

HPB HPB MOTION CONTROL CO., LTD.

VMM *SERIES*

**AC INDUCTION SERVOMOTOR
AC SPINDLE MOTOR**



**HIGH PERFORMANCE
AND FINE ACCURACY**





The VM Series AC INDUCTION SERVOMOTOR AC SPINDLE MOTOR

are specially designed to operate with Closed Loop Flux Vector Drive which are capable for high performance for most of Industrial applications.



*FEATURES

- FULLY LAMINATED YOKE, HIGH OUTPUT TORQUE WITH COMPACT SIZE
- LOW ROTOR INERTIA, FAST RESPONSE
- INDUCTION MOTOR WITH SQUIRREL CAGE, MAINTENANCE FREE
- HIGH OPERATION SPEED RANGE (UP TO 8000RPM)
- GOOD RELIABILITY AND STABILITY
- AVAILABLE FOR CONTINUOUS & PEAK TORQUE AT STANDSTILL
- HIGH OVERLOAD CAPABILITY

*APPLICATIONS

- | | |
|---|---|
| <ul style="list-style-type: none">• INJECTION MOLDING MACHINE• BLOW MOLDING MACHINE• TESTING MACHINE• WINDER• PRESS FEEDER• ROTARY CUTTER• TRAVERSER• PLANER | <ul style="list-style-type: none">• TEXTILE• PRINTING MACHINE• MACHINE TOOL• ROBOTIC• HANDLING SYSTEM• CUT TO LENGTH• PACKAGING MACHINE• FLY SHEAR |
|---|---|



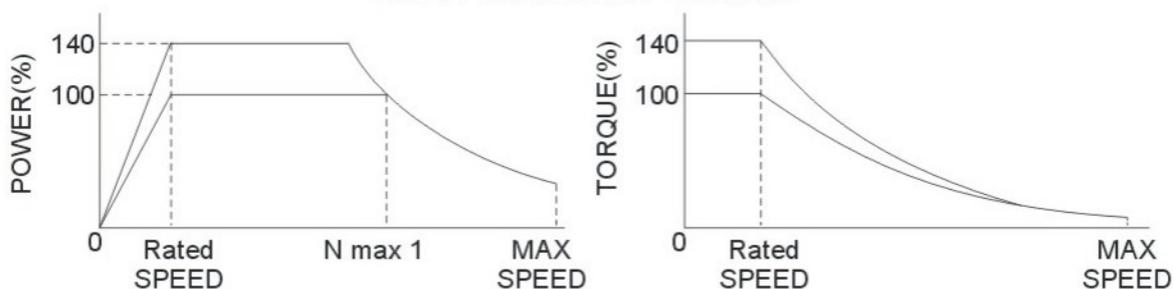
- Protection Level
IP54 for Frame Size 80,90,100,132,160, 180, 225
IP23 for Frame Size 132,160, 180, 225
- Mounting: B35 (Except Frame 225 is B3 only)
- Ambient Temperature: 0 ~ 40 °C
- Ambient Humidity: 20 ~ 90% (non-condensing)
- Insulation Class: F
- Dielectric Voltage: 1500Vac, 1minute
- Thermal Protection: Thermal Switch
- Altitude: 1000M Seal Level
- Speed Feedback:
+5V, TTL Line Driver 1024PPR Encoder
- Ventilation: Forced Air Cooling
- Insulation Resistance: 10MΩ or more at 500VDC
- Bearing: Ball Bearing
- Drive Method: Direct drive
(To consider radial load in Belt Drive)

- Fan Motor: 1Φ 220VAC, 50/60Hz

OPTIONS

- H Class insulation
- Resolver
- Special Encoder
- Special Shaft
- Special Flange
- Special Mounting
- Special Color
- Special Voltage
- Special Speed

CHARACTERISTIC CURVES



The data shown in the above sheets refer to 4-pole motors with basic frequency of 50 Hz and basic speed of 1500 rpm.

The characteristic power curve applies only when the motor is powered at the basic speed by the voltage indicated and at a max. speed corresponding to 380 Volt or higher (see diagram for voltage regulation).

For other voltages, the regulation range at constant power may be reduced.

On request, motors with basic speeds different from 1000,1500,2000RPM.

The DATA which are shown on the charts, refer to motors powered with nominal voltage and frequency.

The power/torque rates on the shaft are to be understood for continuous and intermittent S1-S6 duty cycle, ambient temperature of 40°C, altitude not more than 1000 meters above sea-level.

In the operations at constant torque (until the Nominal speed) the motor flux is maintained constant so as to maximize the torque constant and to obtain a system ready for the load change.

In order to obtain this the E/F ratio is maintained constant therefore the torque depends directly from the rotor current. It is necessary to point out that "E" voltage is not the power supply voltage of the motor but differs from this in the voltage drop due to the resistance and to the stator leakage inductance.

The upper speed limit of this operation mode is determined by the voltage available from the converter beyond which the E/F ratio cannot be kept constant and consequently the flux decreases;The operation range besides the nominal speed is named "field weakening zone" for the flux reduction due to the frequency increase without the relative increase of the voltage. As indicated above between and MAX SPEED the nominal power of the motor is available: the flux decreases when the speed increases but at the same time even the load torque decreases in the same way, From the mentioned relations you can note that the rotor current remains constant as well as the induced voltage of the machine. The voltage at the motor does not remain constant but increases especially at high field weakening ratio:it is logical consequence that the value of nmax1 is defined from the value of available voltage.



