



# IE3 無火花防爆馬達\_CNS防爆認證

## NON-SPARKING MOTORS

For CNS Certificate

**MODEL : AEHFXL**

LOW VOLTAGE SQUIRREL CAGE  
FRAME SIZE : 80 ~ 315



DWG NO.

**31057DXXXXX**

REV. 00

		<b>SPECIFICATION TABLE</b>	MODEL <b>AEHFXL</b>
		HAZARDOUS AREAS Ex nA 3-PHASE LOW VOLTAGE SQUIRREL CAGE MOTORS	
<b>ITEM</b>		<b>STANDARD SPECIFICATION</b>	
<b>R A T I N G</b>	Kind of Motors	Squirrel Cage Induction Motors ( SCIM ) .	
	Design Standards	IEC 60034, CNS 14400 IEC 61241-0, IEC 61241-1, CNS 15591-0, CNS 15591-1	
	Voltages	220 to 500V For F#63~180 ; 220 to 600V For F#200~250 ; 380 to 600V For F#280~315	
	Frequency	60Hz.	
	Output Range	0.75kW ~ 200kW.	
	R.P.M. (Syn.)	3600 ~ 1200 R.P.M ( 2 ~ 6 Poles).	
	Time Duty	Continuous. S1, MCR ( S.F. : 1.0 ).	
	Frame Nos.	80 ~ 315MC .	
	Protection Enclosure	Totally Enclosed Fan Cooled. IECEX Non-sparking, IP55 .	
	Cooling Method	Self External Fan, Surface Cooling ( IC 411 ) .	
Mounting	Horizontal Foot Mounting B3 ( IM 1001 ) .		
<b>A P P L I C A T I O N</b>	Environment Conditions	Place : Zone 2 Ambient Temperature : -20°C ~ 55°C Relative Humidity : Less Than 90%RH ( Non - Condensation ), Altitude : Less Than 1,000m .	
	Ex Marking / Hazardous Location	Ex nA II T3 : Suitable For Zone 2, Group II.	
	Power Source Conditions	Voltage : ± 10%, Frequency : ± 5% , and 10% of Combined Voltage and Frequency, But Frequency Variation Does Not Exceed ± 5% .	
	Method of Starting	Full Voltage Direct On Line or $\lambda$ - $\Delta$ Starting .	
	Operating Conditions	For Belt-Drive Application, However for 2-Pole 22kW ( MA Frame) and Larger, Direct-Coupling Service Only.	
	Direction of Rotation	Bi - Directional .	
	Dimensions	As Page 4~7	
	Frame	High Grade Cast Iron .	
	End Bracket	High Grade Cast Iron .	
	External Fan	Metal (Copper, Aluminum) For Frame Nos. 280 & 315, 2P Conductive Polypropylene ( Non-Sparking Material ) For The others	
	Fan Cover.	Pressed Steel .	
	Shaft	Carbon Steel, Cylindrical Single Extension With Keyway and Key .	
<b>C O N S T R U C T I O N</b>	Bearing	Bracket Mounting, Vacuum De - Gassed High Quality Open Bearings for Frame Nos. of 250~315, Grease Pre-Packed Shielded Rolling Bearings for The Others .	
	Lubricant	Mineral Oil, Li - Base Grease ( MULTEMP SRL).	
<b>P E R F O R M A N C E</b>	Test Procedure	CNS 14400 C4482 · IEEE-112 Method B and Full Voltage Measuring Performance.	
	Winding Temperature Rise	F#63~180M : Not to Exceed 80°C Rise by Resistance Method at S.F.1.0 F#180L~315M : Not to Exceed 90°C Rise by Resistance Method at S.F.1.0	
	Over Speed	120% Syn. R.P.M. for 2 Minutes.	
	Over Torque	160% Rated Torque for 15 Sec .	
	Certification	Ex nA II T3	

