SINCE 1935

VARUNA®

ELECTRIC

HIGH QUALITY, HIGH PERFORMANCE

THREE PHASE INDUCTION MOTORS

SINCE 1935

VARUNA®

ELECTRIC

From a humble beginning in 1935 at Ahmedabad (Gujarat), Varuna Electric has today evolved into an avant-garde brand of globally acclaimed submersible pumps, mono-block pumps and open well motors.

Our techno-pioneering spirit inspired us the create India's first oil-based submersible pumps in 1991, an era when no one in India could achieve the same. We continued our growth and forayed into exports in 2003 and into the manufacturing of Stainless Steel Pumps in 2009.

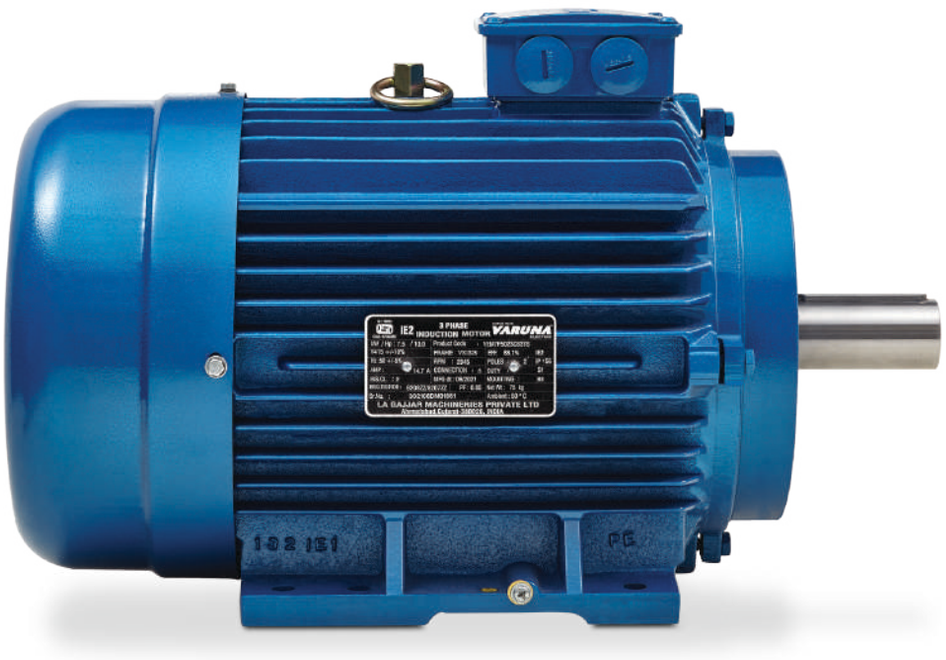
As our India-presence and global growth continues to achieve newer heights, we deliver new-age engineering solutions accessible for the nation and the world.

Today, **Varuna Electric** is creating new benchmarks with an annual production capacity of half million pumps, a pan-India presence with 20 branches and over 20 distributors, an export network spread across 50+ countries and an unmatched experience of eight decades. And as always, we will continue to create a pressure free world for our customers bringing water to them and making the world prosperous.

In our quest for growth, we have kept an unflinching eye on quality standards with our ISO 9001 accredited production facility. Our Star rated pumps are approved by the Bureau of Energy Efficiency (BEE) and also have CE and ISI certification.

With the focus on reducing energy consumption and providing high quality, high performance products to you, we at **Varuna Electric** are pleased to announce the IE2 Range of Energy Efficient Three Phase Induction Motors manufactured in accordance with the latest IS 12615:2018 & IEC60034-2-1.

The motors comply with the **Bureau of India Standards (BIS)** and are tested at an **NABL** accredited laboratory to assure you of the highest compliance to the stipulated guidelines.



CONTENTS:

VARUNA ELECTRIC MOTORS STANDARDS.

In our endeavour to give the best possible products to our customer, Varuna Electric Motors shall comply with the latest Indian & International Standards. These include the following:

List of Indian Standards:

- IS1231: Dimensions of Three Phase Induction Motors- Foot Mounted.
- IS2223: Dimensions of Flange Mounted AC Induction Motors.
- IS2253: Designations of Types of Construction and Mounting Arrangements for Rotating Electrical Machines.
- IS4029: Guide for Testing Three Phase Induction Motors.
- IS4691: Degree of Protection Provided by Enclosures for Rotating Electrical Machinery.
- IS4722: Rotating Electrical Machines.
- IS4889: Methods of Determination of Efficiency of Rotating Electrical Machines.
- IS6362: Designation of Method of Cooling for Rotating Electrical Machines.
- IS7538: Three Phase Squirrel Cage Induction Motors for Centrifugal Pumps for Agricultural Applications.
- IS8151: Single Speed Three Phase Induction Motors for Driving Lifts.
- IS12065: Permissible Limits of Noise Levels for Rotating Electrical Machines.
- IS12075: Mechanical Vibrations of Rotating Electrical Machines; Measurements, Evaluations and Limits of Vibration Severity.
- IS12615: Energy Efficient Induction Motors –Three Phase Induction Motors.

List of International Standards:

- IEC60034-1: Rotating Electrical Machines, Part-1; Rating and Performance.
- IEC60034-2-1 Standard Methods for Determining Losses and Efficiency.
- IEC60034-5: Degree of Protection.
- IEC60034-6: Method of Cooling.
- IEC60034-9: Noise Limits.
- IEC60034-14: Mechanical Vibrations Measurement, Evaluation and Limits of Severity.
- IEC60034-30: Efficiency Classes of Single Speed Three Phase Squirrel Cage Induction Motors.
- IEC60072-1: Dimensions and Output Ratings of Electrical Machines.

SPECIFICATION FOR VARUNA ELECTRIC THREE PHASE INDUCTION MOTORS:

Unless specified, all Varuna Electric Motors shall comply with the following specifications:

Sr No	Parameters	Details
1	Power In kW*	0.75-37
2	Pole*	2P, 4P ,6P
3	Frame Sizes*	VE80-VE200L
4	Operating Voltage	415V +/- 10%
5	Frequency	50 Hz +/- 5%
6	Combined Variation	10% (Absolute Sum)
7	Enclosure	Totally Enclosed Fan Cooled (TEFC)
8	Degree of Protection	IP55
9	Efficiency Level	IE2 as per IS12615:2018
10	Frame Dimensions	As per IS 1231
11	Insulation Class	Class F with Temperature Rise Limited to Class B
12	Design Ambient Temperature	50 Deg. C
13	Temperature Rise	70 Deg. C (By Resistance Method)
14	Altitude	≤ 1000 Meters from Mean Sea Level
15	Relative Humidity	Upto 100%.
16	Atmospheric Conditions	Tropical Corrosive
17	Duty	S1-Continuous
18	Type of Rotor	Squirrel Cage
19	Dynamic Balancing	Grade 2.5 as per ISO
20	Motor Mounting	IMB3 , IMB5* , IMB35* & IMV1*
21	Mechanical Dimensions	Refer GA Drawing
22	General Enclosure Material	Cast Iron
23	Type of Cooling	Externally Fan Cooled- IC411 as per IS6362
24	Position of Terminal Box	TOP
25	Type of Starting	For Motors < 2.20 KW : Direct On-Line For Motors ≥ 2.20 KW: Direct On-Line / Star Delta.
26	Connection / No. of Leads	For Motors < 2.20 KW : Star / 3 For Motors ≥ 2.20 KW: Delta / 6
27	Terminal Arrangement	Stud Type
28	Type of Coupling	Direct-Flexible
29	Direction of Rotation	Bi-Directional
30	Bearings	Deep Groove Anti-Friction Ball Bearings. Refer Table under Sr. 8 for details.
31	Greasing Arrangement	Greased for Life (L-10, 40000 Hrs.)
32	Bearing Seals	Oil
33	Vibration Levels	IS12075
34	Noise Levels	IS12065
35	Paint Shade	Hammer-tone Blue
36	Electrical Performance	As per IS12615:2018 (IEC60034-1)

**Please get in touch with Varuna Electric for more options.*

PERFORMANCE DATA : 2 POLE MOTORS (SYNCHRONOUS SPEED =3000 RPM)

IE2 Motors with Class F Insulation & Temperature Rise Limited to Class B Limits.

Safe Area , IP55.

Voltage : 415 V +/- 10%	Frequency : 50 Hz +/- 5%	Combined Variation : 10%	Ambient Temperature : 50 Deg. C

Sr. No.	KW	HP	Frame	RPM	FLC Amps	FLT kgm	% Efficiency			Power Factor			% STC*	% STT**	% POT**	Rotor GD2 kgm2	Weight Kgs
							FL	0.75 FL	0.5 FL	FL	0.75 FL	0.5 FL					
1	0.75	1	VE80	2830	1.82	0.258	77.4	76.5	73.5	0.82	0.74	0.62	500	2.5	2.8	0.0037	10
2	1.1	1.5	VE80	2830	2.56	0.379	79.6	79.6	75.5	0.82	0.75	0.63	600	2.7	3	0.0051	11
3	1.5	2	VE90S	2835	3.33	0.515	81.3	81.3	80	0.83	0.77	0.66	650	2.6	2.8	0.0053	15
4	2.2	3	VE90L	2835	4.60	0.756	83.2	83.2	82.5	0.85	0.8	0.72	650	2.8	3	0.0066	17
5	3.7	5	VE100L	2840	7.34	1.269	85.5	85.5	83	0.86	0.82	0.73	650	2.8	3.1	0.0142	24
6	5.5	7.5	VE132S	2930	10.23	1.828	87	87	84.5	0.89	0.86	0.79	650	2.5	3	0.0515	47
7	7.5	10	VE132S	2935	13.77	2.489	88.1	87.7	86	0.89	0.86	0.8	650	2.5	3	0.08	59
8	9.3	12.5	VE160M	2940	16.92	3.081	88.9	88.6	86	0.88	0.86	0.81	600	2	2.5	0.142	98
9	11	15	VE160M	2940	20	3.644	89.4	89.4	87	0.88	0.85	0.79	650	2.1	2.6	0.16	104
10	15	20	VE160M	2930	27	4.986	90.3	90	88	0.88	0.87	0.82	650	2	2.5	0.191	115
11	18.5	25	VE160L	2930	32	6.150	90.9	90.9	89	0.9	0.89	0.86	650	2	2.5	0.244	137
12	22	30	VE180M	2935	39	7.301	91.3	91	88.8	0.89	0.87	0.82	700	2.4	2.7	0.34	177
13	30	40	VE200L	2955	53	9.888	92	92	90	0.89	0.86	0.8	700	2.6	3	0.61	274
14	37	50	VE200L	2955	66	12.196	92.5	92.5	91	0.87	0.84	0.76	700	2.2	2.5	0.64	275

Notes
1) Applicable standard for testing & efficiency determination: IS15999
2) All performance values are subject to tolerances as per IS/IEC 60034-1
3) * : As a % of Full Load Current
4) ** : As a % of Full Load Torque

PERFORMANCE DATA : 4 POLE MOTORS (SYNCHRONOUS SPEED =1500 RPM)

IE2 Motors with Class F Insulation & Temperature Rise Limited to Class B Limits.

