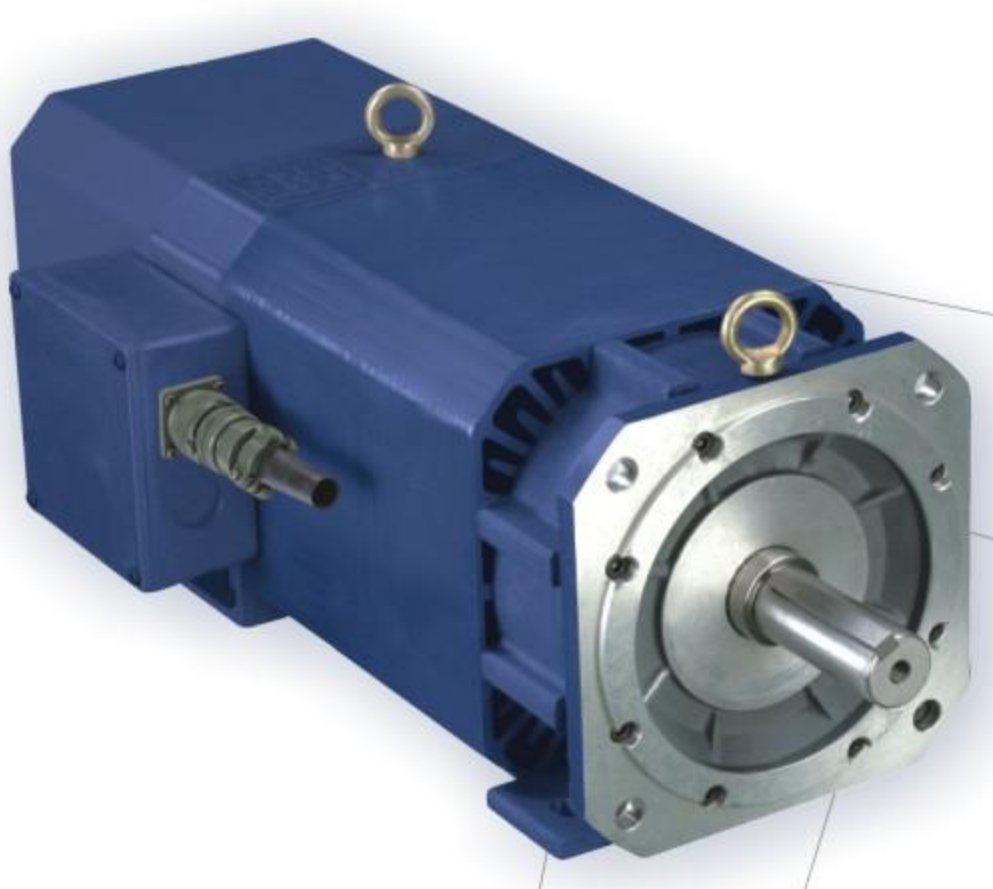
VM SERIES

AC INDUCTION SERVOMOTOR

AC SPINDLE MOTOR

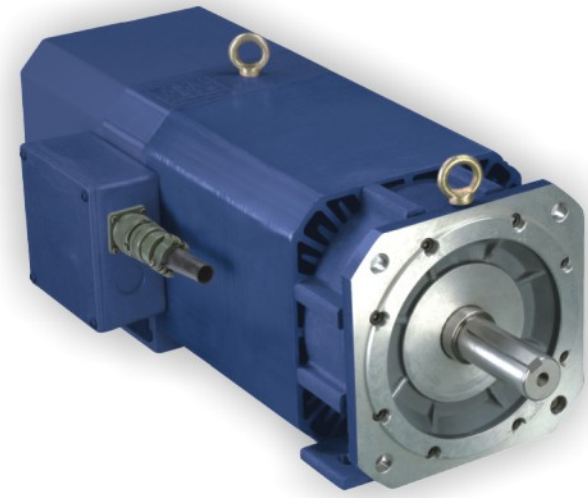


HIGH PERFORMANCE AND FINE ACCURACY

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 STABLILITY
- AVAILABLE FOR CONTINUOUS & PEAK TORQUE EVAN AT STANDSTILL
- HIGH OVERLOAD CAPABILITY

***APPLICATIONS**

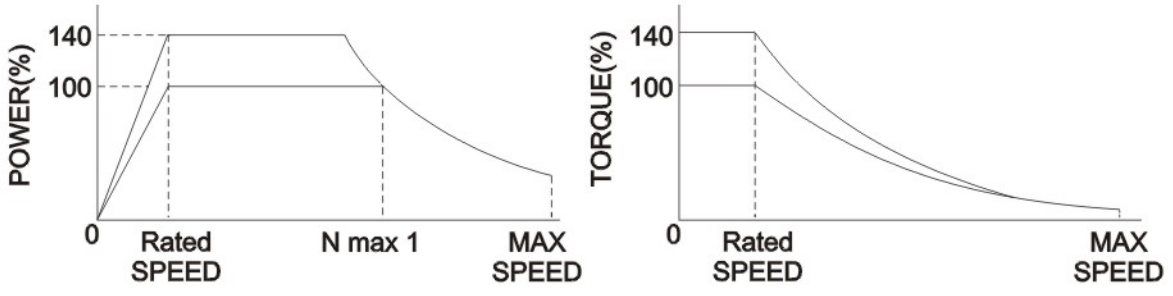
- INJECTION MOLDING MACHINE
- BLOW MOLDING MACHINE
- TESTING MACHINE
- WINDER
- PRESS FEEDER
- ROTARY CUTTER
- TRAVERSER
- PLANER
- TEXTILE
- PRINTING MACHINE
- MACHINE TOOL
- ROBOTIC
- HANDLING SYSTEM
- CUT TO LENGTH
- PACKAGING MACHINE
- FLY SHEAR

GENERAL SPECIFICATIONS

- 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 ℃
- 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 expecially at high field weakening ratio:it is logical consequence that the value of nmax1 is defined from the value of available voltage.

