




LS800 Series

Flux vector Drive

Flux Sensorless & Open · Closed loop



Comply with:

-  Environmentally-friendly technology
-  Power-saving technology
-  Innovative technology

CE Approval



We were established in 1985. Our factory is located at New Taipei City, Taiwan, For many years, we have been specialized in manufacturing AC vector inverter, DC brushless servo actuator, braking unit and periphery equipment, etc. with excellent quality and price, and also our products have been sold all round the world. In 2002, we passed and were recognized by the international quality standard certification ISO9001:2000, which showed our products with much more improved quality and fulfilled our promises and trusts to our customers.

LS800 series is a series of more than perfect actuators. LS800 series adopts the magnetic flux current control principle with the advanced high technology "direct field conduction" to exactly estimate the magnetic flux and also adopts DSP software and hardware to process the engineering calculation for the output conversion of best rotational torque effect. LS800 series is applied to the control in precision and complex industries and is used in such as AC induced servo motors, crane equipments, high speed elevators, proportional synchronous operational control, fixed current and fixed rotational torque control, fixed tension control and the control of general induced electrical machines.

LS800 Series — Flux vector inverters

VF, VF+PG feedback, Sensorless control, Flux vector control
Voltage Range : 200V~240V 1P/3P 380V~460V 3P
Capacity Range : 0.4KW~400KW



LS AC input reactor

Voltage Range : 200V~260V 1P/3P
380V~460V 3P
Capacity Range : 0.4KW~400KW



LSBR Series — Brake unit

Voltage Range : 200V~230V
380V~460V
Capacity Range : 0.4KW~400KW



LS AC output reactor

Voltage Range : 200V~260V 3P
380V~460V 3P
Capacity Range : 0.4KW~400KW



High efficiency DR Modular units

Power specifications : 3200w/4600w/6200w
Resistance impedance : 6Ω ~ 80Ω
High security / Small volume ,
Serial/ parallel connected to spread
Increase wattage capacity



LS DC Bus choke

Voltage Range : DC 200V~800V
Capacity Range : 0.4KW~400KW



LSBR Series — Brake resistors

Voltage Range : 100V~10KW
Resistance : 1Ω ~ 500Ω



EMI Filter

Voltage Range :
200V~260V 1P/3P
380V~460V 3P
Capacity Range :
0.4KW~400KW



LS — operate keypad with exterior cable

Specification :
0.5m, 1.0m, 1.5m,
2m, 3m, 4m, 5m, 6m



EMI/RFI Noise filter core

Filter frequency range:
150KHz to 30MHz
Suitable for LS Series power
input / Output



RS232 to RS485 interface



USB Adapter



Encoder signal conversion Board

Model :PG-XY2
Input: Push Pull or Open Collector
Output: Line Driver



Encoder signal board

Model : Feedback cards PG-AB2
Maximum receive Pulse 300KHz



The encoder reduce pulse signal board

Model :PG-AB2-1
Maximum reduce pulse range 64K
Suitable for use in elevator of PLC



