

dharani[®] MOTORS

ENERGY EFFICIENT MOTORS

Cutting-edge Technology... Powered by Quality...
Designed to Deliver... Engineered for Excellence...



IE2 IE3 CE



0.25 to 75 hp
2/4/6/8 Pole
Single Phase Motors
Three Phase Motors
Brake Motors
Customized Motors



ASIA ENGINEERING

*Thinner steel laminations
decrease eddy current losses*

*More copper wire of larger
diameter in the stator saves
energy by reducing the
resistance of the stator
winding*

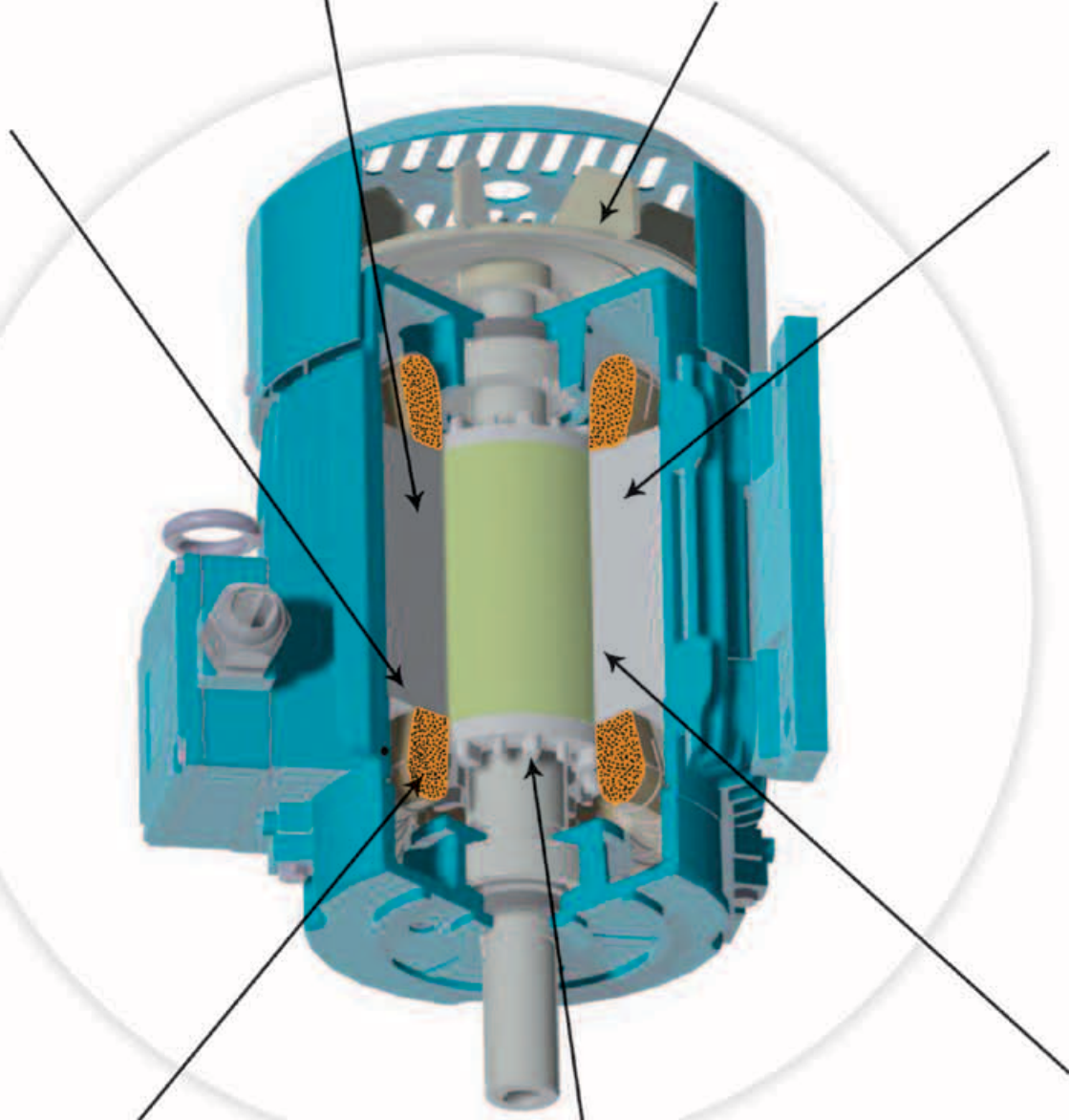
*Longer stator lowers
magnetic density and
increases cooling
capacity. As a result,
both magnetic and load
losses are reduced*

*Efficient cooling fan
design improves air
flow and reduces
power required to
drive the fan*

*Premium grade steel
core reduces hysteresis
power losses*

*Larger conductive bars
and end rings reduce
rotor resistance losses*

*Modified stator slot design helps to
decrease magnetic losses and makes
room for larger diameter wire*



dharanji[®] MOTORS – Vision

“We are on our journey with our customers to the right destination with a well-clarified purpose.”

dharanji[®] MOTORS – Organisation Purpose

“To grow with continuous learning. To learn to lead customers to definite growth.”

dharanji[®] MOTORS – Values



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PRODUCT NOTE

**DHARANI – THREE PHASE INDUCTION MOTORS – IE2
EFFICIENCY CLASS**

STANDARD MOTORS

FRAME SIZE : 63 – 250M

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SPECIFICATION TABLE		MODEL
IE2 EFFICIENCY – THREE PHASE INDUCTION MOTORS		PAGE 2 of 86
ITEM		STANDARD SPECIFICATION
R A T I N G	Kind of Motor	Three Phase Squirrel Cage Induction Motor
	Voltages & Frequency	Rated voltage 415 V $\pm$ 10% (Or as request on all commonly Used Voltages) 50 Hz $\pm$ 5% - (Or as on request) Rated voltage 460 V , 380 V $\pm$ 10% (On request all commonly Used Voltages) 60 Hz $\pm$ 5% - (Or as on request).
	Output Range	0.18 kW to 55 kW
	R.P.M (Syn.)	50 Hz 3000 RPM (2P), 1500 RPM (4P), 1000 RPM (6P), 750 RPM (8P)
		60 Hz 3600 RPM (2P), 1800 RPM (4P), 1200 RPM (6P), 900 RPM (8P)
	Time Duty	S1 Continuous (S2 – S9 On request)
	Frame Size	63 – 250M
	Protection Enclosure	IP 55
	Cooling Method	Self-External Fan, Surface Cooling (IC 411)
	Mounting	B3 (Foot), B5 (Flange), B14 (Face). B35 (Foot & Flange), B34 (Foot & Face)
A P P L I C A T I O N	Power Condition	Voltage: $\pm$ 10%, Frequency $\pm$ 5%, and 10% Max. of Combined Voltage and Frequency, But Frequency Variation does not Exceed $\pm$ 5%
	Environment Conditions	Place: Non - Hazardous. Ambient Temperature: - 20°C to + 60°C ;
		Relative Humidity: Up 95%
		Altitude: Up to 1000 m (3300 ft).
	Type of Starting	For Motor – Star Connection $\leq$ 3.70 kW – Direct-On-line For Motor – Delta Connection > 3.70 kW – Direct-On-line / Star Delta
C O N S T R U C T I O N	Dimensions	Refer Sheet No – 10, 11, 12
	General Enclosure Material	Frames : 63, 71, 80 – Aluminium Frame / Cast Iron - End Shields
		Frames : 80 - 250M – Cast Iron – Frame, Cast Iron – End Shields
	External Fan	Plastic.
	Fan Cover	Pressed Steel.
	Shaft	Carbon Steel, Cylinder Single Extension with Key seat and Key.
	Bearing	Deep Groove Ball Bearing - 2Z / C3 up to 160L Frame. From 180M to 250M – C3 Bearings with on line lubrication arrangement. As per Table Refer Page 9.
	Terminal Housing	Top. (RHS & LHS On Request)
	Stator Winding	Pre - Formed, Coils of Dual Coated Enamelled Copper Wire
	Stator Insulation	Class F Insulation System
	Rotor Winding	Squirrel Cage, Aluminium Conductor with End Ring
	Enclosure	Totally Enclosed Fan Cooled (TEFC)

SPECIFICATION TABLE		MODEL
IE2 EFFICIENCY – THREE PHASE INDUCTION MOTORS		PAGE 3 of 86
P E R F O R M A N C E	ITEM	STANDARD SPECIFICATION
	Painting	RAL Blue -GP COAT 131 RAL BLUE - K1 5010 G/F 3:1 / JET Black-GP TRUCOAT 336 PRICOL BLACK (JET) DM/ F/
	Name Plate Sticker	Affixed on the Motor Casing
	Bolt Thread	ISO Metric System.
	Grounding Terminal	Provided in the Terminal Housing
	Typical Performance	Refer Sheet No – 4, 5, 6, 7, 8, 9
	Temperature Rise	Temperature Rise Limited to Class B
	All Dharani Motors shall comply with the latest International and Indian Standards. These are as under: List of International Standards: 1. IEC60034-1: Rotating Electrical Machines, Part-1; Rating and Performance. 2. IEC60034-2-1 Standard Methods for Determining Losses and Efficiency. 3. IEC60034-5: Degree of Protection. 4. IEC60034-6: Method of Cooling. 5. IEC60034-9: Noise Limits. 6. IEC60034-14: Mechanical Vibrations Measurement, Evaluation and Limits of Severity. 7. IEC60034-30: Efficiency Classes of Single Speed Three Phase Squirrel Cage Induction Motors. 8. IEC60072-1: Dimensions and Output Ratings of Electrical Machines. List of Indian Standards: 1. IS1231: Dimensions of Three Phase Induction Motors- Foot Mounted. 2. IS2223: Dimensions of Flange Mounted AC Induction Motors. 3. IS2253: Designations of Types of Construction and Mounting Arrangements for Rotating Electrical Machines. 4. IS4029: Guide for Testing Three Phase Induction Motors. 5. IS4691: Degree of Protection Provided by Enclosures for Rotating Electrical Machinery. 6. IS4889: Methods of Determination of Efficiency of Rotating Electrical Machines. 7. IS6362: Designation of Method of Cooling for Rotating Electrical Machines. 8. IS7538: Three Phase Squirrel Cage Induction Motors for Centrifugal Pumps for Agricultural Applications. 9. IS12065: Permissible Limits of Noise Levels for Rotating Electrical Machines. 10. IS12075: Mechanical Vibrations of Rotating Electrical Machines; Measurements, Evaluations and Limits of Vibration Severity. 11. IS12615: Efficiency Classes and Performance Specification. 12. IS15999: Rotating Electrical Machines. 13. IS8151: Single Speed Three Phase Induction Motors for Lifts.	

PERFORMANCE DATA

IE2 EFFICIENCY – THREE PHASE INDUCTION MOTORS

Efficiency Class As per IEC 60034-3-1 & IS 12615

MODEL

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PERFORMANCE DATA FOR 3PHASE 415 V 50 Hz - 2POLE IE2 MOTORS

OUTPUT (kW)		FRAME SIZE	RATED SPEED	FLC	FLT	% EFFICIENCY	POWER FACTOR	STARTING CURRENT	STARTING TORQUE	PULL OUT TORQUE	NET WEIGHT
POLE	kW		RPM	(A)	(Kg -m)	FL	(%)	(%)	(%)	(%)	(kgs)
2	0.18	63	2830	0.75	0.06	60.4	0.54	600	170	220	4.60
2	0.25	63	2850	0.80	0.09	64.8	0.64	600	170	220	4.60
2	0.37	71	2840	1.20	0.13	69.5	0.67	600	180	240	9.60
2	0.55	71	2845	1.45	0.19	74.1	0.69	650	180	240	9.60
2	0.75	80	2848	1.60	0.26	77.4	0.82	500	250	300	10.00
2	1.10	80	2845	2.40	0.38	79.6	0.82	600	270	320	11.00
2	1.50	90S	2840	3.30	0.52	81.3	0.81	650	260	310	27.00
2	2.20	90L	2820	4.28	0.76	83.2	0.85	650	280	330	28.00
2	3.70	100L	2870	7.08	1.27	85.5	0.85	650	280	330	36.00
2	5.50	132S	2920	10.10	1.83	87.0	0.85	700	275	325	72.00
2	7.50	132S	2940	13.50	2.49	88.1	0.85	700	275	325	75.00
2	11.00	160M	2940	21.50	3.60	89.4	0.88	700	300	325	112.00
2	15.00	160M	2940	29.00	5.00	90.3	0.86	700	250	300	121.00
2	18.50	160L	2930	35.00	6.10	90.9	0.85	700	300	350	135.00
2	22.00	180M	2940	41.50	7.30	91.3	0.87	700	200	250	210.00
2	30.00	200L	2940	55.00	9.90	92.0	0.89	700	260	310	236.00
2	37.00	200L	2940	67.00	12.20	92.5	0.87	700	220	270	270.00
2	45.00	225M	2955	80.00	14.25	92.9	0.88	700	220	270	290.00
2	55.00	250M	2960	95.00	17.81	93.2	0.89	700	220	270	375.00

PERFORMANCE DATA FOR 3PHASE 460 V 60 Hz - 2POLE IE2 MOTORS

OUTPUT (kW)		FRAME SIZE	RATED SPEED	FLC	FLT	% EFFICIENCY	POWER FACTOR	STARTING CURRENT	STARTING TORQUE	PULL OUT TORQUE	NET WEIGHT
POLE	kW		RPM	(A)	(Kg -m)	FL	(%)	(%)	(%)	(%)	(kgs)
2	0.18	63	3426	0.64	0.06	64.0	0.54	600	170	220	4.60
2	0.25	63	3420	0.71	0.09	68.0	0.64	600	170	220	4.60
2	0.37	71	3420	1.02	0.13	72.0	0.67	600	180	240	9.60
2	0.55	71	3470	1.21	0.19	74.0	0.69	650	180	240	9.60
2	0.75	80	3482	1.33	0.26	75.5	0.82	500	250	300	10.00
2	1.10	80	3490	2.00	0.38	82.5	0.82	600	270	320	11.00
2	1.50	90S	3498	2.75	0.52	84.0	0.81	650	260	310	27.00
2	2.20	90L	3480	3.75	0.76	85.5	0.85	650	280	330	28.00
2	3.70	100L	3480	5.90	1.27	87.5	0.85	650	280	330	36.00
2	5.50	132S	3606	8.41	1.83	88.5	0.85	700	275	325	72.00
2	7.50	132S	3635	11.25	2.49	89.5	0.85	700	275	325	75.00
2	11.00	160M	3642	17.91	3.60	90.2	0.88	700	300	325	112.00
2	15.00	160M	3644	24.16	5.00	90.2	0.86	700	250	300	121.00
2	18.50	160L	3646	29.16	6.10	91.0	0.85	700	300	350	135.00
2	22.00	180M	3658	34.57	7.30	91.0	0.87	700	200	250	210.00
2	30.00	200L	3660	45.82	9.90	91.7	0.89	700	260	310	236.00
2	37.00	200L	3670	55.81	12.20	92.4	0.87	700	220	270	270.00
2	45.00	225M	3676	66.64	14.25	93.0	0.88	700	220	270	290.00
2	55.00	250M	3672	79.14	17.81	93.0	0.89	700	220	270	375.00

PERFORMANCE DATA

IE2 EFFICIENCY – THREE PHASE INDUCTION MOTORS

Efficiency Class As per IEC 60034-3-1 & IS 12615

MODEL

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PERFORMANCE DATA FOR 3PHASE 380 V 60 Hz - 2POLE IE2 MOTORS

OUTPUT (kW)		FRAME SIZE	RATED SPEED	FLC	FLT	% EFFICIENCY	POWER FACTOR	STARTING CURRENT	STARTING TORQUE	PULL OUT TORQUE	NET WEIGHT
POLE	kW		RPM	(A)	(Kg -m)	FL	(%)	(%)	(%)	(%)	(kgs)
2	0.18	63	3426	0.78	0.06	64.0	0.54	600	170	220	4.60
2	0.25	63	3420	0.86	0.09	68.0	0.64	600	170	220	4.60
2	0.37	71	3420	1.24	0.13	72.0	0.67	600	180	240	9.60
2	0.55	71	3470	1.46	0.19	74.0	0.69	650	180	240	9.60
2	0.75	80	3482	1.61	0.26	75.5	0.82	500	250	300	10.00
2	1.10	80	3490	2.42	0.38	82.5	0.82	600	270	320	11.00
2	1.50	90S	3498	3.33	0.52	84.0	0.81	650	260	310	27.00
2	2.20	90L	3480	4.32	0.76	85.5	0.85	650	280	330	28.00
2	3.70	100L	3480	7.41	1.27	87.5	0.85	650	280	330	36.00
2	5.50	132S	3606	10.18	1.83	88.5	0.85	700	275	325	72.00
2	7.50	132S	3635	13.61	2.49	89.5	0.85	700	275	325	75.00
2	11.00	160M	3642	21.68	3.60	90.2	0.88	700	300	325	112.00
2	15.00	160M	3644	29.24	5.00	90.2	0.86	700	250	300	121.00
2	18.50	160L	3646	35.29	6.10	91.0	0.85	700	300	350	135.00
2	22.00	180M	3658	41.85	7.30	91.0	0.87	700	200	250	210.00
2	30.00	200L	3660	55.46	9.90	91.7	0.89	700	260	310	236.00
2	37.00	200L	3670	67.56	12.20	92.4	0.87	700	220	270	270.00
2	45.00	225M	3676	80.67	14.25	93.0	0.88	700	220	270	290.00
2	55.00	250M	3672	95.80	17.81	93.0	0.89	700	220	270	375.00

PERFORMANCE DATA

IE2 EFFICIENCY – THREE PHASE INDUCTION MOTORS
Efficiency Class As per IEC 60034-3-1 & IS 12615

MODEL

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PERFORMANCE DATA FOR 3PHASE 415 V 50 Hz - 4POLE IE2 MOTORS

OUTPUT (kW)		FRAME SIZE	RATED SPEED	FLC	FLT	% EFFICIENCY	POWER FACTOR	STARTING CURRENT	STARTING TORQUE	PULL OUT TORQUE	NET WEIGHT
POLE	kW		(RPM)	(A)	(kg-m)	FL	FL	(%)	% FLT	% FLT	(kgs)
4	0.12	63	1320	0.62	0.09	59.1	0.53	550	170	220	4.90
4	0.18	63	1320	0.82	0.13	64.7	0.66	550	225	275	4.90
4	0.25	71	1412	1.03	0.17	68.5	0.74	550	250	300	6.60
4	0.37	71	1400	1.20	0.26	72.7	0.73	600	200	250	6.60
4	0.55	80	1430	1.62	0.38	77.1	0.61	600	170	220	13.00
4	0.75	80	1402	1.95	0.52	79.6	0.71	500	200	250	14.00
4	1.10	90S	1436	2.70	0.75	81.4	0.76	600	250	300	25.00
4	1.50	90L	1424	3.32	1.02	82.8	0.78	600	275	325	28.00
4	2.20	100L	1432	4.96	1.49	84.3	0.75	650	200	250	36.00
4	3.70	112M	1425	7.34	2.52	86.3	0.79	650	260	310	45.00
4	5.50	132S	1440	10.59	3.69	87.7	0.82	650	250	300	72.00
4	7.50	132M	1445	14.50	5.04	88.7	0.84	650	250	300	80.00
4	11.00	160M	1440	22.00	7.40	89.8	0.83	650	175	225	110.00
4	15.00	160L	1440	30.00	10.10	90.6	0.85	650	175	225	133.00
4	18.50	180M	1440	36.00	12.40	91.2	0.85	650	250	300	205.00
4	22.00	180L	1450	43.00	14.60	91.6	0.84	650	200	250	216.0
4	30.00	200L	1450	57.00	19.90	92.3	0.86	700	260	310	265.00
4	37.20	225M	1450	69.00	24.70	92.7	0.82	700	260	310	280.00
4	45.00	225M	1460	84.00	29.00	93.1	0.80	700	260	310	300.00
4	55.00	250M	1460	100.00	36.08	93.5	0.82	700	260	310	370.00

PERFORMANCE DATA FOR 3PHASE 460 V 60 Hz - 4POLE IE2 MOTORS

OUTPUT (kW)		FRAME SIZE	RATED SPEED	FLC	FLT	% EFFICIENCY	POWER FACTOR	STARTING CURRENT	STARTING TORQUE	PULL OUT TORQUE	NET WEIGHT
POLE	kW		(RPM)	(A)	(kg-m)	FL	FL	(%)	% FLT	% FLT	(kgs)
4	0.12	63	1584	0.52	0.09	64.0	0.53	550	170	220	4.90
4	0.18	63	1584	0.68	0.13	68.0	0.66	550	225	275	4.90
4	0.25	71	1694	0.86	0.17	70.0	0.74	550	250	300	6.60
4	0.37	71	1680	1.00	0.26	72.0	0.73	600	200	250	6.60
4	0.55	80	1716	1.35	0.38	75.5	0.61	600	170	220	13.00
4	0.75	80	1682	1.62	0.52	78.0	0.71	500	200	250	14.00
4	1.10	90S	1723	2.25	0.75	84.0	0.76	600	250	300	25.00
4	1.50	90L	1709	2.77	1.02	84.0	0.78	600	275	325	28.00
4	2.20	100L	1718	4.13	1.49	87.5	0.75	650	200	250	36.00
4	3.70	112M	1710	6.11	2.52	87.5	0.79	650	260	310	45.00
4	5.50	132S	1728	8.82	3.69	89.5	0.82	650	250	300	72.00
4	7.50	132M	1734	12.08	5.04	89.5	0.84	650	250	300	80.00
4	11.00	160M	1728	18.33	7.40	91.0	0.83	650	175	225	110.00
4	15.00	160L	1728	24.99	10.10	91.0	0.85	650	175	225	133.00

dharani[®] MOTORS

PERFORMANCE DATA IE2 EFFICIENCY – THREE PHASE INDUCTION MOTORS Efficiency Class As per IEC 60034-3-1 & IS 12615										MODEL
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OUTPUT (kW)		FRAME SIZE	RATED SPEED	FLC	FLT	% EFFICIENCY	POWER FACTOR	STARTING CURRENT	STARTING TORQUE	PULL OUT TORQUE	NET WEIGHT
POLE	kW		(RPM)	(A)	(kg-m)	FL	FL	(%)	% FLT	% FLT	(kgs)
4	18.50	180M	1740	31.00	10.90	92.4	0.84	650	200	250	206.0
4	22.00	180L	1740	35.82	14.60	92.4	0.84	650	200	250	216.0
4	30.00	200L	1740	47.48	19.90	93.0	0.86	700	260	310	265.00
4	37.20	225M	1740	57.48	24.70	93.0	0.82	700	260	310	280.00
4	45.00	225M	1752	69.97	29.00	93.6	0.80	700	260	310	300.00
4	55.00	250M	1752	83.30	36.08	94.1	0.82	700	260	310	370.00

PERFORMANCE DATA FOR 3PHASE 380 V 60 Hz - 4POLE IE2 MOTORS

OUTPUT (kW)		FRAME SIZE	RATED SPEED	FLC	FLT	% EFFICIENCY	POWER FACTOR	STARTING CURRENT	STARTING TORQUE	PULL OUT TORQUE	NET WEIGHT
POLE	kW		(RPM)	(A)	(kg-m)	FL	FL	(%)	% FLT	% FLT	(kgs)
4	0.12	63	1584	0.63	0.09	64.0	0.53	550	170	220	4.90
4	0.18	63	1584	0.83	0.13	68.0	0.66	550	225	275	4.90
4	0.25	71	1694	1.04	0.17	70.0	0.74	550	250	300	6.60
4	0.37	71	1680	1.21	0.26	72.0	0.73	600	200	250	6.60
4	0.55	80	1716	1.63	0.38	75.5	0.61	600	170	220	13.00
4	0.75	80	1682	1.97	0.52	78.0	0.71	500	200	250	14.00
4	1.10	90S	1723	2.72	0.75	84.0	0.76	600	250	300	25.00
4	1.50	90L	1709	3.35	1.02	84.0	0.78	600	275	325	28.00
4	2.20	100L	1718	5.00	1.49	87.5	0.75	650	200	250	36.00
4	3.70	112M	1710	7.40	2.52	87.5	0.79	650	260	310	45.00
4	5.50	132S	1728	10.68	3.69	89.5	0.82	650	250	300	72.00
4	7.50	132M	1734	14.62	5.04	89.5	0.84	650	250	300	80.00
4	11.00	160M	1728	2.18	7.40	91.0	0.83	650	175	225	110.00
4	15.00	160L	1728	30.25	10.10	91.0	0.85	650	175	225	133.00
4	18.50	180M	1728	36.30	12.40	92.4	0.85	650	250	300	205.00
4	22.00	180L	1740	43.36	14.60	92.4	0.84	650	200	250	216.0
4	30.00	200L	1740	57.48	19.90	93.0	0.86	700	260	310	265.00
4	37.20	225M	1740	69.58	24.70	93.0	0.82	700	260	310	280.00
4	45.00	225M	1752	84.70	29.00	93.6	0.80	700	260	310	300.00
4	55.00	250M	1752	100.84	36.08	94.1	0.82	700	260	310	370.00

PERFORMANCE DATA

MODEL

IE2 EFFICIENCY – THREE PHASE INDUCTION MOTORS
Efficiency Class As per IEC 60034-3-1 & IS 12615

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PERFORMANCE DATA FOR 3PHASE 415 V 50 Hz - 6POLE IE2 MOTORS

OUTPUT (kW)		FRAME SIZE	RATED SPEED	FLC	FLT	% EFFICIENCY	POWER FACTOR	STARTING CURRENT	STARTING TORQUE	PULL OUT TORQUE	NET WEIGHT
POLE	kW		(RPM)	(A)	(kg-m)	FL	FL	(%)	% FLT	% FLT	(kgs)
6	0.18	71	860	0.92	0.201	56.6	0.60	500	190	240	21
6	0.25	71	860	1.10	0.274	61.6	0.60	500	190	240	21
6	0.37	71	870	1.40	0.411	67.6	0.61	500	200	240	22
6	0.55	80	870	1.90	0.617	73.1	0.62	500	200	250	24
6	0.75	90S	925	2.30	0.777	75.9	0.66	500	200	250	28
6	1.10	90L	918	3.20	1.17	78.1	0.66	500	200	250	29
6	1.50	100L	942	4.00	1.55	79.8	0.69	500	200	250	32
6	2.20	112M	960	5.20	2.27	81.8	0.70	550	210	260	43
6	3.70	132S	954	8.76	3.79	84.3	0.72	600	200	250	68
6	5.50	132M	956	12.70	5.58	86.0	0.72	550	200	250	76
6	7.50	160M	960	16.70	7.70	87.2	0.74	600	200	250	114
6	11.0	160L	960	23.0	11.0	88.7	0.78	600	220	250	4
6	15.00	180L	960	32.00	15.25	89.7	0.76	700	220	260	169
6	18.00	200L	960	37.00	19.06	90.4	0.76	700	220	260	205
6	22.00	220L	965	44.00	22.75	90.9	0.76	700	220	255	219
6	30.00	225M	970	59.00	30.33	91.7	0.78	700	220	250	284
6	37.00	250M	970	72.00	37.71	92.2	0.80	700	220	250	340

