

TOSHIBA



TOTALLY ENCLOSED FAN COOLED
POWER SERIES
ELECTRIC MOTORS

0.37kW to 315kW

S O L U T I O N S • S E R V I C E • S U P P O R T

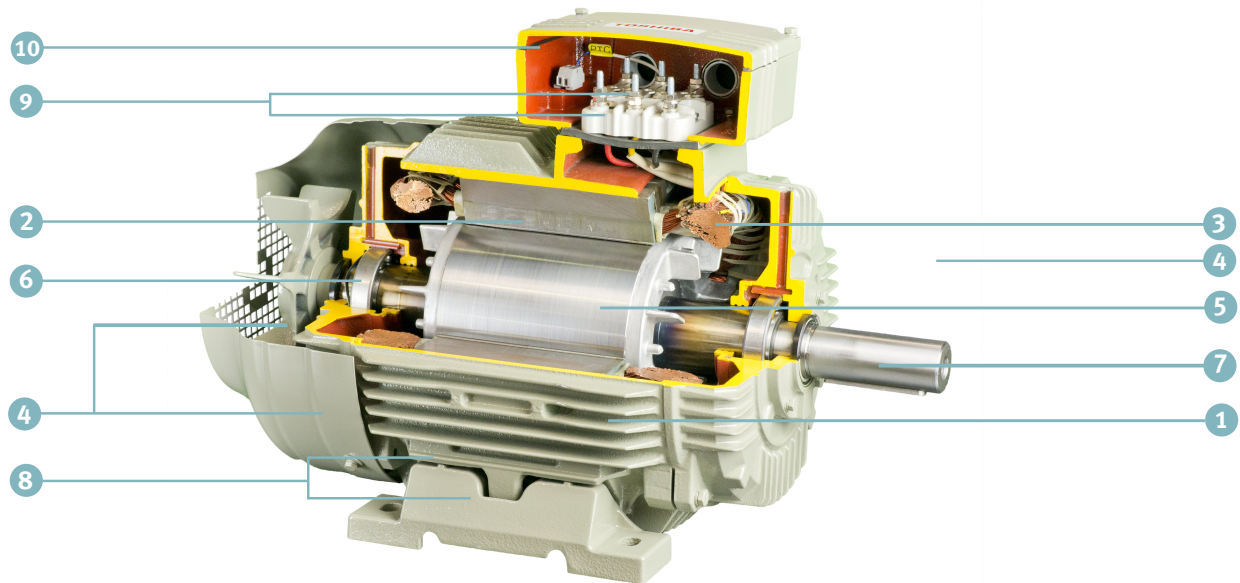


N1971

TOSHIBA INTERNATIONAL CORPORATION PTY LTD



STANDARD MOTOR FEATURES INCLUDE



HEAVY DUTY CONSTRUCTION ①

- Frames are high grade Cast Iron
 - Machined to close tolerance to ensure accurate alignment and fit in accordance with our high standards.
 - Exceptional corrosion resistance and high structural rigidity are inherent in Toshiba motor construction.
- Steel fan covers are standard.
- Drain plugs are fitted as standard for all frames.

STANDARDS

- Toshiba Motors comply with AS1359 (IEC60034) and MEPS 2006 Standard Efficiency requirements.
- IE2 Standard Efficiency (comparable to EFF1)
- Special motors to other Standards are also available eg. NEMA, CENELEC, CE, ROHS, SABS or other national standards.

PREMIUM EFFICIENCY LAMINATIONS ②

- Premium-grade silicon steel and longer cores lower operating flux densities and losses achieving optimum efficiency.

LOW LOSS STATOR WINDINGS ③

- Toshiba's use of greater cross sectional area of copper lowers winding resistance and reduces losses giving improved efficiency.
- All windings are insulated with non-hygroscopic materials, ensuring reliable motor operation in humid, corrosive and abrasive industrial environments.

INSULATION & THERMAL ADVANTAGE

- Toshiba motors are insulated with class 'F' materials and feature excellent thermal reserve, offering low temperature rise characteristics generally below class 'E'.
- These characteristics allow optimal flexibility in regard to variable frequency drives, higher altitude and higher ambient applications, and are also forgiving to intermittent current overloads.

LOW NOISE LEVELS ④

- Special attention to the fan and cowl design achieves quiet operation with efficiency cooling. Toshiba can supply motors with special low noise level fans and/or acoustic covers.
- All fans are cast iron.

HIGH TORQUE ROTOR ⑤

- Pressure cast aluminium rotors with integrally cast bars, end rings and cooling fans, provide reliable operation.
- Specially designed rotors give Toshiba motors advantageous torque characteristics and minimise losses.

LONG LIFE BEARINGS ⑥

- The use of high quality bearings assures long life and quiet operation. Motors in frame sizes up to D132 have sealed bearings. Larger sizes have regreaseable bearings

HARDWARE

- All fastenings are zinc passivated for resistance to corrosion.
- Threads are metric.

OUTPUT SHAFTS ⑦

- Output shafts are fitted with Oil Seals on the DE and NDE.

DURABLE NAMEPLATE

- Stainless steel nameplate provides complete motor ratings including bearing sizes for quick reference.

CORROSION RESISTANT FINISH ⑧

- Toshiba motors are primed with epoxy primer and finished with an acrylic resin finish. Standard colour is Moss Grey (RAL7003).

CONNECTIONS ⑨

- All motors are fitted with stud type terminal blocks with 6 (terminations) winding leads. Motors in frames D112 and below may be configured for 220V-240V Delta or 380V-415V Star operation, suitable for VVVF Drives. Motors



in larger frames are suitable for Direct-On-Line, Auto-transformer, Star-Delta, Soft Starter and VVVF Drives with 380V-415V supplies.

- Thermistors are fitted as standard on motors, frame D160 and above and can be fitted on smaller sizes if specified. Thermistor terminals are marked T1, T2.
- An earthing terminal is provided inside the main terminal box, with an additional external earthing facility on all frames.
- Toshiba motors can be supplied wound for voltages up to 1100 volts.

FLEXIBLE TERMINAL BOX DESIGN ¹⁰

- Cast Iron terminal boxes are horizontally split, and have flanges and neoprene gaskets.
- All terminal boxes are drilled and tapped to dimensions specified on pages 6-9. Blank or customised glands, or gland plates are available as an option.
- Terminal boxes may be rotated 90° by four positions for conduit entry on frames D80 to D225 larger frames from D250 and above can be rotated 180°.
- Terminal boxes are mounted on top as standard, frame

D160 to D250 are multi-mount and the Terminal box can be on the RHS or LHS as viewed from the DE by simply moving the feet. For non-standard terminal box positions contact Toshiba office at the time of order.

ORDERING

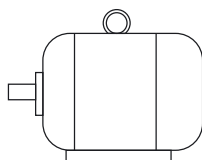
- When ordering please nominate: kW, rpm, enclosure classification (IP rating), mountings type, e.g. foot, flange or foot and flange, horizontal or vertical, shaft (shaft direction up or down etc).
- If in doubt about motor selection, please provide starting and application details.
- Give details of any additional specification or requirements.

DRIVE APPLICATIONS

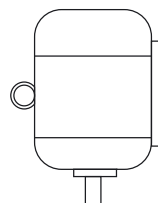
- Motors 4 pole and slower are generally suitable for normal vee-belt drive. Motors of higher speeds are generally for direct coupling only. For confirmation of application suitability, please contact Toshiba.
- All motors have bidirectional fans, Suitable for CW or CCW rotation when viewed from the drive end.

