

International Door, Inc.

**8001 Ronda Drive
Canton, MI 48187
(800) 231-9521**

Website: www.international-door.com

Sales Dept. E-Mail: sales@international-door.com

Engineering Dept. E-Mail: engineering@international-door.com

VERTICAL LIFT BLAST RESISTANT DOORS

Section 08365-Vertical Lift Blast Resistant Doors

Part 1-General

1.1 Related Document:

Drawing and general provisions of contract, including general and supplementary conditions and division 1 specification section, apply to this section.

1.2 Work Included:

A. Provide all labor, equipment, materials and services required to execute and complete all items of work in connection with Furnishing and Installing the Vertical Lift Blast Resistant Doors described herein. All work shall be in accordance with the specifications and drawings.

B. Related Sections include the following:

1. Division 9 Section "Painting" for field-applied paint finish.
2. Division 16 Section "Conductors and Cables" for electrical service and connections for powered operators and accessories.
3. Division 16 Section "Disconnect Switches and Circuit Breakers" for disconnect switches and circuit breakers for powered operators.

1.3 Definitions

Operation Cycle: One complete cycle of a door begins with the door in the closed position. The door is then moved to the open position and back to the closed position.

1.4 Guarantee

Provide to the Owner a written guarantee, warranting the doors against any defects or materials and/or workmanship for the new door for a period of 1 year. With proper maintenance, commencing from the date of final acceptance of the project. Motors shall be guaranteed for a period of 1 year. State that all door and control work that becomes defective during the guarantee period shall be repaired promptly, to the requirements of these Specifications and at no cost to the Owner.

1.5 Quality Assurance

Installation work shall only be carried out by the unit manufacturer or by an approved installation specialist properly licensed or franchised for installation work.

Source Limitations: Obtain vertical lift blast resistant doors through one source from a single manufacturer.

1. Obtain operators and controls from the vertical lift blast resistant door manufacturer.

1.6 Requirements of Regulatory Agencies

Equipment and installation shall comply with local, state and federal laws and with other mandatory requirements. Be responsible to insure an installation which is in compliance with such laws and regulations and all changes or alterations required by the authorized inspector or the authority having jurisdiction to be made without increase of subcontract price. Systems shall bear labeling for electrical equipment from the following standards.

1. Underwriters Laboratory 508 electrical standards

1.7 Product Delivery, Storage and Handling

- A. Deliver materials in sequence to meet the installation schedule and arrange ahead for off-the-ground, covered storage locations. Only materials scheduled to be erected within 24 hours may be stored on site. Other materials will have to be stored off site.
- B. Handle components with care. Protect against damage, dirt, disfigurement and weather.
- C. Protect other work resulting from work of this Section. Replace work, which cannot be satisfactorily repaired or restored at no additional cost to the Owner.

1.8 Submittals

- A. Submit detailed shop drawings of all work, and list the location in the building for each door. Clearly show and describe in detail, door assemblies, and adjacent construction, including elevations, sections, and details of door, track, hardware, and operating components, dimensions, finishes and relationship of door, frames, track, hardware and operating components to adjacent construction.
- B. Submit printed operation instructions and maintenance data for the doors as follows:
 1. Wiring diagrams, "as built" straight line wiring and schematic diagrams showing electrical connections and control circuitry.
 2. Instructions showing operation.
 3. Lubrication chart indicating lubrication points and type of lubricant recommended for equipment.

- C. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors available for units with factory-applied finishes.

Part 2-Products

2.1 Manufacturers and Products

Vertical lift blast resistant doors shall be electrically operated one, two, or three leaf type as manufactured by International Door, Inc. 8001 Ronda Drive, Canton, MI 48187 (734) 459-3000

- A. Model # XXXVLBR-DSI-S (XXX= 100,200,OR300 For one, two, or three leaf type respectively)

2.2 Door Design

Door shall be reinforced horizontally and vertically to withstand blast pressures of 100 psf with the deflection limited to the span divided by 120.

