



WINDOW TECHNOLOGY
DOOR TECHNOLOGY
AUTOMATIC ENTRANCE SYSTEMS
BUILDING MANAGEMENT SYSTEMS



WINDOW TECHNOLOGY – DESIGN HANDBOOK AND CATALOGUE

Smoke and heat exhaust ventilation systems (RWA) Electrical ventilation systems

Edition 04/2015

Securing technology for you



Extra safety and convenience

Modern drive and opening systems for smoke extraction and everyday ventilation



With kind permission of: kab planungsbüro für bauleistungen gmbh, Fellbach

Commitment to tradition – setting the highest design and quality standards

The Gretschi-Unitas Group

Ever since 1907, the Gretschi-Unitas Group has stood for safe and convenient opening and closing of windows. The group has sustainably shaped the development of the market with ground-breaking innovations and continuous further developments in opening systems.

Tested quality and modern technology

Products from Gretschi-Unitas have been highly prized for more than a century for their tested quality and safety. Mature technology and intelligent electronics do not just focus on single products but rather on individual system solutions.

More than just products: planning, installation, service

Expertise for window security. We assist you in all the phases of implementing your individual smoke extraction and ventilation solution. Trained specialists with extensive knowledge of all the relevant standards and regulations, as well as rapid and reliable service, make it possible to optimise building concepts in terms of costs and applications.

System solutions for individual requirements

In the area of natural smoke and heat extraction, we provide long-term security that not only functional reliability but also a high standard of planning and cost reliability will be provided with tested and certified system solutions.

Securing technology for you



Smoke and heat exhaust ventilation systems

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Smoke and heat exhaust ventilation systems



Smoke and heat exhaust ventilation systems from Gretschesch-Unitas.

Fires and the associated flames and smoke still pose the greatest threat to people and buildings. For this reason, it is extremely important that the smoke be extracted quickly and reliably. The Gretschesch-Unitas Group offers a wide range of coordinated system components – from electric motor drives to RWA central control units plus an extensive range of accessories. The following pages contain a summarised overview of the additional information regarding projects, planning, installation and maintenance of smoke and heat exhaust ventilation systems – all of which of course corresponds to the current state of the art and takes into account the applicable standards and directives.

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Smoke and heat exhaust ventilation systems as an essential part of preventative fire protection



PhotoAlto Agency RF Collections / Getty Images

What is meant by preventative and defensive fire protection?

Preventative fire protection

In order to protect the life and health of humans and animals, advance precautions should be taken to eliminate or minimise the generation and spread of fire and smoke. According to the definition, this involves measures for preventing the outbreak and spread of fire as well as ensuring that the escape routes are safe.

Defensive fire protection

This applies to all measures introduced by the fire service for the rescue of humans and animals via safety routes, which are necessary in the event of an advanced fire.

Smoke and heat exhaust ventilation systems as part of preventative fire protection

Smoke and heat exhaust ventilation systems as an essential part of the preventative fire protection concept

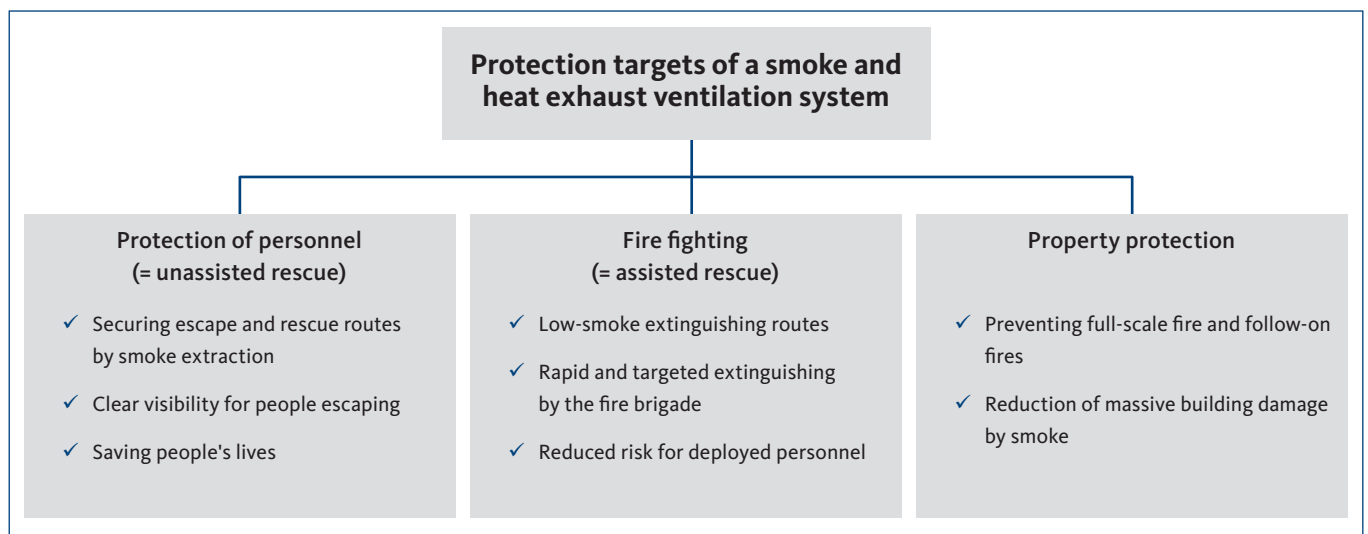
Fires and the associated heat and smoke development are still the biggest threat to people and buildings. Every year, many people die in fire disasters, and fires also cause enormous property damage. However, the threat to people and buildings not only comes from fire and heat, but also from smoke and the arising toxic fumes in particular.

For this reason, it is extremely important that the smoke be extracted quickly and reliably. This is where smoke and heat extraction systems play their most important role as firm components of a preventative fire protection system: evacuating fire gases, dangerous oxides and thermal energy into the atmosphere in case of a fire. This ensures that smoke levels are kept low in escape and rescue routes, thereby permitting non-assisted and assisted rescue to take place!

Furthermore, this avoids the thermal load imposed on the building structure by hot fire gases leading to damage to the building.

Preventative fire protection does not fully guarantee the prevention of fires in buildings. However, it is possible to achieve protection targets through the use of smoke and heat exhaust ventilation systems.

Protection targets of a smoke and heat exhaust ventilation system



RWA, NRA and NSHEV – definition of terms



What is meant by RWA?

The umbrella term **RWA** stands for "Rauch- und Wärmeabzugsanlage" (smoke and heat extraction system). This comprises

- a natural smoke extraction system (NRA)
- a mechanical smoke extraction system (MRA)
- a smoke protection pressure system (RDA) or
- a lift shaft smoke extraction system

The Gretschi-Unitas Group offers the latest electromotor-driven RWA technology relating to natural smoke extraction (NRA) for all areas of application: from stairwell smoke extraction to complex RWA systems for large projects.

What is meant by NRA?

The term **NRA** stands for "Natürlicher Rauchabzug" (natural smoke extraction). As a natural smoke extraction system, the term "RWA system" is applied when its function is based on the principle of thermal uplift.

The principle of thermal uplift

In the event of a fire, thermal uplift causes the smoke and fumes in the building to rise upwards and form a layer of smoke gas beneath the ceiling, which fills the entire room within a very short time. Smoke and heat is able to escape through the use of smoke outlets in the upper area of the facade or in the roof. Supply air inlets in the lower area help to boost the thermal uplift.

NRA systems from the Gretschi-Unitas Group ensure the safe, automatic opening of smoke extraction apertures. As part of the preventive fire protection concept, they minimise the development of smoke in escape and rescue routes, thus protecting people from smoke intoxication and property from damage.

In everyday operation, they also ensure the controlled supply of fresh air.

What is meant by NSHEV?

The term **NSHEV** stands for natural smoke and heat exhaust ventilator. NSHEVs are used whenever a natural smoke extraction system (NRA) is requested according to building regulations – e.g. in schools, hospitals and sales premises. In the case of an NSHEV, the element is tested and certified together with the drive as an entire system in accordance with EN 12101-2.

The Gretschi-Unitas Group offers **NSHEV system solutions with tested, certified components for timber profiles and Euro-groove aluminium profiles** from leading system suppliers in all conventional opening types.



Smoke extraction

Smoke extraction refers to the extraction of smoke in the event of a fire (heat extraction), in order to create a low-smoke layer near the ground and thus enable the safe use of escape and rescue routes.

The products used here are safety-relevant building products that are regulated by EN 12101-2 in Building Rules List B, part 1. In these cases, it is mandatory that an NSHEV be used as part of a smoke and heat exhaust ventilation system.

Areas of application:

- Meeting locations
- Large warehouses
- Industrial buildings

Smoke ventilation

Smoke extraction systems in stairwells are referred to as smoke ventilation. Their purpose is to extract smoke by way of cold smoke extraction.

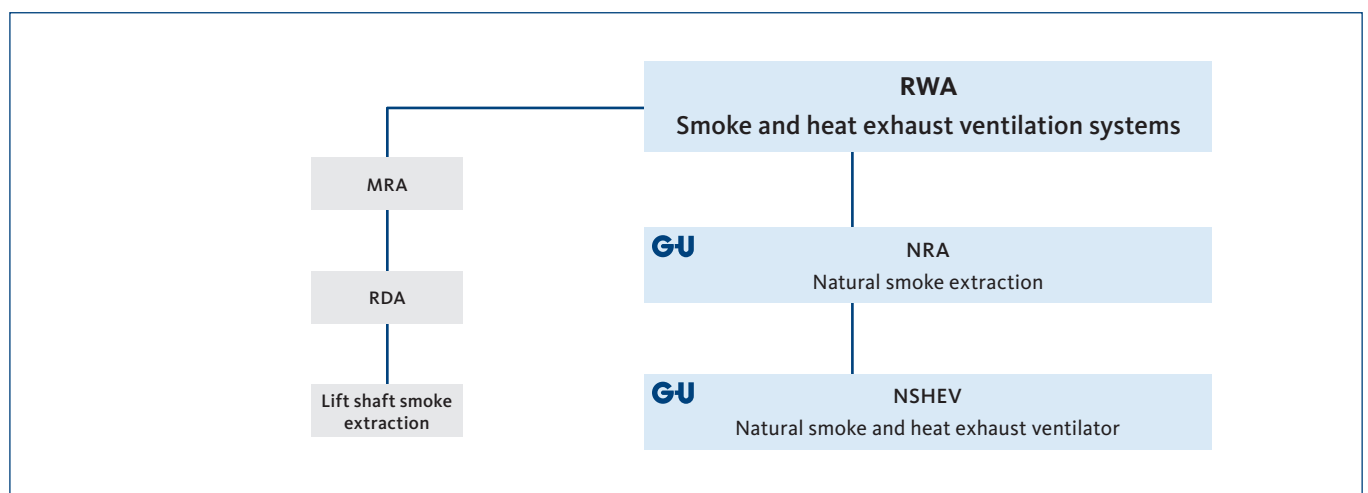
The products used here are non-safety-relevant building products that are therefore only listed in Building Rules List C, part 3.10.

Planning takes place in accordance with the specifications of the respective applicable regional building regulation (LBO). Crucial aspects include the location, size and opening width of the smoke extraction apertures, as well as the number and location of automatic and manual alarm devices.

Areas of application:

- Stairwells

Smoke ventilation and smoke extraction



Overview: smoke and heat exhaust ventilation systems – system types

Functional principle of an RWA system



RWA systems essentially consist of the system components seen in the system design below. They cover two large areas of responsibility: emergency situations and everyday ventilation.

RWA systems from the Gretsche-Unitas Group are used for the everyday ventilation of rooms as well as smoke extraction in the event of a fire. Here, the dissipation of smoke and heat is controlled by the electrical controller (RWA central control unit). Windows, smoke flaps and light domes are opened or closed using electric drives.

The ventilation function is controlled via a ventilation push-button, rain/wind controller or time switch, and in the event of an emergency it is controlled manually via an RWA push-button or automatically via smoke or heat detectors. In addition, optional alarm signals can also be connected.

Fig.: Keeping escape and rescue routes clear from smoke on the basis of thermal uplift – with supply air openings in the lower wall area and exhaust air openings in the upper wall or ceiling area.

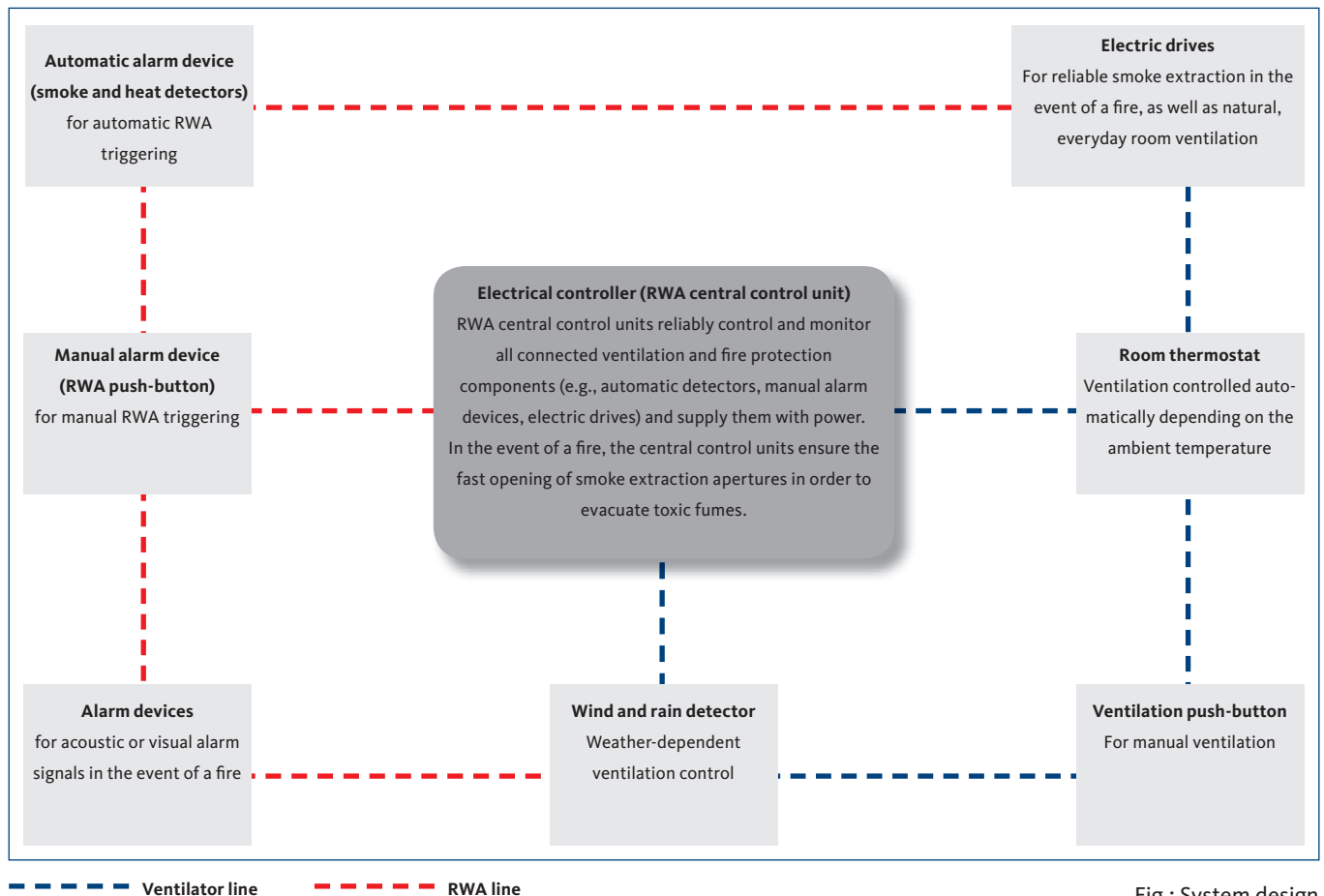


Fig.: System design

Components of an RWA system

- Electrical control device (RWA central control unit)
- Electromechanical drives
- RWA push-button for manual alarm triggering
- Smoke/heat detectors for automatic alarm triggering*
- Alarm devices*

Additional components for the ventilation function

Further components must be selected if the system is to be used for ventilation purposes, for example:

- Room thermostat
- Wind and rain detector
- Ventilation push-button

* The use of smoke or heat detectors or alarm devices is not mandatory in legislation, however we do recommend it.

DIN 18232, Model Building Regulation, regional building regulations



E+ collection / Getty Images



To ensure that RWA systems can be planned and implemented in line with the applicable standards and regulations right from the start, on the following pages we have compiled and briefly explained all the important information about regulations, ordinances and German and European standards.

There are a number of rules and regulations that must be observed for smoke and heat extraction systems.

Take the stairwell in buildings, for example, where the relevant regional building regulation (LBO) must be observed. For industrial buildings, if the regulation has been introduced by the building authorities in the respective German Federal State, the industrial construction guidelines must be observed together with DIN 18232. For sales premises, the regulation governing sales premises must be observed together with DIN 18232 etc.

The applicable regulations and guidelines are listed below.

DIN 18232, part 2

The planning, dimensioning and installation (position and size of the smoke extraction apertures or supply air apertures) of natural smoke extraction systems are determined by many national codes of practice as in the past – in Germany by the standard DIN 18232, part 2.

This standard can be used to determine how many smoke extraction or supply air apertures should be planned into the facade and where these should be located.

This must be done by the planner or the accepting party.

Generally, the planning and configuration should always be carried out in consultation with the local fire protection authorities.

Model Building Regulation (MBO)

"Building installations are to be designed in such a way that the occurrence of fire and the spreading of fire and smoke is prevented and, in the event of a fire, it will be possible to save people and animals and fight the fire effectively."

The installation of smoke extraction systems is one of the most important measures for ensuring the active and passive rescue of persons.

The general requirements of the MBO are adopted by the regional building regulations and specified through further requirements in the legal text of the respective regional building regulation and its supplementary provisions for special structures. The special building regulations of each state are also based on a respective model building regulation. Furthermore, both private guidelines and those governed by public law apply.

Regional building regulations (LBOs)

Smoke extraction in stairwells

In the respective regional building regulations (LBOs), the German Federal States stipulate that stairwells must be fitted with a smoke extraction system, smoke extraction device or an opening for removing smoke from the building.

The specifications vary from state to state and are therefore not regulated in a standardised manner.

Regulations of the individual German Federal States for smoke ventilation in stairwells (As at 11/2009)

Federal State	Smoke ventilation – when?	Smoke ventilation – where?	Smoke ventilation – size?	Opening controlled from where?
Baden-Württemberg	In necessary stairwells of buildings with more than 5 floors and in necessary interior stairwells through a smoke extraction device	At the highest point; windows may be used as smoke outlets if they are high enough	With a free cross-section of at least 1 m ²	To be opened at ground level ^[1]
Bayern	Stairwells	At the highest point	With a free cross-section of at least 1 m ²	Ground floor and highest landing
Berlin	For necessary interior stairwells in buildings above 13 m	At the highest point	With a free cross-section of at least 1 m ²	Ground floor and highest landing
Brandenburg	For necessary interior stairwells and necessary stairwells in buildings above 13 m, however not in residential buildings with two residences or less	At the highest point	With a free cross-section of at least 1 m ²	Ground floor and highest landing
Bremen	For necessary interior stairwells and necessary stairwells in buildings above 13 m	At the highest point	With a free cross-section of at least 5% of the floor area, however at least 1 m ²	Ground floor and highest landing
Hamburg	For necessary interior stairwells and necessary stairwells in buildings above 13 m	At the highest point	With a free cross-section of at least 1 m ²	Ground floor and highest landing ^[2]
Hessen	For necessary interior stairwells and necessary stairwells in buildings above 13 m	At the highest point	With a free cross-section of at least 1 m ²	Ground floor and highest landing
Mecklenburg-Vorpommern	For necessary interior stairwells and necessary stairwells in buildings above 13 m	At the highest point	With a free cross-section of at least 1 m ²	Ground floor and highest landing
Niedersachsen	No regulation	No regulation	No regulation	No regulation
Nordrhein-Westfalen	Buildings with more than 5 floors above the building surface, as well as necessary indoor stairwells	At the highest point of the stairwell	With a free cross-section of at least 5% of the floor area, however at least 1 m ²	Ground floor and highest landing ^[3]
Rheinland-Pfalz	Buildings with more than 5 floors above the building surface as well as necessary stairwells that are not part of the exterior wall structure	At the highest point of the stairwell	With a free cross-section of at least 5% of the floor area, however at least 1 m ²	Ground floor and highest landing ^[4]
Saarland	For necessary interior stairwells and necessary stairwells in buildings above 13 m	At the highest point of the stairwell	With a free cross-section of at least 1 m ²	Ground floor and highest landing
Sachsen	For necessary interior stairwells and necessary stairwells in buildings above 13 m	At the highest point of the stairwell	With a free cross-section of at least 1 m ²	Ground floor and highest landing
Sachsen-Anhalt	For necessary interior stairwells and necessary stairwells in buildings above 13 m	At the highest point of the stairwell	With a free cross-section of at least 1 m ²	Ground floor and highest landing
Schleswig-Holstein	For necessary interior stairwells and necessary stairwells in buildings above 13 m	At the highest point of the stairwell	With a free cross-section of at least 1 m ²	Ground floor and highest landing
Thüringen	For necessary interior stairwells and necessary stairwells in buildings above 13 m	At the highest point of the stairwell	With a free cross-section of at least 1 m ²	Ground floor and highest landing

[1] It is possible to request that the smoke outlet be controlled from other locations. Exceptions may be allowed in certain circumstances.

[2] For stairwells with a floor area of over 40 m², special precautions must be taken to assist in the rescue of people.

[3] Deviations (from all requirements) may be permitted in certain circumstances.

[4] Further control locations can be requested. Deviations from all requirements may be permitted in certain circumstances.

The European standard for smoke and heat control systems

EN 12101-2



EN 12101, part 2

Smoke and heat control systems: Specification for natural smoke and heat exhaust ventilators

Rely on tested and certified safety: natural smoke and heat exhaust ventilators (NSHEVs) in accordance with EN 12101-2 are building products in accordance with Building Rules List B part 1 ^[1].

Only systems that have been fully tested may then be used in vertical facades, i.e. windows and drives tested as one complete unit (see "Performance requirements and classification").

According to EN 12101-2, an NSHEV consists of:

- a window with the related components:
 - System profile ①
 - Gaskets ②
 - Window hardware ③
- the infill (e.g. panes, panels) ④
- the drive system and corresponding attachment set ⑤



Performance requirements and classification

The EN 12101-2 test standard imposes the following test requirements on NSHEVs, among others, and divides them up into classes:

Continuous functional reliability: Re class

This performance characteristic shows how often the NSHEV can be opened in the fully opened RWA position. If the NSHEV is also to be used for everyday air supply and ventilation, it must withstand being opened 10,000 times in the ventilation comfort position.

- ▶ NSHEVs from the Gretschi-Unitas Group are tested with 11,000 function cycles (with simultaneous air supply and ventilation) and correspond to Re class 1 000.

Opening with wind load: WL class

The wind load class indicates the permissible value of the pull load that can act upon the NSHEV without the NSHEV opening. For vertical smoke extraction, this is particularly important for outward-opening sashes as the pull forces may lead to the NSHEV opening unintentionally.

- ▶ Depending on the sash format, NSHEVs from the Gretschi-Unitas Group feature a standard safety level of up to 3000 Pa, which corresponds to performance class WL 3 000.

Heat resistance: B class

The heat resistance specifies the expected fire temperatures up to which the NSHEV may be used.

- ▶ NSHEVs from the Gretschi-Unitas Group are heat-resistant up to 300 °C and are therefore assigned to class B 300.

Aerodynamic effectiveness of the smoke extraction aperture

What is the Aa area of the NSHEV?

- ▶ NSHEVs from the Gretschi-Unitas Group score top marks when it comes to aerodynamics (Cv values).

Note: The controller, manual and automatic alarm devices, and wiring are NOT part of the NSHEV.

[1] For more information about the Building Rules List, please refer to the section "Useful information" in the catalogue appendix.

Where and when must NSHEVs be used?

In Germany, NSHEVs must always be used wherever a naturally functioning "smoke outlet" is stipulated under building regulations.

The Gretsch-Unitas Group – system supplier

The Gretsch-Unitas Group provides you with a wide selection of **NSHEV system solutions for aluminium profiles** from well-known system suppliers based on the standardised Euro-groove, **as well as timber and timber-aluminium systems.**

All drive systems of the GU Group that are tested and certified in accordance with EN 12101-2 carry the following marking:



Approved NSHEV systems

	Aluminium systems	Timber / timber-aluminium systems
Profile systems ■ With standardised Euro-groove 15/20 ■ With Euro-rebate ■ System profile		
Range of application		
Opening methods	Tilt-Only, Top-Hung and Turn-Only windows, inward and outward-opening Lowering Top-Hung windows	Tilt-Only, Top-Hung and Turn-Only windows, inward-opening
Sash widths (mm)	350 – 3000	400 – 2900 (Tilt-Only and Top-Hung windows) 400 – 1500 (Turn-Only windows)
Sash heights (mm)	200 – 3000	550 – 1900 (Tilt-Only and Top-Hung windows) 400 – 2800 (Turn-Only windows)
Opening widths (mm)	up to 600	up to 600
Sash weights (kg)	250 (Tilt-Only windows) 200 (Top-Hung windows)	150
Permitted drives		
Chain drives	ELTRAL K25, K30, K35, K60 in Solo and Synchro version optionally in conjunction with a locking drive	
Locking drives	ELTRAL OA, VA25, VAN	
Opening systems	RWA 1000, RWA 1050, RWA 1100	–

The European standard for smoke and heat control systems

EN 12101-2



How to become an NSHEV manufacturer

System supplier: Gretsch-Unitas Group

- Initial type testing (ITT) of NSHEV systems (see "Performance requirements and classification" on page 14) at a notified test centre
- Summary of the test results listed in a product passport by the testing institute, as well as the components used (profiles, corner connections, gaskets, hinges, hardware and drives incl. fixings) provided in a planning document. Furthermore, installation situations and application boundaries are defined therein
- Proof of the performance classes achieved
- Confirmation of the design of an NSHEV
- Granting of licence to manufacturers (NSHEV licensees)
- NSHEV licensee training (expertise and NSHEV)

System user: NSHEV licensee / manufacturer

1. Factory Production Control (FPC)

- QM system for producing NSHEVs and for long-term safeguarding of product properties and a stable production process in accordance with the FPC checklist
- Representation or transfer of the initial type tests into production
- Checking the NSHEVs for compliance with the product passport

2. Third-party monitoring by a notified body (NB), e.g. ifi or ift

- A testing and monitoring institute, as notified by the DIBt, carries out initial monitoring of the production processes for compliance with the FPC and issues the CE certificate for the construction of NSHEVs.
- Extension of validity of the CE certificate through continuous, annual audits
- Failure to comply with the FPC or deviations of the NSHEVs from the initial type testing may result in the products needing to be reproduced or the CE certificate being revoked

3. Manufacture of an NSHEV in the workshop

- The manufacture of NSHEV elements in accordance with the maximum/minimum variables, weights and installation conditions as specified in the system supplier's planning documents and technical documents, as well as in accordance with the installation documents of the respective systems house, as per the FPC checklist
- CE marking by affixing the CE label
- Delivery, professional installation and commissioning of the NSHEV elements in the project
- Documentation (request form, risk assessment, Declaration of Performance)



Cultura collection / Getty Images

Training course and advanced training

The following seminars provide you with in-depth knowledge on smoke and heat exhaust ventilation systems, as well as numerous practical examples:

Smoke and heat exhaust ventilation systems

Compact central control units for smaller and mid-sized projects

Practical and expert seminar F 20

Participants are familiar with the basic terms surrounding smoke and heat exhaust ventilation systems and ventilation technology; they are familiar with the products of the GU Group for the purposes of creating an RWA; they are capable of installing and commissioning systems; they are familiar with the relevant regulations, directives and standards; they are authorised to carry out initial acceptance tests on RWAs of the GU Group, as well periodic tests and maintenance work; they have successfully completed the relevant knowledge test.

Smoke and heat exhaust ventilation systems

Compact seminar F 35

Participants are familiar with the basic terms surrounding smoke and heat exhaust ventilation systems and ventilation technology; they are familiar with the relevant regulations, directives and standards; they are familiar with the products of the GU Group for the purposes of creating an RWA.

Manufacturers of GU natural smoke and heat exhaust ventilators (NSHEV)

Expert seminar with authorisation F 33

Once this seminar has been completed, the participant is an authorised manufacturer of natural smoke and heat exhaust ventilators from Gretschi-Unitas.

Prerequisite: participation in seminar F 20

Smoke and heat exhaust ventilation systems

Module central control units for large and very large projects

Practical and expert seminar F 27

Participants are familiar with the products of the GU Group for the purposes of creating an RWA; they are capable of installing and commissioning systems; they are authorised to carry out initial acceptance tests on RWAs of the GU Group, as well periodic tests and maintenance work.

Prerequisite: participation in seminar F 20

Electric drive and opening systems (24 V)



General information

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Chain drives

General information	32 – 35
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Locking drives / square spindle drive

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RWA opening systems

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For Turn-Only windows, inward-opening / mullion/transom application – RWA 1050	92 – 97
For Tilt-Only, Top-Hung and Turn-Only windows, outward-opening – RWA 1100	98 – 101

Fanlight opening system

General information	102 – 103
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Door drive

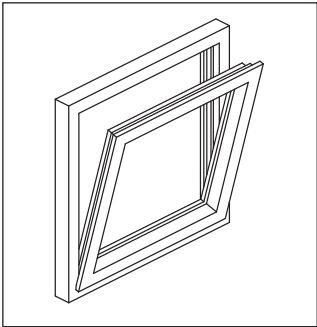
General information	108 – 109
RWA air supply – ELTRAL TA 60	110 – 111

Planning – selecting the drive system

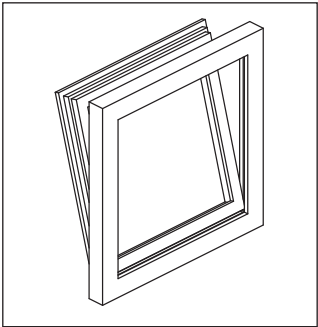
Example: stairwell smoke extraction



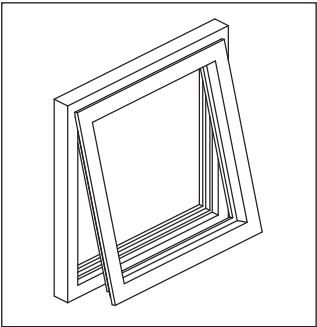
Step 1: defining the sash – window types and opening direction (please enter number of units)



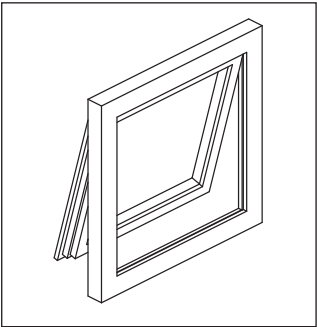
Tilt-Only sash, inwards



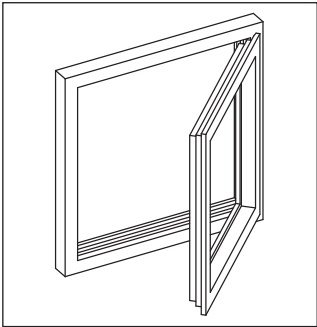
Tilt-Only sash, outwards



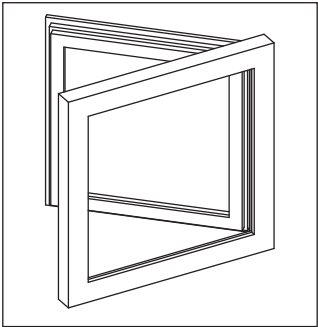
Top-Hung sash, inwards



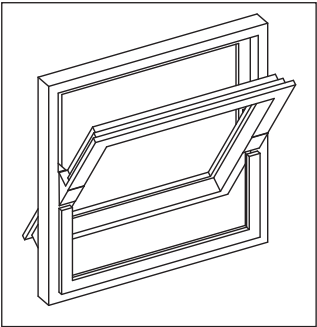
Top-Hung sash, outwards



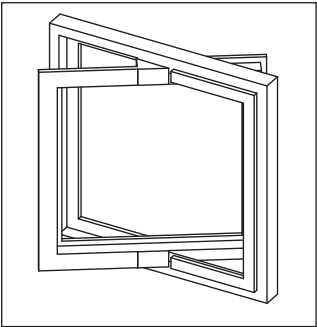
Turn-Only sash, inwards



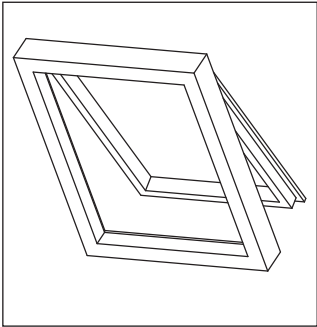
Turn-Only sash, outwards



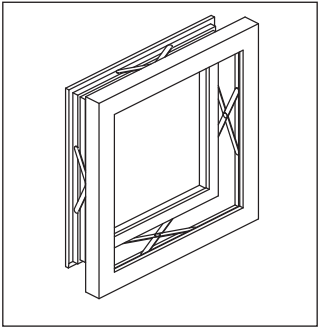
Horizontal-Pivot sash



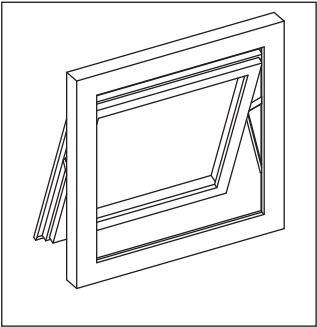
Vertical-Pivot sash



Skylight



Parallel-Projecting sash



Lowering Top-Hung sash

Step 2: defining the application and window data

Sash exterior dimensions

Clear sash width (in mm) _____

Clear sash height (in mm) _____

Sash weight (in kg) _____

Alternative: glass thickness (in mm) _____

Alternative: profile weight (in kg/m) _____

Position in room ^[1] ☐ below 2.5 m

☐ above 2.5 m

Stipulated geometric smoke extraction area (in m²) ^[2] _____

Desired opening width (in mm) _____

Alternative: desired opening angle (in °) _____

Facade/roof incline (in °) _____

Planning example: 2 Tilt-Only windows, inward-opening

Clear sash width (in mm) 1200

Clear sash height (in mm) 850

Sash weight (in kg) 40

Alternative: glass thickness (in mm) –

Alternative: profile weight (in kg/m) –

Position in room ^[1] ☐ below 2.5 m

☒ above 2.5 m

Stipulated geometric smoke extraction area (in m²) ^[2] 1

Desired opening width (in mm) 500

Alternative: desired opening angle (in °) –

Facade/roof incline (in °) Facade, 90°

Step 3: drive installation

☐ Frame installation

☐ Sash installation

☐ Concealed installation

Min. space requirement (in mm) _____

☒ Frame installation

☐ Sash installation

☐ Concealed installation

Min. space requirement (in mm) 60

[1] The risk analysis must be taken into consideration for a window element installation height below 2.50 m (see pages 28/29 – Appendix 3).

