ULTRAFLEX CONTROL SYSTEMS

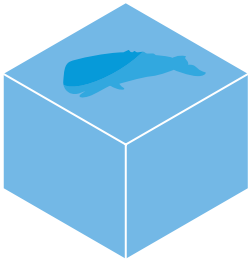
WINDOW AUTOMATION FOR GREEN BUILDING

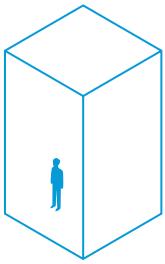
Natural Ventilation

Whales spend more time on the surface...than humans spend in the outdoors.

Sir David Attenborough

90% is the time that we spend indoors. We are basically an “indoor species.” For this reason, the window automation for natural ventilation becomes of crucial importance for creating safe, sustainable, comfortable buildings.





40% of global CO2 emissions come from real estate. 70% are produced by building operations.

Recent global policies focus on reducing energy consumption, a priority in building design and renovation, as highlighted by the World Green Building Council (WGBC). Night cooling ventilation, which automatically opens windows at night, helps reduce air conditioning use and balance CO2 and oxygen levels.

DIFFERENT BUILDINGS, SAME BENEFITS

Education / Healthcare

- Comfortable environment.
- Lower infection risk
- Better classroom attendance.
- Improved mood + motivation.

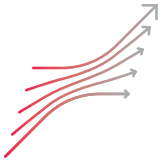
Residential / People with disabilities

- Improved quality of life with a greater sense of environmental control.
- Fresh air + connection to nature.
- Operate from wheelchair, bed, or sofa.

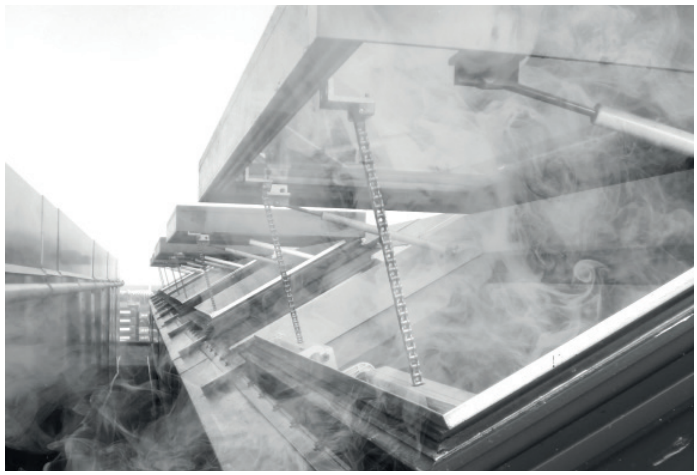
Offices / Commercial buildings

- Less energy consumption, 70%-90% lower operative costs than HVAC.
- Improved productivity.
- Reduced Sick Building Syndrome (SBS).

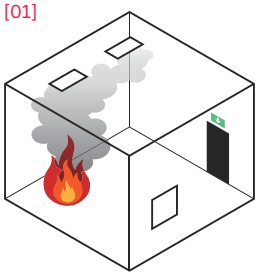
Smoke Ventilation



In a fire, smoke and heat rise, creating a dangerous layer under the ceiling that obstructs emergency exits and delays firefighters; 90% of fire victims die from smoke inhalation. Flashover can also lead to explosions and structural collapse. To mitigate these risks, Natural Smoke and Heat Exhaust systems (NSHEV) should be integrated into fire protection strategies. NSHEV uses automatic opening windows to vent smoke and heat, enhancing safety and reducing collateral damage.



[01]



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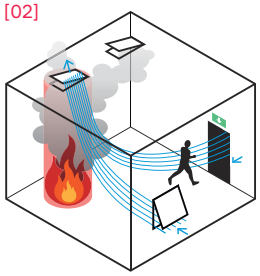
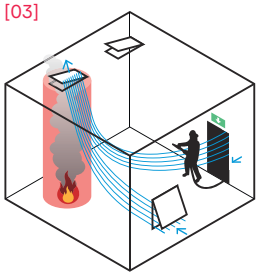


[03]



[01] SHEVS OPEN IMMEDIATLY

[02] CHIMNEY EFFECT ALLOW FAST EVACUATION

[03] EASILY FIREMAN INTERVENTION

Installing an NSHEV system offers the following benefits:

- People protection against smoke inhalation.
- Granted visibility for escape routes and firemen intervention.
- Preservation the building structures.
- Minimum use of extinguishing agents.