PERFORMANCE DATA FOR 3PHASE 460 V 60 Hz - 6POLE IE2 MOTORS

OUTPUT (kW)		FRAME SIZE	RATED SPEED	FLC	FLT	% EFFICIENCY	POWER FACTOR	STARTING CURRENT	STARTING TORQUE	PULL OUT TORQUE	NET WEIGHT
POLE	kW		(RPM)	(A)	(kg-m)	FL	FL	(%)	% FLT	% FLT	(kgs)
6	0.18	71	1039	0.65	0.172	55.0	0.60	500	190	240	21
6	0.25	71	1032	0.92	0.274	59.5	0.60	500	190	240	21
6	0.37	71	1044	1.17	0.411	64.0	0.61	500	200	240	22
6	0.55	80	1044	1.58	0.617	68.0	0.62	500	200	250	24
6	0.75	90S	1110	1.92	0.777	73.0	0.66	500	200	250	28
6	1.10	90L	1102	2.67	1.17	85.5	0.66	500	200	250	29
6	1.50	100L	1130	3.33	1.55	86.5	0.69	500	200	250	32
6	2.20	112M	1152	4.33	2.27	87.5	0.70	550	210	260	43
6	3.70	132S	1145	7.30	3.79	87.5	0.72	600	200	250	68
6	5.50	132M	1147	10.58	5.58	89.5	0.72	550	200	250	76
6	7.50	160M	1155	13.91	7.70	89.5	0.74	600	200	250	114
6	11.0	160L	1160	19.16	11.0	90.2	0.78	700	220	250	134
6	15.00	180L	1168	26.66	15.25	90.2	0.76	700	220	260	169
6	18.00	200L	1170	30.82	19.06	91.7	0.76	700	220	260	205
6	22.00	220L	1175	36.65	22.75	91.7	0.76	700	220	255	219
6	30.00	225M	1175	49.15	30.33	93.0	0.78	700	220	250	284
6	37.00	250M	1180	68.0	31.59	93.0	0.78	700	220	250	340

PERFORMANCE DATA

IE2 EFFICIENCY – THREE PHASE INDUCTION MOTORS
Efficiency Class As per IEC 60034-3-1 & IS 12615

MODEL

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PERFORMANCE DATA FOR 3PHASE 380 V 60 Hz - 6POLE IE2 MOTORS

OUTPUT (kW)		FRAME SIZE	RATED SPEED	FLC	FLT	% EFFICIENCY	POWER FACTOR	STARTING CURRENT	STARTING TORQUE	PULL OUT TORQUE	NET WEIGHT
POLE	kW		(RPM)	(A)	(kg-m)	FL	FL	(%)	% FLT	% FLT	(kgs)
6	0.18	71	1039	0.82	0.172	55.0	0.60	500	190	240	21
6	0.25	71	1032	1.11	0.274	59.5	0.60	500	190	240	21
6	0.37	71	1044	1.41	0.411	64.0	0.61	500	200	240	22
6	0.55	80	1044	1.92	0.617	68.0	0.62	500	200	250	24
6	0.75	90S	1110	2.32	0.777	73.0	0.66	500	200	250	28
6	1.10	90L	1102	3.23	1.17	85.5	0.66	500	200	250	29
6	1.50	100L	1130	4.03	1.55	86.5	0.69	500	200	250	32
6	2.20	112M	1152	5.24	2.27	87.5	0.70	550	210	260	43
6	3.70	132S	1145	8.83	3.79	87.5	0.72	600	200	250	68
6	5.50	132M	1147	12.81	5.58	89.5	0.72	550	200	250	76
6	7.50	160M	1155	16.84	7.70	89.5	0.78	600	200	250	114
6	11.0	160L	1160	23.90	11.0	90.2	0.74	700	220	250	134
6	15.00	180L	1168	32.27	15.25	90.2	0.76	700	220	260	169
6	18.00	200L	1170	37.31	19.06	91.7	0.76	700	220	260	205
6	22.00	220L	1175	44.37	22.75	91.7	0.76	700	220	255	219
6	30.00	225M	1175	59.49	30.33	93.0	0.78	700	220	250	284
6	37.00	250M	1180	75.0	31.59	93.0	0.78	700	220	250	340

BEARING DETAILS FOR IE2 MOTORS

FRAME	POLE	DRIVE END BEARING	NONDRIVE END BEARING
63	2 - 6	6202 ZZ / C3	6201 ZZ / C3
71	2 - 6	6203 ZZ / C3	6202 ZZ / C3
80	2 - 6	6204 ZZ / C3	6203 ZZ
90S&L	2 - 6	6205 ZZ / C3	6204 ZZ
100L	2 - 6	6206 ZZ / C3	6205 ZZ
112M	2 - 6	6206 ZZ / C3	6205 ZZ
132S	2 - 6	6208 ZZ / C3	6207 ZZ
160M&L	2 - 6	6309 ZZ / C3	6208 ZZ
180M	2 - 6	6310 / C3	6310 / C3
200L	2 - 6	6312 / C3	6211 / C3
225M	2 - 6	6313 / C3	6212 / C3
250M	2 - 6	6315 / C3	6315 / C3

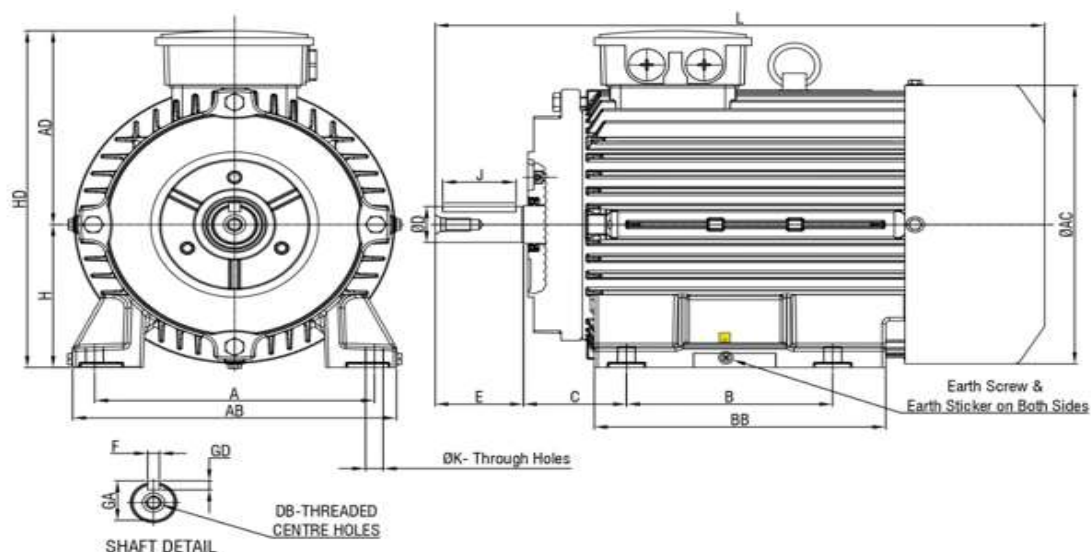
OUTLINE DIMENSIONS SHEET

IE2 EFFICIENCY – THREE PHASE INDUCTION MOTORS

MODEL

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Fig. 1 Dimension Drawing for TEFC, Foot Mounted (B3 Motor) 63 – 250M



All Dimensions are as per IEC: 60072 – 1
All Dimensions are in mm.

FOOT MOUNTING (B3)

FRAME SIZE	MOUNTING DIMENSIONS												OVERALL DIMENSIONS					
	A	B	C	D	E	F	G	GA	J	H	K	DB	AB	AC	BB	HD	AD	L
63	100	80	40	11	23	4	8.5	12.5	27	63	7	M4	118	117	96	154	91	203.5
71	112	90	45	14	30	5	11	16	29	71	7.5	M5	132	133.5	110	172	101	246
80	125	100	50	19	40	6	15.5	21.5	28	80	15X10	M6	153	160	125	204	124	272
90S	140	100	56	24	50	8	20	27	40	90	15X10	M8	170	178	125	216	126	316
90L	140	125	56	24	50	8	20	27	46	90	10	M8	170	178	160	224	134	355
100L	160	140	63	28	60	8	24	31	53	100	12	M10	200	198	190	241	141	410
112M	190	140	70	28	60	8	24	31	61	112	12	M10	220	220	198	265	153	422
132S	216	140	89	38	80	10	33	41	66	132	12	M12	245.5	260	180	305	173	480
132M	216	178	89	38	80	10	33	41	66	132	12	M12	244	260	240	305	173	507
160M	254	210	108	42	110	12	37	45	74	160	15	M16	288	307	264	381	221	580
160L	254	254	108	42	110	12	37	45	74	160	15	M16	287.5	307	304	380	220	628
180M	279	241	121	48	110	14	42.5	51.5	70	180	15	M16	312.5	353	291	414	234	755
180L	279	279	121	48	110	14	42.5	51.5	70	180	15	M16	312.5	353	329	414	234	755
200L	318	305	133	55	110	16	49	59	88	200	19	M20	357.5	386	365	454	280	770
225S 2 POLE	356	286	149	55	110	16	49	59	94	225	19	M20	395.5	435	346	502	277	778
225S 4-6 POLE	356	286	149	60	140	18	53	64	94	225	19	M20	395.5	435	346	502	277	808
225M	356	311	149	60	140	18	53	64	94	225	19	M20	395.5	435	371	502	277	808
250M 2 POLE	406	349	168	60	140	18	53	64	90	250	24	M20	475	480	404	590	340	900
250M 4-6 POLE	406	349	168	65	140	18	58	69	90	250	24	M20	475	480	404	590	340	900

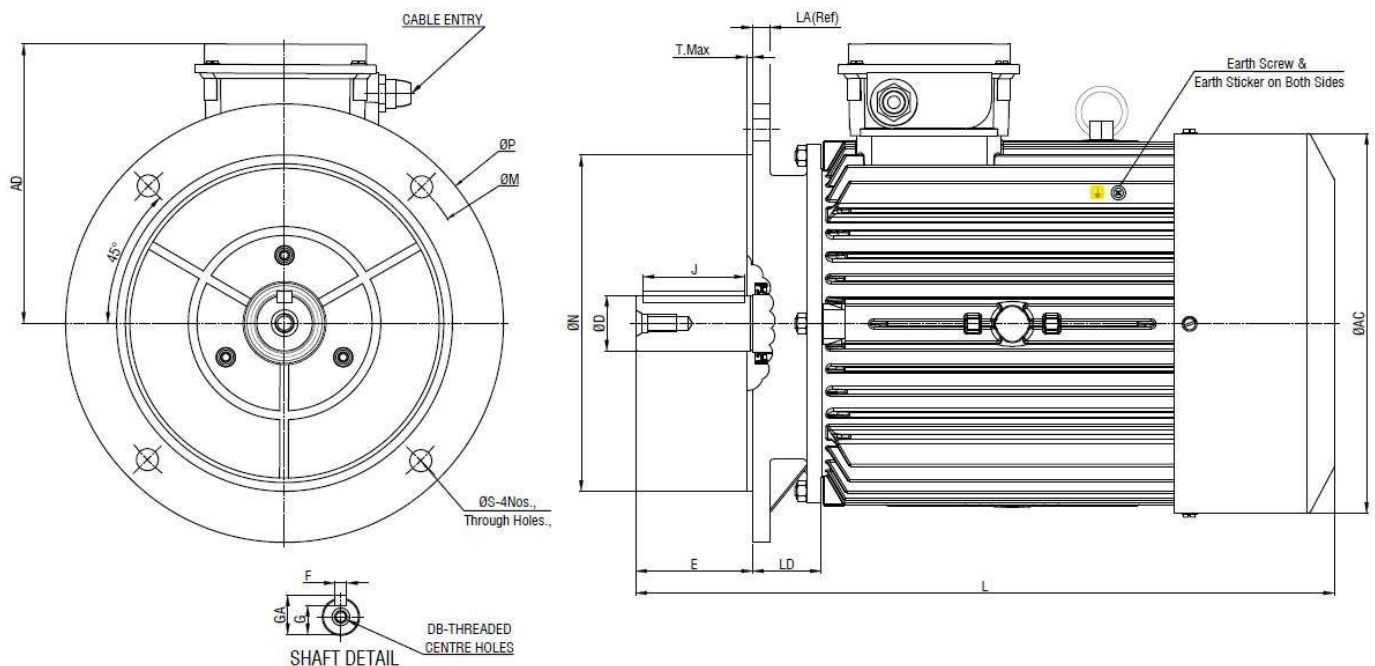
OUTLINE DIMENSIONS SHEET

IE2 EFFICIENCY – THREE PHASE INDUCTION MOTORS

MODEL

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Fig. 2 Dimension Drawing for TEFC, Flange Mounted (B5 Motor) 63 – 225M



All Dimensions are as per IEC: 60072 – 1
All Dimensions are in mm.

FLANGE MOUNTING (B5)

FRAME SIZE	MOUNTING DIMENSIONS														OVERALL DIMENSIONS		
	D	E	F	G	GA	M	N	P	S	No. of Holes	T	LA	LD	DB	AC	AD	L
63	11	23	4	8.5	12.5	115	95	140	10	4	3	10	16	M4	117	91	203.5
71	14	30	5	11	16	130	110	160	10	4	3.5	10	16	M5	133.5	101	246
80	19	40	6	15.5	21.5	165	130	200	12	4	3.5	10	21	M6	160	124	272
90S	24	50	8	20	27	165	130	200	12	4	3.5	10	24	M8	178	126	316
90L	24	50	8	20	27	165	130	200	12	4	4	10	24	M8	178	138	355
100L	28	60	8	24	31	215	180	250	15	4	4	11	27	M10	198	143	410
112M	28	60	8	24	31	215	180	250	15	4	4	11	29	M10	220	155	422
132S	38	80	10	33	41	265	230	300	15	4	4	12	36	M12	260	195	480
132M	38	80	10	33	41	265	230	300	15	4	4	12	36	M12	260	195	507
160M	42	110	12	37	45	300	250	350	19	4	5	13	49	M16	307	220	628
160L	42	110	12	37	45	300	250	350	19	4	5	13	49	M16	307	220	628
180M	48	110	15	42.5	51.5	300	250	350	19	4	5	13	52	M16	353	234	755
180L	48	110	15	42.5	51.5	300	250	350	19	4	5	13	52	M16	353	234	755
200L	55	110	16	49	59	350	300	400	19	4	5	15	65	M20	386	280	770
225S 2 POLE	55	110	16	49	59	400	350	450	19	8	5	16	81	M20	435	277	778
225S 4 POLE	60	140	18	53	64	400	350	450	19	8	5	16	81	M20	435	277	808
225S 6 POLE	60	140	18	53	64	400	350	450	19	8	5	16	81	M20	435	277	808
225M	60	140	18	53	64	400	350	450	19	8	5	16	81	M20	435	277	808

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Technical drawing of a motor showing three views: front, side, and shaft detail.

- Front View:** Shows the circular motor frame with cooling fins. Dimensions include $\varnothing D$ (outer diameter), $\varnothing D_1$ (inner diameter), and $\varnothing D_2$ (flange diameter). The flange has 8 holes labeled "8S-EQUALLY SPACED". The shaft is labeled "IM".
- Side View:** Shows the motor's length. Dimensions include L (total length), T_{Max} (terminal box height), RP (flange height), DN (flange hole diameter), R (flange radius), and $DPAC$ (motor body diameter). It also shows the "Earth Screw & Earth Sticker on Both Sides".
- Shaft Detail:** Shows the shaft with a diameter of $\varnothing 10$ and a length of F . It features "DB-THREADED CENTRE HOLES" with a diameter of $\varnothing 6$ and a distance of G from the shaft end.

FACE MOUNTING (B14)																
S.No	FRAME SIZE	MOUNTING DIMENSIONS												OVERALL DIMENSIONS		
		D	E	F	G	GA	M	N	P	S	No. of Holes	T	DB	AC	AD	L
1	63	11	23	4	8.5	12.5	75	60	90	M5	4	2.5	M4	117	91	203.5
2	71	14	30	5	11	16	85	70	105	M6	4	2.5	M5	133.5	101	246
3	80	19	40	6	15.5	21.5	100	80	120	M6	4	3	M6	160	124	272
4	90S	24	50	8	20	27	115	95	140	M8	4	3	M8	178	126	316
5	90L	24	50	8	20	27	115	95	140	M8	4	3	M8	178	138	355
6	100L	28	60	8	24	31	130	110	160	M8	4	3.5	M10	198	143	410
7	112M	28	60	8	24	31	130	110	160	M8	4	3.5	M10	220	155	422
8	132S	38	80	10	33	41	165	130	200	M10	4	3.5	M12	260	195	480
9	132M	38	80	10	33	41	165	130	200	M10	4	3.5	M12	260	195	507

PACKING DETAILS

FIG – 1, 2, 3

MODEL

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STANDARD MOTORS - IE2 (2 POLE)

kW	Frame Size	Type of Packing	Net Weight (kgs)	Gross Weight (kgs)	Length (mm)	Width (mm)	Height (mm)
0.18	63	Carton Box	4.60	5.40	245	160	215
0.25	63	Carton Box	4.60	5.40	245	160	215
0.37	71	Carton Box	9.60	10.50	285	190	240
0.55	71	Carton Box	9.60	10.50	285	190	240
0.75	80	Carton Box	10.00	11.18	310	230	275
1.10	80	Carton Box	11.00	12.18	310	230	275
1.50	90S	Carton Box	27.00	28.86	410	275	325
2.20	90L	Carton Box	28.00	29.86	410	275	325
3.70	100L	Carton Box	36.00	38.20	455	275	325
5.50	132S	Wooden Box Set	72.00	88.30	650	420	550
7.50	132S	Wooden Box Set	75.00	94.40	650	420	550
11.00	160M	Wooden Box Set	112.00	132.80	850	450	600
15.00	160M	Wooden Box Set	121.00	141.80	850	500	650
18.50	160L	Wooden Box Set	135.00	160.30	850	500	650
22.00	180M	Wooden Box Set	185.00	214.20	1000	530	700
30.00	200L	Wooden Box Set	236.00	270.80	1200	700	900
37.00	200L	Wooden Box Set	240.00	274.80	1200	700	900
45.00	225M	Wooden Box Set	280.00	320.00	1250	750	950
55.00	250M	Wooden Box Set	375.00	415.00	1300	800	1000

STANDARD MOTORS - IE2 (4 POLE)

kW	Frame Size	Type of Packing	Net Weight (kg)	Gross Weight (kg)	Length (mm)	Width (mm)	Height (mm)
0.12	63	Carton Box	4.90	5.70	245	160	215
0.18	63	Carton Box	4.90	5.70	245	160	215
0.25	71	Carton Box	6.60	7.50	285	190	240
0.37	71	Carton Box	6.60	7.50	285	190	240
0.55	80	Carton Box	13.00	14.18	310	230	275
0.75	80	Carton Box	14.00	15.18	310	230	275
1.10	90S	Carton Box	25.00	26.86	410	275	325
1.50	90L	Carton Box	28.00	29.86	410	275	325
2.20	100L	Carton Box	36.00	38.20	455	275	325
3.70	112M	Carton Box	45.00	47.62	510	340	355
5.50	132S	Wooden Box Set	72.00	88.30	650	420	550
7.50	132M	Wooden Box Set	80.00	96.30	650	420	550
11.00	160M	Wooden Box Set	110.00	130.80	850	450	600
15.00	160L	Wooden Box Set	133.00	158.30	850	500	650
18.50	180M	Wooden Box Set	185.00	214.20	1000	530	700
22.00	180L	Wooden Box Set	190.00	219.20	1000	530	700
30.00	200L	Wooden Box Set	225.00	259.80	1200	700	900
37.20	225M	Wooden Box Set	270.00	308.00	1200	700	900
45.00	225M	Wooden Box Set	300.00	338.00	1250	750	950
55.00	250M	Wooden Box Set	350.00	390.00	1300	800	1000

dharani[®] MOTORS

PACKING DETAILS

FIG – 1, 2, 3

MODEL

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STANDARD MOTORS - IE2 (6 POLE)

kW	Frame Size	Type of Packing	Net Weight (kg)	Gross Weight (kg)	Length (mm)	Width (mm)	Height (mm)
0.75	90S	Carton Box	28.00	29.86	410	275	325
1.10	90L	Carton Box	29.00	30.86	410	275	325
1.50	100L	Carton Box	32.00	34.20	455	275	325
2.20	112M	Carton Box	43.00	45.62	510	340	355
3.70	132S	Wooden Box Set	68.00	84.30	650	420	550
5.50	132M	Wooden Box Set	76.00	92.30	650	420	550
7.50	160M	Wooden Box Set	134.00	154.80	850	450	600
11.00	160L	Wooden Box Set	114.00	139.30	850	500	650
15.00	180L	Wooden Box Set	169.00	198.20	1000	530	700
18.00	200L	Wooden Box Set	205.00	239.80	1200	700	900
22.00	200L	Wooden Box Set	219.00	254.80	1200	700	900
30.00	225M	Wooden Box Set	284.00	322.00	1250	750	950
37.20	250M	Wooden Box Set	337.00	377.00	1300	800	1000

PRODUCT NOTE

**DHARANI – THREE PHASE INDUCTION MOTORS – IE3
EFFICIENCY CLASS**

STANDARD MOTORS

FRAME SIZE : 63 – 250M

NAME	PAGES
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SCHEMATIC DRAWING (63 – 250M)	24 - 26
PACKING BOX DETAILS	27, 28



SPECIFICATION TABLE			MODEL
IE3 EFFICIENCY – THREE PHASE INDUCTION MOTORS			PAGE 16 of 86
	ITEM	STANDARD SPECIFICATION	
R A T I N G	Kind of Motors	Squirrel Cage Three Phase Induction Motor	
	Voltages & Frequency	Rated voltage 415 V ± 10% (Or as request on all commonly Used Voltages) 50 Hz ± 5% - (Or as on request)	
		Rated voltage 460 V , 380 V ± 10% (On request all commonly Used Voltages) 60 Hz ± 5% - (Or as on request) .	
	Output Range	0.18 kW to 55 kW	
	R.P.M (Syn.)	50 Hz	3000 RPM (2P), 1500 RPM (4P), 1000 RPM (6P), 750 RPM (8P)
		60 Hz	3600 RPM (2P), 1800 RPM (4P), 1200 RPM (6P), 900 RPM (8P)
	Time Duty	S1 Continuous (S2 – S9 On Request)	
	Frame Size	63 – 250M	
	Protection Enclosure	IP 55	
	Cooling Method	Self-External Fan, Surface Cooling (IC 411)	
A P P L I C A T I O N	Mounting	B3 (Foot), B5 (Flange), B14 (Face). B35 (Foot & Flange), B34 (Foot & Face)	
	Power Condition	Voltage: ±10%, Frequency ±5%, and 10% Max. of Combined Voltage and Frequency, But Frequency Variation does not Exceed ±5%	
	Environment Conditions	Place: Non - Hazardous. Ambient Temperature: : - 20°C to + 60°C ;	
		Relative Humidity: Up 95%	
		Altitude: Up to 1000 m (3300 ft).	
	Type of Starting	For Motor – Star Connection ≤ 3.70 kW – Direct-On-line	
		For Motor – Delta Connection > 3.70 kW – Direct-On-line / Star Delta	
	C O N S T R U C T I O N	Dimensions	Refer Sheet No – 24, 25, 26
General Enclosure Material		Frames 63, 71, 80 – Aluminium Frame / Cast Iron - End Shields	
		Frames 80 - 250M – Cast Iron – Frame, Cast Iron – End Shields.	
External Fan		Plastic.	
Fan Cover		Pressed Steel.	
Shaft		Carbon Steel, Cylinder Single Extension with Key seat and Key.	
Bearing		Deep Groove Ball Bearing - 2Z / C3 up to 160L Frame. From 180M TO 250M – C3 Bearings with on line lubrication arrangement. As per Table Refer Page 23.	
Terminal Housing		Top. (RHS & LHS On Request)	
Stator Winding		Pre - Formed Coils of Dual Coated Enamelled Copper Wires	
Stator Insulation		Class F Insulation System	
Rotor Winding		Squirrel Cage, Aluminium Conductor with End Ring	
Enclosure		Totally Enclosed Fan Cooled (TEFC)	

SPECIFICATION TABLE		MODEL
IE3 EFFICIENCY – THREE PHASE INDUCTION MOTORS		PAGE 17 of 86
	ITEM	STANDARD SPECIFICATION
P E R F O R M A N C E	Painting	RAL Blue -GP COAT 131 RAL BLUE - K1 5010 G/F 3:1 / JET Black-GP TRUCOAT 336 PRICOL BLACK (JET) DM/ F/
	Name Plate Sticker	Affixed on the Motor Casing
	Bolt Thread	ISO Metric System.
	Grounding Terminal	Provided in the Terminal Housing
	Typical Performance	Attached
	Temperature Rise	Temperature Rise Limited to Class B
	All Dharani Motors shall comply with the latest International and Indian Standards. These are as under: List of International Standards: 1. IEC60034-1: Rotating Electrical Machines, Part-1; Rating and Performance. 2. IEC60034-2-1 Standard Methods for Determining Losses and Efficiency. 3. IEC60034-5: Degree of Protection. 4. IEC60034-6: Method of Cooling. 5. IEC60034-9: Noise Limits. 6. IEC60034-14: Mechanical Vibrations Measurement, Evaluation and Limits of Severity. 7. IEC60034-30: Efficiency Classes of Single Speed Three Phase Squirrel Cage Induction Motors. 8. IEC60072-1: Dimensions and Output Ratings of Electrical Machines. List of Indian Standards: 1. IS1231: Dimensions of Three Phase Induction Motors- Foot Mounted. 2. IS2223: Dimensions of Flange Mounted AC Induction Motors. 3. IS2253: Designations of Types of Construction and Mounting Arrangements for Rotating Electrical Machines. 4. IS4029: Guide for Testing Three Phase Induction Motors. 5. IS4691: Degree of Protection Provided by Enclosures for Rotating Electrical Machinery. 6. IS4889: Methods of Determination of Efficiency of Rotating Electrical Machines. 7. IS6362: Designation of Method of Cooling for Rotating Electrical Machines. 8. IS7538: Three Phase Squirrel Cage Induction Motors for Centrifugal Pumps for Agricultural Applications. 9. IS12065: Permissible Limits of Noise Levels for Rotating Electrical Machines. 10. IS12075: Mechanical Vibrations of Rotating Electrical Machines; Measurements, Evaluations and Limits of Vibration Severity. 11. IS12615: Efficiency Classes and Performance Specification. 12. IS15999: Rotating Electrical Machines. 13. IS8151: Single Speed Three Phase Induction Motors for Lifts.	

