

EM Twin

SmartMotion DC chain actuators



Functional Fenestration Inc (FFI) is an expert and leader in the American motorized actuator market, with a broad range of motors for windows, vents, and skylights. FFI has been providing motorized operators for natural ventilation since 1987, for institutional, commercial and residential applications.

Benefits of motorized actuators

- Automated operation of multiple awning windows, hopper windows, casement windows, curtain wall vents, and skylights.
- Ideal for smart buildings; integrate with building and home automation systems.
- EM actuators are certified for Smoke and Heat Extraction (SHE).
- Natural ventilation enables lower energy consumption, lets in fresh air and daylight, enables LEED credit.
- Low voltage DC motors are energy efficient.

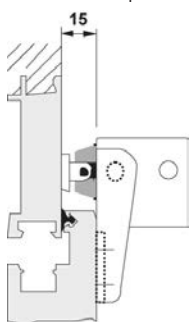
Features

- Twin is 2 actuators (master and slave) connected by a center bracket, designed for wide vents.
- EM series has a slim casing and low-noise operation.
- Push/Pull Force up to 300 N (68 lb) for each actuator (except 810S version).
- Opening distance ranges from 327 mm to 810 mm approx., according to version.
- Multiple windows may be linked for simultaneous operation.
- Actuators have stainless steel chains for rigidity and durability.
- Tight vent closure using electronic power cut-off.
- This product is not UL Recognized or labeled. Other EM models are UL Recognized.
- Sash connectors/hinge brackets and all mounting brackets for EM are available in EM Bracket kits (sold separately) rather than included with the actuator; see EM Brackets & Accessories DataSheet.
- Actuators are available in standard grey, white, or black color.
- UL cable 1 meter included, black color.
- Tested to 10,000 cycles.
- 2-year manufacturer's warranty; requires use according to Installation Guide recommendations.



sash connector/hinge bracket

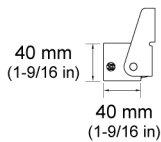
15 mm Projection
Distance example



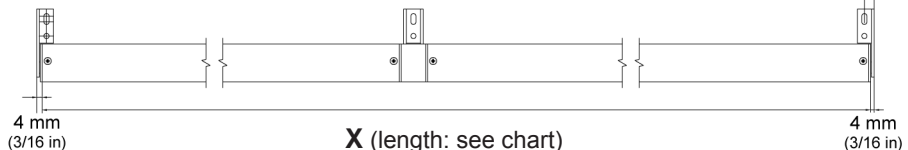
KF0 version: For no projection distance between actuator and sash when mounted.

KF10 version: For 10 mm projection distance between actuator and sash.

KF15 version: For 15 mm projection distance between actuator and sash.



X = length (tolerance +/- 1 mm)	
at stroke	length
at 327 mm stroke	1206 mm (47-1/2 in)
at 419 mm stroke	1298 mm (51-1/8 in)
at 511 - 603 mm stroke	1666 mm (65-9/16 in)
at 810 mm stroke	1800 mm (70-7/8 in)



