High Efficiency IE2 Flame Proof Induction Motors

Extending IE class performance to motors used in hazardous area

BBL will continue the practice of extending the advantage of higher efficiency series in hazardous area also, e.g.

- Ex d - Flame Proof
- Ex n – non sparking

Non sparking motors will be offered in frame sizes as per IS 12615-2011. However for flameproof motors, the frame size may not be the same as per IS 12615-2011 owing to the limitation of accommodating higher core lengths due to enclosure certification.

Highlights

- Efficiency values of different manufacturers are comparable only if they are measured by the same method as per IS 15999 (Part 2/sec 1):2011/ IEC 60034-2-1:2007.
- IE Class efficiencies are subject to tolerance as per IS/IEC 60034-1
- For conditions of limitations on grid supply (e.g. limiting starting current, high tolerances of voltage and/or frequency), it may not be possible to achieve the same IE efficiency class
- Energy efficient cage-induction motors are typically built with more active material to achieve higher efficiency and hence the starting performance of these motors differs somewhat from motors with a lower efficiency. The locked rotor current increases approximately by 10 to 15 percent for increase in each level of efficiency for the same output power. For replacing existing motors, this should be checked by the user with manufacturer for proper sizing of the protective devices.

  Old efficiency levels were Eff2 and Eff1 (as per CEMEP). For calculation of these efficiencies, fixed stray load losses (0.5% of motor input) were assumed and not measured. Hence efficiency values were with high uncertainty. Now IS 12615:2011 refers to IS 15999 (Part 2/ sec 1):2011 / IEC 60034-2-1:2007 for calculation of efficiency. This calculation is based on the new methods of stray load loss measurement specified in the standard. The effect is in reduction of efficiency value than the earlier values.

High efficiency IE2 flameproof Induction Motors

Bharat Bijlee has introduced flame proof IE2 High efficiency motors as per the efficiency values specified in IS 12615:2011.

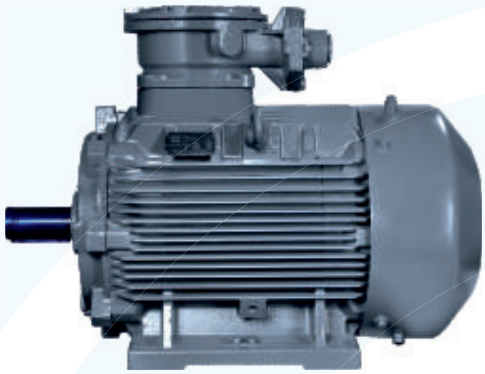
PRODUCT RANGE

Type	Frame Size	kW range
IE2 High efficiency-2J	80 TO 315L	0.37 TO 200

BBL Flame Proof IE2 Motors are readily suitable for inverter duty -

- All motors with dual coat winding wires
- Special Impregnation to suit inverter duty

Note: For more details on IE2 efficiency class, please refer to page no. 21, 22, 23 & 24 of Industrial Motors Technical Information section.



Performance table for Flame Proof (Ex d) 2 Pole motors

TEFC 3 Phase Squirrel Cage Induction Motors - Frame size 80 to 315L

Applicable standard for testing & efficiency determination: IS 15999

Voltage : 415V+/-10%
Frequency : 50Hz+/-5%
Combined Variation : +/-10%

Ambient: : 45 °C
Duty : S1(Continuous)
3000 rpm (2-Pole)