EXAMPLES OF COMMON MOUNTING ARRANGEMENTS

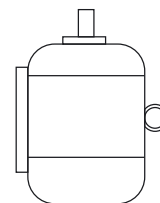
FOOT MOUNTED MOTOR:
2 bearings, shaft with one free extension, stator frame with feet.



IM 1001 – B3

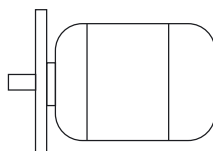


IM 1011 – V5

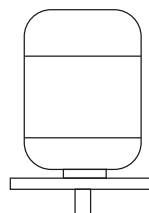


IM 1031 – V6

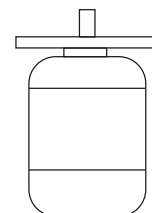
FLANGE MOUNTED MOTOR:
2 bearings, shaft with one free extension, stator frame without feet, large flange with clearance fixing holes.



IM 3001 – B5

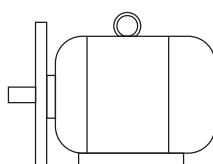


IM 3011 – V1

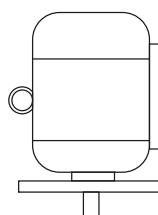


IM 3031 – V3

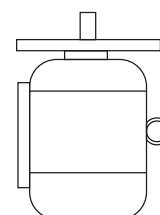
FOOT AND FLANGE MOUNTED MOTOR:
2 bearings, shaft with one free extension, stator frame with feet, large flange with clearance fixing hole.



IM 2001 – B35



IM 2011 – V15



IM 2031 – V36



POWER SERIES PERFORMANCE DATA AT 415V, 400V AND 380V

Output kW	Poles	Rated speed r/min	Motor Type (Frame)	Full Load Current (A)			No Load Current (A)	Locked Rotor Current (%) F/L	Locked Rotor Torque (%) F/L	Pull Up Torque (%) F/L	Break Down Torque (%) F/L	Efficiency (%)			Power Factor			Rotor GD ² (kg.m ²)	Sound Pressure dB(A) at 1 metre	Weight kg
				@ 415V	@ 400V	@ 380V						Full Load	75% Load	50% Load	Full Load	75% Load	50% Load			
0.37	2	2820	71M	0.86	0.89	0.94	0.45	467	243	210	267	69.5	70.0	67.4	0.87	0.80	0.70	0.0008	55	12
	4	1410	71M	0.97	1.01	1.06	0.56	374	210	180	242	72.7	73.0	70.2	0.73	0.66	0.54	0.0011	45	14
	6	900	80M	1.06	1.10	1.16	0.84	380	221	190	263	69.1	69.0	64.9	0.71	0.60	0.46	0.00194	44	18
	8	710	90S	1.22	1.27	1.33	0.87	380	230	200	300	62.8	62.0	57.6	0.65	0.57	0.46	0.0033	45	22
0.55	2	2820	71M	1.20	1.25	1.32	0.54	487	254	220	269	74.1	75.1	73.3	0.86	0.81	0.71	0.0009	56	13
	4	1425	80M	1.35	1.40	1.47	1.05	715	368	335	377	78.2	76.3	71.3	0.72	0.62	0.49	0.00148	45	18
	6	905	80M	1.48	1.54	1.62	1.11	481	243	210	297	74.3	74.0	70.5	0.69	0.60	0.46	0.00231	45	20
	8	710	90SL	1.59	1.65	1.74	1.11	400	250	220	300	69.1	68.4	64.3	0.67	0.59	0.47	0.0043	45	24
0.75	2	2875	80M	1.69	1.75	1.84	0.73	614	265	230	308	78.8	78.7	76.0	0.78	0.72	0.62	0.0011	58	17
	4	1425	80M	1.73	1.80	1.89	1.00	605	306	270	318	80.5	79.9	76.6	0.75	0.68	0.57	0.0016	46	19
	6	920	90S	1.93	2.00	2.11	1.20	510	228	200	251	76.0	76.0	73.2	0.71	0.64	0.51	0.00321	44	24
	8	715	100L	2.21	2.30	2.42	1.60	370	230	200	280	71.8	71.6	68.0	0.66	0.57	0.45	0.0069	47	31
1.1	2	2875	80M	2.23	2.31	2.43	1.02	730	371	340	396	80.6	80.2	77.2	0.85	0.80	0.71	0.0013	59	18
	4	1445	90S	2.37	2.46	2.59	1.15	695	278	250	329	82.2	81.9	79.1	0.79	0.74	0.64	0.00232	48	23
	6	920	90SL	2.79	2.89	3.04	1.79	474	243	210	256	78.3	78.4	75.8	0.70	0.64	0.51	0.00412	45	26
	8	720	100L	3.16	3.28	3.45	2.17	380	230	200	270	74.7	74.8	71.6	0.65	0.57	0.45	0.0103	47	32
1.5	2	2900	90S	2.85	2.96	3.12	1.28	831	357	330	374	82.6	82.8	81.2	0.88	0.83	0.72	0.0018	58	23
	4	1445	90SL	3.15	3.27	3.44	1.98	820	380	350	394	83.5	82.8	79.9	0.79	0.71	0.57	0.00315	50	29
	6	925	100L	3.67	3.81	4.01	1.82	491	232	200	247	79.9	80.7	79.1	0.71	0.67	0.58	0.00845	46	34
	8	720	112M	3.97	4.12	4.34	2.56	410	200	170	260	76.8	77.0	74.7	0.68	0.61	0.49	0.013	49	38
2.2	2	2900	90SL	4.07	4.22	4.44	1.58	859	316	280	347	84.1	84.8	84.0	0.89	0.85	0.75	0.0022	59	26
	4	1435	100L	4.42	4.59	4.83	2.42	814	253	220	337	84.9	84.9	83.1	0.81	0.74	0.62	0.0079	50	35
	6	925	112M	4.89	5.07	5.34	2.85	493	221	190	237	81.9	83.2	82.3	0.76	0.69	0.56	0.01326	46	40
