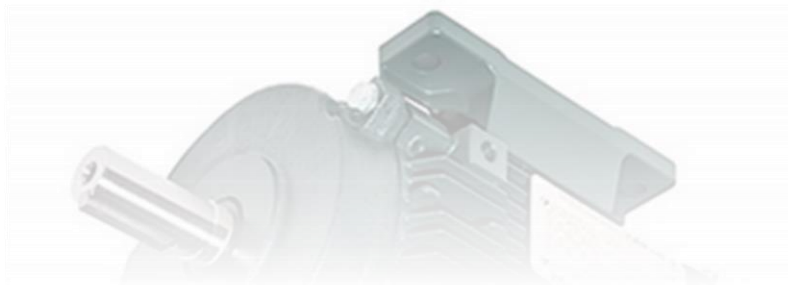


TOSHIBA

LOW VOLTAGE PREMIUM-EFFICIENCY MOTORS

IEC Standard



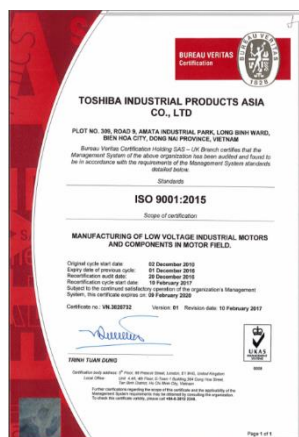
AUTHORIZED DISTRIBUTOR

TOSHIBA

The distributor have been authorized to distribute the products of:

TOSHIBA INDUSTRIAL PRODUCTS ASIA CO., LTD.

1. CERTIFICATION



ISO 9001 - 2015



ISO 14001 - 2015



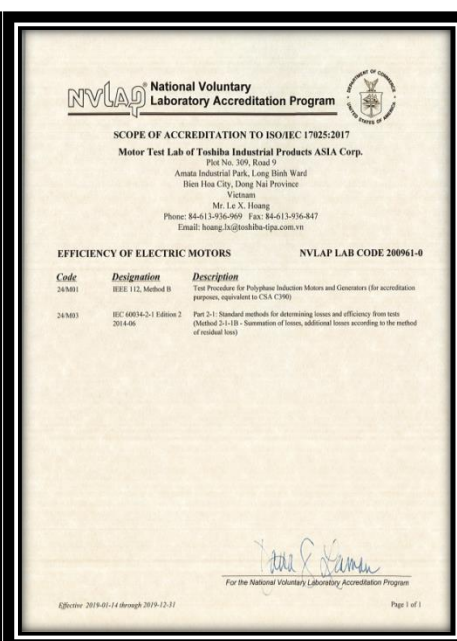
OHSAS18001 - 2007



Energy Label



NVLAP: National Voluntary Laboratory Accreditation Program



2. PROFILE

2.1 General Information

Toshiba is proud to introduce the new IEC motors product lines. This cutting-edge motor product line is designed to meet or exceed the competitive demands of the global market, as well as the requirements of the IEC 60034, while maintaining the high reliability and quality expected from Toshiba.

The IEC motor series is designed for severe duty applications. Building on over 20 years of success with the high efficiency motor series, the IEC features multiple new design enhancements that make it one of the lowest cost-of-ownership products in the industry.

Toshiba provides solutions and Global Supply Chain Management Systems (GSCMS) to meet the evolving needs of global customers.

2.2 Available Features

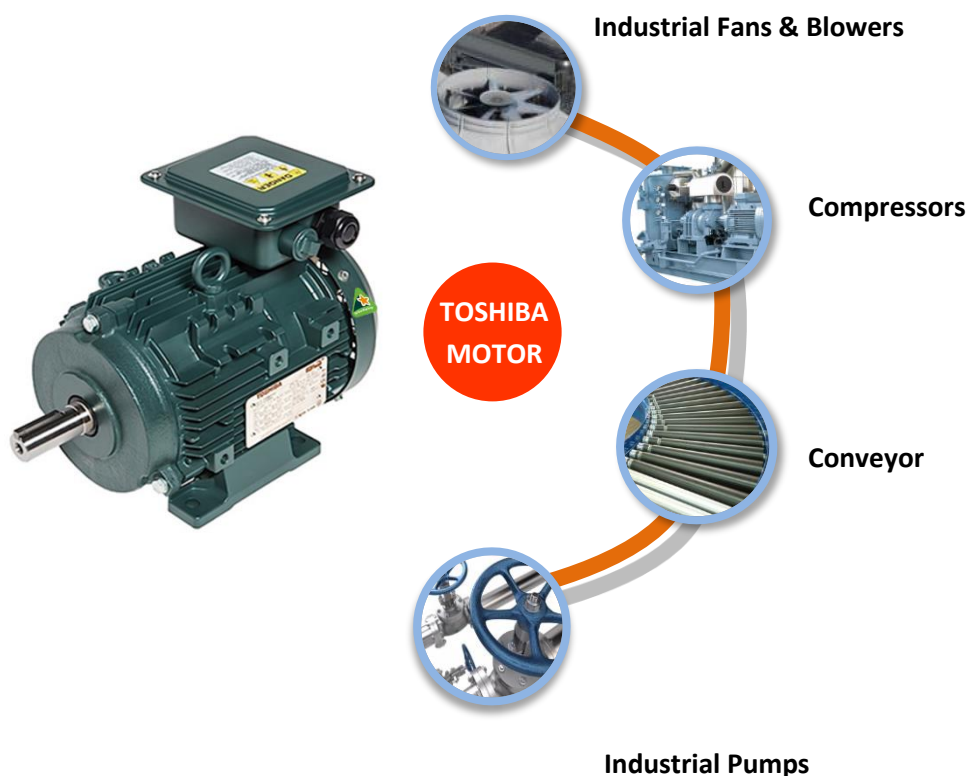
- IE3 Efficiency Levels per IEC 60034-30-1
- Meets or Exceeds Global Standard Specifications
- Aluminum Frame with Removable Base for 90 through 160 Frames
- Available Interchangeable Flange Options (B5/B35 and B14/34)
- IEC:
Aluminum - 160 & Smaller Frame (except frame 80)
Cast Iron - 160 & Larger Frame and Frame 80.

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2.3 Suitable for various application

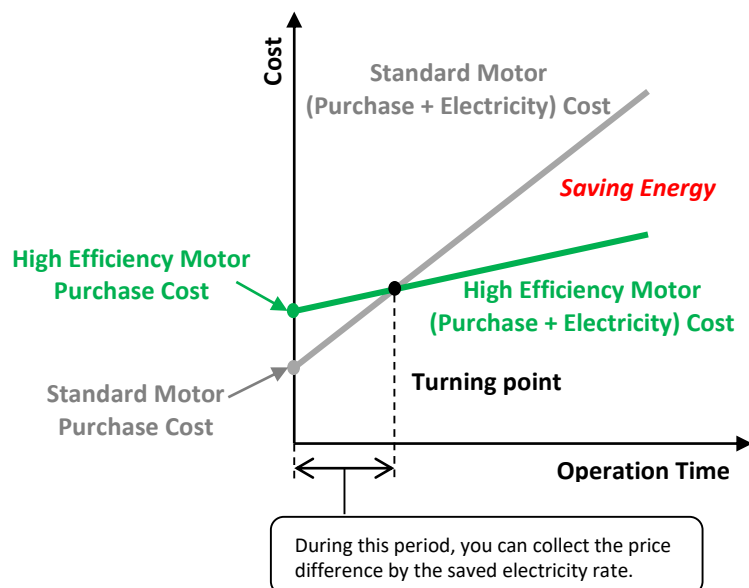


2. PROFILE

2.4 Operational cost saving

High efficiency motor (IE3) can recover the price gap of initial purchase cost between IE3 motor and standard efficiency motor for a short period of time because of 30~40% loss reduction. IE3 motor improved energy saving effects because of much lower running cost than that of the existing high efficiency motor.

*This is a result of a trial comparison between our standard efficiency motors and our high efficiency motor at rated output power. Loss reduction rate and payback period will depend on the usage condition.



Calculating electricity cost

The following calculation formula indicates annual electricity cost saved by use of high efficiency motor. (Unit: US\$ per year)

$$S = W \times C \times N$$

W = Input power difference between standard efficiency motor and high efficiency motor(kW)

C = Electric utility rate (US\$/kWh)

*Electric utility rate includes basic rate, taxes, etc., depending on contracted amount of electricity.

N = annual operation time (h/year)

<Example>

4poles-3.7kW-380V-50Hz, Operation hours 5,000h/year, Electricity rate 0.15US\$/kWh

W=0.363kW (from the table below), C=0.15US\$/kWh, N=5,000h/year.

Saved Electricity Rate $S=W \times C \times N=0.363 \times 0.15 \times 5,000=272.25\text{US\$/year}$

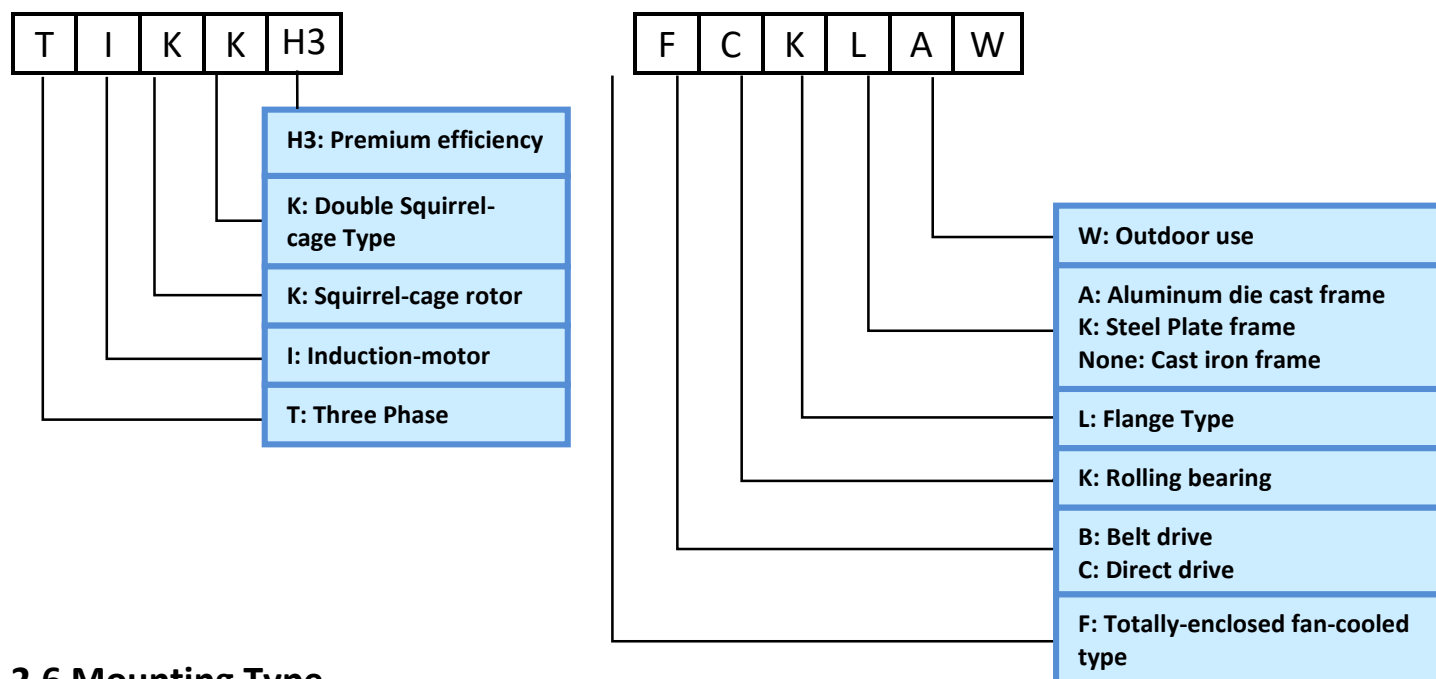
Output (kW)	Voltage (V)	Frequency (Hz)	Input power difference between standard efficiency motor and high efficiency (kW) (at 100% load)		
			2 Poles	4 Poles	6 Poles
0.75	380	50	0.040	0.047	0.116
	400	50	0.060	0.047	0.112
	415	50	0.066	0.048	0.090
1.5	380	50	0.111	0.136	0.307
	400	50	0.082	0.106	0.273
	415	50	0.089	0.095	0.229
2.2	380	50	0.143	0.236	0.478
	400	50	0.129	0.201	0.460
	415	50	0.156	0.156	0.362
3.7	380	50	0.265	0.363	0.455
	400	50	0.309	0.355	0.497
	415	50	0.336	0.295	0.411
5.5	380	50	0.292	0.421	0.636
	400	50	0.341	0.383	0.675
	415	50	0.407	0.322	0.577