BMSline

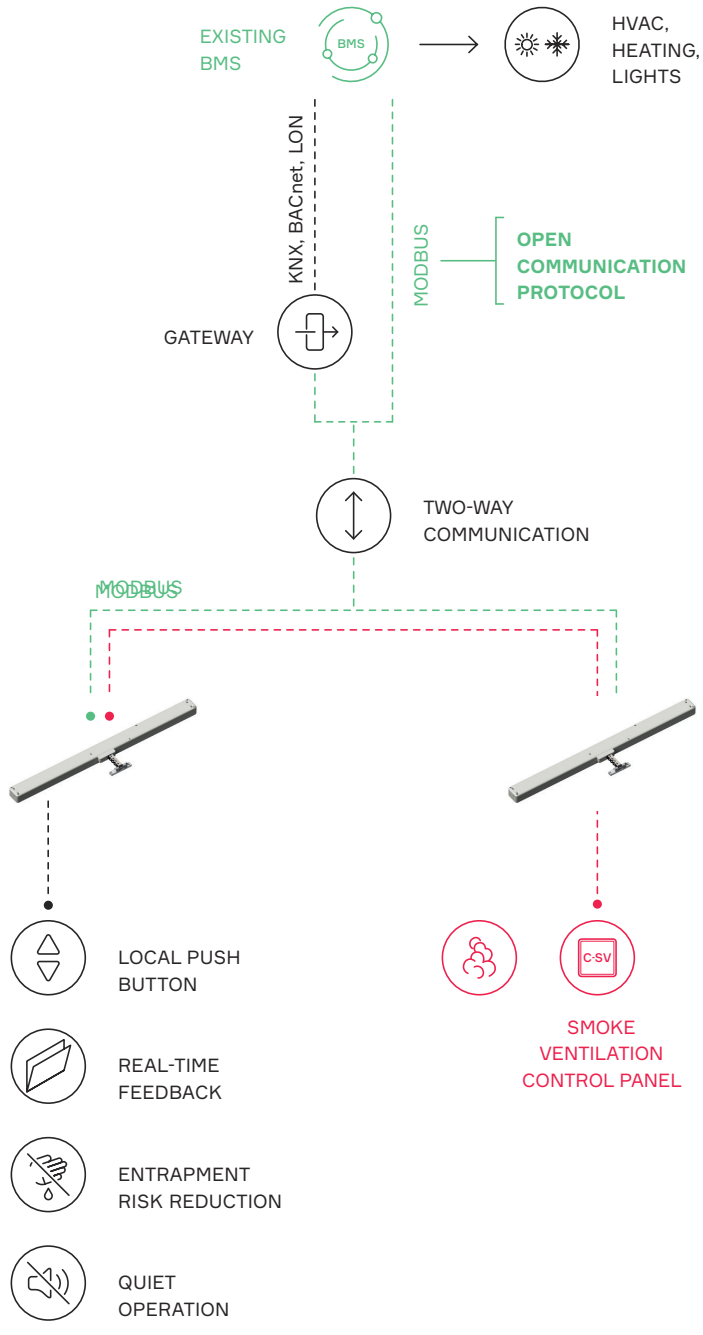
Integrating window automation into Building Management Systems

BMSline represents the most advance technology allowing the two-way communication between window automation and Building Management System enabling interaction with other systems in building (HVAC, lighting...).
By the Integration in Building Management Systems (BMS) the window automation allows:

- **Energy saving**: automatic switch-off or reduced use of Air conditioning, heating, lights.
- **Comfort** in the building: easy control of window automation through computer or other devices, quiet operation, wellbeing that becomes health, then productivity at job place or school.
- **Safety** by smoke ventilation in case of emergency.

The windows can be organized into groups thanks to addressable BMSline actuators. Building Management system can easily define different scenarios for each single group for total automation or local and/or remote control.

- Compatible with all existing Building Management Systems.
- Continual, totally controlled window with real-time feedback. Not just an ON/OFF operation (open/close).
- Addressable actuators in order to control the environment of each room in a building.
- No need for external modules/control panels: the actuator has built-in intelligence.
- Window controlled locally by a standard wall switch, even with a centralized Building Management System.
- Smoke Ventilation Control Panels with back-up batteries can be directly and safely connected.