	8	725	132S	5.46	5.66	5.96	3.42	500	210	180	270	79.4	79.7	77.7	0.71	0.63	0.51	0.034	50	55
3	2	2900	100L	5.54	5.75	6.05	2.36	739	285	255	323	85.3	86.3	85.5	0.88	0.83	0.72	0.0042	62	34
	4	1435	100L	5.88	6.10	6.42	2.90	782	319	290	326	86.0	86.2	84.4	0.83	0.77	0.66	0.00865	51	39
	6	950	132S	6.61	6.86	7.22	3.78	520	223	190	252	83.5	84.5	83.4	0.76	0.69	0.56	0.03716	50	57
	8	725	132SM	7.17	7.44	7.83	4.42	520	220	190	280	81.3	81.6	79.9	0.72	0.64	0.52	0.042	50	71
4	2	2920	112M	7.22	7.49	7.88	2.48	838	257	230	324	86.3	87.2	86.8	0.89	0.86	0.78	0.0065	63	41
	4	1455	112M	7.70	7.99	8.41	3.49	669	216	185	298	87.0	88.0	87.5	0.83	0.78	0.68	0.0185	55	45
	6	950	132SM	8.68	9.01	9.48	5.03	724	275	240	297	84.7	85.5	84.4	0.76	0.69	0.56	0.04889	49	73
	8	725	160M	9.15	9.49	9.99	5.65	510	210	180	270	82.8	83.0	81.1	0.73	0.66	0.54	0.0889	53	98
5.5	2	2925	132S	9.73	10.10	10.63	2.57	736	233	200	316	87.2	87.5	86.6	0.90	0.88	0.84	0.0145	64	60
	4	1460	132S	10.60	11.00	11.58	5.09	859	323	290	351	87.9	88.2	86.9	0.83	0.77	0.66	0.0331	55	62
	6	960	132SM	11.47	11.90	12.53	5.94	551	228	200	240	86.1	86.5	85.3	0.77	0.72	0.61	0.05845	52	77
	8	730	160M	12.20	12.66	13.33	8.05	550	240	210	280	84.5	84.6	82.7	0.74	0.66	0.53	0.0958	53	109
7.5	2	2925	132S	13.20	13.70	14.42	2.97	728	231	200	298	88.3	88.7	88.1	0.90	0.88	0.85	0.0156	65	63
	4	1460	132SM	14.07	14.60	15.37	7.03	869	290	260	378	88.9	89.2	88.4	0.83	0.77	0.65	0.0412	55	74
	6	970	160M	15.52	16.10	16.95	7.79	635	240	210	289	87.3	87.8	86.6	0.77	0.71	0.59	0.1212	54	110
	8	730	160ML	16.33	16.94	17.83	10.25	570	250	220	290	86.0	86.1	84.4	0.74	0.67	0.54	0.1021	53	131
11	2	2935	160M	18.9	19.6	20.6	6.41	865	285	245	334	89.5	89.7	88.4	0.90	0.87	0.79	0.0549	67	109
	4	1460	160M	20.0	20.8	21.9	7.86	783	222	190	298	89.9	90.5	89.8	0.85	0.81	0.71	0.1052	58	115
	6	970	160ML	22.6	23.4	24.6	10.9	632	255	220	255	88.7	89.3	88.4	0.77	0.71	0.60	0.1452	55	133
	8	730	180ML	23.3	24.2	25.5	14.72	590	230	200	270	87.7	87.9	86.4	0.75	0.68	0.56	0.2275	53	173
15	2	2935	160M	25.5	26.5	27.9	8.27	868	317	280	342	90.3	91.7	90.9	0.90	0.86	0.79	0.0635	68	119
	4	1460	160ML	26.4	27.4	28.8	8.72	758	281	250	291	90.8	91.7	91.5	0.87	0.84	0.76	0.1123	59	135
	6	975	180ML	29.3	30.4	32.0	17.6	727	219	190	303	89.6	89.8	88.5	0.79	0.72	0.58	0.2285	56	174
	8	735	200L	31.2	32.4	34.1	17.7	600	220	190	270	88.9	89.0	87.6	0.75	0.69	0.57	0.395	55	234
18.5	2	2940	160ML	30.8	32.0	33.7	6.94	769	270	240	340	90.8	91.4	91.0	0.92	0.91	0.87	0.0725	68	136
	4	1470	180M	33.0	34.2	36.0	12.4	790	248	210	324	91.2	91.7	91.0	0.86	0.82	0.73	0.1659	64	170
	6	980	200L	35.3	36.6	38.5	19.0	814	299	270	318	90.3	90.4	89.0	0.81	0.75	0.62	0.342	58	219
	8	735	225S	37.4	38.9	40.9	18.2	590	170	140	240	89.7	90.0	89.0	0.77	0.72	0.61	0.603	55	276
22	2	2950	180M	37.1	38.5	40.5	10.7	877	308	275	330	91.2	91.4	90.5	0.90	0.88	0.82	0.1025	69	172
	4	1470	180ML	38.2	39.6	41.7	13.3	850	280	250	330	91.6	92.1	91.7	0.87	0.84	0.76	0.1865	65	184
	6	980	200L	41.7	43.3	45.6	18.0	800	352	310	345	90.8	90.9	89.5	0.81	0.74	0.61	0.386	58	228
	8	735	225SM	44.0	45.6	48.0	23.1	650	200	170	260	90.2	90.3	89.2	0.77	0.72	0.60	0.698	55	298
30	2	2950	200L	50.2	52.1	54.8	14.4	877	311	280	351	92.0	92.2	91.3	0.90	0.88	0.82	0.173	72	223
	4	1470	200L	50.9	52.8	55.6	19.2	870	290	260	309	92.3	92.8	92.5	0.89	0.85	0.75	0.302	67	235
	6	980	225SM	54.2	56.2	59.2	18.5	727	200	170	220	91.6	92.4	92.3	0.84	0.82	0.74	0.625	60	296
	8	735	250SM	57.9	60.1	63.2	29.56	570	220	190	280	91.2	91.4	90.4	0.79	0.74	0.62	0.983	58	375



