



SECTION 08734

COMMERCIAL DOOR OPERATORS OVERHEAD RSX® FIRE DOOR OPERATOR

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PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Overhead Rolling Fire Door Operators.

1.2 RELATED SECTIONS

- A. Section 05500 - Metal Fabrications: Support framing and framed opening.
- B. Section 06200 - Finish Carpentry: Wood jamb and head trim.
- C. Section 08330 – Overhead Coiling Doors.
- D. Section 08331 – Overhead Coiling Fire Doors.
- E. Section 08332 – Overhead Coiling Counter Doors.
- F. Section 08333 - Security Grilles.
- G. Section 08360 - Sectional Overhead Doors.
- H. Section 08710 - Door Hardware: Product Requirements for cylinder core and keys.
- I. Section 09900 - Painting: Field applied finish.
- J. Section 16130 - Raceway and Boxes: Conduit from electric circuit to door operator and from door operator to control station.
- K. Section 16150 - Wiring Connections: Power to disconnect.

1.3 REFERENCES

- A. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
- B. NEMA ICS 6 - Enclosures for Industrial Controls and Systems.
- C. NEMA MG 1 - Motors and Generators.

1.4 DESIGN / PERFORMANCE REQUIREMENTS

- A. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories, Inc. acceptable to authority having jurisdiction as suitable for purpose specified.
- B. Electric Motors shall be alternating-current squirrel-cage motors conforming with NEMA MG 1.
- C. Fire Door Operators: Provide with Factory Mutual approval and complying to and listed in UL Directory
- D. Wiring Connections: Requirements for electrical characteristics.
 - 1. 115 volts, 60 Hz single phase.
 - 2. 208 volts, 60 Hz single phase or three phase.
 - 3. 230 volts, 60 Hz single phase or three phase.
 - 4. 460 volts, 60 Hz three phase.
 - 5. 575 volts, 60 Hz three phase.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Details of construction and fabrication.
 - 4. Installation methods.
- C. Shop Drawings: Include detailed plans, elevations, details of framing members, required clearances and accessories. Include relationship with adjacent construction.
- D. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
- E. Operation and Maintenance Data: Submit lubrication requirements and frequency, and periodic adjustments required.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified with minimum of five years documented experience.
- B. Installer Qualifications: Authorized representative of the manufacturer with minimum five years documented experience.
- C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
 - 1. Install in areas designated by Architect.
 - 2. Do not proceed with remaining work until workmanship and installation is approved by Architect.
 - 3. Refinish mock-up area as required to produce acceptable work.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.

- B. Protect materials from exposure to moisture. Do not deliver until after wet work is complete and dry.
- C. Store materials in a dry, warm, ventilated weathertight location.

1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.9 WARRANTY

- A. Provide operators with a 2 year or 20,000 cycle limited warranty on motor and parts.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Overhead Door Corporation, 2501 S. State Hwy. 121, Suite 200, Lewisville, TX 75067. ASD. Tel. Toll Free: (800) 275-3290. Phone: (469) 549-7100. Fax: (972) 906-1499. Web Site: www.overheaddoor.com. E-mail: info@overheaddoor.com.
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 OVERHEAD ROLLING FIRE DOOR OPERATOR

- A. Commercial Rolling Steel Fire Door Operator: Model RSX Commercial Standard Duty Fire Door Operator:
 - 1. Application:
 - a. Rolling Steel Fire Doors.
 - 2. Electric Motor: UL listed.
 - a. Rating:
 - 1) 1/2 horsepower single phase or three.
 - 2) 3/4 single phase or three phase.
 - 3) 1 horsepower single phase or three phase.
 - b. Motor frame comply with:
 - 1) NEMA 48 for 1/2 hp single phase.
 - 2) NEMA 56 for 1/2 hp three phase.
 - 3) NEMA 56 3/4 and 1 hp all phases.
 - c. Construction: Open drip-proof construction.
 - d. Reduction: Primary reduction is SuperBelt, an auto tension poly-V flex belt that does not require adjustment. Secondary reduction is by chain and sprocket.
 - e. Duty Cycle: Accommodate standard usage, up to 60 cycles per hour during peak usage periods.
 - 1) Brake: DC Disc type with selectable Progressive Braking for smooth stopping.
 - 2) Clutch: Adjustable friction disc type.
 - 3) Door Release Clutch: 24VDC solenoid activated clutch that releases up upon loss of primary and battery backup power.