3 φ 、 230VAC 、 IP54 、 IC416 、 w/1024PPR Line Drive Encoder

FRAME	Rated (RPM)	Rated Output (KW)	Rated Torque (NM)	MAX Torque (NM)	Rated Current (A)	HZ	Eff. (%)	Constant Power Max Speed	MAX Speed (RPM)	Rotor Inertia (Kg-cm ²)	Weight (Kg)
80S	1000	0.63	6.0	16	2.53	33.3	82	3000	8000	30	23
	1500	0.89	5.7	16	3.55	50	83	3750	8000	30	23
	2000	1.13	5.4	16	4.33	66.7	84	4400	8000	30	23
	3000	1.51	4.8	16	5.78	100	84	6300	8000	30	23
90S	1000	1.10	10.5	32	4.37	33.3	82	3000	8000	40	26
	1500	1.57	10.0	32	6.01	50	83	3750	8000	40	26
	2000	1.99	9.5	32	7.62	66.7	83	4400	8000	40	26
	3000	2.67	8.5	32	10.22	100	83	6300	8000	40	26
90M	1000	1.68	16.0	47	6.41	33.3	82	3000	8000	49	30
	1500	2.36	15.0	47	8.69	50	83	3750	8000	49	30
	2000	3.02	14.4	47	10.86	66.7	83	4400	8000	49	30
	3000	3.96	12.6	47	14.43	100	82	6300	8000	49	30
90L	1000	2.93	28.0	79	10.56	33.3	84	3000	8000	68	38
	1500	4.08	26.0	79	14.33	50	85	3750	8000	68	38
	2000	5.17	24.7	79	17.38	66.7	86	4400	8000	68	38
	3000	6.91	22.0	79	23.46	100	85	6300	8000	68	38
100S	580	2.43	40.0	117	9.91	19.3	76	1700	8000	123	51
	1000	3.98	38.0	117	14.50	33.3	83	3000	8000	123	51
	1500	5.73	36.5	117	20.30	50	85	3750	8000	123	51
	2000	7.25	34.6	117	24.89	66.7	86	4400	8000	123	51
100M	580	3.80	62.5	159	15.28	19.3	77	1700	8000	177	68
	1000	6.24	59.6	159	22.47	33.3	84	3000	8000	177	68
	1500	8.92	56.8	159	30.78	50	86	3750	8000	177	68
	2000	11.83	56.5	159	40.12	66.7	86	4400	8000	177	68
100L	580	14.95	47.6	159	50.76	100	86	6300	8000	177	68
	580	5.56	91.6	233	21.56	19.3	79	1700	8000	203	83
	1000	9.16	87.5	233	32.60	33.3	85	3000	8000	203	83
	1500	13.08	83.3	233	45.03	50	86	3750	8000	203	83
100L	2000	17.38	83.0	233	57.39	66.7	86	4400	8000	203	83
	3000	24.79	78.9	233	82.22	100	86	6300	8000	203	83
	580	7.59	125.0	318	28.00	19.3	83	1700	8000	415	105
	1000	12.57	120.0	318	42.20	33.3	89	3000	8000	415	105
132S	1500	17.37	110.6	318	55.12	50	92	3750	8000	415	105
	2000	22.03	105.2	318	68.36	66.7	93	4400	8000	415	105
	3000	29.34	93.4	318	91.04	100	93	6300	8000	415	105
	580	9.35	154.0	392	33.68	19.3	84	1700	8000	490	120
132M	1000	15.39	147.0	392	48.88	33.3	93	3000	8000	490	120
	1500	22.00	140.0	392	67.52	50	94	3750	8000	490	120
	2000	27.75	132.5	392	83.27	66.7	94	4400	8000	490	120
	3000	37.26	118.6	392	111.80	100	94	6300	8000	490	120
132L	580	11.11	183.0	467	40.51	19.3	84	1700	8000	670	152
	1000	18.33	175.0	467	60.18	33.3	91	3000	8000	670	152
	1500	26.17	166.6	467	81.20	50	93	3750	8000	670	152
	2000	33.18	158.4	467	98.44	66.7	94	4400	8000	670	152
132L	3000	44.83	142.7	467	133.02	100	94	6300	8000	670	152
	580	13.79	227.0	636	49.06	19.3	85	1700	8000	835	178
	1000	22.93	219.0	636	72.83	33.3	93	3000	8000	835	178
	1500	32.61	207.6	636	100.10	50	94	3750	8000	835	178
132X	2000	40.84	195.0	636	121.26	66.7	95	4400	8000	835	178
	3000	56.08	178.5	636	168.27	100	94	6300	8000	835	178

3 φ 、 400VAC 、 IP54 、 IC416 、 w/1024PPR Line Drive Encoder

80S	1000	0.63	6.0	16	1.47	33.3	82	3000	8000	30	23
	1500	0.89	5.7	16	2.04	50	83	3750	8000	30	23
	2000	1.13	5.4	16	2.49	66.7	84	4400	8000	30	23
	3000	1.51	4.8	16	3.32	100	84	6300	8000	30	23
90S	1000	1.10	10.5	32	2.51	33.3	82	3000	8000	40	26
	1500	1.57	10.0	32	3.46	50	83	3750	8000	40	26
	2000	1.99	9.5	32	4.38	66.7	83	4400	8000	40	26
	3000	2.67	8.5	32	5.88	100	83	6300	8000	40	26



