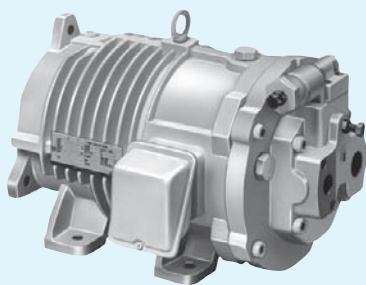
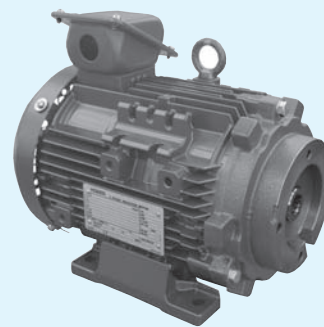


PAL PUMPS & **MT** Series Electric Motors



PAL PUMPS



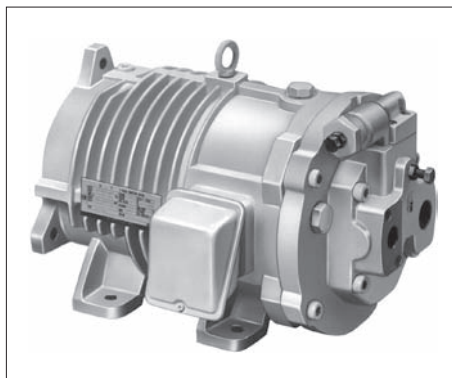
MT Series Electric Motors

■ MOTOR-PUMPS

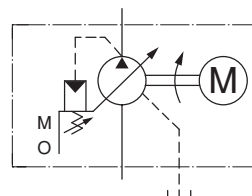
Model Numbers	Graphic Symbol	Geometric Displacement cm ³ /rev						Maximum Operating Pressure MPa	Page			
		1	2	5	10	20	50			100	150	
PM10-01B- *-30										7	210	
PM10-01C-1.5-30										16		
PM16-01 *- *-30												16
PM22-01 *- *-30												16
PM37-01 *- *-30												16

■ **MT** Series Electric Motors212

PAL PUMPS, Pressure Compensator Type



Graphic Symbol



Specifications

Model Numbers	Geometric Displacement cm ³ /rev	Minimum Adj. Flow cm ³ /rev	Operating Pressure ^{★1} MPa	Electric Motor ^{★2} 50 Hz : AC200V 60 Hz : AC200V/220V	Approx Mass. kg
PM10-01B-0.75-30	10.0	2.0	7	0.75 kW × 4P	25.3
PM10-01 * -1.5-30			16	1.5 kW × 4P	B : 39, C : 41.8
PM16-01 * -1.5-30	15.8	6.0	16	1.5 kW × 4P	39.7
PM16-01 * -2.2-30				2.2 kW × 4P	43.8
PM22-01 * -2.2-30	22.2	8.5	16	2.2 kW × 4P	43.8
PM22-01 * -3.7-30				3.7 kW × 4P	64.2
PM37-01 * -3.7-30	36.9	10	16	3.7 kW × 4P	72.0
PM37-01 * -5.5-30				5.5 kW × 4P	74.0

★1. For pressure adjusting ranges, see the Model Number Designation.

★2. For motors other than those for 200/220 V AC, please contact us.

Model Number Designation

PM16	-01	B	-2.2	-30
Series Number	Control Type	Pres. Adj. Range MPa	Motor Power	Design Number
PM10 (10.0 cm ³ /rev)	01 : Pressure Compensator Type	B : 1.2 - 7	0.75 : 0.75 kW × 4P	30
		B : 1.2 - 7 C : 2 - 16	1.5 : 1.5 kW × 4P	
PM16 (15.8 cm ³ /rev)		B : 1.2 - 7 C : 2 - 16	1.5 : 1.5 kW × 4P 2.2 : 2.2 kW × 4P	30
		PM22 (22.2 cm ³ /rev)	B : 1.2 - 7 C : 2 - 16	2.2 : 2.2 kW × 4P 3.7 : 3.7 kW × 4P
PM37 (36.9 cm ³ /rev)			B : 1.2 - 7 C : 2 - 16	3.7 : 3.7 kW × 4P 5.5 : 5.5 kW × 4P

★1. For Two-Pressure Two-Flow Control Type by System Pressure, Two-Pressure Two-Flow Control Type by Solenoid Valve and Pilot Pressure Control Type Pressure Compensator, make inquires separately.

