
Note) The characteristics of pressure vs. output flow above indicate at the range of rated motor power 200% or less.
For the max. operating pressure at rated motor power, see the left chart.

Characteristics of PPF2 Type

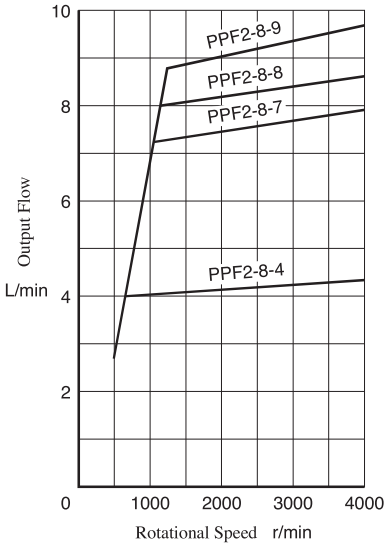
The below charts show the representative characteristics of viscosity 20 mm²/s.

Rotational Speed vs. Output Flow (Pressure 6 MPa)

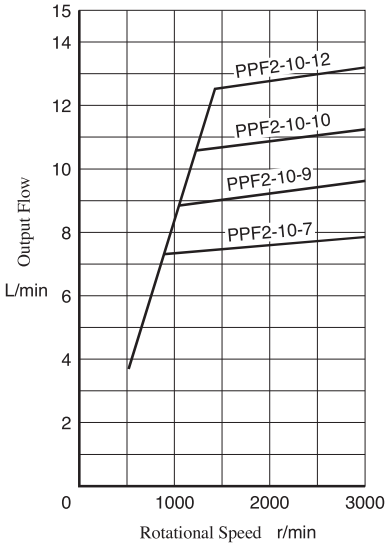
PPF2-6-＊



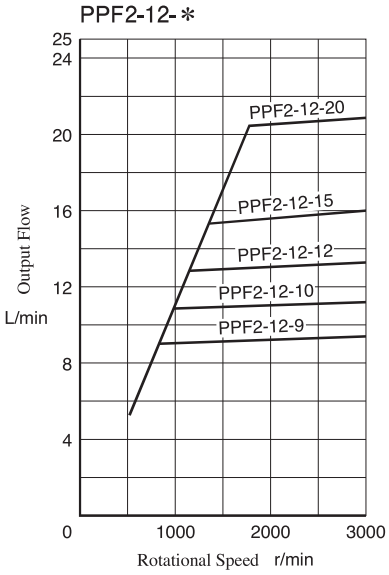
PPF2-8-＊



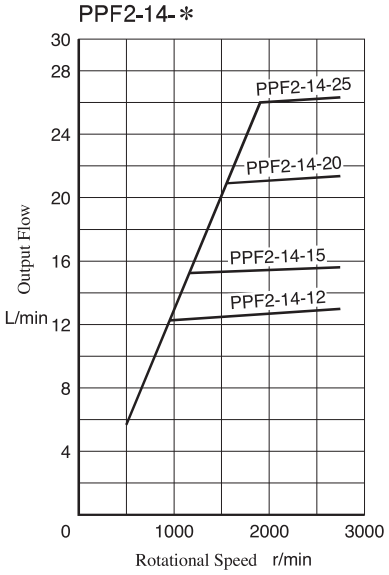
PPF2-10-＊



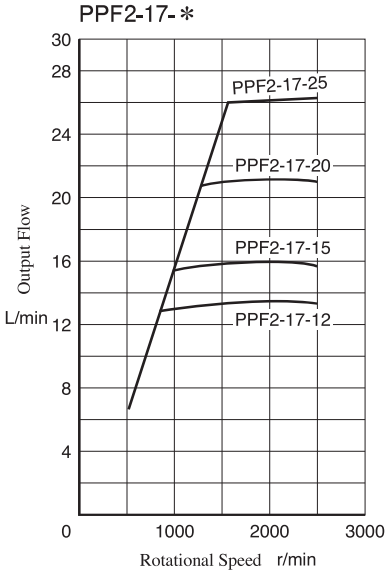
PPF2-12-＊



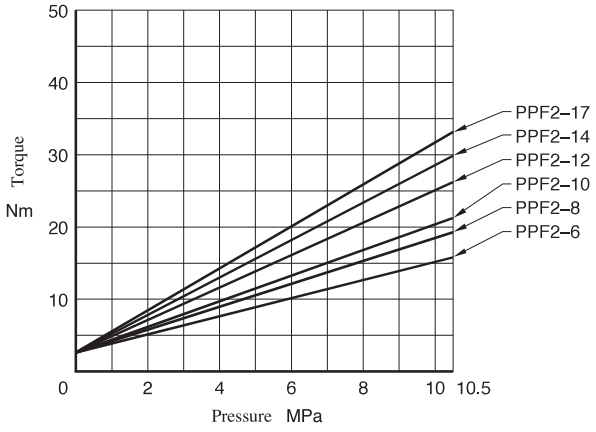
PPF2-14-＊



PPF2-17-＊



Pressure vs. Torque



Axial Input

The requirement torque is determined by geometric displacement of pump and pressure regardless of the rotational speed.

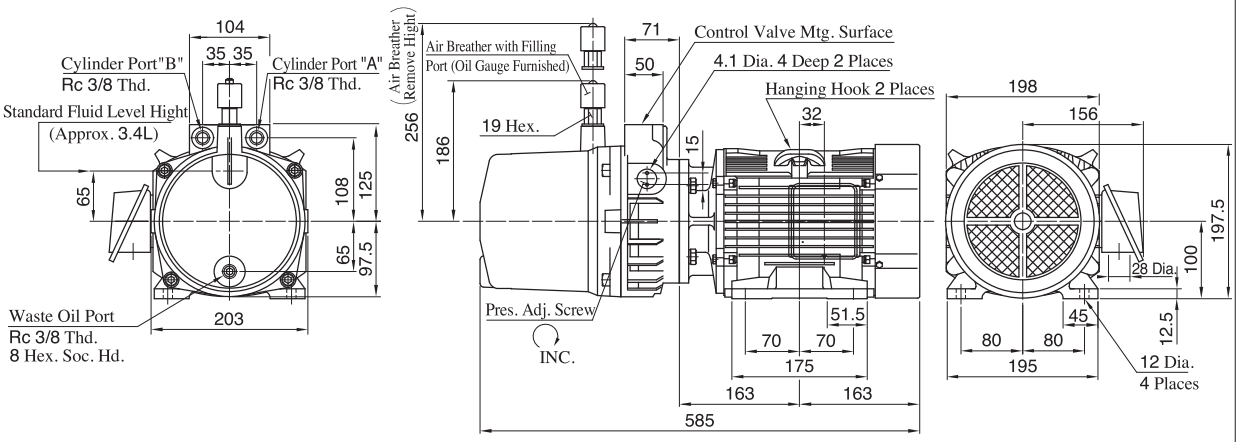
The axial input is calculated from the formula below.

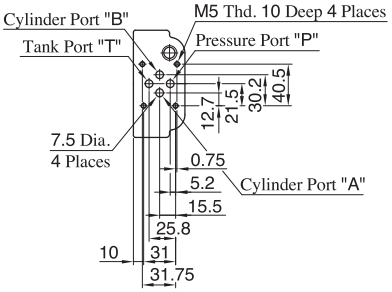
$$Li = \frac{2\pi TN}{60000}$$

Li : Axial Input kW
T : Requirement Torque Nm
N : Rotational Speed r/min

K
Power Packages

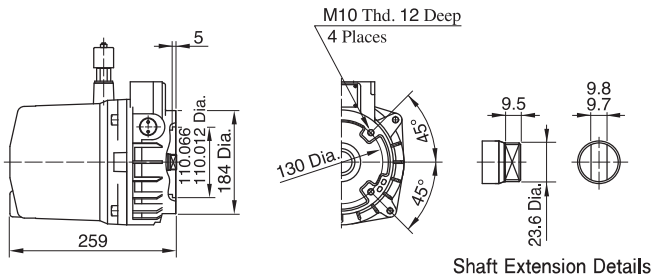
PMR2-∗-∗-$\frac{A}{B}$-00





Dimensions of Control Valve Mtg. Surface
(ISO 4401-03-02-0-94)

PMR2-∗-∗-N-00

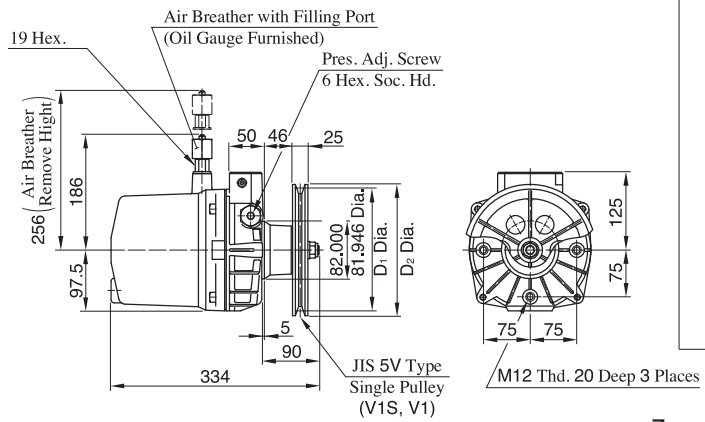


Shaft Extension Details

For other dimensions, refer to the drawing above.

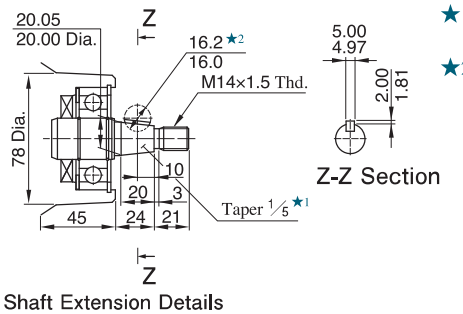
PPF2-∗-∗-∗-∗-00

Flange Mtg. Type



Pulley Type	D_1	D_2
V1S	158.4	161
V1	208.4	211

●For other dimensions, refer to the PMR2 type above.

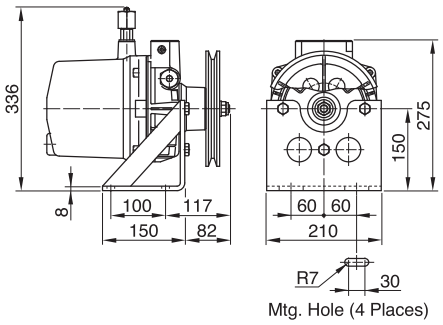


Shaft Extension Details

★1. Taper Angle Tolerance: : JIS B 0614 AT6

★2. Semilunar Key: : JIS B 1301 WA 5×16

Foot Mtg. Type



For other dimensions, refer to the flange mtg. type.

Interchangeability between Current and New Models

PMR2,35 Design → 40 Design

Major Changes

To conform to The Motor Top Runner Criteria, we changed the motor drive type power package PMR2 model.

・Motor efficiency class is changed to IE3, so the motor specifications improved generally.

・The sizes of the current and new motor are almost same, the mass increased (mass ratio 139,145%).