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PERFORMANCE DATA FOR 3PHASE 415 V 50 Hz - 2POLE IE3 MOTORS

OUTPUT (kW)		FRAME SIZE	RATED SPEED	FLC	FLT	% EFFICIENCY	POWER FACTOR	STARTING CURRENT	STARTING TORQUE	PULL OUT TORQUE	NET WEIGHT
POLE	kW		(RPM)	(A)	(kg-m)	FL	FL	(%)	% FLT	% FLT	(kgs)
2	0.18	63	2845	0.73	0.06	65.9	0.74	650	170	220	7.60
2	0.25	63	2870	0.77	0.09	69.7	0.84	650	170	220	7.60
2	0.37	71	2865	1.18	0.13	73.8	0.87	700	180	240	12.50
2	0.55	71	2865	1.42	0.19	77.8	0.89	700	180	240	12.50
2	0.75	80	2870	1.57	0.26	80.7	0.85	700	250	300	13.00
2	1.10	80	2870	2.36	0.38	82.7	0.90	700	270	320	14.00
2	1.50	90S	2870	3.26	0.52	84.2	0.83	700	260	310	31.00
2	2.20	90L	2865	4.24	0.76	85.9	0.88	770	280	330	32.00
2	3.70	100L	2890	6.98	1.27	87.8	0.88	770	280	330	39.00
2	5.50	132S	2920	10.08	1.83	89.2	0.89	770	275	325	77.00
2	7.50	132S	2945	13.46	2.49	90.1	0.88	770	275	325	81.00
2	11.00	160M	2945	21.10	3.60	91.2	0.86	770	300	325	118.00
2	15.00	160M	2945	28.6	5.00	91.9	0.90	770	250	300	128.00
2	18.50	160L	2940	34.60	6.10	92.4	0.90	770	300	350	142.00
2	22.00	180M	2945	41.10	7.30	92.7	0.89	770	200	250	190.00
2	30.00	200L	2930	54.60	9.90	93.3	0.89	770	260	310	242.00
2	37.00	200L	2950	66.50	12.20	93.7	0.89	770	220	270	277.00
2	45.00	225M	2960	79.70	14.25	94.0	0.89	770	250	300	298.00
2	55.00	250M	2965	94.80	17.81	94.3	0.89	770	240	290	375.00

PERFORMANCE DATA FOR 3PHASE 460 V 60 Hz - 2POLE IE3 MOTORS

OUTPUT (kW)		FRAME SIZE	RATED SPEED	FLC	FLT	% EFFICIENCY	POWER FACTOR	STARTING CURRENT	STARTING TORQUE	PULL OUT TORQUE	NET WEIGHT
POLE	kW		(RPM)	(A)	(kg-m)	FL	FL	(%)	% FLT	% FLT	(kgs)
2	0.18	63	3545	0.61	0.06	65.6	0.74	650	170	220	7.60
2	0.25	63	3562	0.64	0.09	69.5	0.84	650	170	220	7.60
2	0.37	71	3560	0.98	0.13	73.4	0.87	700	180	240	12.50
2	0.55	71	3560	1.18	0.19	76.8	0.89	700	180	240	12.50
2	0.75	80	3565	1.31	0.26	77.0	0.85	700	250	300	13.00
2	1.10	80	3568	1.97	0.38	84.0	0.90	700	270	320	14.00
2	1.50	90S	3570	2.72	0.52	85.5	0.83	700	260	310	31.00
2	2.20	90L	3570	3.53	0.76	86.5	0.88	770	280	330	32.00
2	3.70	100L	3580	5.81	1.27	88.5	0.88	770	280	330	39.00
2	5.50	132S	3595	8.40	1.83	89.5	0.89	770	275	325	77.00
2	7.50	132S	3620	11.21	2.49	90.2	0.88	770	275	325	81.00
2	11.00	160M	3625	17.58	3.60	91.0	0.86	770	300	325	118.00
2	15.00	160M	3630	23.82	5.00	91.0	0.90	770	250	300	128.00
2	18.50	160L	3635	28.82	6.10	91.7	0.90	770	300	350	142.00

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OUTPUT (kW)		FRAME SIZE	RATED SPEED	FLC	FLT	% EFFICIENCY	POWER FACTOR	STARTING CURRENT	STARTING TORQUE	PULL OUT TORQUE	NET WEIGHT
POLE	kW		(RPM)	(A)	(kg-m)	FL	FL	(%)	% FLT	% FLT	(kgs)
2	22.00	180M	3640	34.24	7.30	91.7	0.89	770	200	250	190.00
2	30.00	200L	3645	45.48	9.90	92.4	0.89	770	260	310	242.00
2	37.00	200L	3655	55.39	12.20	93.6	0.89	770	220	270	277.00
2	45.00	225M	3660	66.39	14.25	93.6	0.89	770	250	300	298.00
2	55.00	250M	3670	78.97	17.81	93.6	0.89	770	240	290	375.00

PERFORMANCE DATA FOR 3PHASE 380 V 60 Hz - 2POLE IE3 MOTORS

OUTPUT (kW)		FRAME SIZE	RATED SPEED	FLC	FLT	% EFFICIENCY	POWER FACTOR	STARTING CURRENT	STARTING TORQUE	PULL OUT TORQUE	NET WEIGHT
POLE	kW		(RPM)	(A)	(kg-m)	FL	FL	(%)	% FLT	% FLT	(kgs)
2	0.18	63	3545	0.74	0.06	65.6	0.74	650	170	220	7.60
2	0.25	63	3562	0.78	0.09	69.5	0.84	650	170	220	7.60
2	0.37	71	3560	1.19	0.13	73.4	0.87	700	180	240	12.50
2	0.55	71	3560	1.43	0.19	76.8	0.89	700	180	240	12.50
2	0.75	80	3565	1.58	0.26	77.0	0.85	700	250	300	13.00
2	1.10	80	3568	2.38	0.38	84.0	0.90	700	270	320	14.00
2	1.50	90S	3570	3.29	0.52	85.5	0.83	700	260	310	31.00
2	2.20	90L	3570	4.28	0.76	86.5	0.88	770	280	330	32.00
2	3.70	100L	3580	7.04	1.27	88.5	0.88	770	280	330	39.00
2	5.50	132S	3595	10.16	1.83	89.5	0.89	770	275	325	77.00
2	7.50	132S	3620	13.57	2.49	90.2	0.88	770	275	325	81.00
2	11.00	160M	3625	21.28	3.60	91.0	0.86	770	300	325	118.00
2	15.00	160M	3630	28.84	5.00	91.0	0.90	770	250	300	128.00
2	18.50	160L	3635	34.89	6.10	91.7	0.90	770	300	350	142.00
2	22.00	180M	3640	41.44	7.30	91.7	0.89	770	200	250	190.00
2	30.00	200L	3645	55.06	9.90	92.4	0.89	770	260	310	242.00
2	37.00	200L	3655	67.06	12.20	93.6	0.89	770	220	270	277.00
2	45.00	225M	3660	80.37	14.25	93.6	0.89	770	250	300	298.00
2	55.00	250M	3670	95.59	17.81	93.6	0.89	770	240	290	375.00

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PERFORMANCE DATA FOR 3PHASE 415 V 50 Hz - 4POLE IE3 MOTORS

OUTPUT (kW)		FRAME SIZE	RATED SPEED	FLC	FLT	% EFFICIENCY	POWER FACTOR	STARTING CURRENT	STARTING TORQUE	PULL OUT TORQUE	NET WEIGHT
POLE	kW		(RPM)	(A)	(kg-m)	FL	FL	(%)	% FLT	% FLT	(kgs)
4	0.12	63	1335	0.60	0.09	64.80	0.59	600	170	220	7.90
4	0.18	63	1330	0.80	0.13	69.90	0.68	600	225	275	7.90
4	0.25	71	1420	1.00	0.17	73.50	0.76	600	250	300	9.60
4	0.37	71	1420	1.00	0.26	77.30	0.75	650	200	250	9.60
4	0.55	80	1440	1.60	0.38	80.80	0.65	650	170	220	17.00
4	0.75	80	1435	1.87	0.52	82.50	0.73	650	200	250	18.00
4	1.10	90	1445	2.68	0.75	84.10	0.78	650	250	300	29.00
4	1.50	90L	1450	3.30	1.02	85.30	0.80	650	275	325	33.00
4	2.20	100L	1450	4.95	1.49	86.70	0.77	750	200	250	39.00
4	3.70	112M	1450	7.32	2.52	88.40	0.82	750	260	310	49.00
4	5.50	132S	1465	10.57	3.69	89.60	0.85	750	250	300	77.00
4	7.50	132M	1470	14.48	5.04	90.40	0.86	750	250	300	85.00
4	11.00	160M	1468	21.80	7.40	91.40	0.85	750	175	225	117.00
4	15.00	160L	1465	29.70	10.10	92.10	0.87	750	175	225	140.00
4	18.50	180M	1470	35.60	12.40	92.60	0.87	750	250	300	216.00
4	22.00	180L	1470	42.70	14.60	93.00	0.86	750	200	250	226.00
4	30.00	200L	1470	56.80	19.90	93.60	0.89	750	260	310	270.00
4	37.20	225M	1470	68.60	24.70	93.90	0.84	750	250	300	285.00
4	45.00	225M	1480	83.50	29.00	94.20	0.87	750	260	280	300.00
4	55.00	250M	1480	99.60	36.80	94.60	0.86	750	250	290	375.00

PERFORMANCE DATA FOR 3PHASE 460 V 60 Hz - 4POLE IE3 MOTORS

OUTPUT (kW)		FRAME SIZE	RATED SPEED	FLC	FLT	% EFFICIENCY	POWER FACTOR	STARTING CURRENT	STARTING TORQUE	PULL OUT TORQUE	NET WEIGHT
POLE	kW		(RPM)	(A)	(kg-m)	FL	FL	(%)	% FLT	% FLT	(kgs)
4	0.12	63	1630	0.50	0.09	66.0	0.59	600	170	220	7.90
4	0.18	63	1635	0.67	0.13	69.5	0.68	600	225	275	7.90
4	0.25	71	1720	0.83	0.17	73.4	0.76	600	250	300	9.60
4	0.37	71	1720	0.83	0.26	78.5	0.75	650	200	250	9.60
4	0.55	80	1740	1.33	0.38	81.1	0.65	650	170	220	17.00
4	0.75	80	1735	1.56	0.52	83.5	0.73	650	200	250	18.00
4	1.10	90	1747	2.23	0.75	86.5	0.78	650	250	300	29.00
4	1.50	90L	1745	2.75	1.02	86.5	0.80	650	275	325	33.00
4	2.20	100L	1742	4.12	1.49	89.5	0.77	750	200	250	39.00
4	3.70	112M	1740	6.10	2.52	89.5	0.82	750	260	310	49.00
4	5.50	132S	1750	8.80	3.69	91.7	0.85	750	250	300	77.00
4	7.50	132M	1760	12.06	5.04	91.7	0.86	750	250	300	85.00
4	11.00	160M	1760	18.16	7.40	92.4	0.85	750	175	225	117.00

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OUTPUT(kW)		FRAME SIZE	RATED SPEED	FLC	FLT	%EFF	POWER FACTOR	STARTING CURRENT	STARTING TORQUE	PULL OUT TORQUE	NET WEIGHT
POLE	kW		RPM	(A)	(kg-m)	FL	FL	(%)	% FLT	% FLT	(kgs)
4	15.00	160L	1765	24.74	10.10	93.0	0.87	750	175	225	140.00
4	18.50	180M	1770	29.65	12.40	93.6	0.87	750	250	300	216.00
4	22.00	180L	1770	35.57	14.60	93.6	0.86	750	200	250	226.00
4	30.00	200L	1770	47.31	19.90	94.1	0.89	750	260	310	270.00
4	37.20	225M	1780	57.14	24.70	94.5	0.84	750	250	300	285.00
4	45.00	225M	1780	69.56	29.00	95.0	0.87	750	260	280	300.00
4	55.00	250M	1780	82.97	36.80	95.4	0.86	750	250	290	375.00

PERFORMANCE DATA FOR 3PHASE 380 V 60 Hz - 4POLE IE3 MOTORS

OUTPUT (kW)		FRAME SIZE	RATED SPEED	FLC	FLT	% EFFICIENCY	POWER FACTOR	STARTING CURRENT	STARTING TORQUE	PULL OUT TORQUE	NET WEIGHT
POLE	kW		(RPM)	(A)	(kg-m)	FL	FL	(%)	% FLT	% FLT	(kgs)
4	0.12	63	1630	0.61	0.09	66.0	0.59	600	170	220	7.90
4	0.18	63	1635	0.81	0.13	69.5	0.68	600	225	275	7.90
4	0.25	71	1720	1.01	0.17	73.4	0.76	600	250	300	9.60
4	0.37	71	1720	1.01	0.26	78.5	0.75	650	200	250	9.60
4	0.55	80	1740	1.61	0.38	81.1	0.65	650	170	220	17.00
4	0.75	80	1735	1.89	0.52	83.5	0.73	650	200	250	18.00
4	1.10	90	1747	2.70	0.75	86.5	0.78	650	250	300	29.00
4	1.50	90L	1745	3.33	1.02	86.5	0.80	650	275	325	33.00
4	2.20	100L	1742	4.99	1.49	89.5	0.77	750	200	250	39.00
4	3.70	112M	1740	7.38	2.52	89.5	0.82	750	260	310	49.00
4	5.50	132S	1750	10.66	3.69	91.7	0.85	750	250	300	77.00
4	7.50	132M	1760	14.60	5.04	91.7	0.86	750	250	300	85.00
4	11.00	160M	1760	21.98	7.40	92.4	0.85	750	175	225	117.00
4	15.00	160L	1765	29.95	10.10	93.0	0.87	750	175	225	140.00
4	18.50	180M	1770	35.90	12.40	93.6	0.87	750	250	300	216.00
4	22.00	180L	1770	43.06	14.60	93.6	0.86	750	200	250	226.00
4	30.00	200L	1770	57.8	19.90	94.1	0.89	750	260	310	270.00
4	37.20	225M	1780	69.17	24.70	94.5	0.84	750	250	300	285.00
4	45.00	225M	1780	84.20	29.00	95.0	0.87	750	260	280	300.00
4	55.00	250M	1780	100.43	36.80	95.4	0.86	750	250	290	375.00

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PERFORMANCE DATA FOR 3PHASE 415 V 50 Hz - 6POLE IE3 MOTORS

OUTPUT (kW)		FRAME SIZE	RATED SPEED	FLC	FLT	% EFFICIENCY	POWER FACTOR	STARTING CURRENT	STARTING TORQUE	PULL OUT TORQUE	NET WEIGHT
POLE	kW		(RPM)	(A)	(kg-m)	FL	FL	(%)	% FLT	% FLT	(kgs)
6	0.18	71	860	0.80	0.201	63.9	0.60	500	190	240	21
6	0.25	71	860	1.10	0.27	68.6	0.64	600	180	250	24.00
6	0.37	80	870	1.40	0.411	73.5	0.67	600	200	250	27.00
6	0.55	80	870	1.90	0.617	77.2	0.68	600	200	250	29.00
6	0.75	90S	940	2.28	0.762	78.9	0.69	650	200	250	31.00
6	1.10	90L	928	3.17	1.16	81.0	0.69	650	200	250	33.00
6	1.50	100L	962	3.96	1.48	82.5	0.72	650	200	250	35.00
6	2.20	112M	972	5.16	2.21	84.3	0.74	750	210	260	46.00
6	3.70	132S	964	8.70	3.72	86.5	0.76	750	200	250	71.00
6	5.50	132M	966	12.68	5.56	88.0	0.76	750	200	250	79.00
6	7.50	160M	940	16.67	7.61	89.1	0.78	750	150	250	131.00
6	11.00	160L	945	23.27	11.49	90.3	0.80	750	200	250	161.00
6	15.00	180L	955	31.96	15.25	91.2	0.82	750	140	250	197.00
6	18.50	200L	955	36.97	19.06	91.7	0.82	750	140	250	208.00
6	22.00	200L	960	43.92	22.75	92.2	0.80	750	140	250	251.00
6	30.00	225M	960	58.99	30.33	92.9	0.82	750	140	250	286.00
6	37.00	250M	970	71.96	37.79	93.3	0.81	750	140	250	360.00

PERFORMANCE DATA FOR 3PHASE 460 V 60 Hz - 6POLE IE3 MOTORS

OUTPUT (kW)		FRAME SIZE	RATED SPEED	FLC	FLT	% EFFICIENCY	POWER FACTOR	STARTING CURRENT	STARTING TORQUE	PULL OUT TORQUE	NET WEIGHT
POLE	kW		(RPM)	(A)	(kg-m)	FL	FL	(%)	% FLT	% FLT	(kgs)
6	0.18	71	1022	0.70	0.17	67.5	0.64	600	180	250	24.00
6	0.25	71	1032	0.92	0.27	71.4	0.64	600	180	250	24.00
6	0.37	80	1044	1.17	0.411	75.3	0.67	600	200	250	27.00
6	0.55	80	1044	1.58	0.617	81.7	0.68	600	200	250	29.00
6	0.75	90S	1128	1.90	0.762	82.5	0.69	650	200	250	31.00
6	1.10	90L	1114	2.64	1.16	87.5	0.69	650	200	250	33.00
6	1.50	100L	1154	3.30	1.48	88.5	0.72	650	200	250	35.00
6	2.20	112M	1166	4.30	2.21	89.5	0.74	750	210	260	46.00
6	3.70	132S	1157	7.25	3.72	89.5	0.76	750	200	250	71.00
6	5.50	132M	1159	10.56	5.56	91.0	0.76	750	200	250	79.00
6	7.50	160M	1128	13.89	7.61	91.0	0.78	750	150	250	131.00
6	11.00	160L	1134	19.38	11.49	91.7	0.80	750	200	250	161.00
6	15.00	180L	1146	26.62	15.25	91.7	0.82	750	140	250	197.00
6	18.50	200L	1146	30.80	19.06	93.0	0.82	750	140	250	208.00
6	22.00	200L	1152	36.59	22.75	93.0	0.80	750	140	250	251.00
6	30.00	225M	1152	49.14	30.33	94.1	0.82	750	140	250	286.00
6	37.00	250M	1164	59.94	37.79	94.1	0.81	750	140	250	360.00

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PERFORMANCE DATA FOR 3PHASE 380 V 50 Hz - 6POLE IE3 MOTORS

OUTPUT (kW)		FRAME SIZE	RATED SPEED	FLC	FLT	% EFFICIENCY	POWER FACTOR	STARTING CURRENT	STARTING TORQUE	PULL OUT TORQUE	NET WEIGHT
POLE	kW		(RPM)	(A)	(kg-m)	FL	FL	(%)	% FLT	% FLT	(kgs)
6	0.25	71	1032	1.11	0.27	67.5	0.64	600	180	250	24.00
6	0.37	80	1044	1.41	0.411	71.4	0.67	600	200	250	27.00
6	0.55	80	1044	1.92	0.617	75.3	0.68	600	200	250	29.00
6	0.75	90S	1128	2.30	0.762	81.7	0.69	650	200	250	31.00
6	1.10	90L	1114	3.20	1.16	82.5	0.69	650	200	250	33.00
6	1.50	100L	1154	3.99	1.48	87.5	0.72	650	200	250	35.00
6	2.20	112M	1166	5.20	2.21	88.5	0.74	750	210	260	46.00
6	3.70	132S	1157	8.77	3.72	89.5	0.76	750	200	250	71.00
6	5.50	132M	1159	12.79	5.56	89.5	0.76	750	200	250	79.00
6	7.50	160M	1128	16.81	7.61	91.0	0.78	750	150	250	131.00
6	11.00	160L	1134	23.46	11.49	91.0	0.80	750	200	250	161.00
6	15.00	180L	1146	32.23	15.25	91.7	0.82	750	140	250	197.00
6	18.00	200L	1146	37.28	19.06	91.7	0.82	750	140	250	208.00
6	22.00	200L	1152	44.29	22.75	93.0	0.80	750	140	250	251.00
6	30.00	225M	1152	59.48	30.33	93.0	0.82	750	140	250	286.00
6	37.00	250M	1164	72.56	37.79	94.1	0.81	750	140	250	360.00

BEARING DETAILS FOR IE3 MOTORS

FRAME	POLE	DRIVE END BEARING	NONDRIVE END BEARING
63	2 - 6	6202 2Z / C3	6201 2Z / C3
71	2 - 6	6203 2Z / C3	6202 2Z / C3
80	2 - 6	6204 2Z / C3	6203 ZZ
90S&L	2 - 6	6205 2Z / C3	6204 ZZ
100L	2 - 6	6206 2Z / C3	6205 ZZ
112M	2 - 6	6206 2Z / C3	6205 ZZ
132S&M	2 - 6	6208 2Z / C3	6207 ZZ
160M&L	2 - 6	6309 2Z / C3	6208 ZZ
180L	2 - 6	6310 / C3	6310 / C3
200L	2 - 6	6312 / C3	6211 / C3
225M	2 - 6	6313 / C3	6212 / C3
250M	2 - 6	6315 / C3	6315 / C3

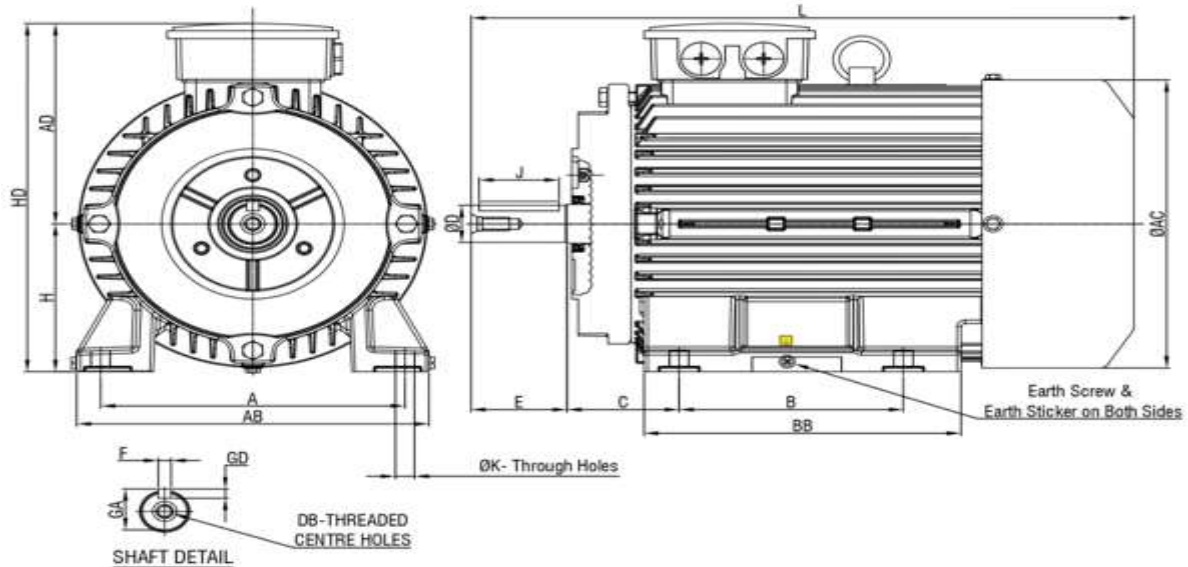
OUTLINE DIMENSIONS SHEET

IE3 EFFICIENCY – THREE PHASE INDUCTION MOTORS

MODEL

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Fig. 1 Dimension Drawing for TEFC, Face Mounted (B3 Motor) 63 – 250M



All Dimensions are as per IEC: 60072 – 1
All Dimensions are in mm.

FOOT MOUNTING (B3)

FRAME SIZE	MOUNTING DIMENSIONS												OVERALL DIMENSIONS					
	A	B	C	D	E	F	G	GA	J	H	K	DB	AB	AC	BB	HD	AD	L
63	100	80	40	11	23	4	8.5	12.5	27	63	7	M4	118	117	96	154	91	203.5
71	112	90	45	14	30	5	11	16	29	71	7.5	M5	132	133.5	110	172	101	246
80	125	100	50	19	40	6	15.5	21.5	28	80	15X10	M6	153	160	125	204	124	272
90	140	100	56	24	50	8	20	27	40	90	15X10	M8	170	178	125	216	126	316
90L	140	125	56	24	50	8	20	27	46	90	10	M8	170	178	160	224	134	355
100L	160	140	63	28	60	8	24	31	53	100	12	M10	200	198	190	241	141	410
112M	190	140	70	28	60	8	24	31	61	112	12	M10	220	220	198	265	153	422
132S	216	140	89	38	80	10	33	41	66	132	12	M12	245.5	260	180	305	173	480
132M	216	178	89	38	80	10	33	41	66	132	12	M12	244	260	240	305	173	507
160M	254	210	108	42	110	12	37	45	74	160	15	M16	288	307	264	381	221	580
160L	254	254	108	42	110	12	37	45	74	160	15	M16	287.5	307	304	380	220	628
180M	279	241	121	48	110	14	42.5	51.5	70	180	15	M16	312.5	353	291	414	234	755
180L	279	279	121	48	110	14	42.5	51.5	70	180	15	M16	312.5	353	329	414	234	755
200L	318	305	133	55	110	16	49	59	88	200	19	M20	357.5	386	365	454	280	770
225S 2 POLE	356	286	149	55	110	16	49	59	94	225	19	M20	395.5	435	346	502	277	778
225S 4-6 POLE	356	286	149	60	140	18	53	64	94	225	19	M20	395.5	435	346	502	277	808
225M	356	311	149	60	140	18	53	64	94	225	19	M20	395.5	435	371	502	277	808
250M 2 POLE	406	349	168	60	140	18	53	64	90	250	24	M20	475	480	404	590	340	900
250M 4-6 POLE	406	349	168	65	140	18	58	69	90	250	24	M20	475	480	404	590	340	900

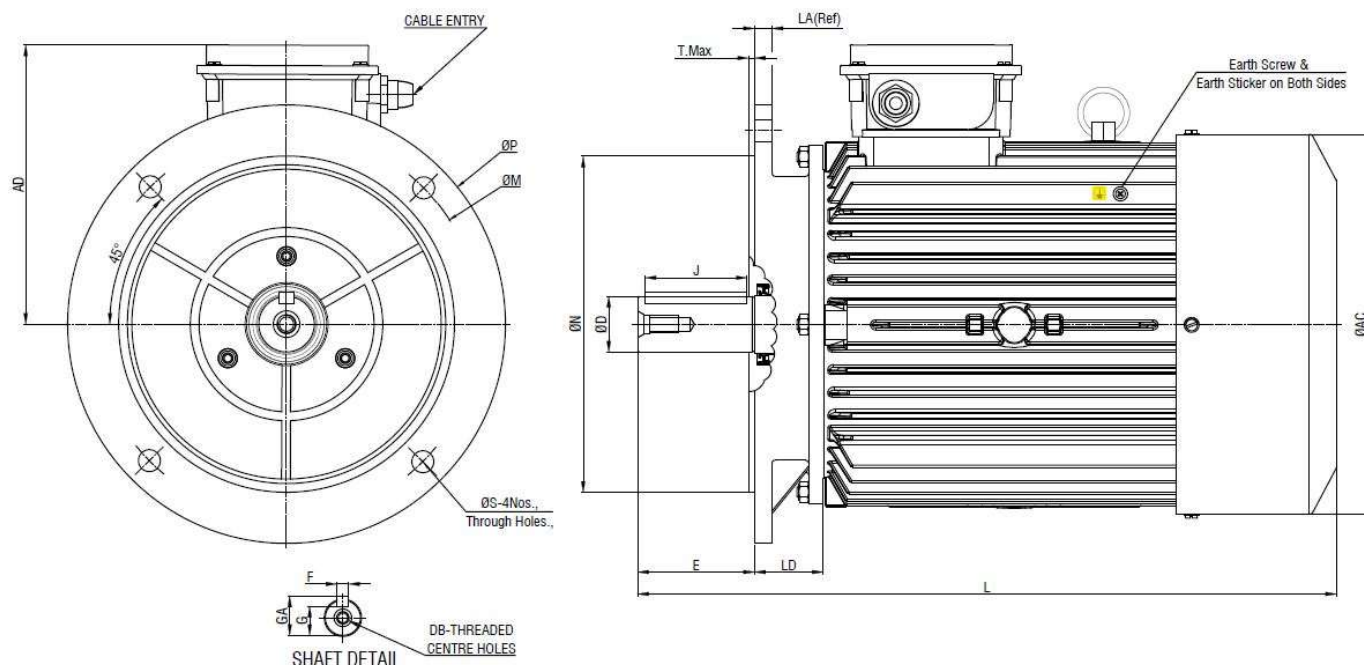
OUTLINE DIMENSIONS SHEET

IE3 EFFICIENCY – THREE PHASE INDUCTION MOTORS

MODEL

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Fig. 2 Dimension Drawing for TEFC, Flange Mounted (B5 Motor) 63 – 225M



All Dimensions are as per IEC: 60072 – 1
All Dimensions are in mm.