Programmable parameters

- Stroke.
- Percentage of opening and closing action.
- Speed and force, in opening and closing action.
- Real close position of the window.
- Closing position tolerance.
- Soft stop length and speed.

Scenarios

- Reduction of entrapment risk.
- Local control of the window even with centralized management.
- Speed synchronization for multiple actuators on the same window.
- Quiet operation for Natural Ventilation and full speed and force for Smoke Ventilation.

Real-time feedback

- Full opening or closing.
- Percentage of opening and position of the chain.
- Current setting of parameters and scenarios.
- Location in the building and address in the network.
- Statistics and diagnostic.
- Command state.
- Eventual Failures.

ENERGY SAVING & WELLBEING

REDUCED INSTALLATION & SETUP COST

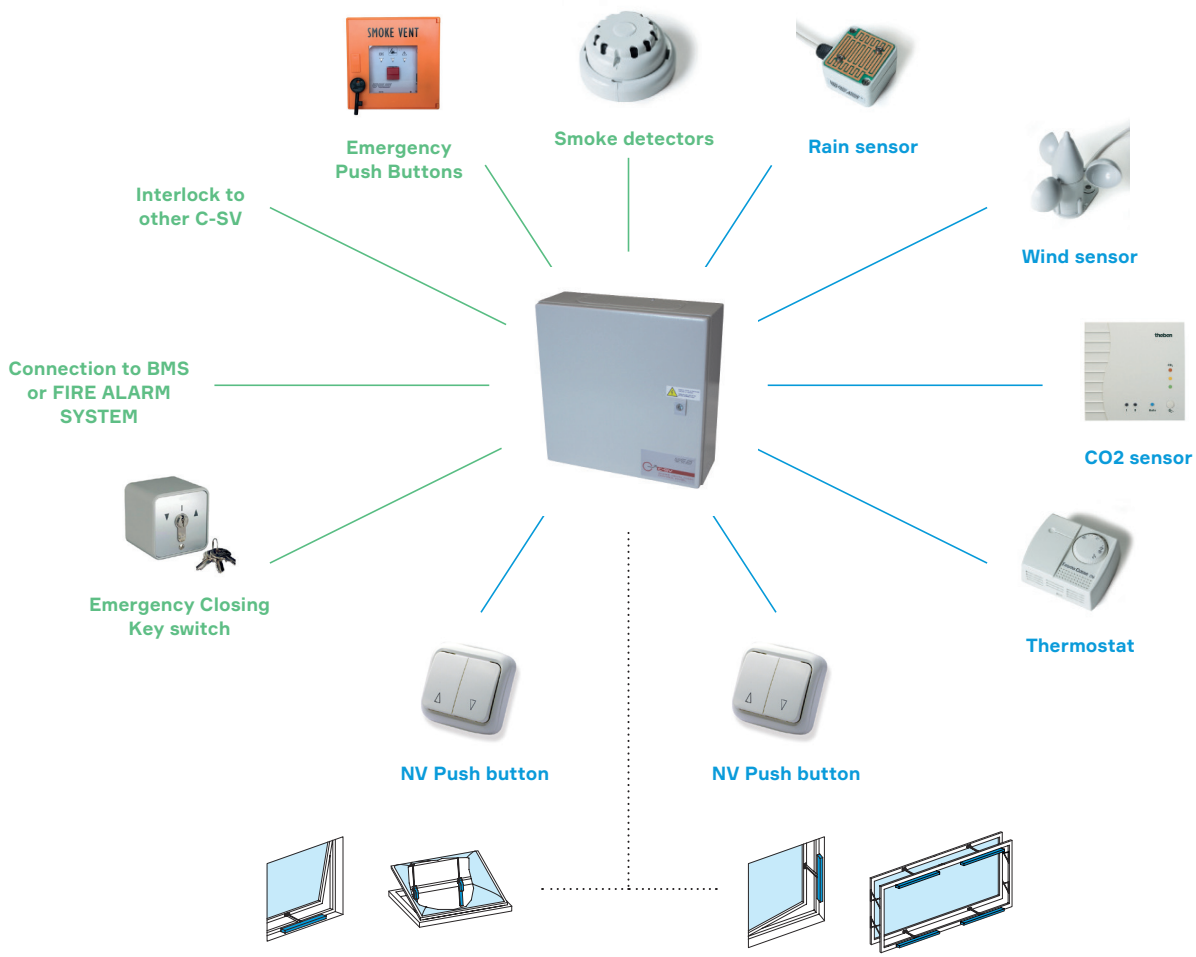
INTEGRATION IN EXISTING BMS

100% SAFETY CONDITION

SMOKE VENTILATION CONTROL PANELS

Control unit for smoke and heat exhaust ventilators including meteorological detection and comfort ventilation