3 PHASE 、230VAC 、IP54 、IC416

FRAM	Rated (RPM)	Rated Output (KW)	Rated Torque (NM)	MAX Torque (NM)	Rated Current (A)	Hz	Power Fator	Efficincy	Rotor Inertia ($Kgcm^2$)	Max Speed (Rpm)	Weight (Kg)
80S	1500	0.75Kw	5.68	15.89	3.76	50	0.76	78.80	30	8000	23
	2000	1.1Kw	6.24	17.47	5.35	66.7	0.78	79.40	30	8000	23
90S	1500	1.5Kw	9.50	31.58	7.06	50	0.79	81.00	40	8000	26
	2000	2.2Kw	12.49	34.97	10.28	66.7	0.79	81.50	40	8000	26
90M	1500	2.2Kw	16.66	46.63	9.78	50	0.82	82.60	49	8000	30
	2000	3.75Kw	21.30	59.64	16.20	66.7	0.84	83.00	49	8000	30
90L	1500	3.75Kw	28.39	79.49	15.78	50	0.84	85.20	68	8000	38
	2000	5.5Kw	31.24	87.46	22.15	66.7	0.87	85.90	68	8000	38
100S	1500	5.5Kw	41.65	116.62	23.30	50	0.83	85.40	123	8000	51
	2000	7.5Kw	42.60	119.28	30.88	66.7	0.85	86.00	123	8000	51
100M	1500	7.5Kw	56.80	159.02	30.99	50	0.85	85.60	177	8000	68
	2000	11Kw	62.47	174.91	44.75	66.7	0.86	86.10	177	8000	68
100L	1500	11Kw	83.28	233.18	45.34	50	0.85	85.80	203	8000	83
	2000	15Kw	85.20	238.56	59.43	66.7	0.88	86.40	203	8000	83
132S	1500	15Kw	113.59	318.05	57.48	50	0.86	91.40	415	8000	105
	2000	18.5Kw	105.07	294.19	69.79	66.7	0.87	91.70	415	8000	105
132M	1500	18.5Kw	140.04	392.11	69.78	50	0.87	91.80	490	8000	120
	2000	22Kw	124.96	349.87	80.85	66.7	0.89	92.10	490	8000	120
132L	1500	22Kw	166.61	466.50	82.53	50	0.87	92.30	670	8000	152
	2000	30Kw	170.40	477.12	108.21	66.7	0.90	92.80	670	8000	152
132X	1500	30Kw	227.20	636.14	112.18	50	0.87	92.60	835	8000	178
	2000	37.5Kw	213.00	596.40	136.19	66.7	0.89	93.20	835	8000	178

3 PHASE 、230VAC 、IP23 、IC06

FRAM	Rated (RPM)	Rated Output (KW)	Rated Torque (NM)	MAX Torque (NM)	Rated Current (A)	Hz	Power Fator	Efficincy	Rotor Inertia ($Kgcm^2$)	Max Speed (Rpm)	Weight (Kg)
132S	1000	15Kw	143.00	400.40	52.61	33.3	0.80	90.00	415	6000	120
	1500	22Kw	145.00	406.00	71.74	50	0.85	90.00	415	8000	120
	2000	30Kw	145.00	406.00	91.83	66.7	0.89	92.00	415	8000	120
132M	1000	22Kw	210.00	588.00	74.13	33.3	0.81	92.00	490	6000	135
	1500	30Kw	191.00	534.80	95.65	50	0.85	92.00	490	8000	135
	2000	37.5Kw	180.00	504.00	117.65	66.7	0.87	92.00	490	8000	135
132L	1000	30Kw	286.00	800.80	102.35	33.3	0.79	93.00	670	6000	167
	1500	37.5Kw	240.00	672.00	120.52	50	0.84	93.00	670	8000	167
	2000	45Kw	215.00	602.00	141.57	66.7	0.86	93.00	670	8000	167
132X	1000	37.5Kw	358.00	1002.40	126.26	33.3	0.80	93.00	835	6000	193
	1500	45Kw	286.00	800.80	141.57	50	0.85	94.00	835	8000	193
	2000	55Kw	264.00	739.20	163.57	66.7	0.90	94.00	835	8000	193

