3-Part Architectural Specifications
Electric Door Operator
Model: OTBH-A.00

Part 1 General

1.01 Description

A. Work Included: Supply and installation of a heavy-duty V-belt drive Apartment Style Trolley Electric Door Operator with a solenoid brake for use on Industrial Standard Lift Sectional Doors, of size and capacity recommended by door manufacturer, as specified; as well as the necessary driving hardware and control accessories necessary for proper operation.

B. Mounting: To be ceiling mounted.

1.02 Related Work

A. Door preparation, miscellaneous or structural metal work, field electrical wiring, wires, disconnect switches, fuses and conduit are in the scope of work of other sections or trades.

1.03 Submittals

A. Submit manufacturer's product data and installation instructions for each type of operator. Include both published data and any specific data prepared for this project.

1.04 Delivery, Storage and Handling

A. Product shall be delivered to the project site in manufacturer's original packaging.

B. Product shall be handled and stored to prevent damage to materials, finishes and operating mechanisms.

1.05 Warranty

A. Operator shall be warranted to be free from defects in material and workmanship for a period of 2 years per our Terms and Conditions of Sale.

Part 2 Product

2.01 Manufacturer

A. Acceptable Product: Operator model OTBH-A.00 as manufactured by 9141-0720 Québec Inc. (DBA Manaras-Opera), part of the Canimex Group: 136 Oneida Drive, Pointe-Claire, Québec, Canada H9R1A8. Tel: (800) 361-2260. Fax: (888) 626-0606. www.manaras.com.
Email: info@manaras.com.

B. Substitutions: Not permitted.

2.02 Operator

A. Motor: To be rated ___HP,___ Volts,___Phase, 60Hz high starting torque, continuous-duty, single phase capacitor start or 3 phase motor, open drip proof, protected against overload by a built-in thermal protection with automatic reset (3 phase motors) or a current sensing device with manual reset (1 phase motors).

Note to Architects:
Also available with 50Hz 220V 1 phase and 380V 3 phase motor. Motor shall be separate from reduction mechanism for ease of maintenance.

B. **Reduction:** First step in reduction to be 4L/A V-belt drive, additional step by #41 chain and sprockets giving a door speed of 9"/second. Input steel shaft to be a minimum of 5/8" (15.875mm) in diameter and supported by cast iron flanged pillow block bearings. Output steel shaft to be a minimum of 1" (25.4mm) in diameter with 1/4" keyway and supported by ball bearings.

C. Drive and Trolley Assembly: Door to be driven by #41 full roller chain drive. Supported by dual, 12 gauge, pre-drilled galvanized tracks. Track spacers to be 3/4" steel shaft. Trolley to be made of cast aluminum alloy with possibility of chain tension adjustment.

D. Torque-Limiter: To be friction type, positioned on input shaft, adjustable from outside.

E. Brake: To be an electrically activated insulated drum-shoe type solenoid brake.

F. Manual Operation: To be by a quick release disconnect arm for manual door operation.

G. Electrical Enclosure: All electrical components to be in a NEMA 1 enclosure. The enclosure's cover to be hinged.

H. Limit Switches: To be rotary-type with oil-impregnated steel cams, commercial grade switches. Systems to be enclosed in electrical control box, and limit shaft to be supported in frame by self-lubricating bronze bushings. System to be provided with Accu-cam® precise and quick one-handed adjustment feature. Limit switches to remain in time when there is a manual operation or after the motor has been removed. Designed to prevent any lever breakage when limits have been exceeded during manual operation.

I. Corrosion Protection: Frame and control enclosure to be protected by baked on, long lasting enamel finish. Internal shafts to be protected by yellow chromate coating.

Option #1: Control Circuit with 5V$_{DC}$ Logic Electronic Control with Monitoring Function ("M" version)

J. Motor Control: To be a 24V$_{DC}$ relaying and 5V$_{DC}$ logic circuit with a 40VA class II transformer, non-volatile memory. Features available: On-board radio receiver, 1.5s delay on reverse, programmable maximum run timer, mid-stop, timer-to-close (suspension possible from floor level), independent input loop terminal, advance close system, test buttons, reverse wiring detection and door lock sensor. Operating mode selection to be possible on site during or after installation. To provide the monitoring of Primary External Entrapment Protection Devices. To include compatible and approved monitored photo cells. Terminal strip to allow connection of 3-button stations (one supplied with the operator), non-monitored sensing edges, non-monitored photo cells, one push-button radio control (external strip), ceiling pull switches, key switches, loop detectors, external interlocks. 2A fuse protected 24V$_{AC}$ output is available for accessory power supply.