Output (kW)	Voltage (V)	Frequency (Hz)	Input power difference between standard efficiency motor and high efficiency (kW) (at 100% load)		
			2 Poles	4 Poles	6 Poles
7.5	380	50	0.391	0.528	0.376
	400	50	0.442	0.432	0.407
	415	50	0.345	0.396	0.393
11	380	50	0.460	0.744	0.632
	400	50	0.384	0.797	0.678
	415	50	0.514	0.647	0.639
15	380	50	0.491	1.090	0.271
	400	50	0.512	1.210	0.257
	415	50	0.542	0.889	0.303
18.5	380	50	0.464	0.794	0.608
	400	50	0.404	0.791	0.636
	415	50	0.465	0.695	0.631
22	380	50	1.110	0.810	0.590
	400	50	1.150	0.832	0.563
	415	50	1.330	0.714	0.675

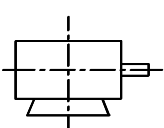
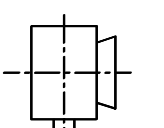
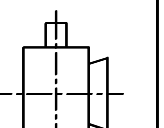
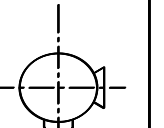
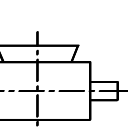
Output (kW)	Voltage (V)	Frequency (Hz)	Input power difference between standard efficiency motor and high efficiency (kW) (at 100% load)		
			2 Poles	4 Poles	6 Poles
30	380	50	1.24	1.16	1.32
	400	50	1.21	1.16	1.27
	415	50	1.16	1.11	1.21
37	380	50	1.34	1.16	1.21
	400	50	2.09	1.37	1.49
	415	50	2.03	1.23	1.22
45	380	50	2.69	1.87	1.51
	400	50	3.46	1.97	1.62
	415	50	3.25	1.80	1.49
55	380	50	2.69	2.58	-
	400	50	3.54	3.26	-
	415	50	3.17	2.70	-

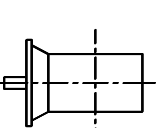
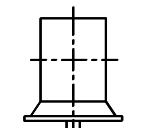
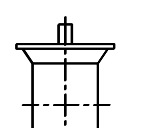
2. PROFILE

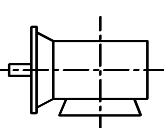
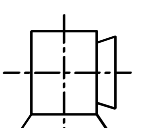
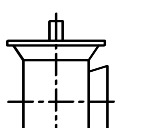
2.5 Type -Form



2.6 Mounting Type

Mount						
Standard	JEM14 08	IMB3	IMV5	IMV6	IMB6 IMB7	IMB8

Mount				
Standard	JEM14 08	IMB5	IMV1	IMV3

Mount				
Standard	JEM14 08	IMB35	IMV15	IMV36

3. WIRING

Motor wiring connection

Voltage	Number of lead wires	Starting method	Connection method											
Single voltage	3	Direct on line												
	6	Direct on line Y-Δ start	<table border="1"> <thead> <tr> <th>DIRECT ON LINE</th><th>Y-Δ START</th><th colspan="2">CHANGE OVER OF STARTER TERMINAL</th></tr> <tr> <th></th><th></th><th>Y START</th><th>Δ RUN</th></tr> </thead> <tbody> <tr> <td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table> Note: Please remove connection plates at starting method of Y-Δ	DIRECT ON LINE	Y-Δ START	CHANGE OVER OF STARTER TERMINAL				Y START	Δ RUN			
DIRECT ON LINE	Y-Δ START	CHANGE OVER OF STARTER TERMINAL												
		Y START	Δ RUN											
Dual voltage (Ex. 220/380V)	6	Direct on line	High voltage (Y) Low voltage (Δ)											

Voltage	Number of lead wires	Starting method	Connection method																
Dual voltage (Ex. 190/380V 220/440V)	9	Direct on line	High voltage (Y) Low voltage (2Y)																
			High voltage (Δ) Low voltage (2Δ)																
Dual voltage (Ex. 190/380V 220/440V)	12	Direct on line Y-Δ start	<table border="1"> <thead> <tr> <th colspan="2">DIRECT ON LINE</th><th colspan="2">Y-Δ START</th></tr> <tr> <th colspan="2"></th><th colspan="2">CONNECTIONS BETWEEN MOTOR AND STARTER</th></tr> <tr> <th>High voltage</th><th>Low voltage</th><th>High voltage</th><th>Low voltage</th></tr> </thead> <tbody> <tr> <td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	DIRECT ON LINE		Y-Δ START				CONNECTIONS BETWEEN MOTOR AND STARTER		High voltage	Low voltage	High voltage	Low voltage				
DIRECT ON LINE		Y-Δ START																	
		CONNECTIONS BETWEEN MOTOR AND STARTER																	
High voltage	Low voltage	High voltage	Low voltage																

4.1 Characteristics and Performance Data: 2 Pole

0.75kW ~ 5.5kW

Rated Output		Frame	Hz	Volts	Full Load Current	Full Load Speed min-1	No Load Current A	Lock Rotor Current % F/L	Lock Rotor Torque % F/L	Break Down Torque % F/L	Efficiency			Power Factor			Vibration mm/s	Noise dB(A)	Moment of inertia Kg.m ²	Approx. Weight kg	Protection level	
kW	HP										Full Load	75% Load	50% Load	Full Load	75% Load	50% Load					IP44	IP55
0.75	1	80M	50	380	1.60	2870	0.67	565	204	272	80.7	81.2	79.0	89.5	84.6	74.3	1.2	54	0.0012	16	o	o
				400	1.60	2870	0.81	611	229	301	80.9	81.5	79.4	86.4	79.7	67.6						
				415	1.60	2875	0.94	632	249	322	81.2	81.8	80.0	82.7	75.1	62.1						
1.1	1.5	80M	50	380	2.30	2870	0.85	778	300	461	82.7	83.5	81.0	89.5	85.5	76.5	1.2	54	0.0020	19	o	o
				400	2.10	2875	0.89	865	338	508	83.0	83.9	81.2	88.7	84.1	74.5						
				415	2.10	2875	0.93	924	367	545	83.5	84.1	81.4	87.4	82.3	71.9						
1.5	2	90L	50	380	3.10	2870	0.96	704	239	316	84.2	85.0	83.4	88.5	85.7	77.5	1.2	54	0.0028	20	o	o
				400	3.00	2875	1.18	766	271	348	84.5	85.3	83.9	86.4	81.5	71.2						
				415	3.00	2875	1.44	797	295	371	84.8	85.6	84.1	83.8	76.9	65.0						
2.2	3	90L	50	380	4.40	2875	1.38	817	282	275	85.9	86.7	85.1	88.7	85.9	78.3	1.2	54	0.0037	22.8	o	o
				400	4.30	2875	1.66	895	319	304	86.2	86.9	85.5	86.8	82.4	72.7						
				415	4.20	2880	2.03	935	348	324	86.5	87.1	85.8	84.5	78.1	66.7						
3	4	100L	50	380	6.00	2875	2.04	892	421	323	87.1	87.8	87.5	88.5	86.0	90.0	1.2	54	0.0047	28	o	o
				400	5.90	2880	2.36	976	476	356	87.5	88.2	86.0	86.7	82.5	73.1						
				415	5.80	2880	2.88	1023	520	381	87.8	88.6	86.3	83.8	78.3	67.2						
4	5	112M	50	380	7.70	2890	1.93	815	274	344	88.1	89.2	88.0	91.5	90.0	85.5	1.2	54	0.0087	34	o	o
				400	7.30	2905	2.26	863	309	380	88.5	89.8	88.5	90.5	88.0	81.5						
				415	7.10	2905	2.58	892	336	406	88.8	90.2	89.0	89.4	86.0	77.9						
5.5	7.5	132S	50	380	10.8	2890	2.88	638	240	307	89.2	89.7	88.3	89.0	86.7	80.4	1.2	58	0.0186	53	o	o
				400	10.4	2905	3.50	696	271	337	89.5	90.0	88.4	86.8	83.2	74.7						
				415	10.3	2905	4.09	736	294	359	89.7	90.2	88.6	84.7	80.1	70.0						

The above characteristics and performance are design data, and shall be guaranteed with tolerance of application standards.

4.1 Characteristics and Performance Data: 2 Pole

7.5kW ~ 45kW

Rated Output		Frame	Hz	Volts	Full Load Current	Full Load Speed	No Load Current	Lock Rotor Current	Lock Rotor Torque	Break Down Torque	Efficiency			Power Factor			Vibration	Noise	Moment inertia	Approx. Weight	Protection level	
kW	HP					min-1	A	% F/L	% F/L	% F/L	Full Load	75% Load	50% Load	Full Load	75% Load	50% Load	mm/s	dB(A)	Kg.m ²	kg	IP44	IP55
7.5	10	132M	50	380	14.7	2905	5.52	740	280	414	90.1	90.4	89.5	87.0	83.5	74.5	1.2	58	0.0227	61	o	o
				400	14.4	2915	6.27	795	315	455	90.3	90.7	90.0	84.0	78.4	67.1						
				415	14.3	2920	7.31	834	342	483	90.5	90.9	90.3	81.5	75.0	62.9						
11	15	160M	50	380	21.5	2925	5.59	648	217	297	91.2	92.3	89.6	88.3	86.1	80.0	1.6	61	0.0458	93	o	o
				400	20.5	2935	6.67	707	243	326	91.5	92.5	89.8	86.4	83.0	74.8						
				415	20.0	2940	7.69	748	264	347	91.7	92.8	90.0	84.5	80.1	70.4						
15	20	160M	50	380	29.0	2935	8.19	734	238	344	91.9	91.5	89.0	87.6	84.9	77.8	1.6	69	0.0568	103	o	o
				400	28.0	2945	9.99	799	268	377	91.9	91.7	89.3	85.3	81.3	72.2						
				415	28.0	2945	116	843	291	401	91.9	91.8	89.5	83.1	78.0	67.6						
18.5	25	160L	50	380	35.0	2930	10.6	746	271	372	92.4	92.6	92.5	88.5	86.0	79.5	1.6	70	0.0698	116	o	o
				400	34.0	2940	12.2	822	306	408	92.4	92.9	92.6	86.5	83.0	74.5						
				415	33.5	2940	13.2	871	333	437	92.4	92.9	92.6	84.9	80.0	69.7						
22	30	180M	50	380	41.0	2950	12.5	819	248	386	92.7	93.3	93.0	88.5	85.5	78.0	1.6	71	0.1680	212	o	o
				400	40.0	2955	14.5	913	279	424	93.0	93.5	93.2	86.7	82.7	73.6						
				415	39.0	2960	16.2	968	305	454	93.2	93.6	93.2	84.8	79.9	69.6						
30	40	200L	50	380	58.0	2965	20.0	979	350	418	93.5	93.7	93.1	85.7	82.2	74.2	1.6	71	0.2775	304	o	o
				400	57.0	2965	24.5	1055	394	458	93.8	94.0	93.3	82.7	77.9	67.8						
				415	56.0	2970	27.5	1110	429	488	94.0	94.2	93.6	80.4	74.7	63.4						
37	50	200L	50	380	70.0	2965	22.9	901	303	369	95.0	95.2	94.6	86.0	83.0	75.5	1.6	71	0.3330	332	o	o
				400	68.0	2965	27.4	991	342	404	95.2	95.4	94.7	84.0	79.7	70.2						
				415	67.0	2970	31.3	1044	372	431	95.6	95.7	95.2	81.8	76.5	65.8						
45	60	225S	50	380	85.0	2960	27.8	879	285	350	94.4	94.8	94.4	86.0	83.0	75.5	1.6	71	0.3530	343	o	o
				400	83.0	2965	32.8	976	322	384	94.6	94.8	94.2	84.0	79.6	69.9						
				415	82.0	2965	37.1	1031	351	409	94.8	94.9	94.2	81.9	76.6	65.7						

The above characteristics and performance are design data, and shall be guaranteed with tolerance of application standards.