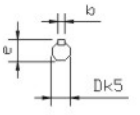
3 PHASE 、400VAC 、IP54 、IC416

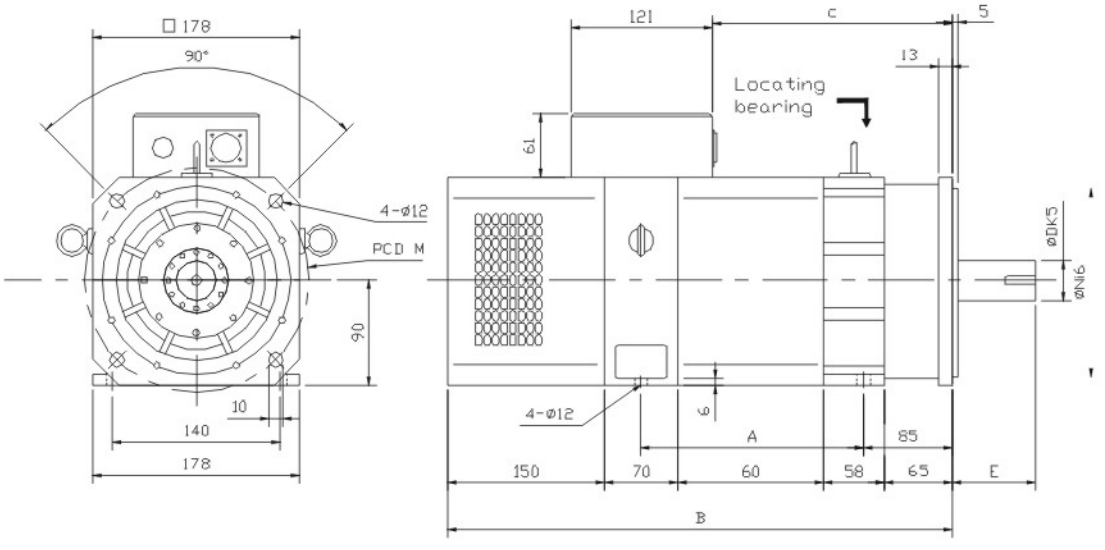
FRAM	Rated SPEED (RPM)	Rated Output (KW)	Rated Torque (NM)	MAX Torque (NM)	Rated Current (A)	Hz	Power Fator	Efficincy	Rotor Inertia ($Kgcm^2$)	Max Speed (Rpm)	Weight (Kg)
80S	1500	0.75Kw	5.68	15.89	2.15	50	0.76	78.80	30	8000	23
	2000	1.1Kw	6.24	17.47	3.07	66.7	0.78	79.40	30	8000	23
90S	1500	1.5Kw	9.50	31.58	4.05	50	0.79	81.00	40	8000	26
	2000	2.2Kw	12.49	34.97	5.89	66.7	0.79	81.50	40	8000	26
90M	1500	2.2Kw	16.66	46.63	5.60	50	0.82	82.60	49	8000	30
	2000	3.75Kw	21.30	59.64	9.28	66.7	0.84	83.00	49	8000	30
90L	1500	3.75Kw	28.39	79.49	9.04	50	0.84	85.20	68	8000	38
	2000	5.5Kw	31.24	87.46	12.70	66.7	0.87	85.90	68	8000	38
100S	1500	5.5Kw	41.65	116.62	13.36	50	0.83	85.40	123	8000	51
	2000	7.5Kw	42.60	119.28	17.27	66.7	0.85	86.00	123	8000	51
100M	1500	7.5Kw	56.80	159.02	17.76	50	0.85	85.60	177	8000	68
	2000	11Kw	62.47	174.91	25.66	66.7	0.86	86.10	177	8000	68
100L	1500	11Kw	83.28	233.18	25.99	50	0.85	85.80	203	8000	83
	2000	15Kw	85.20	238.56	34.07	66.7	0.88	86.40	203	8000	83
132S	1500	15Kw	113.59	318.05	32.96	50	0.86	91.40	415	8000	105
	2000	18.5Kw	105.07	294.19	40.01	66.7	0.87	91.70	415	8000	105
132M	1500	18.5Kw	140.04	392.11	40.00	50	0.87	91.80	490	8000	120
	2000	22Kw	124.96	349.87	46.35	66.7	0.89	92.10	490	8000	120
132L	1500	22Kw	166.61	466.50	47.32	50	0.87	92.30	670	8000	152
	2000	30Kw	170.40	477.12	62.04	66.7	0.90	92.80	670	8000	152
132X	1500	30Kw	227.20	636.14	64.32	50	0.87	92.60	835	8000	178
	2000	37.5Kw	213.00	596.40	78.09	66.7	0.89	93.20	835	8000	178
160S	1000	27.8	265	663	52.6	33.3	0.82	93	1000	6000	240
	1500	39.3	250	625	70.2	50.0	0.86	94	1000	6000	240
	2000	48.2	230	575	84.2	66.7	0.87	95	1000	6000	240
160M	1000	33.5	320	800	63.3	33.3	0.83	92	1300	6000	280
	1500	45.6	290	725	82.4	50.0	0.85	94	1300	6000	280
	2000	52.4	250	625	91.6	66.7	0.86	96	1300	6000	280
160L	1000	35.1	335	838	66.3	33.3	0.84	91	1500	6000	330
	1500	50.3	320	800	89.8	50.0	0.86	94	1500	6000	330
	2000	60.7	290	725	104.8	66.7	0.88	95	1500	6000	330
180S	1000	45.6	435	957	87.2	33.3	0.82	92	2500	5000	450
	1500	62.8	400	880	109.7	50.0	0.87	95	2500	5000	450
	2000	75.4	360	792	127.4	66.7	0.89	96	2500	5000	450
180M	1000	57.6	550	1210	110.4	33.3	0.81	93	3300	5000	540
	1500	79.3	505	1111	146.5	50.0	0.84	93	3300	5000	540
	2000	98.4	470	1034	175.7	66.7	0.86	94	3300	5000	540
225S	1000	68.1	650	1300	130.3	33.3	0.82	92	8000	4000	600
	1500	94.2	600	1200	168.4	50.0	0.85	95	8000	4000	600
	2000	115.2	550	1100	199.1	66.7	0.87	96	8000	4000	600
225M	1000	94.2	900	1800	184.5	33.3	0.81	91	10000	4000	810
	1500	131.9	840	1680	246.4	50.0	0.84	92	10000	4000	810
	2000	157.1	750	1500	280.3	66.7	0.87	93	10000	4000	810
225L	1000	136.1	1300	2600	266.9	33.3	0.80	92	12000	4000	1050
	1500	188.5	1200	2400	348.7	50.0	0.83	94	12000	4000	1050
	2000	226.2	1080	2160	400.1	66.7	0.85	96	12000	4000	1050