Comparison of Motor Specifications

Output×Number of Poles	Voltage—Frequency V Hz	Rated Current A	Inrush Current A	Rotational Speed r/min	Insulation Class
1.5 kW×6P	200—50	8.0 (7.5)	63.9 (35.5)	965 (948)	F (E)
	200—60	7.0 (6.8)	53.3 (32.5)	1160 (1134)	
	220—60	7.0 (6.6)	58.6 (35.8)	1170 (1147)	
2.2 kW×4P	200—50	9.8 (9.9)	93.2 (58.0)	1460 (1448)	F (E)
	200—60	8.8 (8.9)	79.1 (53.0)	1755 (1730)	
	220—60	8.6 (8.6)	87.0 (58.5)	1765 (1744)	

Note 1) The difference between current and new design indicates in the parenthesis.
Without Parenthesis: New 40 Design, Within Parenthesis: Current 35 Design

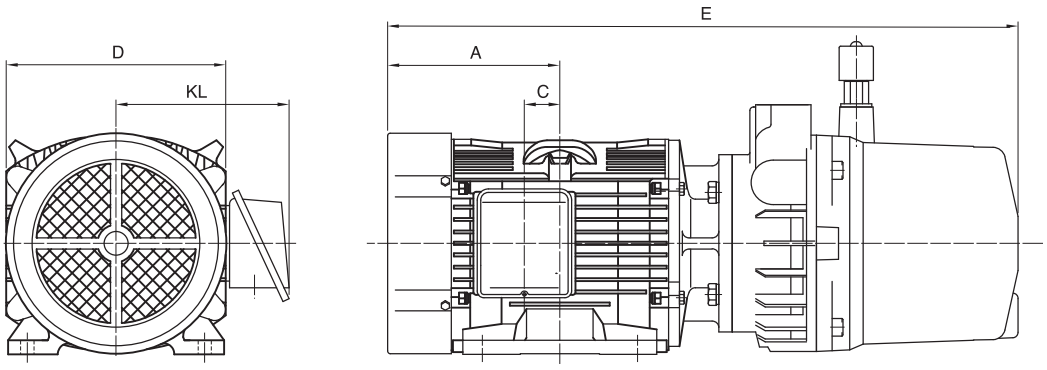
2) The starting current of new 40 design is larger in comparison with current 35 design. Please pay attention to the power distribution design.

3) The rotational speed of new 40 design is faster in comparison with current 35 design by the improvement of slip down.
By the operating conditions, "Output Increase"or "Over Flow"is possible, so please pay attention.
＊Because of the improvement in the flow rate characteristics of power package, actually the output increase.

Interchangeability in Installation

There is interchangeability in installation, but the dimension from the center of motor to the end of terminal box (KL) is slightly longer.

Comparison of Dimensions

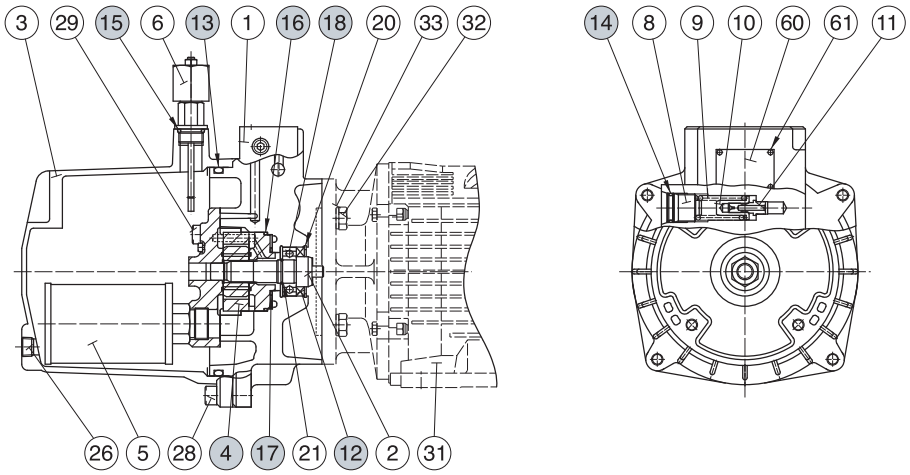


Model Numbers	Dimensions mm					Mass kg
	A	C	D	E	KL	
Current PMR2-＊-＊-A-＊-＊-35	163.5	46	199	585.5	153	36
New PMR2-＊-＊-A-＊-＊-40	163	32	198	585	156	50
Current PMR2-＊-＊-B-＊-＊-35	163.5	46	199	585.5	153	35.5
New PMR2-＊-＊-B-＊-＊-40	163	32	198	585	156	51.5

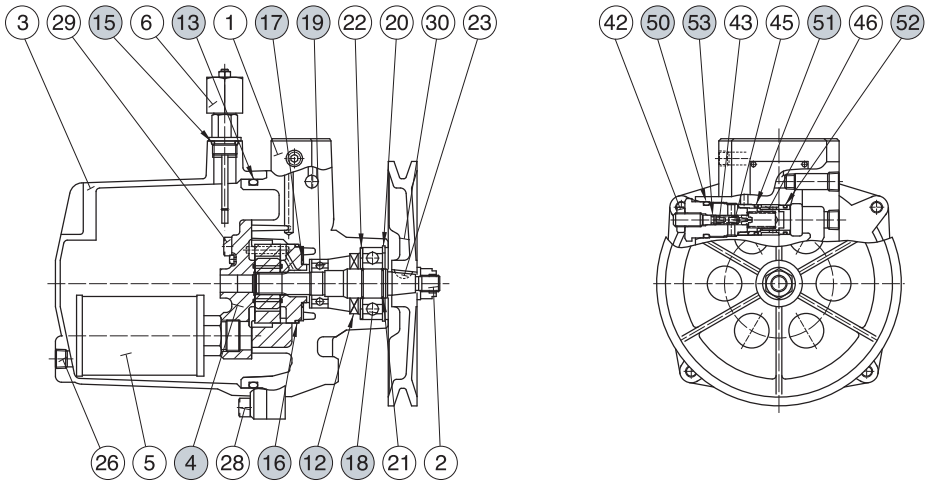
Note) The other dimensions are same, please refer to the drawing of dimensions.

List of Cartridge Kits, Seals and Bearings

PMR2



PPF2



List of Seals and Bearings

Item	Name of Parts	Part Numbers		Qty.
		PMR2	PPF2	
12	Oil Seal	ISD 26428	SC 25528	1
13	O-Ring	OR NBR-70-1 G170-N	OR NBR-70-1 G170-N	1
14	O-Ring	OR NBR-90 P21-N	—	1
15	O-Ring	OR NBR-90 P18-N	OR NBR-90 P18-N	1
16	O-Ring	AS568-144 (FKM-90)		(1)
17	O-Ring	AS568-125 (FKM-90)		(1)
50	O-Ring	—	OR NBR-90 P25-N	1
51	O-Ring	—	OR NBR-90 P22-N	1
52	O-Ring	—	OR NBR-90 P21-N	1
53	O-Ring	—	OR NBR-70-1 P5-N	1
18	Bearing	6004	6305DDU-D4M-K	1
19	Bearing	—	6004	1

Note) O-Rings of item ⑯ and ⑰ are included in the cartridge kit ④.

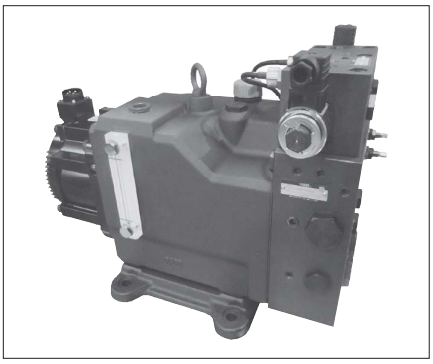
List of Cartridge Kits

Model Numbers	④ Cartridge Kit Numbers
PMR2-★	CP2-★-R-40
PPF2-★-*-*-R	CP2-★-R-40
PPF2-★-*-*-L	CP2-★-L-40

Note) ★ parts in the chart above are filled by the geometric displacement of pump.
(Refer to the model number designation on page K-53)

Intelligent Hydraulic Servo Drive Pack

The IH (intelligent hydraulic) servo drive pack is a compact energy-saving and low-noise hydraulic device which is combined as one with the AC servo motor, bidirectional rotation piston pump, reservoir and hydraulic control circuit. This combination can control the number of revolutions of the servo motor and adjust the discharge and pressure of the pump. This device can be combined with the sensor – equipped cylinder and dedicated controller to facilitate the configuration of a position, speed and pressure control system.



● Energy Saving

The operation at the number of revolutions meeting the machine requirements (flow rate and pressure) reduces useless power losses and provides energy savings.
Furthermore, by using bidirectional rotation pump, need no directional control valves, so can minimize pressure loss.

● Low Noise

During pressure control, the pump rotation compensating for the internal leakage of oil pressure provides low revolutions with almost no noise.
During flow control, the number of revolutions meeting the machine requirements ensures lower noise generation than conventional devices.

● Compact

A substantial reduction in heat generation enables the operation with a minimum amount of fluid oil for cylinder operation in addition something extra oil. This results in a combination of the servo motor, piston pump, reservoir and hydraulic control circuit in one, providing energy savings.
Incorporation into an integral part of the machine is also possible.

● Digital Control

Software control of the dedicated controller allows a system to have a great deal of versatility.
Digital control parameter setting facilitates to operate the system and its maintenance, furthermore the analog input/output ports provide as standard for user interface.

● Optional Circuit Support

As for the option of tare load circuit, it is possible to built-in counterbalance valve and shut-off valve. (only for YSD2 type and YSD3 type)

■ Specifications

Model Numbers	Geometric Displacement of Pump cm^3/rev	Max. Rotational Speed r/min	Thrust Output and Cylinder Bore	Reservoir Capacity cm^3	Oil Level Variations cm^3
YSD1-＊-09/13	6、10	2000★	20 - 30 kN (Cylinder Bore 63)	2500	1500
YSD2-＊-24/29/44	6、10、16		50 - 60 kN (Cylinder Bore 80)	4200	2500
YSD3-＊-55/75	10、16、30		100 kN (Cylinder Bore 100)	5800	3500

★There are cases when the max. rotational speed is limited by operating pressure and motor output.

■ Instructions

● Transportation

Use the hanging hook embedded with this pack for transportation. Don't hang a kind of wires for lifting at the place except for that of hanging hook.

● Piping

When use steel pipes, please be careful not to apply excessive force by piping on this pack.

● Oil Supply

The oil gauge is embedded with this pack. Before operation, please supply specified hydraulic fluid oil from reservoir filling port to the standard level of oil gauge.

● First Operation

At the first operation after installation, start-up with the pressure signal set near by unload pressure and confirm the fluid suctioned normally.

● Air Vent

The air mixing inside the equipment or pipe may occur some vibrations, so please vent air completely.
As of YSD2/YSD3 type, air vent valves embedded on two places of rod side and head side, please operate under the condition that the applicable ports of each air vent valve are set on discharge side.(Never operate under the condition set on suction side.)

● In Operation

In operation, the temperatures of AC servo motor and body surface are high, so please prevent hands or body from touching the pack.

● Area Difference between Cap Side and Rod Side of Cylinder

If the area difference between cap side and rod side of cylinder is small, please contact us separately.