3 ϕ 、400VAC 、IP54 、IC416 、w/1024PPR Line Drive Encoder

FRAME	Rated (RPM)	Rated Output (KW)	Rated Torque (NM)	MAX Torque (NM)	Rated Current (A)	HZ	Eff. (%)	Constant Power Max Speed	MAX Speed (RPM)	Rotor Inertia (Kg-cm ²)	Weight (Kg)
90M	1000	1.68	16.0	47	3.69	33.3	82	3000	8000	49	30
	1500	2.36	15.0	47	5.00	50	83	3750	8000	49	30
	2000	3.02	14.4	47	6.24	66.7	83	4400	8000	49	30
	3000	3.96	12.6	47	8.30	100	82	6300	8000	49	30
90L	1000	2.93	28.0	79	6.14	33.3	84	3000	8000	68	38
	1500	4.08	26.0	79	8.24	50	85	3750	8000	68	38
	2000	5.17	24.7	79	9.99	66.7	86	4400	8000	68	38
	3000	6.91	22.0	79	13.49	100	85	6300	8000	68	38
100S	580	2.43	40.0	117	5.77	19.3	76	1700	8000	123	51
	1000	3.98	38.0	117	8.44	33.3	83	3000	8000	123	51
	1500	5.73	36.5	117	11.68	50	85	3750	8000	123	51
	2000	7.25	34.6	117	14.31	66.7	86	4400	8000	123	51
100M	580	3.80	62.5	159	8.79	19.3	77	1700	8000	177	68
	1000	6.24	59.6	159	13.08	33.3	84	3000	8000	177	68
	1500	8.92	56.8	159	17.70	50	86	3750	8000	177	68
	2000	11.83	56.5	159	23.07	66.7	86	4400	8000	177	68
100L	580	5.56	91.6	233	12.55	19.3	79	1700	8000	203	83
	1000	9.16	87.5	233	18.75	33.3	85	3000	8000	203	83
	1500	13.08	83.3	233	25.89	50	86	3750	8000	203	83
	2000	17.38	83.0	233	33.00	66.7	86	4400	8000	203	83
132S	580	7.59	125.0	318	16.10	19.3	83	1700	8000	415	105
	1000	12.57	120.0	318	24.26	33.3	89	3000	8000	415	105
	1500	17.37	110.6	318	31.69	50	92	3750	8000	415	105
	2000	22.03	105.2	318	39.31	66.7	93	4400	8000	415	105
132M	580	9.35	154.0	392	19.60	19.3	84	1700	8000	490	120
	1000	15.39	147.0	392	28.11	33.3	93	3000	8000	490	120
	1500	22.00	140.0	392	38.83	50	94	3750	8000	490	120
	2000	27.75	132.5	392	47.88	66.7	94	4400	8000	490	120
132L	580	11.11	183.0	467	23.29	19.3	84	1700	8000	670	152
	1000	18.33	175.0	467	34.20	33.3	91	3000	8000	670	152
	1500	26.17	166.6	467	46.69	50	93	3750	8000	670	152
	2000	33.18	158.4	467	56.60	66.7	94	4400	8000	670	152
132X	580	13.79	227.0	636	28.90	19.3	85	1700	8000	835	178
	1000	22.93	219.0	636	42.37	33.3	93	3000	8000	835	178
	1500	32.61	207.6	636	57.56	50	94	3750	8000	835	178
	2000	40.84	195.0	636	69.72	66.7	95	4400	8000	835	178
160S	580	16.70	275.0	625	36.33	19.3	84	1700	6000	1000	240
	1000	27.75	265.0	625	52.53	33.3	93	3000	6000	1000	240
	1500	39.27	250.0	625	70.12	50	94	3750	6000	1000	240
	2000	50.27	240.0	625	87.78	66.7	95	4400	6000	1000	240
160M	580	19.44	320.0	725	41.26	19.3	85	1700	6000	1300	280
	1000	31.94	305.0	725	60.37	33.3	92	3000	6000	1300	280
	1500	45.55	290.0	725	82.29	50	94	3750	6000	1300	280
	2000	58.64	280.0	725	102.53	66.7	96	4400	6000	1300	280
160L	580	21.38	352.0	800	44.82	19.3	85	1700	6000	1500	330
	1000	35.08	335.0	800	65.52	33.3	92	3000	6000	1500	330
	1500	50.27	320.0	800	89.75	50	94	3750	6000	1500	330
	2000	60.74	290.0	800	104.87	66.7	95	4400	6000	1500	330
	3000	86.39	275.0	800	149.17	100	95	6000	6000	1500	330



3 φ 、 400VAC 、 IP54 、 IC416 、 w/1024PPR Line Drive Encoder

FRAME	Rated (RPM)	Rated Output (KW)	Rated Torque (NM)	MAX Torque (NM)	Rated Current (A)	HZ	Eff. (%)	Constant Power Max Speed	MAX Speed (RPM)	Rotor Inertia (Kg-cm ²)	Weight (Kg)
180S	580	26.72	440.0	880	54.79	19.3	88	1700	5000	2500	450
	1000	40.98	391.3	880	78.40	33.3	92	3000	5000	2500	450
	1500	56.63	360.5	880	98.90	50	95	3750	5000	2500	450
	2000	71.78	342.7	880	121.26	66.7	96	4400	5000	2500	450
	3000	96.67	307.7	880	161.85	100	96	5000	5000	2500	450
180M	580	34.01	560.0	1111	68.95	19.3	89	1700	5000	3300	540
	1000	57.60	550.0	1111	110.36	33.3	93	3000	5000	3300	540
	1500	79.33	505.0	1111	146.57	50	93	3750	5000	3300	540
	2000	98.44	470.0	1111	175.76	66.7	94	4400	5000	3300	540
	3000	134.96	429.6	1111	238.44	100	95	5000	5000	3300	540
180L	580	38.87	640.0	1261	78.80	19.3	89	1700	4500	3960	570
	1000	64.93	620.0	1261	122.89	33.3	93	3000	4500	3960	570
	1500	90.01	573.0	1261	162.44	50	93	3750	4500	3960	570
	2000	117.29	560.0	1261	202.50	66.7	95	4400	4500	3960	570
	3000	152.49	485.4	1261	260.33	100	95	4500	4500	3960	570
225S	580	40.39	665.0	1200	80.08	19.3	91	1700	4000	8000	600
	1000	68.07	650.0	1200	130.24	33.3	92	3000	4000	8000	600
	1500	99.12	631.0	1200	177.17	50	95	3750	4000	8000	600
	2000	125.66	600.0	1200	217.18	66.7	96	4000	4000	8000	600
	3000	169.65	540.0	1200	289.62	100	95	4000	4000	8000	600
225M	580	55.88	920.0	1680	112.02	19.3	90	1700	4000	10000	810
	1000	94.25	900.0	1680	184.56	33.3	91	3000	4000	10000	810
	1500	131.95	840.0	1680	246.45	50	92	3750	4000	10000	810
	2000	157.08	750.0	1680	280.23	66.7	93	4000	4000	10000	810
	3000	224.62	715.0	1680	383.25	100	94	4000	4000	10000	810
225L	580	78.35	1290.0	2400	159.06	19.3	90	1700	4000	12000	1050
	1000	123.57	1180.0	2400	242.34	33.3	92	3000	4000	12000	1050
	1500	172.79	1100.0	2400	319.67	50	94	3750	4000	12000	1050
	2000	226.20	1080.0	2400	400.12	66.7	96	4000	4000	12000	1050
	3000	292.17	930.0	2400	499.20	100	96	4000	4000	12000	1050

