



manual & automated for natural ventilation

**HIGHLINE**<sup>®</sup>  
WINDOW CONTROLS

available from

**WINDOW  
WARE**  
*We've got it*

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## HIGHLINE WINDOW CONTROLS

In this brochure, you'll find a comprehensive range of traditional manual cable window controls (commonly known as Teleflex winding gear) as well as modern electric control systems that let you easily operate windows or vents that are high up or hard to reach.

Whether you opt for manual winders or electric actuators, both systems are designed to create natural ventilation and encourage airflow through the building that lets clean air in and allows stale air and pollutants to exit interior spaces.

Manual gearing is a perennially popular choice because it doesn't need to be fitted by a qualified electrician. It's used extensively in public buildings like schools, libraries, halls and hospitals. On the other hand, electric operation is growing in favour as the cost of components decreases and the benefits of automation win out, especially now windows can be activated by rain, wind and key fobs!

Highline's mix-and-match modular components make it simple to achieve exactly the level of functionality you need to work roof vents, top-, bottom- or side-hung casements, plus louvre windows and horizontal pivot windows.

This brochure highlights just some of our most popular window controls. If you're looking for linear actuators and rack drives, or any other types of gearing not featured here, we can probably help. Please speak to our technical department on 01234 242724 for further details.

# Solutions for manual and automated window controls

**MANUAL WINDOW CONTROLS** are used to operate high level or hard to reach windows. A typical system consists of a manual opener which is fitted to the vent or window and linked via lengths of cable and conduit to a wall-mounted operator or window winder. This system is flexible enough to suit most installations, as the conduit can be bent around obstructions so that the operating handle can always be positioned in an accessible location. Multiple vents can be operated from a single winder and there are several operators to choose from, including the ever-popular, fully enclosed Midi Operator, the brawny Maxi Operator capable of opening heavier casements and the screw jack opener designed for use on roof vents. There's a system to suit virtually any window style.



**ELECTRIC WINDOW ACTUATORS** are used to automate vent opening to create natural ventilation. The chain actuators featured in this brochure are ideal for use on vertical vents and small, lightweight roof vents. They are all 230V AC mains powered and come in a range of opening sizes. Please note, we also have a 24V DC variant available by special order only.



# Installation Guidance

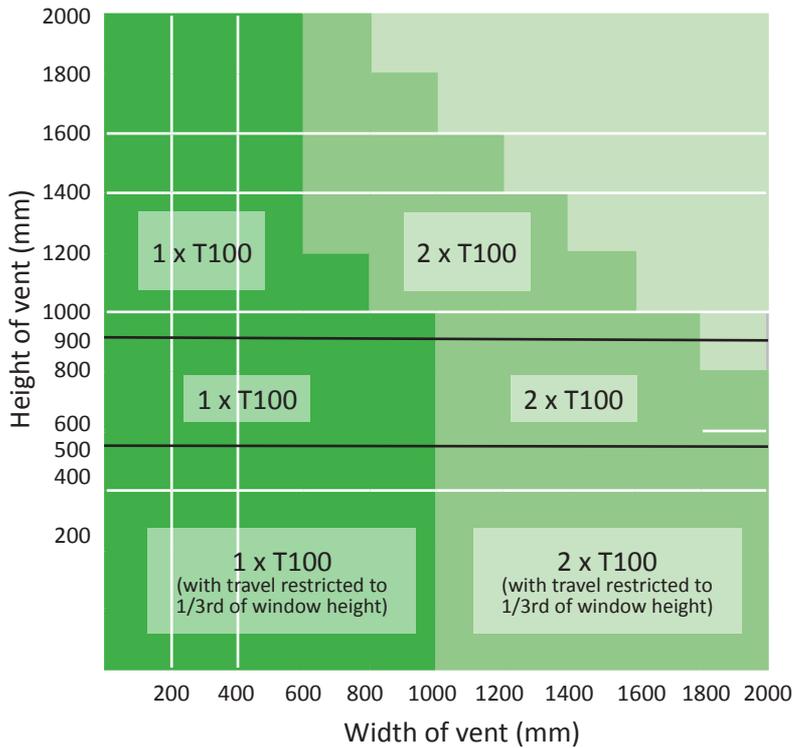
## Manual Window Controls

### Minimum window height for full 250mm travel of T100 - 500mm

Chain openers fitted on windows less than recommended height must have opening restricted to 30% of the vent height using the T700 spring stop or T720 brass stop to shorten the cable run.

For safety reasons we recommend fitting side support stays to all bottom-hung, open-in windows. For bottom-hung applications you must fit the THL8200/0/1/5 fixing kit (see page 6) (sold separately).