■ Exchange Period of Hydraulic Fluid

After first operation, please exchange the hydraulic fluid after three months or operating 500 hours later. After the first exchange, please exchange about every two years or total 5000 hours operation, whichever is earlier.
If the contamination level or characteristic of hydraulic fluid is outside of specified values, please exchange the hydraulic fluid regardless of the period above.

Model Number Designation

N−	YSD3	−F	−55	A	55★1	−10	−H	R	−B	A★2	B★2	R	−30
Sub Ass'y Code	Series Number	Mtg. Type	Servo Motor Output kW	Direction of servo Motor Connection (Viewed from the Motor End)	Servo Pack kW	Geometric Displacement of Pump cm³/rev	Relief Valve Setting Pres. MPa	Pressure Sensor	Option Related				
									Counterbalance Valve	Pres. Adj. Range of Head Side Counterbalance Valve MPa	Pres. Adj. Range of Rod Side Counterbalance Valve MPa	Shut-off Valve	Design Number
N : Pump Motor Sub Ass'y (Omit if not required)	YSD1	F : Flange Mtg. Type B : Blacket Mtg. Type	N1 : Without Servo Motor (For 0.85kW) N2 : Without Servo Motor (For 1.3kW) 09 : 0.85 13 : 1.3	A : Upward B : Downward R : Right L : Left	N : None 09 : 0.85 13 : 1.3	6 : 6 10 : 10	B : 9.5 C : 18.5	H : Head Side R : Rod Side B : Both Side N : Without Pressure Sensor	——	——	——	——	20
	YSD2		N : Without Servo Motor 24 : 2.4 29 : 2.9 44 : 4.4		N : None 24 : 2.4 29 : 2.9 44 : 4.4	6 : 6 10 : 10 16 : 16	B : 9.5 C : 18.5 H : 23.5		H : Head Side R : Rod Side B : Both Side None : Without Counterbalance Valve	B : ★3 - 7		H : Head Side R : Rod Side B : Both Side None : Without Shut-off Valve	30
	YSD3		N : Without Servo Motor 55 : 5.5 75 : 7.5		N : None 55 : 5.5 75 : 7.5	10 : 10 16 : 16 30 : 30				N : ★3 - 1.8 A : 1.8 - 3.5 B : 3.5 - 7			

★1. If pump motor sub ass'y is selected, no need to fill in this item (Not selectable).
★2. If select those of without counterbalance valves, this item is none.
★3. Please refer to the "Minimum Adj. Pres. Characteristics"(Pages K-66 and K-67).

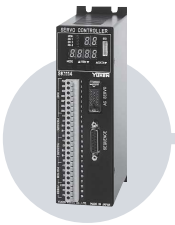
System Configuration

Confirm of User Specifications

Control Details:
Position/Pressure/Speed Control

Electrical Interface:
Command Input: Analog ±10 V etc.
Monitor Output: As Above
Sequence I/O

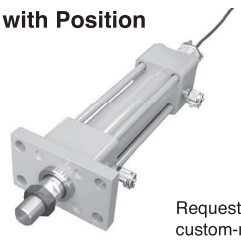
IH Controller
Model Numbers : SK1114-11



Servo Pack Applicable for AC Servo Motor

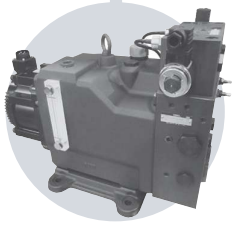


Cylinder with Position Sensor



Request us for your custom-made.

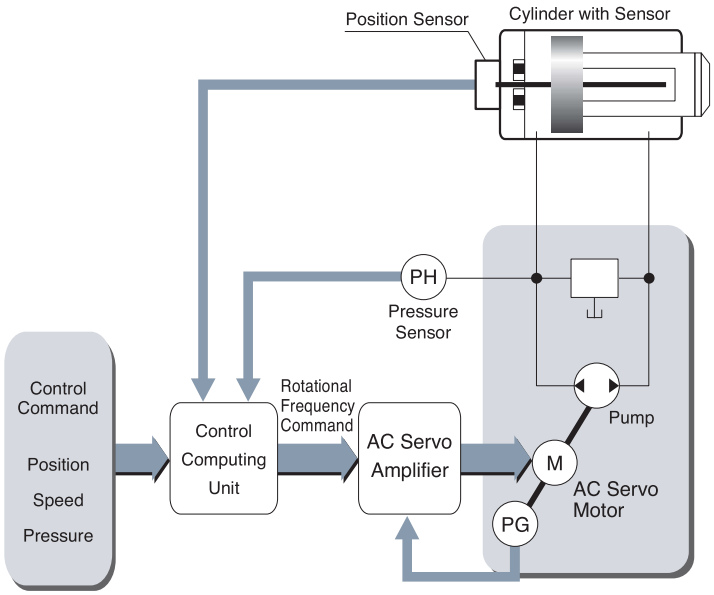
N-YSD



Note) Model number《YSD＊》does not include IH Controller: SK1114-11 and Cylinder with Position Sensor.
If use those equipments, please order separately.

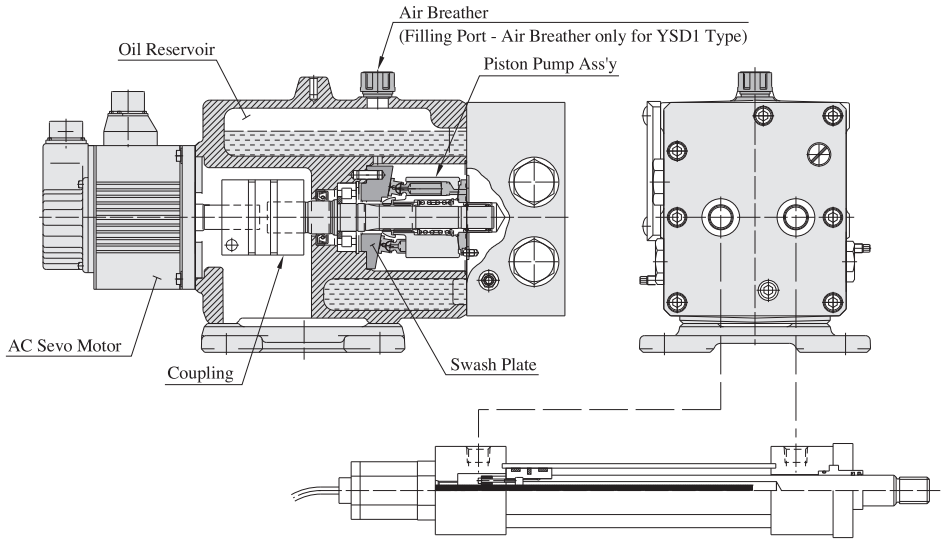
Operation

The bidirectional revolution piston pump is driven by AC servo motor and supply pressured oil to normal or reverse directions. So this is a simple hydraulic circuit only to connect the load cylinder on both output ports. The fluid suction of pump is operated by supplying from cylinder back line and compensation by self-suction valve for excess/efficiency of oil quantity. As of control, provide the control deviation output between upper signal and sensor signal to servo driver (AC servo amplifier), and construct the feedback loop by driving AC servo motor.

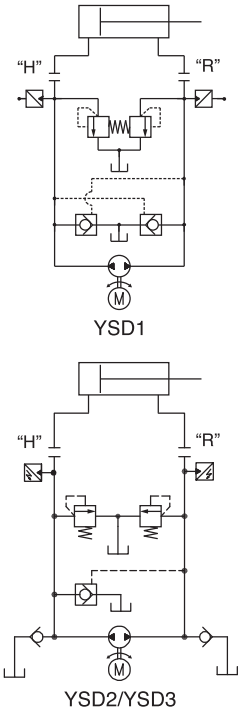


Structure / Hydraulic Circuit

The IH servo drive pack pump is a bidirectional revolution piston pump which offers high performance in a wide range of very low to high revolution. The hydraulic control circuit simply consists of safety valves and self priming valve, without a control valve in the pump discharge line and the series line between cylinders. The reservoir is made compact by using space around the pump. With the oil supply port of hydraulic fluid doubling as an air breather and the side-mounted oil level gauge, the pump is well equipped as a hydraulic driving force.



Hydraulic Circuit



Energy Saving Hydraulic System by Rotational Frequency Control

Energy saving on hydraulic control is achieved by sensing load pressure and control to avoid excess fluid discharge for the required (Output) = (Pressure) × (Flow). Piston pump generally discharge required flow by changing swash plate degree and control geometric displacement.

On the other hand, the rotational frequency control achieves by control rotational speed of motor. That is, (Flow) = (Rotational Speed) × (Geometric Displacement of Pump). In this case, sensing load pressure by pressure sensor and construct energy saving system by electric feedback control.

As the conventional way with the pump of high speed fixed rotation, there are some power losses from internal hydraulic drain and low efficiency of induction motor at low load operation. As the rotational frequency control system, the motor rotate on requirement and supply flow, so that is excellent as for energy saving system.

Example of Standard System Control

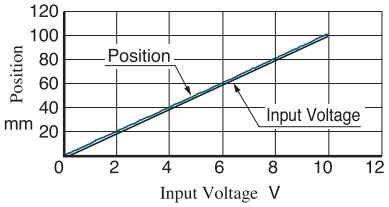
● Characteristics Example of The Position and Pressure Control System with IH Servo Drive Pack.

(Note: Control characteristics is different by system, please contact us separately.

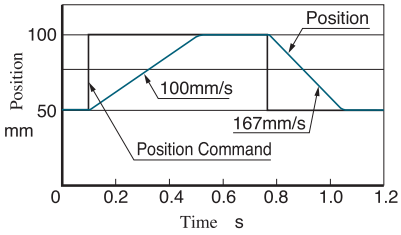
Structure Example : Cylinder 80 Dia.×45×250st Use YSD2-F-44A44-16