3 PHASE 、400VAC 、IP23 、IC06

FRAM	Rated SPEED (RPM)	Rated Output (KW)	Rated Torque (NM)	MAX Torque (NM)	Rated Current (A)	Hz	Power Fator	Efficincy	Rotor Inertia ($Kgcm^2$)	Max Speed (Rpm)	Weight (Kg)
132S	1000	15Kw	143	400.4	30.4	33.3	0.80	90.00	415.00	6000	120
	1500	22Kw	145	406.0	41.8	50	0.85	90.00	415.00	8000	120
	2000	30Kw	145	406.0	53.2	66.7	0.89	92.00	415.00	8000	120
132M	1000	22Kw	210	588.0	42.75	33.3	0.81	92.00	490.00	6000	135
	1500	30Kw	191	534.8	55.1	50	0.85	92.00	490.00	8000	135
	2000	37.5Kw	180	504.0	67.45	66.7	0.87	92.00	490.00	8000	135
132L	1000	30Kw	286	800.8	58.9	33.3	0.79	93.00	670.00	6000	167
	1500	37.5Kw	240	672.0	69.35	50	0.84	93.00	670.00	8000	167
	2000	45Kw	215	602.0	81.7	66.7	0.86	93.00	670.00	8000	167
132X	1000	37.5Kw	358	1002.4	72.2	33.3	0.80	93.00	834.50	6000	193
	1500	45Kw	286	800.8	81.7	50	0.85	94.00	834.50	8000	193
	2000	55Kw	264	739.2	94.05	66.7	0.90	94.00	834.50	8000	193
160S	1000	45.0	430	946	87.0	33.3	0.82	91	1000	6000	260
	1500	64.4	410	902	119.0	50.0	0.84	93	1000	6000	260
	2000	81.7	390	858	141.1	66.7	0.88	95	1000	6000	260
160M	1000	51.8	495	1089	100.3	33.3	0.81	92	1300	6000	315
	1500	69.1	440	968	127.8	50.0	0.83	94	1300	6000	315
	2000	85.9	410	902	148.5	66.7	0.87	96	1300	6000	315
160L	1000	58.6	560	1232	112.1	33.3	0.82	92	1500	6000	370
	1500	83.3	530	1166	152.1	50.0	0.85	93	1500	6000	370
	2000	98.4	470	1034	169.9	66.7	0.88	95	1500	6000	370
180S	1000	72.3	690	1380	140.0	33.3	0.81	92	2500	5000	470
	1500	99.0	630	1260	185.1	50.0	0.83	93	2500	5000	470
	2000	117.3	560	1120	207.0	66.7	0.87	94	2500	5000	470
180M	1000	89.0	850	1700	170.3	33.3	0.82	92	3300	5000	560
	1500	122.5	780	1560	223.7	50.0	0.85	93	3300	5000	560
	2000	146.6	700	1400	255.8	66.7	0.88	94	3300	5000	560
225S	1000	104.7	1000	1700	197.9	33.3	0.83	92	8000	4000	650
	1500	141.4	900	1530	264.1	50.0	0.84	92	8000	4000	650
	2000	178.0	850	1445	317.8	66.7	0.86	94	8000	4000	650
225M	1000	143.5	1370	2329	271.3	33.3	0.83	92	10000	4000	870
	1500	199.5	1270	2159	364.3	50.0	0.85	93	10000	4000	870
	2000	238.8	1140	1938	417.5	66.7	0.86	96	10000	4000	870
225L	1000	214.7	2050	3485	415.9	33.3	0.81	92	12000	4000	1150
	1500	298.5	1900	3230	546.4	50.0	0.83	95	12000	4000	1150
	2000	356.0	1700	2890	615.3	66.7	0.87	96	12000	4000	1150

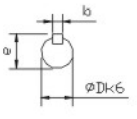
FRAME VM80 & VM90 IP54

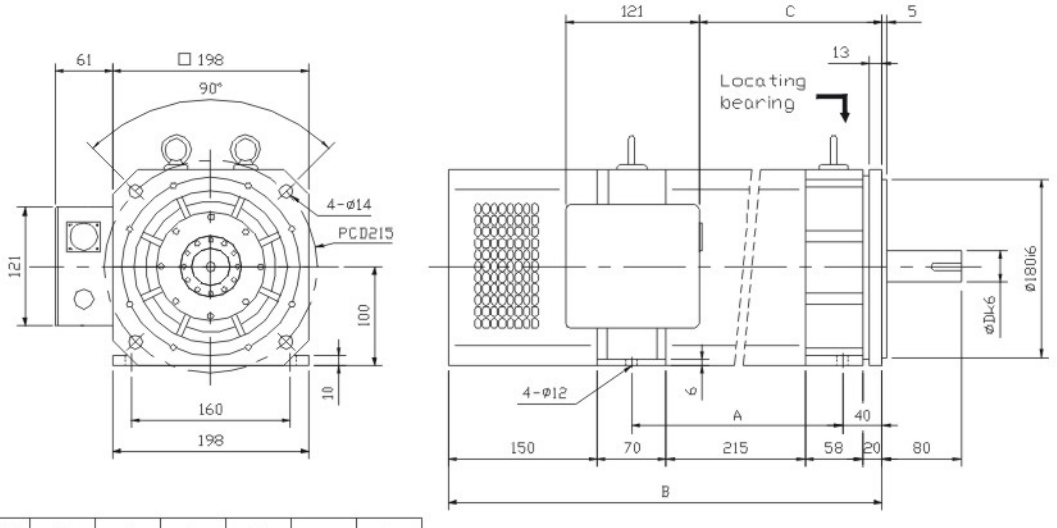




FRAME	B	A	M	N	C	E	D	e	b
80**S**	358	133	165	130	105	40	19	21.5	6
90**S**	378	153	165	130	125	50	24	27	8
90**M**	398	173	165	130	145	50	24	27	8
90**L**	438	213	165	130	185	60	28	31	8