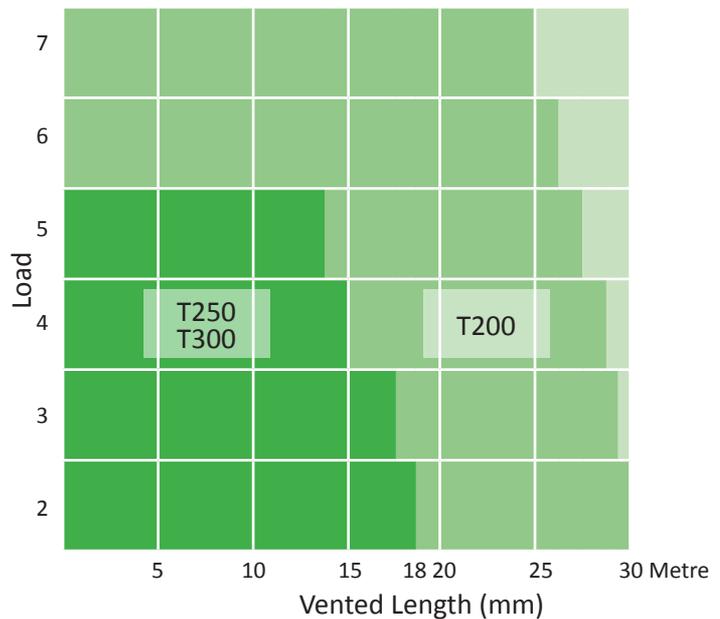
### NUMBER OF OPENERS PER VENT



### MAXIMUM CONTROL RUN

OPERATOR	MAXIMUM CONTROL RUN
T200	30 metres
T250	18 metres
T300	18 metres

### TYPE OF OPERATOR



### SPENT TRAVEL CONDUIT

To allow for the forward/backward movement of the inner cable, a length of "spent travel" conduit must be fitted at either end of the control path i.e. past the last chain/screw jack and below the operator (except the T250 midi operator (see page 9) which has an integral "spent travel" tube).

TYPE OF OPERATOR	SPENT TRAVEL CONDUIT
SJ138600 Screw Jack	2.5m (for full 380mm travel)
T100 Chain Opener	0.3m

### LOAD = No. of chain openers + No. of bends in conduit

The above figures are based on a single bend in the conduit path. For each additional bend deduct 1 metre from the Vented Length total.

The figures used in these charts are based on windows with 4mm double glazed units fitted to butt hinges or free pivots, not friction stays. Please refer to our sales or technical department for advice if friction stays are fitted.