Ins. Class : F
Temp. Rise : B
Protection : IP55

IE2

Rated Output		Frame size	Frame size	Type Ref.	Operating Characteristics at Rated output									With DOL Starting				
					Speed	Current	Rated Torque		Power Factor		% Efficiency			Starting Current to Rated Current Ratio	Starting Torque to Rated Torque Ratio	Pullout Torque to Rated Torque Ratio	Rotor GD²	Net Weight B3 Constn.
KW	HP	IEC	BBL	B3 Construction	RPM	Amps.	Kg.m	FL	3/4L	1/2L	FL	3/4L	1/2L				kgm²	Kg
*0.37	0.50	80	MJ80	2J0802A3	2880	0.84	0.13	0.85	0.78	0.70	72.20	69.0	64.0	6.0	2.7	3.0	0.0037	31
*0.55	0.75	80	MJ80	2J0802B3	2860	1.25	0.19	0.82	0.74	0.62	74.8	72.5	67.0	6.0	2.7	3.0	0.0037	31
0.75	1.0	80	MJ80	2J080213	2830	1.64	0.26	0.82	0.74	0.62	77.4	76.5	73.5	6.0	2.5	2.8	0.0037	31
1.1	1.5	80	MJ80	2J080233	2830	2.34	0.38	0.82	0.75	0.63	79.6	79.6	75.5	6.0	2.7	3.0	0.0051	32
*1.5	2.0	90L	MJ90	2J09L243	2840	3.13	0.51	0.82	0.78	0.68	81.3	81.3	78.0	6.5	3.3	3.5	0.0091	50
*2.2	3.0	100L	MJ100	2J10L213	2890	4.13	0.74	0.88	0.84	0.78	84.2	84.0	81.0	6.5	2.8	3.0	0.0188	62
*3.7	5.0	112M	MJ112	2J11M233	2900	6.76	1.24	0.88	0.85	0.78	86.5	86.0	84.0	6.5	2.8	3.0	0.0530	70
5.5	7.5	132S	MJ132	2J13S2G3	2935	9.77	1.83	0.90	0.88	0.83	87.0	86.0	82.0	6.5	2.6	3.0	0.0820	114
7.5	10.0	132S	MJ132	2J13S2N3	2935	13.2	2.49	0.90	0.87	0.82	88.1	87.5	85.0	6.5	2.6	3.0	0.0980	120
9.3	12.5	160M	MJ160	2J16M233	2935	16.4	3.09	0.89	0.86	0.82	88.8	88.6	85.0	6.5	2.0	2.5	0.150	150
11	15	160M	MJ160	2J16M253	2935	19.2	3.65	0.89	0.84	0.76	89.4	89.4	87.0	6.5	2.3	3.0	0.171	154
15	20	160M	MJ160	2J16M263	2930	26.0	4.99	0.89	0.88	0.82	90.3	90.0	88.0	6.5	2.0	2.5	0.203	160
18.5	25	160L	MJ160	2J16L293	2930	31.5	6.15	0.90	0.89	0.86	90.9	90.7	89.0	6.5	2.0	2.5	0.268	177
*22	30	180L	MJ180	2J18L233	2935	37.7	7.30	0.89	0.87	0.82	91.3	91.0	88.8	7.0	2.4	2.7	0.34	231
30	40	200L	MJ200	2J20L2A3	2955	51.0	9.89	0.89	0.86	0.80	92.0	92.0	90.0	7.0	2.6	3.0	0.610	320
37	50	200L	MJ200	2J20L253	2955	64.0	12.2	0.87	0.84	0.76	92.5	92.5	91.0	7.0	2.2	2.5	0.64	320
45	60	225M	MJ225	2J22M253	2965	76.6	14.8	0.88	0.85	0.78	92.9	92.7	91.0	7.0	2.5	2.5	1.13	449
55	75	280S	MJ280	2J28S213	2965	90.2	18.1	0.91	0.89	0.85	93.2	93.0	91.0	7.0	2.3	2.7	2.63	690
75	100	280S	Mj280	2J28S233	2970	122	24.6	0.91	0.89	0.86	93.8	93.6	92.0	6.5	2.0	2.8	3.01	740
90	120	280M	MJ280	2J28M253	2970	146	29.5	0.91	0.89	0.86	94.1	93.9	90.9	6.5	2.0	2.8	3.42	765
110	150	315S	MJ315	2J31S233	2982	180	35.9	0.90	0.86	0.80	94.3	94.1	91.5	7.0	2.2	2.5	5.0	1050
125	170	315M	MJ315	2J31M2A3	2982	207	40.8	0.89	0.85	0.78	94.5	93.5	91.5	7.0	2.2	2.6	5.0	1050
132	180	315M	MJ315	2J31M233	2982	216	43.1	0.90	0.86	0.80	94.6	93.6	91.3	7.0	2.0	2.5	5.0	1050
150	200	315L	MJ315	2J31L2A3	2982	248	49.0	0.89	0.84	0.78	94.7	93.7	92.2	7.0	2.0	2.5	6.2	1240
160	215	315L	MJ315	2J31L253	2985	261	52.2	0.90	0.86	0.80	94.8	94.1	93.0	7.0	2.4	2.5	6.2	1240
180	240	315L	MJ315	2J31L2B3	2982	300	58.8	0.88	0.82	0.75	94.9	94.1	93.0	7.0	2.0	2.5	7.7	1500

Note : Efficiency class 'IE2' will be punched on the nameplates as per IS : 12615-2011 for ratings from 0.37kw to 375kw.
All performance values are subject to tolerance as per IS/IEC 60034-1
* These ratings are offered in higher frame size with IE2 efficiency level

Performance table for Flame Proof (Ex d) 4 Pole motors

TEFC 3 Phase Squirrel Cage Induction Motors - Frame size 80 to 315L

Applicable standard for testing & efficiency determination: IS 15999

Voltage : 415V+/-10%
Frequency : 50Hz+/-5%
Combined Variation : +/-10%

Ambient: : 45 °C
Duty : S1 (Continuous)
1500 rpm (4-Pole)