- A. Door and Counterweight guides shall be self-supporting.
- B. Door hardware shall be heavy duty, industrial type. Door guides and supports shall be designed to withstand 100 psf blast loads.
- C. Jamb guides, tracks, brackets, safety devices and all other hardware necessary for proper operation shall be as recommended by the manufacturer for a secure type installation.
- D. Emergency release for manual operation shall be provided by the door manufacturer in case of power failure.

2.3 Door Material and Construction

- A. Vertical lift blast resistant door assembly shall be manufactured in accordance with manufacturer's standard practice, approved shop drawings and with the previously cited design criteria. Door shall be fully insulated with nominal 1 ½" density building insulation, full thickness of panel. Door panels shall be faced on the interior face with minimum 12 gauge steel to withstand 100 psf blast pressure, and exterior with 14 gauge steel.
- B. Stiles and rails shall be of structural steel sections, full depth of door thickness not smaller than three inch channels, and spaced as required to withstand blast pressure with all joints welded and ground smooth. All joints and welds shall develop the full strength of the framing members. The door panel frame members shall be true to dimension and square in all directions. The door panel frames shall not be bowed, wrapped, or out of line by more than 1/8" in 20 feet. Bracing shall consist of horizontal and vertical structural sections.
- C. Equipment:
 - 1. Vertical Lift Blast Resistant Door guides and counterweight box shall be fabricated from structural steel shapes or plates bolted or welded together to give ample strength at their connections in performing their proper functions. Counterweights shall be guided by UHMW for full height of travel. Access to the counter weight

box shall be furnished by removable # 14 GA HRS flat sheet covers up to 8'-0" high

2. Provisions shall be made on the door leaves for application of any attached hardware.
 3. Door leaves shall be suspended on improved plow steel wire rope from machined steel sheaves and lifting drums to counterweights located at one side of the opening.
 4. Sheaves, rollers and drums shall have anti-friction sealed bearings.
 5. Wire rope shall have the capacity to sustain the dead weight of the door with an allowance of 25 percent of impact all with a minimum safety factor of 6.25
- D. Flexible weather seals are provided at top, meeting rails, bottom and Sides. Seals are secured with bolts and continuous steel retainers for easy replacement. Door bottom weather seal shall be a safety type as specified under "Reversing Fail Safe Safety Edge".

2.4 Finishes General

All exposed and unexposed surfaces of door and door hardware, except mechanical parts not usually painted shall be shop painted. Shop painting shall consist of one coat of gray metallic primer.

2.5 Electric Door Operators

General: Provide electric operator assembly of size and capacity recommended by door manufacturer and factory-prewired motor controls, starter, gear-reduction unit, solenoid-operated brake, clutch, remote-control stations, control devices, and accessories required for proper operation and shall comply with NFPA 70 and NEC96.

- A. Door manufacturer shall furnish and install electric operator. Operator shall be of heavy duty type furnished by door manufacturer.
- B. Door operator shall include foot mounted, standard frame, totally enclosed Electric motor, gear reduction unit a separate caliper disc brake, and emergency hand chain mechanism with electric interlock.
 - a. Door operator shall be factory wired to a terminal strip in a NEMA 12 enclosure.
 - b. Limit switches shall be rated NEMA 4, 6P & 13 and shall be plug-in type when Located in general purpose, non-hazardous areas and shall be rated NEMA 7 or intrinsically safe construction in hazardous areas.
 - c. Electric operators shall be designed and installed so that the door can be operated at a rate of $\frac{3}{4}$ to one foot per second.
 - d The door control panel /safety disconnect switch shall be furnished in a NEMA

12 enclosure when located in the general purpose, non-hazardous area or shall be furnished in a NEMA 7 rated enclosure when mounted in the hazardous areas

- e. A push-button control station in a NEMA 4 rated enclosure shall be furnished on both sides of the door.
- e. Electric power required for standard operators is 480 volt, 3 phase, 3 wire, 60 Hertz.
- f. A safe safety edge shall be included on the leading edge of the bottom leaf to stop the downward travel of the door upon contact with an obstruction. Operation of the safety edge shall cause a reversal of the door travel to the full open position. Failure of the safety edge or its components shall prevent closing operation.
- g. Motor Speed: 1800 rpm unless otherwise indicated
- h. Motors: NEMA Design B for non-hazardous locations and explosion proof motors for Hazardous locations.
- i. Manufacturers: Subject to compliance with requirements, provide products by one of the following.
 - 1. Lincoln
 - 2. Marathon
 - 3. Reliance
 - 4. US Motor