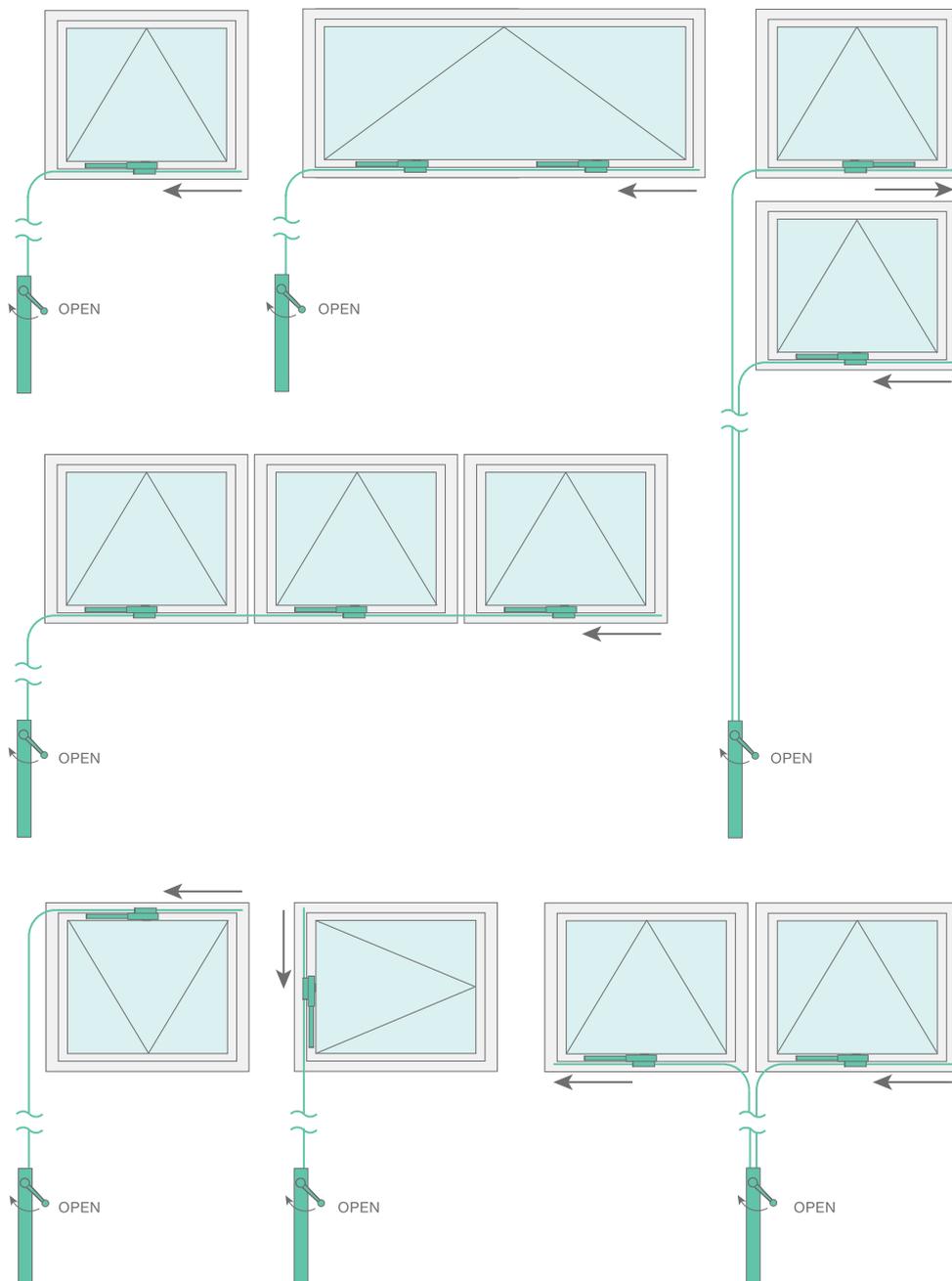
# Window Types & Installation Examples

## Manual Window Controls

### WINDOW TYPES



### INSTALLATION EXAMPLES



# T100 Chain Openers

## Manual Window Controls

### PRODUCT INFORMATION

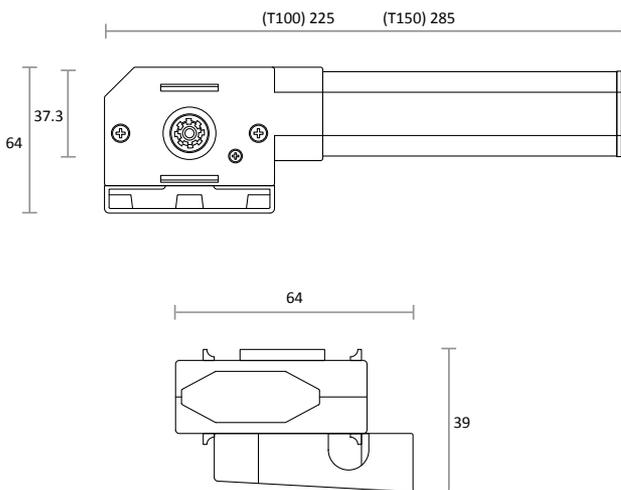


This compact window opener is one of the most popular choices in the range. It's neat, discreet and can be fitted to most top-, bottom-, and side-hung windows to give a generous 250mm opening stroke for excellent natural ventilation.

- 250mm travel length
- Made to last from substantial zinc castings and aluminium extrusion
- Can be fitted on its own or linked with multiple T100 openers and controlled from a single T250, T200 or T300 mini operator
- Fixing plates and bracket fixing kits available to suit most window profiles
- Available in white, grey and black

**TIP:** As a rule, frames wider than 1200mm should be fitted with a pair of chain openers.

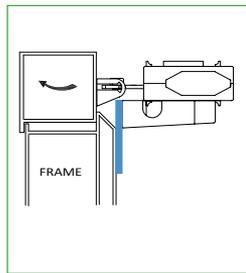
### TECHNICAL DRAWINGS



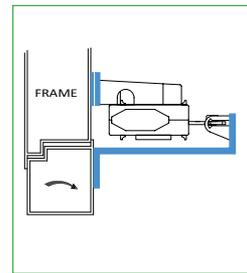
### WINDOW TYPE



### BRACKET (FIXING KITS) TYPES



Open-out PVCu  
See below for codes



Bottom-hung Open-in  
See below for codes

### PART NUMBERS

Chain Openers	Stroke	Part Code	Box Qty
White RAL9010	250mm	THL10000	40
Grey RAL9006	250mm	THL10001	40
Black RAL9005	250mm	THL10005	40

Brackets	Open-out	Box Qty.	Open-in	Box Qty
White	THL81000	20	THL82000	10
Grey	THL81001	20	THL82001	10
Black	THL81005	20	THL82005	10