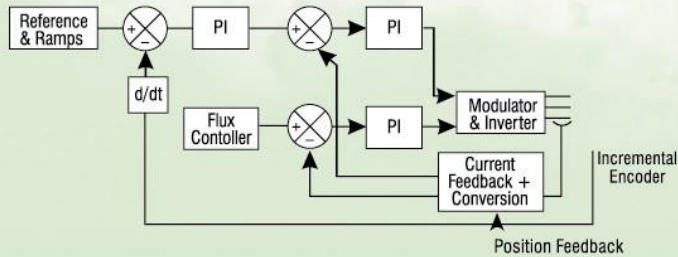
Voltage signal conversion Board

Input: DC 20V~40V
Output: DC 0~5V Or DC 0~10V

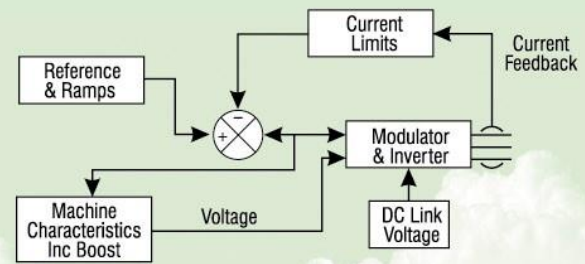


5 operational control modes

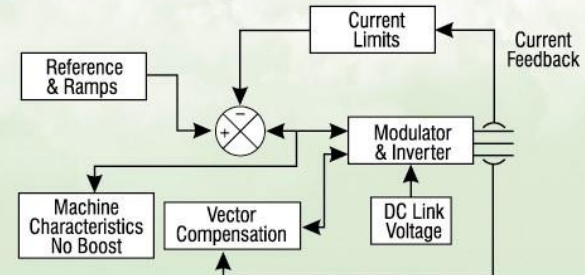
- ◆ Sine wave V/F vector control
- ◆ Sine wave V/F vector closed-loop control and closed-loop speed PI adjustment
- ◆ Sine wave V/F sensorless vector control
- ◆ Flux vector closed-loop control and closed-loop speed PI adjustment
- ◆ Flux vector sensorless control and sensorless speed PI adjustment



Magnetic flux current vector closed-loop control mode



Open loop V/F vector control mode



Flux vector sensorless control mode

International standard communication protocol

- ◆ Built-in RS485 digital operator format
- ◆ International standard Modbus Protocol RS485 communication format
- ◆ Applies to man-machine interface and graphics control software
- ◆ Offers customized software which:
 - Can use PC to simulate digital operator format control for human-interface operation and instant showing function introduction
 - With RS485 Modbus format, can use PC, PLC, etc. to quickly search, monitor, set, and modify the parameter groups, etc.
 - Before the monitor, can perform saving N sets of parameter groups and multi-machine control, monitoring with automatic synchronous status, etc.
 - Data can be converted into graphics.



RS485/Mod bus Communication



Monitoring Tool

Parameter Table

Command Tools

Built-in Multi-Function I/O interfaces

- ◆ 8 sets of Digital-In can perform multi-function compilation
- ◆ 3 sets of Digital-Out can perform multi-function compilation
- ◆ 2 sets of Analog-In, 1 set of current signal input
- ◆ 2 sets of Analog-Out can perform multi-function compilation
- ◆ 2 sets of Relay can perform multi-function compilation
- ◆ 8 sets of Di and 3 sets of Do can perform Sink and Source in convertible mode control
- ◆ Offering DC24V/200mA for the use of digital terminals