4.2 Characteristics and Performance Data: 4 Pole**7.5kW ~ 45kW**

Rated Output		Frame	Hz	Volts	Full Load Current	Full Load Speed	No Load Current	Lock Rotor Current	Lock Rotor Torque	Break Down Torque	Efficiency			Power Factor			Vibration	Noise	Moment inertia	Approx. Weight	Protection level	
kW	HP					min-1	A	% F/L	% F/L	% F/L	Full Load	75% Load	50% Load	Full Load	75% Load	50% Load	mm/s	dB(A)	Kg.m ²	kg	IP44	IP55
0.75	1	80M	50	380	1.90	1435	1.12	663	367	498	85.0	85.4	83.1	72.5	65.0	52.5	0.8	44	0.0042	20	o	o
				400	1.90	1440	1.18	722	415	548	85.5	85.8	83.9	69.0	61.0	48.5						
				415	1.80	1445	1.25	749	453	586	86.0	86.2	84.2	68.2	59.6	47.1						
1.1	1.5	90L	50	380	2.60	1430	1.13	615	221	266	84.0	85.4	83.1	79.8	75.3	65.6	0.8	44	0.0049	21	o	o
				400	2.50	1440	1.31	671	252	293	84.5	85.5	83.5	77.3	71.6	60.5						
				415	2.50	1445	1.48	704	275	313	85.0	85.6	83.8	74.7	68.1	56.2						
1.5	2	90L	50	380	3.50	1435	1.52	608	221	272	85.3	86.9	86.1	79.8	75.1	65.1	0.8	44	0.0055	21	o	o
				400	3.40	1445	1.81	658	251	299	85.3	86.7	85.0	76.6	70.6	59.1						
				415	3.30	1450	2.11	686	274	318	85.3	86.4	84.9	73.6	66.5	57.9						
2.2	3	100L	50	380	5.20	1460	2.90	925	361	433	86.7	88.4	86.5	73.7	67.3	55.6	0.8	45	0.0100	30	o	o
				400	5.20	1465	3.45	974	410	475	86.7	88.0	86.1	69.4	61.8	49.4						
				415	5.10	1465	4.11	990	448	505	86.7	87.4	85.5	65.3	57.0	44.4						
3	4	100L	50	380	6.60	1445	3.25	755	296	342	87.7	88.9	88.7	79.0	74.5	64.5	0.8	45	0.0104	30	o	o
				400	6.50	1450	3.82	835	336	377	87.7	88.7	87.0	76.2	70.2	58.7						
				415	6.40	1455	4.68	862	368	402	87.7	88.4	86.1	72.6	65.5	53.2						
4	5	112M	50	380	8.60	1455	3.92	873	322	424	89.6	90.5	90.4	80.5	76.0	67.0	0.8	54	0.0210	39	o	o
				400	8.10	1455	4.79	946	367	467	90.3	91.3	91.2	77.4	71.8	60.6						
				415	8.00	1460	5.57	990	402	500	90.6	91.5	91.2	74.6	67.9	59.7						
5.5	7.5	132S	50	380	11.7	1460	5.38	810	371	425	89.6	89.8	87.8	81.3	76.6	66.5	0.8	54	0.0386	62	o	o
				400	11.5	1465	6.43	867	419	468	89.6	89.7	87.3	78.0	71.9	60.3						
				415	11.4	1470	7.36	904	456	501	89.6	89.7	87.9	75.1	68.0	55.5						

The above characteristics and performance are design data, and shall be guaranteed with tolerance of application standards.

4.2 Characteristics and Performance Data: 4 Pole

0.75kW ~ 5.5kW

Rated Output		Frame	Hz	Volts	Full Load Current	Full Load Speed	No Load Current	Lock Rotor Current	Lock Rotor Torque	Break Down Torque	Efficiency			Power Factor			Vibration	Noise	Moment inertia	Approx. Weight	Protection level	
kW	HP					min-1	A	% F/L	% F/L	% F/L	Full Load	75% Load	50% Load	Full Load	75% Load	50% Load	mm/s	dB(A)	Kg.m ²	kg	IP44	IP55
7.5	10	132S	50	380	15.2	1460	6.40	761	350	400	90.4	91.5	91.3	82.5	79.0	70.0	1.2	54	0.0484	70	o	o
				400	14.9	1465	7.40	849	396	441	91.1	91.9	91.6	80.6	75.5	65.0						
				415	14.8	1465	8.48	891	432	473	91.4	92.0	91.6	78.2	72.1	60.4						
11	15	160M	50	380	23.0	1470	10.0	843	309	334	91.7	92.3	91.7	80.1	75.6	65.9	1.2	60	0.0875	102	o	o
				400	23.0	1470	12.0	906	349	368	92.0	92.2	91.2	77.0	71.2	59.9						
				415	22.5	1475	13.6	947	380	393	92.0	92.2	91.5	74.3	67.6	55.4						
15	20	160L	50	380	31.0	1465	11.4	768	296	351	92.1	92.7	92.6	82.5	79.0	70.5	1.2	60	0.1130	119	o	o
				400	30.0	1470	13.3	870	335	387	92.4	92.8	92.4	80.0	75.0	65.0						
				415	29.0	1470	15.3	917	365	413	92.6	93.1	92.7	77.8	72.2	61.0						
18.5	25	180M	50	380	38.0	1470	16.4	924	201	345	92.6	92.7	91.0	81.9	77.0	66.7	1.2	62	0.2100	206	o	o
				400	37.0	1475	18.2	1004	227	378	92.6	92.7	91.0	79.4	73.5	61.9						
				415	36.0	1475	20.0	1057	248	404	92.6	92.7	91.0	77.2	70.5	58.1						
22	30	180L	50	380	43.0	1465	15.9	817	172	304	92.7	93.0	91.3	84.3	80.8	72.3	1.2	62	0.2240	212	o	o
				400	42.0	1470	17.6	896	194	334	92.8	93.1	91.4	82.5	77.9	68.0						
				415	41.0	1470	19.3	951	212	357	92.9	93.2	91.5	80.7	75.4	64.4						
30	40	200L	50	380	59.0	1475	22.9	886	188	354	93.6	94.2	94.1	83.8	80.4	72.1	1.2	62	0.4841	294	o	o
				400	58.0	1480	26.2	968	213	389	93.8	94.1	93.8	81.8	77.2	67.3						
				415	57.0	1480	29.5	1026	232	415	94.2	94.7	94.3	80.0	74.6	63.6						
37	50	225S	50	380	71.0	1480	27.8	1000	213	383	93.9	94.1	92.3	84.2	80.6	72.2	1.2	63	0.5150	344	o	o
				400	70.0	1480	32.2	1091	242	420	93.9	94.1	92.3	82.0	77.3	67.2						
				415	68.0	1480	34.4	1165	264	449	93.9	94.1	92.3	80.7	75.4	64.5						
45	60	225S	50	380	86.0	1480	31.7	989	216	381	94.7	94.9	94.5	84.5	82.5	76.5	1.2	63	0.6200	374	o	o
				400	84.0	1480	37.1	1110	246	419	94.9	95.2	94.8	82.7	78.3	68.6						
				415	82.0	1480	40.8	1178	268	448	95.0	95.2	94.7	81.0	75.8	65.0						

The above characteristics and performance are design data, and shall be guaranteed with tolerance of application standards.

4.3 Characteristics and Performance Data: 6 Pole

0.75kW ~ 4kW

Rated Output		Frame	Hz	Volts	Full Load Current	Full Load Speed	No Load Current	Lock Rotor Current	Lock Rotor Torque	Break Down Torque	Efficiency			Power Factor			Vibration	Noise	Moment inertia	Approx. Weight	Protection level	
kW	HP					min-1	A	% F/L	% F/L	% F/L	Full Load	75% Load	50% Load	Full Load	75% Load	50% Load	mm/s	dB(A)	Kg.m ²	kg	IP44	IP55
0.75	1	90L	50	380	2.10	960	1.27	708	446	433	79.3	80.8	78.9	68.8	61.9	50.3	0.8	46	0.0064	19.5	o	o
				400	2.00	960	1.45	757	507	475	79.6	80.6	78.4	65.6	57.9	49.6						
				415	2.00	965	1.64	781	556	506	79.9	80.4	78.0	62.6	54.5	42.8						
1.1	1.5	90L	50	380	3.00	970	2.00	920	594	515	81.0	82.8	81.0	66.0	60.5	50.0	0.8	46	0.0123	28	o	o
				400	2.90	970	2.05	1025	680	564	81.3	82.9	81.3	63.7	55.7	43.9						
				415	2.90	975	2.20	1069	748	602	81.5	83.0	81.5	61.3	53.0	41.2						
1.5	2	100L	50	380	3.90	965	2.40	674	284	495	86.4	86.6	85.0	69.0	61.5	49.5	0.8	46	0.0141	32	o	o
				400	3.80	970	2.61	751	325	542	86.7	86.9	85.1	66.1	58.3	46.1						
				415	3.80	970	2.82	785	358	579	86.8	87.0	85.2	63.6	55.4	47.1						
2.2	3	112M	50	380	5.20	965	2.70	899	427	537	89.3	89.8	89.1	73.5	68.5	58.5	0.8	46	0.0292	46	o	o
				400	5.10	970	2.84	1008	494	590	89.7	90.0	89.3	71.6	65.1	53.3						
				415	5.00	970	2.98	1075	547	630	90.0	90.3	89.5	70.0	62.9	50.9						
3	4	132S	50	380	6.80	965	3.40	857	426	418	88.8	89.5	88.8	75.5	70.5	59.5	0.8	48	0.0403	55	o	o
				400	6.60	970	3.57	973	485	459	89.3	89.8	88.9	74.4	68.2	56.7						
				415	6.50	975	3.73	1038	532	490	89.7	90.1	89.0	73.0	66.2	54.3						
4	5	132M	50	380	9.00	965	4.30	859	386	404	88.5	89.6	89.4	76.5	72.0	61.5	0.8	48	0.0480	62	o	o
				400	8.70	970	4.53	991	440	442	89.0	90.0	89.6	75.6	70.0	59.0						
				415	8.40	970	4.68	1061	483	473	89.6	90.4	89.8	74.4	68.2	56.7						

The above characteristics and performance are design data, and shall be guaranteed with tolerance of application standards.

4.3 Characteristics and Performance Data: 6 Pole

5.5kW ~ 30kW

Rated Output		Frame	Hz	Volts	Full Load Current	Full Load Speed	No Load Current	Lock Rotor Current	Lock Rotor Torque	Break Down Torque	Efficiency			Power Factor			Vibration	Noise	Moment inertia	Approx. Weight	Protection level	
kW	HP					min-1	A	% F/L	% F/L	% F/L	Full Load	75% Load	50% Load	Full Load	75% Load	50% Load	mm/s	dB(A)	Kg.m ²	kg	IP44	IP55
5.5	7.5	132M	50	380	12.0	965	5.40	895	411	374	89.7	90.6	90.3	78.0	74.0	64.5	0.8	48	0.0672	75	o	o
				400	11.5	970	5.66	1025	470	409	90.1	90.8	90.6	77.2	72.1	61.6						
				415	11.2	970	5.95	1098	516	437	90.7	91.5	91.1	76.0	70.3	59.1						
7.5	10	160M	50	380	16.0	965	6.69	810	402	299	89.1	89.9	88.7	80.1	76.5	67.7	1.2	52	0.1020	95	o	o
				400	15.3	965	7.12	900	458	329	89.3	90.3	88.9	79.0	74.6	64.7						
				415	15.0	970	7.85	958	502	353	89.5	90.4	89.0	77.4	72.1	61.3						
11	15	160L	50	380	23.0	965	9.40	820	421	304	90.4	91.2	91.0	80.0	76.5	68.0	1.2	52	0.1410	115	o	o
				400	22.5	965	10.4	940	479	334	90.8	91.6	91.3	79.2	74.8	65.0						
				415	22.0	970	11.6	999	526	359	91.0	92.0	91.5	77.0	72.0	61.0						
15	20	180L	50	380	32.0	970	13.1	1166	245	272	90.6	91.7	91.0	79.7	75.5	66.0	1.2	55	0.2490	193	o	o
				400	31.0	975	14.8	1272	277	297	91.1	92.0	91.4	77.0	72.0	61.0						
				415	31.0	975	16.6	1340	302	314	91.6	92.7	92.0	75.3	69.1	57.3						
18.5	25	200L	50	380	38.0	975	13.7	581	238	321	91.7	92.1	91.0	82.2	78.8	70.4	1.2	55	0.5840	278	o	o
				400	36.0	975	14.4	643	267	351	91.9	92.4	91.2	81.4	77.2	67.7						
				415	35.0	975	15.2	690	292	374	92.1	92.6	91.4	80.4	75.6	65.4						
22	30	200L	50	380	45.0	975	16.5	612	257	340	92.4	93.3	93.0	82.0	78.0	69.0	1.2	55	0.6710	291	o	o
				400	43.0	975	18.0	692	291	371	93.0	93.8	93.5	81.0	76.4	66.4						
				415	42.0	980	19.1	739	318	395	93.3	94.3	93.8	79.7	74.5	63.8						
30	40	225S	50	380	61.0	980	26.6	608	297	389	93.9	94.4	94.1	80.0	75.0	65.0	1.2	55	0.7880	352	o	o
				400	59.0	980	29.1	666	336	424	94.3	94.6	94.2	78.4	72.8	61.7						
				415	58.0	985	31.1	706	368	450	94.5	94.8	94.4	76.7	70.4	58.6						

The above characteristics and performance are design data, and shall be guaranteed with tolerance of application standards.