# T175 Locking Manual Openers

## Bottom-hung Open In Manual Window Controls

### PRODUCT INFORMATION

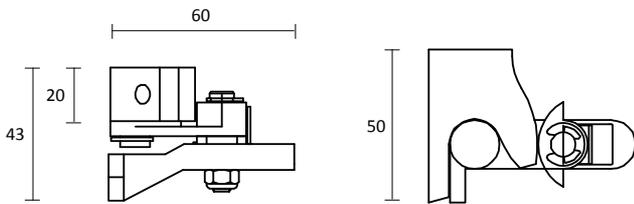


This opener is ideally suited to bottom-hung windows fitted with butt hinges or 'Hopper- style casements that open inwards. It's small enough to fit snugly where space is limited between the reveal and moving frame. Because the moving sash is opened by the strength of the cable alone without the support of any conduit, this opener is better suited to small vents only.

- Works with the helical steel cable (THL41000)
- Used with the T250 or T300 operator on bottom-hung windows
- Maximum opening stroke 250mm
- Supplied with mounting brackets
- Available in white, grey and black

**TIP:** Operate multiple vents by linking locking openers using a rotary junction box.

### TECHNICAL DRAWINGS



### WINDOW TYPE



Bottom-hung

### COMPATIBLE WITH



Midi Handle Operator  
See Page 9



Maxi Handle Operator  
See Page 10

### PART NUMBERS

Colour	Stroke	Part Code	Box Qty
White	250mm	THL17500	10
Grey	250mm	THL17501	10
Black	250mm	THL17505	10

# SJ138600 Screw Jack Opener

## Manual Window Controls

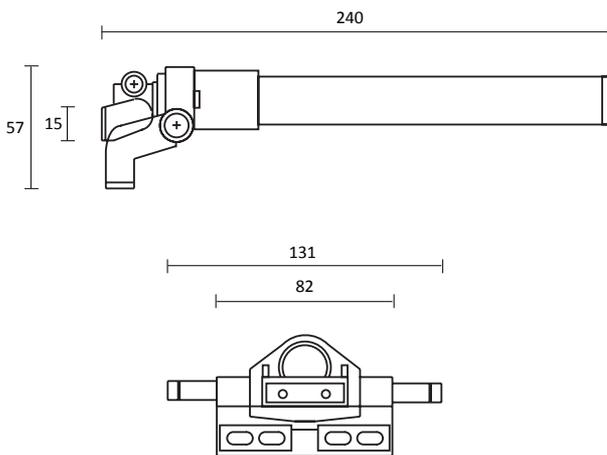
### PRODUCT INFORMATION



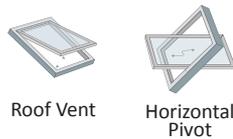
This strong and rigid screw jack actuator gives great opening power, perfectly suited to single or multi-operation of banks of medium-sized (>500mm) and heavier casements. It's particularly useful for controlling the opening pitch of roof lights, as well as operating top-hung windows and horizontal pivoting windows. One thing to bear in mind is that, depending on the application, there can be a lot of spent travel to accommodate (see page 4). This will need taking into consideration with the positioning of the system.

- Sill-mounted screw jack used with T200 maxi handle
- High-powered opener strong enough for use on heavy casements
- Maximum opening stroke: 380mm
- Available in white

### TECHNICAL DRAWINGS



### WINDOW TYPE



### COMPATIBLE WITH



Maxi Handle Operator  
See Page 10

### PART NUMBERS

Colour	Stroke	Part Code	Box Qty
White	380mm	THL13860	25

# T250 Manual Midi Operator with Handle

## Manual Window Controls

### PRODUCT INFORMATION



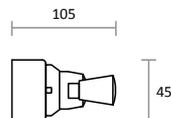
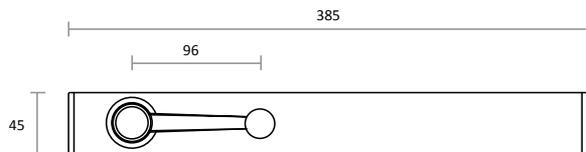
This midi window winder is a popular choice to operate manual window opening systems. Any spent travel (see page 4) is neatly and safely enclosed inside the casing, well away from prying fingers, making it ideal for use in schools and hospitals.

- Can only be used with the T100 and T175 manual openers due to restrictions on the amount of spent travel the casing can accommodate. This allows for a maximum opening of 250mm
- Includes T275 handle, T410 spent travel tube and T720 brass stop
- Remember to allow room for the handle to rotate through 360° (diameter of at least 220mm)
- Use the brass stop included to set the opening size anywhere from 0-250mm
- Available in white, grey and black

**Want a window opening wider than 250mm?**

See either the Maxi on page 10 or the Mini on page 11.