3 φ 、 230VAC 、 IP23 、 IC06 、 w/1024PPR Line Drive Encoder

132S	580	9.72	160.0	406	38.14	19.3	82	1700	8000	415	120
	1000	15.92	152.0	406	55.50	33.3	90	3000	8000	415	120
	1500	22.78	145.0	406	74.74	50	90	3750	8000	415	120
	2000	29.95	143.0	406	91.82	66.7	92	4400	8000	415	120
	3000	42.73	136.0	406	129.58	100	93	6300	8000	415	120
132M	580	12.75	210.0	535	48.83	19.3	83	1700	8000	490	135
	1000	20.94	200.0	535	70.55	33.3	92	3000	8000	490	135
	1500	30.00	191.0	535	96.31	50	92	3750	8000	490	135
	2000	38.75	185.0	535	121.52	66.7	92	4400	8000	490	135
	3000	55.29	176.0	535	169.60	100	93	6300	8000	490	135
132L	580	16.10	265.0	672	62.47	19.3	84	1700	8000	670	167
	1000	29.95	286.0	672	102.33	33.3	93	3000	8000	670	167
	1500	39.58	252.0	672	127.20	50	93	3750	8000	670	167
	2000	50.27	240.0	672	157.77	66.7	93	4400	8000	670	167
	3000	72.26	230.0	672	221.63	100	93	6300	8000	670	167
132X	580	19.44	320.0	801	74.47	19.3	84	1700	8000	835	193
	1000	31.42	300.0	801	106.00	33.3	93	3000	8000	835	193
	1500	44.92	286.0	801	141.14	50	94	3750	8000	835	193
	2000	58.64	280.0	801	174.01	66.7	94	4400	8000	835	193
	3000	84.19	268.0	801	249.83	100	94	6300	8000	835	193

3 φ 、 400VAC 、 IP23 、 IC06 、 w/1024PPR Line Drive Encoder

132S	580	9.72	160.0	406	21.93	19.3	82	1700	8000	415	120
	1000	15.92	152.0	406	31.91	33.3	90	3000	8000	415	120
	1500	22.78	145.0	406	42.98	50	90	3750	8000	415	120
	2000	29.95	143.0	406	52.80	66.7	92	4400	8000	415	120
	3000	42.73	136.0	406	74.51	100	93	6300	8000	415	120