Safe Area , IP55.

Voltage : 415 V +/- 10%	Frequency : 50 Hz +/- 5%	Combined Variation : 10%	Ambient Temperature : 50 Deg. C

Sr. No.	KW	HP	Frame	RPM	FLC Amps	FLT kgm	% Efficiency			Power Factor			% STC*	% STT**	% POT**	Rotor GD2 kgm2	Weight kgs
							FL	0.75 FL	0.5 FL	FL	0.75 FL	0.5 FL					
1	0.75	1	VE80	1410	2.02	0.518	79.6	79.6	74	0.73	0.65	0.53	500	200	250	0.0082	12
2	1.1	1.5	VE90S	1425	2.72	0.752	81.4	81.4	79	0.76	0.69	0.55	600	250	300	0.0106	15
3	1.5	2	VE90L	1425	3.71	1.025	82.8	82.8	80.5	0.78	0.68	0.56	600	275	300	0.013	17
4	2.2	3	VE100L	1425	5.34	1.504	84.3	84.3	82.5	0.78	0.68	0.56	650	260	300	0.0211	24
5	3.7	5	VE112M	1445	7.85	2.494	86.3	86.3	85	0.81	0.76	0.64	650	260	300	0.0494	32
6	5.5	7.5	VE132S	1450	11.48	3.694	87.7	87.7	86	0.82	0.76	0.64	650	200	250	0.1026	48
7	7.5	10	VE132M	1450	15.48	5.038	88.7	88.7	87	0.84	0.76	0.65	650	230	280	0.1254	57
8	9.3	12.5	VE160M	1465	19.04	6.183	89.4	89.4	87	0.82	0.76	0.68	650	240	270	0.187	109
9	11	15	VE160M	1450	21.85	7.389	89.8	89.8	88.5	0.83	0.78	0.72	650	175	225	0.285	109
10	15	20	VE160L	1450	29.53	10.076	90.6	90.6	89.5	0.83	0.78	0.72	650	175	225	0.293	132
11	18.5	25	VE180M	1465	34.42	12.300	91.2	91.2	89.5	0.85	0.82	0.76	650	270	300	0.54	188
12	22	30	VE180L	1470	42.84	14.577	91.6	91.6	89.8	0.84	0.78	0.7	650	280	300	0.61	200
13	30	40	VE200L	1470	55.15	19.878	92.3	92	90	0.86	0.82	0.72	700	260	300	0.93	275

Notes

1) Applicable standard for testing & efficiency determination: IS15999
2) All performance values are subject to tolerances as per IS/IEC 60034-1
3) * : As a % of Full Load Current
4) ** : As a % of Full Load Torque

PERFORMANCE DATA : 6 POLE MOTORS (SYNCHRONOUS SPEED =1000 RPM)

IE2 Motors with Class F Insulation & Temperature Rise Limited to Class B Limits.

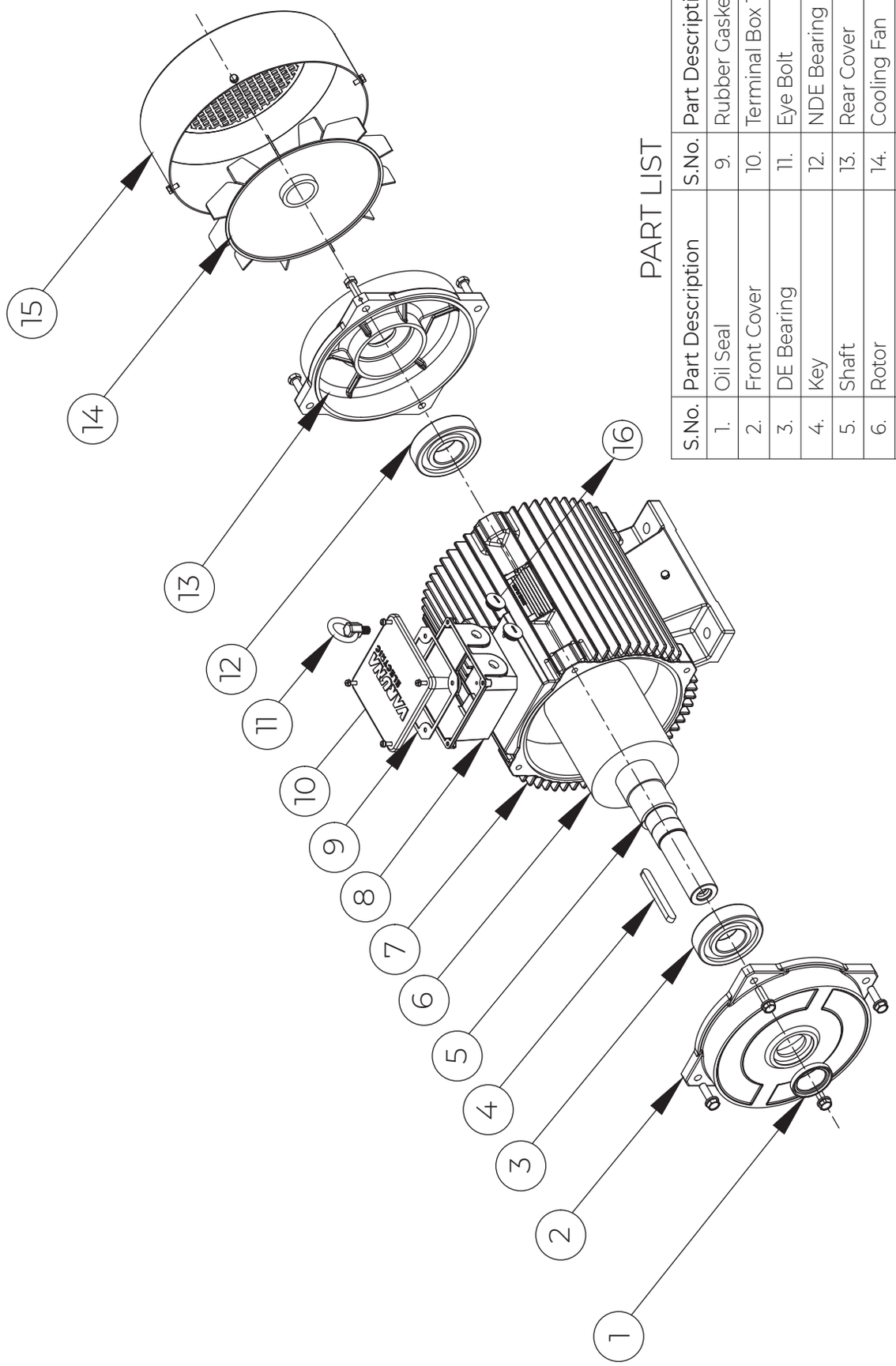
Safe Area , IP55.

Voltage : 415 V +/- 10%	Frequency : 50 Hz +/- 5%	Combined Variation : 10%	Ambient Temperature : 50 Deg. C

Sr. No.	KW	HP	Frame	RPM	FLC Amps	FLT kgm	% Efficiency			Power Factor			% STC*	% STT**	% POT**	Rotor GD2 kgm2	Weight kgs
							FL	0.75 FL	0.5 FL	FL	0.75 FL	0.5 FL					
1	0.75	1	VE90S	930	2.3	0.785	75.9	75.9	72.3	0.68	0.61	0.5	500	200	250	0.0105	14
2	1.1	1.5	VE90L	920	3.2	1.165	78.1	78.1	74	0.72	0.61	0.5	500	200	250	0.0155	17
3	1.5	2	VE100L	940	4.2	1.554	79.8	79.8	76	0.72	0.62	0.52	500	200	250	0.0241	22
4	2.2	3	VE112M	940	5.8	2.280	81.8	81.8	79.8	0.75	0.65	0.56	550	210	250	0.0609	32
5	3.7	5	VE132S	960	8.4	3.754	84.3	84.3	83.5	0.78	0.73	0.6	550	200	250	0.1093	46
6	5.5	7.5	VE132M	960	12.5	5.580	86	86	85	0.77	0.71	0.6	550	200	250	0.1518	59
7	7.5	10	VE160M	965	16.4	7.570	87.2	87.2	86	0.78	0.73	0.62	550	190	230	0.217	97
8	9.3	12.5	VE160L	965	19.9	9.387	88	88	86.7	0.79	0.74	0.64	550	190	230	0.289	115
9	11	15	VE160L	965	24	11.103	88.7	88.7	87	0.78	0.73	0.62	600	200	250	0.319	120
10	15	20	VE180L	965	31	15.140	89.7	89.7	87.2	0.8	0.75	0.62	550	260	230	0.82	200
11	18.5	25	VE200L	975	37	18.481	90.4	90.4	88.3	0.82	0.77	0.69	550	260	230	1.2	254
12	22	30	VE200L	975	44	21.977	90.9	90.9	88.8	0.82	0.77	0.69	600	260	230	1.37	270

