

Part 1 General

1.1 RELATED WORK

- .1 Section 16050 – Basic Materials & Methods
- .2 Section 16151 – Mechanical Equipment Wiring

1.2 SUBMITTALS

- .1 Submit shop drawings and product data in accordance with Section 16050.
- .2 Indicate:
 - .1 Mounting method and dimensions.
 - .2 Starter size and type.
 - .3 Layout of identified internal and front panel components.
 - .4 Enclosure types.
 - .5 Wiring diagram for each type of starter.
 - .6 Interconnection diagrams.

1.3 OPERATION AND MAINTENANCE DATA

- .1 Provide data for incorporation into Maintenance Manual specified in Section 16050.
- .2 Include operation and maintenance data for each type and style of starter.

1.4 MAINTENANCE MATERIALS

- .1 Provide maintenance materials in accordance with Section 16050.
 - .1 4 contacts, stationary.
 - .2 4 contacts, movable.
 - .3 2 contacts, auxiliary.
 - .4 2 control transformers.
 - .5 2 operating coils.
 - .6 2 fuses.
 - .7 10 indicating lamps.
 - .8 OA kit.

Part 2 Products

2.1 MATERIALS

- .1 Starters: to CSA C22.2 No. 14, EEMAC E14-1.
 - .1 Starters smaller than EEMAC “1” are not acceptable.
 - .2 EEMAC/NEMA rated type only – IEC type not allowed.

2.2 MANUAL MOTOR STARTERS

- .1 Single-phase and three-phase manual motor starters of size, type, rating, and EEMAC “1” enclosure with components as follows:
 - .1 Switching mechanism, quick make and break.
 - .2 Overload heaters, manual reset, trip indicating handle.
- .2 Accessories:
 - .1 Toggle switch.

- .2 Indicating light.
- .3 Locking tab to permit padlocking in "ON" or OFF" position.
- .4 Flush-mounted type for public areas or as indicated.

2.3 FULL VOLTAGE MAGNETIC STARTERS

- .1 Magnetic of size, type, rating and EEMAC "1" enclosure with components as follows:
 - .1 Contactor solenoid operated rapid-action type.
 - .2 Motor overload protective device in each phase, manually reset from outside enclosure.
 - .3 Power and control terminals.
 - .4 Wiring and schematic diagram inside starter enclosure in visible location.
 - .5 Identify each wire and terminal for external connections, within starter, with permanent number marking identical to diagram.
 - .6 Control transformer.
- .2 Accessories:
 - .1 Pushbuttons and selector switches labelled as indicated.
 - .2 Two indicating lights:
 - .3 RED – "OFF" and GREEN – "ON"
 - .4 Two N/O and two N/C spare auxiliary contacts, unless otherwise indicated.
 - .5 HOA selector switch.

2.4 CONTROL TRANSFORMER

- .1 Single phase, dry type, control transformer with primary voltage, as indicated and 120V secondary, complete with secondary fuse, installed within starter enclosure.
- .2 Size control transformer for control circuit load plus 20% spare capacity.

2.5 FINISHES

- .1 Apply finishes to enclosure in accordance with Section 16050.

2.6 EQUIPMENT IDENTIFICATION

- .1 Provide equipment identification in accordance with Section 16050.
- .2 Identify manual starters with Size 2 nameplates, indicating motor number, description and horsepower.
- .3 Identify magnetic starters with Size 4 nameplates, indicating motor number, description, horsepower and voltage.

2.7 MANUFACTURERS

- .1 Acceptable manufacturers are: Westinghouse Canada Inc., Square D Company Limited, Allen Bradley Canada Company, Siemens Canada Ltd., and Cutler Hammer Canada Limited.

Part 3 Execution

3.1 INSTALLATION

- .1 Install starters, connect power and control as indicated.
- .2 Install correct fuses and overload devices.

3.2 TESTS

- .1 Perform tests in accordance with Section 16050 and manufacturer's instructions.
- .2 Operate switches and contactors to verify correct functioning.
- .3 Perform starting and stopping sequences of motors and controls.
- .4 Check that sequence controls, interlocking with other separate related starters, equipment, control devices, operate as indicated.
- .5 Ensure that motor rotation corresponds with the direction required by the driven equipment.

END OF SECTION