Ins. Class : F
Temp. Rise : B
Protection : IP55

IE2

Rated Output		Frame size	Frame size	Type Ref.	Operating Characteristics at Rated output									With DOL Starting		Pullout Torque to Rated Torque Ratio	Rotor GD²	Net Weight B3 Constn. Kg
					Speed	Current	Rated Torque		Power Factor		% Efficiency			Starting Current to Rated Current Ratio	Starting Torque to Rated Torque Ratio			
KW	HP	IEC	BBL	B3 Construction	RPM	Amps.	Kg.m	FL	3/4L	1/2L	FL	3/4L	1/2L				kgm²	
*0.37	0.50	80	MJ80	2J080413	1415	0.99	0.25	0.74	0.68	0.55	70.1	67.0	61.0	5.0	2.4	2.6	0.0061	31
0.55	0.75	80	MJ80	2J080433	1420	1.38	0.38	0.74	0.64	0.50	75.1	75.1	68.0	5.0	2.8	3.0	0.0072	32
0.75	1.0	80	MJ80	2J080453	1410	1.75	0.52	0.75	0.66	0.53	79.6	79.6	74.0	5.0	2.8	3.0	0.0082	33
*1.1	1.5	90L	MJ90	2J09L423	1430	2.44	0.75	0.77	0.70	0.57	81.4	81.4	77.5	6.0	2.4	2.8	0.015	50
*1.5	2.0	100L	MJ100	2J10L453	1450	3.12	1.01	0.80	0.74	0.62	83.5	82.5	79.0	6.5	2.6	3.0	0.026	63
*2.2	3.0	112M	MJ112	2J11M433	1450	4.31	1.48	0.83	0.78	0.70	85.5	85.0	82.5	6.5	2.4	2.8	0.530	70
*3.7	5.0	132S	MJ132	2J13S4B3	1455	6.94	2.48	0.86	0.84	0.75	86.3	86.0	83.0	6.5	2.5	3.0	0.092	105
5.5	7.5	132S	MJ132	2J13S4K3	1450	10.3	3.69	0.85	0.82	0.74	87.7	87.7	86.0	6.5	2.2	2.8	0.126	113
*7.5	10.0	160M	MJ160	2J16M4A3	1460	14.0	5.00	0.84	0.82	0.73	88.7	88.7	87.0	6.5	2.5	2.8	0.141	136
9.3	12.5	160M	MJ160	2J16M4C3	1460	17.6	6.20	0.82	0.76	0.68	89.4	89.4	87.0	6.5	2.5	2.8	0.177	143
11	15	160M	MJ160	2J16M4K3	1465	20.3	7.31	0.84	0.80	0.70	89.8	89.8	88.0	6.5	2.5	2.8	0.229	156
15	20	160L	MJ160	2J16L4T3	1465	27.1	9.97	0.85	0.82	0.72	90.7	90.7	89.5	6.5	2.5	2.7	0.300	215
18.5	25	180L	MJ180	2J18L473	1465	33.2	12.3	0.85	0.82	0.76	91.2	91.2	89.5	6.5	2.7	2.9	0.540	230
*22	30	200L	MJ200	2J20L433	1470	39.3	14.6	0.85	0.80	0.72	91.6	91.4	89.5	7.0	2.6	3.0	0.860	305
30	40	200L	MJ200	2J20L453	1470	52.6	19.9	0.86	0.82	0.72	92.3	92.0	90.0	7.0	2.6	2.6	0.930	319
37	50	225M	MJ225	2J22M433	1470	63.8	24.5	0.87	0.85	0.77	92.7	92.5	90.5	7.0	2.6	2.6	1.60	430
*45	60	250M	MJ250	2J25M413	1470	76.4	29.8	0.88	0.86	0.78	93.1	92.8	90.8	7.0	2.6	2.6	2.83	570
*55	75	280S	MJ280	2J28S413	1485	95.2	36.1	0.86	0.83	0.75	93.5	93.2	91.2	7.0	2.2	2.5	5.00	705
75	100	280S	MJ280	2J28S423	1485	131	49.2	0.85	0.82	0.74	94.0	94.0	93.0	6.7	2.6	2.8	5.53	710
90	120	280M	MJ280	2J28M453	1485	156	59.0	0.85	0.82	0.74	94.2	94.2	93.2	6.5	2.3	2.8	6.36	730
110	150	315S	MJ315	2J31S413	1485	188	72.1	0.86	0.83	0.76	94.5	94.3	92.3	6.5	2.5	3.0	9.97	980
125	170	315M	MJ315	2J31M4A3	1486	216	81.9	0.85	0.81	0.74	94.6	94.3	92.7	6.5	2.5	3.0	11.7	1045
132	180	315M	MJ315	2J31M433	1487	225	86.5	0.86	0.83	0.76	94.7	94.5	93.0	6.5	2.5	3.0	11.7	1045
150	200	315L	MJ315	2J31L4A3	1488	262	98.2	0.84	0.80	0.72	94.7	94.4	92.8	6.5	2.5	3.0	14.0	1230
160	215	315L	MJ315	2J31L453	1487	270	105	0.87	0.84	0.78	94.9	94.6	93.1	6.5	2.4	3.0	14.0	1230
180	240	315L	MJ315	2J31L463	1487	307	118	0.86	0.83	0.76	95.0	94.7	93.2	6.5	2.5	3.0	15.6	1303
200	270	315L	MJ315	2J31L473	1489	340	131	0.86	0.83	0.76	95.1	94.8	93.3	7.0	2.5	3.0	17.8	1385

