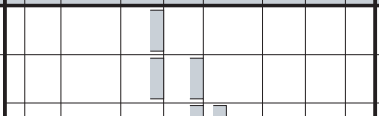
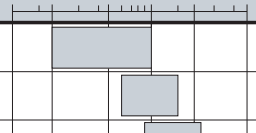
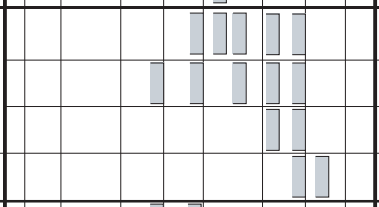
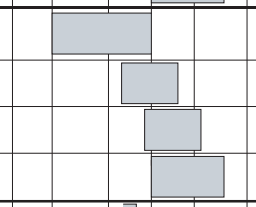
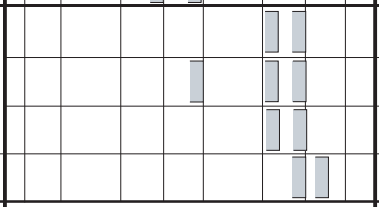
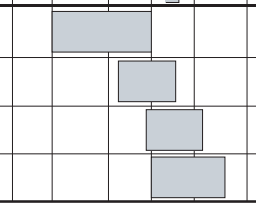
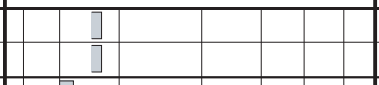
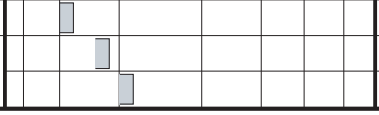
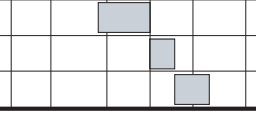
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STANDARD HYDRAULIC POWER UNITS/POWER PACKAGES

Type	Model Numbers	Max. Operating Pres. MPa	Reservoir Capacity L (1 2 5 10 20 50 100 200)	Geometric Displacement cm³/rev (1 2 5 10 20 50)	Page
Low Noise & Small Type Hydraulic Power Units **YP Pack**	YP10	7/16			K-3
	YP16	16			
	YP22				
	YP37				
Low Noise Type Hydraulic Power Units **YA Pack**	YA10	7/16			K-13
	YA16				
	YA22				
	YA37	7			
Small Type Hydraulic Power Units **YA-Light Pack**	YAL8	3.5/7			K-32
	YAL16				
Energy-Saving Hydraulic Power Units **YA-e Pack**	E-YA10	7/16			K-43
	E-YA16				
	E-YA22				
	E-YA37	7			
Energy-Saving Control System for Hydraulic Units	AMC-IV	—	—	—	K-48
Power Packages	PMR2	14			K-52
	PPF2	10.5			
IH Servo Drive Pack	YSD1	10.5			K-61
	YSD2	21			
	YSD3				

- Yuken provides various hydraulic units in accordance with the specifications.
- High efficiency energy-saving hydraulic power units equipped with PM motor are also available. For details, please contact us separately.

Hydraulic Fluids

Type of Fluids

Use petroleum base clean oils equivalent to ISO VG 32 or VG 46.

Recommended Viscosity and Oil Temperature

Use hydraulic fluids which satisfy the both recommended viscosity and oil temperature given in the table below.

Type		Viscosity	Oil Temperature
◦ YP Pack ◦ YA Pack ◦ IH Servo Drive Pack		20 - 400 mm^2/s	0 - 60 °C
◦ YA Series L Pack		20 - 400 mm^2/s	5 - 60 °C
◦ YA-e Pack		20 - 220 mm^2/s	5 - 60 °C
◦ Power Packages	PMR2	20 - 400 mm^2/s	0 - 70 °C
	PPF2	10 - 400 mm^2/s	

Control of Contamination

Due caution must be paid to maintaining control over contamination of the hydraulic fluids which may otherwise lead to breakdowns and shorten the life of the equipments. Please maintain the degree of contamination below.

Type	Contamination Degree
YP Pack, YA Pack, YA Series L Pack, YA-e Pack	Within NAS Grade 10
Power Packages (PMR2/PPF2)	Within NAS Grade 12
IH Servo Drive Pack	Within NAS Grade 9

Interchangeability in Installation between Current and New Design

Model change has been made on the following products.

Name	Model Numbers		Mounting Interchangeability	Page	Major Changes
	Current	New			
YP Pack	YP10-＊-＊-＊-22	YP10-＊-＊-＊-23	Yes	K-5	Increase Mass of Pres. Adj. Range "B"
YA Pack	YA10-B-＊-0.75-51 YA10-B-3-1.5-51 YA10-B-4-1.5-51 YA16-B-＊-0.75-50 YA16-B-4-1.5-50	YA10-B-＊-0.75-52 YA10-B-3-1.5-52 YA10-B-4-1.5-52 YA16-B-＊-0.75-52 YA16-B-4-1.5-52	Yes	K-30, K-31	Change The Built-in Motor
YA Series L Pack	YAL＊-＊-＊-＊-＊-10	YAL＊-＊-＊-＊-＊-20	No	K-37, K-38	Change The Built-in Motor [Comply with The Top Runner Criteria]
YA-e Pack	E-YA16-B-2-0.75-50	E-YA16-B-2-0.75-52	Yes	K-47	Change The Built-in Motor
Power Packages	PMR2-＊-＊-＊-＊-＊-35	PMR2-＊-＊-＊-＊-＊-40	Yes	K-59	Bring Built-in M Series Motor into Compliance with The Top Runner Criteria.
IH Servo Drive Pack	YSD1-＊-＊＊＊＊-＊-＊-＊＊-10	YSD1-＊-＊＊＊＊-＊-＊-＊＊-20	Yes	K-73 - K-76	Change Servo Motor and Servo Pack
	YSD$\frac{2}{3}$-＊-＊＊-＊-＊-＊＊-＊-＊＊-20	YSD$\frac{2}{3}$-＊-＊＊-＊-＊-＊＊-＊-＊＊-30			

Low-Noise Compact Type Standard Hydraulic Power Unit YP Pack

YP pack is low-noise & compact unit equipped with PAL pump of excellent performance as power resource. It saves floor space for installation by compact design. And YUKEN has achieved noise level 55 dB(A) comfortable never before.



Low Noise & Low Vibration

Equipped with low-noise PAL pump and drain cooler. Also, low noise and vibration levels have been achieved by effectively arraying the components to control vibration.

Compact Design

YP pack is well designed to be compact by uprighting the PAL pump and reducing the fluid temperature rise ratio added small size reservoir. It saves floor space for installation.

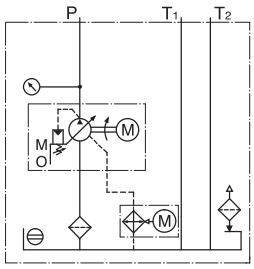
Low Fluid Temperature Rise

Standard equipment, built-in drain cooler and radiator fins of PAL pump, reduce the fluid temperature rise ratio. Good solution for heat distortion of machines.

Wide Range

YP packs offer nine different models in variety. Seven kinds of options are available such as YP pack with control circuit consists of modular & solenoid operated directional valve.

Hydraulic Circuit



Specifications

Model Numbers	Geometric Displacement of Pump cm^3/rev	Max. Operating Pres. MPa	Pres. Adj. Range MPa	Reservoir Capacity L	Electric Motor 50 Hz : 200 V AC 60 Hz : 200 V/220 V AC	Approx. Mass kg (excluding hydraulic fluid)
YP10-B-1-0.75-23	10.0	7	B : 1.2 - 7	10	0.75 kW×4P	63
YP10-＊-1-1.5-23		16	B : 1.2 - 7 C : 2 - 16	10	1.5 kW×4P	B:73 C:68
YP16-＊-1-1.5-22	15.8			10	1.5 kW×4P	80
YP16-＊-1-2.2-22				10	2.2 kW×4P	90
YP16-＊-2-2.2-22				20	2.2 kW×4P	90
YP22-＊-2-2.2-22	22.2			20	2.2 kW×4P	90
YP22-＊-3-3.7-22				30	3.7 kW×4P	110
YP37-＊-3-3.7-22	36.9			30	3.7 kW×4P	150
YP37-＊-3-5.5-22				30	5.5 kW×4P	150

●Drain Cooler Electric Specifications

・50 Hz : 200 V AC (Single Phase), 28W ・60 Hz : 200 V AC (Single Phase), 26 W ・60 Hz : 220 V AC (Single Phase), 31 W

・Lead Wire Length : 3 m

Model Number Designation

YP	16	−B	−1	−2.2	−22
Series Number	Built-in Pump	Pres. Adj. Range MPa	Reservoir Capacity L	Electric Motor	Design Number
YP : Low-Noise Compact Type Standard Hydraulic Power Unit YP Pack	10 : PM10 (10.0 cm^3 /rev)	B : 1.2 - 7	1 : 10	0.75 : 0.75 kW×4P	23
		B : 1.2 - 7 C : 2 - 16	1 : 10	1.5 : 1.5 kW×4P	
	16 : PM16 (15.8 cm^3 /rev)		1 : 10	1.5 : 1.5 kW×4P	22
				2.2 : 2.2 kW×4P	
			2 : 20	2.2 : 2.2 kW×4P	
	22 : PM22 (22.2 cm^3 /rev)		2 : 20	2.2 : 2.2 kW×4P	
			3 : 30	3.7 : 3.7 kW×4P	
	37 : PM37 (36.9 cm^3 /rev)		3 : 30	3.7 : 3.7 kW×4P	
				5.5 : 5.5 kW×4P	

Options

❶ Base Plate Embedded：01M＊
Control circuit can be constructed by just stacking up modular valves/ solenoid valve atop the base plate. However, the circuit construction is limited to modular valves and standard solenoid directional control valves. In this case, please, indicate power supply for operation.

❷ Pressure Gauge and Mounting Block Embedded：G2, G3
Use in case that detect the pressure except pump discharge pressure by using reducing valve.
G2 is able to detect one more line pressure, G3 is able to detect two more lines except pump discharge pressure.

❸ Return Filter Embedded：F
Return filter adopt the tank top type those surge pressure of tank line lower generate. The absolute filtration is 20 μm, equipped with visual indicator.

❹ Tank Magnet Embedded：Mg
Installed inside the tank. Attracts and collects fine iron powder. Decreases component wear.

❺ Oil Level Gauge with Thermometer Embedded：Te

❻ Thermostat Embedded：TR

❼ Liquid Level Switch Embedded：Le

❽ External Paint Color Changed：PT
The standard models are painted by Munsell 2.5Y9/2, color code H22-90D. In case if required special paint, please indicate separately by JPMA code or Munsell value.

❾ Water Leak Inspection：RK
YUKEN conduct water leak inspection of tank.

❿ Different Voltage Electric Motor：(＊V×＊Hz)
200 V AC (50Hz) and 200/220/230 V AC (60Hz) are standard. In case if required other voltage, please indicate voltage and frequency. In case of 50Hz, choose from 230/380/400/415 V, in case of 60 Hz, choose from 400/440/460 V.
The drain cooler has no different voltage specifications, so please prepare another power supply of single phase 200 V AC (50Hz) or 200/220 V AC (60Hz) on the machine side.

Applicable Options Table

Available options are indicated with ○ mark.

Option Code	01M＊	G＊	F	Mg	Te	TR	Le	PT	RK	＊V×＊Hz
Option Item / Model	❶ Base Plate Embedded / Number of Base Plate Stations	❷ Pressure Gauge Embedded	❸ Return Filter Embedded	❹ Tank Magnet Embedded	❺ Oil Level Gauge with Thermometer Embedded	❻ Thermostat Embedded	❼ Liquid Level Switch Embedded	❽ External Paint Color Changed	❾ Water Leak Inspection	❿ Different Voltage Electric Motor
YP10-B-1-0.75-23	○ 1 to 3 Stations	○ G2 G3	×	○	○	○	○	○	○	50 Hz：230/380/400/415 V 60 Hz：400/440/460 V
YP10-＊-1-1.5-23			×	○	○	○	○	○	○	
YP16-＊-1-1.5-22			×	○	○	○	○	○	○	
YP16-＊-1-2.2-22			×	○	○	○	○	○	○	
YP16-＊-2-2.2-22			○	○	○	○	○	○	○	
YP22-＊-2-2.2-22			○	○	○	○	○	○	○	
YP22-＊-3-3.7-22			○	○	○	○	○	○	○	
YP37-＊-3-3.7-22			○	○	○	○	○	○	○	
YP37-＊-3-5.5-22			○	○	○	○	○	○	○	

Option Indication Method

When ordering YP Pack with options, please add「OP」at the end of standard YP Pack model number, use the example below for reference and indicate options. For summary of options, please refer to the above table.

【Example of Option Indication】

YP16-B-1-2.2-22-OP

OP -01 M3 G2 F Mg Te TR Le PT RK (380×50)

Option Incl.

Base Plate Embedded ❶
Base Plate Size
01：01 Size (1/8)

Number of Base Plate Stations ❶
M1：1 Station
M2：2 Stations
M3：3 Stations

Pressure Gauge Embedded ❷
G2：Pressure Gauge 2 Pieces
G3：Pressure Gauge 3 Pieces

F：Return Filter Embedded ❸

Mg：Tank Magnet Embedded ❹

Oil Level Gauge with Thermometer Embedded ❺

Thermostat Embedded ❻

Liquid Level Switch Embedded ❼

PT：External Paint Color Changed ❽
Note) Indicate separately by JPMA code or Munsell value.

RK：Water Leak Inspection ❾

Different Voltage Electric Motor ❿
Fill in "Voltage × Frequency"in case if they differ from standard voltage only.

Instructions

Suction/Return Air

Don't put any obstructions at air vent surface of the drain cooler.
Please install unit at the floor with good air flow to avoid heat stuff.

Transportation

Use eye bolts at the time of transportation.

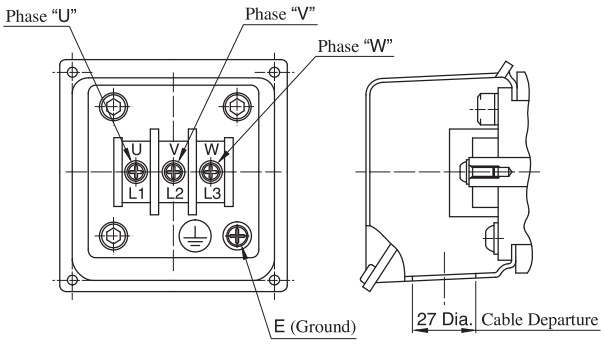
Installation

This unit is stationary type, so please fix it using bolts on the level space with no vibration.

Electrical Wiring

To protect electrical circuit from over current like short and protect motor from overload, we recommend to install no-fuse breaker with earth leakage breaker on the primary power supply.
For electrical wiring, please use crimp terminals of suitable size, and connect certainly to avoid electric leakage for main body and interphase electrical short. Please be sure to ground the earth terminal.

【Terminal Box Detail】



【Connecting Screw Size : 】

Phase "U" "V" "W" M 4

E (Ground) M 6 Motor Side [U — R, V — S, W — T] Power Supply Side

Note for Starting Operation

Before initial operation, please supply ruled mass of hydraulic fluid required from oil tank port, and fill clean hydraulic fluid from filling port of pump. Be sure to confirm that all of hydraulic circuits and electrical circuits have already prepared for starting operation. To avoid air-bound at starting operation, please adjust hydraulic circuit as that pump drain fluid return directly to oil tank, or operate directional valves for actuators no-load moving. When operate pump, also have to operate drain cooler.
There are cases when pressure increasing take time to drain air from pump or pipes. If after five minutes, the pressure does not yet increase, it may possible of motor reverse rotation, please cut off the power and check wiring.

Air Vent

Because air entrainment in pump or pipe may cause to occur vibration, please make air vent completely.

Setting of Pressure and Output Flow

〔Pressure Adjustment〕

At the time of shipping, the pressure set at minimum level, so please adjust the pressure under using conditions. Turn the pressure adjustment screw clockwise, the pressure increase. For adjustment volumes at one rotation of adjustment screw, please refer to the table below. After adjustments, do not forget to tighten the lock nut.

【Adjustment Volumes at One Rotation of Pres. Adj. Screw】

Model Numbers	Adjustment Volumes MPa
YP10/16/22–B	2.9
YP10/16/22–C	5.4
YP37–B	3.5
YP37–C	6.5

〔Output Flow Adjustment〕

Turn the flow adjustment screw clockwise, the output flow decrease. For adjustment volumes at one rotation of adjustment screw, please refer to the table below. After adjustments, do not forget to tighten the lock nut.

【Adjustment Volumes at One Rotation of Discharge Volume Adj. Screw】

Model Numbers	Adjustment Volumes at One Rotation cm^3/rev	Min. Adj. Flow cm^3/rev
YP10	1.1	2
YP16	1.5	6
YP22	2.1	8.5
YP37	2.9	10

Interchangeability between Current and New Models

As of YP 10 type model, the design number has changed from 22 to 23 due to change of built-in pump.

Change Details

Pressure adjustment range "B" mass increased 4kg.

Current		New	
Model Numbers	Mass kg	Model Numbers	Mass kg
YP10-B-1-0.75-22	58	YP10-B-1-0.75-23	63
YP10-B-1-1.5-22	68	YP10-B-1-1.5-23	73

★YP10-C-1.1.5 has no change, but the design number also change to 23.

Interchangeability in Installation

Yes

Specifications / Dimensions / Performance

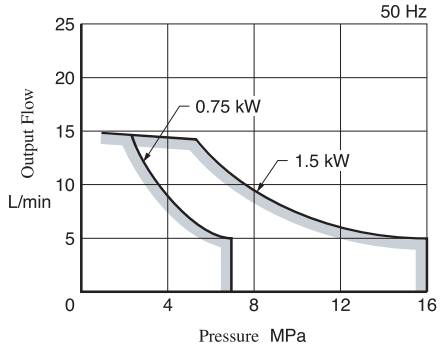
Those of current and new models are same, except for the mass.

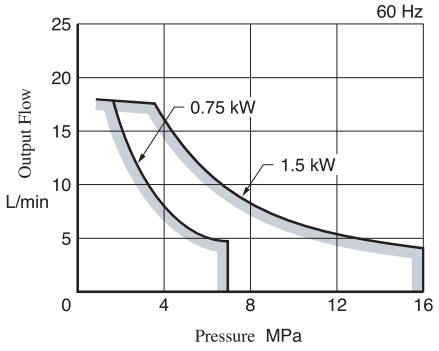
The characteristics below are the typical ones under viscosity 32 mm²/s (ISO VG32 oils, oil temperature 40℃)

Selection Graph

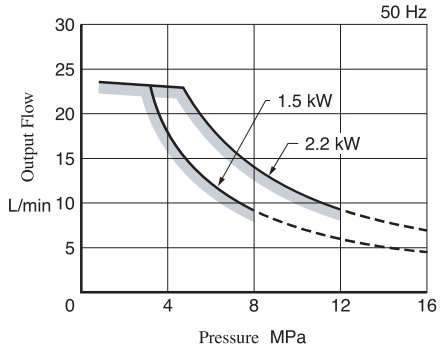
Below portion of the graph is the allowable operating range with regards to rated output of electric motor.
Note) ---- Lines of graphs indicate under minimum adjustment flow rate of pump. If use under minimum adjustment flow rate, please contact us.

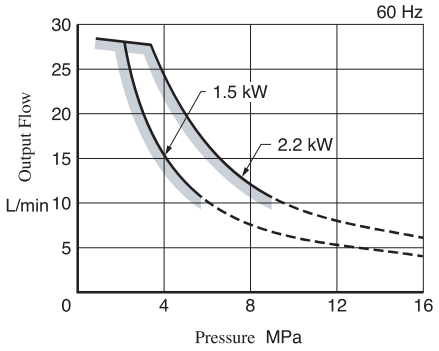
YP10



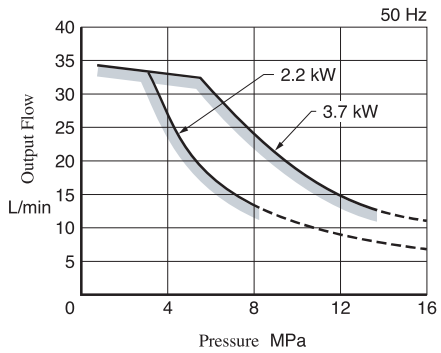


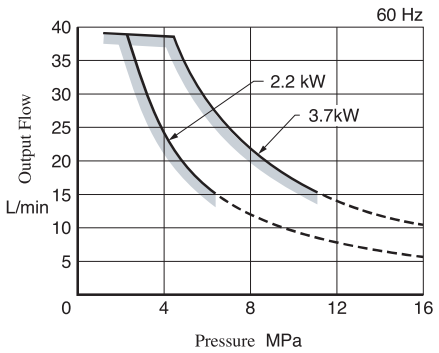
YP16



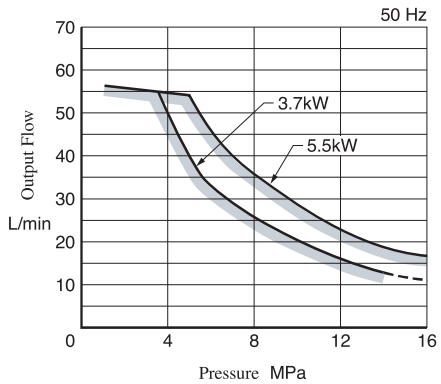


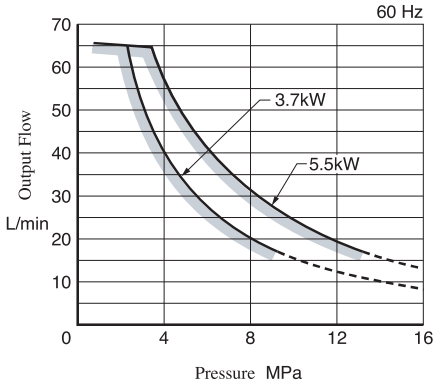
YP22





YP37



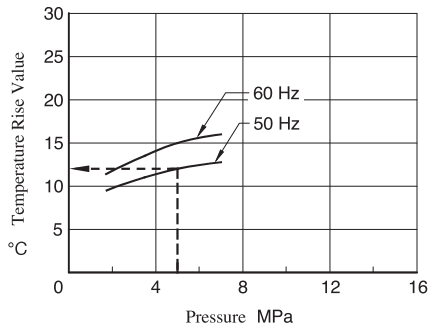


Oil Temperature in Reservoir (full cut-off pressure)

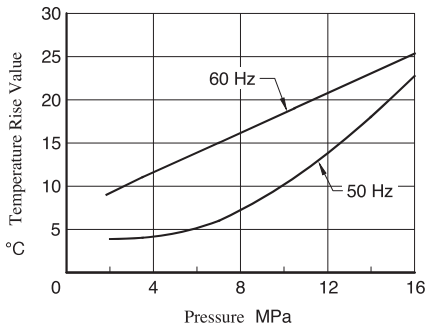
Oil temperature is expressed as (room temperature + temperature rise value). Temperature rise values (full cut-off continuous operation, windless conditions) for each model are shown below, please, check that oil temperature is below 60°C.