### TECHNICAL DRAWINGS



### WINDOW TYPE



### COMPATIBLE WITH



Chain Opener  
See Page 6



Locking Manual Opener  
See Page 7

### PART NUMBERS

Colour	Size	MIDI	Box Qty
White RAL9010	45 x 385mm	THL20000	20
Grey RAL9006	45 x 385mm	THL20001	20
Black RAL9005	45 x 385mm	THL20005	20

# T200 Maxi Manual Handle Operator

## Manual Window Controls

### PRODUCT INFORMATION

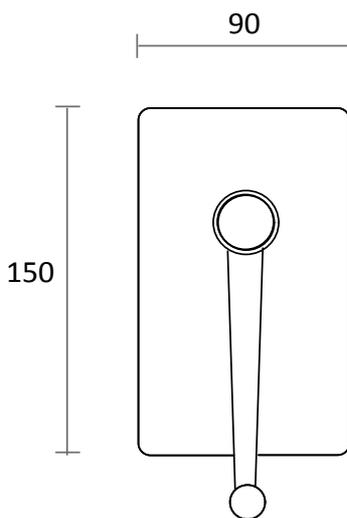


If you need to control multiple windows or vents with linked cable runs from a single window winder, or you need to work heavier casements, then this capable, robust manual operator is your best choice thanks to its powerful gearing and heavy-duty construction.

- Capable of operating multiple windows
- Heavy-duty metal case
- Compatible with the T100 chain opener and T175 locking manual opener
- Includes T275 handle and fixings
- Remember to allow room for the handle to rotate through 360° (diameter of at least 220mm)
- Available in white, grey and black

**TIP:** Operating multiple windows within Schools if the conduit is covered.

### TECHNICAL DRAWINGS



### WINDOW TYPE



### COMPATIBLE WITH



Chain Opener  
See Page 6

Locking Manual Opener  
See Page 7

Screw Jack Opener  
See Page 8

### PART NUMBERS

Colour	Size	MAXI	Box Qty
White RAL9010	90 x 150mm	THL20010	1
Grey RAL9006	90 x 150mm	THL20011	1
Black RAL9005	90 x 150mm	THL20015	1

# T300 Mini Manual Handle Operator

## Manual Window Controls

### PRODUCT INFORMATION



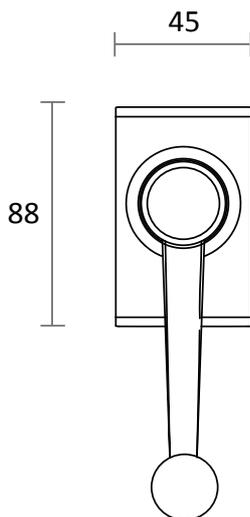
This compact metal-cased operator is capable of controlling single or several light windows. It's one of our most affordable options, although the spent cable is exposed, and this might be a consideration if the system is going to be installed in a school or public building.

- Compatible with the T100 chain opener and T175 locking manual opener
- Includes T275 handle and fixings
- Remember to allow room for the handle to rotate through 360° (diameter of at least 220mm)
- Available in white, grey and black

#### Need to control heavier roof vents?

Check out the powerful Maxi operator opposite.

### TECHNICAL DRAWINGS



### WINDOW TYPE



### COMPATIBLE WITH



Chain Opener  
See Page 6



Locking Manual Opener  
See Page 7

### PART NUMBERS

Colour	Size	MINI	Box Qty
White RAL9010	45 x 88mm	THL20020	1
Grey RAL9006	45 x 88mm	THL20021	1
Black RAL9005	45 x 88mm	THL20025	1

# Accessories

## Manual Window Controls

### ROTARY JUNCTION BOX



Part of the Highline manual window controls range. This junction box connects drivers for satellite openers to the main conduit control system allowing multiple openers to be operated from a single winder. Available white, grey and black.

Colour	Part Code	Box Qty
White RAL9010	THL51000	1
Grey RAL9006	THL51001	1
Black RAL9005	THL51005	1

### CABLE CONDUIT 3 METRE



Works with the Highline manual window controls range. This plastic-covered metal tube protects the control cable that connects a window operator to a chain opener. It features a nylon lining for smooth operation and longer life. Supplied in 3-metre lengths. Available in white, grey and black finish.

Colour	Size	Part Code	Box Qty
White RAL9010	3m	THL40000	20
Grey RAL9006	3m	THL40001	20
Black RAL9005	3m	THL40005	20

### CONDUIT END CAP



Works with the Highline manual window controls range. This moulded plastic conduit plug seals off the end of the conduit run which houses spent travel for a neat, fully enclosed finish. Available in white, grey and black finish.