Note : Efficiency class 'IE2' will be punched on the nameplates as per IS : 12615-2011 for ratings from 0.37kw to 375kw.
All performance values are subject to tolerance as per IS/IEC 60034-1
* These ratings are offered in higher frame size with IE2 efficiency level

Performance table for Flame Proof (Ex d) 6 Pole motors

TEFC 3 Phase Squirrel Cage Induction Motors - Frame size 80 to 315L

Applicable standard for testing & efficiency determination: IS 15999

Voltage : 415V+/-10%
Frequency : 50Hz+/-5%
Combined Variation : +/-10%

Ambient: : 45°C
Duty : S1 (Continuous)
1000 rpm (6-Pole)

Ins. Class : F
Temp. Rise : B
Protection : IP55

IE2

Rated Output		Frame size	Frame size	Type Ref.	Operating Characteristics at Rated output									With DOL Starting		Pullout Torque to Rated Torque Ratio	Rotor GD²	Net Weight B3 Constn. Kg
					Speed	Current	Rated Torque		Power Factor		% Efficiency			Starting Current to Rated Current Ratio	Starting Torque to Rated Torque Ratio			
KW	HP	IEC	BBL	B3 Construction	RPM	Amps.	Kg.m	FL	3/4L	1/2L	FL	3/4L	1/2L				kgm²	
0.37	0.50	80	MJ80	2J080613	910	1.07	0.40	0.70	0.60	0.48	69.0	69.0	67.0	3.0	2.1	2.3	0.0060	31
0.55	0.75	80	MJ80	2J080633	915	1.48	0.59	0.71	0.62	0.48	72.9	72.9	68.5	4.0	2.2	2.5	0.0084	32
*0.75	1.0	90L	MJ90	2J09L633	925	1.91	0.79	0.72	0.61	0.50	75.9	75.9	72.3	4.0	2.0	2.5	0.0122	48
1.1	1.5	90L	MJ90	2J09L653	930	2.72	1.15	0.72	0.61	0.50	78.1	78.1	74.0	4.0	2.0	2.6	0.0160	50
1.5	2.0	100L	MJ100	2J10L633	935	3.63	1.56	0.72	0.60	0.52	79.8	79.6	75.0	4.5	2.0	2.5	0.0250	60
2.2	3.0	112M	MJ112	2J11M653	940	4.99	2.28	0.75	0.65	0.58	81.8	81.8	79.8	5.0	2.1	2.5	0.0650	71
3.7	5.0	132S	MJ132	2J13S6G3	960	8.25	3.75	0.74	0.70	0.60	84.3	83.5	82.0	5.5	2.0	2.5	0.130	108
5.5	7.5	132M	MJ132	2J13M6T3	960	12.0	5.58	0.74	0.70	0.60	86.0	84.5	82.0	6.0	2.0	2.5	0.193	115
7.5	10.0	160M	MJ160	2J16M633	960	15.0	7.61	0.80	0.74	0.64	87.2	87.2	85.2	5.5	2.0	2.5	0.276	149
9.3	12.5	160L	MJ160	2J16L663	960	18.4	9.44	0.80	0.74	0.64	88.0	88.0	86.7	5.5	2.1	2.5	0.340	160
11	15	160L	MJ160	2J16L673	965	21.6	11.1	0.80	0.77	0.66	88.7	88.7	87.0	6.0	2.0	2.5	0.400	169
15	20	180L	MJ180	2J18L633	965	29.1	15.1	0.80	0.75	0.62	89.7	89.7	87.2	5.5	2.6	2.3	0.820	214
18.5	25	200L	MJ200	2J20L633	975	34.7	18.5	0.82	0.77	0.69	90.4	90.4	88.3	5.5	2.6	2.3	1.20	290
22	30	200L	MJ200	2J20L653	975	41.1	22.0	0.82	0.77	0.69	90.9	90.9	88.8	6.0	2.6	2.3	1.37	300
30	40	225M	MJ225	2J22M643	975	52.9	30.0	0.86	0.84	0.76	91.7	91.2	88.7	7.0	2.5	2.2	2.41	444
37	50	250M	MJ250	2J25M633	980	63.4	36.8	0.88	0.85	0.80	92.2	92.2	91.0	6.0	2.5	2.3	3.72	573
45	60	280S	MJ280	2J28S613	984	80.4	44.5	0.84	0.80	0.72	92.7	92.7	91.2	6.0	2.5	2.4	5.11	615
55	75	280M	MJ280	2J28M633	984	95.6	54.4	0.86	0.83	0.76	93.1	93.1	91.0	6.0	2.4	2.4	6.16	665
75	100	315S	MJ315	2J31S613	988	133	73.9	0.84	0.82	0.75	93.7	93.7	92.5	6.0	2.4	2.5	10.7	940
90	120	315M	MJ315	2J31M633	989	159	88.6	0.84	0.80	0.74	94.0	94.0	92.9	6.0	2.2	2.5	12.4	1005
110	150	315M	MJ315	2J31M653	989	193	108	0.84	0.81	0.74	94.3	94.3	93.3	6.0	2.3	2.5	15.5	1110
125	170	315L	MJ315	2J31L6A3	990	222	123	0.83	0.80	0.72	94.4	94.2	93.0	6.0	2.3	2.5	18.0	1295
132	180	315L	MJ315	2J31L673	990	231	130	0.84	0.81	0.74	94.6	94.6	93.8	6.0	2.3	2.5	18.0	1425
150	200	315L	MJ315	2J31L6B3	990	269	148	0.82	0.79	0.70	94.7	94.3	92.8	6.0	2.0	2.5	21.5	1425
160	215	315L	MJ315	2J31L693	990	280	157	0.84	0.81	0.71	94.8	94.5	93.0	6.0	2.0	2.5	21.5	1425