4.4 Characteristics and Performance Data: 2 Pole (Big Frame, NEMA Standard)

100HP~200HP

Rated Output	Frame	Hz	Volts	Full Load Current	Full Load Speed	No Load Current	Lock Rotor Current	Lock Rotor Torque	Break Down Torque	Efficiency			Power Factor			Vibration	Moment of inertia	Approx. Weight
HP					min-1	A	% F/L	% F/L	% F/L	Full Load	75% Load	50% Load	Full Load	75% Load	50% Load	mm/s	kg.m ²	kg
100	405TS	50	380	142	2960	42	910	200	200	94.1	94.3	94.2	86.0	83.5	76.5	2.54	0.736	560
125	444/5TS	50	380	172	2970	34.0	900	110	220	95.0	95.4	95.0	88.5	87.5	83.5	2.54	1.702	940
150	444/5TS	50	380	208	2975	50	1180	130	200	95.2	95.7	95.5	87.5	87.0	84.2	2.54	1.850	980
200	445/7TS	50	380	282	2975	84.0	1770	135	200	95.5	95.7	95.5	85.5	84.0	79.5	2.54	2.229	1060

4.5 Characteristics and Performance Data: 4 Pole (Big Frame, NEMA Standard)

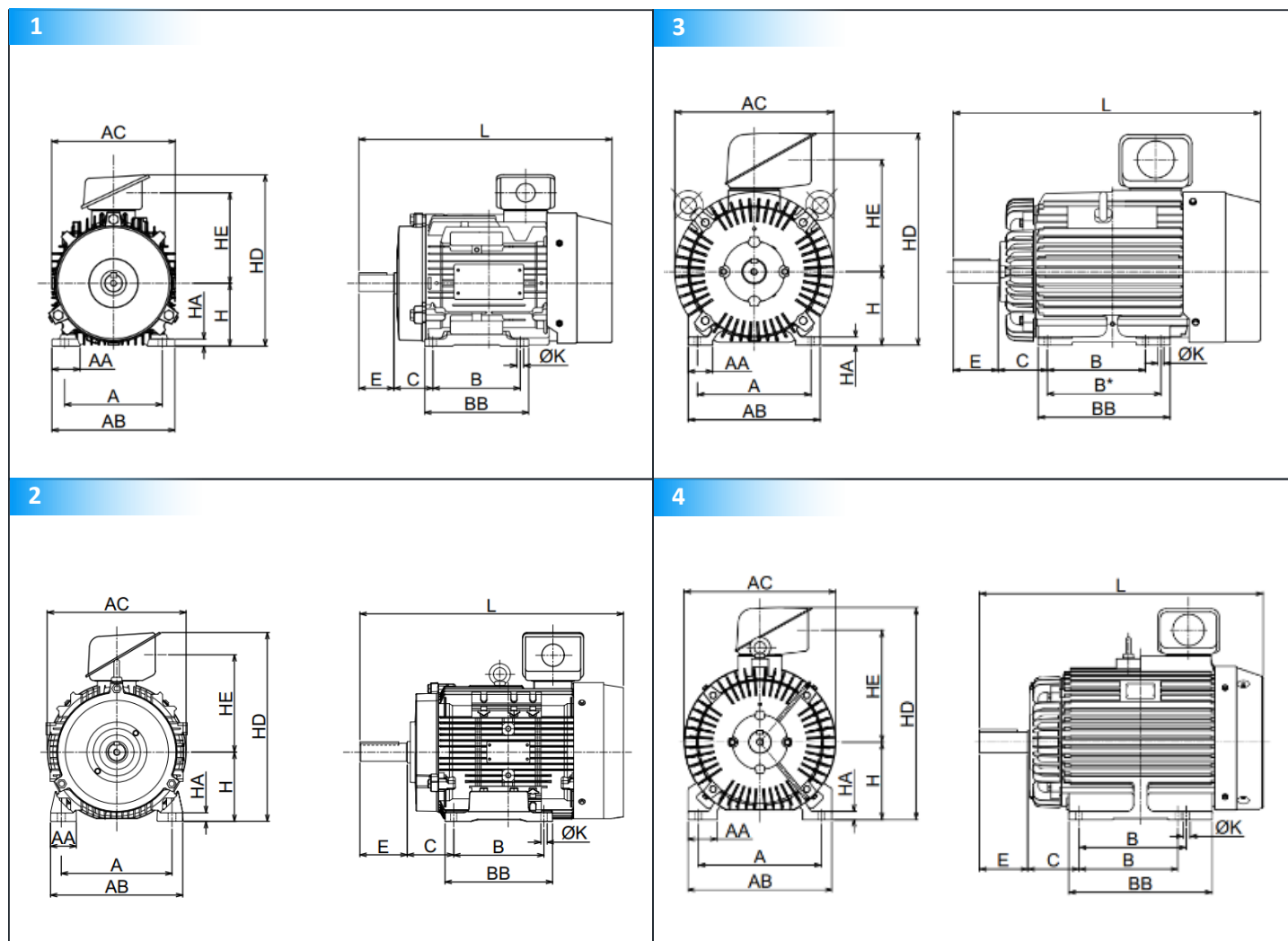
75HP~200HP

Rated Output	Frame	Hz	Volts	Full Load Current	Full Load Speed	No Load Current	Lock Rotor Current	Lock Rotor Torque	Break Down Torque	Efficiency			Power Factor			Vibration	Moment of inertia	Approx. Weight
HP					min-1	A	% F/L	% F/L	% F/L	Full Load	75% Load	50% Load	Full Load	75% Load	50% Load	mm/s	kg.m ²	kg
75	225S	50	380	103	1480	34	850	200	250	95.6	95.8	95.5	87.0	84.0	76.1	1.20	0.880	450
100	405T	50	380	145	1475	48.0	900	200	250	95.0	95.6	95.5	84.8	81.9	74.0	2.54	1.110	560
125	444/5T	50	380	178	1480	45.0	905	150	200	95.3	95.5	95.4	85.0	84.5	81.0	2.54	2.292	870
150	444/5T	50	380	211	1485	56.0	1180	130	200	95.5	96.1	95.9	86.0	84.0	78.5	2.54	2.861	950
200	445/7T	50	380	295	1485	108	1720	160	200	95.8	95.8	95.5	82.0	78.1	69.3	2.54	3.147	1045

The above characteristics and performance are design data, and shall be guaranteed with tolerance of application standards.

5. DIMENSION

5.1 Foot-mounted/IM B3.



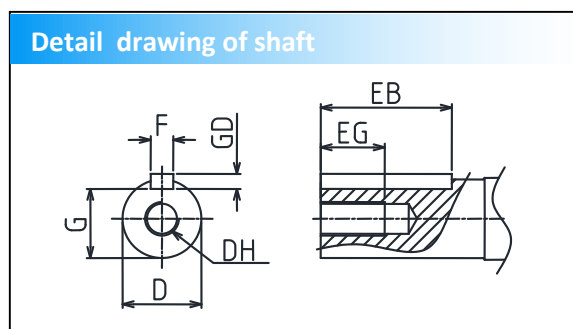
Frame Size	Fig	H	A	B(*)	C	E	K	L	HE	HD	HA	AA	AB	AC	BB
80M	1	80	125	100	50	40	10	303	116	221	9	40	157	179	135
90L	1	90	140	125	56	50	10	362	129.5	245	10	40	176	185	165
100L	2	100	160	140	63	60	12	370	129.5	255	12	40	200	199	180
112M	2	112	190	140	70	60	12	385	148.5	286	12	40	220	240	190
132S	2	132	216	140	89	80	12	450	181.5	343	15	50	260	284	205
132M	2	132	216	178	89	80	12	488	181.5	343	15	50	260	284	240
160M	2	160	254	210	108	110	14.5	613	226.5	439.5	18	60	308	318	265
160L	2	160	254	254	108	110	14.5	613	226.5	439.5	18	60	308	318	310
180M	3	180	279	241	121	110	14.5	755	275	520	20	60	324	390	315
180L	3	180	279	279	121	110	14.5	755	275	520	20	60	324	390	350
200L	4	200	318	305	133	110	18.5	853	295	560	20	80	378	450	380
225S	4	225	356	286	149	140	18.5	885	325	615	25	84	417	440	380

Note: Dimension B* only apply for frame size 180L.