[2] This value must be determined on site by the relevant fire protection authorities or the planning office based on DIN 18232-2.

Planning – selecting the drive system

Example: stairwell smoke extraction



Step 4: determining the smoke extraction area as stipulated by DIN 18232-2

The smoke extraction area is calculated for each smoke section using the design group, room height and height of the low-smoke layer from the corresponding table 3 of DIN 18232, part 2. This entire smoke extraction area is then split up into an appropriate number of facade openings and skylights. The corresponding regulations specified by the standard must be taken into consideration here.

Step 5: calculating the clear opening width for the predetermined geometric smoke extraction area (Ag)

For calculations of the geometric smoke extraction area (Ag), see pages 24/25 – Appendix 1 "Geometric and aerodynamic smoke extraction area".

Step 6: calculating the window area / opening and closing force

For calculations of the window area or the opening and closing force, see pages 26/27 – Appendix 2 "Calculating the window area / opening and closing force".

Planning example:

The stipulated geometric smoke extraction area (Ag) in accordance with DIN 18232-2 is 1 m² [1]

2 Tilt-Only windows are designated as facade openings

This results in a stipulated geometric smoke extraction area of 0.5 m² per facade opening

Planning example:

Calculated clear opening width = 416 mm

This means a drive with a travel length of 500 mm is required

Planning example:

Calculated opening and closing force = 535 N
(incl. wind load)

[1] This value must be determined on site by the relevant fire protection authorities or the planning office based on DIN 18232-2.

Result: selection of the drive and related mounting bracket set

The appropriate drive and related mounting bracket set must be determined based on the calculated travel length (step 5) and the required opening and closing force (step 6).

The drive is selected mainly on the basis of the calculated opening and closing force (see pages 26/27 – Appendix 2).

To determine the associated mounting bracket set, the minimum sash height must be checked depending on the travel length in the corresponding tables on the order pages.

Planning example:

Travel	500 mm
Sash height	850 mm
Calculated opening and closing force required	535 N

Result:

Selected drive system:

ELTRAL K30 Synchro / K-17833-00-0-*

Selected mounting bracket set:

K30 / K-18157-00-0-* mounting bracket set

K30 mounting bracket set

Frame installation (FI)

for Tilt-Only and Top-Hung sashes, inwards

Versions / Order numbers

Profile type	Order number
Aluminium / Timber / PVC ^[3]	K-18157-00-0-*

Minimum sash height depending on travel

Travel [mm]	300	400	500
Minimum sash height [mm]	350	550	700

Extract from order pages

RWA air supply

Adequately sized supply air openings are always required to ensure that the smoke and heat extraction system functions safely. The supply air openings must be fully located in the low-smoke layer and must be at least 1.5 times larger than the extraction openings. By means of a kind of "chimney effect", these boost the thermal uplift and thus ensure that smoke gases are drawn upwards and extracted more quickly.

Air supply opening: door

We recommend the use of our ELTRAL TA 60 door drive

Air supply opening: window

There are a number of drive types available for use as drive units for air supply openings, for example chain and spindle drives as well as RWA opening systems.

Planning – selecting the drive system – Appendix 1

Calculating the geometric smoke extraction area

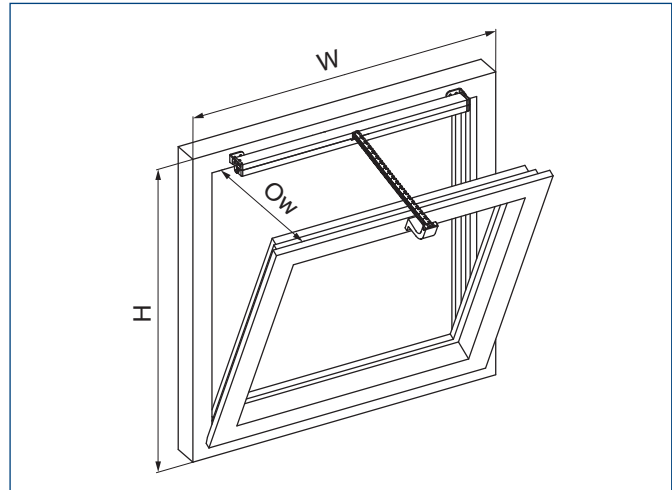


Depending on the planning basis, a distinction is made between the aerodynamic and geometric smoke extraction area.

The German Model Building Regulation and associated regional building regulations generally require a geometric ventilation area for the removal of smoke from stairwells.

Planning example:

- Stipulated smoke extraction area $A_g = 1 \text{ m}^2$
- Number of facade openings = 2 Tilt-Only windows
- Stipulated extraction area per facade opening = 0.5 m^2
- Clear sash width $W = 1.20 \text{ m}$
- Sash profile thickness = 75 mm



In principle, an opening angle of 60° should be sought after!

Calculation formula:

$$A_g = W \times O_w$$

Calculation of the clear opening width O_w for determining the drive travel length

$$O_w = A_g / W$$

Taking into account the sash profile thickness

$$\text{Travel} = O_w + \text{sash profile thickness}$$

Calculation formula:

$$A_g = W \times O_w$$

Calculation of the clear opening width O_w for determining the drive travel length

$$O_w = 0.5 \text{ m}^2 / 1.20 \text{ m} = 0.416 \text{ m}$$

$$\gg 0.416 \sim 416 \text{ mm}$$

Taking into account the sash profile thickness

$$\text{Travel} = 416 \text{ mm} + 75 \text{ mm} = 491 \text{ mm}$$

Result:

A drive with a travel length of 500 mm is required!

Legend:

- A_g = geometric smoke extraction area [m^2]
- W = clear sash width [m]
- O_w = clear opening width [m]
- H = clear sash height [m]

Be aware of the installation situation:

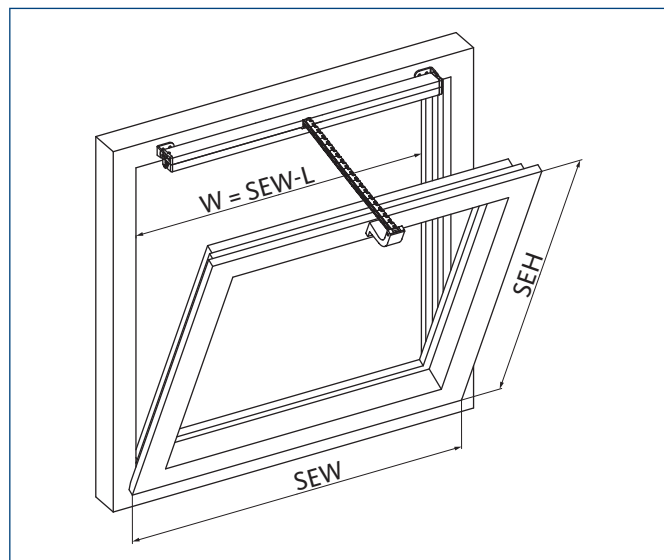
When making calculations, further factors must be taken into consideration, for example the clearance to the ceiling or the window arrangement.
Need help with planning? Please feel free to contact your field consultant.



If an aerodynamic smoke extraction area is required, as is the case in special structures and fire protection concepts in particular, this first requires the use of a smoke outlet and therefore a natural smoke and heat exhaust ventilator (NSHEV). In order to calculate the smoke extraction area, a correction factor (flow rate coefficient) must first be determined experimentally as described in EN 12101-2.

Planning example:

- Stipulated smoke extraction area $A_{a \text{ (total)}} = 6 \text{ m}^2$
- Facade openings = Tilt-Only sash, inward-opening
- Sash external width $SEW = 1400 \text{ mm}$
- Sash external height $SEH = 2000 \text{ mm}$
- Flow rate coefficient $C_v = 0.26$
- Exhaust dimension $L = 12 \text{ mm}$



1. Calculating the geometric reference surface A_v :

$$A_v = W \times H$$

($W = SEW - \text{exhaust dimension } L^*$)

($H = SEH - \text{exhaust dimension } L^*$)

2. Calculating the aerodynamic opening area A_a for 1 window

$$A_a = A_v \times C_v^{**}$$

3. Determining the number of windows n using the stipulated smoke extraction area $A_{a \text{ (total)}}$ based on A_a

$$n = A_{a \text{ (total)}} / A_a$$

1. Calculating the geometric reference surface A_v :

$$A_v = 1388 \text{ mm} \times 1988 \text{ mm} = 2.76 \text{ m}^2$$

($W = 1400 \text{ mm} - 12 \text{ mm}$)

($H = 2000 \text{ mm} - 12 \text{ mm}$)

2. Calculating the aerodynamic opening area A_a for 1 window

$$A_a = 2.76 \text{ m}^2 \times 0.26 = 0.72 \text{ m}^2$$

3. Determining the number of windows n using the stipulated smoke extraction area $A_{a \text{ (total)}}$ based on A_a

$$n = 6 \text{ m}^2 / 0.72 \text{ m}^2 = 8.3$$

Result:

In order to achieve the required 6 m^2 smoke extraction area, 9 NSHEV elements are required!

* The exhaust dimension L is based on the system/profile used and can be found in the corresponding planning documents.

** The flow rate coefficient C_v is based on the aspect ratios of the sash (sash external width/sash external height), as well as the opening angle. The flow rate coefficient can be found in the corresponding planning documents.

Legend:

A_a = aerodynamic opening area [m^2]
 $A_{a \text{ (total)}}$ = stipulated smoke extraction area [m^2]
 A_v = geometric reference surface [m^2]
 W = clear sash width [mm]
 C_v = flow rate coefficient

H = clear sash height [m]
 SEW = sash external width [mm]
 SEH = sash external height [mm]
 L = exhaust dimension [mm]
 n = number of window elements

Planning – selecting the drive system – Appendix 2

Calculating the window area / opening and closing force



Step 1: calculating the window area

■ Calculating window area A:

$$A = W \times H$$

Step 2: calculating the required opening and closing force

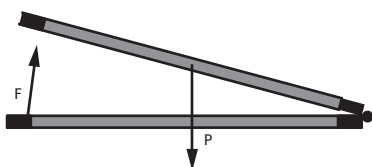
Calculation example: skylight

■ Step 1: calculating the drive force based on the sash weight P:

$$F_P = 5,4 \times P$$

■ Step 2: calculating the drive force based on the sash weight P and the snow load F_{CF} [1]:

$$F = F_P + F_{CF}$$



Planning example:

■ Clear sash width (W) = 1.20 m

■ Clear sash height (H) = 0.85 m

Calculation:

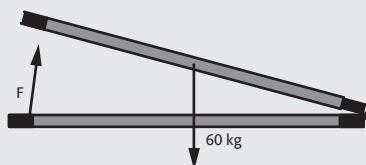
$$A = 1.20 \text{ m} \times 0.85 \text{ m} = 1.02 \text{ m}^2$$

Planning example: skylight

■ Window area (A) = 1.2 m²

■ Sash weight (P) = 60 kg

■ Snow load [1] = 0.6 kN/m² = F_{CF} = 720 N



Calculating the drive force based on the sash weight P:

$$F_P = 5,4 \times 60 \text{ kg} = 324 \text{ N}$$

Calculating the drive force based on the sash weight P and the snow load F_{CF} [1]:

$$F = 324 \text{ N} + 720 \text{ N} = 1044 \text{ N}$$

Result:

Based on the required opening and closing force calculated at 1104 N, the following drives may be used:

■ ELTRAL S160 Solo or ELTRAL S80 Synchro

[1] When using skylights, the snow loads must be taken into account. Snow load information can either be determined according to DIN 1055-5 or retrieved from the respective authorities.

Step 2: calculating the required opening and closing force

Calculation example: facade

- Step 1: calculating the drive force based on the sash weight P:

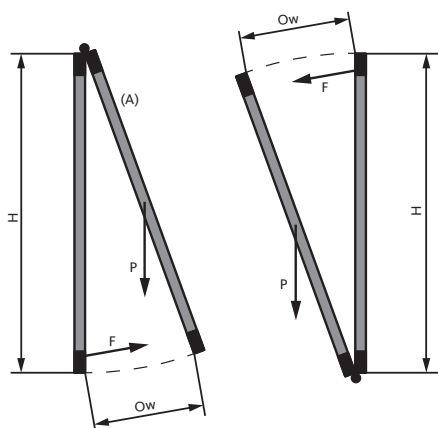
$$F_P = 5.4 \times P \times O_W / H$$

- Step 2: calculating the drive force based on the wind load $F_w^{[1]}$:

$$F_{PW} = F_w \times A / 2$$

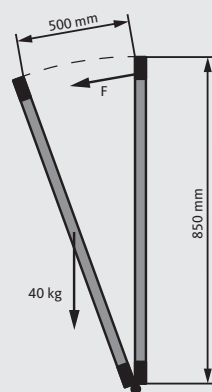
- Step 3: calculating the drive force based on the sash weight P and the wind load $F_w^{[1]}$:

$$F = F_P + F_{PW}$$



Planning example: Tilt-Only window

- Window area (A) = 1.02 m²
- Sash width (W) = 1.2 m or 1200 mm
- Sash height (H) = 0.85 m or 850 mm
- Sash weight (P) = 40 kg
- Clear opening width (O_w) = 500 mm
- Wind load ^[1] = 800 N/m²



Calculating the drive force based on the sash weight P:

$$F_P = 5.4 \times 40 \text{ kg} \times 500 / 850 \text{ mm} = 127 \text{ N}$$

Calculating the drive force based on the wind load $F_w^{[1]}$:

$$F_{PW} = 800 \text{ N/m}^2 + 1.02 \text{ m}^2 / 2 = 408 \text{ N}$$

Calculating the drive force based on the sash weight P and the wind load F_w :

$$F = 127 \text{ N} + 408 \text{ N} = 535 \text{ N}$$

Result:

Based on the required opening and closing force calculated at 535 N, the following drives may be used:

- ELTRAL K60 Solo or ELTRAL K30 Synchro

Chain drives – maximum drive forces

Max. opening and closing force	Chain drives					Spindle drives	
	K25	K30	KS 30/40	K35	K60	S80	S160
F _{max} – Solo	250 N	300 N	300 N	350 N	600 N	800 N	1600 N
F _{max} – Synchro	500 N	600 N	600 N	700 N	1200 N	1600 N	3200 N

[1] The wind loads must be taken into consideration. Wind load information can either be determined according to DIN 1055-4 or retrieved from the respective authorities.

Planning – selecting the drive system – Appendix 3

Risk assessment for power-operated windows in accordance with Machinery Directive 2006/42/EC



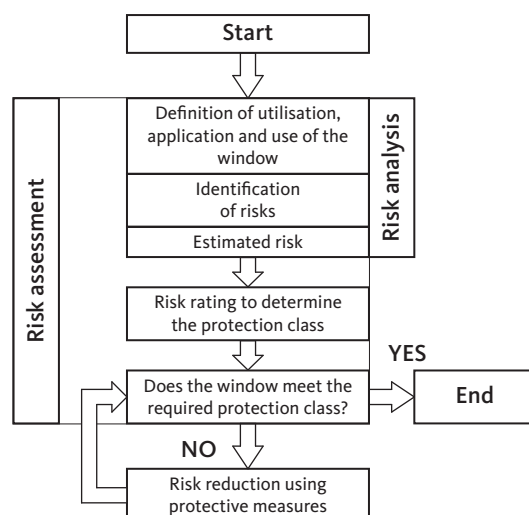
Definition of the term
"power-operated window"

Power-operated windows are facade or roof elements that are fitted with a drive system, and which are widely used as part of smoke and heat extraction systems (RWA) and ventilation systems in buildings of all types and uses. The automation of building openings may pose a potential risk, which must be dealt with by the installers, operators or maintainers using the appropriate protection measures.

Legal basis – excerpt from
Machinery Directive
2006/42/EC

"The manufacturer of a machine or its authorised agent must ensure that a risk assessment is performed in order to establish the safety and health requirements that are applicable to the machine. The machine must then be designed and built in accordance with the findings of this risk assessment."

Sequence of the risk
assessment



Protection classes and the
consequent protective
measures

Class	Protective measures
Protection Class 0	■ No protective measures required
Protection Class 1	■ Warning notes
Protection Class 2	■ Protection against access using structural measures or ■ Rounded, padded edges, closing forces from 80 N to 150 N, no shearing effect or ■ Acoustic warning signals or ■ Warning lamps or ■ EMERGENCY-STOP switch at the window or ■ Moving systems in front of the window to prevent access
Protection Class 3	■ Dead-man's control without overriding central control or ■ Movement stop at 25 mm before the end position over 10 seconds; triggering of a visual or acoustic signal; continued movement with signal to end position or ■ Slow sash movement of max. 5 mm/s or ■ Intervention width less than 8 mm or ■ Rounded, padded edges, closing forces less than 80 N, no shearing effect
Protection Class 4	■ Protection using contact-sensitive protective devices, e.g. switch rails, contact sensors, or ■ Protection using non-contact protective devices, e.g. light barriers, light grids, or ■ Dead-man's control with authorised operation for each window without overriding central control (e.g. key switch) or ■ Intervention width less than 4 mm or ■ Prevention of access using structural measures

Procedure for determining the protection classes

Carry out each step of the risk assessment in accordance with the table opposite and document the result (Protection Class: PC).

Besides the establishment of the protection class, it must also be established whether the windows meet the required protection classes or whether risk reduction through the specification of protective measures is required.

Compare the result with the specifications defined by the architect/planner.

Residual risk

A residual risk will still exist once the risk assessment has been completed and any risk-reduction measures have been implemented, for example:

- Unforeseen events may occur that were not taken into account in the risk assessment as a result of the manual operating elements being manipulated / automatic operation being modified.
- The power-operated windows / drives and fastenings may be damaged or destroyed by force majeure and thus represent a direct danger if they are able to fall out.

Step 1

Installation situation	Risk assessment	Risk parameters
■ Installation height of the sash's bottom edge, at least 2.5 m above the finished floor or fixed access level ■ Fixed facilities installed in front of the window to prevent access ■ Window sills or reveals that prevent free access to the window by the user	Low risk	E1
■ Installation height of the sash's bottom edge above the floor or access level less than 2.5 m and window is freely accessible	Greater risk	E2

Step 2

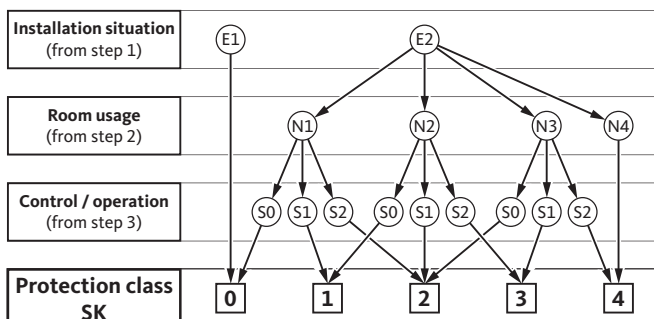
Room usage	Risk assessment	Risk parameters
■ Spaces used commercially where users have been familiarised with technical systems (e.g. offices, industrial premises)	Low risk	N1
■ Residential spaces where residents have been familiarised with technical systems ■ Spaces where the users/visitors are able to assess the risks or are supervised	Medium risk	N2
■ Spaces which are intended for regular use by people who cannot be instructed in the safe use of systems (e.g. sales premises, meeting locations)	High risk	N3
■ Spaces which are intended for regular use by persons requiring protection (e.g. kindergartens, schools, hospitals)	Very high risk	N4

Step 3

Control or operation	Risk assessment	Risk parameters
■ Manual operation without self-retention with visual contact to all windows (e.g. use of a key switch)	Very low risk	S0
■ Manual operation with self-retention with visual contact to all windows	Low risk	S1
■ Automatic operation (e.g. wind-rain control, building-control systems) or manual operation without visual contact to all windows	High risk	S2

Step 4

Determination of the protection class



Should you request it, we would be happy to provide you with a copy of our detailed manual "Risk assessment for power-operated windows in accordance with Machinery Directive 2006/42/EC".

Electric drive and opening systems (24 V)

Product overview



Designation	Chain drives						Spindle drives	
ELTRAL	K25	K30	KS 30/40 [1]	K35	K60		S80	S160
Suitable for use in facades	■	■	■	■	■		–	–
Tilt-Only sash, inward-opening	■	■	■	■	■		–	–
Top-Hung sash, outward-opening	■	■	■	■	■		■	■
Turn-Only sash, inward-opening	–	■	■	■	■		–	–
Suitable for use with skylights	–	■ [2]	■ [2]	■ [2]	■ [2]		■	■
Tested and approved acc. to EN 12101-2			–				–	–
Operating voltage	24 V ±15%	24 V ±15%	24 V ±15%	24 V ±15%	24 V ±15%		24 V ±15%	
Push force (N)	250 [2]	300	300 [2]	350 [2]	600 [2]	300	800	1600
Pull force (N)	250	300	300	350	600	300	800	1600
Nominal force/torque (N)/(Nm)	–	–	–	–	–	–	–	–
Nominal current (A)	0.8	0.9	0.9	0.9	0.8		1.0	0.7
Breaking current (A)	1.0	1.2	1.2	1.2	1.2	1.0	1.4	2.5
Travel speed (mm/s)	8.0/12.0/13.5 [2]	8.9	9.0	9.6	8.0/12.0/13.5 [2]		10.0/9.0 [3]	4.0/3.8 [3]
Opening width / travel (mm)	200 300 400 500 600 800	300 – 500 variable adjustable	200 – 400 variable adjustable	100/200/300 300/400/500 600/700/800 variable adjustable	200 400 500 600 800 1000	500 600	300 500 750 1000	
Protection class (IP)	32	32	30	32	32		65	
Duty ratio (%)	30	30	30	30	30		30	
Locking force / locking moment (N)/(Nm)	3000	2000	1000	3000	3000		5000 [4]	
Operating temperature (°C)	-5 to +75	-5 to +65	-5 to +65	-5 to +65	-5 to +75		-5 to +75	
Synchronous control	optional	optional	optional	optional	optional		optional	
Concealed installation	■	–	–	■	–		–	
Dimensions LxHxD (mm)	Lx26x41 [2]	456x43x60	386x38x58	Lx35x35 [2]	Lx40x56 [2]		ø 36 x (342 + travel)	
Connecting cable	Silicone 3 m / 3-core	Silicone 2 m / 3-core (Solo) 2.5 m / 5-core (Synchro)	2 m / 3-core (Solo) 2.5 m / 5-core (Synchro)	Silicone 2 m / 3-core (Solo) 2.5 m / 5-core (Synchro)	Silicone 5 m / 5-core		Silicone 2.5 m / 3-core	

[1] Due to its plastic case, the ELTRAL KS 30/40 drive is not approved for RWA use within the EU!

[2] Depending on travel / force-displacement curve

[3] Solo / Synchro

[4] Depends on fixing

Locking drives						RWA opening systems			Fanlight opening system VENTUS F 300		Door drive
VAN	VA25	OA	VA35	VA-1 R/4 VA-1 L/4	VA-2/12 VA-2/20	RWA 1000 with S100	RWA 1050 with S60	RWA 1100 with S100	S 24 L	300/24	TA 60
■	■	■	■	■	■	■	■	■	■	■	■
■	■	■	■	■	■	■	–	–	■	■	–
■	■	■	■	■	■	–	–	■	–	–	–
■	■	■	■	■	■	■	■	–	–	–	■
–	–	–	–	–	–	–	–	–	–	–	–
			–						–	–	–
24 V ±15%	24 V ±15%	24 V ±15%	24 V ±15%	24 V ±15%	24 V ±15%	24 V ±15%	24 V ±15%	24 V ±15%	24 V ±15%	24 V ±15%	24 V ±15%
–	–	–	–	–	–	–	–	–	–	–	600
–	–	–	–	–	–	–	–	–	–	–	200
600 / –	600 / –	– / 10	600 / –	600 / –	600 / –	1000 / –	600 / –	1000 / –	1200 / –	3000 / –	216
1.5	0.4	0.8	0.6	0.6	0.6	0.8	0.8	0.8	0.7	0.8	0.8
1.5	0.4	1.1	0.8	0.8	0.8	1.4	1.2	1.4	0.9	Limit switch	1.4
6.0	2.8	20°/s	3.2	4.2	4.2	2.6	5.8	2.6	0.9	1.0	3°/s
18 / 35 adjustable	17 / 36 adjustable	90° / 180° adjustable	18	–	–	100 200 300	100 150 200 250	100 150 200 300	50 or 70 adjustable	40 – 70 adjustable	93°
43	32	32	32	32	32	65	65	65	54	54	32
30	30	30	30	30	30	20	20	20	20	20	30
850	1000	22	1000	1000	1000	5000 [4]	5000 [4]	5000 [4]	–	–	3000 [4]
–5 to +75	–5 to +75	–5 to +75	–5 to +65	–5 to +65	–5 to +65	–5 to +75	–5 to +75	–5 to +75	–5 to +75	–5 to +75	–5 to +75
–	optional	–	optional	optional	optional	electric	electric	electric	–	–	optional
■	■	–	–	–	–	–	–	–	–	–	–
353x25x25	473x25x25	156x40x83.5	420x35x35	420x35x35	1200/2000x 35x35	(256+travel) x ø 36	(256+travel) x ø 36	(256+travel) x ø 36	210x36x76	270x55x102	421x40x101
Silicone 2 m / 3-core	Silicone 3.0 m / 2-core	Silicone 3.0 m / 4-core	Silicone 3.0 m / 4-core	Silicone 2.5 m / 4-core	Silicone 2.5 m / 4-core	Silicone 2.5 m / 2-core	Silicone 2.5 m / 2-core	Silicone 2.5 m / 2-core	Connection plug for 2-core connecting cable	1.5 m / 4-core	Silicone 5 m / 5-core

Chain drives (24 V)

Range of application



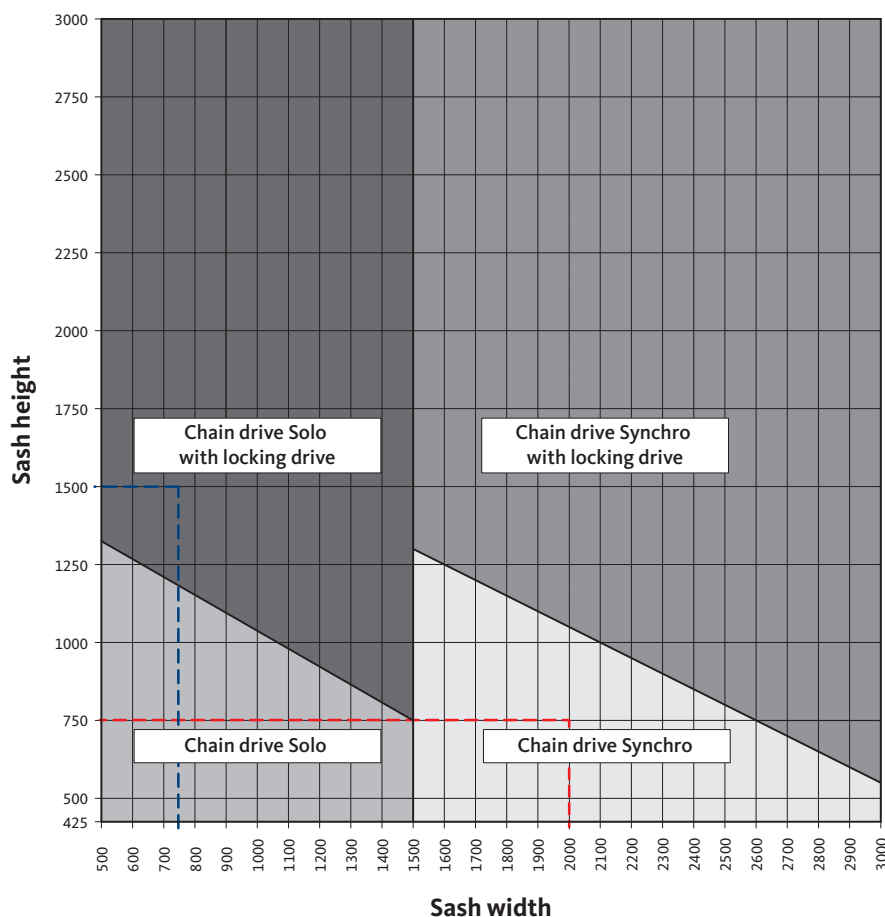
With their compact design and pleasant appearance, chain drives from the Gretschnig-Unitas Group are an ideal solution for the fast, electromotor-driven opening of exhaust air apertures and for room ventilation.

The drives are surface-mounted and perfectly suited to any window type and style thanks to their flat design. Depending on the window profile, the drives can also be installed in a concealed manner.

The wide range of drives and mounting bracket sets enables virtually any installation situation and installation type. Whether surface-mounted or concealed, they can be used on inward or outward-opening Tilt-Only, Top-Hung or Turn-Only windows or skylights.

The integrated intelligent technology enables the synchronous control of several chain drives, meaning that even large and heavy window elements can be moved easily.

The combination of chain drives and locking drives offers an added bonus with regard to security and weather protection.



Range of application

Determination of which drive type to use (Solo/Synchro drive, with or without locking drive) based on the sash width and sash height.

■ Example 1:

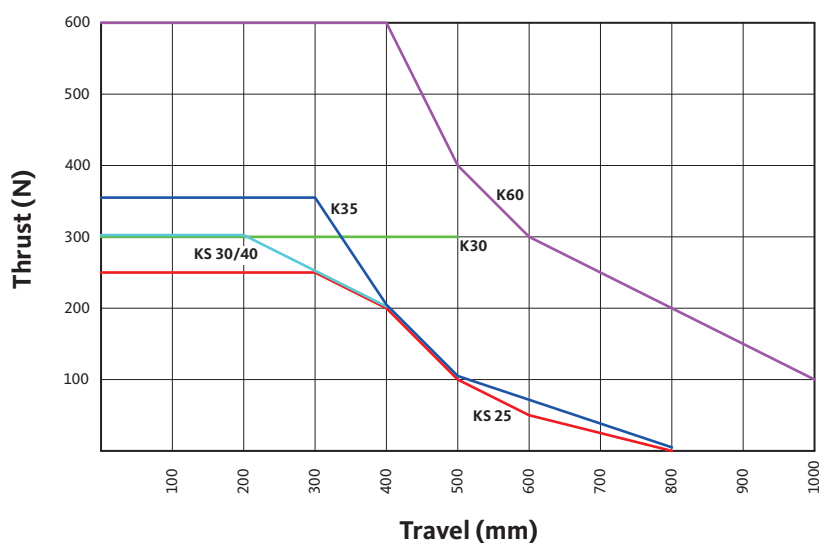
Tilt-Only window with the dimensions:
750 x 1500 mm (W x H)

A Solo chain drive with locking drive should be used

■ Example 2:

Tilt-Only window with the dimensions:
2000 x 750 mm (W x H)

A Synchro chain drive should be used



Thrust diagram

depending on travel

Determination of which chain drive is required based on the travel and the calculated opening and closing force (Appendix 2, pages 26+27).

The force is doubled for Synchro applications.

- ELTRAL K25 | ■ ELTRAL KS 30/40
- ELTRAL K30 | ■ ELTRAL K60
- ELTRAL K35

All values are reference values which may vary depending on the profile used and the height of the building. The maximum window size and the permitted lengths of unmounted profile jambs must be agreed with the system supplier and/or window manufacturer. The instructions of the particular profile system, hardware and glass manufacturers must be observed. The maximum length of unmounted profile jambs is 1500 mm.

