



-  **TYPE** Chain
-  **VOLTAGE** 24v or 230v
-  **THRUST** Up to 400N / 40Kg
-  **STROKE** 150, 300, 450, 600mm **ADJUSTABLE**

**DO NOT USE FOR SMOKE VENTILATION** 

If you do require smoke control products or advice – please call us 

## ABOUT THIS ACTUATOR

The Mingardi Micro Evo 2 electric actuator, with double-link steel chain housed in a low profile aluminium casing, is available in 24v and 230v options. Complete with accessories for installation on top hung, bottom hung windows. Equipped with overload protection, automatic end limit setting, and a synchronization unit that coordinates the chain movement of up to four actuators.

## PRODUCT HIGHLIGHTS

- ✓ Self-adjusting end limit
- ✓ Pivoting bracket included
- ✓ Stroke adjustment dial on side of unit
- ✓ Soft stop closure
- ✓ CE marked device

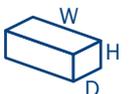
## SUITABLE FOR...



## COLOUR OPTIONS

-  Black
-  White
-  Anodized Silver
-  Bespoke colours on request

## ACTUATOR DIMENSIONS



WIDTH: 390mm  
HEIGHT: 42mm  
DEPTH: 75mm

**TECHNICAL DATA >>>**

**PRODUCT CODES >>>**

# MINGARDI MICRO EVO 2

## CHAIN ACTUATOR

### 24 HR SERVICE TECHNICAL DATA

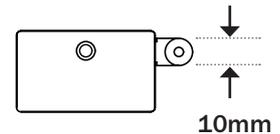
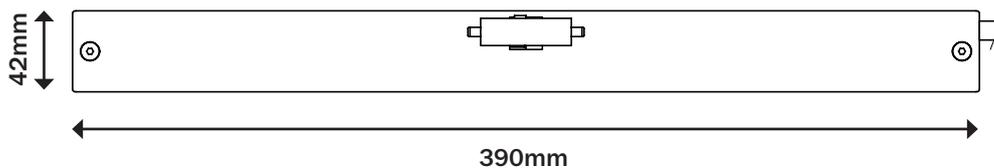
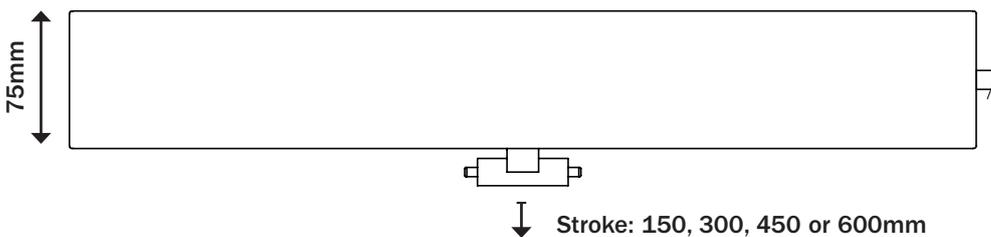
	MICRO EVO 2 24v	MICRO EVO 2 230v
Voltage Supply	24v	230v
Thrust Force	150mm stroke – 400N / 40Kg 300mm stroke – 400N / 40Kg 450mm stroke – 350N / 35Kg 600mm stroke – 300N / 30Kg	150mm stroke – 400N / 40Kg 300mm stroke – 400N / 40Kg 450mm stroke – 350N / 35Kg 600mm stroke – 300N / 30Kg
Traction Force	400N / 40Kg	400N / 40Kg
Stroke Adjustment	Four Positions. 150, 300, 450, 600mm	
Minimum Window Width	460 mm	460 mm
Maximum Window Width	1300 mm (use an actuator with two pushpoints if wider)	
Absorbed Current	1.1 amps	0.19 amps
Power	30 watts	30 watts
Operating Temperature	-10°C to +60°C	-10°C to +60°C
Time Rating	S2 of XX min	S2 of XX min
Limit Stop	Electronic	Electronic
Safety Stop	Electronic	Electronic
Wiring	2 core + earth	3 core + earth
Speed	~ 15mm/s	~ 15mm/s
Double Insulated	Yes	Yes
Protection Class	IP32	IP32
Parallel Connection Option	Yes	Yes
Weight	3.4kg	3.4kg
Cable Length (standard)	1.5m	1.5m



### WHAT'S IN THE BOX?

- ✓ Mingardi Micro Evo 2 Actuator
- ✓ Upper Bracket Connecting Pack
- ✓ Fitting/Drilling Template
- ✓ Installation and User Guide
- ✓ Safety Plate