Characteristics Example of Position Control

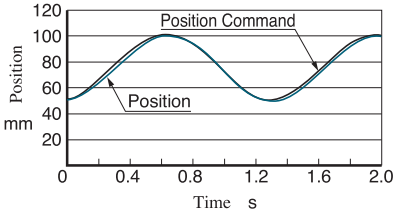
Input Voltage—Position



Step Response of Position

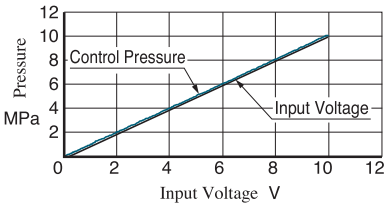


Sine Wave Input Tracking

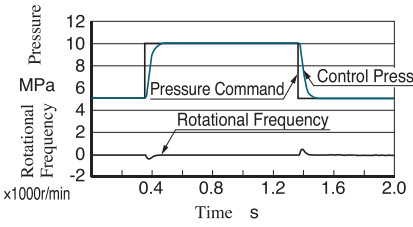


Characteristics Example of Pressure Control

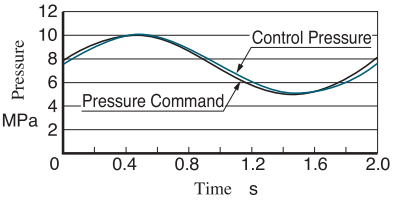
Input Voltage—Pressure



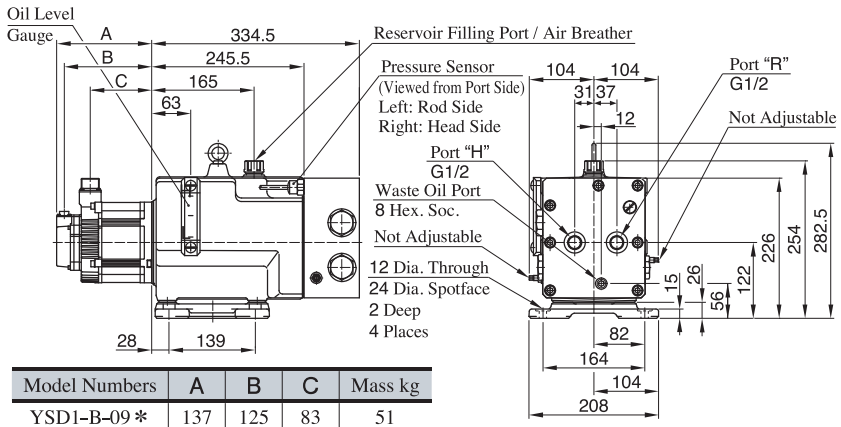
Step Response of Pressure



Sine Wave Input Tracking

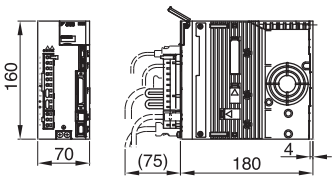


YSD1-B-$^{09}_{13}$＊＊-＊＊-＊＊＊-20 (Bracket Mtg. type)



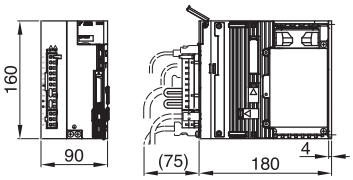
Model Numbers	A	B	C	Mass kg
YSD1-B-09＊	137	125	83	51
YSD1-B-13＊	153	141	99	52

●Servo Pack



For YSD1-＊-09

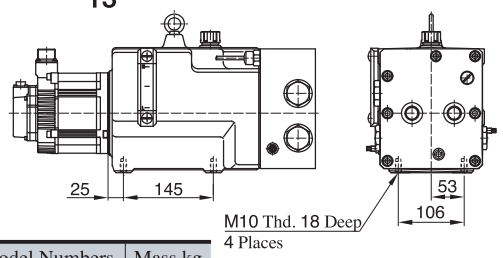
Mass : 1.5 kg



For YSD1-＊-13

Mass : 2.4 kg

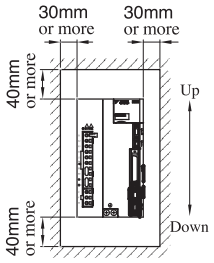
YSD1-F-$^{09}_{13}$＊＊-＊＊-＊＊＊-20 (Flange Mtg. type)



Model Numbers	Mass kg
YSD1-F-09＊	48
YSD1-F-13＊	49

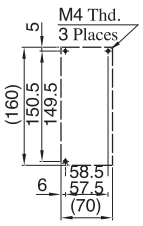
●For other dimensions, refer to the "Bracket Mtg. Type" above.

Mtg. Standard

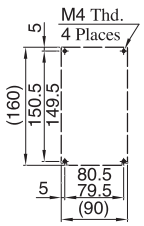


Dimension of Mtg. Hole

For YSD1-＊-09

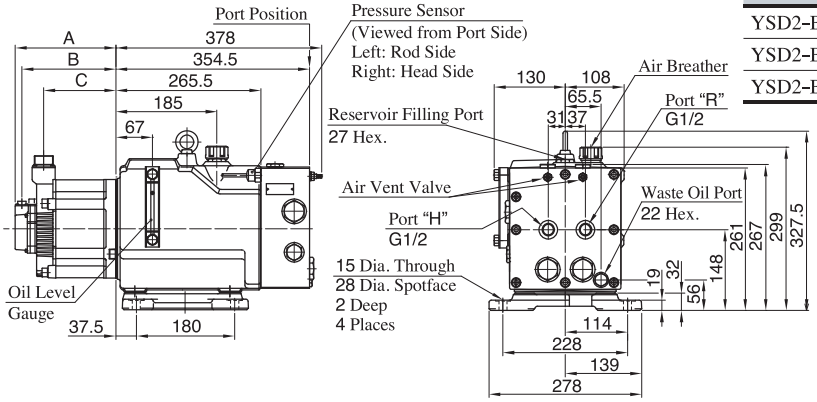


For YSD1-＊-13



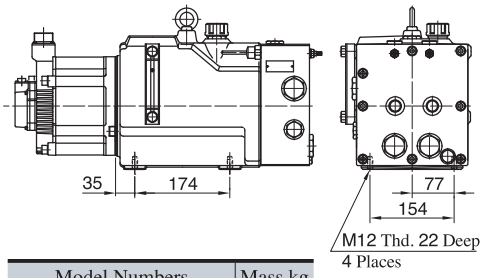
★If set the servo amplifiers in a row, please contact us separately.

YSD2-B-＊＊＊-＊-＊＊＊-30 (Bracket Mtg. type)



Model Numbers	A	B	C	Mass kg
YSD2-B-24＊＊-＊-＊＊＊-	160	148	108	84
YSD2-B-29＊＊-＊-＊＊＊-				
YSD2-B-44＊＊-＊-＊＊＊-	184	172	132	88

YSD2-F-＊＊＊-＊-＊＊＊-30 (Flange Mtg. type)

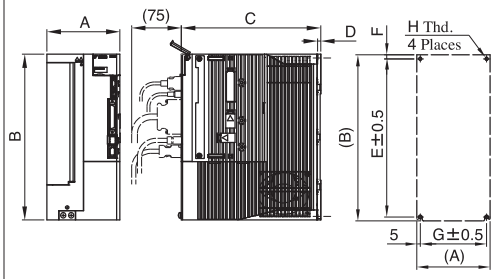


Model Numbers	Mass kg
YSD2-F-24＊＊-＊-＊＊＊-	78
YSD2-F-29＊＊-＊-＊＊＊-	
YSD2-F-44＊＊-＊-＊＊＊-	82

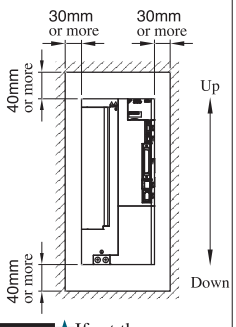
●For other dimensions, refer to the "Bracket Mtg. Type" above.

●Servo Pack
For YSD2-＊-24
For YSD2-＊-29/44

Dimension of Mtg. Hole



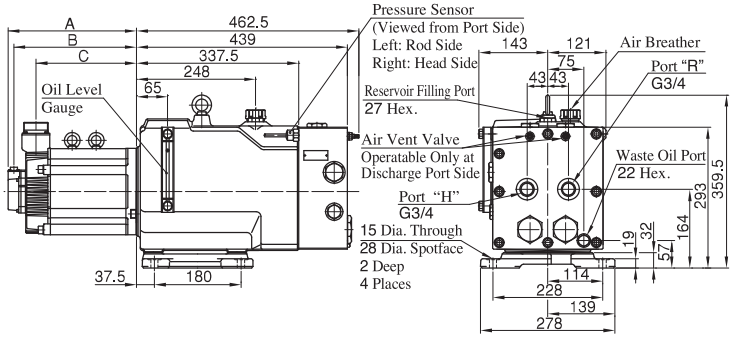
Mtg. Standard



Type	A	B	C	D	E	F	G	H	Mass kg
For YSD2-＊-24	100	180	180	4	170	5	90	M4	2.8
For YSD2-＊-29/44	110	250	210	5	238.5	6	100	M5	4.6

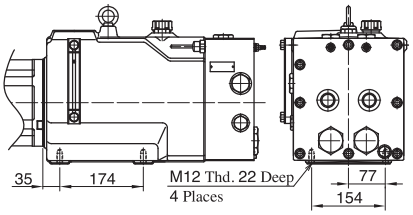
★If set the servo amplifiers in a row, please contact us separately.

YSD3-B-$\frac{55}{75}$＊＊-＊-＊＊＊-30 (Bracket Mtg. type)



Model Numbers	A	B	C	Mass kg
YSD3-B-55＊＊-＊-＊＊＊-	221	209	163	122
YSD3-B-75＊＊-＊-＊＊＊-	267	255	209	130

YSD3-F-$\frac{55}{75}$＊＊-＊-＊＊＊-30 (Flange Mtg. type)

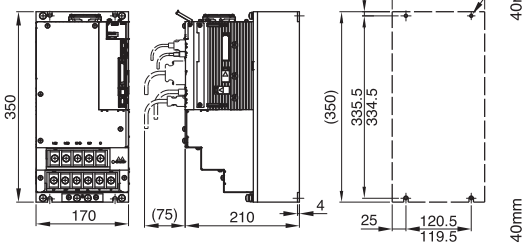


Model Numbers	Mass kg
YSD3-F-55＊＊-＊-＊＊＊-	116
YSD3-F-75＊＊-＊-＊＊＊-	124

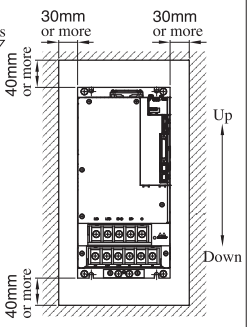
●For other dimensions, refer to the "Bracket Mtg. Type" above.

●Servo Pack
For YSD3-＊-55/75

Dimension of Mtg. Hole



Mtg. Standard



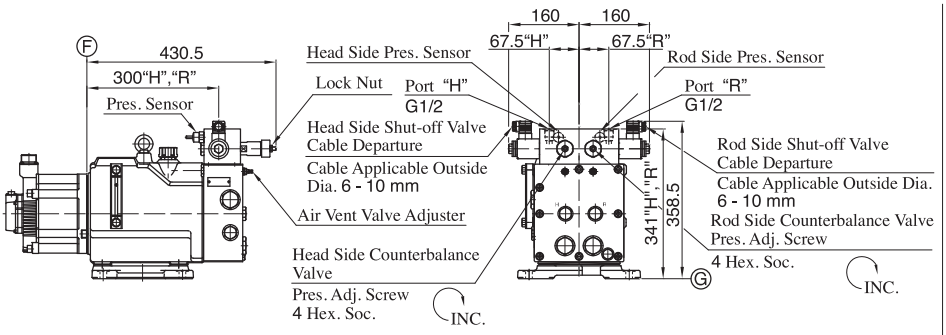
Mass : 10.2 kg

★If set the servo amplifiers in a row, please contact us separately.

Options

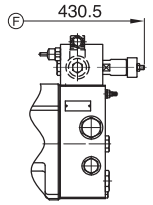
YSD2-*-*-*-***-BBBB**

(Counterbalance Valves / Shut-off Valves : With Both Sides)

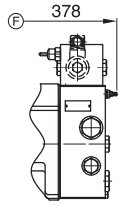


● For other dimensions, refer to "Standard" on the previous page.