POWER SERIES PERFORMANCE DATA AT 415V, 400V AND 380V

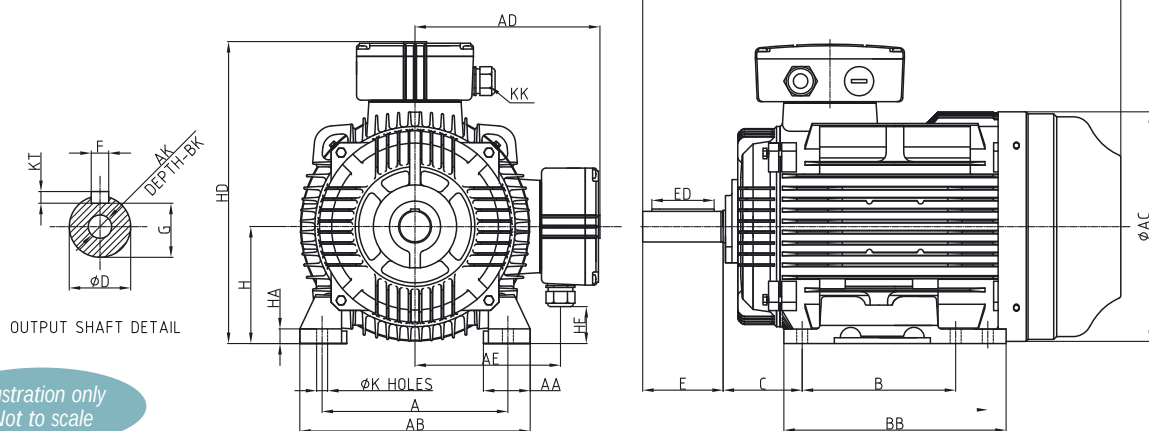
Output kW	Poles	Rated speed r/min	Motor Type (Frame)	Full Load Current (A)			No Load Current (A)	Locked Rotor Current (%) F/L	Locked Rotor Torque (%) F/L	Pull Up Torque (%) F/L	Break Down Torque (%) F/L	Efficiency (%)			Power Factor			Rotor GD ² (kg.m ²)	Sound Pressure dB(A) at 1 metre	Weight kg
				@ 415V	@ 400V	@ 380V						Full Load	75% Load	50% Load	Full Load	75% Load	50% Load			
37	2	2950	200L	61.2	63.5	66.8	15.7	840	291	250	341	92.5	92.8	92.2	0.91	0.89	0.83	0.195	72	242
	4	1480	225S	64.3	66.7	70.2	22.6	812	283	250	296	92.8	93.4	93.1	0.86	0.83	0.75	0.538	67	290
	6	980	250SM	63.9	66.3	69.8	24.0	838	291	260	310	92.2	92.4	91.6	0.87	0.84	0.76	0.985	60	380
	8	735	250SM	70.7	73.4	77.3	34.8	576	228	190	275	91.8	92.0	91.1	0.79	0.74	0.63	1.34	58	421
45	2	2965	225SM	73.7	76.5	80.5	18.8	770	331	300	345	92.9	93.2	92.6	0.91	0.90	0.84	0.325	74	302
	4	1480	225SM	77.3	80.2	84.4	24.1	815	278	245	298	93.1	93.7	93.5	0.87	0.85	0.77	0.635	68	326
	6	980	250SM	79.4	82.4	86.7	30.88	791	280	250	330	92.7	92.7	91.6	0.85	0.81	0.72	0.996	60	465
	8	735	280SM	85.4	88.6	93.3	40.01	530	200	170	240	92.4	92.6	91.8	0.79	0.74	0.64	1.998	58	560
55	2	2970	250SM	92.2	95.7	100.7	26.8	650	200	170	305	93.2	93.3	92.4	0.89	0.87	0.81	0.395	77	382
	4	1480	250SM	91.8	95.2	100.2	27.1	882	220	190	280	93.5	94.1	94.0	0.89	0.87	0.81	0.785	67	385
	6	985	280SM	94.2	97.7	102.8	32.5	743	257	220	297	93.1	93.1	92.1	0.87	0.84	0.77	1.965	65	545
	8	740	280SM	104.0	108.0	114.0	48.82	585	231	200	261	92.9	93.0	92.1	0.79	0.74	0.64	2.612	58	606
75	2	2965	250SM	122.6	127.2	133.9	37.06	678	226	190	336	93.9	93.4	91.9	0.91	0.88	0.83	0.401	80	410
	4	1470	250SM	125.3	130.0	136.8	36.65	892	324	290	355	94.0	94.4	94.2	0.89	0.86	0.80	0.790	68	465
	6	980	280SM	127.6	132.3	139.3	36.32	640	225	190	230	93.7	93.7	92.9	0.87	0.86	0.81	1.980	68	580
	8	740	315S	139.0	144.0	152.0	64.79	580	221	190	237	93.7	93.5	92.2	0.80	0.76	0.66	5.825	63	1024
90	2	2980	280SM	145.5	151.0	158.9	33.9	730	220	190	310	94.2	94.4	93.7	0.91	0.90	0.86	0.765	78	545
	4	1485	280SM	152.3	158.0	166.3	39.4	711	246	210	255	94.4	95.1	95.2	0.87	0.86	0.80	1.865	70	605
	6	980	315S	152.3	158.0	166.3	54.6	639	215	185	270	94.2	94.0	93.1	0.87	0.84	0.76	3.750	69	880
	8	740	315ML	164.0	170.1	179.1	78.8	620	220	190	250	94.1	93.9	92.7	0.81	0.77	0.66	6.753	63	1083
110	2	2975	280SM	176.4	183.0	192.6	35.9	799	269	240	318	94.5	94.6	93.8	0.92	0.91	0.88	0.770	80	568
	4	1485	280SM	185.6	192.6	202.7	39.8	691	223	190	241	94.7	95.5	95.7	0.87	0.87	0.83	1.890	68	650
	6	985	315ML	185.1	192.0	202.1	62.3	600	213	178	255	94.5	94.3	93.3	0.87	0.85	0.78	5.157	68	1120
	8	740	315ML	200.4	207.9	218.8	100.21	660	240	210	260	94.5	94.2	92.9	0.81	0.76	0.65	7.352	63	1174
132	2	2980	315S	214.1	222.1	233.8	56.3	803	271	241	375	94.8	94.6	93.7	0.90	0.89	0.83	1.580	80	960
	4	1485	315S	217.5	225.6	237.5	71.8	720	215	185	268	94.9	94.9	94.2	0.88	0.86	0.79	3.520	70	945
	6	985	315ML	224.6	233.0	245.3	85.8	679	215	180	285	94.8	94.6	93.6	0.86	0.83	0.75	5.685	70	1185
	8	745	355ML	236.1	245.0	257.9	91.5	580	220	190	240	94.8	94.5	93.4	0.82	0.79	0.70	12.94	69	1815
160	2	2980	315ML	257.3	267.0	281.1	64.5	792	268	235	366	95.0	95.0	94.4	0.91	0.89	0.84	1.941	80	1090
	4	1485	315ML	261.2	271.0	285.3	76.8	763	261	230	325	95.2	95.3	94.7	0.89	0.87	0.81	4.472	72	1085
	6	990	355ML	267.0	277.0	291.6	96.0	700	227	190	292	95.1	95.0	94.1	0.88	0.85	0.77	9.57	74	1705
	8	745	355ML	285.0	295.7	311.2	118.8	620	230	200	250	95.2	94.9	93.7	0.82	0.79	0.70	13.32	70	1905
200	2	2980	315ML	321.9	334.0	351.6	87.2	770	240	210	340	95.0	95.2	94.7	0.91	0.89	0.84	2.212	81	1190
	4	1485	315ML	323.9	336.0	353.7	89.0	721	248	210	352	95.1	95.3	95.0	0.90	0.89	0.83	4.856	75	1200
	6	990	355ML	332.5	345.0	363.2	118	708	236	200	291	95.0	94.8	94.0	0.88	0.85	0.78	11.1	74	1890
250	2	2985	355ML	402.9	418.0	440.0	81.4	630	160	130	300	95.0	95.0	94.2	0.91	0.90	0.87	3.848	82	1710
	4	1490	355ML	404.8	420.0	442.1	113	770	260	230	270	95.1	95.2	94.7	0.90	0.88	0.83	7.364	78	1740
	6	990	355ML	413.5	429.0	451.6	141	716	245	210	292	95.0	94.8	93.9	0.89	0.86	0.79	11.8	74	2000
280	2	2985	355ML	448.2	465.0	489.5	95.9	705	175	140	316	95.0	94.4	93.0	0.92	0.91	0.87	3.949	82	1870
	4	1490	355ML	446.3	463.0	487.4	82.1	645	218	180	234	95.1	95.0	94.3	0.92	0.92	0.90	8.014	78	1870
	6	990	355ML	460.7	478.0	503.2	149	702	236	200	278	95.0	94.8	94.0	0.89	0.87	0.80	12.9	74	2080
315	2	2985	355ML	492.5	511.0	537.9	99.0	631	165	130	299	95.0	94.5	93.2	0.94	0.94	0.90	3.995	82	1920
	4	1490	355ML	511.8	531.0	558.9	102	850	300	270	290	95.1	95.4	95.3	0.90	0.90	0.87	9.1	78	1975

*Note: For increased Performance Motors, please refer to data on page 10



DIMENSIONS - POWER SERIES

FOOT MOUNTED



2, 4, 6, 8 POLE

ALL DIMENSIONS (MM)