Notes
1) Applicable standard for testing & efficiency determination: IS15999
2) All performance values are subject to tolerances as per IS/IEC 60034-1
3) * : As a % of Full Load Current
4) ** : As a % of Full Load Torque

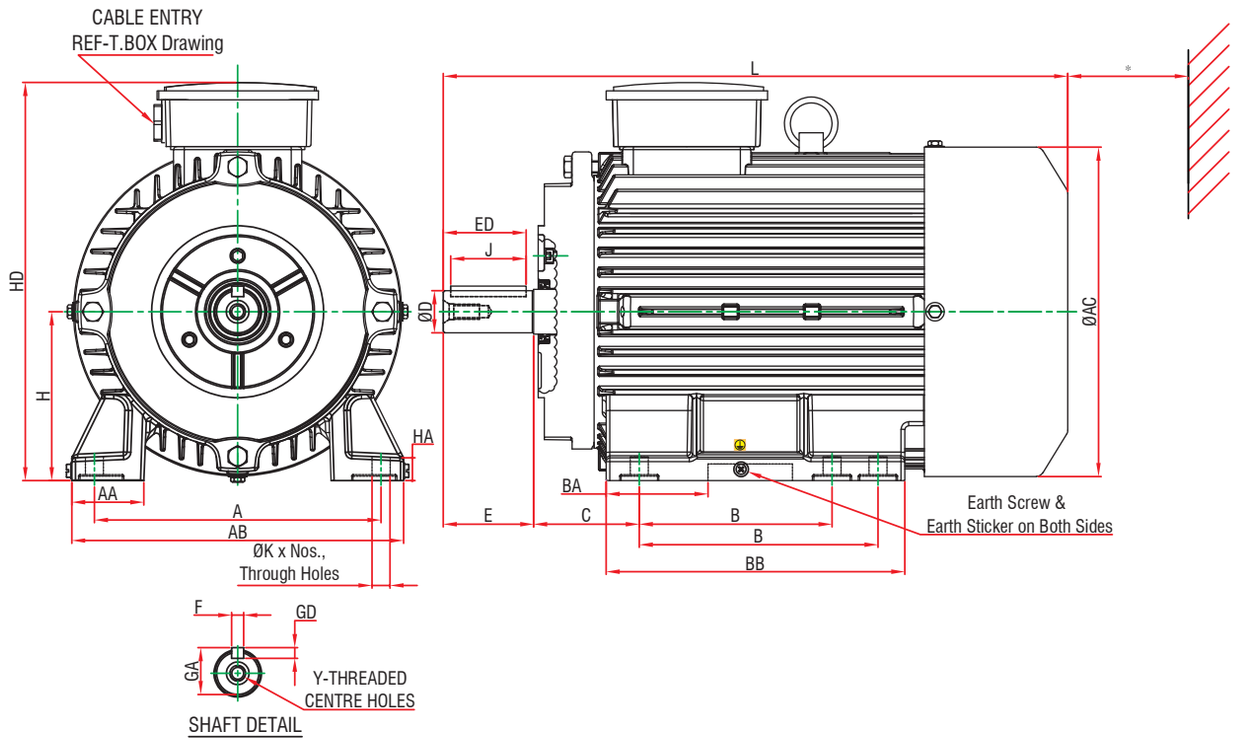
EXPLODED VIEW DRAWING FOR TEFC 3 PHASE INDUCTION MOTOR



PART LIST

S.No.	Part Description	S.No.	Part Description
1.	Oil Seal	9.	Rubber Gasket
2.	Front Cover	10.	Terminal Box Top
3.	DE Bearing	11.	Eye Bolt
4.	Key	12.	NDE Bearing
5.	Shaft	13.	Rear Cover
6.	Rotor	14.	Cooling Fan
7.	Body	15.	Fan Cover
8.	Terminal Box Bottom	16.	Terminal Entry Plugs

GENERAL ASSEMBLY DRAWINGS FOR TEFC, FOOT MOUNTED-IMB3, 3 PHASE INDUCTION MOTOR. FRAMES : VE80-VE132

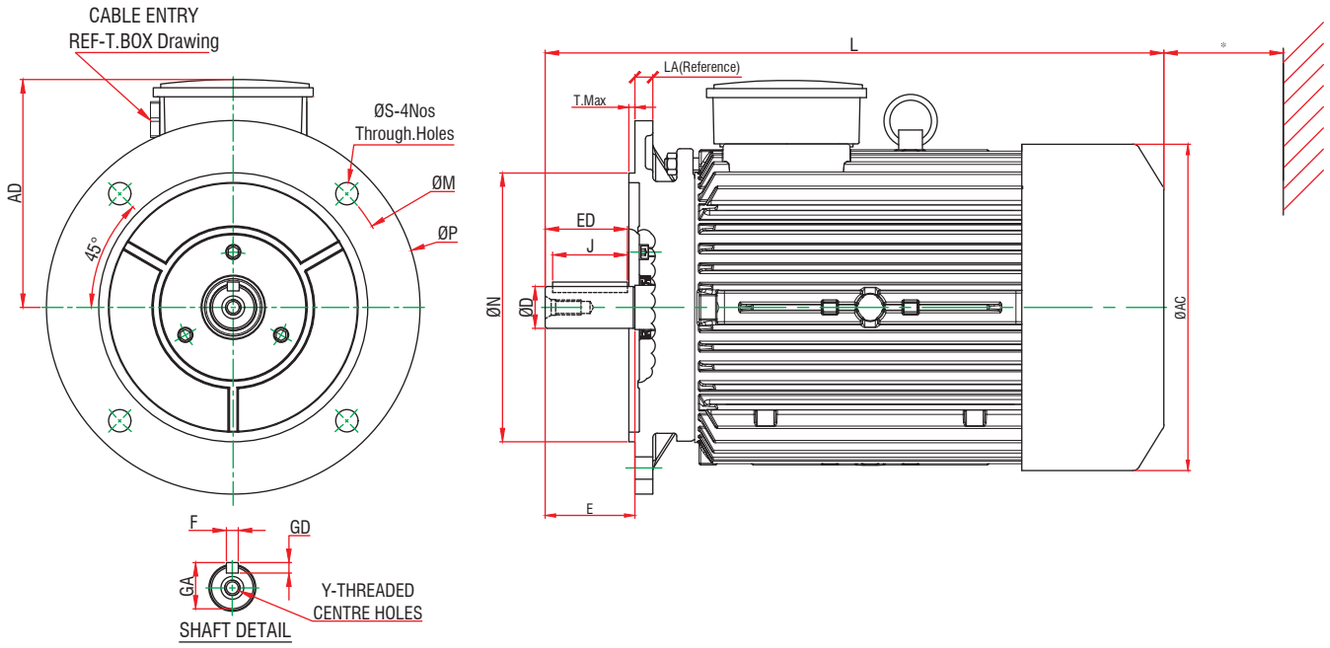


FOOT FIXING												OVER ALL			
SL. No	Frame Size	A	B		C	H	AA	AB	BA	BB	ØK x Nos	ØAC	LA(Ref)	HD	HA
1)	80	125±1.2	100±1.2		50±0.8	80 -0.0 -0.5	35	152	43	127	10 +0.360 +0.000 x 4	156	290	207	11
2)	90S	140±1.2	100±1.2	125±1.2	56±0.8	90 -0.0 -0.5	38	170	41	149	10 +0.360 +0.000 x 6	178	340	227	11
3)	90L	140±1.2	100±1.2	125±1.2	56±0.8	90 -0.0 -0.5	38	170	36	160	10 +0.360 +0.000 x 6	178	355	227	11
4)	100L	160±1.2	140±1.2		63±0.8	100 -0.0 -0.5	52.5	200	58	190	12 +0.430 +0.000 x 4	198	410	245	15
5)	112M	190±1.2	140±1.2		70±0.8	112 -0.0 -0.5	48	220	67.5	198	12 +0.430 +0.000 x 4	220	422	268	15
6)	132S	216±1.2	140±1.2	178±1.2	89±0.8	132 -0.0 -0.5	51.5	244	43.5	221	12 +0.430 +0.000 x 6	258	495	305	15
7)	132M	216±1.2	140±1.2	178±1.2	89±0.8	132 -0.0 -0.5	54	244	60	240	12 +0.430 +0.000 x 6	258	520	305	15

DRIVE END SHAFT EXTENSION AND KEY									
SL. No	Frame Size	ØD	E	ED	F	GD	GA	J ±0.1	Y
1	80	19 +0.009 -0.004	40	34	6 +0.000 -0.030	6 +0.000 -0.030	21.5	28	M6x1.0P-16 ↧
2	90S	24 +0.009 -0.004	50	45	8 +0.000 -0.036	7 +0.000 -0.090	27	40	M8x1.25P-20 ↧
3	90L	24 +0.009 -0.004	50	45	8 +0.000 -0.036	7 +0.000 -0.090	27	40	M8x1.25P-20↧
4	100L	28 +0.009 -0.004	60	55	8 +0.000 -0.036	7 +0.000 -0.090	31	50	M10x1.5P-24 ↧
5	112L	28 +0.009 -0.004	60	55	8 +0.000 -0.036	7 +0.000 -0.090	31	50	M10x1.5P-24 ↧
6	132S	38 +0.002 +0.018	80	75	10 +0.000 -0.036	8 +0.000 -0.090	41	70	M12x1.75P-28↧
7	132M	38 +0.002 +0.018	80	75	10 +0.000 -0.036	8 +0.000 -0.090	41	70	M12x1.75P-28↧

NOTE :
Terminal box can be rotated in steps of 90°.
One earthing terminal is provided inside main terminal box.
Marked as- *80mm is the Minimum distance to be maintained by the user for effective cooling.