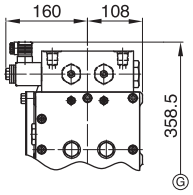
Counterbalance Valves : With Head Side or Rod Side



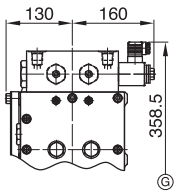
Counterbalance Valves : None



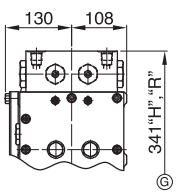
Shut-off Valves : With Head Side



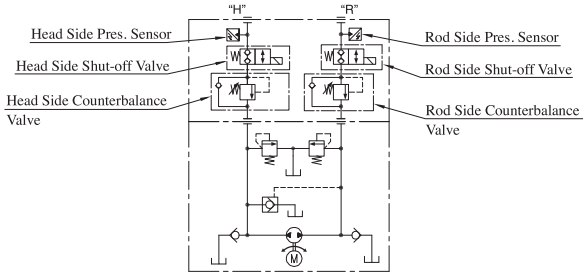
Shut-off Valves : With Rod Side



Shut-off Valves : None



Graphic Symbol



● Additional Mass with Options

With options, add the additional mass below on that of "Standard" on the previous page.

Embedded Position of Option Valves		Additional Mass kg
Counterbalance Valves	Shut-off Valves	
Both Sides	Both Sides	10
	Head Side or Rod Side	
Head Side or Rod Side	Both Sides	
Combination Other Than The Above		9

■ Specifications/Characteristics of Option Valves

Counterbalance Valves

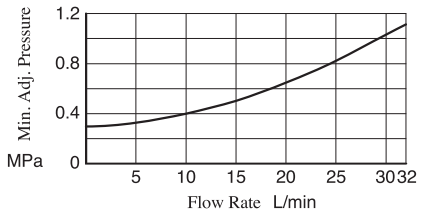
● Specifications

Pres. Adj. Range …… ★ - 7 MPa

★Please refer to the Min. Adj. Pressure below. If the model embedded with shut-off valves, that minimum adjustment pressure is the below value added pressure drop of shut-off valves.

● Min. Adj. Pressure

Viscosity 35 mm²/s Gravity 0.850



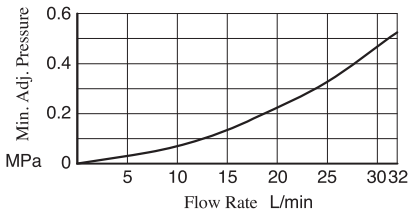
Shut-off Valves

● Solenoid Ratings

Power Supply	Voltage (V)		Current/Power at Power Supply Rated	
	Power Supply Rated	Range of Use	Holding Current (A)	Power (W)
DC	24	21.6 - 25.2	1.36	32.7

● Pressure Drop

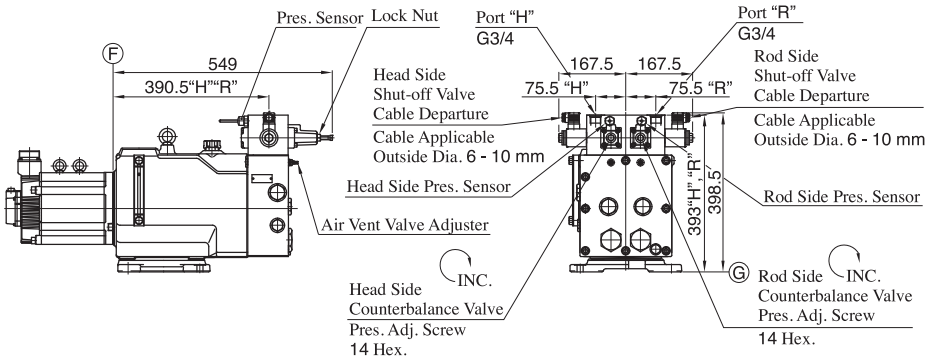
Viscosity 35 mm²/s Gravity 0.850



Options

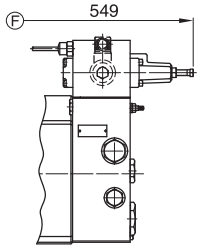
YSD3-∗-∗∗∗-∗-∗∗-BBBB

(Counterbalance Valves / Shut-off Valves : With Both Sides)

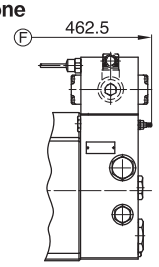


●For other dimensions, refer to "Standard"on page K-65.

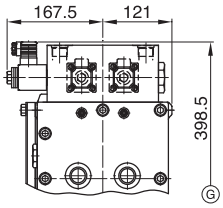
Counterbalance Valves : With Head Side or Rod Side



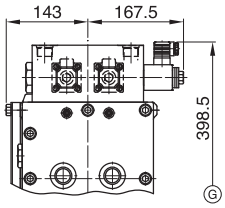
Counterbalance Valves : None



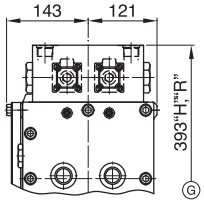
Shut-off Valves : With Head Side



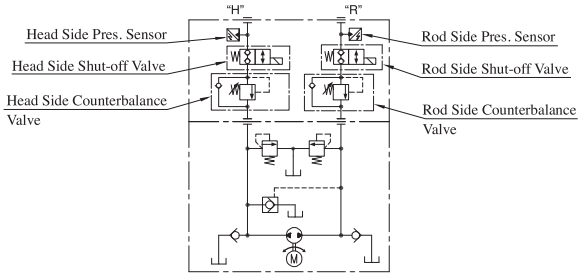
Shut-off Valves : With Rod Side



Shut-off Valves : None



Graphic Symbol



● Additional Mass with Options

With options, add the additional mass below on that of "Standard"on page K-65.

Embedded Position of Option Valves		Additional Mass kg
Counterbalance Valves	Shut-off Valves	
Both Sides	Both Sides	16
	Head Side or Rod Side	
Head Side or Rod Side	Both Sides	
Combination Other Than The Above		15

■ Specifications/Characteristics of Option Valves

Counterbalance Valves

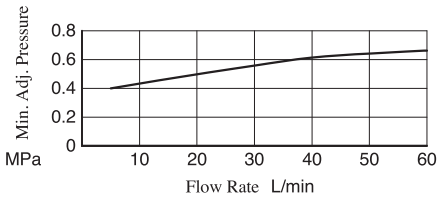
● Specifications

Code of Pres. Adj. Range	Pres. Adj. Range MPa
N	★ - 1.8
A	1.8 - 3.5
B	3.5 - 7

★Please refer to the Min. Adj. Pressure below. If the model embedded with shut-off valves, that minimum adjustment pressure is the below value added pressure drop of shut-off valves.

● Min. Adj. Pressure

Viscosity 35 mm²/s Gravity 0.850



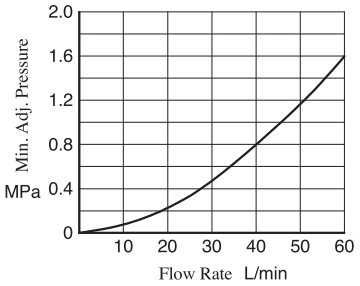
Shut-off Valves

● Solenoid Ratings

Power Supply	Voltage (V)		Current/Power at Power Supply Rated	
	Power Supply Rated	Range of Use	Holding Current (A)	Power (W)
DC	24	21.6 - 25.2	1.36	32.7

● Pressure Drop

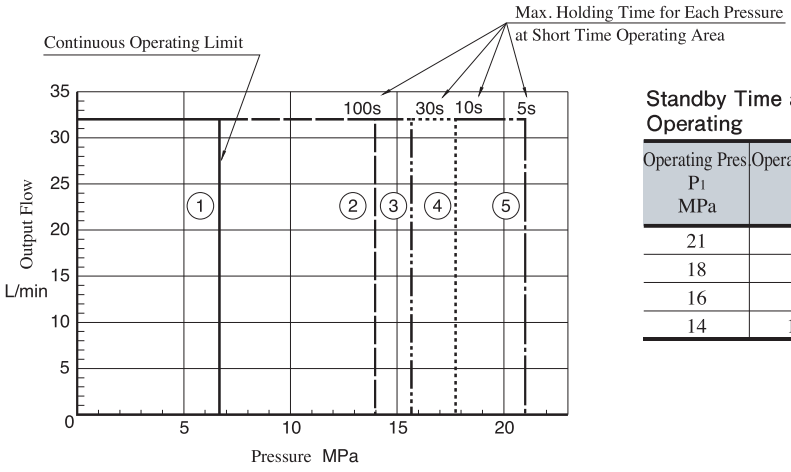
Viscosity 35 mm²/s Gravity 0.850



Pressure vs. Output Flow Characteristics

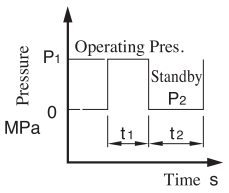
The characteristics charts below show the operating limits of "Pressure"and "Output Flow"calculated with AC servo motor specifications.
For the characteristics charts, see the descriptions below.

Description of Characteristics Chart



Standby Time after Short Time Operating

Operating Pres. P_1 MPa	Operating time t_1 s	Standby Time t_2 s (P_2=0 MPa)
21	5	72
18	10	101
16	30	229
14	100	588

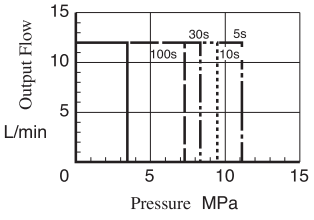


① ——— Continuous Operating Area: The area can pressurizing continuously.

② - ⑤ Short Time Operating Area: The area can use only at the time limited on the characteristics chart. After operating, need a fixed standby time shown on the chart. The standby time on chart is the value at 0 MPa of the standby pressure. If the standby pressure higher than 0 MPa, the standby time is longer. For details, please contact us separately.