Chain drives (24 V)

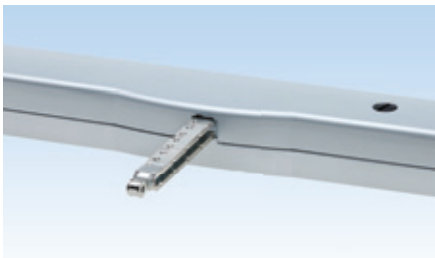
Finishes



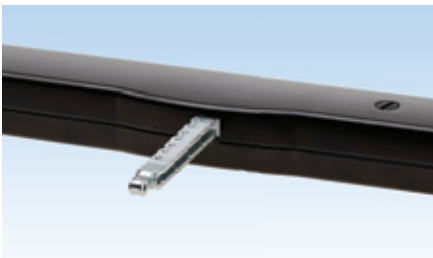
Colours – chain drives

Drive	Silver / EV1 anodised	Silver painted	Black painted	White painted
ELTRAL K25	■	–	–	–
ELTRAL K30	–	RAL 9006	RAL 9005	RAL 9010
ELTRAL KS 30/40	–	RAL 7047	RAL 9004	RAL 9003
ELTRAL K35 – drive	–	–	RAL 9005	–
ELTRAL K35 – covers	■	–	–	RAL 9016
ELTRAL K60	■	–	–	–

Colour example: ELTRAL KS 30/40



RAL 7047 – silver painted (telegrey 4)



RAL 9004 – painted black (signal black)



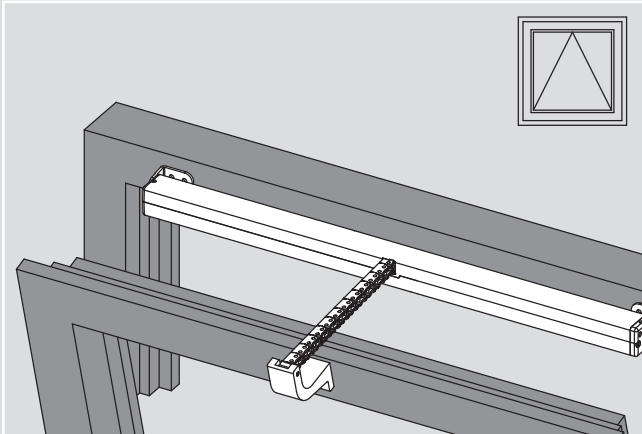
RAL 9003 – painted white (signal white)

Chain drives (24 V)

Installation types and stop variants



Tilt-Only sash, inward-opening, frame installation

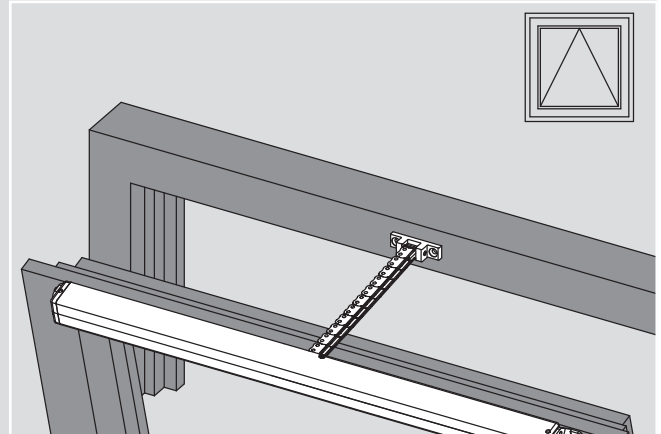


surface-mounted



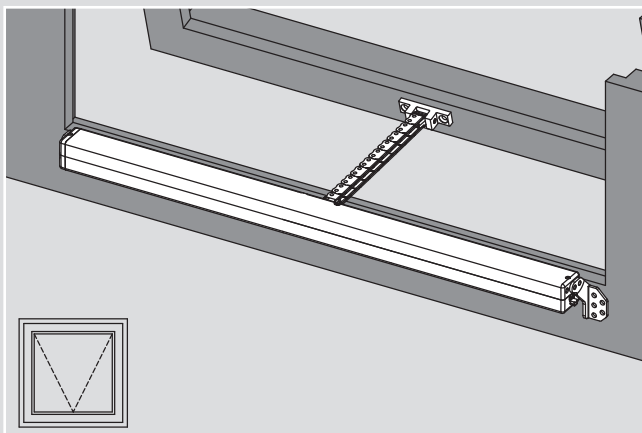
concealed

Tilt-Only sash, inward-opening, sash installation

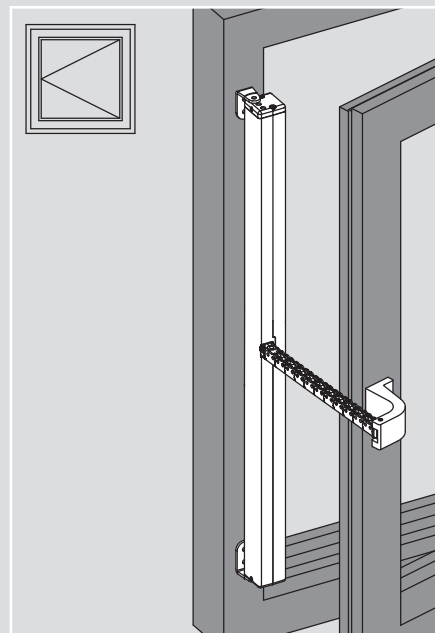


surface-mounted

Top-Hung sash, outward-opening, frame installation

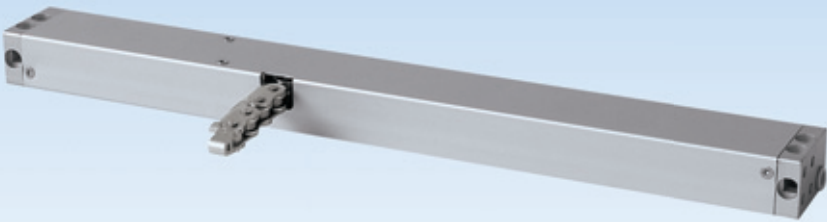


Turn-Only sash, inward-opening, frame installation



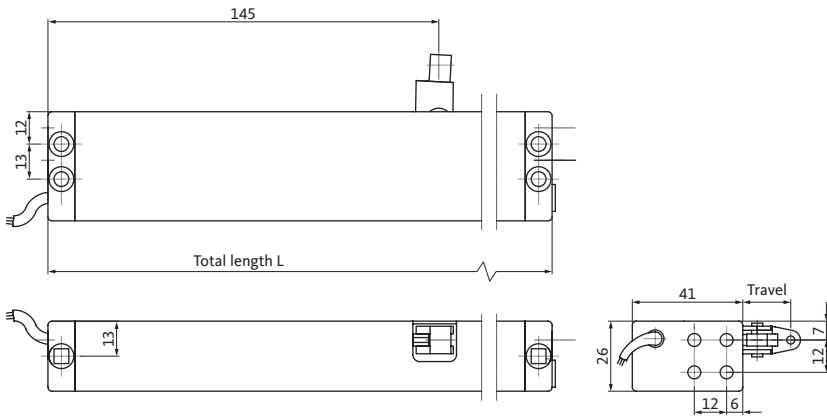
ELTRAL K25 chain drive

Pull/push force: 250 N



Product features

- NSHEV-tested and certified
- Compact size
- Stainless steel chain
- Integrated microprocessor control unit
- Synchronised tandem operation ^[1]
- Automatic limit stop switch
- Integrated overload cut-off
- Reduced closing speed (max. 5 mm/s) for the last 50 mm – corresponds to protection class SK3 ^[4]
- Suitable for small sash heights from 325 mm
- Anodised aluminium housing



Technical data	
Drive	ELTRAL K25
Nominal voltage	24 V DC $\pm$ 15%
Pull/push force	250 N / 250 N ^[3]
Nominal current	0.8 A
Breaking current	1.0 A
Travel speed	8 mm/s; 12 mm/s ^[1] ; 13.5 mm/s ^[2]
Connecting cable ^[5]	Silicone; 3 m; 3-core

Push force / runtime / total length			
Travel [mm]	Push force [N]	Runtime [s]	Total length [mm]
200	250	25	335
300	250	37	380
400	200	50	430
500	100	42	545
600	50	50	545
800	50	59	625

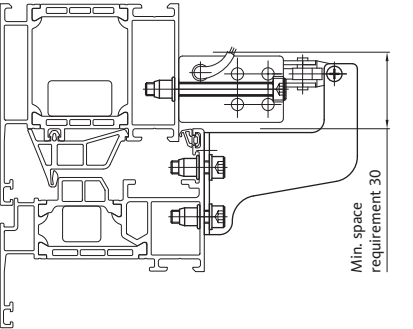
[1] From 500 mm travel | [2] From 800 mm travel | [3] Depending on travel
[4] See pages 28/29 "Risk assessment for power-operated windows in accordance with Machinery Directive 2006/42/EC"
[5] Special cable lengths available on request

ELTRAL K25 chain drive			
Designation	Consists of	Travel	Order number
ELTRAL K25 – Solo	1 chain drive	200 mm	K-17646-20-0-1
		300 mm	K-17646-30-0-1
		400 mm	K-17646-40-0-1
		500 mm	K-17646-50-0-1
		600 mm	K-17646-60-0-1
		800 mm	K-17646-80-0-1
Designation	Consists of	Travel	Order number
ELTRAL K25 – Synchro	2 chain drives	200 mm	K-17581-20-0-1
		300 mm	K-17581-30-0-1
		400 mm	K-17581-40-0-1
		500 mm	K-17581-50-0-1
		600 mm	K-17581-60-0-1
		800 mm	K-17851-80-0-1

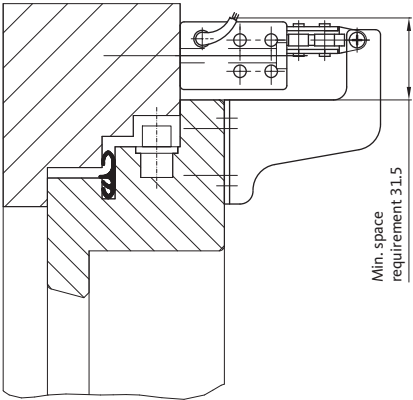
ELTRAL K25 chain drive with VA25 locking drive			
Designation	Consists of	Travel	Order number
ELTRAL K25 – Solo with VA25	1 chain drive 1 locking drive	200 mm	K-17722-20-0-1
		300 mm	K-17722-30-0-1
		500 mm	K-17722-50-0-1
Designation	Consists of	Travel	Order number
ELTRAL K25 – Synchro with VA25	2 chain drives 1 locking drive	200 mm	K-17723-20-0-1
		300 mm	K-17723-30-0-1
		500 mm	K-17723-50-0-1

ELTRAL K25 chain drive

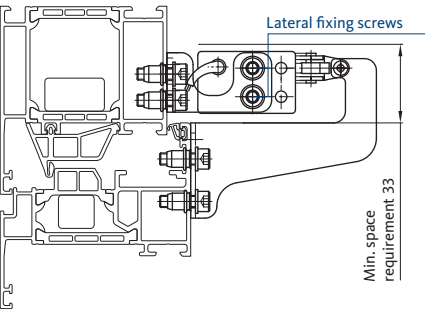
Mounting bracket sets – surface-mounted installation



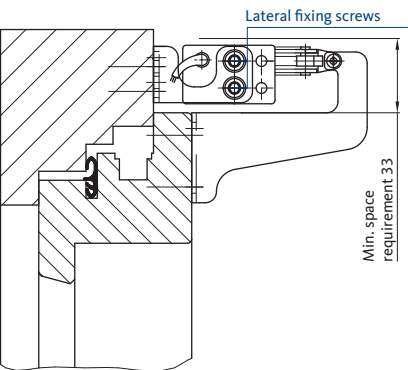
Frame installation | Tilt-Only sash, inwards | Aluminium profile



Frame installation | Tilt-Only sash, inwards | Timber profile



Frame installation | Tilt-Only sash, inwards | Aluminium profile



Frame installation | Tilt-Only sash, inwards | Timber profile

K25 mounting bracket set

Direct frame installation (FI)
for Tilt-Only and Top-Hung sashes, inwards
without lateral mounting brackets

Versions / Order numbers	
Profile type	Order number
Aluminium ^[1]	K-17593-00-0-8
Timber / PVC ^[2]	K-17635-00-0-8

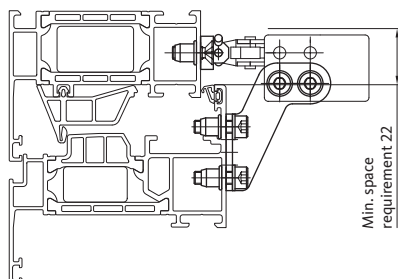
Minimum sash height depending on travel						
Travel [mm]	200	300	400 ^[3]	500 ^[3]	600 ^[3]	800 ^[3]
Minimum sash height [mm]	425	500	600	750	950	1250

K25 mounting bracket set

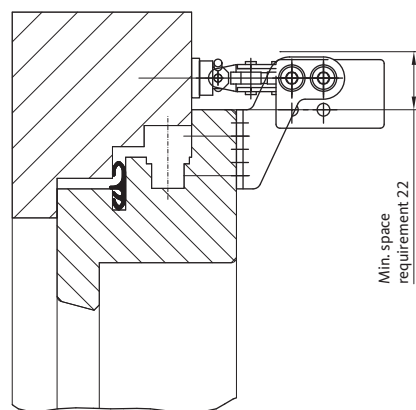
Frame installation (FI)
for Tilt-Only and Top-Hung sashes, inwards

Versions / Order numbers	
Profile type	Order number
Aluminium ^[1]	K-17594-00-0-8
Timber / PVC ^[2]	K-17636-00-0-8

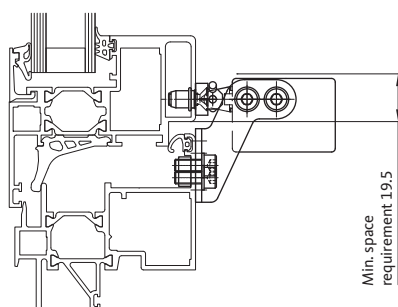
Minimum sash height depending on travel						
Travel [mm]	200	300	400 ^[3]	500 ^[3]	600 ^[3]	800 ^[3]
Minimum sash height [mm]						
Pivotable (1 lateral fixing screw)	250	350	550	750	950	1300
Fixed (2 lateral fixing screws)	425	500	600	750	950	1300



Sash installation | Tilt-Only sash, inwards | Aluminium profile



Sash installation | Tilt-Only sash, inwards | Timber profile



Frame installation | Top-Hung sash, outwards | Aluminium profile

K25 mounting bracket set

Sash installation (SI)

for Tilt-Only sash, inwards

Frame installation (FI)

for Top-Hung sash, outwards

Versions / Order numbers

Profile type	Order number
Aluminium ^[1]	K-17595-00-0-8
Timber / PVC ^[2]	K-17637-00-0-8

Minimum sash height depending on travel

Travel [mm]	200	300	400 ^[3]	500 ^[3]	600 ^[3]	800 ^[3]
Minimum sash height SI [mm]	325 ^[4]	450 ^[4]	550 ^[4]	700 ^[4]	800 ^[4]	1100 ^[4]
Minimum sash height FI [mm]	325	450	–	–	–	–

K25 mounting bracket set with base plate

Frame installation (FI)

for Top-Hung sash, outwards

Versions / Order numbers

Profile type	Order number
Aluminium ^[1]	K-17706-00-0-8

Minimum sash height depending on travel

Travel [mm]	200	300	400	500	600	800
Minimum sash height [mm]	325	450	–	–	–	–

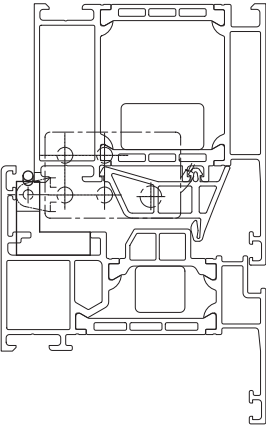
Note: for Synchro version, order 2 mounting bracket sets

[1] With fixing screws | [2] Without fixing screws | [3] Only for Tilt-Only sash, inwards (tensile load)

[4] Depending on profile; see profile-specific installation drawings

ELTRAL K25 chain drive

Mounting bracket sets – concealed installation



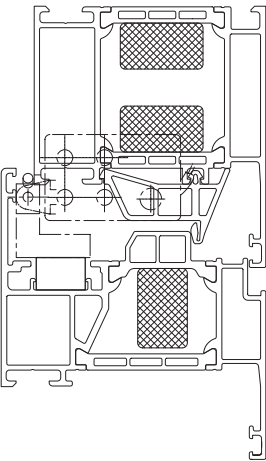
Concealed frame installation | Tilt-Only sash, inwards | Aluminium profile

S K25 mounting bracket set

Concealed frame installation (FI)
for inward-opening Tilt-Only sash and
outward-opening Top-Hung sash

Versions / Order numbers	
Profile type	Order number
Aluminium ^[2]	K-17874-00-0-0

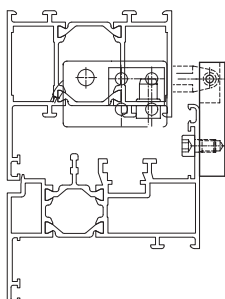
Minimum sash height depending on travel						
Travel [mm]	200	300	400 ^[1]	500 ^[1]	600 ^[1]	800 ^[1]
Minimum sash height [mm]	500	650	800	1000	1200	1400



Packer

for mounting bracket set S K25 | K-17874-00-0-0

Versions / Order numbers	
Profile type	Order number
Aluminium	K-17875-00-0-0



Concealed frame installation | Tilt-Only sash, inwards | Aluminium profile

W K25 mounting bracket set

for aluminium profiles, general

Concealed frame installation (FI)

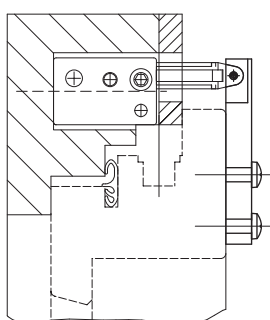
for inward-opening Tilt-Only sash and outward-opening Top-Hung sash

Versions / Order numbers

Profile type	Order number
Aluminium ^[2]	K-17880-00-0-1

Minimum sash height depending on travel

Travel [mm]	200	300	400 ^[1]	500 ^[1]	600 ^[1]	800 ^[1]
Minimum sash height [mm]	500	650	800	1000	1200	1400



Concealed frame installation | Tilt-Only sash, inwards | Timber profile

K25 mounting bracket set

for timber profiles, general

Concealed frame installation (FI)

for inward-opening Tilt-Only sash and outward-opening Top-Hung sash

Versions / Order numbers

Profile type	Order number
Timber ^[3]	K-17909-00-0-1

Minimum sash height depending on travel

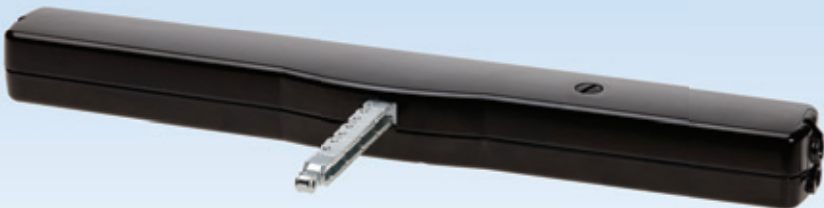
Travel [mm]	200	300	400 ^[1]	500 ^[1]	600 ^[1]	800 ^[1]
Minimum sash height [mm]	500	650	800	1000	1200	1400

Note: further profile systems available on request

[1] Only for Tilt-Only sash, inwards (tensile load) | [2] With fixing screws | [3] Without fixing screws

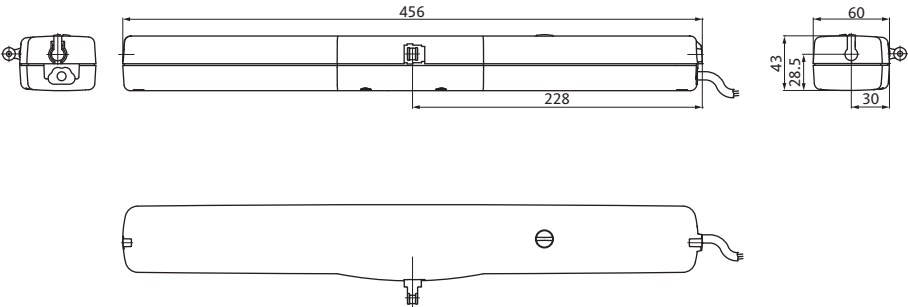
ELTRAL K30 chain drive

Pull/push force: 300 N



Product features

- NSHEV-tested and certified
- Compact size
- Integrated microprocessor control unit
- Synchronised tandem operation
- Automatic limit stop switch
- Independent of overlap dimension
- Integrated overload cut-off
- Reduced closing speed (max. 5 mm/s) for the last 50 mm – corresponds to protection class SK3 ^[1]
- Suitable for small sash heights from 350 mm
- Travel adjustment in 3 stages
- Automatic gasket relief
- Painted aluminium housing



Technical data

Drive	ELTRAL K30
Nominal voltage	24 V DC $\pm$ 15%
Pull/push force	300 N / 300 N
Nominal current	0.9 A
Breaking current	1.2 A
Travel speed	8.9 mm/s
Connecting cable ^[2]	Silicone; 2 m, 3-core (Solo) / 2.5 m, 5-core (Synchro)

Push force / runtime / total length

Travel [mm]	Push force [N]	Runtime [s]	Total length [mm]
300	300	34	456
400	300	45	456
500	300	56	456

[1] See pages 28/29 "Risk assessment for power-operated windows in accordance with Machinery Directive 2006/42/EC"
[2] Special cable lengths available on request

ELTRAL K30 chain drive			
Designation	Consists of	Travel	Order number
ELTRAL K30 – Solo	1 chain drive	300 mm	K-17832-00-0-*
		400 mm	
		500 mm	
Designation	Consists of	Travel	Order number
ELTRAL K30 – Synchro	2 chain drives	300 mm	K-17833-00-0-*
		400 mm	
		500 mm	

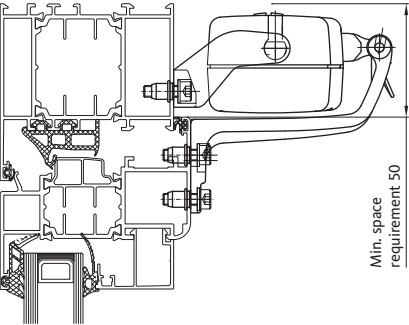
ELTRAL K30 chain drive with VAN locking drive			
Designation	Consists of	Travel	Order number
ELTRAL K30 – Solo with VAN	1 chain drive 1 locking drive	300 mm	K-18023-00-0-*
		400 mm	
		500 mm	
Designation	Consists of	Travel	Order number
ELTRAL K30 – Synchro with VAN	2 chain drives 1 locking drive	300 mm	K-18024-00-0-*
		400 mm	
		500 mm	

Note: Mounting bracket sets must be ordered separately (see following pages)

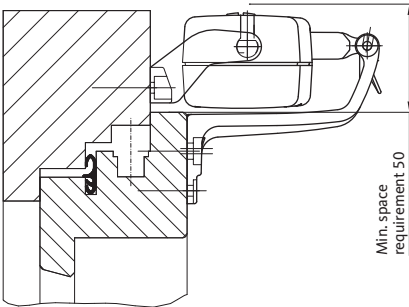
* = colour type: 1 = silver painted (RAL 9006), 6 = black painted (RAL 9005), 7 = white painted (RAL 9010)

ELTRAL K30 chain drive

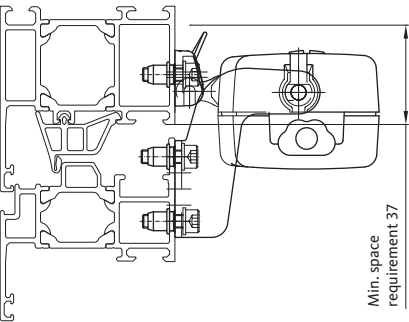
Mounting bracket sets



Frame installation | Tilt-Only sash, inwards | Aluminium profile



Frame installation | Tilt-Only sash, inwards | Timber profile



Sash installation | Tilt-Only sash, inwards | Aluminium profile

K30 mounting bracket set

Frame installation (FI)
for Tilt-Only and Top-Hung sashes, inwards

Versions / Order numbers	
Profile type	Order number
Aluminium / Timber / PVC ^[3]	K-18157-00-0-*

Minimum sash height depending on travel			
Travel [mm]	300	400	500
Minimum sash height [mm]	350	550	700

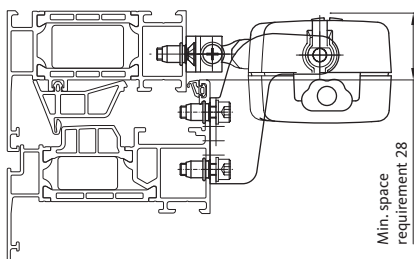
K30 mounting bracket set

Sash installation (SI)
for Tilt-Only sash, inwards

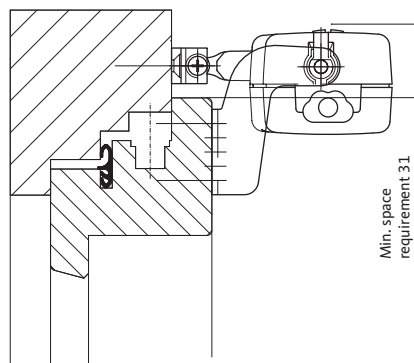
Frame installation (FI)
for Top-Hung sash, outwards ^[1]

Versions / Order numbers	
Profile type	Order number
Aluminium / Timber / PVC ^[3]	K-17841-00-0-*

Minimum sash height depending on travel			
Sash installation, Tilt-Only sash, inwards			
Travel [mm]	300	400	500
Minimum sash height [mm]	500	700	900
Frame installation, Top-Hung sash, outwards			
Travel [mm]	300	400	500
Minimum sash height [mm]	350	450	600



Sash installation | Tilt-Only sash, inwards | Aluminium profile



Sash installation | Tilt-Only sash, inwards | Timber profile

K30 mounting bracket set

Sash installation (SI)

for Tilt-Only sash, inwards

Frame installation (FI)

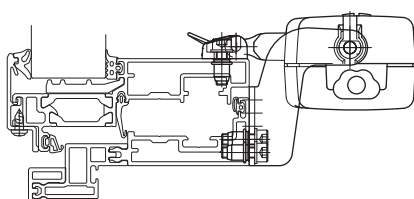
for Top-Hung sash, outwards^[2]

Versions / Order numbers

Profile type	Order number
Aluminium / Timber / PVC ^[3]	K-17843-00-0-*

Minimum sash height depending on travel

Sash installation, Tilt-Only sash, inwards			
Travel [mm]	300	400	500
Minimum sash height [mm]	500	700	900
Frame installation, Top-Hung sash, outwards			
Travel [mm]	300	400	500
Minimum sash height [mm]	350	450	600



Frame installation | Lowering Top-Hung sash, outwards | Aluminium profile

K30 mounting bracket set

Frame installation (FI)

for lowering Top-Hung sash, outwards^[2]

Versions / Order numbers

Profile type	Order number
Aluminium / Timber / PVC ^[3]	K-17840-00-0-*

Minimum sash height depending on travel

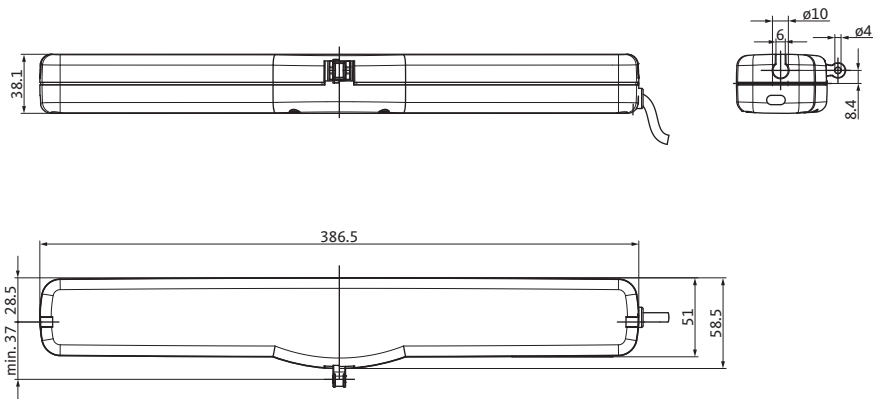
Travel [mm]	300	400	500
Minimum sash height [mm]	350	450	600

* = colour type: 1 = silver painted (RAL 9006), 6 = black painted (RAL 9005), 7 = white painted (RAL 9010)

[1] Overlap max. 4 mm | [2] Overlap min. 4 mm | [3] Without fixing screws

ELTRAL KS 30/40 chain drive

Pull/push force: 300 N



Product features

- Compact size
- Integrated microprocessor control unit
- Synchronised tandem operation
- Automatic limit stop switch
- Independent of overlap dimension
- Integrated overload cut-off
- Suitable for small sash heights from 250 mm
- Travel adjustment in 3 stages
- Automatic gasket relief
- Quick and simple installation with the accompanying installation template
- Plastic housing

Note:

Due to the plastic housing, the use of this drive in RWA systems is **not** permitted within the EU.

Technical data	
Drive	ELTRAL KS 30/40
Nominal voltage	24 V DC $\pm$ 15%
Pull/push force	300 N / 300 N ^[1]
Nominal current	0.9 A
Breaking current	1.2 A
Travel speed	9.0 mm/s
Connecting cable ^[2]	2 m, 3-core (Solo) / 2.5 m, 5-core (Synchro)

Push force / runtime / total length			
Travel [mm]	Push force [N]	Runtime [s]	Total length [mm]
200	300	22	386
300	250	33	386
400	200	44	386

[1] Depending on travel
[2] Special cable lengths available on request

ELTRAL KS 30/40 chain drive			
Designation	Consists of	Travel	Order number
ELTRAL KS 30/40 – Solo	1 chain drive	200 mm	K-17434-00-0-*
		300 mm	
		400 mm	
Designation	Consists of	Travel	Order number
ELTRAL KS 30/40 – Synchro	2 chain drives	200 mm	K-17436-02-0-*
		300 mm	
		400 mm	

ELTRAL KS 30/40 chain drive with VAN locking drive			
Designation	Consists of	Travel	Order number
ELTRAL KS 30/40 – Solo with VAN	1 chain drive 1 locking drive	200 mm	K-18025-00-0-*
		300 mm	
		400 mm	
Designation	Consists of	Travel	Order number
ELTRAL KS 30/40 – Synchro with VAN	2 chain drives 1 locking drive	200 mm	K-18026-00-0-*
		300 mm	
		400 mm	

Special design: ELTRAL KS 30/40 chain drive with 5 m connecting cable			
Designation	Consists of	Travel	Order number
ELTRAL KS 30/40 – Solo	1 chain drive	200 mm	K-17434-05-0-*
		300 mm	
		400 mm	

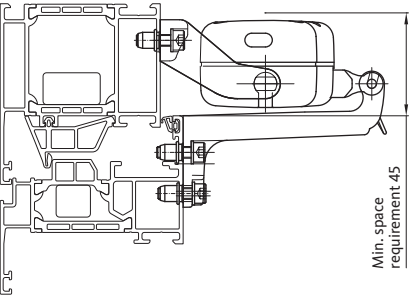
Note: mounting bracket sets for standard applications are included in the scope of delivery

Mounting bracket sets for special applications must be ordered separately (see following pages)

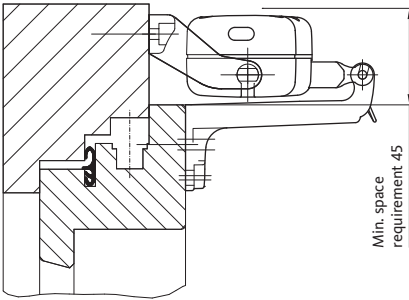
* = colour type: 1 = silver painted (RAL 7047), 6 = black painted (RAL 9004), 7 = white painted (RAL 9003)

ELTRAL KS 30/40 chain drive

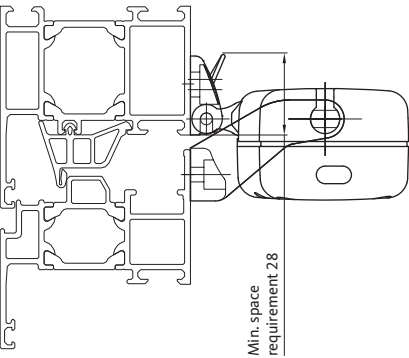
Mounting bracket sets



Frame installation | Tilt-Only sash, inwards | Aluminium profile



Frame installation | Tilt-Only sash, inwards | Timber profile



Sash installation | Tilt-Only sash, inwards | Aluminium profile

KS 30/40 mounting bracket set

Frame installation (FI)
for Tilt-Only and Top-Hung sashes, inwards

Versions / Order numbers	
Profile type	Order number
Aluminium / Timber / PVC ^[1]	contained in the scope of delivery

Minimum sash height depending on travel			
Travel [mm]	200	300	400
Minimum sash height [mm]	600	1100	1500

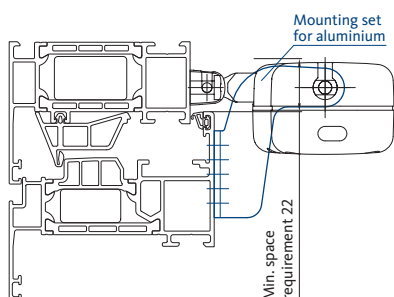
KS 30/40 mounting bracket set

Sash installation (SI)
for Tilt-Only sash, inwards

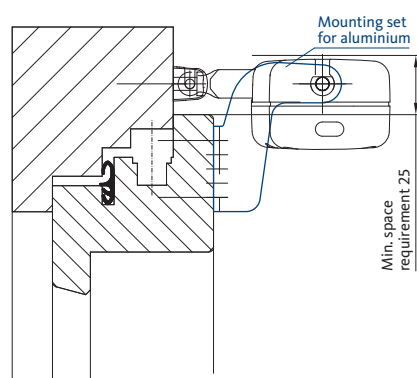
Frame installation (FI)
for Top-Hung sash, outwards

Versions / Order numbers	
Profile type	Order number
Aluminium / Timber / PVC ^[1]	contained in the scope of delivery

Minimum sash height depending on travel			
Travel [mm]	200	300	400
Minimum sash height SI [mm]	400	650	900
Minimum sash height FI [mm]	250	350	450



Sash installation | Tilt-Only sash, inwards | Aluminium profile



Sash installation | Tilt-Only sash, inwards | Timber profile

Mounting bracket set for aluminium

Sash installation (SI)

for Tilt-Only sash, inwards

Frame installation (FI)

for Top-Hung sash, outwards

Versions / Order numbers

Profile type	Order number
Aluminium / Timber / PVC ^[1]	K-17720-00-0-*

Minimum sash height depending on travel

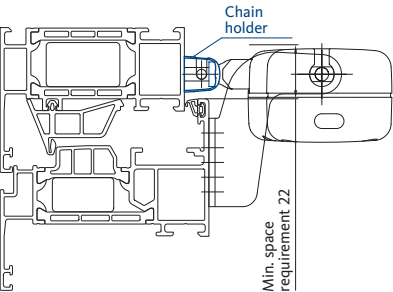
Travel [mm]	200	300	400
Minimum sash height SI [mm]	400	650	900
Minimum sash height FI [mm]	250	350	450

* = colour type: 1 = silver painted (RAL 7047), 6 = black painted (RAL 9004), 7 = white painted (RAL 9003)

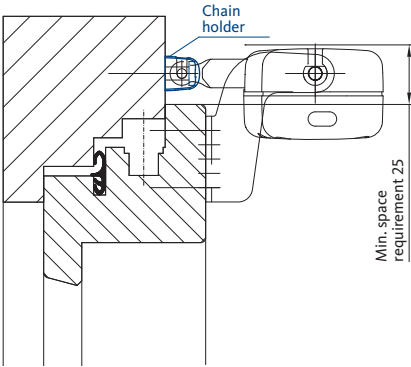
[1] Without fixing screws

ELTRAL KS 30/40 chain drive

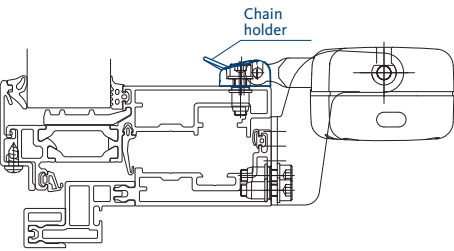
Mounting bracket sets



Sash installation | Tilt-Only sash, inwards | Aluminium profile



Sash installation | Tilt-Only sash, inwards | Timber profile



Frame installation | Lowering Top-Hung sash, outwards | Aluminium profile

Chain holder

Sash installation (SI)
for Tilt-Only sash, inwards

Frame installation (FI)
for Top-Hung sash, outwards

Versions / Order numbers	
Profile type	Order number
Aluminium / Timber / PVC ^[1]	K-17441-00-0-*

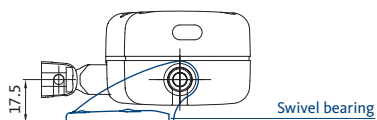
Minimum sash height depending on travel			
Travel [mm]	200	300	400
Minimum sash height SI [mm]	400	650	900
Minimum sash height FI [mm]	250	350	450

Chain holder

Frame installation (FI)
for lowering Top-Hung sash, outwards

Versions / Order numbers	
Profile type	Order number
Aluminium / Timber / PVC ^[1]	9-44272-00-0-*

Minimum sash height depending on travel			
Travel [mm]	200	300	400
Minimum sash height [mm]	250	350	450



Swivel bearing

Frame installation (FI)

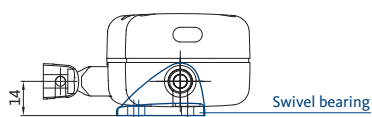
for Top-Hung sash, outwards

Versions / Order numbers

Profile type	Order number
Aluminium / Timber / PVC ^[1]	K-17440-00-0-*

Minimum sash height depending on travel

Travel [mm]	200	300	400
Minimum sash height [mm]	600	1100	1500



Swivel bearing

Frame installation (FI)

for skylights

Versions / Order numbers

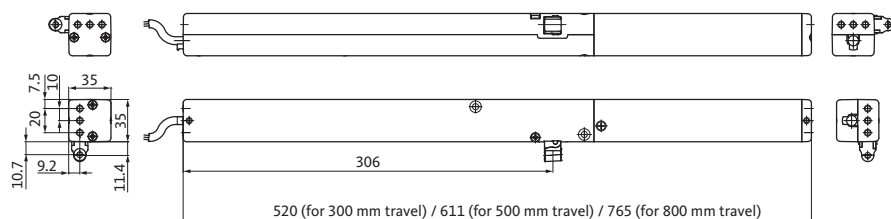
Profile type	Order number
Aluminium / Timber / PVC ^[1]	K-17735-00-0-*