Note) When operating YP10-B-1-0.75 continuously (50Hz) at full cut-off pressure 5MPa, temperature rise value is 12°C as shown by broken line in the graph. Assuming that room temperature is 35°C then tank temperature will be 47°C.

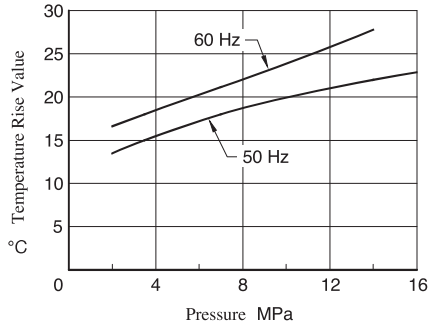
●YP10-B-1-0.75



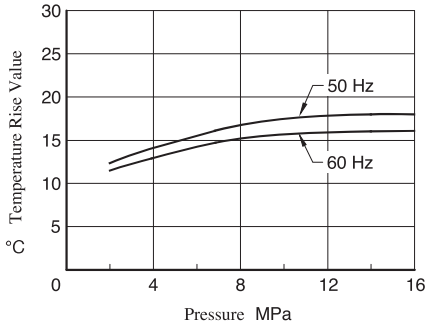
●YP10-C-1-1.5



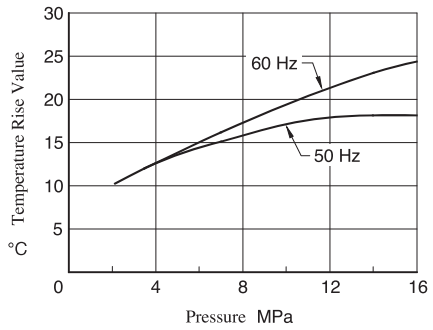
●YP16-＊-1-1.5



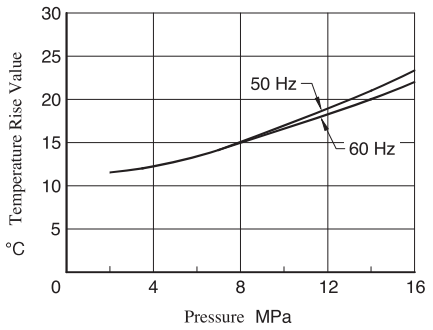
●YP16-＊-1-2.2



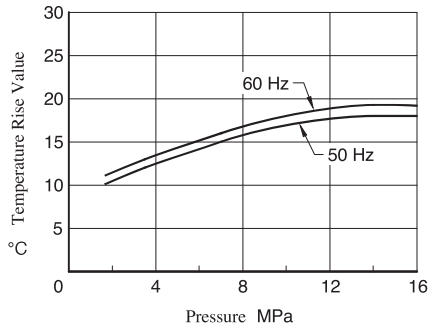
●YP16-＊-2-2.2



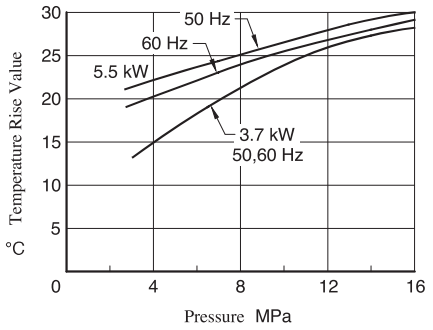
●YP22-＊-2-2.2



●YP22-＊-3-3.7



●YP37-＊-3-3.7/5.5



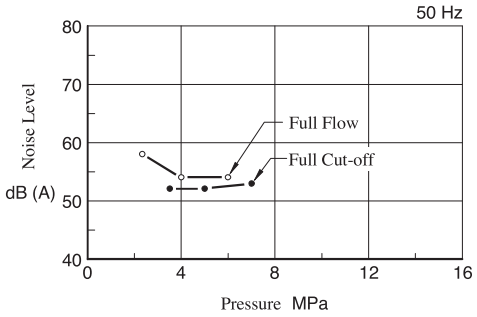
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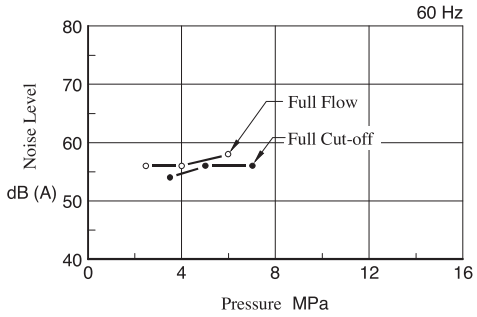
YP Pack

The characteristics below are the typical ones under viscosity 32 mm²/s (ISO VG32 oils, oil temperature 40℃)

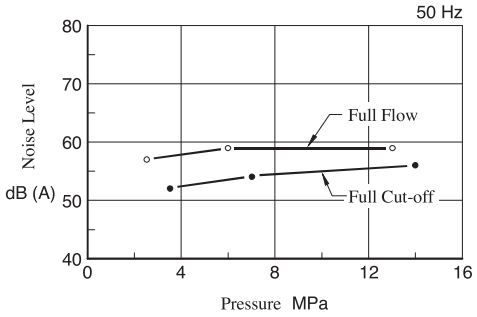
Noise Characteristics (Example) 〔Location of Measurement: 1m from the pump〕

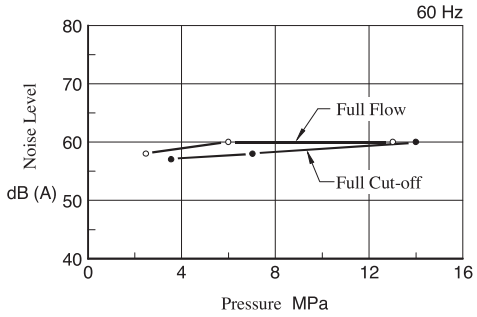
●YP10-B-1-0.75



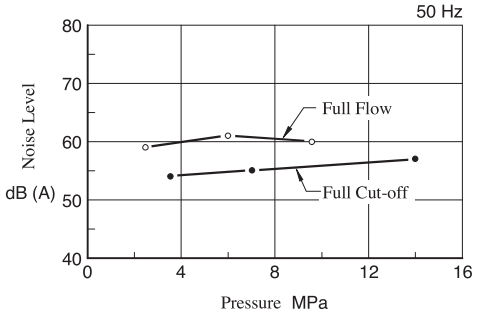


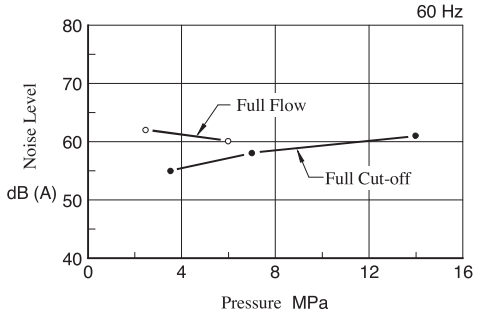
●YP10-*-1-1.5



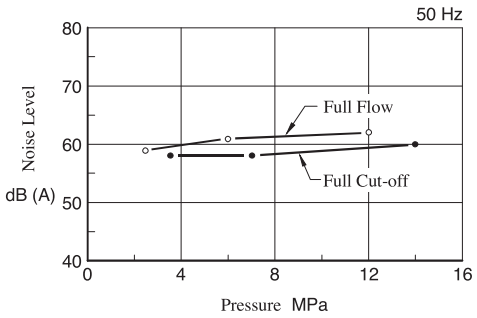


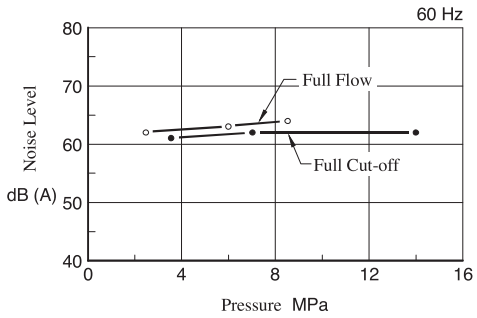
●YP16-*-1-1.5





●YP16-*-1-2.2

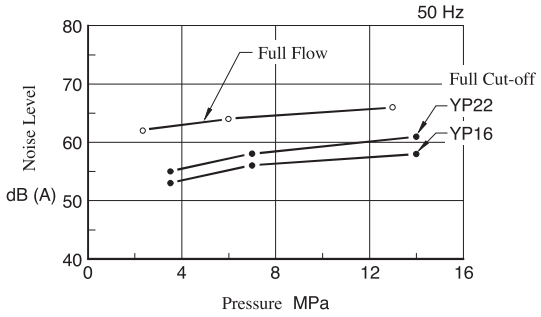


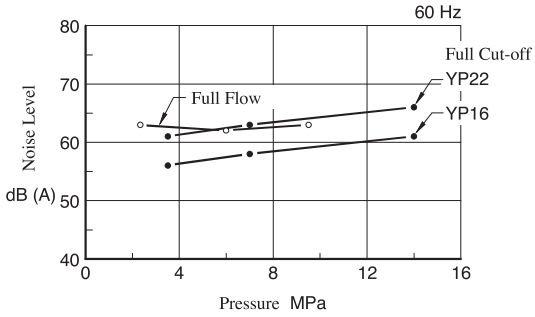


The characteristics below are the typical ones under viscosity 32 mm²/s (ISO VG32 oils, oil temperature 40℃)

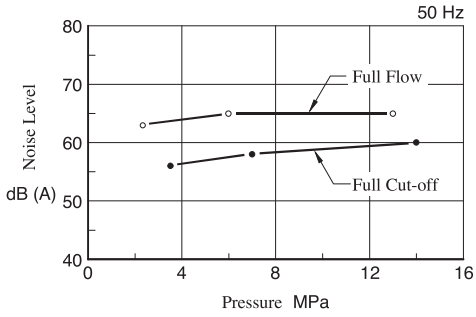
Noise Characteristics (Example) 〔Location of Measurement: 1m from the pump〕

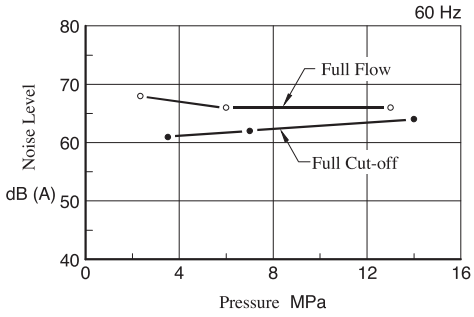
●YP16/22-＊-2-2.2



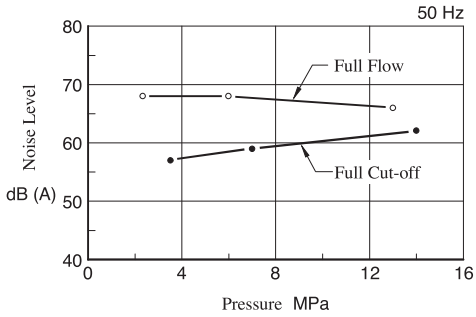


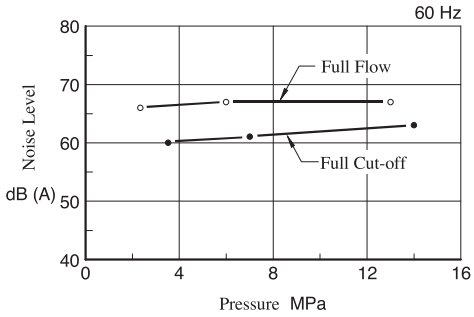
●YP22-＊-3-3.7



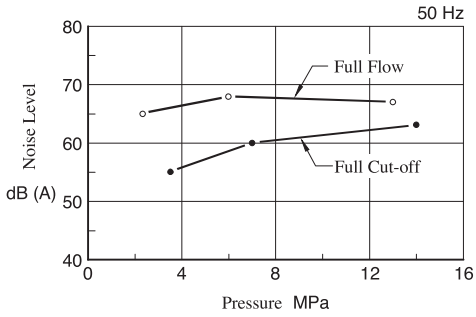


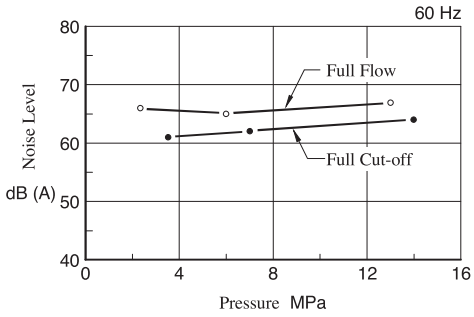
●YP37-＊-3-3.7



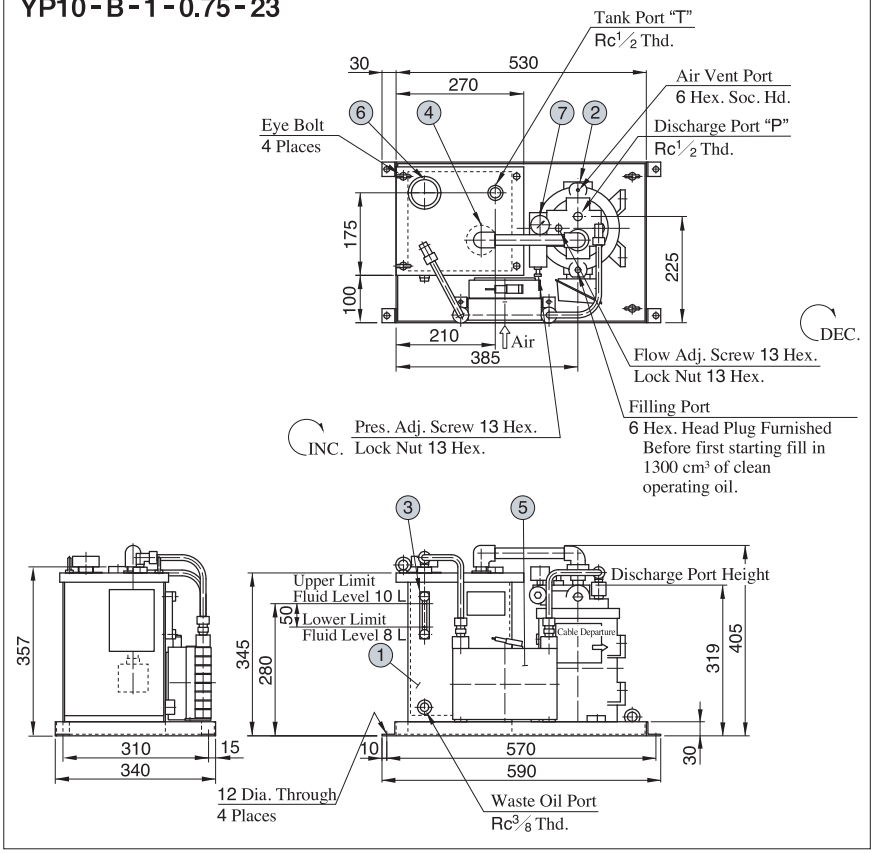


●YP37-＊-3-5.5

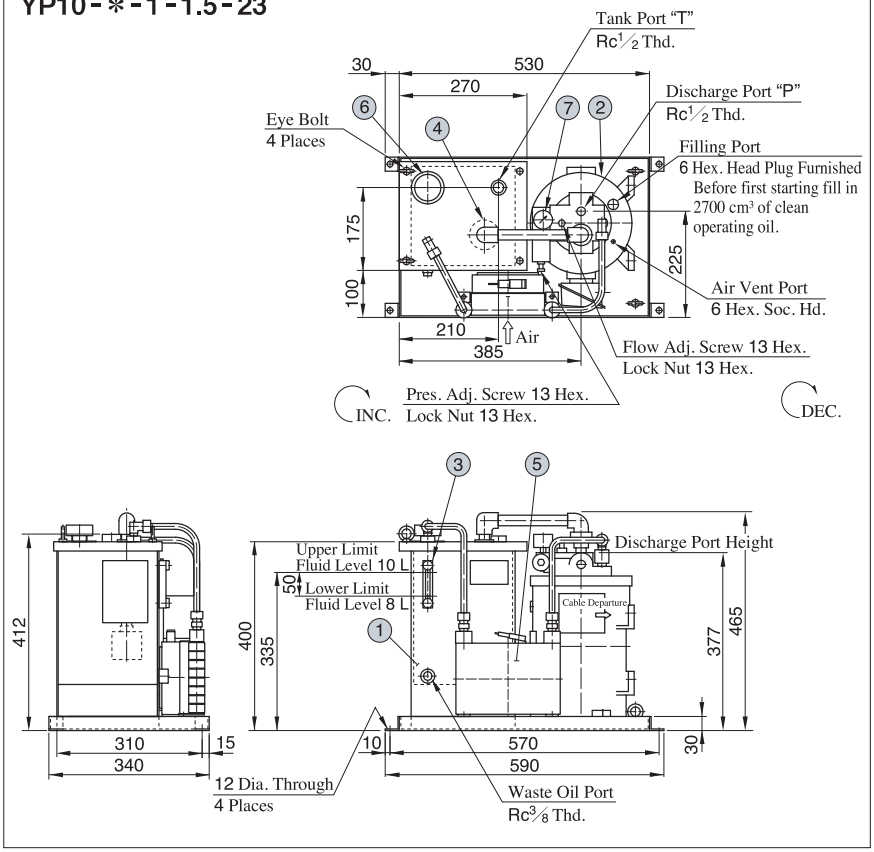




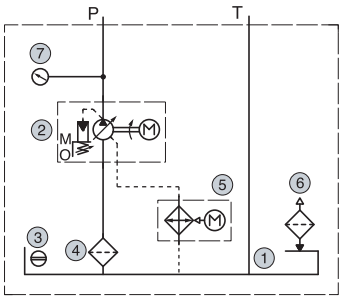
YP10-B-1-0.75-23



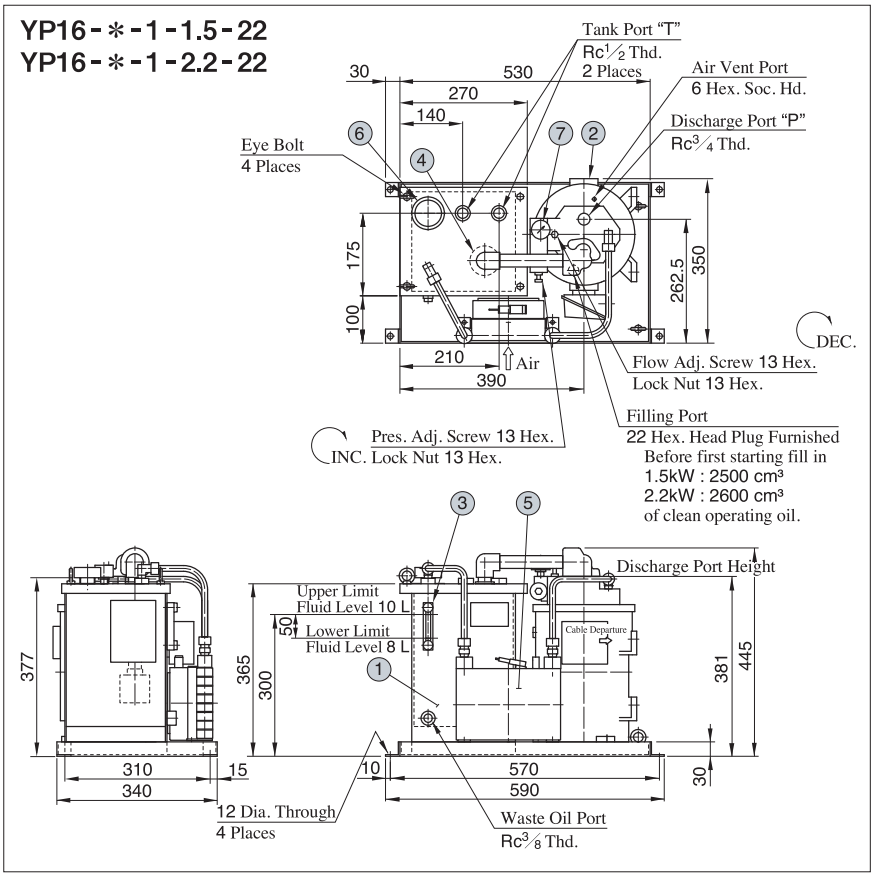
YP10-*-1-1.5-23



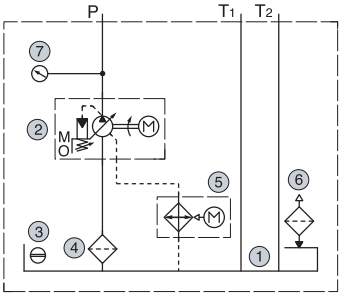
Hydraulic Circuit

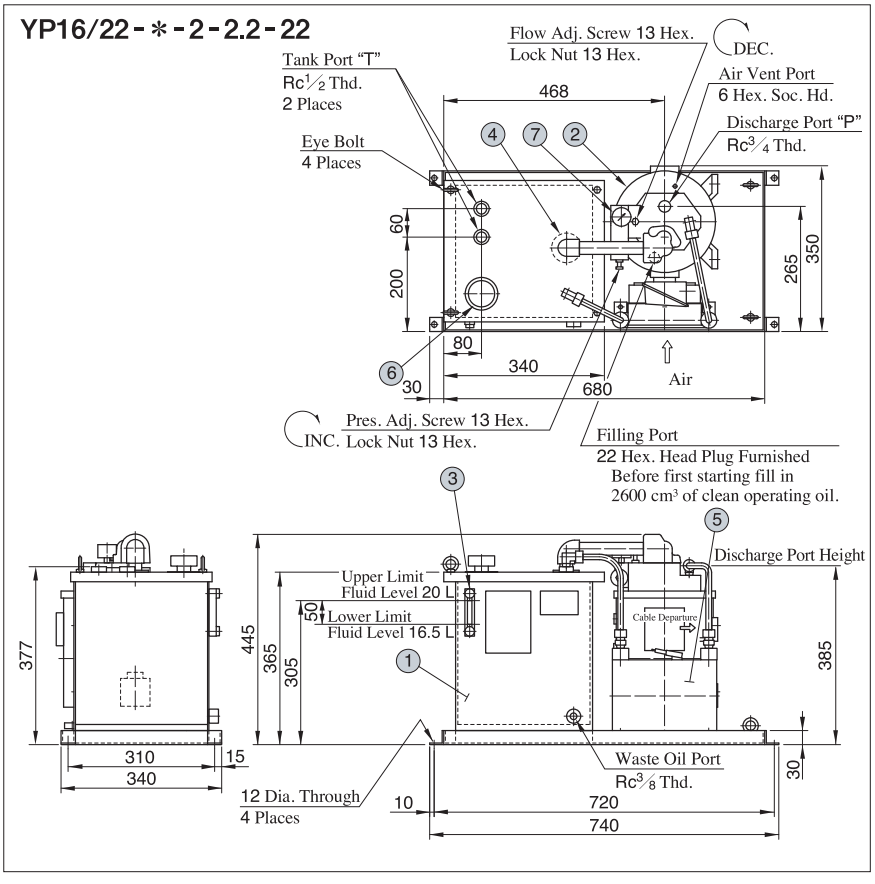


Item	Name
1	Hydraulic Reservoir
2	Pal Pump
3	Oil Level Gauge
4	Suction Strainer
5	Drain Cooler
6	Air Breather with Filling Port
7	Pressure Gauge