Ratings of Electric Motor

Model Numbers	Voltage-Frequency V – Hz	Rated Current A	Shaft Speed r/min	Inrush Current A	Ambient Conditions Using
PM10-01B-0.75-30	200 – 50 200 – 60 220 – 60	4.2 3.6 3.6	1400 1690 1710	22.5 21.6 23.8	<ul style="list-style-type: none"> ● Location : Indoor Room ● Ambient Temperature Range : 0 to +40 °C ● Ambient Humidity : 95 % RH or less ● Altitude : 1000 m or less ● To be nothing corrosive and explosive gasses and steam.
PM10-01 * -1.5-30 PM16-01 * -1.5-30	200 – 50 200 – 60 220 – 60	6.4 6.2 5.8	1420 1710 1730	43.6 39.4 43.3	
PM16-01 * -2.2-30 PM22-01 * -2.2-30	200 – 50 200 – 60 220 – 60	9.4 8.8 8.4	1420 1710 1730	63.6 59.1 65.1	
PM22-01 * -3.7-30 PM37-01 * v3.7-30	200 – 50 200 – 60 220 – 60	14.6 14.0 13.0	1430 1730 1740	102.0 86.0 94.6	
PM37-01 * -5.5-30	200 – 50 200 – 60 220 – 60	22.8 21.2 19.8	1430 1720 1730	150.0 130.0 143.0	

Pipe Flange Kits

Flange kits are available. When ordering, specify the kits from the table below. In addition, model PM10 does not use pipe flanges. Detail of pipe flange kit is described on page 262.

Pump Model Numbers	Name of Port	Pipe Flange Kit Numbers		
		Threaded Connection	Socket Welding Type ^{★1}	Welding Neck Type
PM16/PM22	Suction	F5-06-A-1021 ^{★2}	F5-06-B-1021 ^{★2}	—
	Discharge	—	—	—
PM37	Suction	F5-10-A-10	F5-10-B-10	F5-10-C-10
	Discharge	F5-10-A-10	F5-10-B-10	F5-10-C-10

★1. For the Socket Welding Type F5-06-B-1021 or F5-10-B-10, the operating pressure may be limited due to the flange strength.

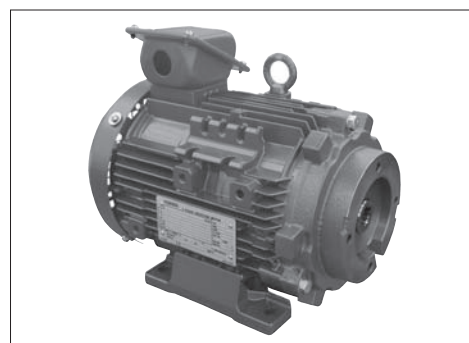
★2. Refer to page 20 for the details of F5-06-A-1021 and F5-06-B-1021.

MT Series Electric Motors

AR/A/A3H series variable displacement piston pumps and PV2R series vane pumps can be installed directly to these electric motors. The power output range is from 0.75 to 18.5 kW.

Two types are available: directly connected type in which the pump shaft is directly inserted in the hollow motor shaft (models M1 and M2); and bell housing type in which couplings are used (models M3 to M7).

- Easy to install a pump
- Free from worry about noise and vibration caused by insufficient centering.
- Compact in size, requiring less space for installation.
- Safe because the rotating part is not exposed.