* = colour type: 1 = silver painted (RAL 7047), 6 = black painted (RAL 9004), 7 = white painted (RAL 9003)

[1] Without fixing screws

ELTRAL K35 chain drive

Pull/push force: 350 N



Product features

- NSHEV-tested and certified
- Small dimensions
- Stainless steel chain
- Integrated microprocessor control unit
- Synchronised tandem operation
- Automatic limit stop switch
- Integrated overload cut-off
- Reduced closing speed (max. 5 mm/s) for the last 50 mm – corresponds to protection class SK3 ^[1]
- Suitable for small sash heights from 200 mm
- Travel adjustment in 3 stages:
 - 300 to 200 mm or 100 mm
 - 500 to 400 mm or 300 mm
 - 800 to 700 mm or 600 mm
- Aluminium housing, painted black
- Optional: covers for surface-mounted installation

Technical data

Drive	ELTRAL K35
Nominal voltage	24 V DC $\pm$ 15%
Pull/push force	350 N / 350 N ^[2]
Nominal current	0.9 A
Breaking current	1.2 A
Travel speed	9.6 mm/s
Connecting cable ^[3]	Silicone; 2 m, 3-core (Solo) / 2.5 m, 5-core (Synchro)

Push force / runtime / total length

Travel [mm]	Push force [N]	Runtime [s]	Total length [mm]
100	350	11	520
200	350	21	520
300	350	31	520
400	200	42	611
500	100	52	611
600	50	63	765
700	50	73	765
800	50	83	765

[1] See pages 28/29 "Risk assessment for power-operated windows in accordance with Machinery Directive 2006/42/EC"

[2] Depending on travel | [3] Special cable lengths available on request

ELTRAL K35 chain drive			
Designation	Consists of	Travel	Order number
ELTRAL K35 – Solo	1 chain drive	300/200/100 mm	K-18159-30-0-0
		500/400/300 mm	K-18159-50-0-0
		800/700/600 mm	K-18159-80-0-0
Designation	Consists of	Travel	Order number
ELTRAL K35 – Synchro	2 chain drives	300/200/100 mm	K-18160-30-0-0
		500/400/300 mm	K-18160-50-0-0
		800/700/600 mm	K-18160-80-0-0

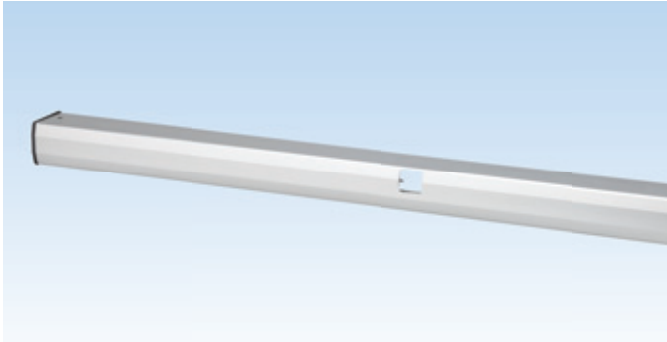
ELTRAL K35 chain drive with VAN locking drive			
Designation	Consists of	Travel	Order number
ELTRAL K35 – Solo with VAN	1 chain drive 1 locking drive	300/200/100 mm	K-18193-30-0-0
		500/400/300 mm	K-18193-50-0-0
		800/700/600 mm	K-18193-80-0-0
Designation	Consists of	Travel	Order number
ELTRAL K35 – Synchro with VAN	2 chain drives 1 locking drive	300/200/100 mm	K-18194-30-0-0
		500/400/300 mm	K-18194-50-0-0
		800/700/600 mm	K-18194-80-0-0

Note: Mounting bracket sets must be ordered separately (see following pages)

[1] Covers must be ordered separately (see page 54)

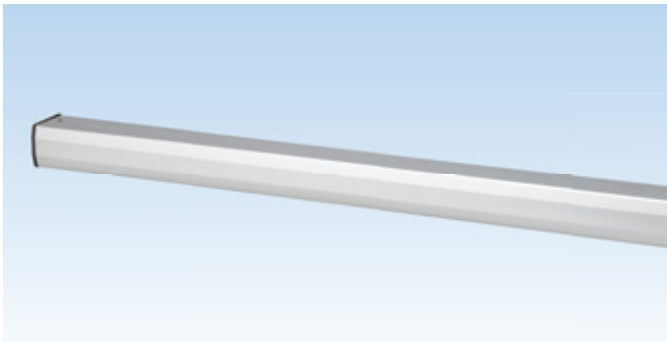
ELTRAL K35 chain drive

Accessories



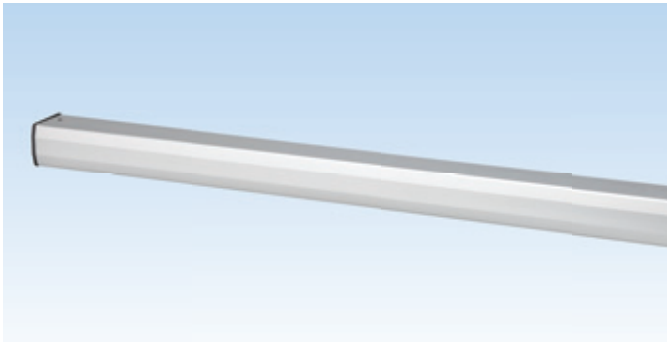
ELTRAL K35 cover^[1]
for frame installation (FI)

Versions / Order numbers		
Designation	Travel	Order number
RM 300 cover	300/200/100 mm	K-18323-30-0-*
RM 500 cover	500/400/300 mm	K-18323-50-0-*
RM 800 cover	800/700/600 mm	K-18323-80-0-*



ELTRAL K35 cover^[1]
for sash installation (SI)

Versions / Order numbers		
Designation	Travel	Order number
FM 300 cover	300/200/100 mm	K-18324-30-0-*
FM 500 cover	500/400/300 mm	K-18324-50-0-*
FM 800 cover	800/700/600 mm	K-18324-80-0-*

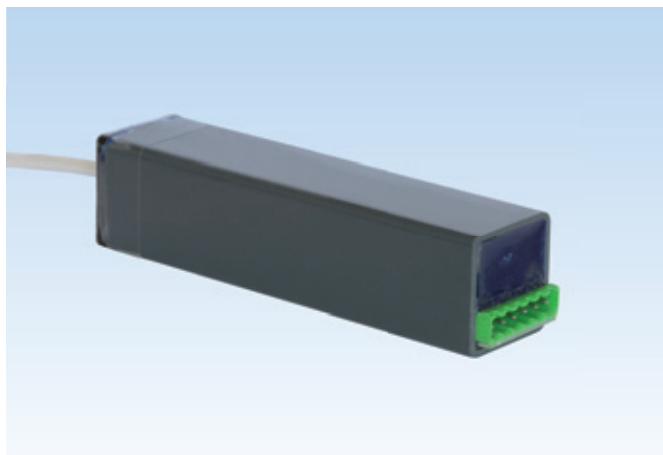


ELTRAL K35 cover^[1]
for special lengths and Synchro applications

Versions / Order numbers		
Designation	Length	Order number
Cover	2000 mm	K-18325-02-0-*
Cover	Special length	K-18325-99-0-*
Side cover cap (x1)	for special length / as spare part	9-46487-00-0-6

* = colour type: 1 = EV1 anodised, 7 = white (RAL 9016)

[1] Covers must be ordered separately



ELTRAL K35 VAN power supply unit

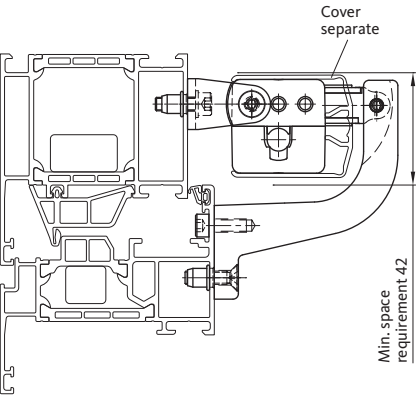
- For the voltage supply and control of ELTRAL K35 chain drives (24 V DC) and ELTRAL VAN locking drives (24 V DC) for ventilation purposes
- Connection of up to two drives
- Power-up / connection possible (directional change)
- With spike protection at the inputs
- Optional: with checkback "Window closed"

Technical data	
Designation	ELTRAL K35 VAN power supply unit
Supply voltage	230 V AC, 50 Hz
Output voltage	24 V DC
Output current	1.7 A
Nominal power	40.8 VA
Duty ratio	30%
Protection class	IP 20

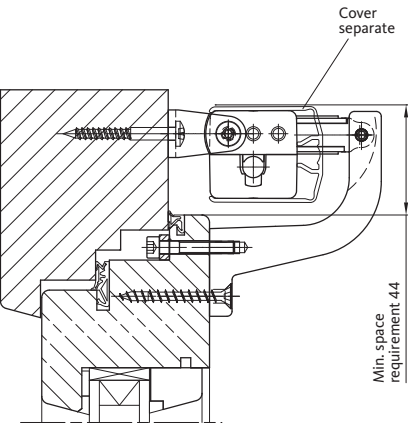
ELTRAL K35 VAN power supply unit Order information		
Description	Housing dimensions (W x H x D)	Order number
with checkback	150 x 35 x 35 mm	6-37487-00-0-0
without checkback		6-37487-01-0-0

ELTRAL K35 chain drive

Mounting bracket sets – surface-mounted installation



Frame installation | Tilt-Only sash, inwards | Aluminium profile



Frame installation | Tilt-Only sash, inwards | Timber profile

K35 mounting bracket set

Frame installation (FI)

for Tilt-Only and Top-Hung sashes, inwards

Versions / Order numbers

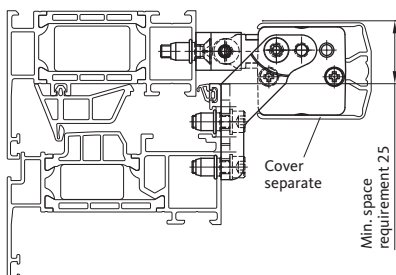
Profile type	Order number
Aluminium ^[1]	K-18205-00-0-*
Timber / PVC ^[2]	K-18439-00-0-*

Minimum sash height depending on travel

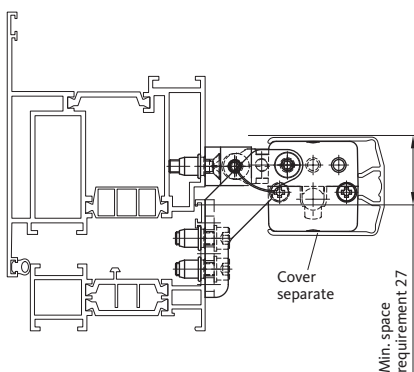
Travel [mm]	100	200	300	400
Minimum sash height [mm]	200	200	350	500

Minimum sash height depending on travel

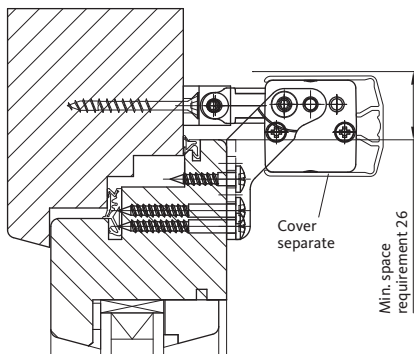
Travel [mm]	500	600	700	800
Minimum sash height [mm]	650	850	1000	1200



Sash installation | Tilt-Only sash, inwards | Aluminium profile



Frame installation | Top-Hung sash, outwards | Aluminium profile



Sash installation | Tilt-Only sash, inwards | Timber profile

K35 mounting bracket set

Sash installation (SI)

for Tilt-Only sash, inwards

Frame installation (FI)

for Top-Hung sash, outwards

Versions / Order numbers

Profile type	Order number
Aluminium / Timber / PVC ^[1]	K-18204-00-0-*

Minimum sash height depending on travel

Travel [mm]	100	200	300	400
Minimum sash height SI [mm]	350	350	500	700
Minimum sash height FI [mm]	350	350	450	550

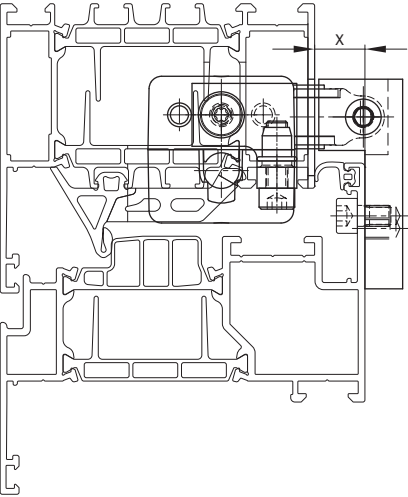
Minimum sash height depending on travel

Travel [mm]	500	600	700	800
Minimum sash height SI [mm]	900	1100	1300	1500
Minimum sash height FI [mm]	700	900	1000	1100

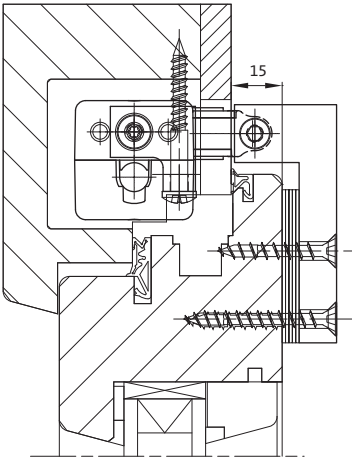
* = colour type: 1 = silver (RAL 7047), 6 = black (RAL 9005), 7 = white (RAL 9016)
 [1] With fixing screws | [2] Without fixing screws

ELTRAL K35 chain drive

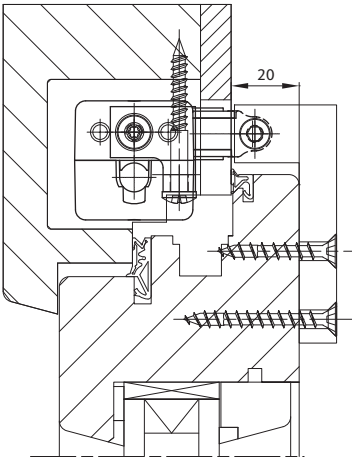
Mounting bracket sets – concealed installation



Concealed frame installation | Tilt-Only sash, inwards | Aluminium profile | Surface-mounted chain holding fixture



Concealed frame installation | Tilt-Only sash, inwards | Timber profile | Surface-mounted chain holding fixture | Sash overlap 15 mm



Concealed frame installation | Tilt-Only sash, inwards | Timber profile | Surface-mounted chain holding fixture | Sash overlap 20 mm

K35 mounting bracket set

Surface-mounted chain holding fixture

Concealed frame installation (FI)

for Tilt-Only sash, inwards

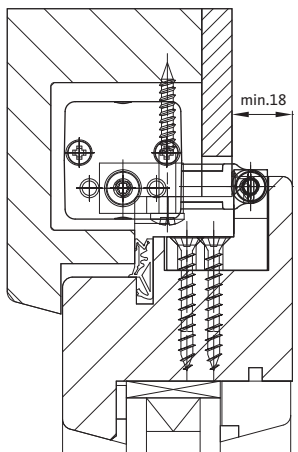
Versions / Order numbers			
Profile type	Chain holding fixture	Overlap (X)	Order number
Aluminium ^[1]	surface-mounted	7.5 – 9 mm	K-18218-00-0-*
		10 – 11 mm	K-18217-00-0-*
		12 mm	K-18219-00-0-*
Timber / PVC ^[2]	surface-mounted	15 – 20 mm	K-18418-00-0-*

Minimum sash height depending on travel – aluminium profile				
Travel [mm]	100	200	300	400
Minimum sash height [mm]	550	550	650	850

Minimum sash height depending on travel – aluminium profile				
Travel [mm]	500	600	700	800
Minimum sash height [mm]	1100	1300	1450	1600

Minimum sash height depending on travel – timber/PVC profile				
Travel [mm]	100	200	300	400
Minimum sash height [mm]	300	300	400	550

Minimum sash height depending on travel – timber/PVC profile				
Travel [mm]	500	600	700	800
Minimum sash height [mm]	700	900	1100	1200



Concealed frame installation | Tilt-Only sash, inwards | Timber profile |
Concealed chain holding fixture

K35 mounting bracket set

Concealed chain holding fixture

Concealed frame installation (FI) for Tilt-Only sash, inwards

Versions / Order numbers

Profile type	Chain holding fixture	Overlap	Order number
Timber / PVC ^[2]	concealed	–	K-18512-00-0-1 ^[3]

Minimum sash height depending on travel

Travel [mm]	100	200	300	400
Minimum sash height [mm]	500	500	700	900

Minimum sash height depending on travel

Travel [mm]	500	600	700	800
Minimum sash height [mm]	1100	1300	1500	1700

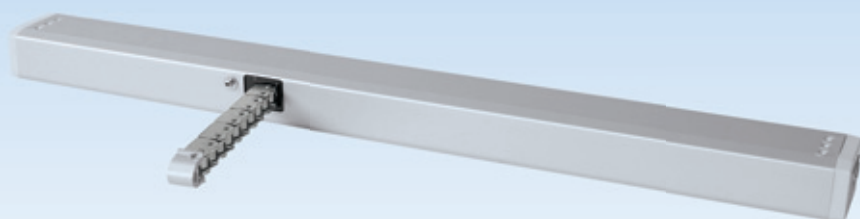
* = colour type: 1 = silver (RAL 7047), 6 = black (RAL 9005), 7 = white (RAL 9016)

[1] With fixing screws | [2] Without fixing screws

[3] No locking drive, central locking possible

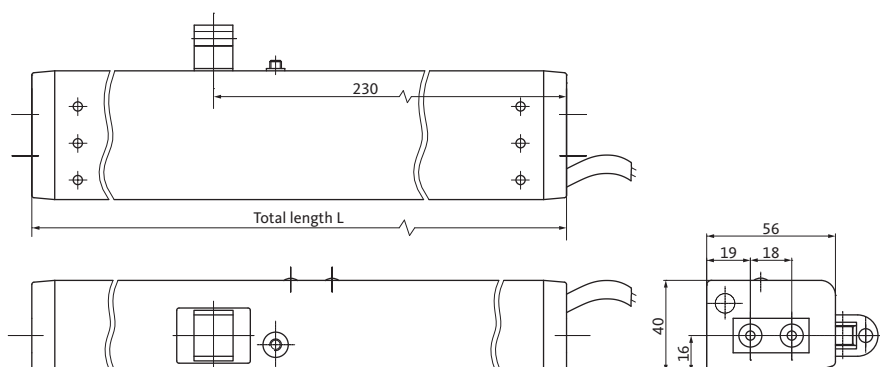
ELTRAL K60 chain drive

Pull/push force: 600 / 300 N



Product features

- NSHEV-tested and certified
- Compact size
- Stainless steel chain
- Integrated microprocessor control unit
- Synchronised tandem operation
- Automatic limit stop switch
- Integrated overload cut-off
- Reduced closing speed (max. 5 mm/s) for the last 50 mm – corresponds to protection class SK3 ^[1]
- Pivotal fixings allow for small sash heights from 350 mm
- Emergency unlocking
- Anodised aluminium housing



Technical data

Drive	ELTRAL K60	ELTRAL K60 – 300 N
Nominal voltage	24 V DC $\pm$ 15%	24 V DC $\pm$ 15%
Pull/push force	600 N / 600 N ^[2]	300 N / 300 N
Nominal current	0.8 A	0.8 A
Breaking current	1.2 A	1.0 A
Travel speed		
– Travel 200, 400 mm	8.0 mm/s	–
– Travel 500, 600 mm	12.0 mm/s	12.0 mm/s
– Travel 800, 1000 mm	13.5 mm/s	–
Connecting cable ^[3]	Silicone; 5 m; 5-core	Silicone; 5 m; 5-core

Push force / runtime / total length

Travel [mm]	Push force [N]		Runtime [s]	Total length [mm]
	K60	K60 – 300 N		
200	600	–	25	461
400	600	–	50	537
500	400	300	42	639
600	300	300	50	639
800	200	–	59	740
1000	100	–	74	842

[1] See pages 28/29 "Risk assessment for power-operated windows in accordance with Machinery Directive 2006/42/EC"

[2] Depending on travel | [3] Special cable lengths available on request

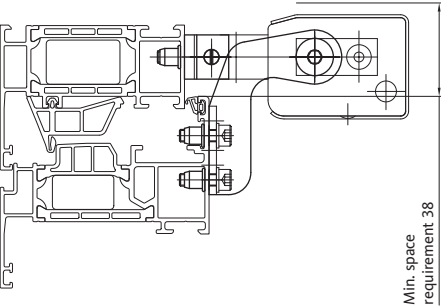
ELTRAL K60 chain drive			
Designation	Consists of	Travel	Order number
ELTRAL K60 – Solo	1 chain drive	200 mm	K-17648-20-0-1
		400 mm	K-17648-40-0-1
		500 mm	K-17648-50-0-1
		600 mm	K-17648-60-0-1
		800 mm	K-17648-80-0-1
		1000 mm	K-17648-01-0-1
Designation	Consists of	Travel	Order number
ELTRAL K60 – Synchro	2 chain drives	200 mm	K-17583-20-0-1
		400 mm	K-17583-40-0-1
		500 mm	K-17583-50-0-1
		600 mm	K-17583-60-0-1
		800 mm	K-17583-80-0-1

ELTRAL K60 chain drive – 300 N			
Designation	Consists of	Travel	Order number
ELTRAL K60 – 300 N – Solo	1 chain drive	500 mm	K-17882-50-0-1
		600 mm	K-17882-60-0-1
Designation	Consists of	Travel	Order number
ELTRAL K60 – 300 N – Synchro	2 chain drives	500 mm	K-17883-50-0-1
		600 mm	K-17883-60-0-1

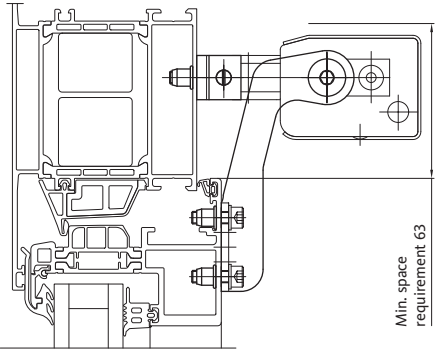
Note: Mounting bracket sets must be ordered separately (see following pages)

ELTRAL K60 chain drive

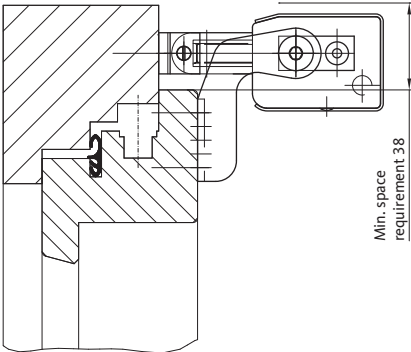
Mounting bracket sets



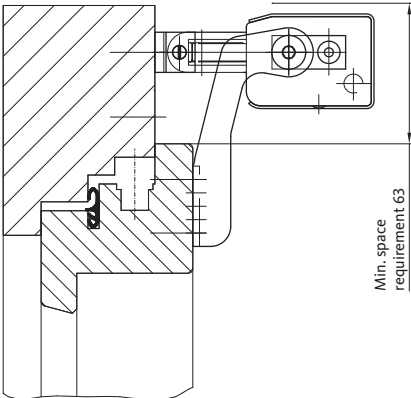
Sash installation | Tilt-Only sash, inwards | Aluminium profile | Short bracket



Sash installation | Tilt-Only sash, inwards | Aluminium profile | Long bracket



Sash installation | Tilt-Only sash, inwards | Timber profile | Short bracket



Sash installation | Tilt-Only sash, inwards | Timber profile | Long bracket

K60 mounting bracket set

Sash installation (SI)
for Tilt-Only sash, inwards

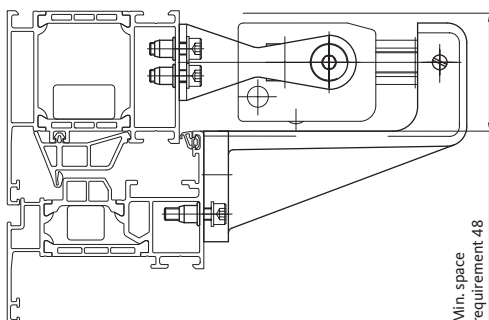
Frame installation (FI)
for Top-Hung sash, outwards

Versions / Order numbers

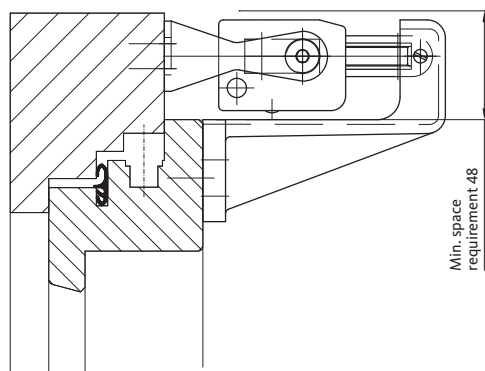
Profile type	Order number
Aluminium ^[1] Short bracket	K-17596-00-0-8
Aluminium ^[1] Long bracket	K-17598-00-0-8
Timber / PVC ^[2] Short bracket	K-17638-00-0-8
Timber / PVC ^[2] Long bracket	K-17640-00-0-8

Minimum sash height depending on travel

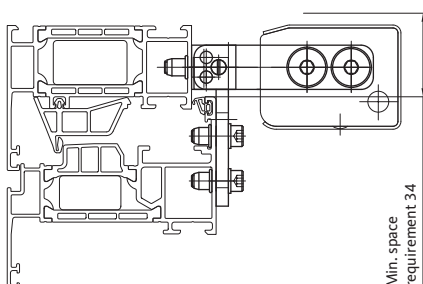
Travel [mm]	200	400	500	600	800 ^[3]	1000 ^[3]
Minimum sash height [mm]						
Short bracket SI	450	750	1000	1250	1600	2100
Long bracket SI	250	400	550	700	900	1200
Short bracket FI	350	900	1100	1400	–	–



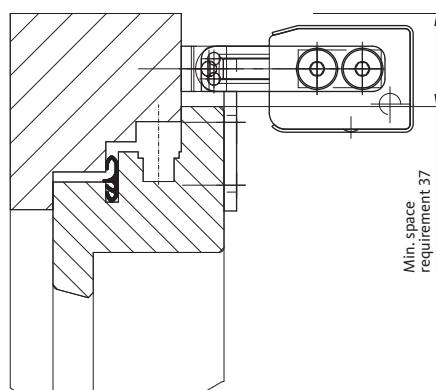
Frame installation | Tilt-Only sash, inwards | Aluminium profile



Frame installation | Tilt-Only sash, inwards | Timber profile



Sash installation | Tilt-Only sash, inwards | Aluminium profile



Sash installation | Tilt-Only sash, inwards | Timber profile

K60 mounting bracket set

Frame installation (FI)

for Tilt-Only and Top-Hung sashes, inwards

Versions / Order numbers

Profile type	Order number
Aluminium ^[1]	K-17661-00-0-8
Timber / PVC ^[2]	K-17662-00-0-8

Minimum sash height depending on travel

Travel [mm]	200	400	500	600	800	1000
Minimum sash height [mm]	350	700	1000	1250	1800	2300

K60 mounting bracket set (folding bracket) ^[4]

Sash installation (SI)

for Tilt-Only sash, inwards

Frame installation (FI)

for Top-Hung sash, outwards

Versions / Order numbers

Profile type	Order number
Aluminium	K-17659-00-0-1
Timber / PVC	K-17660-00-0-1

Minimum sash height depending on travel

Travel [mm]	200	400	500	600	800 ^[3]	1000 ^[3]
Minimum sash height [mm]	350	600	750	900	1100	1400

^[1] With fixing screws

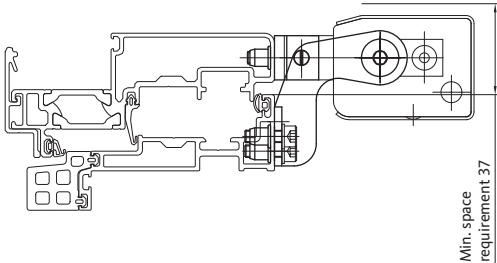
^[2] Without fixing screws

^[3] Only for Tilt-Only sash, inwards (tensile load)

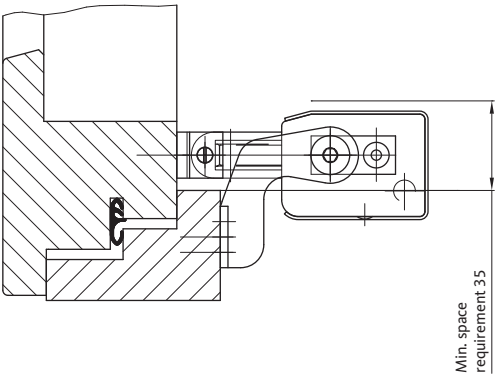
^[4] Suitable base plates can be found on page 66

ELTRAL K60 chain drive

Mounting bracket sets



Frame installation | Lowering Top-Hung sash, outwards | Aluminium profile



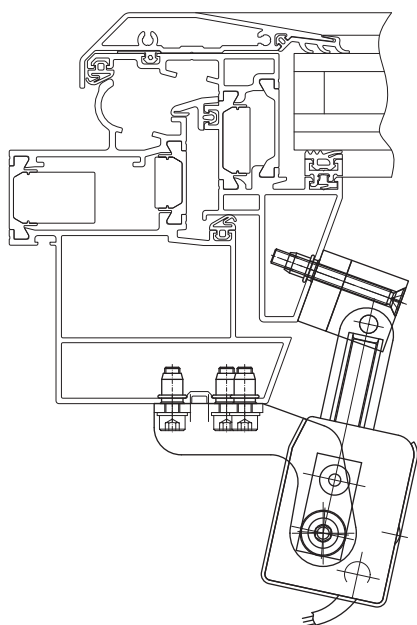
Frame installation | Lowering Top-Hung sash, outwards | Timber profile

K60 mounting bracket set

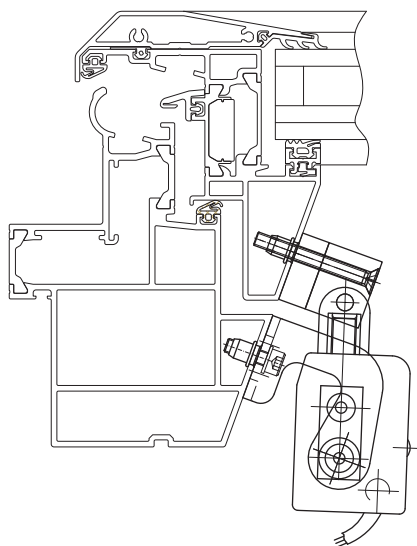
Frame installation (FI)
for lowering Top-Hung sash, outwards

Versions / Order numbers	
Profile type	Order number
Aluminium ^[1]	K-17597-00-0-8
Timber ^[2]	K-17639-00-0-8

Minimum sash height depending on travel						
Travel [mm]	200	400	500	600	800	1000
Minimum sash height [mm]	350	900	1100	1400	–	–



Frame installation | Roof-lights | Aluminium profile | Long bracket



Frame installation | Roof-lights | Aluminium profile | Short bracket

S K60 mounting bracket set

Frame installation (FI)
for roof-lights

Versions / Order numbers

Profile type	Order number
Aluminium ^[1] Long bracket	K-18261-00-0-8
Aluminium ^[1] Short bracket	K-18262-00-0-8

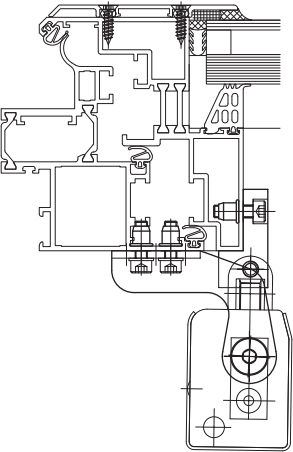
Minimum sash height depending on travel

Travel [mm]	200	400	500	600	800	1000
Minimum sash height [mm]	350	900	1100	1400	–	–

[1] With fixing screws | [2] Without fixing screws

ELTRAL K60 chain drive

Accessories



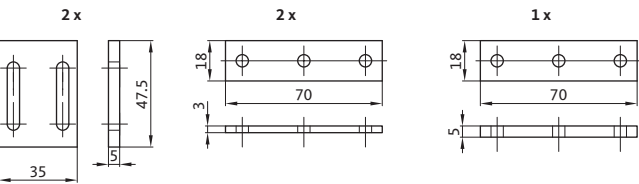
Frame installation | Roof-lights | Aluminium profile

W K60 mounting bracket set

Frame installation (FI)
for roof-lights

Versions / Order numbers	
Profile type	Order number
Aluminium ^[1]	K-17609-00-0-8

Minimum sash height depending on travel						
Travel [mm]	200	400	500	600	800	1000
Minimum sash height [mm]	350	900	1100	1400	–	–

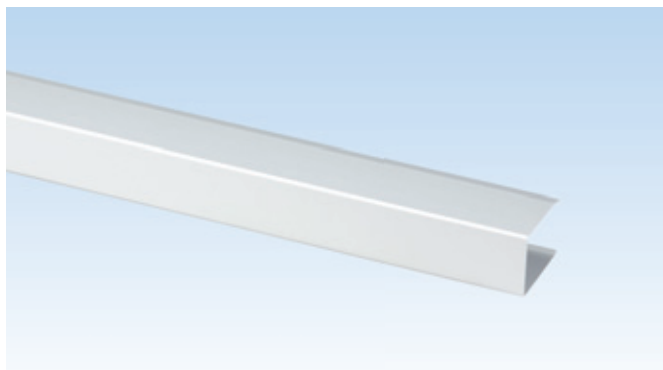


Base plate set ^[2]

for mounting bracket sets with an overlap
< 10 mm

Order numbers	
Order number	K-17653-00-0-1

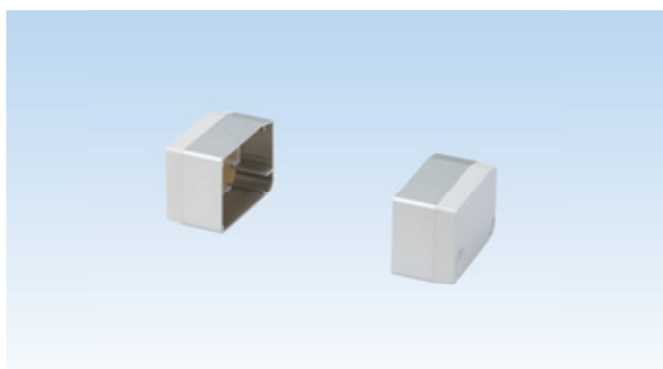
[1] With fixing screws
[2] 2 base plates are required for flush-mounted profiles