YSD1 Type

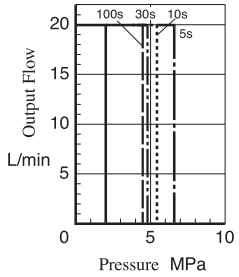
●YSD1-＊-09＊09-6-＊＊-20



Standby Time after Short Time Operating

Operating Pres. P_1 MPa	Operating time t_1 s	Standby Time t_2 s
11.1	5	86
9	10	105
8	30	238
7	100	607

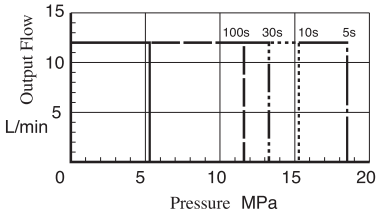
●YSD1-＊-09＊09-10-＊＊-20



Standby Time after Short Time Operating

Operating Pres. P_1 MPa	Operating time t_1 s	Standby Time t_2 s
6.6	5	86
5.4	10	105
4.9	30	238
4.3	100	607

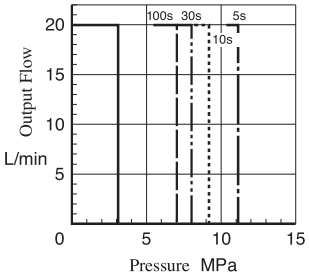
●YSD1-＊-13＊13-6-＊＊-20



Standby Time after Short Time Operating

Operating Pres. P_1 MPa	Operating time t_1 s	Standby Time t_2 s
18.5	5	120
15	10	123
13	30	275
11.8	100	688

●YSD1-＊-13＊13-10-＊＊-20

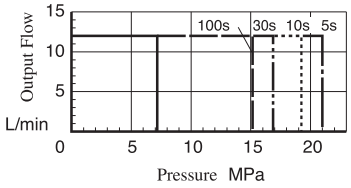


Standby Time after Short Time Operating

Operating Pres. P_1 MPa	Operating time t_1 s	Standby Time t_2 s
11.1	5	103
9	10	123
8	30	275
7	100	688

YSD2 Type

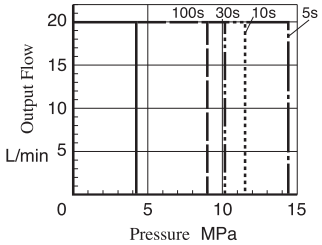
●YSD2-＊-24＊24-6-＊＊-30



Standby Time after Short Time Operating

Operating Pres. P_1 MPa	Operating time t_1 s	Standby Time t_2 s
21	5	61
19	10	100
16.9	30	228
15	100	585

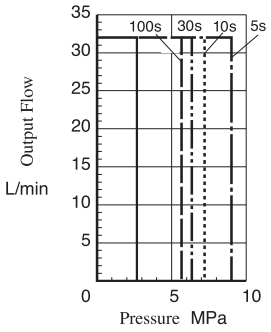
●YSD2-＊-24＊24-10-＊＊-30



Standby Time after Short Time Operating

Operating Pres. P_1 MPa	Operating time t_1 s	Standby Time t_2 s
14	5	82
11.5	10	100
10	30	228
9	100	585

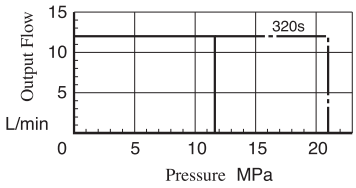
●YSD2-＊-24＊24-16-＊＊-30



Standby Time after Short Time Operating

Operating Pres. P_1 MPa	Operating time t_1 s	Standby Time t_2 s
9	5	82
7	10	100
6	30	228
5.7	100	585

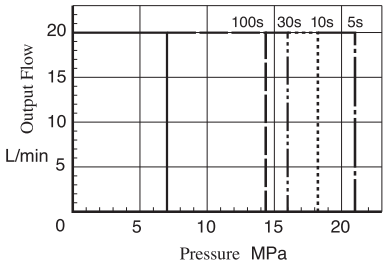
●YSD2-＊-29＊29-6-＊＊-30



Standby Time after Short Time Operating

Operating Pres. P_1 MPa	Operating time t_1 s	Standby Time t_2 s
21	320	1294

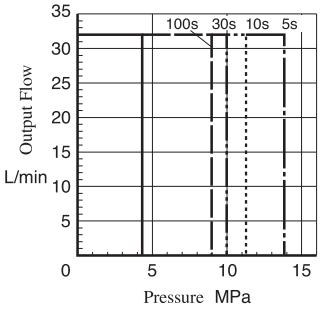
●YSD2-＊-29＊29-10-＊＊-30



Standby Time after Short Time Operating

Operating Pres. P_1 MPa	Operating time t_1 s	Standby Time t_2 s
21	5	65
18	10	95
16	30	218
14	100	562

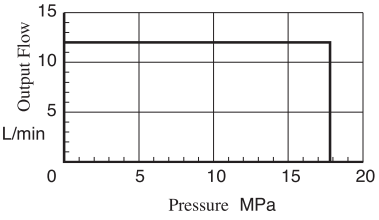
●YSD2-＊-29＊29-16-＊＊-30



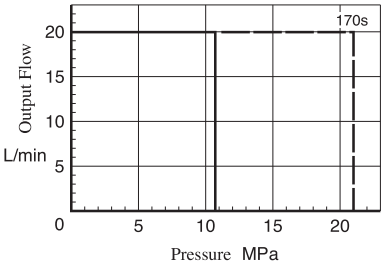
Standby Time after Short Time Operating

Operating Pres. P_1 MPa	Operating time t_1 s	Standby Time t_2 s
13.9	5	77
11	10	95
10	30	218
9	100	562

●YSD2-＊-44＊44-6-＊＊-30



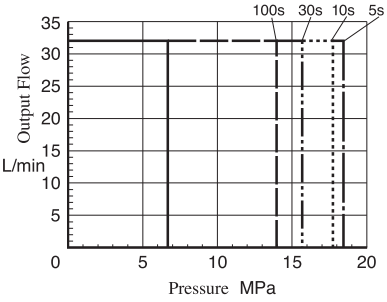
●YSD2-＊-44＊44-10-＊＊-30



Standby Time after Short Time Operating

Operating Pres. P_1 MPa	Operating time t_1 s	Standby Time t_2 s
21	170	852

●YSD2-＊-44＊44-16-＊＊-30



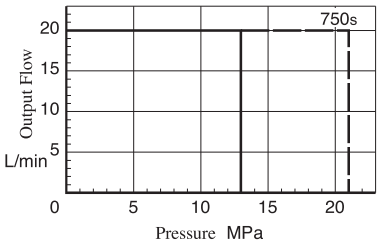
Standby Time after Short Time Operating

Operating Pres. P_1 MPa	Operating time t_1 s	Standby Time t_2 s
18.3	5	72
17.8	10	101
15.7	30	229
14	100	588

★For the description of characteristics chart, refer to page K-68.

YSD3 Type

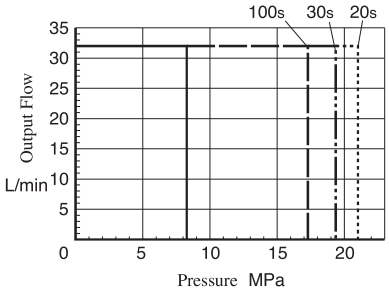
●YSD3-＊-55＊55-10-＊＊-30



Standby Time after Short Time Operating

Operating Pres. P_1 MPa	Operating time t_1 s	Standby Time t_2 s
21	750	2218

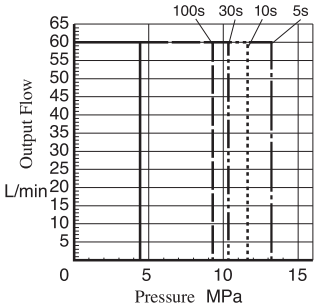
●YSD3-＊-55＊55-16-＊＊-30



Standby Time after Short Time Operating

Operating Pres. P_1 MPa	Operating time t_1 s	Standby Time t_2 s
21	20	183
19	30	229
17	100	588

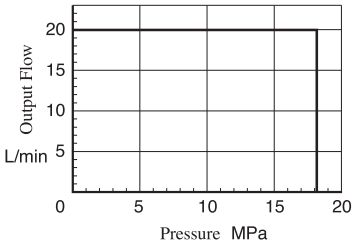
●YSD3-＊-55＊55-30-＊＊-30



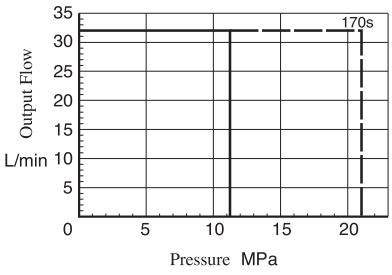
Standby Time after Short Time Operating

Operating Pres. P_1 MPa	Operating time t_1 s	Standby Time t_2 s
13.2	5	82
11.7	10	101
10	30	229
9	100	588

●YSD3-＊-75＊75-10-＊＊-30



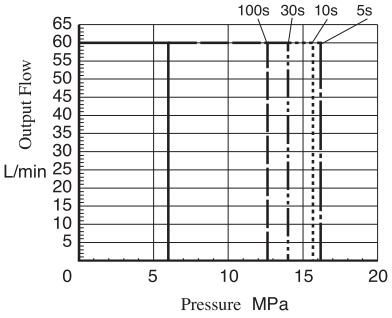
●YSD3-＊-75＊75-16-＊＊-30



Standby Time after Short Time Operating

Operating Pres. P_1 MPa	Operating time t_1 s	Standby Time t_2 s
21	170	746

●YSD3-＊-75＊75-30-＊＊-30



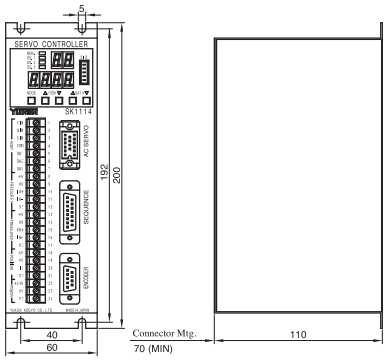
Standby Time after Short Time Operating

Operating Pres. P_1 MPa	Operating time t_1 s	Standby Time t_2 s
16.1	5	80
15.7	10	99
14	30	226
12.7	100	580

★For the description of characteristics chart, refer to page K-68.