● Hydraulic Circuit



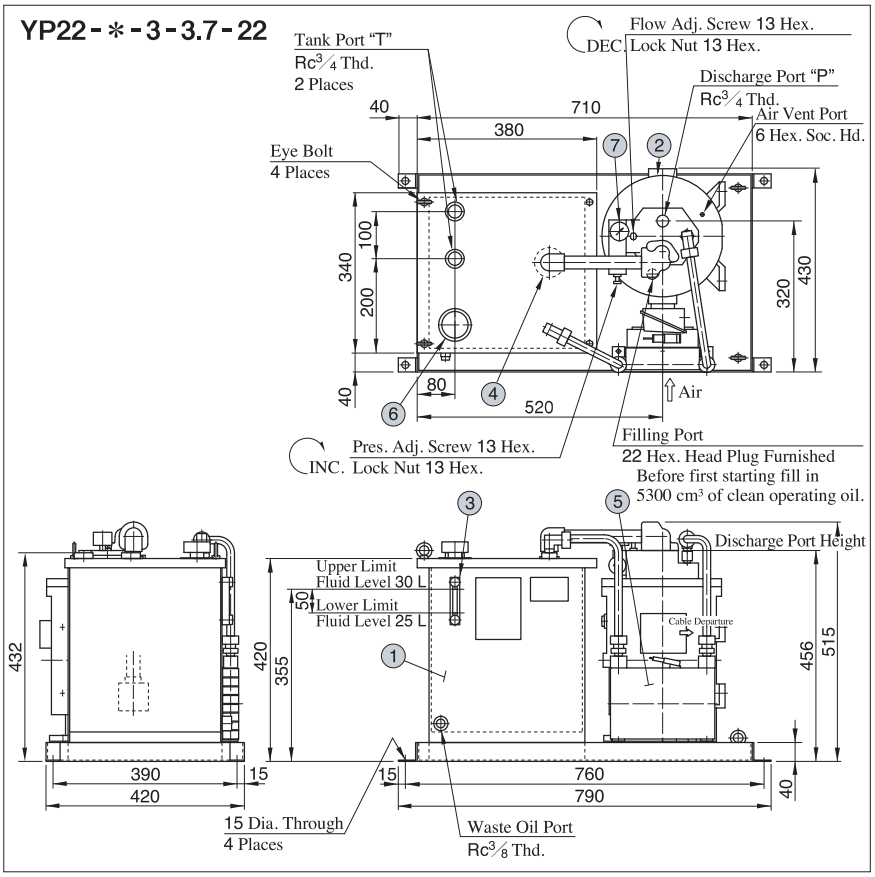


Item	Name
1	Hydraulic Reservoir
2	Pal Pump
3	Oil Level Gauge
4	Suction Strainer
5	Drain Cooler
6	Air Breather with Filling Port
7	Pressure Gauge

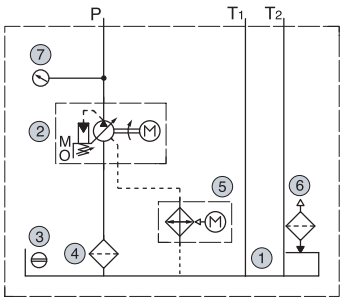
K

YP Pack

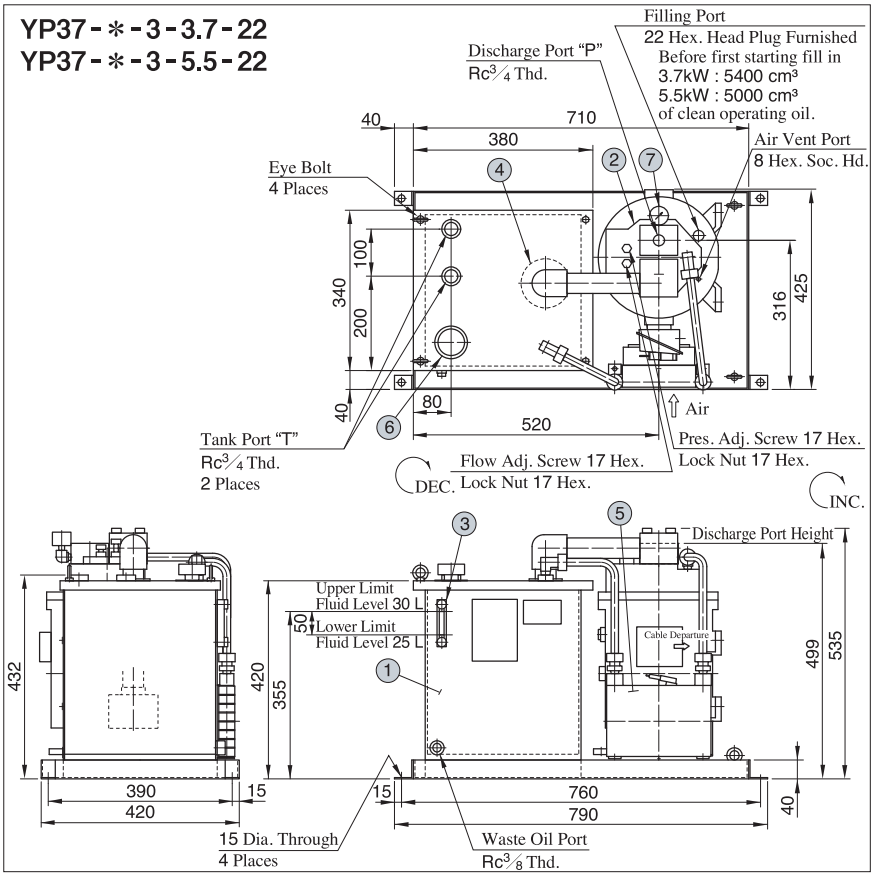
YP22-*-3-3.7-22



Hydraulic Circuit



YP37-*-3-3.7-22
YP37-*-3-5.5-22



Item	Name
1	Hydraulic Reservoir
2	Pal Pump
3	Oil Level Gauge
4	Suction Strainer
5	Drain Cooler
6	Air Breather with Filling Port
7	Pressure Gauge

Standard Hydraulic Power Unit YA Pack

Yuken standard hydraulic power unit YA Pack is developed with meeting the demand of times like saving resources, saving energy and low noise, etc.

It is achieved easy usability and wide assortment of models are available, so can select models with your requests.





Low Noise

These units equipped with low noise A or AR series variable displacement piston pumps, also concerned for many places like the tank structure or piping construction, therefore the units are achieved low noise level and good sound quality.

Energy-Saving & Low Heat Generation

These units equipped with high efficiency pressure compensation type of variable displacement piston pumps can save power consumption due to reducing power loss.

Wide assortment of models

- A total of 35 models are available according to the combination of the built-in pump, the reservoir capacity, and the motor output, so that the most suitable model can be selected.
- 20 different options (incorporating a base plate, etc.) are available.

All Models Furnished with Output Flow Adj. Screw

All models are furnished with output flow adjustment screw.

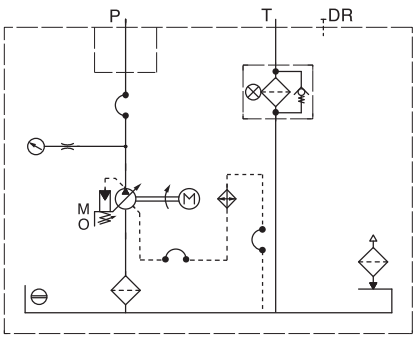
Short Delivery Time

The standardization of hydraulic units make those delivery time short.

Facilitating the configuration of the control circuit

With options that embedded modular valves, a wide variety of control circuits can be easily configured.

Hydraulic Circuit



K

YA Pack

Specifications

Model Numbers	Geometric Displacement of Pump cm^3/rev	Max. Operating Pres.(Note 1) MPa	Pres. Adj. Range MPa	Reservoir Capacity L	Electric Motor 50 Hz：200 V AC 60 Hz：200/220/230 V AC	Approx. Mass (Excluding Hydraulic oil) kg
YA10-B-2-0.75-52	10.0	7	1.2 - 7	20	0.75 kW×4P	48
YA10-B-3-0.75-52				30	0.75 kW×4P	53
YA10-B-3-1.5-52				30	1.5 kW×4P	56
YA10-B-4-0.75-52				40	0.75 kW×4P	58
YA10-B-4-1.5-52				40	1.5 kW×4P	63
YA10-B-6-1.5-51				60	1.5 kW×4P	73
YA10-B-6-2.2-51				60	2.2 kW×4P	81
YA10-C-6-2.2-51		16	2.0 - 16	60	2.2 kW×4P	82
YA10-C-6-3.7-51				60	3.7 kW×4P	94
YA10-C-10-2.2-51				100	2.2 kW×4P	107
YA10-C-10-3.7-51				100	3.7 kW×4P	116
YA16-B-1-0.75-52	15.8	7	1.2 - 7	10	0.75 kW×4P	42
YA16-B-1-1.5-50					1.5 kW×4P	46
YA16-B-1-2.2-50					2.2 kW×4P	53
YA16-B-2-0.75-52		7	1.2 - 7	18	0.75 kW×4P	44
YA16-B-2-1.5-50					1.5 kW×4P	48
YA16-B-2-2.2-50					2.2 kW×4P	55
YA16-B-4-1.5-52		7	1.2 - 7	40	1.5 kW×4P	64
YA16-B-6-1.5-50		7	1.2 - 7	60	1.5 kW×4P	74
YA16-B-6-2.2-50					2.2 kW×4P	82
YA16-B-6-3.7-50					3.7 kW×4P	94
YA16-C-6-3.7-50		16	2.0 - 16	60	3.7 kW×4P	99
YA16-B-10-2.2-50		7	1.2 - 7	100	2.2 kW×4P	107
YA16-C-10-3.7-50		16	2.0 - 16	100	3.7 kW×4P	121
YA16-C-10-5.5-50					5.5 kW×4P	145
YA16-C-10-7.5-50					7.5 kW×4P	157
YA22-B-6-2.2-50	22.2	7	1.2 - 7	60	2.2 kW×4P	82
YA22-B-6-3.7-50					3.7 kW×4P	94
YA22-B-10-2.2-50		7	1.2 - 7	100	2.2 kW×4P	112
YA22-B-10-3.7-50					3.7 kW×4P	146
YA22-C-10-5.5-50		16	2.0 - 16	100	5.5 kW×4P	145
YA22-C-10-7.5-50					7.5 kW×4P	157
YA37-B-10-3.7-50	36.9	7	1.2 - 7	100	3.7 kW×4P	141
YA37-B-16-5.5-50				160	5.5 kW×4P	175
YA37-B-16-7.5-50					7.5 kW×4P	182

Note 1) Maximum operating pressure is the upper limit of the pressure adjustment range of the pump.
2) The thermal class of the electric motor is type F in all models.
3) YA37-B-16-5.5/7.5 with a pump of two-pressure two-flow control type (control: 05 or 06) is also available as a special option. For details, please contact us.

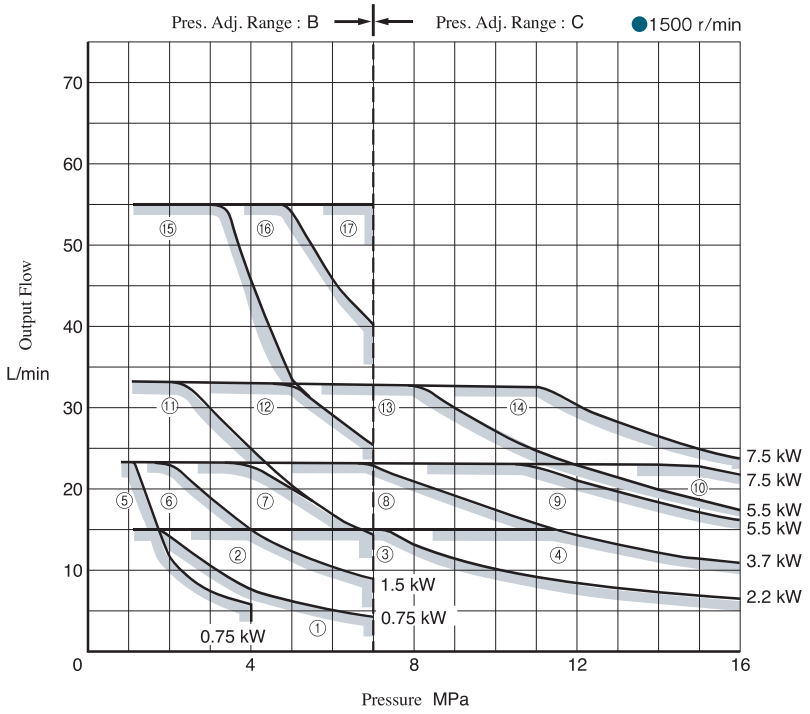
Model Number Designation

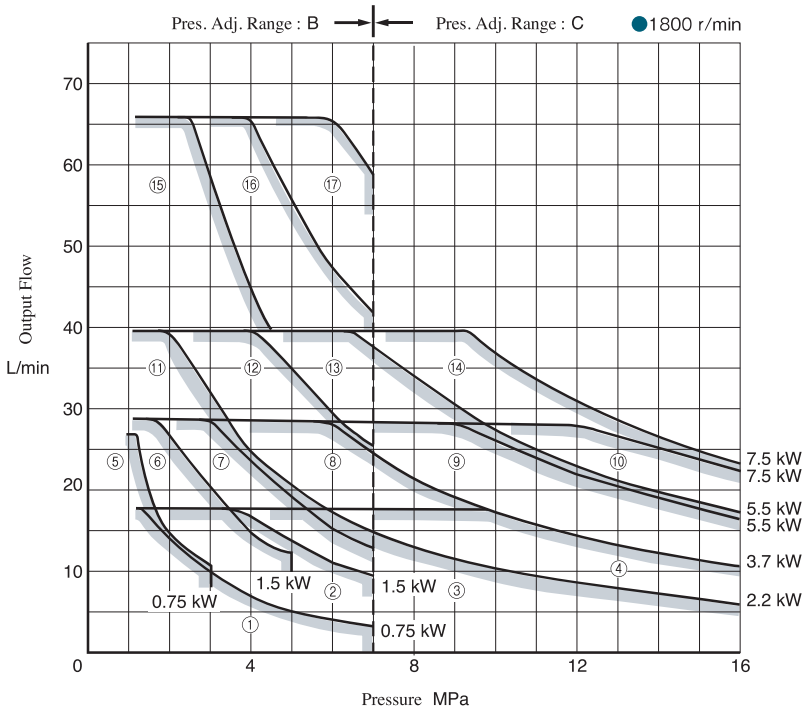
YA	16	−B	−6	−2.2	−50
Series Number	Built-in Pump	Pres. Adj. Range[Note] MPa	Reservoir Capacity L	Electric Motor	Design Number
YA：Low Noise Standard Hydraulic Power Unit YA Pack	10：A10 (10.0 cm³/rev)	B：1.2 - 7	2：20	0.75：0.75 kW×4P	52
			3：30	0.75：0.75 kW×4P	
				1.5：1.5 kW×4P	
			4：40	0.75：0.75 kW×4P	
				1.5：1.5 kW×4P	
		B：1.2 - 7	6：60	1.5：1.5 kW×4P	51
				2.2：2.2 kW×4P	
		C：2.0 - 16	6：60	2.2：2.2 kW×4P	
				3.7：3.7 kW×4P	
		C：2.0 - 16	10：100	2.2：2.2 kW×4P	
				3.7：3.7 kW×4P	
	16：AR16 (15.8 cm³/rev)	B：1.2 - 7	1：10	0.75：0.75 kW×4P	52
				1.5：1.5 kW×4P	50
				2.2：2.2 kW×4P	
		B：1.2 - 7	2：18	0.75：0.75 kW×4P	52
				1.5：1.5 kW×4P	50
				2.2：2.2 kW×4P	
		B：1.2 - 7	4：40	1.5：1.5 kW×4P	52
		B：1.2 - 7	6：60	1.5：1.5 kW×4P	50
				2.2：2.2 kW×4P	
				3.7：3.7 kW×4P	
		C：2.0 - 16	6：60	3.7：3.7 kW×4P	
		B：1.2 - 7	10：100	2.2：2.2 kW×4P	
		C：2.0 - 16	10：100	3.7：3.7 kW×4P	
				5.5：5.5 kW×4P	
				7.5：7.5 kW×4P	
	22：AR22 (22.2 cm³/rev)	B：1.2 - 7	6：60	2.2：2.2 kW×4P	
				3.7：3.7 kW×4P	
		B：1.2 - 7	10：100	2.2：2.2 kW×4P	
				3.7：3.7 kW×4P	
		C：2.0 - 16	10：100	5.5：5.5 kW×4P	
				7.5：7.5 kW×4P	
	37：A37 (36.9 cm³/rev)	B：1.2 - 7	10：100	3.7：3.7 kW×4P	
			16：160	5.5：5.5 kW×4P	
				7.5：7.5 kW×4P	

Note) Pressure adjustment range values shown are those of the pump.

Selection Graph

Below portion of the graph is the allowable operating range with regards to rated output of electric motor.