K60 cover profile

Versions / Order numbers

Length	Order number
1450 mm	9-42211-00-0-1
3000 mm	9-42212-00-0-1



Mounting kit for K60 cover profile

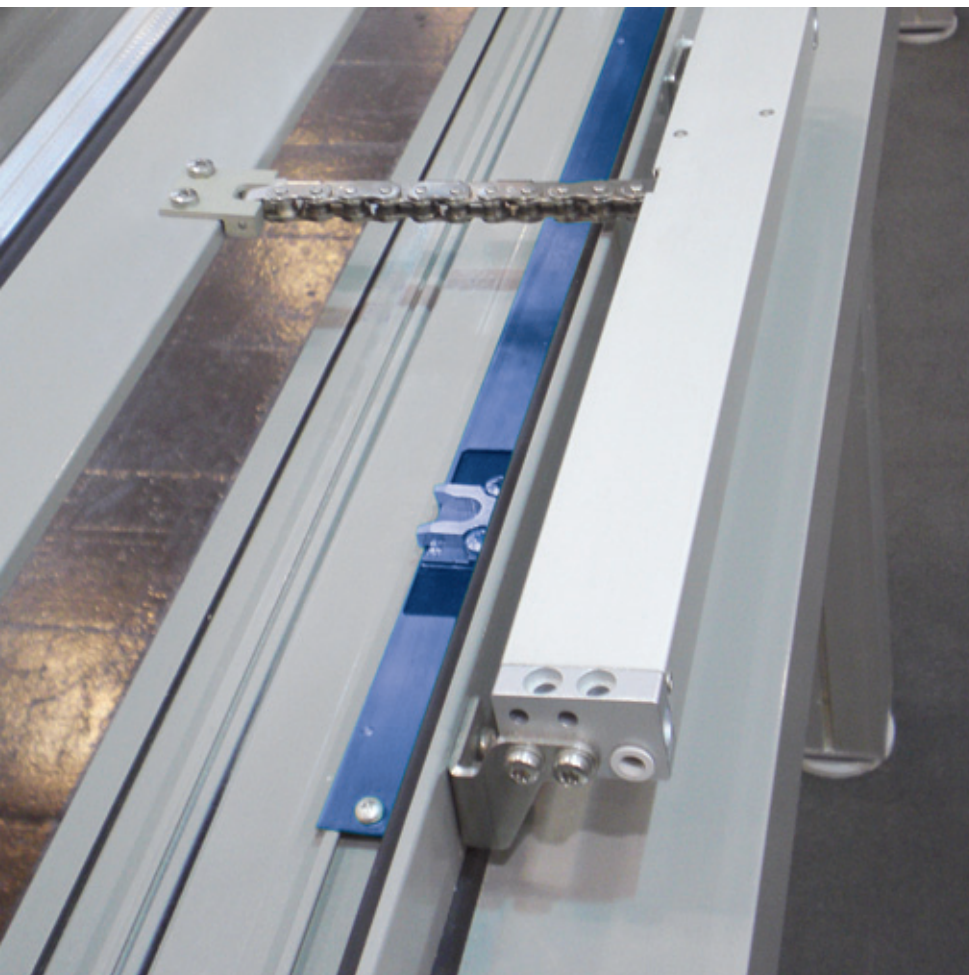
Consists of:

- 2 side covers (1x right / 1x left)
- 2 spacers
- 4 adhesive points
- 1 closing plug

Order numbers

Order number
K-17719-00-0-1

Locking drives (24 V)



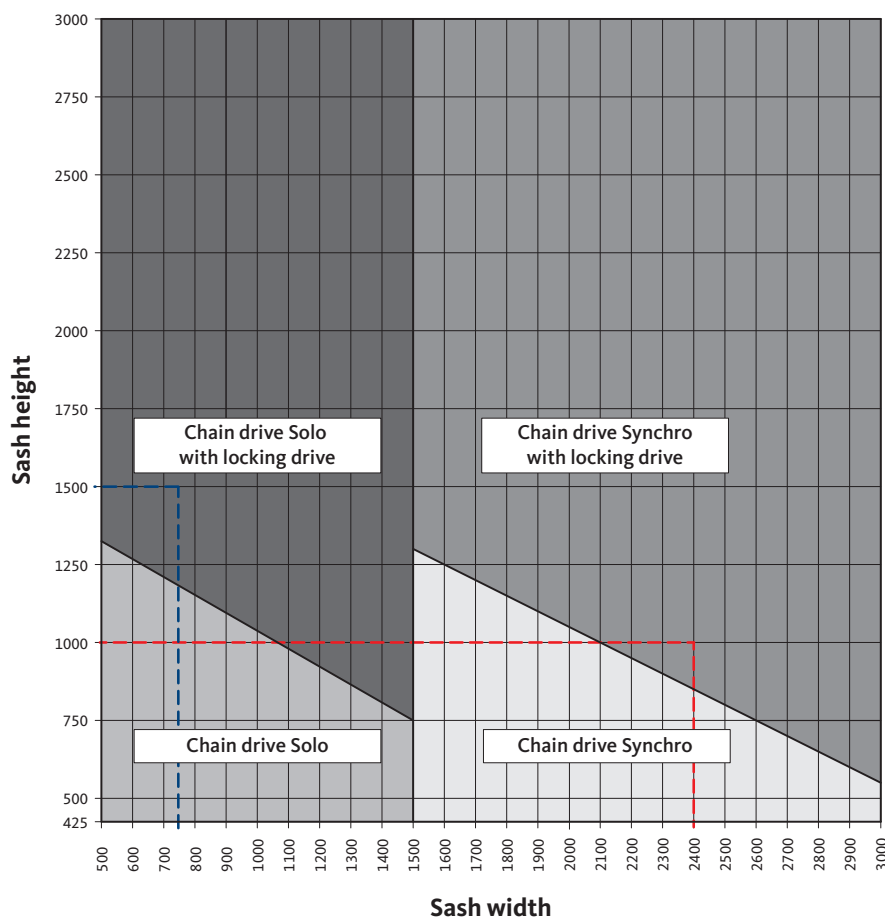
When it comes to heavy window elements with large sash areas and large sash heights in particular, the drive alone is often not enough to keep the window closed.

Locking drives from the Gretsch-Unitas Group offer the ideal solution for the electromotor-driven locking and unlocking of windows, whether they be Tilt-Only, Top-Hung, lowering Top-Hung, Parallel-Projecting or Turn-Only.

The locking mechanism functions either through interior central locking (e.g. UNI-JET) or a surface-mounted locking element. The additional locking points increase the tightness of the seal as well as the burglar protection.

The locking drives can be used in combination with a chain drive or an RWA opening system.

Depending on the profile system (for virtually all standard profiles) and installation situation, drives can be installed on the window or integrated in the window profile for a more sophisticated finish.



Range of application

Determination of which drive type to use (Solo/Synchro drive, with or without locking drive) based on the sash width and sash height.

■ Example 1:

Tilt-Only window with the dimensions:
750 x 1500 mm (W x H)

A Solo chain drive with locking drive
should be used

■ Example 2:

Tilt-Only window with the dimensions:
2400 x 1000 mm (W x H)

A Synchro chain drive with locking drive
should be used

Technical data overview

ELTRAL locking drives	VAN	VA25	OA	VA35	VA-1 R/4 VA-1 L/4	VA-2/12 VA-2/20
Force / torque	600 N	600 N	10 Nm	600 N	600 N	600 N
Synchronous control	no	no	no	optional	optional	optional
Dimensions (L x W x H)	353 x 25 x 25 mm	473 x 25 x 25 mm	156 x 40 x 83.5 mm	420 x 35 x 35 mm	420 x 35 x 35 mm	1200 x 35 x 35 mm 2000 x 35 x 35 mm

All values are reference values which may vary depending on the profile used and the height of the building. The maximum window size and the permitted lengths of unmounted profile jambs must be agreed with the system supplier and/or window manufacturer. The instructions of the particular profile system, hardware and glass manufacturers must be observed. The maximum length of unmounted profile jambs is 1500 mm.

ELTRAL VAN locking drive

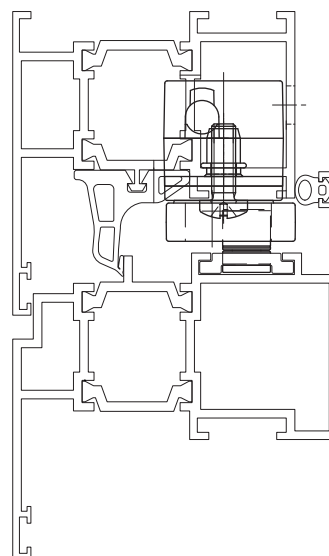
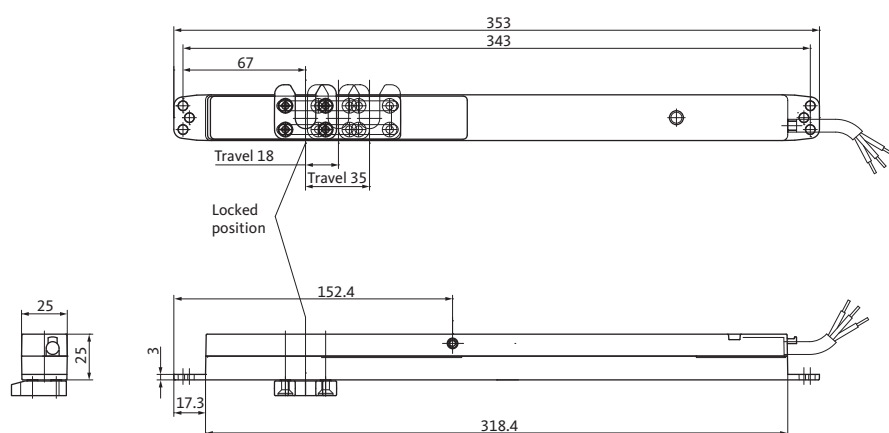
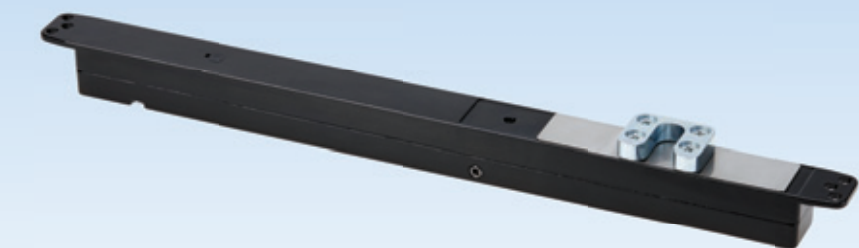
for concealed installation

combined with ELTRAL K30, KS 30/40, K35 (24 V)



Product features

- Electromotor-driven locking and unlocking by means of the interior central locking system
- NSHEV-tested and certified
- Compact size
- Integrated microprocessor control unit
- Integrated electronic limit stop switch and overload cut-off
- Integrated closing sequence controller
- High break-away force
- Adjustable travel: 18 / 35 mm
- Emergency release of the central locking mechanism



Aluminium profile installation

Technical data

Drive	ELTRAL VAN
Nominal voltage	24 V DC $\pm 15\%$
Nominal force	600 N
Nominal current	1.5 A
Max. switching current	3 A
Speed	6.0 mm/s
Locking force	850 N
Connecting cable	Silicone; 2 m, 3-core

Runtime

Travel [mm]	Runtime [s]
18	ca. 3
35	ca. 6

Note: Can only be used in conjunction with the 24 V chain drives K30, KS 30/40 and K35

ELTRAL VAN locking drive		
Designation	Dimensions (L x W x H)	Order number
ELTRAL VAN	353 x 25 x 25 mm	K-17990-00-0-6

ELTRAL VAN locking drive – Accessories		
Designation	Colour	Order number
Emergency unlocking pin	–	9-46215-00-0-0
Mounting bracket set	–	K-18522-00-0-0
Dummy plug for emergency unlocking bore	black	9-45806-00-0-6
Cable sleeve	black	9-45397-00-0-6

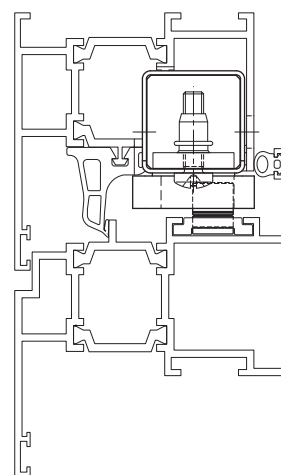
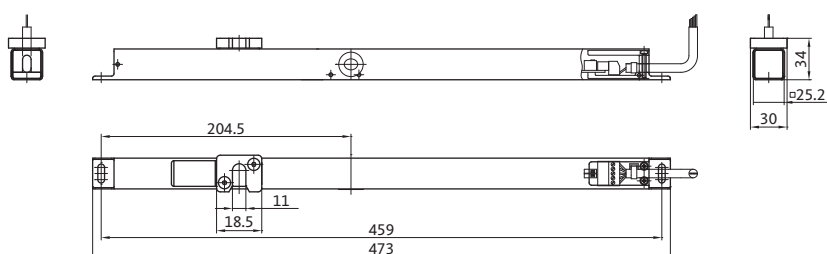
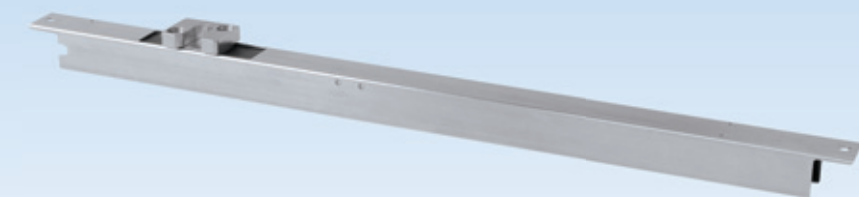
ELTRAL VA25 locking drive

for concealed installation
combined with ELTRAL K25, K60 (24 V)



Product features

- Electromotor-driven locking and unlocking by means of the interior central locking system
- NSHEV-tested and certified
- Compact size
- Integrated microprocessor control unit
- Electronic limit stop switch and overload cut-off
- Integrated closing sequence controller
- Adjustable travel: 17 / 36 mm
- Emergency release of the central locking mechanism
- Adjustable running direction



Aluminium profile installation

Technical data

Drive	ELTRAL VA25
Nominal voltage	24 V DC $\pm 15\%$
Nominal force	600 N
Nominal current	0.4 A
Max. switching current	4.2 A
Speed	2.8 mm/s
Locking force	1000 N
Connecting cable	Silicone; 3 m, 2-core

Runtime

Travel [mm]	Runtime [s]
17	6
36	13

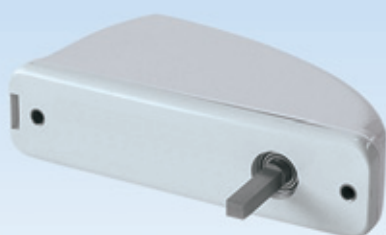
Note: Can only be used in conjunction with the 24 V chain drives K25 and K60

ELTRAL VA25 locking drive		
Designation	Dimensions (L x W x H)	Order number
ELTRAL VA25	473 x 25 x 25 mm	K-17724-00-0-8

ELTRAL VA25 locking drive – Accessories		
Designation	Colour	Order number
Connector sets for timber profiles	–	K-18047-00-0-0
Mounting bracket set for aluminium profile	–	K-18124-00-0-0
Dummy plug for emergency unlocking bore	black	9-45806-00-0-6
Cable sleeve	black	9-45397-00-0-6

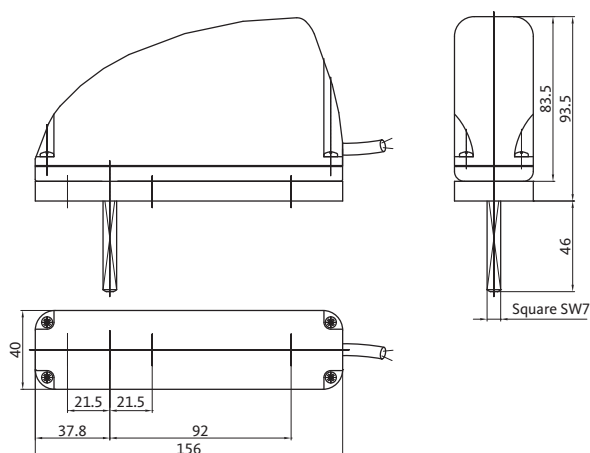
ELTRAL OA square spindle drive

Installation on the sash frame

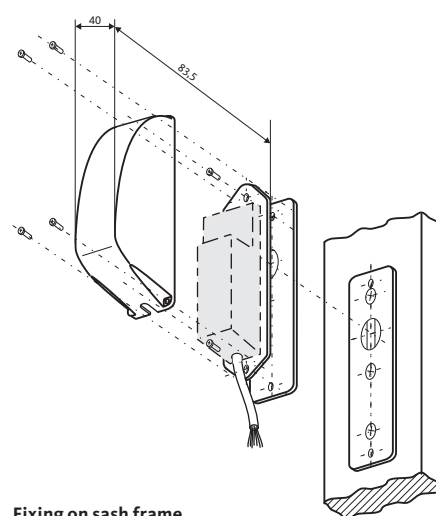


Product features

- For locking and unlocking using the window hardware
- NSHEV-tested and certified
- Compact size
- Integrated microprocessor control unit
- Electronic limit stop switch and over-load cut-off
- Integrated closing sequence controller
- Opening angle adjustable using dip switch: 90° / 180° ^[1]
- Selectable opening direction (left or right)



Note: Depending on the profile, the spindle must be cut to length by the customer.



Fixing on sash frame

Technical data

Drive	ELTRAL OA
Nominal voltage	24 V DC $\pm$ 15%
Torque	10 Nm
Nominal current	0.8 A
Max. switching current	3 A
Opening/closing speed	20°/s
Locking moment	22 Nm
Connecting cable	Silicone; 3 m, 4-core

Runtime

Opening angle [°]	Runtime [s]
90	5
180	9

Dimensions | Order information

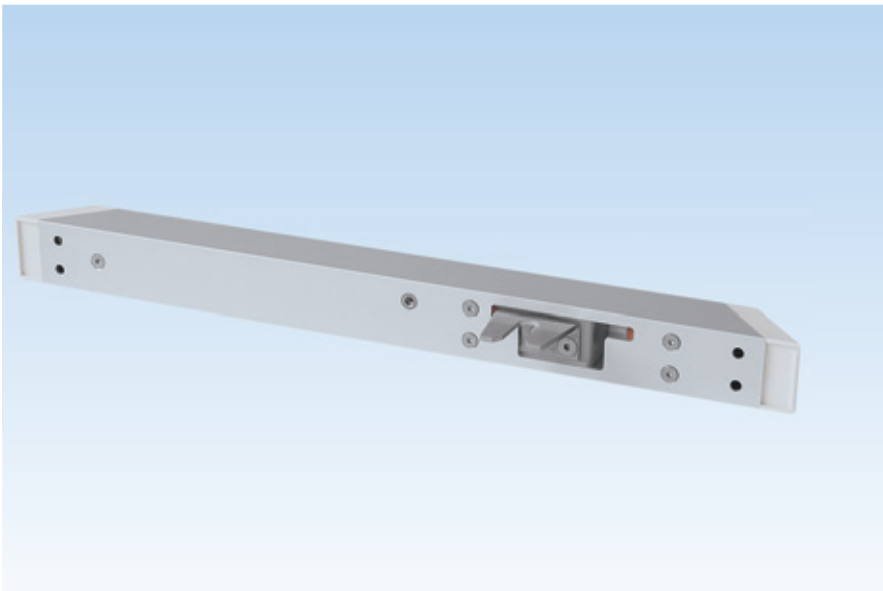
Dimensions (L x W x H)	Order number
156 x 40 x 83.5 mm	9-44712-00-0-1

[1] Factory setting: 90°

Note: Can only be used in conjunction with the 24 V chain drives K25 and K60

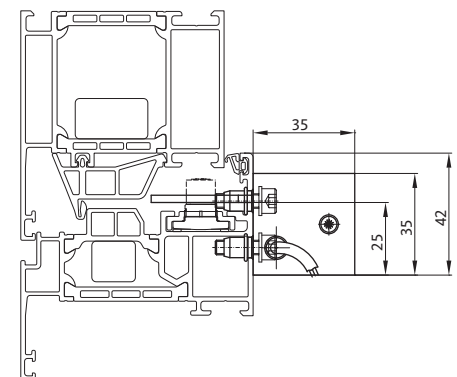
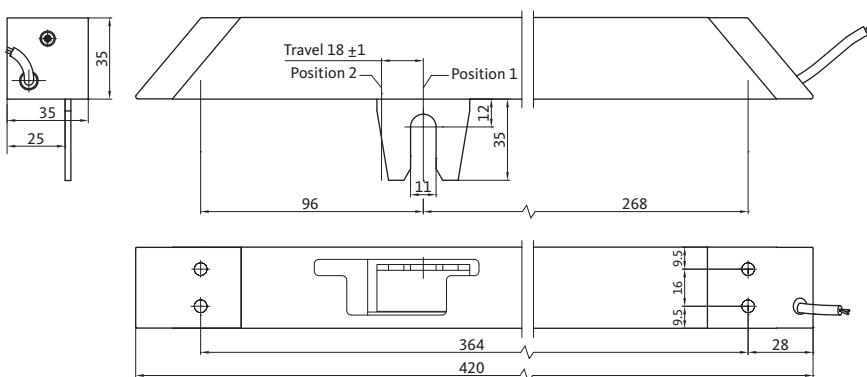
ELTRAL VA35 locking drive

for surface-mounted installation



Product features

- Electromotor-driven locking and unlocking by means of the central locking system
- Compact size
- Integrated microprocessor control unit
- Electronic limit stop switch and overload cut-off
- Integrated closing sequence controller
- Travel: 18 mm
- Fire tested up to 300 °C
- Anodised aluminium housing
- With optional synchronous control



Aluminium profile installation

Technical data

Drive	ELTRAL VA35
Nominal voltage	24 V DC $\pm$ 15%
Nominal force	600 N
Nominal current	0.6 A
Max. switching current	3 A
Speed	3.2 mm/s
Locking force	1000 N
Connecting cable	Silicone; 3 m, 4-core

Runtime

Travel [mm]	Runtime [s]
18	6

Dimensions | Order information

Dimensions (L x W x H)	Order number
420 x 35 x 35 mm	K-17725-00-0-1

Note: Can only be used in conjunction with the 24 V chain drives K25 and K60

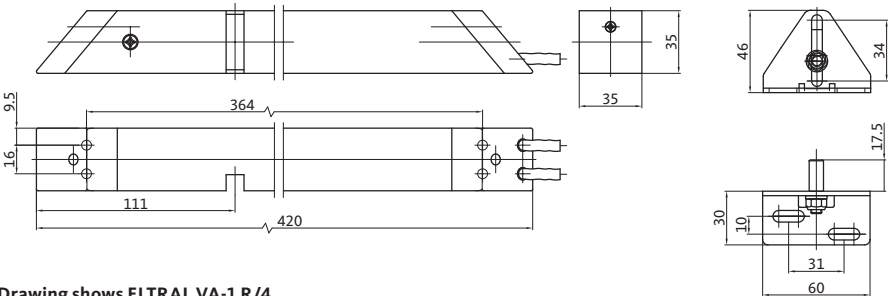
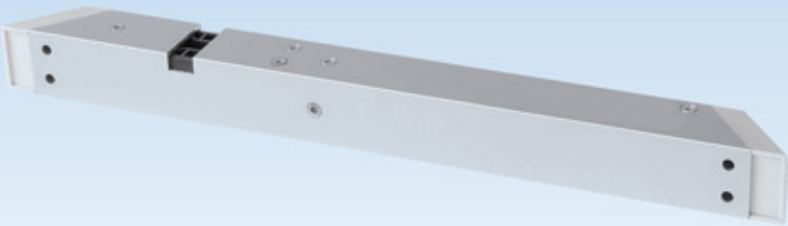
ELTRAL VA-1 / VA-2 locking drive

for surface-mounted installation – 1-point or 2-point locking



Product features

- NSHEV-tested and certified
- Compact size
- Integrated microprocessor control unit
- Electronic limit stop switch and over-load cut-off
- Integrated closing sequence controller
- Available as 1-point or 2-point locking
- Anodised aluminium housing
- With optional synchronous control



Drawing shows ELTRAL VA-1 R/4

Runtime		
Travel [mm]	Runtime [s]	Used with
15	3,6	chain drives
15	3	RWA opening systems

Technical data		
Drive	ELTRAL VA-1 / ELTRAL VA-2	
	Used with chain drives	Used with RWA opening systems
Nominal voltage	24 V DC ± 15%	24 V DC ± 15%
Nominal force	600 N	600 N
Nominal current	0.6 A	0.8
Speed	4.2 mm/s	5.0 mm/s
Locking force	1000 N	1000 N
Connecting cable	Silicone; 2.5 m, 4-core	Silicone; 2.5 m, 4-core

Dimensions	
Drive type	Dimensions (L x W x H)
ELTRAL VA-1 R/4 ELTRAL VA-1 L/4	420 x 35 x 35 mm
ELTRAL VA-2/12	1200 x 35 x 35 mm
ELTRAL VA-2/20	2000 x 35 x 35 mm

Note: Can only be used in conjunction with the 24 V chain drives K25 and K60 as well as the RWA opening systems RWA 1000, RWA 1050, RWA 1100

Used with K25, K60 chain drives (24 V)

ELTRAL VA-1 locking drive			
Designation	Locking	Length	Order number
ELTRAL VA-1 R/4	1 locking point, surface-mounted Locking on right	420 mm	K-17591-42-R-1
ELTRAL VA-1 L/4	1 locking point, surface-mounted Locking on left	420 mm	K-17591-42-L-1

ELTRAL VA-2 locking drive			
Designation	Locking	Length	Order number
ELTRAL VA-2/12	2 locking points, surface-mounted	1200 mm	K-17591-12-0-1
ELTRAL VA-2/20	2 locking points, surface-mounted	2000 mm	K-17591-20-0-1

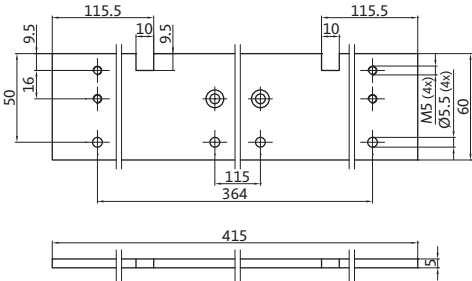
Used with RWA 1000, RWA 1050, RWA 1100 opening systems (24 V)

ELTRAL VA-1 locking drive – Solo			
Designation	Locking	Length	Order number
ELTRAL VA-1 R/4	1 locking point, surface-mounted Locking on right	420 mm	K-17589-42-R-1
ELTRAL VA-1 L/4	1 locking point, surface-mounted Locking on left	420 mm	K-17589-42-L-1

ELTRAL VA-2 locking drive – Synchro			
Designation	Locking	Length	Order number
ELTRAL VA-2/12	2 locking points, surface-mounted	1200 mm	K-17589-12-0-1
ELTRAL VA-2/20	2 locking points, surface-mounted	2000 mm	K-17589-20-0-1

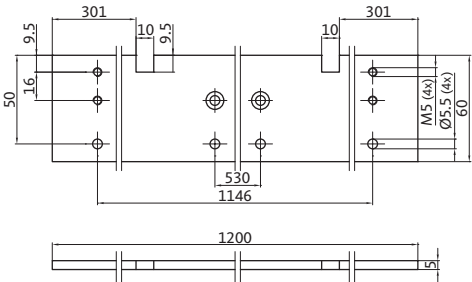
ELTRAL VA-1 / VA-2 locking drive

Fixing accessories



Connecting plate for ELTRAL VA-1
for Tilt-Only, Top-Hung and Turn-Only sashes, outward-opening

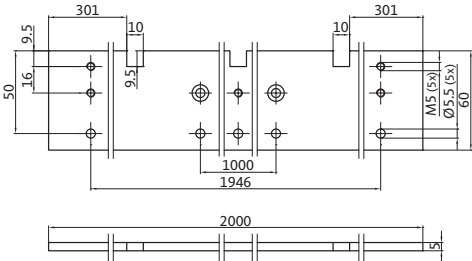
Versions / Order numbers	
Drive	Order number
ELTRAL VA-1 R/4 VA-1 L/4	9-40092-00-0-1



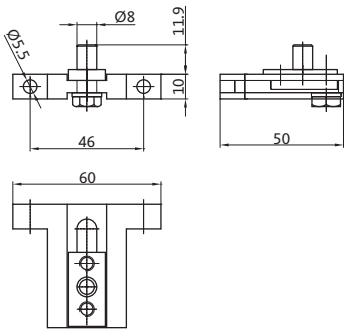
Connecting plate for ELTRAL VA-2
for Tilt-Only, Top-Hung and Turn-Only sashes, outward-opening

Versions / Order numbers	
Drive	Order number
ELTRAL VA-2/12	9-40093-00-0-1
ELTRAL VA-2/20	9-42197-00-0-1

Connecting plate for ELTRAL VA-2/12

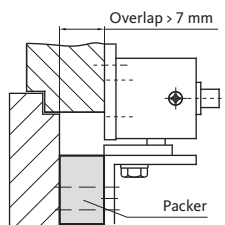
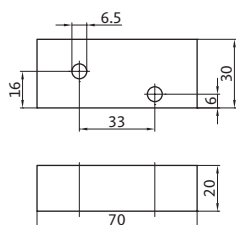


Connecting plate for ELTRAL VA-2/20



Narrow chain holding fixture

Versions / Order numbers	
Order number	
9-45547-00-0-1	



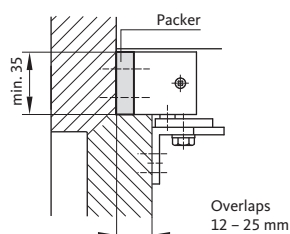
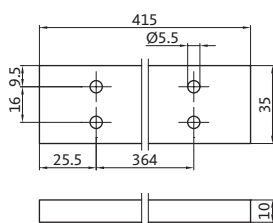
Packer for locking bracket

Sash opening outwards | from 7 mm overlap

Versions / Order numbers

Order number

9-42199-00-0-1



Packer for ELTRAL VA-1

for Tilt-Only sashes with overlap 12 – 25 mm ^[1]

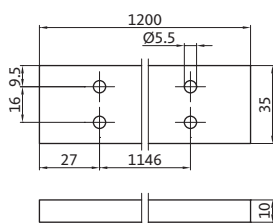
Versions / Order numbers

Drive

ELTRAL VA-1 R/4 | VA-1 L/4

Order number

9-42208-00-0-0



Packer for ELTRAL VA-2/12

Packer for ELTRAL VA-2

for Tilt-Only sashes with overlap 12 – 25 mm ^[1]

Versions / Order numbers

Drive

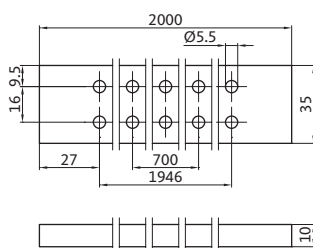
ELTRAL VA-2/12

ELTRAL VA-2/20

Order number

9-42209-00-0-0

9-42210-00-0-0



Packer for ELTRAL VA-2/20

[1] An additional packer is required for an overlap of 25 mm or more

Spindle drives (24 V)

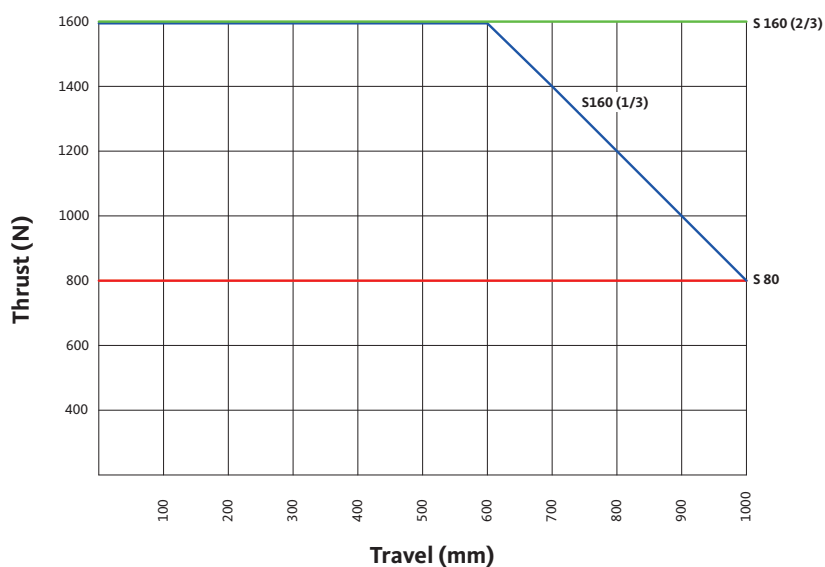


The spindle drives from the Gretschen-Unitas Group are perfectly suited to opening and closing large and heavy skylights or facade openings.

Regardless of whether the drives are used in shopping centres, theatre foyers, airport terminals or conservatories – in the event of a fire they ensure fast and natural smoke extraction. In everyday life, the drives provide a healthy and agreeable room climate through automatic air supply and ventilation.

They are particularly important for operating heavy skylights and light domes, where strong push forces are required together with large opening widths. A further benefit lies in the high protection class and therefore weather-resistant application.

For very wide and heavy skylights, the intelligent, integrated technology also enables synchronous control of up to eight spindle drives.

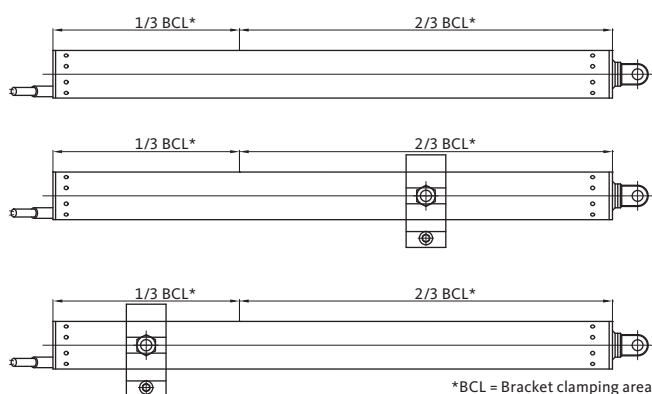


Thrust diagram

Determination of the required spindle drive based on the travel, bracket attachment and calculated opening and closing force (Appendix 2, pages 26+27).

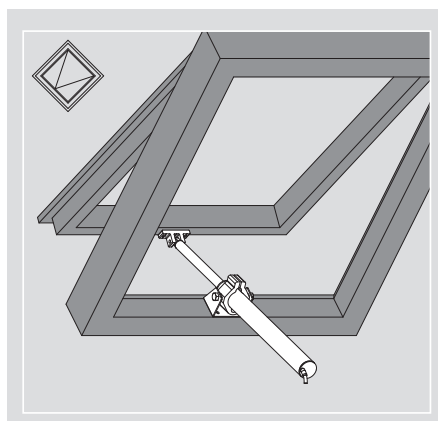
- ELTRAL S160 (rear mounting)
- ELTRAL S160 (front mounting)
- ELTRAL S80

All values are reference values which may vary depending on the profile used and the height of the building. The maximum window size and the permitted lengths of unmounted profile jambs must be agreed with the system supplier and/or window manufacturer. The instructions of the particular profile system, hardware and glass manufacturers must be observed. The maximum length of unmounted profile jambs is 1500 mm.

