

SECTION 08 71 13 [08716]
POWER DOOR OPERATORS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes the following types of power door operators:
 - 1. Exterior and interior, power door operators, low energy, with visible mounting.
 - 2. Automatic door operators shall be configured for doors as follows:
 - a. Single doors, out swing or in swing, right hand or left hand.
 - b. Simultaneous pairs, out swing, in swing, or double egress.
- B. Related Sections:
 - 1. Division 8 Section "Aluminum-Framed Entrances and Storefronts" for entrances furnished separately in Division 8 Section.
 - 2. Division 8 Section "Door Hardware" for hardware to the extent not specified in this Section.
 - 3. Division 16 Sections for electrical connections including conduit and wiring for power door operators.

1.03 REFERENCES

General: Standards listed by reference, including revisions by issuing authority, form a part of this specification section to extent indicated. Standards listed are identified by issuing authority, authority abbreviation, designation number, title or other designation established by issuing authority. Standards subsequently referenced herein are referred to by issuing authority abbreviation and standard designation.

- A. Underwriters Laboratories (UL):
 - 1. UL 325 – Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems.
- B. American National Standards Institute (ANSI)/Builders' Hardware Manufacturers Association (BHMA):
 - 1. ANSI/BHMA A156.19: Standard for Power Assist and Low Energy Power Operated Doors.
- C. American Society for Testing and Materials (ASTM):
 - 1. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
 - 2. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate
- D. American Association of Automatic Door Manufacturers (AAADM):
- E. National Fire Protection Association (NFPA):
 - 1. NFPA 101 – Life Safety Code.

2. NFPA 70 – National Electric Code.

F. International Conference of Building Officials (ICBO):

1. UBC 1997: Uniform Building Code

G. International Code Council (ICC):

1. IBC 2012 – International Building Code

H. California Department of Forestry and Fire Protection, Office of the State Fire Marshall.

I. International Standards Organization (ISO):

1. ISO 9001 - Standard for Manufacturing Quality Management Systems

J. National Association of Architectural Metal Manufacturers (NAAMM):

1. Metal Finishes Manual for Architectural and Metal Products.

K. American Architectural Manufacturers Association (AAMA):

1. AAMA 607.1 - Clear Anodic Finishes for Architectural Aluminum.

2. AAMA 611 Voluntary Specification for Anodized Architectural Aluminum.

1.04 DEFINITIONS

A. “Knowing Act” Activation Device: With reference to the act of triggering an an opening signal to a door operator, such as pressing a switch, with the knowledge of what will happen.

B. Door-Mounted Presence Sensor: Sensor mounted near top of door that, when actuated, sends an electrical signal to the door operator to re-open door, in the case of the activating device timing out while a person is still standing in the threshold area, hence avoiding door contact.

1.05 PERFORMANCE REQUIREMENTS

A. Provide power door operators capable of withstanding structural loads and thermal movements based on testing manufacturer's standard units in assemblies similar to those indicated for this Project.

B. Operating Range: Minus 30 deg F (29 deg C) to 130 deg F (54 deg C).

C. Opening and closing speeds, hold open time delay, opening and closing force, and check speed and duration, shall be fully compliant to the current standard of ANSI A156.19. ,

D. Break Away Device: Doors requiring an emergency breakout device shall be fully compliant to the performance of such devices as outlined in ANSI A156.19.

1.01 SUBMITTALS

A. Submit listed submittals in accordance with Conditions of the Contract and Division 01 submittal procedures.

B. Shop Drawings: Include plans, elevations, sections, details, hardware mounting heights, and attachments to other work. Indicate wiring for electrical supply.

C. Color Samples for selection of factory-applied color finishes.

D. Closeout Submittals: Provide the following with project close-out documents.

1. AAADM Owner's Manual.
2. Completed and signed AAADM Inspection form
3. Manufacturer's Warranties.

1.02 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained for installation and maintenance of units required for this Project.
- B. Manufacturer Qualifications: A qualified manufacturer with a manufacturing facility certified under ISO 9001 and with company certificate issued by AAADM.
- C. Certifications: Power door operators shall be certified by the manufacturer to meet performance design criteria in accordance with the following standards:
 1. ANSI A156.19.
 2. NFPA 101.
 3. UL 325 Listed (Fire Door Operator)
 4. IBC 2012
- D. Source Limitations: Obtain power door operators through one source from a single manufacturer.
- E. Product Options: Drawings indicate sizes, profiles, and dimensional requirements of automatic entrance door assemblies and are based on the specific system indicated. Refer to Division 1 Section "Product Requirements."
- F. Power Operated Door Standard: ANSI/BHMA A156.19.
- G. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- H. Emergency-Exit Door Requirements: Comply with requirements of Authorities Having Jurisdiction (AHJ) for swinging automatic entrance doors serving as a required means of egress.

