

# 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**

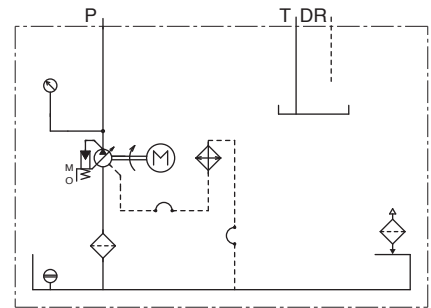
These units equipped with piston pumps can reduce power loss and save power consumption. And also achieved low oil temperature rise with high performance drain cooler.

● **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★ <sup>1</sup> MPa	Reservoir Capacity L	Electric Motor	Design Number
YAL : Piston Pump Equipped Low Noise & Small Type Hydraulic Power Unit	8 : 8.5 cm <sup>3</sup> /rev	A : 1.2 - 3.5	1 : 10	0.75 : 0.75kW×4P	20
			2 : 19	1.5 : 1.5kW×4P	
		B : 1.2 - 7.0	2 : 19	0.75 : 0.75kW×4P	
			2 : 19	1.5 : 1.5kW×4P	
	16 : 16.3 cm <sup>3</sup> /rev	A : 1.2 - 3.5	1 : 10	1.5 : 1.5kW×4P	
			2 : 19	1.5 : 1.5kW×4P	
		B : 1.2 - 7.0	2 : 19	1.5 : 1.5kW×4P	
			2 : 19	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.

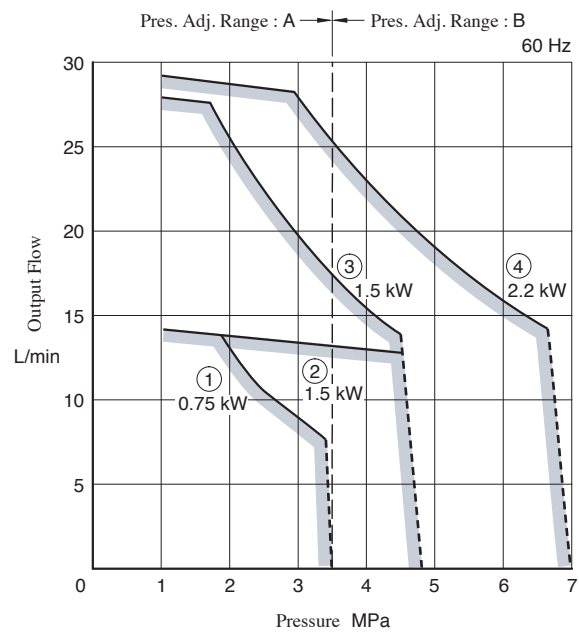
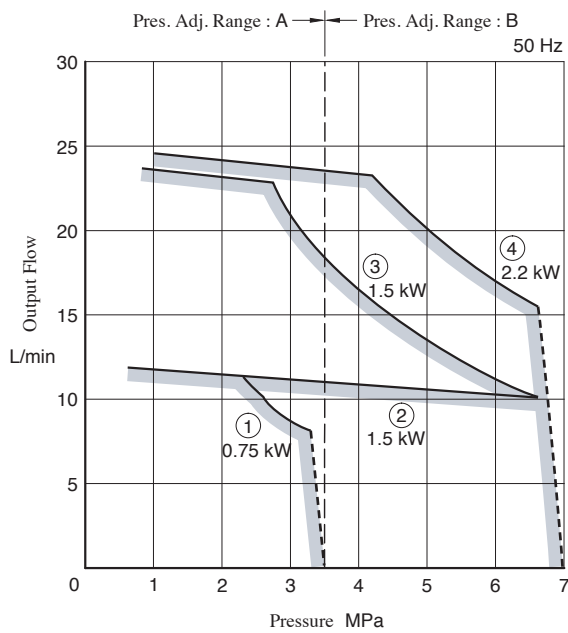
## Specifications

Model Numbers	Geometric Displacement cm <sup>3</sup> /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