### DIMENSIONS

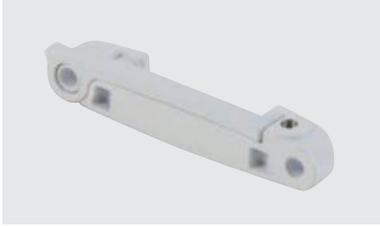


PRODUCT CODES >>>

# MINGARDI MICRO EVO 2

## CHAIN ACTUATOR

### BRACKET & ACCESSORY CODES



**Upper Connecting Bracket (included)**



**Inward Opening Bracket**  
Available on request

### ACTUATOR CODES

#### Micro Evo 2 Actuator 24v

Black	ACMI-EV2-024V-BL01
White	ACMI-EV2-024V-WH01
Anodised Silver	ACMI-EV2-024V-SI01

#### Micro Evo 2 Actuator 230v

Black	ACMI-EV2-230V-BL01
White	ACMI-EV2-230V-WH01
Anodised Silver	ACMI-EV2-230V-SI01

**230v**

### RELATED PRODUCTS AND SERVICES

**24v**



VENTEC 100  
SERIES CONTROL



VENTEC DS  
SWITCH



230V TF SERIES  
CONTROL



PROJECT  
COMMISSIONING



INSTALLATION  
& MAINTENANCE



24V TF SERIES  
CONTROL



WEATHER  
STATION

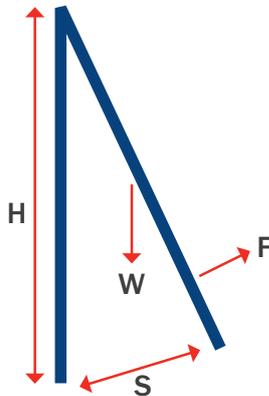
### WINDOW OPERATION FORCE CALCULATION

#### TOP, BOTTOM OR PIVOT HUNG WINDOWS

The formula for calculating the load the actuator has to move for top hung, bottom hung and pivot windows is the following:

$$F = \frac{W}{2} \times \frac{S}{H} \times 10$$

**F** = Force required (N)  
**W** = Weight of the window (Kg)  
**S** = Opening stroke (mm)  
**H** = Height of the window (mm)



**EXAMPLE:** 60Kg Weight / 1000mm Height / stroke 500mm

$$F = 60/2 \times 500/1000 \times 10$$

$$F = 30 \times 0.5 \times 10$$

$$F = 150 \text{ newtons}$$

**IMPORTANT:** For installation on a pivoting window the given height is to be considered H/2.

**IMPORTANT:** The indicated loads do not include the force exerted by wind or other extreme weather conditions. If the actuator is to be installed in areas that may be subject to these conditions, contact our technical department to discuss your requirements.

The actuator rotation angle is usually half the height of the opening angle of the window. Check that there are no obstacles to the rotation of the actuator in order to prevent damage to it.

For actuators with non pivoting brackets, the height of the window must not be below a certain height (see individual product details) in order to prevent excessive chain bending. Please contact our sales support team for more details.

If the window width is greater than 1.3m we suggest using an actuator with two thrust points.

**!** **IMPORTANT:** If the window frame is accessible, or installed at a height of less than 2.5m from the ground, an emergency stop system must be fitted to prevent the crushing or entrapment of clothing or body parts inserted between the moving and fixed elements of the window frame.

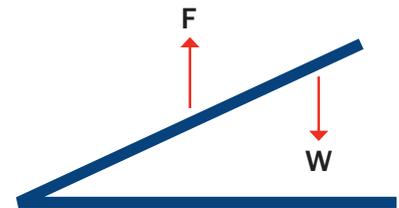
#### DOMES AND SKYLIGHTS

**IMPORTANT:** When calculating the required force for domes and skylights, Snow Load must be added to the weight of the window leaf (W).

The formula for calculating the load the actuator has to move for domes and skylights is the following:

$$F = \frac{W}{2} \times 10$$

**F** = Force required (N)  
**W** = Weight of the window (Kg)



**EXAMPLE:** 110Kg Weight / 1000mm Height / 500mm Stroke

$$F = 110/2 \times 10$$

$$F = 55 \times 10$$

$$F = 550 \text{ newtons}$$

**SKYLIGHTS:** The opening can be hung on one side or have a central axis of rotation. In the latter case, you have to consider the distance between the axis of rotation and the point of application of the actuator as the frame height. A velux type of opening on a horizontal roof or roof sloping up to 30° horizontally weighs 50% on the hinges and 50% on the actuator. In the case of centre rotation, the weight is practically nothing and is determined only by the windows frictions.

If the window width is greater than 1.3m we suggest using an actuator with two thrust points.