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MAR. '14/TA-7300

TECO

Non-Sparking AEHBXC

Squirrel Cage Induction Motor

- High Efficiency
- Three Phase
- Low Voltage
- For hazardous areas

Non-Sparking

Squirrel Cage Induction

Type of Protection n

Zone 0 / 20

Continously

Permanent presence of explosive atmosphere in normal operation

Zone 1 / 21

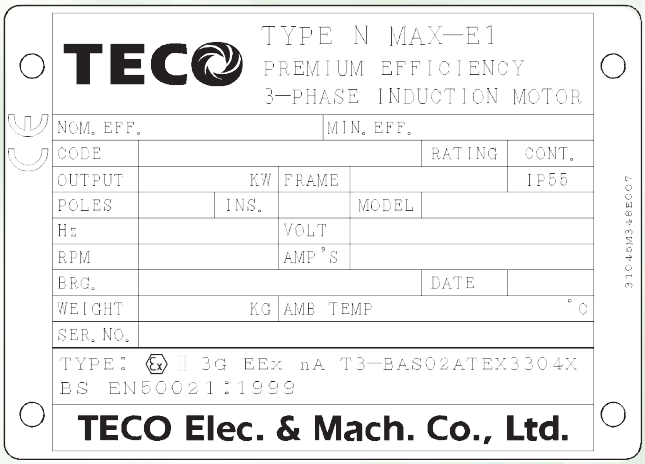
Occasionally

In normal operation an explosive atmoshpere is likely to occur

Zone 2 / 22

Accidental

In normal operation an explosiveatmosphere is not likely to occur, unless by a failure, but for a short period of time.



II 3 G **EEx nA T3**

The European Commission mark for Ex products

ATEX Coding | Explosive | Non-sparking | Surface Temperature

To permit the motors to be used with inverter drives. PTC thermistors or RTDs are also fitted to motor windings to permit the monitoring of winding temperatures. The marking of these motors shall then include the following

II 3 G **EEx nA T2**

Non-Sparking

Squirrel Cage

Type of Protection n: AEHBXC

This series of motor is applied to electric equipment which do not cause ignition of an explosive atmosphere under normal operating conditions.

Characteristics:

- Terminal box components as well as connection cables must be firmly fastened (without allowing any movement)
- T3 classification as per maximum internal and external surface temperature.
- Increased safety terminal blocks/bushings to avoid arcs and sparks and high air and surface distances between to conductive parts (clearances and creepages)
- Construction particularities to avoid arcs or sparks between static and rotating parts during normal operation:
  - specific air gaps
  - rubbing seals materials
  - rotor construction
  - fans material and peripherical speeds

Basic Design

Enclosure

The standard protection is to IP55 for B3 (IM1001) mounting.

Performance

The motor is the efficiency complies with the AS/NZS specification of "Minimum Energy Performance Standards"(MEPS)All standard motors are designed to meet BS 4999, BS 5000, BS EN50021.

Environment Conditions

Standard motors are designed to operate in an ambient temperature of -20□ ~ 55□, Relative humidity: less than 90%RH (Non-Condensation).

Altitude

Standard motors are designed for operation and performance at an altitude not exceeding 1,000 meters.

Direction of Rotation

All standard motors are suitable for operation in either direction of rotation.

Bearing

For 80 to 180 (4+ poles) frame sizes ball bearing are mounted in the stator end brackets, V-ring viton seals are fitted on the shaft and pressed up against each end bracket.

The 180 (2 pole) to 250 frame sizes may have ball bearings at each end or ball bearing and a roller bearing.

These are mounted in cast iron covers which are bolted each side of the bearings and are secured by through bolts locked with spring washers.

The inner bearing covers have an integral labyrinth seal. V-ring or oil seals manufactured from viton are fitted on the shaft and pressed up against each outer bearing cover.

Non-Sparking

Squirrel Cage Induction

Basic Design

Rotor

The rotor core is manufactured from laminated punchings with cast aluminium rotor bars and endrings. The rotor core is then pressed or shrunk on to a machined shaft and may be secured by a key way.

Stator

The stator laminations are built of high grade electromagnetic steel for high efficiency, with insulated windings and is dipped in an insulating varnish before being pressed into the stator frame.
The windings are class F insulated. Coil wires are insulated with a heavy build heat-resistant polyester coating.

Therminations

The mains terminal box is a cast iron enclosure secured to the stator frame with screws and spring washers. The fixing screws also secure a terminal block with stud terminals which is located inside the enclosure.

The stator leads are fitted with crimped lugs with insulated shanks and are fixed to the terminal studs between two nuts with plain washers.

The supply leads are to be terminated on the same studs and further nuts with spring washers are supplied to secure the supply leads, fitted with crimped lugs, to the terminal stud.

The neutral leads are terminated on the main terminal block and brass links are provided to connect the windings correctly.

Earthing

The external earth facility is located on the stator frame and comprises an M5 to M10 screw, depending on frame size, with a shakeproof washer and two plain washers.