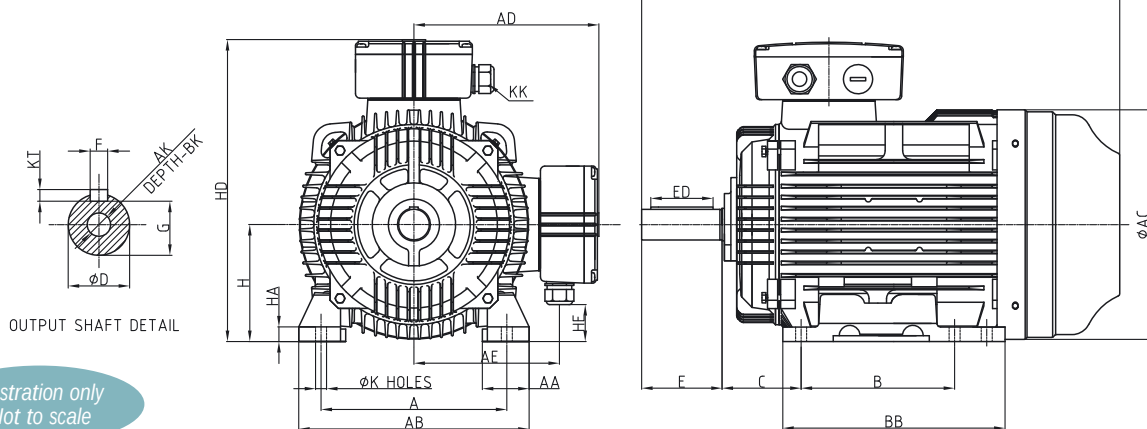
DIMENSIONS		FRAME										
		D71	D80	D90S	D90L	D100L	D112M	D132S	D132M	D160M	D160L	D180M
A		112	125	140	140	160	190	216	216	254	254	279
AA		26	34	36	36	40	45	55	55	64	64	68
AB		138	160	174	174	200	235	270	270	315	315	351
AC		143	175	195	195	218	243	278	278	314	314	355
AD		115	146	161	161	171	192	210	210	253	253	269
AE		90	108	122	122	133	153	169	169	199	199	220
AK	2	M5*12	M6*16	M8*20	M8*20	M10*25	M10*25	M12*30	—	M16*36	M16*36	M16*36
	4, 6, 8	M5*12	M6*16	M8*20	M8*20	M10*25	M10*25	M12*30	M12*30	M16*36	M16*36	M16*36
B		90	100	100	125	140	140	140	178	210	254	241
BB		108	135	130	155	179	180	182	220	260	304	311
BK		12	16	20	20	25	25	30	30	36	36	36
C		45	50	56	56	63	70	89	89	108	108	121
D	2	14	19	24	24	28	28	38	—	42	42	48
	4, 6, 8	14	19	24	24	28	28	38	38	42	42	48
E	2	30	40	50	50	60	60	80	—	110	110	110
	4, 6, 8	30	40	50	50	60	60	80	80	110	110	110
ED	2	20	30	40	40	40	40	56	—	85	85	80
	4, 6, 8	20	30	40	40	40	40	56	56	85	85	80
F	2	5	6	8	8	8	8	10	—	12	12	14
	4, 6, 8	5	6	8	8	8	8	10	10	12	12	14
G	2	11	15.5	20	20	24	24	33	—	37	37	42.5
	4, 6, 8	11	15.5	20	20	24	24	33	33	37	37	42.5
H		71	80	90	90	100	112	132	132	160	160	180
HA		11	10	12	12	14	15	18	18	20	20	22
HD		142.5	226	251	251	271	304	342	342	413	413	449
HE		25	—	—	—	—	—	—	—	35	35	55
K		7	10	10	10	12	12	12	12	15	15	15
KK		M20*1.5	M25*1.5	M25*1.5	M25*1.5	M25*1.5	M32*1.5	M32*1.5	M32*1.5	M40*1.5	M40*1.5	M40*1.5
KT	2	5	6	7	7	7	7	8	—	8	8	9
	4, 6, 8	5	6	7	7	7	7	8	8	8	8	9
L	2	240	306	316	341	385	386	458	—	610	654	684
	4, 6, 8	240	306	316	341	385	386	458	496	610	654	684
WEIGHT**		14	20	24	29	39	45	62	77	130	150	195

** Weight is given in kg and is an approximate value | (Z) Indicates Increased Performance Motors | The above is to be used as a guide only, more detailed information is available on request.



DIMENSIONS - POWER SERIES

FOOT MOUNTED



2, 4, 6, 8 POLE

ALL DIMENSIONS (MM)

DIMENSIONS	FRAME									
	D180L	D200L	D225S	D225M	D250M	D280M	D315M	D315L/(Z)	D355M	D355L
A	279	318	356	356	406	457	508	508	610	610
AA	68	70	79	79	97	85	120	120	116	116
AB	351	388	430	430	484	542	628	628	726	726
AC	355	397	445	445	484	546	620	620	698	698
AD	269	296	319	319	370	400	502	502/511	590	590
AE	220	239	263	263	—	—	—	—	—	—
AK	2	—	M20*42	—	M20*42	M20*42	M20*42	M20*46	M20*46	M20*46
	4, 6, 8	M16*36	M20*42	M20*42	M20*42	M20*42	M20*42	M20*46	M20*46/M24*56	M24*56
B	279	305	286	311	349	419	457	508/851	560	630
BB	349	369	361	386	445	536	680	680	750	750
BK	36	42	42	42	42	42	46	46/56	46/56	46/56
C	121	133	149	149	168	190	216	216	254	254
D	2	—	55	—	55	60	65	65	65/75	75
	4, 6, 8	48	55	60	60	65	75	80	80/95	95
E	2	—	110	—	110	140	140	140	140	140
	4, 6, 8	110	110	140	140	140	140	170	170	170
ED	2	—	100	—	100	125	100	110	110/120	120
	4, 6, 8	80	100	125	125	125	100	140	140/160	160
F	2	—	16	—	16	18	18	18	18/20	20
	4, 6, 8	14	16	18	18	18	20	22	22/25	25
G	2	—	49	—	49	53	58	58	58/67.5	67.5
	4, 6, 8	42.5	49	53	53	58	67.5	71	71/86	86
H	180	200	225	225	250	280	315	315	355	355
HA	22	25	29	29	32	35	45	45	52	52
HD	449	496	544	544	620	680	817	817/826	945	945
HE	55	55	80	80	62	92	112	112/92	132	132
K	15	19	19	19	24	24	28	28	28	28
KK	M40*1.5	M50*1.5	M50*1.5	M50*1.5	M63*1.5	M63*1.5	M63*1.5	M63*1.5	M63*1.5	M63*1.5
KT	2	—	10	—	11	11	11	11	11/12	12
	4, 6, 8	9	10	11	11	11	12	14	14	14
L	2	—	774	—	816	911	1016	1311	1311/1501	1501
	4, 6, 8	722	774	822	847	911	1016	1341	1341/1531	1531
WEIGHT**	215	275	320	350	457	654	1120	1470	1955	2120

** Weight is given in kg and is an approximate value | (Z) Indicates Increased Performance Motors | The above is to be used as a guide only, more detailed information is available on request.



DIMENSIONS - POWER SERIES

FOOT & B5 FLANGE MOUNTED DIMENSIONS

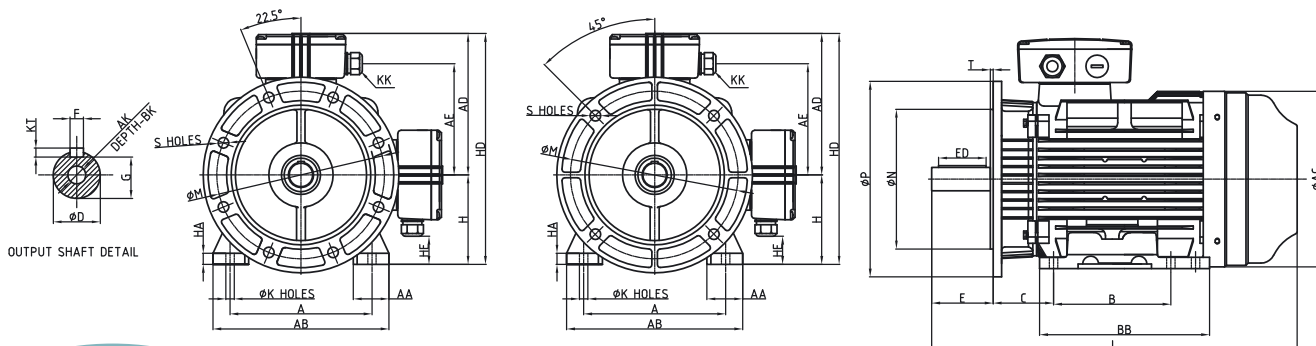


Illustration only
Not to scale

Flanges D71–D200 4 hole fixing
Flanges D225–D315 8 hole fixing

2, 4, 6, 8 POLE

ALL DIMENSIONS (MM)