FLANGE MOUNTING (B5)

FRAME SIZE	MOUNTING DIMENSIONS														OVERALL DIMENSIONS		
	D	E	F	G	GA	M	N	P	S	No. of Holes	T	LA	LD	DB	AC	AD	L
63	11	23	4	8.5	12.5	115	95	140	10	4	3	10	16	M4	117	91	203.5
71	14	30	5	11	16	130	110	160	10	4	3.5	10	16	M5	133.5	101	246
80	19	40	6	15.5	21.5	165	130	200	12	4	3.5	10	21	M6	160	124	272
90	24	50	8	20	27	165	130	200	12	4	3.5	10	24	M8	178	126	316
90L	24	50	8	20	27	165	130	200	12	4	4	10	24	M8	178	138	355
100L	28	60	8	24	31	215	180	250	15	4	4	11	27	M10	198	143	410
112M	28	60	8	24	31	215	180	250	15	4	4	11	29	M10	220	155	422
132S	38	80	10	33	41	265	230	300	15	4	4	12	36	M12	260	195	480
132M	38	80	10	33	41	265	230	300	15	4	4	12	36	M12	260	195	507
160M	42	110	12	37	45	300	250	350	19	4	5	13	49	M16	307	220	628
160L	42	110	12	37	45	300	250	350	19	4	5	13	49	M16	307	220	628
180M	48	110	15	42.5	51.5	300	250	350	19	4	5	13	52	M16	353	234	755
180L	48	110	15	42.5	51.5	300	250	350	19	4	5	13	52	M16	353	234	755
200L	55	110	16	49	59	350	300	400	19	4	5	15	65	M20	386	280	770
225S 2 POLE	55	110	16	49	59	400	350	450	19	8	5	16	81	M20	435	277	778
225S 4 POLE	60	140	18	53	64	400	350	450	19	8	5	16	81	M20	435	277	808
225S 6 POLE	60	140	18	53	64	400	350	450	19	8	5	16	81	M20	435	277	808
225M	60	140	18	53	64	400	350	450	19	8	5	16	81	M20	435	277	808

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Technical drawing of a motor showing three views: front, side, and shaft detail.

- Front View (Left):** Shows the motor's circular face with cooling fins. Dimensions include A_0 (total height), A_1 (height to center of mounting feet), A_2 (height to center of shaft), and A_3 (height to top of terminal box). The mounting feet are labeled "8S-EQUALLY SPACED".
- Side View (Right):** Shows the motor's profile. Dimensions include L (total length), T_{Max} (maximum terminal box height), R_1 (radius of mounting feet), R_2 (radius of base), E (base thickness), and DAC (diameter of cooling fins). A label "Earth Screw & Earth Sticker on Both Sides" points to the terminal box.
- Shaft Detail (Bottom):** Shows the shaft with a diameter of $\phi 30$ and a length of F . It features "DB-THREADED CENTRE HOLES" with a diameter of $\phi 6$.

All Dimensions are in mm.

FACE MOUNTING (B14)																
S.No	FRAME SIZE	MOUNTING DIMENSIONS												OVERALL DIMENSIONS		
		D	E	F	G	GA	M	N	P	S	No. of Holes	T	DB	AC	AD	L
1	63	11	23	4	8.5	12.5	75	60	90	M5	4	2.5	M4	117	91	203.5
2	71	14	30	5	11	16	85	70	105	M6	4	2.5	M5	133.5	101	246
3	80	19	40	6	15.5	21.5	100	80	120	M6	4	3	M6	160	124	272
4	90S	24	50	8	20	27	115	95	140	M8	4	3	M8	178	126	316
5	90L	24	50	8	20	27	115	95	140	M8	4	3	M8	178	138	355
6	100L	28	60	8	24	31	130	110	160	M8	4	3.5	M10	198	143	410
7	112M	28	60	8	24	31	130	110	160	M8	4	3.5	M10	220	155	422
8	132S	38	80	10	33	41	165	130	200	M10	4	3.5	M12	260	195	480
9	132M	38	80	10	33	41	165	130	200	M10	4	3.5	M12	260	195	507

PACKING DETAILS**FIG – 1, 2, 3****MODEL****PAGE**
27 of 86**STANDARD MOTORS – IE3 (2 POLE)**

kW	Frame Size	Type of Packing	Net Weight (kgs)	Gross Weight (kgs)	Length (mm)	Width (mm)	Height (mm)
0.18	63	Carton Box	7.60	8.40	245	160	215
0.25	63	Carton Box	7.60	8.40	245	160	215
0.37	71	Carton Box	12.50	13.40	285	190	240
0.55	71	Carton Box	12.50	13.40	285	190	240
0.75	80	Carton Box	13.00	14.18	310	230	275
1.10	80	Carton Box	14.00	15.18	310	230	275
1.50	90S	Carton Box	31.00	32.86	410	275	325
2.20	90L	Carton Box	32.00	33.86	410	275	325
3.70	100L	Carton Box	39.00	41.20	455	275	325
5.50	132S	Wooden Box Set	77.00	93.30	650	420	550
7.50	132S	Wooden Box Set	81.00	93.40	650	420	550
11.00	160M	Wooden Box Set	118.00	138.80	850	450	600
15.00	160M	Wooden Box Set	128.00	148.80	850	500	650
18.50	160L	Wooden Box Set	142.00	167.30	850	500	650
22.00	180M	Wooden Box Set	190.00	219.20	1000	530	700
30.00	200L	Wooden Box Set	242.00	276.80	1200	700	900
37.00	200L	Wooden Box Set	247.00	281.80	1200	700	900
45.00	225M	Wooden Box Set	278.00	316.00	1250	750	950
55.00	250M	Wooden Box Set	335.00	375.00	1300	800	1000

STANDARD MOTORS – IE3 (4 POLE)

kW	Frame Size	Type of Packing	Net Weight (kgs)	Gross Weight (kgs)	Length (mm)	Width (mm)	Height (mm)
0.12	63	Carton Box	7.90	8.70	245	160	215
0.18	63	Carton Box	7.90	8.70	245	160	215
0.25	71	Carton Box	9.60	10.50	285	190	240
0.37	71	Carton Box	9.60	10.50	285	190	240
0.55	80	Carton Box	17.00	18.18	310	230	275
0.75	80	Carton Box	18.00	19.18	310	230	275
1.10	90S	Carton Box	29.00	30.86	410	275	325
1.50	90L	Carton Box	33.00	34.86	410	275	325
2.20	100L	Carton Box	39.00	41.20	455	275	325
3.70	112M	Carton Box	49.00	51.62	510	340	355
5.50	132S	Wooden Box Set	77.00	93.30	650	420	550
7.50	132M	Wooden Box Set	85.00	101.30	650	420	550
11.00	160M	Wooden Box Set	117.00	137.80	850	450	600
15.00	160L	Wooden Box Set	140.00	165.30	850	500	650
18.50	180M	Wooden Box Set	192.00	221.20	1000	530	700
22.00	180L	Wooden Box Set	197.00	226.20	1000	530	700
30.00	200L	Wooden Box Set	240.00	274.80	1200	700	900
37.20	225M	Wooden Box Set	268.00	306.00	1250	750	950
45.00	225M	Wooden Box Set	278.00	316.00	1250	750	950
55.00	250M	Wooden Box Set	335.00	375.00	1300	800	1000

dharani[®] MOTORS

PACKING DETAILS

FIG – 1, 2, 3

MODEL

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STANDARD MOTORS – IE3 (6 POLE)

kW	Frame Size	Type of Packing	Net Weight (kgs)	Gross Weight (kgs)	Length (mm)	Width (mm)	Height (mm)
0.75	90S	Carton Box	31.00	32.86	410	275	325
1.10	90L	Carton Box	33.00	34.86	410	275	325
1.50	100L	Carton Box	35.00	37.20	455	275	325
2.20	112M	Carton Box	46.00	48.62	510	340	355
3.70	132S	Wooden Box Set	71.00	87.30	650	420	550
5.50	132M	Wooden Box Set	79.00	95.30	650	420	550
7.50	160M	Wooden Box Set	131.00	151.80	850	450	600
11.00	160L	Wooden Box Set	161.00	186.30	850	500	650
15.00	180L	Wooden Box Set	197.00	236.20	1000	530	700
18.00	200L	Wooden Box Set	208.00	242.80	1200	700	900
22.00	200L	Wooden Box Set	251.00	235.80	1200	700	900
30.00	225M	Wooden Box Set	286.00	324.00	1250	750	950
37.20	250M	Wooden Box Set	360.00	400.00	1300	800	1000

PRODUCT NOTE

**DHARANI – THREE PHASE INDUCTION MOTORS – IE2
EFFICIENCY CLASS**

ALUMINIUM SERIES MOTORS

FRAME SIZE : 63 – 112M

NAME	PAGES
SPECIFICATION TABLE	30, 31
PERFORMANCE DATA	32 – 34
OUTLINE DIMENSION SHEET (63 – 112M)	36 – 39
SCHEMATIC DRAWING (63 – 112M)	36 – 38
PACKING BOX DETAILS	40



SPECIFICATION TABLE			MODEL
IE2 EFFICIENCY – ALUMINIUM SERIES THREE PHASE INDUCTION MOTORS			PAGE 30 of 86
ITEM			STANDARD SPECIFICATION
R A T I N G	Kind of Motors		Squirrel Cage Three Phase Induction Motor
	Voltages & Frequency		Rated voltage 415 V ± 10% (Or as request on all commonly Used Voltages) 50 Hz ± 5% - (Or as on request)
			Rated voltage 460 V , 380 V ± 10% (On request all commonly Used Voltages) 60 Hz ± 5% - (Or as on request) .
	Output Range		0.18 kW to 3.70 kW
	R.P.M (Syn.)	50 Hz	3000 RPM (2P), 1500 RPM (4P), 1000 RPM (6P), 750 RPM (8P)
		60 Hz	3600 RPM (2P), 1800 RPM (4P), 1200 RPM (6P), 900 RPM (8P)
	Time Duty		S1 Continuous
	Frame Size		63 – 112M
	Protection Enclosure		IP55
	Cooling Method		Self-External Fan, Surface Cooling (IC 411)
Mounting		B3 (Foot), B5 (Flange), B14 (Face)B35(Foot & Flange), B34 (Foot & Face)	
A P P L I C A T I O N	Power Condition		Voltage: ±10%, Frequency ±5%, and 10% Max. of Combined Voltage and Frequency, But Frequency Variation does not Exceed ±5%
	Environment Conditions		Place: Non - Hazardous. Ambient Temperature: : - 20°C to + 60°C ;
			Relative Humidity: Up- 95%
			Altitude: Up to 1000 m (3300 ft).
	Type of Starting		For Motor – Star Connection ≤ 1.50 kW – Direct-On-line
			For Motor - Delta Connection > 1.50 kW – Direct-On-line / Star Delta
C O N S T R U C T I O N	Dimensions		Refer Sheet No – 36, 37, 38, 39
	General Enclosure Material		Frame & End Shields – Aluminium
	External Fan		Plastic
	Fan Cover		Pressed Steel
	Shaft		Carbon Steel, Cylinder Single Extension with Key seat and Key
	Bearing		Deep Groove Ball Bearing - 2Z / C3. As per Table on Page No 35
	Terminal Housing		TEFC – Top. (RHS & LHS On Request)
	Stator Winding		Pre - Formed, Coils of Dual Coated Enamelled Copper Wires
	Stator Insulation		Class F Insulation System
	Rotor Winding		Squirrel Cage, Aluminium Conductor with End Ring
Enclosure		Totally Enclosed Fan Cooled (TEFC)	

SPECIFICATION TABLE		MODEL
IE2 EFFICIENCY – ALUMINIUM SERIES THREE PHASE INDUCTION MOTORS		PAGE 31 of 86
P E R F O R M A N C E	ITEM	STANDARD SPECIFICATION
	Painting	JET Black-GP TRUCOAT 336 PRICOL BLACK (JET) DM/F/
	Name Plate Sticker	Affixed on the Motor Casing
	Bolt Thread	ISO Metric System.
	Grounding Terminal	Provided in the Terminal Housing
	Typical Performance	Attached
	Temperature Rise	Temperature Rise Limited to Class B
	All Dharani Motors shall comply with the latest International and Indian Standards. These are as under: List of International Standards: 1. IEC60034-1: Rotating Electrical Machines, Part-1; Rating and Performance. 2. IEC60034-2-1 Standard Methods for Determining Losses and Efficiency. 3. IEC60034-5: Degree of Protection. 4. IEC60034-6: Method of Cooling. 5. IEC60034-9: Noise Limits. 6. IEC60034-14: Mechanical Vibrations Measurement, Evaluation and Limits of Severity. 7. IEC60034-30: Efficiency Classes of Single Speed Three Phase Squirrel Cage Induction Motors. 8. IEC60072-1: Dimensions and Output Ratings of Electrical Machines. List of Indian Standards: 1. IS1231: Dimensions of Three Phase Induction Motors- Foot Mounted. 2. IS2223: Dimensions of Flange Mounted AC Induction Motors. 3. IS2253: Designations of Types of Construction and Mounting Arrangements for Rotating Electrical Machines. 4. IS4029: Guide for Testing Three Phase Induction Motors. 5. IS4691: Degree of Protection Provided by Enclosures for Rotating Electrical Machinery. 6. IS4889: Methods of Determination of Efficiency of Rotating Electrical Machines. 7. IS6362: Designation of Method of Cooling for Rotating Electrical Machines. 8. IS7538: Three Phase Squirrel Cage Induction Motors for Centrifugal Pumps for Agricultural Applications. 9. IS12065: Permissible Limits of Noise Levels for Rotating Electrical Machines. 10. IS12075: Mechanical Vibrations of Rotating Electrical Machines; Measurements, Evaluations and Limits of Vibration Severity. 11. IS12615: Efficiency Classes and Performance Specification. 12. IS15999: Rotating Electrical Machines. 13. IS8151: Single Speed Three Phase Induction Motors for Lifts.	

PERFORMANCE DATA

IE2 EFFICIENCY – ALUMINIUM SERIES THREE PHASE INDUCTION MOTORS
FRAME SIZE - B3, B5 & B14 (63-112M)
Efficiency Class As per IEC 60034-3-1 & IS 12615

MODEL

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ALUMINIUM SERIES MOTORS – 415 V 50 Hz IE2 MOTORS

Values of Performance Characteristics of 2, 4 & 6 Pole Line Operated A.C Motors- IE2

Rated Out Put kW / HP	No. of Poles	Frame Size	100% load			Power Factor	Connection	Net Weight(kg)
			RPM	Eff%	A			
0.18 / 0.25	2	63	2750	60.40	0.84	0.58	Star	5.92
	4	63	1320	64.70	0.82	0.66	Star	5.00
	6	71	860	56.60	0.92	0.60	Star	7.00
0.25 / 0.33	2	63	2750	64.80	1.00	0.66	Star	5.92
	4	71	1330	68.50	1.05	0.74	Star	6.80
	6	71	860	61.60	1.10	0.60	Star	7.00
0.37 / 0.50	2	71	2750	69.50	1.20	0.76	Star	7.24
	4	71	1330	72.70	1.40	0.71	Star	6.80
	6	80	870	67.60	1.40	0.60	Star	9.90
0.55 / 0.75	2	71	2760	74.10	1.60	0.76	Star	7.50
	4	80	1340	77.10	1.70	0.60	Star	9.70
	6	80	870	73.10	1.90	0.63	Star	10.00
0.75 / 1.00	2	80	2780	77.40	2.00	0.83	Star	9.90
	4	80	1360	79.60	2.20	0.69	Star	9.90
	6	90S	890	75.90	2.30	0.68	Star	16.80
1.10 / 1.50	2	80	2790	79.60	2.80	0.80	Star	10.20
	4	90S	1370	81.40	2.90	0.76	Star	16.80
	6	90L	900	78.10	3.20	0.68	Star	17.10
1.50 / 2.00	2	90S	2800	81.30	3.70	0.83	Star	16.20
	4	90L	1380	82.80	3.80	0.76	Star	17.00
	6	100L	900	79.80	4.00	0.69	Star	23.20
2.20 / 3.00	2	90L	2810	83.20	5.00	0.88	Delta	18.00
	4	100L	1390	84.30	5.10	0.75	Delta	23.00
	6	112M	910	81.80	5.50	0.72	Delta	30.10
3.70 / 5.00	2	100L	2820	85.50	8.00	0.82	Delta	23.60
	4	112M	1410	86.30	8.10	0.72	Delta	30.00

PERFORMANCE DATA

IE2 EFFICIENCY – ALUMINIUM SERIES THREE PHASE INDUCTION MOTORS
FRAME SIZE - B3, B5 & B14 (63-112M)
Efficiency Class As per IEC 60034-3-1 & IS 12615

MODEL

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ALUMINIUM SERIES MOTORS – 460V 60 Hz IE2 MOTORS

Values of Performance Characteristics of 2, 4 & 6 Pole Line Operated A.C Motors- IE2

Rated Out Put kW / HP	No. of Poles	Frame Size	100% load			Power Factor	Connection	Net Weight(kg)
			RPM	Eff%	A			
0.18 / 0.25	2	63	3300	64.0	0.70	0.58	Star	5.92
	4	63	1584	68.0	0.68	0.66	Star	5.00
	6	71	1032	55.0	0.77	0.60	Star	7.00
0.25 / 0.33	2	63	3300	68.0	0.83	0.66	Star	5.92
	4	71	1596	70.0	0.88	0.74	Star	6.80
	6	71	1032	59.5	0.92	0.60	Star	7.00
0.37 / 0.50	2	71	3300	72.0	1.00	0.76	Star	7.24
	4	71	1596	72.0	1.17	0.71	Star	6.80
	6	80	1044	64.0	1.17	0.60	Star	9.90
0.55 / 0.75	2	71	3312	74.0	1.33	0.76	Star	7.50
	4	80	1608	75.5	1.42	0.60	Star	9.70
	6	80	1044	68.0	1.58	0.63	Star	10.00
0.75 / 1.00	2	80	3336	75.5	1.67	0.83	Star	9.90
	4	80	1632	78.0	1.83	0.69	Star	9.90
	6	90S	1068	73.0	1.92	0.68	Star	16.80
1.10 / 1.50	2	80	3348	82.5	2.33	0.80	Star	10.20
	4	90S	1644	84.0	2.42	0.76	Star	16.80
	6	90L	1080	85.5	2.67	0.68	Star	17.10
1.50 / 2.00	2	90S	3360	84.0	3.08	0.83	Star	16.20
	4	90L	1656	84.0	3.17	0.76	Star	17.00
	6	100L	1080	86.5	3.33	0.69	Star	23.20
2.20 / 3.00	2	90L	3372	85.5	4.17	0.88	Delta	18.00
	4	100L	1668	87.5	4.25	0.75	Delta	23.00
	6	112M	1092	87.5	4.58	0.72	Delta	30.10
3.70 / 5.00	2	100L	3384	87.5	6.67	0.82	Delta	23.60
	4	112M	1692	87.5	6.75	0.72	Delta	30.00

PERFORMANCE DATA

IE2 EFFICIENCY – ALUMINIUM SERIES THREE PHASE INDUCTION MOTORS
FRAME SIZE - B3, B5 & B14 (63-112M)
Efficiency Class As per IEC 60034-3-1 & IS 12615

MODEL

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ALUMINIUM SERIES MOTORS-380 V 60HZ IE2 MOTORS

Values of Performance Characteristics of 2, 4 & 6 Pole Line Operated A.C Motors- IE2

Rated Out Put kW / HP	No. of Poles	Frame Size	100% load			Power Factor	Connection	Net Weight(kg)
			RPM	Eff%	A			
0.18 / 0.25	2	63	3300	64.0	0.85	0.58	Star	5.92
	4	63	1584	68.0	0.83	0.66	Star	5.00
	6	71	1032	55.0	0.93	0.60	Star	7.00
0.25 / 0.33	2	63	3300	68.0	1.01	0.66	Star	5.92
	4	71	1596	70.0	1.06	0.74	Star	6.80
	6	71	1032	59.5	1.11	0.60	Star	7.00
0.37 / 0.50	2	71	3300	72.0	1.21	0.76	Star	7.24
	4	71	1596	72.0	1.41	0.71	Star	6.80
	6	80	1044	64.0	1.41	0.60	Star	9.90
0.55 / 0.75	2	71	3312	74.0	1.61	0.76	Star	7.50
	4	80	1608	75.5	1.71	0.60	Star	9.70
	6	80	1044	68.0	1.92	0.63	Star	10.00
0.75 / 1.00	2	80	3336	75.5	2.02	0.83	Star	9.90
	4	80	1632	78.0	2.22	0.69	Star	9.90
	6	90S	1068	73.0	2.32	0.68	Star	16.80
1.10 / 1.50	2	80	3348	82.5	2.82	0.80	Star	10.20
	4	90S	1644	84.0	2.93	0.76	Star	16.80
	6	90L	1080	85.5	3.23	0.68	Star	17.10
1.50 / 2.00	2	90S	3360	84.0	3.73	0.83	Star	16.20
	4	90L	1656	84.0	3.83	0.76	Star	17.00
	6	100L	1080	86.5	4.04	0.69	Star	23.20
2.20 / 3.00	2	90L	3372	85.5	5.04	0.88	Delta	18.00
	4	100L	1668	87.5	5.14	0.75	Delta	23.00
	6	112M	1092	87.5	5.55	0.72	Delta	30.10
3.70 / 5.00	2	100L	3384	87.5	8.07	0.82	Delta	23.60
	4	112M	1692	87.5	8.17	0.72	Delta	30.00

BEARING DATA THREE - PHASE SQUIRREL CAGE INDUCTION MOTORS FRAME SIZE - B3, B5 & B14 (63-112M)	MODEL
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BEARING DATA FOR IE2 ALUMINIUM MOTORS			
FRAME	POLE	DRIVE END	NON-DRIVE END
63	2 - 4	6202 2Z / C3	6202 2Z / C3
71	2 - 6	6203 2Z / C3	6203 2Z / C3
80	2 - 6	6204 2Z / C3	6204 2Z / C3
90S	2 - 6	6205 2Z / C3	6205 2Z / C3
90L	2 - 6	6205 2Z / C3	6205 2Z / C3
100L	2 - 6	6206 2Z / C3	6206 2Z / C3
112M	2 - 6	6306 2Z / C3	6306 2Z / C3

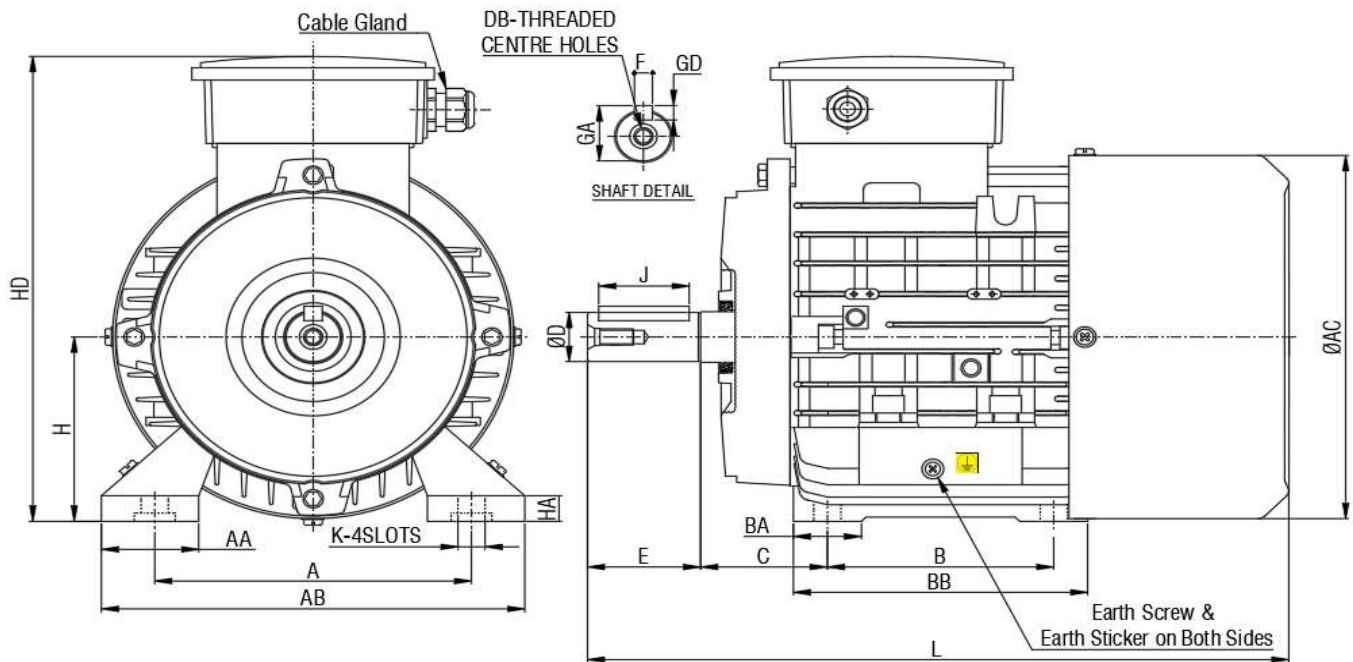
OUTLINE DIMENSIONS SHEET

IE2 EFFICIENCY – ALUMINIUM SERIES THREE PHASE INDUCTION MOTORS
FRAME SIZE – B3 (63 TO 112M)

MODEL

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FIG -1 Dimension Drawing for TEFC, Foot Mounted (B3 Motor) 63 – 112M



All Dimensions are as per IEC: 60072 – 1

All Dimensions are in mm.