GENERAL ASSEMBLY DRAWINGS FOR TEFC, FLANGE MOUNTED-IMB5 / IMV1, 3 PHASE INDUCTION MOTOR. FRAMES : VE80-VE132

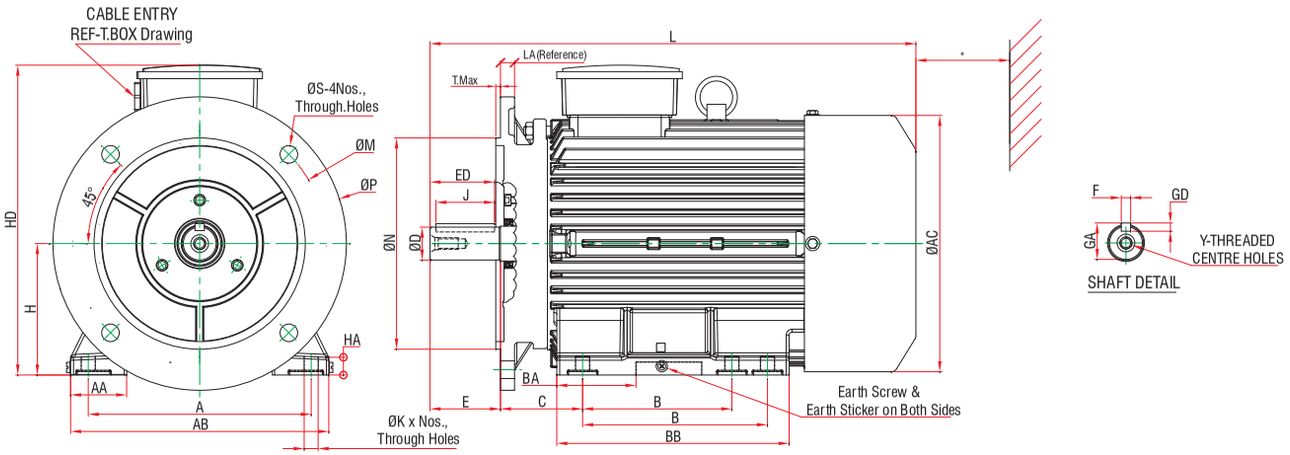


FLANGE FIXING								OVER ALL		
SL. No	Frame Size	ØM	ØN	ØP	ØS	T.Max	LA(Ref)	ØAC	AD	L
1	80	165±0.3	130 +0.014 -0.011	200±0.3	12 +0.43 +0.00	3.5	10	156	128	290
2	90S	162 ±03	130 +0.014 -0.011	200±0.3	12 +0.43 +0.00	3.5	10	178	138	340
3	90L	165 ±0.3	130 +0.014 -0.011	200±0.3	12 +0.43 +0.00	3.5	10	178	138	355
4	100L	215 ±0.3	180 +0.014 -0.011	250±0.3	15 +0.43 +0.00	4	11	195	145	410
5	112L	215 ±0.3	180 +0.014 -0.011	250±0.3	15 +0.43 +0.00	4	11	220	156	422
6	132S	265 ±0.3	230 +0.016 -0.013	300±0.3	15 +0.43 +0.00	4	12	258	175	495
7	132M	265 ±0.3	230 +0.016 -0.013	300±0.3	15 +0.43 +0.00	4	12	258	175	520

DRIVE END SHAFT EXTENSION AND KEY									
SL. No	Frame Size	ØD	E	ED	F	GD	GA	J ±0.1	Y
1	80	19 +0.009 -0.004	40	34	6 +0.000 -0.030	6 +0.000 -0.030	21.5	28	M6x1.0P-16 ↧
2	90S	24 +0.009 -0.004	50	45	8 +0.000 -0.036	7 +0.000 -0.090	27	40	M8x1.25P-20 ↧
3	90L	24 +0.009 -0.004	50	45	8 +0.000 -0.036	7 +0.000 -0.090	27	40	M8x1.25P-20↧
4	100L	28 +0.009 -0.004	60	55	8 +0.000 -0.036	7 +0.000 -0.090	31	50	M10x1.5P-24 ↧
5	112L	28 +0.009 -0.004	60	55	8 +0.000 -0.036	7 +0.000 -0.090	31	50	M10x1.5P-24 ↧
6	132S	38 +0.002 +0.018	80	75	10 +0.000 -0.036	8 +0.000 -0.090	41	70	M12x1.75P-28↧
7	132M	38 +0.002 +0.018	80	75	10 +0.000 -0.036	8 +0.000 -0.090	41	70	M12x1.75P-28↧

NOTE :
Terminal box can be rotated in steps of 90°.
One earthing terminal is provided inside main terminal box.
Marked as- *80mm is the Minimum distance to be maintained by the user for effective cooling.

GENERAL ASSEMBLY DRAWINGS FOR TEFC , FOOT CUM FLANGE MOUNTED-IMB35 , 3 PHASE INDUCTION MOTOR. FRAMES : VE80-VE132

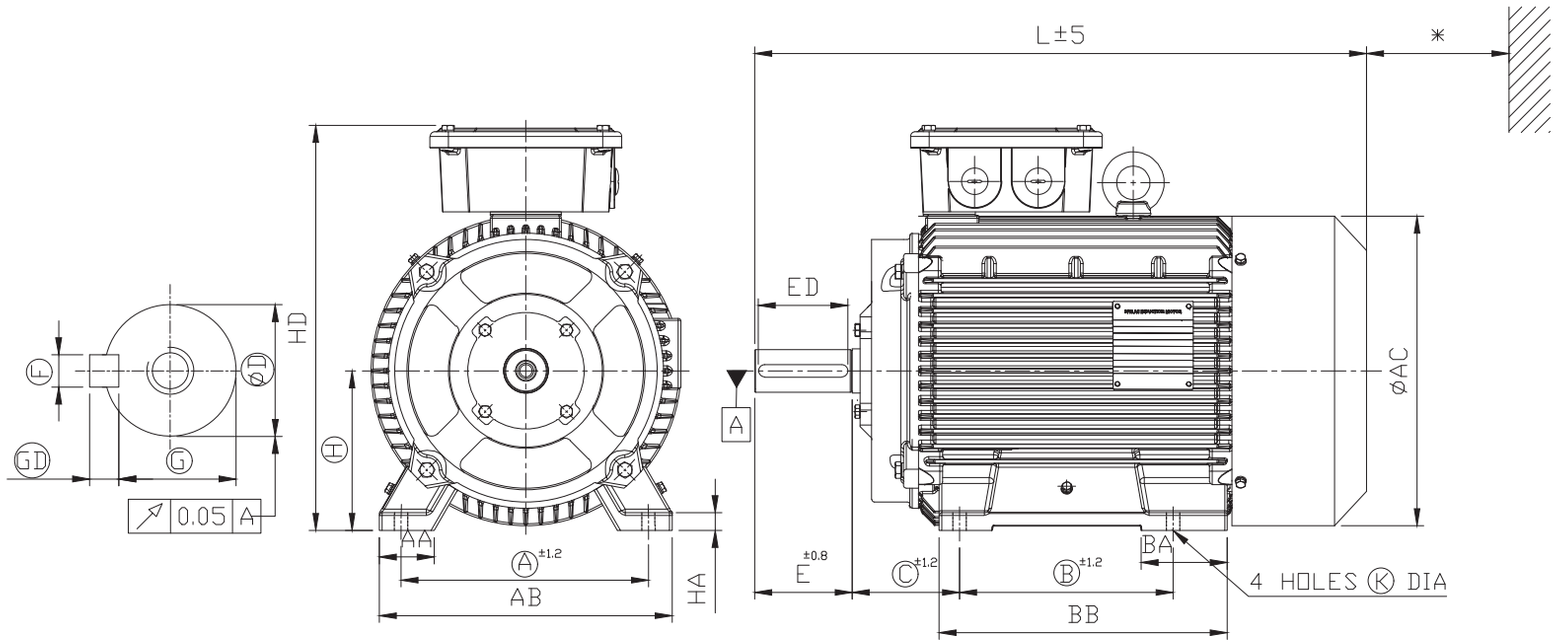


FOOT FIXING														FLANGE FIXING						OVER ALL			
SL. No	Frame Size	A	B		C	H		AA	AB	BA	BB	ØK x Nos		ØM	ØN		ØP	ØS		T. Max	LA (Ref)	HD	HA
1)	80	125±1.2	100±1.2		50±0.8	80	-0.0 -0.5	35	152	43	127	10	+0.360 +0.000 x 4	165±0.3	130	+0.014 -0.011	200±0.3	12	+0.43 +0.00	3.5	10	207	11
2)	90S	140±1.2	100±1.2	125±1.2	56±0.8	90	-0.0 -0.5	38	170	41	149	10	+0.360 +0.000 x 6	162 ±03	130	+0.014 -0.011	200±0.3	12	+0.43 +0.00	3.5	10	227	11
3)	90L	140±1.2	100±1.2	125±1.2	56±0.8	90	-0.0 -0.5	38	170	36	160	10	+0.360 +0.000 x 6	165 ±0.3	130	+0.014 -0.011	200±0.3	12	+0.43 +0.00	3.5	10	227	11
4)	100L	160±1.2	140±1.2		63±0.8	100	-0.0 -0.5	52.5	200	58	190	12	+0.430 +0.000 x 4	215 ±0.3	180	+0.014 -0.011	250±0.3	15	+0.43 +0.00	4	11	245	15
5)	112M	190±1.2	140±1.2		70±0.8	112	-0.0 -0.5	48	220	67.5	198	12	+0.430 +0.000 x 4	215 ±0.3	180	+0.014 -0.011	250±0.3	15	+0.43 +0.00	4	11	268	15
6)	132S	216±1.2	140±1.2	178±1.2	89±0.8	132	-0.0 -0.5	51.5	244	43.5	221	12	+0.430 +0.000 x 6	265 ±0.3	230	+0.016 -0.013	300±0.3	15	+0.43 +0.00	4	12	305	15
7)	132M	216±1.2	140±1.2	178±1.2	89±0.8	132	-0.0 -0.5	54	244	60	240	12	+0.430 +0.000 x 6	265 ±0.3	230	+0.016 -0.013	300±0.3	15	+0.43 +0.00	4	12	305	15

DRIVE END SHAFT EXTENSION AND KEY									
SL. No	Frame Size	ØD	E	ED	F	GD	GA	J ±0.1	Y
1	80	19 +0.009 -0.004	40	34	6 +0.000 -0.030	6 +0.000 -0.030	21.5	28	M6x1.0P-16 ↧
2	90S	24 +0.009 -0.004	50	45	8 +0.000 -0.036	7 +0.000 -0.090	27	40	M8x1.25P-20 ↧
3	90L	24 +0.009 -0.004	50	45	8 +0.000 -0.036	7 +0.000 -0.090	27	40	M8x1.25P-20↧
4	100L	28 +0.009 -0.004	60	55	8 +0.000 -0.036	7 +0.000 -0.090	31	50	M10x1.5P-24 ↧
5	112L	28 +0.009 -0.004	60	55	8 +0.000 -0.036	7 +0.000 -0.090	31	50	M10x1.5P-24 ↧
6	132S	38 +0.002 +0.018	80	75	10 +0.000 -0.036	8 +0.000 -0.090	41	70	M12x1.75P-28↧
7	132M	38 +0.002 +0.018	80	75	10 +0.000 -0.036	8 +0.000 -0.090	41	70	M12x1.75P-28↧

NOTE :
Terminal box can be rotated in steps of 90°.
One earthing terminal is provided inside main terminal box.
Marked as- *80mm is the Minimum distance to be maintained by the user for effective cooling.