Note : Efficiency class 'IE2' will be punched on the nameplates as per IS : 12615-2011 for ratings from 0.37kw to 375kw.
All performance values are subject to tolerance as per IS/IEC 60034-1
* These ratings are offered in higher frame size with IE2 efficiency level

Performance table for Flame Proof (Ex d) 8 Pole motors

TEFC 3 Phase Squirrel Cage Induction Motors - Frame size 80 to 315L

HIGH EFFICIENCY MOTORS - TYPE MJ

Applicable standard for testing: IS 4029
Applicable standard for efficiency determination: IS 4889

Voltage : 415V+/-10%
Frequency : 50Hz+/-5%
Combined Variation : +/-10%

Ambient: : 45°C
Duty : S1 (Continuous)
750 rpm (8-Pole)

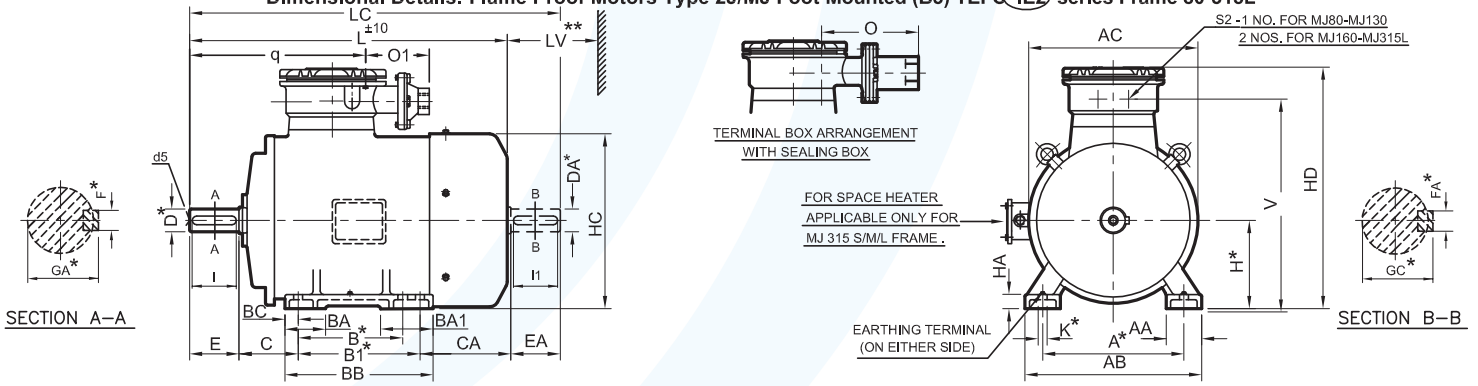
Ins. Class : F
Temp. Rise : B
Protection : IP55

