CKMS-0701

TOSHIBA

Leading Innovation

TOSHIBA
3PHASE INDUCTION MOTOR

For Industrial General Purpose

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TOSHIBA THREE PHASE INDUCTION MOTOR

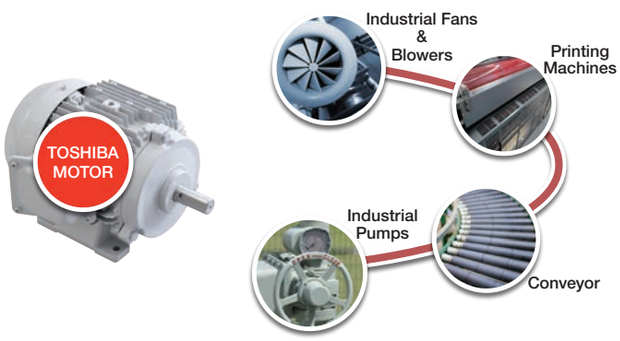
General Information

Improved Insulation for VSD operation

Toshiba Motor is improved insulation, that can be driven by Variable Speed Drive.
It makes your operation more flexible and efficient.

* Motors used with Variable Speed Drives
  The peak voltage at the motor terminals should not exceed the limits defined in IEC 60034-17.
  When a motor is used with a variable speed controller, a dv/dt filter can be installed on the output side of the variable speed controller to mitigate the possible harmful effects of non-sinusoidal supply on the motor.

Suitable for various application

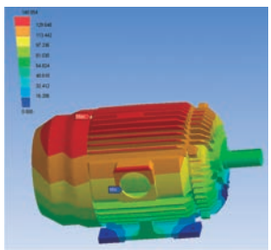


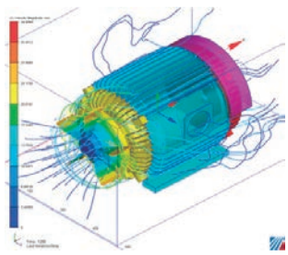
Reliable Bearing Maker

Toshiba choose bearings which manufactured by reliable Japanese and EU makers.That makes motor life time longer.

Innovated design for Energy Efficiency

Toshiba Motor is the innovated high reliance motor, which can reduces energy consumption, running cost and noise by Toshiba high technology development and Designing.
As a result of applying the latest 3D (Three Dimensional)-CAD through the design process, both size and weight reductions are achieved while the reliability is still maintained.


Mechanical strength and thermal distribution analysis


Optimum design of fan and cooling effect

Lower Noise

The innovated technology and our the pursuit of thorough occurrence factor could achieve to produce lower noise motor.

Type - Form

T*	I	K	K

- T: Three Phase
- I: Induction-motor
- K: Squirrel-cage rotor
- D: Double squirrel-cageType

*NOTE: “T” is omitted for motors rated 11kW or less.

F	C	K	L	A	W	21	*S

- F: Totally-enclosed fan-cooled type
- B: Belt drive
  C: Direct drive
- K: Rolling bearing
- L: Flange Type
- A: Aluminum diecast frame
  K: Steel Plate frame
  None: Cast iron frame
- W: Outdoor use
- 8: World Energy Series 8
  21: World Energy Series 21
- *S: Improved Insulation type for VSD

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Motor Standard

International Standard

Toshiba Motors are complied IEC Standard. The following table can show you the comparison between other standards.

Item	IEC	JIS	NEMA	Britain	Australia
Performance	IEC 60034-12	JIS C 4210	NEMA MGI-12	BS 4999-41	AS 1359-10
Dimension	IEC 60072	JIS C 4210 JEM 1400	NEMA MGI-11	BS 4999-10	AS 1360-10
Frame size	-	JEM 1400	NEMA MGI-13	BS 5000-10	AS 1360-10
Test	IEC 60034-1	JIS C 4210 JEC-2137	IEEE 112A	BS 4999-60	AS 1359-60

Mounting Type

Toshiba Standard Mounting type is IMB3 (Foot Mounted) IMB5 (Flange Mounted), and IMV1 (Flange Mounted)

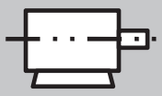
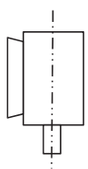
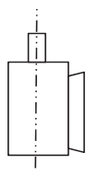
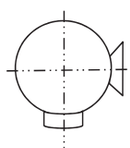
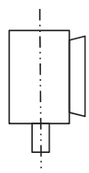
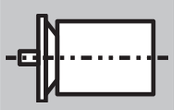
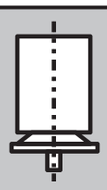
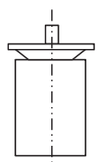
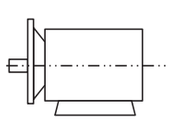
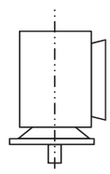
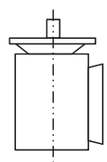
Diagram	 Standard				
IEC	IMB3	IMV5	IMV6	IMB6/IMB7	IMB8

Diagram	 Standard	 Standard				
IEC	IMB5	IMV1	IMV3	IMB35	IMV15	IMV36

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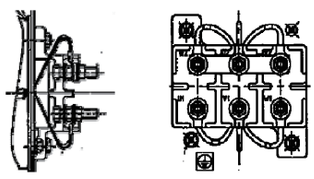
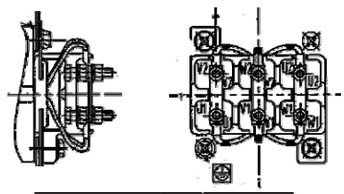
Standard Specifications

Item		Specifications
Voltage Frequency		For Frame size 160L and Less: 220/380/415V - 50Hz / (Above 132S~160L: 380/660V - 50Hz also available)
		For Frame size 180M and above: 380/660V - 50Hz
Enclosure		Totally Enclosed Fan-Cooled Foot Mounted IM B3 and IM V1 (Non-Explosion Proof)
Degree of Protection		IP55
Insulation Class		Class F
Time Rating		S1 (Continuous)
Direction of Rotation		CCW (Counter Clockwise) viewed from shaft-end side
Frame Material		Frame size 71 and 80M Steel
		Frame size 90L~160L: Aluminum
		Fram size 180M and above: Cast Iron
Ambient condition	Ambient Tempreture	-15 ~ 40°C
	Ambient Humidity	90% or Less
	Above Sea Level	1000m or Less
	Environment	No bursting erosive gas or vapor
Coating Color		Munsell N7
Standard		IEC 60034-1 / IEC 60034-5
Lead Wire Connection		6 lead wires with Terminal block
Connection Diagram		For 220V-Δ / 380/415V-Y Direct on Line (Frame size: 71M~160L)



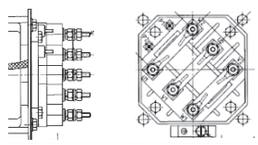
220V Δ			380V Y		
W2	U2	V2	W2 - U2 - V2		
↓	↓	↓			
U1 -	V1 -	W1	U1 -	V1 -	W1
↓	↓	↓	↓	↓	↓
L1	L2	L3	L1	L2	L3

For 380V-Δ / 660V-Y Direct on Line (Frame size: 132S~160L)



380V Δ			660V Y		
W2	U2	V2	W2 - U2 - V2		
↓	↓	↓			
U1 -	V1 -	W1	U1 -	V1 -	W1
↓	↓	↓	↓	↓	↓
L1	L2	L3	L1	L2	L3

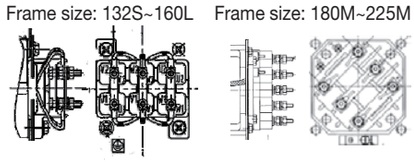
For 380V-Δ / 660V-Y Direct on Line (Frame size: 180ML~225ML)

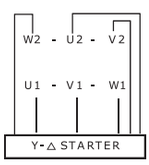


380V Δ			660V Y		
W2	U2	V2	W2 - U2 - V2		
↓	↓	↓			
U1 -	V1 -	W1	U1 -	V1 -	W1
↓	↓	↓	↓	↓	↓
L1	L2	L3	L1	L2	L3

For 380V - Y-Δ starting (Frame size: 132S~225M)

