

# **3-part Architectural specifications**

## ***Electric Door Operator***

### ***Model: Opera-H***

#### **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 a self-engaging 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 on the left) of the door. Hoist position on the right of operator (or on the left 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 Opera-H as manufactured by Manaras, a division of Somfy ULC.

##### **2.02 Operator**

**A. Motor:** to be rated \_\_\_Hp, \_\_\_ Volts, \_\_\_Phase, high starting torque, continuous duty motor, ODP, 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 V-belt drive, additional steps by chain and sprockets providing mechanical braking to hold the door in any position and giving an output shaft speed of 41 rpm. Input steel shaft to be a minimum of 5/8" (18.875mm) 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:** door shaft to be driven by a #50 roller chain and sprocket combination to provide door travel of 6" (152.4mm) to 12" (304.8mm) per second.

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

**E. Emergency Operation:** to be by a Hoist-a-matic™ self-engaging hoist (requiring no floor disconnect to operate) for manual chain operation. An electrical interlock disconnects automatically power to the motor operator when chain hoist is engaged.

**F. Electrical Enclosure:** all electrical components to be in a NEMA 1 enclosure. The enclosure to be liftable and kept out the way for easy access to mechanical components and mounting holes. Electrical enclosure cover to be hinged with stable position.

**G. Limit Switches:** to be indestructible rotary-type limit switch with Oil-impregnated steel cams, screw and commercial grade switches. Systems to be enclosed in electrical control box, and screw to be supported in frame by self-lubricating bronze bushing. System to be provided with Accu-cam™ precise and quick one-handed adjustment feature. Limit switches to remain in time when emergency operation or after the motor as been removed. Design to prevent any lever breakage when limits have been exceeded during manual operation.

**H. Corrosion protection:** Frame and control enclosure to be protected by baked on, long lasting enamel finish. All shafts to be protected by yellow chromate coating.

***Option #1: Control circuit with 5Vdc logic electronic control***

**I. Motor Control:** to be a 24VDC relaying and 5VDC logic circuit with a 40VA class II transformer fused protected on output, centrifugal switch relay, programmable micro-processor, non volatile memory and includes 1.5s delay on reverse, door lock sensor, protection against wrong wiring of power supply and motor, programmable maximum run timer, midstop, timer to close. Operating mode selection to be possible on site during or after installation. Terminal strip to allow connection of 3 button stations, safety sensing edges, photo cells, one push button radio control with external connection strip, ceiling pull switches, loop detectors, key switches and external interlocks. 24VAC to be available on terminal strip for the power supply of control accessories.

**J. 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 strongly recommend 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**

**I. Motor control:** to be 24V control circuit with a 40VA class II transformer fused 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, safety sensing edges, photo cells, one push button radio control with external connection strip, ceiling pull switches, loop detectors, key switches and external interlocks. 24VAC to be available on terminal strip for the power supply of accessories.

**J: Operating mode:** to be C2 (or B2 or D1 or TS, see appendix for description)

Optional: 1.5s delay on reverse, Mid-stop.

**Note to architects:**

*Motorized doors can cause serious injuries or death. Manaras strongly recommend the use of entrapment protection systems, especially in case of momentary contact to close as in B2 or TS operating modes.*

**K. Control and safety 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.

**L. Standards:** operator to be certified UL 325 by a National Recognized Testing Laboratory such as UL or CSA.

**Part 3 Execution**

**3.01 Installation**

**A. Installation:** to be in accordance with Manaras instructions and in compliance with federal, state or local regulations.

**Appendix: WIRING TYPE description**

**C2 wiring:** Momentary contact to open and stop with open override, constant pressure to close from 3 buttons station. Activation of safety devices will reverse the door during closing. Auxiliary devices function as an Open control and to reverse door during closing.

**B2 wiring:** Momentary contact to Open/Close and Stop with open override from 3 buttons station. Activation of safety devices will reverse the door during closing. Auxiliary devices function as Open/Close control and reverse the door during closing.

**D1 Wiring:** Constant pressure to Open and constant pressure to Close. Activation of safety devices will stop the door during closing.

**E2 Wiring:** Momentary contact to open and constant pressure to Close. Release of Close button activates the door upwards. Activation of safety devices will reverse door motion to fully open position.

**T Wiring:** Momentary contact to Open / Close and Stop with open override. Timer to Close to close the door after an adjustable time delay once the door

has reached its fully open or mid-stop position, safety devices open upon activation but do not activate Timer to Close. If stop button is pushed before time out, timer is deactivated until the door opens again.

**TS Wiring:** Momentary contact to Open / Close and Stop with open override. Timer to Close to close the door after an adjustable time delay once the door has reached its fully open or mid-stop position, safety devices open upon activation and activate Timer to Close.