1.03 PROJECT CONDITIONS

- A. Field Measurements: General Contractor shall verify openings to receive power door operators by field measurements before fabrication and indicate measurements on Shop Drawings.
- B. Mounting Surfaces: General Contractor shall verify all surfaces to be plumb, straight and secure; substrates to be of proper dimension and material.
- C. Other trades: General Contractor Advise of any inadequate conditions or equipment.

1.04 COORDINATION

- A. Templates: Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing power door operators to comply with indicated requirements.

- B. Electrical System Roughing-in: Coordinate layout and installation of power door operators with connections to power supplies.
- C. System Integration: Integrate power door operators with other systems as required for a complete working installation.
 - 1. Provide electrical interface for access control capability for operation of power door operators on doors with electric locking.
 - 2. Where required for proper operation, provide a time delay relay to signal power door operator to activate only after electric lock system is released.

1.05 WARRANTY

- A. Power door operators shall be free of material defects for a period of 2 years and shall be free of defects in workmanship for a period of one year from the date of substantial completion. Physical abuse, Acts of God, and any service performed by an individual or company that is not factory trained and authorized by Tucker Auto-Mation shall null and void warranty.
- B. During the warranty period the Owner shall engage a factory-trained technician to perform service and affect repairs. An AAADM inspection shall be performed after each adjustment or repair and the completed AAADM inspection form shall be submitted to the Owner.
- C. During the warranty period all warranty work, including but not limited to emergency service, shall be performed during normal working hours.

PART 2 - PRODUCTS

2.01 POWER DOOR OPERATORS

- A. Manufacturer: Tucker Auto-Mation 10SW19 Harmony Series power door operator.

2.02 MATERIALS

- A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
 - 1. Headers: 6063-T6.
 - 2. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221.
 - 3. Sheet and Plate: ASTM B 209.
- B. Sealants and Joint Fillers: Refer to Division 7 Section "Joint Sealants".

2.03 COMPONENTS

- A. Header Case: Header case shall not exceed 6-1/8 inch x 4 inch (121 mm x 107 mm) in rectangular section and shall be fabricated from extruded aluminum with structurally integrated end caps, designed to conceal door operators and controls. The operator shall be sealed against dust, dirt, and corrosion within the header case. Access to the operator and electronic control box shall be provided by a full-length removable cover, edge rabbetted to the header to ensure a flush fit. Removable cover shall be secured to prevent unauthorized access.
- B. Door Arms and Linkage Assembly: A combination of door arms and linkage shall provide positive control of door through entire swing; units shall permit use of butt hung, continuous hinge, center pivot,

and offset pivot-hung doors.

- C. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, non-staining, non-bleeding fasteners and accessories compatible with adjacent materials.
- D. Signage: Provide signage in accordance with ANSI/BHMA A156.19.