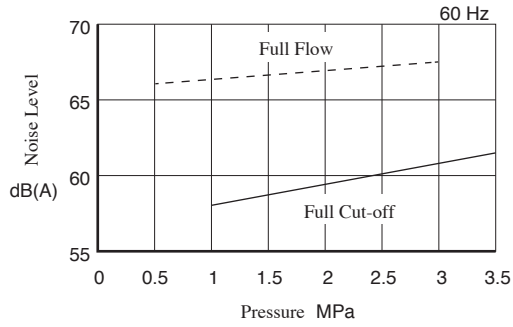
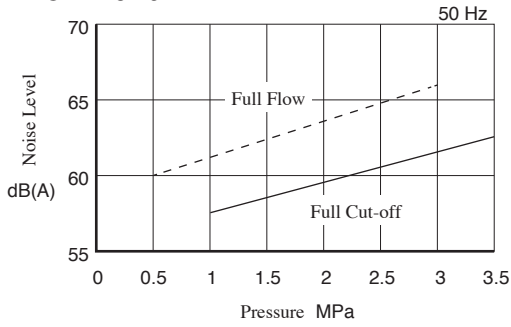
Below  portion of the graph is the allowable operating range with regards to rated output of electric motor.



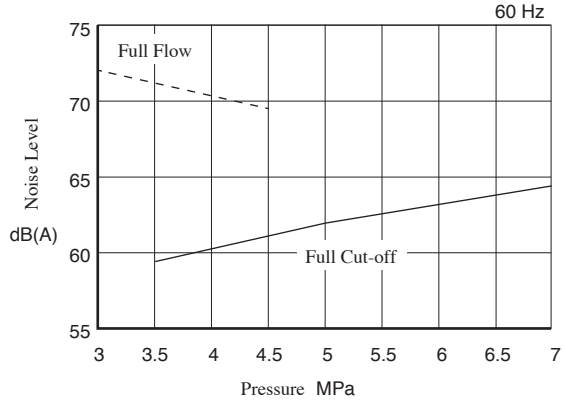
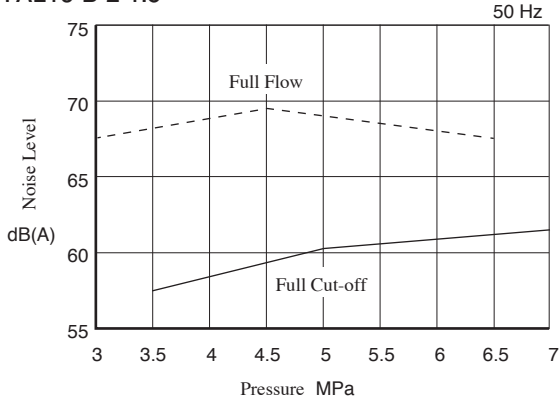
No.	Model Numbers	No.	Model Numbers
①	YAL8-A- *- *-0.75	③	YAL16- *- *-1.5
②	YAL8-B- *- *-1.5	④	YAL16-B- *- *-2.2

**■ Noise Characteristics (Example) [Location of Measurement: 1m from the unit (average value for 5 directions) ]**

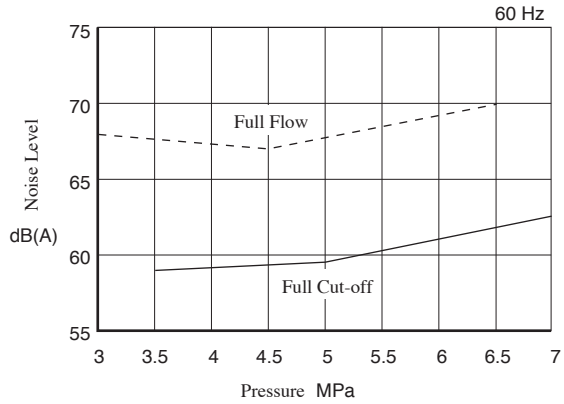
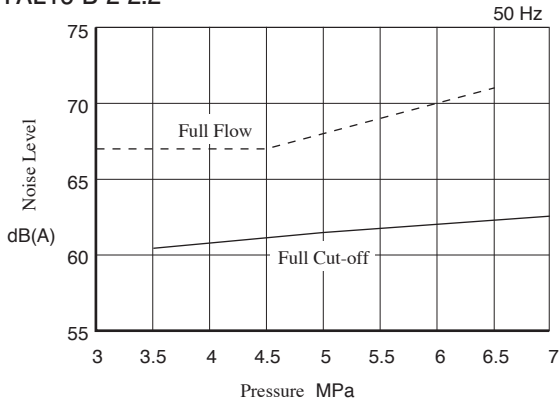
**● YAL8-A-1-0.75**