Frame size: 132S~160L Frame size: 180M~225M





380V					
START Y			RUN Δ		
W2 -	U2 -	V2	W2	U2	V2
			↓	↓	↓
U1 -	V1 -	W1	U1 -	V1 -	W1
↓	↓	↓	↓	↓	↓
L1	L2	L3	L1	L2	L3

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Characteristics and Performance Data: 2 Pole

0.37kW~4.0kW

Rated Output		Frame No.	Hz	Volts	Full Load Current	Full Load Speed	No Load Current	Locked Rotor Current	Locked Rotor Torque	Pull Up Torque	Break Down Torque	Efficiency (%)			Power Factor			Rotor Inertia J	Noise SPL
kW	HP				A	min^{-1}	A	% F/L	% F/L	% F/L	% F/L	Full Load	75% Load	50% Load	Full Load	75% Load	50% Load	$kg \cdot m^2$	dB (A)
0.37	0.5	71M	50	220	1.65	2800	0.83	550	220	210	220	71.0	72.0	68.0	87.0	79.0	66.0	0.00057	61
				380	0.95	2800	0.48	550	220	210	220	71.0	72.0	68.0	87.0	79.0	66.0		
				415	0.92	2830	0.57	600	260	250	260	72.0	71.0	66.0	82.5	71.0	58.0		
0.55	0.75	71M	50	220	2.20	2820	1.10	650	280	265	270	76.0	76.0	73.0	88.0	81.0	70.0	0.00070	61
				380	1.27	2820	0.64	650	280	265	270	76.0	76.0	73.0	88.0	81.0	70.0		
				415	1.27	2840	0.90	700	330	315	320	76.0	75.0	69.0	79.0	72.0	60.0		
0.75	1	80M	50	220	3.00	2840	1.30	600	200	190	240	75.0	76.0	75.0	88.0	82.0	72.0	0.00105	69
				380	1.73	2840	0.75	600	200	190	240	75.0	76.0	75.0	88.0	82.0	72.0		
				415	1.73	2860	0.94	650	238	226	286	75.0	74.5	71.0	82.0	75.0	62.0		
1.1	1.5	80M	50	220	4.40	2830	2.30	700	250	238	300	79.0	79.0	78.5	84.0	79.0	68.0	0.00152	63
				380	2.54	2830	1.33	700	250	238	300	79.0	79.0	78.5	84.0	79.0	68.0		
				415	2.54	2860	1.90	780	298	283	358	79.0	79.0	75.0	78.0	70.0	59.0		
1.5	2	90L	50	220	5.90	2800	2.34	600	185	180	215	78.0	79.0	78.0	89.0	84.0	75.0	0.00152	64
				380	3.40	2800	1.35	600	185	180	215	78.0	79.0	78.0	89.0	84.0	75.0		
				415	3.20	2830	1.80	700	220	215	255	79.0	79.0	77.0	84.5	76.0	63.0		
2.2	3	90L	50	220	8.20	2810	3.30	740	230	225	235	80.0	81.0	80.0	89.0	85.0	75.0	0.00208	64
				380	4.70	2810	1.90	740	230	225	235	80.0	81.0	80.0	89.0	85.0	75.0		
				415	4.60	2830	2.56	820	270	265	280	81.0	81.0	79.0	83.5	75.0	62.0		
3	4	112M	50	220	10.6	2830	3.50	820	295	265	280	82.0	81.0	80.0	91.0	87.0	79.0	0.00375	70
				380	6.10	2830	2.02	820	295	265	280	82.0	81.0	80.0	91.0	87.0	79.0		
				415	5.90	2860	2.70	940	350	315	330	83.0	80.5	78.0	86.0	79.0	68.0		
4	5	112M	50	220	14.2	2820	5.00	690	250	225	240	83.0	84.0	83.0	89.5	85.5	77.0	0.00375	70
				380	8.20	2820	2.90	690	250	225	240	83.0	84.0	83.0	89.5	85.5	77.0		
				415	8.00	2840	4.00	770	295	265	285	84.0	83.0	81.5	84.5	76.5	64.0		

The above characteristics and performance are design data, and are not guaranteed.
Noise SPL measured at Less than 1kW: 0.5m / 1kW and larger: 1m at no load

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Characteristics and Performance Data: 2 Pole

5.5kW~45kW

Rated Output		Frame No.	Hz	Volts	Full Load Current	Full Load Speed	No Load Current	Locked Rotor Current	Locked Rotor Torque	Pull Up Torque	Break Down Torque	Efficiency (%)			Power Factor			Rotor Inertia J	Noise SPL
kW	HP				A	min^{-1}	A	% F/L	% F/L	% F/L	% F/L	Full Load	75% Load	50% Load	Full Load	75% Load	50% Load	$kg \cdot m^2$	dB (A)
5.5	7.5	132S	50	220	18.8	2890	6.34	830	235	225	295	85.0	84.0	81.5	90.5	86.0	78.5	0.00803	72
				380	10.9	2890	3.66	830	235	225	295	85.0	84.0	81.5	90.5	86.0	78.5		
				415	10.5	2920	4.50	940	280	265	350	85.5	84.5	81.5	85.5	83.0	75.0		
7.5	10	132S	50	220	24.8	2890	7.62	930	315	295	345	87.0	86.0	85.0	91.0	89.0	85.0	0.01050	72
				380	14.3	2890	4.40	930	315	295	345	87.0	86.0	85.0	91.0	89.0	85.0		
				415	13.8	2920	5.80	990	375	350	410	87.5	85.5	83.0	87.0	83.5	76.0		
11	15	160M	50	220	37.0	2880	9.86	680	225	195	255	87.0	86.0	84.0	90.5	89.5	84.5	0.02280	71
				380	21.4	2880	5.70	680	225	195	255	87.0	86.0	84.0	90.5	89.5	84.5		
				415	20.0	2900	7.62	800	265	230	300	87.5	86.0	83.5	87.0	83.0	75.0		
15	20	160M	50	220	49.0	2880	14.0	830	275	240	290	88.5	88.0	87.0	91.0	89.0	83.0	0.03000	71
				380	28.2	2880	8.10	830	275	240	290	88.5	88.0	87.0	91.0	89.0	83.0		
				415	27.0	2900	11.0	940	300	285	345	89.5	88.0	86.0	86.5	82.0	72.0		
18.5	25	160L	50	220	58.2	2900	15.5	920	320	270	310	91.0	90.0	88.0	91.5	88.0	76.0	0.03730	71
				380	33.6	2900	8.95	920	320	270	310	91.0	90.0	88.0	91.5	88.0	76.0		
				415	31.8	2920	11.5	1040	380	322	370	91.5	90.5	88.0	88.5	84.0	74.0		
22	30	180M	50	380	42.5	2930	8.60	610	179	138	271	92.6	93.1	92.5	91.6	90.9	87.4	0.39720	73
				660	24.5	2930	4.97	610	179	138	271	92.7	93.1	92.5	91.6	90.9	87.4		
30	40	200L	50	380	57.0	2940	11.7	790	204	159	327	91.9	92.0	90.9	92.7	91.7	88.0	0.71640	73
				660	33.0	2940	6.76	780	204	159	327	91.9	92.0	90.9	92.7	91.7	87.9		
37	50	200L	50	380	70.0	2940	14.3	770	215	169	337	92.9	93.2	92.4	93.1	92.0	88.2	0.88840	73
				660	40.5	2940	8.26	760	215	169	337	93.0	93.2	92.4	93.1	92.0	88.2		
45	60	225M	50	380	85.0	2940	17.0	760	194	121	332	93.2	93.2	92.3	92.7	91.7	88.1	1.18320	83
				660	49.0	2940	9.80	760	194	121	332	93.2	93.3	92.3	92.6	91.7	88.1		

The above characteristics and performance are design data, and are not guaranteed.
Noise SPL measured at Less than 1kW: 0.5m / 1kW and larger: 1m at no load