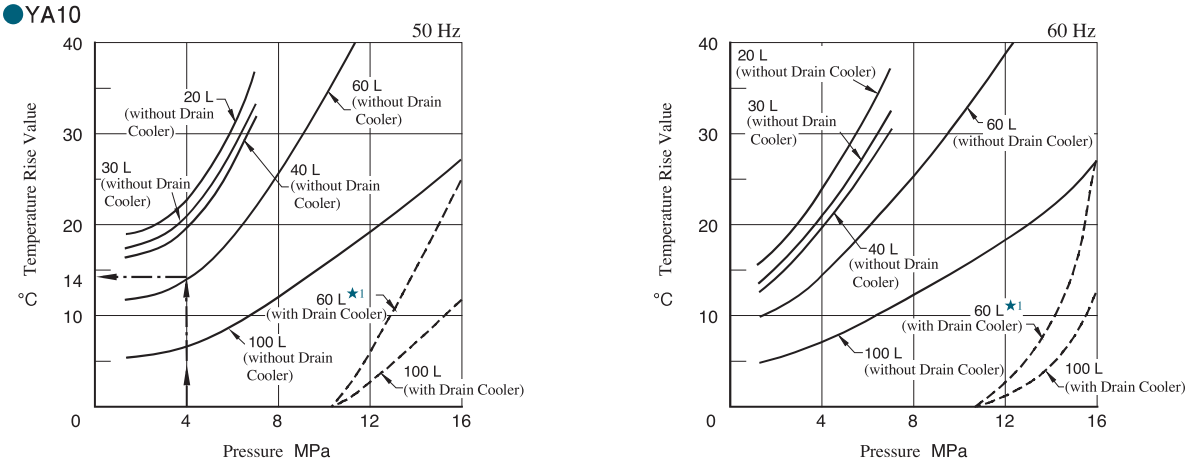


No.	Model Numbers
①	YA10-B-2-0.75 YA10-B-3-0.75 YA10-B-4-0.75
②	YA10-B-3-1.5 YA10-B-4-1.5 YA10-B-6-1.5
③	YA10-B-6-2.2 YA10-C-6-2.2 YA10-C-10-2.2
④	YA10-C-6-3.7 YA10-C-10-3.7
⑤	YA16-B-1-0.75 YA16-B-2-0.75
⑥	YA16-B-1-1.5 YA16-B-2-1.5 YA16-B-4-1.5 YA16-B-6-1.5
⑦	YA16-B-1-2.2 YA16-B-2-2.2 YA16-B-6-2.2 YA16-B-10-2.2
⑧	YA16-B-6-3.7 YA16-C-6-3.7 YA16-C-10-3.7
⑨	YA16-C-10-5.5
⑩	YA16-C-10-7.5
⑪	YA22-B-6-2.2 YA22-B-10-2.2
⑫	YA22-B-6-3.7 YA22-B-10-3.7
⑬	YA22-C-10-5.5
⑭	YA22-C-10-7.5
⑮	YA37-B-10-3.7
⑯	YA37-B-16-5.5
⑰	YA37-B-16-7.5

Oil Temperature in Reservoir

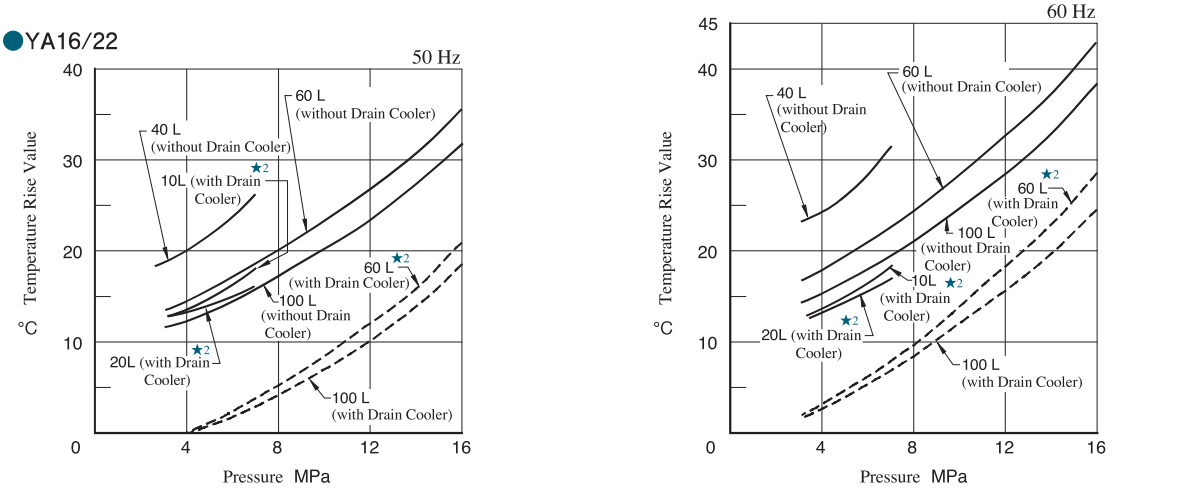
Oil temperature is expressed as (room temperature + temperature rise value).
Temperature rise values (full cut-off continuous operation, windless conditions) for each model are shown below, please check that oil temperature is below 60°C.
Drain cooler is option except for some models.
(Ex.) When operating YA10-B-6-1.5 continuously (50Hz) at full cut-off pressure 4 MPa, temperature rise value is 14°C as shown by broken line in the graph.
Assuming that room temperature is 35°C then tank temperature will be 49°C.

●YA10



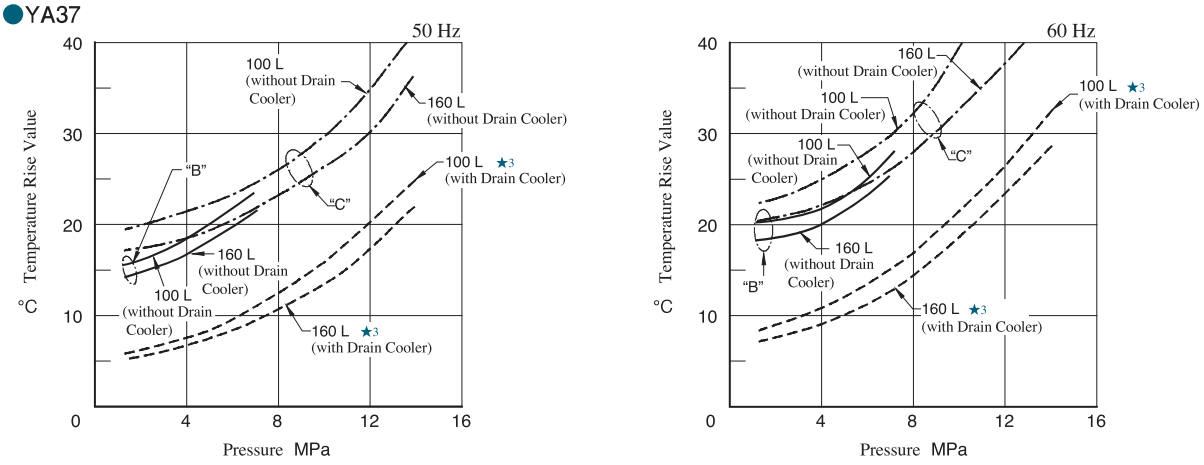
★ 1. Drain cooler is standard equipment only for YA10-C-6-2.2 and YA10-C-6-3.7.

●YA16/22



★ 2. Drain cooler is standard equipment only for YA16-B-1-＊, YA16-B-2-＊ and YA16-C-6-3.7.

●YA37

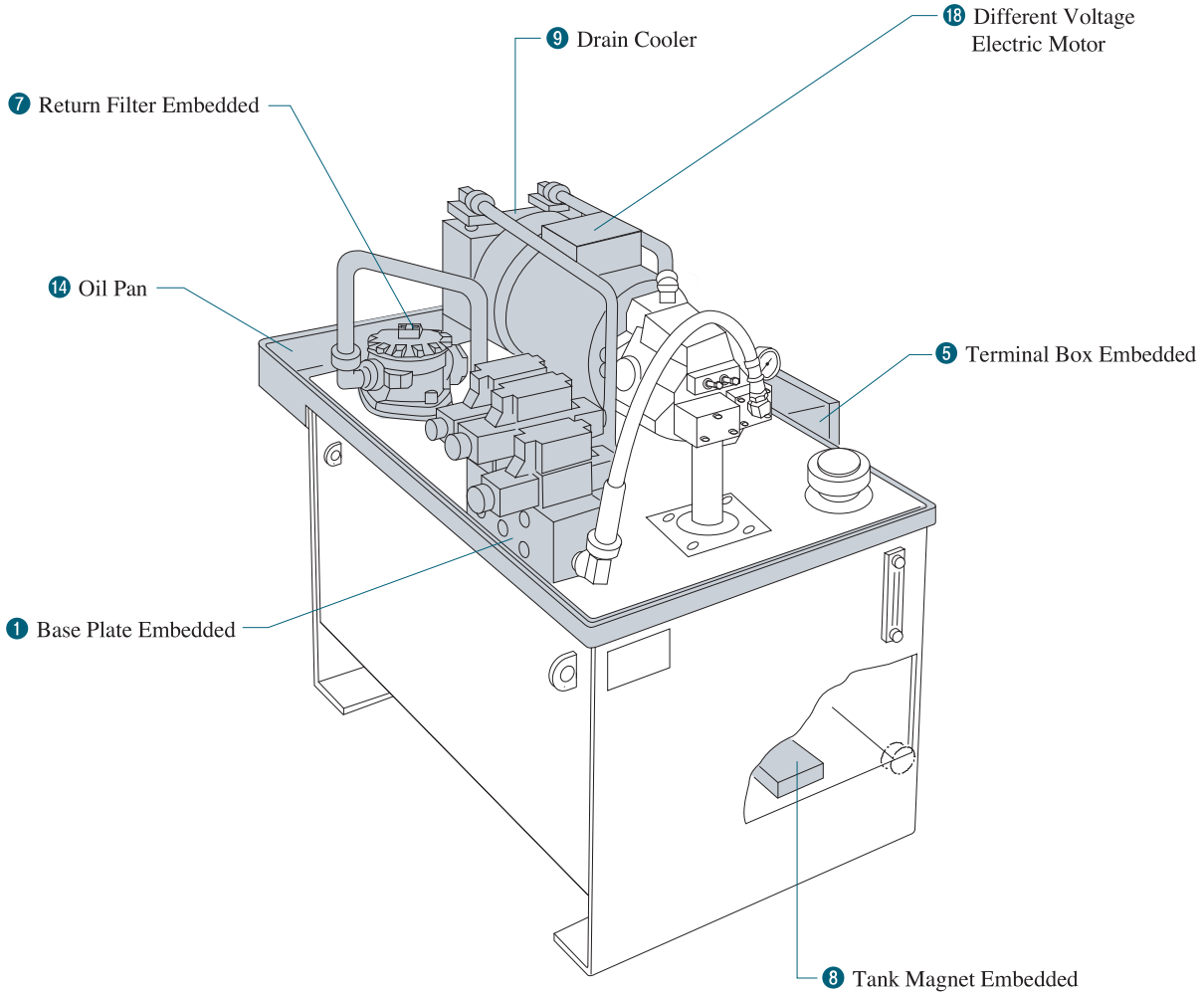


★ 3. Built-in drain cooler is option.

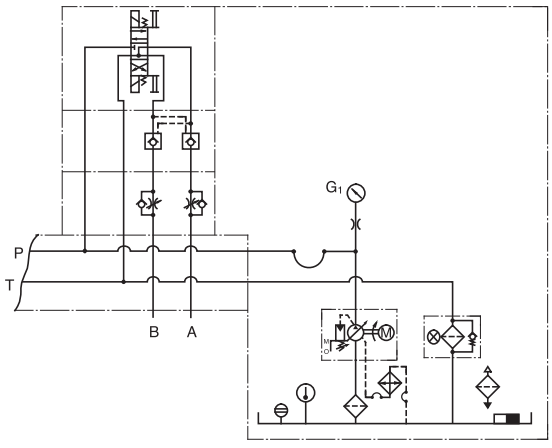
Options

Example of Embedded Options

Various options are available except for standard models. Please select options with the applications. The drawing below is for an example. For details, please refer to the next page.



(Example of Hydraulic Circuit with Options Embedded)



Type and Summary of Options

❶ Base Plate Embedded：01M＊, 03M＊

Control circuit can be constructed by just stacking up modular valves/ solenoid valve atop the base plate. If need control circuit, please contact us. However, the circuit construction is limited to modular valves and standard solenoid directional control valves. In this case, please indicate power supply for operation.

❷ Without Control Circuit：B

This option is available for models with 01M* or 03M* valve. Embed base plate and make piping construction in front and rear of the base plate. Please prepare the components construct the control circuit separately.

❸ Without Port Block：E

Without port block and high pressure resin hose.

❹ Pressure Gauge and Mounting Block Embedded：G2, G3

Use in case that detect the pressure except pump discharge pressure by using reducing valve.
G2 is able to detect one more line pressure, G3 is able to detect two more lines except pump discharge pressure.

❺ Terminal Box Embedded：T1 - T3

The number of terminal is 10P for T1, 20P for T2, 34P for T3 3.7kW, 24P for T3 5.5kW, 20P for T3 7.5kW.

❻ Electric Wiring Unit：V, VT

The electric wiring between terminal box and motor / control valve use the vinyl cabtire cable as standard.
In case of special specifications (VT), please indicate separately.

❼ Return Filter Embedded：F

Return filter adopt the tank top type those surge pressure of tank line lower generate. The absolute filtration is 20 μm, equipped with visual indicator.

❽ Tank Magnet Embedded：Mg

Installed inside the tank. Attracts and collects fine iron powder. Decreases component wear.

❾ Drain Cooler Embedded：C (Radiator)
：Ca (Fan Cooler)

❿ Oil Level Gauge with Thermometer Embedded：Te

⓫ Water Cooler Embedded：Cw

⓬ Thermostat Embedded：TR

⓭ Liquid Level Switch Embedded：Le

⓮ Oil Pan Embedded：P

P：Standard Oil Pan

⓯ External Paint Color Changed：PT

In case if required special paint, please indicate separately by JPMA code or Munsell value.

⓰ Fire Service Act Applied：R

⓱ Water Leak Inspection：Rk

⓲ Different Voltage Electric Motor：(＊V×＊Hz)

200 V AC (50Hz) and 200/220/230 V AC (60Hz) are standard. In case if required other voltage, please indicate voltage and frequency.

⓳ Pressure Range Changed：(B→C)

Pressure Adjustment Range is available to change B to C. However, in case of YA37, maximum operating pressure is limited by 14 MPa.

⓴ P Port Check valve Embedded：D

Install angle type check valve for prevent reverse flow on the port block or base plate.

Attention

For the delivery time of options, please confirm us before ordering.

Options

Available options are indicated with ○ mark.

Option Code	01M＊	03M＊	B	E	G＊	T＊	V VT	F	Mg	C	Ca	Te	Cw	TR	Le	P	PT	R	Rk	＊V × ＊H	B ↓ C	D
Option Item / Model	❶ Base Plate Embedded Size/Number of Plates		❷ Without Control Circuit	❸ Without Port Block	❹ Pressure Gauge for Control Circuit Embedded	❺ Terminal Box Embedded	❻ Electric Wiring Unit	❼ Return Filter Embedded	❽ Tank Magnet Embedded	❾ Drain Cooler Embedded: Radiator	❾ Drain Cooler Embedded: Fan Cooler Note 2	❿ Oil Level Gauge with Thermometer Embedded	⓫ Water Cooler Embedded	⓬ Thermostat Embedded	⓭ Liquid Level Switch Embedded Note 4	⓮ Oil Pan Embedded	⓯ External Paint Color Changed	⓰ Fire Service Act Applied	⓱ Water Leak Inspection	⓲ Different Voltage Electric Motor	⓳ Pressure Range Changed	⓴ P Port Check valve Embedded
YA16-B-1-＊	○ 1 - 2	×	○	—	○	○ T1	○	×	○	Built-in	×	○	×	○	○	×	○	×	○	○	×	×
YA10-B-2-0.75	×	×	—	—	—	○ T1	○	×	○	○	×	○	×	○	○	○	○	×	○	○	×	×
YA16-B-2-＊	○ 1 - 2	×	○	—	○	○ T1,T2	○	Note 5 ○	○	Built-in	×	○	×	○	○	×	○	×	○	○	×	×
YA10-B-3-＊	×	×	—	—	—	○ T1	○	Note 5 ○	○	○	×	○	×	○	○	○	○	×	○	○	×	×
YA10-B-4-＊	○ 1 - 3	×	○	○	○	○ T1,T2	○	○	○	○	×	○	×	○	○	○	○	○	○	○	×	○
YA16-B-4-1.5	○ 1 - 3	×	○	○	○	○ T1,T2	○	○	○	○	×	○	×	○	○	○	○	○	○	○	×	○
YA10-B-6-＊	○ 1 - 5	×	○	○	○	○ T1,T2,T3	○	○	○	Note 1 ○		○	Note 3 ○	○	○	○	○	○	○	○	○	○
YA10-C-6-＊	○ 1 - 5	×	○	○	○	○ T1,T2,T3	○	Built-in	○	Built-in	×	○	Note 3 ○	○	○	○	○	○	○	○	—	○
YA16-B-6-＊	○ 1 - 5	×	○	○	○	○ T1,T2,T3	○	○	○	Note 1 ○		○	Note 3 ○	○	○	○	○	○	○	○	○	○
YA16-C-6-＊	○ 1 - 5	×	○	○	○	○ T1,T2,T3	○	Built-in	○	Built-in	×	○	Note 3 ○	○	○	○	○	○	○	○	—	○
YA22-B-6-＊	○ 1 - 5	×	○	○	○	○ T1,T2,T3	○	○	○	Note 1 ○		○	Note 3 ○	○	○	○	○	○	○	○	○	○
YA10-C-10-＊	○ 1 - 5	○ 1 - 4	○	○	○	○ T1,T2,T3	○	Built-in	○	Note 1 ○		○	○	○	○	○	○	○	○	○	—	○
YA16-B-10-2.2	○ 1 - 5	○ 1 - 4	○	○	○	○ T1,T2,T3	○		○	Note 1 ○		○	○	○	○	○	○	○	○	○	○	○
YA16-C-10-＊	○ 1 - 5	○ 1 - 4	○	○	○	○ T1,T2,T3	○		○	Note 1 ○		○	○	○	○	○	○	○	○	○	—	○
YA22-B-10-＊	○ 1 - 5	○ 1 - 4	○	○	○	○ T1,T2,T3	○		○	Note 1 ○		○	○	○	○	○	○	○	○	○	○	○
YA22-C-10-＊	○ 1 - 5	○ 1 - 4	○	○	○	○ T1,T2,T3	○		○	Note 1 ○		○	○	○	○	○	○	○	○	○	—	○
YA37-B-10-3.7	×	○ 1 - 4	○	○	○	○ T1,T2,T3	○		○	Note 1 ○		○	○	○	○	○	○	○	○	○	○	○
YA37-B-16-＊	×	○ 1 - 4	○	○	○	○ T1,T2,T3	○		○	Note 1 ○		○	○	○	○	○	○	○	○	○	○	○

Note 1) Choose either Radiator (C) or Fan Cooler (Ca) in ⑨ Drain Cooler embedded.

2) When Fan Cooler (Ca) in ⑨ Drain Cooler embedded or ⑪ Water Cooler embedded is chosen, ① The Number of Base Plates is limited.

Model	Selected Option	Number of Selectable Base Plates	
YA10/16/22-＊-6	Fan Cooler (Ca) embedded.	Up to 2 (Size: 01)	
	Water Cooler (Cw) embedded.	Up to 4 (Size: 01)	
YA10/16/22/37-＊-10	Fan Cooler (Ca) embedded.	Size: 01	Up to 3
		Size: 03	Up to 2
YA37-B-16		Up to 2 (Size: 03)	

When ⑯ Fire Service Act Applied (R) is chosen, a Fan Cooler (Ca) cannot be embedded.

3) Up to 4 base plates can be embedded in ①.

4) Only low limit level can be detected.

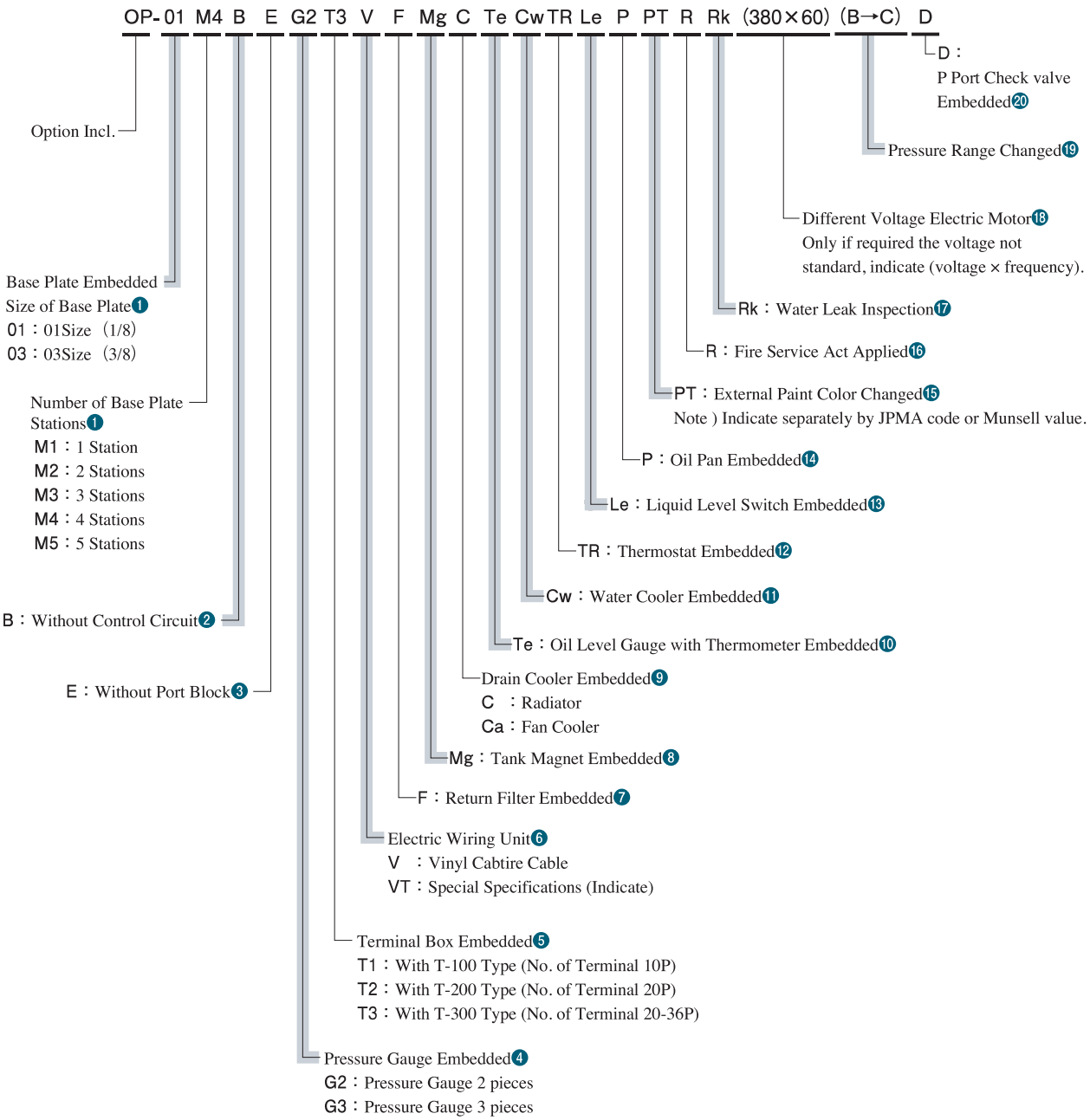
5) Oil-immersed type is available.