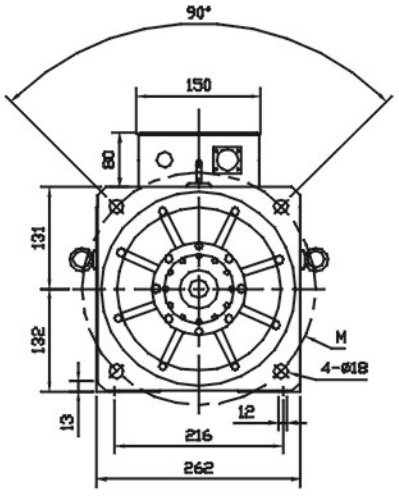
VM100 IP54

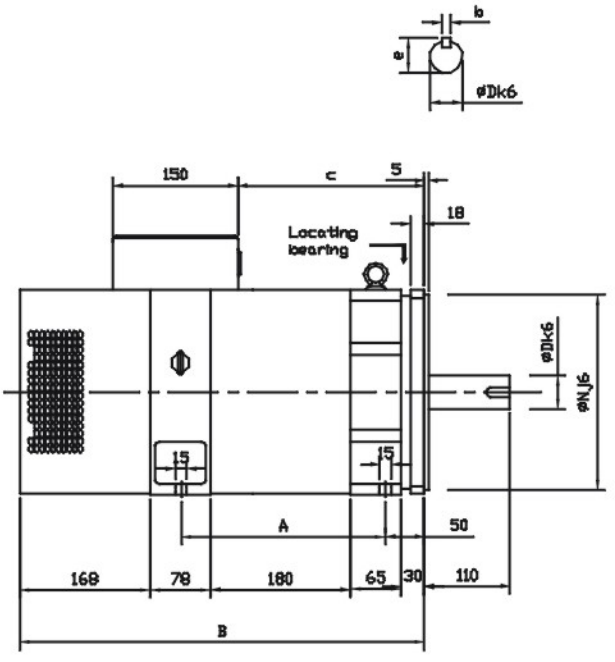




FRAME	B	A	C	D	e	b
100**S**	438	213	185	32	35	10
100**M**	513	288	260	32	35	10
100**L**	583	358	330	48	51.5	14

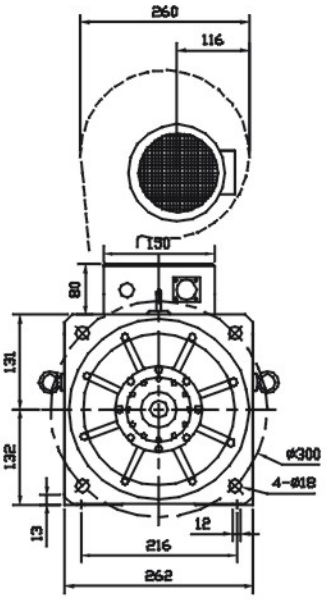
VM132 IP54

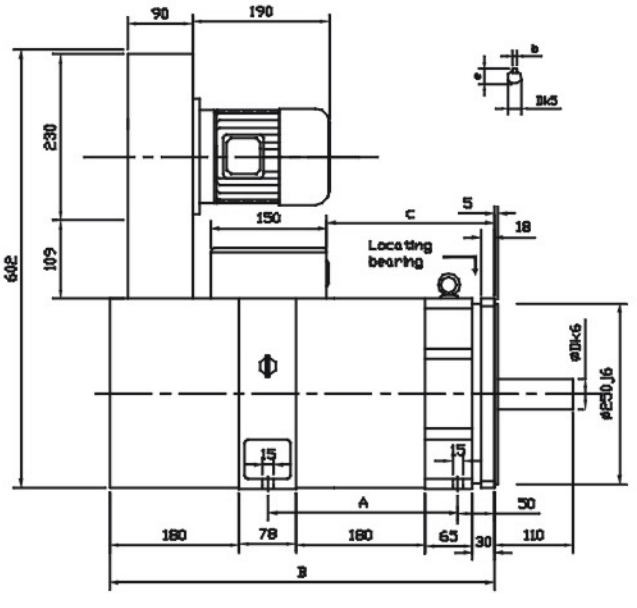




FRAME	B	A	C	D	E	e	b
132S	581	863	328	258	226	42	45	12
132M	561	303	308	258	276	42	45	12
132L	631	373	308	258	346	42	45	12
132X	701	443	308	258	416	55	59	16

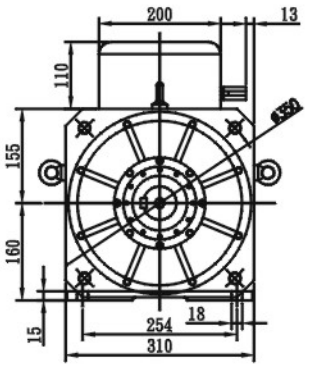
VM132 IP23

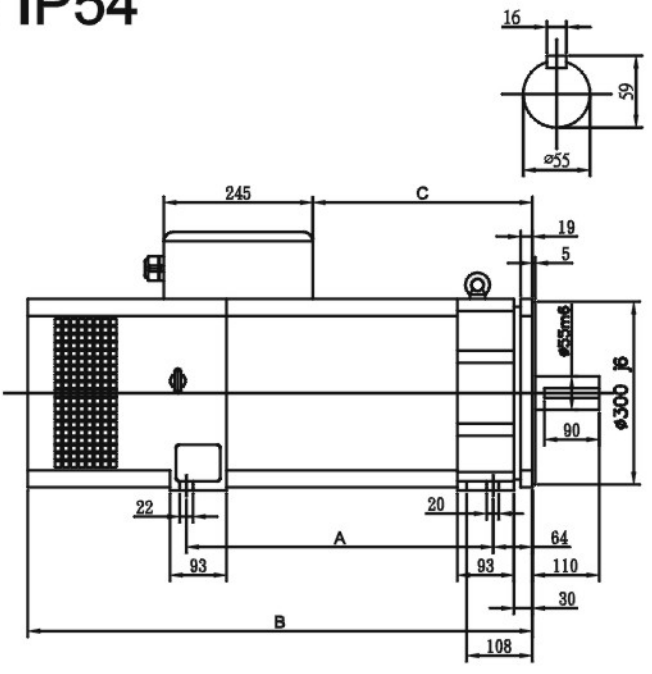




FRAME	B	A	C	D	e	b
132S	533	863	328	42	45	12
132M	601	303	258	42	45	12
132L	671	373	338	42	45	12
132X	741	443	408	55	59	16

