

Part 1 General

1.1 MOTOR SIZES

- .1 Motor sizes in this Section are stated in "preferred metric units".

1.2 PRODUCT OPTIONS AND SUBSTITUTIONS

- .1 Refer to Division 01 for requirements pertaining to product options and substitutions.

1.3 SHOP DRAWINGS AND PRODUCT DATA

- .1 Comply with requirements of Section 01 33 10.
- .2 Submit a schedule of motors for all mechanical equipment, listing the following data:
 - .1 Equipment name and number
 - .2 Motor size
 - .3 Frame size
 - .4 Electrical characteristics, including voltage, phase, full load amps, locked rotor amps and all unique requirements
 - .5 Motor design
 - .6 Insulation class
 - .7 Temperature rise as specified by insulation class
 - .8 Continuous service factor
 - .9 Guaranteed minimum efficiency and power factor at 75% and 100% of full load
 - .10 Enclosure type
- .3 Submit certification from motor manufacturer that air flow cooling the motors used on AC variable speed drives is adequate down to 10% of nameplate rated speed.

1.4 MANUFACTURING STANDARDS

- .1 Manufacturer motors to EEMAC Standard for AC induction motors (M1-6 Motors and Generators).
- .2 All motors shall be CSA approved and labelled.

Part 2 Products

2.1 ACCEPTABLE MANUFACTURERS AND PRODUCTS

- .1 CGE, Westinghouse, Leroy Somer, Toshiba, Lincoln, Baldor

2.2 DESIGN

- .1 Single phase and three phase motors to be EEMAC Design B, squirrel cage induction type for general purpose duty.
- .2 Motors suitable for operation with voltages and starters specified in Division 26.

2.3 ENCLOSURE TOTALLY ENCLOSED FAN COOLED (TEFC)

- .1 Provide TEFC on motors unless otherwise specified in equipment schedules.
- .2 Provide weather protected motors on all roof mounted equipment.

2.4 FRAME

- .1 Construction: "T" frame, rigid and machined to keep all parts in alignment under full load.
- .2 Material: cast iron or steel (no aluminum).

2.5 END BRACKETS

- .1 Material: Cast iron or steel (no aluminum).

2.6 BEARINGS

- .1 Type: anti-friction deep groove ball or roller bearing. Provide grease lubrication fittings on frame 254T and larger.
- .2 Life: bearing life based on no external radial or axial load as follows:
 - .1 3600 r/min: 30,000 h
 - .2 1800 r/min and less: 60,000 h

2.7 INSULATION

- .1 Minimum Class "B" insulation on all motors unless otherwise noted.
- .2 Class "F" insulation with Class "B" temperature rise on motors driven by AC variable speed drive. Motor insulation to NEMA MG-1-1993, Part 31.

2.8 EFFICIENCY

- .1 Provide premium efficiency motors on mechanical equipment.

2.9 SERVICE FACTOR

- .1 Minimum continuous service factor of 1.15 for all non-explosion proof motors.
- .2 Minimum continuous service factor of 1.0 for all explosion proof motors.

2.10 THERMAL PROTECTION

- .1 Provide thermistor including protection, one per phase, with tripping device on the following motors:
 - .1 Motors used with variable frequency drives.
 - .2 Motors 37 kW and larger.

Part 3 Execution

3.1 INSTALLATION

- .1 Provide factory mounted industrial grade motors on motor driven equipment.
- .2 Allow adequate space for servicing motors and for removal of motors from motor driven equipment.

3.2 COORDINATION

- .1 Confirm electrical characteristics and requirements with the Electrical Trade for all motors including voltage, phase and their compatibility with motor control centers.
- .2 Submit motor schedule defined in Article 1.4 as early as possible.

3.3 EQUIPMENT SCHEDULES AND DRAWINGS

- .1 Refer to all drawings and schedules of equipment and motor driven equipment listed in Mechanical.
- .2 Refer to electrical specifications for voltage, phase, and cycle.

3.4 ALIGNMENT

- .1 Adjust axial and differential alignment of motor with driven equipment to ensure vibration free operation.

END OF SECTION