Colour	Part Code	Box Qty
White RAL9010	THL83000	100
Grey RAL9006	THL83001	100
Black RAL9005	THL83005	100

# Accessories

## Manual Window Controls

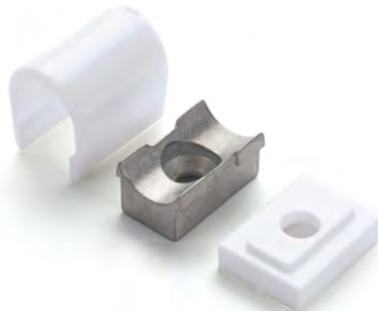
### WINDOW CONTROL CABLE



This dry-lubricated helical cable runs inside the conduit to drive the window opener from the winder operator handle. Available in 1-metre lengths.

Description	Size	Part Code	Box Qty
Inner Cable	1m	THL41000	50m

### 3-PIECE CONDUIT SADDLE BRACKET



Part of the Highline manual window controls range. This neat, 3-piece saddle bracket can be fitted to non-masonry surfaces such as window frames to hold the conduit for winding gear firmly in position. This helps to create a professional, tidy finish. Available in white, grey and black.

Colour	Part Code	Box Qty
White RAL9010	THL80000	100
Grey RAL9006	THL80001	100
Black RAL9005	THL80005	1

### PLASTIC CONDUIT SADDLE BRACKET



Part of the Highline manual window controls range. This moulded plastic saddle bracket is quick and easy to fit straight to the window frame to secure the conduit for winding gear in place. Available in white, grey and black.



Colour	Part Code	Box Qty
White RAL9010	THL80010	10
Grey RAL9006	THL80011	10
Black RAL9005	THL80015	10

# Accessories

## Manual Window Controls

### CABLE CONDUIT CONNECTOR



This three-part metal connector is part of the Highline window controls range and is used to connect two lengths of conduit together to create a longer run of conduit. Each connector consists of a two-part metal sleeve and a plastic collar for a secure fit. Available in white, grey and black.

Colour	Part Code	Box Qty
White RAL9010	THL50000	10
Grey RAL9006	THL50001	10
Black RAL9005	THL50005	10

### SWAGE TOOL



This swage or conduit tool is an essential piece of kit for Highline window control systems. It's used to form the groove in the end of the conduit so it can be securely located into the ridges on the collar of the operator or opener.

Description	Part Code	Box Qty
Swage Tool	THL99999	10

### CONDUIT BEND FORMER



If you're installing Highline manual window controls, you'll need this bend forming tool to create the ideal curve in your conduit with a radius of 90mm for smooth, unhindered cable travel.

Description	Part Code	Box Qty
Bend Former	THL99998	10

## WINDOW TYPES

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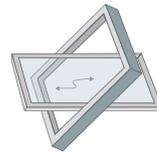
Top-hung  
Awning



Bottom-hung  
Hopper



Side-hung  
Casement



Horizontal  
Pivot



Dome

## PRODUCT INFORMATION

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The Highline electric window controls range offers reliable, flexible and cost-effective systems to automate the opening of vents and high-level windows for natural ventilation. Natural ventilation improves the air quality of inside spaces by allowing clean, fresh air to enter the building while letting stale air out.

Our range of motorised single chain actuators are controllable from either a simple switch or a digital control panel with temperature, wind or rain activation. The 230V AC actuators featured in this brochure all run off standard mains electricity and are available from stock. 24V models for use in bathrooms and kitchens are also available by special order only.

Highlights of the range include the ever-popular ACK4 chain actuator (sometimes referred to as the MAC) with its 7 opening positions ranging between 100mm to 400mm and fitting brackets for most applications. Then there's the newer Micro EVO Actuator. Versatile enough to adapt to any application, it incorporates a synchronisation feature which lets you easily link several actuators together on the same window – perfect for operating wider casements.

We also have access to lots of other actuators and controls not shown in this brochure, so if you need something you can't see here, why not give our technical team a call on 01234 242724 to discuss your specific requirements.



# ACK4 Chain Actuators 300N

## Electric Window Controls

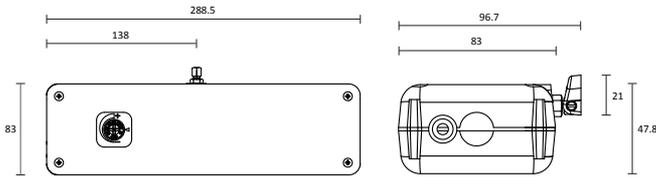
### PRODUCT INFORMATION



If you want complete control over how far your vents open, then the ACK4 electric chain actuator gives no less than 7 different stroke positions from 100mm up to 400mm, so you can achieve your desired level of ventilation. With a strong die-cast aluminium casing, a robust double-link stainless steel chain and a maximum thrust force of 300N, the ACK4 actuator is a hard-working, reliable choice for your window control system.