Option Indication Method

When ordering YA Pack with options, please add「OP」at the end of standard YA Pack model number, use the example below for reference and indicate options. For summary of options, please refer to page K-19.
About the control circuit constructed by modular valves etc., please contact us separately. For the adaptation between models and options, please refer to the table on page K-20.

【Example of Option Indication】

YA16-B-6-3.7-50-OP



Instructions

Suction/Return Air

Please install unit at the floor with good air flow to avoid heat stuff. Don't put any obstructions at air vent surface of the drain cooler.

Transportation

Use hanging hooks on the oil tank at the time of transportation.

Installation

This unit is stationary type, so please fix it using bolts on the level space with no vibration.

Electrical Wiring

To protect electrical circuit from over current like short and protect motor from overload, we recommend to install no-fuse breaker with earth leakage breaker on the primary power supply.
For electrical wiring, please use crimp terminals of suitable size, and connect certainly to avoid electric leakage for main body and interphase electrical short. Please be sure to ground the earth terminal.

Motor Side [U — R / V — S / W — T] Power Supply Side

Note for Starting Operation

Before initial operation, please supply ruled mass of hydraulic fluid required from oil tank port, and fill clean hydraulic fluid from filling port of pump till the oil full filled in pump housing. To avoid air-bound at starting operation, please adjust hydraulic circuit as that pump drain fluid return directly to oil tank, or operate directional valves for actuators no-load moving. Then start inching operation to confirm no particular, please do running operation.

Air Vent

Because air entrainment in pump or pipe may cause to occur vibration, please make air vent completely.

Setting of Pressure

〔Pressure Adjustment〕

At the time of shipping, the pressure set at minimum level, so please adjust the pressure under using conditions. Turn the pressure adjustment screw clockwise, the pressure increase. For adjustment volumes at one rotation of adjustment screw, please refer to the table below. After adjustments, do not forget to tighten the lock nut.

【Adjustment Volumes at One Rotation of Pres. Adj. Screw】

Model Numbers	Adjustment Volumes MPa
YA10/YA16/YA22-B	2.9
YA37-B	3.5
YA10/YA16/YA22-C	5.4
YA37-C	6.5

Setting of Output Flow

〔Output Flow Adjustment〕

Turn the flow adjustment screw clockwise, the output flow decrease. For adjustment volumes at one rotation of adjustment screw, please refer to the table below. After adjustments, do not forget to tighten the lock nut.

【Adjustment Volumes at One Rotation of Discharge Volume Adj. Screw】

Model Numbers	Adjustment Volumes at One Rotation cm^3/rev	Min. Adj. Flow cm^3/rev
YA10-*	1.1	2
YA16-*	1.5	6
YA22-*	2.1	8.5
YA37-B	2.9	10

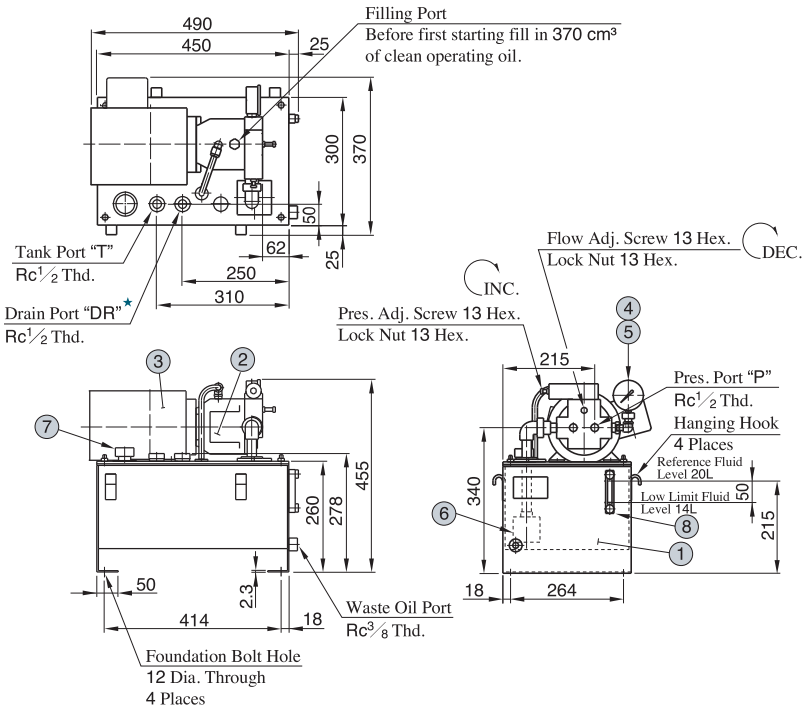
Return Filter

For return filter installation, please refer to the table below. In case if the return filter not built-in, please install the return filter as much as possible due to keep the machine life longer and show good performance for long time.

【Return Filter Installation】

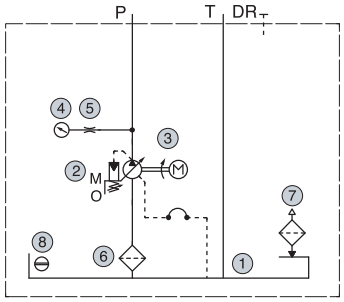
Model Numbers	Return Filter Installation
YA10-B-2 YA16-B-1	Not installed in the unit (Install separately)
YA10-B-3 YA10-B-4 YA10-B-6 YA16-B-2 YA16-B-4 YA16-B-6 YA22-B-6	Not installed in standard models (Can install as option)
Except for above	Built-in

YA10-B-2-0.75-52

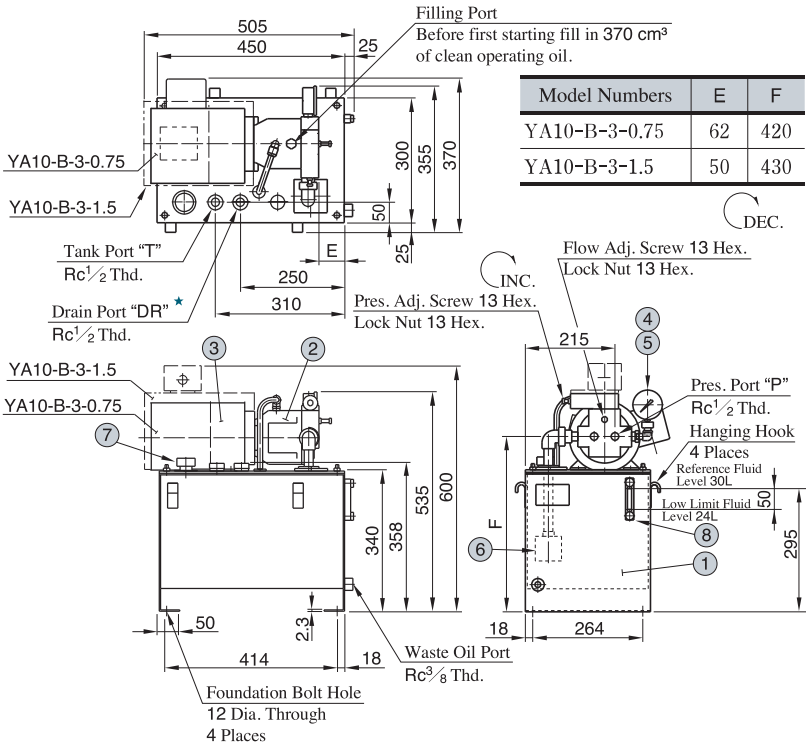


★If Liquid Level Switch Embedded (Le) is chosen as option, it is unable to use this port.

● Hydraulic Circuit



YA10-B-3-0.75-52·YA10-B-3-1.5-52

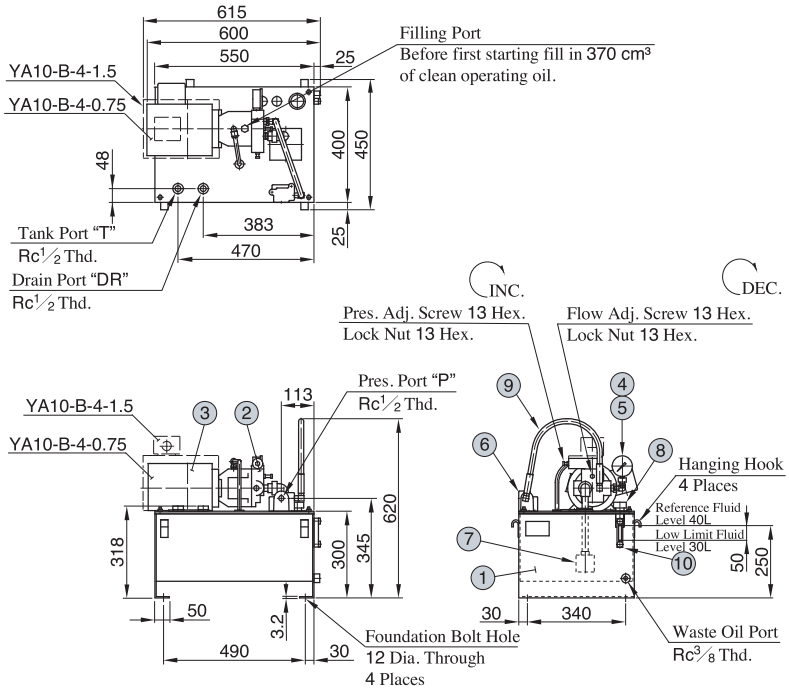


Model Numbers	E	F
YA10-B-3-0.75	62	420
YA10-B-3-1.5	50	430

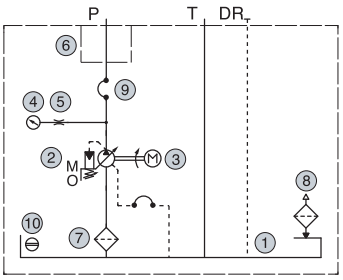
★If Liquid Level Switch Embedded (Le) is chosen as option, it is unable to use this port.

Item	Name
1	Hydraulic Reservoir
2	Pump
3	Electric Motor
4	Pressure Gauge
5	Adapter
6	Suction Strainer
7	Air Breather with Filling Port
8	Oil Level Gauge

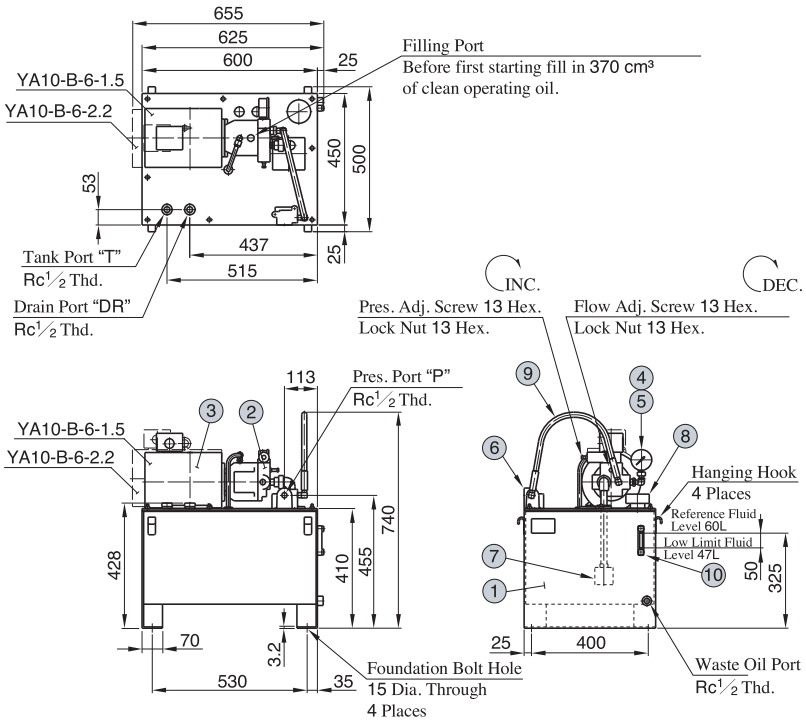
YA10-B-4-0.75-52·YA10-B-4-1.5-52



● Hydraulic Circuit

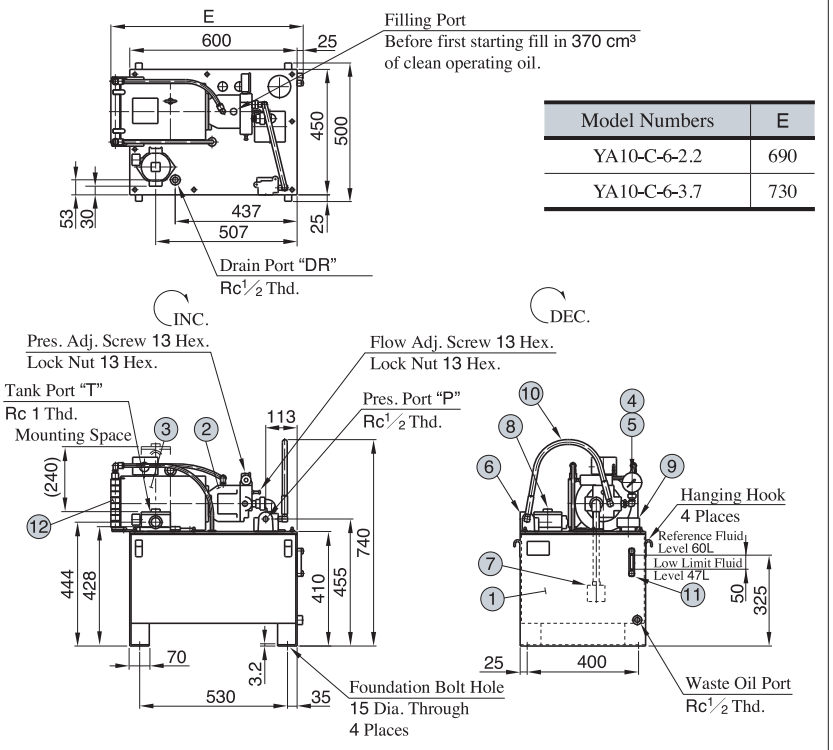


YA10-B-6-1.5-51·YA10-B-6-2.2-51



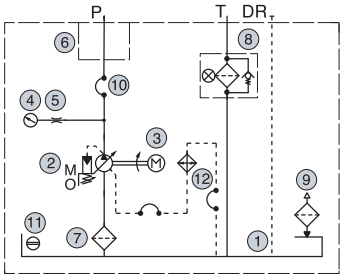
Item	Name
1	Hydraulic Reservoir
2	Pump
3	Electric Motor
4	Pressure Gauge
5	Adapter
6	Port Block
7	Suction Strainer
8	Air Breather with Filling Port
9	High Pressure Resin Hose
10	Oil Level Gauge

YA10-C-6-2.2-51·YA10-C-6-3.7-51



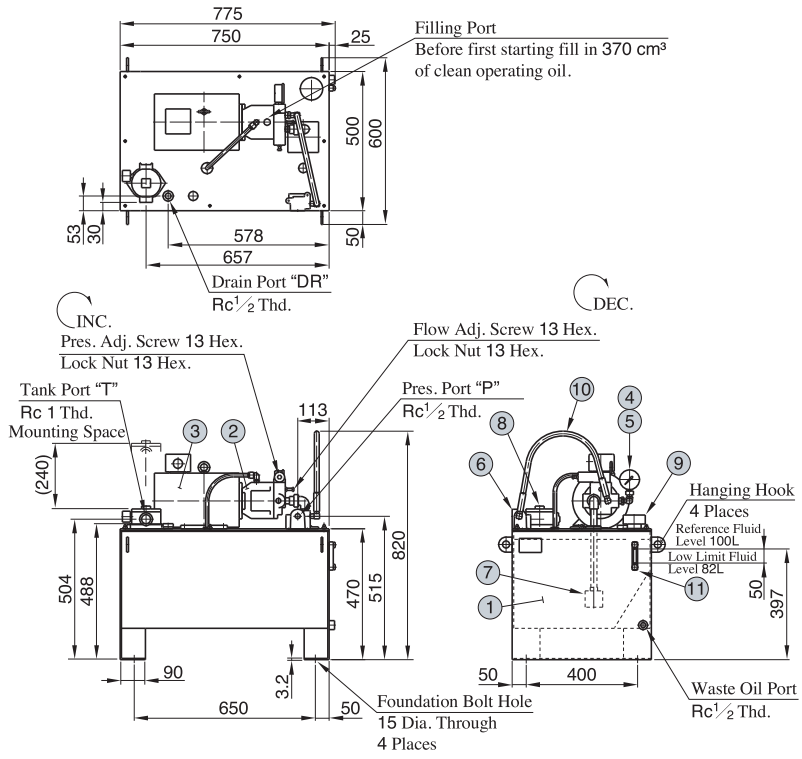
Model Numbers	E
YA10-C-6-2.2	690
YA10-C-6-3.7	730

● Hydraulic Circuit

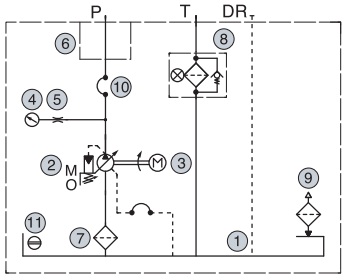


Item	Name
1	Hydraulic Reservoir
2	Pump
3	Electric Motor
4	Pressure Gauge
5	Adapter
6	Port Block
7	Suction Strainer
8	Return Filter
9	Air Breather with Filling Port
10	High Pressure Resin Hose
11	Oil Level Gauge
12	Drain Cooler

YA10-C-10-2.2-51·YA10-C-10-3.7-51



● Hydraulic Circuit

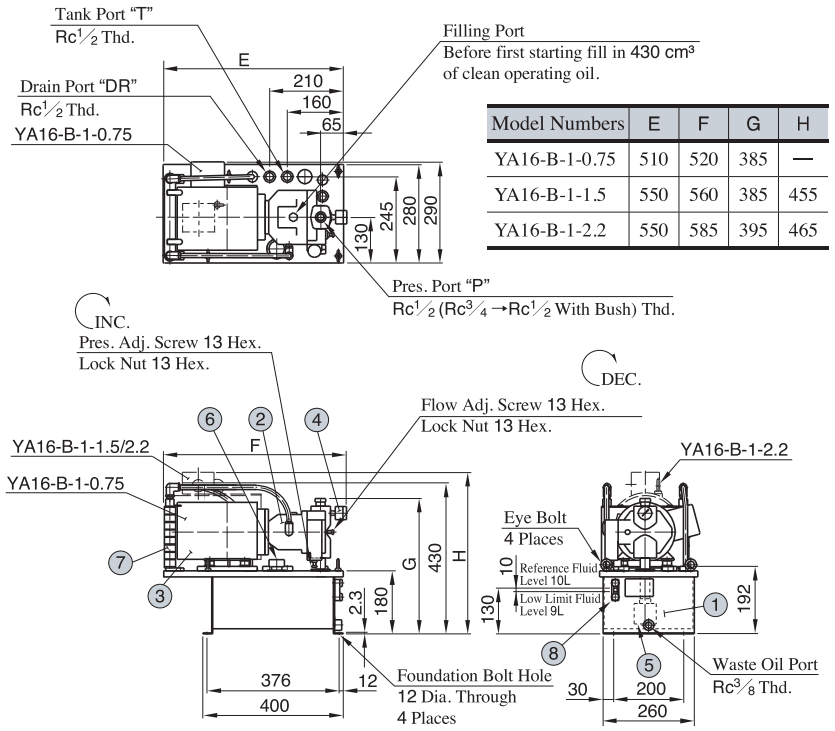


Item	Name
1	Hydraulic Reservoir
2	Pump
3	Electric Motor
4	Pressure Gauge
5	Adapter
6	Port Block
7	Suction Strainer
8	Return Filter
9	Air Breather with Filling Port
10	High Pressure Resin Hose
11	Oil Level Gauge