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Characteristics and Performance Data: 4 Pole

0.37kW~4.0kW

Rated Output		Frame No.	Hz	Volts	Full Load Current	Full Load Speed	No Load Current	Locked Rotor Current	Locked Rotor Torque	Pull Up Torque	Break Down Torque	Efficiency (%)			Power Factor			Rotor Inertia J	Noise SPL
kW	HP				A	min^{-1}	A	% F/L	% F/L	% F/L	% F/L	Full Load	75% Load	50% Load	Full Load	75% Load	50% Load	$kg \cdot m^2$	dB (A)
0.37	0.5	71M	50	220	1.94	1400	1.53	530	290	275	300	71.0	70.0	66.5	71.0	61.0	48.0	0.00120	50
				380	1.12	1400	0.88	530	290	275	300	71.0	70.0	66.5	71.0	61.0	48.0		
				415	1.22	1410	1.10	560	345	325	355	71.5	70.0	64.0	62.0	52.0	40.0		
0.55	0.75	80M	50	220	2.50	1410	1.64	560	235	220	250	75.0	74.0	72.0	78.5	70.0	56.5	0.00273	52
				380	1.45	1410	0.95	560	235	220	250	75.0	74.0	72.0	78.5	70.0	56.5		
				415	1.40	1420	1.05	640	280	250	295	75.5	74.5	70.0	73.0	63.0	49.0		
0.75	1	80M	50	220	3.50	1410	2.40	590	280	265	285	76.5	77.0	75.0	76.5	66.5	52.0	0.00273	52
				380	2.00	1410	1.39	590	280	265	285	76.5	77.0	75.0	76.5	66.5	52.0		
				415	2.05	1420	1.62	630	330	315	340	76.0	75.0	70.0	69.5	58.0	44.0		
1.1	1.5	90L	50	220	4.30	1410	2.06	680	185	170	225	78.0	77.0	75.0	85.5	78.5	65.0	0.00400	46
				380	2.48	1410	1.19	680	185	170	225	78.0	77.0	75.0	85.5	78.5	65.0		
				415	2.48	1420	1.54	740	220	200	265	78.0	77.0	74.0	79.0	70.0	56.0		
1.5	2	90L	50	220	6.20	1410	3.30	580	175	160	210	77.0	79.0	78.0	84.0	77.0	64.0	0.00400	46
				380	3.58	1410	1.90	580	175	160	210	77.0	79.0	78.0	84.0	77.0	64.0		
				415	3.60	1415	2.50	620	205	190	250	78.0	78.0	75.0	76.5	67.0	52.0		
2.2	3	100L	50	220	8.70	1410	4.60	650	205	185	230	80.0	81.5	81.0	83.5	75.0	62.0	0.00595	46
				380	5.00	1410	2.66	650	205	185	230	80.0	81.5	81.0	83.5	75.0	62.0		
				415	5.00	1420	3.45	720	245	220	270	80.5	80.0	78.0	76.5	65.0	50.0		
3	4	112M	50	220	11.5	1410	5.20	750	260	250	310	81.0	80.5	79.0	86.0	80.0	69.0	0.00783	57
				380	6.64	1410	3.00	750	260	250	310	81.0	80.5	79.0	86.0	80.0	69.0		
				415	6.60	1420	3.95	830	310	295	365	81.0	80.5	79.0	79.0	70.0	56.0		
4	5	112M	50	220	15.4	1400	7.60	700	245	235	295	81.0	82.5	82.0	85.0	78.0	66.0	0.00851	57
				380	8.90	1400	4.39	700	245	235	295	81.0	82.5	82.0	85.0	78.0	66.0		
				415	8.70	1415	5.82	760	290	280	350	81.5	82.0	80.5	78.5	69.0	55.0		

The above characteristics and performance are design data, and are not guaranteed.
Noise SPL measured at Less than 1kW: 0.5m / 1kW and larger: 1m at no load

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Characteristics and Performance Data: 4 Pole

5.5kW~45kW

Rated Output		Frame No.	Hz	Volts	Full Load Current	Full Load Speed	No Load Current	Locked Rotor Current	Locked Rotor Torque	Pull Up Torque	Break Down Torque	Efficiency (%)			Power Factor			Rotor Inertia J	Noise SPL
kW	HP				A	min^{-1}	A	% F/L	% F/L	% F/L	% F/L	Full Load	75% Load	50% Load	Full Load	75% Load	50% Load	$kg \cdot m^2$	dB (A)
5.5	7.5	132S	50	220	20.4	1430	9.00	660	200	195	275	85.0	86.0	85.0	85.0	80.0	69.0	0.02018	60
				380	11.8	1430	5.20	660	200	195	275	85.0	86.0	85.0	85.0	80.0	69.0		
				415	11.6	1440	7.00	730	235	230	325	85.0	85.0	84.0	78.5	70.0	56.0		
7.5	10	132M	50	220	27.0	1430	12.0	700	210	200	290	87.0	87.0	86.0	85.0	81.0	71.0	0.02665	60
				380	15.6	1430	6.90	700	210	200	290	87.0	87.0	86.0	85.0	81.0	71.0		
				415	15.4	1440	9.40	780	250	235	345	86.0	85.0	84.0	79.5	72.0	59.0		
11	15	160M	50	220	39.2	1440	13.4	660	205	185	280	87.5	88.0	87.0	85.0	83.0	76.0	0.04525	63
				380	22.6	1440	7.75	660	205	185	280	87.5	88.0	87.0	85.0	83.0	76.0		
				415	21.2	1455	9.88	770	240	220	330	88.0	88.0	86.0	82.0	77.0	66.0		
15	20	160L	50	220	52.0	1440	17.3	790	245	205	265	88.0	89.0	88.0	86.0	83.5	76.0	0.06025	63
				380	30.0	1440	10.0	790	245	205	265	88.0	89.0	88.0	86.0	83.5	76.0		
				415	28.5	1455	13.1	930	290	240	315	88.5	89.0	87.0	83.0	78.0	67.0		
18.5	25	180M	50	380	37.0	1450	11.0	690	216	136	276	91.8	92.5	92.3	87.9	85.5	78.4	0.62480	65
				660	21.5	1450	6.35	680	216	136	276	91.8	92.5	92.3	87.9	85.4	78.3		
22	30	180L	50	380	44.0	1450	14.2	610	202	121	258	92.4	92.9	92.5	86.9	84.1	76.3	0.69400	67
				660	25.5	1450	8.20	610	202	121	258	92.4	92.9	92.5	87.0	84.1	76.3		
30	40	200L	50	380	60.0	1460	17.7	710	270	140	327	92.4	92.7	91.9	88.1	85.6	78.4	1.23040	71
				660	34.5	1460	10.2	720	270	140	327	92.4	92.7	91.9	88.2	85.6	78.4		
37	50	225S	50	380	72.0	1460	20.5	690	221	127	279	93.2	93.6	93.2	88.5	86.3	79.8	1.81880	65
				660	41.5	1460	11.8	700	221	127	279	93.3	93.7	93.2	88.5	86.3	79.8		
45	60	225M	50	380	88.0	1460	25.0	680	236	132	283	93.2	93.7	93.2	88.3	86.0	79.4	2.03560	72
				660	51.0	1460	14.4	680	236	132	283	93.3	93.7	93.3	88.3	86.1	79.4		

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Noise SPL measured at Less than 1kW: 0.5m / 1kW and larger: 1m at no load

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Characteristics and Performance Data: 6 Pole

