



## ETHEKWINI WASTE WATER

### LV MOTOR SPECIFICATION

All LV AC motors that are supplied must have a design efficiency level of IE4 as defined in IEC 60034-30-1 and all motors shall comply with SANS 1804 – 1 & 2 and IEC Standards Parts 34 and 72 where applicable.

In addition to this, the following technical requirements must be complied with:

- Motors shall be Totally Enclosed Fan Cooled (T.E.F.C.) and suitable for use indoors and outdoors, exposed to direct sunlight and heavy rainfall without the requirement for special protection covers.
- Motors shall be rated to operate at an ambient temperature of forty degrees Celsius (40°C) and altitude of 1000 Meters above Sea Level (M.A.S.L.).
- Motors shall be rated S1 – Continuous Duty.
- Motors shall have a minimum Ingress Protection rating of IP66 unless otherwise specified.
- Motors with a frame size of 100L or larger shall be equipped with adequate lifting facilities such as eye bolts.
- Motors must be rated 380 Volt, 3-Phase, 50 Hertz.
- Motors shall be capable of operating continuously at their nominated full load ratings, notwithstanding variations of  $\pm 10\%$  from the designed voltage, or  $\pm 2\%$  from the designated frequency of the supply, i.e. Zone B operation in accordance with IEC.
- Motors will have a Class H insulation with a Class B temperature rise (80K).
- Motor frame size 225S/M and larger shall allow for top and side mounted terminal boxes.
- Motors frame size 225S/M and larger shall be fitted with re-greasable bearings and endshields with suitable grease relief system.
- Motors frame size 225S/M and larger shall be fitted with Winding Temperature Detectors type PTC Thermistor, one per phase (1/Phase).
- Motors shall be suitable for Direct-On-Line (D.O.L) and Variable Speed Drive (V.S.D.) starting.
- Motors frame size 315 and 355 shall have an insulated NDE end-shield or bearing and shall be fitted with a drive-end earthing brush.
- Motors frame size 225S/M and larger shall be fitted with Anti-Condensation Heaters, terminated in an auxiliary terminal box (110V / 220V).
- Motors are to be painted with a corrosive resistant paint systems (epoxy) and RAL colour to be confirmed by Etheekwini Area Engineer.
- All motors shall be fitted with an earthing stud in the terminal box, motors frame size 160 and larger shall be fitted with an additional external earth stud.
- Motors shall be fitted with stainless steel nameplates and must include the following information:
  - Name of manufacturer.
  - Country of manufacture.
  - Serial number.
  - Frame size.
  - Class of insulation.
  - Rated output in kW.

- Rated voltage.
- Rated current.
- Rated speed.
- DE & NDE bearing details.
- Re-greasing intervals, volumes and type of grease.
- Ingress Protection rating – IP\_\_.
- Weight in kilograms.
- Service Factor.
- SABS “approved” mark.
- SANS 1804 – 1 & 2 and Permit Number.
- Efficiency Rating – IE code.
- Power Factor and Efficiency.
- All motors shall be dynamically balanced with half keys.
- All motors are to have an open key way.
- Motors frame size 280S/M and larger are to be fitted with labyrinth type seals.
- Bearings are to be SKF, FAG or a suitable manufacturer approved brand.
- Motor noise limits must comply with the latest SANS/IEC 60034-9 requirements.
- All motors shall have a minimum warranty of sixty (60) months from date of delivery or forty eight (48) months from date of commissioning against faulty materials and / or workmanship, whichever is sooner.

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