Note: All dimension is mm

5. DIMENSION

5.1 Foot-mounted/IM B3.

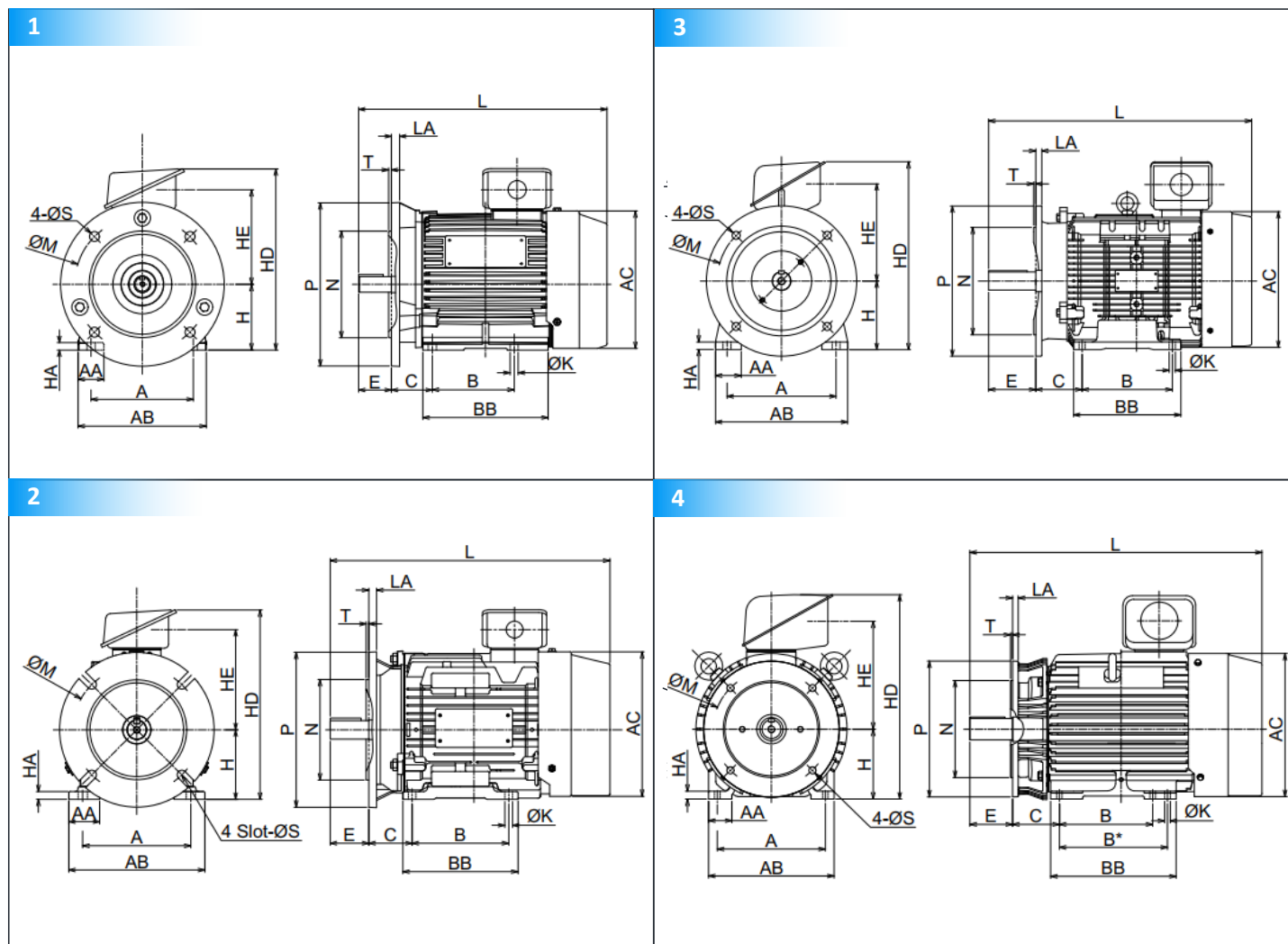


Frame Size	D	G	GD	F	EB	DH	EG	Bearing	
								Drive End	Opposite drive End
80M	19j6	15.5	6	6	32	M6X1.00	16	6204ZZC3	6204ZZC3
90L	24j6	20	7	8	40	M8X1.25	19	6205ZZC3	6205ZZC3
100L	28j6	24	7	8	45	M10X1.50	22	6206ZZC3	6205ZZC3
112M	28j6	24	7	8	45	M10X1.50	22	6207ZZC3	6206ZZC3
132S	38k6	33	8	10	63	M12X1.75	28	6308ZZC3	6208ZZC3
132M	38k6	33	8	10	63	M12X1.75	28	6308ZZC3	6208ZZC3
160M	42k6	37	8	12	90	M16X2.00	36	6310ZZC3	6208ZZC3
160L	42k6	37	8	12	90	M16X2.00	36	6310ZZC3	6208ZZC3
180M	48k6	42.5	9	14	90	M16X2.00	36	6312ZZC3	6310ZZC3
180L	48k6	42.5	9	14	90	M16X2.00	36	6312ZZC3	6310ZZC3
200L	55m6	49	10	16	90	M20X2.50	42	6313C3	6312C3
225S (2P)	55m6	49	10	16	90	M20X2.50	42	6313C3	6312C3
225S (4P-6P)	60m6	53	11	18	110	M20X2.50	42	6313C3	6312C3

Note: All dimension is mm

5. DIMENSION

5.2 Footed, Flange-mounted /IM B35.



Frame Size	Fig	H	A	B(*)	C	E	K	L	HE	HD	HA	AA	AB	AC	BB
80M	1	80	125	100	50	40	10	303	116	221	9	40	157	179	135
90L	2	90	140	125	56	50	10	362	129.5	245	10	40	176	185	165
100L	3	100	160	140	63	60	12	370	129.5	255	12	40	200	199	180
112M	3	112	190	140	70	60	12	385	148.5	286	12	40	220	240	190
132S	3	132	216	140	89	80	12	450	181.5	343	15	50	260	284	205
132M	3	132	216	178	89	80	12	488	181.5	343	15	50	260	284	240
160M	3	160	254	210	108	110	14.5	613	226.5	439.5	18	60	308	318	265
160L	3	160	254	254	108	110	14.5	613	226.5	439.5	18	60	308	318	310
180M	4	180	279	241	121	110	14.5	755	275	520	20	60	324	390	315
180L	4	180	279	279	121	110	14.5	755	275	520	20	60	324	390	350
200L	4	200	318	305	133	110	18.5	853	295	560	20	80	378	450	380
225S	5	225	356	286	149	140	18.5	885	325	615	25	84	417	440	380

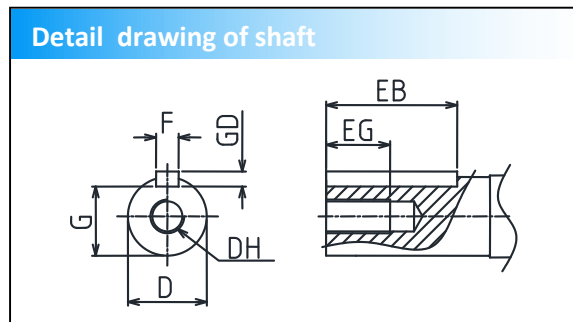
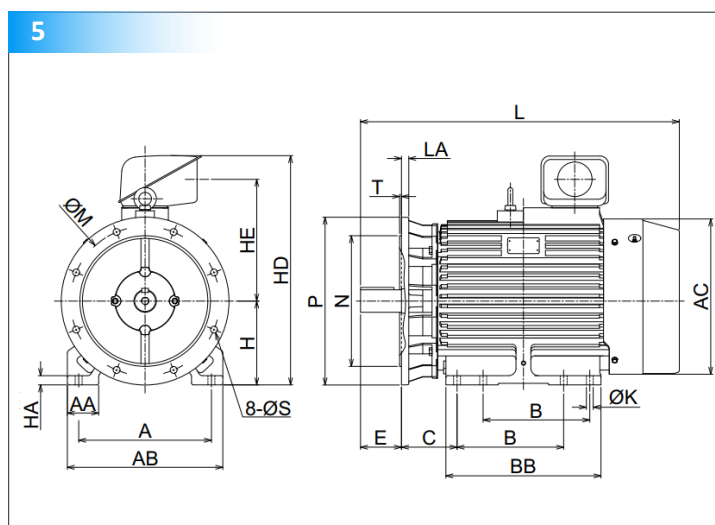
Note: Distance from the mounting surface of the flange to the shoulder on the shaft is 0 mm.

Note: Dimension B* only apply for frame size 180L.

Note: All dimension is mm

5. DIMENSION

5.2 Footed, Flange-mounted /IM B35.



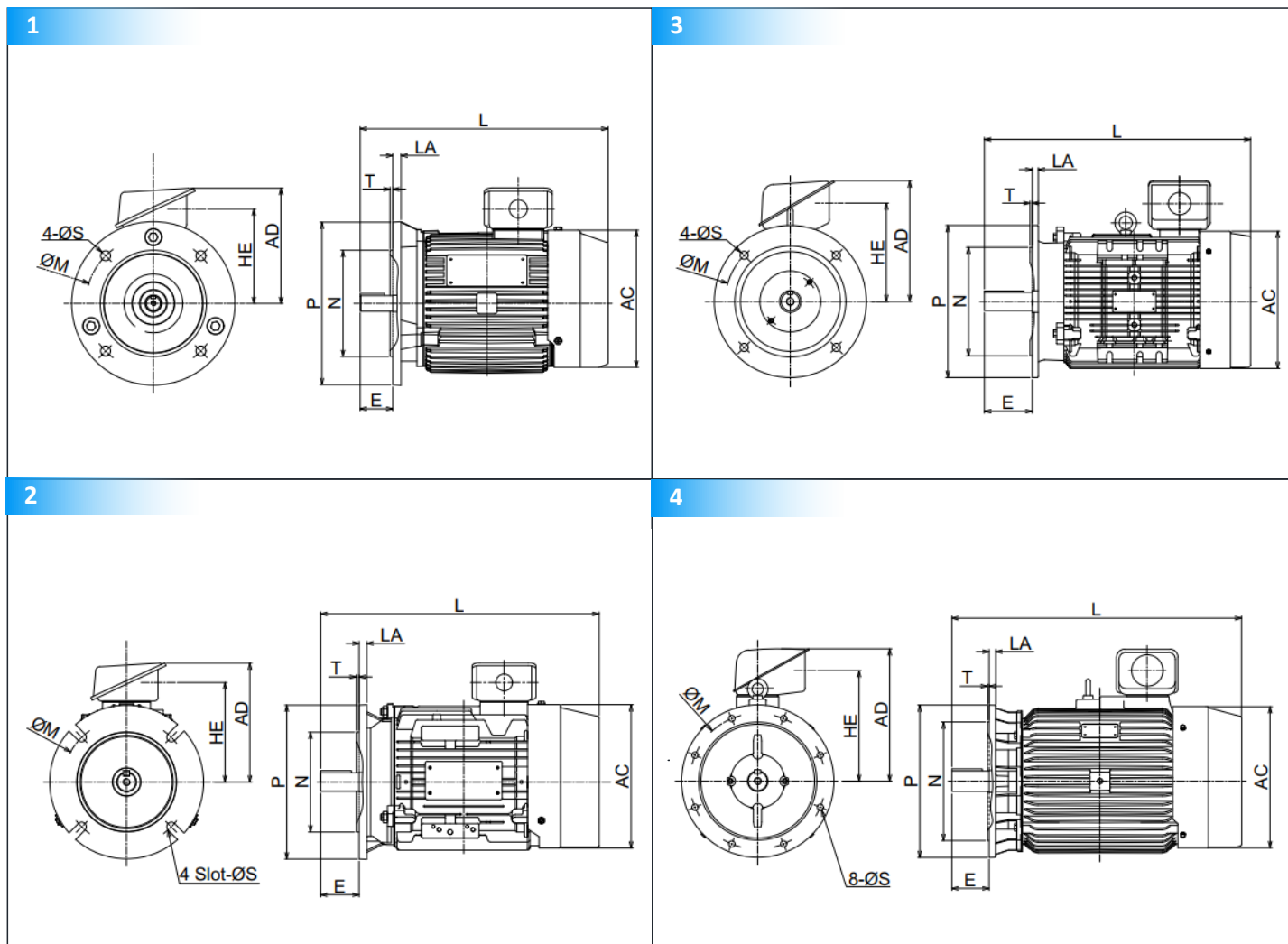
Frame Size	D	G	GD	F	EB	DH	EG	P	N	LA	T	S	M	Bearing	
														Drive End	Opposite Drive End
80M	19j6	15.5	6	6	32	M6X1.00	16	200	130j6	10	3.5	12	165	6204ZZC3	6204ZZC3
90L	24j6	20	7	8	40	M8X1.25	19	200	130j6	10	3.5	12	165	6205ZZC3	6205ZZC3
100L	28j6	24	7	8	45	M10X1.50	22	250	180j6	11	4	14.5	215	6206ZZC3	6205ZZC3
112M	28j6	24	7	8	45	M10X1.50	22	250	180j6	11	4	14.5	215	6207ZZC3	6206ZZC3
132S	38k6	33	8	10	63	M12X1.75	28	300	230j6	12	4	14.5	265	6308ZZC3	6208ZZC3
132M	38k6	33	8	10	63	M12X1.75	28	300	230j6	12	4	14.5	265	6308ZZC3	6208ZZC3
160M	42k6	37	8	12	90	M16X2.00	36	350	250j6	14	5	18.5	300	6310ZZC3	6208ZZC3
160L	42k6	37	8	12	90	M16X2.00	36	350	250j6	14	5	18.5	300	6310ZZC3	6208ZZC3
180M	48k6	42.5	9	14	90	M16X2.00	36	350	250j6	12	5	18.5	300	6312ZZC3	6310ZZC3
180L	48k6	42.5	9	14	90	M16X2.00	36	350	250j6	12	5	18.5	300	6312ZZC3	6310ZZC3
200L	55m6	49	10	16	90	M20X2.50	42	400	300j6	18.5	5	18.5	350	6313C3	6312C3
225S (2P)	55m6	49	10	16	90	M20X2.50	42	450	350j6	20	5	18.5	400	6313C3	6312C3
225S (4P-6P)	60m6	53	11	18	110	M20X2.50	42	450	350j6	20	5	18.5	400	6313C3	6312C3

Note: Distance from the mounting surface of the flange to the shoulder on the shaft is 0 mm.