Rated Output		Frame size	Frame size	Type Ref.	Operating Characteristics at Rated output									With DOL Starting		Pullout Torque to Rated Torque Ratio	Rotor GD²	Net Weight B3 Constn. Kg
					Speed	Current	Rated Torque		Power Factor		% Efficiency			Starting Current to Rated Current Ratio	Starting Torque to Rated Torque Ratio			
KW	HP	IEC	BBL	B3 Construction	RPM	Amps.	Kg.m	FL	3/4L	1/2L	FL	3/4L	1/2L				kgm²	
*0.37	0.50	90L	MJ90	MJ09L833	700	1.22	0.51	0.63	0.52	0.41	66.8	60.0	52.0	2.7	1.8	2.1	0.0110	46
0.55	0.75	90L	MJ90	MJ09L853	690	1.71	0.78	0.63	0.53	0.43	71.1	67.0	62.0	2.9	2.0	2.4	0.0140	46
0.75	1.0	100L	MJ100	MJ10L813	685	1.94	1.07	0.73	0.63	0.50	73.8	73.8	67.0	3.0	1.7	2.0	0.0230	55
1.1	1.5	100L	MJ100	MJ10L833	690	2.83	1.55	0.71	0.62	0.48	76.2	76.2	73.0	3.3	1.9	2.3	0.0270	59
1.5	2.0	112M	MJ112	MJ11M813	705	3.83	2.07	0.70	0.62	0.50	77.9	77.9	75.0	3.8	1.7	2.2	0.0510	70
2.2	3.0	132S	MJ132	MJ13S8B3	710	5.36	3.02	0.71	0.60	0.46	80.5	80.5	78.0	3.7	1.6	2.2	0.0990	100
3.7	5.0	160M	MJ160	MJ16M813	720	7.95	5.01	0.78	0.74	0.65	83.0	83.0	78.0	4.4	1.8	2.0	0.217	137
5.5	7.5	160M	MJ160	MJ16M833	720	11.5	7.44	0.78	0.74	0.65	85.1	85.1	82.0	4.8	1.9	2.2	0.299	151
7.5	10.0	160L	MJ160	MJ16L873	715	15.5	10.2	0.78	0.74	0.65	86.4	86.4	84.0	5.5	2.1	2.2	0.400	165
*9.3	12.5	180L	MJ180	MJ18L813	720	18.8	12.6	0.79	0.74	0.64	87.3	87.3	85.0	5.0	2.1	2.2	0.620	205
11	15	180L	MJ180	MJ18L833	720	22.0	14.9	0.79	0.74	0.64	88.1	88.1	87.0	5.0	2.1	2.2	0.720	210
15	20	200L	MJ200	MJ20L833	720	28.6	20.3	0.82	0.79	0.71	89.0	89.0	88.0	6.0	2.5	2.3	1.32	305
18.5	25	225S	MJ225	MJ22S823	725	36.3	24.9	0.79	0.77	0.69	89.8	89.8	88.0	5.5	2.1	2.2	2.10	419
22	30	225M	MJ225	MJ22M833	725	43.0	29.6	0.79	0.77	0.69	90.2	90.2	88.0	5.5	2.1	2.2	2.41	430
30	40	250M	MJ250	MJ25M813	730	55.6	40.0	0.82	0.78	0.68	91.5	91.5	89.0	6.0	2.5	2.2	3.72	570
37	50	280S	MJ280	MJ28S823	730	70.8	49.4	0.79	0.75	0.65	92.0	92.0	90.0	5.5	2.2	2.2	5.83	725
45	60	280M	MJ280	MJ28M853	730	85.8	60.0	0.79	0.75	0.65	92.4	92.4	90.0	5.5	2.2	2.2	6.86	725
55	75	315S	MJ315	MJ31S813	740	105	72.4	0.78	0.73	0.64	93.0	92.5	90.5	5.5	2.1	2.4	10.7	945
75	100	315M	MJ315	MJ31M833	740	143	98.7	0.78	0.73	0.64	93.5	93.5	92.0	5.5	2.1	2.4	12.4	1005
90	120	315M	MJ315	MJ31M853	740	171	118	0.78	0.73	0.65	94.0	94.0	93.0	5.5	2.1	2.4	15.5	1120
110	150	315L	MJ315	MJ31L873	740	208	145	0.78	0.73	0.64	94.3	94.0	93.0	5.5	2.1	2.4	18.0	1300
125	170	315L	MJ315	MJ31L8A3	740	236	165	0.78	0.73	0.64	94.6	94.4	93.6	5.5	2.1	2.4	21.5	1425
132	180	315L	MJ315	MJ31L893	740	248	174	0.78	0.73	0.64	94.8	94.7	94.0	5.5	2.1	2.4	21.5	1425

Note : All performance values are subject to tolerance as per IS/IEC 60034-1
Efficiency measurements are without seals.