- Suitable for use on most windows and lightweight roof vents and domes
- Adjustable opening stroke with 7 positions from 100-400mm
- Strong die-cast aluminium casing
- Robust double-link stainless steel chain
- High protection class IP 55 rated
- All electrical parts are double insulated
- Audible alarm sounds when installed incorrectly
- Supplied with 1.5m cable
- Brackets and fixings available to most applications (all sold separately)
- Available in white

### TECHNICAL DRAWINGS

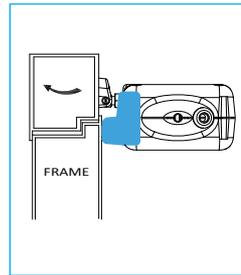


Voltage	230V AC
Stroke	100-400mm
Thrust Force	300 N
Absorbed Current	0.32A
Speed	27mm/s
Protection Class	IP 55
Flex	1.5m (3 CORE)
Limit Stop	Electronic
Safety Stop	Electronic
Max Window Width	<1.5m

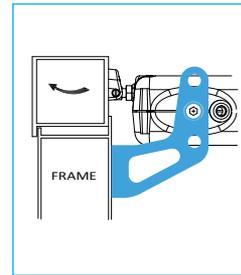
### WINDOW TYPE



### ACCESSORIES & BRACKET TYPES



ACK4/SB - Standard  
for Ali ELH30000



ACK4/LPB - Large  
for PVCu ELH30010



1 Gang Switch & Box  
See Page 19

### PART NUMBERS

Description	Colour	Size	Part Code	Box Qty
ACK4 Actuator	White	288.5 x 83 x 47.8mm	EHL10000	1
Bracket for Ali	White	Standard	EHL30000	1
Bracket for PVCu	White	Large	EHL30010	1

Ex.Pin Size	Step Size	Part Code	Box Qty
37mm	10-20mm	EHL40000	1
47mm	20-30mm	EHL40001	1
57mm	30-40mm	EHL40002	1

# C30 Chain Actuators 300N

## Electric Window Controls

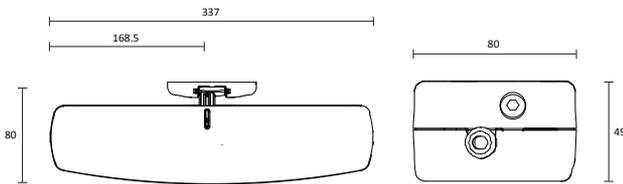
### PRODUCT INFORMATION



This single-chain actuator comes as standard with a selection of different brackets making it suitable for mounting onto top- and bottom- hung windows. It delivers a maximum push/pull thrust force of 300N which is sufficient to operate most windows, lightweight roof vents and domes. The opening stroke can quickly and easily be adjusted at 200mm or 380mm simply by turning a knob on the outside of the casing.

- Single chain actuator with 2 travel positions (200mm or 380mm)
- Strong composite casing
- All electrical parts are double insulated
- High protection class IP 30 rated
- Features a robust centrally positioned double-link stainless steel chain with a buzzer alarm that sounds in the event of incorrect installation
- Supplied with 1.5m cable
- Comes complete with C30/SB standard bracket and C30/BHB bottom-hung bracket
- Available in white

### TECHNICAL DRAWINGS



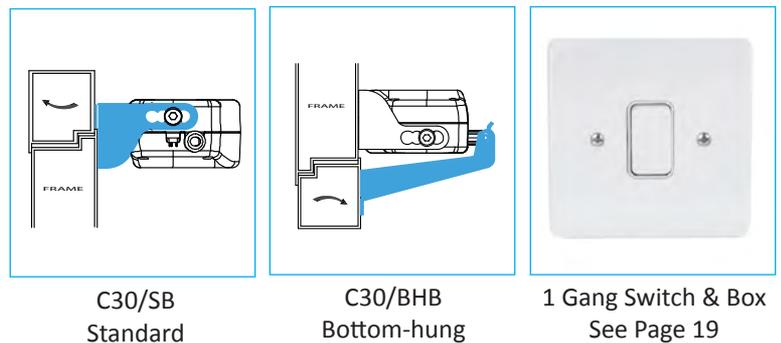
Voltage	230V AC
Stroke	200-380mm
Thrust Force	300 N
Absorbed Current	0.26A
Speed	27mm/s
Protection Class	IP 30
Flex	1.5m (3 CORE)
Limit Stop	Electronic
Safety Stop	Electronic
Max Window Width	<1.5m

### PART NUMBERS

### WINDOW TYPE



### INCLUDED BRACKETS & ACCESSORIES



Description	Colour	Size	Part Code	Box Qty
C30 Actuator	White	337 x 80 x 49 mm	EHL10020	1

# Micro EVO Actuator 230V

## Electric Window Controls

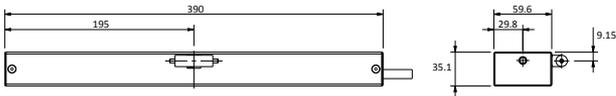
### PRODUCT INFORMATION



If you need high-level electric window controls for a wide casement, then the Micro EVO actuator is just the job. Its integrated synchronisation function means you can easily link up as many as 4 actuators to work together on single window on site and straight out of the box - no need for a separate sync module.