Note: All dimension is mm

5. DIMENSION

5.3 Footless, Flange-mounted /IM B5.



Frame Size	Fig	E	L	P	N	LA	T	S	M	HE	AC	AD
80M	1	40	303	200	130j6	10	3.5	12	165	116	179	141
90L	2	50	362	200	130j6	10	3.5	12	165	129.5	185	155
100L	3	60	370	250	180j6	11	4	14.5	215	129.5	199	155
112M	3	60	385	250	180j6	11	4	14.5	215	148.5	240	174
132S	3	80	450	300	230j6	12	4	14.5	265	181.5	284	211
132M	3	80	488	300	230j6	12	4	14.5	265	181.5	284	211
160M	3	110	613	350	250j6	14	5	18.5	300	226.5	318	279.5
160L	3	110	613	350	250j6	14	5	18.5	300	226.5	318	279.5
180M	3	110	755	350	250j6	12	5	18.5	300	275	390	340
180L	3	110	755	350	250j6	12	5	18.5	300	275	390	340
200L	3	110	853	400	300j6	18.5	5	18.5	350	295	450	390
225S	4	140	885	450	350j6	20	5	18.5	400	325	440	390

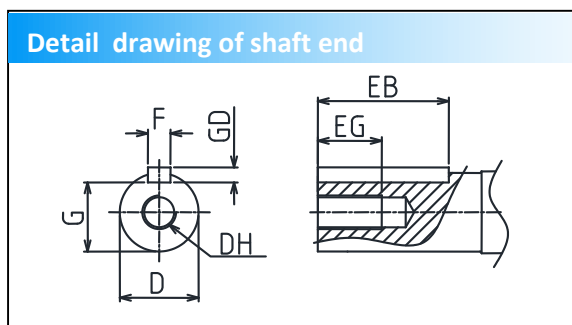
Note: Distance from the mounting surface of the flange to the shoulder on the shaft is 0 mm.

Note: Dimension B* only apply for frame size 180L.

Note: All dimension is mm

5. DIMENSION

5.3 Footless, Flange-mounted/IM B5.

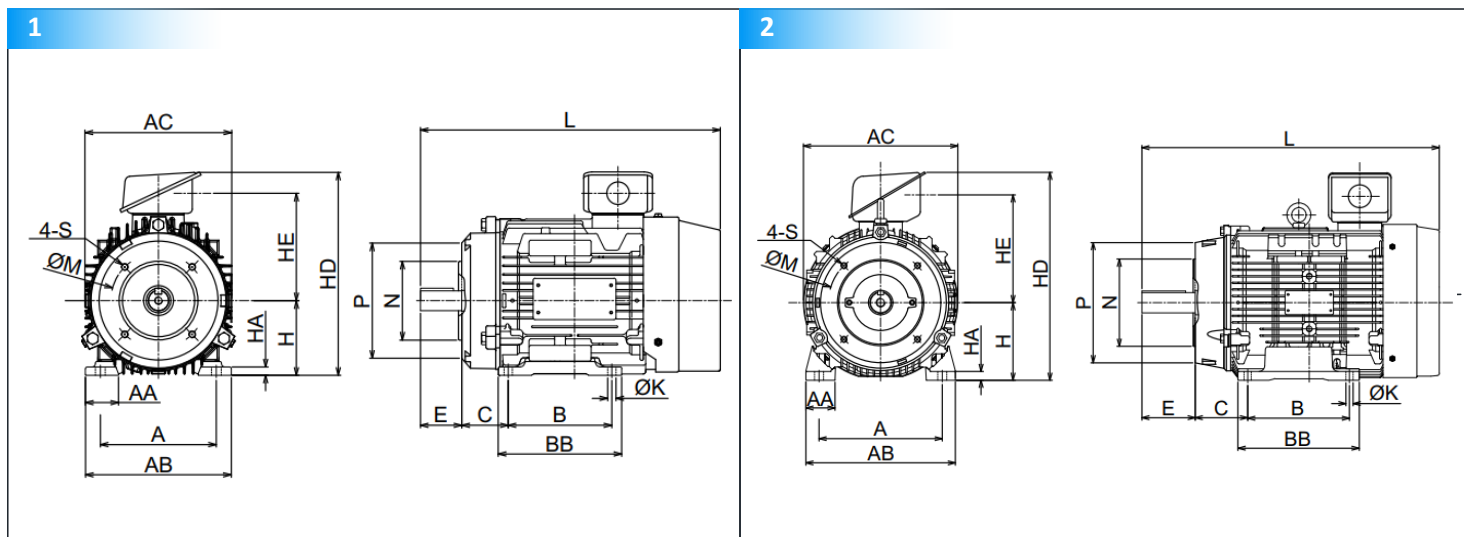


Frame Size	D	G	GD	F	EB	DH	EG	Bearing	
								Drive End	Opposite drive End
80M	19j6	15.5	6	6	32	M6X1.00	16	6204ZZC3	6204ZZC3
90L	24j6	20	7	8	40	M8X1.25	19	6205ZZC3	6205ZZC3
100L	28j6	24	7	8	45	M10X1.50	22	6206ZZC3	6205ZZC3
112M	28j6	24	7	8	45	M10X1.50	22	6207ZZC3	6206ZZC3
132S	38k6	33	8	10	63	M12X1.75	28	6308ZZC3	6208ZZC3
132M	38k6	33	8	10	63	M12X1.75	28	6308ZZC3	6208ZZC3
160M	42k6	37	8	12	90	M16X2.00	36	6310ZZC3	6208ZZC3
160L	42k6	37	8	12	90	M16X2.00	36	6310ZZC3	6208ZZC3
180M	48k6	42.5	9	14	90	M16X2.00	36	6312ZZC3	6310ZZC3
180L	48k6	42.5	9	14	90	M16X2.00	36	6312ZZC3	6310ZZC3
200L	55m6	49	10	16	90	M20X2.50	42	6313C3	6312C3
225S (2P)	55m6	49	10	16	90	M20X2.50	42	6313C3	6312C3
225S (4P-6P)	60m6	53	11	18	110	M20X2.50	42	6313C3	6312C3

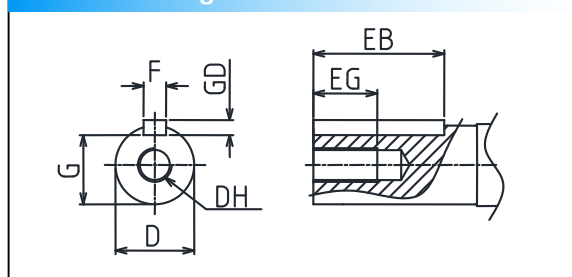
Note: All dimension is mm

5. DIMENSION

5.4 Footed, Small Flange-mounted /IM B34.



Detail drawing of shaft



Frame Size	Fig No.	H	A	B	C	E	K	L	HE	HD	HA	AA	AB	AC	BB
80M	1	80	125	100	50	40	10	303	116	221	9	40	157	179	135
90L	1	90	140	125	56	50	10	362	129.5	245	10	40	176	185	165
100L	2	100	160	140	63	60	12	370	129.5	255	12	40	200	199	180
112M	2	112	190	140	70	60	12	385	148.5	286	12	40	220	240	190
132S	2	132	216	140	89	80	12	450	181.5	343	15	50	260	284	205
132M	2	132	216	178	89	80	12	488	181.5	343	15	50	260	284	240
160M	2	160	254	210	108	110	14.5	613	226.5	439.5	18	60	308	318	265
160L	2	160	254	254	108	110	14.5	613	226.5	439.5	18	60	308	318	310

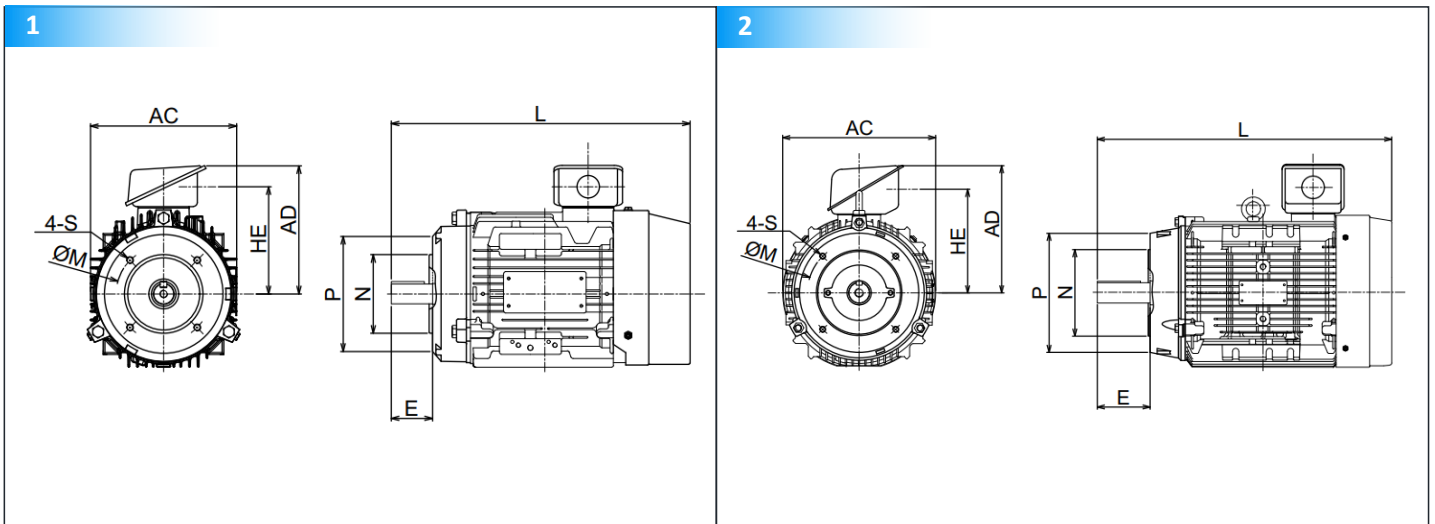
Frame Size	D	G	GD	F	EB	DH	EG	P	N	T	S	S length	M	Bearing	
														Drive End	Opposite Drive End
80M	19j6	15.5	6	6	32	M6X1.00	16	120	80j6	3	M6	12	100	6204ZZC3	6204ZZC3
90L	24j6	20	7	8	40	M8X1.25	19	140	95j6	3	M8	14	115	6205ZZC3	6205ZZC3
100L	28j6	24	7	8	45	M10X1.50	22	160	110j6	3.5	M8	16	130	6206ZZC3	6205ZZC3
112M	28j6	24	7	8	45	M10X1.50	22	160	110j6	3.5	M8	16	130	6207ZZC3	6206ZZC3
132S	38k6	33	8	10	63	M12X1.75	28	200	130j6	3.5	M10	20	165	6308ZZC3	6208ZZC3
132M	38k6	33	8	10	63	M12X1.75	28	200	130j6	3.5	M10	20	165	6308ZZC3	6208ZZC3
160M	42k6	37	8	12	90	M16X2.00	36	250	180j6	4	M12	20	215	6310ZZC3	6208ZZC3
160L	42k6	37	8	12	90	M16X2.00	36	250	180j6	4	M12	20	215	6310ZZC3	6208ZZC3

Note: Distance from the mounting surface of the flange to the shoulder on the shaft is 0 mm.

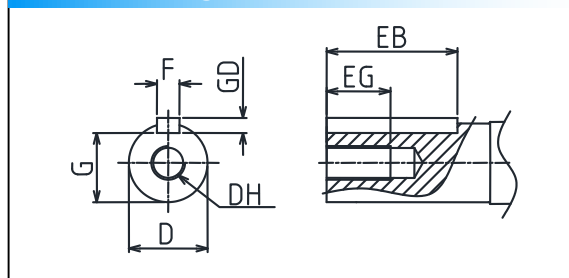
Note: All dimension is mm.