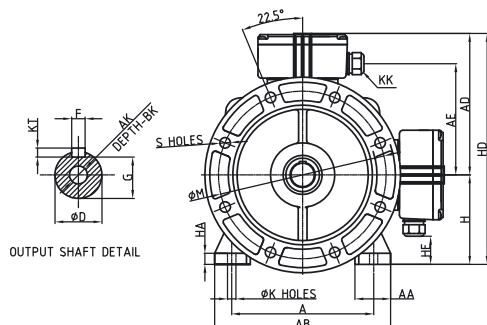
DIMENSIONS	FRAME										
	D71	D80	D90S	D90L	D100L	D112M	D132S	D132M	D160M	D160L	D180M
A	112	125	140	140	160	190	216	216	254	254	279
AA	26	34	36	36	40	45	55	55	64	64	68
AB	138	160	174	174	200	235	270	270	315	315	351
AC	143	175	195	195	218	243	278	278	314	314	355
AD	115	146	161	161	171	192	210	210	253	253	269
AE	90	108	122	122	133	153	169	169	199	199	220
AK	2	M5*12	M6*16	M8*20	M8*20	M10*25	M10*25	M12*30	—	M16*36	M16*36
	4, 6, 8	M5*12	M6*16	M8*20	M8*20	M10*25	M10*25	M12*30	M12*30	M16*36	M16*36
B	90	100	100	125	140	140	140	178	210	254	241
BB	108	135	130	155	179	180	182	220	260	304	311
BK	12	16	20	20	25	25	30	30	36	36	36
C	45	50	56	56	63	70	89	89	108	108	121
D	2	14	19	24	24	28	28	38	—	42	48
	4, 6, 8	14	19	24	24	28	28	38	38	42	48
E	2	30	40	50	50	60	60	80	—	110	110
	4, 6, 8	30	40	50	50	60	60	80	80	110	110
ED	2	20	30	40	40	40	40	56	—	85	85
	4, 6, 8	20	30	40	40	40	40	56	56	85	85
F	2	5	6	8	8	8	8	10	—	12	14
	4, 6, 8	5	6	8	8	8	8	10	10	12	14
G	2	11	15.5	20	20	24	24	33	—	37	42.5
	4, 6, 8	11	15.5	20	20	24	24	33	37	37	42.5
H	71	80	90	90	100	112	132	132	160	160	180
HA	11	10	12	12	14	15	18	18	20	20	22
HD	142.5	226	251	251	271	304	342	342	413	413	449
HE	25	—	—	—	—	—	—	—	35	35	55
K	7	10	10	10	12	12	12	12	15	15	15
KK	M20*1.5	M25*1.5	M25*1.5	M25*1.5	M25*1.5	M32*1.5	M32*1.5	M32*1.5	M40*1.5	M40*1.5	M40*1.5
KT	2	5	6	7	7	7	8	—	8	8	9
	4, 6, 8	5	6	7	7	7	8	8	8	8	9
L	2	240	306	316	341	385	386	458	—	610	684
	4, 6, 8	240	306	316	341	385	386	458	496	610	684
M	130	165	165	165	215	215	265	265	300	300	300
N	110	130	130	130	180	180	230	230	250	250	250
P	158	200	200	200	250	250	300	300	350	350	350
S	4Φ10.8	4Φ12	4Φ12	4Φ12	4Φ15	4Φ15	4Φ15	4Φ15	4Φ19	4Φ19	4Φ19
T	3.5	3.5	3.5	3.5	4	4	4	4	5	5	5
Holes	4	4	4	4	4	4	4	4	4	4	4
WEIGHT**	14	20	24	29	39	45	62	77	130	150	195

** Weight is given in kg and is an approximate value | (Z) Indicates Increased Performance Motors | The above is to be used as a guide only, more detailed information is available on request.



DIMENSIONS - POWER SERIES

FOOT & B5 FLANGE MOUNTED DIMENSIONS



OUTPUT SHAFT DETAIL

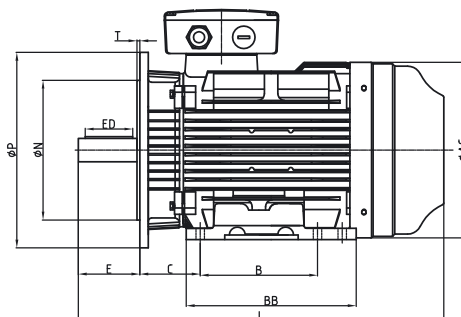
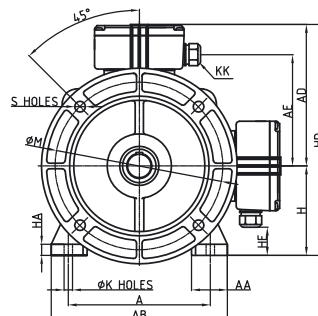


Illustration only
Not to scale

Flanges D71–D200 4 hole fixing
Flanges D225–D315 8 hole fixing

2, 4, 6, 8 POLE

ALL DIMENSIONS (MM)

DIMENSIONS	FRAME									
	D180L	D200L	D225S	D225M	D250M	D280M	D315M	D315L / (Z)	D355M	D355L
A	279	318	356	356	406	457	508	508	610	610
AA	68	70	79	79	97	85	120	120	116	116
AB	351	388	430	430	484	542	628	628	726	726
AC	355	397	445	445	484	546	620	620	698	698
AD	269	296	319	319	370	400	502	502/511	590	590
AE	220	239	263	263	—	—	—	—	—	—
AK	2	—	M20*42	—	M20*42	M20*42	M20*42	M20*46	M20*46	M20*46
	4, 6, 8	M16*36	M20*42	M20*42	M20*42	M20*42	M20*42	M20*46/M24*56	M24*56	M24*56
B	279	305	286	311	349	419	457	508/851	560	630
BB	349	369	361	386	445	536	680	680	750	750
BK	36	42	42	42	42	42	46	46/56	46/56	46/56
C	121	133	149	149	168	190	216	216	254	254
D	2	—	55	—	55	60	65	65/75	75	75
	4, 6, 8	48	55	60	60	65	75	80/95	95	95
E	2	—	110	—	110	140	140	140	140	140
	4, 6, 8	110	110	140	140	140	140	170	170	170
ED	2	—	100	—	100	125	100	110/120	120	120
	4, 6, 8	80	100	125	125	125	140	140/160	160	160
F	2	—	16	—	16	18	18	18/20	20	20
	4, 6, 8	14	16	18	18	18	20	22/25	25	25
G	2	—	49	—	49	53	58	58/67.5	67.5	67.5
	4, 6, 8	42.5	49	53	53	58	67.5	71/86	86	86
H	180	200	225	225	250	280	315	315	355	355
HA	22	25	29	29	32	35	45	45	52	52
HD	449	496	544	544	620	680	817	817/826	945	945
HE	55	55	80	80	62	92	112	112/92	132	132
K	15	19	19	19	24	24	28	28	28	28
KK	M40*1.5	M50*1.5	M50*1.5	M50*1.5	M63*1.5	M63*1.5	M63*1.5	M63*1.5	M63*1.5	M63*1.5
KT	2	—	10	—	11	11	11	11/12	12	12
	4, 6, 8	9	10	11	11	11	12	14	14	14
L	2	—	774	—	816	911	1016	1311/1501	1501	1501
	4, 6, 8	722	774	822	847	911	1016	1341/1531	1531	1531
M	300	350	400	400	500	500	600	1470	740	740
N	250	300	350	350	450	450	550	550	680	680
P	350	400	450	450	550	550	660	660	800	800
S	4-Ø19	4-Ø19	8-Ø19	8-Ø19	8-Ø19	8-Ø19	8-Ø24	8-24	8-Ø24	8-Ø24
T	5	5	5	5	5	5	6	6	6	6
Holes	4	4	8	8	8	8	8	8	8	8
WEIGHT**	215	275	320	350	457	654	1120	1470	1955	2120

** Weight is given in kg and is an approximate value | (Z) Indicates Increased Performance Motors | The above is to be used as a guide only, more detailed information is available on request.