0.37kW~2.2kW

Rated Output		Frame No.	Hz	Volts	Full Load Current	Full Load Speed	No Load Current	Locked Rotor Current	Locked Rotor Torque	Pull Up Torque	Break Down Torque	Efficiency (%)			Power Factor			Rotor Inertia J	Noise SPL
kW	HP				A	min^{-1}	A	% F/L	% F/L	% F/L	% F/L	Full Load	75% Load	50% Load	Full Load	75% Load	50% Load	$kg \cdot m^2$	dB (A)
0.37	0.5	80M	50	220	2.05	920	1.65	500	270	260	285	70.0	67.0	61.0	68.0	59.0	48.0	0.00305	51
				380	1.18	920	0.95	500	270	260	285	70.0	67.0	61.0	68.0	59.0	48.0		
				415	1.21	930	1.12	530	320	310	340	68.0	65.0	58.0	61.0	54.0	40.0		
0.55	0.75	80M	50	220	3.00	930	2.41	540	250	240	280	73.0	71.5	66.0	66.0	56.0	44.0	0.04270	51
				380	1.73	930	1.39	540	250	240	280	73.0	71.5	66.0	66.0	56.0	44.0		
				415	1.85	940	1.65	560	298	286	334	71.0	69.0	63.5	57.5	47.0	36.0		
0.75	1	90L	50	220	3.60	910	2.40	460	205	200	215	71.0	70.5	67.5	78.0	67.0	53.0	0.00428	46
				380	2.08	910	1.39	460	205	200	215	71.0	70.5	67.5	78.0	67.0	53.0		
				415	2.02	920	1.60	490	240	235	255	72.0	71.0	65.0	71.5	61.0	46.0		
1.1	1.5	100L	50	220	5.00	910	3.20	500	260	245	250	74.0	72.0	70.0	78.5	68.0	53.0	0.00670	44
				380	2.90	910	1.84	500	260	245	250	74.0	72.0	70.0	78.5	68.0	53.0		
				415	2.80	920	2.10	540	310	290	295	75.0	73.0	70.0	73.0	60.0	46.0		
1.5	2	100L	50	220	6.80	900	4.55	530	250	240	250	74.0	73.0	70.0	78.5	69.5	56.0	0.00670	44
				380	3.93	900	2.63	530	250	240	250	74.0	73.0	70.0	78.5	69.5	56.0		
				415	4.00	910	3.26	550	295	285	295	74.0	73.0	70.0	70.0	60.0	46.0		
2.2	3	112M	50	220	9.20	920	4.70	540	175	165	205	78.0	77.5	76.0	81.0	74.0	60.0	0.01048	48
				380	5.30	920	2.70	540	175	165	205	78.0	77.5	76.0	81.0	74.0	60.0		
				415	5.20	930	3.30	600	205	195	240	78.5	77.0	76.5	75.5	68.0	56.0		

The above characteristics and performance are design data, and are not guaranteed.
Noise SPL measured at Less than 1kW: 0.5m / 1kW and larger: 1m at no load

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Characteristics and Performance Data: 6 Pole

3kW~30kW

Rated Output		Frame No.	Hz	Volts	Full Load Current	Full Load Speed	No Load Current	Locked Rotor Current	Locked Rotor Torque	Pull Up Torque	Break Down Torque	Efficiency (%)			Power Factor			Rotor Inertia J	Noise SPL
kW	HP				A	min^{-1}	A	% F/L	% F/L	% F/L	% F/L	Full Load	75% Load	50% Load	Full Load	75% Load	50% Load	$kg \cdot m^2$	dB (A)
3	4	132S	50	220	12.2	930	6.37	700	225	200	265	81.0	80.0	79.0	80.5	71.0	58.0	0.02650	52
				380	7.05	930	3.68	700	225	200	265	81.0	80.0	79.0	80.5	71.0	58.0		
				415	6.80	940	4.10	800	265	235	315	82.0	81.0	80.0	76.0	70.0	55.0		
4	5	132S	50	220	16.0	930	8.21	710	230	205	260	81.0	81.0	78.5	81.0	72.5	60.0	0.02650	52
				380	9.20	930	4.75	710	230	205	260	81.0	81.0	78.5	81.0	72.5	60.0		
				415	9.40	940	6.10	760	270	240	310	81.0	81.0	79.0	73.5	66.5	56.0		
5.5	7.5	132M	50	220	21.0	940	9.60	690	220	190	260	84.0	83.0	82.0	82.5	76.0	66.0	0.03300	55
				380	12.1	940	5.55	690	220	225	260	84.0	83.0	82.0	82.5	76.0	66.0		
				415	12.0	950	6.90	760	260	225	310	84.5	83.5	82.5	77.0	71.0	60.0		
7.5	10	160M	50	220	28.0	960	14.9	790	240	220	310	87.0	86.5	85.0	80.5	74.0	62.0	0.05850	56
				380	16.2	960	8.60	790	240	220	310	87.0	86.5	85.0	80.5	74.0	62.0		
				415	16.4	970	10.7	860	285	260	365	87.0	86.5	85.0	74.0	67.0	55.0		
11	15	160L	50	220	40.2	960	19.6	750	240	220	350	87.0	86.5	85.0	83.0	78.0	67.5	0.08225	56
				380	23.2	960	11.4	750	240	220	350	87.0	86.5	85.0	83.0	78.0	67.5		
				415	22.6	970	13.2	850	285	260	417	87.0	86.5	84.5	78.0	71.0	60.0		
15	20	180L	50	380	32.0	975	13.2	730	225	172	330	88.1	88.2	86.5	81.0	78.5	68.0	1.0708	83
				660	18.5	975	7.62	730	225	172	330	88.1	88.2	86.5	81.0	78.5	68.0		
18.5	25	200L	50	380	39.0	975	16.1	710	217	160	329	89.0	88.5	87.0	82.0	77.5	66.5	1.2316	84
				660	22.5	975	9.30	710	217	160	329	89.0	88.5	87.0	82.0	77.5	66.5		
22	30	200L	50	380	46.0	970	18.1	700	218	172	319	89.8	89.7	88.0	82.5	79.5	69.5	1.50520	84
				660	26.6	970	10.5	700	218	172	319	89.8	89.7	88.0	82.5	79.5	69.5		
30	40	225M	50	380	60.5	980	23.2	820	238	192	346	91.0	89.5	87.4	84.0	80.5	71.0	2.63400	86
				660	35.0	980	13.4	820	238	192	346	91.0	89.5	87.4	84.0	80.5	71.0		

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Noise SPL measured at Less than 1kW: 0.5m / 1kW and larger: 1m at no load

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Characteristics & Performance Data at 60Hz operation

