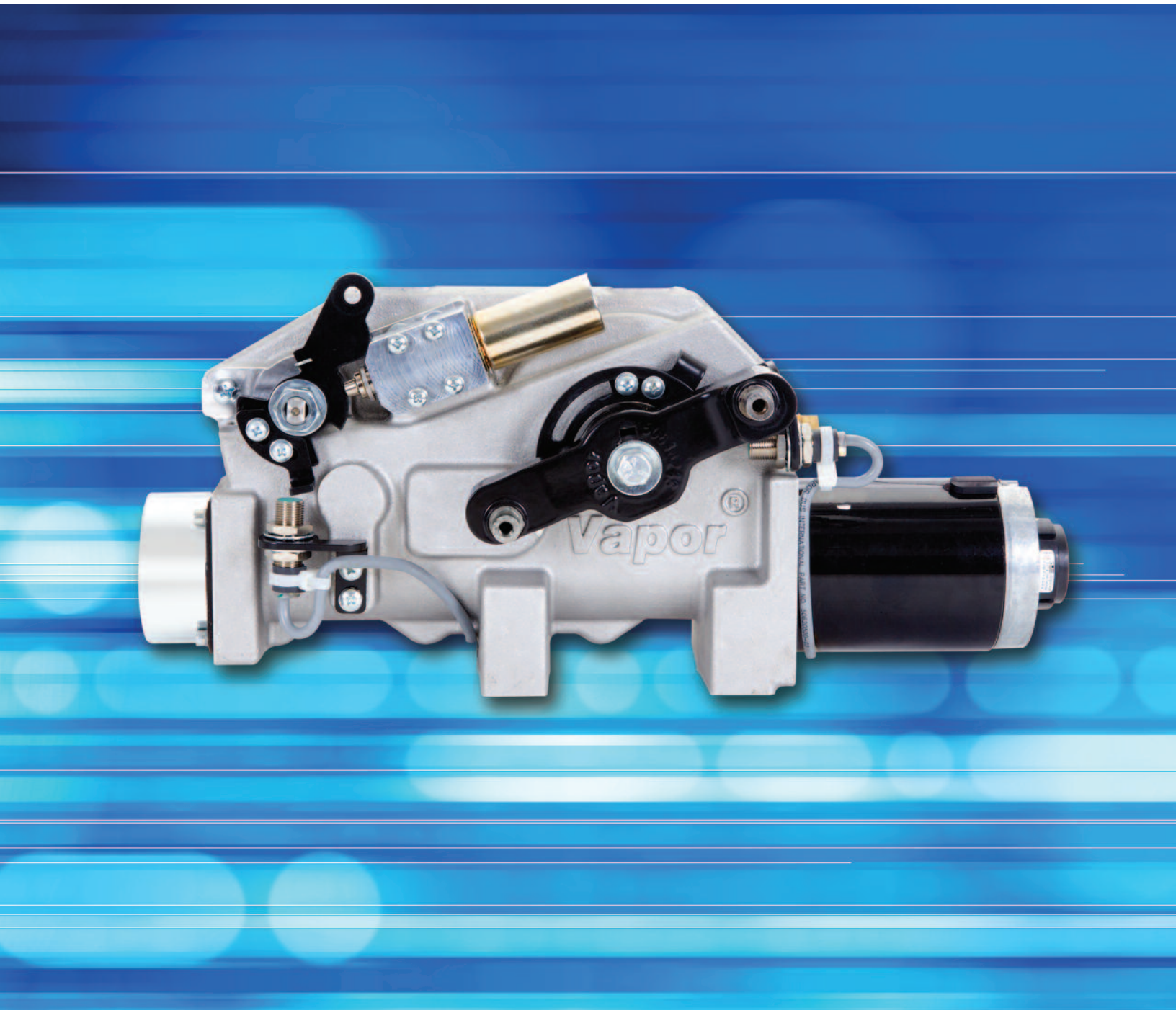
VAPOR BUS DOOR SYSTEMS

High Performance Electric Door Actuator for Transit Buses



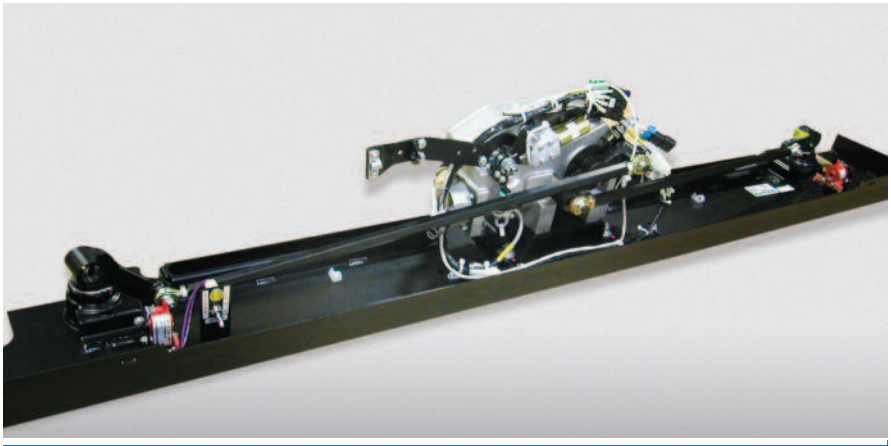
Vapor Bus International
A Wabtec company