**● YAL16-B-2-1.5**



**● YAL16-B-2-2.2**



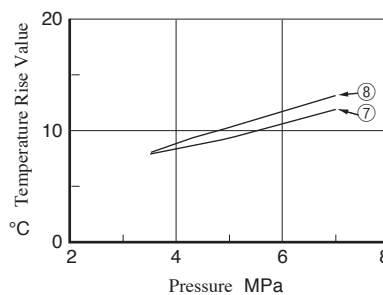
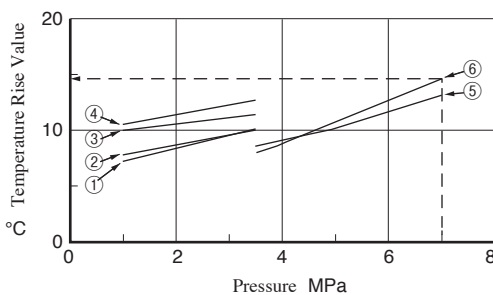
**■ Oil Temperature in Reservoir**

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

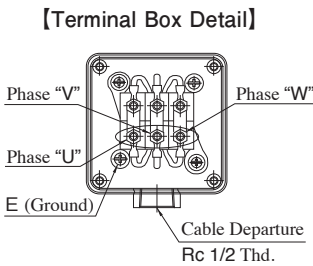
Use eye bolts at the time of transportation.

### ● 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.



### ■ [Connecting Screw Size]

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

Motor Side	U1-R	Power Supply
	V1-S	Side
	W1-T	

### ● 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.

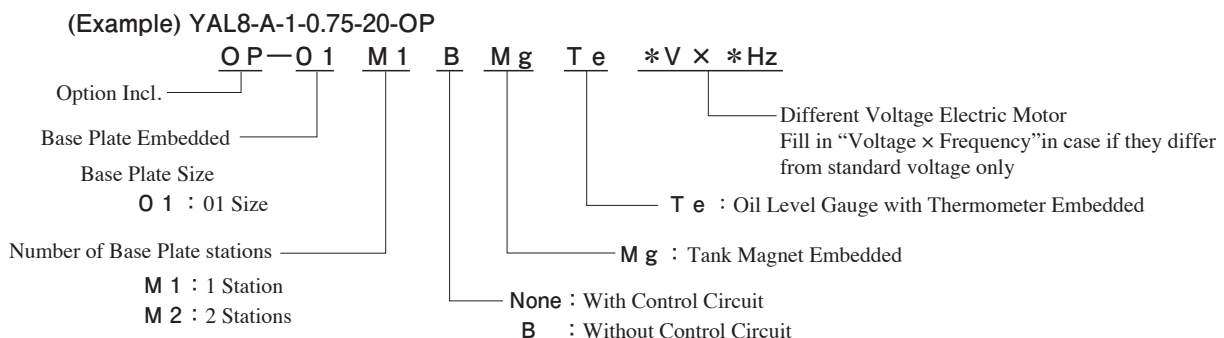
### ● Oil Level Gauge with Thermometer Embedded : Te

### ● Different Voltage Electric Motor : (\*V × \*Hz)

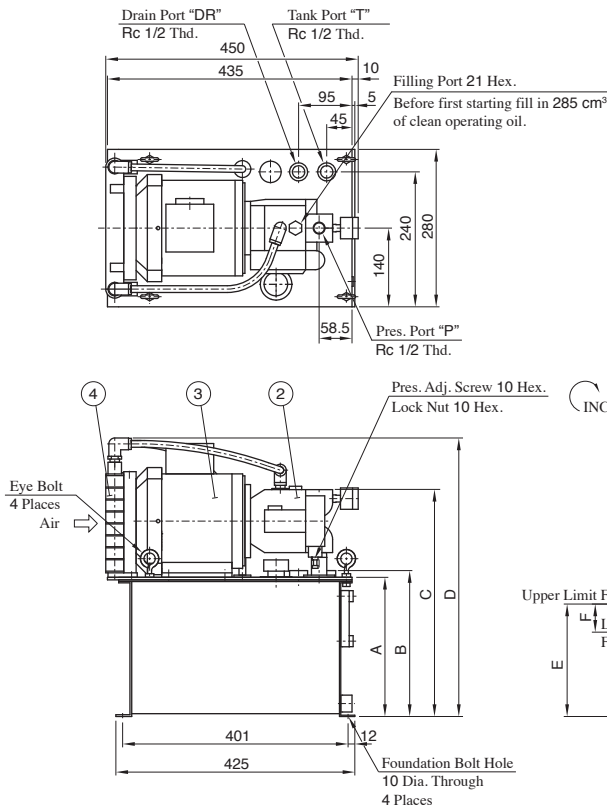
200 V AC (50Hz) and 200/220 V AC (60Hz) are standard. We can also offer 400 V AC (50Hz) and 400/440 V AC (60Hz).