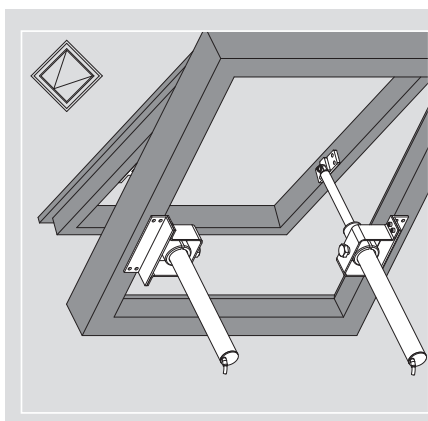


Front mounting / rear mounting

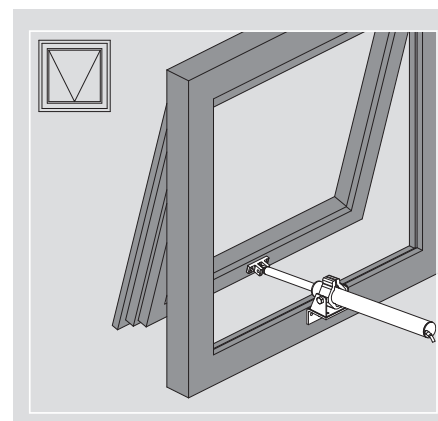
The most common stop variants



Skylight, installation on main closing edge



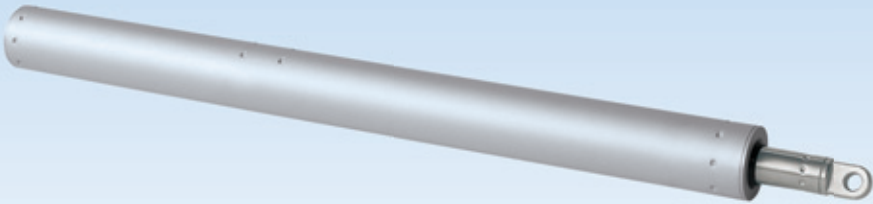
Skylight, installation on secondary closing edge



Top-Hung sash, outward-opening

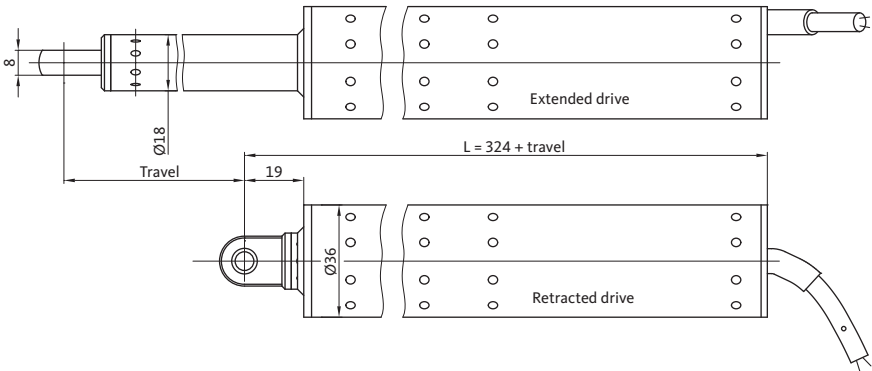
ELTRAL S80 / S160 spindle drive

Pull/push force: 800 N / 1600 N



Product features

- Compact size
- Stainless steel thrust tube
- Integrated microprocessor control unit
- Synchronised tandem operation
- Automatic limit stop switch
- Integrated overload cut-off
- Fire tested up to 300 °C
- Anodised aluminium housing



Push force / runtime / total length ELTRAL S80 spindle drive			
Travel [mm]	Push force [N]	Runtime [s] ^[1]	Total length [mm]
300	800	30/ 33	642
500	800	50/ 56	842
750	800	75/ 83	1092
1000	800	100/111	1342

Push force / runtime / total length ELTRAL S160 spindle drive			
Travel [mm]	Push force [N]	Runtime [s] ^[1]	Total length [mm]
300	800	75/ 79	642
500	800	125/132	842
750	800	188/197	1092
1000	800	250/263	1342

Technical data

Drive	ELTRAL S80	ELTRAL S160
Nominal voltage	24 V DC ± 15%	24 V DC ± 15%
Pull/push force	800 N / 800 N	1600 N / 1600 N
Nominal current	1.0 A	0.7 A
Breaking current	1.4 A	2.5 A
Travel speed	10 mm/s; 9 mm/s ^[1]	4.0 mm/s; 3.8 mm/s
Connecting cable	Silicone; 2.5 m, 3-core	Silicone; 2.5 m, 3-core

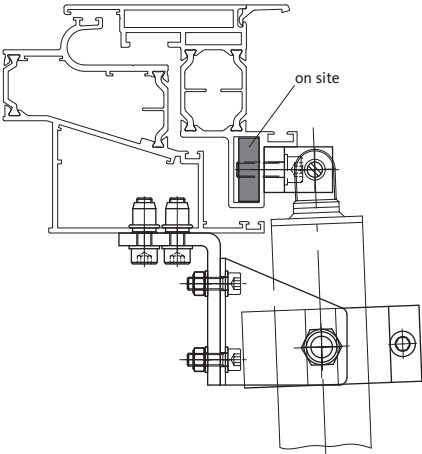
[1] Solo; Synchro

ELTRAL S80 spindle drive			
Designation	Consists of	Travel	Order number
ELTRAL S80 – Solo	1 spindle drive	300 mm	9-42898-30-0-1
		500 mm	9-42898-50-0-1
		750 mm	9-42898-75-0-1
		1000 mm	9-42898-01-0-1
Designation	Consists of	Travel	Order number
ELTRAL S80 – Synchro	2 spindle drives	300 mm	K-17584-30-0-1
		500 mm	K-17584-50-0-1
		750 mm	K-17584-75-0-1
		1000 mm	K-17584-01-0-1

ELTRAL S160 spindle drive			
Designation	Consists of	Travel	Order number
ELTRAL S160 – Solo	1 spindle drive	300 mm	9-39075-30-0-1
		500 mm	9-39075-50-0-1
		750 mm	9-39075-75-0-1
		1000 mm	9-39075-01-0-1
Designation	Consists of	Travel	Order number
ELTRAL S160 – Synchro	2 spindle drives	300 mm	K-18156-30-0-1
		500 mm	K-18156-50-0-1
		750 mm	K-18156-75-0-1
		1000 mm	K-18156-01-0-1

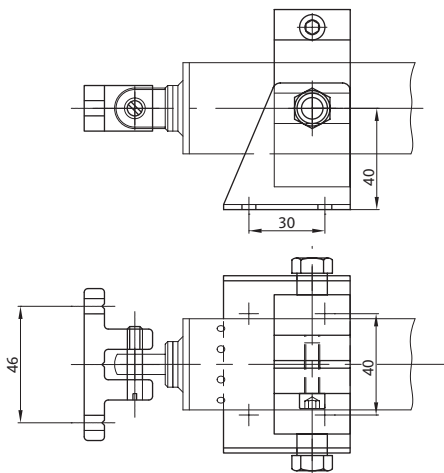
ELTRAL S80 / S160 spindle drive

Mounting bracket sets



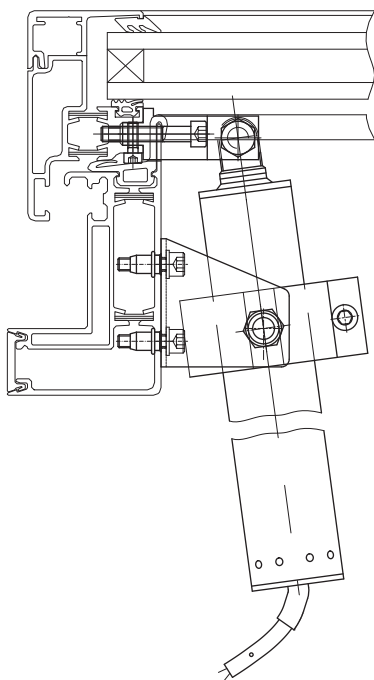
W S80 / S160 mounting bracket set for roof-lights

Versions / Order numbers	
Profile type	Order number
Aluminium ^[1]	K-17765-00-0-1



S80 / S160 general mounting bracket set for roof-lights

Versions / Order numbers	
Profile type	Order number
Aluminium / Timber ^[1]	K-17766-00-0-1



RS S80 / S160 mounting bracket set for roof-lights

Versions / Order numbers

Profile type	Order number
Aluminium ^[1]	K-18164-00-0-1

[1] Without fixing screws

RWA opening systems (24 V)



With their combined drive and locking unit, RWA opening systems from the Gretsch-Unitas Group are the ideal solution wherever there is little space on the frame side.

They are used for opening and closing vertically fitted, inward and outward-opening Tilt-Only, Top-Hung and Turn-Only systems wherever large opening widths need to be achieved with low travel distances.

The system's spindle drives lie flat against the window profile instead of awkwardly protruding into the room.

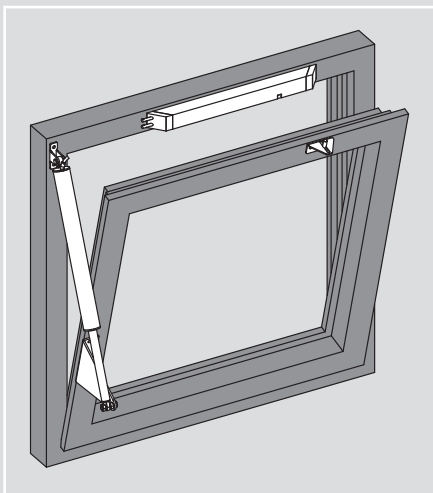
The combined locking system through the additional locking points increases the tightness of the seal as well as the burglar protection.

The systems can also be used in synchronous mode for large and heavy window elements.

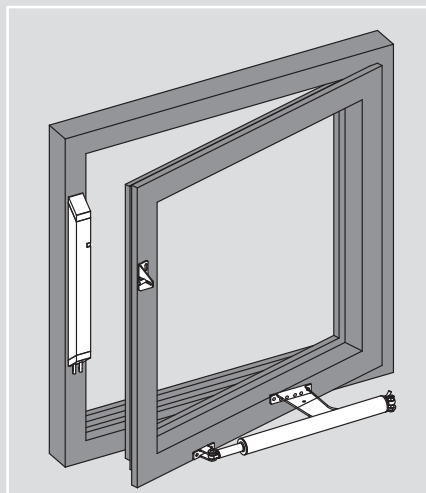
Each system consists of a drive, mounting bracket set and electromechanical sash locking.

System overviews

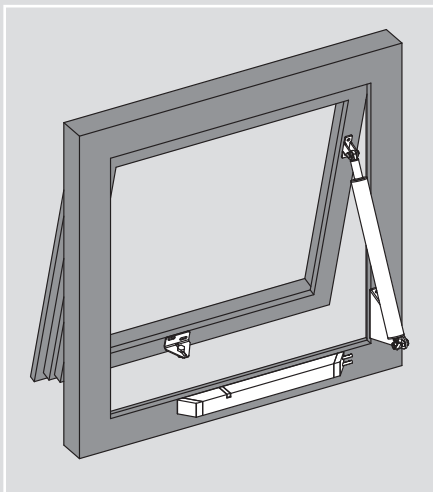
RWA 1000 opening system



RWA 1050 opening system



RWA 1100 opening system



Technical data overview

Opening system	Main application area	Sash widths (mm)		Sash heights (mm)		Opening angle
		Solo	Synchro	Solo	Synchro	
RWA 1000	Tilt-Only, Top-Hung and Turn-Only windows, inward-opening	450 – 1200	1201 – 2400	600 – 2000 ^[1]	600 – 2000 ^[1]	13° – 56° ^[2]
RWA 1050	Turn-Only window, inward-opening	510 – 740 ^{[1][5]}	510 – 740 ^{[1][5]}	450 – 1500	1501 – 2000	35° – 85° ^[3]
RWA 1100	Tilt-Only, Top-Hung and Turn-Only windows, outward-opening	450 – 1200 ^[4]	1201 – 2400 ^[4]	800 – 1600 ^[1]	800 – 1600 ^[1]	18° – 58° ^[2]

[1] Depending on travel | [2] Depending on travel, sash height and installation dimension X | [3] Depending on travel and installation dimension X

[4] Depending on profile type | [5] The maximum sash width depends on the profile used



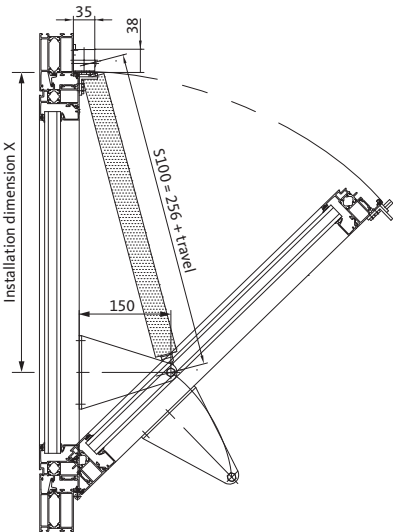
RWA 1000 opening system

for Tilt-Only, Top-Hung and Turn-Only windows, inward-opening



Product features

- Electromechanical sash locking (single or double)
- Large opening widths with small travel distances even for small-height sashes
- Profile-mounted ELTRAL S100 spindle drive
- Integrated closing and opening follow-up controller
- Synchronised tandem operation
- Automatic limit stop switch and overload cut-off
- Max. weight of glazing: 30 kg/m²
- NSHEV-tested and certified ^[1]
- EV1 anodised aluminium housing



Technical data – ELTRAL S100 spindle drive

Opening system	RWA 1000 with ELTRAL S100 spindle drive
Nominal voltage	24 V DC ± 15%
Nominal force	1000 N
Nominal current	0.8 A
Breaking current	1.4 A
Max. switching current (locking drive VA)	3 A
Speed	2.6 mm/s
Locking force	5000 N ^[2]
Connecting cable	Silicone; 2.5 m, 2-core

Runtime

Travel [mm]	Runtime [s]
100	38 + 5 (locking drive)
200	77 + 5 (locking drive)
300	115 + 5 (locking drive)

[1] Valid for aluminium systems only
[2] Depends on fixing

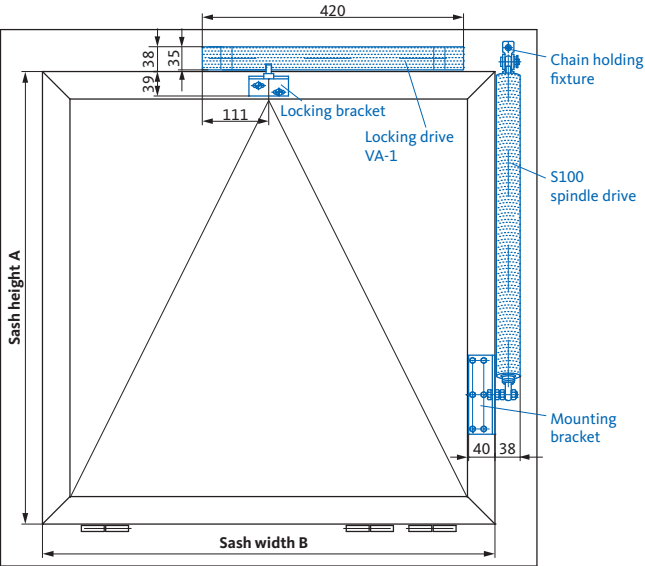
Sash heights				
Travel (mm)	Sash height A (mm)	Mounting dim. X (mm)	Opening width (mm)	Opening angle (°)
100	600 – 800	200	260 – 236	25 – 17
	750 – 1000	250	286 – 261	22 – 15
	900 – 1200	300	313 – 272	20 – 13
200	750 – 1000	250	538 – 467	42 – 27
	900 – 1200	300	586 – 499	38 – 24
	1050 – 1400	350	631 – 534	35 – 22
	1200 – 1600	400	662 – 556	32 – 20
300	900 – 1200	300	845 – 722	56 – 35
	1050 – 1400	350	904 – 748	51 – 31
	1200 – 1600	400	938 – 774	46 – 28
	1350 – 1800	450	990 – 810	43 – 26
	1500 – 2000	500	1026 – 832	40 – 24

Sash widths (on locking side)			
Profile type	Sash width B (mm)		
	1-point locking with VA-1		2-point locking with VA-2
	Solo (S100)	Synchro (S100)	Synchro (S100)
Timber	450 – 1200	–	1201 – 2400
Aluminium	450 – 1200	–	1201 – 2400
PVC	450 – 800	801 – 1200	1201 – 1800

Minimum space requirement			
Drive/locking side			Minimum space requirement (mm)
Drive side	ELTRAL S100	Frame	38
Locking side	ELTRAL VA-1 / VA-2	Frame	38
Mounting bracket	–	Sash	40

RWA 1000 opening system

Order information

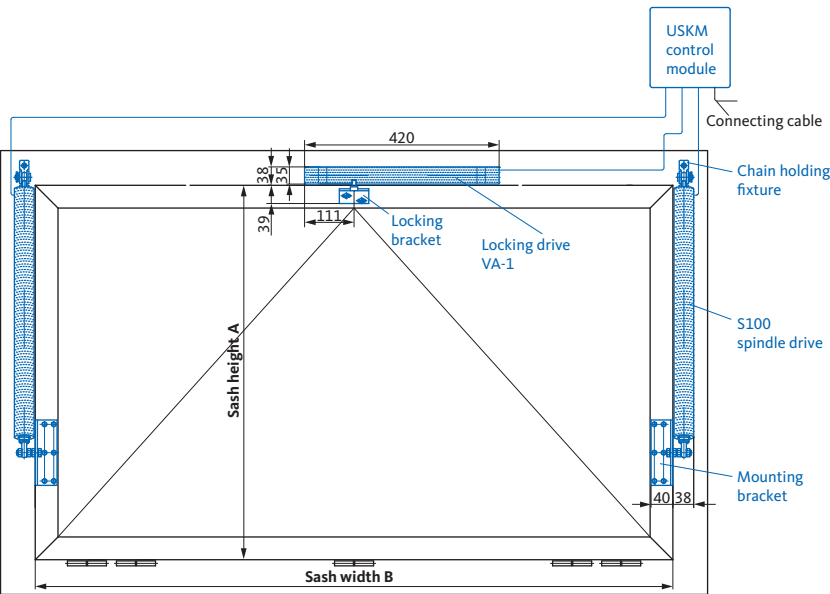


RWA 1000 opening system Solo ^[1]

- Consists of:
- 1 locking drive
 - 1 spindle drive
 - Fixings

Versions / Order numbers

Travel	Order number
100 mm	K-17585-10-0-1
200 mm	K-17585-20-0-1
300 mm	K-17585-30-0-1

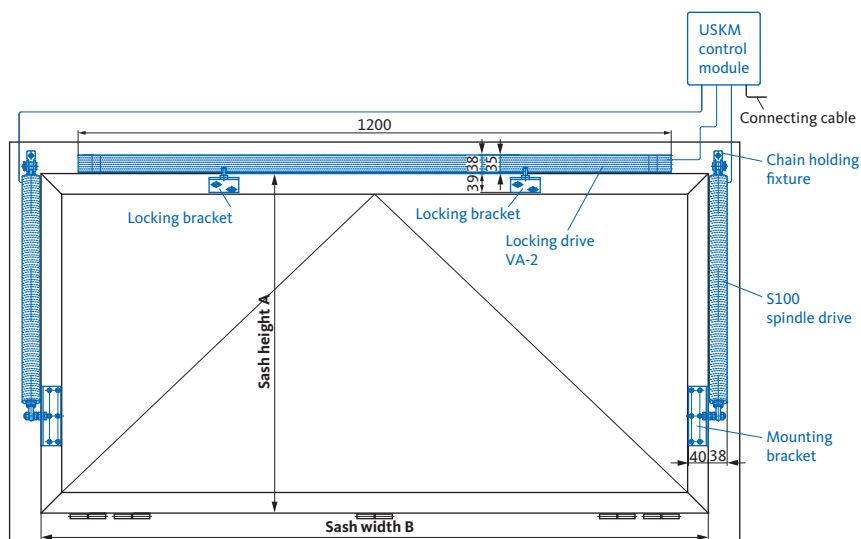


RWA 1000 opening system Synchro ^[1]

- Consists of:
- 1 locking drive
 - 1 USKM control module
 - 2 spindle drives
 - Fixings

Versions / Order numbers

Travel	Order number
100 mm	K-17588-10-0-1
200 mm	K-17588-20-0-1
300 mm	K-17588-30-0-1



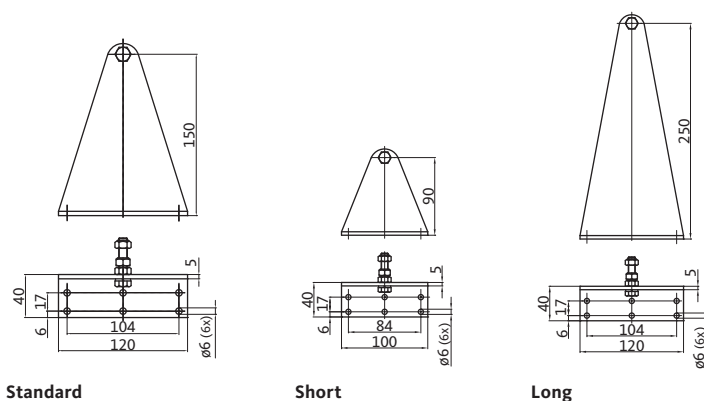
RWA 1000 opening system Synchrony ^[1]

Consists of:

- 1 locking drive
- 1 USKM control module
- 2 spindle drives
- Fixings

Versions / Order numbers

Travel	Order number
100 mm	K-17587-10-0-1
200 mm	K-17587-20-0-1
300 mm	K-17587-30-0-1



Mounting bracket set for RWA 1000 opening system

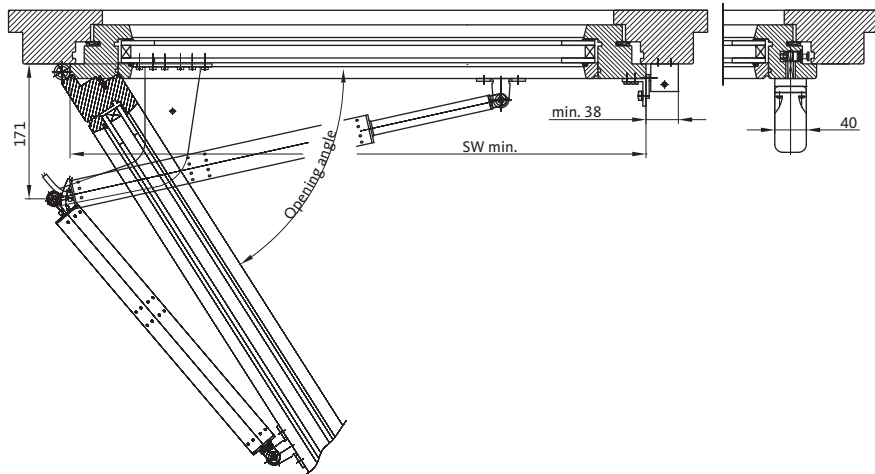
Versions / Order numbers

Version	Order number
Standard	9-39105-00-0-1 (contained in the scope of delivery)
Short	9-39104-00-0-1
Long	9-39106-00-0-1

[1] 2 hinges must be used on the side(s) where a drive is mounted

RWA 1050 opening system

for Turn-Only windows, inward-opening
mullion/transom application



Product features

- Large opening widths up to 85°
- Ideally suited for windows offering limited mounting space: only 22 mm needed on the frame side
- Profile-mounted ELTRAL S60 spindle drive
- Automatic limit stop switch and over-load cut-off
- Electromechanical sash locking
 - with square spindle drive via central locking
 - 1-point or 2-point via surface-mounted ELTRAL VA-1 / VA-2 locking drive
- Integrated closing and opening follow-up controller
- Synchronised tandem operation
- Max. weight of glazing: 30 kg/m²
- NSHEV-tested and certified ^[1]
- EV1 anodised aluminium housing

Technical data – ELTRAL S60 spindle drive

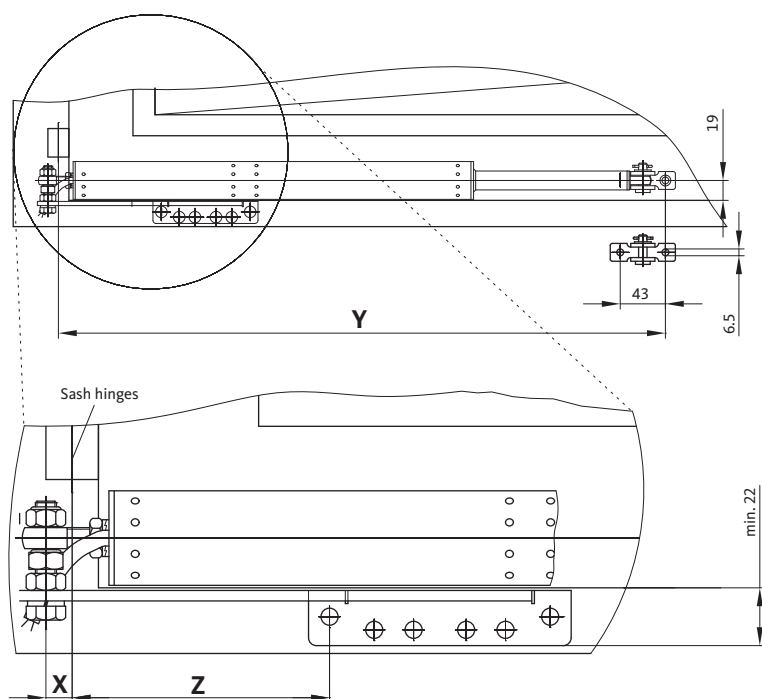
Opening system	RWA 1050 with ELTRAL S60 spindle drive
Nominal voltage	24 V DC $\pm$ 15%
Nominal force	600 N
Nominal current	0.8 A
Breaking current	1.2 A
Max. switching current (locking drive VA/OA)	3 A
Speed	5.8 mm/s
Locking force	5000 N ^[2]
Connecting cable	Silicone; 2.5 m, 2-core

Runtime

Travel [mm]	Runtime [s]
100	ca. 17 + 5 (locking drive)
150	ca. 26 + 5 (locking drive)
200	ca. 35 + 5 (locking drive)
250	ca. 43 + 5 (locking drive)

[1] Valid for aluminium systems only

[2] Depends on fixing



Minimum sash width ^[1]

Travel (mm)	Sash width B (mm)	Opening angle, approx.	Mounting dim. X (mm)	Dim. Y (mm)	Dim. Z (mm)
100	min. 510	35°	0	483	108
150	min. 600	55°	20	566	88
200	min. 680	75°	40	649	68
250	min. 740	85°	80	710	28

[1] The maximum sash width depends on the profile used

Maximum sash height

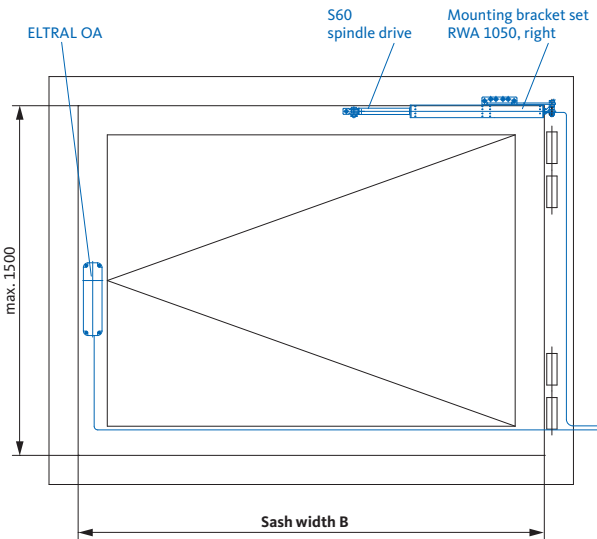
Version	Locking	Locking drive	Sash height (mm)
Solo (S60)	1-point locking	ELTRAL OA, ELTRAL VA-1	max. 1500
Synchro (S60)	2-point locking	ELTRAL OA, ELTRAL VA-2	max. 2000
Synchro (S60)	3-point locking	ELTRAL VA-3	max. 3000

Minimum space requirement

Drive/locking side			Min. space requirement (mm)
Drive side	ELTRAL S60	Frame	22
Locking side	ELTRAL OA	Sash	40
Locking side	ELTRAL VA-1 / VA-2 / VA-3	Frame	38

RWA 1050 opening system

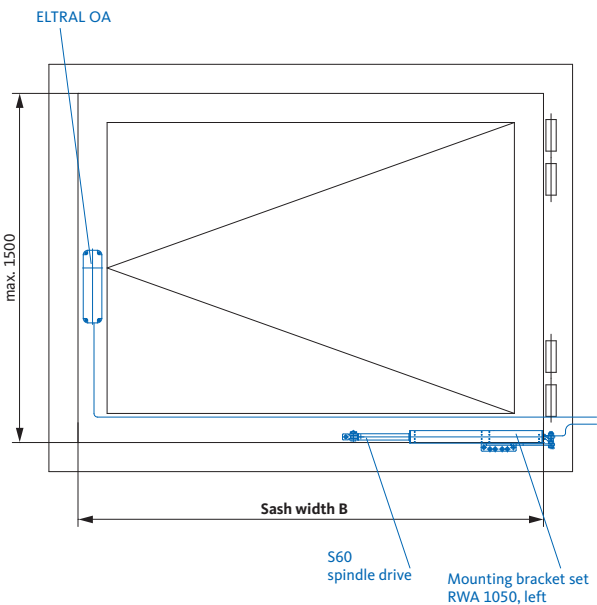
Order information



RWA 1050 opening system Solo with square spindle drive and right-hand mounting bracket

- Consists of:
- 1 spindle drive
 - 1 square spindle drive
 - Fixings

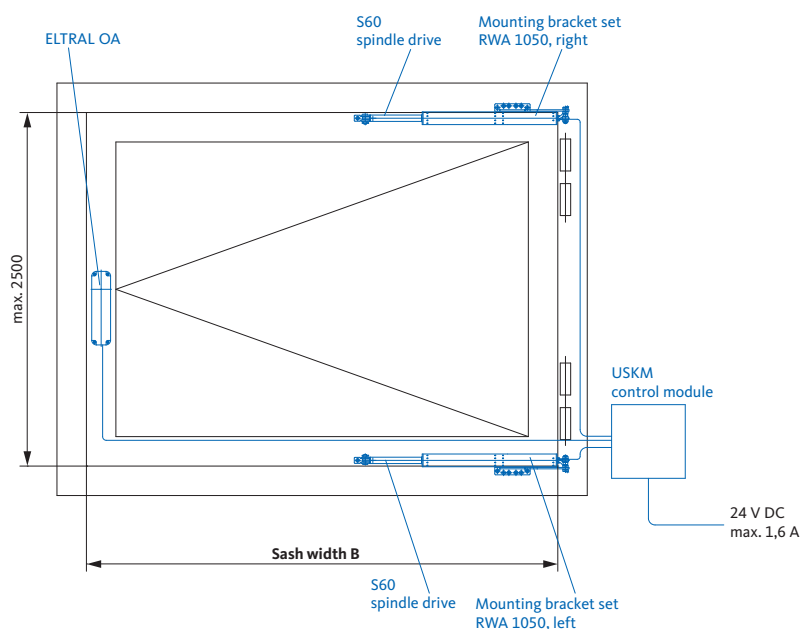
Versions / Order numbers	
Travel	Order number
100 mm	K-17799-10-R-1
150 mm	K-17799-15-R-1
200 mm	K-17799-20-R-1
250 mm	K-17799-25-R-1



RWA 1050 opening system Solo with square spindle drive and left-hand mounting bracket

- Consists of:
- 1 spindle drive
 - 1 square spindle drive
 - Fixings

Versions / Order numbers	
Travel	Order number
100 mm	K-17799-10-L-1
150 mm	K-17799-15-L-1
200 mm	K-17799-20-L-1
250 mm	K-17799-25-L-1



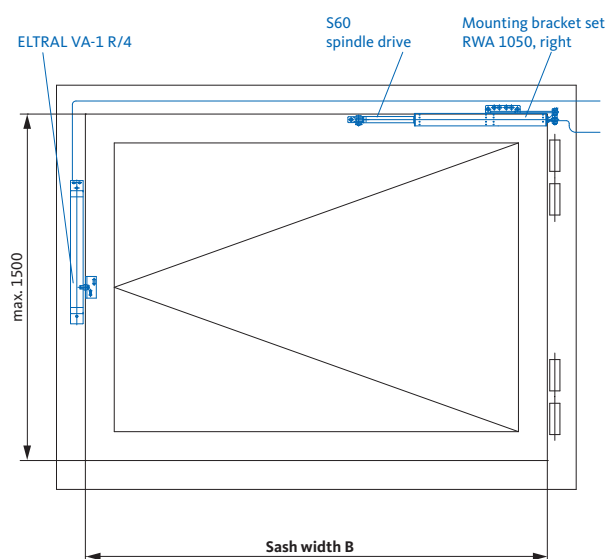
RWA 1050 opening system Synchro with square spindle drive

Consists of:

- 2 spindle drives
- 1 square spindle drive
- 1 USKM control module
- Fixings

Versions / Order numbers

Travel	Order number
100 mm	K-17800-10-0-1
150 mm	K-17800-15-0-1
200 mm	K-17800-20-0-1
250 mm	K-17800-25-0-1



RWA 1050 opening system Solo with right-hand VA-1 R/4 locking drive and right-hand mounting bracket

Consists of:

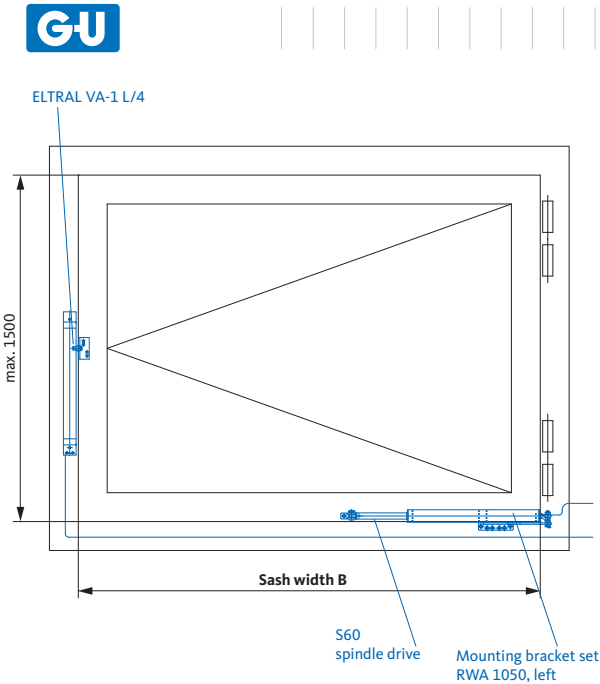
- 1 spindle drive
- 1 locking drive
- Fixings