K

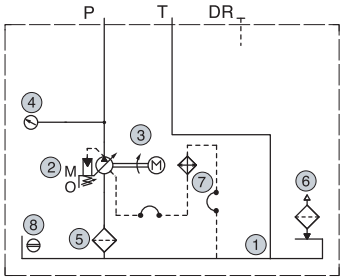
YA Pack

YA16-B-1-0.75-52・YA16-B-1-1.5-50・YA16-B-1-2.2-50

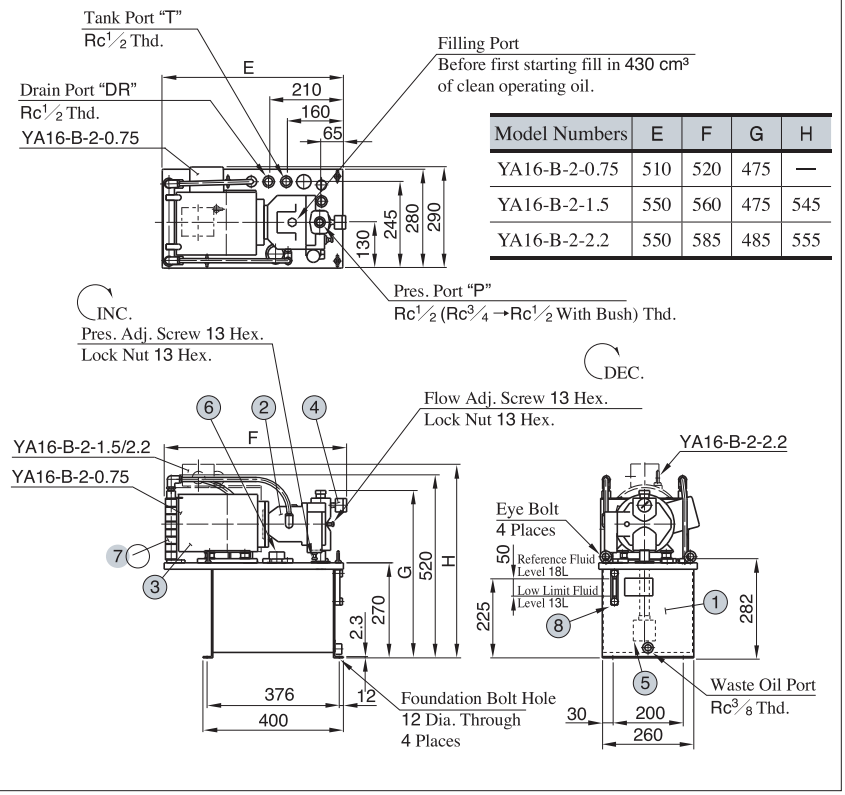


Model Numbers	E	F	G	H
YA16-B-1-0.75	510	520	385	—
YA16-B-1-1.5	550	560	385	455
YA16-B-1-2.2	550	585	395	465

● Hydraulic Circuit



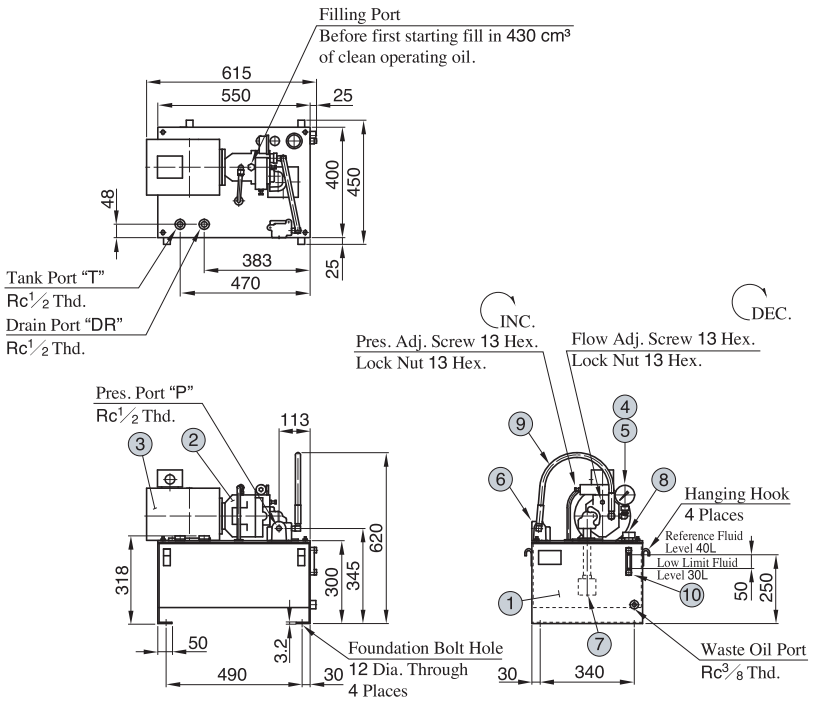
YA16-B-2-0.75-52・YA16-B-2-1.5-50・YA16-B-2-2.2-50



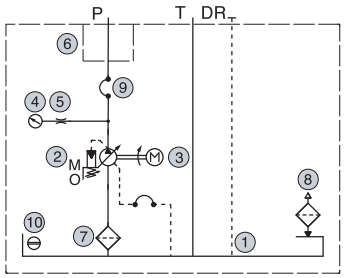
Model Numbers	E	F	G	H
YA16-B-2-0.75	510	520	475	—
YA16-B-2-1.5	550	560	475	545
YA16-B-2-2.2	550	585	485	555

Item	Name
1	Hydraulic Reservoir
2	Pump
3	Electric Motor
4	Pressure Gauge
5	Suction Strainer
6	Air Breather with Filling Port
7	Drain Cooler
8	Oil Level Gauge

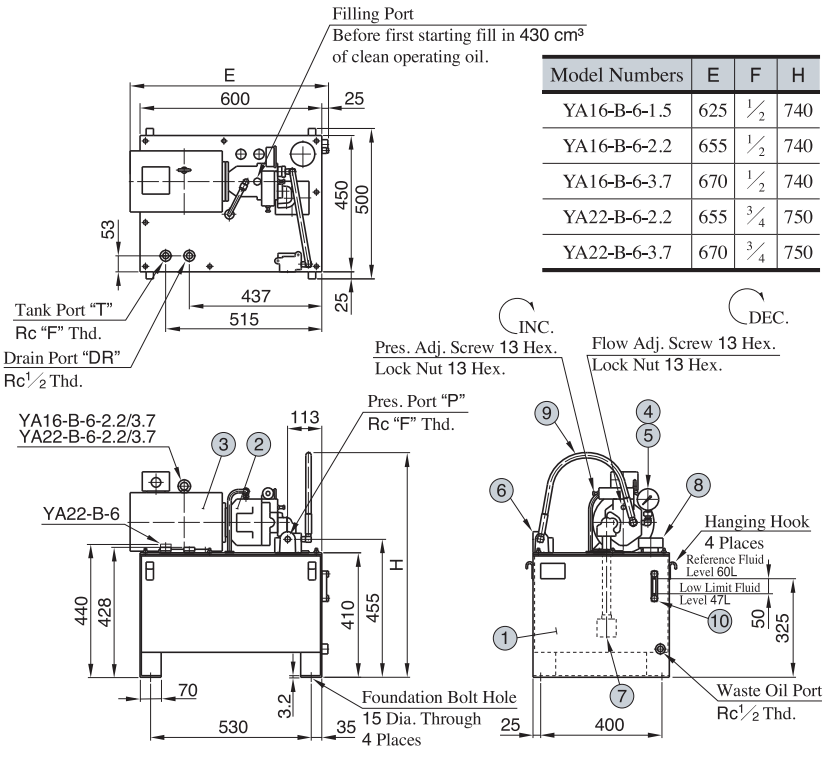
YA16-B-4-1.5-52



● Hydraulic Circuit



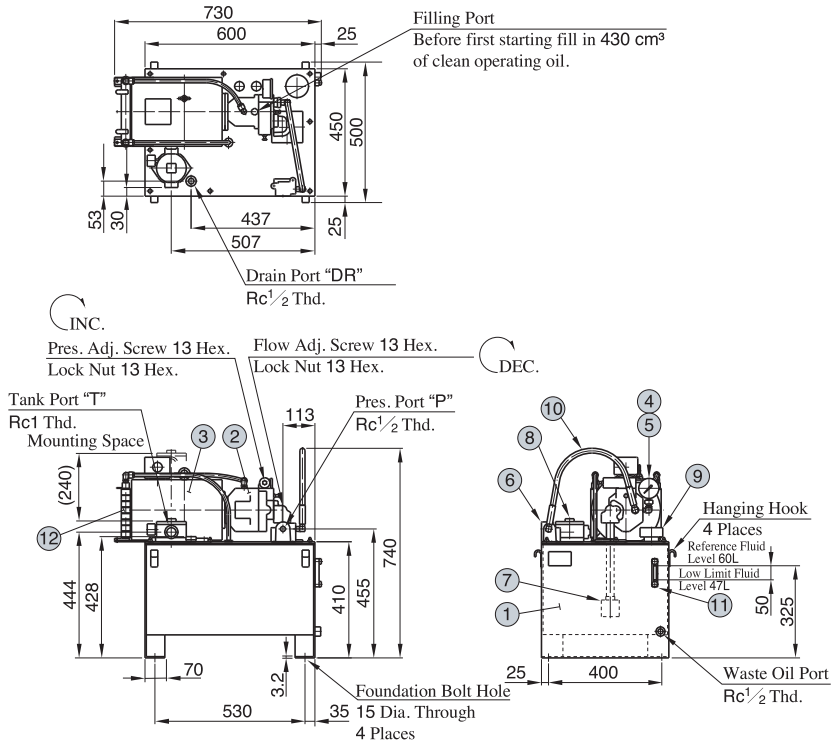
YA16-B-6-1.5-50·YA16-B-6-2.2-50·YA16-B-6-3.7-50
YA22-B-6-2.2-50·YA22-B-6-3.7-50



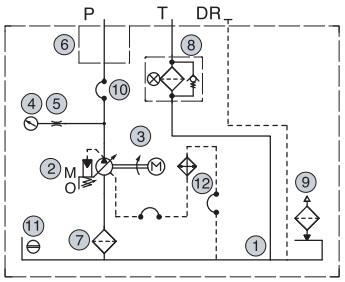
Model Numbers	E	F	H
YA16-B-6-1.5	625	1/2	740
YA16-B-6-2.2	655	1/2	740
YA16-B-6-3.7	670	1/2	740
YA22-B-6-2.2	655	3/4	750
YA22-B-6-3.7	670	3/4	750

Item	Name
1	Hydraulic Reservoir
2	Pump
3	Electric Motor
4	Pressure Gauge
5	Adapter
6	Port Block
7	Suction Strainer
8	Air Breather with Filling Port
9	High Pressure Resin Hose
10	Oil Level Gauge

YA16-C-6-3.7-50

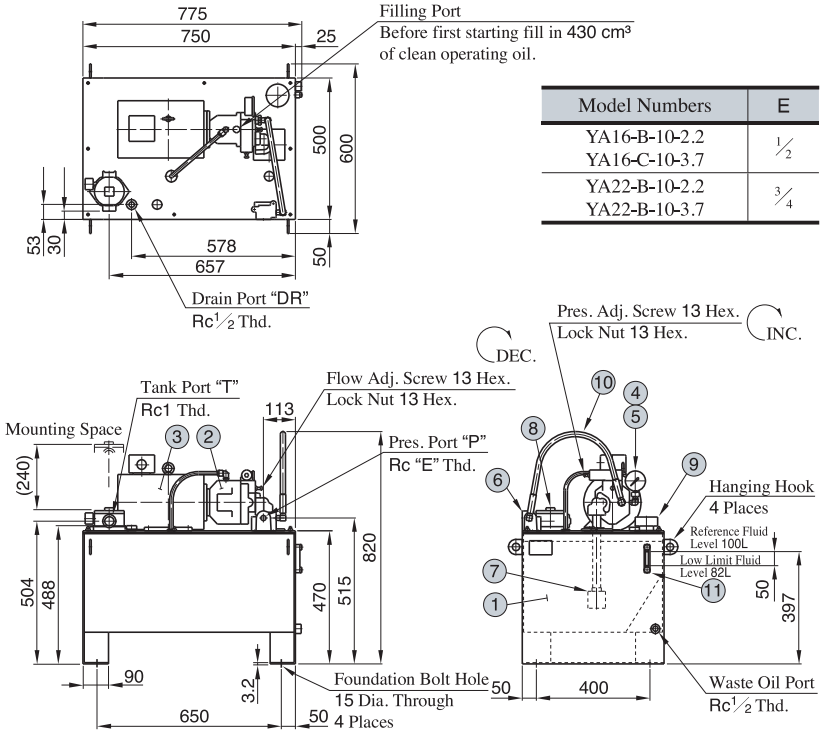


Hydraulic Circuit



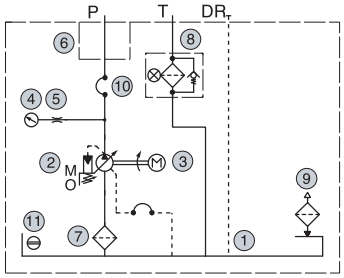
Item	Name
1	Hydraulic Reservoir
2	Pump
3	Electric Motor
4	Pressure Gauge
5	Adapter
6	Port Block
7	Suction Strainer
8	Return Filter
9	Air Breather with Filling Port
10	High Pressure Resin Hose
11	Oil Level Gauge
12	Drain Cooler

YA16-B-10-2.2-50·YA16-C-10-3.7-50
YA22-B-10-2.2-50·YA22-B-10-3.7-50



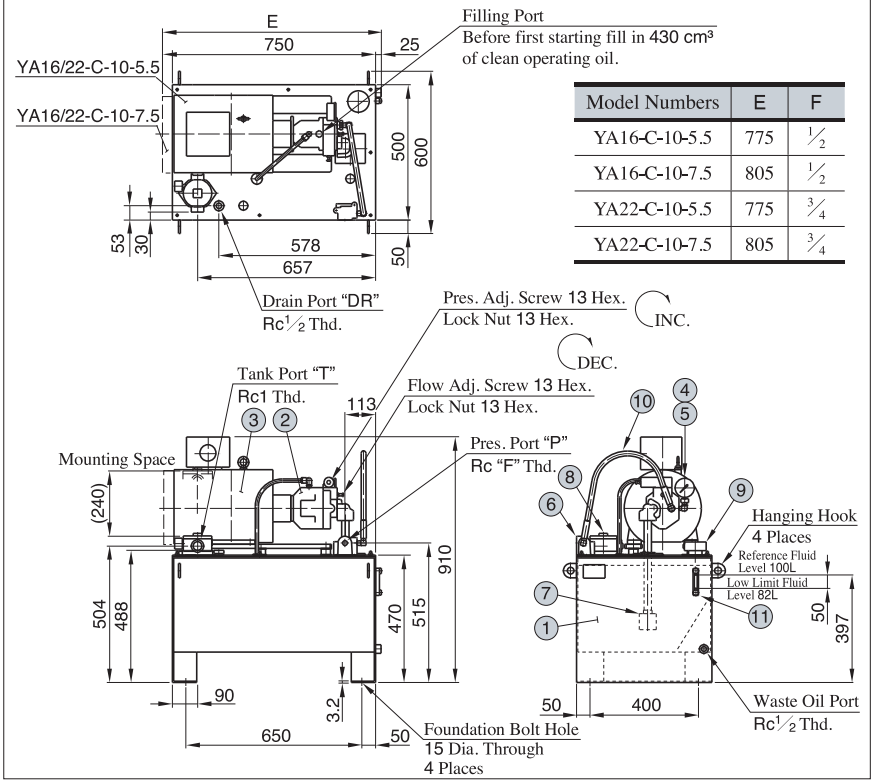
Model Numbers	E
YA16-B-10-2.2 YA16-C-10-3.7	1/2
YA22-B-10-2.2 YA22-B-10-3.7	3/4

Hydraulic Circuit



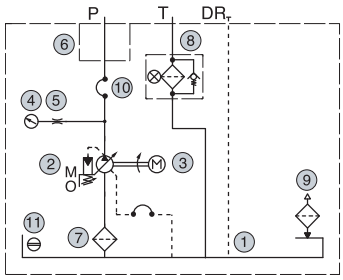
Item	Name
1	Hydraulic Reservoir
2	Pump
3	Electric Motor
4	Pressure Gauge
5	Adapter
6	Port Block
7	Suction Strainer
8	Return Filter
9	Air Breather with Filling Port
10	High Pressure Resin Hose
11	Oil Level Gauge

YA16-C-10-5.5-50·YA16-C-10-7.5-50
YA22-C-10-5.5-50·YA22-C-10-7.5-50

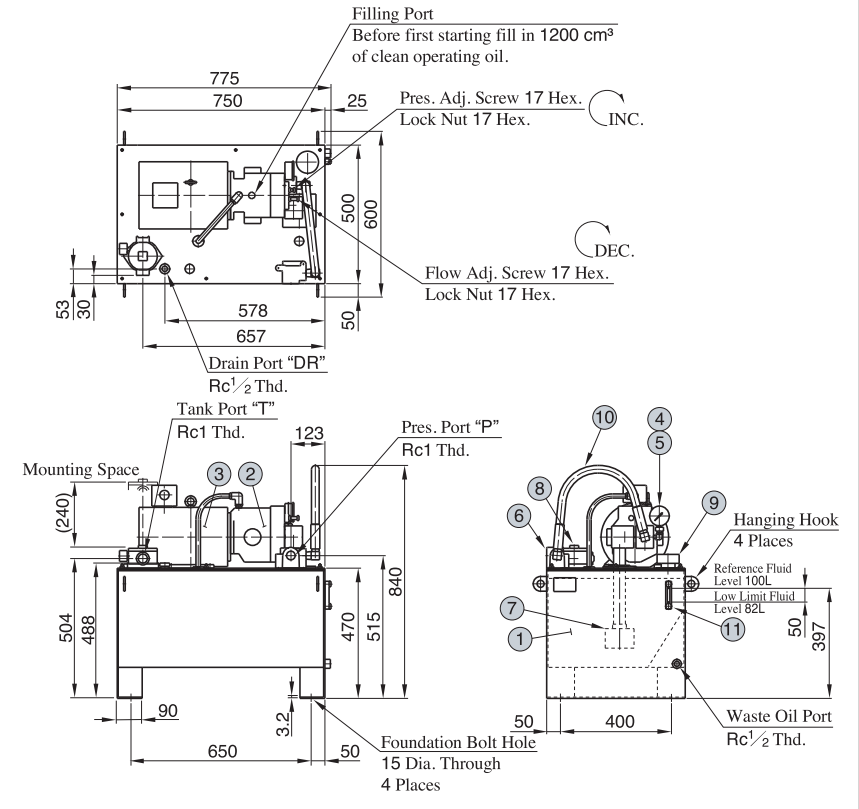


Model Numbers	E	F
YA16-C-10-5.5	775	1/2
YA16-C-10-7.5	805	1/2
YA22-C-10-5.5	775	3/4
YA22-C-10-7.5	805	3/4

● Hydraulic Circuit



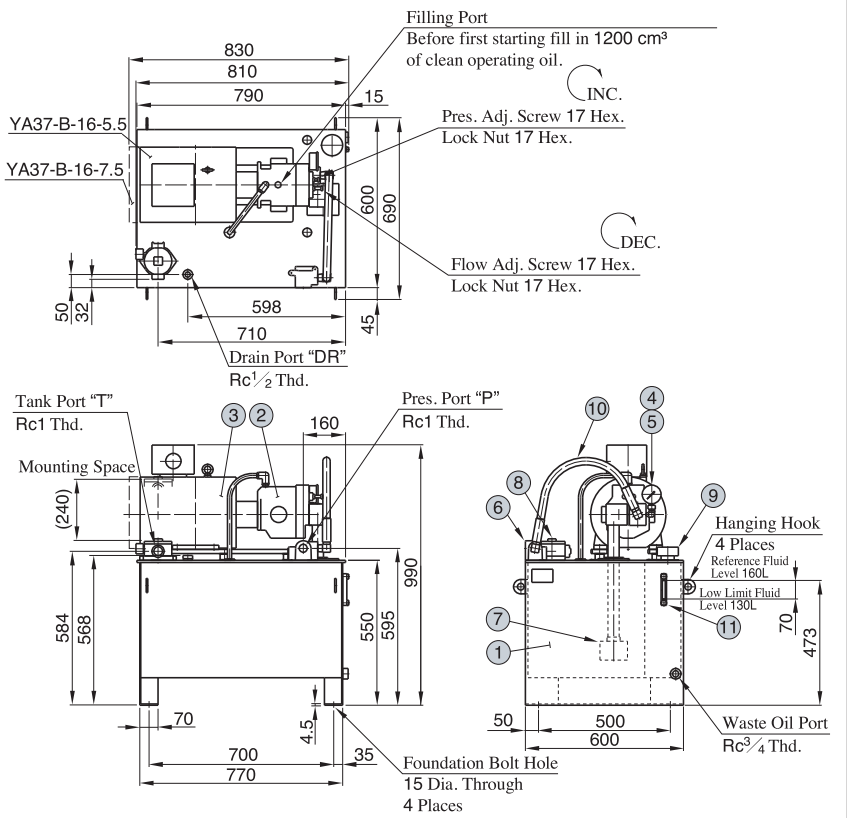
YA37-B-10-3.7-50



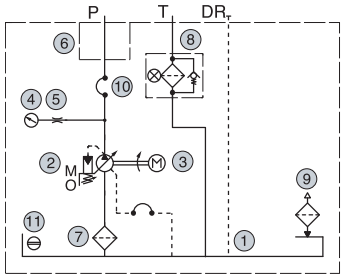
Item	Name
1	Hydraulic Reservoir
2	Pump
3	Electric Motor
4	Pressure Gauge
5	Adapter
6	Port Block
7	Suction Strainer
8	Return Filter
9	Air Breather with Filling Port
10	Resin Hose
11	Oil Level Gauge

K
YA Pack

YA37-B-16-5.5-50·YA37-B-16-7.5-50



Hydraulic Circuit



Item	Name
1	Hydraulic Reservoir
2	Pump
3	Electric Motor
4	Pressure Gauge
5	Adapter
6	Port Block
7	Suction Strainer
8	Return Filter
9	Air Breather with Filling Port
10	Resin Hose
11	Oil Level Gauge

Interchangeability between Current and New Models

As of YA10 and YA16 type models, the design numbers has changed from 50/51 to 52 due to change of built-in electric motor.