# PERFORMANCE DATA

MODEL  
**AEHFXL**

HAZARDOUS AREAS Ex nA  
3-PHASE LOW VOLTAGE SQUIRREL CAGE MOTORS

**TEFC , CLASS F , 55°C AMBIENT TEMP.  
CONTINUOUS DUTY  
S.F. 1.0 220V, 380V 60HZ  
TYPICAL PERFORMANCE**

**IE3**

OUTPUT		FULL LOAD RPM	FRAME SIZE	EFFICIENCY			POWER FACTOR			CURRENT(A)			TORQUE				ROTOR GD <sup>2</sup> kg-m <sup>2</sup>
				FULL LOAD (%)	3/4 LOAD (%)	1/2 LOAD (%)	FULL LOAD (%)	3/4 LOAD (%)	1/2 LOAD (%)	FULL LOAD		LOCKED ROTOR	FULL LOAD kg-m	LOCKED ROTOR %FLT	PULL UP %FLT	BREAK DOWN %FLT	
										220V	380V						
1	0.75	3460	80	80.0	79.5	76.0	84.5	78.0	67.0	2.91	1.69	15	0.211	435	375	430	0.006
		1730	80	85.5	84.5	82.5	72.0	62.0	48.0	3.20	1.85	15	0.422	415	400	420	0.013
		1145	90L	82.5	83.0	81.5	70.0	62.0	49.0	3.41	1.97	12	0.637	195	175	265	0.022
2	1.5	3445	90L	85.5	86.0	84.5	86.0	81.0	71.0	5.35	3.10	27	0.424	395	375	395	0.011
		1745	90L	87.5	88.0	86.0	78.0	70.0	57.0	5.77	3.34	30	0.836	325	290	385	0.023
		1165	112M	88.5	88.0	85.5	69.0	59.0	47.0	6.45	3.73	25	1.253	160	155	270	0.071
3	2.2	3455	90L	86.5	86.5	85.5	86.5	81.5	71.0	7.72	4.47	41	0.620	390	370	400	0.015
		1745	100L	89.5	90.0	89.5	82.0	75.0	63.0	7.87	4.55	43	1.227	320	250	330	0.050
		1160	112M	89.5	89.0	87.5	71.0	61.0	49.0	9.09	5.26	33	1.845	165	155	265	0.084
5	3.7	3475	112M	88.5	89.0	88.0	90.5	87.0	80.0	12.1	7.02	69	1.036	320	280	385	0.046
		1750	112M	89.5	90.0	89.5	82.0	77.0	67.0	13.2	7.66	64	2.057	225	180	325	0.083
		1165	132S	89.5	90.0	89.0	78.0	72.0	60.0	13.9	8.05	61	3.090	185	170	280	0.143
7.5	5.5	3510	132S	90.2	90.2	89.5	89.0	86.5	80.0	18.0	10.4	81	1.525	245	200	295	0.760
		1760	132S	91.7	91.5	91.0	85.0	81.5	72.5	18.5	10.7	93	3.041	250	195	310	0.133
		1175	132M	91.0	91.0	90.0	75.0	68.0	55.0	21.1	12.2	98	4.554	230	210	345	0.217
10	7.5	3510	132S	90.2	90.2	89.5	87.0	84.0	77.0	25.1	14.5	116	2.079	255	215	300	0.076
		1765	132M	91.7	92.0	91.5	85.5	81.0	72.0	25.1	14.5	133	4.135	270	200	320	0.173
		1175	160M	91.7	92.0	91.0	79.0	73.5	62.5	27.2	15.7	122	6.211	280	235	285	0.484
15	11	3535	160M	91.7	92.0	91.0	90.5	89.0	84.0	34.8	20.1	162	3.028	235	185	285	0.183
		1765	160M	92.4	92.4	92.0	86.0	83.0	74.5	36.3	21.0	168	6.064	245	185	275	0.367
		1170	160L	91.7	92.0	91.5	80.0	75.0	64.0	39.4	22.8	185	9.148	305	255	290	0.630
20	15	3530	160M	91.7	92.0	91.5	90.0	88.0	81.0	47.7	27.6	226	4.135	240	190	290	0.186
		1765	160L	93.0	93.0	92.5	86.0	83.0	75.0	49.2	28.5	232	8.269	255	190	285	0.462
		1175	180MC	92.0	93.0	93.0	83.0	80.0	72.0	51.6	29.8	197	12.42	240	185	235	0.630
25	18.5	3535	160L	92.4	92.4	92.0	91.0	90.0	84.5	57.7	33.4	289	5.092	260	200	295	0.237
		1770	180MC	93.6	93.6	92.5	87.0	84.5	77.5	59.6	34.5	272	10.17	250	190	265	0.707