Versions / Order numbers

Travel	Order number
100 mm	K-17801-10-R-1
150 mm	K-17801-15-R-1
200 mm	K-17801-20-R-1
250 mm	K-17801-25-R-1

RWA 1050 opening system

Order information

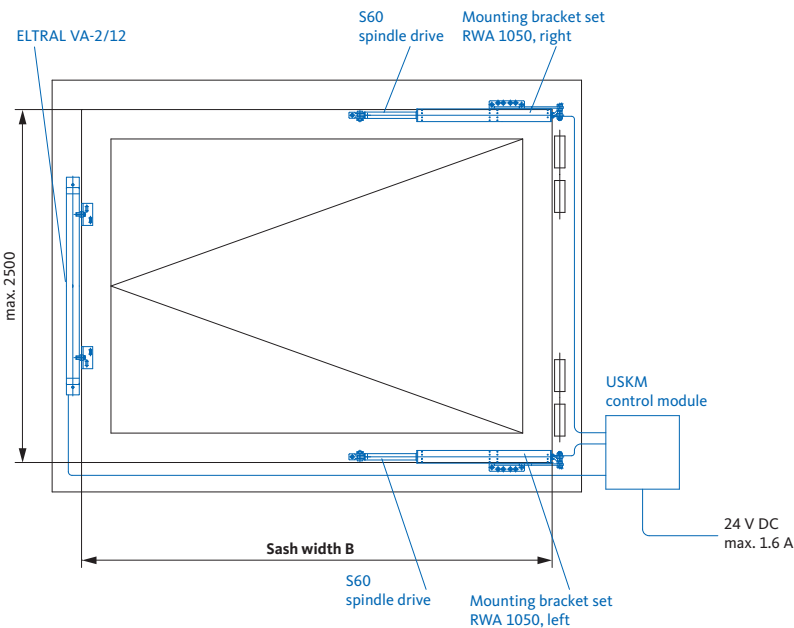


RWA 1050 opening system Solo

with left-hand VA-1 L/4 locking drive and left-hand mounting bracket

- Consists of:
- 1 spindle drive
 - 1 locking drive
 - Fixings

Versions / Order numbers	
Travel	Order number
100 mm	K-17801-10-L-1
150 mm	K-17801-15-L-1
200 mm	K-17801-20-L-1
250 mm	K-17801-25-L-1

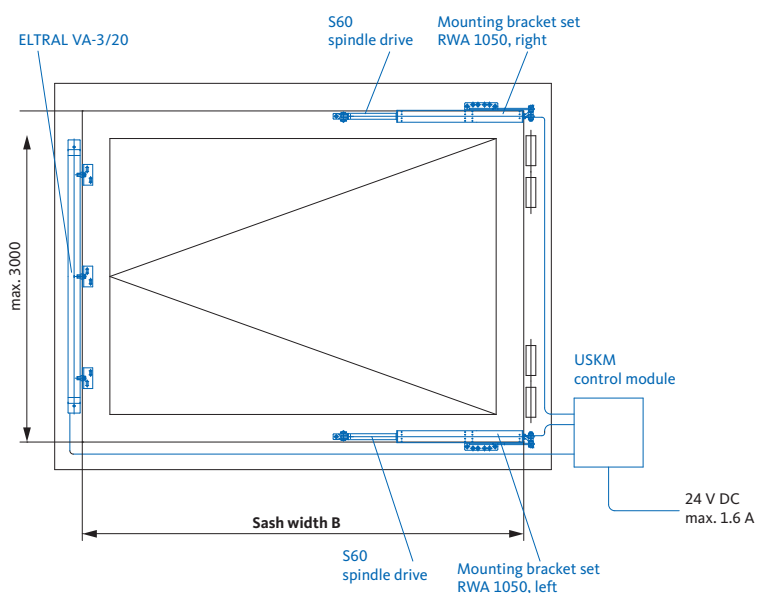


RWA 1050 opening system Synchro

with VA-2/12 locking drive

- Consists of:
- 2 spindle drives
 - 1 locking drive
 - 1 USKM control module
 - Fixings

Versions / Order numbers	
Travel	Order number
100 mm	K-17802-10-0-1
150 mm	K-17802-15-0-1
200 mm	K-17802-20-0-1
250 mm	K-17802-25-0-1



RWA 1050 opening system Synchron with VA-3/20 locking drive

Consists of:

- 2 spindle drives
- 1 locking drive
- 1 USKM control module
- Fixings

Versions / Order numbers

Travel	Order number
100 mm	K-17858-10-0-1
150 mm	K-17858-15-0-1
200 mm	K-17858-20-0-1
250 mm	K-17858-25-0-1



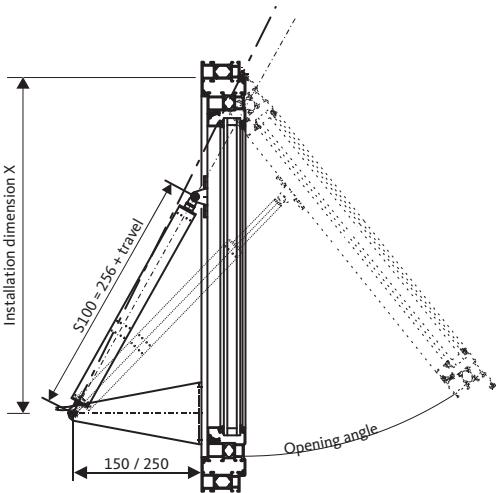
RWA 1100 opening system

for Tilt-Only, Top-Hung and Turn-Only windows, outward-opening



Product features

- Electromechanical sash locking (single or double)
- Large opening widths with small travel distances even for small-height sashes
- Profile-mounted ELTRAL S100 spindle drive
- Integrated closing and opening follow-up controller
- Synchronised tandem operation
- Automatic limit stop switch and overload cut-off
- NSHEV-tested and certified ^[1]
- Max. weight of glazing: 30 kg/m²
- EV1 anodised aluminium housing



Technical data – ELTRAL S100 spindle drive

Opening system	RWA 1100 with ELTRAL S100 spindle drive
Nominal voltage	24 V DC ± 15%
Nominal force	1000 N
Nominal current	0.8 A
Breaking current	1.4 A
Max. switching current (locking drive VA)	3 A
Speed	2.6 mm/s
Locking force	5000 N ^[2]
Connecting cable	Silicone; 2.5 m, 2-core

Runtime

Travel [mm]	Runtime [s]
100	38 + 5 (locking drive)
150	58 + 5 (locking drive)
200	77 + 5 (locking drive)
300	115 + 5 (locking drive)

[1] Valid for aluminium systems only
[2] Depends on fixing

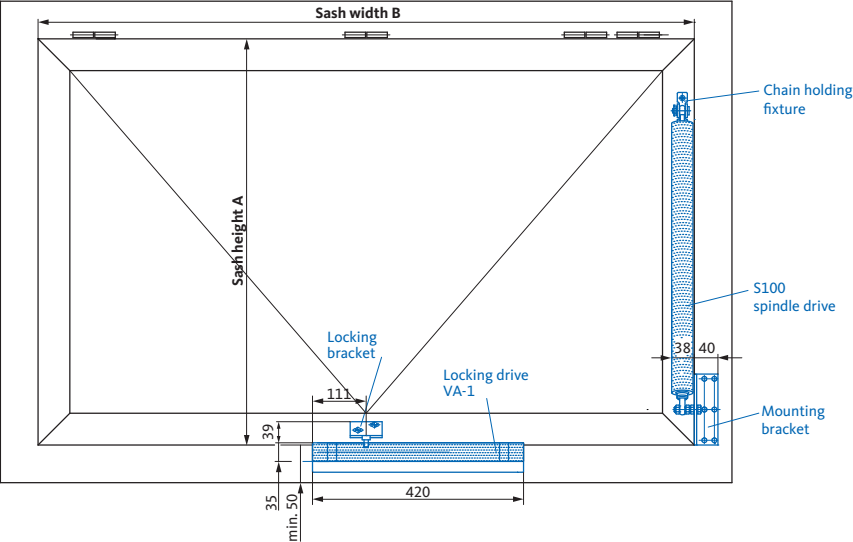
Sash heights					
Travel (mm)	Mounting bracket (mm)	Sash height A (mm)	Mounting dim. X (mm)	Opening width (mm)	Opening angle (°)
100	150	800	400	365	26
		900	500	360	23
		1000	600	320	18
150	150	900	450	516	33
		1000	550	479	28
		1100	650	450	24
		1200	750	429	21
200	150	1000	500	648	38
		1100	600	608	32
		1200	700	577	28
		1300	800	554	25
		1400	900	534	22
300	250	1000	400	962	58
		1100	500	879	47
		1200	600	821	40
		1300	700	775	35
		1400	800	741	31
		1500	900	713	28
		1600	1000	693	25

Sash widths (on locking side)		
Profile type	Sash width B (mm)	
	1-point locking with VA-1 ELTRAL S100 Solo	2-point locking with VA-2 ELTRAL S100 Synchro
Timber	450 – 1200	1201 – 2400
Aluminium	450 – 1200	1201 – 2400
PVC	450 – 800	801 – 1800

Minimum space requirement			
Drive/locking side			Minimum space requirement (mm)
Drive side	ELTRAL S100	Sash	38
Locking side	ELTRAL VA-1 / VA-2	Frame	50
Mounting bracket	–	Frame	40

RWA 1100 opening system

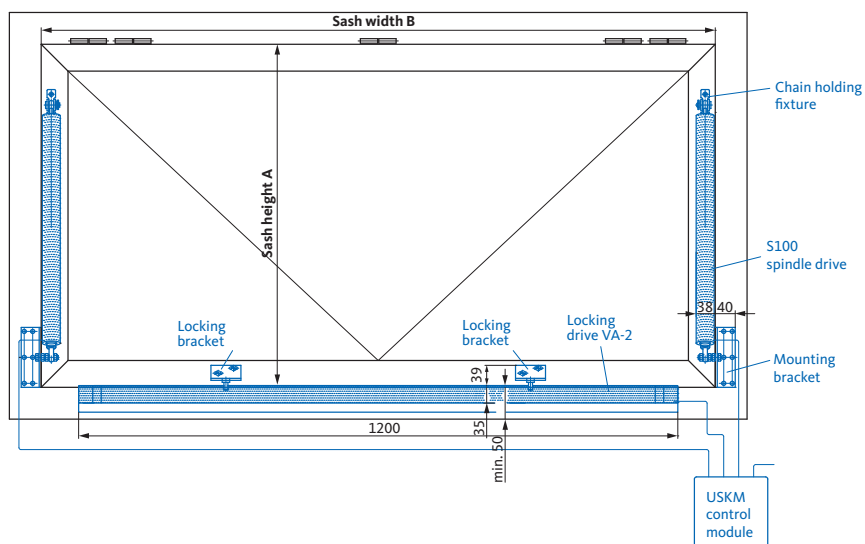
Order information



RWA 1100 opening system Solo

- Consists of:
- 1 spindle drive
 - 1 locking drive
 - Fixings

Versions / Order numbers	
Travel	Order number
100 mm	K-15334-10-0-1
150 mm	K-15334-15-0-1
200 mm	K-15334-20-0-1
300 mm	K-15334-30-0-1



RWA 1100 opening system Synchrono

Consists of:

- 2 spindle drives
- 1 locking drive
- 1 USKM control module
- Fixings

Versions / Order numbers

Travel	Order number
100 mm	K-15335-10-0-1
150 mm	K-15335-15-0-1
200 mm	K-15335-20-0-1
300 mm	K-15335-30-0-1

Fanlight opening system (24 V)



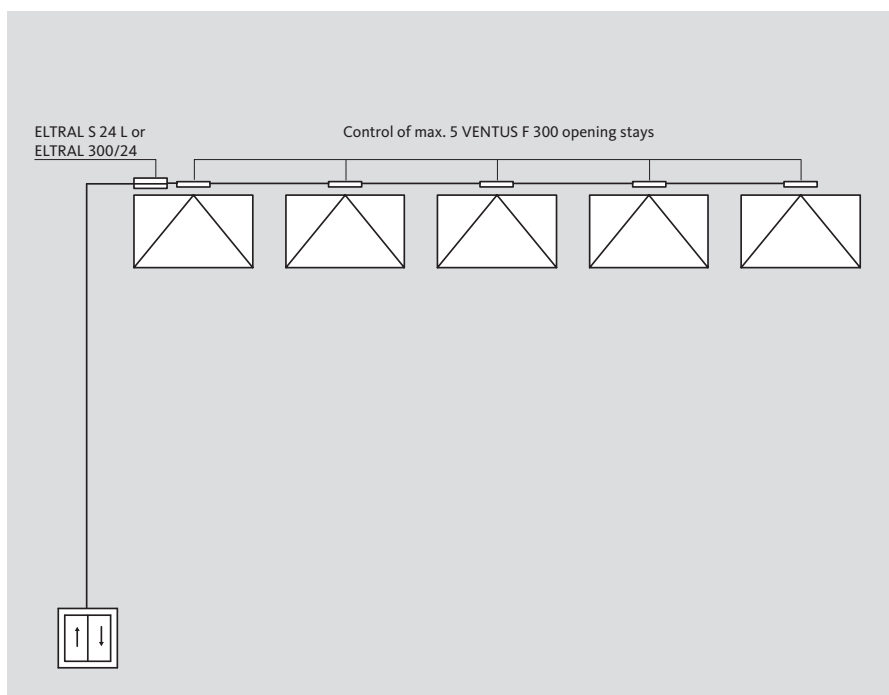
The fanlight opening system of the Gretschi-Unitas Group, comprising the VENTUS fanlight opener and the ELTRAL electric drive, enables cost-efficient, electromotor-driven control of several sash units and up to 5 opening stays.

Through the flat design of the opening stays, the system for smoke extraction and everyday ventilation can be used on inward-opening, vertically installed, rectangular Tilt-Only windows made from timber, PVC or aluminium, with limited mounting space.

The automatic locking in the stays and the optional additional locking on the sash enable a high pressing force and therefore increase the tightness of the seal on the sash.

The system is easy to install and operate.

System overview: VENTUS F 300 fanlight opening system



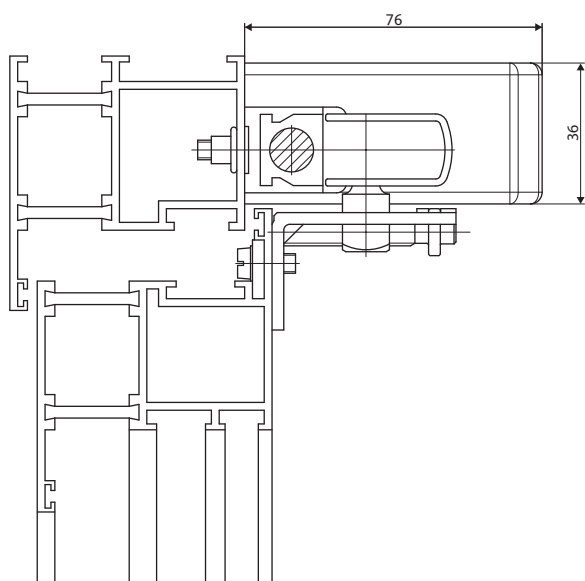
VENTUS F 300 fanlight opening system

VENTUS F 300 fanlight opening system consisting of:

- VENTUS F 300 flat-form fanlight opening stay set
- Electric drive
 - ELTRAL S 24 L or
 - ELTRAL 300/24
- Accessories
(cover profile, driving rods and cross rods, guide parts and connection parts)

VENTUS F 300 fanlight opening system

Cost-efficient control of several sashes with one drive



Product features

Fanlight opening system

- Flat-form fanlight opening stay set for vertically installed Tilt-Only windows
- Cost-efficient control of several sashes with one drive
- Large opening widths up to 300 mm for small sash heights from 350 mm
- Sash weights up to 200 kg
- Ideally suited for windows offering limited mounting space
- High gasket pressure thanks to automatically and reliably locked stays
- Overlap dimensions 0 – 25 mm
- The stay can be easily unhinged for convenient window cleaning
- Two drive variants with different motor power depending on sash widths and weights:
 - ELTRAL S 24 L or
 - ELTRAL 300/24

Electric drives

- Fire tested up to 300 °C
- Simple installation, horizontal or vertical (left or right)
- Adjustable travel for variable opening widths
- Automatic limit stop switch and overload cut-off
- Anodised aluminium housing

Technical data – Electric drives

Drive system	ELTRAL S 24 L	ELTRAL 300/24
Nominal voltage	24 V DC $\pm$ 15%	24 V DC $\pm$ 15%
Nominal force	1200 N	3000 N
Nominal current	0.7 A	0.8 A
Stroke (adjustable)	50 mm / 70 mm ^[1]	40 – 70 mm ^[2]
Speed	0.9 mm/s	1.0 mm/s
Cut-off	Overload cut-off	Limit switch
Connection	Connector plug for 2-core connecting cable	4 x 0.75 mm ² , 1.5 m
Dimensions (L x W x H)	210 x 36 x 76 mm	270 x 55 x 102 mm

[1] Factory setting = 50 mm travel = 200 mm opening width | 70 mm travel = 300 mm opening width

[2] Factory setting = 40 mm travel. When installed with VENTUS F 300, the travel must be set to 70 mm = 300 mm opening width

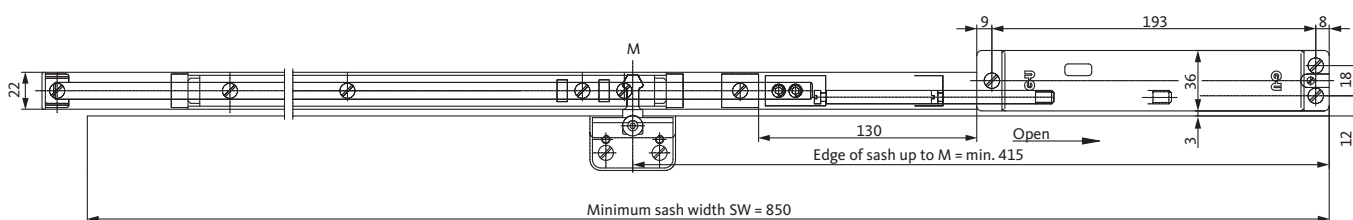
Permissible sash weights, heights and widths

VENTUS F 300 with	ELTRAL S 24 L	ELTRAL 300/24
Maximum sash weight	200 kg	200 kg
Maximum weight of glazing ^[1]	70 kg/m ²	70 kg/m ²
Minimum sash height – vertical installation ^[2] – horizontal installation ^[3]	468 mm 350 mm	400 mm 350 mm
Minimum sash width – vertical installation ^[2] – horizontal installation ^[3]	620 mm 850 mm	605 mm 850 mm
Maximum sash width	3600 mm	6000 mm
Space required for drive – vertical installation ^[2] – horizontal installation ^[3]	39 mm 39 mm	57 mm 57 mm
Max. number of stays	3	5

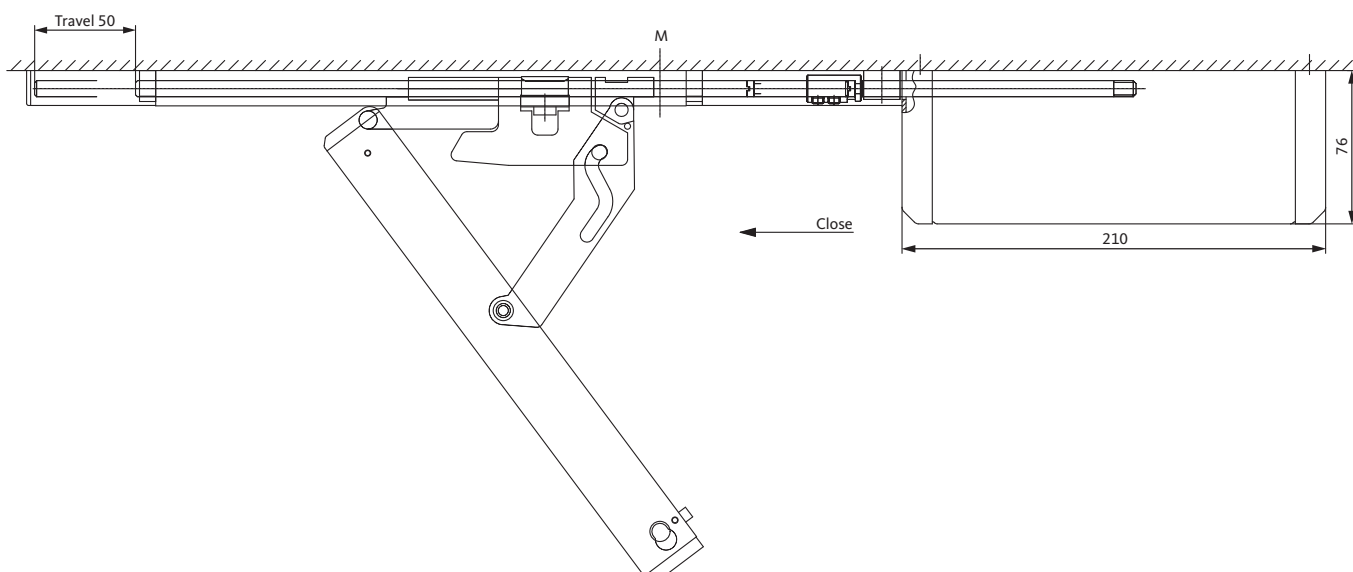
[1] Based on "S" dimension and sash width | [2] Motor installed on side | [3] Motor installed on top

Motor mounted at top (horizontal installation)

Opening stay closed



Opening stay open



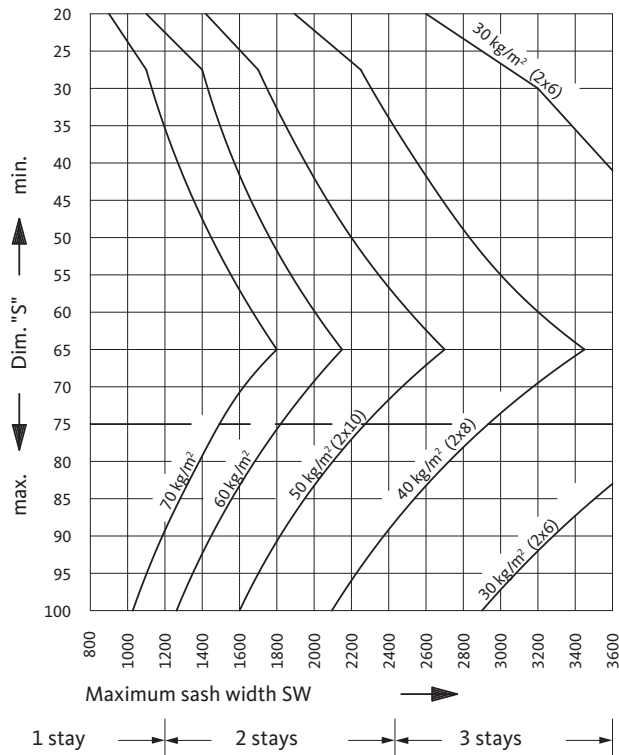
VENTUS F 300 fanlight opening system

Range of application

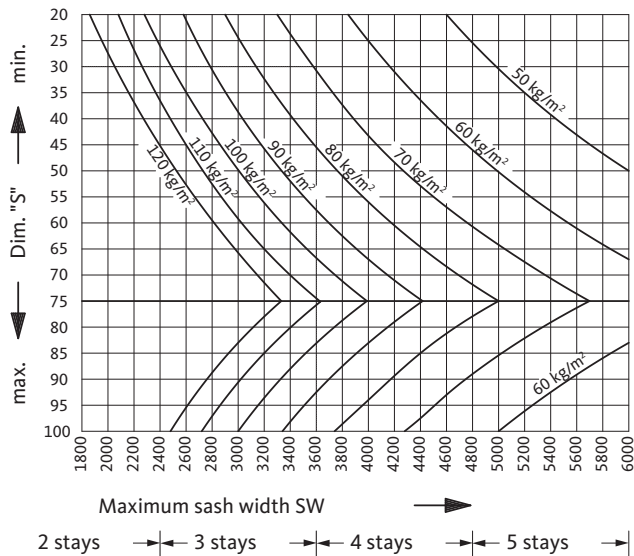


Range of application VENTUS F 300 fanlight opener

with ELTRAL S 24 L

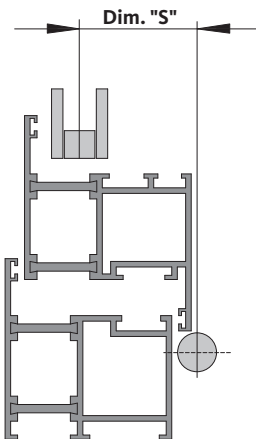


with ELTRAL 300/24



Dimension "S"

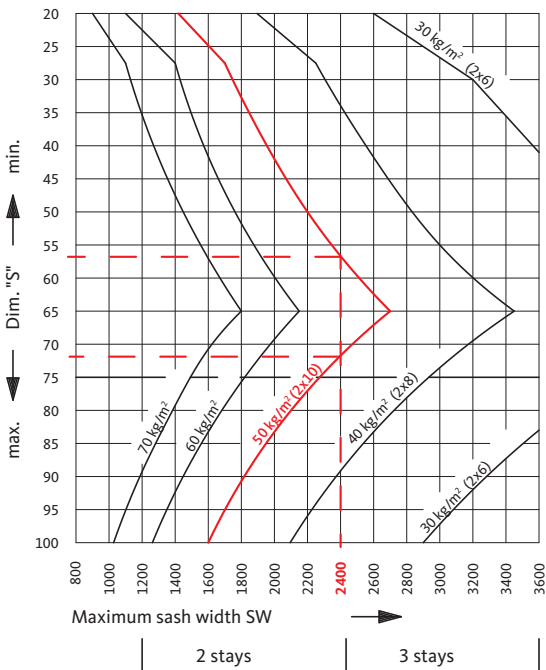
(= distance from sash centre of gravity to middle of hinge)



Calculation example with ELTRAL S 24 L

Example figures:	
Glazing	2 x 10 mm
Weight of glass	50 kg/m²
Sash width	2400 mm
Result:	
Dimension "S"	56 – 72 mm possible

Note: the overall sash weight must not exceed 200 kg.



Electric drives

Designation	Cut-off	Installation	PU	Order number
ELTRAL S 24 L	Overload cut-off	Vertical / horizontal installation	1	6-31734-00-0-*
ELTRAL 300/24	Cut-off via limit stop switch	Horizontal installation	1	9-31021-00-0-*

VENTUS F 300 fanlight opener

Designation	Consists of	Installation	PU	Order number
Basic box without lever handle, with angular sash bracket		Vertical installation	1	K-14320-00-0-*
Opening stay box with angular sash bracket ^[1]		Vertical / horizontal installation	1	K-13999-00-0-*
Connecting parts set for ELTRAL S 24 L electric drive	Connecting rod, coupling, guide	Vertical / horizontal installation	1	K-14203-00-0-1
Connecting parts set for ELTRAL 300/24 electric drive	Connecting rod, coupling, guide	Horizontal installation	1	K-14202-00-0-1
Connecting rod ø 12 mm for ELTRAL 300/24 electric drive		Vertical installation	1	9-35331-00-0-1
End cap		Horizontal installation	1	9-34479-00-0-*
Designation	Length	Installation	PU	Order number
Horizontal rod ø 10 mm Cover profile for horizontal rod	600 mm	Vertical / horizontal installation	1	K-14001-06-0-*
	1870 mm		1	K-14001-18-0-*
	3500 mm		1	K-14001-33-0-*
Alternative: horizontal rod ø 10 mm	6000 mm	Vertical / horizontal installation	1	9-23055-60-0-1
Alternative: cover profile for horizontal rod	6000 mm	Vertical / horizontal installation	1	9-34497-60-0-*

RWA air supply – ELTRAL TA 60 door drive (24 V)

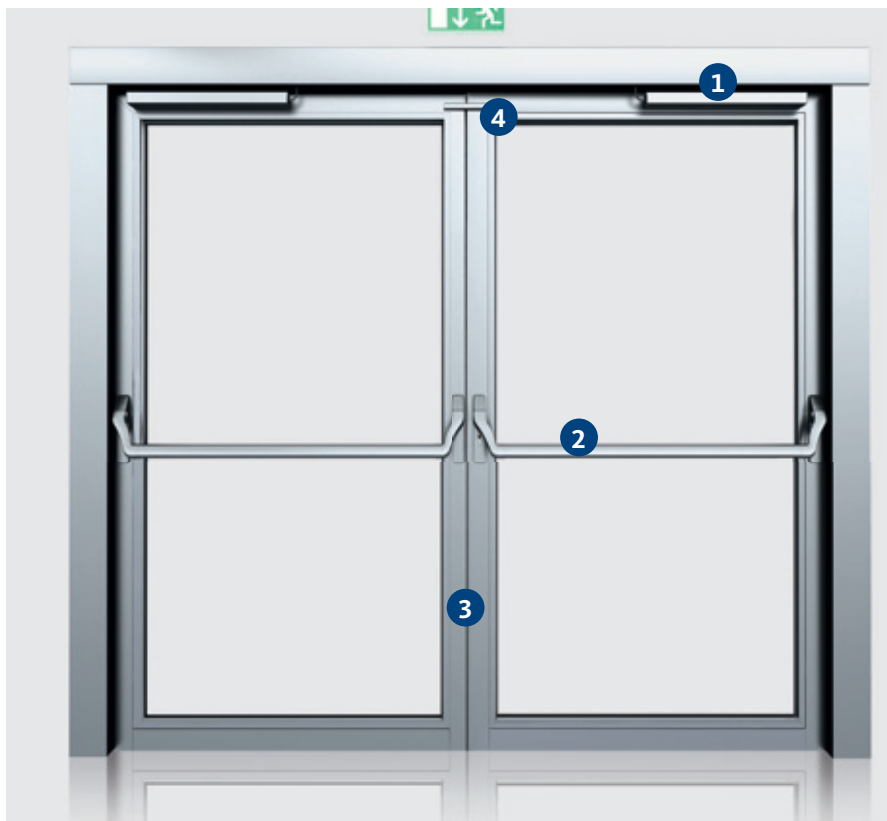


The ELTRAL TA 60 door drive makes it possible to also use swing doors in entrance areas for the purposes of RWA supply air, while maintaining escape route security.

In conjunction with the SECURY 19 multiple locking, GU-SECURY Automatic with A-opener* or the BKS motor lock, this drive solution not only achieves the main "door" function but also other functions such as compliance with safety and fire protection requirements, without impairing passage convenience during everyday operation.

The ELTRAL TA 60 door drive is suitable for use on 1 and 2-leaf doors – including as an emergency exit or panic door according to EN 179 / EN 1125.

System overview: RWA air supply with ELTRAL TA 60 door drive



Adequately sized supply air openings are always required to ensure that the smoke and heat extraction system functions safely and reliably. By means of a kind of "chimney effect", these boost the thermal uplift and thus ensure that smoke gases are drawn upwards and extracted more quickly.

The supply air opening must be 1.5 times larger than the area of all exhaust air openings in the space concerned. The supply air opening must also be fully located in the low-smoke layer.