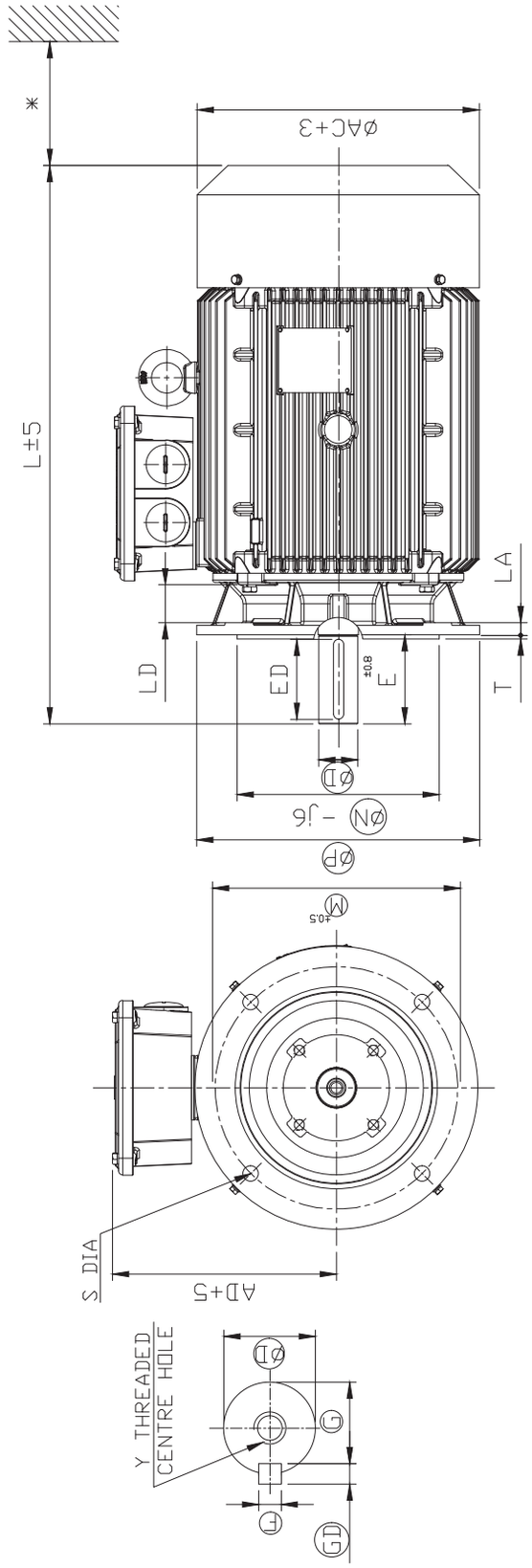
GENERAL ASSEMBLY DRAWINGS FOR TEFC, FOOT MOUNTED-IMB3 , 3 PHASE INDUCTION MOTORS. FRAMES : VE160-VE200L



FRAME SIZE	KW 3000 RPM	KW 1500 RPM	KW 1000 RPM	FOOT FIXING									OVER ALL				D END SHAFT EXTENSION AND KEY						
				A	B	C	H	AA	AB	BA	BB	K	AC	L	HD	HA	D	E	ED	F	GD	G	y
160M	11 & 15	11	7.5	254	210	108	160	60	314	60	266	15	309	600	372	20	42	110	100	12	8	37	M16x32
160L	18.5	15	11	254	254	108	160	60	314	60	266	15	309	644	372	20	42	110	100	12	8	37	M16x32
180M	22	18.5	-	279	241	121	180	62	330	97	325	15	349	690	457	20	48	110	100	14	9	42.5	M16 x32
180L	-	22	15	279	279	121	180	62	330	97	325	15	349	690	457	20	48	110	100	14	9	42.5	M16x32
200L	30 & 37	30	18.5 & 22	318	305	133	200	87	390	71	368	19	384	750	497	24	55	110	100	16	10	49	M20x40

NOTE: 1. One earthing terminal is provied inside main terminal box.
2.* 100mm minimum distance to be maintained for efficient cooling of motor.

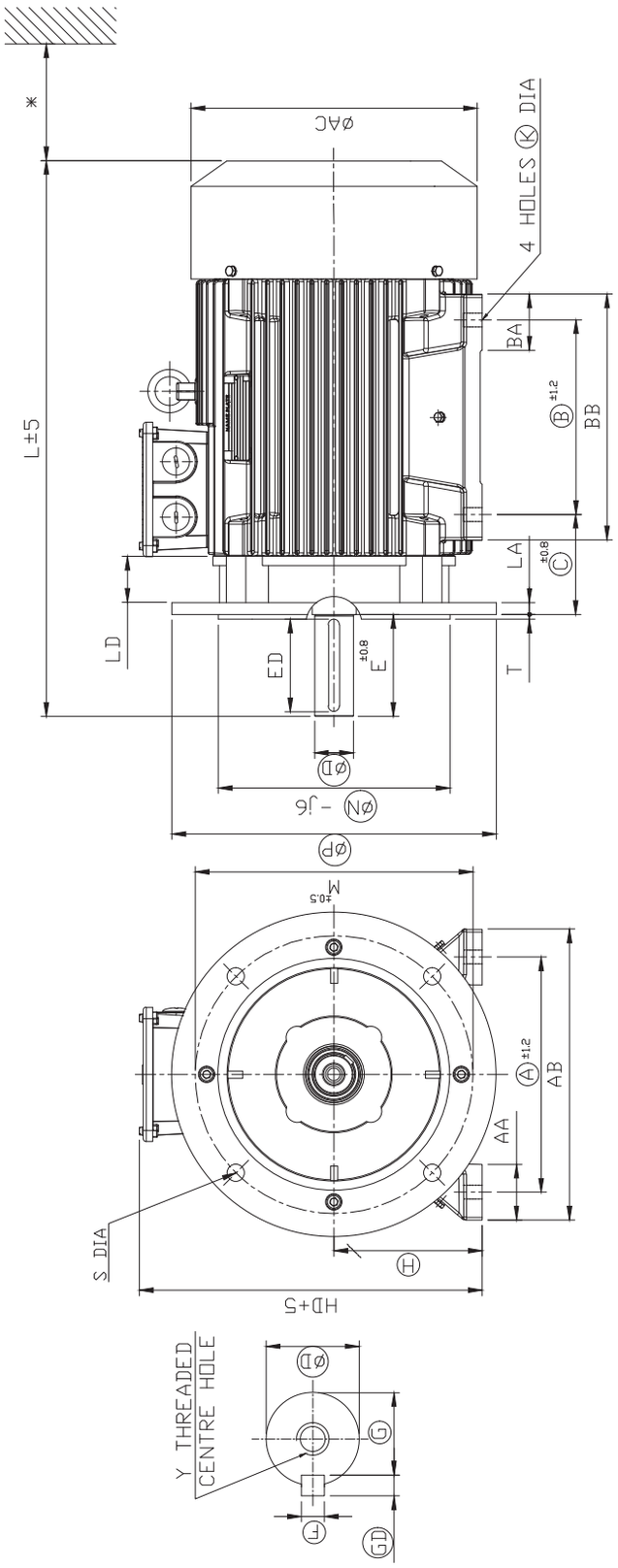
GENERAL ASSEMBLY DRAWINGS FOR TEFC, FLANGE MOUNTED-IMB5 / IMV1, 3 PHASE INDUCTION MOTORS. VE160-VE200L



FRAME SIZE	KW 3000 RPM	KW 1500 RPM	KW 1000 RPM	FLANGE								OVER ALL			D END SHAFT EXTENSION AND KEY							
				N	P	M	S	T	LA	LD min	AC	L	AD	D	E	ED	F	GD	G	y
160M	11&15	11	7.5	250	350	300	19	5	13	32	309	600	212	42	1 10	100	12	8	37	M16x32
160L	18 .5	15	11	250	350	300	19	5	13	32	309	644	212	42	110	100	12	8	37	M16x32
180M	22	18.5		250	350	300	19	5	15	32	349	690	277	48	110	100	14	9	42.5	M16x32
180L	-	22	15	250	350	300	19	5	15	32	349	690	277	48	110	100	14	9	42.5	M16x32
200L	30&37	30	18.5&22	300	400	350	19	5	20	32	384	750	297	55	110	100	16	10	49	M20x40

NOTE: 1. One earthing terminal is provied inside main terminal box.
2.* 100mm minimum distance to be maintained for efficient cooling of motor.