PERFORMANCE DATA

POWER SERIES - INCREASED PERFORMANCE DATA These motors offer the Increased Power in with smaller IEC Frames.”

Output kW	Poles	Rated speed r/min	Motor Type (Frame)	Full Load Current (A)			No Load Current (A)	Locked Rotor Current (%) F/L	Locked Rotor Torque (%) F/L	Pull Up Torque (%) F/L	Break Down Torque (%) F/L	Efficiency (%)			Power Factor			Rotor GD ² (kg.m ²)	Sound Pressure dB(A) at 1 metre	Weight kg
				@ 415V	@ 400V	@ 380V						Full Load	75% Load	50% Load	Full Load	75% Load	50% Load			
11	6	970	160M	22.5	23.4	24.6	10.8	619	231	201	245	88.7	89.3	88.5	0.77	0.71	0.60	0.128	56	122
15	2	2935	160M	25.5	26.5	27.9	8.3	868	317	280	342	90.3	91.7	90.9	0.90	0.86	0.79	0.064	68	119
	4	1465	160M	26.4	27.4	28.9	8.7	747	262	232	271	90.8	91.7	91.5	0.87	0.84	0.76	0.107	65	134
18.5	6	970	160ML	29.5	30.6	32.3	14.8	548	220	190	226	89.6	89.9	88.7	0.79	0.75	0.65	0.127	59	145
	2	2940	160M	30.8	32.0	33.7	6.9	877	315	285	341	90.8	91.4	91.0	0.92	0.91	0.87	0.065	69	135
22	4	1465	160ML	32.1	33.4	35.1	10.1	782	267	230	280	91.2	91.5	90.9	0.88	0.85	0.79	0.115	65	153
	6	980	180ML	35.3	36.6	38.6	19.2	831	321	290	351	90.3	90.1	88.4	0.81	0.75	0.63	0.230	59	185
30	2	2940	160ML	36.9	38.3	40.3	9.7	714	214	180	334	91.2	91.3	90.4	0.91	0.89	0.84	0.073	69	144
	2	2950	180M	49.3	51.2	53.9	12.7	824	251	221	364	92.0	92.4	91.8	0.92	0.90	0.85	0.105	75	195
37	4	1470	180ML	52.1	54.1	56.9	18.9	837	287	257	302	92.3	93.0	92.8	0.87	0.83	0.75	0.189	70	210
	6	980	200L	55.8	57.9	60.9	26.4	767	278	240	302	91.6	91.6	90.4	0.82	0.77	0.67	0.388	59	318
45	4	1475	200L	62.7	65.1	68.5	22.6	892	302	272	349	92.8	93.1	92.6	0.88	0.85	0.76	0.310	70	248
	6	980	225SM	68.4	70.9	74.7	22.3	617	211	180	217	92.2	92.4	91.6	0.82	0.80	0.74	0.629	59	385
55	2	2950	200L	73.4	76.2	80.2	18.7	797	269	230	338	92.9	93.0	92.2	0.92	0.90	0.85	0.180	75	270
	4	1475	225S	77.3	80.2	84.4	24.2	812	248	218	278	93.1	93.7	93.5	0.87	0.85	0.77	0.520	71	342
90	2	2950	225SM	89.6	93.0	97.8	21.4	750	235	200	332	93.2	93.2	92.4	0.92	0.90	0.86	0.355	81	311
	4	1475	225SM	94.0	97.6	102.7	28.7	794	258	220	271	93.5	93.5	92.7	0.87	0.85	0.79	0.640	68	395
110	6	980	280S	94.2	97.7	102.8	32.5	740	251	221	292	93.1	93.1	92.1	0.87	0.84	0.77	1.965	66	525
	2	2970	280S	145.9	151.4	159.4	33.8	711	232	202	258	94.2	94.4	93.7	0.91	0.90	0.86	0.765	80	527
132	4	1470	280S	152.7	158.4	166.7	39.4	709	244	214	257	94.4	95.1	95.2	0.87	0.86	0.81	0.830	68	530
	6	985	315ML	185.1	192.0	202.1	62.3	600	213	178	255	94.5	94.3	93.3	0.87	0.85	0.78	5.157	68	1120
160	2	2980	315ML	224.6	233.0	245.3	85.8	679	215	180	285	94.8	94.6	93.6	0.86	0.83	0.75	5.685	70	1185
	4	1485	315ML	257.3	267.0	281.1	64.5	792	268	235	366	95.0	95.0	94.4	0.91	0.89	0.84	1.941	80	1090
200	6	990	315L	261.2	271.0	285.3	76.8	763	261	230	325	95.2	95.3	94.7	0.89	0.87	0.81	4.472	72	1085
	2	2980	315ML	270.9	281.1	295.9	96.9	677	213	180	281	95.1	94.9	93.9	0.87	0.84	0.76	5.700	70	1300
250	4	1485	315ML	321.9	334.0	351.6	87.2	770	240	210	340	95.0	95.2	94.7	0.91	0.89	0.84	2.212	81	1190
	6	1485	315ML	323.9	336.0	353.7	89.0	721	248	210	352	95.1	95.3	95.0	0.90	0.89	0.83	4.856	75	1200
250	2	2980	315L	398.7	413.6	435.4	95.6	759	243	210	332	95.0	94.6	93.5	0.92	0.91	0.83	2.290	83	1235
	4	1490	315L	411.1	426.5	448.9	115.0	783	213	180	337	95.1	94.9	94.0	0.89	0.87	0.82	4.920	80	1470

BEARING INFORMATION

BEARINGS FOR POWER SERIES MOTORS

Frame Number	71	80	90S	90L	100L	112M	132S	132M	160M	160L	180M	180L	200L
Poles	2,4,6,8	2,4,6,8	2,4,6,8	2,4,6,8	2,4,6,8	2,4,6,8	2,4,6,8	2,4,6,8	2,4,6,8	2,4,6,8	2,4,6,8	2,4,6,8	2,4,6,8
Drive End	6202 2Z/C3	6205 2Z/C3	6206 2Z/C3	6206 2Z/C3	6206 2Z/C3	6207 2Z/C3	6308 2Z/C3	6308 2Z/C3	6309/C3	6309/C3	6311/C3	6311/C3	6312/C3
Non-Drive End	6202 2Z/C3	6205 2Z/C3	6206 2Z/C3	6206 2Z/C3	6206 2Z/C3	6207 2Z/C3	6208 2Z/C3	6208 2Z/C3	6209/C3	6209/C3	6211/C3	6211/C3	6212/C3

Frame Number	225S		225M		250M		280M		315M		315L		355M		355L	
Poles	2	4,6,8	2	4,6,8	2	4,6,8	2	4,6,8	2	4,6,8	2	4,6,8	2	4,6,8	2	4,6,8
Drive End	6312/C3	6313/C3	6312/C3	6313/C3	6313/C3	6315/C3	6314/C3	NU317	6317/C3	NU319	6317/C3	NU319	6319/C3	NU322	6319/C3	NU322
Non-Drive End	6312/C3	6312/C3	6312/C3	6312/C3	6313/C3	6313/C3	6314/C3	6314/C3	6317/C3	6319/C3	6317/C3	6319/C3	6319/C3	6322/C3	6319/C3	6322/C3

INCREASED PERFORMANCE 315L FRAME

Frame Number	315L
Poles	2
Drive End	6319/C3
Non-Drive End	6317/C3

RE-GREASING

Motors with grease nipples will require periodic re-greasing. When re-greasing, use only recommended grease indicated below. The motor must be running and have grease exit ports opened during lubrication. For motors requiring special types of lubricant, the specification and quantity of grease to be used are noted on the nameplate. Motors without greasing facilities are fitted with sealed bearings. Sealed bearings are pre-lubricated for the life of the bearing but should be monitored by the user and replaced when necessary.

