

SECTION 11 05 13
COMMON MOTOR REQUIREMENTS FOR PLUMBING EQUIPMENT
Design Standard

PART 1 GENERAL

1.1 PURPOSE:

The motor requirements for plumbing equipment are an essential element of the plumbing systems. This design standard has the purpose of creating a consistent application of plumbing equipment motor requirements throughout the San Mateo County Community College District, therefore achieving a standard of quality for maintenance, reliability, and energy efficiency throughout all renovation and new building projects.

PART 2 PRODUCT

Design and specify work to include materials, installation and testing for complete and operable motors and starters for plumbing equipment. This Design Standard is inclusive of motors that are field installed as well as integral to mechanical equipment.

- A. All motors to meet the following requirements based on Code requirements and industry standard of care:
- B. Energy efficient, suitable for non-overloading operation, and capable of continuous operation at full nameplate rating. Motors 1 HP and larger must meet latest edition of the Energy Policy act. Motors to meet or exceed California Energy Commission Title 24 requirements latest edition.
- C. Take NEMA standards as minimum requirements for motor design and performance. Motors suitable for load, duty, voltage, frequency, hazard, and for service and location intended.
- D. For consistency and economy, motors, unless specified otherwise, to be general purpose open drip-proof type, ball bearing equipped, 40°C temperature rise, and rated for continuous duty under full load.
- E. To avoid unnecessary maintenance costs and early failure of equipment, all motors located outdoors to be TEFC motors (totally enclosed, fan cooled).
- F. Due to the harsh weather environment at Skyline College, all motors exposed to the outside air stream (whether inside or outside of equipment) to be TEFC motors (totally enclosed, fan cooled).
- G. Motors smaller than ½ horsepower are to be single phase (1-phase); and motors ½ horsepower and larger are to be triple phase (3-phase).
- H. Maximum motor speed of 1750 RPM, unless otherwise noted. 1-phase motors to have internal thermal overload protection with automatic reset.
- I. Motors for belt drive to have adjustable bases with set screw to maintain belt tension.
- J. Provide inverter rated motors per NEMA MG1-31 where variable frequency drives are applied or where soft start starters are utilized.
- K. For consistency, all starters to be specified by Division 26.
- L. For consistency, all disconnects to be specified by Division 26.

- M. Motors to have name plate giving manufacturer's name, shop number, HP, RPM and current characteristics.

2.2 APPROVED MANUFACTURERS:

- A. General Electric
- B. Westinghouse
- C. Baldor
- D. Reliance

PART 3 EXECUTION

3.1 SUBSTITUTES ALLOWED?

Yes, if performance and quality equivalency can be evidenced.

3.2 ASSOCIATED DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS:

22 05 48 – Vibration and Seismic Controls for Plumbing Piping and Equipment Design Standard

22 05 53 – Identification for Plumbing Piping and Equipment Design Standard

23 09 13 – Variable Frequency Drives Design Standard

END OF SECTION