Pole	Rated Output		Voltage (V)	Frequency (Hz)	Frame No	Current (A)		Speed (min^{-1})		Efficiency (%)		Power Factor (%)	
	kW	HP				220V	440V	220V	440V	220V	440V	220V	440V
2	0.37	0.5	220/380/415	60	71M	1.60	0.85	3400	3420	69.5	72.0	88.0	82.0
	0.75	1			80M	3.00	1.50	3460	3480	74.5	76.5	91.0	86.0
	1.5	2			90L	5.60	2.80	3420	3430	79.0	80.0	90.0	88.5
	2.2	3			90L	7.90	4.00	3430	3440	81.0	83.0	91.0	88.0
	4	5			112M	13.7	6.90	3420	3430	82.5	84.0	93.0	91.0
	5.5	7.5			132S	18.6	9.40	3460	3480	84.4	85.8	93.0	90.0
	7.5	10			132S	24.6	12.4	3500	3510	87.0	88.5	92.0	87.0
	11	15			160M	36.0	18.1	3490	3500	87.0	88.3	93.0	90.5
	15	20			160M	48.0	24.0	3500	3520	89.5	90.4	93.5	91.0
	18.5	25			160L	59.0	29.5	3500	3500	90.2	90.2	92.0	92.0
	22	30	380/660		180M	-	36.0	-	3530	-	89.6	-	91.0
	30	40			200L	-	48.0	-	3540	-	90.7	-	92.0
	37	50			200L	-	59.0	-	3550	-	91.9	-	90.5
	45	60			200L	-	72.0	-	3550	-	92.0	-	90.0
4	0.37	0.5	220/380/415	60	71M	1.80	1.00	1700	1720	74.0	73.0	75.5	69.0
	0.75	1			80M	3.20	1.70	1720	1730	77.0	79.5	82.0	75.0
	1.5	2			90L	5.70	3.00	1700	1720	79.0	81.5	88.0	81.0
	2.2	3			100L	8.00	4.30	1700	1720	81.4	82.2	89.0	82.0
	4	5			112M	14.7	7.90	1710	1720	82.5	84.0	87.0	80.0
	5.5	7.5			132S	20.0	10.0	1720	1740	86.0	87.7	85.5	82.5
	7.5	10			132M	27.0	13.6	1730	1740	87.6	88.0	85.0	82.5
	11	15			160M	37.4	18.8	1730	1740	88.8	90.0	87.0	86.0
	15	20			160L	50.6	25.8	1730	1740	90.0	91.0	88.5	85.0
	18.5	25	380/660		180M	-	31.0	-	1750	-	90.8	-	87.0
	22	30			180L	-	37.0	-	1750	-	91.4	-	86.0
	30	40			200L	-	50.0	-	1760	-	92.0	-	86.5
	37	50			225S	-	61.0	-	1760	-	92.3	-	87.5
	45	60			225M	-	77.0	-	1770	-	92.4	-	84.0
6	0.37	0.5	220/380/415	60	80M	2.20	1.10	1120	1120	71.2	71.2	63.5	63.5
	0.75	1			90L	3.60	1.80	1120	1120	75.0	75.0	73.5	73.5
	1.5	2			100L	7.20	3.60	1120	1120	77.5	77.5	74.0	74.0
	2.2	3			112M	9.20	4.60	1130	1130	79.2	79.2	80.0	80.0
	4	5			132S	15.8	7.90	1140	1140	84.3	84.3	81.0	81.0
	5.5	7.5			132M	21.0	10.5	1150	1150	85.6	85.6	81.5	81.5
	7.5	10			160M	28.8	14.4	1160	1160	87.0	87.0	81.0	81.0
	11	15			160L	41.0	20.5	1160	1160	89.4	89.4	81.5	81.5
	15	20	380/660		180L	-	27.0	-	1170	-	90.0	-	81.5
	18.5	25			200L	-	33.0	-	1170	-	90.4	-	82.5
	22	30			200L	-	39.0	-	1175	-	91.5	-	82.5
	30	40			225M	-	52.0	-	1175	-	92.0	-	84.5

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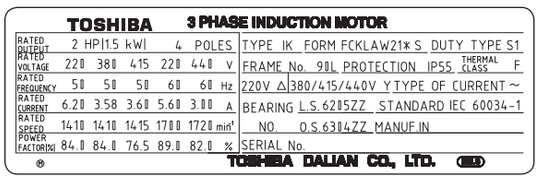
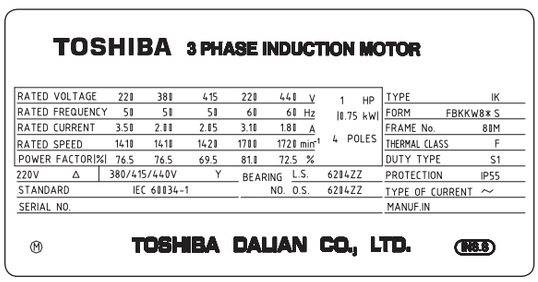
Mechanical Design

Name Plate Information

- RATED OUTPUT HP (kW)
- RATED VOLTAGE
- RATED FREQUENCY
- RATED CURRENT
- RATED SPEED
- POWER FACTOR
- EFFICIENCY
- MAXIMUM AMBIENT TEMPRETURE
- STANDARD
- SERIAL NO
- TYPE AND FORM
- FRAME NO.
- THERMAL. CLASS
- DUTY TYPE
- PROTECTION OF DEGREE
- TYPE OF CURRENT
- CONNECTION
- BEARING NO (LS/OS)
- MANUFACTUING YEAR





Terminal Box

Frame Size	Protection of Degree	Rotation of terminal box	Terminal box material	Terminal bus	Conduct Hole Size (mm^2)
71M	IP55	4 x 90°	Steel	M4	ϕ18
80M	IP55	4 x 90°	Steel	M4	ϕ18
90L	IP55	4 x 90°	Steel	M4	ϕ18
100L	IP55	4 x 90°	Steel	M4	ϕ18
112M	IP55	4 x 90°	Steel	M4	ϕ18
132S	IP55	4 x 90°	Steel	M5	ϕ32
132M	IP55	4 x 90°	Steel	M5	ϕ32
160M	IP55	4 x 90°	Steel	M5	ϕ32
160L	IP55	4 x 90°	Steel	M5	ϕ32
180M	IP55	4 x 90°	Steel	M6	ϕ24
180L	IP55	4 x 90°	Steel	M6	ϕ24
200L	IP55	4 x 90°	Steel	M8	ϕ28
225S	IP55	4 x 90°	Steel	M8	ϕ28
225M	IP55	4 x 90°	Steel	M8	ϕ28

Vibration

mm/sec (RMS)

Frame No.	2 Pole	4 Pole
71M	1.6	1.6
80M	1.6	1.6
90L	1.6	1.6
100L	1.6	1.6
112M	1.6	1.6
132S	1.6	1.6
132M	1.6	1.6
160M	2.2	2.2
160L	2.2	2.2
180M	2.2	2.2
180L	2.2	2.2
200L	2.2	2.2
225S	2.2	2.2
225M	2.2	2.2

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Outline Dimension

Fig. 1

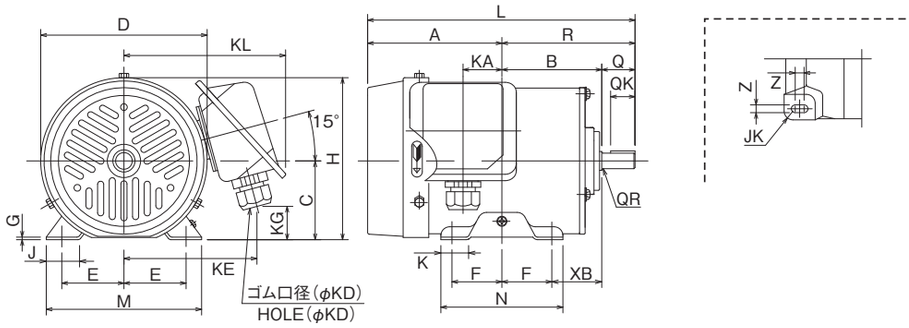
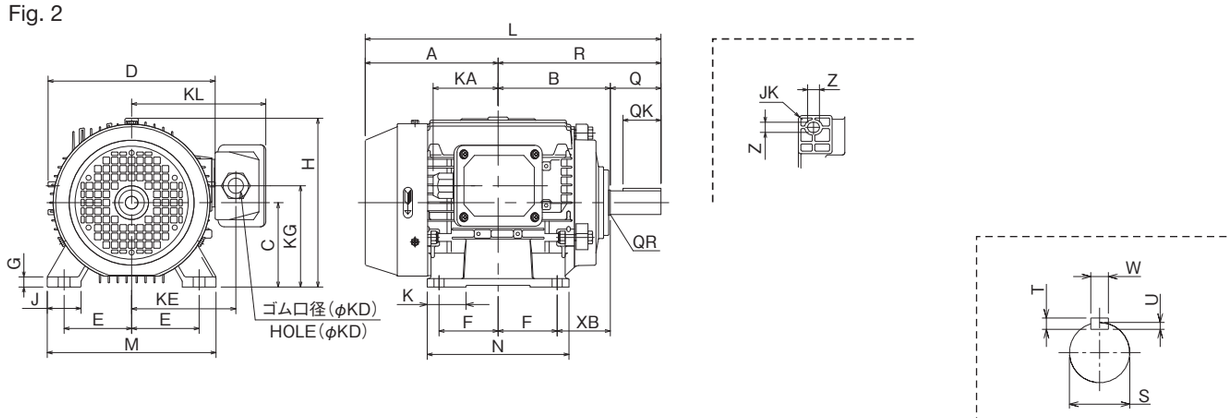


Fig. 2



Foot Mount (Frame No.71M~100L)