Built-in special practical functions

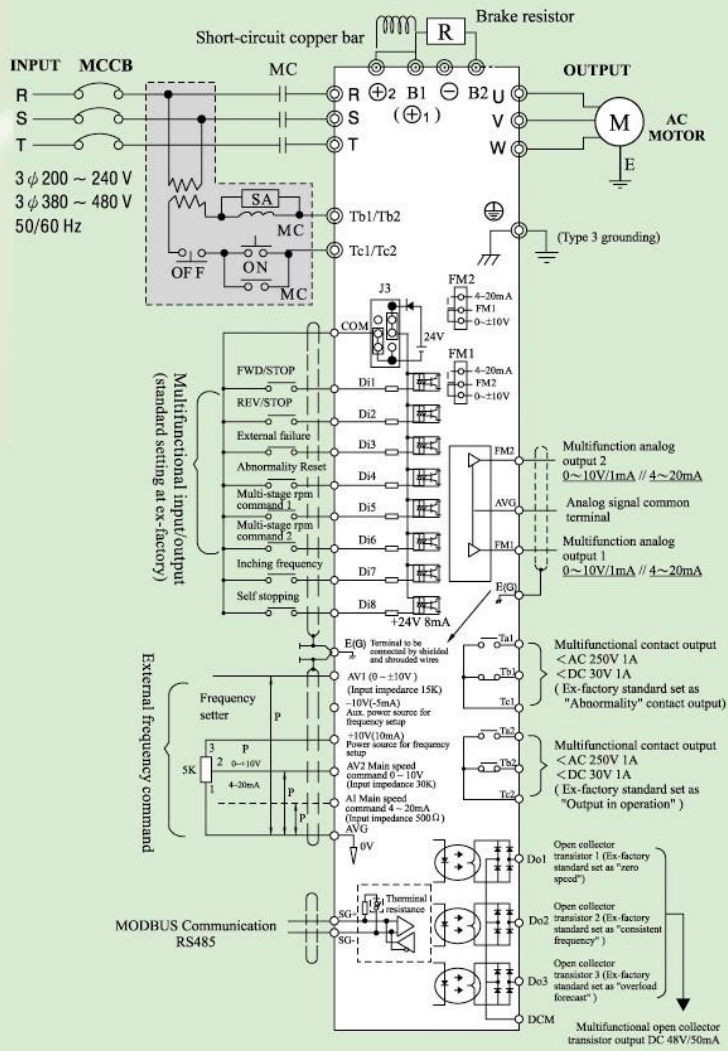
- ◆ With digital operator, can perform duplication function and parameter saving function
- ◆ Auto-Tune parameter of motors with precision
- ◆ Can input parameters automatically or manually
- ◆ Speed errors within ± 1 r.p.m
- ◆ In Standstill Position, rotational torque output 100% in speed zero
- ◆ 2 sets of multi-function PID setting
- ◆ 16 sets of speed, 8 for PLC compilation and the other 8 for terminal compilation
- ◆ 1 set of multi-function Counter function
- ◆ High function PID water pump special-purpose
- ◆ Built-in intelligent multi-functional parameter group specialized for water pump
- ◆ Can perform 4 quadrant rotational torque control
- ◆ Can perform fixed current and fixed rotational torque, and fixed tension control
- ◆ Speed and rotational torque commands are set and controlled by VR individually
- ◆ S curve, linear curve and V/F curve
- ◆ Slip and rotational torque are compensated automatically
- ◆ AVR automatic voltage regulator control
- ◆ Power saving control system with high efficiency
- ◆ Can be adjustment for speed PI control

Multi-function compiler feedback card

- ◆ Response frequency can accept 300KHz to its maximum 400KHz
- ◆ Can perform impulse to monitor input and output
- ◆ Can perform Master and Slave for multi-machine control
- ◆ Applicable for encoder of push pull and line drive signal control

Control Circuit Wiring Diagram (V.2.32)

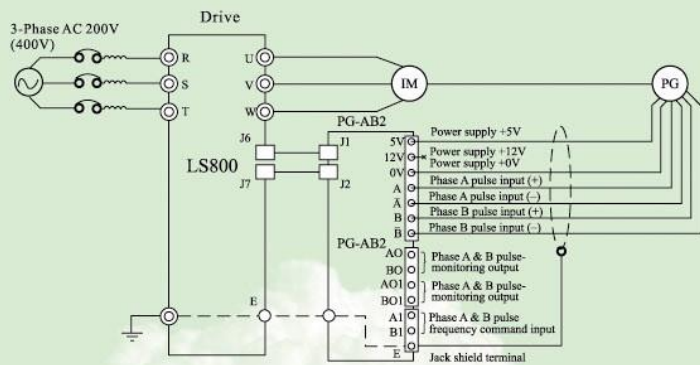
Schedule of Control Terminal Function (V.2.32)



