

Section 08465 — Dor-O-Matic Automatic Folding Doors

This section is based on the products of Dor-O-Matic, an Ingersoll-Rand business, located at:

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Dor-O-Matic is one of the oldest and experienced manufacturers of automatic door equipment. This section covers only a part of their product line: "Astro-Fold" folding doors, panels, jambs and operators, with accompanying control components, including motion detectors and Safety Plus. See other sections for automatic swinging doors, automatic sliding doors, fire door operators and ADA-compliant low-energy operators.

Part 1 General

1.1 Section Includes

- A. Aluminum folding doors and frames.
- B. Automatic door operators, actuators and safeties.

Delete the following if not required for project.

- C. Fail-safe magnetic locking package.

1.2 Related Sections

Delete any sections below not relevant to this project; add others as required.

- A. Section 03300 – Cast-in-Place Concrete: Recess in concrete slab for mat-type actuators.
- B. Section 07900 – Joint Sealers.
- C. Section 08800 – Glass and Glazing.
- D. Division 16 – Electrical: 115 VAC (15 amp circuit breaker, one per unit), single-phase wiring in conduit between operator enclosure and building power supply and 22-gauge low-voltage wiring between enclosure and actuators and safeties.

1.3 References

- A. ANSI/BHMA A156.10 – American National Standard for Power-Operated Pedestrian Doors.
- B. NFPA 101 – Safety to Life from Fire in Buildings and Structures.
- C. UL 325 – Standard for Door, Drapery, Gate, Louver and Window Operators and Systems.

1.4 Definitions

- A. FS Panel: The panel (half of a pair of bi-folding doors) which hinges to the door jamb.

- B. FX Panel: The panel (half of a pair of bi-folding doors) which locks to the door jamb in a bi-folding single application or meets another panel in a bi-folding pair application.

1.5 Performance Requirements

- A. Automatic opening and closing of folding doors by way of inside and outside motion detectors and electromechanical operators; adjustable opening speed, closing speed and hold-open duration.
- B. Maximum security lock cylinders, keyed alike; one interior thumbturn.
- C. Emergency one-point unlocking system; releasing interior thumbturn in one operation allows doors to swing in the direction of egress.
- D. Adjustable ball detent system allows folding door to swing out 90 degrees for manual breakout from any position in cycle, complying with NFPA 101.
- E. Power to door operator disconnected when folding doors are in emergency swing out position.

Delete the following if fail-safe magnetic locking package is not required for the project.

- F. Fail-safe magnetic locks prevent doors from opening, except upon power failure when doors unlock, allowing exit by use of the breakaway system.

1.6 Submittals

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's catalog data, detail sheets and specifications.
- C. Shop Drawings: Prepared specifically for this project; show dimensions of doors, operators and interface with other products.
- D. Operating and Maintenance Data: Operating and maintenance instructions, parts lists and wiring diagrams.

1.7 Quality Assurance

- A. Installer Qualifications: Factory-trained with minimum 3 years experience.

Part 2 Products

2.1 Manufacturers

- A. Acceptable Manufacturer: Provide products made by Dor-O-Matic, an Ingersoll-Rand business.
- B. Requests for substitutions will be considered in accordance with provisions of Section 01600.

Delete either B above or C below; coordinate with Division 1 requirements.

- C. Provide all automatic folding doors, panels, jambs and electromechanical automatic door operating equipment from a single manufacturer.

2.2 Doors and Frames

Automatic folding doors are available from Dor-O-Matic in complete packages including aluminum doors, panels, jambs, operators and actuators.

- A. Doors, Panels and Jambs: Extruded aluminum alloy, minimum 1/8" (3.17 mm) thick.

1. Door and Panel Construction: Heavy-duty interlocked sections, through-rod bolted.
2. Top Web of Doors: 1/4" (6.34 mm) thick, factory-prepared with custom steel press nuts to accept required hardware.

For aluminum doors, aluminum anodized and dark bronze anodized are the two standard finishes; many other finishes, including black anodized, special paint finishes are available. Select one of the following three.