Frame No	Output (kW)			Insulation Class	Fig No	Dimension (mm)																		
	2P	4P	6P			A	B	C	D	E	F	G	H	I	J	K	L	M	N	R	Z	XB	O	JK
71M	0.37	0.37	-	F	1	121	90	71	150	56	45	2.3	146	-	30	25	241	140	110	120	7x8	-	-	8
	0.55	-	-	F	1	121	90	71	150	56	45	2.3	146	-	30	25	241	140	110	120	7x8	-	-	8
80M	0.75	0.55	0.37	F	1	133	100	80	170	62.5	50	4.5	165	-	35	30	273	165	130	140	8x10	50	-	8
	1.1	0.75	0.55	F	1	133	100	80	170	62.5	50	4.5	165	-	35	30	273	165	130	140	8x10	50	-	8
90L	1.5	1.1	0.75	F	2	143	118.5	90	198	70	62.5	10	190	-	40	40	311.5	176	150	168.5	10x12	56	-	5
	-	1.5	-	F	2	143	118.5	90	198	70	62.5	10	190	-	40	40	311.5	176	150	168.5	10x12	56	-	5
100L	-	2.2	1.1	F	2	157.5	133	100	198	80	70	12	200	-	40	46	350.5	200	168	193	12x14	63	-	5
	-		1.5	F	2	157.5	133	100	198	80	70	12	200	-	40	46	350.5	200	168	193	12x14	63	-	5

Frame No	Dimension (mm)												Bearing No				Approx Weight (kg)		
	Terminal Box					Shaft dimension							2P		4P & Above				
	KA	KD	KE	KG	KL	Q	QK	QR	S	W	T	U	L.S	O.S	L.S	O.S	2P	4P	6P
71M	35	18	125	30	151	30	22	1.3	14	5	5	3	6203	6203	6203	6203	10	12	
80M	27.5	18	130	42	157	40	32	0.5	19	6	6	3.5	6204	6204	6204	6204	14	16	17
90L	77	18	123.5	120	159	50	40	0.5	24	8	7	4	6205	6304	6205	6304	16	16	18
100L	77	18	123.5	120	159	60	45	0.5	28	8	7	4	6206	6304	6206	6304		21	25

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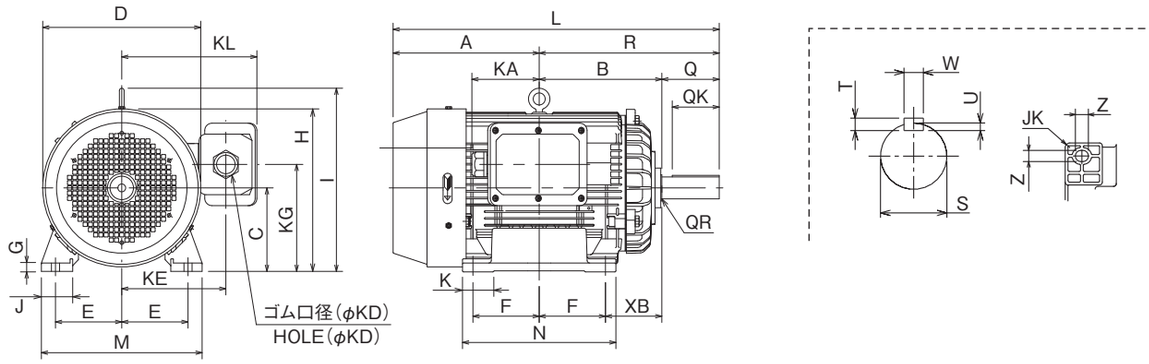
Outline Dimension

Fig. 3



Foot Mount (Frame No.112M~160L)

Frame No	Output (kW)			Insulation Class	Fig No	Dimension (mm)																		
	2P	4P	6P			A	B	C	D	E	F	G	H	I	J	K	L	M	N	R	Z	XB	O	JK
112M	3	3.0	2.2	F	3	186	140	112	214	95	70	12	-	261	40	46	386	220	168	200	12x14	70	-	5
	4	4.0		F	3	186	140	112	214	95	70	12	-	261	40	46	386	220	168	200	12x14	70	-	5
132S	5.5	5.5	3.0	F	3	210.5	159	132	252	108	70	15	-	303	50	50	449.5	260	175	239	12x14	89	-	5
	7.5		4.0	F	3	210.5	159	132	252	108	70	15	-	303	50	50	449.5	260	175	239	12x14	89	-	5
132M		7.5	5.5	F	3	229.5	178	132	252	108	89	15	-	303	50	50	487.5	260	213	258	12x14	89	-	5
160M	11	11	7.5	F	3	302	213	160	304	127	105	18	-	351	60	60	625	308	250	323	14.5x18.5	108	-	5
	15			F	3	302	213	160	304	127	105	18	-	351	60	60	625	308	250	323	14.5x18.5	108	-	5
160L	18.5	15	11	F	3	280	235	160	304	127	127	18	-	351	60	60	625	308	294	345	14.5x18.5	108	-	5

Frame No	Dimension (mm)												Bearing No				Approx Weight (kg)		
	Terminal Box					Shaft dimension							2P		4P & Above				
	KA	KD	KE	KG	KL	Q	QK	QR	S	W	T	U	L.S	O.S	L.S	O.S	2P	4P	6P
112M	77	18	130.5	142	166	60	45	1.5	28	8	7	4	6207	6305	6207	6305	26	27	29
132S	129	32	178.5	167	240	80	63	0.5	38	10	8	5	6308	6306	6308	6306	41	42	54
132M	128	32	178.5	167	240	80	63	0.5	38	10	8	5	6308	6306	6308	6306	43	48	60
160M	128	32	199.5	205	259	110	90	2	42	12	8	5	6310	6208	6310	6208	70	77	88
160L	129	32	199.5	205	259	110	90	2	42	12	8	5	6310	6208	6310	6208	92	92	106

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Outline Dimension

Fig. 4

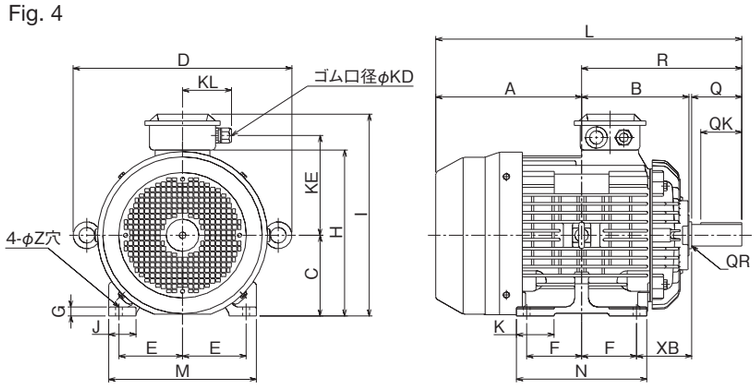
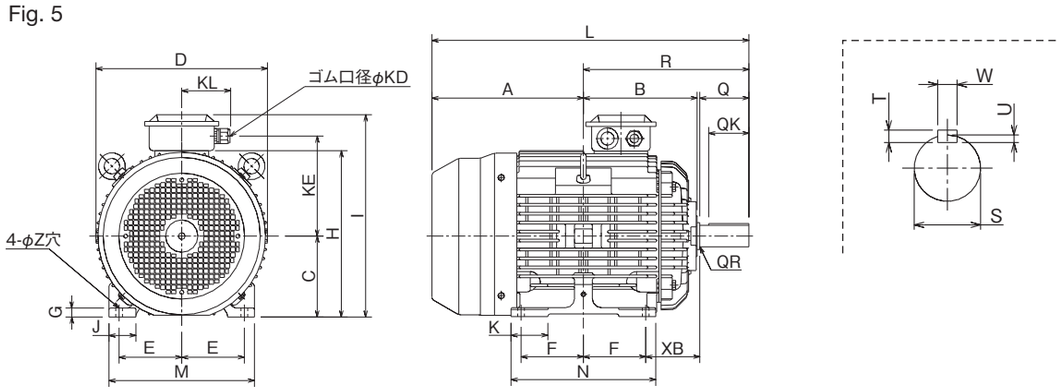