- 4 selectable opening strokes (100-400mm)
- Suitable for most window types and roof vents
- Soft-stop closing for reduced wear on the window frame and actuator
- All electrical parts are double-insulated - Class II AC version – Class III DC version.
- Aluminium casing
- High protection class IP 32 rated
- Double-link chain with anti-corrosion treatment
- Can be easily synced on site to work as a group of up to 4 actuators on wider casements
- Supplied with standard and bottom-hung quick-release fixing brackets

### TECHNICAL DRAWINGS



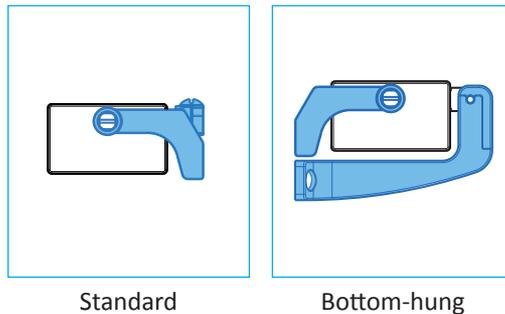
### TECHNICAL SPECIFICATIONS

Voltage	230V AC
Stroke (Selectable)	100-200-300-400mm
Thrust Force	300 N
Absorbed Current	-
Speed	12.5mm/s
Protection Class	IP 32
Flex	1.5m (3 CORE)
Limit Stop	-
Safety Stop	Yes
Max Window Width	<1.5m

### WINDOW TYPE



### INCLUDED BRACKET TYPES



### ACCESSORIES



### PART NUMBERS

Description	Colour	Size	Part Code	Box Qty
EVO Actuator	White RAL9003	390 x 35 x 59mm	EHL10010	1
Additional Bracket	White	Large	EHL31010	1

# Accessories

## Electric Window Controls

### 1 GANG SWITCH AND BOX



This S50-1 Rocker switch is part of the Highline electric window controls range and can be used to control the open/close operation of both 230V AC actuators and 24V DC actuators (via 24V DC controllers) which are available by special order.

- 2-way centre off retractive switch
- 10 Amp (max)
- 1-Gang (2-Gang, 3-Gang and 4-Gang versions available upon request)
- Controls the movement of 230V AC window actuators (or 24V DC controllers if required)
- Supplied with surface-mounted box
- Dimensions: 86 x 86 x 28mm

Colour	Part Code	Box Qty
White	EHL20000	1

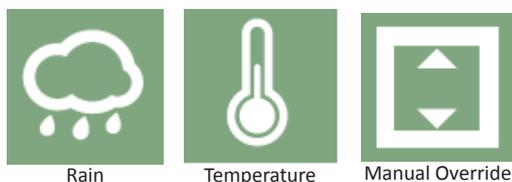
### CCU2 WINDOW CONTROL UNIT 230V - RAIN & TEMPERATURE ACTIVATION



This compact window control unit is a great way to automatically achieve natural ventilation and ensure a more comfortable environment in stuffy rooms or stifling conservatories. With the digital display, it's quick and easy to program the system to automatically open and close windows or roof vents to achieve a specific room temperature, as well as ensure windows are shut and watertight whenever it rains.

- Control unit for 230V AC Window actuators (max output 8 Amp)
- Automatically opens windows if room gets too hot and closes them according to temperature or when it rains.
- Rain sensor and temperature sensor included
- Digital display for simple programming of the desired room temperature
- High protection class IP 4X rated
- Open and close buttons on front of control panel for direct control

### FUNCTIONS



Rain

Temperature

Manual Override

### ADDITIONAL INCLUDED ITEMS



Rain Sensor



Temperature Probe

### TECHNICAL SPECIFICATIONS

Voltage	230V AC
Output Current	8A
Protection Class	IP 4X
Dimensions	146 x 86 x 28mm
Inputs	Rain Sensor, Temperature Probe

Colour	Size	Part Code	Box Qty
White	230v	EHL40010	1

*available from*



**W : [windowware.co.uk](http://windowware.co.uk)**

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