FOOT FIXING										OVERALL			
Frame Size	A	B	C	H	AA	AB	BA	BB	ØK x 4 Nos	ØA C	L	HD	HA
63	100	80	40	63	26	125	25	105	12.5 X 7.5	123	220	158	10
71	112	90	45	71	28	140	25	108	12.5 x 7.5	140	250	178	9
80	125	100	50	80	38	160	30	125	17.5 x 9.5	160	290	218	11
90S	140	100	56	90	43	187	30	130	18 x 12	178	310	227	12.5
90L	140	125	56	90	41	182	31	155	17.5 x 10	178	332	224	13.5
100L	160	140	63	100	44.5	194	38	166	18 x 12.5	198	363	246	11
112M	160	140	70	112	48	225	34	175.5	20 x 12	220	395	272	14

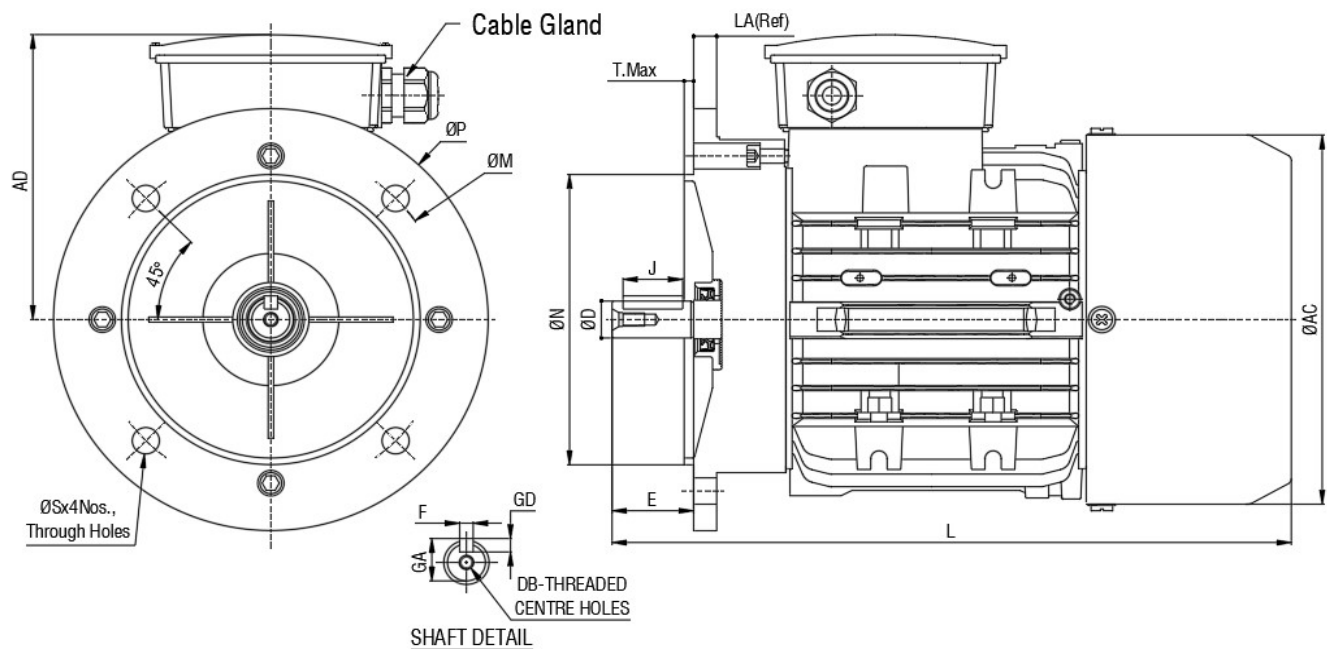
OUTLINE DIMENSIONS SHEET

IE2 EFFICIENCY – ALUMINIUM SERIES THREE PHASE INDUCTION MOTORS
FRAME SIZE – B5 (63 TO 112M)

MODEL

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FIG - 2 Dimension Drawing for TEFC, Flange Mounted (B5 Motor) 63 – 112M



All Dimensions are as per IEC: 60072 – 1

All Dimensions are in mm

FLANGE FIXING							OVERALL		
Frame Size	ØM	ØN	ØP	ØS	T.Max	LA(Ref)	ØAC	L	AD
63	115	95	140	10	3.0	9	123	225	95
71	130	110	160	10	3.5	9	140	250	110
80	165	130	200	12	3.5	10	156	276	132
90S	165	130	200	12	3.5	10	178	296	145
90L	165	130	200	12	3.5	10	178	321	145
100L	215	180	250	15	4.0	11	198	367	153
112M	215	180	250	15	4.0	11	219	385	166

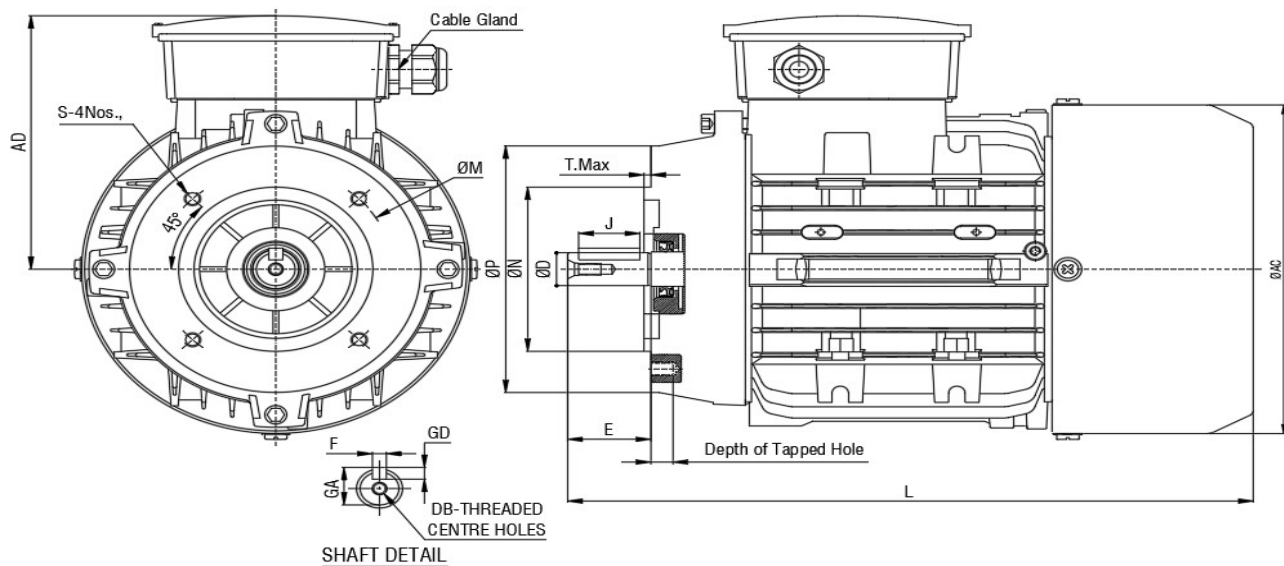
OUTLINE DIMENSIONS SHEET

IE2 EFFICIENCY – ALUMINIUM SERIES THREE PHASE INDUCTION MOTORS
FRAME SIZE – B14 (63 TO 112M)

MODEL

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FIG – 3 Dimension Drawing for TEFC, Face Mounted (B14 Motor)



All Dimensions are as per IEC: 60072 – 1
All Dimensions are in mm

FACE FIXING							OVERALL		
Frame Size	ØM	ØN	ØP	S	T.Max	Depth of Tapped Hole	ØAC	L ±10	AD ±10
63	75	60	90	M5x0.8P	2.5	6.0	123	225	95
71	85	70	105	M6x1.0P	2.5	8.0	140	250	110
80	100	80	120	M6x1.0P	3.0	8.0	160	280	138
90S	115	95	140	M8x1.25P	3.0	10.0	178	300	137
90L	115	95	140	M8x1.25P	3.0	10.0	178	325	134
100L	130	110	160	M8x1.25P	3.5	10.0	198	363	146
112M	130	110	160	M8x1.25P	3.5	10.0	220	382	160

OUTLINE DIMENSIONS SHEET

THREE - PHASE INDUCTION MOTORS
FRAME SIZE – B3, B4 & B14 (63 TO 112M)

MODEL

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FIG - 1, 2, 3- SHAFT EXTENSION, KEY & CABLE GLAND DETAILS

DRIVE END SHAFT EXTENSION AND KEY								CABLE GLAND
Frame Size	ØD	E	F	GD	GA	J	DB	
63	11	23	4	4	12.5	16	M4x0.7P-12↓	M16x1.5P
71	14	30	5	5	16	22	M5x0.8P-12↓	M16x1.5P
80	19	40	6	6	21.5	28	M6x1.0P-16↓	M20x1.5P
90S	24	50	8	7	27	40	M8x1.25P-20↓	M20x1.5P
90L	24	50	8	7	27	40	M8x1.25P-20↓	M20x1.5P
100L	28	60	8	7	31	50	M10x1.5P-24↓	M20x1.5P
112M	28	60	8	7	31	50	M10x1.5P-24↓	M20x1.5P

PACKING DETAILS

FIG – 1, 2, 3

MODEL

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KW / HP	POLE	Frame Size	Type of Packing	Net Weight (kgs)	Gross Weight (kgs)	Length (mm)	Width (mm)	Height (mm)
0.18 / 0.25	2	63	Carton Box	5.92	6.72	245	160	215
	4	63	Carton Box	5.00	5.80	245	160	215
	6	71	Carton Box	7.00	7.90	285	190	240
0.25 / 0.33	2	63	Carton Box	5.92	6.72	245	160	215
	4	71	Carton Box	6.80	7.70	285	190	240
	6	71	Carton Box	7.00	7.90	285	190	240
0.37 / 0.50	2	71	Carton Box	7.24	8.14	285	190	240
	4	71	Carton Box	6.80	7.70	285	190	240
	6	80	Carton Box	9.90	11.08	310	230	275
0.55 / 0.75	2	71	Carton Box	7.50	8.40	285	190	240
	4	80	Carton Box	9.70	10.18	310	230	275
	6	80	Carton Box	10.00	11.18	310	230	275
0.75 / 1.00	2	80	Carton Box	9.90	11.08	310	230	275
	4	80	Carton Box	9.90	11.08	310	230	275
	6	90S	Carton Box	16.80	18.66	410	275	325
1.10 / 1.50	2	80	Carton Box	10.20	11.38	310	230	275
	4	90S	Carton Box	16.80	18.66	410	275	325
	6	90L	Carton Box	17.10	18.96	410	275	325
1.50 / 2.00	2	90S	Carton Box	16.20	18.06	410	275	325
	4	90L	Carton Box	17.00	18.86	410	275	325
	6	100L	Carton Box	23.20	25.40	455	275	325
2.20 / 3.00	2	90L	Carton Box	18.00	19.86	410	275	325
	4	100L	Carton Box	23.00	25.20	455	275	325
	6	112M	Carton Box	30.10	32.72	490	315	340
3.70 / 5.00	2	100L	Carton Box	23.60	25.80	455	275	325
	4	112M	Carton Box	30.00	32.62	490	315	340

PRODUCT NOTE

**DHARANI – THREE PHASE INDUCTION MOTORS – IE3
EFFICIENCY CLASS**

ALUMINIUM SERIES MOTORS

FRAME SIZE : 63 – 112M

NAME	PAGES
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SCHEMATIC DRAWING (63 – 112M)	48 – 50
PACKING BOX DETAILS	52



SPECIFICATION TABLE			MODEL
IE3 EFFICIENCY – ALUMINIUM SERIES THREE PHASE INDUCTION MOTORS			PAGE 42 of 86
ITEM		STANDARD SPECIFICATION	
R A T I N G	Kind of Motors	Squirrel Cage Three Phase Induction Motor	
	Voltages & Frequency	Rated voltage 415 V $\pm$ 10% (Or as request on all commonly Used Voltages) 50 Hz $\pm$ 5% - (Or as on request)	
		Rated voltage 460 V , 380 V $\pm$ 10% (On request all commonly Used Voltages) 60 Hz $\pm$ 5% - (Or as on request).	
	Output Range	0.18 kW to 3.70 kW	
	R.P.M (Syn.)	50 Hz	3000 RPM (2P), 1500 RPM (4P), 1000 RPM (6P), 750 RPM (8P)
		60 Hz	3600 RPM (2P), 1800 RPM (4P), 1200 RPM (6P), 900 RPM (8P)
	Time Duty	S1 Continuous	
	Frame Size	63 – 112M	
	Protection Enclosure	IP55	
A P P L I C A T I O N	Cooling Method	Self-External Fan, Surface Cooling (IC 411)	
	Mounting	B3 (Foot), B5 (Flange), B14 (Face), B35(Foot & Flange), B34 (Foot & Face)	
	Power Condition	Voltage: $\pm$ 10%, Frequency $\pm$ 5%, and 10% Max. of Combined Voltage and Frequency, But Frequency Variation does not Exceed $\pm$ 5%	
	Environment Conditions	Place: Non - Hazardous. Ambient Temperature: - 20°C to + 60°C ;	
		Relative Humidity: Up- 95%	
		Altitude: Up to 1000 m (3300 ft).	
	Type of Starting	For Motor – Star Connection $\leq$ 1.50 kW – Direct-On-line	
		For Motor - Delta Connection > 1.50 kW – Direct-On-line / Star Delta	
C O N S T R U C T I O N	Dimensions	Refer Sheet No – 48, 49, 50, 51	
	General Enclosure Material	Frame & End Shields - Aluminium	
	External Fan	Plastic	
	Fan Cover	Pressed Steel	
	Shaft	Carbon Steel, Cylinder Single Extension with Key seat and Key	
	Bearing	Deep Groove Ball Bearing - 2Z / C3. As per Table on Page No 47.	
	Terminal Housing	TEFC – Top. (RHS & LHS On Request)	
	Stator Winding	Pre - Formed, Coils of Dual Coated Enamelled Copper Wires	
	Stator Insulation	Class F Insulation System	
	Rotor Winding	Squirrel Cage, Aluminium Conductor with End Ring	
	Enclosure	Totally Enclosed Fan Cooled (TEFC)	

SPECIFICATION TABLE

IE3 EFFICIENCY – ALUMINIUM SERIES THREE PHASE INDUCTION MOTORS

MODEL

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ITEM	STANDARD SPECIFICATION
Painting	JET Black-GP TRUCOAT 336 PRICOL BLACK (JET) DM/F/
Name Plate Sticker	Affixed on the Motor Casing
Bolt Thread	ISO Metric System.
Grounding Terminal	Provided in the Terminal Housing
Typical Performance	Attached
Temperature Rise	Not to Exceed 80°C by Resistance Method.

All Dharani Motors shall comply with the latest International and Indian Standards. These are as under:

List of International Standards:

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

List of Indian Standards:

1. IS1231: Dimensions of Three Phase Induction Motors- Foot Mounted.
2. IS2223: Dimensions of Flange Mounted AC Induction Motors.
3. IS2253: Designations of Types of Construction and Mounting Arrangements for Rotating Electrical Machines.
4. IS4029: Guide for Testing Three Phase Induction Motors.
5. IS4691: Degree of Protection Provided by Enclosures for Rotating Electrical Machinery.
6. IS4889: Methods of Determination of Efficiency of Rotating Electrical Machines.
7. IS6362: Designation of Method of Cooling for Rotating Electrical Machines.
8. IS7538: Three Phase Squirrel Cage Induction Motors for Centrifugal Pumps for Agricultural Applications.
9. IS12065: Permissible Limits of Noise Levels for Rotating Electrical Machines.
10. IS12075: Mechanical Vibrations of Rotating Electrical Machines; Measurements, Evaluations and Limits of Vibration Severity.
11. IS12615: Efficiency Classes and Performance Specification.
12. IS15999: Rotating Electrical Machines.
13. IS8151: Single Speed Three Phase Induction Motors for Lifts.

PERFORMANCE DATA

IE3 EFFICIENCY – ALUMINIUM SERIES THREE PHASE INDUCTION MOTORS
FRAME SIZE - B3, B5 & B14 (63-112M)
Efficiency Class As per IEC 60034-3-1 & IS 12615

MODEL

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ALUMINIUM SERIES MOTORS - 415 V 50HZ IE3 MOTORS

Values of Performance Characteristics of 2, 4 & 6 Pole Line Operated A.C Motors- IE3

Rated Output kW / HP	No.of Poles	Frame Size	100% load			Power Factor	Net Weight(kg)
			RPM	Eff%	A		
0.18 / 0.25	2	63	2770	65.90	0.82	0.60	6.92
	4	63	1340	69.90	0.80	0.68	6.00
	6	71	874	63.90	0.88	0.63	8.05
0.25 / 0.33	2	63	2768	69.70	0.96	0.67	6.96
	4	71	1344	73.50	1.02	0.76	7.84
	6	71	880	68.60	1.08	0.62	8.14
0.37 / 0.50	2	71	2764	73.80	1.16	0.78	8.20
	4	71	1346	77.30	1.38	0.74	7.86
	6	80	868	73.50	1.36	0.63	10.98
0.55 / 0.75	2	71	2780	77.80	1.57	0.79	8.56
	4	80	1360	80.80	1.66	0.62	10.20
	6	80	884	77.20	1.87	0.65	10.50
0.75 / 1.00	2	80	2800	80.70	1.96	0.85	10.40
	4	80	1374	82.50	2.17	0.71	10.48
	6	90	910	78.90	2.28	0.70	7.82
1.10 / 1.50	2	80	2810	82.70	2.76	0.83	11.20
	4	90	1390	84.10	2.87	0.78	17.74
	6	90L	915	81.00	3.17	0.70	18.00
1.50 / 2.00	2	90	2814	84.20	3.66	0.86	17.05
	4	90L	1396	85.30	3.78	0.79	18.15
	6	100L	918	82.50	3.98	0.72	24.00
2.20 / 3.00	2	90L	2820	85.90	4.96	0.90	19.50
	4	100L	1410	86.70	5.06	0.78	24.00
	6	112M	925	84.30	5.48	0.75	30.60
3.70 / 5.00	2	100L	2840	89.20	7.96	0.84	24.10
	4	112M	1430	88.40	8.18	0.75	30.50

PERFORMANCE DATA

IE3 EFFICIENCY – ALUMINIUM SERIES THREE PHASE INDUCTION MOTORS
FRAME SIZE - B3, B5 & B14 (63 - 112M)
Efficiency Class As per IEC 60034-3-1 & IS 12615

MODEL

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ALUMINIUM SERIES MOTORS - 460 V 60HZ IE3 MOTORS

Values of Performance Characteristics of 2, 4 & 6 Pole Line Operated A.C Motors- IE3

Rated Output kW / HP	No.of Poles	Frame Size	100% load			Power Factor	Net Weight(kg)
			RPM	Eff%	A		
0.18 / 0.25	2	63	3324	65.6	0.68	0.60	6.92
	4	63	1608	69.5	0.67	0.68	6.00
	6	71	1048	67.5	0.73	0.63	8.05
0.25 / 0.33	2	63	3321	69.5	0.80	0.67	6.96
	4	71	1612	73.4	0.85	0.76	7.84
	6	71	1056	71.4	0.90	0.62	8.14
0.37 / 0.50	2	71	3316	73.4	0.97	0.78	8.20
	4	71	1615	78.2	1.15	0.74	7.86
	6	80	1041	75.3	1.13	0.63	10.98
0.55 / 0.75	2	71	3336	76.8	1.31	0.79	8.56
	4	80	1632	81.1	1.38	0.62	10.20
	6	80	1060	81.7	1.56	0.65	10.50
0.75 / 1.00	2	80	3360	77.0	1.63	0.85	10.40
	4	80	1648	83.5	1.81	0.71	10.48
	6	90	1092	82.5	1.90	0.70	7.82
1.10 / 1.50	2	80	3372	84.0	2.30	0.83	11.20
	4	90	1668	86.5	2.39	0.78	17.74
	6	90L	1098	87.5	2.64	0.70	18.00
1.50 / 2.00	2	90	3376	85.5	3.05	0.86	17.05
	4	90L	1675	86.5	3.15	0.79	18.15
	6	100L	1101	88.5	3.32	0.72	24.00
2.20 / 3.00	2	90L	3384	86.5	4.13	0.90	19.50
	4	100L	1692	89.5	4.22	0.78	24.00
	6	112M	1110	89.5	4.57	0.75	30.60
3.70 / 5.00	2	100L	3408	88.5	6.63	0.84	24.10
	4	112M	1716	89.5	6.82	0.75	30.50

PERFORMANCE DATA

IE3 EFFICIENCY – ALUMINIUM SERIES THREE PHASE INDUCTION MOTORS
FRAME SIZE - B3, B5 & B14 (63 - 112M)
Efficiency Class As per IEC 60034-3-1 & IS 12615

MODEL

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ALUMINIUM SERIES MOTORS - 380 V 60HZ IE3 MOTORS

Values of Performance Characteristics of 2, 4 & 6 Pole Line Operated A.C Motors- IE3

Rated Output kW / HP	No.of Poles	Frame Size	100% load			Power Factor	Net Weight(kg)
			RPM	Eff%	A		
0.18 / 0.25	2	63	3324	65.6	0.83	0.60	6.92
	4	63	1608	69.5	0.81	0.68	6.00
	6	71	1048	67.5	0.89	0.63	8.05
0.25 / 0.33	2	63	3321	69.5	0.97	0.67	6.96
	4	71	1612	73.4	1.03	0.76	7.84
	6	71	1056	71.4	1.09	0.62	8.14
0.37 / 0.50	2	71	3316	73.4	1.17	0.78	8.20
	4	71	1615	78.2	1.39	0.74	7.86
	6	80	1041	75.3	1.37	0.63	10.98
0.55 / 0.75	2	71	3336	76.8	1.58	0.79	8.56
	4	80	1632	81.1	1.67	0.62	10.20
	6	80	1060	81.7	1.89	0.65	10.50
0.75 / 1.00	2	80	3360	77.0	1.98	0.85	10.40
	4	80	1648	83.5	2.19	0.71	10.48
	6	90	1092	82.5	2.30	0.70	7.82
1.10 / 1.50	2	80	3372	84.0	2.78	0.83	11.20
	4	90	1668	86.5	2.90	0.78	17.74
	6	90L	1098	87.5	3.20	0.70	18.00
1.50 / 2.00	2	90	3376	85.5	3.69	0.86	17.05
	4	90L	1675	86.5	3.81	0.79	18.15
	6	100L	1101	88.5	4.01	0.72	24.00
2.20 / 3.00	2	90L	3384	86.5	5.00	0.90	19.50
	4	100L	1692	89.5	5.10	0.78	24.00
	6	112M	1110	89.5	5.53	0.75	30.60
3.70 / 5.00	2	100L	3408	88.5	8.03	0.84	24.10
	4	112M	1716	89.5	8.25	0.75	30.50

BEARING DATA

IE3 EFFICIENCY – ALUMINIUM SERIES THREE PHASE INDUCTION MOTORS
FRAME SIZE - B3, B5 & B14 (63 - 112M)

MODEL

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BEARING DATA FOR IE3 ALUMINIUM MOTORS

FRAME	POLE	DRIVE END	NON-DRIVE END
63	2 - 4	6202 2Z / C3	6202 2Z / C3
71	2 - 6	6203 2Z / C3	6203 2Z / C3
80	2 - 6	6204 2Z / C3	6204 2Z / C3
90S	2 - 6	6205 2Z / C3	6205 2Z / C3
90L	2 - 6	6205 2Z / C3	6205 2Z / C3
100L	2 - 6	6206 2Z / C3	6206 2Z / C3
112M	2 - 6	6306 2Z / C3	6306 2Z / C3

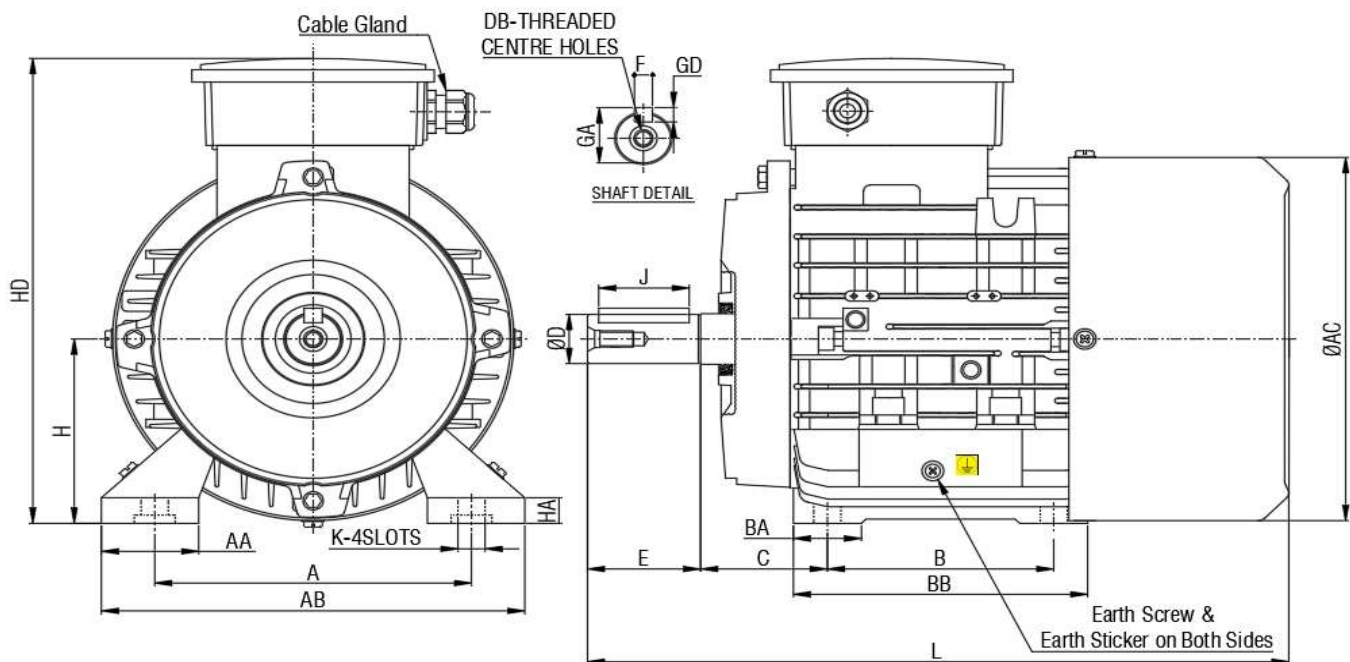
OUTLINE DIMENSIONS SHEET

IE3 EFFICIENCY – ALUMINIUM SERIES THREE PHASE INDUCTION MOTORS
FRAME SIZE – B14 (63 - 112M)

MODEL

PAGE
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FIG -1 Dimension Drawing for TEFC, Foot Mounted (B3 Motor)



All Dimensions are as per IEC: 60072 – 1
All Dimensions are in mm

FOOT FIXING										OVERALL			
Frame Size	A	B	C	H	AA	AB	BA	BB	ØKx4 Nos.	ØA C	L	HD	HA
63	100	80	40	63	26	125	25	105	12.5 X7.5	123	220	158	10
71	112	90	45	71	28	140	25	108	12.5 x 7.5	140	250	178	9
80	125	100	50	80	38	160	30	125	17.5 x 9.5	160	290	218	11
90S	140	100	56	90	43	187	30	130	18 x 12	178	310	227	12.5
90L	140	125	56	90	41	182	31	155	17.5 x 10	178	332	224	13.5
100L	160	140	63	100	44.5	194	38	166	18 x 12.5	198	363	246	11
112M	160	140	70	112	48	225	34	175.5	20 x 12	220	395	272	14

OUTLINE DIMENSIONS SHEET

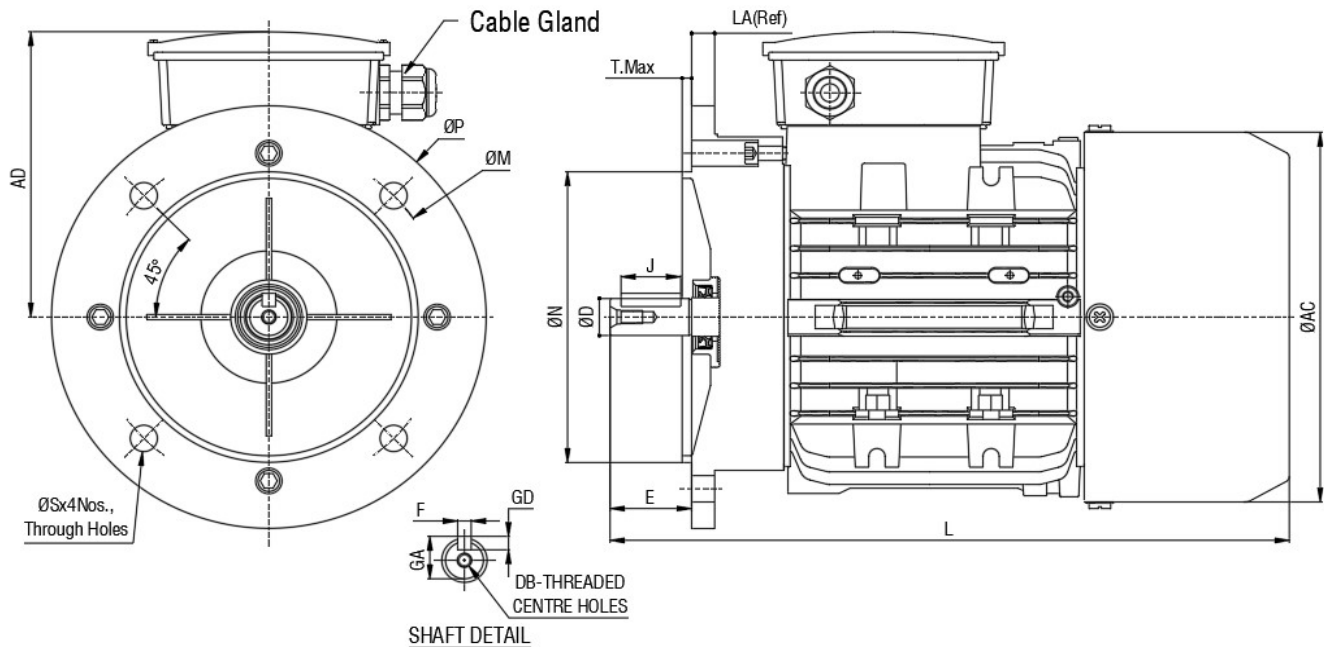
IE3 EFFICIENCY – ALUMINIUM SERIES THREE PHASE INDUCTION MOTORS

FRAME SIZE – B14 (63 - 112M)