Applicable Models

Current Model Numbers	New Model Numbers
YA10-B-2-0.75-51	YA10-B-2-0.75-52
YA10-B-3-0.75-51	YA10-B-3-0.75-52
YA10-B-3-1.5-51	YA10-B-3-1.5-52
YA10-B-4-0.75-51	YA10-B-4-0.75-52
YA10-B-4-1.5-51	YA10-B-4-1.5-52
YA16-B-1-0.75-50	YA16-B-1-0.75-52
YA16-B-2-0.75-50	YA16-B-2-0.75-52
YA16-B-4-1.5-50	YA16-B-4-1.5-52

Change Details

(1) Change of Built-in Electric Motor 0.75 kW (Design number change to 41)
(2) Change of Tank [Body or Top Plate]
Due to change of electric motor, the position of hanging hooks and eye bolts near electric motor has changed.
★The built-in electric motor 1.5 kW has no changes, but the design number change to 52 with change of shared tank.

Interchangeability in Installation

Yes

Comparison of Current and New Models

(1)Specifications

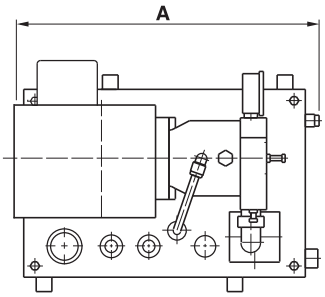
The specifications of current and new models are same except for the mass as below.

Current		New	
Model Numbers	Mass kg	Model Numbers	Mass kg
YA10-B-2-0.75-51	49	YA10-B-2-0.75-52	48
YA10-B-3-0.75-51	54	YA10-B-3-0.75-52	53
YA10-B-4-0.75-51	59	YA10-B-4-0.75-52	58
YA16-B-1-0.75-50	43	YA16-B-1-0.75-52	42
YA16-B-2-0.75-50	45	YA16-B-2-0.75-52	44

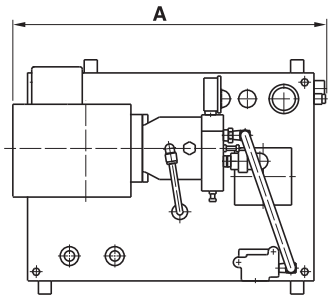
(2)Dimensions

The dimensions of current and new models are same except for below models.

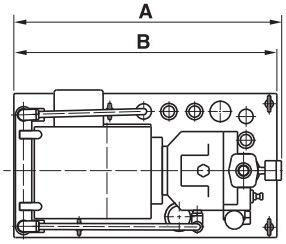
①YA10-B-2-0.75/YA10-B-3-0.75



②YA10-B-4-0.75



③YA16-B-1-0.75/YA16-B-2-0.75



Current Model Numbers	A	B	New Model Numbers	A	B
YA10-B-2-0.75-51	505	—	YA10-B-2-0.75-52	490	—
YA10-B-3-0.75-51	505	—	YA10-B-3-0.75-52	490	—
YA10-B-4-0.75-51	615	—	YA10-B-4-0.75-52	600	—
YA16-B-1-0.75-50	560	550	YA16-B-1-0.75-52	520	510
YA16-B-2-0.75-50	560	550	YA16-B-2-0.75-52	520	510

Standard Hydraulic Power Unit YA Series L Pack <YA-Light>

Smart & Compact

YA-Light is high efficiency, compact and light weight hydraulic unit equipped with ARL1 series piston pump.



Features

High Efficiency

Due to built-in high efficiency motor and piston pump, these units has achieved high efficiency.

Compact / Light Weight

YA-Light is more compact and light weight compared with YA Pack.

Low Noise

These units are equipped with low noise pumps, so that has achieved low noise level and good sound quality.

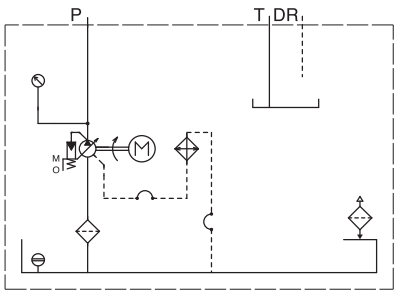
Energy-Saving & Low Heat Generation

These units equipped with piston pumps can reduce power loss and save power consumption. And also achieved low oil temperature rise with high performance drain cooler.

Facilitating the configuration of the control circuit

Due to embedded modular valves, control circuits can be easily configured.

Hydraulic Circuit



★Displacement volume adjustment function is not available.

Model Number Designation

YAL	16	—A	—1	—0.75	—20
Series Number	Built-in Pump Geometric Displacement	Pres. Adj. Range★1 MPa	Reservoir Capacity L	Electric Motor	Design Number
YAL : Piston Pump Equipped Low Noise & Small Type Hydraulic Power Unit	8 : 8.5 cm^3/rev	A : 1.2 - 3.5	1 : 10	0.75 : 0.75kW×4P	20
				1.5 : 1.5kW×4P	
			2 : 19	0.75 : 0.75kW×4P	
				1.5 : 1.5kW×4P	
		B : 1.2 - 7.0	2 : 19	1.5 : 1.5kW×4P	
	16 : 16.3 cm^3/rev	A : 1.2 - 3.5	1 : 10	1.5 : 1.5kW×4P	
		B : 1.2 - 7.0	2 : 19	1.5 : 1.5kW×4P	
				2.2 : 2.2kW×4P	

★1. Pressure adjustment range values shown are those of the pump.
★2. We offer auxiliaries / spare parts for pump and electric motor as Ass'y for AML1 Type Motor-Pump.

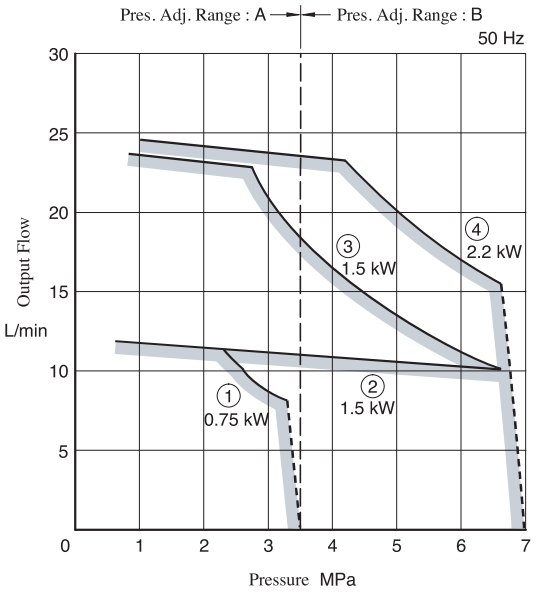
Specifications

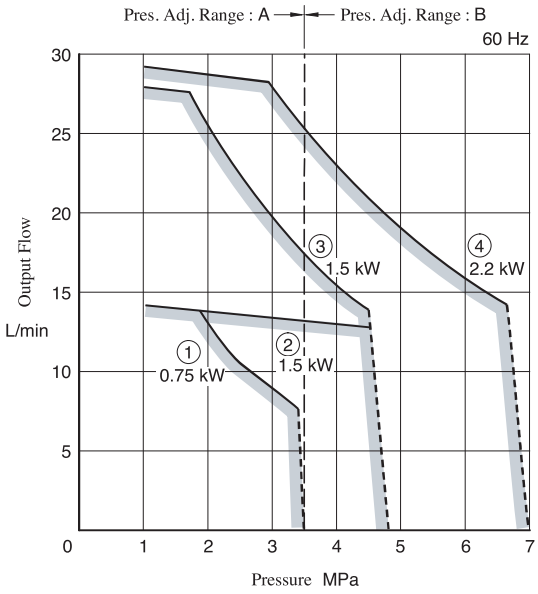
Model Numbers	Geometric Displacement cm^3/rev	Max. Operating Pres. MPa	Pres. Adj. Range MPa	Reservoir Capacity L	Electric Motor 50Hz：200V AC 60Hz：200/220V AC	Approx. Mass (Excluding Hydraulic oil) kg
YAL8-A-1-0.75-20	8.5	3.5	1.2 - 3.5	10	0.75 kW×4P	37
YAL8-A-1-1.5-20				10	1.5 kW×4P	40
YAL8-A-2-0.75-20				19	0.75 kW×4P	39
YAL8-A-2-1.5-20				19	1.5 kW×4P	42
YAL8-B-2-1.5-20		7.0	1.2 - 7.0	19	1.5 kW×4P	42
YAL16-A-1-1.5-20	16.3	3.5	1.2 - 3.5	10	1.5 kW×4P	40
YAL16-B-2-1.5-20		7.0	1.2 - 7.0	19	1.5 kW×4P	42
YAL16-B-2-2.2-20				19	2.2 kW×4P	55

★Maximum operating pressure is the upper limit of the pressure adjustment range of the pump. For pressure and output flow operating limits pertaining to electric motor, please refer to “Selection Graph”. For tank oil temperature rise value for each model, please refer to “Oil Temperature in Reservoir”.

Selection Graph

Below portion of the graph is the allowable operating range with regards to rated output of electric motor.

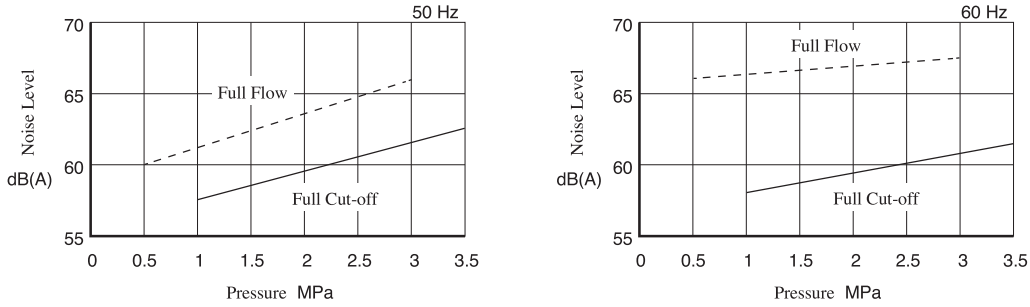




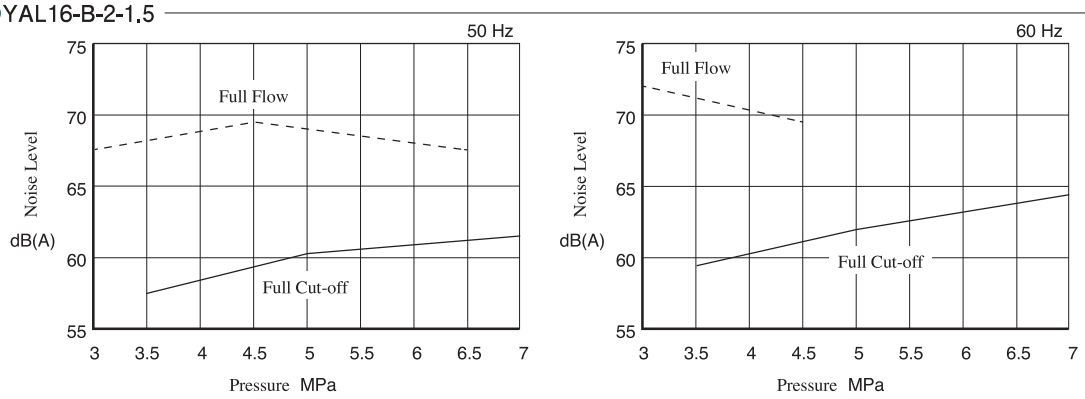
No.	Model Numbers	No.	Model Numbers
①	YAL8-A-＊-0.75	③	YAL16-＊-＊-1.5
②	YAL8-B-＊-1.5	④	YAL16-B-＊-2.2

Noise Characteristics (Example)〔Location of Measurement: 1m from the unit (average value for 5 directions)〕

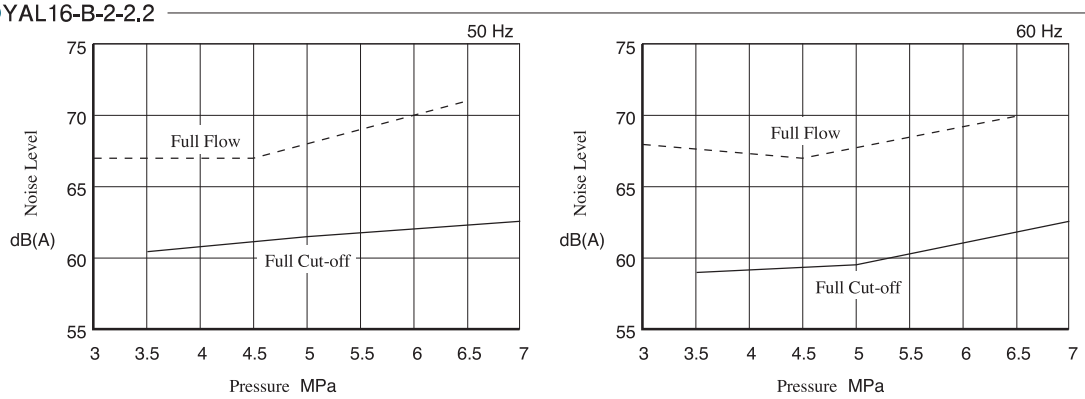
YAL8-A-1-0.75



YAL16-B-2-1.5



YAL16-B-2-2.2



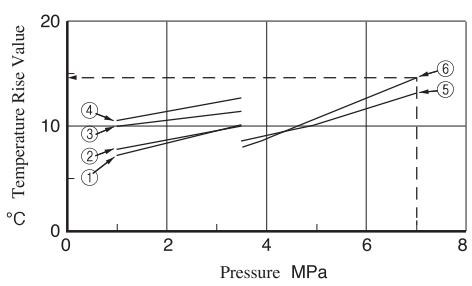
Oil Temperature in Reservoir

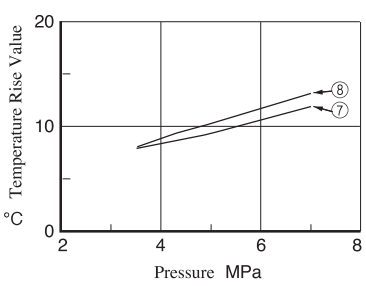
Oil temperature is expressed as (room temperature + temperature rise value).

Temperature rise values (full cut-off continuous operation, windless conditions) for each model are shown below, please check that oil temperature is below 60°C.

(Ex.) When operating YAL8/16-B-2-1.5 continuously (60Hz) at full cut-off pressure 7 MPa, temperature rise value is 14.6 °C as shown by broken line in the graph.

Assuming that room temperature is 30 °C then tank temperature will be 44.6 °C.





No.	Model Numbers
①	YAL8-A-1-0.75 50Hz
②	YAL8-A-1-0.75 60Hz
③	YAL8-A-2-0.75 50Hz
④	YAL8-A-2-0.75 60Hz
⑤	YAL8/16-B-2-1.5 50Hz
⑥	YAL8/16-B-2-1.5 60Hz
⑦	YAL16-B-2-2.2 50Hz
⑧	YAL16-B-2-2.2 60Hz

Instructions

Suction/Return Air

Don't put any obstructions at air vent surface of the drain cooler.
Please install unit at the floor with good air flow to avoid heat stuff.

Transportation

Use eye bolts at the time of transportation.

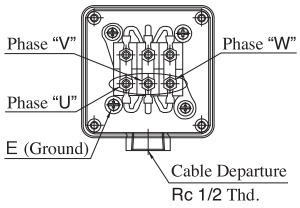
Installation

This unit is stationary type, so please fix it using bolts on the level space with no vibration.

Electrical Wiring

To protect electrical circuit from over current like short and protect motor from overload, we recommend to install no-fuse breaker with earth leakage breaker on the primary power supply,
For electrical wiring, please use crimp terminals of suitable size, and connect certainly to avoid electric leakage for main body and interphase electrical short. Please be sure to ground the earth terminal.

【Terminal Box Detail】



【Connecting Screw Size】

Phase "U" "V" "W" M5
E (Ground) M5

Motor Side [U1—R, V1—S, W1—T] Power Supply Side

Note for Starting Operation

Before initial operation, please supply ruled mass of hydraulic fluid required from oil tank port, and fill clean hydraulic fluid from filling port of pump till the oil full filled in pump housing. To avoid air-bound at starting operation, please adjust hydraulic circuit as that pump drain fluid return directly to oil tank, or operate directional valves for actuators no-load moving. Then start inching operation to confirm no particular, please do running operation.

Air Vent

Because air entrainment in pump or pipe may cause to occur vibration, please make air vent completely.

Setting of Pressure

〔Pressure Adjustment〕

At the time of shipping, the pressure set at minimum level, so please adjust the pressure under using conditions. Turn the pressure adjustment screw clockwise, the pressure increase. For adjustment volumes at one rotation of adjustment screw, please refer to the table below. After adjustments, do not forget to tighten the lock nut.

【Adjustment Volumes at One Rotation of Pres. Adj. Screw】

1.5MPa

Setting of Output Flow

〔Output Flow Adjustment〕

This model is unable to adjust output flow rate.
Please install flow control valves as required.

External Paint Color：

Only the standard models are painted by Munsell N2 (semi gloss).

Options

Base Plate Embedded：01M＊

Control circuit can be constructed by just stacking up modular valves/ solenoid valve atop the base plate. However, the circuit construction is limited to modular valves and standard solenoid directional control valves. In this case, please indicate power supply for operation.

Without Control Circuit：B

Base plate is attached directly to discharge port of the pump and return piping arranged from base plate to the tank only.
Please prepare components to construct control circuit separately. This option is applicable when 01M* is added.

Tank Magnet Embedded：Mg

Installed inside the tank. Attracts and collects fine iron powder. Decreases component wear.

Oil Level Gauge with Thermometer Embedded：Te

Different Voltage Electric Motor：（＊V × ＊Hz）

200 V AC (50Hz) and 200/220 V AC (60Hz) are standard. We can also offer 400 V AC (50Hz) and 400/440 V AC (60Hz).

Option Indication Method

When ordering L Pack with options, please add「OP」at the end of standard L Pack model number, use the example below for reference and indicate options.

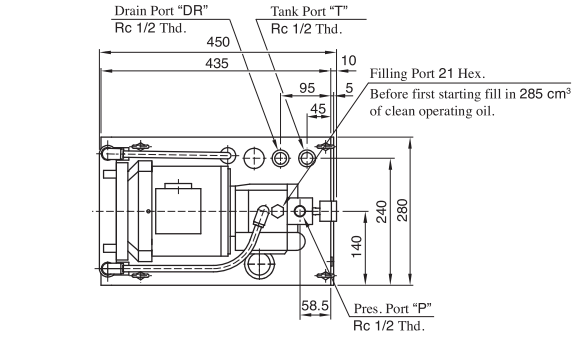
(Example) YAL8-A-1-0.75-20-OP

OP—01 M1 B Mg Te ＊V × ＊Hz

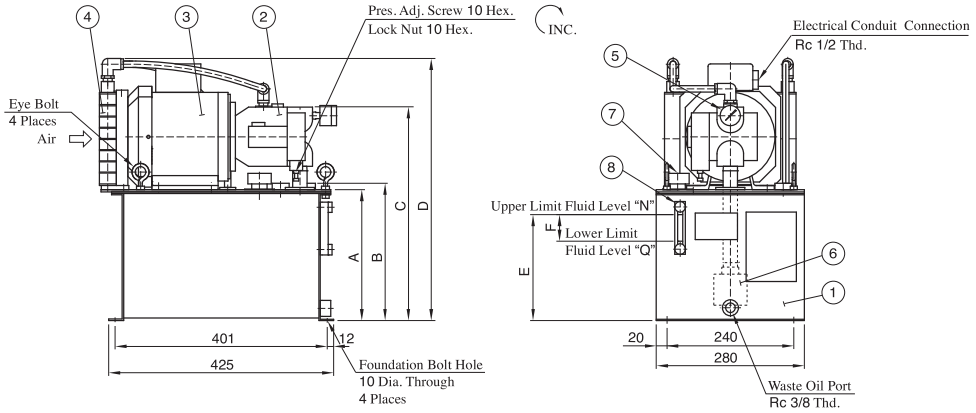
- Option Incl.
- Base Plate Embedded
- Base Plate Size
  - 01 ：01 Size
- Number of Base Plate stations
  - M1：1 Station
  - M2：2 Stations
- None：With Control Circuit
  - B ：Without Control Circuit
- Mg ：Tank Magnet Embedded
- Te ：Oil Level Gauge with Thermometer Embedded
- Different Voltage Electric Motor
  Fill in "Voltage × Frequency"in case if they differ from standard voltage only

K
YA Series L Pack

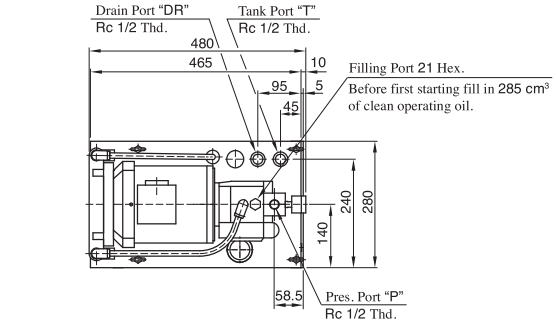
●YAL8-A-＊-0.75



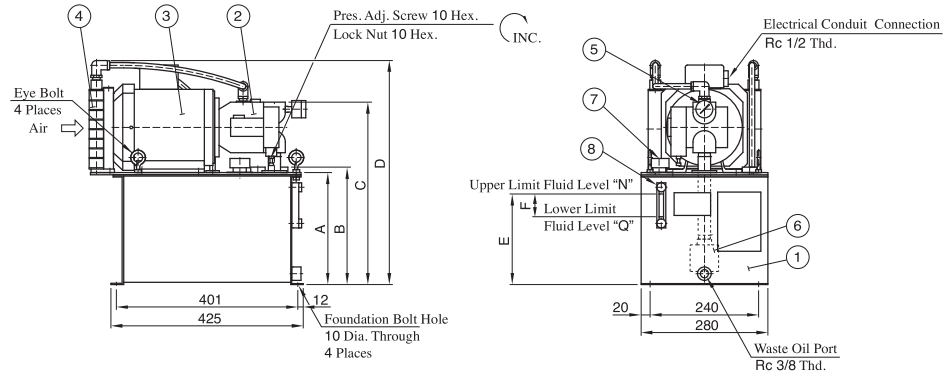
Item	Name
1	Hydraulic Reservoir
2	Pump
3	Electric Motor
4	Drain Cooler
5	Pressure Gauge
6	Suction Strainer
7	Air Breather with Filling Port
8	Oil Level Gauge



