

## **SECTION 08 71 13 [08716]**

### **AUTOMATIC DOOR OPERATORS (Heavy Duty-Low Energy)**

#### **PART 1 GENERAL**

##### **1.1 SECTION INCLUDES**

- A. The heavy duty low energy automatic swing door operator shall consist of an aluminum operator housing, electro-mechanical motor, operator assembly, swing arm and electronic control. Installation shall be performed by a local AAADM certified installer.

##### **1.2 RELATED SECTIONS**

- A. Section 08410 - Aluminum entrances & storefronts
- B. Section 08120 - Aluminum doors & frames
- C. Section 08210 - Wood doors & frames
- D. Section 08110 - Hollow metal doors & frames
- E. Section 08710 - Door hardware
- F. Section 08810 - Glass and glazing
- G. Section 07920 - Caulking & sealants
- H. Division 1600 - Electrical
- I. Division 26 and 28 Sections for emergency generated power source electrical connections including conduit and wiring for automatic entrance door operators, fire alarm, smoke EVAC system, electrified hardware and related power supply terminations, and access control devices.

##### **1.3 REFERENCES – (Codes & Approvals)**

- A. Unit described complies with current ANSI A156.19 for Power Assist and Low Energy Power Operated Doors.
- B. Unit is listed with UL 325 standard for Door, Drapery, Gate, Louver, and Window Operators and Systems (File E218616).
- C. Unit is listed with UL991 Tests for Safety-Related Controls Employing Solid-State Devices
- D. CNL approved (UL listing for use in Canada).
- E. Unit complies with NFPA 101 Life Safety Code. (Section 1.4 of UL 325 includes NFPA 101)
- F. Unit complies with NFPA 70 National Electrical Code. (Section 1.1 of UL 325 includes NFPA 70)
- G. Unit complies with IBC (2003)
- H. Unit exceeds BHMA testing - ANSI BHMA A156.19 Section 5 Cycle Testing. (tested 1,000,000 ops)
- I. Listed in accordance with the Uniform Building Code standard 7-2, "Fire Tests of Door Assemblies", (1997) Part I in addition to UL 10C.

##### **1.4 PERFORMANCE REQUIREMENTS**

- A. Operator to be used on doors weighing up to 350 pounds per leaf
  - 1. Consult factory for heavier door weights
- B. Operator capable of operating within temperature ranges of -40°F and +140°F

##### **1.5 SUBMITTALS**

- A. Submit under provisions of Section 01300
- B. Product Data: Submit manufacturer's product data and standard details for automatic operators.

- C. Shop Drawings: Submit shop drawings detailing exact dimensions for each door unit including door operator details, activation components, and electric hardware interface, wiring details and electrical requirements.
- D. Anodized/Finish Samples

## **1.6 OPERATION AND MAINTENANCE DATA**

- A. An owner's manual will be supplied as part of the close out documentation.

## **1.7 QUALITY ASSURANCE**

- A. Operator shall be manufactured by an AAADM member and is to be manufactured to meet or exceed the American National Standard for Low Energy Power Operated Pedestrian Doors ANSI / BHMA 156.19.
- B. Source Limitations: Obtain automatic door operators and installation services through one source from a single manufacturer.

## **1.8 INSTALLER QUALIFICATIONS**

- A. Equipment must be installed by an AAADM Certified, record-USA factory trained and record-USA authorized company with a minimum of 1 years' experience (or approval from record-usa).
- B. Installing company of the equipment is to provide local central dispatch system for warranty service to be available 24 hours a day, 365 days per year. A sticker will be placed in a prominent position on the header of each installed unit giving details of local service company, name and telephone number. If a SMART panel option is used, then details of the telephone number to be called will be programmed into the device.

## **1.9 WARRANTY**

- A. All automatic door components are warranted to be free of defects in materials or workmanship under normal use for a period of two years from the date of substantial completion.

## **PART 2 PRODUCTS**

### **2.1 MANUFACTURER**

- A. Acceptable manufacturer:

record-usa series 8100 Electromechanical Automatic Operator.

Consideration will be given to products considered to be equal to those specified. Only those manufacturers listed or a product approved by the architect as an equal will be allowed to be used.

### **2.2 EQUIPMENT**

The swing door operator consists of operator housing, swing power operator, electronic control, wire harnesses and connecting hardware.