- 4) Limit System: LimitLock limit system, magnetic type providing absolute positioning with push to set and remote setting capabilities. Limit System shall remain synchronized with the door during manual operation, supply power interruptions, and fire door release operation.
 - 5) Integral Centrifugal Governor: Governor shall limit door drop speed during manual test or alarm activated release.
3. Control System: Microprocessor based with relay motor controls on a single board. System incorporates a 16 character Liquid Crystal Display (LCD) to display the system status. System shall include the following:
- a. Provide with an internal battery backup system capable of providing up to 24 hours of battery power to support alarm logic, smoke detector, release capability and audible and visible signaling appliances. Device shall monitor battery charge and annunciate the need for battery replacement via an integral sounder; an LCD display that indicates battery low condition. Battery backup/power system shall contain a management system providing trickle charge capabilities.
 - b. During a power outage, and upon depletion of the battery, the device will initiate door closure by releasing the electric clutch.
 - c. Monitoring for an Alarm input while on internal battery backup power.
 - d. Initiate gravity door closure through the release of the Door Release Clutch
 - e. Includes LCD display selectable delay settings of 10, 20, 30 or 60 seconds upon alarm activation to allow for passageway clearance before initiating door closure.
 - f. Capable of receiving an alarm input from compatible 2-wire normally open smoke detectors, 4-wire normally open smoke detectors, or normally open heat detectors, or input from a fire alarm control panel via a relay module providing a Form C dry contact output to the release device.
 - g. Capable of receiving input from a maximum of two smoke detectors requiring use of an End-of-Line (EOL) device to ensure the integrity of the wiring.
 - h. Provide with audible and visual signaling appliances to operate during the alarm closing cycle. Device shall be capable of activating and powering up to two (optional) audible/visible notification devices, e.g. strobes, horns or horn/strobes.
 - i. Fire door operator shall recognize that the door is in the closed position through monitoring of door position to prevent release of the Door Release Clutch when the door is closed.
 - j. Provide with relay and trouble outputs to provide notification to a fire alarm control panel when an alarm or trouble state exists.
 - k. Circuit board shall have LCD display and diagnostic LEDs to assist with field installation by indicating alarm or trouble conditions present within the alarm activation device(s) or notification appliance(s).
 - l. Operator shall provide remote key test switch to simulate an alarm condition during testing procedures.
 - m. Operator shall provide an LCD configuration setting selectable for 2-minute or 4-minute safety timer that will initiate gravity door closure if the operator close cycle is not completed within the selected time.
 - n. Upon alarm, the operator shall attempt motorized door closure.
 - o. Upon alarm the operator shall provide release on obstruction selectable through the LCD display on the operator via a monitored sensing edge (by others).