Terminal Mark	Terminal Designation	Description	
Multi-function Input Terminals	Di1	Forward rotation command	Forward revolution when Di1-COM is ON; and stop, OFF
	Di2	Reverse rotation command	Reversal revolution when Di2-COM is ON; and stop, OFF
	Di3	Input in case of external Abnormality(NC)	AC Drive trips off to stop when external abnormality signal is ON. (Err 29)
	Di4	Abnormality reset	Di4 ON releases the status imposed and maintained by the circuit protection action against failure.
	Di5	Multi-section command 1	To execute four-section speed control with binary 2Bit.
	Di6	Multi-section command 2	
	Di7	Jog inching frequency	To execute the inching frequency operation when enabled ON.
	Di8	Free-run	When activated (ON), the drive immediately stops outputting.
COM	Digital Input common terminal	The multi-function input terminals of the common terminal	
Analog Frequency setup	+10V	Source for F setup	Source output DC +10V for frequency setup (maximal 10mA allowed)
	-10V	Negative source for F setup	Auxiliary negative source output DC -10V for F setup (maximal -5mA allowed)
	AVG	Common terminals for F setup	Common reference potential terminal for F setup input signals (terminal AV1, AV2, AI)
	AV1	Analog voltage F command	With input voltage at DC 0~±10V (or DC 0~+10V), the input impedance is 15kΩ
	AV2	Analog voltage F command	With input voltage at DC 0~+10V, the input impedance is 30kΩ
	AI	Analog current F command	With input current at DC 4~20mA, the input impedance is 500kΩ (or DC 0~+10V, 30kΩ)
Multi-function Output Terminals	DO1	Zero-Speed detected	ON in stop status or below zero-speed level
	DO2	Consistent F	ON when the output F at any setting is over the detected F.
	DO3	Overload forecast	On when the drive detection output is over the OL level
	DCM	Digital output common terminal	The multi-function output terminals of the common terminal
	Ta1	Output in normality (NC)	1a and 1b contacts function to output when the abnormality protection mechanism of the drive is activated.
	Tb1		*Ta1-Tc1 is ON in case of abnormality Contact
	Tc1		*Tb1-Tc1 is OFF in case of abnormality Contact
	Ta2	In Operation	1a and 1b contacts function to output when the F to activate the output of ac drive is above the value as preset.
	Tb2		*Ta2-Tc2 is ON during operation Contact
	Tc2		*Tb2-Tc2 is OFF during operation Contact
FM1	Analog output, FM	Multi-function analog monitor 1, DC 0~+10V/(or 4~20mA)/100% FM meter head	
FM2	Analog output, amperage monitor	Multi-function analog monitor 2, DC 0~+10V/(or 4~20mA)/100% ac drive rated A.	
AVG	Analog output common terminal	The pulse frequency (FM) terminal of the common terminal	
COM	SG+	RS-485 series com. interface	RS-485 series com. jack, positive end input
	SG	RS-485 series com. interface	RS-485 series com. jack, negative end input
	E	Earth cable terminal	Exclusively for the shielded cable to connect the selected earth shielded cable use.

PG-AB2 Wiring Diagram

PG-AB2 Terminals Specification



Terminal Mark	Description	Specification
E	Shielded cable connection ground terminal	-----
A	Phase A pulse input (+)	※ Adaptable to Line Driver, Encoder with 5V or 12V source of complementary and open collector transistor, A, B. Phase signal output. ※ Maximal response frequency 300 KHz.
Ā	Phase A pulse input (-)	
B	Phase B pulse input (+)	※ If open collector transistor type of input is used, connect Phase A and Phase B terminals to source terminals of 12V encoder.
B̄	Phase B pulse input (-)	
AO	Phase A pulse monitor output	※ The maximal for Phase A and Phase B open collector transistor output is DC 5V/30mA. ※ Maximal response frequency 300 KHz.
BO	Phase B pulse monitor output	
5V	Pulse generator dedicated source	DC +5V (± 5%), 200mA(max.)
12V		DC +12V (± 5%), 200mA(max.)
0V		DC 0V (+5V and +12V share the common grounding terminal)
A1	Phase A pulse frequency command input	For Phase A and Phase B, the input is done by open collector transistor type (0~300 KHz). (Select J3 according to the specification.)
B1	Phase B pulse frequency	
AO1	Phase A pulse frequency command monitor output	※ Phase A and Phase B open collector transistor output, DC 5V/30mA (max.) ※ Maximal response frequency 300 KHz
BO1	Phase B pulse frequency command monitor output	



Flux Vector Model LS800 Series

Model Instructions

LS800-24K0-XXXX

LS ac drive family code	
LS800	Standard
Voltage class	
2	200~240V
4	380~460V

Max. suitable electric machinery	
0K7	= 0.75KW 1K5 = 1.5KW
2K2	= 2.2KW 4K0 = 4.0KW