RECOMMENDED GREASE

Toshiba recommends the use of Shell Gadus SV100 2 lithium based grease. Always regrease bearings with the same grease type.

Note: Excess lubrication and/or incorrect grease type may cause an increase in bearing temperature. This may lead to an increased risk of premature bearing failure.

Note: When regreasing a running motor ensure all safety precautions are observed. Ensure that the motor runs for a sufficient time to allow the used grease to purge before the exit ports are reclosed.

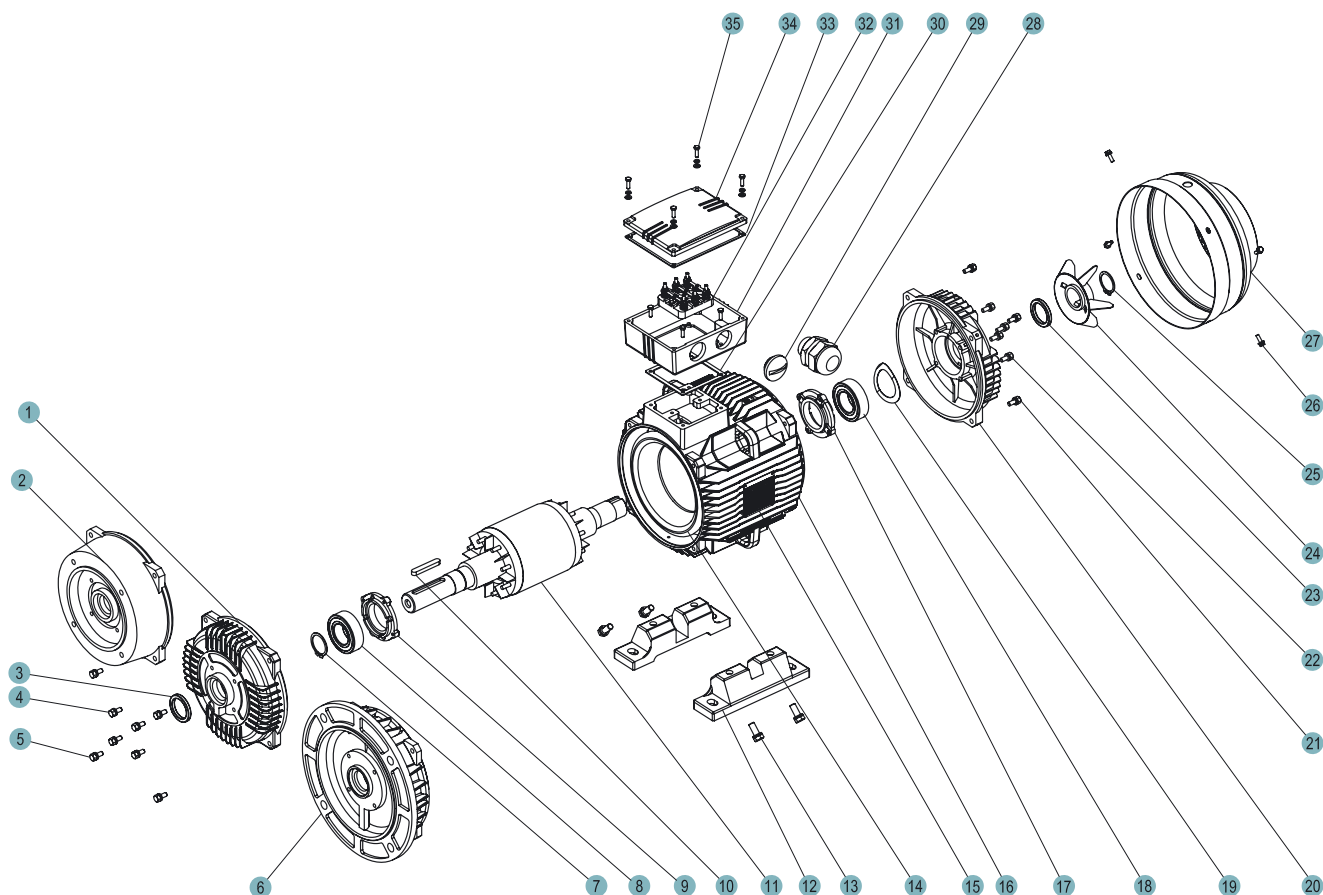
RE-GREASING TABLE

Frame Size	Grease Qty (Grams)	Replenish Intervals (hours)			
		2P	4P	6P	8P
160 & 180	30	3400	7000	9000	10000
200 & 225	50	2400	6200	8200	9500
250 & 280	70	2200	4800	6400	8000
315 & 355	100	1000	3000	5000	6400

Note: the above table is based on a motor running for 24 hours per day. For an 8-hour duty cycle multiply the interval by 3.



GENERIC PARTS LIST FOR POWER SERIES



1	End Shield B3	19	Wave washer
2	Flange B14 *	20	NDE End Shield
3	Oils Seal	21	Mounting Stud Screws
4	Screws for Fixing Bearing Cover	22	Screws for fixing Bearing Cover
5	Mounting Stud Screws	23	Oil Seal
6	Flange B5	24	Fan
7	Circlip	25	Circlip
8	Bearing DE	26	Screws for fixing Fan Cover
9	Bearing Cover	27	Fan Cover
10	DE Shaft Key	28	Cable Gland
11	Rotor with Shaft	29	Cable Cap
12	Removable Feet **	30	Terminal Box Base Seal
13	Screws for fixing Removable Feet**	31	Terminal Box Base
14	Wound Stator	32	Terminal Board c/w Components
15	Nameplate	33	Terminal Box Cover Seal
16	Frame	34	Terminal Box Cover
17	Bearing Cover	35	Screws for fixing Terminal Box Cover
18	Bearing NDE		

*Only available from 71 to 132 Frame ** Only 160 to 250 Frame have removable feet , other frame sizes have integrally cast feet.

ADDITIONAL PRODUCTS

(Detailed catalogues available)



Variable Speed Drives
(0.4kW – 630kW)



Electronic Soft Starters
(7.5kW – 3MW)



Large Drives/Drive Systems

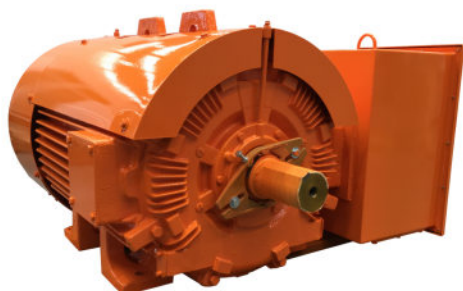


Protection Relay

After Sales Service
Plant Maintenance & Monitoring
Asset Management
Plant Alliance Management



Microwave Density Meter



Heavy Duty Motor



Explosion Protected Motor



High Voltage AC Motor

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