The internal earth facility is located in the rear of the mains terminal box and comprises an M5 to M10 earthing screw, depending on the size of the terminal box, which is fitted with shakeproof and plain washers in a tapped hole in the stator frame. The earth screws are marked with the standard earth symbol.

Efficiency

The motor is AS/NZS MEPS efficiency and consume less energy. With inverter control, it can use in constant speed and varuant speed motor.

Non-Sparking

Squirrel Cage Induction

Basic Design

Ventilation

The motor is cooled by air passing over the external surface of the stator frame and a shaft mounted fan is provided to drive airflow.

The fan is secured by a clamp and screw and enclosed by a pressed steel cover which is fixed to the stator end bracket. Air is drawn through the punched openings and expelled through gaps between the cooling fins on the stator.

For vertical shaft down machines a steel canopy is fixed over the fan cover to prevent foreign bodies from falling directly into the ventilation openings.
The shaft mounted fan may be manufactured from anti-static polypropylene or phosphor bronze.

Frame & End bracket

The motors are totally enclosed with a cast iron stator frame incorporating cooling fins on the external surface. Cast iron end bracket supporting the shaft bearings are fixed to the stator frame at each end.

Frame sizes 80 to 132 have through bolts which pass the length of the stator frame and clamp the end brackets to the stator. Frame size 160 to 250 machines have tapped holes in the stator frame. The end brackets are manufactured from cast iron and are located by spigot joint.

Drain plugs may be fitted in the bottom of the stator or end bracket.

Painting

Phenolic rust proof base plus lacquer surface finished painting in light-gray color (Munsell N5)

Testing

In addition to a full programme of tests during manufacture, each motor undergoes an automatic routine test to BS 4999 and full voltage measuring starting performance.

Optional

Thermistors, anti-condensation heaters.

OUTLINE DIMENSIONS: AEHBXC

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

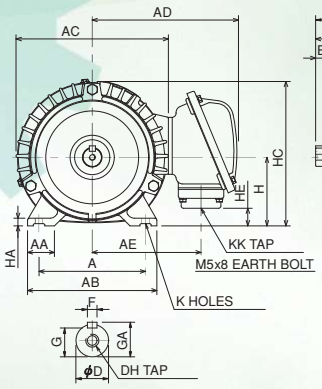


FIG. 1

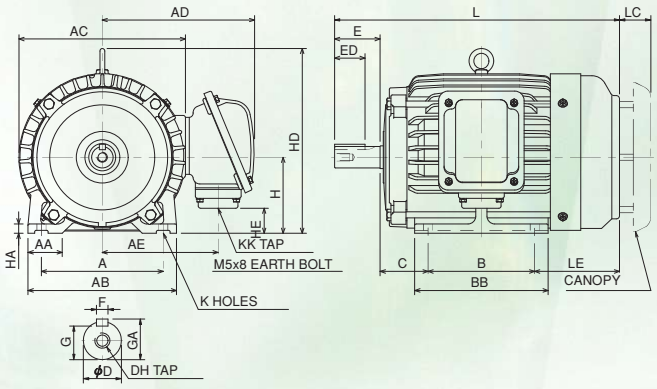


FIG. 2

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																
0.75 1.1	0.75	–	80	1	125	35.5	155	177	179	130	100	130	50	80	9.0	168	–	10
1.5	1.1	–	90S		140	35.5	170	200	192	143	100	130	56	90	10.0	190	–	10
2.2	1.5	1.1	90L		140	35.5	170	200	192	143	125	150	56	90	10.0	190	–	10
3	2.2 3	1.5	100L	2	160	45.0	195	219	202	153	140	175	63	100	12.5	243	243	12
4	4	2.2	112M		190	45.0	224	238	211	162	140	175	70	112	14.0	265	265	12
5.5 7.5	5.5	3	132S		216	45.0	250	273	249	187	140	175	89	132	16.0	310	310	12
–	7.5	4 5.5	132M		216	45.0	250	273	249	187	178	212	89	132	16.0	310	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	
80	M20 × P1.5	283	41.0	93	19	40	25	6	15.5	21.5	M6 × 12	6204ZZ	6204ZZ	17.5
90S	M20 × P1.5	308	41.0	102	24	50	32	8	20.0	27.0	M8 × 16	6205ZZ	6205ZZ	21.5
90L	M20 × P1.5	333	41.0	102	24	50	32	8	20.0	27.0	M8 × 16	6205ZZ	6205ZZ	26.5
100L	M20 × P1.5	375	41.0	112	28	60	40	8	24.0	31.0	M10 × 20	6206ZZ	6305ZZ	35
112M	M20 × P1.5	392	48.0	122	28	60	40	8	24.0	31.0	M10 × 20	6306ZZ	6306ZZ	46
132S	M25 × P1.5	454	48.0	145	38	80	64	10	33.0	41.0	M12 × 24	6308ZZ	6306ZZ	75
132M	M25 × P1.5	492	48.0	145	38	80	64	10	33.0	41.0	M12 × 24	6308ZZ	6306ZZ	82

Note: 1. Tolerance of shaft wnd diameter D: Under ϕ19 ~ ϕ28: j6, ϕ38: k6.
2. Tolerance of shaft center high H: +0, -0.5.