		1180	180LC	93.5	93.5	93.0	82.0	77.0	67.0	63.3	36.7	307	15.25	305	245	310	0.810
30	22	3545	180MA	93.0	93.0	92.0	88.5	86.5	80.0	70.1	40.6	324	6.038	225	180	280	0.283
		1775	180MC	93.6	93.5	93.5	84.0	81.0	73.0	73.4	42.5	324	12.06	220	160	250	0.792
		1180	180LC	93.5	93.5	93.5	83.0	78.5	69.0	74.4	43.1	342	18.14	285	225	285	1.917
40	30	3550	180LA	93.5	94.0	93.0	92.0	90.5	86.0	91.5	53.0	486	8.223	280	215	325	0.434
		1775	180LC	94.1	94.5	94.0	85.5	83.5	77.0	97.9	56.7	417	16.45	225	185	255	1.005
		1180	200LC	94.1	94.0	93.5	86.5	84.5	78.0	96.7	56.0	359	24.74	210	165	215	3.023
50	37	3555	200LA	93.0	92.5	91.5	89.0	86.5	79.0	117	67.9	556	10.13	170	145	295	1.018
		1780	200LC	95.0	95.0	94.5	85.5	83.0	75.0	120	69.2	504	20.23	215	180	250	1.896
		1185	200LC	94.1	94.5	93.5	85.0	81.5	73.0	121	70.3	498	30.38	240	185	240	3.605
60	45	3555	200LA	93.6	93.5	92.5	91.5	91.5	88.0	138	79.8	579	12.32	160	130	265	1.187
		1775	200LC	95.5	95.5	95.5	85.5	83.0	75.0	145	83.7	608	24.67	215	185	260	1.979
		1185	225SC	94.5	94.5	94.0	86.5	83.5	76.0	144	83.6	631	36.95	240	215	260	5.106
75	55	3570	225SA	94.5	95.0	94.5	90.0	90.0	86.0	170	98.3	758	14.99	165	140	290	1.541
		1785	225SC	95.5	95.5	95.0	86.5	84.5	78.0	175	101	834	29.98	290	205	260	3.911
		1185	250SC	95.0	95.5	94.5	83.0	79.5	71.0	183	106	729	45.16	190	165	260	6.492
100	75	3565	250SA	94.5	94.5	94.0	88.5	87.0	82.0	235	136	955	20.47	140	120	285	1.759
		1780	250SC	95.4	95.0	93.5	86.0	84.5	78.0	240	139	1083	41.00	190	150	300	4.853
		1185	250MC	95.0	94.5	94.0	86.0	83.5	76.0	241	139	938	61.58	185	160	250	8.175
125	90	3575	250MA	95.0	94.5	93.5	89.0	87.0	82.0	279	162	1430	24.495	135	140	310	2.287
		1785	250MC	95.4	95.5	95.0	86.0	83.0	75.0	288	167	1471	49.059	200	185	305	6.111
		1190	280S	95.2	95.1	95.0	85.5	83.0	76.1	-	168	1187	73.588	190	171	220	15.10
150	110	3579	280S	95.2	94.8	93.6	88.0	85.0	79.1	-	199	1890	29.905	160	145	250	3.900
		1788	280S	95.8	95.5	94.8	86.0	83.6	76.8	-	203	1737	59.860	130	117	280	9.800
		1190	280M	95.8	95.8	95.2	84.5	80.9	72.2	-	206	1563	89.941	190	171	260	17.90
175	132	2977	280M	95.4	95.2	94.3	88.0	86.5	81.9	-	239	2113	43.143	160	145	250	4.900
		1788	280M	96.2	96.0	95.2	86.0	83.3	76.1	-	242	1911	71.832	130	117	270	11.500
		1190	315S	95.8	95.8	95.7	85.0	81.8	73.9	-	246	1737	107.93	200	180	240	19.80
215	160	3579	315S	95.4	95.1	94.5	90.0	89.2	85.8	-	283	2200	43.498	160	145	250	5.800
		1788	315S	96.2	96.1	95.6	87.0	84.8	77.3	-	290	2432	87.069	130	117	270	12.80
		1190	315M	95.8	95.8	95.7	85.5	82.9	75.9	-	297	1853	130.82	200	180	220	22.70
270	200	3579	315M	95.8	95.8	95.5	90.5	90.4	86.5	-	350	2449	54.373	150	135	230	6.300
		1788	315M	96.2	96.1	96.0	86.0	82.0	73.0	-	367	3011	108.84	130	117	250	14.40