MODEL

PAGE
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FIG - 2 Dimension Drawing for TEFC, Flange Mounted (B5 Motor)



All Dimensions are as per IEC: 60072 – 1
All Dimensions are in mm

FLANGE FIXING							OVERALL		
Frame Size	ØM	ØN	ØP	ØS	T.Max	LA(Ref)	ØAC	L±10	AD±10
63	115	95	140	10	3.0	9	123	225	95
71	130	110	160	10	3.5	9	140	250	110
80	165	130	200	12	3.5	10	156	276	132
90S	165	130	200	12	3.5	10	178	296	145
90L	165	130	200	12	3.5	10	178	321	145
100L	215	180	250	15	4	11	198	367	153
112M	215	180	250	15	4	11	219	385	166

dharani[®] MOTORS

OUTLINE DIMENSIONS SHEET

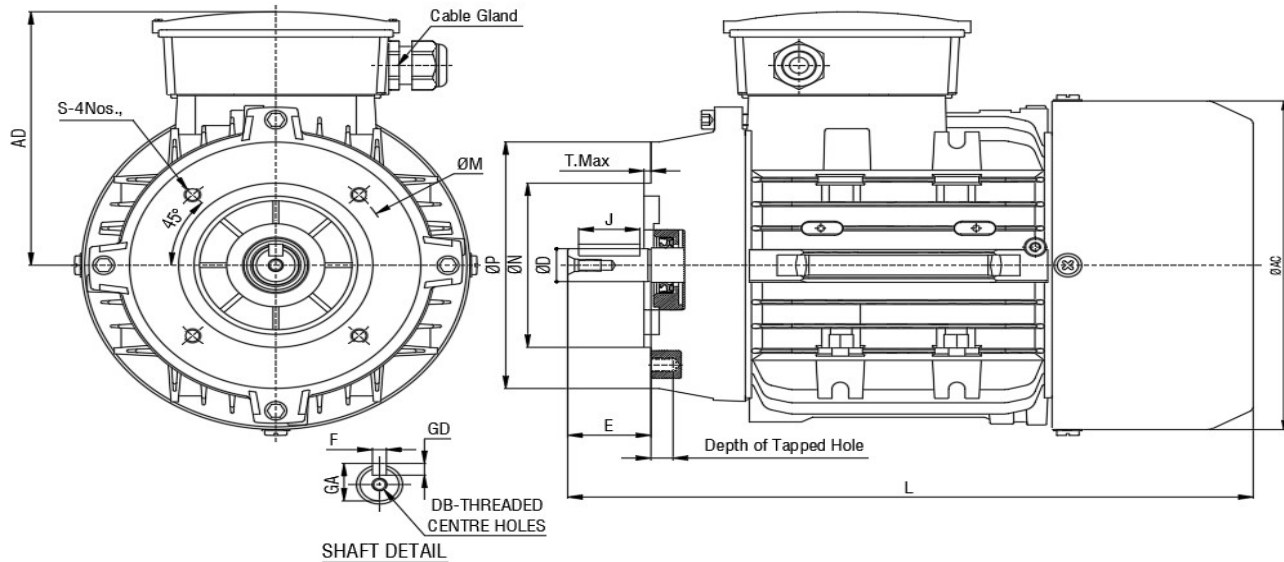
IE3 EFFICIENCY – ALUMINIUM SERIES THREE PHASE INDUCTION MOTORS

FRAME SIZE – B14 (63 - 112M)

MODEL

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FIG - 3 Dimension Drawing for TEFC, Face Mounted (B14 Motor)



All Dimensions are as per IEC: 60072 – 1
All Dimensions are in mm

FACE FIXING							OVERALL		
Frame Size	ØM	ØN	ØP	S	T.Max	Depth of Tapped Hole	ØAC	L	AD
63	75	60	90	M5x0.8P	2.5	6.0	123	225	95
71	85	70	105	M6x1.0P	2.5	8.0	140	250	110
80	100	80	120	M6x1.0P	3.0	8.0	160	280	138
90S	115	95	140	M8x1.25P	3.0	10.0	178	300	137
90L	115	95	140	M8x1.25P	3.0	10.0	178	325	134
100L	130	110	160	M8x1.25P	3.5	10.0	198	363	146
112M	130	110	160	M8x1.25P	3.5	10.0	220	382	160

OUTLINE DIMENSIONS SHEET IE3 EFFICIENCY – ALUMINIUM SERIES THREE PHASE INDUCTION MOTORS FRAME SIZE – B14 (63 - 112M)	MODEL
	PAGE 51 of 86

FIG - 1, 2, 3 - SHAFT EXTENSION, KEY & CABLE GLAND DETAILS

DRIVE END SHAFT EXTENSION AND KEY								CABLE GLAND
Frame Size	ØD	E	F	GD	GA	J	DB	
63	11	23	4	4	12.5	16	M4x0.7P-12↓	M16x1.5P
71	14	30	5	5	16	22	M5x0.8P-12↓	M16x1.5P
80	19	40	6	6	21.5	28	M6x1.0P-16↓	M20x1.5P
90S	24	50	8	7	27	40	M8x1.25P-20↓	M20x1.5P
90L	24	50	8	7	27	40	M8x1.25P-20↓	M20x1.5P
100L	28	60	8	7	31	50	M10x1.5P-24↓	M20x1.5P
112M	28	60	8	7	31	50	M10x1.5P-24↓	M20x1.5P

PACKING DETAILS

FIG – 1, 2, 3

MODEL

PAGE
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kW / HP	POLE	Frame Size	Type of Packing	Net Weight (kgs)	Gross Weight (kgs)	Length (mm)	Width (mm)	Height (mm)
0.18 / 0.25	2	63	Carton Box	5.92	6.72	245	160	215
	4	63	Carton Box	5.00	5.80	245	160	215
	6	71	Carton Box	7.00	7.90	285	190	240
0.25 / 0.33	2	63	Carton Box	5.92	6.72	245	160	215
	4	71	Carton Box	6.80	7.70	285	190	240
	6	71	Carton Box	7.00	7.90	285	190	240
0.37 / 0.50	2	71	Carton Box	7.24	8.14	285	190	240
	4	71	Carton Box	6.80	7.70	285	190	240
	6	80	Carton Box	9.90	11.08	310	230	275
0.55 / 0.75	2	71	Carton Box	7.50	8.40	285	190	240
	4	80	Carton Box	9.70	10.18	310	230	275
	6	80	Carton Box	10.00	11.18	310	230	275
0.75 / 1.00	2	80	Carton Box	9.90	11.08	310	230	275
	4	80	Carton Box	9.90	11.08	310	230	275
	6	90S	Carton Box	16.80	18.66	410	275	325
1.10 / 1.50	2	80	Carton Box	10.20	11.38	310	230	275
	4	90S	Carton Box	16.80	18.66	410	275	325
	6	90L	Carton Box	17.10	18.96	410	275	325
1.50 / 2.00	2	90S	Carton Box	16.20	18.06	410	275	325
	4	90L	Carton Box	17.00	18.86	410	275	325
	6	100L	Carton Box	23.20	25.40	455	275	325
2.20 / 3.00	2	90L	Carton Box	18.00	19.86	410	275	325
	4	100L	Carton Box	23.00	25.20	455	275	325
	6	112M	Carton Box	30.10	32.72	490	315	340
3.70 / 5.00	2	100L	Carton Box	23.60	25.80	455	275	325
	4	112M	Carton Box	30.00	32.62	490	315	340

PRODUCT NOTE

DHARANI – SINGLE PHASE INDUCTION MOTORS

CSR MOTORS

FRAME SIZE : 63 – 112M

NAME	PAGES
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PERFORMANCE DATA	56
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SCHEMATIC DRAWING (80 – 112M)	60
PACKING BOX DETAILS	61



SPECIFICATION TABLE		MODEL
SINGLE - PHASE INDUCTION MOTORS (CSR)		PAGE
LOW VOLTAGE SQUIRREL CAGE		54 of 86
	ITEM	STANDARD SPECIFICATION
R A T I N G	Kind of Motors	Squirrel Cage Single Phase Induction Motor(Capacitor Start Run)
	Voltages	Rated voltage 220 V. (Or as required)
	Frequency	Rated Frequency 50 Hz. (Or as required)
	Output Range	0.18 kW to 3.7 kW
	R.P.M (Syn.)	3000 RPM (2P), 1500 RPM (4P)
	Time Duty	Continuous
	Frame Size	63 – 112M
	Protection Enclosure	Totally Enclosed Fan Cooled (TEFC) (IP55).
	Cooling Method	Self-External Fan, Surface Cooling (IC 411)
	Mounting	B3 (Foot), B5 (Flange), B14 (Face). B35 (Foot & Flange), B34 (Foot & Face)
A P P L I C A T I O N	Power Condition	Voltage: $\pm 10\%$, Frequency $\pm 5\%$, and 10% Max. of Combined Voltage and Frequency, But Frequency Variation does not Exceed $\pm 5\%$
	Environment Conditions	Place: Non - Hazardous. Ambient Temperature: - 15°C to + 40°C , Relative Humidity: Less Than 90%RH (Non - condensation), Altitude: Up to 1000 m (3300 ft).
	Drive Method	Belt Service or Direct Coupling Service
	Direction of Rotation	Bi - Directional
	Method of Starting	Full Voltage Direct - On - Line
C O N S T R U C T I O N	Dimensions	Refer Sheet No – 57, 58
	Frame	Frames : 63, 71, 80 – Aluminium Frame / Cast Iron - End Shields
	End Bracket (Shield)	Frames : 80 - 112M – Cast Iron – Frame, Cast Iron – End Shields
	External Fan	Plastic
	Fan Cover	Pressed Steel
	Shaft	Carbon Steel, Cylinder Single Extension with Key seat and Key
	Bearing	Deep Groove Ball Bearing - 2Z / C3. As per Table on Page No 56.
	Terminal Housing	Terminal Box - Top
	Stator Winding	Pre - Formed, Coils of Dual Coated of Enamelled Copper Wires
	Stator Insulation	Class F Insulation System
	Rotor Winding	Squirrel Cage, Aluminium Conductor with End Ring

SPECIFICATION TABLE		MODEL
SINGLE - PHASE INDUCTION MOTORS		PAGE
LOW VOLTAGE SQUIRREL CAGE		55 of 86
	ITEM	STANDARD SPECIFICATION
P E R F O R M A N C E	Painting	RAL Blue -GP COAT 131 RAL BLUE - K1 5010 G/F 3:1 / JET Black-GP TRUCOAT 336 PRICOL BLACK (JET) DM/ F/
	Name Plate Sticker	Affixed on the Motor Casing
	Bolt Thread	ISO Metric System.
	Grounding Terminal	Provided in the Terminal Housing
	Typical Performance	Attached
	Temperature Rise	Temperature Rise Limited to Class B

PERFORMANCE DATA – CSR MOTORS

Efficiency Class As per IS 996

MODEL

PAGE
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Output		Full Load RPM	Frame Size	FULL LOAD				LOCKED ROTOR	
POLE	kW			Torque kg - m	Eff. (%)	P.F	Current (A)	Torque (%)	Current (A)
2	0.18	2630	63	0.068	50	0.65	2.1	30	9
2	0.37	2680	71	0.133	58	0.71	4.9	40	15
2	0.75	2740	80	0.261	68	0.82	6.30	70	25
2	1.5	2910	90S	0.492	71.0	0.87	11.90	70	48
2	2.2	2900	90L	0.741	72.0	0.85	15.70	70	63
2	3.7	2900	112M	1.317	75.0	0.94	25.00	70	112
4	0.18	1340	63	0.133	52	0.67	2.2	30	9
4	0.37	1360	71	0.263	60	0.70	4.0	40	16
4	0.75	1380	80	0.519	68.0	0.73	6.80	70	27
4	0.75	1420	100S	0.504	68.0	0.75	7.10	70	27
4	1.1	1440	90S	0.746	70.0	0.76	9.40	70	38
4	1.1	1420	100S	0.756	70.0	0.79	9.40	70	38
4	1.5	1440	90L	0.995	71.0	0.82	12.50	70	50
4	1.5	1420	100L	1.009	71.0	0.84	12.50	70	50
4	2.2	1450	100L	1.482	72.0	0.92	16.50	70	66
4	2.2	1390	112M	1.546	72.0	0.92	16.50	80	66
4	3.7	1440	112M	2.652	79.0	0.92	26.80	80	120

BEARING DETAILS			
FRAME	POLE	DRIVE END BEARING	NONDRIVE END BEARING
63	2 - 4	6202 2Z / C3	6201 2Z / C3
71	2 - 4	6203 2Z / C3	6202 2Z / C3
80	2 - 4	6204 2Z / C3	6203 ZZ
90	2 - 4	6205 2Z / C3	6204 ZZ
100	2 - 4	6206 2Z / C3	6205 ZZ
112	2 - 4	6206 2Z / C3	6205 ZZ

OUTLINE DIMENSIONS SHEET

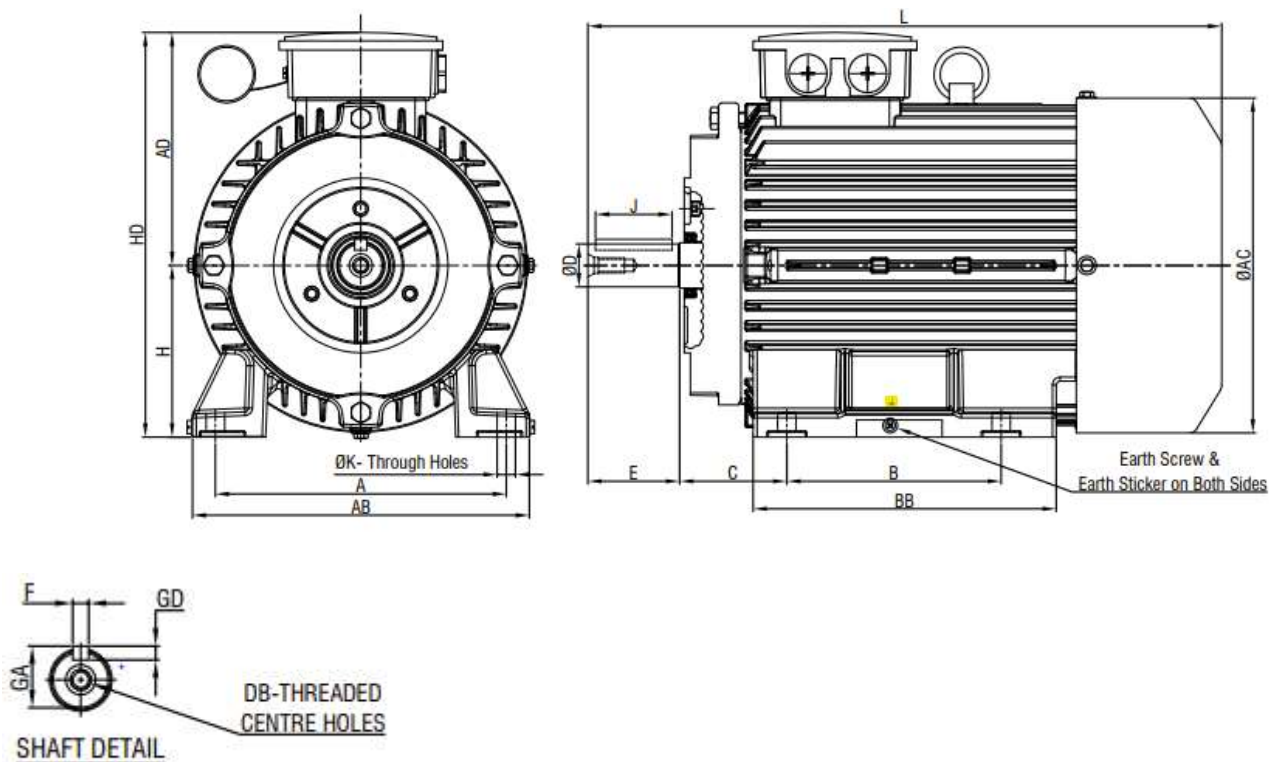
SINGLE - PHASE INDUCTION MOTORS

MODEL

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CSR MOTORS (Ref. STD - IS 1231:2019)

DIMENSIONAL DRAWING FOR TEFC, FOOT MOUNTED MOTORS (B3) FRAME - 63 to 112M



All Dimensions are as per IEC: 60072 – 1
All Dimensions are in mm

FOOT MOUNTING (B3)

FRAME SIZE	MOUNTING DIMENSIONS												OVERALL DIMENSIONS					
	A	B	C	D	E	F	G	GA	J	H	K	DB	AB	AC	BB	HD	AD	L
63	100	80	40	11	23	4	8.5	12.5	27	63	7	M4	118	117	96	154	91	203.5
71	112	90	45	14	30	5	11	16	29	71	7.5	M5	132	133.5	110	172	101	246
80	125	100	50	19	40	6	15.5	21.5	28	80	15X10	M6	153	160	125	204	124	272
90S	140	100	56	24	50	8	20	27	40	90	15X10	M8	170	178	125	216	126	316
90L	140	125	56	24	50	8	20	27	46	90	10	M8	170	178	160	224	134	355
100L	160	140	63	28	60	8	24	31	53	100	12	M10	200	198	190	241	141	410
112M	190	140	70	28	60	8	24	31	61	112	12	M10	220	220	198	265	153	422

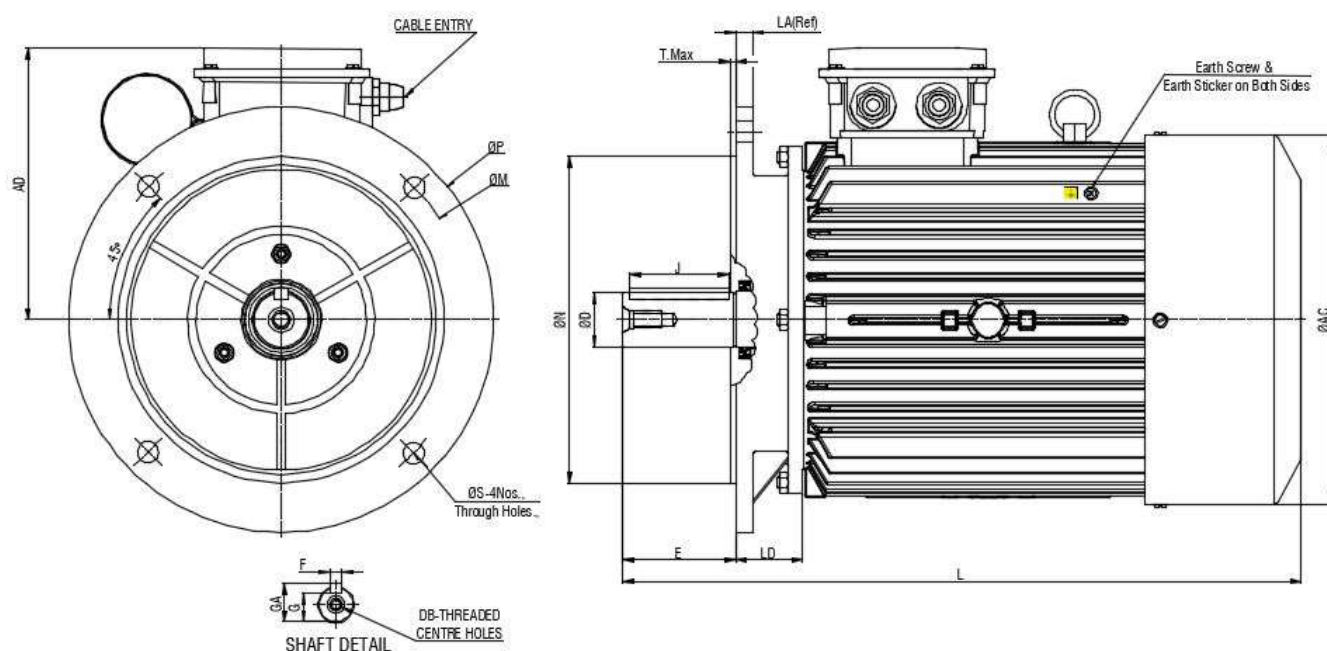
OUTLINE DIMENSIONS SHEET

SINGLE - PHASE INDUCTION MOTORS

MODEL

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Fig. 2 Dimension Drawing for TEFC, Flange Mounted (B5 Motor) 63 – 112M



All Dimensions are as per IEC: 60072 – 1
All Dimensions are in mm.

FLANGE MOUNTING (B5)

FRAME SIZE	MOUNTING DIMENSIONS														OVERALL DIMENSIONS		
	D	E	F	G	GA	M	N	P	S	No. of Hole s	T	LA	LD	DB	AC	AD	L
63	11	23	4	8.5	12.5	115	95	140	10	4	3	10	16	M4	117	91	203.5
71	14	30	5	11	16	130	110	160	10	4	3.5	10	16	M5	133.5	101	246
80	19	40	6	15.5	21.5	165	130	200	12	4	3.5	10	21	M6	160	124	272
90	24	50	8	20	27	165	130	200	12	4	3.5	10	24	M8	178	126	316
90L	24	50	8	20	27	165	130	200	12	4	4	10	24	M8	178	138	355
100L	28	60	8	24	31	215	180	250	15	4	4	11	27	M10	198	143	410
112M	28	60	8	24	31	215	180	250	15	4	4	11	29	M10	220	155	422

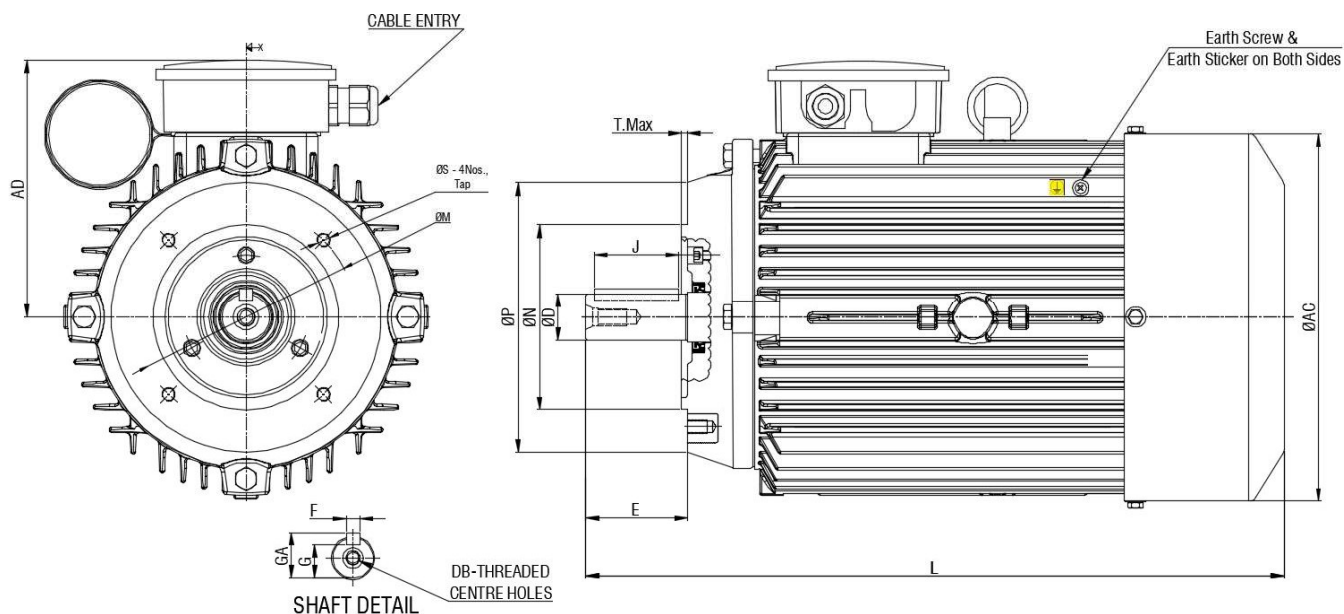
OUTLINE DIMENSIONS SHEET

STANDARD THREE PHASE INDUCTION MOTORS

MODEL

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Fig. 3 Dimension Drawing for TEFC, Face Mounted (B14 Motor) 63 – 112M



All Dimensions are as per IEC: 60072 – 1
All Dimensions are in mm.