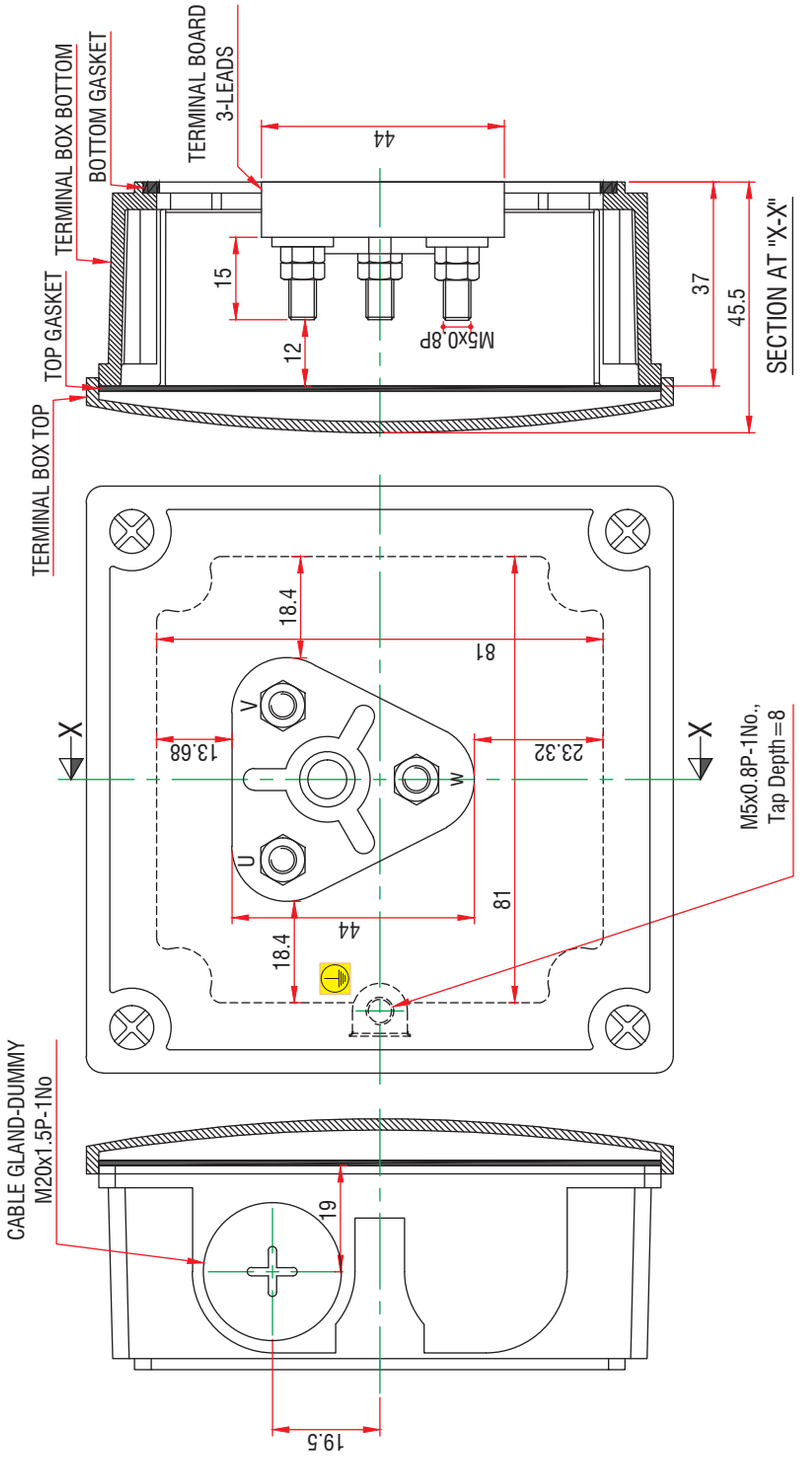
GENERAL ASSEMBLY DRAWINGS FOR TEFC, FOOT CUM FLANGE MOUNTED-IMB35, 3 PHASE INDUCTION MOTORS. FRAMES : VE160-VE200L



FRAME SIZE	KW 3000 RPM	KW 1500 RPM	KW 1000 RPM	FOOT FIXING										FIANGE							D END SHAFT EXTENSION AND KEY								OVER AU.			
				A	B	C	H	M	AB	BA	BB	K	N	P	M	S	T	LA	LD min	D	E	ED	F	GD	G	y	AC	L	HD	HA
160M	11&15	11	7.5	254	210	108	160	60	314	60	266	15	250	350	300	19	5	13	32	42	110	100	12	8	37	M16x32	309	800	372	20
160L	18.5	15	11	254	254	108	160	60	314	60	266	15	250	350	300	19	5	13	32	42	110	100	12	8	37	M16 x32	309	640	372	20
160M	22	18.5		279	241	121	180	62	330	97	325	15	250	350	300	19	5	15	32	46	110	100	14	9	42.5	M16x32	349	690	457	20
180L	-	22	15	279	279	121	180	62	330	97	325	15	250	350	300	19	5	15	32	46	110	100	14	9	42.5	M16x32	349	690	457	20
200L	30&37	30	18.5&22	318	305	133	200	87	390	71	368	19	300	400	350	19	5	20	32	55	110	100	16	10	49	M20x40	384	750	497	24

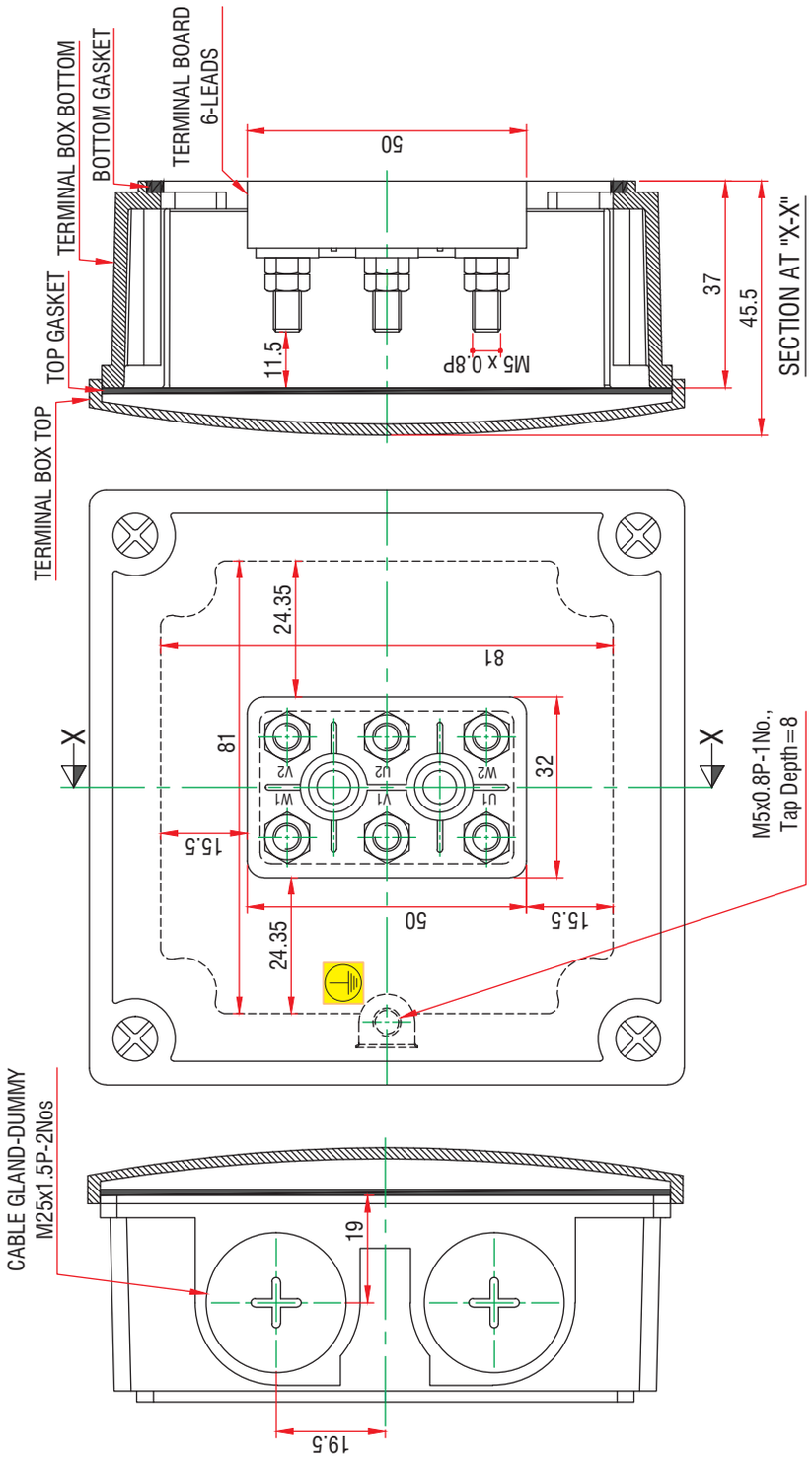
NOTE: 1. One earthing terminal is provied inside main terminal box.
2.* 100mm minimum distance to be maintained for efficient cooling of motor.