5. DIMENSION

5.5 Footless, Small Flange-mounted /IM B14.



Detail drawing of shaft



Frame Size	Fig	E	L	P	N	T	S	S length	M	HE	AC	AD
80M	1	40	303	120	80j6	3	M6	12	100	116	179	141
90L	1	50	362	140	95j6	3	M8	14	115	129.5	185	155
100L	2	60	370	160	110j6	3.5	M8	16	130	129.5	199	155
112M	2	60	385	160	110j6	3.5	M8	16	130	148.5	240	174
132S	2	80	450	200	130j6	3.5	M10	20	165	181.5	284	211
132M	2	80	488	200	130j6	3.5	M10	20	165	181.5	284	211
160M	2	110	613	250	180j6	4	M12	20	215	226.5	318	279.5
160L	2	110	613	250	180j6	4	M12	20	215	226.5	318	279.5

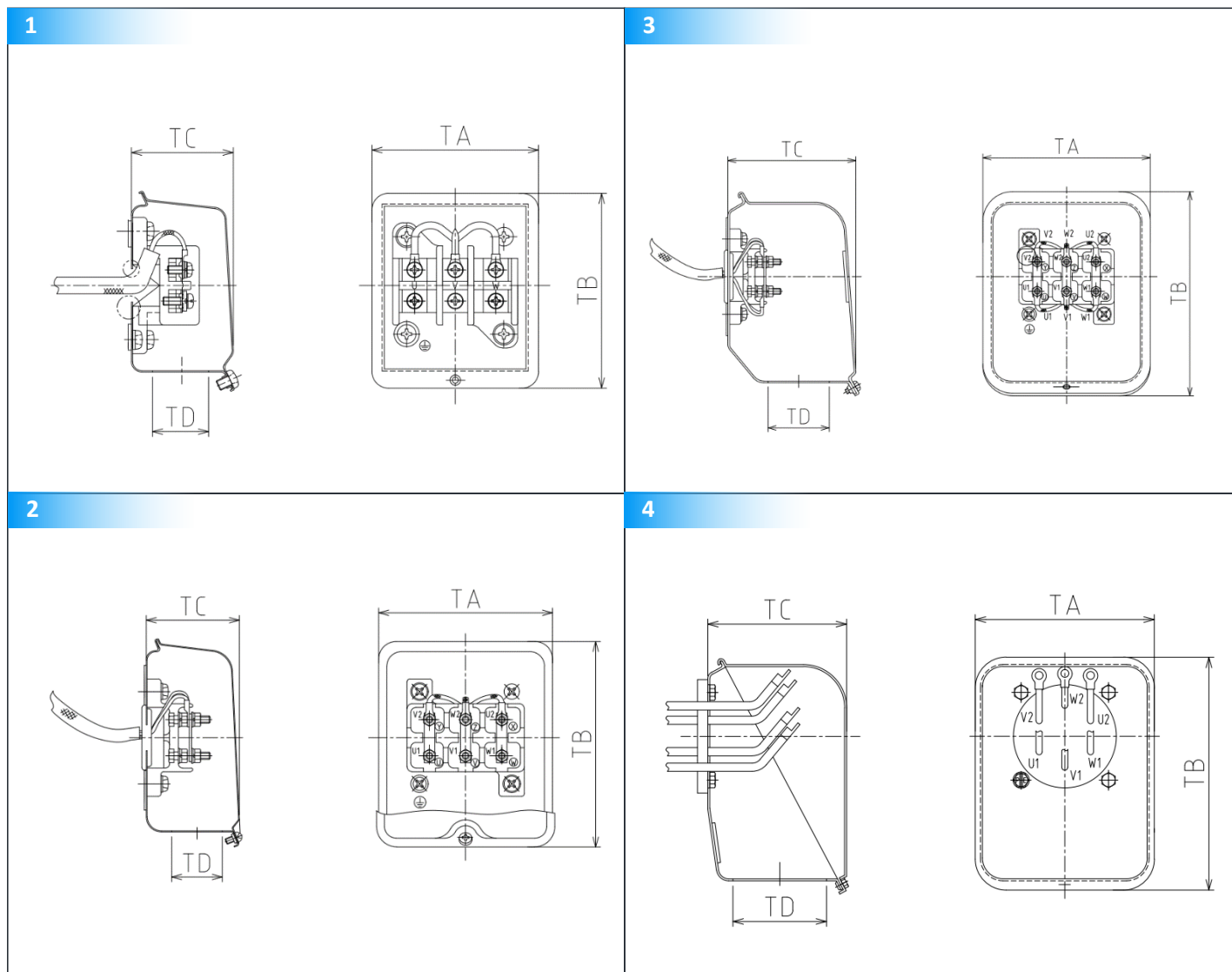
Frame Size	D	G	GD	F	EB	DH	EG	Bearing	
								Drive End	Opposite Drive End
80M	19j6	15.5	6	6	32	M6X1.00	16	6204ZZC3	6204ZZC3
90L	24j6	20	7	8	40	M8X1.25	19	6205ZZC3	6205ZZC3
100L	28j6	24	7	8	45	M10X1.50	22	6206ZZC3	6205ZZC3
112M	28j6	24	7	8	45	M10X1.50	22	6207ZZC3	6206ZZC3
132S	38k6	33	8	10	63	M12X1.75	28	6308ZZC3	6208ZZC3
132M	38k6	33	8	10	63	M12X1.75	28	6308ZZC3	6208ZZC3
160M	42k6	37	8	12	90	M16X2.00	36	6310ZZC3	6208ZZC3
160L	42k6	37	8	12	90	M16X2.00	36	6310ZZC3	6208ZZC3

Note: Distance from the mounting surface of the flange to the shoulder on the shaft is 0 mm.

Note: All dimension is mm.

5. DIMENSION

5.6 Terminal box dimension (IP44)

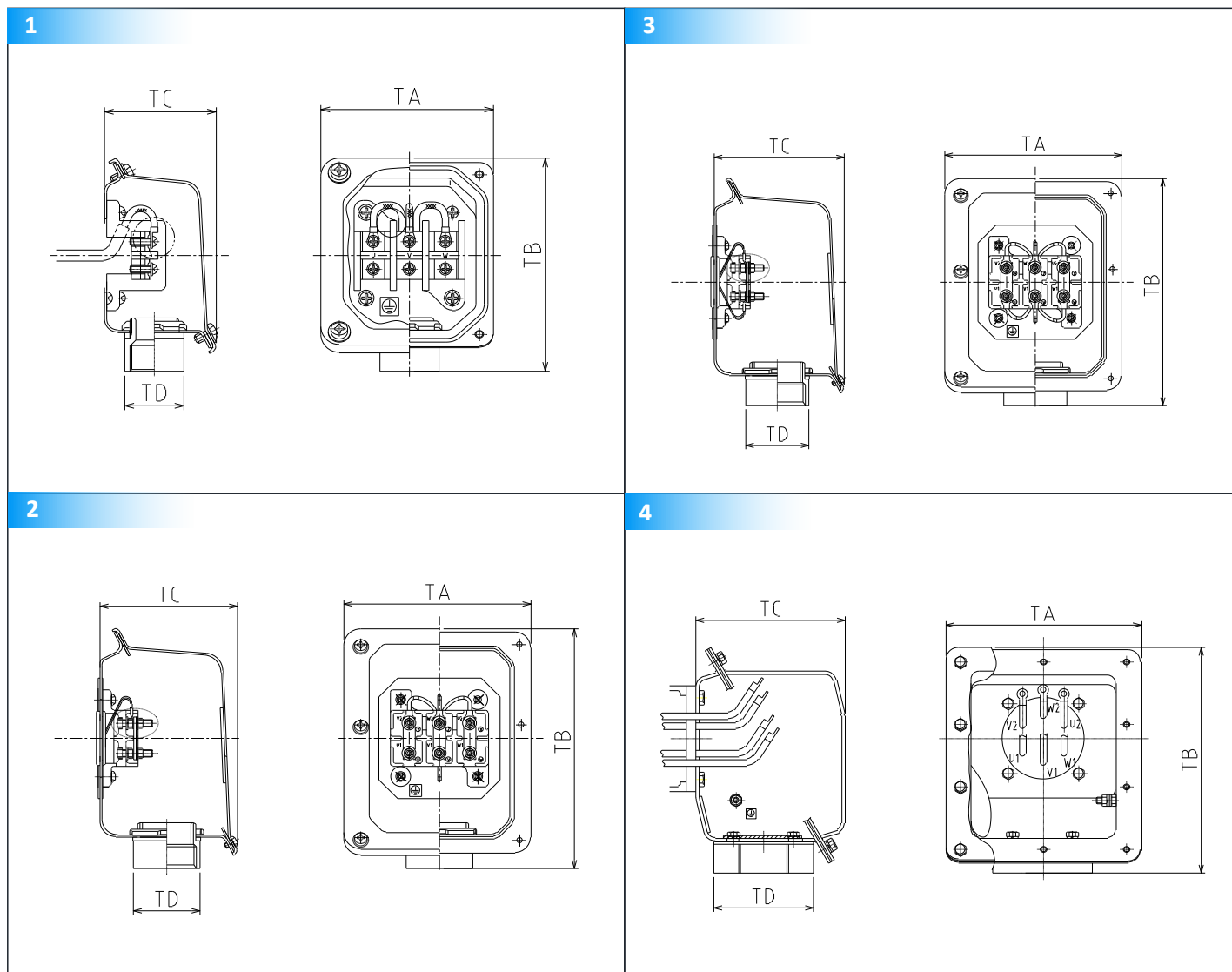


Số khung	Hình	TA	TB	TC	TD	Thermistor
80,90L,100L,112M	1	83	94	49	22~27	No
132S,132M	2	123	142	65	35	No
160M,160L	3	142	173	111	52	No
180M,180L,200L,225S	4	174	225	135	91	No

Note: All dimension is mm.

5. DIMENSION

5.7 Terminal box dimension (IP55)

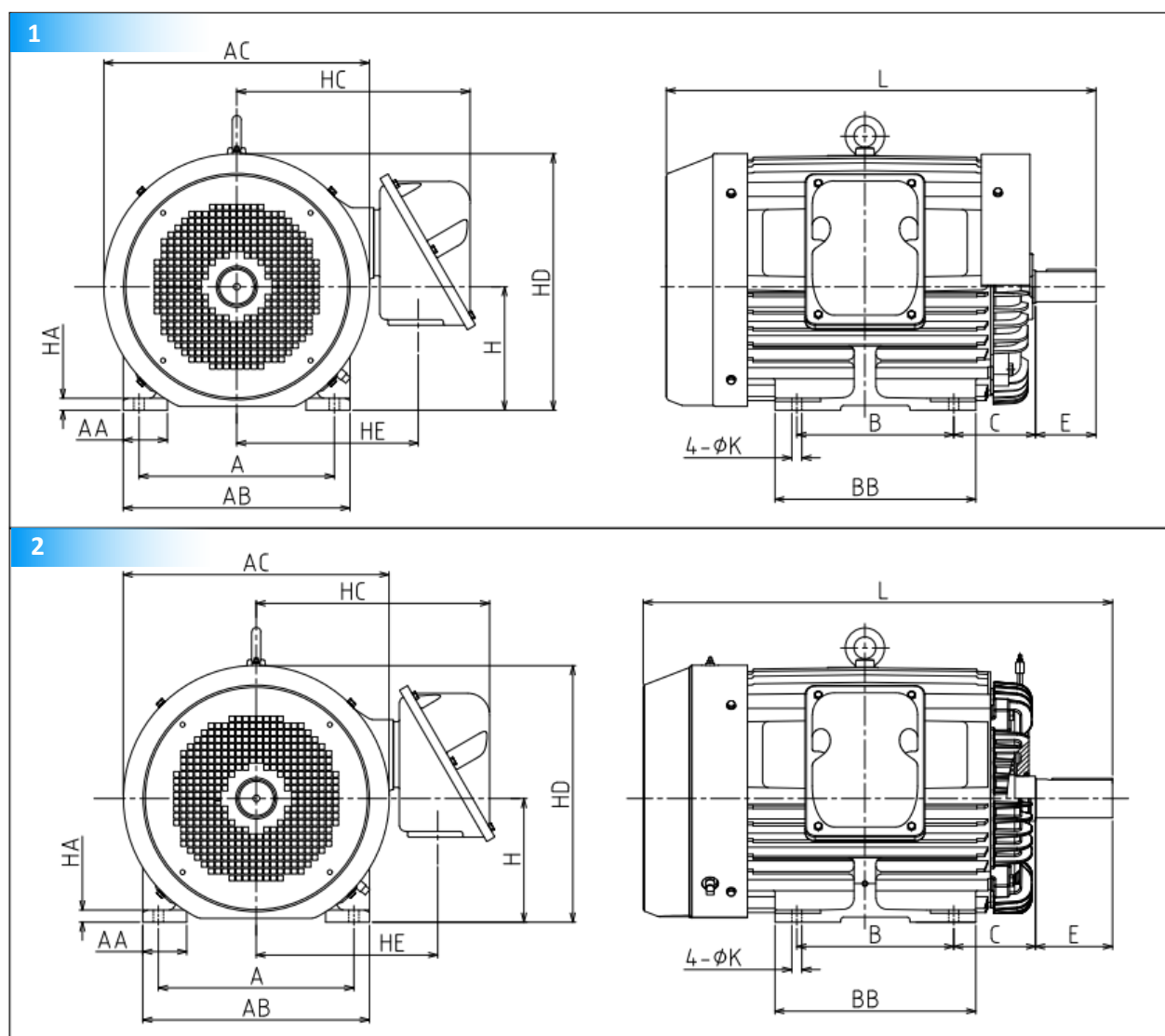


Số khung	Hình	TA	TB	TC	TD	Thermistor
80,90L,100L,112M	1	96	116	60	32	No
132S,132M	2	158	199	113	55	No
160M,160L	3	158	199	113	55	No
180M,180L,200L,225S	4	235	274	180	110	No

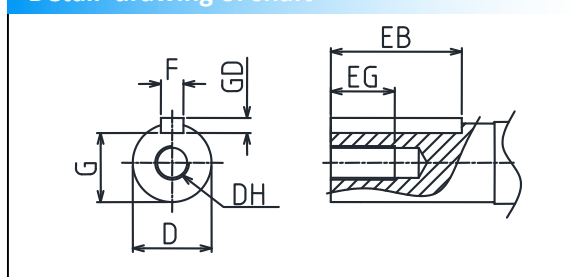
Note: All dimension is mm.