FACE MOUNTING (B14)

S.No	FRAME SIZE	MOUNTING DIMENSIONS												OVERALL DIMENSIONS		
		D	E	F	G	GA	M	N	P	S	No. of Holes	T	DB	AC	AD	L
1	63	11	23	4	8.5	12.5	75	60	90	M5	4	2.5	M4	117	91	203.5
2	71	14	30	5	11	16	85	70	105	M6	4	2.5	M5	133.5	101	246
3	80	19	40	6	15.5	21.5	100	80	120	M6	4	3	M6	160	124	272
4	90S	24	50	8	20	27	115	95	140	M8	4	3	M8	178	126	316
5	90L	24	50	8	20	27	115	95	140	M8	4	3	M8	178	138	355
6	100L	28	60	8	24	31	130	110	160	M8	4	3.5	M10	198	143	410
7	112M	28	60	8	24	31	130	110	160	M8	4	3.5	M10	220	155	422

OUTLINE DIMENSIONS SHEET

SINGLE - PHASE INDUCTION MOTORS

MODEL

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CSR MOTORS (Ref. STD - IS 1231:2019)

DRIVE END SHAFT EXTENSION AND KEY

Frame Size	ØD	E	F	GD	GA	J	DB
63	11	23	4	4	12.5	16	M4x0.7P-12↓
71	14	30	5	5	16	22	M5x0.8P-12↓
80	19	40	8	6	21.5	28	M6x1.0P-16↓
90S	24	50	8	7	27	40	M8x1.25P-20↓
90L	24	50	8	7	27	40	M8x1.25P-20↓
100L	28	60	8	7	31	50	M10x1.5P-24↓
112M	28	60	8	7	31	50	M10x1.5P-24↓

PACKING DETAILS

FIG – 1

MODEL

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CSCR MOTORS (2 POLE)

Frame Size	Type of Packing	Net Weight (kgs)	Gross Weight (kgs)	Length (mm)	Width (mm)	Height (mm)
63	Carton Box	7.60	8.70	245	160	215
71	Carton Box	9.60	10.50	285	190	240
80	Carton Box	11.00	12.18	310	230	275
90S	Carton Box	27.00	28.86	410	275	325
90L	Carton Box	28.00	29.86	410	275	325
100L	Carton Box	36.00	38.20	455	275	325
112M	Carton Box	45.00	47.62	510	340	355

CSCR MOTORS (4 POLE)

Frame Size	Type of Packing	Net Weight (kgs)	Gross Weight (kgs)	Length (mm)	Width (mm)	Height (mm)
63	Carton Box	7.90	9.00	245	160	215
71	Carton Box	9.95	10.95	285	190	240
80	Carton Box	14.30	15.48	310	230	275
90S	Carton Box	25.30	27.16	410	275	325
90L	Carton Box	28.30	30.16	410	275	325
100L	Carton Box	36.40	38.60	455	275	325
112M	Carton Box	45.40	48.02	510	340	355

PRODUCT NOTE

DHARANI – SINGLE PHASE INDUCTION MOTORS

CSCR MOTORS

FRAME SIZE : 63 – 112M

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PERFORMANCE DATA	65
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SCHEMATIC DRAWING (63 – 112M)	69
PACKING BOX DETAILS	70



SPECIFICATION TABLE		MODEL
SINGLE - PHASE INDUCTION MOTORS (CSCR)		PAGE
LOW VOLTAGE SQUIRREL CAGE		63 of 86
ITEM		STANDARD SPECIFICATION
R A T I N G	Kind of Motors	Squirrel Cage Single Phase Induction Motor (Capacitor Start and Capacitor Run)
	Voltages	Rated voltage 220 V. (Or as required)
	Frequency	Rated Frequency 50 Hz. (Or as required)
	Output Range	0.18 kW to 3.70 kW
	R.P.M (Syn.)	3000 RPM (2P), 1500 RPM (4P)
	Time Duty	Continuous
	Frame Size	63 – 112M
	Protection Enclosure	Totally Enclosed Fan Cooled (TEFC) (IP55).
	Cooling Method	Self-External Fan, Surface Cooling (IC 411)
	Mounting	B3 (Foot), B5 (Flange), B14 (Face). B35 (Foot & Flange), B34 (Foot & Face)
A P P L I C A T I O N	Power Condition	Voltage: $\pm 10\%$, Frequency $\pm 5\%$, and 10% Max. of Combined Voltage and Frequency, But Frequency Variation does not Exceed $\pm 5\%$
	Environment Conditions	Place: Non - Hazardous. Ambient Temperature: $-15^{\circ}\text{C} \sim 40^{\circ}\text{C}$, Relative Humidity: Less Than $90\%\text{RH}$ (Non - condensation), Altitude: Up to 1000 m (3300 ft).
	Drive Method	Belt Service or Direct Coupling Service
	Direction of Rotation	Bi - Directional
	Method of Starting	Full Voltage Direct - On - Line
C O N S T R U C T I O N	Dimensions	Refer Sheet No – 64, 65
	Frame	Frames : 63, 71, 80 – Aluminium Frame / Cast Iron - End Shields
	End Bracket (Shield)	Frames : 80 - 112M – Cast Iron – Frame, Cast Iron – End Shields
	External Fan	Plastic.
	Fan Cover	Pressed Steel.
	Shaft	Carbon Steel, Cylinder Single Extension with Key seat and Key.
	Bearing	Deep Groove Ball Bearing - 2Z / C3. As per Table on Page No 63.
	Terminal Housing	Terminal Box - Top
	Stator Winding	Pre - Formed, Coils of Dual Coated of Enamelled Copper Wires
	Stator Insulation	Class F Insulation System
	Rotor Winding	Squirrel Cage, Aluminium Conductor with End Ring
	Centrifugal Switch	HCES (Highly Compatible Electronic Switch)

SPECIFICATION TABLE SINGLE - PHASE INDUCTION MOTORS LOW VOLTAGE SQUIRREL CAGE		MODEL
		PAGE 64 of 86
	ITEM	STANDARD SPECIFICATION
P E R F O R M A N C E	Painting	RAL Blue -GP COAT 131 RAL BLUE - K1 5010 G/F 3:1 / JET Black-GP TRUCOAT 336 PRICOL BLACK (JET) DM/ F/
	Name Plate Sticker	Affixed on the Motor Casing
	Bolt Thread	ISO Metric System.
	Grounding Terminal	Provided in the Terminal Housing
	Typical Performance	Attached
	Temperature Rise	Temperature Rise Limited to Class B

PERFORMANCE DATA – CSCR MOTORS

Efficiency Class As per IS 996

MODEL

PAGE
65 of 86

Output		Full Load RPM	Frame Size	FULL LOAD				LOCKED ROTOR	
POLE	kW			Torque kg - m	Eff. (%)	P.F	Current (A)	Torque (%)	Current (A)
2	0.18	2630	63	0.068	52	0.65	2.1	200	16
2	0.37	2680	71	0.133	60	0.70	3.8	210	30
2	0.75	2740	80	0.261	68.0	0.82	6.30	260	55
2	1.50	2910	90S	0.492	71.0	0.87	11.90	260	96
2	2.20	2900	90L	0.741	72.0	0.85	15.70	240	122
2	3.70	2900	112M	1.317	75.0	0.94	25.00	240	182
4	0.18	1340	63	0.133	52	0.67	2.20	200	16
4	0.37	1360	71	0.263	60	0.72	4.00	210	28
4	0.75	1380	80	0.519	68	0.73	6.80	260	48
4	0.75	1420	100S	0.504	68.0	0.75	7.10	260	48
4	1.10	1440	90S	0.746	70.0	0.76	9.40	230	66
4	1.10	1420	100S	0.756	70.0	0.79	9.40	230	66
4	1.50	1440	90L	0.995	71.0	0.82	12.50	230	115
4	2.20	1390	100L	1.482	72.0	0.92	16.50	220	150
4	2.2	1390	112M	1.546	72.0	0.92	16.50	220	150
4	3.70	1440	112M	2.652	79.0	0.87	26.80	220	194

FRAME	POLE	DRIVE END BEARING	NONDRIVE END BEARING
63	2 – 4	6202 2Z / C3	6201 2Z / C3
71	2 – 4	6203 2Z / C3	6202 2Z / C3
80	2 – 4	6204 2Z / C3	6203 ZZ
90	2 – 4	6205 2Z / C3	6204 ZZ
100	2 – 4	6206 2Z / C3	6205 ZZ
112	2 – 4	6206 2Z / C3	6205 ZZ

OUTLINE DIMENSIONS SHEET

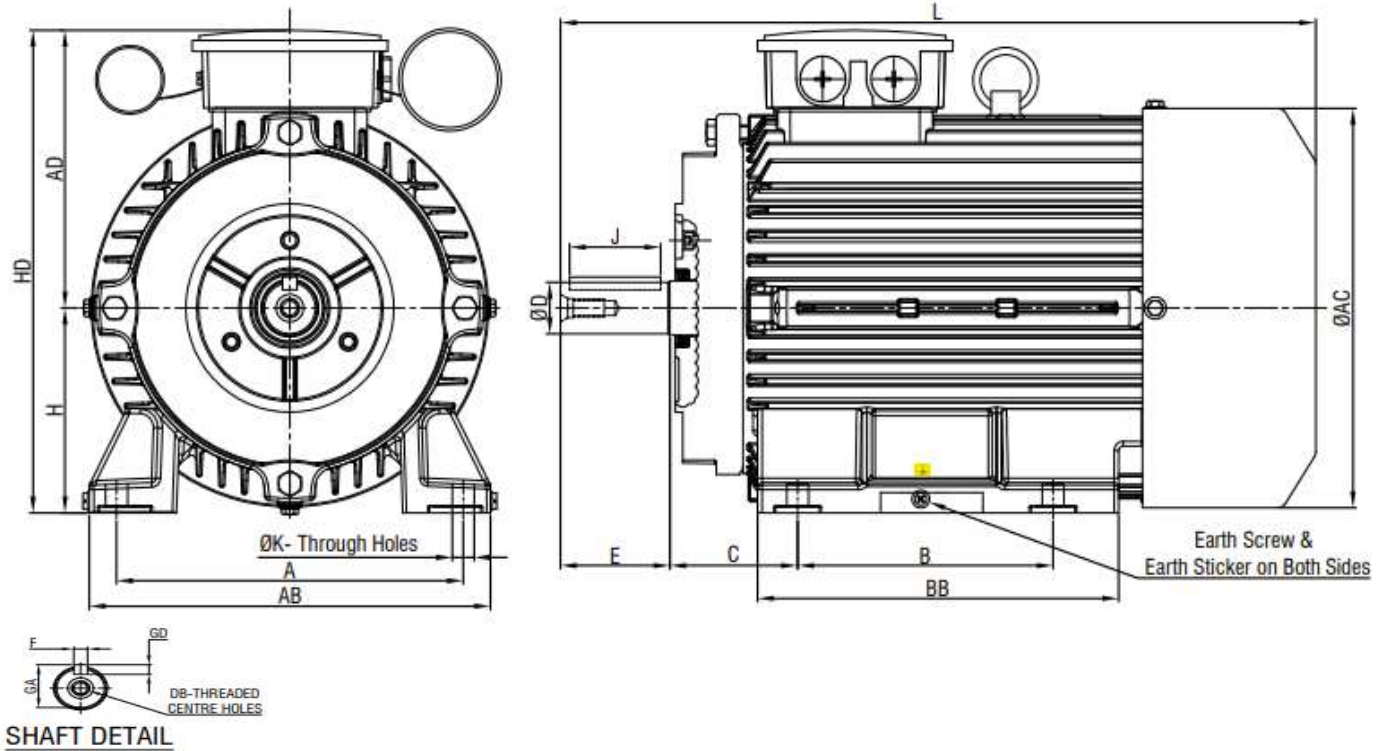
SINGLE - PHASE INDUCTION MOTORS

MODEL

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CSCR MOTORS (Ref. STD - IS 1231:2019)

DIMENSIONAL DRAWING FOR TEFC, FLANGE MOUNTED MOTORS (B3) FRAME - 63 to 112M



All Dimensions are as per IEC: 60072 – 1
All Dimensions are in mm

FOOT MOUNTING (B3)

FRAME SIZE	MOUNTING DIMENSIONS												OVERALL DIMENSIONS					
	A	B	C	D	E	F	G	GA	J	H	K	DB	AB	AC	BB	HD	AD	L
63	100	80	40	11	23	4	8.5	12.5	27	63	7	M4	118	117	96	154	91	203.5
71	112	90	45	14	30	5	11	16	29	71	7.5	M5	132	133.5	110	172	101	246
80	125	100	50	19	40	6	15.5	21.5	28	80	15X10	M6	153	160	125	204	124	272
90S	140	100	56	24	50	8	20	27	40	90	15X10	M8	170	178	125	216	126	316
90L	140	125	56	24	50	8	20	27	46	90	10	M8	170	178	160	224	134	355
100L	160	140	63	28	60	8	24	31	53	100	12	M10	200	198	190	241	141	410
112M	190	140	70	28	60	8	24	31	61	112	12	M10	220	220	198	265	153	422

dharani[®] MOTORS

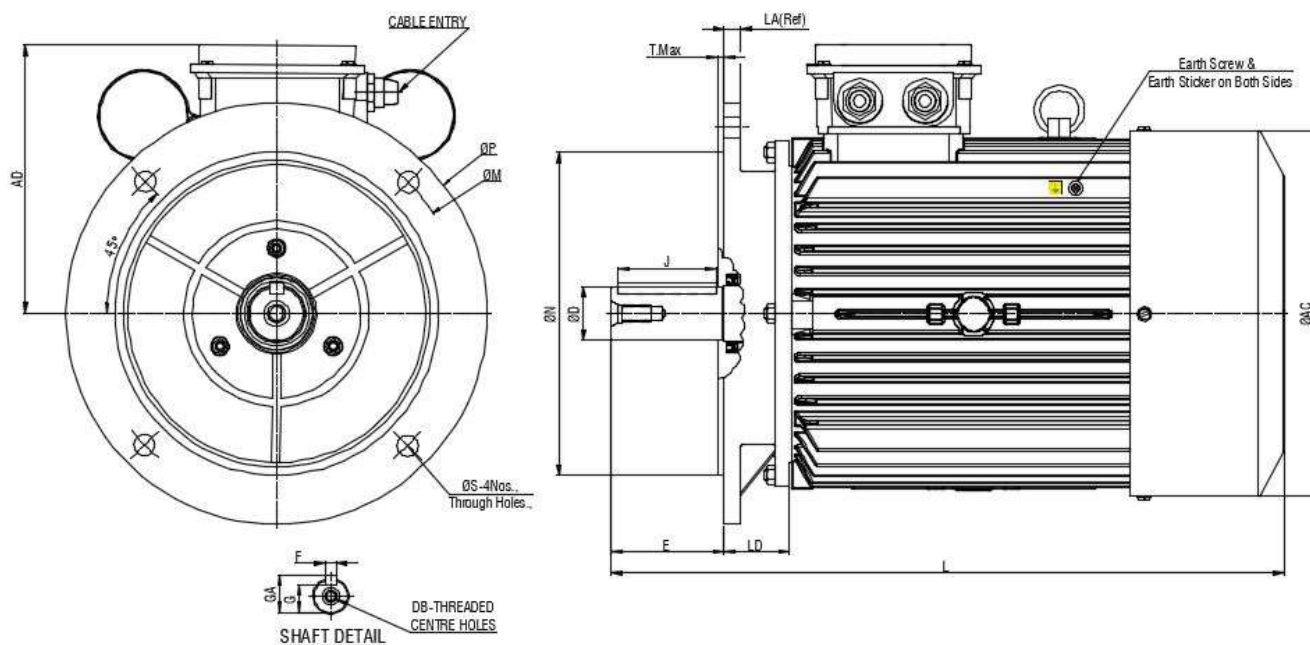
OUTLINE DIMENSIONS SHEET

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Fig. 2 Dimension Drawing for TEFC, Flange Mounted (B5 Motor) 63 – 112M



All Dimensions are as per IEC: 60072 – 1
All Dimensions are in mm.

FLANGE MOUNTING (B5)

FRAME SIZE	MOUNTING DIMENSIONS														OVERALL DIMENSIONS		
	D	E	F	G	GA	M	N	P	S	No. of Hole s	T	LA	LD	DB	AC	AD	L
63	11	23	4	8.5	12.5	115	95	140	10	4	3	10	16	M4	117	91	203.5
71	14	30	5	11	16	130	110	160	10	4	3.5	10	16	M5	133.5	101	246
80	19	40	6	15.5	21.5	165	130	200	12	4	3.5	10	21	M6	160	124	272
90	24	50	8	20	27	165	130	200	12	4	3.5	10	24	M8	178	126	316
90L	24	50	8	20	27	165	130	200	12	4	4	10	24	M8	178	138	355
100L	28	60	8	24	31	215	180	250	15	4	4	11	27	M10	198	143	410
112M	28	60	8	24	31	215	180	250	15	4	4	11	29	M10	220	155	422

dharani[®] MOTORS

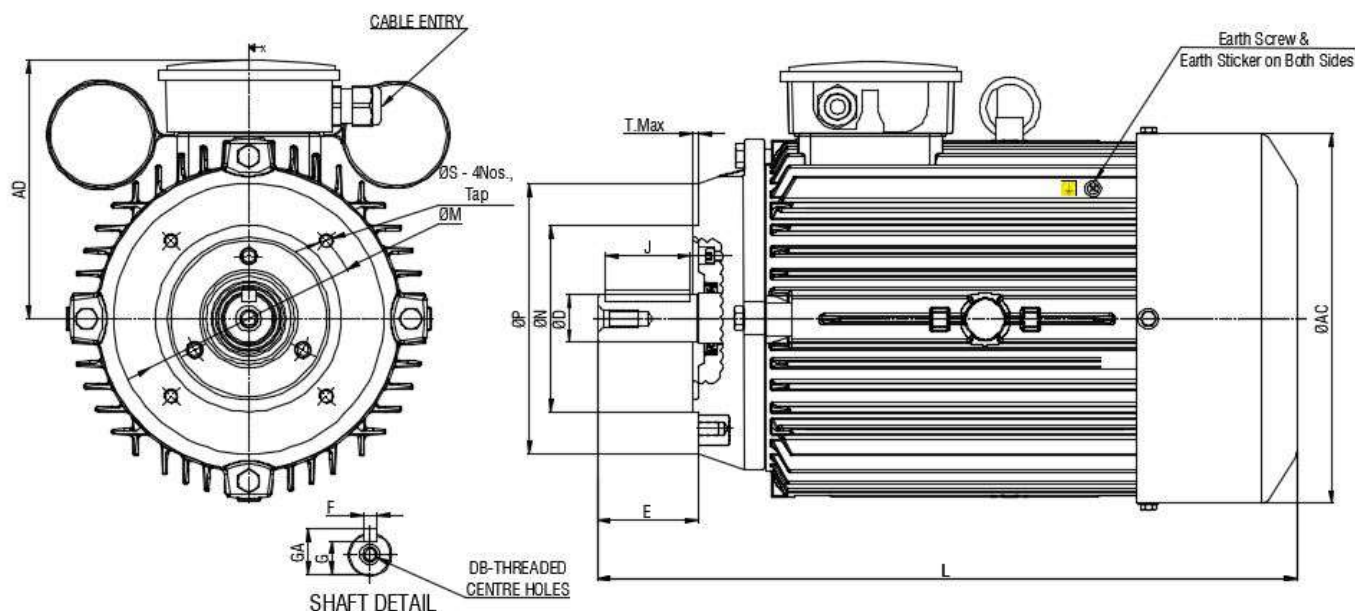
OUTLINE DIMENSIONS SHEET

STANDARD THREE PHASE INDUCTION MOTORS

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Fig. 3 Dimension Drawing for TEFC, Face Mounted (B14 Motor) 63 – 112M



All Dimensions are as per IEC: 60072 – 1
All Dimensions are in mm.

FACE MOUNTING (B14)

S.No	FRAME SIZE	MOUNTING DIMENSIONS												OVERALL DIMENSIONS		
		D	E	F	G	GA	M	N	P	S	No. of Holes	T	DB	AC	AD	L
1	63	11	23	4	8.5	12.5	75	60	90	M5	4	2.5	M4	117	91	203.5
2	71	14	30	5	11	16	85	70	105	M6	4	2.5	M5	133.5	101	246
3	80	19	40	6	15.5	21.5	100	80	120	M6	4	3	M6	160	124	272
4	90S	24	50	8	20	27	115	95	140	M8	4	3	M8	178	126	316
5	90L	24	50	8	20	27	115	95	140	M8	4	3	M8	178	138	355
6	100L	28	60	8	24	31	130	110	160	M8	4	3.5	M10	198	143	410
7	112M	28	60	8	24	31	130	110	160	M8	4	3.5	M10	220	155	422

OUTLINE DIMENSIONS SHEET

SINGLE - PHASE INDUCTION MOTORS

MODEL

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CSCR MOTORS (Ref. STD - IS 1231:2019)

DRIVE END SHAFT EXTENSION AND KEY

Frame Size	ØD	E	F	GD	GA	J	DB
63	11	23	4	4	12.5	16	M4x0.7P-12↓
71	14	30	5	5	16	22	M5x0.8P-12↓
80	19	40	6	6	21.5	28	M6x1.0P-16↓
90S	24	50	8	7	27	40	M8x1.25P-20↓
90L	24	50	8	7	27	40	M8x1.25P-20↓
100L	28	60	8	7	31	50	M10x1.5P-24↓
112M	28	60	8	7	31	50	M10x1.5P-24↓
132S	38	80	10	8	41	70	M12x1.75P-28↓
132M	38	80	10	8	41	70	M12x1.75P-28↓

PACKING DETAILS**FIG – 1, 2, 3****MODEL****PAGE
70 of 86****CSCR MOTORS (2 POLE)**

Frame Size	Type of Packing	Net Weight (kgs)	Gross Weight (kgs)	Length (mm)	Width (mm)	Height (mm)
63	Carton Box	7.60	8.70	245	160	215
71	Carton Box	9.60	10.50	285	190	240
80	Carton Box	11.00	12.18	310	230	275
90S	Carton Box	27.00	28.86	410	275	325
90L	Carton Box	28.00	29.86	410	275	325
100L	Carton Box	36.00	38.20	455	275	325
112M	Carton Box	45.00	47.62	510	340	355

CSCR MOTORS (4 POLE)

Frame Size	Type of Packing	Net Weight (kgs)	Gross Weight (kgs)	Length (mm)	Width (mm)	Height (mm)
63	Carton Box	7.90	9.00	245	160	215
71	Carton Box	9.95	10.95	285	190	240
80	Carton Box	14.30	15.48	310	230	275
90S	Carton Box	25.30	27.16	410	275	325
90L	Carton Box	28.30	30.16	410	275	325
100L	Carton Box	36.40	38.60	455	275	325
112M	Carton Box	45.40	48.02	510	340	355

PRODUCT NOTE

**DHARANI – THREE PHASE INDUCTION MOTORS – IE2
EFFICIENCY CLASS**

BRAKE MOTORS

FRAME SIZE : 63 – 160L

NAME	PAGES
SPECIFICATION TABLE	72 - 75
OUTLINE DIMENSION SHEET (63F – 160L)	76 - 77
SCHEMATIC DRAWING (63F – 160L)	78
PACKING BOX DETAILS	79



SPECIFICATION TABLE

BRAKE MOTORS – IE2 EFFICIENCY CLASS

MODEL

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TECHNICAL OVERVIEW

FRAME	63 - 160L
OUTPUT RANGE	0.18 kW - 15.0 kW
NUMBER OF POLE	3000 RPM (2P), 1500 RPM (4P), 1000 RPM (6P)
ELECTRICALS	3 PHASE , 415 V , 50 Hz , CLASS-F INSULATION
BRAKE COIL VOLTAGE	190 V DC – 24 ,96 , 203 – Aviable on Request
PROTECTION	IP 55
MOUNTING TYPE	FLANGE MOUNTING B5
COOLING TYPES	SURFACE AIR & FAN COOLED
TERMPERATURE CLASS	F CLASS (TERMPERATURE RISE LIMITED TO B CLASS
AMBIENT TEMPERATURE	- 20°C to + 60°C
ALTITUDE	UPTO 1000 meters ABOVE MEAN SEA LEVEL

SPECIAL FEATURES

1. Brake motors are simple, rugged in construction and easy to maintain.
2. Built-in rectifier - no separate DC Supply is required.
3. Back flash free.
4. Quick response time.
5. Manual release - Optional

APPLICATIONS

Brake motors can be used in various application like:

1. Machine Tools
2. Textile machinery
3. Printing machinery
4. Material handling equipment's.
5. Rolling mills and many more.

WORKING:

Brake Motors are used for Various Applications, Where instantaneous stopping of the driven load is required. The operation of the Brake is Fail-Safe 'Type, i.e. Normally ON. When the electrical power to the motor is cut off or the power fails, the brake applied. When the power to the motor is switched off, a braking torque is generated which pressed the armature plate against the mounting flange. When the power supply resumes, a magnetic field id produced in the brake coil and this pulls the armature plate against the spring force and the shaft is now free to rotate.

SPECIFICATION TABLE

BRAKE MOTORS

MODEL

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	ITEM	STANDARD SPECIFICATION
R A T I N G	Kind of Motors	Squirrel Cage Single & Three Phase Induction Motor
	Voltages	Rated voltage 415 V $\pm$ 10%
	Frequency	Rated Frequency 50 Hz $\pm$ 5%
	Output Range	0.18 kW to 15 kW
	R.P.M (Syn.)	3000 RPM (2P), 1500 RPM (4P), 1000 RPM (6P)
	Time Duty	S1 Continuous (S2 – S9 On Request)
	Frame Size	63 – 160L
	Protection Enclosure	IP55
	Cooling Method	Self-External Fan, Surface Cooling (IC 411)
	Mounting	B3 – Foot Mounted , B5 –Flange Mounted
A P P L I C A T I O N	Power Condition	Voltage: $\pm$ 10%, Frequency $\pm$ 5%, and 10% Max. of Combined Voltage and Frequency, But Frequency Variation does not Exceed $\pm$ 5%
	Environment Conditions	Place: Non - Hazardous. Ambient Temperature: - 20°C to + 60°C
		Relative Humidity: Up 90%
		Altitude: Less Than 1000 m (3300 ft).
	Dimensions	Refer Sheet No – 71, 72
C O N S T R U C T I O N	Frame	Cast Iron
	End Bracket (Shield)	Cast Iron
	External Fan	Plastic.
	Fan Cover	Pressed Steel.
	Shaft	Carbon Steel, Cylinder Single Extension with Key seat and Key.
	Bearing	Deep Groove Ball Bearing - 2Z / C3. As per Table Refer Page No 72.
	Terminal Housing	TEFC – Top
	Stator Winding	Pre - Formed, Coils of Dual Coated Enamelled Copper Wires
	Stator Insulation	Class F Insulation System
	Rotor Winding	Squirrel Cage, Aluminium Conductor with End Ring

SPECIFICATION TABLE

BRAKE MOTORS

MODEL

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	ITEM	STANDARD SPECIFICATION
P E R F O R M A N C E	Painting	RAL Blue -GP COAT 131 RAL BLUE - K1 5010 G/F 3:1 / JET Black-GP TRUCOAT 336 PRICOL BLACK (JET) DM/ F/
	Name Plate Sticker	Affixed on the Motor Casing
	Bolt Thread	ISO Metric System.
	Grounding Terminal	Provided in the Terminal Housing
	Typical Performance	Attached
	Temperature Rise	Temperature Rise Limited to Class B
	All Dharani Motors shall comply with the latest International and Indian Standards. These are as under: List of International Standards: 1. IEC60034-1: Rotating Electrical Machines, Part-1; Rating and Performance. 2. IEC60034-2-1 Standard Methods for Determining Losses and Efficiency. 3. IEC60034-5: Degree of Protection. 4. IEC60034-6: Method of Cooling. 5. IEC60034-9: Noise Limits. 6. IEC60034-14: Mechanical Vibrations Measurement, Evaluation and Limits of Severity. 7. IEC60034-30: Efficiency Classes of Single Speed Three Phase Squirrel Cage Induction Motors. 8. IEC60072-1: Dimensions and Output Ratings of Electrical Machines. List of Indian Standards: 1. IS1231: Dimensions of Three Phase Induction Motors- Foot Mounted. 2. IS2223: Dimensions of Flange Mounted AC Induction Motors. 3. IS2253: Designations of Types of Construction and Mounting Arrangements for Rotating Electrical Machines. 4. IS4029: Guide for Testing Three Phase Induction Motors. 5. IS4691: Degree of Protection Provided by Enclosures for Rotating Electrical Machinery. 6. IS4889: Methods of Determination of Efficiency of Rotating Electrical Machines. 7. IS6362: Designation of Method of Cooling for Rotating Electrical Machines. 8. IS7538: Three Phase Squirrel Cage Induction Motors for Centrifugal Pumps for Agricultural Applications. 9. IS12065: Permissible Limits of Noise Levels for Rotating Electrical Machines. 10. IS12075: Mechanical Vibrations of Rotating Electrical Machines; Measurements, Evaluations and Limits of Vibration Severity. 11. IS12615: Efficiency Classes and Performance Specification. 12. IS15999: Rotating Electrical Machines. 13. IS8151: Single Speed Three Phase Induction Motors for Lifts.	