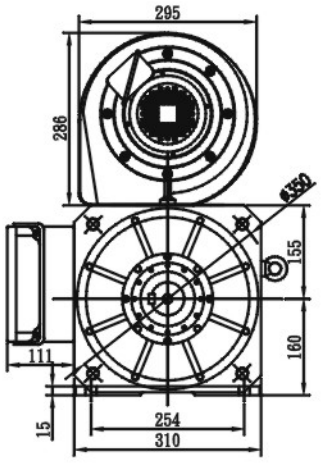
FRAME VM 160 IP54

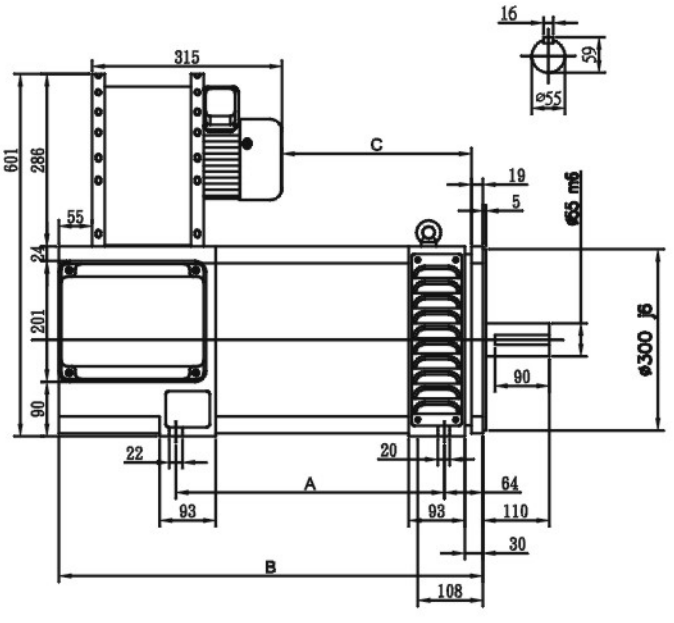




FRAME	A	B	C
160S	445	765	361
160M	505	830	361
160L	545	870	401

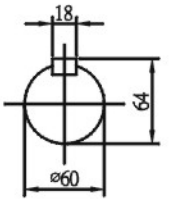
FRAME VM 160 IP23

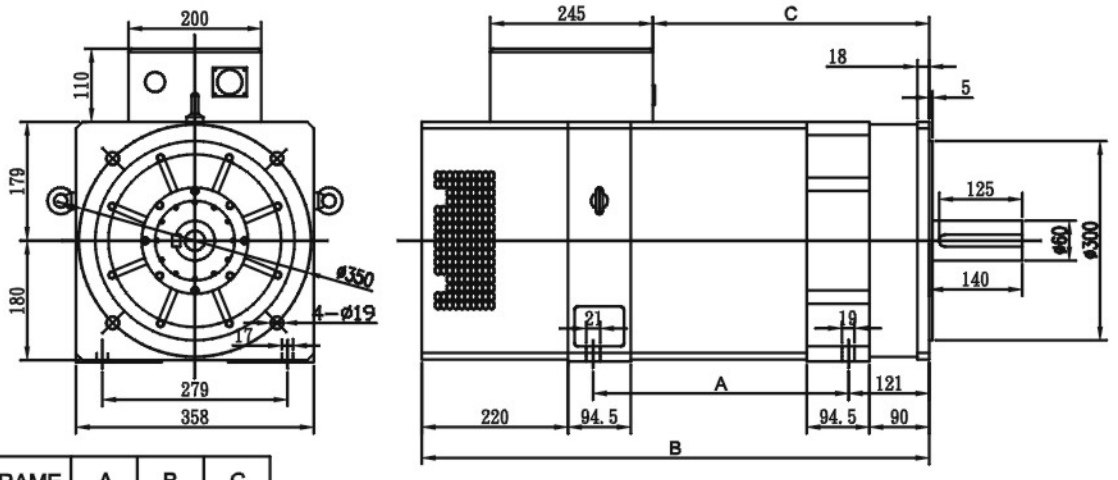




FRAME	A	B	C
160S	445	703	314
160M	505	763	393
160L	545	803	414

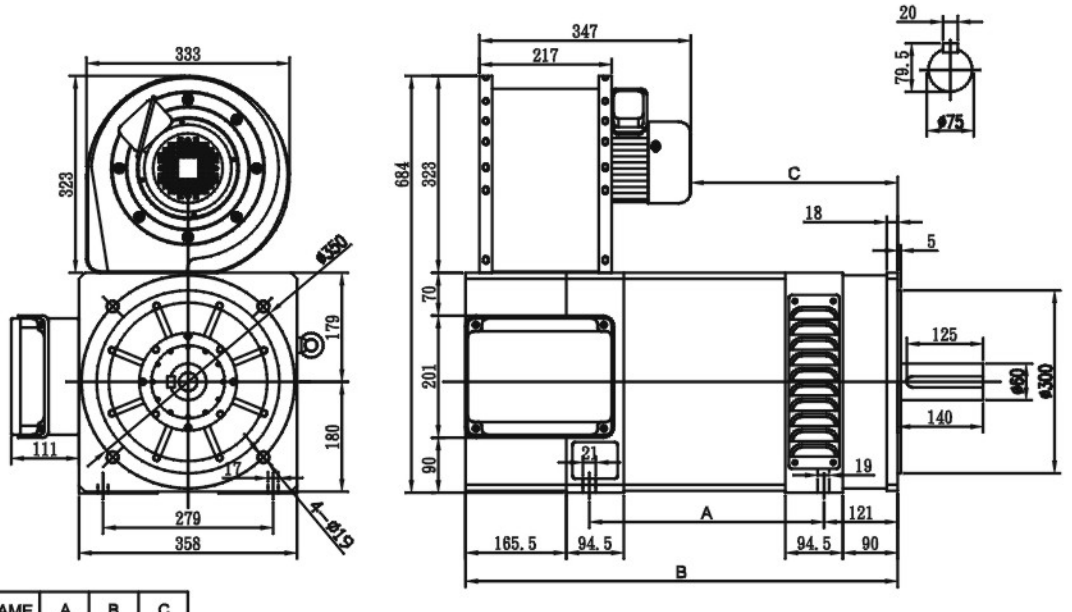
FRAME VM 180 IP54





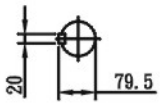
FRAME	A	B	C
180S	385	764	416
180M	524	904	416