- p. Upon alarm the operator shall provide one or three time obstruction cycling of the door selectable through the LCD display on the operator via a monitored sensing edge (by others).
 - q. Operator shall provide an LCD configurable feature allowing automatic open after routine testing.
 - r. One audible and visual signaling appliance shall be provided to annunciate closure due to alarm, power loss conditions or test mode.
 - s. Capable of monitoring and reporting on a variety of operating conditions, including: Current operating status, Current command status, Motor movement status, Current error status (if applicable), Hoist Interlock status (if applicable), External Interlock status, and 24VDC status.
 - t. Maximum run timers in both directions of travel that limit motor run time in the event a clutch slips or some other problem occurs.
 - u. Provisions for connection of a 2-wire monitored photo-eye or a 2-wire monitored edge sensor, as well as non-monitored standard 2-wire sensing edges, photo-eyes or other entrapment protection devices.
 - v. Control action will be constant contact close until a monitored entrapment device is installed, allowing for selection of momentary contact.
 - w. Provisions for connection of single and/or 3-button control stations.
 - x. On board open, close and stop control keys for local operation.
 - y. CodeDodger radio receiver that is dual frequency cycling at 315 Mhz and 390 Mhz capable of storing 250 single button and/or 250 Open-Close-Stop transmitters with the ability to add and/or delete transmitters individually, identify and store activating transmitter IDs.
 - z. On board non-resettable cycle counter.
4. Mounting:
- a. Rolling Steel doors:
 - 1) Front of hood and chain/sprocket coupling to door.
 - 2) Top of hood and chain/sprocket coupling to door.
 - 3) Wall-mount and chain/sprocket coupling to door.
 - 4) Bench mount and chain/sprocket coupling to door.
 - 5) Front of hood horizontal and chain/sprocket coupling to door.
 - 6) Mounting for Hoist models, Left Hand or Right Hand.
5. Release: Release shall be a pull and hold type mechanism with single cable operation and an integrated interlock switch.
6. Hoist: Chain hoist consists of chain pocket wheel, chain guard and smooth hand chain on hoist units.
7. Fusible Release: Capable of holding and releasing door via a fusible link/sash chain assembly attached to a release mechanism within the operator construction.
8. Entrapment Protection:
- a. Control system shall have provisions to connect monitored entrapment protection devices such as monitored electric sensing edge or monitored photo-eye and to provide constant contact close control operation in lieu of such devices.
 - b. Control system shall have provisions to connect monitored entrapment protection devices such as wireless monitored electric sensing edge and to provide constant contact close control operation in lieu of such devices.
 - c. Control system shall have provisions to provide constant contact close control operation in lieu of such devices.
9. Control accessories:
- a. Operator Controls:

- 1) Push-button operated control stations with open, close, and stop buttons.
 - 2) Key operation with open, close, and stop controls.
 - 3) Push-button and key operated control stations with open, close, and stop buttons.
 - 4) Controls for interior location.
 - 5) Controls for exterior location.
 - 6) Controls for both interior and exterior location.
 - 7) Controls surface mounted.
 - 8) Controls flush mounted.
- b. Special Operation:
- 1) Vehicle detector operation.
 - 2) Radio control operation.
 - 3) Card reader control.
 - 4) OHD monitored photo-eyes.
 - 5) Commercial photo-eyes.
 - 6) Timer Close Module for unattended timed door closing. Auxiliary control inputs, safety inputs, timer hold input and automatic door closing feature with selectable time delay. Safety inputs can be configured using on board keypad.
 - 7) Visual and/or audible signal devices.
 - 8) Auxiliary Output Module for up, down, and mid-stop limit status via several auxiliary sets of dry contacts that are microprocessor controlled. ADA compliant outputs that activate when door is moving up, down, or both directions and can be configured using the on board keypad.
 - 9) .

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify door sizes, configuration, tolerances and conditions are acceptable.
- B. Examine conditions of substrates, supports, and other conditions under which this work is to be performed.
- C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Use anchorage devices to securely fasten assembly without distortion or stress.
- C. Fit and align assembly including hardware; level and plumb, to provide smooth operation.

- D. Coordinate installation of electrical service with Section 16150. Complete wiring from disconnect to unit components.

3.4 ADJUSTING

- A. Test for proper operation and adjust as necessary to provide proper operation without binding or distortion.
- B. Adjust hardware and operating assemblies for smooth and noiseless operation.

3.5 CLEANING

- A. Clean components using non-abrasive materials and methods recommended by manufacturer.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

3.6 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

3.7 SCHEDULES

- A. :
 - 1.
 - 2.
 - 3.
- B. :
 - 1.
 - 2.
 - 3.

END OF SECTION