### ● 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.

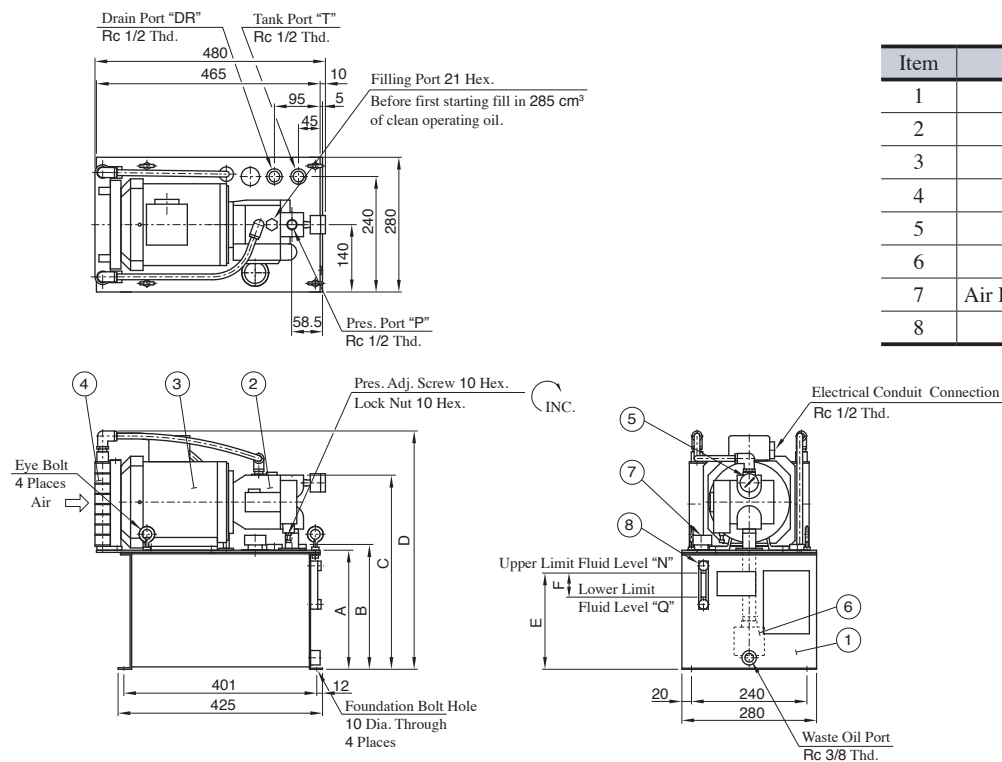


●YAL8-A- \*-0.75



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

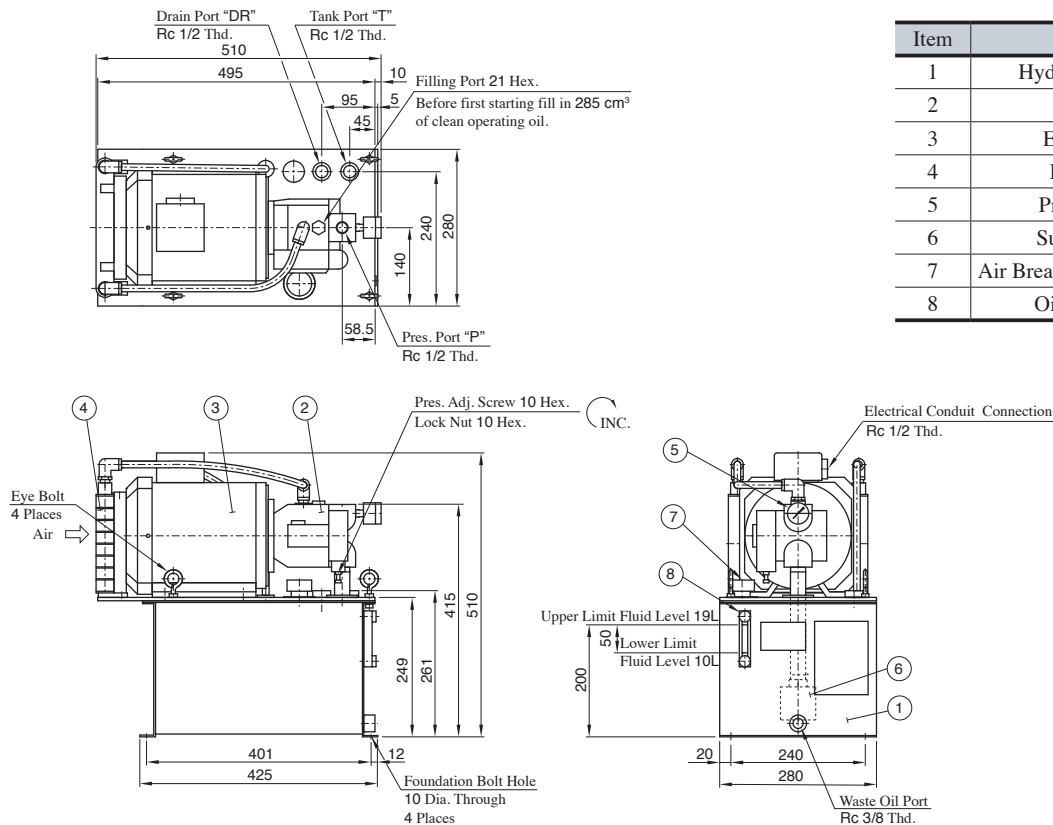


Item	Name
1	Hydraulic Reservoir
2	Pump
3	Electric Motor
4	Drain Cooler
5	Pressure Gauge
6	Suction Strainer
7	Air Breather with Filling Port
8	Oil Level Gauge