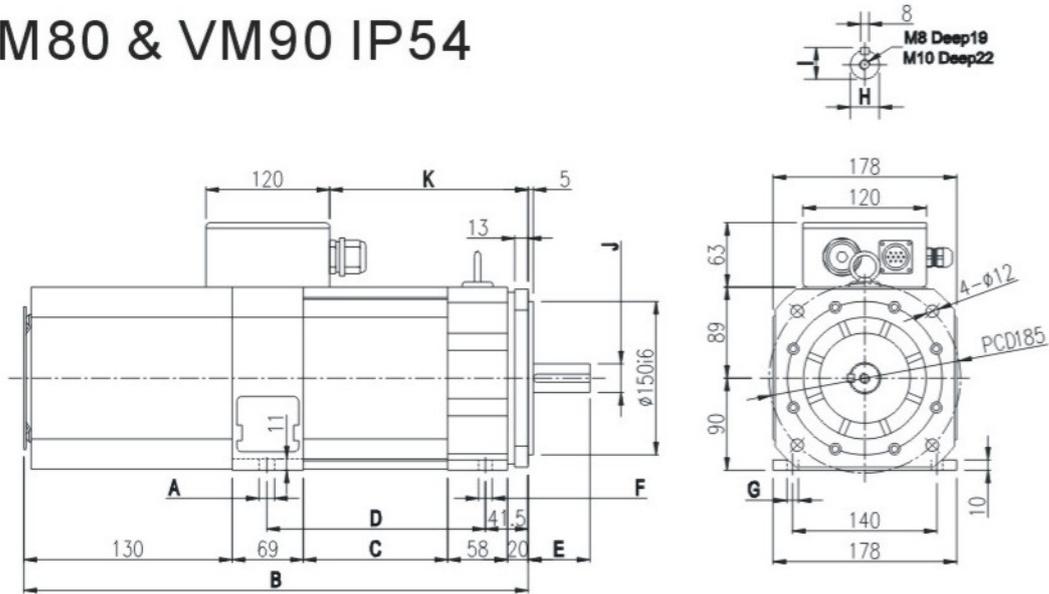


3 ϕ 、400VAC 、IP23 、IC06 、w/1024PPR Line Drive Encoder

FRAME	Rated (RPM)	Rated Output (KW)	Rated Torque (NM)	MAX Torque (NM)	Rated Current (A)	HZ	Eff. (%)	Constant Power Max Speed	MAX Speed (RPM)	Rotor Inertia (Kg-cm ²)	Weight (Kg)
132 M	580	12.75	210.0	535	28.08	19.3	83	1700	8000	490	135
	1000	20.94	200.0	535	40.57	33.3	92	3000	8000	490	135
	1500	30.00	191.0	535	55.38	50	92	3750	8000	490	135
	2000	38.75	185.0	535	69.87	66.7	92	4400	8000	490	135
	3000	55.29	176.0	535	97.52	100	93	6300	8000	490	135
132 L	580	16.10	265.0	672	35.46	19.3	84	1700	8000	670	167
	1000	29.95	286.0	672	58.84	33.3	93	3000	8000	670	167
	1500	39.58	252.0	672	73.14	50	93	3750	8000	670	167
	2000	50.27	240.0	672	90.72	66.7	93	4400	8000	670	167
	3000	72.26	230.0	672	127.44	100	93	6300	8000	670	167
132 X	580	19.44	320.0	801	42.28	19.3	84	1700	8000	835	193
	1000	31.42	300.0	801	60.95	33.3	93	3000	8000	835	193
	1500	44.92	286.0	801	81.16	50	94	3750	8000	835	193
	2000	58.64	280.0	801	100.06	66.7	94	4400	8000	835	193
	3000	84.19	268.0	801	143.65	100	94	6300	8000	835	193
160 S	580	27.33	450.0	902	58.02	19.3	85	1700	6000	1000	260
	1000	45.03	430.0	902	87.10	33.3	91	3000	6000	1000	260
	1500	64.40	410.0	902	119.00	50	93	3750	6000	1000	260
	2000	81.68	390.0	902	141.03	66.7	95	4400	6000	1000	260
	3000	116.24	370.0	902	196.37	100	96	6000	6000	1000	260
160 M	580	30.07	495.0	968	62.30	19.3	86	1700	6000	1300	315
	1000	50.27	480.0	968	97.36	33.3	92	3000	6000	1300	315
	1500	69.12	440.0	968	127.87	50	94	3750	6000	1300	315
	2000	87.96	420.0	968	152.02	66.7	96	4400	6000	1300	315
	3000	125.66	400.0	968	214.71	100	96	6000	6000	1300	315
160 L	580	34.01	560.0	1166	70.54	19.3	87	1700	6000	1500	370
	1000	57.60	550.0	1166	110.20	33.3	92	3000	6000	1500	370
	1500	83.25	530.0	1166	152.02	50	93	3750	6000	1500	370
	2000	98.44	470.0	1166	169.96	66.7	95	4400	6000	1500	370
	3000	138.23	440.0	1166	228.55	100	97	6000	6000	1500	370
180 S	580	42.52	700.0	1260	85.23	19.3	90	1700	5000	2500	470
	1000	64.40	615.0	1260	124.75	33.3	92	3000	5000	2500	470
	1500	81.68	520.0	1260	152.74	50	93	3750	5000	2500	470
	2000	104.72	500.0	1260	184.83	66.7	94	4400	5000	2500	470
	3000	141.37	450.0	1260	241.35	100	95	5000	5000	2500	470
180 M	580	52.11	858.0	1560	103.18	19.3	90	1700	5000	3300	560
	1000	89.01	850.0	1560	170.31	33.3	92	3000	5000	3300	560
	1500	122.52	780.0	1560	223.72	50	93	3750	5000	3300	560
	2000	146.61	700.0	1560	255.82	66.7	94	4400	5000	3300	560
	3000	208.92	665.0	1560	356.45	100	94	5000	5000	3300	560
180 L	580	55.27	910.0	1656	108.23	19.3	91	1700	5000	4500	620
	1000	94.98	907.0	1656	179.78	33.3	93	3000	5000	4500	620
	1500	130.06	828.0	1656	234.73	50	93	3750	5000	4500	620
	2000	170.07	812.0	1656	296.75	66.7	94	4400	5000	4500	620
	3000	242.22	771.0	1656	413.26	100	94	5000	5000	4500	620
225 S	580	63.77	1050.0	1530	127.69	19.3	89	1700	4000	8000	650
	1000	130.90	1250.0	1530	247.44	33.3	92	3000	4000	8000	650
	1500	172.79	1100.0	1530	322.73	50	92	3750	4000	8000	650
	2000	219.91	1050.0	1530	392.66	66.7	94	4000	4000	8000	650
	3000	292.17	930.0	1530	498.49	100	94	4000	4000	8000	650
225 M	580	85.03	1400.0	2159	170.26	19.3	89	1700	4000	10000	870
	1000	143.47	1370.0	2159	271.19	33.3	92	3000	4000	10000	870
	1500	199.49	1270.0	2159	364.26	50	93	3750	4000	10000	870
	2000	238.76	1140.0	2159	417.43	66.7	96	4000	4000	10000	870
	3000	340.24	1083.0	2159	587.02	100	94	4000	4000	10000	870
225 L	580	109.02	1795.0	3230	218.57	19.3	90	1700	4000	12000	1150
	1000	178.02	1700.0	3230	344.82	33.3	92	3000	4000	12000	1150
	1500	259.18	1650.0	3230	474.46	50	95	3750	4000	12000	1150
	2000	335.10	1600.0	3230	579.14	66.7	96	4000	4000	12000	1150
	3000	455.53	1450.0	3230	786.51	100	95	4000	4000	12000	1150

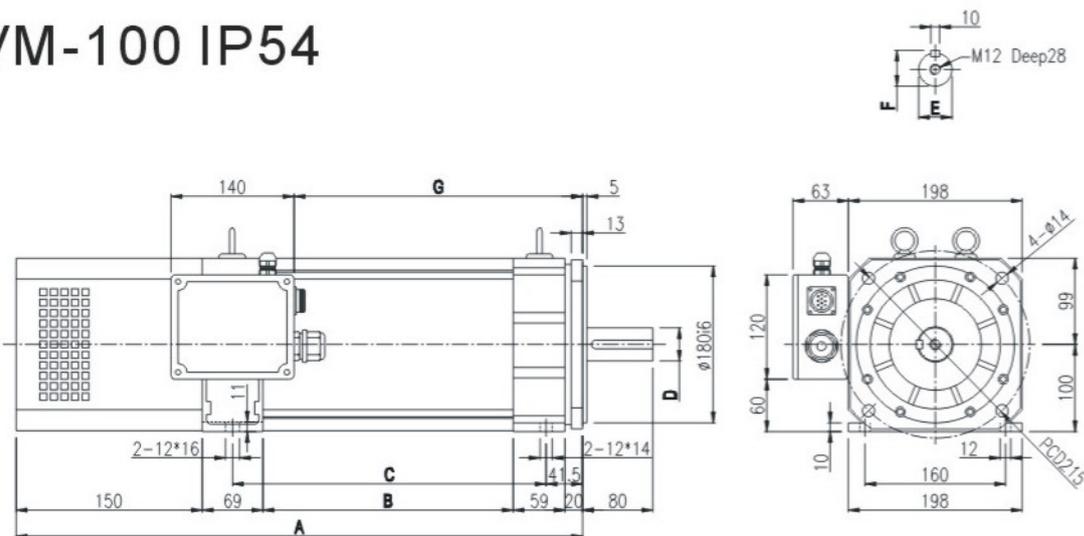


VM80 & VM90 IP54



	A	B	C	D	E	F	G	H	I	J	K
80S	2-10*14	337	60	132	50	2-10*12	10	24K5	27	24K5	112.5
90L	2-11*15	417	140	212	60	2-11*13	11	28K5	31	28K5	192.5
90M	2-10*14	377	100	172	60	2-10*12	10	28K5	31	28K5	152.5
90S	2-10*14	357	80	152	50	2-10*12	10	24K5	27	24K5	132.5

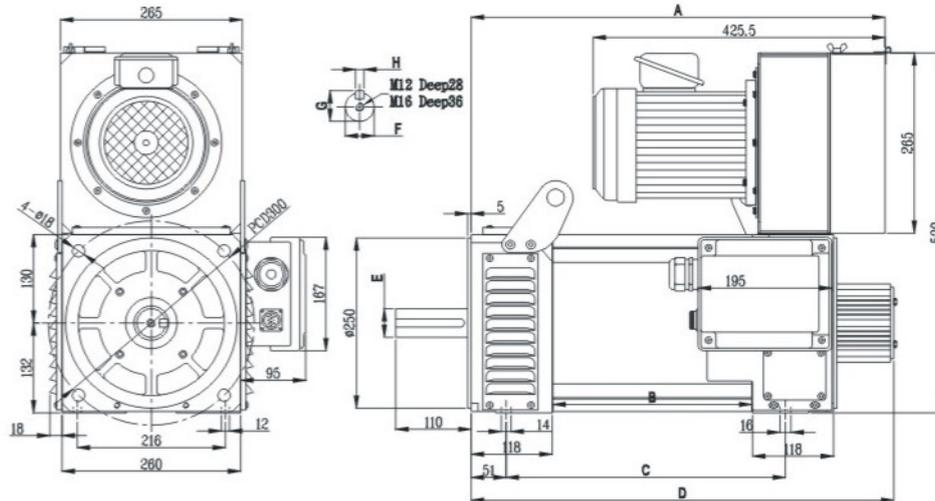
VM-100 IP54



	A	B	C	D	E	F	G
100L	583	285	357	38K6	38K6	41	328.5
100M	513	215	287	32K6	32K6	35	258.5
100S	438	140	212	32K6	32K6	35	183.5