- Blank or N: Customer-contracted product type not applicable
Alphabetic designation: Designation to classify customer's diverse types of products
- Blank or N: Not customer-contracted product
Alphabetic designation: Customer-contracted product
- N: No dynamic brake function
D: built-in dynamic brake circuit
- S: Single phase input T: Three phases input
X: Input 110V, output 220V
Z: Input 110V, output 110V



200V series specifications	Model No. LS800-2□□□□	0K4	0K7	1K5	2K2	4K0	5K5	7K5	011	015	018	022	030	037	045	055	075	090	110																		
	Applicable motor power (KW)	0.4	0.75	1.5	2.2	4.0	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110																		
	Applicable motor power (HP)	0.5	1	2	3	5	7.5	10	15	20	25	30	40	50	60	75	100	125	150																		
	Output	Rated output capacity (KVA)	1.5	2.0	3.1	5.2	7.3	10.4	14.0	21.0	28.0	34	42	54	69	79	96	125	146	189																	
		Continuous rated current (A)	3.7	5	7.5	12.5	17.5	25	34	50	68	82	100	130	165	190	230	300	350	455																	
		Max. output voltage (V)	3-phase corresponding input voltage																																		
	Power supply	Output frequency range (Hz)	0.0~400.0Hz																																		
		Carrier frequency (Hz)	16KHZ					12KHZ					10KHZ					8KHZ					6KHZ					5KHZ					3KHZ				
		Input voltage, frequency	3-phase power supply 200V~240V 50/60HZ																																		
		Tolerance for voltage fluctuation of power supply	- 15%~+ 10%(170V~265Vac)																																		
Tolerance for frequency fluctuation of power supply		±8% (47HZ~64.8HZ)																																			
Cooling fan	Forced fan																																				

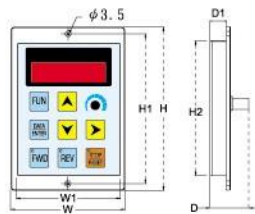
400V series specifications	Model No. LS800-4□□□□	0K7	1K5	2K2	4K0	5K5	7K5	011	015	018	022	030	037	045	055	075	090	110	132	160	185	220	280	315	355	400																					
	Applicable motor power (KW)	0.75	1.5	2.2	4.0	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	185	220	280	315	355	400																					
	Applicable motor power (HP)	1	2	3	5	7.5	10	15	20	25	30	40	50	60	75	100	125	150	175	200	250	300	375	425	475	540																					
	Output	Rated output capacity (KVA)	2.9	4.0	6.0	8.0	11.2	14.0	20.0	30.3	34.3	40	54	65	80	104	132	159	183	219	239	279	363	418	478	542	598																				
		Continuous rated current (A)	3.7	5	7.5	10	14	17.5	25	38	43	50	68	82	100	130	165	200	230	275	300	350	455	525	600	680	750																				
		Max. output voltage (V)	3-phase corresponding input voltage																																												
	Power supply	Output frequency range (Hz)	0.0~400.0Hz																																												
		Carrier frequency (Hz)	16KHZ					12KHZ					10KHZ					8KHZ					6KHZ					5KHZ					4KHZ					3KHZ					2KHZ				
		Input voltage, frequency	3-phase power supply 380V~480V 50/60HZ																																												
		Tolerance for voltage fluctuation of power supply	- 15%~+ 10%(323V~528Vac)																																												
Tolerance for frequency fluctuation of power supply		±8% (47HZ~64.8HZ)																																													
Cooling fan	Forced fan																																														