Fig. 5



Foot Mount (Frame No.180M~225SM)

Frame No	Output (kW)			Insulation Class	Fig No	Dimension (mm)																		
	2P	4P	6P			A	B	C	D	E	F	G	H	I	J	K	L	M	N	R	Z	XB	O	JK
180M	22	18.5	-	F	4	320	235.5	180	480	139.5	120.5	20	370	450	60	82.5	671.5	324	286	351.5	14.5	121	-	-
180L	-	22	15	F	5	339	254.5	180	373	139.5	139.5	20	370	450	60	82.5	709.5	324	324	370.5	14.5	121	-	-
200L	30 37	30	18.5 22	F	5	374	279.5	200	407	159	152.5	20	410	511.5	80	80	769.5	378	360	395.5	18.5	133	-	-
225S	-	37	-	F	5	380.5	296	225	464	178	143	22	460	561.5	80	120	825	416	366	444.5	18.5	149	-	-
225M	45	-	-	F	5	380.5	296	225	464	178	155.5	22	460	561.5	80	120	795	416	366	414.5	18.5	149	-	-
225M	-	45	30	F	5	380.5	296	225	464	178	155.5	22	460	561.5	80	120	825	416	366	444.5	18.5	149	-	-

Frame No	Dimension (mm)												Bearing No				Approx Weight (kg)		
	Terminal Box					Shaft dimension							2P		4P & Above				
	KA	KD	KE	KG	KL	Q	QK	QR	S	W	T	U	L.S	O.S	L.S	O.S	2P	4P	6P
180M	-	24	222.5	-	107.5	110	90	1.5	48	14	9	5.5	6310	6210	6310	6210	178	175	175
180L	-	24	222.5	-	-	110	90	1.5	48	14	9	5.5	-	-	6310	6210	-	191	191
200L	-	28	244	-	142.5	110	90	1.5	55	16	10	6	6312	6312	-	-	264	283	253
225S	-	28	269	-	142.5	140	110	1.5	60	18	11	7	-	-	6315	6312	-	314	-
225M	-	28	269	-	142.5	110	90	1.5	55	16	10	6	6312	6312	-	-	314	-	-
225M	-	28	269	-	142.5	140	110	1.5	60	18	11	7	-	-	6315	6312	-	331	335

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Outline Dimension

Fig. 1

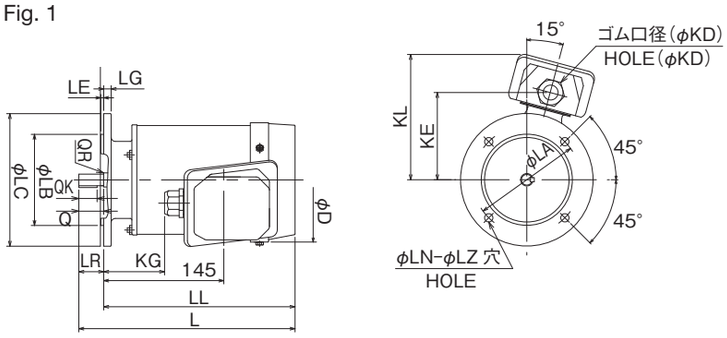
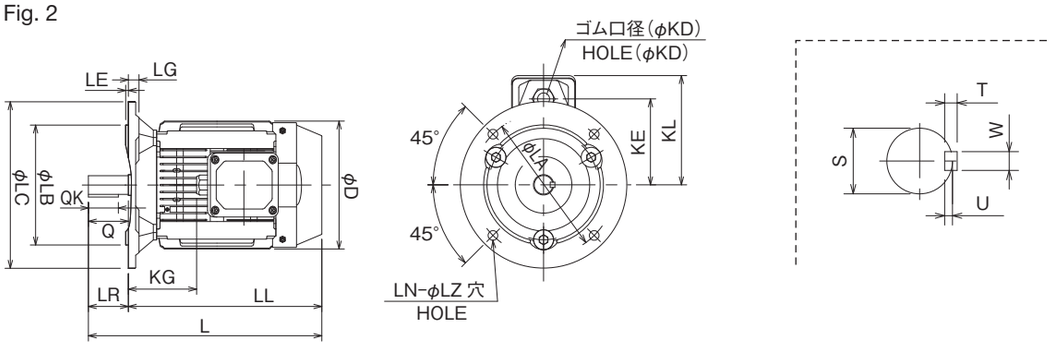


Fig. 2



Flange Mount (Frame No.71M~100L)

Flange No	Output (kW)			Frame No	Insulation Class	Fig No	Dimension (mm)										
							D	IE	IL	L	LL	LR	Terminal Box				
	2P	4P	6P										KA	KD	KE	KL	KG
FF130	0.37 0.55	0.37		71M	F	1	150	-	-	261	231	30	-	18	105	147	73.5
FF165	0.75 1.1	0.55 0.75	0.37 0.55	80M	F	1	170	-	-	273	233	40	-	18	129	159	56.5
FF165	1.5 2.2	1.1 1.5	0.75	90L	F	2	198	-	-	325	275	50	-	18	117.5	153	86.5
FF215	3.0 4.0	2.2	1.1 1.5	100L	F	2	198	-	-	350.5	290.5	60	-	18	117.5	153	102.5

Flange No	Dimension (mm)														Bearing No				Approx Weight (kg)		
	Flange							Shaft dimension							2P		4P & Above				
	LA	LB	LC	LE	LG	LN	LZ	Q	QK	QR	S	W	T	U	L.S	O.S	L.S	O.S	2P	4P	6P
FF130	130	110	160	3.5	9	4	10	30	22	1.3	14	5	5	3	6203	6203	6203	6203	11	12	12
FF165	165	130	200	3.5	10	4	12	40	32	0.5	19	6	6	3.5	6204	6204	6204	6204	16	16	14.4
FF165	165	130	200	3.5	10	4	12	50	40	0.5	24	8	7	4	6205	6304	6205	6304	18	17.5	18
FF215	215	180	250	4	11	4	14.5	60	45	0.5	28	8	7	4	6206	6304	6206	6304	28	23	25

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Outline Dimension

Fig. 3

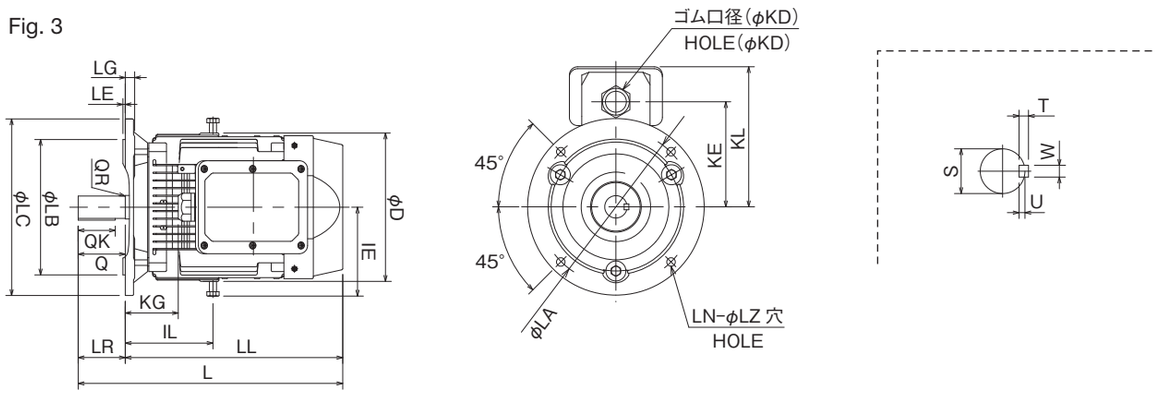
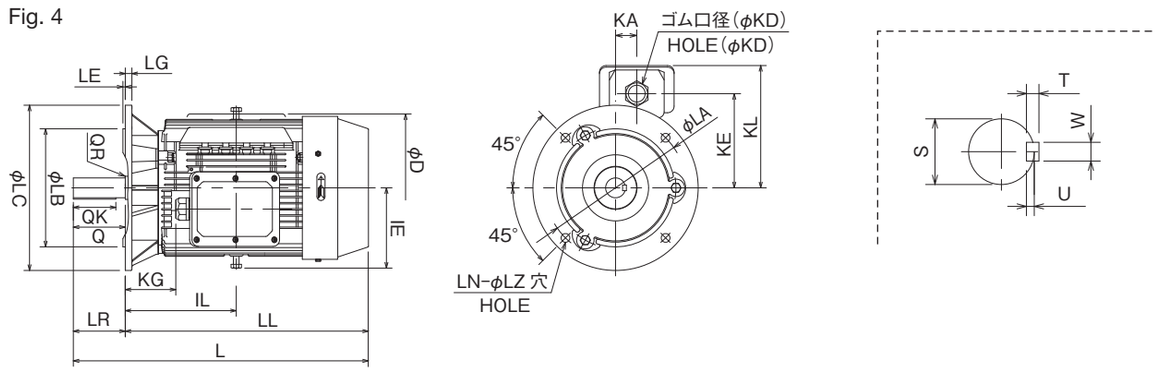