5. DIMENSION

5.8 Frame 225S Foot-mounted.



Detail drawing of shaft



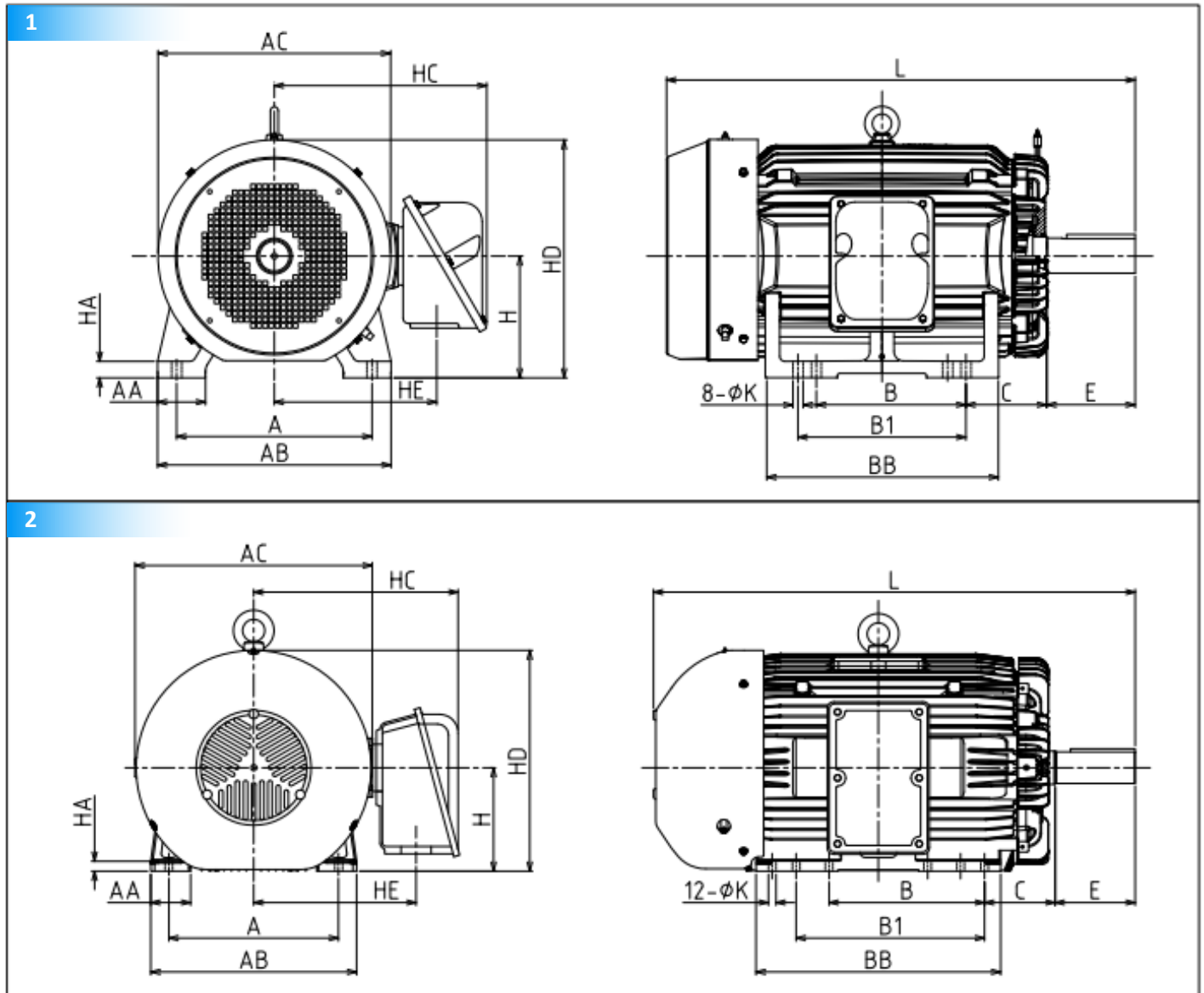
Frame Size	Fig	H	A	B	B1	C	E	K	L	HE	HD	HA	HC	AA	AB	AC	BB
225S(2P)	1	225	356	286	-	149	110	18.5	783	331	467	22	425.5	80	413	484	366
225S(4,6P)	2	225	356	286	-	149	140	18.5	855	331	467	22	425.5	80	413	484	366

Frame Size	D	G	GD	F	EB	DH	EG	Bearing	
								Drive End	Opposite drive End
225S(2P)	55.000	49.000	10.000	16.000	90.0	-	-	6312ZZC3	6312ZZC3
225S(4,6P)	70.000	62.500	12.000	20.000	110.0	-	-	6317C3	6313C3

Note: All dimension is mm.

5. DIMENSION

5.9 Frame 400 & 440 Foot-mounted.



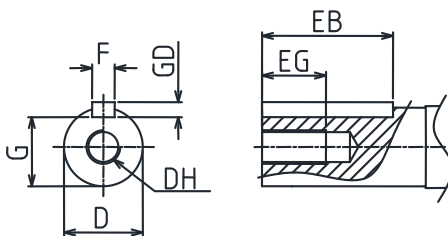
Frame Size	Fig	H	A	B	B1	C	E	K	L	HE	HD	HA	HC	AA	AB	AC	BB
365T(2P)	1	228.6	355.6	285.75	311.15	149.35	95.25	17	786	325	467.6	25	410	80	413	484	366
404/5T(2P)	1	254	406.4	311	349.25	168.15	107.95	21	899	338	495.75	35	441.25	100	486	484	485
404/5T(4,6P)	1	254	406.4	311	349.25	168.15	184.15	21	975	338	495.75	35	441.25	100	486	484	485
444/5T(2P)	2	279.4	457.2	368.3	419.1	190.5	120.65	21	1150	438	599.4	27	550	108	555	640	610
444/5T(4,6P)	2	279.4	457.2	368.3	419.1	190.5	215.9	21	1246	438	599.4	27	550	108	555	640	610
445/7(2P)	2	279.4	457.2	419.1	508	190.5	120.65	21	1204	438	599.4	27	550	108	555	640	660
445/7(4,6P)	2	279.4	457.2	419.1	508	190.5	215.9	21	1299	438	599.4	27	550	108	555	640	660

Note: All dimensions are mm.

5. DIMENSION

5.9 Frame 400 & 440 Foot-mounted

Detail drawing of shaft end

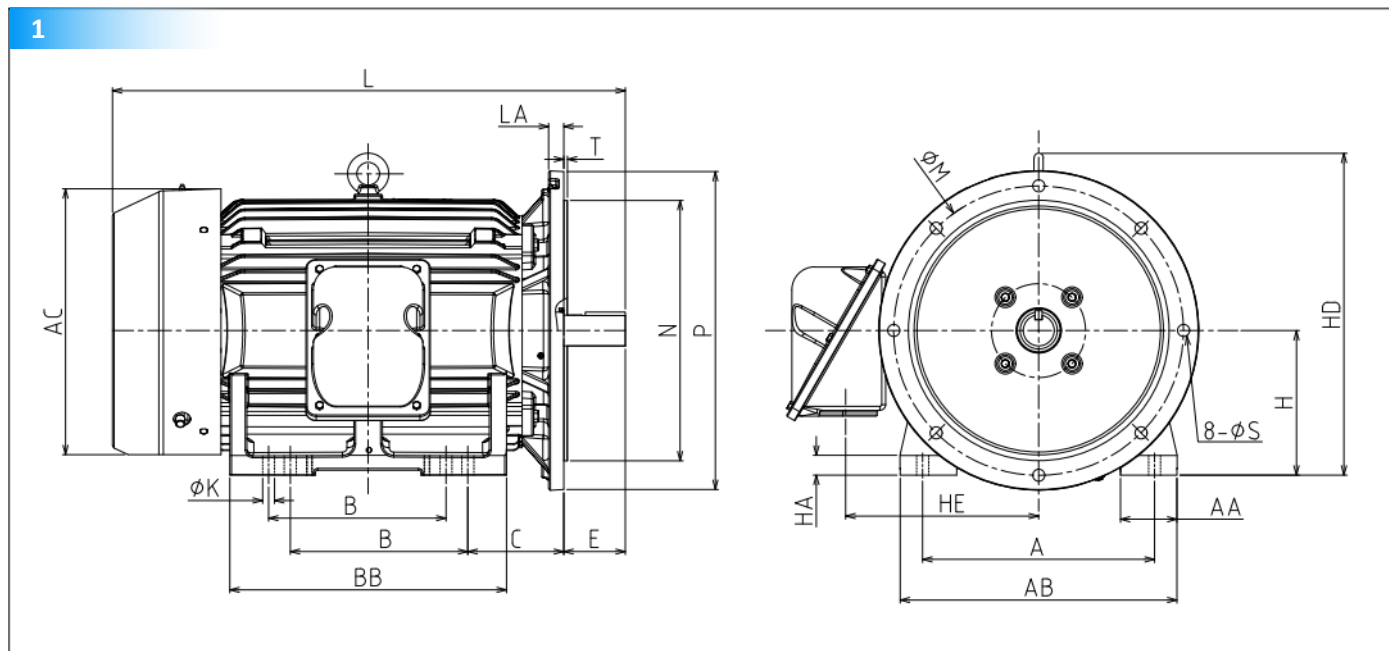


Frame Size	D	G	GD	F	EB	DH	EG	Bearing	
								Drive End	Opposite drive End
365T (2P)	47.625	40.410	12.700	12.700	50.8	-	-	6312ZC3	6312ZC3
404/5T(2P)	53.975	46.863	12.700	12.700	69.9	-	-	6313C3	6313C3
404/5T(4,6P)	73.025	62.23	19.050	19.050	142.9	-	-	6317C3	6313C3
444/5T(2P)	60.325	51.333	15.875	15.875	76.2	-	-	6313C3	6313C3
444/5T(4,6P)	85.725	73.152	22.225	22.225	174.6	-	-	6318C3	6316C3
445/7(2P)	60.325	51.333	15.875	15.875	76.2	-	-	6313C3	6313C3
445/7(4,6P)	85.725	73.152	22.225	22.225	174.6	-	-	6318C3	6316C3

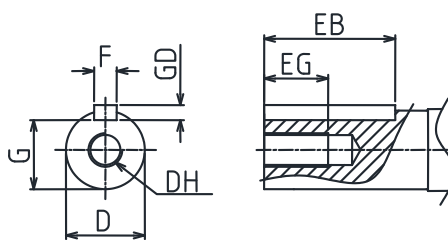
Note: All dimensions are mm.

5. DIMENSION

5.10 Frame 400 & 440 Flange, Foot-mounted.



Detail drawing of shaft



Frame Size	Fig	H	A	B	C	E	K	L	HE	HD	HA	AA	AB	AC	BB
404/5TS (2P)	1	254	406.4	311	168.15	107.95	21	899	338	565	35	100	486	460	485

Frame Size	D	G	GD	F	EB	DH	EG	P	N	LA	T	S	M	Bearing	
														Drive End	Opposite Drive End
404/5TS (2P)	53.97	46.87	12.7	12.7	69.9	-	-	558	457.2	26.4	6.55	21	508	6313C3	6313C3

Note: Distance from the mounting surface of the flange to the shoulder on the shaft is 0 mm.

Note: All dimension is mm