Common characteristic	Control method	Sine wave SVPWM, 2-phase or 3-phase modulation, switching frequency 1K~16KHZ adjustable, five control modes - V/F / V/F + closed loop / V/F sensorless / Flux vector control + closed loop / Flux vector sensorless.
	Max. output frequency	0.0~400.0Hz
	Frequency precision (temperature fluctuation)	Digital signal : ±0.1%(10°C~+40°C) , Analog signal : ±0.1%(25°C±10°C)
	Precision for frequency setup	Digital signal : 0.1Hz(0.0~400.00Hz) , Analog signal : 0.1/60.0Hz
	Precision for speed regulation	Voltage sensor-less vector : > 10Hz : ± 1.0% , V/F : ± 3.0% ~ 5.0%
	Acceleration / deceleration time	0.0~30000(seconds), acceleration/deceleration can be governed by 4 types of adjustment respectively and portioned out into 16 stages of speed for application.
	Control functions	40 display functions, 8 rpm command sources, Torque Limit, zero-speed vector control, variable and constant torque control, selection of sink and source, upper & lower frequency setup, AVR function, S-curve, multiplexing input, output terminal control, 16 preset stages for speed regulation, hopping frequency, Auto-Tuning, detection & measurement of static and dynamic motor parameters, slip compensation, Torque compensation, dual PID functions, DC brake at on/off, multistage operation functions, RS485/Modbus communication, automatic operation function, energy-saving operation, built-in copy function.
	Signal for frequency setup	DC 0 ~ ±10V , DC 0 ~ +10V , 4 ~ 20mA, puls command input by PG card
	Brake torque	20% approximately, 125% with brake controller mounted.
	Control functions	Digital operation panel, speed regulation, sensor-less flux control, PID control, multistage speed control, etc.
Protection functions	Motor protection	Integral electronic thermal relay protections.
	Over-current protection	Will trip at over-current protection to enable a free run of motor when exceeding the 200% rated current
	Overload ability of ac drive	Motor rated output current exceeds the 150%, cumulative time 1 minutes free running stop.
	Over-voltage protection	Over-voltage level: Vdc > 400V(200V~240Vclass) / Vdc > 800V(380V~480Vclass)
	Low-voltage protection	Low-voltage level: Vdc < 180V(200V~240Vclass) / Vdc < 380V(380V~480Vclass)
	Power supply protection	Under phase protection for input power supply (equipped for ac drive with a power above 5.5KW), under phase protection for output (equipped for ac drive with a power above 0.4KW)
	Superheating heat radiation fins	Thermal coupler protection 85°C ±5°C
	Stall protection	To protect the device from stall during acceleration/deceleration and operation.
	Grounding protection	To protect electronic circuits.
	Charging indication	Charging indicator will be turned "ON" when the DC voltage of main circuit is over 50V.
Environment conditions	Place used	Indoor places free of corrosion or dusts.
	Ambient temperature	-10°C ~ +45°C (Lock wall-mounting model), -10°C ~ +50°C (open model) free of freezing condition
	Storage temperature (Note 1)	-20°C ~ +60°C
	Humidity	Below 95% RH (no condensation condition)
Vibration	20Hz ≤ 1G, 20 ~ 50Hz 0.2G	

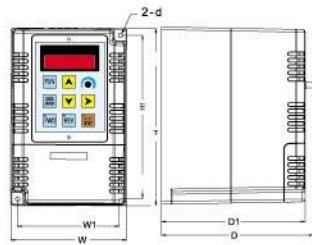
※ Note 1 : A too high storage temperature may damage the capacitor of main circuit.

Outside Dimension Chart UNIT: m/m

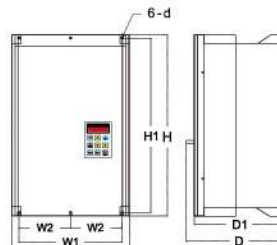
Digital operator (KP-AD20)



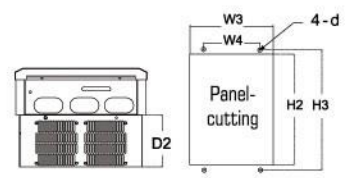
(Figure A)



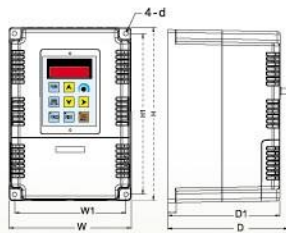
(Figure B)



