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