3. Finish: Anodized aluminum.
4. Finish: Dark bronze anodized aluminum.
5. Finish: _____.

Following is an example of specifying operator and actuators when more than one configuration is used on the project and the drawings do not call out such details.

6. Motor/Gear Box Operator: Full-size, heavy-duty self-contained electromechanical, concealed overhead. No exposed gears.

Usually, delete all but one of the following five. Under some conditions, more than one actuator is appropriate for a single door opening.

7. Actuator: Motion detector.
8. Actuator: Push plate.
9. Actuator: Key switch.
10. Actuator: Card reader by others.
11. Actuator: _____.

Include the following safety devices for all automatic folding doors.

12. Safety System: Dor-O-Matic 77700-900 header mounted presence sensor.
13. Finger Guards: 1" (25 mm) vinyl on doors, panels and jambs.

2.3 Door Operators

- A. Operation: Electric power opening, closing and holding; comply with ANSI A156.10 and UL 325.

1. Open unlocked doors upon activation of motion detector.

2. Close doors after each cycle, and hold against drafts and wind pressure.
 3. Provide safety reverse function to automatically reverse doors to full open position should a person or object be encountered during closing cycle.
 4. Spring-close closing force: 9 lb-force.
 5. Manual switch between spring-close-and-hold and power-boost-close-and-hold.
 6. Power-boost-close-and-hold: Electronically increase door closing force to 25 lb.
 7. Provide adjustment by microprocessor control for:
 - a. Opening speed.
 - b. Hold-open from 1 to 30 seconds.
 - c. Closing speed.
 - d. Backcheck speed.
 8. Factory-set door hold-open voltage.
 9. Manual "Off/1-way/2-way/Hold-Open" switch.
 10. Fail-safe: In event of power failure, make door operate manually without damage to operator components.
- B. Construction: Heavy-duty, self-contained electromechanical; comply with ANSI A156.10 and UL 325.
1. Motor/gear box operator: Cast aluminum housing, with precision-machined gears and bearing seats and all-weather lubricant, mounted on vibration isolators. No exposed gears.
 2. Gears: Manufactured by door operator manufacturer specifically for operators.
 3. Motor: DC permanent magnet motor with shielded ball bearings. Stop motor when door stops or is fully open and when breakaway is operated.
 4. Door operating arm: Forged steel, attached at natural pivot point of door; do not use slide block in top of door. Do not use rotary arm mechanism or door position switches along header.
 5. Self-contained microprocessor control: 115 VAC.
 6. "Off/1-way/2-way//Hold-Open" 4-position rotary switch.
 7. Control circuits for actuators and safeties: Low-voltage, NEC Class II.
 8. Service conditions: Satisfactory operation between -30 degrees F (-34 degrees C) and 160 degrees F (71 degrees C).
 9. Power supply required: 115 VAC (15 amp circuit breaker, one per unit).
- C. Enclosure: Extruded header, 9" high x 6" wide (230 mm x 152 mm), containing all operating components.
1. Provide access door on face or back of enclosure for access to controls and removable components without removal of door or operator.
 2. No exposed fasteners.

Delete two of the following three. Anodized and dark bronze aluminum are the standard finishes for exposed headers. Clad finish applies to storefront or curtainwall installations where the adjacent finish is bronze or stainless or other metal finish. If coated finishes are specified, the color should be specified, especially if it must match the doors.

3. Finish of Exposed Surfaces: Match doors.
4. Finish of Exposed Surfaces: Anodized aluminum
5. Finish of Exposed Surfaces: Paint to match door frame

Usually, delete all but one of the following six.

6. Color: To match door.
7. Color: As selected from manufacturer's standard selection.
8. Color: Dark bronze.
9. Color: Natural aluminum.
10. Color: Black.
11. Color: _____.

2.4 Actuators

Select actuators from below; delete those not required for the project. Actuators can be motion detectors on both sides of header, push plates, card readers or other momentary contact devices.

- A. Motion Detectors: Dor-O-Matic Supplied #74600-900.
- B. Push Plate Actuator: Formed metal plate with rounded corners, satin finish; approximately 5" (127 mm) square; with depressed marking.

Delete one of the following two.

1. Material: Stainless steel.
2. Material: Brass.

Delete one of the following three.