Model Numbers	Reservoir Capacity	Electric Motor Output × Poles	Dimensions						Oil Amount 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

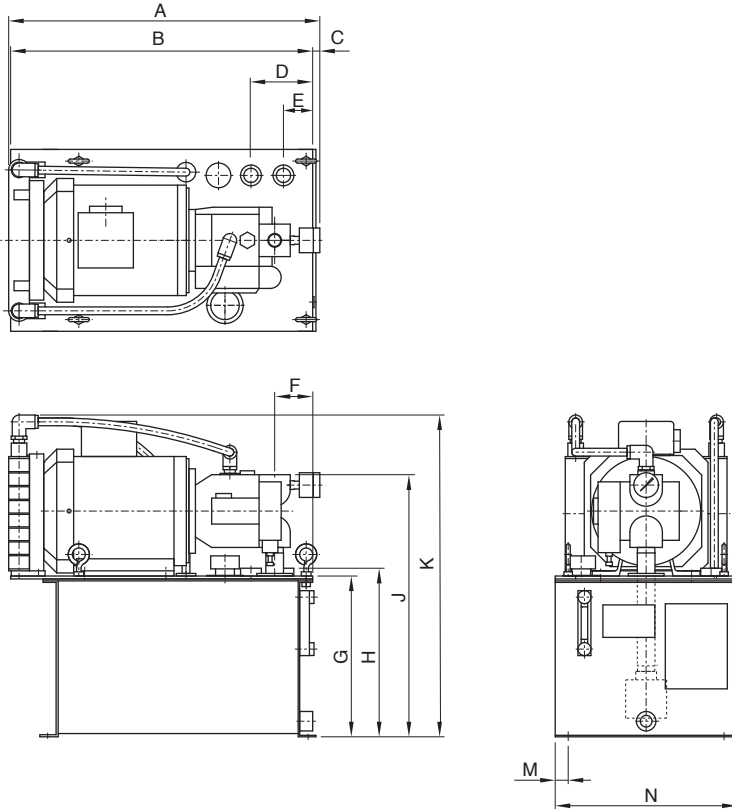
- (1) Selection Graph  
New is the same as current.
- (2) Noise Characteristics and Tank Oil Temperature Rise  
Have changed for all models.

● 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