IH Controller：SK1114-11

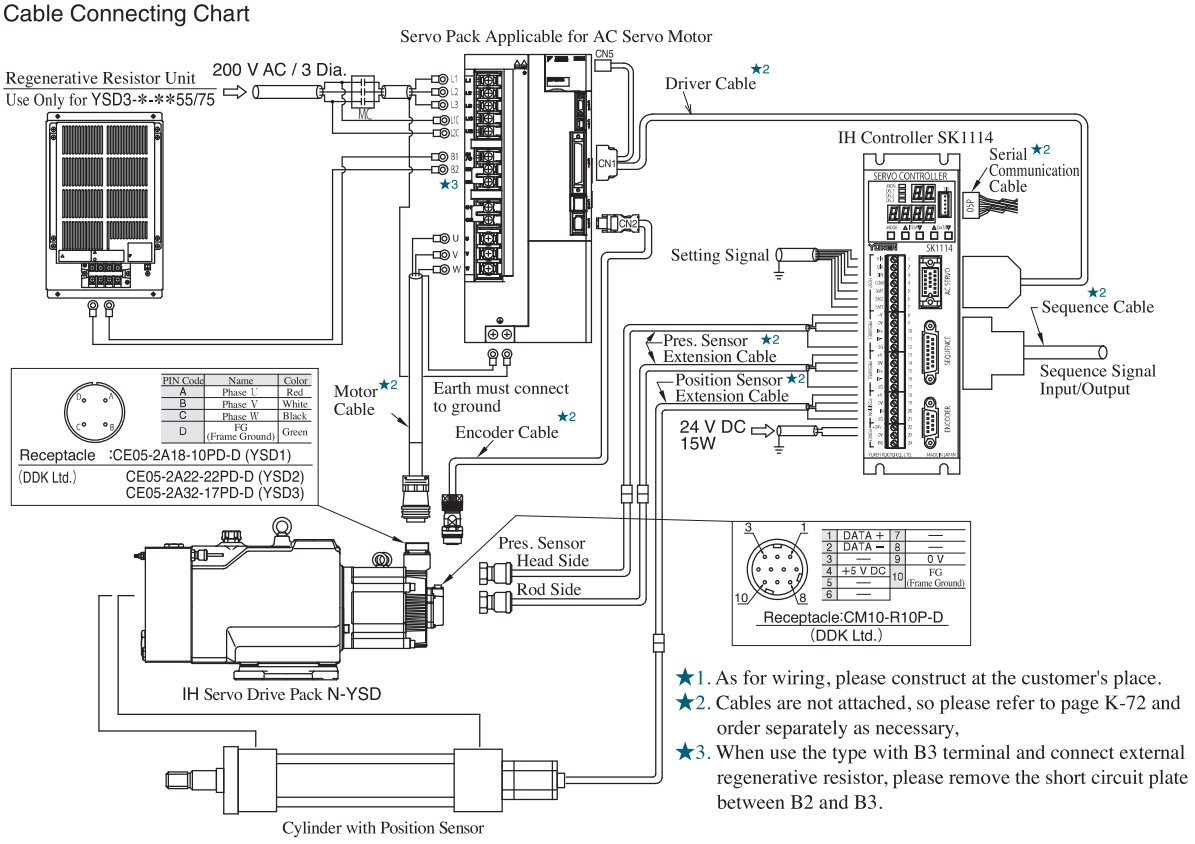




Specifications

AC Servo Input	±5 V
Input Impedance	10 kΩ (PIN, QIN, SIN)
Power Supply Voltage	24 V DC (21 - 28VIncluding Ripple)
Max. Power Consumption	10 W
Input Signal	Rated／5 V (PIN, QIN, SIN)
Signal for Sensor Monitor	±5 V (SM*)
Ambient Temperature	0 - 50 °C
Mass	0.5 kg
ENCODER Imput	Option

Cable Connecting Chart



★1. As for wiring, please construct at the customer's place.
★2. Cables are not attached, so please refer to page K-72 and order separately as necessary,
★3. When use the type with B3 terminal and connect external regenerative resistor, please remove the short circuit plate between B2 and B3.

Terminal Details

SK1114

Terminal Name	No.	Signal		Wire Color
HOST (Setting Signal Input/Output)	1	PIN	Pres. Input Signal	–
	2	QIN	Flow Input Signal	
	3	SIN	Position Input Signal	
	4	COM	Signal Common	
	5	SM1	General Monitor Output 1	
	6	SM2	General Monitor Output 2	
	7	SM3	General Monitor Output 3	
PRESSURE1 (Head Side Pres. Sensor)	8	+V	Sensor Power Supply (+4V)	Red
	9	0V		White
	10	IN+	Sensor Input Signal	Green
	11	IN−		Blue
	12	SG	Shield Wire	–
PRESSURE2 (Head Side Pres. Sensor)	13	+V	Sensor Power Supply (+4V)	Red
	14	0V		White
	15	IN+	Sensor Input Signal	Green
	16	IN−		Blue
	17	SG	Shield Wire	–
POSITION (Position Sensor)	18	+V	Sensor Power Supply (+24V)	Brown
	19	0V		Blue/Gray
	20	IN	Sensor Input Signal	Green
	21	SG	Shield Wire	–
POWER (Power Supply)	22	+24V	+24 [V]	–
	23	0V	0 [V]	
	24	FG	Ground	

Connector Details

AC SERVO
(Driver Cable Connect)

No.	Signal		
1	Speed Command	Output	V-REF
2	Common		SG
3	Torque Monitor	Input	TRQ-M
4	Speed Monitor		VTG-M
5	Common		SG
6		Input	ALO1
7	Alarm Code		ALO2
8			ALO3
9	Common		SG
10	Servo ON	Output	SV-ON
11	Alarm OFF		ALM-RST
12	+24V [V]		+24V
13	Servo Standby		S-RDY+
14		Input	S-RDY−
15	Alarm		ALM+
16			ALM−

SIO
(Serial Communication Cable Connect)

No.	Signal		
1	TxD	Send Data	Output
2	RxD	Receive Data	Input
3	RTS	Send Require	Output
4	CTS	Send Ready	Input
5	GND	Common	

Upper Communication：RS-232C

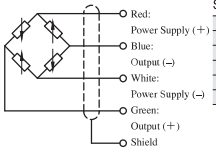
SEQUENCE
(Sequence Cable Connect)

No.	Signal		
1	COM	Input Common	Input
2	IN1	Code Input (BIN) x0 - x7	
3	IN2		
4	IN3		
5	IN4	Select Control Mode	
6	IN5	Select Control Direction	
7	IN6	Standby	
8	IN7	Alarm Reset	
9	IN8	Servo ON	
	Internal Circuit	3.3kΩ IN COM	
10	OUT1	Code Change Recognition	Output
11	OUT2	Standby	
12	OUT3	Coincidence	
13	OUT4	Alarm	
14	COM	Output Common	
	Internal Circuit	OUT COM	
15	Unused		

Cable Connector and Wire

	Sequence Cable	Driver Cable	Serial Communication Cable
Housing	DA-15P (JAE)	MR-16M (HONDA)	XHP-5 (JST)
Terminal	——	——	SXH-001T-P0.6 (JST)
Case	DA-C4-J10 (JAE)	MR-16L (HONDA)	——
Applicable Wire: Core Wire Size	AWG＃20	AWG＃24 - 28	AWG＃22 - 28
Applicable Wire: Coated Outside Dia.	2.9 Dia.	1.2 - 1.5 Dia.	0.9 - 1.9 Dia.
Strip Length	2.0 - 2.5mm	2.0 - 2.5mm	1.2 - 2.6mm

Pressure Sensor



Specifications

Model	KH17 (NAGANO KEIKI)
Range	0 - 35MPa
Output	70±25mV DC
Operating Voltage	5V DC
Precision	±0.5% F.S.
Standard Cable Length	2m

Position Sensor

Model	BTL5-A11-*(BALLUFF)
Standard Cable Length	5m

Cables

Cables are not attached for IH servo drive pack, so please refer to the table below and order separately as necessary.
The cables except for motor cable are common to each model.

Motor Cable

IH Servo Drive Pack Model Numbers	Cable Model Numbers	Notes
YSD1-＊-09＊-	YSDC-M1-09-☆-★-10	☆：Plug Type S：Straight Type　L：L Type ★：Cable Length 03：3m　05：5m　10：10m　15：15m　20：20m N：Plug and Cable Clamp Only
YSD1-＊-13＊-	YSDC-M1-13-☆-★-10	
YSD2-＊-24＊-	YSDC-M1-29-☆-★-10	
YSD2-＊-29＊-	YSDC-M1-29-☆-★-10	
YSD2-＊-44＊-	YSDC-M1-44-☆-★-10	
YSD3-＊-55＊-	YSDC-M1-55-☆-★-10	
YSD3-＊-75＊-	YSDC-M1-75-☆-★-10	

Sequence Cable / Driver Cable

Cable Type	Cable Model Numbers	Notes
Sequence Cable	YSDC-S1-00-★-10	★：Cable Length 03：3m　05：5m　10：10m　15：15m　20：20m
Driver Cable	YSDC-D1-★-10	★：Cable Length 01：1m　02：2m　03：3m

Encoder Cable / Pres. Sensor Extension Cable / Position Sensor Extension Cable

Cable Type	Cable Model Numbers	Notes
Encoder Cable	YSDC-E8-☆-★-10	☆：Plug Type S：Straight Type　L：L Type ★：Cable Length R03：0.3m　03：3m　05：5m　10：10m　15：15m　20：20m
Pres. Sensor Extension Cable	YSDC-P1-01-★-10	★：Cable Length 03：3m　05：5m　10：10m　15：15m　20：20m　50：50m
Position Sensor Extension Cable	YSDC-L1-01-★-10	★：Cable Length 03：3m　05：5m　10：10m　15：15m　20：20m

Serial Communication Cable

Cable Type	Cable Model Numbers	Notes
Serial Communication Cable	YSDC-T2-☆-★-10	☆：Cable End Type 02：Dsub-9pin ★：Cable Length 03：3m　05：5m　10：10m

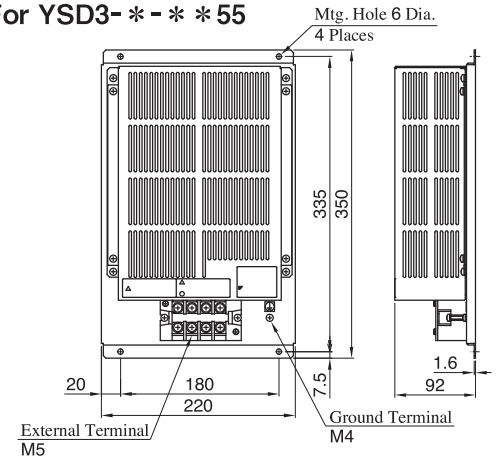
Regenerative Resistor Unit

Specifications

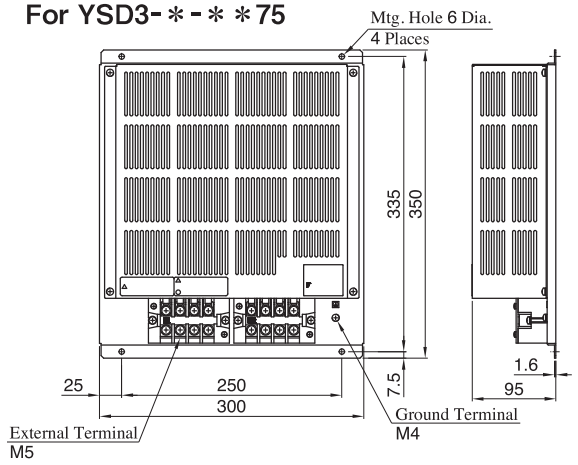
IH Servo Drive Pack Model Numbers	YASKAWA ELECTRIC Model	Resistance Value	Power	Approx. Mass kg
YSD3-＊-＊＊55-	JUSP-RA04-E	6.25Ω (25Ω×4Parallel Connected)	880W (220W×4)	4.2
YSD3-＊-＊＊75-	JUSP-RA05-E	3.13Ω (25Ω×8Parallel Connected)	1760W (220W×8)	6.6

★Regenerative resistor may reach to high temperature. Please use heat-resistant fireproof wires and avoid to contact the regenerative resistor on wiring.

For YSD3-＊-＊＊55



For YSD3-＊-＊＊75



Interchangeability between Current and New Models

Because the motor manufacturer stopped production of the built-in servo motor, so IH servo drive pack has changed models as below.

Major Changes

①Totally Change of Servo Motor and Servo Pack.
②1.8 kW embedded model changes to 2.4 kW embedded model same as above.
③Change The Connector Type of Encorder Cable.

Design Number

Series	Change of Design Number
YSD1	10→20 Design
YSD2/YSD3	20→30 Design

Interchangeability in Installation

There is interchangeability between current and new pumps with no changes.
As for servo motor, servo pack and encoder cable, there is no interchangeability between current and new models, so these parts of current design have to exchange as a set.