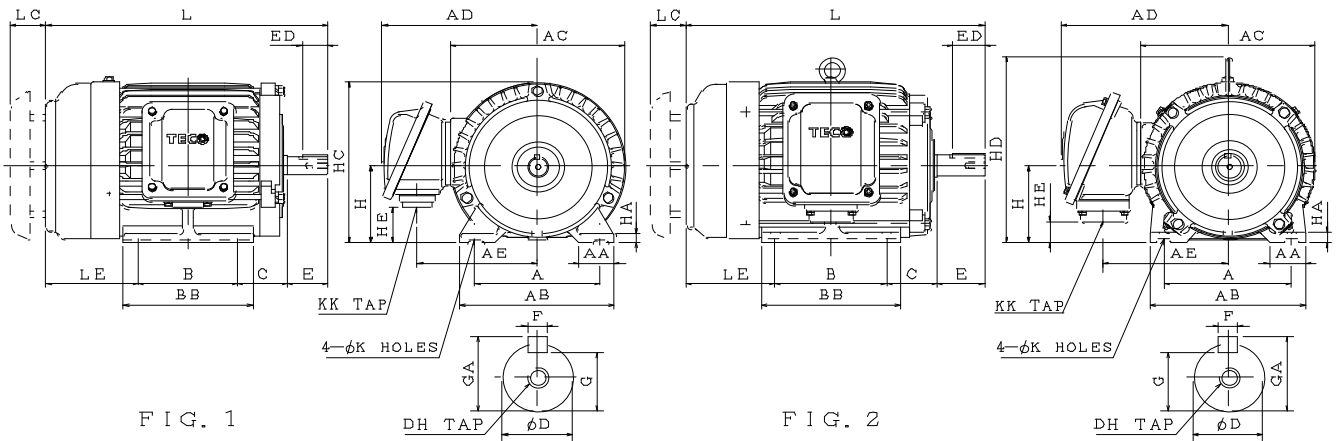
# OUTLINE DIMENSIONS SHEET

MODEL

**AEHFXL**

HAZARDOUS AREAS Ex nA  
3-PHASE LOW VOLTAGE SQUIRREL CAGE MOTORS  
FRAME NOS. 63 ~ 132M

Totally Enclosed Fan-Cooled Type, Squirrel-Cage Rotor.



Dimension in mm

Output (kW)			FRAME SIZE	FIG. NO.	A	AA	AB	AC	AD	AE	B	BB	C	H	HA	HC	HD	K
2P	4P	6P																
0.18	0.18	—	63	1	100	28	120	144	138	100	80	100	40	63	8.0	135	—	7
0.37	0.37	—	71		112	35.5	140	162	148	110	90	115	45	71	8.0	152	—	7
0.75	0.75	0.37	80		125	35.5	155	177	179	130	100	130	50	80	9.0	168	—	10
1.5 2.2	1.5	0.75	90L		140	35.5	170	200	192	143	125	150	56	90	10.0	190	—	10
—	2.2	1.5	100L	2	160	45.0	195	219	202	153	140	175	63	100	12.5	—	243	12
3.7	3.7	2.2	112M		190	45.0	224	238	211	162	140	175	70	112	14.0	—	265	12
5.5 7.5	5.5	3.7	132S		216	45.0	250	273	249	187	140	175	89	132	16.0	—	310	12
—	7.5	5.5	132M		216	45.0	250	273	249	187	178	212	89	132	16.0	—	310	12

FRAME SIZE	KK	L	LC	LE	SHAFT EXTENSION							BEARING		APPROX. WEIGHT KGS.
					D	E	ED	F	G	GA	DH	DRIVE END	OPPOSITE DRIVE END	
63	PF 1/2"	219	34.0	76	11	23	18	4	8.5	12.5	M4 × 8	6201ZZ	6201ZZ	9
71	PF 1/2"	251	34.0	86	14	30	24	5	11.0	16.0	M5 × 10	6202ZZ	6202ZZ	12
80	PF 1/2"	283	41.0	93	19	40	25	6	15.5	21.5	M6 × 12	6204ZZ	6204ZZ	19
90L	PF 1/2"	333	41.0	102	24	50	32	8	20.0	27.0	M8 × 16	6205ZZ	6205ZZ	26
100L	PF 1/2"	375	41.0	112	28	60	40	8	24.0	31.0	M10 × 20	6206ZZ	6305ZZ	39
112M	PF 1/2"	392	48.0	122	28	60	40	8	24.0	31.0	M10 × 20	6306ZZ	6306ZZ	50
132S	PF 1"	454	48.0	145	38	80	64	10	33.0	41.0	M12 × 24	6308ZZ	6306ZZ	72
132M	PF 1"	492	48.0	145	38	80	64	10	33.0	41.0	M12 × 24	6308ZZ	6306ZZ	82

Note : 1. Tolerance of shaft and diameter D : Under  $\phi 19 \sim \phi 28$  : j6,  $\phi 38$  : k6.  
2. Tolerance of shaft center high H : +0, -0.5.