A versatile range of smoke ventilation control panels with back-up batteries operates 24 Vdc actuators for smoke and heat extraction during fires and natural ventilation in normal conditions. Activated by FIRE ALARM SYSTEMS or Building Management Systems, smoke detectors or emergency Manual Control Points (MCP). MCP are also required for alarm condition and fault display, and remote resetting.
For comfort and energy efficiency, windows automatically adjust to environmental conditions, with manual control in two zones.

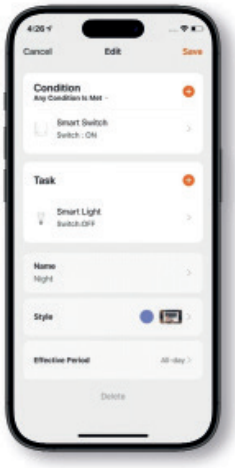


WIRELESS REMOTE CONTROL

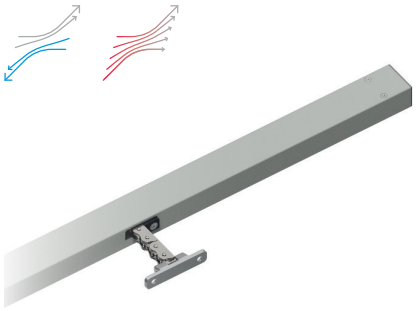
The simplest way to control natural ventilation

ONESMART APP
Smart Control via Cloud and Wi-Fi.

With the OneSmart app, you can communicate with the Control Units for AC and DC actuators from anywhere in the world using your smartphone.
Control up to 50 installations in different locations, managing up to 1,000 devices per installation. No gateway is required—just a Wi-Fi connection is all you need to set up and integrate the radio receivers.



NANO



Chain actuator

The solution for the integration into the window profiles. Very silent operation.

- Maximum force in push action 400 N.
- Maximum stroke 800 mm.
- 24 Vdc, also Synchro.

SPECIAL VERSIONS

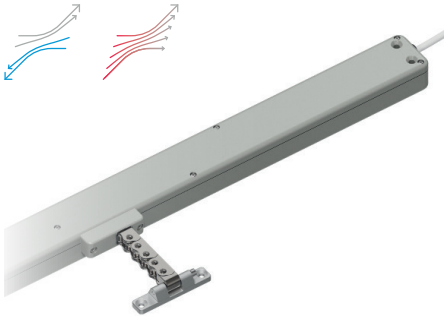
NANO FLEX

NANO DRAW BRIDGE

E-LOCK

Electric additional locking device (24 Vdc)

QUASAR



Chain actuator

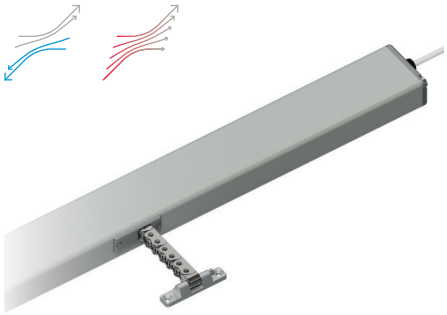
High performance in small die-cast aluminum casing (47 x 32 mm).

- Force in push action 300 N.
- Maximum stroke 500 mm.
- 24 Vdc | 120 - 230 Vac, also

SPECIAL VERSIONS

QUASAR BOW CHAIN

QUASAR L

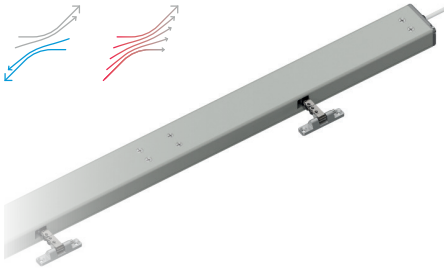


Chain actuator

The solution for wide openings, up to 1000 mm.

- Force in push action up to 300 N.
- Stroke 600 - 750 - 1000 mm.
- 24 Vdc | 120 - 230 Vac, also

TWIN QUASAR
TWIN VEGA



Two-Chains actuator

The strongest Chain actuator: 600 N.