## 2.3 AUTOMATIC SWING DOOR OPERATOR

- A. Operator: Electro-mechanical operator, powered by 24 volt, 1/4 hp motor.
- B. Operator is to be non-handed to ensure maximum versatility in adapting to varying field conditions. Opening Force shall be adjustable by means of one screw, to compensate for different manual push forces required on varying door widths.
- C. The non-handed operator is completely contained in an extruded aluminum housing. All aluminum sections are 6063-T5 alloy while the structural walls of the base plate have a minimum thickness of 0.187" (3/16") while the access cover (non-structural) has a minimum wall thickness of 0.094" (3/32"). The operator housing width by height shall not exceed 4-1/2" x 5". Length of operator housing determined by site conditions and/or specifications herein. Motor/gear box shall be secured to operator housing via a tamper proof extruded channel on the back member of the operator housing.
- D. Electronic Controls: Microprocessor controlled unit shall control the operation and switching of the swing power operator. The microprocessor control is to provide low voltage power supply for all means of actuation. No external or auxiliary low voltage power source will be allowed. The controls include time delay for normal cycle.
- E. Connecting Hardware: the surface mounted operator is connected to the door by means of a steel door arm. The door arm is secured to the top rail of the swing door using a one piece threaded tubular insert for aluminum doors, 1/4-20 binding head and post screws (sex bolts) for wood and hollow metal doors. The standard power arm and connecting arm shall accommodate up to 12" reveals and opening angles to 120 degrees. The arm will be equipped with a mechanical device which will in the case of extreme force, "sheer", thus protecting any internal mechanical components from damage, in the case of abuse.
- F. Manual Use: The operator shall serve as a # 3 manual door closer in the direction of swing with or without electrical power.
- G. External Control: A three position switch will be mounted in the end cover of the housing, along with a "fault warning" LED. The switch will be clearly marked, ON/OFF/HOLD OPEN. The LED will flash if the microprocessor detects a fault of any kind.
- H. Simplified Access: An access port that eliminates the need to remove the cover for service or adjustment is included as optional and will be located on the bottom of the unit unless specified elsewhere.
- I. Power Open: When an opening signal is received by the control unit, the door shall be opened at the operator-adjusted opening speed. Before the door is fully open at back check, it slows automatically to low speed. The motor stops when the selected door opening angle has been reached. The open position is held by the motor. If the door is obstructed while opening, it will either stop or reverse (field selectable).
- J. Field Adjustable Open Stop: The operator shall provide a field adjustable mechanical open stop to accommodate opening angles from 80 to 135 degrees.
- K. Normal Close: Closing shall be provided by means of a spring, adjustable tension by means of a single screw.
- L. Power Close: Closing shall be provided by means of a spring and motor. When the hold open time has elapsed, the operator will close the door automatically, using spring force and motor. The door will slow to low speed at latch check before it reaches the fully closed position. The door is kept closed by spring power or extended closing force by the motor.

- M. Power Assist: Operator can be adjusted to lower the open forces when used manually. Power Assist will be active only while pushing or pulling the door and will allow the door to close when an opening force is no longer applied to the door.
- N. Electronic Dampening: Operator to include standard electric dampening system which automatically counteracts additional forces applied to the door during the opening or closing cycle by reducing door speed.
- O. Stack Pressure Feature: The electronic control allows for increases of forces to overcome stack pressure issues. The control automatically compensates for lower manual push forces when the door is used in manual mode. The door must comply with ANSI A156.19 when using this feature.
- P. Lock engage circuit: If locking is unsuccessful when the door reaches the closed position, the operator will automatically reverse open 10 degrees and reclose in an attempt to successfully lock the door.
- Q. Test of Safety Sensors: If optional safety sensors are specified, the control will monitor the sensors before opening and closing the door. If sensors are not functioning correctly, automation is deactivated and the door will function as a manual swing door with a door closer and a fault is registered in the controls log.
- R. Fire rated surface applied operators connect to the surface of an existing fire rated labelled door frame or wall. Connecting hardware and UL approved fire exit hardware is required. See UL materials directory.
- S. A separate contact will be provided that upon receipt of a signal from an external source (fire alarm), the unit will close if in an open condition and not operate as an automatic door, until the signal from the external source has been reset.
- T. Signage: Provide signage in accordance with ANSI/BHMA A156.19.

## 2.4 OPTIONAL FEATURES

- A. S.M.A.R.T. panel LCD display: Will display the current status of the operator, any faults that the control registers and if required display a screen giving contact details for fault notification.
- B. Optional Battery back-up: Accessibility and convenience at non-fire rated opening under power failure. The minimum size Uninterrupted Power Supply (UPS) should be rated at 1500VA.

## 2.5 PUSH PLATE CONTROL DEVICE

Actuation device is either:

- A. Hard wired push plate switches. These will be either surface mounted with an appropriate enclosure or in a concealed single gang electrical box.
- B. Radio controlled push plate switches.
- C. Touch less Activation sensor plates, 4 ½ inch square microwave technology, adjustable from 2" to 24:"

Option: Suitable bollard for remotely mounting push plates in areas where no suitable mounting for existing methods of mounting the push plates exist.

Option: Push to Activate - is a programmable feature. Push or pull the door open from any position, and the door will gently power open, time out and slowly close.

Door can be used as a manual door with no damage to the operator.

## **ELECTRICAL CHARACTERISTICS AND COMPONENTS**

- A. ELECTRICAL CHARACTERISTICS: Power consumption must be less than or equal to the following: Nominal power 67 watts, Nominal current .08A at 120 VAC. Peak power consumption 2.9A, Standby .02A with power consumption of 13 watts.
- B. OVERLOAD PROTECTION: Electric motor is equipped standard with a built-in thermal overload protection.
- C. ELECTRICAL CONTRACTOR NOTE: provide two low voltage 18 gauge stranded wires from automatic operator to (50 feet max.) activation devices (if required).

### **2.6 ALUMINUM FINISHES**

- A. All exposed aluminum surfaces are dark bronze anodized (AAC23A44) or clear anodized (AAC22A31). Custom finishes such as stainless steel clad, powder coatings or paint are available, if specified (architect to provide color).

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- A. Verify the openings are plumb and are dimensioned properly. Insure adequate support has been provided at the operator header. Proceed with the installation only after conditions are deemed satisfactory.

### **3.2 INSTALLATION AND ADJUSTMENT**

- A. Install equipment in accordance with the manufacturers' installation instructions. Adjust equipment per instructions and current ANSI/BHMA 156.19 American National Standard for Power assist and low energy power operated doors.
- B. Door Operators: Connect door operators to electrical power distribution system as specified in Division 26 Sections.
- C. Controls: terminate wire to: controls, press plates, safety sensors.

End of Section