# OUTLINE DIMENSIONS SHEET

MODEL

**AEHFXL**

HAZARDOUS AREAS Ex nA  
3-PHASE LOW VOLTAGE SQUIRREL CAGE MOTORS

Totally Enclosed Fan-Cooled Type, Squirrel-Cage Rotor.

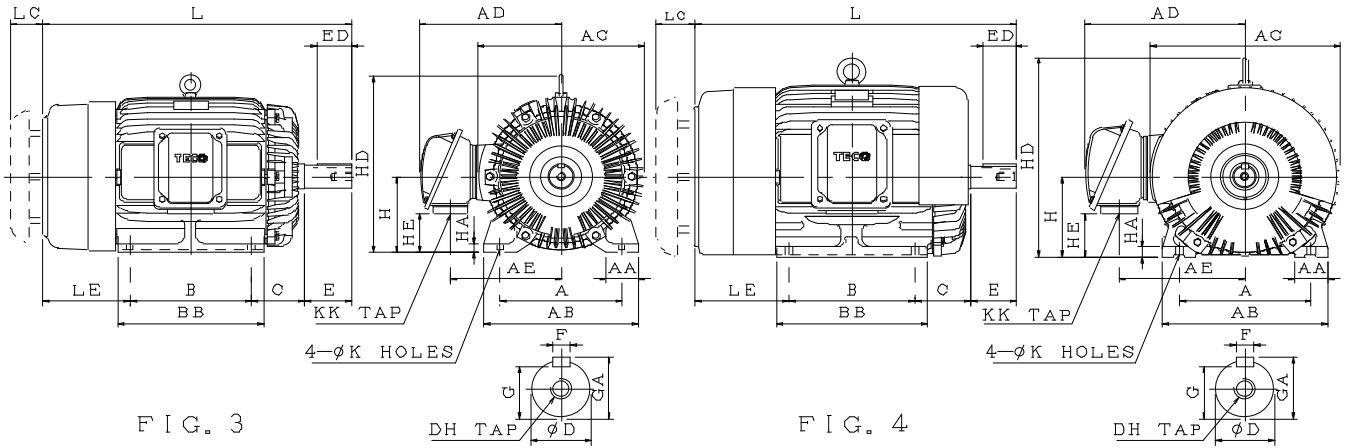


FIG. 3

FIG. 4

Dimension in mm

Output (kW)			FRAME SIZE	FIG. NO.	A	AA	AB	AC	AD	AE	B	BB	C	H	HA	HD	HE	K
2P	4P	6P																
11 15	11	7.5	160M	3	254	50	300	334	287	225	210	250	108	160	18.0	377	83	14.5
18.5	15	11	160L		254	50	300	334	287	225	254	300	108	160	18	377	83	14.5
22	—	—	180MA	4	279	75	355	382	312	250	241	335	121	180	22.0	431	103	14.5
—	18.5 22	15	180MC	3	279	75	355	382	312	250	241	335	121	180	22	431	103	14.5
30	—	—	180LA	4	279	75	355	382	312	250	279	389	121	180	22.0	431	103	14.5
—	30	18.5 22	180LC	3	279	75	355	382	312	250	279	389	121	180	22	431	103	14.5
37 45	—	—	200LA	4	318	80	400	458	392	307	305	400	133	200	25.0	499	88	18.5
—	37 45	30 37	200LC	3	318	80	400	458	392	307	305	400	133	200	25	499	88	18.5
55	—	—	225SA	4	356	100	450	510	452	355	286	415	149	225	30.0	550	57	18.5
—	55	45	225SC	3	356	100	450	510	452	355	286	415	149	225	30	550	57	18.5