●YAL8/16-＊-＊-1.5



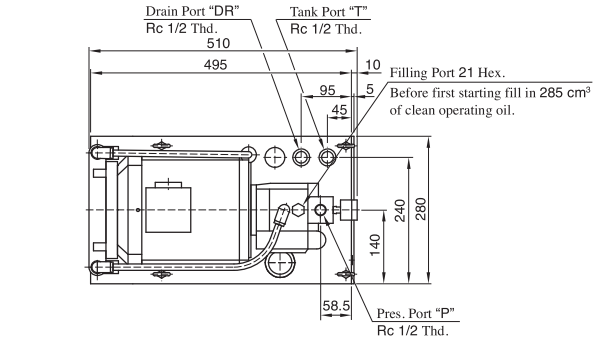
Item	Name
1	Hydraulic Reservoir
2	Pump
3	Electric Motor
4	Drain Cooler
5	Pressure Gauge
6	Suction Strainer
7	Air Breather with Filling Port
8	Oil Level Gauge



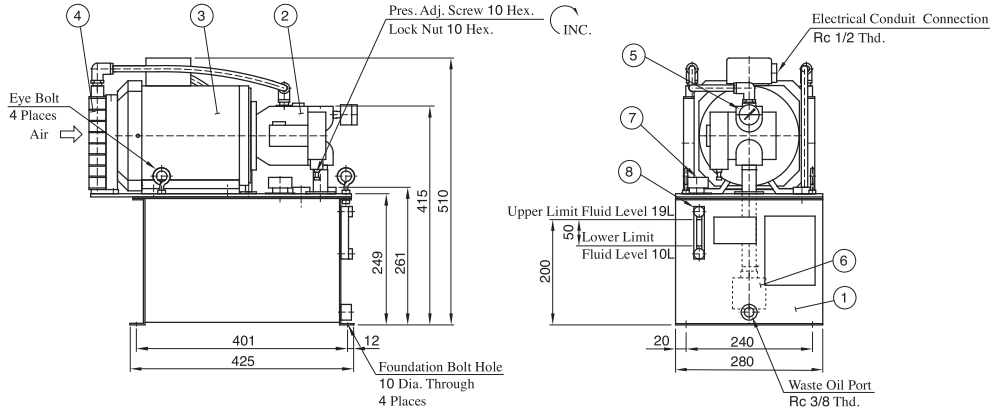
Model Numbers	Reservoir Capacity	Electric Motor Output × Poles	Dimensions						Oil Ammount L	
			A	B	C	D	E	F	N	Q
YAL8-A-1-0.75	10L	0.75kW×4P	157.5	169.5	313.5	410	110	10	10	9
YAL8-A-2-0.75	19L		247.5	259.5	403.5	500	200	50	19	15
YAL8/16- ＊ -1-1.5	10L	1.5kW×4P	157.5	169.5	313.5	410	110	10	10	9
YAL8/16- ＊ -2-1.5	19L		247.5	259.5	403.5	500	200	50	19	15

★Pump installed on this unit is not equipped with flow adjustment screw.

●YAL16-B-2-2.2



Item	Name
1	Hydraulic Reservoir
2	Pump
3	Electric Motor
4	Drain Cooler
5	Pressure Gauge
6	Suction Strainer
7	Air Breather with Filling Port
8	Oil Level Gauge



★Pump installed on this unit is not equipped with flow adjustment screw.

■ Interchangeability between Current and New Models

As of YA series L pack, the design number has changed from 10 to 20 due to change of built-in electric motor.

● Comparison of Current and New Specifications

New specifications are the same as current except for those listed below. Mass has been increased in the range of 4 - 14 kg (Mass ratio 111 - 134%)

Mass

Current		New	
Model Numbers	Mass kg	Model Numbers	Mass kg
YAL8-A-1-0.75-10	30	YAL8-A-1-0.75-20	37
YAL8-A-1-1.5-10	35	YAL8-A-1-1.5-20	40
YAL8-A-2-0.75-10	33	YAL8-A-2-0.75-20	39
YAL8-A-2-1.5-10	38	YAL8-A-2-1.5-20	42
YAL8-B-2-1.5-10	38	YAL8-B-2-1.5-20	42
YAL16-A-1-1.5-10	35	YAL16-A-1-1.5-20	40
YAL16-B-2-1.5-10	38	YAL16-B-2-1.5-20	42
YAL16-B-2-2.2-10	41	YAL16-B-2-2.2-20	55

★For comparison of electric motor specifications, please refer to page K-41.

● Major Changes

(1) Mass has been increased in the range of 4 - 14 kg (Mass ratio 111 - 134%)
(2) The body has become larger in general. Foundation mounting bolts thread pitch has not changed.
(3) Built-in electric motor efficiency class has changed to IE3. Motor specifications have been upgraded in general. For electric motor specifications, please refer to page K-39.

● Interchangeability in Installation

No interchangeability. The following dimensions are different.

Non-interchangeable Element Description	Non-interchangeable Element Dimension
Distance from tank edge to drain (DR) port	Page K-38 Dimension D
Distance from tank edge to tank (T) port	Page K-38 Dimension E
Distance from tank edge to pressure (P) port	Page K-38 Dimension F
Drain (DR) Port and Tank (T) Port Height	Page K-38 Dimension H
Pressure (P) Port Height	Page K-38 Dimension J

Comparison of Current and New Performance Characteristics

(1) Selection Graph
New is the same as current.

(2) Noise Characteristics and Tank Oil Temperature Rise
Have changed for all models.

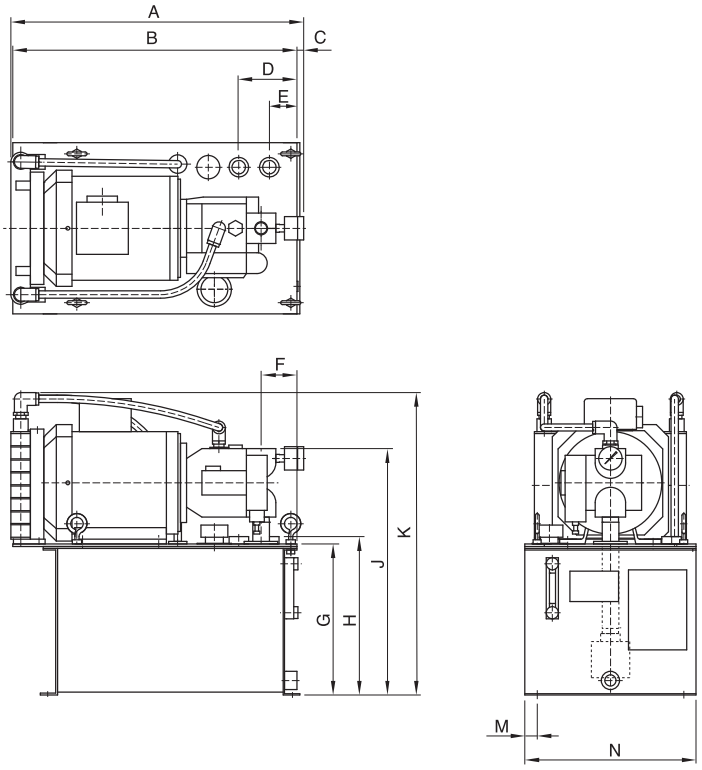
Comparison of Options

(1) Change of Exterior Paint Color : PT has been disbanded.
Standard color is black, same as that of small type YA Pack (Munsell N2 [semi gloss]).

(2) Oil Level Gauge with Thermometer Embedded : Te has been added.

Comparison of Current and New Dimensions

New dimensions are the same as current except for those in the chart below.



	Model Numbers	A	B	C	D	E	F	G	H	J	K	M	N
Current	YAL8-A-1-0.75-10	426	—	—	100	50	65	154	166	304	395	15	270
	YAL8/16-＊-1-1.5-10	457	—	—	100	50	65	154	166	304	395	15	270
	YAL8-A-2-0.75-10	426	—	—	100	50	65	244	256	394	485	15	270
	YAL8/16-＊-2-1.5-10	457	—	—	100	50	65	244	256	394	485	15	270
	YAL16-B-2-2.2-10	486	—	—	100	50	65	244	256	394	485	15	270
New	YAL8-A-1-0.75-20	450	435	10	95	45	58.5	157.5	169.5	313.5	410	20	280
	YAL8/16-＊-1-1.5-20	480	465	10	95	45	58.5	157.5	169.5	313.5	410	20	280
	YAL8-A-2-0.75-20	450	435	10	95	45	58.5	247.5	259.5	403.5	500	20	280
	YAL8/16-＊-2-1.5-20	480	465	10	95	45	58.5	247.5	259.5	403.5	500	20	280
	YAL16-B-2-2.2-20	510	495	10	95	45	58.5	249	261	415	510	20	280

AML1 Type Motor-Pumps

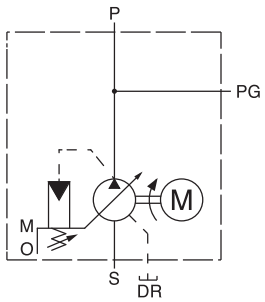
This motor-pump is ARL1 series piston pump integrated with electric motor.
Use as auxiliaries / spare parts for YA-Light, make it compact by applicable design of motor-pumps.



Specifications

Model Numbers	Geometric Displacement cm^3/rev	Max. Operating Pres. Rated Pres.	Electric Motor	Mass kg
AML1-6✻-✻-20	6.2	7 MPa Differ by operating conditions, please contact us separately for details.	0.75 kW×4P	23
			1.5 kW×4P	26.3
			2.2 kW×4P	37
AML1-8✻-✻-20	8.5		0.75 kW×4P	23
			1.5 kW×4P	26.3
			2.2 kW×4P	37
AML1-12✻-✻-20	12.3		1.5 kW×4P	26.3
			2.2 kW×4P	37
AML1-16✻-✻-20	16.3		1.5 kW×4P	26.3
			2.2 kW×4P	37

Graphic Symbol



★Displacement volume adjustment function is not available.

Electric Motor Specifications

Output × Poles	Insulation Type	Voltage - Frequency V Hz	Rated Current A	Rotation Speed r/min	Inrush Current A	Coating Structure / Surrounding Environment
0.75 kW×4P	F	200-50	3.50	1460	21.8	●Coating Structure Dust & Splash Proof / Coating Surface Self Cooling Type (IP54 IC411, IEC60034-1) ●Surrounding Environment Location：Indoor Temperature：-20 - +40°C Humidity：Relative Humidity below 80%, No Condensation Elavation：Below 1000 m Corrosive Gas / Explosive Gas / Steam not exist
		200-60	3.45	1750	19.6	
		220-60	3.30	1760	21.9	
1.5 kW×4P		200-50	6.40	1450	39.8	
		200-60	6.60	1760	37.0	
		220-60	5.90	1756	39.0	
2.2 kW×4P		200-50	9.50	1450	64.0	
		200-60	9.00	1740	56.0	
		220-60	8.50	1750	64.0	

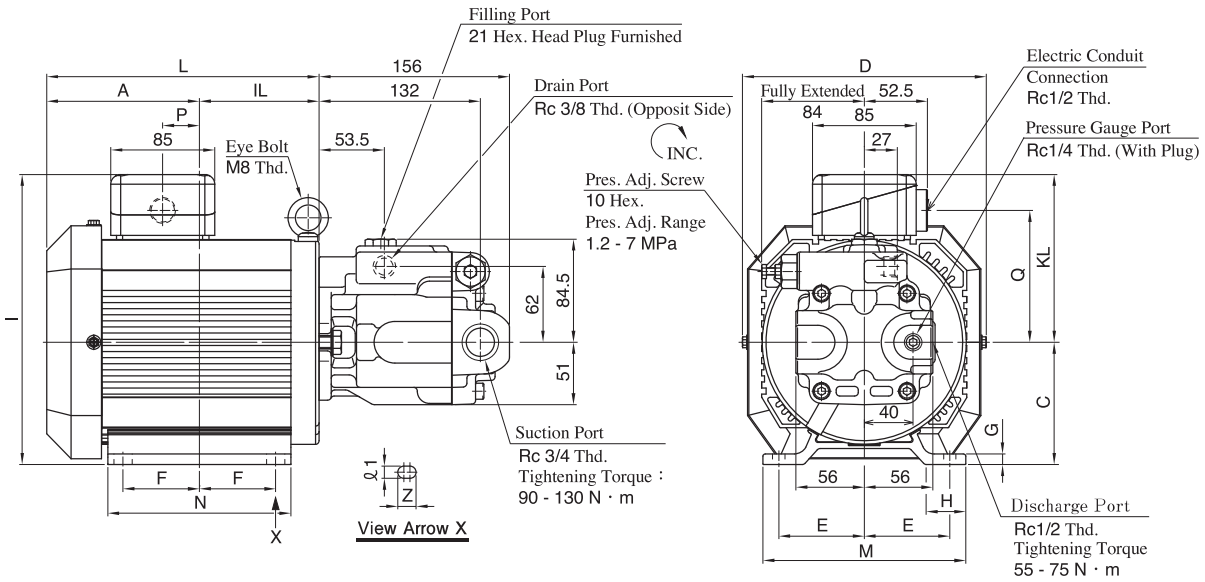
Model Number Designation

AML1	—16	A	—1.5	—20
Series Number	Geometric Displacement	Mounting Type	Electric Motor	Design Number
AML1： AML1 Type Motor-Pumps	6：6.2 cm^3/rev 8：8.5 cm^3/rev	S：Side Port (Standard) A：Suction Port Position: Downwards (For Standard L Pack)	0.75：0.75 kW×4P 1.5：1.5 kW×4P 2.2：2.2 kW×4P	20
	12：12.3 cm^3/rev 16：16.3 cm^3/rev		1.5：1.5 kW×4P 2.2：2.2 kW×4P	

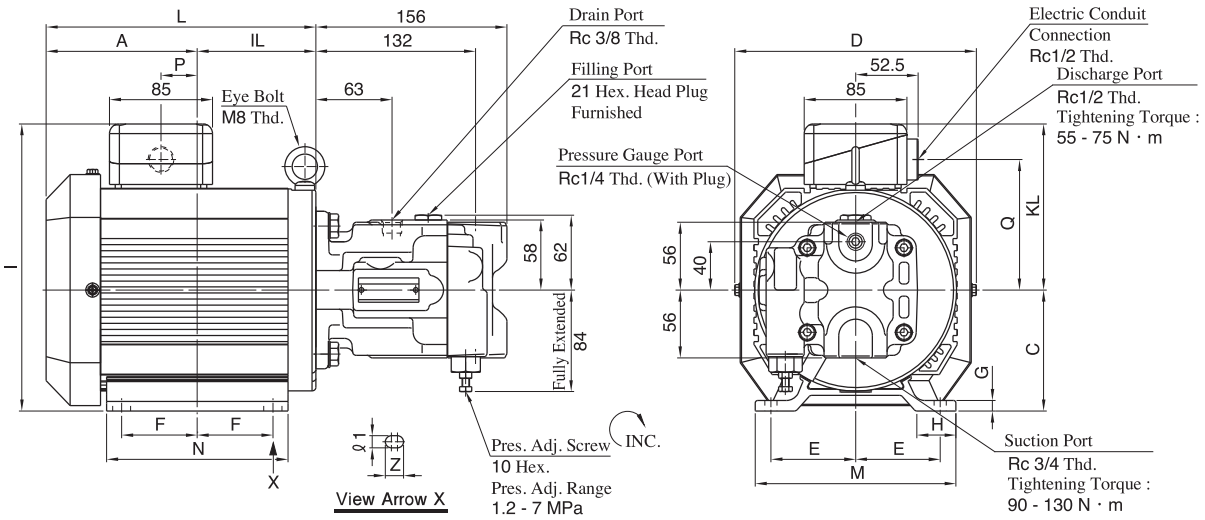
Pump Characteristics

For pump characteristics, please refer to those of ARL1 series piston pump on [“A Piston Pump”Catalog].

AML1-＊S（Side Port）



AML1-＊A（Suction Port Downwards）



Model Numbers	Electric Motor Output × Poles	A	IL	C	D	E	F	G	H	I	M
AML1-＊＊-0.75	0.75 kW×4P	108	85.5	100	200	70	50	8.7	32.4	234	166
AML1-＊＊-1.5	1.5 kW×4P	125.5	98	100	200	70	62.5	8.7	32.4	234	166
AML1-＊＊-2.2	2.2 kW×4P	139	114.5	110	218	95	70	10.7	59	254	220

Model Numbers	Electric Motor Output × Poles	N	KL	Q	Z	ℓ1	L	P
AML1-＊＊-0.75	0.75 kW×4P	125	134	108	15	10	193.5	12.5
AML1-＊＊-1.5	1.5 kW×4P	150	134	108	15	10	223.5	30
AML1-＊＊-2.2	2.2 kW×4P	185	144	118	15	12	253.5	42.5

★Electric motor for this motor-pump is not available for single sale. If spare parts required, please order as motor-pumps.

Interchangeability between Current and New Models

As of AML1 type motor pump, the design number has changed from 10 to 20 due to change of built-in electric motor.

Major Changes

(1) Mass has been increased in the range of 1.5 - 9.7 kg (Mass ratio 106 - 136%)
(2) The body has become larger in general.
(3) Built-in electric motor efficiency class has changed to IE3. Motor specifications have been upgraded in general.

Interchangeability in Installation

No interchangeability. The following dimensions are different.

Non-interchangeable Element Description	Non-interchangeable Element Dimension
Distance from pump position to center of electric motor	Next Page Dimension IL
Pump Center Height	Next Page Dimension C
Mounting Position of Electric Motor	Next Page Dimension E, F, ℓ 1 [Only for AML1-＊＊-2.2]

Comparison of Current and New Specifications

New specifications are the same as current except for those listed below. Mass has been increased in the range of 1.5 - 9.7 kg (Mass ratio 106 - 136%)

①Mass

Model Numbers	Mass kg
AML1-＊＊-0.75	23 (19.8)
AML1-＊＊-1.5	26.3 (24.8)
AML1-＊＊-2.2	37 (27.3)

★The values without parentheses represent the mass of new 20 design, those in parentheses represent the mass of current 10 design.

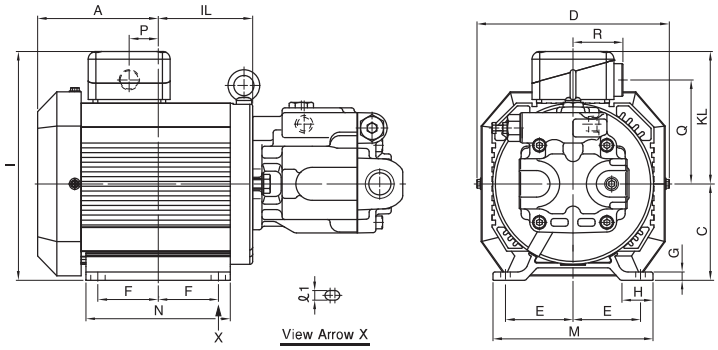
②Electric Motor

Output × Poles	Voltage - Frequency V Hz	Rated Current A	Rotation Speed r/min	Inrush Current A
0.75 kW×4P	200-50	3.50 (3.70)	1460 (1410)	21.8 (17.0)
	200-60	3.45 (3.40)	1750 (1700)	19.6 (15.5)
	220-60	3.30 (3.35)	1760 (1720)	21.9 (17.5)
1.5 kW×4P	200-50	6.40 (6.30)	1450 (1410)	39.8 (34.5)
	200-60	6.60 (6.00)	1760 (1700)	37.0 (30.0)
	220-60	5.90 (5.60)	1756 (1720)	39.0 (33.6)
2.2 kW×4P	200-50	9.50 (9.60)	1450 (1410)	64.0 (49.5)
	200-60	—	1740 (1700)	56.0 (44.5)
	220-60	—	1750 (1720)	64.0 (50.2)

★The values without parentheses represent the specifications of new 20 design, in parentheses represent those of current 10 design.

Comparison of Current and New Dimensions

New dimensions are the same as current except for those in the chart below.



Model Numbers		A	IL	C	D	E	F	G	H	I	M
Current	AML1-＊＊-0.75-10	128.5	65	90	192			8	—	228	
	AML1-＊＊-1.5-10	146.2	77.5	90	192			8	—	228	
	AML1-＊＊-2.2-10	176	77.5	90	192	70	62.5	8	—	228	166
New	AML1-＊＊-0.75-20	108	85.5	100	200			8.7	32.4	234	
	AML1-＊＊-1.5-20	125.5	98	100	200			8.7	32.4	234	
	AML1-＊＊-2.2-20	139	114.5	110	218	95	70	10.7	59	254	220

Model Numbers		N	KL	Q	ℓ1	P	R
Current	AML1-＊＊-0.75-10		138	105		18	51.5
	AML1-＊＊-1.5-10		138	105		35.5	51.5
	AML1-＊＊-2.2-10	150	138	105	10	65.5	51.5
New	AML1-＊＊-0.75-20		134	108		12.5	52.5
	AML1-＊＊-1.5-20		134	108		30	52.5
	AML1-＊＊-2.2-20	185	144	118	12	42.5	52.5