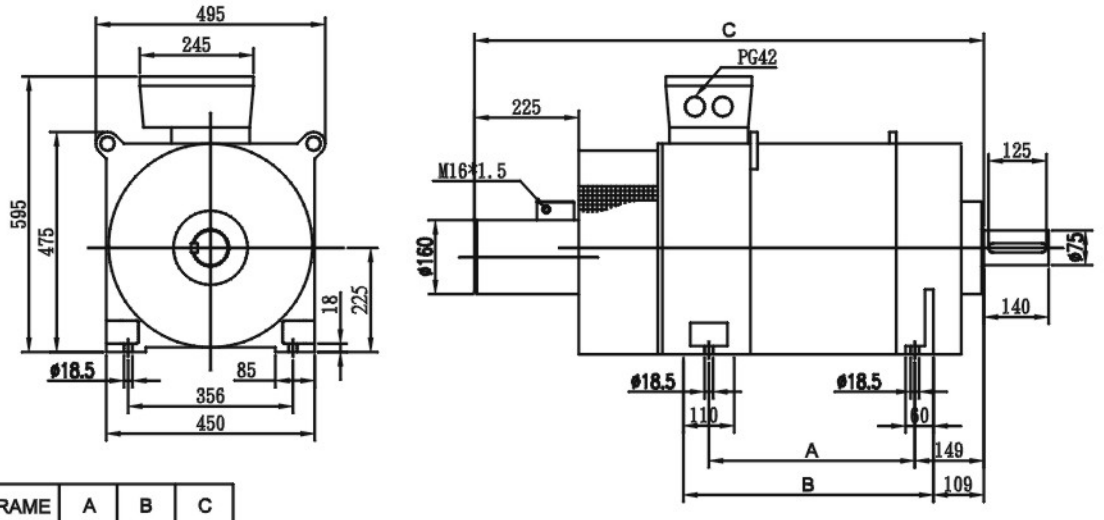
FRAME VM 180 IP23



FRAME	A	B	C
180S	385	709.5	339.5
180M	524	849.5	479.5

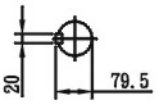
FRAME VM 225 IP54

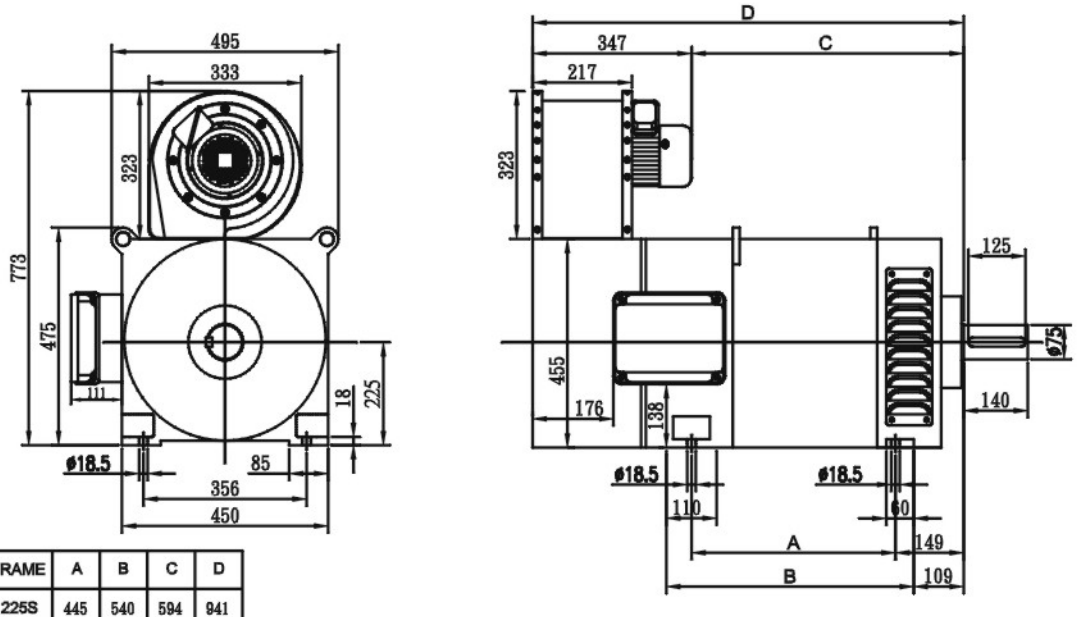




FRAME	A	B	C
225S	445	540	1100
225M	540	635	1195
225L	630	725	1285

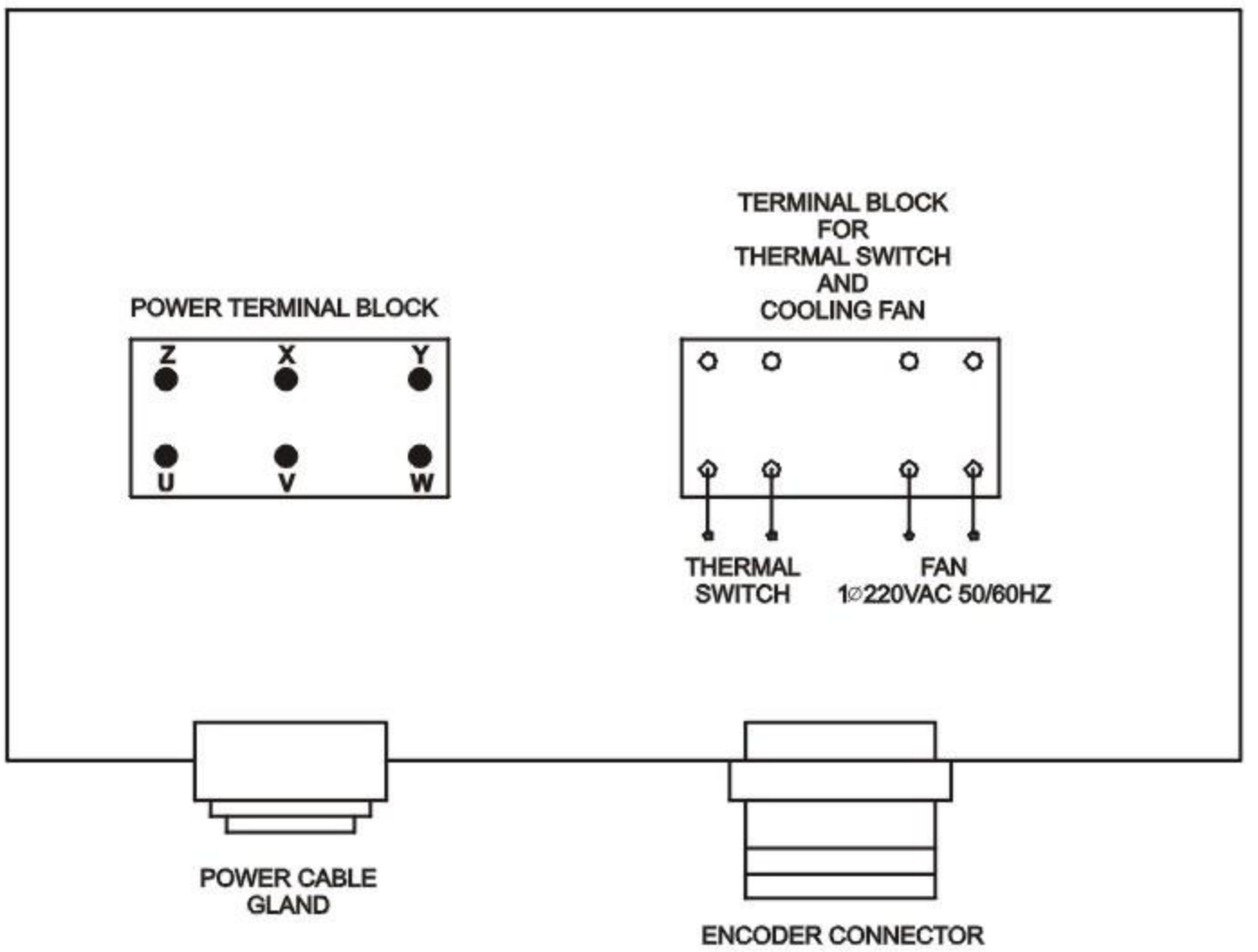
FRAME VM 225 IP23