OUTLINE DIMENSIONS SHEET

STANDARD THREE PHASE INDUCTION MOTORS

MODEL

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DC brake Details with inbuilt rectifier 190VDC – 415 VAC INPUT

Rating		2 Pole				4 Pole				6 Pole			
kW	HP	Frame	Brake Torque (Nm)	Brake Size	SF	Frame	Brake Torque (Nm)	Brake Size	SF	Frame	Brake Torque (Nm)	Brake Size	SF
0.18	0.25	63	5	5	7.8	63	5	5	4.03	71	10	10	5.37
0.37	0.50	71	10	10	7.87	71	10	10	4.03	71	10	10	2.68
0.75	1.0	80	10	10	4.92	80	10	10	2.01	90S	20	20	2.68
1.1	1.5	80	10	10	2.61	90S	20	20	2.68	90L	20	20	1.8
1.5	2.0	90S	20	20	3.91	90L	20	20	2.01	100L	35	35	2.34
2.2	3.0	90L	20	20	2.6	100L	35	35	2.34	112M	65	65	2.9
3.7	5.0	100L	35	35	2.73	112M	65	65	2.61	132S	85	85	2.28
5.5	7.5	132S	85	85	4.73	132S	85	85	2.27	132S	155	155	2.77
7.5	10.0	132M	85	85	2.54	132M	100	85	2.01	160M	250	250	3.35
11	15.0	160M	250	250	6.51	160M	250	250	3.35				
15	20.0	160M	250	250	4.88	160L	250	250	2.51				
18.5	25.0	160L	250	250	3.91								

Note –

Brake Output Voltages – 24, 96, 202 - Available upon on Request

Customer Specified Brake and Size - Available upon on Request

OUTLINE DIMENSIONS SHEET

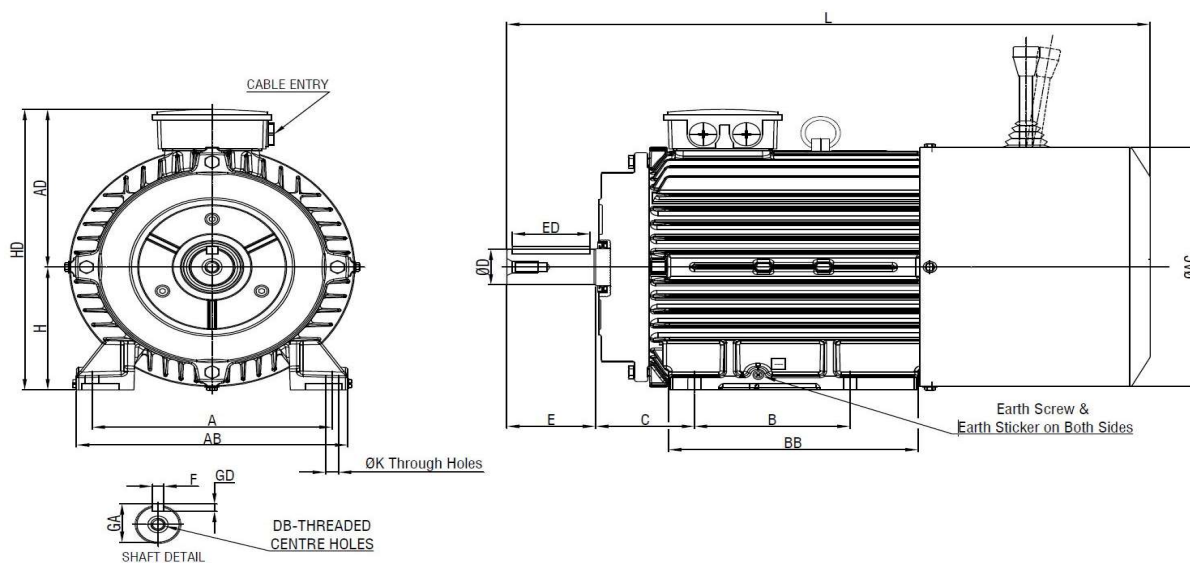
STANDARD THREE PHASE INDUCTION MOTORS

MODEL

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BRAKE MOTOR (Ref. STD - IS 2223)

DIMENSIONAL DRAWING FOR TEFC, FOOT MOUNTED MOTORS (B3) FRAME – 63F to 160L



All Dimensions are as per IEC: 60072 – 1

All Dimensions are in mm

FOOT MOUNTING (B3)																		
FRAME SIZE	MOUNTING DIMENSIONS												OVERALL DIMENSIONS					
	A	B	C	D	E	F	G	GA	J	H	K	DB	AB	AC	BB	HD	AD	L
63	100	80	40	11	23	4	8.5	12.5	27	63	7	M4	118	117	96	154	91	270
71	112	90	45	14	30	5	11	16	29	71	7.5	M5	132	134	110	172	101	300
80	125	100	50	19	40	6	15.5	21.5	28	80	15X10	M6	153	160	125	204	124	340
90S	140	100	56	24	50	8	20	27	40	90	15X10	M8	170	178	125	216	126	400
90L	140	125	56	24	50	8	20	27	46	90	10	M8	170	178	160	224	134	410
100L	160	140	63	28	60	8	24	31	53	100	12	M10	200	198	190	241	141	445
112M	190	140	70	28	60	8	24	31	61	112	12	M10	220	220	198	265	153	470
132S	216	140	89	38	80	10	33	41	66	132	12	M12	245.5	260	180	305	173	570
132M	216	178	89	38	80	10	33	41	66	132	12	M12	244	260	240	305	173	600
160M	254	210	108	42	110	12	37	45	74	160	15	M16	288	307	264	381	221	680
160L	254	254	108	42	110	12	37	45	74	160	15	M16	287.5	307	304	380	220	750

OUTLINE DIMENSIONS SHEET

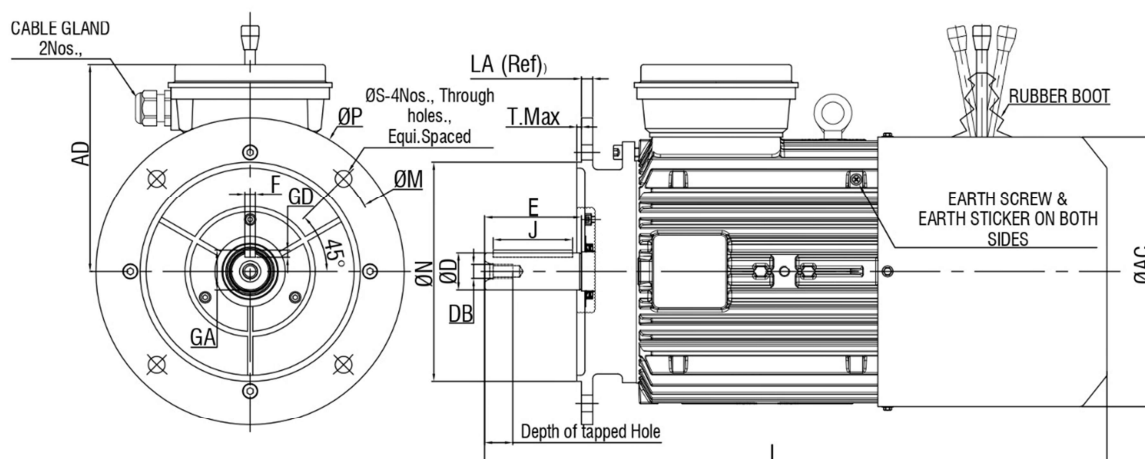
STANDARD THREE PHASE INDUCTION MOTORS

MODEL

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BRAKE MOTOR (Ref. STD - IS 2223)

DIMENSIONAL DRAWING FOR TEFC, FLANGE MOUNTED MOTORS (B5) FRAME – 63F to 160L



All Dimensions are as per IEC: 60072 – 1

All Dimensions are in mm

FLANGE FIXING							OVER ALL		
Frame Size	ØM	ØN	ØP	ØS	T.Max	LA(Ref)	ØAC	L±10	AD±10
63	115	95	140	10	3	9	117	270	93
71	130	110	160	10	3.5	10	135	300	102
80	165	130	200	12	3.5	10	156	340	119
90S	165	130	200	12	3.5	10	178	400	126
90L	165	130	200	12	3.5	10	178	410	130
100L	215	180	250	15	4	11	198	445	135
112M	215	180	250	15	4	11	220	470	147
132S	265	230	300	15	4	12	260	570	186
132M	265	230	300	15	4	12	260	600	186
160M	300	250	350	19	5	13	307	700	236
160L	300	250	350	19	5	13	307	750	236

OUTLINE DIMENSIONS SHEET

STANDARD THREE PHASE INDUCTION MOTORS

MODEL

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BRAKE MOTOR (Ref. STD: IS 2223)

DIMENSIONS OF FLANGE MOUNTED MOTORS (B5) FRAMES – 63 TO 160L

DRIVE END SHAFT EXTENSION AND KEY							
Frame Size	ØD	E	F	GD	GA	J	DB
63	11	23	4	4	12.5	16	M4x0.7P-16
71	14	30	5	5	16	22	M5x0.8P-16
80	19	40	6	6	21.5	28	M6x1.0P-16
90S	24	50	8	7	27	40	M8x1.25P-20
90L	24	50	8	7	27	40	M8x1.25P-20
100L	28	60	8	7	31	50	M10x1.5P-24
112M	28	60	8	7	31	50	M10x1.5P-24
132S	38	80	8	8	41	70	M12x1.75P-28
132M	38	80	8	8	41	70	M12x1.75P-28
160M	42	110	12	8	45	90	M16X2P-32
160L	42	110	12	8	45	90	M16X2P-32

BEARING DETAILS			
FRAME	POLE	DRIVE END BEARING	NONDRIVE END BEARING
63	2 - 6	6202 2Z / C3	6201 2Z / C3
71	2 - 6	6203 2Z / C3	6202 2Z / C3
80	2 - 6	6204 2Z / C3	6203 2Z / C3
90S&L	2 - 6	6205 2Z / C3	6204 2Z / C3
100L	2 - 6	6206 2Z / C3	6205 2Z / C3
112M	2 - 6	6206 2Z / C3	6205 2Z / C3
132S&M	2 - 6	6208 2Z / C3	6207 2Z / C3
160M&L	2 - 6	6309 2Z / C3	6208 2Z / C3

PACKING DETAILS

FIG – 1, 2, 3

MODEL

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Frame Size	Type of Packing	Net Weight (kgs)	Gross Weight (kgs)	Length (mm)	Width (mm)	Height (mm)
63	Carton Box	10.60	11.50	285	190	240
71	Carton Box	13.10	14.28	310	230	275
80	Carton Box	20.50	22.36	410	275	325
90S	Carton Box	32.00	34.20	455	275	325
90L	Carton Box	36.00	38.20	455	275	325
100L	Carton Box	49.00	51.62	490	315	340
112M	Wooden Box Set	59.00	75.30	585	318	356
132S	Wooden Box Set	92.00	112.80	712	369	451
132M	Wooden Box Set	99.00	124.30	712	369	451
160M	Wooden Box Set	147.00	176.00	864	445	502
160L	Wooden Box Set	170.00	199.00	864	445	502

PRODUCT NOTE

DHARANI – SINGLE PHASE INDUCTION MOTORS - CSCR

DS SERIES MOTORS

FRAME SIZE : B56 & 100S

NAME	PAGES
SPECIFICATION TABLE	81, 82
PERFORMANCE DATA	83
OUTLINE DIMENSION SHEET & PACKING BOX DETAILS (F# B56 & 100S)	84, 85



SPECIFICATION TABLE

SINGLE - PHASE INDUCTION MOTORS LOW VOLTAGE SQUIRREL CAGE

MODEL

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	ITEM	STANDARD SPECIFICATION
R A T I N G	Kind of Motors	Squirrel Cage Single Phase Induction Motor (Capacitor Start and Capacitor Run)
	Voltages	Rated voltage 220 V.
	Frequency	Rated Frequency 50 Hz.
	Output Range	0.37 kW to 2.2 kW
	R.P.M (Syn.)	1500 RPM (4P)
	Time Duty	Continuous
	Frame Size	B56 & 100S
	Protection Enclosure	Drip Proof (DP) / (IP 23), Drip Proof Fan Cooled (DPFC) / (IP 23) & Totally Enclosed Fan Cooled (TEFC) (IP44).
	Cooling Method	Self-Internal Fan (DP) / Self Internal & External Fan (DPFC) - Self External TEFC), Surface Cooling (IC 411)
	Mounting	Horizontal Foot Mounting (IM 1001).
A P P L I C A T I O N	Power Condition	Voltage: $\pm 10\%$, Frequency $\pm 5\%$, and 10% Max. of Combined Voltage and Frequency, But Frequency Variation does not Exceed $\pm 5\%$
	Environment Conditions	Place: Non - Hazardous. Ambient Temperature: $-15^{\circ}\text{C} \sim 40^{\circ}\text{C}$, Relative Humidity: Less Than 90%RH (Non - condensation), Altitude: Less Than 1000 m (3300 ft). The Location and moisture or fumes shall not seriously interfere with the operation of the motor. When installing DP & DPFC motors it is important to ensure airflow into the motor is not restricted
	Drive Method	Belt Service or Direct Coupling Service
	Direction of Rotation	Bi - Directional
	Method of Starting	Full Voltage Direct - On - Line
C O N S T R U C T I O N	Dimensions	Refer Sheet No – 78, 79
	Frame	CRCA Sheet
	End Bracket (Shield)	Aluminium
	External Fan	Plastic.
	Fan Cover	Pressed Steel.
	Shaft	Carbon Steel, Cylinder Single Extension with Key seat and Key.
	Bearing	As per Table Refer Page No 79
	Terminal Housing	DP Model – Rear End DPFC - TOP TEFC – Viewing from Drive end Left Side
	Stator Winding	Pre - Formed, Coils of Enamelled Aluminium Wires in DP & DPFC (Model – DS1001, DS1002, DS1003), Pre - Formed, Coils of Dual Coated of Enamelled Copper Wires – Main Winding and Enamelled Aluminium Wires – Start Winding in TEFC (Model - DS1004) Pre - Formed, Coils of Dual Coated Enamelled Copper Wires in TEFC (Model - DS1005)
	Stator Insulation	Class F Insulation System
	Rotor Winding	Squirrel Cage, Aluminium Conductor with End Ring
	Centrifugal Switch	Mechanical Centrifugal Governor switch

SPECIFICATION TABLE		MODEL
SINGLE - PHASE INDUCTION MOTORS		PAGE
LOW VOLTAGE SQUIRREL CAGE		82 of 86
	ITEM	STANDARD SPECIFICATION
P E R F O R M A N C E	Painting	JET Black-GP TRUCOAT 336 PRICOL BLACK (JET) DM/ F/
	Name Plate Sticker	Affixed on the Motor Casing
	Bolt Thread	ISO Metric System.
	Grounding Terminal	Provided in the Terminal Housing
	Typical Performance	Attached
	Temperature Rise	Not to Exceed 80°C by Resistance Method.
	Manual Resettable Overload Switch	Provided in DS 1004 (2HP) & DS 1005 (3HP)
	Production Certification	IS 996  CM/L- 6500069219

PERFORMANCE DATA							MODEL
SINGLE - PHASE SQUIRREL CAGE INDUCTION MOTORS							PAGE
FRAME SIZE. B56 & 100S							83 of 86
Efficiency Class As per IS 996							
SL.NO	PARAMETERS		MODEL NO				
			DS 1001	DS 1002	DS 1003	DS 1004	DS 1005
1	OUTPUT (kW)		0.37	0.75	0.75	1.5	2.2
2	POLES		4	4	4	4	4
3	FRAME SIZE		B56	B56	B56	100S	100S
4	ENCLOSURE		DP	DP	DPFC	TEFC	TEFC
5	FULL LOAD	TORQUE kg-m	0.251	0.502	0.502	0.995	1.492
		EFFICIENCY (%)	60	68	68	71	72
		POWER FACTOR	0.8	0.9	0.9	0.94	0.92
		CURRENT (A)	3	5.5	5.5	9.5	13.5
		RPM	1425	1425	1425	1440	1440
6	LOCKED ROTOR	TORQUE (%)	250	250	250	250	250
		CURRENT(A)	28	48	48	88	116
7	CAPACITOR START	µf	120	150	150	200	280
		VAC	275	275	275	275	275
8	CAPACITOR RUN	µf	12.5	20	20	20	30
		VAC	440	440	440	440	600

OUTLINE DIMENSIONS SHEET

SINGLE - PHASE INDUCTION MOTORS
FRAME SIZE. B56 & 100S

MODEL

PAGE
84 of 86

Drip Proof (DP), Drip Proof Fan Cooled (DPFC) Type

FIG. 1 – Model – DS1001, DS1002 – Drip Proof (DP)

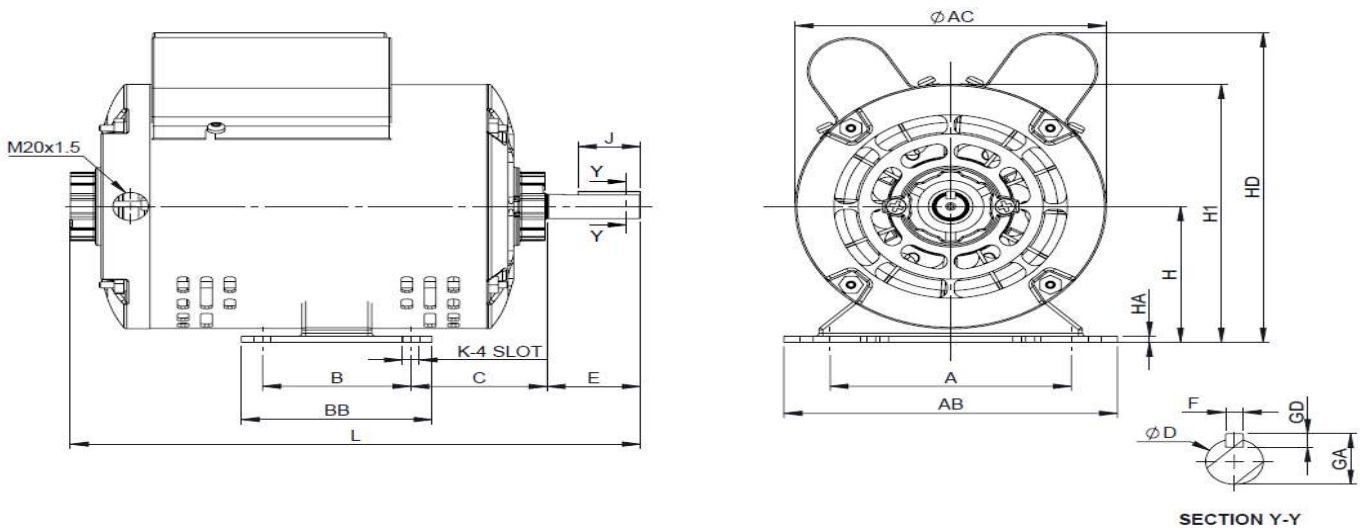
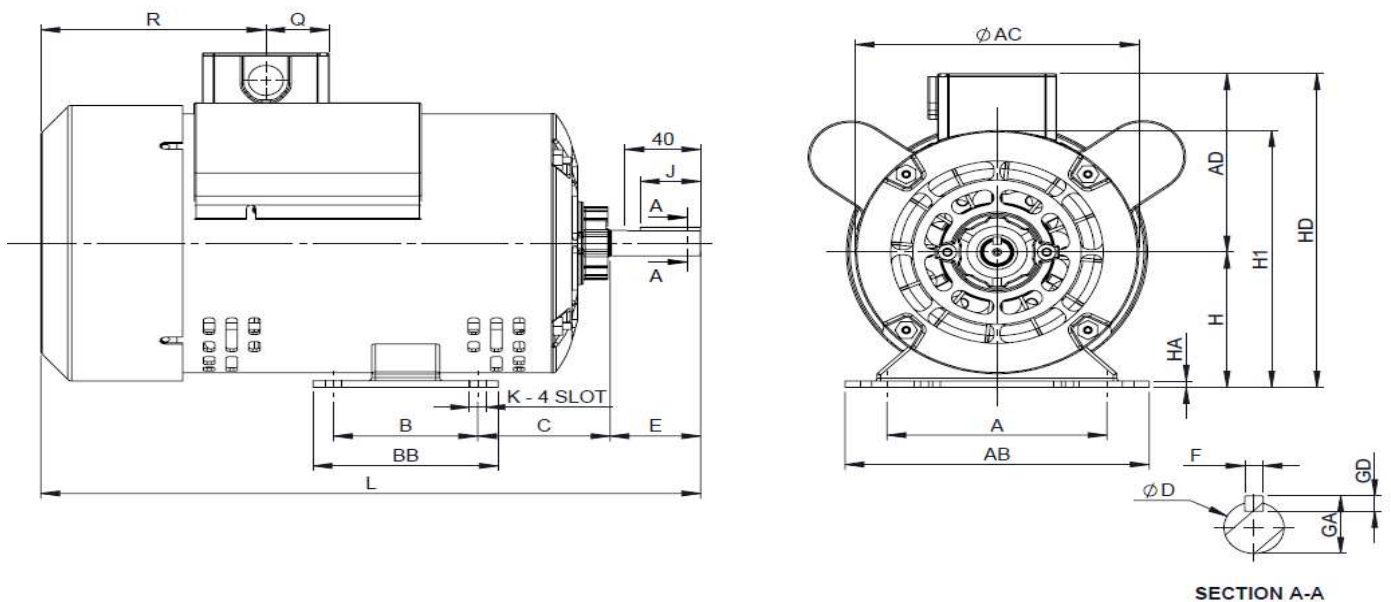


FIG. 2 – Model – DS1003 – Drip Proof Fan Cooled (DPFC)



OUTLINE DIMENSIONS SHEET

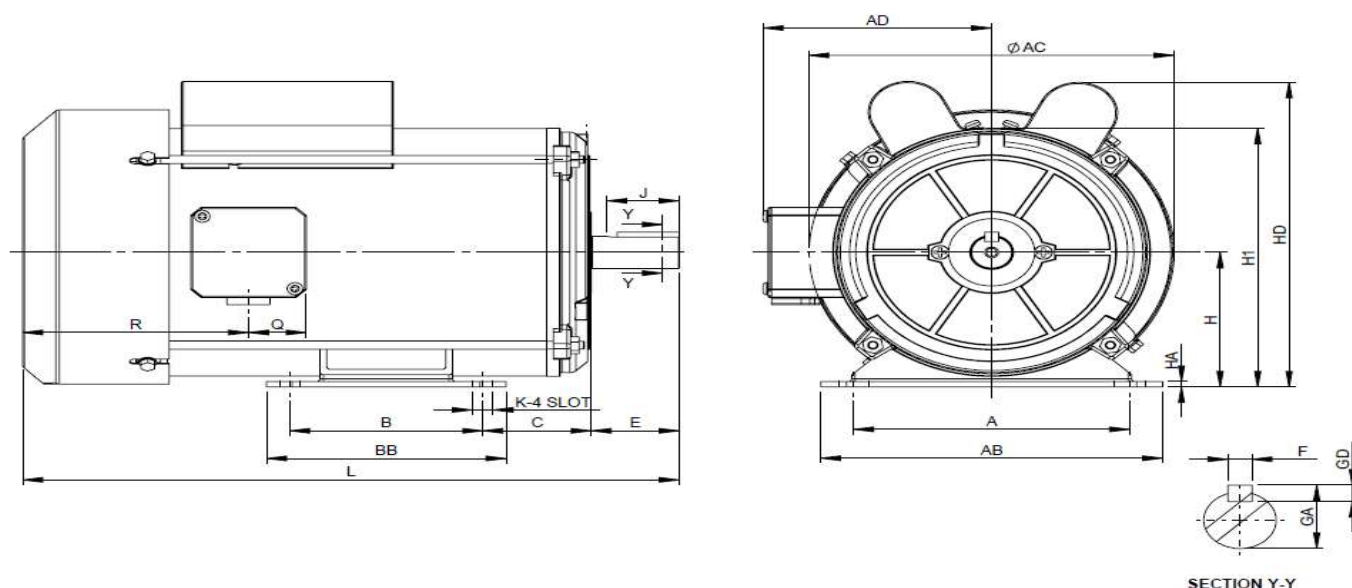
SINGLE - PHASE INDUCTION MOTORS
FRAME SIZE. B56 & 100S

MODEL

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Totally Enclosed Fan Cooled (TEFC) Type

FIG. 3 – DS1004, DS1005 – Totally Enclosed Fan Cooled (TEFC)



kW	FRAME SIZE	FIG. NO.	A	B	C	H	H1	HD	K	L	HA	ØAC	AD	Q	R
4P															
0.37	B56	1	124	76.2	70	88.90	169	200	8.64	283	4	160	---	---	---
0.75	B56			0						293					
0.75	B56	2	124	76.2	70	88.90	169	210	8.64	353	4	170	---	---	---
1.50	100S	3	160	112	63	100	193	228	12	353	4	212	134	34	127
2.20	100S		160	112	63	100	193	228	12	383	4	212	134	34	132

kW	FRAME SIZE	SHAFT EXTENSION						BEARING		Packing Dimensions (mm)			NET WEIGHT (KGS)	GROSS WEIGHT (KGS)
4P		D	E	J	F	GA	GD	DE END	NDE END	L	B	W		
0.37	B56	15.870	48	40	4.81	17.935	4.81	6203 2RS	6203 2RS	355	225	240	10.30	12.50
0.75	B56							6203 2Z	6203 2Z	355	225	240	12.20	14.50
0.75	B56	15.870	48	40	4.81	17.935	4.81	6203 2Z	6203 2Z	415	260	250	15.10	17.60
1.50	100S	24	51	42	8	27	7	6205 2Z	6203 2RS	415	280	290	23.20	26.20
2.20	100S							6205 2Z	6203 2Z	490	280	290	28.10	31.30

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DNV

MANAGEMENT SYSTEM CERTIFICATE

Certificate no.:
152004-2014-AQ-IND-RvA

Initial certification date:
12 April 2012

Valid:
12 April 2023 – 11 April 2026

This is to certify that the management system of

Asia Engineering

S.F. No. 328, Kalapatti Road, Coimbatore - 641048, Tamil Nadu, India

has been found to conform to the Quality Management System standard:
ISO 9001:2015

This certificate is valid for the following scope:

**Manufacture & sales of jet centrifugal monobloc and centrifugal monobloc pumps
Design, manufacture, sales & service of electric motors and submersible pump sets**

Place and date:
Chennai, 06 March 2023

For the issuing office:
DNV - Business Assurance
ROMA, No. 16, GST Road, Alandur, Chennai -
600 016, India



[Signature]

Sivadasan Madiyath
Management Representative

Lack of fulfillment of conditions as set out in the Certification Agreement may render this Certificate invalid.
ACCREDITED UNIT: DNV Business Assurance B.V., Zeeburgweg 1, 2594 LB, Barendrecht, Netherlands - TEL: +31(0)122322589, www.dnv.com/assurance

COMPLIANCE DOCUMENT



South Asia

This Compliance Document is issued to:

M/s. ASIA ENGINEERING
S.F. NO:328, KALAPATTI ROAD, KALAPATTI POST,
COIMBATORE-641048, INDIA.

Choose certainty.
Add value.

FOR

Product : ENERGY EFFICIENT INDUCTION MOTOR
Model/Type No. : Single Phase Motors 0.25 HP to 5.0 HP
Poles 2/4/6, Type CSR and CSCR.
Three Phase Motors 0.125HP to 75 HP, Poles: 2/4/6.
(Refer Annexure -1 & 2)

Below are the Models considered for testing:
TYPE-1: 3SA80 2P1.00B5 50-6-1-S1-1 1-1;
TYPE-2: 3SA80 4P1.00B14 50-10-1-S1-4 1-1;
TYPE-3: 3SA80 4P1.00B14 60-8-2-S1-1 1-1;
TYPE-4: 3SC1132S 4P7.5B3 50-6-1-S1-5 1-2;
TYPE-5: 1SA80 4P1.00B5-1 60-2-S1-1 1-1;
TYPE-6: 1SC100L 4P2.0B3-2 50-2-S1-1 1-1;

Test Standards : EN / IEC 60034-1:2017

Test Report No. : BLR/ENE/SAF/21/1838608-1 &
BLR/ENE/SAF/21/1838608-2

This is to confirm that a sample of machine was tested to the safety test requirements of
Low voltage directive (2014/35/EU) by us at the manufacturing location.



After implementation of the requirements as per test report no.
BLR/ENE/SAF/21/1838608-1 & BLR/ENE/SAF/21/1838608-2 issued to the
manufacturer, preparation of the necessary technical documentation and
signing of the declaration of conformity, CE marking can be affixed on the
product. Other relevant directives have to be observed.

The document holder is responsible for the consistent manufacturing of the product in
compliance with the test sample submitted to us.

Sr GM-PRODUCT SERVICE - ENE

Ref No.
CD/1838608

Date of Original Issue
03rd December, 2021

Date of revision:

Note: Products entering the European Union are subject to the requirements set forth in the European
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compliance with applicable Directives. The requirements of directives and standards change from time to time
and it is the responsibility of the manufacturer to ensure compliance. Our services are intended to provide you
with the data needed to determine compliance, but the person placing the product on the European market still
has the responsibility to ensure each product complies with the applicable Directives. The product liability rests
with the manufacturer or his representative in accordance with Council Directive 85/374/EEC.
This document applies only to the particular model provided for testing and CE certification and does
not permit the use of a TÜV PRODUCT SERVICE certification mark. It becomes ineffective in the event
of changes relating to products, applicable standards and the Directives.
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The design, manufacture and certifications of dharani products are subject to constant improvement and the product supplied may differ in some details from the given specifications & illustrations.

ASIA ENGINEERING