K. Operating Mode: To be C2 (or B2 or D1 or E2 or T or TS, see appendix for description).

M. Standards: Operator to be certified CAN/CSA C22.2-247.92 and CAN/ANSI/UL325:2017 by a National Recognized Testing Laboratory or an Accredited Certification Body, such as UL or CSA, and labeled in accordance.

Note to Architects:
Motorized doors can cause serious injuries or death. Manaras-Opera strongly recommends the use of entrapment protection systems, especially in case of momentary contact to close as in B2, T or TS operating modes.

Option #2: Control Circuit with 5V$_{DC}$ Logic Electronic Control without Monitoring Function ("E" version)

J. Motor Control: To be a 24V$_{DC}$ relaying and 5V$_{DC}$ logic circuit with a 40VA class II transformer, non-volatile memory. Features available: On-board radio receiver, 1.5s delay on reverse, programmable maximum run timer, mid-stop, timer-to-close (suspension possible from floor level), independent input loop terminal, advance close system, test buttons, reverse wiring detection and door lock sensor. Operating mode selection to be possible on site during or after installation. Does not provide monitoring function. Terminal strip to allow connection of 3-button stations (one supplied with the operator), non-monitored sensing edges, non-monitored photo cells, one push-button radio control (external strip), ceiling pull switches, key switches, loop detectors, external interlocks. 2A fuse protected 24V$_{AC}$ output is available for accessory power supply.

K. Operating Mode: To be C2 (or B2 or D1 or E2 or T or TS, see appendix for description).

M. Standards: Operator to be certified CAN/CSA C22.2-247.92 and ANSI/UL325 5th Ed. PRIOR to August 2010 revision by a National Recognized Testing Laboratory or an Accredited Certification Body, such as UL or CSA.

Note to Architects:
Motorized doors can cause serious injuries or death. Manaras-Opera strongly recommends the use of entrapment protection systems, especially in case of momentary contact to close as in B2, T or TS operating modes.

Part 3 Execution

3.01 Installation

A. Installation: To be in accordance with Manaras-Opera instructions and in compliance with federal, state or local regulations.

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Appendix: Wiring Type Descriptions

C2 Wiring (0): Function: Factory preset as per UL325. Momentary contact to open and stop, constant-pressure-to-close with a 3-push-button station. Activation of entrapment protection devices[(1)] will reverse the door while closing. Auxiliary devices function as an open control and to reverse the door during closing.

B2 Wiring (1): Function: Momentary contact to open, close, and stop, with a 3-push-button station. Activation of entrapment protection devices[(1)] will reverse the door while closing. Auxiliary devices function as open-close controls and reverse the door during closing[(2)].

D1 Wiring (2): Function: Constant-pressure-to-open and constant-pressure-to-close. Activation of entrapment protection devices[(1)] will stop the door during closing.

E2 Wiring (3): Function: Momentary contact to open and constant-pressure-to-close. Release of close button or activation of entrapment protection devices[(1)] will reverse the door to the fully opened position.

T Wiring (4): Function: Momentary contact to open, close and stop. Only applicable with the timer-to-close. If the entrapment protection devices[(1)] are activated while the door is closing, the door will reverse and will not close by the timer-to-close (TTC). TTC will also be disabled if the chain hoist is engaged or if the stop is activated before the elapsed time. TTC will resume its normal operation only after the door is fully closed. During TTC timer count down, any input from the radio, open, loop or a power outage will reset the timer. During TTC count down, the close button or SBC will close the door immediately[(2)].

TS Wiring (5): Function: Momentary contact to open, close and stop. Only applicable with the timer-to-close. If the entrapment protection devices[(1)] are activated while the door is closing, the door will reverse and will close by the timer-to-close (TTC). During TTC timer count down, any input from the radio, open, loop, stop, entrapment device[(1)], or chain hoist engagement, or a power outage will reset the timer. During TTC count down, the close button or SBC will close the door immediately[(2)].

[(1)] Applies to monitored or non-monitored entrapment protection devices.
[(2)] If the monitored entrapment protection device or loop input remains activated, the door can be closed by constant-pressure on the close button.