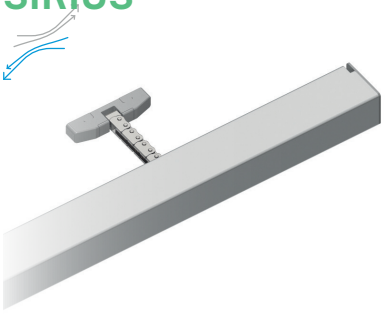
TWIN QUASAR

- Force in push action 600 N.
- Maximum stroke 500 mm.
- 24 Vdc | 120 - 230 Vac.

TWIN VEGA

- Force in push action 600 N.
- Maximum stroke 300 mm.
- 24 Vdc.

SIRIUS



Chain actuator

The New Star in the UCS constellation.

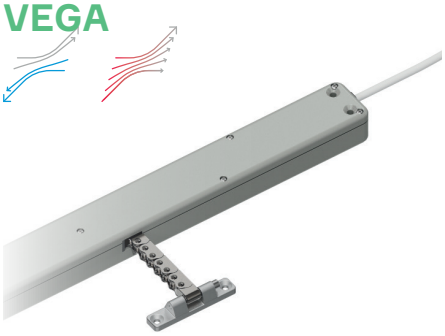
- Force in push and pull action 300 N.
- Selectable stroke 130-200-300-400 mm.
- 24 Vdc | 230 Vac.
- Interchangeable & customizable aluminum cover. [01]
- Invisible actuator brackets. [02]
- Installation without screws / tools. [03]

[01]

[02]

[03]

VEGA

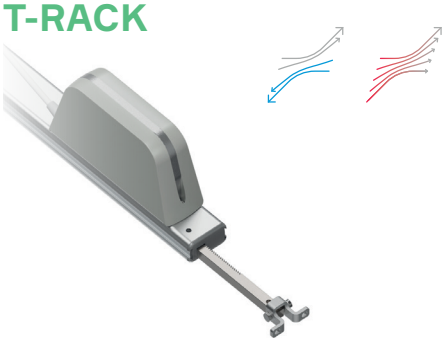


Chain actuator

High performance in small die-cast aluminum casing (45 x 32 mm).

- Force in push action 300 N.
- Maximum stroke 300 mm.
- 24 Vdc | 120 - 230 Vac.

T-RACK

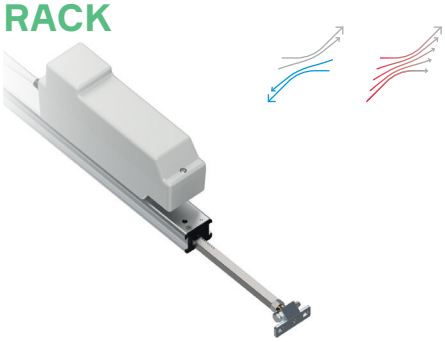


Linear rack actuator

The most powerful linear actuator.

- Force in push action 1000 / 4000 N.
- Stroke 350 - 550 - 750 - 1000 mm.
- 24 Vdc | 230 Vac.

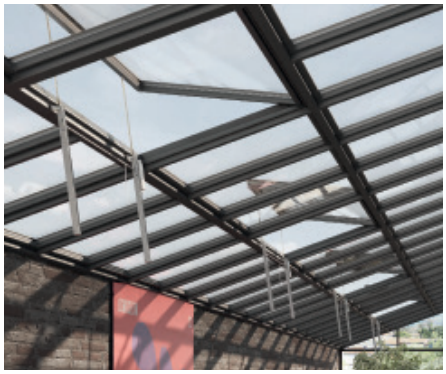
RACK



Linear rack actuator

Versatile linear actuator for mutliple push points.

- Force in push action 650 / 1500 N.
- Stroke 350 - 550 - 750 - 1000 mm.
- 24 Vdc | 230 Vac.

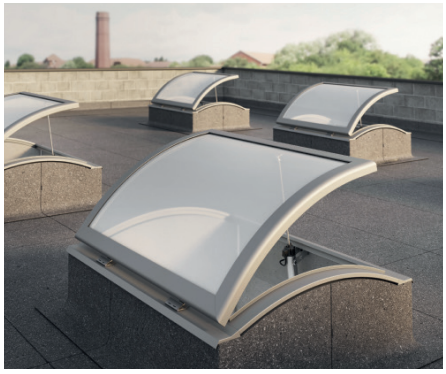


MAX

Linear spindle actuator

The most versatile spindle actuator.