FRAME SIZE	KK	L	LC	LE	SHAFT EXTENSION							BEARING		APPROX. WEIGHT KGS
					D	E	ED	F	G	GA	DH	DRIVE END	OPPOSITE DRIVE END	
160M	PF 1"	608.0	42	180.0	42	110	80	12	37.0	45.0	M16×32	6309ZZ	6307ZZ	133
160L	PF 1"	652.0	42	180.0	42	110	80	12	37.0	45.0	M16×32	6309ZZ	6307ZZ	148
180MA	PF1 1/2"	710.0	50	238.0	48	110	80	14	42.5	51.5	M16×32	6311ZZC3	6310ZZC3	187
180MC	PF1 1/2"	710.0	50	238.0	48	110	80	14	42.5	51.5	M16×32	6311ZZ	6310ZZ	203
180LA	PF1 1/2"	764.0	50	254.0	55	110	80	16	49.0	59.0	M20×40	6312ZZC3	6310ZZC3	206
180LC	PF1 1/2"	764.0	55	254.0	55	110	80	16	49.0	59.0	M20×40	6312ZZ	6310ZZ	231
200LA	PF 2"	809.5	55	261.5	55	110	80	16	49.0	59.0	M20×40	6312ZZC3	6212ZZC3	322
200LC	PF 2"	839.5	60	261.5	60	140	110	18	53.0	64.0	M20×40	6314ZZ	6212ZZ	334
225SA	PF 2"	850.0	60	305.0	55	110	80	16	49.0	59.0	M20×40	6312ZZC3	6212ZZC3	420
225SC	PF 2"	880.0	60	305.0	65	140	110	18	58.0	69.0	M20×40	6315ZZ	6213ZZ	432

**Note :** 1. Tolerance of shaft end diameter D : Under  $\phi 42 \sim \phi 48$  : k6,  $\phi 55 \sim \phi 70$  : m6.  
2. Tolerance of shaft center high H : +0, -0.5.

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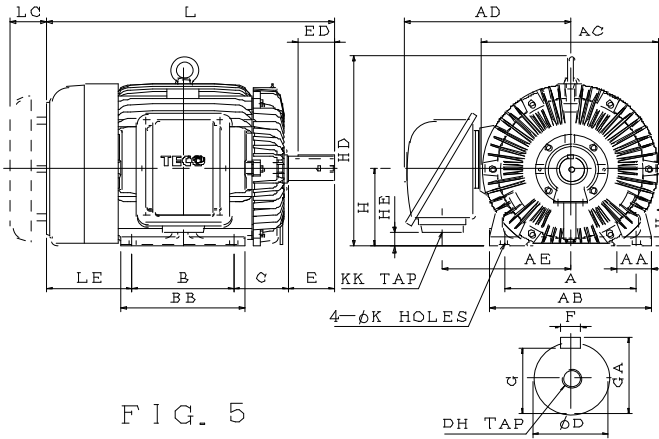


FIG. 5

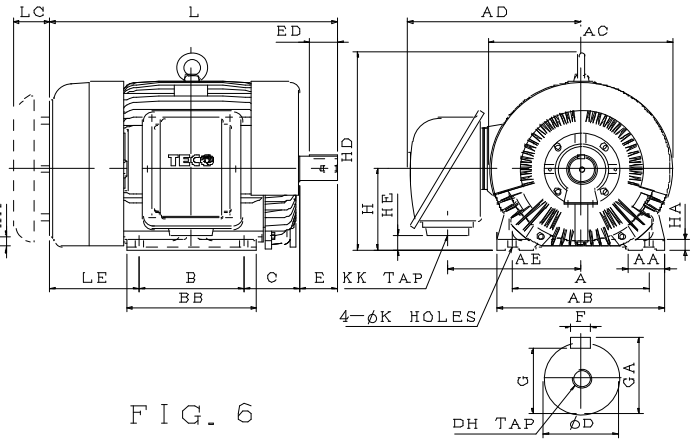


FIG. 6

Dimension in mm

Output (kW)			FRAME SIZE	FIG. NO.	A	AA	AB	AC	AD	AE	B	BB	C	H	HA	HD	HE	K
2P	4P	6P																
75	—	—	250SA	6	406	110	500	545	513	395	311	385	168	250	32	612	42	24
—	75	55	250SC	5	406	110	500	545	513	395	311	385	168	250	32	612	42	24
90	—	—	250MA	6	406	110	500	545	513	395	349	480	168	250	32	612	42	24
—	90	75	250MC	5	406	110	500	545	513	395	349	480	168	250	32	612	42	24