2.04 SWINGING DOOR OPERATORS

- A. Provide door operator as recommended by manufacturer for door size, weight, and movement; for condition of exposure; and for long-term, maintenance-free operation under normal traffic load for type of occupancy indicated.
- B. Operators: Self-contained units powered by a minimum fractional horsepower, permanent-magnet, low voltage, DC motor.
 - 1. Electro-mechanical Operator: Transmit power from operator to door through reduction gear train, splined spindle, door arm, and linkage assembly. Drive train shall have positive constant engagement.
 - a. Operator shall be non-handed. One operator type shall be used for in-swing, out-swing, right hand or left hand. Handed operators shall not be acceptable.
 - b. Electro-Hydraulic operators, or operators requiring a manual door closer to pull the door closed following an automatic opening, shall not be acceptable.
 - c. Operator shall employ a field adjustable mechanical stop to limit door travel for the fully open or closed door position.
 - d.
 - 2. Operation: Power opening and spring closing.
 - 3. Mounting: Surface applied or overhead concealed
 - 4. Features:
 - a. Adjustable opening, and closing speeds.
 - b. Adjustable hold-open time between 0 and 30 seconds.
 - c. Stop door on obstruction.
 - d. Push and Go operation
 - e. Fire Alarm input
 - f. Door Sequencing input
 - g. Door Interlock input
 - h. LED Status indication for all inputs
- C. Closing Operation: The operator shall close the door by coiled spring energy employing the motor, as a dynamic brake to provide closing speed control. The closing spring shall be adjustable for positive closing action at a low material stress level for long spring life. Spring type shall be a clock style torsion spring. Linear type compressions springs shall not be acceptable.
- D. Manual Use: The operator shall function as a manual door closer in the direction of swing with or without electrical power. The operator shall deliver an even, consistent open force across the entire transition from door fully closed to door fully open.
- E. Electrical service to door operators shall be provided under Division 16 Electrical. Minimum service to be 120 VAC, 10 amps for doors with operators in pairs, 5 amps for single doors.

2.05 ELECTRICAL CONTROLS

- A. Electrical Control System: Electrical control system shall include a micro-processed controller with quick connect plugs and removable terminal strips.

- B. Force Adjustment: Electrical Control System, during initial set-up, shall determine kinetic energy limitations based upon door weight. Manual force adjustments shall not be acceptable.
- C. Controller Protection: The controller shall incorporate the following features to ensure trouble free operation:
 - 1. Fuse Protection
 - 2. Electronic Surge Protection
 - 3. Internal Power Supply Protection.

Program Dip Switches: The controller shall have program dip switches to allow selection or change for single or dual door operation, and activation options.

2.06 ACTIVATION DEVICES

- A. Initial activation shall be from a "Knowing Act".
- B. Push Plates: Provide 4 ½ inch (114 mm) square SPDT push plates with UL listed switch. Face plates and mounting studs shall be stainless steel. Face plates shall be engraved with the international symbol for accessibility and "Push To Open".
 - 1. Interior and exterior push plates shall be wall mounted in single or double gang electrical boxes and hardwired to door operator controls.
 - 2. Push Plate will have Braille markings as per ADA signage requirements.

2.07 ALUMINUM FINISHES

- A. Comply with NAAMM Metal Finishes Manual for Architectural and Metal Products for recommendations for applying and designing finishes. Finish designations prefixed by AA comply with system established by Aluminum Association for designing finishes.
- B. Class II, Clear Anodic Finish: AA-M10C22A31 Mechanical Finish: as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class II, clear coating 0.40 mils minimum complying with AAMA 611-98, and the following:
 - 1. AAMA 607.1
 - 2. Applicator must be fully compliant with all applicable environmental regulations and permits, including wastewater and heavy metal discharge.

PART 3 - EXECUTION

3.01 INSPECTION

Examine conditions, with Installer present, for compliance with requirements for installation tolerances, header support, and other conditions affecting performance of swinging automatic entrance doors. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Do not install damaged or faulty components. Fit joints to produce hairline seams free of burrs and distortion. Rigidly secure non-moving joints.
- B. Mounting: Install power door operators/headers level & plumb and true in alignment with established lines and grades. Anchor securely in place.

1. Install surface-mounted hardware using concealed fasteners to greatest extent possible.
 2. Set headers, arms and linkages level and true to location with anchorage for permanent support.
- C. Door Operators: Connect door operators to electrical power distribution system as specified in Division 16 Sections.
- D. Sealants: Comply with requirements specified in Division 7 Section "Joint Sealants" to provide weather tight installation.
- 3.03 ADJUSTING
Adjust door operators, controls, and hardware for smooth and safe operation, weather-tight closure, and in full compliance with ANSI A156.10.
- 3.04 FIELD QUALITY CONTROL
Testing Services: AAADM Certified Inspector shall perform an AAADM inspection and shall test each swinging automatic entrance door to determine compliance of installed systems with applicable ANSI standards. Provide completed AAADM test document and AAADM Owner's Manual to the Owner or the assigned agent.
- 3.05 CLEANING AND PROTECTION
Clean surfaces promptly after installation. Remove excess sealant compounds, dirt, and other substances. Repair damaged finish to match original finish.

END OF SECTION 08 71 13 [08716]