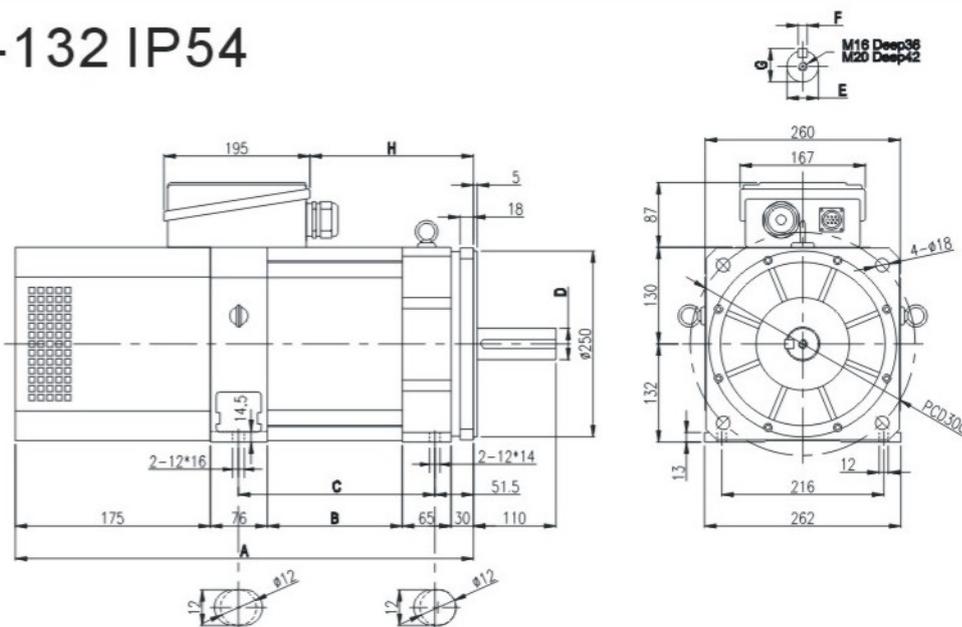


VM-132 IP23



	A	B	C	D	E	F	G	H
132L	603	290	407	616	42	42	45	12
132M	533	220	337	546	42	42	45	12
132S	493	180	297	506	42	42	45	12
132X	673	360	477	686	55	55	59	16

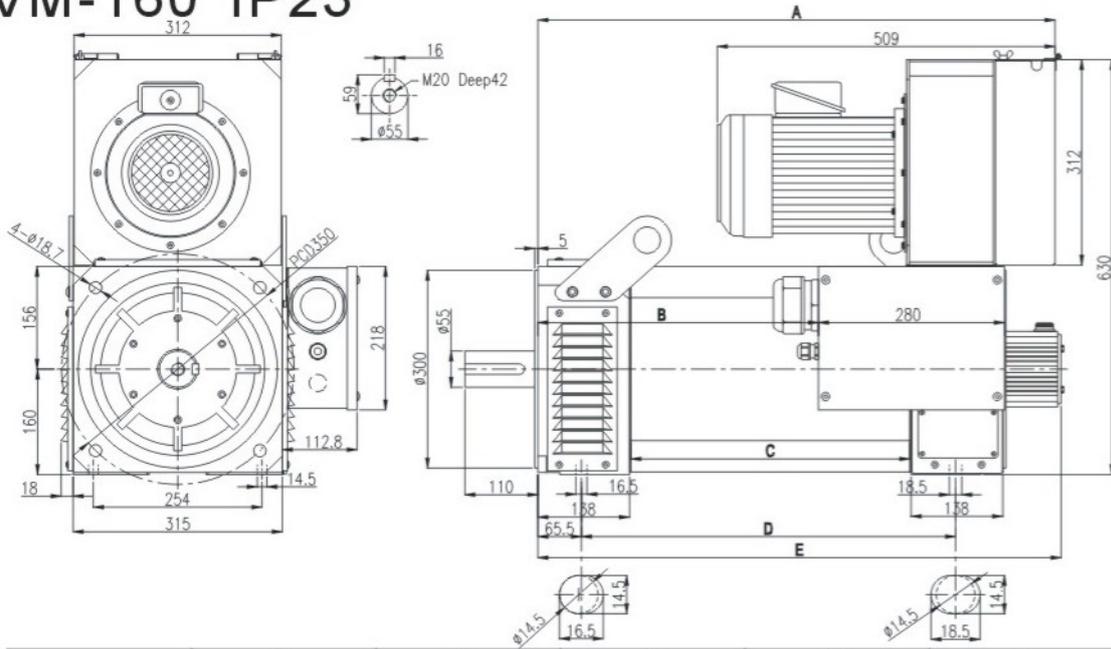
VM-132 IP54



	A	B	C	D	E	F	G	H
132L	636	290	372	42K6	42K6	12	45	328
132M	566	220	302	42K6	42K6	12	45	258
132S	526	180	262	42K6	42K6	12	45	218
132X	706	360	442	55K6	55K6	16	59	398

