

Precision

Door Drive, LLC.

SPECIFICATION

BUILT-IN ELECTRIC DOOR OPERATOR

- 1) **Drive System:** Designed to move powered leaf at a minimum speed of 45 feet per minute at zero wind load conditions. Operable at full speed to and including a maximum wind load of eight (8) pounds per square foot.
- 2) **Drive Unit:** Shall be built in to the door thickness, driving one or more of the steel wheels of the door leaf. To be vertically adjustable to tighten the drive chain from the gearbox to the steel wheel. All necessary roller chain (#60 roller chain minimum required), sprockets and mounting hardware shall be provided.
- 3) **Gearbox:** Unitized high torque, efficient right angle helical-bevel gearbox or a bevel gearbox to allow for back driving with no damage to the gearbox shall be provided. To have low backlash and low vibration.
- 4) **Motor:** Single speed, squirrel cage, totally enclosed fan cooled motor of inverter duty, low noise with integral holding brake. Of sufficient size to operate at no more than 75 percent of rated capacity. Motor shall conform to IP55 and meets efficiency class EFF2 standards.
- 5) **Drive Base:** To be vertically adjustable to tighten the drive chain from the gearbox to the steel wheel and be designed to rigidly support drive components without deflection or torsional rotation under operating loads.
- 6) **Control Panel Enclosure:** Control panels shall be NEMA 12 or better.
- 7) **Control Panel:** Control panels are to be pre-wired to receive 240v or 480v ACV.
Supplied with
 - Main lockable disconnect switch
 - 24v DC power supply for the control circuit
 - Circuit breakers
 - Numbered terminal blocks
 - Timers and relays

Controls must meet UL 508A, 508, File No. E61997: Type 4 and Type 12. NEMA/EEMAC Type 4 and Type 12. CSA File No. LR42186 Type 4 and Type 12 VDE 1P66. IEC 60529, IP66.

- 8) **PLC or Smart Relay:** A programmable relay which will allow the hangar doors to start from a full closed position and run at half speed for 2.5 feet, then accelerate to full speed. At 2.5 feet from full open position, doors are to decelerate and run at half speed before stopping.
- 9) **Limit Switches:** Polarized reflex sensors which have both a light source and detector in the same unit. The sensors feature visible red sources to aid in alignment of the sensor with its retro-reflector. Supplied with mounting bracket, fastener, low voltage wire and cord grip.
- 10) **Variable Frequency Drive:** (VFD) shall produce an adjustable-frequency, Pulse Width Modulated (PWM) three phase, 240v/480v sine wave output when powered from a three-phase, 240v/480v 60Hz input. The drive shall be suitable for use with NEMA Design B, inverter duty, AC induction motors with a 1.15 service factor. Alternate adjustable frequency drives techniques other than PWM technology will not be considered. Drives shall be designed, constructed, and tested in accordance with NEMA, UL, NEC, and IEEE standards. Drives and all supplied options shall be UL approved and listed according to UL 508. Drives electronics shall be of solid state components, programmable for time and value of motor speeds and shall maintain constant torque characteristics over the motor rated speed range. Drives shall be factory wired with overload and under voltage protection, equipped with electrical interlocks and with transformers and relays for control circuits, all enclosed in a NEMA 12 (NEMA 4X for exterior or wet location) enclosure with a disconnect switch, capable of being locked in the OFF/OPEN position. Power voltage shall be 240v/480v, three-phase and control voltage shall be 24v DC.
- 11) **Warning System:** A horn with a volume of not less than 90db shall be provided. To be installed on the powered leaf of the door system. The warning system will activate for three (3) seconds before movement of the doors and will sound while doors are being operated. Supplied with mounting bracket, fasteners, low voltage wire and cord grip.
- 12) **Warning Strobe:** An amber Xenon strobe (40 candelas) warning light device to be installed on the powered leaf and shall automatically signal movement of the powered leaf and shall continuously strobe while door is being operated and run on 24v DC.
- 13) **Electrical Interlock Switch:** When required, provide each personnel door with an electrical interlock switch to prevent motor operation of the hangar doors. An identified indication light (yellow) located on the main control panel will be lit if the personnel door is open or ajar. Supplied with mounting bracket, fasteners, low voltage wire and cord grip.
- 14) **Push-button Stations:** Interior station shall be NEMA 12, exterior stations to be NEMA 4X. Supplied with mounting bracket, fasteners, low voltage wire and cord grip.
- 15) **Push-buttons:** To be constant pressure type, mushroom head, NEMA 4X..
- 16) **Electrical Service:** To be 240v or 480 ACV three-phase power.

17) **Electrical Feed:** An overhead feed rail system (Trolley Duct) or festoon wire or drape wire from door leaf to door leaf, will be used to bring power to the drive door leaf.

When using a festoon or drape electrical wiring feed system, it must be-

- UL 1277, TC-ER, RoHS, CAS, CE approved.
- Specifically designed for each installation and pre-assembled into one section per operator.
- 600 volt, gauge as required (14 gauge minimum)
- PVC jacket resistance to oils, coolants, solvents and sun light
- Cord grips for direct attachment to the supply at one end and the drive unit service outlet at the other.

18) **Leading Edge Stopping Device:** When required, provide leading edge stopping device to stop leading doors upon encountering an obstacle. Edge device is to be electrical in design (non-pneumatic), galvanic isolated and must be connected to a monitoring safety relay in the control circuit.

19) **Warranty:** Provide installation with a certificate of Limited Warranty.

Precision Door Drive, LLC.

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