TERMINAL BOX ARRANGEMENT : 3 LEADS
FOR MOTORS < 2.20 KW



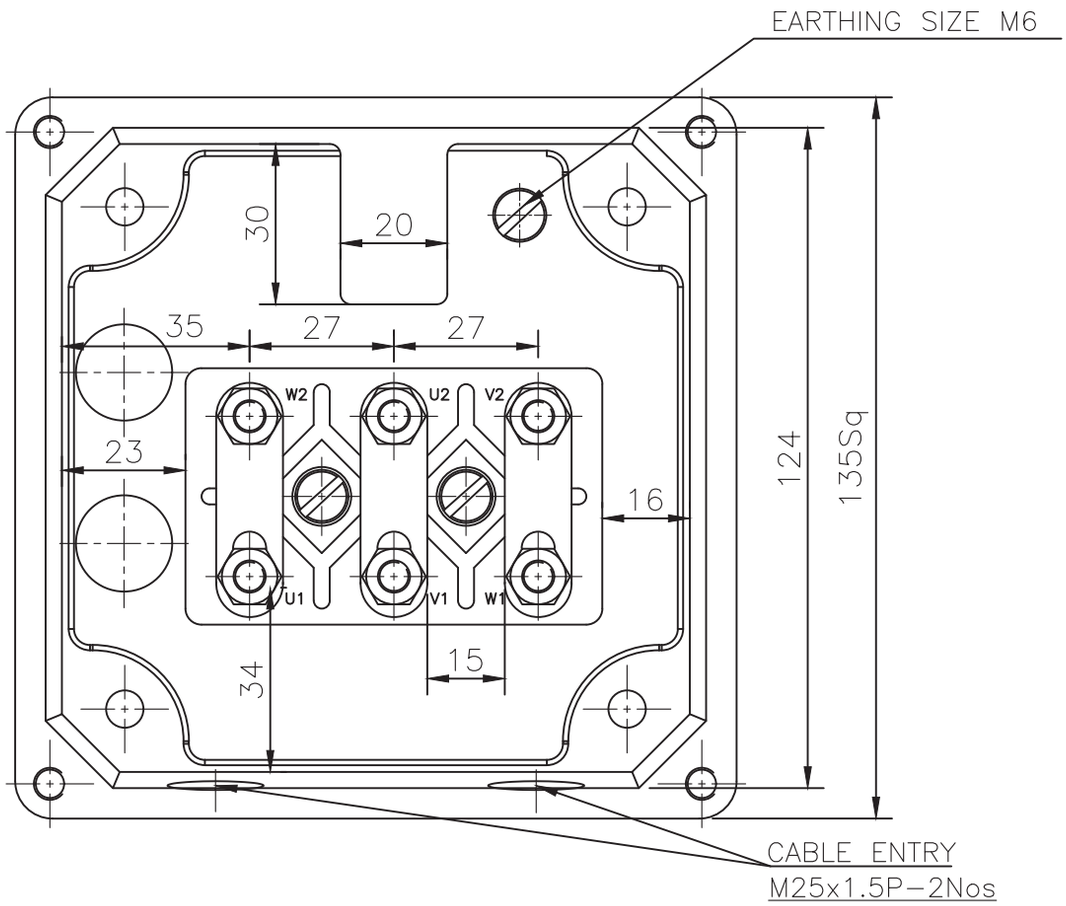
NOTE:
Terminal box can be rotated in steps of 90°.
One earthing terminal is provided inside main terminal box.
Cable Glands not in Varuna Electric's scope of supply

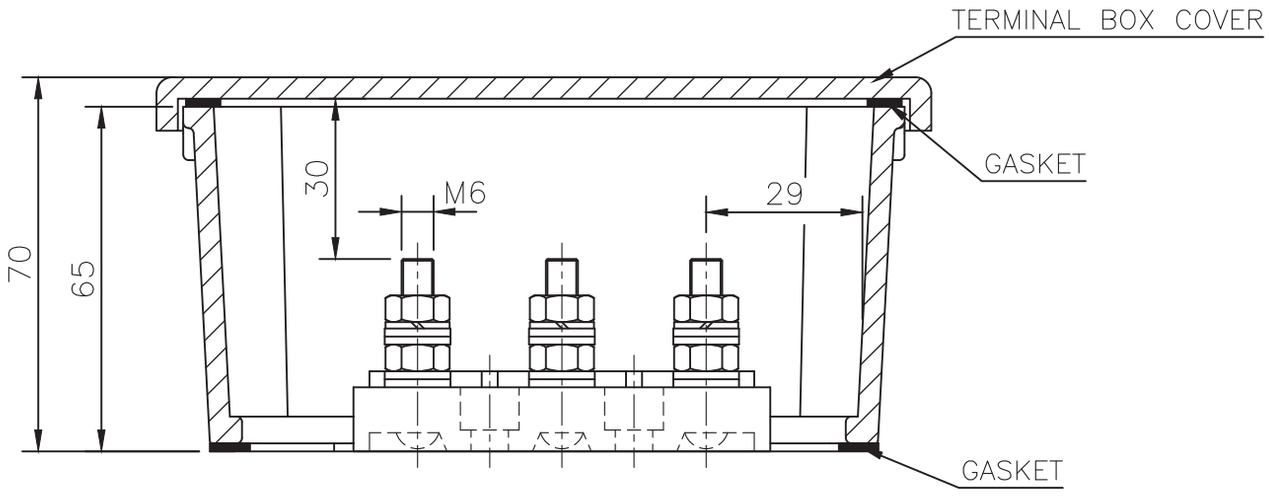
TERMINAL BOX ARRANGEMENT : 6 LEADS
FOR MOTORS ≥ 2.20 KW & UPTO 132 FRAME.



NOTE:
Terminal box can be rotated in steps of 90°.
One earthing terminal is provided inside main terminal box.
Cable Glands not in Varuna Electric's scope of supply

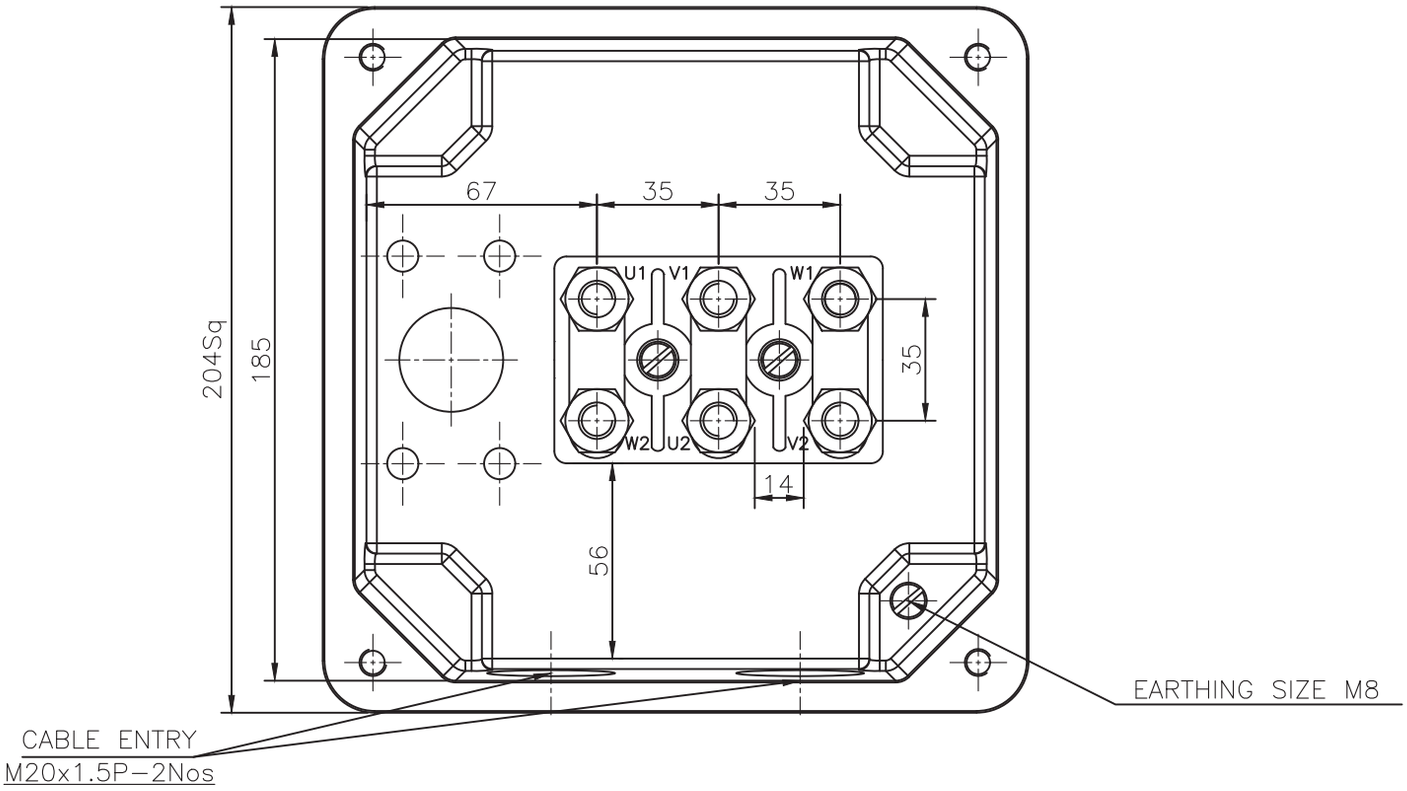
TERMINAL BOX ARRANGEMENT : VE160 FRAME.

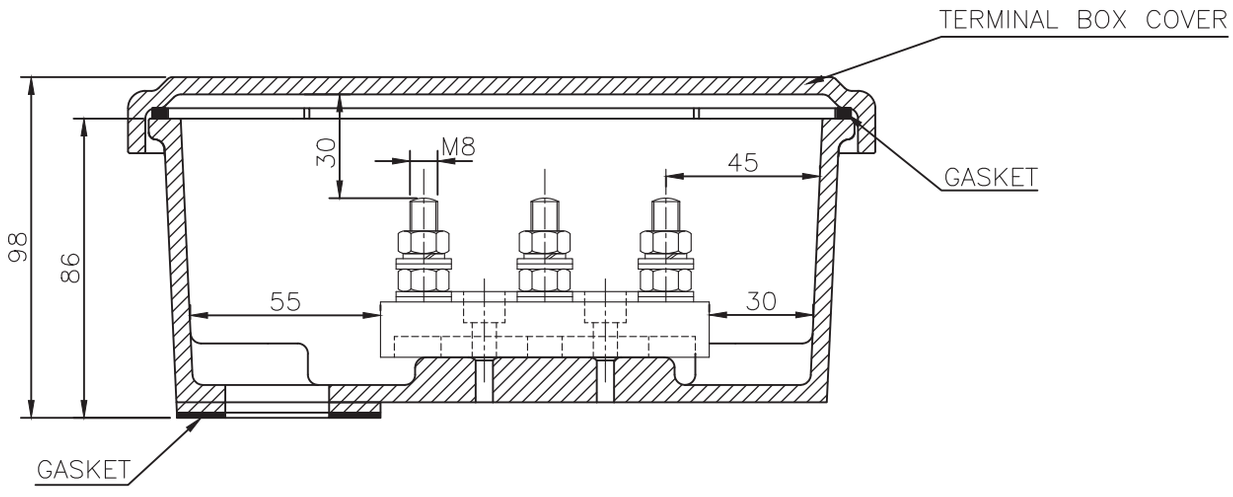




NOTE:
Terminal box can be rotated in steps of 90°.
One earthing terminal is provided inside main terminal box.
Cable Glands not in Varuna Electric's scope of supply

TERMINAL BOX ARRANGEMENT : VE180-VE200 FRAME





NOTE:
Terminal box can be rotated in steps of 90°.
One earthing terminal is provided inside main terminal box.
Cable Glands not in Varuna Electric's scope of supply

SHAFT DETAILS:

All Varuna Electric Motors are provided with machined shaft made of EN8 Steel. The shafts are ultrasonically tested for detection of flaws.