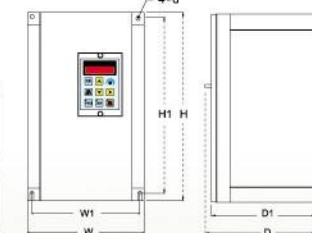
(Figure C)



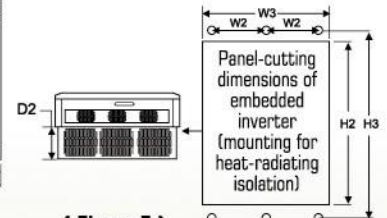
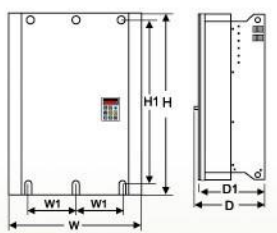
(Figure E)



(Figure D)



(Figure F)



(Figure H)

200V series Dimensions

Drawing No.	Applicable motor capacity (HP)/(KW)	Roughing-in dimensions (mm)			Constant dimensions (mm)				ϕ	Holing, constant dimensions (mm)					Net weight (kg)	Gross weight (kg)	Measurement
		W	H	D	W1	W2	H1	D1		d	W3	W4	H2	H3			
A	KP-AD 20	70.9	102	25.8	—	—	93	15.8	3.5	65.3	—	84.5	—	—	0.066	0.072	—
B	0.5 / 0.4	114	172	146	101	—	159	136	5.3	—	—	—	—	—	1.9	1.9	2
	1 / 0.75																
	2 / 1.5																
C	5 / 3.7	152	214	146	137.5	—	200	136	5.3	—	—	—	—	2.3	2.9	2.7	
	7.5 / 5.5																
	10 / 7.5																
D	15 / 11	188	300	180	170	—	283	170	7	—	—	—	—	7.2	8.9	1	
	20 / 15																
	25 / 18.5																
E	30 / 22	250	458	227	218	—	440	217	7	242	170	445	460	112	17.5	19	1.8
	40 / 30																
	50 / 37																
	60 / 45																
	75 / 55																
F	100 / 75	345	563	276	303	152	545	266	7	337	212	546	568	140	31.4	36.6	4.9
	125 / 90																
	150 / 110																
F	125 / 90	604	770	322	525	262	749.5	312	11	596	440	745	769	158	77.4	92.4	11.6
	150 / 110																
	150 / 110																

400V series Dimensions

Drawing No.	Applicable motor capacity (HP)/(KW)	Roughing-in dimensions (mm)			Constant dimensions (mm)				ϕ	Holing, constant dimensions (mm)					Net weight (kg)	Gross weight (kg)	Measurement
		W	H	D	W1	W2	H1	D1		d	W3	W4	H2	H3			
A	KP-AD 20	70.9	102	25.8	—	—	93	15.8	3.5	65.3	—	84.5	—	—	0.066	0.072	—
B	0.5 / 0.4	114	172	146	101	—	159	136	5.3	—	—	—	—	—	1.4	2	2
	1 / 0.75																
	2 / 1.5																
C	5 / 3.7	152	214	146	137.5	—	200	136	5.3	—	—	—	—	2.3	2.9	2.7	
	7.5 / 5.5																
	10 / 7.5																
D	15 / 11	188	300	180	170	—	283	170	7	—	—	—	—	7.2	8.9	1	
	20 / 15																
	25 / 18.5																
E	30 / 22	250	458	227	218	—	440	217	7	242	170	445	460	112	17.6	19	1.8
	40 / 30																
	50 / 37																
	60 / 45																
	75 / 55																
F	100 / 75	345	563	276	303	152	545	266	7	337	212	546	568	140	31.2	36.4	4.9
	125 / 90																
	150 / 110																
F	175 / 132	604	770	322	525	262	749.5	312	11	596	440	745	769	158	78.3	93.3	11.6
	200 / 160																
	250 / 185																
	300 / 200																
	375 / 280																
	425/315, 475/355, 540/400																
Confirmed to us																	
Confirmed to us																	

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