

Information Bulletin

Motors Controlled by Variable Frequency Drives (VFDs)

A motor intended for use with a VFD must be suitable for the purpose and marked as such as noted in the associated CSA Part II Standards – No. 100, Motors and Generators, and No. 145, Electric Motors and Generators for Use in Hazardous (Classified) Locations:

CSA 22.2 No. 100-14 (R2019), Motors and Generators

13.4 Marking

13.4.1

In addition to the marking requirements of Clause 6 and Clauses 8 to 10, inverter-duty machines shall be permanently marked with the following:

- a) the machine application (e.g., inverter-duty motor);
- b) the speed range over which the machine is designed to operate, or if marked with a nominal speed at a nominal frequency, the frequency range over which the machine is designed to operate;
- c) the type(s) of torque application for which the machine is designed (e.g., VT (variable torque), CT (constant torque), CHp (constant horsepower), or the equivalent); and
- d) the type(s) of inverter with which the machine is intended to be used (e.g., VSI or VVI (6-step voltage-source), CSI (6-step current-source), VPWM (voltage-source pulse width modulated), CPWM (current-source pulse width modulated), LCI (load commutated), cycloconverter, or the equivalent).

13.4.2

Machines equipped with an integral inverter need not be marked in accordance with Clause 13.4.1c) and d).

CSA 22.2 No. 145-22, Electric Motors and Generators for Use in Hazardous (Classified) Locations

52 Markings

52.1 (I, II) A motor shall have a metal nameplate marked with the following information:

- l) For a motor for use with variable-frequency inverter drives: The type or types of inverters, motor load characteristics, and the frequency range; for example, “PWM – Constant Torque – 6 to 60 Hertz”. All motor base performance values in Items (c) through (k) are to correspond to rated sine-wave operation. Additional markings for inverter operation may be included.

The City of Winnipeg requires the appropriate marking on the motors as follows:

New Installations:

Motors and VFDs intended for use in a variable speed application must be compatible and motors must be marked accordingly.

Existing Installations:

Where a new VFD is being installed to control an existing motor, owners and installers are responsible for assessing the compatibility of the motor with the corresponding VFD. The inspection department will require a record of the compatibility assessment information and documentation from the motor manufacturer ensuring the motor is compatible with the VFD.