The values given in the following tables for radial thrust are assumed at the centre of the extended shaft length.

Maximum Radial Pull in Kgs.
At centre of shaft extension

Pole /Synch Speed	2 / 3000	4 / 1500	6 / 1000
Frame Size			
VE80	53	66	76
VE90S/L	46	57	66
VE100L	66	83	96
VE112M	95	120	138
VE132S/M	137	173	198
VE160M/L	255	305	305
VE180M/L	300	380	395
VE200L	400	505	580

Maximum Radial Pull in Kgs.
At centre of shaft extension

Pole /Synch Speed	2 / 3000	4 / 1500 6P UP	
Frame Size	Pulley Dia.		Face Width
VE80	75	75	50
VE90S/L	75	75	63
VE100L	75	75	80
VE112M	100	100	100
VE132S/M	120	120	125
VE160M/L	120	180	177
VE180M/L	125	200	203
VE200L	130	220	280

(For Direct -Flexible Coupling)

BEARINGS SIZES:

All Varuna Electric Motors are provided with “Greased for Life”, deep groove anti-friction ball bearings.

We confirm L-10 life* of bearings of 40,000 hours for standard motors subject to the operation of the motor within the following permissible limits of axial / radial loads and operating conditions of environment, temperature and speed .

Following are the bearing sizes:

Frame size	DE Bearing	NDE Bearing
VE80	6204ZZ	6203ZZ
VE90S /L	6205ZZ	6204ZZ
VE100L	6206ZZ	6205ZZ
VE112M	6206ZZ	6305ZZ
VE132S/M	6208ZZ	6207ZZ
VE160M/L	6309ZZ	6309ZZ
VE180M/L	6310ZZ	6310ZZ
VE200L	6312ZZ	6312ZZ

CABLE SIZE:

All Varuna Electric Motors are provided with adequately sized terminal boxes to accommodate cable sizes as mentioned in table below.

Frame	Cable size mm^2	Cable entry	No. of Entries
VE80	1X3C X4	M20 X 1.5	1
VE90S /L	1X3C X4	M20 X 1.5	1
VE100L	2X3CX6	M20 X 1.5	2
VE112M	2X3CX10	M25 X 1.5	2
VE132S/M	2X3CX10	M25 X 1.5	2
VE160M/L	2X3CX25	M25 X 1.5	2
VE180M/L	2X3CX25	M25 X 1.5	2
VE200L	2X3CX25	M40 X 1.5	2

ORDERING CODES:

IE2 Motors with Class F Insulation & Temperature Rise Limited to Class B Limits, Safe Area, Foot Mounted.

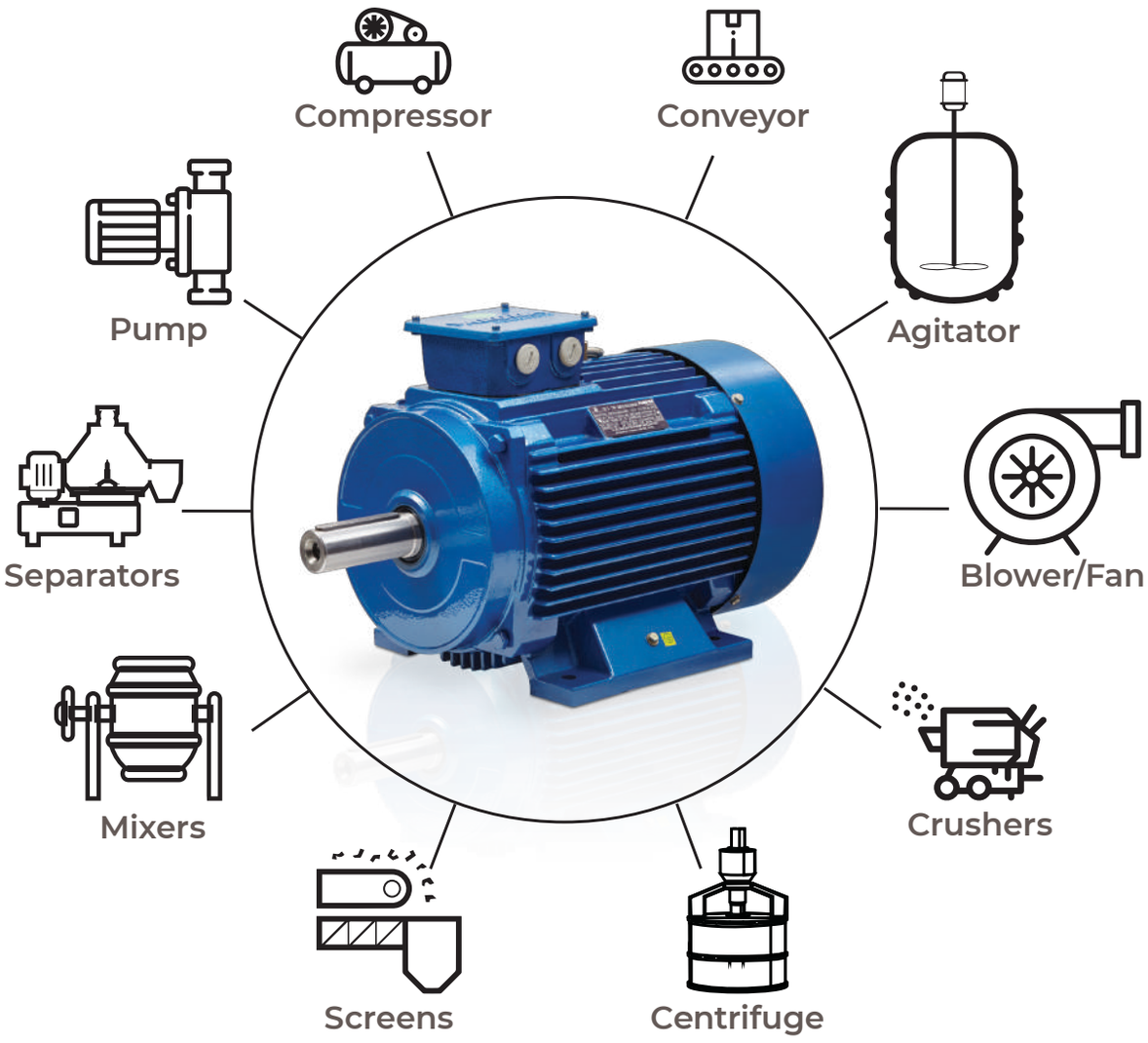
Please use the following codes while ordering.

Sr. No	KW	HP	2 Pole -3000 RPM		4 Pole-1500 RPM		6 Pole-1000 RPM	
			Frame	Ordering Code	Frame	Ordering Code	Frame	Ordering Code
1	0.75	1	VE80	Please contact Varuna Electric	VE80	VEM0P7543CB3TSIE2	VE90S	VEM0P7563CB3TSIE2
2	1.1	1.5	VE80	Please contact Varuna Electric	VE90S	VEM1P1043CB3TSIE2	VE90L	Please contact Varuna Electric
3	1.5	2	VE90S	VEM1P5023CB3TSIE2	VE90L	VEM1P5043CB3TSIE2	VE100L	VEM1P5063CB3TSIE2
4	2.2	3	VE90L	VEM2P2023CB3TSIE2	VE100L	VEM2P2043CB3TSIE2	VE112M	VEM2P2063CB3TSIE2
5	3.7	5	VE100L	VEM3P7023CB3TSIE2	VE112M	VEM3P7043CB3TSIE2	VE132S	VEM3P7063CB3TSIE2
6	5.5	7.5	VE132S	VEM5P5023CB3TSIE2	VE132S	VEM5P5043CB3TSIE2	VE132M	VEM5P5063CB3TSIE2
7	7.5	10	VE132S	VEM7P5023CB3TSIE2	VE132M	VEM7P5043CB3TSIE2	VE160M	Please contact Varuna Electric
8	9.3	13	VE160M	Please contact Varuna Electric	VE160M	Please contact Varuna Electric	VE160M	Please contact Varuna Electric
9	11	15	VE160M	VEM11P023CB3TSIE2	VE160M	VEM11P043CB3TSIE2	VE160L	VEM11P063CB3TSIE2
10	15	20	VE160M	VEM15P023CB3TSIE2	VE160L	VEM15P043CB3TSIE2	VE180L	Please contact Varuna Electric
11	18.5	25	VE160L	VEM18P523CB3TSIE2	VE180M	VEM18P543CB3TSIE2	VE200L	Please contact Varuna Electric
12	22	30	VE180M	VEM22P023CB3TSIE2	VE180L	VEM22P043CB3TSIE2	VE200L	Please contact Varuna Electric
13	30	40	VE200L	VEM30P023CB3TSIE2	VE200L	VEM30P043CB3TSIE2	VE225M	Please contact Varuna Electric
14	37	50	VE200L	VEM37P023CB3TSIE2	VE225S	Please contact Varuna Electric	VE250M	Please contact Varuna Electric

**For Any Ratings / Mountings not covered above please get in touch with Varuna Electric.*

APPLICATIONS:

The major benefit to use these motors are in continuous, extremely harsh and severe application like cement, textiles, construction, steel, food & beverages, water & wastewater, sugar, distilleries etc.



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