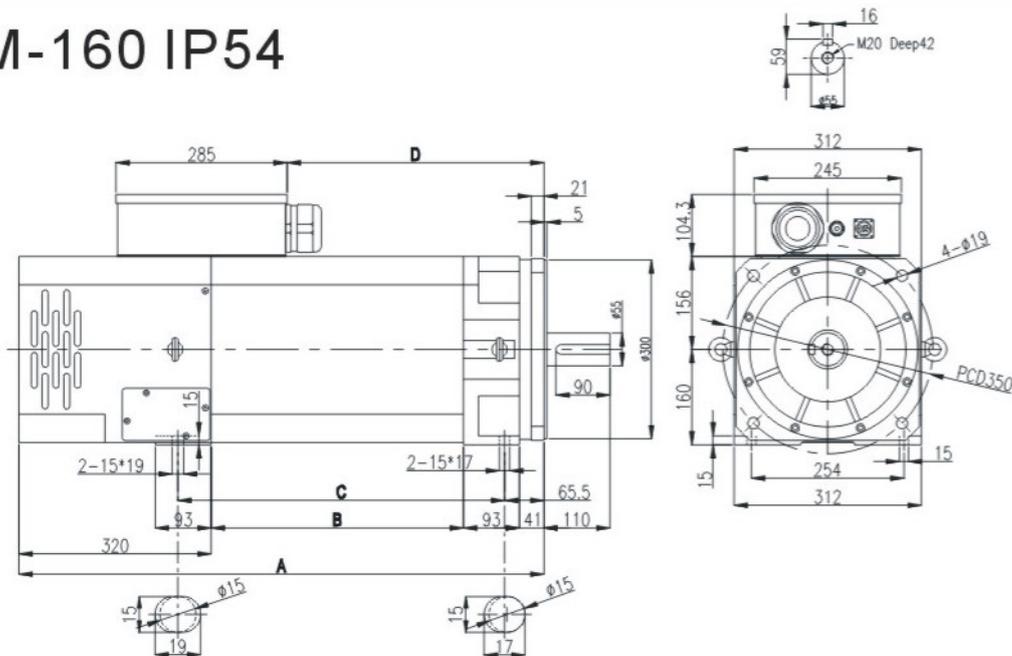


VM-160 IP23



	A	B	C	D	E
160L	779	423	420	563.5	788
160M	739	383	380	523.5	748
160S	679	323	320	463.5	688

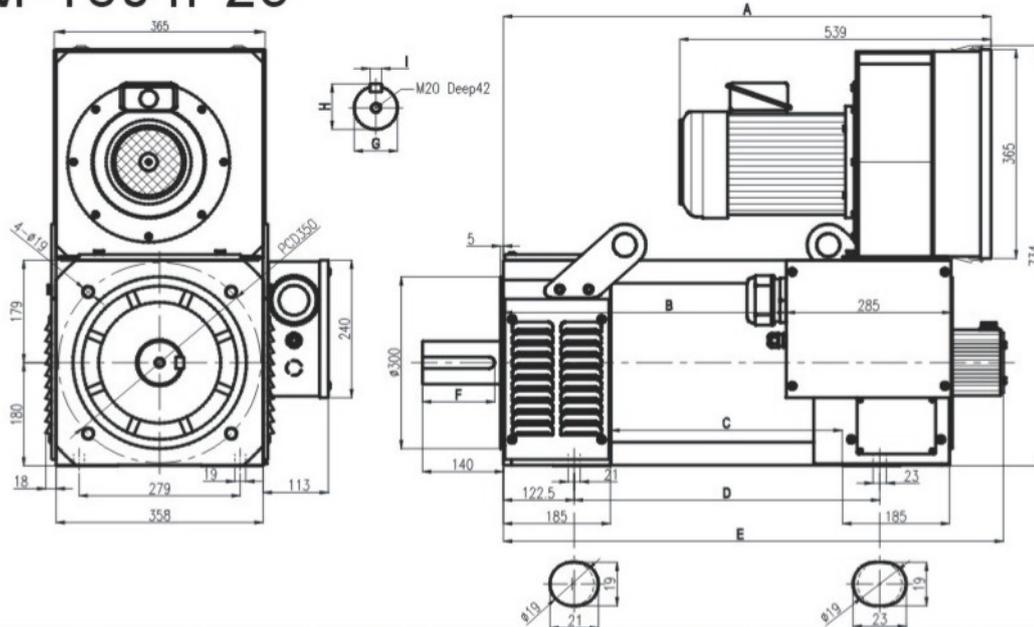
VM-160 IP54



	A	B	C	D
160L	874	420	544	427.5
160M	834	380	504	387.5
160S	774	320	444	327.5

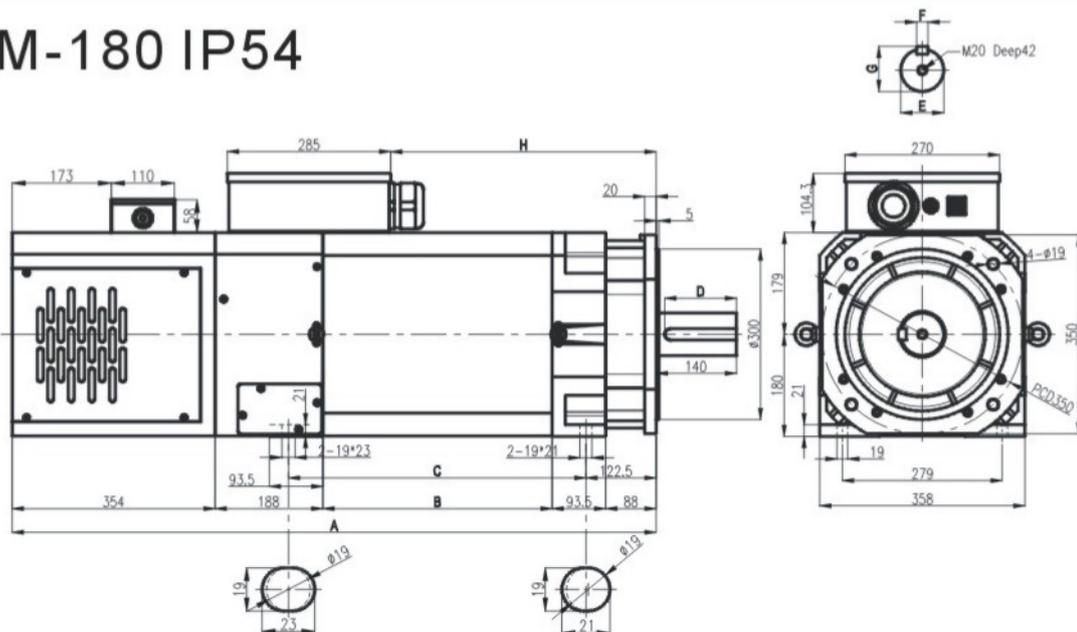


VM-180 IP23



	A	B	C	D	E	F	G	H	I
180L	844	489	400	525.8	865	125	75	79.5	20
180M	799	444	355	483.5	820	125	75	79.5	20
180S	709	354	265	393.5	730	110	60	64	18