- Force in push action 450 N (stroke 180 / 300 mm) - 350 N (stroke 500 mm).
- 230 Vac.



ULYSSES

Linear spindle actuator

Slim and powerful spindle actuator.

- Force in push action 650 N.
- Stroke 180 - 300 mm.
- 24 Vdc.

MANUAL REMOTE CONTROLS

Mechanical systems for ventilation

The Mec Line mechanical systems for the window remote control are super-tested, reliable, economical, easy and quick to install. The movement transmission from the control operator to the opening mechanism is effected by a steel helical cable which runs inside a steel conduit.

Every system has to be provided with the following items:

- CONTROL OPERATOR, flat, mini, simple, concealed and geared operator.
- TRANSMISSION ELEMENTS: cable, conduit, connectors, saddles, lock springs, end plugs.
- OPENING MECHANISM, chain openers, forks and locking openers for bottom hinged windows.

CAT Manual chain opener

Manual chain operator for skylights, roof windows (operation by eyelet) and top hung windows (operation by handle). Stroke 260 mm.

TELESCOPIC SPINDLE

Suitable to operate skylights, domes and roof windows up to a weight of 2000 Kg.
Opening stroke: 310 mm.

REFERENCES

MacKimmie Tower

Calgary – Canada

Educational building

German Pavillon – Expo 2000

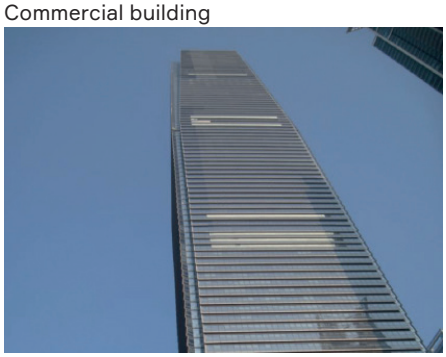
Hannover – Germany

Exhibition center

International Commerce Centre

Hong Kong – Cina

Commercial building



New Street Square

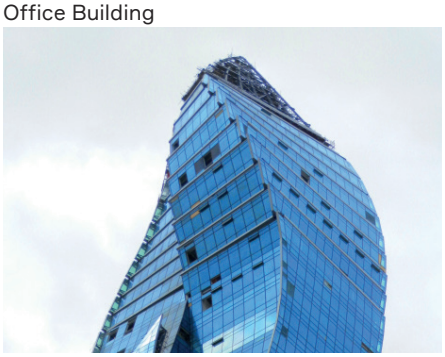
London – UK

Office building

Socar Tower

Baku – Azerbaijan

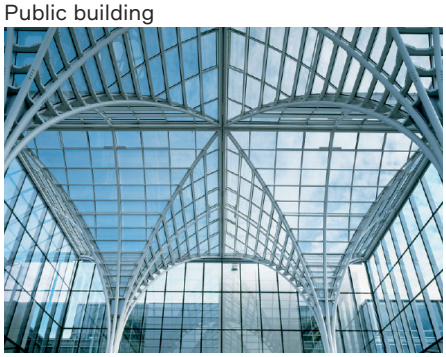
Office Building



Chicago University

Chicago, IL – USA

Public building



ABOUT UCS

From 1970 to today, a chain of progress.

Ultraflex Control Systems (UCS), a proud member of the Ultraflex Group, is an Italian family-owned company based in Busalla, near Genoa. UCS specializes in the Fenestration and Building Automation Industry, focusing on Natural and Smoke Ventilation Systems and integrating Window Automation into Building Management Systems (BMS). Founded in the 70s, UCS became independent in 1988 and expanded globally, with exports exceeding 80%. A pioneer in Smoke Ventilation in Italy, UCS plays a key role in European Technical Committees and continues to innovate with intelligent actuators for modern architectural needs.

ULTRAFLEX GROUP

ULTRAFLEX

UFLEX

UFLEX DIVISIONE ENERGIA

INDUSTRIA DI LEIVI

iltec

CONTACTS

Italy - Headquarter

UCS - Ultraflex Control Systems srl
Via XXV Aprile, 45
16012 Busalla (GE) - Italy
T +39 010 9768232
ucs@ultraflexgroup.it
www.ultraflexcontrolsystems.com

North America

UFLEX USA, INC.
Architectural Division
6442 Parkland Drive
Sarasota (FL) - USA
T +1 941 529 0330
sales@uflexusa-ucs.com