



# Certificate of Compliance

**Certificate:** 1408584

**Master Contract:** 186777

**Project:** 2515415

**Date Issued:** April 5, 2012

**Issued to:** Crompton Greaves Ltd

LT Motors Division  
A-6/2 MIDC Industrial Area  
Ahmednagar, Maharashtra 414111  
India

*The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.*



*Brij Aggarwal*

**Issued by:** Brij Aggarwal, P.Eng.

## **PRODUCTS**

**CLASS 4211 01** - MOTORS AND GENERATORS

**CLASS 4211 81** - MOTORS AND GENERATORS - Certified to US Standards

Induction Motors, Series EADXXX and ENDXXX, NEMA/ IEC frame, Three phase, 208-230 V, 460 V, 575 V, 60 Hz, 40°C ambient, TEFC, Class F or H insulation, SF 1.15 (for 208-230 V/460 V motors S.F. 1.0 at 208 V).

Up to 200 HP - Inverter duty 6-60 Hz, Variable Torque (VT); 12-60 Hz, Constant Torque (CT), inverter type PWM, SF 1.0 max.

For details related to rating, size, configurations, etc., reference should be made to the CSA Certification Record or the Descriptive Report.

## **Notes:**

1. Connections:
  - i. YY / Y - Parallel Star / Series Star for dual voltage
  - ii. Y - Star connected
  - iii. D - Delta connected
  - iv. DD / D - Parallel Delta / Series Delta for dual Voltage



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2. Series EADXXX and ENDXXX are denoted as follows:

- i. "EAD" - Aluminium Frame
- ii. "END" - Cast Iron Frame
- iii. XXX - Frame Size

Motors having Frame Letter 'T' or 'TC' or 'TD' as suffixes, have dimensions as per Clause 4.4 of NEMA MG - 1 Part 4.

Closed - coupled pump motors having dimensions as per Table 1 & 2 of 18.250 of NEMA MG - 1 Part 18 have suffixes 'JM' & 'JP' respectively attached to the frame references.

3. Motors may be made for other Multi voltages i.e. 1:3/2 ratio e.g. 230/400V or 1:3/2 ratio e.g. 230/400/460 V by changing the winding connections.

4. Motors may be offered for operating at frequencies other than 60 Hz e.g. 50 / 60 Hz with equivalent voltage at 50 Hz. Motors supplied only for 415 V/50 Hz have the following wording in the installation manual:

"CSA has investigated this equipment only under conditions of usage specifically described in the installation instructions, which require adaptation to the 415 V, 50 Hz system(s) of supply", or equivalent.

5. Motors offered are for ambient up to 40°C. For higher ambient following de-ration to be applied:

Ambient	De-ration factor	Temperature rise
Up to 45°C	0.95 x rated output	Corresponding to Class B Insulation
Above 45°C and up to 50°C	0.90 x rated output	Corresponding to Class B Insulation
Above 50°C and up to 55°C	0.85 x rated output	Corresponding to Class B Insulation

6. Winding leads are either terminated on a terminal block inside the terminal box or alternatively open leads of approx 9" length (without terminal block) is provided to facilitate supply connection.

7. Motors may be marked for lower service factor for specific application requirements. (minimum SF=1)

8. Motors may be marked for lower ambient temperature up to -25°C with lithium base greased bearings. Or below -25°C with suitable low temperature grease in the bearings.

9. Motors may incorporate anti-condensation heaters. Terminals of the heaters are brought to separate terminal block inside the main terminal box or separate auxiliary terminal box fitted on the motor.

10. Motors may include options: Thermistors, Thermostats, RTDs embedded in winding, Bearing temperature sensing devices fitted on bearing housing. Terminals of such auxiliaries are brought to terminal block inside the main terminal box or separate auxiliary terminal box fitted on the motor.

11. Motors may be mounted as Horizontal / Vertical with Foot / Flange mounting.

12. These motors up to 200 HP are suitable for speed variation of 5:1 (12-60 Hz) for Constant Torque and 10:1 (6-60 Hz) for Variable Torque applications. Also suitable for Constant HP applications for speeds higher than base speeds (up to max synchronous speed as tabulated above).



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13. These motors up to 200 HP also have been verified for max safe operating speed (no load for 2 minutes) of 10% above the max speed (when max speed is more than the base speed) or 25% above the max speed tabulated above (when max speed is same as base speed).

### **APPLICABLE REQUIREMENTS**

CSA C22.2 No 100-95 - Motors and Generators

UL 1004 - Electric Motors (5th Edition)