Vapor Electric Door Actuator

The Electric Door Actuator Designed and Manufactured By Vapor Bus International for the Mass Transit Environment

Robust Design and Construction for Superior Reliability and Low Life Cycle Cost in Transit Bus Operating Conditions

- Combines electric drive with proven mechanical components
- Meets or exceeds all applicable North American and European Transit Bus Standards
- Eliminates the need for compressed air and related piping, fittings and valves
- Worldwide service and support



The electric actuator has the same footprint as the Vapor Pneumatic Differential Engine. The baseplate combines the electric actuator, linkage, and door suspension into a single, pre-assembled and tested unit that mounts directly to the bus structure above the door opening.

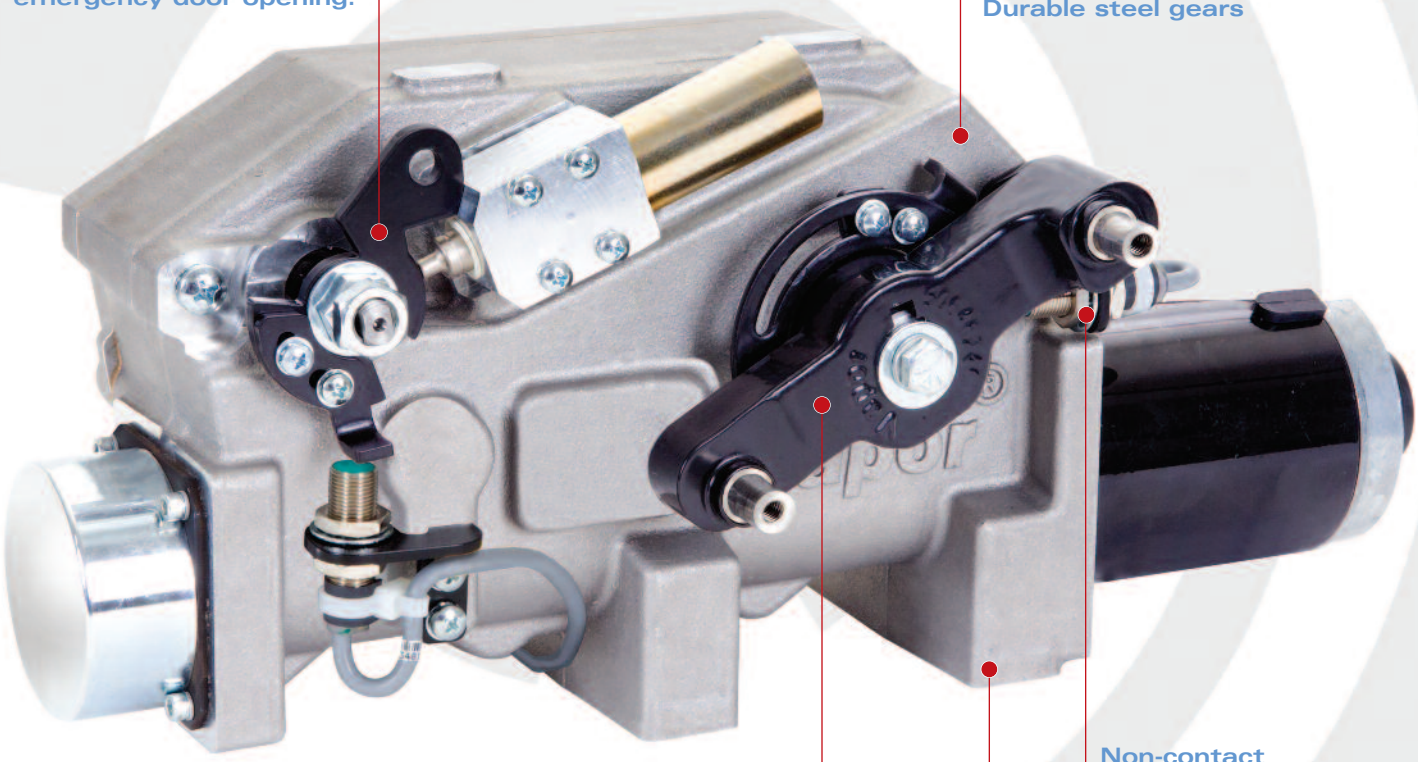
Electric actuation with service-proven components for maximum performance and reliability.