* These ratings are offered in higher frame size

Dimensional Details: Flame Proof Motors Type 2J/MJ Foot Mounted (B3) TEFC (IE2) series Frame 80-315L



		FIXING						GENERAL														TERMINAL BOX					SHAFT					
IEC Fr. size	Pole	A*	B*	B1*	C	H*	K*	AB	BB	AA	BA	BA1	BC	HA	HC	HD	L	LC	CA	AC	LV**	V	O	O1	q	S2	D DA*	E EA	F* FA*	GA* GC*	I I1	d5
80	2,4 & 6	125	100	—	50	80	10	153	126	32	36	—	16	10	162	296	330	386	156	164	30	236	214	135	168	M20X1.5P	19	40	6	21.5	35	M6
90L	2,4,6 & 8	140	125	—	56	90	10	180	160	50	40	—	19	13	177	336	382	463	182	174	35	269	217	141	195	M25X1.5P	24	50	8	27	45	M8
100L	2,4,6 & 8	160	140	—	63	100	12	200	176	54	45	—	21	14	198	358	435	520	197	195	40	291	207	131	225	M25X1.5P	28	60	8	31	55	M10
112M	2,4,6 & 8	190	140	—	70	112	12	230	176	50	55	—	21	15	222	374	456	539	209	220	45	316	200	124	233	M25X1.5P	28	60	8	31	55	M10
132S/M	2,4,6 & 8	216	140	178	89	132	12	256	218	50	53	77	23	17	262	408	551	660	225	260	50	352	175	100	282	M25X1.5P	38	80	10	41	70	M12
160M/L	2,4	254	210	254	108	160	15	314	294	60	70	115	23	20	317	472	704	839	247	314	60	404	252	151	365	M32X1.5P	42	110	12	45	105	M16
	6 & 8																694	829														
180L	2,4,6 & 8	279	279	—	121	180	15	339	339	80	75	—	33	26	357	515	720	842	200	354	70	447	270	166	370	M40X1.5P	48	110	14	51.5	100	M16
200L	2,4	318	305	—	133	200	19	398	355	85	85	—	28	32	397	556	805	927	235	394	80	488	237	133	395	M40X1.5P	55	110	16	59	100	M20
	6 & 8																771	893														
225S/M	2	356	286	311	149	225	19	436	361	85	85	110	28	34	447	651	799	948	245	444	90	564	308	264	414	M50X1.5P	55	110	16	59	100	M20
	4,6 & 8																836	985							444		60	140	18	64	130	
250M	2	406	349	—	168	250	24	506	425	100	115	—	49	42	495	688	915	1065	268	489	100	601	287	242	474	M50X1.5P	60	140	18	64	130	M20
	4,6 & 8																										65	140	18	69	130	
280S/M	2	457	368	419	190	280	24	540	490	110	110	149	41	42	552	755	1010	1157	271	544	115	668	252	207	517	M50X1.5P	65	140	18	69	130	M20
	4,6 & 8																										75	140	20	79.5	130	
315S/M	2	508	406	457	216	315	28	625	540	120	115	155	46	45	617	850	1133	1293	336	606	130	758	276	225	584	M63X1.5P	65	140	18	69	130	M20
	4,6 & 8																1163	1353							614		80	170	22	85	160	
315L	2	508	508	—	216	315	28	625	593	120	115	115	46	45	617	850	1298	1458	454	606	145	758	276	225	666	M63X1.5P	65	140	18	69	130	M20
	4,6 & 8																1328	1518							696		80	170	22	85	160	

Tolerances on Dimensions with *

Dimension	Tolerance		Specification
A,B	±0.75		
H	-0.5	UPTO 280	IS : 1231
	-1.0	OVER 280	
K	+0.360	10Ø	
	+0.430	12,15Ø	
	+0.520	19,24,28Ø	

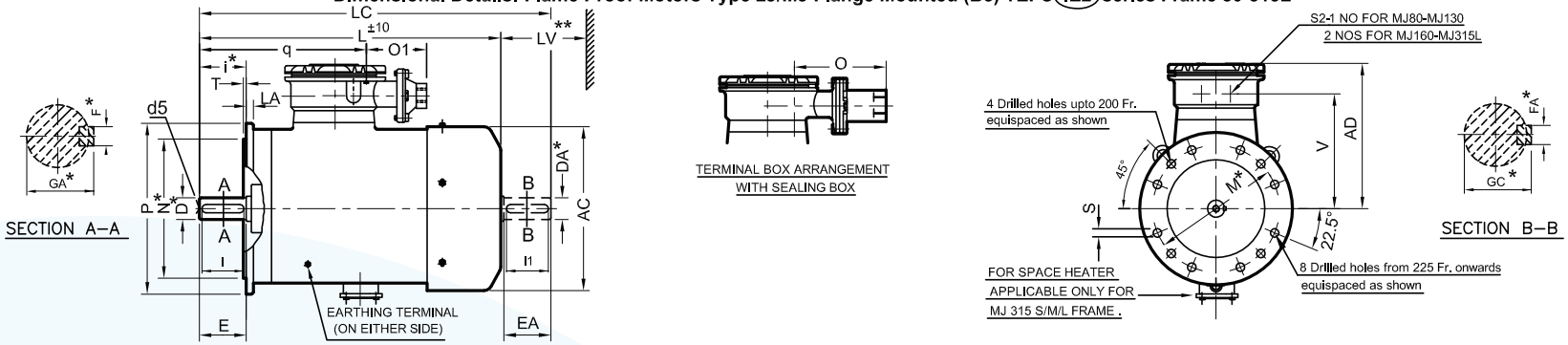
Dimension	Tolerance		Specification
D,DA	j6	19,24,28Ø	IS : 1231
	k6	38,42,48Ø	
	m6	55,60,65,75,80Ø	
GA,GC,F,FA			IS : 2048
d5(centering)			IS : 2540

- Separate sp. heater T.Box will be provided as a std. feature in case of MJ 315 S/M/L frames.
- Key / key way fit : h9 / N9.
- Double shaft extension can be provided with shaft dimension identical to D.E. shaft.

