

ENCLOSED MOTOR CONTROLLERS

DESIGN GUIDELINES

1. Material and/or Equipment Type:
 - a. Enclosed Motor Controllers
2. Design
 - a. Where Variable Frequency Drives are not required, provide magnetic motor controllers for three-phase motors and single-phase motors. Coordinate all controlling methods with the mechanical equipment requirements.
 - b. Indoor enclosures shall be NEMA 1 standard or upgraded to NEMA 3R/4 where required due to harsh environmental conditions (i.e. cooling towers).
 - c. Outdoor and protected switches shall be minimum NEMA 3R.
 - d. Manual Motor Starters shall be:
 - Single pole, toggle switch
 - Red 'RUN' pilot light.
 - Overload relay with manual overload reset.
 - e. Magnetic Motor Controllers shall be: Full Voltage, Non-Reversing, across-the-line controllers or combination disconnect controllers.
 - Minimum controller size is NEMA Size 0. Size 00 is not permitted.
 - Control circuit: 120V. Provide control power transformer integral with controller unless other supply of 120V control power is indicated. Coordinate with Mechanical Engineer/Contractor. Provide control power transformer with adequate capacity to operate connected pilot light, indicating and control devices. Control power transformer shall have two primary fuses, one secondary fuse.
 - Where separate control power is provided to starter, provide separate integral control power disconnect.
 - Combination controller: Switch type; fuses or non-fused as indicated; quick-make, quick break switch; factory assembled unit. Refer to Enclosed Switches and Circuit Breaker Design Standard.
 - Hand-Off-Auto selector switch.
 - Red 'RUN' pilot light.

- 2 normally open and 2 normally closed auxiliary contacts.
 - Start-Stop pushbutton.
 - Thermal Overload Relay (Preferred). Solid-state if required.
3. Related Sections
 - a. Variable Frequency Controllers
 - b. Enclosed Switches and Circuit Breakers
 - c. Identifications of Electrical Systems

EQUIPMENT and PRODUCT REQUIREMENTS

1. Manual Motor Starter:
 - a. Approved Manufacturers:
 - Square-D Class 2510
 - Equal by Eaton Cutler Hammer
2. Magnetic Motor Starter:
 - a. Approved Manufacturers:
 - Square-D
 - Eaton Cutler-Hammer

END OF SECTION