

# 3-Part Architectural Specifications

## Electric Door Operator

### Model: OPHW/C

#### Part 1 General

##### 1.01 Description

**A. Work Included:** supply and installation of a heavy-duty V-belt drive Jackshaft type electric door operator with chain hoist and mechanical 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.

**B. Mounting:** to be wall mounted (or Vertical Front of Hood mounted) (or Horizontal Top of Hood mounted), on the right or left of the door. Hoist position on the right (1 or 3 phase) of operator or on the left (3 phase only) of operator.

##### 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 OPHW (NEMA 4/12) or OPHC (NEMA4X) as manufactured by Manaras-Opera, part of the Canimex Group.

##### 2.02 Operator

**A. Motor:** to be rated \_\_\_Hp, \_\_\_ Volts, \_\_\_Phase, high starting torque, continuous-duty single phase capacitor start or 3 phase motor, totally enclosed TEFC (NEMA 4/12) or TEFC or TENV (NEMA 4X), 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). 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 steps by chain and sprockets giving an output shaft speed of 41 rpm. Input steel shaft to be 3/4" (19.05mm) in diameter and supported by cast iron 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:** door shaft to be driven by a #50 roller chain and 50B12 sprocket combination to provide door travel of 6" (152.4mm) to 12" (304.8mm) per second.

**D. Clutch:** to be friction type, positioned on input shaft, adjustable from outside.



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**E. Manual Operation:** to be by a chain hoist (requiring a floor level engagement device to operate; provided with the unit) for manual operation with electrical cut-off switch.

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

**G. Electrical Enclosure:** all electrical components to be in a NEMA 4/12 or NEMA 4X enclosure. Electrical enclosure cover to be hinged.

**H. Limit Switches:** to be rotary-type with oil-impregnated steel cams, commercial grade 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 protected by a long lasting enamel finish. Fiber glass control box. All shafts 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, ceiling pull and key switches, loop detectors, external interlocks. 2A 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 to an angle terminal for connection of 3-button stations (one supplied with the operator), sensing edges, photo cells, one push-button radio control, ceiling pull and key switches, loop detectors, external interlocks. 2A fuse protected 24V<sub>AC</sub> output is available for accessory power supply.

**K: Operating Mode:** to be C2 (or B2 or D1, 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.