** Minimum distance for efficient cooling of motor to be maintained by user

All Dimensions are in mm unless otherwise specified. CAT-D-8031-3-1

Dimensional Details: Flame Proof Motors Type 2J/MJ Flange Mounted (B5) TEFC (IE2) series Frame 80-315L



		FIXING					GENERAL							TERMINAL BOX					SHAFT					
IEC Fr. size	Pole	P	N *	M *	i *	S	T	LA	AC	L	LC	AD	LV **	V	O	O1	q	S2	D,DA *	E EA	F * FA *	GA * GC *	l l1	d5
80	2,4 & 6	200	130	165	40	12	3.5	11	164	330	386	216	30	156	214	135	168	M20X1.5P	19	40	6	21.5	35	M6
90L	2,4,6 & 8	200	130	165	50	12	3.5	11	174	382	463	246	35	179	217	141	195	M25X1.5P	24	50	8	27	45	M8
100L	2,4,6 & 8	250	180	215	60	15	4	12	195	435	520	258	40	191	207	131	225	M25X1.5P	28	60	8	31	55	M10
112M	2,4,6 & 8	250	180	215	60	15	4	12	220	456	539	262	45	204	200	124	233	M25X1.5P	28	60	8	31	55	M10
132S/M	2,4,6 & 8	300	230	265	80	15	4	13	260	551	660	290	50	223	175	100	282	M25X1.5P	38	80	10	41	70	M12
160M/L	2,4	350	250	300	110	19	5	13	314	704	839	312	60	244	252	151	365	M32X1.5P	42	110	12	45	105	M16
	6 & 8									694	829													
180L	2,4,6 & 8	350	250	300	110	19	5	16	354	745	867	335	70	267	270	166	395	M40X1.5P	48	110	14	51.5	100	M16
200L	2,4	400	300	350	110	19	5	15	394	826	948	356	80	288	237	133	416	M40X1.5P	55	110	16	59	100	M20
	6 & 8									792	914													
225S/M	2	450	350	400	110	19	5	16	444	799	948	426	90	339	308	264	414	M50X1.5P	55	110	16	59	100	M20
	4,6 & 8				140					836	985						444		60	140	18	64	130	
250M	2	550	450	500	140	19	5	18	489	915	1065	438	100	351	287	242	474	M50X1.5P	60	140	18	64	130	M20
	4,6 & 8																		65	140	18	69	130	
280S/M	2	550	450	500	140	19	5	18	544	1010	1157	475	115	388	252	207	517	M50X1.5P	65	140	18	69	130	M20
	4,6 & 8																		75	140	20	79.5	130	
315S/M	2	660	550	600	140	24	6	22	610	1133	1293	535	130	443	276	225	584	M63X1.5P	65	140	18	69	130	M20
	4,6 & 8				170					1163	1353						614		80	170	22	85	160	
315L	2	660	550	600	140	24	6	22	610	1298	1458	535	145	443	276	225	666	M63X1.5P	65	140	18	69	130	M20
	4,6 & 8				170					1328	1518						696		80	170	22	85	160	

Tolerance on Dimensions with *

Dimension	Tolerance		Specification
N	j6	UPTO 450	IS : 2223
	js6	OVER 450	
M	±0.3	UPTO 265	
	±0.5	OVER 265	
i	±1	UPTO 85	
	±1.5	OVER 85	

Dimension	Tolerance		Specification
D,DA	j6	19,24,28Ø	IS : 1231
	k6	38,42,48Ø	
	m6	55,60,65,75,80Ø	
GA,GC,F,FA			IS : 2048
d5(centering)			IS : 2540

- Separate sp. heater T. Box will be provided as a std. feature in case of MJ 315 S/M/L frames.
- Double shaft extension can be provided with shaft dimension identical to D.E. shaft
- 8 Nos. Fixing Holes from 225 S/M frame onwards.
- Key / key way fit : h9 / N9

** Minimum distance for efficient cooling of motor to be maintained by user

Note: For B3/B5 mounting motor in frame 180L & 200L refer to Sales office

All Dimensions are in mm unless otherwise specified. CAT-D-8031-5-1