The Vapor Electric Actuator integrates innovative electrical and mechanical elements to precisely open and close passenger doors while minimizing power consumption. A powerful smart controller provides total motion control and extensive data logging capacity.

Capabilities

- Precise door speed and cushion control
- Faster response to door commands
- Non-backdrivable mechanism secures and maintains door panel position without power consumption
- Single actuator provides positive mechanical door synchronization and greater system reliability
- Obstruction sensing on both open and close cycles
- Self-optimizing door setup for easier installation and adjustment
- Manual emergency cable release for maximum safety under all emergency conditions. Self-resettable via driver initiated controller cycle.
- Internal and external pneumatic emergency release available
- Major components readily accessible for repair or life extension overhaul
- Programmable data logging with detailed time stamps for superior diagnostic capabilities and maintenance alerts
- Intuitive user interface
- Optional wireless access to data and control parameters

Vapor Next Generation Door Technology
Innovative Electrical and Mechanical Elements



Intelligent Door Controller

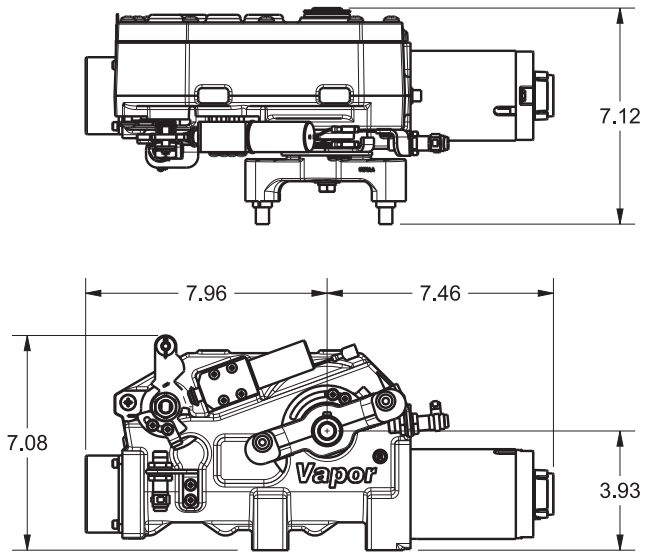
U.S. Patent 8,171,672
U.S. Patent 8,484,892

Application Flexibility for Lower Costs

The Vapor Electric Actuator is applicable to Slide-Glide (in-swing), Parallelogram Plug (out-swing), and Swing door geometries. The device has the same footprint as the Vapor Pneumatic Differential Engine and can be readily integrated into existing Vapor transit bus door system applications. The ability to retain existing vehicle interfaces and service-proven door panels, seals and linkages offers the advantages of electric operation while maintaining commonality of door function and major door system components.

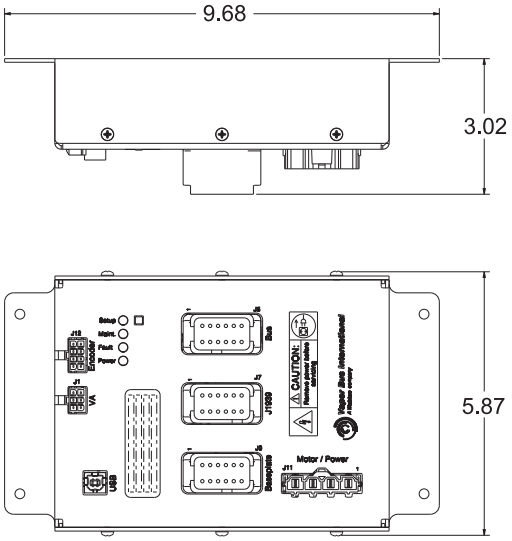
Commonality of interfaces and mechanical components provides a lower cost solution for upgrading existing buses to electric operation.

Vapor Electric Door Actuator



Dimensions shown in inches

Controller



Emergency Release Mechanisms

Cable Version

- Compressed air not needed
- Common for exit door applications
- Auto reset function via 5-position door controller

Pneumatic Version

- Common for entrance door applications
- Seamless operation – maintains driver's existing operating procedures
- External emergency release available

Specifications

- **Operating Voltage:**
  12 – 24 VDC nominal
- **Operating Current:**
  10A nominal; 30A max.
- **Door Opening/Closing Times:**
  Software adjustable, satisfy APTA standards
- **Diagnostic Interface:**
  USB
- **Communication interface:**
  J1939
- **Controller Interface:**
  12-pin Deutsch connector
- **Operating Temperature:**
  -40˚ to 145˚ F (-40˚ to 63˚ C)
- **Design Life:**
  1,000,000 cycles; 600,000 miles;
  12 years

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