OUTLINE DIMENSIONS: AEHBXC

Totally Enclosed Fan-Cooled Type, Squirrel-Cage

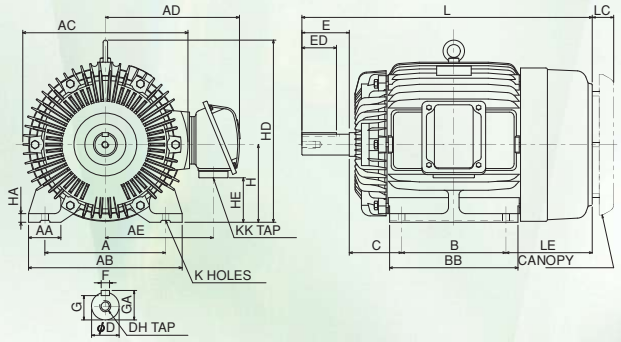


FIG. 3

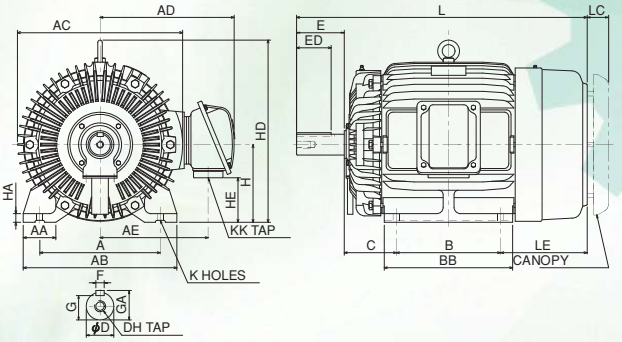


FIG. 4

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	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	297	121	180	20	431	103	14.5
–	18.5	–	180MC	3	279	75	355	382	312	250	241	297	121	180	20	431	103	14.5
–	22	15	180LC		279	75	355	382	312	250	279	335	121	180	20	431	103	14.5
30 37	–	–	200LA		318	80	400	420	374	287	305	365	133	200	25	469	88	18.5
–	30	18.5 22	200LC		318	80	400	420	374	287	305	365	133	200	25	469	88	18.5
–	37	–	225SC		356	90	450	458	427	330	286	350	149	225	30	524	57	18.5
45	–	–	225MA	4	356	90	450	458	427	330	311	375	149	225	30	524	57	18.5
–	45	30	225MC		356	90	450	458	427	330	311	375	149	225	30	524	57	18.5
55	–	–	250SA		406	100	500	510	493	375	311	385	168	250	36	595	42	24.0
–	55	37	250SC		406	100	500	510	493	375	311	385	168	250	36	595	42	24.0
75	–	–	250MA		406	100	500	510	493	375	349	425	168	250	36	595	42	24.0
–	75	45	250MC		406	100	500	510	493	375	349	425	168	250	36	595	42	24.0

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	M32 ×P1.5	608	42	180	42	110	80	12	37.0	45.0	M16 × 32	6309ZZ	6307ZZ	130
160L	M32 ×P1.5	652	42	180	42	110	80	12	37.0	45.0	M16 × 32	6309ZZ	6307ZZ	158
180MA	M32 ×P1.5	672	50	200	48	110	80	14	42.5	51.5	M16 × 32	(6211C3)	(6211C3)	180
180MC	M32 ×P1.5	672	50	200	48	110	80	14	42.5	51.5	M16 × 32	6311ZZ	6310ZZ	180
180LC	M32 ×P1.5	710	50	200	48	110	80	14	42.5	51.5	M16 × 32	6311ZZ	6310ZZ	205
200LA	BSC 1.5"	770	55	222	55	110	80	16	49.0	59.0	M20 × 40	(6312C3)	(6212C3)	280
200LC	BSC 1.5"	770	55	222	55	110	80	16	49.0	59.0	M20 × 40	6312	6212	280
225SC	BSC 2"	816	60	241	60	140	110	18	53.0	64.0	M20 × 40	6313	6213	320
225MA	BSC 2"	811	60	241	55	110	80	16	49.0	59.0	M20 × 40	(6312C3)	(6212C3)	355
225MC	BSC 2"	841	60	241	60	140	110	18	53.0	64.0	M20 × 40	6313	6213	358
250SA	M63 ×P1.5	883	71	264	60	140	110	18	53.0	64.0	M20 × 40	(6313C3)	(6213C3)	470
250SC	M63 ×P1.5	883	71	264	70	140	110	20	62.5	74.5	M20 × 40	NU216	6213	510
250MA	M63 ×P1.5	921	71	264	60	140	110	18	53.0	64.0	M20 × 40	(6313C3)	(6213C3)	540
250MC	M63 ×P1.5	921	71	264	70	140	110	20	62.5	74.5	M20 × 40	NU216	6213	565

Note: 1. Tolerance of shaft end diameter D: Under ϕ42 ~ ϕ48: k6, ϕ55 ~ ϕ70: m6.
2. Tolerance of shaft center high H: +0, -0.5.