3. Marking: "Push to operate door," filled red.
 4. Marking: Wheelchair logo.
 5. Marking: Plain face.
- C. Card Reader by others.
 - D. Key Switch: _____.

2.5 Hardware and Accessories

A. Door Hardware:

1. Manual Locks: Emergency one-point unlocking system, maximum-security lock cylinders, keyed alike.

Select the first subparagraph below for bi-folding single doors, the second subparagraph for bi-folding pairs.

- a. Quantity: Two per opening.
- b. Quantity: Three per opening.
2. Main Cylinders: One per opening, keyed on outside, thumbturn on inside, locking the FX panel into adjacent jamb and dropping vertical bolt into threshold/floor. Releasing interior thumbturn shall allow doors to swing in the direction of egress.
3. Secondary Cylinders: Keyed both sides, operating vertical bolt to lock the FS panel into break-away carrier.
4. Pivot Systems: Extra-heavy-duty, providing concealed radial thrust bearings at tops of panels.

Include the following if threshold is shown on drawings or called for in schedule.

5. Threshold: Manufacturer's standard.

Include either #6 or #7 below if fail-safe magnetic locking package is required for project.

6. Fail-Safe Magnetic Locking Package (with Four-Position Switch):
 - a. Magnetic lock control board; 12-volt DC, 2,700 pound (12,000 N) holding force shear magnetic locks.
 - b. Doors unlock with power failure, allowing exit by use of the breakaway system.
 - c. Switch Position "Off": Magnetic locks and all sensing devices deactivated; doors still manually lockable.
 - d. Switch Position "One-Way": Doors locked for night (security) operation; outside sensing devices deactivated, magnetic locks prevent forcible opening from outside; inside sensing devices unlock and open doors, activating outside sensing devices until doors are fully closed.
 - e. Switch Position "Two-Way": Doors unlocked for day (normal) operation; inside and outside sensors active.
 - f. Switch Position "Hold Open": Doors unlocked and held in full open position.
7. Fail-Safe Magnetic Locking Package (Wired into Security System):
 - a. Magnetic lock control board; 12-volt DC, 2,700 pound (12,000 N) holding force shear magnetic locks.
 - b. Doors unlock with power failure, allowing exit by use of the breakaway system.
 - c. Contacts Open (One-Way): Doors locked for night (security) operation; outside sensing devices deactivated, magnetic locks prevent forcible opening from outside; inside sensing devices unlock and open doors, activating outside sensing devices until doors are fully closed.
 - d. Contacts Closed (Two-Way): Doors unlocked for day (normal) operation; inside and outside sensors active.

Include the following if magnetic lock override switch is required for project.

8. Two-Position Magnetic Lock Override Switch:

- a. Position "Off ": Prevents magnetic lock from locking, no matter which of the four positions is selected; door functions as if there were no magnetic lock, but doors are still manually lockable.
- b. Position "On": Magnetic lock functions as specified.

B. Provide guide rails complying with ANSI A156.10 and applicable codes.

C. Signs: Provide signs complying with ANSI A156.10 and applicable codes.

- 1. Approach side: Black arrow on white background inside green circle.
- 2. Reverse side: "DO NOT ENTER" in white letters on a red circle.
- 3. Traffic in both directions through same door: Yellow circle with "AUTOMATIC DOOR" in black letters and "CAUTION" across the middle in yellow letters on black.

Part 3 Execution

3.1 Examination

- A. Verify that door openings are plumb, square and ready for installation of automatic folding door equipment.
- B. Verify that electrical service is available, properly located and of proper type.

3.2 Installation

- A. Install folding doors, frames, operating equipment, hardware and accessories in accordance with manufacturer's instructions; comply with ANSI A156.10.
- B. Verify that electrical connections are made correctly and with dedicated grounding.

3.3 Adjust and Clean

- A. Adjust doors and operators for proper operation, without binding or scraping and without excessive noise.
- B. Clean Glass
- C. Supply Owner/Contractor with AAADM Certified Daily Safety Check.
- D. Supply Owner/Contractor with keys if required.
- E. Supply Owners Manual.

End of Section