FRAME SIZE	KK	L	LC	LE	SHAFT EXTENSION							BEARING		APPROX. WEIGHT KGS
					D	E	ED	F	G	GA	DH	DRIVE END	OPPOSITE DRIVE END	
250SA	PF 3"	852.5	71	263.5	55	110	80	16	49.0	59.0	M20×40	6313C3	6313C3	458
250SC	PF 3"	882.5	71	263.5	75	140	110	20	67.5	79.5	M20×40	NU316	6313	517
250MA	PF 3"	947.5	71	320.5	55	110	80	16	49.0	59.0	M20×40	6313C3	6313C3	526
250MC	PF 3"	977.5	71	320.5	75	140	110	20	67.5	79.5	M20×40	NU316	6313	584

- Note :**
1. Tolerance of shaft end diameter D : Under  $\phi 42 \sim \phi 48$  : k6,  $\phi 55 \sim \phi 70$  : m6.
  2. Tolerance of shaft center high H : +0, -0.5.

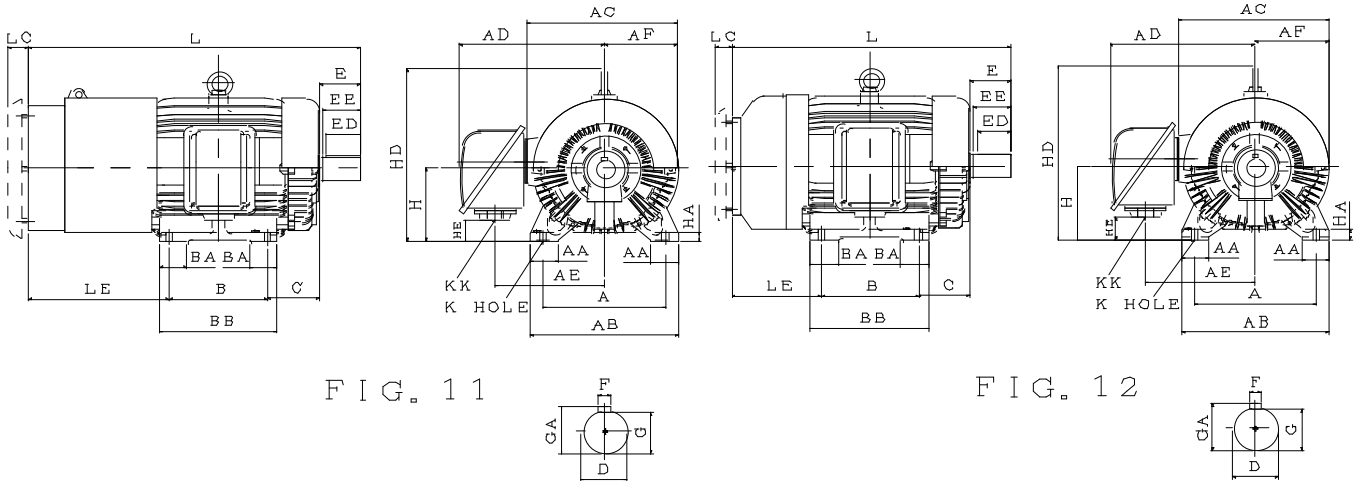
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3-PHASE LOW VOLTAGE SQUIRREL CAGE MOTORS

Totally Enclosed Fan-Cooled Type, Squirrel-Cage Rotor.



Dimension in mm

Output (kW)			FRAME	FIG.	A	AA	AB	AC	AD	AE	AF	B	BA	BB	C	EE	H	HA
2P	4P	6P	SIZE	NO.														
110	—	—	280S	11	457	110	560	625	610	455	305	368	110	445	190	104	280	36
—	110	90		12	457	110	560	625	610	455	305	368	110	445	190	157	280	36
132	—	—	280M	11	457	110	560	625	610	455	305	419	130	495	190	104	280	36
—	132	110		12	457	110	560	625	610	455	305	419	130	495	190	157	280	36

FRAME SIZE	HD	HE	K	KK	L	LC	LE	SHAFT EXTENSION						BEARING		APPROX.
								D	E	ED	F	G	GA	OPPOSITE		WEIGHT
														DRIVE END	DRIVE END	KGS
280S	710	62	24	PF 4"	1226	71.3	558	55	110	80	16	49	59	6314C3	6314C3	848
	710	62	24	PF 4"	1072	71.3	344	85	170	140	22	76	90	NU320	6316	873
280M	710	62	24	PF 4"	1277	71.3	558	55	110	80	16	49	59	6314C3	6314C3	898
	710	62	24	PF 4"	1122	71.3	343	85	170	140	22	76	90	NU320	6316	943

- Note :**
1. Tolerance of shaft end diameter D : Under  $\phi 42 \sim \phi 48$  : k6,  $\phi 55 \sim \phi 70$  : m6.
  2. Tolerance of shaft center high H : +0, -0.5.