Specifications

Model Numbers	Output × Number of Poles	Voltage-Frequency V Hz	Rated Current A	Starting Current A	Rotational Speed r/min	Insulation Class	Mass kg	Type Ambient Conditions in Using
M1-0.75-40	0.75 kW×4P	200-50 200-60 220-60	3.8 3.4 3.4	27.3 23.8 26.2	1440 1730 1745	F	17.5	<ul style="list-style-type: none"> ●Type Total enclosed splash proof type (IP44 IC411, IEC60034-1) ●Ambient Conditions in Using Location : Indoor Room Ambient temperature range : -20 to +40 °C Ambient humidity : 100 % RH or less (bedewing must be avoided) Altitude : 1000 m or less To be nothing corrosive and explosive gasses and steam.
M1-1.5-40	1.5 kW×4P	200-50 200-60 220-60	6.8 6.4 6.0	46.6 41.0 45.1	1445 1740 1750	F	22.0	
M1-2.2-40	2.2 kW×4P	200-50 200-60 220-60	10.6 9.4 9.2	96.0 81.0 89.1	1460 1755 1765	F	30.0	
M1-3.7-40 M2-3.7-40	3.7 kW×4P	200-50 200-60 220-60	15.6 14.6 13.8	134 118 130	1460 1755 1765	F	41.0	
M2-5.5-40 M3-5.5-40 M4-5.5-40 M5-5.5-40 M6-5.5-40	5.5 kW×4P	200-50 200-60 220-60	23.4 21.4 20.6	200 166 183	1465 1760 1765	F	62.0 63.0 65.0 68.0	
M2-7.5-40 M3-7.5-40 M4-7.5-40 M5-7.5-40 M6-7.5-40 M7-7.5-40	7.5 kW×4P	200-50 200-60 220-60	30.8 28.6 27.4	264 218 240	1460 1755 1765	F	75.0 74.0 76.0 77.5	
M4-11-40 M5-11-40 M7-11-40	11 kW×4P	200-50 200-60 220-60	46.0 42.0 40.0	365 302 332	1475 1770 1775	F	114.0 131.0	
M4-15-40 M5-15-40 M7-15-40	15 kW×4P	200-50 200-60 220-60	58.8 55.6 52.0	484 408 449	1470 1760 1770	F	131.0	
M4-18.5-40 M5-18.5-40	18.5 kW×4P	200-50 200-60 220-60	74.0 69.0 65.0	668 524 576	1475 1770 1775	F	193.0	

★1. For motors other than those for 200 / 220 V AC, please contact us.

Application

Model Numbers	Piston Pumps			Vane Pumps ^{★1}
	Single Pumps	Double Pumps	Variable / Fixed Double Pumps	
M1- * -40 M3- * -40	AR16/AR22/A10/A16/A22	A1616/A1622/A2222	A16R1/A22R1	PV2R1
M2- * -40 M4- * -40	A37 (excluding 04E)	—	—	PV2R2 ^{★2}
M5- * -40	A37 (04E) /A56	A1637/A2237/A1656/A2256	A37R1/A56R1	—
M6- * -40	A3H16	—	—	—
M7- * -40	A3H37	—	—	—

★1. Vane pump is also possible. However, different mounting bolt is required in order to install the vane pumps.

★2. This pump is special designed product. Please contact us for further details.

Model Number Designation

M1	-1.5	-R	-40
Series Number	Motor Capacity	Terminal Box Location ^{★1}	Design Number
M1 [For AR16/AR22/A10/A16/A22]	0.75: 0.75 kW×4P, 1.5: 1.5 kW×4P, 2.2: 2.2 kW×4P, 3.7: 3.7 kW×4P	[When viewed from the pump mounting surface] None: Upper side (Standard) R: Right side L: Left side	40
M2 [For A37 (excluding 04E)]	3.7: 3.7 kW×4P, 5.5: 5.5 kW×4P, 7.5: 7.5 kW×4P		
M3 [For AR16/AR22/A10/A16/A22]	5.5: 5.5 kW×4P, 7.5: 7.5 kW×4P		
M4 [For A37 (excluding 04E)]	5.5: 5.5 kW×4P, 7.5: 7.5 kW×4P, 11: 11 kW×4P, 15: 15 kW×4P,		
M5 [For A37(04E)/A56]	18.5: 18.5 kW×4P		
M6 [For A3H16]	5.5: 5.5 kW×4P, 7.5: 7.5 kW×4P		
M7 [For A3H37]	7.5: 7.5 kW×4P, 11: 11 kW×4P, 15: 15 kW×4P		

★1. For the following models, either the left or right side terminal box location is selectable [the upper side (standard) terminal box is not available].
M1-0.75 / M4-18.5 / M5-18.5