

# 3-Part Architectural Specifications

## Electric Door Operator

### Model: MTBH

#### Part 1 General

##### 1.01 Description

**A. Work Included:** supply and installation of a heavy-duty V-belt drive Trolley type electric door operator with a solenoid brake, of size and capacity recommended by door manufacturer, as specified; as well as the necessary driving hardware and control accessories necessary for proper operation.

##### 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.

#### Part 2 Product

##### 2.01 Manufacturer

**A. Acceptable Product:** Operator model MTBH as manufactured by Manaras-Opera, part of the Canimex Group.

##### 2.02 Operator

**A. Motor:** to be rated \_\_\_Hp, \_\_\_ Volts, \_\_\_Phase, 60Hz high starting torque, continuous-duty 1 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). 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 5L/B V-belt drive, additional step by #41 chain and sprocket giving a door speed of 12"/second. Input steel shaft to be a minimum of 5/8" (15.875mm) in diameter and supported by precision ball bearings. Output steel shaft to be a minimum of 1" (25.4mm) in diameter and supported by ball bearings.

**C. Drive and Trolley Assembly:** door to be driven by a #48 (#410) full roller chain on 1/3 and 1/2 HP and #41 full roller chain on 3/4 and 1 HP operators. Supported by dual, 12 gauge, pre-drilled galvanized tracks. Track spacers to be 3/4" steel shaft. Trolley to be cast aluminium alloy with possibility of chain tension adjustment.

**D. Clutch:** to be friction type, adjustable from outside.

**E. Brake:** to be an electrically activated drum type solenoid brake.

**F. Manual Operation:** to be by a quick release disconnect arm for manual push up operation.



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**G. Electrical Enclosure:** all electrical components to be in a NEMA 1 enclosure (or Nema 4/12 enclosure).

**H. Limit Switches:** to be rotary-type limit switch with oil-impregnated steel cams, commercial grade switches. Systems to be enclosed in electrical control box, and limit shaft to be supported by ball bearings. Limit switches to remain in time when there is a manual operation or after the motor as 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 long lasting enamel finish. All shafts to be protected by yellow chromate coating.

**Option #1: Control circuit with 5V<sub>DC</sub> logic electronic control**

**J. Motor Control:** to be a 24V<sub>DC</sub> relaying and 5V<sub>DC</sub> logic circuit with a 40VA class II transformer, non-volatile memory. Features included: 1.5s delay on reverse, programmable maximum run timer, mid-stop, timer to close, programmable advance close system, test buttons, reverse wiring detection and door lock sensor. Operating mode selection to be possible on site during or after installation. Terminal strip to allow connection of 3-button stations (one supplied with the operator), sensing edges, photo cells, one push button radio control (external strip), ceiling pull and key switches, loop detectors, external interlocks. Fuse protected 24V<sub>AC</sub> 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).

**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: 24V electro-mechanical control circuit**

**J. Motor Control:** to be 24V<sub>AC</sub> control circuit, 40VA class II transformer, fuse protected on output, heavy-duty across-the-line linear reversing contactor with mechanical interlock. Pre-wired for connection of 3-button stations (one supplied with the operator), sensing edges, photo cells, one push button radio control (external strip), ceiling pull and key switches, loop detectors, external interlocks. Fuse protected 24V<sub>AC</sub> output is available for accessory power supply.

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

Optional: 1.5s delay on reverse, timer to close, double limits, etc....

**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 or TS operating modes.*

**L. Control Accessories to be supplied:** 3 push-button stations, open close key switch, one button radio control, electric sensing edge, pneumatic sensing edge, through beam photo cell.

**M. Standards:** operator to be certified UL 325 or CSA22.2/247 by a National Recognized Testing Laboratory such as UL or CSA.

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#### 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.

#### Appendix: WIRING TYPE Descriptions

**C2 Wiring (0):** Factory preset as per UL325. Momentary contact to open/stop, constant pressure to close with a 3 push-button station. Activation of entrapment detection devices will reverse the door during closing.

Auxiliary devices function as an open control and to reverse the door during closing.

**B2 Wiring (1):** Momentary contact to open/close/stop with a 3 push-button station. Activation of entrapment detection devices will reverse the door during closing. Auxiliary devices function as open/close control and reverse the door during closing.

**D1 Wiring (2):** Constant pressure to open/close. Activation of entrapment detection devices will stop the door during closing.

**E2 Wiring (3):** Momentary contact to open, constant pressure to close. Release of close button activates the door upwards. Activation of entrapment detection devices will reverse door motion to its fully open position.

**T Wiring (4):** Momentary contact to open/close/stop. The door will close when the timer is expired. If the entrapment detection devices reverse upon activation, the TTC will be deactivated. When the door is at its open limit, if the entrapment detection devices are activated, or if the chain hoist is engaged, or if the stop button is pushed before time-out, it will deactivate the TTC. The TTC will get refreshed if there is a power outage, or if the radio control device is activated, or if the open button is activated. The TTC resumes its normal operation once the close cycle is completed.

**TS Wiring (5):** Momentary contact to open/close/stop. The door will close when the timer is expired. If the entrapment detection devices reverse upon activation, it will refresh the TTC. When the door is at its open limit, the TTC will also get refreshed if there is a power outage, or if the chain hoist is engaged, or if the radio control device is activated, or if the open button is activated, or if the stop button is pushed before time-out.