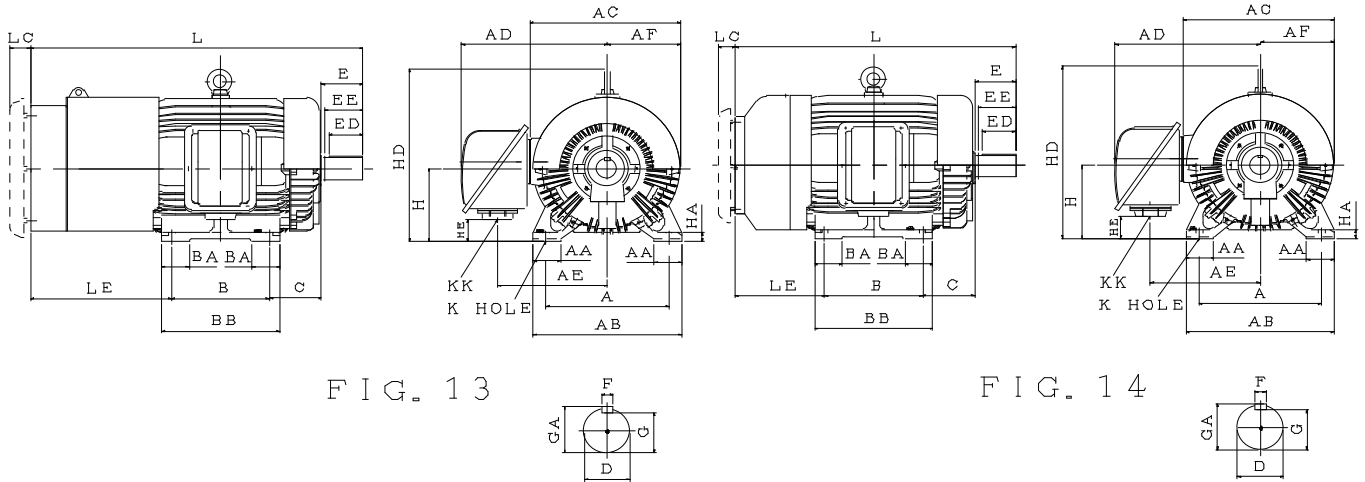
# OUTLINE DIMENSIONS SHEET

MODEL

**AEHFXL**

HAZARDOUS AREAS Ex nA  
3-PHASE LOW VOLTAGE SQUIRREL CAGE MOTORS

Totally Enclosed Fan-Cooled Type, Squirrel-Cage Rotor.



Dimension in mm

Output (kW)			FRAME	FIG.	A	AA	AB	AC	AD	AE	AF	B	BA	BB	C	EE	H	HA
2P	4P	6P	SIZE	NO.														
160	—	—	315S	13	508	115	615	625	610	455	305	406	115	490	216	104	315	40
—	160	132		14	508	115	615	625	610	455	305	406	115	490	216	157	315	40
200	—	—	315M	13	508	115	615	625	610	455	305	457	225	667	216	104	315	40
—	200	160		14	508	115	615	625	610	455	305	457	115	540	216	157	315	40

FRAME SIZE	HD	HE	K	KK	L	LC	LE	SHAFT EXTENSION						BEARING		APPROX.
								D	E	ED	F	G	GA	OPPOSITE		WEIGHT
														DRIVE END	DRIVE END	
315S	743	97	28	PF 4"	1376	71.3	369	55	110	80	16	49	59	6314C3	6314C3	905
	743	97	28	PF 4"	1161	71.3	369	95	170	140	25	86	100	NU320	6316	1025
315M	743	97	28	PF 4"	1496	71.3	711	55	110	80	16	49	59	6314C3	6314C3	1059
	743	97	28	PF 4"	1212	71.3	369	95	170	140	25	86	100	NU320	6316	1155

- Note :**
1. Tolerance of shaft end diameter D : Under  $\phi 42 \sim \phi 48$  : k6,  $\phi 55 \sim \phi 70$  : m6.
  2. Tolerance of shaft center high H : +0, -0.5.