Interchangeability	Name	No Interchangeability / Differences	No Interchangeability / Details
Yes	Pump	———	———
No	Servo Motor	Distance from Pump Mtg. Surface to Cable Connecting Position	Page K-74
No	Servo Pack	Mtg. Hole Dimensions	Page K-75
		Connector Insert Direction for YSD3	
Yes	Motor Cable Sequence Cable Driver Cable Pres. Sensor Extension Cable Position Sensor Extension Cable	———	———
No	Serial Communication Cable	Cable End Type : Delete Some Parts	Page K-76
No	Encoder Cable	Cable Length, Connector type	Pages K-73, K-75
Yes★	Regenerative Resistor Unit	———	———

★The model numbers are changed (see the table below).

Model Numbers

①IH Servo Drive Pack

Current Model Numbers	New Model Numbers
YSD2-＊-18A18-＊-＊＊-＊＊＊＊＊-20	YSD2-＊-24A24-＊-＊＊-＊＊＊＊＊-30

②Encoder Cable / Regenerative Resistor Unit

Current Model Numbers		New Model Numbers	
Encoder Cable	Regenerative Resistor Unit	Encoder Cable	Regenerative Resistor Unit
YSDC-E1-☆-★-10 ★ : Cable Length 03 : 3m 05 : 5m 10 : 10m 15 : 15m 20 : 20m 50 : 50m	JUSP-RA04	YSDC-E8-☆-★-10 ★ : Cable Length R3 : 0.3m 03 : 3m 05 : 5m 10 : 10m 15 : 15m 20 : 20m	JUSP-RA04-E
	JUSP-RA05		JUSP-RA05-E

Specifications

Current and new models are same except below.

1. Servo Motor Output / Servo Pack type

Current			New		
Model Numbers	Servo Motor Output	Servo Pack type	Model Numbers	Servo Motor Output	Servo Pack type
YSD2-＊-18A18	1.8 kW	For 1.8 kW Motor	YSD2-＊-24A24	2.4 kW	For 2.4 kW Motor

2. Mass

①Pump / Motor

Current			New		
Model Numbers	Mass Flange Mtg. Type	Mass Foot Mtg. Type	Model Numbers	Mass Flange Mtg. Type	Mass Foot Mtg. Type
YSD1-＊-09A09-＊-＊＊-10	50 kg	53 kg	YSD1-＊-09A09-＊-＊＊-20	48 kg	51 kg
YSD1-＊-13A13-＊-＊＊-10	52 kg	55 kg	YSD1-＊-13A13-＊-＊＊-20	49 kg	52 kg
YSD2-＊-29A29-＊-＊＊-20	82 kg	88 kg	YSD2-＊-29A29-＊-＊＊-30	78 kg	84 kg
YSD2-＊-44A44-＊-＊＊-20	87 kg	93 kg	YSD2-＊-44A44-＊-＊＊-30	82 kg	88 kg
YSD3-＊-55A55-＊-＊＊-20	124 kg	130 kg	YSD3-＊-55A55-＊-＊＊-30	116 kg	122 kg
YSD3-＊-75A75-＊-＊＊-20	134 kg	140 kg	YSD3-＊-75A75-＊-＊＊-30	124 kg	130 kg

②Servo Pack

Current		New	
Type	Mass	Type	Mass
For YSD1-＊-09	1.7 kg	For YSD1-＊-09	1.5 kg
For YSD1-＊-13	2.8 kg	For YSD1-＊-13	2.4 kg
For YSD2-＊-18/29	3.8 kg	For YSD2-＊-24	2.8 kg
For YSD2-＊-44	5.5 kg	For YSD2-＊-29/44	4.6 kg
For YSD3-＊-55/75	14.6 kg	For YSD3-＊-55/75	10.2 kg

Characteristics

Pressure vs. Output Flow Characteristics are changed as below.

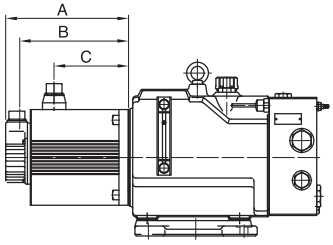
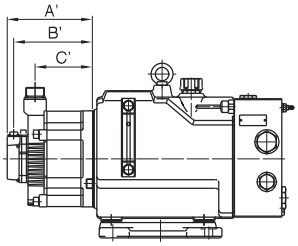
①Operating pressure at short time operating is changed a part.

②Delete the forced air cooling area at continuous and short time operating.

Dimensions

①Pump / Mootor

Current				New			
Model Numbers	A	B	C	Model Numbers	A’	B’	C’
YSD1-＊-09A09-＊-＊＊-10	161	140	88	YSD1-＊-09A09-＊-＊＊-20	137	125	83
YSD1-＊-13A13-＊-＊＊-10	185	164	112	YSD1-＊-13A13-＊-＊＊-20	153	141	99
YSD2-＊-18A18-＊-＊＊-20	166	144	89	YSD2-＊-24A24-＊-＊＊-30	160	148	108
YSD2-＊-29A29-＊-＊＊-20	192	170	115	YSD2-＊-29A29-＊-＊＊-30	160	148	108
YSD2-＊-44A44-＊-＊＊-20	226	204	149	YSD2-＊-44A44-＊-＊＊-30	184	172	132
YSD3-＊-55A55-＊-＊＊-20	260	238	174	YSD3-＊-55A55-＊-＊＊-30	221	209	163
YSD3-＊-75A75-＊-＊＊-20	334	312	248	YSD3-＊-75A75-＊-＊＊-30	267	255	209

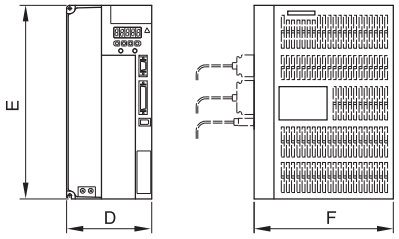
Current	New
	

②Servo Pack

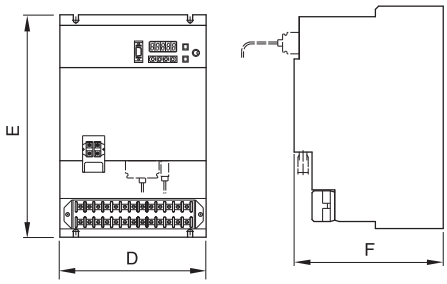
Current							New						
Type	D	E	F	G	H	J	Type	D'	E'	F'	G'	H'	J'
For YSD1-∗-09	90	160	180	27	149.5	5	For YSD1-∗-09	70	160	180	58	150	(5)
For YSD1-∗-13	110	160	180	100	149.5	5	For YSD1-∗-13	90	160	180	80	150	(5)
For YSD2-∗-18/29	110	250	180	100	238.5	6	For YSD2-∗-24	100	180	180	90	170	(5)
For YSD2-∗-44	135	250	230	125	238.5	5.7	For YSD2-∗-29/44	110	250	210	100	238.5	(6)
For YSD3-∗-55/75	230	350	235	180	335	7	For YSD3-∗-55/75	170	350	210	120	335	(7)

Current

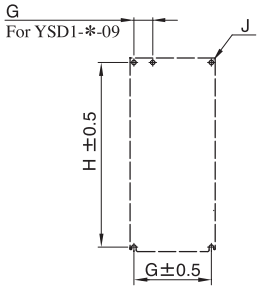
For YSD1/YSD2



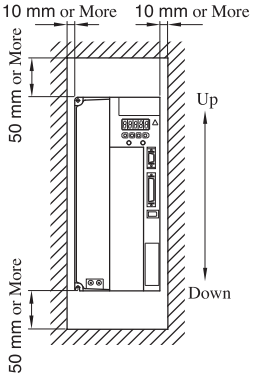
For YSD3



Mtg. Hole Dimensions

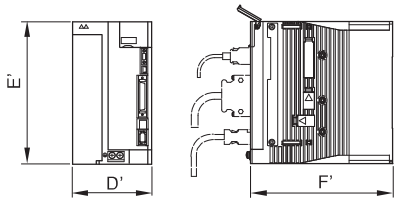


Installation Standard

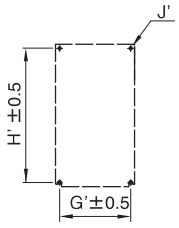


New

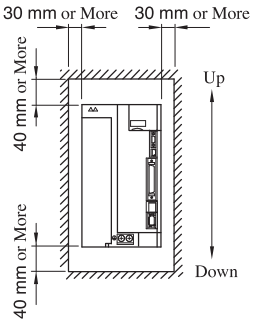
For YSD1/YSD2/YSD3



Mtg. Hole Dimensions

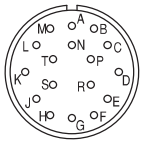


Installation Standard



③Encoder Cable

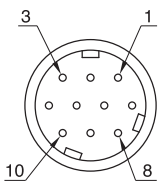
Current



Receptacle
MS3102A20-29P
DDK Ltd.

PIN Code	Name	PIN Code	Name
A	—	K	—
B	—	L	—
C	DATA +	M	—
D	DATA −	N	—
E	—	P	—
F	—	R	—
G	0 V	S	—
H	+ 5V DC	T	—
J	FG (Frame Ground)		—

New



Receptacle
CM10-R10P-D
DDK Ltd.

PIN Code	Name
1	DATA +
2	DATA −
3	—
4	+5 V DC
5	—
6	—
7	—
8	—
9	0 V
10	FG (Frame Ground)

④Serial Communication Cable

Descriptions	Current	New
Cable Model Numbers	YSDC-T1-☆-★-10	YSDC-T2-☆-★-10
Cable End Type	01：Dsub-25pin 02：Dsub-9pin	02：Dsub-9pin

Solenoid Ratings

Type	Power Supply	Coil Type★3	Frequency (Hz)	Voltage (V)		Current/Power at Rated Power Supply Voltage		
				Power Supply Rated	Range of Use	Inrush Current★2 (A)	Holding Current (A)	Power (W)
Standard Type	AC★1	A 100	50	100	80 - 110	2.42	0.51	—
			60	100	90 - 120	2.14	0.37	
				110		2.35	0.44	
		A 120	50	120	96 - 132	2.02	0.42	
			60		108 - 144	1.78	0.31	
		A 200	50	200	160 - 220	1.21	0.25	
			60	200	180 - 240	1.07	0.19	
				220		1.18	0.22	
		A 240	50	240	192 - 264	1.01	0.21	
			60		216 - 288	0.89	0.15	
Shockless Type	DC (K Series)	D 12	—	12	10.8 - 13.2	—	2.45	29
		D 24		24	21.6 - 26.4		1.23	
		D 48		48	43.2 - 52.8		0.61	
	R (AC→DC)	R 100	50/60	100	90 - 110	—	0.33	29
		R 200		200	180 - 220		0.16	

★1. AC Solenoid
AC Solenoid (A＊) is not available for the shockless type. If need shockless type of power supply, please order R type solenoid (R＊).

★2. Inrush Current
The inrush current value indicates the rms value at max. stroke.

★3. The coil types other than the above are also available. For details, please contact us separately.

The coil types highlighted with shade represent the optional extras. If use, please confirm the time of delivery with us befor ordering.