EM Twin


Specifications

Supply voltage: 24 V DC (-10 % / +25 %)
 Normal current amp draw: approx. 2 x 0.8 amp* at 600N load
 Limit stop: (Open): built-in limit switch
 (Closed): integrated electronic power cut-off
 Chain stroke length (approx): 327 mm (12-7/8 inch) 419 mm (16-1/2 inch)
 511 mm (20-1/8 inch) 603 mm (23-3/4 inch)
 810 mm (31-7/8 inch)
 Chain installation adjustment: automatic adjustment
 Push force (max): 2 x 300 N (2 x 68 lbf +/- 3%) for 327mm – 603mm chain
 2 x 100 N (2 x 22 lbf +/- 3%) for 810S chain
 Pull force (max): 2 x 300 N (2 x 68 lbf +/- 3%) for 327mm – 603mm chain
 2 x 250 N (2 x 55 lbf +/- 3%) for 810S chain
 Nominal clamping force (max): 2 x 3000 N (2 x 675 lbf +/- 3%) force needed to rip chain out of actuator case
 Min. sash height at stroke length: (dependent on profile cross-section and thickness)
 327 mm stroke: 445 mm (17-1/2 in) sash height
 419 mm stroke: 590 mm (23-1/4 in) sash height
 511 mm stroke: 725 mm (28-9/16 in) sash height
 603 mm stroke: 855 mm (33-11/16 in) sash height
 810 mm stroke: 1100 mm (43-5/16 in) sash height
 Chain speed: (for 327mm – 603mm chain): approx. 9 mm/sec (0.354 in/sec)
 (for 810(S)** mm chain): approx. 14 mm/sec (0.551 in/sec)
 ** S indicates extra speed for this model.
 Actuators Dimensions (l x h x d): 327 mm chain = 1206 x 40 x 40 mm (47-1/2 x 1-9/16 x 1-9/16 in)
 419 mm chain = 1298 x 40 x 40 mm (51-1/8 x 1-9/16 x 1-9/16 in)
 511-603 mm chain = 1666 x 40 x 40 mm (65-9/16 x 1-9/16 x 1-9/16 in)
 810(S) mm chain = 1800 x 40 x 40 mm (70-7/8 x 1-9/16 x 1-9/16 in)
 Power cable: UL cable 1 meter included, black color
 Connection cable: 2-pole cable; length approx. 1.5 meter (59-1/16 inch)
 Run/Rest cycle: For every 60 seconds running (ON), must then rest (OFF) for 120 seconds.
 Ambient operating temperature: -10 °C to +60 °C (14 °F to 140 °F)
 Safety marks: CE
 Protection class: IP 20
 Case: aluminum profile
 Colors (standard): powder-coated: silver grey (RAL 9006), white (RAL 9016), or black (RAL 9005)
 Special colors: other RAL colors on request, see accessory data sheet
 Opening mechanism: stainless steel chains, chains are centered in the cases


* Calculate power supplies and control boxes needed based on peak draw of 2 times normal amp draw.

Applications

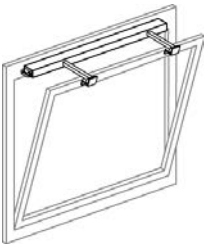
On Wall or Frame



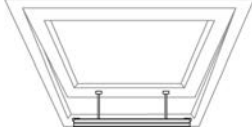
Awning



Hopper



Skylight



FFI EM Twin Actuators

Stroke (and push/pull Force)	Part Numbers (for Black Color: Ask FFI)					
	KF0 Silver Grey	KF0 White	KF10 Silver Grey	KF10 White	KF15 Silver Grey	KF15 White
2 x 327 mm (300 N) 12-7/8 (68 lbf +/- 3%)	2106904	2106789	2109445	2109437	2106912	2106797
2 x 419 mm (300 N) 16-1/2 (68 lbf +/- 3%)	2106920	2106805	2109478	2109460	2106938	2106813
2 x 511 mm (300 N) 20-1/8 (68 lbf +/- 3%)	2106946	2106821	2109502	2109494	2106953	2106839
2 x 603 mm (300 N) 23-3/4 (68 lbf +/- 3%)	2106961	2106847	2109536	2109528	2106979	2106854
2 x 810S mm (100/250 N) 31-7/8 (22/55 lbf +/- 3%)	2206021	2206022	2206031	2206032	2206041	2206042

EM Accessory Parts



EM Status Signal open close (added at factory)	part # 50000939
EM brackets	see EM Brackets & Accessories DataSheet

Recommendations for FFI Actuators & Controls: FFI only recommends UL compliant systems. FFI is a UL registered firm. Read FFI data sheets & installation guides before specifying project details. Project-specific needs vary depending on the number of actuators, electrical layouts, building management systems, distance between power supplies & actuators, and other details. Project specifications to comply with electric & building codes—for wire gauge, wire connections and run distance, conduits, junction boxes—must be arranged by the project electrical contractors. Distribute this guide to all project parties, including electrical contractors, architects, and building management personnel.