2.6 Reversing Fail Safe Safety Edge

- A. Door manufacturer shall provide and install a rubber-encased, reverse action safety mechanism on the electrically-operated vertical lift blast resistant doors. The system is continuously energized and operates through the electrical system to stop the downward travel of the door on contact with an obstruction, providing an instantaneous reversal of the door travel to the full open position. Failure of any component prevents closing of door. A multi-conductor cord from an electrical junction box on the bottom door leaf is provided for the safety edge. The safety edge system shall be catalog # IDI-FSSE-2K as manufactured by International Door, Inc.

2.7 Emergency Manual Operation

A. Provide and install devices for emergency manual operation. Emergency chain operation shall include plated chain, Reduction unit, sheaves, etc., required to provide complete operation from side of door to suit conditions. This device shall be so arranged that when set for manual operation the brake is automatically released and control circuit is broken, making it impossible to operate the doors electrically until the device is set for motor operation.

B. Chain gear operators shall be approved type, designed for easy uniform effort. Plated chain shall be installed within easy reach of floor.

C. Operators shall be so designed that the electric motor may be removed without affecting manual operation of the door by means of the chain operator.

D Limit Switches: Provide adjustable switches, interlocked with motor controls and set to automatically stop door at fully opened and fully closed positions.

Part 3- Execution

3.1 Installation

- A. Vertical lift blast resistant doors, including electric operators, control devices, conduit and wiring shall be installed by or the installation shall be supervised by the manufacturer's authorized representative in openings completely prepared by others and shall be done in a first-class manner with all work plumb, proper alignment and in accordance with approved shop drawings and manufacturer's latest printed instructions.
- B. Electrical installation shall be in strict accordance with the requirements of the NEC state and local codes and the OWNER'S specifications.
- C. The design for the application and installation of all intrinsically safe control equipment must be reviewed and certified by the OWNER before installation. The contractor will not be allowed to install intrinsically safe equipment unless approved shop drawings (wiring diagrams, installation instructions, etc. indicating the specific connections and details) are marked with the OWNERS intrinsic safety certification.
- D. OWNER shall provide a 480V, 3 phase, 3 wire branch circuit wired to a connection point above the proposed operator to power the door. Mounting of operator and hardware to structural steel frames shall be part of work of this Section with the use of case hardened machine bolts tapped into steel jambs. Bolting to masonry construction shall be by through bolts or bolts embedded solidly in concrete. Machine bolts for through bolting on doors shall be case hardened.
- E. Upon completion of installation, doors shall be adjusted for ease of operation and left free from imperfections.
- F. Finish painting is specified in Section 09900 and is not a part of this Section.
- G. Koil Kords or S.O. Cords: The Fail Safe Safety Edge shall be wired with a 3 conductor koil kords or 3 conductor S.O. cords. Koil Kord or S.O. Cords shall be furnished by door manufacturer.
- H. Fully synchronize doors, with the hardware and cables designed so that the door sections move simultaneously, the upper section traveling at a fraction of the speed of the lower sections so tat they reach the open or closed position at the same time.

3.3 Adjusting

- A. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- B. Any repairs that required an account of faulty materials, workmanship, design or door construction shall be made at no additional charge to the owner.

3.4 Demonstration

- A. Startup Services: Engage a factory-authorized service representative to perform startup services and to train Owner's maintenance personnel as specified below:
1. Train Owner's maintenance personnel on procedures and schedules related to startup and shutdown, troubleshooting, servicing, preventive maintenance and procedures for testing and resetting release devices.
 2. Review data in the maintenance manuals. Refer to Division! Section "Contract Closeout"
 3. Schedule training with Owner with at least 7 days advance notice.

END OF SECTION 08365

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