Fig. 4



Flange Mount (Frame No.112M~160L)

Flange No	Output (kW)			Frame No	Insulation Class	Fig No	Dimension (mm)										
							D	IE	IL	L	LL	LR	Terminal Box				
	2P	4P	6P										KA	KD	KE	KL	KG
FF215	5.5 7.5	3.0 4.0	2.2	112M	F	3	214	129	140	386	326	60	-	18	129	164	119.5
FF265		5.5	3 4	132S	F	3	252	151	149	449.5	369.5	80	-	32	178.5	240	90
FF265	11	7.5	5.5	132M	F	3	252	151	178	487.5	407.5	80	-	32	178.5	240	128
FF300	15	11	7.5	160M	F	4	313	170	213	603	493	110	-	32	199.5	259	85
FF300	18.5	15	11	160L	F	4	313	170	235	625	515	110	-	32	199.5	259	107

Flange No	Dimension (mm)														Bearing No				Approx Weight (kg)		
	Flange							Shaft dimension							2P		4P & Above				
	LA	LB	LC	LE	LG	LN	LZ	Q	QK	QR	S	W	T	U	L.S	O.S	L.S	O.S	2P	4P	6P
FF215	215	180	250	4	12	4	14.5	60	45	1.5	28	8	7	4	6207	6305	6207	6305	45	29	29
FF265	265	230	300	4	14	4	14.5	80	63	0.5	38	10	8	5	6308	6306	6308	6306	47	45	54
FF265	265	230	300	4	14	4	14.5	80	63	0.5	38	10	8	5	6308	6306	6308	6306	77	51	60
FF300	300	250	350	5	14	4	18.5	110	90	2	42	12	8	5	6310	6208	6310	6208	89	84	88
FF300	300	250	350	5	14	4	18.5	110	90	2	42	12	8	5	6310	6208	6310	6208	99	99	106

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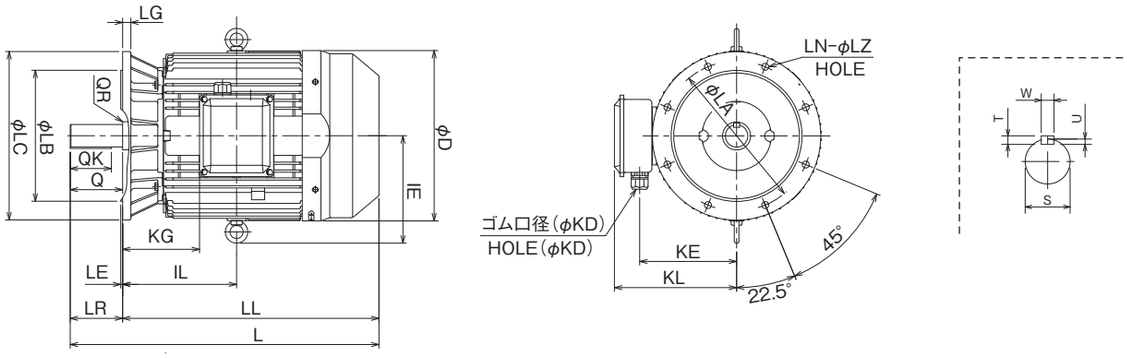
Outline Dimension

Fig. 5



Flange Mount (Frame No.180M~225SM)

Flange No	Output (kW)			Frame No	Insulation Class	Fig No	Dimension (mm)										
							D	IE	IL	L	LL	LR	Terminal Box				
	2P	4P	6P										KA	KD	KE	KL	KG
FF300	22	18.5	-	180M	F	5	373	240	241.5	671.5	561.5	110	-	24	219	266.5	163
FF300	-	22	15	180L	F	5	373	240	260.5	709.5	599.5	110	-	24	219	266.5	182
FF350	30	30	18.5	200L	F	5	410	260	285.5	769.5	659.5	110	-	28	239	306.5	186.5
	37		22														
FF400		37	-	225S	F	5	456	287	304	825	685	140	-	28	259	326.5	205.5
FF400	45	45	30	225M	F	5	456	287	304	825	685	140	-	28	259	326.5	205.5

Flange No	Dimension (mm)														Bearing No				Approx Weight (kg)		
	Flange							Shaft dimension							2P		4P & Above				
	LA	LB	LC	LE	LG	LN	LZ	Q	QK	QR	S	W	T	U	L.S	O.S	L.S	O.S	2P	4P	6P
FF300	300	250	350	5	15	4	18.5	110	90	1.5	48	14	9	5.5	6310	6210	6310	6210	203	200	-
FF300	300	250	350	5	15	4	18.5	110	90	0.5	48	14	9	5.5	-	-	6310	6210	-	218	218
FF350	350	300	400	5	19	4	18.5	110	90	1.5	55	16	10	6	6312	6312	6312	6312	275	294	266
																			300		284
FF400	400	350	450	5	22	8	18.5	140	110	1.5	60	18	11	7	6315	6312	6315	6312	-	357	-
FF400	400	350	450	5	22	8	18.5	140	110	1.5	60	18	11	7	-	-	6315	6312	360	374	361

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TOSHIBA contacts in South East Asia

Toshiba Asia Pacific Pte., Ltd.

● Singapore – Head Quarters
20 Pasir Panjang Road, #13-27/28 Mapletree Business City, Singapore 117439
Tel: (65) 6297-0990, DID: (65) 6305 5515 Fax: 6305-5560

● Kuala Lumpur
No.1-2, The Boulevard Mid Valley City, Lingkaran Syed Putra, 59200 Kuala Lumpur, Malaysia
Tel: (603) 2284-6222 Fax: (603) 2288-1952

● Jakarta
16th Floor Summitmas Tower,Jl. Jenderal Sudirman, KAV.61-62, Jakarta, 12190 Indonesia
Tel: (6221) 520-0754 Fax: (6221) 520-0774

● Ho Chi Minh City
Unit 1702,17th Floor, Centec Building 72-74 Nguyen Thi Minh Khai, District 3, Ho chi Minh City, Vietnam
Tel: (848) 3827-4560 Fax: (848) 3827-4564

Toshiba Asia Pacific (Thailand) Co, Ltd.

946 Dusit Thani Bldg., 10Fl., Rm. 1002, Rama IV Rd., Silom , Bangrak, BKK 10500
Tel: (66) 2637-5124 to 27 Fax: (66) 2637-5128

Toshiba (Philippines), Inc.

Infrastructure Systems Division & Corporate Liaison Office 42nd Floor GT Tower International, 6813 Ayala Avenue, Makati City 1226
Tel: (63) 2-819-1048 Fax: (63) 2-819-5479

Manufactured by :
TOSHIBA DALIAN CO., LTD.

Distributed by:

TOSHIBA INDUSTRIAL PRODUCTS AND SYSTEMS CORPORATION
580, Horikawa-cho, Saiwai-ku, Kawasaki, Kanagawa 212-0013, Japan
Tel: +81-44-520-0828 Fax: +81-44-520-0506

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