3-Part Architectural Specifications
Electric Door Operator
Model: DH

Part 1 - General

1.01 Description

A. Work Included: Supply and installation of an industrial heavy-duty gear head type electric door operator with a chain hoist, of size and capacity recommended by door manufacturer, as specified; as well as the necessary mounting hardware and control accessories necessary for proper operation.

B. Mounting: To be direct mount hollow shaft. On the right (or on the left) of the door. Torque arm bracket to be supplied with 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 per our Terms and Conditions of Sale.

Part 2 - Product

2.01 Manufacturer

A. Acceptable Product: Operator model DH, as manufactured by 9141-0720 Québec Inc. (DBA Manaras-Opera), part of the Canimex Group: 136 Oneida Drive, Pointe-Claire, Québec, Canada H9R1A8. Tel: +1800-361-2260. Fax: +1888-626-0606. www.manaras.com. Email: info@manaras.com.

B. Substitutions: Not permitted.

2.02 Operator

A. Motor: To be inverter-duty rated ___HP, ___Volts, ___Phase, brake motor, totally enclosed, IP-55.

B. Reduction: To be a helical bevel gear reduction in synthetic oil bath reducer with sealed output hub. Steel hollow shaft diameter and keyway size to be as per operator manufacturer's recommendations. Output shaft speed: as per operator manufacturer's recommendations.

C. Brake: To be an electrically activated disc brake, to be integrated in motor. Manual brake release. Brake torque as per operator manufacturer's recommendations.

D. Manual Operation: To be by a chain hoist. An electrical interlock disconnects power to the motor operator when manual operation is engaged (floor level engagement device shall be included, following the operator manufacturer's recommendation).

E. Limit System Enclosure: All electrical components to be in a NEMA 4/12 enclosure.

F. Limit System: To be rotary-type limit switch with oil-impregnated steel cams, and commercial grade switches. Systems to be enclosed in electrical control box, and limit shaft to be supported by ball bearings/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.

G. Corrosion Protection: Motor, reducer, and limit system enclosure to be protected by baked on, long lasting enamel finish.

H. Control Accessories: To be specified separately.

I. Standards: Electrical motor to be certified by a National Recognized Testing Laboratory such as UL or CSA.

J. Controls: Separate Industrial Control Panel standard. To be certified by a National Recognized Testing Laboratory such as UL or CSA. Direct on-line or variable frequency drive control available. Logic options and special features available on demand.

Option #1: Control Circuit with 5VDC Logic Electronic Control and Monitoring Function ("M" version) and Reversing Contactor

K. Motor Control: To be a 24VDC relaying and 5VDC logic circuit, non-volatile memory, with a minimum 40VA transformer, fuse protected on output, heavy-duty across-the-line linear reversing contactor with mechanical interlock. Features included: 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. Pre-wired to an angled terminal strip to allow connection of 3-button stations (one supplied with the operator), monitored and non-monitored sensing edges, photoelectric cells, one push-button radio control (external strip), ceiling pull and key switches, loop detectors, external interlocks. 2A fuse protected 24VAC output is available for accessory power supply.

L. 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: Control Circuit with 5VDC Logic Electronic Control with Variable Frequency Drive (VFD) and Monitoring Function ("M" version)

K. Motor Control: To be a 5VDC logic circuit, non-volatile memory, with a minimum 40VA transformer, fuse protected on output. Features available: Soft-start/soft-stop, speed management, 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 photoelectric cells. Pre-wired to an angled terminal strip to allow connection of 3-button stations, monitored and/or non-monitored sensing edges / photoelectric cells / light curtains, external radio receiver, ceiling pull switches, key switches, loop detectors, LED strips, external interlocks. 2A fuse protected 24VAC output is available for accessory power supply. Optional separate brake resistor available.

L. 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#3: Control Circuit with 24VAC or 24VDC Programmable Logic Controller (PLC) or (Smart Relay) with Variable Frequency Drive (VFD)

K. Motor Control: To be 24VAC or 24VDC PLC with a minimum 40VA transformer, fuse protected on output. Variable frequency drive to manage output speed and acceleration/deceleration phases, equipped with internal overload protection. Brake resistor. Variety of logic features and operating modes available upon request.

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.

Appendix: Wiring Type Descriptions

C2 Wiring (0): Function: Factory preset as per ANSI/CAN/UL 325. 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.