VM-180 IP54

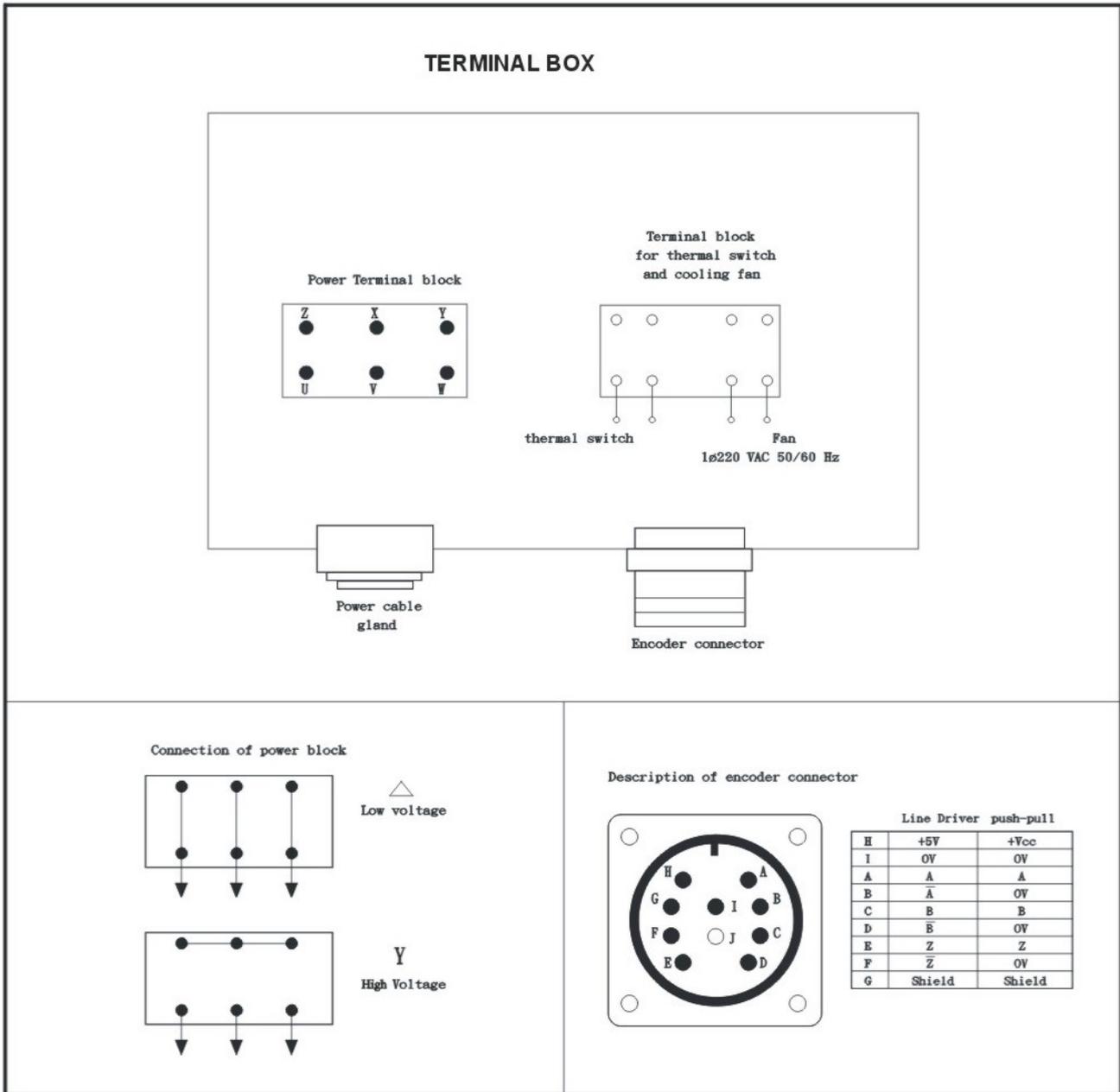


	A	B	C	D	E	F	G	H
180L	1123.5	400	519	125	75	20	79.5	463
180M	1078.5	355	474	125	75	20	79.5	418
180S	988.5	265	384	110	60	18	64	328



VM MOTOR INQUIRY FORM

INQUIRY NO. :	FRAME SIZE :	QUANTITY :
RATED OUTPUT :	RATED TORQUE : NM (CONSTANT TORQUE ZONE)	RATED SPEED : RPM (CONSTANT TORQUE ZONE)
SPEED OF CONSTANT POWER ZONE :		RPM TO RPM
MAX. SPEED :	RPM	DRIVE(SUPPLY) VOLTAGE : VAC
MOUNTING :	<input type="checkbox"/> B3 <input type="checkbox"/> B5 <input type="checkbox"/> B35	
PROTECTION :	<input type="checkbox"/> IP54 <input type="checkbox"/> IP23 <input type="checkbox"/> OTHERS _____	
ENCODER PPR :	<input type="checkbox"/> 1024PPR <input type="checkbox"/> 2048PPR <input type="checkbox"/> OTHERS _____	
ENCODER TYPE :	<input type="checkbox"/> +5V TTL <input type="checkbox"/> PUSH PULL	
	<input type="checkbox"/> NPN OPEN COLLECTOR <input type="checkbox"/> PNP NPN OPEN COLLECTOR	
	<input type="checkbox"/> OTHER _____	
VOLTAGE OF FAN :	<input type="checkbox"/> 1Φ 230VAC <input type="checkbox"/> 3Φ 380VAC <input type="checkbox"/> 3Φ 400VAC <input type="checkbox"/> OTHERS _____	
BRAKE :	<input type="checkbox"/> WITH <input type="checkbox"/> WITHOUT <input type="checkbox"/> SAFE BRAKE <input type="checkbox"/> POWER ON BRAKE	
VOLTAGE OF BRAKE :	_____	
COLOR OF THE MOTOR :	<input type="checkbox"/> HPB STANDARD <input type="checkbox"/> OTHERS _____	
POSITION OF TERMINAL BOX VIEW FROM DRIVE END	<input type="checkbox"/> RIGHT <input type="checkbox"/> LEFT <input type="checkbox"/> TOP	
POSITION OF FAN UNIT VIEW FROM DRIVE END (IP23 MOTOR)	<input type="checkbox"/> RIGHT <input type="checkbox"/> LEFT <input type="checkbox"/> TOP	



PS:IP23, IC06 MOTOR : TERMINAL BOX OF FAN MOTOR IS ON THE FAN MOTOR

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