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FACULTY OF ENGINEERING & TECHNOLOGY

Electrical Machine-ii

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SPECIFICATION FOR SQUIRREL CAGE INDUCTION MOTORS

Specification for three-phase induction motors (fifth revision)'. The requirements of this Indian Standard regarding terminology, tests, earthing, overload, tolerances and terminal marking are applicable as such.

Site Conditions

- Ambient Temperature - The ambient temperature not exceeding 50 °C.
- Relative Humidity - The relative humidity can be up to the maximum of 100%. Maximum ambient temperature and 100% relative humidity may not occur simultaneously.

Note : For operation of motors at 100% relative humidity, space heaters shall be provided by the motor manufacturers whenever specified.

- Ambient Air - The ambient air may contain fair amount of conductive dust.
- Altitude - Altitude not exceeding 1000 m above mean sea level.

Form and Symmetry of Currents and Voltages

Motors shall be designed assuming the supply voltage to be virtually sinusoidal. The supply voltages shall also form a virtually balanced system. A system of three-phase voltages is considered to be virtually balanced if none of the negative-sequence and zero-sequence components exceed 2% of the positive sequence component.

Voltage and Frequency Variation

The motors shall be capable of delivering the rated output with:

1. The terminal voltage differing from its rated value by not more than +6% in general cases but in special cases if desired by the purchaser, voltage fluctuation of +10, -15% shall have to be provided; or
2. The frequency differing from its rated value by not more than +3% in general cases but in special cases if desired by the purchaser, frequency fluctuation of +3/-6% shall have to be provided; or
3. Any combination of (i) and (ii).

Rated Voltage, Frequency and Output

1. Rated Voltage - The rated voltage shall be 415 V unless otherwise specified by the purchaser.
2. Rated Frequency - The rated frequency shall be 50 Hz.

EARTHING

Two separate earthing terminals of proper size suitable to receive galvanized iron conductor shall be provided on the bottom half of the motor body. In addition to the two outside earthing terminals, provision for one more earthing terminal inside the terminal box is to be kept. Size of earthing terminal shall conform to IS 3043:1987 `Code of practice for earthing

Rating Plate

A rating plate stating the relevant particulars as given in IS 325:1996 shall be fixed on the body of the motor. In addition, the rating plate shall carry the following information also:

- a) Reference to this Interplant Standard, that is, IPSS:1-03-001-14 ;
- b) Designation of the motor (see clause 16);
- c) Manufacturer's Name and Serial Number of the machine
- d) Power outputs at 40 °C;
- e) Current in amps at rated output;
- f) No load current at rated voltage
- g) Bearing designations;
- h) Lubrication details (type, quantity, frequency);
- i) The mass of motor in kg; and
- j) Year of manufacture l) Efficiency