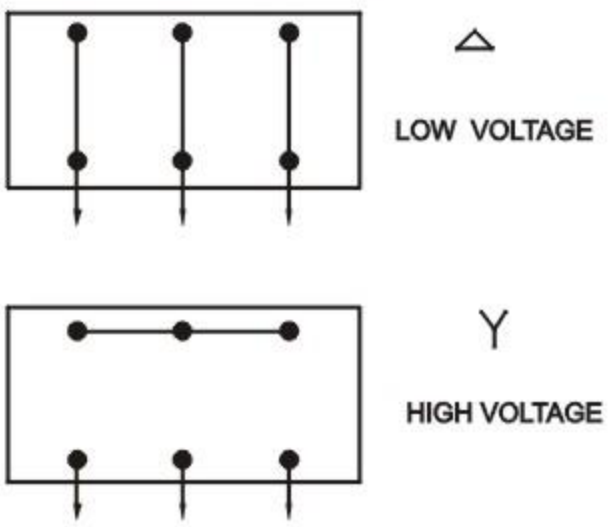


FRAME	A	B	C	D
225S	445	540	594	941
225M	540	635	689	1036
225L	630	725	779	1126

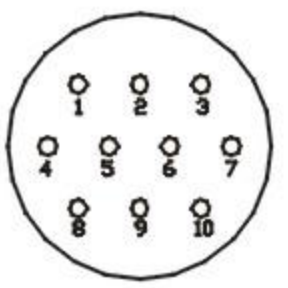
TERMINAL BOX



CONNECTION OF POWER BLOCK



Description Of Encoder Connector



1	+5V
2	0V
3	A
4	$\overline{A}$
5	B
6	$\overline{B}$
7	Z
8	$\overline{Z}$
9	SHIELD

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