Components

- 1 ELTRAL TA 60 door drive
- 2 Push bar
- 3 SECURY 19 / GU-SECURY Automatic with A-opener*
- 4 Carrier bar

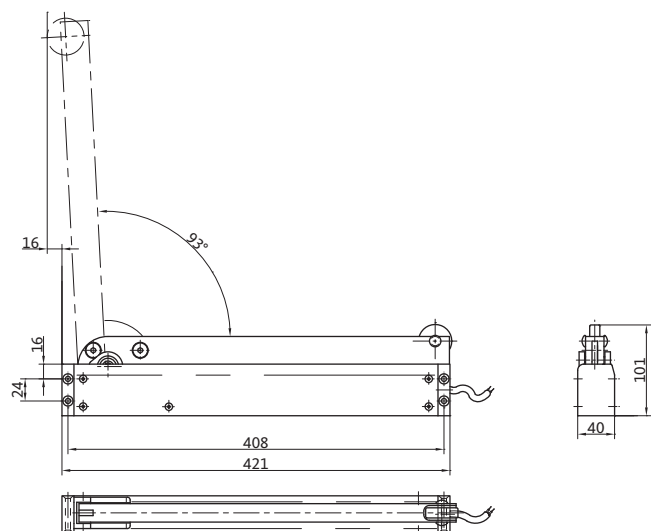
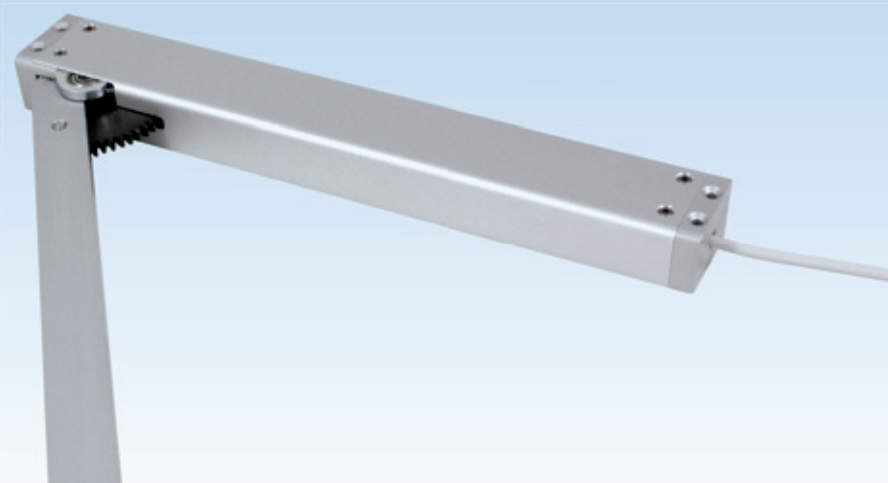
Functions

- **Smoke extraction:** fast and reliable smoke extraction via the extraction apertures through the automatic supply air opening in the door in the event of fire
- **Passage convenience:** the doors can be opened without any counterforce in everyday use, because the ELTRAL TA 60 door drive is inactive in everyday use
- **Burglar protection:** high security through the automatic SECURY 19 multiple locking, GU-SECURY Automatic* with A-opener or 19-series motor lock
- **Panic function:** escaping from inside is possible at any time (emergency exit doors EN 179 / panic doors EN 1125)

* = The GU-SECURY Automatic multiple locking system is not suitable for use in emergency doors or panic doors in accordance with EN 179 / EN 1125

ELTRAL TA 60 door drive

RWA air supply



Technical data

Drive	ELTRAL TA 60
Nominal voltage	24 V DC $\pm$ 15%
Pull/push force	200 N / 600 N
Nominal current	0.8 A
Max. switching current	3 A
Opening/closing speed	3°/s
Runtime	approx. 30 s
Opening torque	180 Nm / 216 Nm (continuous / maximum)
Closing torque	72 Nm
Potential-free contact	max. 50 V; 0.5 A
Connecting cable	Silicone; 5 m; 5-core

Product features

- Compact size
- Integrated microprocessor control unit
- Potential-free contact to release the A-opener or motor lock
- Automatic limit stop switch
- Integrated overload cut-off
- Electric soft approach and soft stop
- For door leaf widths from 450 mm
- Direct installation possible
- Opening angle up to 93°
- Delayed opening
- EV1 anodised aluminium housing

Delayed opening and closing, deadbolt contact „OPEN“

	1-leaf	2-leaf	
		Active	Passive
Delayed opening [s]	5	5	7
Delayed closing [s]	0	7	0
Deadbolt contact „OPEN“ [s]	10	10	12

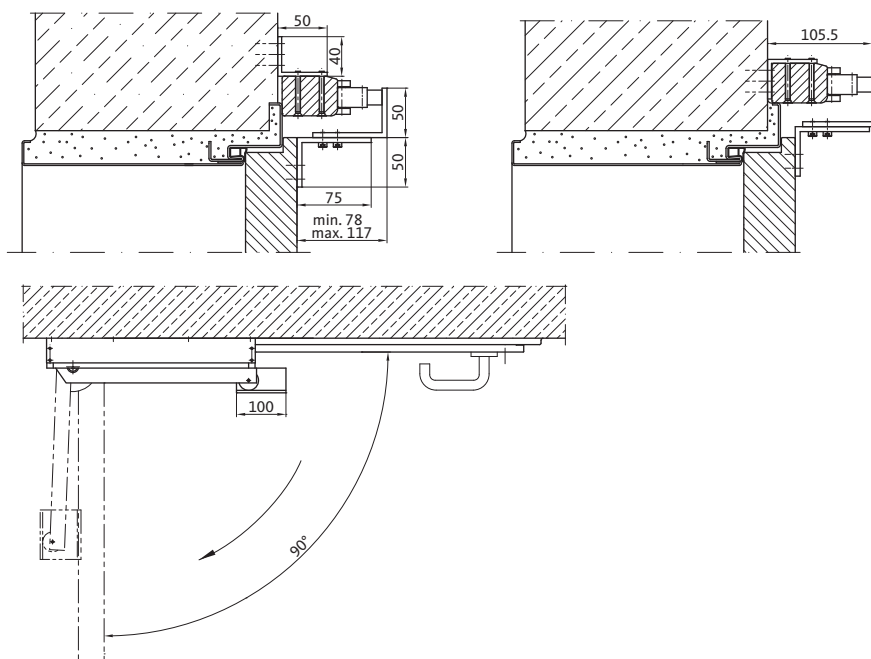
* Active = active leaf / Passive = passive leaf

Order information

Designation	Order number
ELTRAL TA 60 – Solo for single-leaf doors	6-33971-00-0-1
ELTRAL TA 60 – S-set for double-leaf doors ^{[1][2]}	K-17860-00-0-1

[1] Consisting of 2 door drives with 2 different opening delays: active leaf with 5 s and passive leaf with 7 s delay

[2] Reliable locking requires door openers and multiple locking systems such as SECURITY 19 or GU-SECURITY Automatic with A-opener.
The complete door assembly is controlled via the central control unit



Mounting bracket set for indirect frame installation

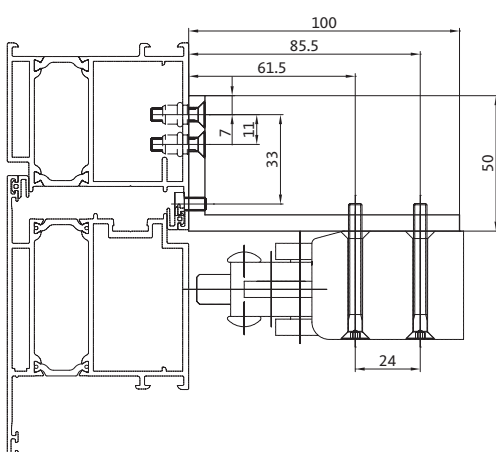
Consists of:

- 1 fastening bracket
- 1 door bracket fastener
- 1 door angle stop

Order numbers

Order number

K-17328-00-0-1



Mounting bracket for installation on side opposite to hinges ^[1]

Without fixing screws

Order numbers

Order number

9-45614-00-0-1

[1] 2 brackets are required for each drive

Electrical controllers (24 V)



General information

Product overview	114 – 115
Planning – selecting the right RWA central control unit	116 – 119
Definition of terms	120 – 121

Compact central control units

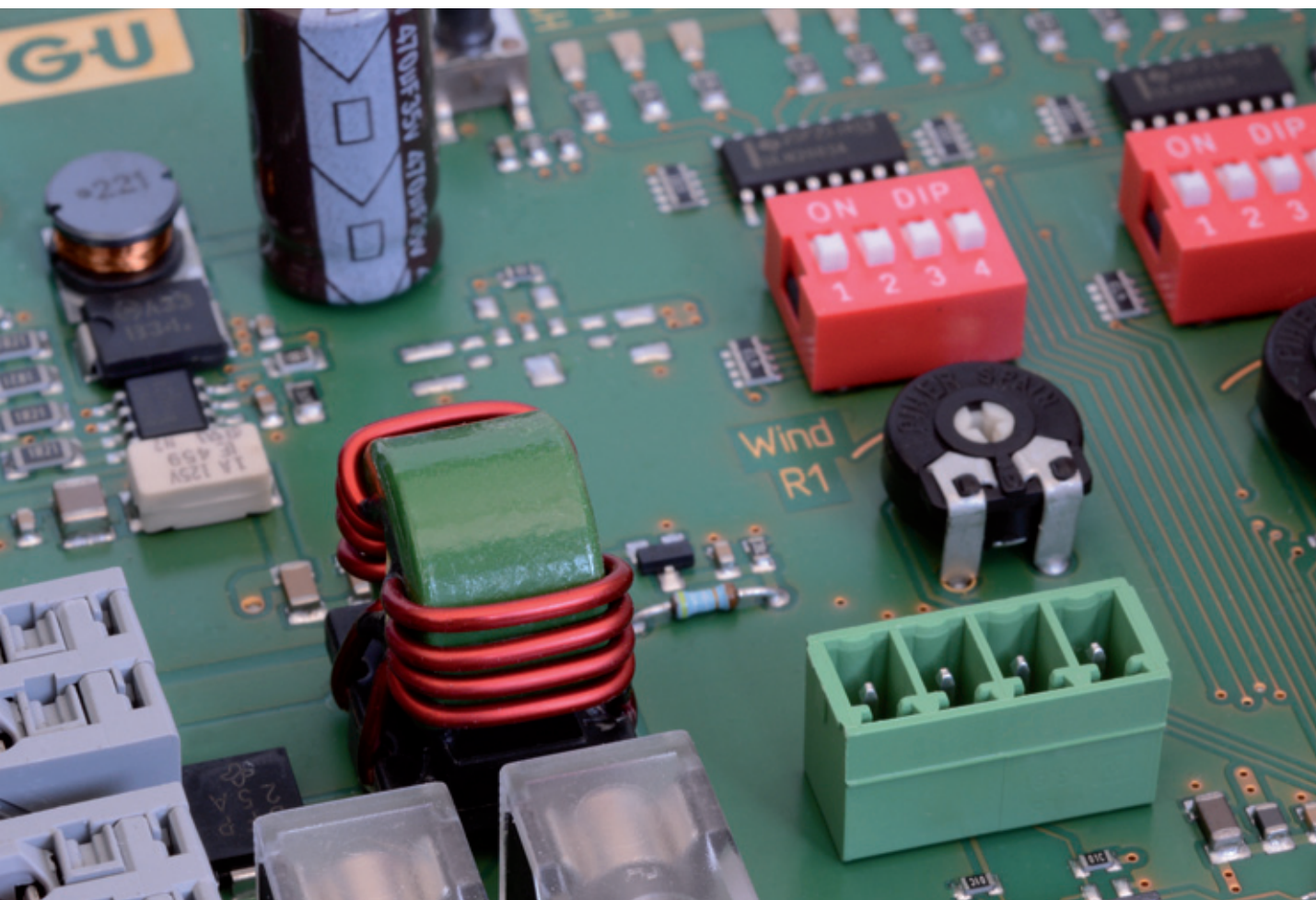
Output current 2.5 A – RZ25	122 – 123
Output current 5.0 A – RZ50	122 – 123
Output current 7.5 A – RZ75	122 – 123
Output current 10.0 A – RZ100	124 – 125
Output current 20.0 A – RZ200	124 – 125

Module central control units

Output current 24.0 A – RZM240	126 – 129
Output current 48.0 A – RZM480	126 – 129

Electrical controllers (24 V)

Product overview



RWA central control units reliably control and monitor all connected ventilation and fire protection components (e.g., automatic detectors, manual alarms, electric drives) and supply them with power.

In the event of a fire, RWA central control units ensure the fast opening of smoke extraction apertures in order to extract toxic fumes, and are therefore a substantial element of preventative fire protection.

The GU Group offers a wide range of RWA central control units, from compact central control units to expandable module central control units. Accessories and enhancements offer a high degree of planning flexibility.

The basic benefits are:

- Can be used for both smoke extraction and everyday ventilation
- Integrated backup batteries guarantee 72-hour operation in the event of a power failure
- Electronic monitoring of cables leading to drives and alarm devices
- Extension of alarm and ventilation lines if required
- Optional alarm forwarding to central building control system via potential-free contacts
- Wide range of extension options such as wind and rain detectors
- Simple, cost-efficient coupling of several central control units
- Convenient and clear signalling of status, errors and faults via LED indicators
- Easy to install, commission and maintain
- Wide range of adjustment and application functions

Designation	Compact central control units					Module central control units	
Central control unit	RZ25	RZ50	RZ75	RZ100	RZ200	RZM240	RZM480
VdS-tested	–	–	–	■	■	■	■
Power output	2.5 A	5 A	7.5 A	10 A	20 A	24 A	48 A
Max. number of RWA groups	1	1	1	1	1	8	8
Max. number of ventilation groups	1	1	1	2	2	8	8
Connection of several central control units	up to 5 ^[1]	up to 5 ^[1]	up to 5 ^[1]	optional	optional	optional	optional
Max. number of RWA push-buttons 'HSE'	10	10	10	10	10	10 per line, max. 60	10 per line, max. 60
Max. number of smoke/heat detectors	10	10	10	10	10	10 per line, max. 60	10 per line, max. 60
Signal input for wind/rain detector	■	■ ^[2]	■ ^[2]	■	■	■ ^[3]	■ ^[3]
Potential-free alarm contacts (alarm and fault)	■	■	■	■	■	■	■
Signal input for external alarm	■	■	■	■	■	■	■
Automatic ventilation <CLOSE>	■	■	■	■	■	■	■
Dead man's switch function in <OPEN> and <CLOSE> direction	■	■	■	■	■	optional ^[4]	optional ^[4]
Runtime limitation for ventilation (adjustable)	■	■	■	■	■	■	■
Automatic closing of windows in case of power failure	■	■	■	optional ^[4]	optional ^[4]	optional ^[4]	optional ^[4]
Backup batteries	included	included	included	included	included	must be ordered separately	must be ordered separately
Dimensions WxHxD (mm)	296x296x112	296x296x112	296x296x112	400x300x150	400x400x200	600x600x250	600x600x250
Surface-mounted housing	sheet-steel, RAL 9010	sheet-steel, RAL 9010	sheet-steel, RAL 9010	sheet-steel, painted RAL 7035	sheet-steel, painted RAL 7035	sheet-steel, painted RAL 7032	sheet-steel, painted RAL 7032
[1] 1 RWA group and 5 ventilation groups [2] With internal evaluation [3] With internal evaluation and opening based on wind direction [4] Via licence software							

Selecting the right RWA central control unit

Planning



Image Source collection / Getty Images

The selection of a suitable electrical controller (RWA central control unit) should be considered as early as the planning phase.

The following points are important for this:

- The current consumption (nominal and breaking currents) of all connected drives as well as the accessory components (see following table)
- The minimum number of control locations (RWA push-buttons 'HSE') required in accordance with the regional building regulations; see page 13
- The minimum number of automatic alarm devices (smoke or heat detectors) as specified by the relevant fire protection authorities
- The wiring, in particular the cable cross-sections for the drives in accordance with the Model Conduit Systems Directive (German designation: MLAR) and DIN 4102, part 12
- Division into RWA and ventilation groups
- Optional: connection to building control system (BCS) / fire alarm system (FAS), e.g. for superior ventilation functions
- Optional: Use of automatic ventilation controls, for example wind/rain detector, time switch
- Position/installation location for dimensioning the cable cross-sections, or for the optional connection of multiple central control units

Nominal and breaking currents

Current consumption of drive systems				Current consumption – accessories	
Electric drive and opening systems (24 V)	Designation	Nominal current	Breaking current	Accessories	Nominal current
Chain drives	ELTRAL K25	0.8 A	1.0 A	Wind and rain detector	250 mA
	ELTRAL K30	0.9 A	1.2 A	Input/output module IO10	100 mA
	ELTRAL K35	0.9 A	1.2 A	ST10/ST20 key switch	25 mA
	ELTRAL K60	0.8 A	1.2 A		
Locking drives	ELTRAL VAN	1.5 A	1.5 A		
	ELTRAL VA25	0.4 A	0.4 A		
	ELTRAL OA	0.8 A	1.1 A		
	ELTRAL VA35	0.6 A	0.8 A		
	ELTRAL VA-1	0.6 A	0.8 A		
	ELTRAL VA-2	0.6 A	0.8 A		
Spindle drives	ELTRAL S80	1.0 A	1.4 A		
	ELTRAL S160	0.7 A	2.5 A		
RWA opening systems	RWA 1000*	0.8 A	1.4 A		
	RWA 1050**	0.8 A	1.2 A		
	RWA 1100*	0.8 A	1.4 A		
Fanlight opening systems	ELTRAL S 24 L	0.7 A	0.9 A		
	ELTRAL 300/24	0.8 A	0.8 A		
Door drive	ELTRAL TA 60	0.8 A	1.4 A		

* with ELTRAL S100 spindle drive | ** with ELTRAL S60 spindle drive

Maximum number of drives per central control unit type								
Electric drive and opening systems (24 V)	Description (output current ^[1])	RZ25 (3.2 A)	RZ50 (6.5 A)	RZ75 (8.4 A)	RZ100 (10.0 A)	RZ200 (20.0 A)	RZM240 (24.0 A)	RZM480 (48.0 A)
Chain drives	ELTRAL K25	3	6	8	10	20	24	48
	ELTRAL K30	2	5	7	8	16	20	40
	ELTRAL K35	2	5	7	8	16	20	40
	ELTRAL K60	2	5	7	8	16	20	40
Locking drives	ELTRAL VAN	2	4	5	6	13	16	32
	ELTRAL VA25	8	16	21	25	50	60	120
	ELTRAL OA	2	5	7	9	18	21	43
	ELTRAL VA35	4	8	10	12	25	30	60
	ELTRAL VA-1	4	8	10	12	25	30	60
	ELTRAL VA-2	4	8	10	12	25	30	60
Spindle drives	ELTRAL S80	2	4	6	7	14	17	34
	ELTRAL S160	1	2	3	4	8	9	19
RWA opening systems	RWA 1000*	2	4	6	7	14	17	34
	RWA 1050**	2	5	7	8	16	20	40
	RWA 1100*	2	4	6	7	14	17	34
Fanlight opening systems	ELTRAL S 24 L	3	7	9	11	22	26	53
	ELTRAL 300/24	4	8	10	12	25	30	60
Door drive	ELTRAL TA 60	2	4	6	7	14	17	34

* with ELTRAL S100 spindle drive | ** with ELTRAL S60 spindle drive

[1] The total current consumption of the connected drives and accessory components must not exceed this value

Selecting the right RWA central control unit

Planning example: rating of output current



Requirement:

Operation of:

- 1x ELTRAL K35 chain drive – Synchro
- 1x ELTRAL S80 spindle drive
- 1x ELTRAL TA60 S-set door drive (double-leaf door)
- 1 RWA and 2 ventilation groups

Calculation:

1x ELTRAL K35 chain drive – Synchro

■ Breaking current K35 drive – Synchro: 2.4 A

1x ELTRAL S80 spindle drive

■ Breaking current S80 drive 1.4 A

1x ELTRAL TA60 S-set door drive (double-leaf door)

■ Breaking current TA60 drive (2 x 1.4 A) 2.8 A

Total current:

$2.4 \text{ A} + 1.4 \text{ A} + 2.8 \text{ A} = 6.6 \text{ A}$

Selected central control unit:

RZ100 1/2 (with a max. output current of 10.0 A and 2 separate ventilation groups)



Calculating the cable cross-section and length

The cross-sections of the on-site cables between the central control unit and the drives depend on the cable length, current consumption and the potential drop on the cable.

When using GU drives

$$\text{Cable cross-section [mm}^2\text{]} = \frac{\text{Single cable length [m]} \times \text{number of drives}}{\text{Factor } f_{\text{drive}}}$$

$$\text{Single cable length [m]} = \frac{\text{Cable cross-section [mm}^2\text{]} \times \text{factor } f_{\text{drive}}}{\text{Number of drives}}$$

Factor f_{drive}

Drive	K25	K30 K35 K60 RWA 1050	VAN	VA25 VA35	OA	S80 TA60 RWA 1000 RWA 1100	S160	S 24 L	300/24
Factor f_{drive}	56	46	37	80	51	40	22	62	73

Calculation example: Requirement: Operation of 5x ELTRAL K35 chain drives in a stairwell with a single cable length of 25 m between the RWA compact central control unit and drives

$$\text{Calculation: Cable cross-section [mm}^2\text{]} = \frac{25 \text{ m} \times 5}{46} = 2.72$$

Selected cable cross-section: 3.0 mm²

When using drives from other manufacturers

The cable cross-section is calculated using the cable length and the sum of the breaking currents of the drives to be connected.

$$\text{Min. cable cross-section [mm}^2\text{]} = \frac{\text{Single cable length [m]} \times \text{sum of breaking currents [A]}}{56}$$

Maximum cable length (central control unit – drive)

Cable cross section	Sum of breaking currents										
	1.0 A	2.0 A	3.0 A	3.2 A	4.0 A	5.0 A	6.0 A	6.5 A	7.0 A	8.0 A	8.4 A
3 x 1.0 mm ²	56 m	28 m	18 m	17 m	14 m	11 m	9 m	8 m	8 m	7 m	6 m
3 x 1.5 mm ²	84 m	42 m	28 m	26 m	21 m	16 m	14 m	12 m	12 m	10 m	10 m
3 x 2.5 mm ²	140 m	70 m	46 m	43 m	35 m	28 m	23 m	21 m	20 m	17 m	16 m
3 x 3.0 mm ²	168 m	84 m	56 m	52 m	42 m	33 m	27 m	25 m	24 m	21 m	20 m
5 x 2.5 mm ² *	280 m	140 m	93 m	87 m	70 m	56 m	45 m	43 m	40 m	35 m	33 m

* Doubling of the live cores (produces a cable cross-section of 5.0 mm² each)

Definition of terms



What is meant by RWA group and ventilation group?

RWA group

An RWA group consists of at least one alarm line (manual alarm) and a ventilation line (drive line). Together, these two lines form an RWA group, which relates to a fire section (e.g. stairwell). For EMERGENCY OPEN, all connected electromotor drives are considered as part of this RWA group.

It is possible to implement up to four independent RWA groups depending on the central control unit design.

Ventilation group

A ventilation group consists of several window units (drive lines), which can be opened manually or automatically for everyday room ventilation, regardless of the RWA group and via a ventilation push-button, rain/wind controller or time switch.

This allows several ventilation groups to be combined in an RWA group, which open the exhaust and supply air elements automatically in the event of an alarm.

What is meant by dead man's switch function?

For ventilation, the drives only move in the opening and/or closing direction as long as the ventilation push-button is being operated. If the push-button is no longer operated (pressed), the drive movement stops. This allows for customised window opening widths.

Dead man's switch functions are mainly used in windows that are installed in the handle area.

All central control units from the Gretsch-Unitas Group have a dead man's switch function that can be switched on or off (via DIP switch).

What is meant by runtime limitation?

For ventilation, adjustable limitation of the drive running time (opening width limitation) in the opening direction. In the event of a fire, the running time limitation is deactivated and the drives are fully opened.

This function is integrated in all central control units of the Gretsch-Unitas Group as standard and can be individually adjusted via potentiometer.

What is meant by automatic ventilation "CLOSE"?

The automatic ventilation "CLOSE" allows the windows to close automatically once a pre-defined time period has elapsed.

This function is integrated in all central control units of the Gretsch-Unitas Group as standard and can be individually adjusted via potentiometer.

Fire alarm system (FAS)

A pre-installed alarm system in the building for the early detection of fires and direct notification of these to the fire services (emergency call).

The FAS can also control other technical systems, such as an RWA system, or receive signals from the system.

What is meant by FAS?

The option to choose the running direction of the drives in the event of an alarm. In a normal situation with an RWA alarm, the RWA openings in the building are opened to extract the smoke from the escape routes.

In rare cases, it may be a requirement that the RWA openings can be securely shut. In such cases, it is possible to reverse the running direction of the drives via an integrated switch.

What is meant by selection of the running direction?

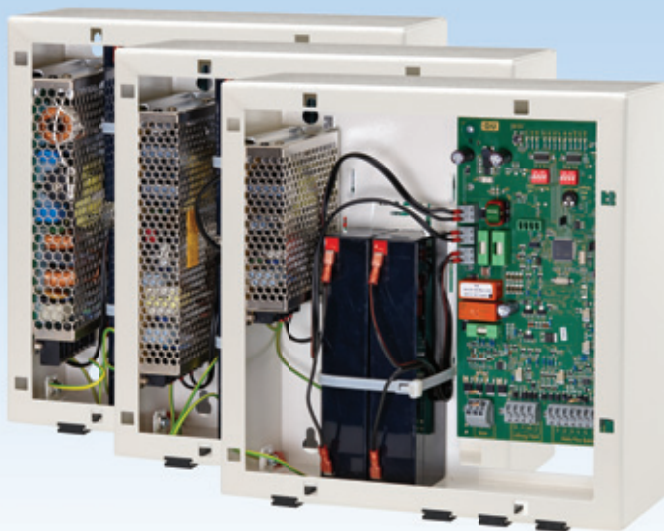
The reset push-button allows an alarm to be reset remotely, i.e. closes the RWA openings.

This function is integrated in all central control units of the Gretsch-Unitas Group and is controlled via the RWA push-button.

What is meant by reset function?

RZ25 / RZ50 / RZ75 compact central control units

for stairwells and smaller projects



Product features

- Compact, robust steel housing
- Regulated output voltage
- Connection of up to 5 central control units, with real cable monitoring
 - up to five physically separate ventilation groups
 - central ventilation push-button function for the connected central control units
- Convenient and clear signalling of status, errors and faults via LED indicators
- Wide range of adjustment and application functions:
 - Automatic ventilation <CLOSE> with programmable time selection
 - Dead man's switch function in <OPEN> and <CLOSE> direction
 - Runtime limitation for ventilation, adjustable
 - Integrated, acoustic alarm signalling device with switch-off function
 - Automatic closing of windows in case of power failure
 - Selection of the drive running direction in the event of an alarm
- Relay outputs for alarm and faults
- RZ50/RZ75: connection of wind/rain detector without auxiliary module, with integrated evaluation and wind measurement (adjustable wind speed)
- Easy to install, commission and maintain
- Maintenance interval: signal for yearly maintenance/inspection
- Connection to BKS-NET bus
- TÜV-tested with reference to EN 12101-9/10

Technical data

Type		RZ25	RZ50	RZ75
Electric				
Operating voltage		100 – 240 V AC, 50 – 60 Hz	100 – 240 V AC, 50 – 60 Hz	100 – 240 V AC, 50 – 60 Hz
Nominal voltage		26 V DC (22 – 27 V)	26 V DC (22 – 27 V)	26 V DC (22 – 27 V)
Output current		3.2 A	6.5 A	8.4 A
Connection cross-section for mains / drive line		2.5 mm² / 4 mm² [2]	2.5 mm² / 4 mm² [2]	2.5 mm² / 4 mm² [2]
Emergency power supply (backup batteries)		2.3 Ah	3.2 Ah	3.2 Ah
RWA and ventilation groups				
Max. number of RWA groups		1	1	1
Max. number of ventilation groups		1	1	1
Connection of several central control units [1]		up to 5 central control units = 1 RWA and up to 5 ventilation groups possible		
Alarm triggering and ventilation control				
Alarm line 1: manual triggering	Max. number of RWA push-buttons 'HSE'	10	10	10
Alarm line 2: automatic triggering	Max. number of smoke/heat detectors	10	10	10
	Triggered via FAS [5]	optional	optional	optional
Ventilation control	Ventilation push-button	any (without LED) 10 (with LED)	any (without LED) 10 (with LED)	any (without LED) 10 (with LED)
	Connection of wind/rain detector	■ [3]	■ [4]	■ [4]
General information				
Protection class		IP 20 / IP 54 [6]	IP 20 / IP 54 [6]	IP 20 / IP 54 [6]
Dimensions (W x H x D)		296 x 296 x 112 mm	296 x 296 x 112 mm	296 x 296 x 112 mm
Dimensions (W x H x D) with IP 54 mounting kit		335 x 296 x 116 mm	335 x 296 x 116 mm	335 x 296 x 116 mm
Surface-mounted housing		sheet-steel, RAL 9010	sheet-steel, RAL 9010	sheet-steel, RAL 9010
Ambient temperature range		-5 °C to +40 °C	-5 °C to +40 °C	-5 °C to +40 °C

[1] All variants can be connected to one another in any combination | [2] With pluggable terminals | [3] Via WRAG 2 wind/rain evaluator
[4] Without auxiliary module, with integrated evaluation and wind measurement (adjustable wind speed) | [5] Via line termination module/interface module for FAS
[6] With IP 54 protection class set

Order information – compact central control units

Designation	Backup batteries	Order number
RZ25	included	K-18328-00-0-7
RZ50	included	K-18329-00-0-7
RZ75	included	K-18433-00-0-7

Order information – control centre extensions

Designation	Description	Order number
BKS-NET coupling module	for the connection of multiple central control units	9-48897-00-0-0
IP mounting kit (for protection class IP 54) Consists of: – wall mounting plate – cover	in order to achieve protection class IP 54	K-18830-00-0-7
Line termination module/interface module for FAS	for optional alarm triggering via a fire alarm system	9-48836-00-0-0
Input/output module IO10	provides inputs and outputs for central control	B 5580 0321
ST10 key switch [1]	central control unit for the central units connected via the BKS-NET interface (without LEDs)	B 5580 0311
ST20 key switch [1]	central display and control unit for the central units connected via the BKS-NET interface (with LEDs)	B 5580 0312

[1] Locking cylinders, frames and covers must be ordered separately

RZ100 / RZ200 compact central control units

VdS-tested with reference to EN 12101, parts 9 and 10



Product features

- VdS-tested with reference to EN 12101, parts 9 and 10
- Compact, robust steel housing
- Convenient and clear signalling of status, errors and faults via LED indicators
- Wide range of adjustment and application functions via DIP switch:
 - Automatic ventilation <CLOSE> with programmable time selection
 - Dead man's switch function in <OPEN> and <CLOSE> direction
 - Runtime limitation for ventilation, adjustable
 - Selection of the running direction in the event of an alarm
- Slots for relay cards for forwarding alarm and fault messages
- Connection of wind/rain detector without auxiliary module, with integrated evaluation and wind measurement (adjustable wind speed)
- Easy to install, commission and maintain
- Enhanced functions and configuration options through licensed software
- Optional: integration in an external BUS system

Technical data

Type		RZ100		RZ200	
Electric					
Operating voltage		195 – 250 V AC, 50 – 60 Hz		195 – 250 V AC, 50 – 60 Hz	
Nominal voltage		24 V DC (20 – 28 V)		24 V DC (20 – 28 V)	
Output current		10 A		20 A	
Connection cross-section for mains / drive line		1.5 mm² / 6 mm²		1.5 mm² / 6 mm²	
Emergency power supply (backup batteries)		7.0 Ah		7.0 Ah	
RWA and ventilation groups					
Max. number of RWA groups		1		1	
Max. number of ventilation groups		2		2	
Connection of several central control units		optional		optional	
Alarm triggering and ventilation control					
Alarm line 1: manual triggering		Max. number of RWA push-buttons 'HSE'		10	
Alarm line 2: automatic triggering		Max. number of smoke/heat detectors		10	
		Triggered via FAS		optional	
Ventilation control		Ventilation push-button		without LED	with LED
				any	10
		Connection of wind/rain detector		■ ^[1]	
General information					
Protection class		IP 40		IP 40	
Dimensions (W x H x D)		400 x 300 x 150 mm		400 x 400 x 200 mm	
Surface-mounted housing		sheet-steel, RAL 7035		sheet-steel, RAL 7035	
Ambient temperature range		-5 °C to +40 °C		-5 °C to +40 °C	
[1] Without auxiliary module, with integrated evaluation and wind measurement (adjustable wind speed)					

[1] Without auxiliary module, with integrated evaluation and wind measurement (adjustable wind speed)

Order information – compact central control units

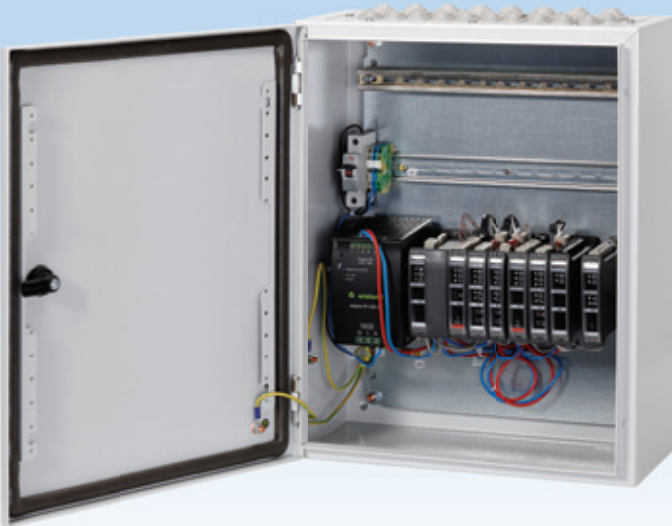
Designation	Backup batteries	RWA and ventilation groups	Order number
RZ100 1/1	included	1 RWA and 1 ventilation group	K-18838-11-0-0
RZ100 1/2	included	1 RWA and 2 ventilation groups	K-18838-12-0-0
RZ200 1/2	included	1 RWA and 2 ventilation groups	K-18839-12-0-0

Order information – control centre extensions

Designation	Description	Order number
REL 65 plug-in card	for the transmission of alarm and failure reports, e.g. to the building control system or fire alarm system	9-42000-00-0-0
PSB plug-in card	Voltage supply for external devices	9-49402-00-0-0
USB cable	for the configuration of standard and service functions	9-48547-00-0-0

RZM240 / RZM480 module central control units

For large projects and special structures



Product features

- Simple and flexible layout in accordance with the modular principle. All modules are connected to one another by means of modern, internal BUS technology.
- Variable expansion options for alarm and ventilation groups through top-hat rail installation
- Quick and simple configuration using the software
- Convenient and clear signalling of status, errors and faults via LED indicators
- Wide range of adjustment and application functions:
 - Automatic ventilation <CLOSE> with programmable time selection
 - Dead man's switch function in <OPEN> and <CLOSE> direction
 - Runtime limitation for ventilation, adjustable
 - Selection of the running direction in the event of an alarm
- Simple connection option of multiple central control units to a large control system via BUS
- Connection of wind/rain detector without auxiliary module, with integrated evaluation and wind measurement (adjustable wind speed)
- Easy to install, commission and maintain
- Control device VdS-tested in accordance with EN 12101-9
- Power supply VdS-tested in accordance with EN 12101-10

Features / configuration

The basic RZM module central control unit consists of:

- 1 x power module (PM)
- 1 x control module (CM)
- 1 x drive module (DM)
- A drive module (DM) is required for each drive line (ventilation group). Another drive module (DM) is required for each additional drive line
- The first fire section is monitored by the control module (CM). A separate sensor module (SM) is required for each additional fire section
- It is possible to connect up to 64 modules



Power module (PM)

- For connecting the switching power supply and backup batteries
- Control and monitoring of mains and battery voltage



Control module (CM)

- Control module for monitoring the first fire section
- Connection of up to 3 alarm lines (manual and automatic alarm devices, external signals)
- For connecting a central switch (e.g. key switch) for all ventilation groups
- Signal transmission (status, alarm, fault) to external systems
- Alarm reset function



Drive module (DM / DMX)

- Drive module for monitoring and managing all functions in a drive line (ventilation group)
- Maximum current consumption per drive line
 - Drive module DM = 10 A
 - Drive module DMX = 20 A
- For connecting ventilation push-buttons



Sensor module (SM)

- Sensor module for monitoring and coordinating further fire sections
- Connection of up to 3 alarm lines (manual and automatic alarm devices, external signals)
- For connecting a central switch (e.g. key switch) for all ventilation groups
- In order to use a sensor module (SM), a control module (CM) is required



Weather module (WM)

- Weather module for connecting wind/rain detectors

RZM240 / RZM480 module central control units

Technical data



Technical data

Type		RZM240	RZM480		
Electric					
Operating voltage		195 – 250 V AC, 50 – 60 Hz	195 – 250 V AC, 50 – 60 Hz		
Nominal voltage		24 V DC (20 – 28 V)	24 V DC (20 – 28 V)		
Output current		24 A	48 A		
Connection cross-section for mains / drive line		1 mm ² / 2.5 mm ² [2] [3]	1 mm ² / 2.5 mm ² [2] [3]		
Emergency power supply (backup batteries) ^[1]		17.0 Ah / 24.0 Ah / 38.0 Ah	24.0 Ah / 38.0 Ah		
RWA and ventilation groups					
Max. number of RWA groups		8	8		
Max. number of ventilation groups		8	8		
Connection of several central control units		optional	optional		
Alarm triggering and ventilation control					
Alarm line 1: manual triggering	Max. number of RWA push-buttons 'HSE'	10	10		
Alarm line 2: automatic triggering	Max. number of smoke/heat detectors	10	10		
Alarm line 3: external signals	e.g. triggered via FAS	1 x FACP signal (external fire alarm system)	1 x FACP signal (external fire alarm system)		
Ventilation control	Ventilation push-button	without LED	with LED	without LED	with LED
		any	10	any	10
	Connection of wind/rain detector	■ [4]		■ [4]	
General information					
Protection class		IP 54	IP 54		
Dimensions (W x H x D)		600 x 600 x 250 mm	600 x 600 x 250 mm		
Surface-mounted housing (with lock)		sheet-steel, RAL 7032	sheet-steel, RAL 7032		
Ambient temperature range		-5 °C to +40 °C	-5 °C to +40 °C		

[1] Depending on the number of connected RWA and ventilation groups

[2] Per module

[3] Additional terminal clamps are required in order to connect larger cable cross-sections

[4] Via weather module (WM)

Order information – module central control units ^[1]

Designation	Backup batteries	Description	Order number
RZM240 module central control unit			
RZM240 1/3	must be ordered separately	1 RWA and 3 ventilation groups	K-18840-13-0-0
RZM240 1/4	must be ordered separately	1 RWA and 4 ventilation groups	K-18840-14-0-0
RZM240 1/5	must be ordered separately	1 RWA and 5 ventilation groups	K-18840-15-0-0
RZM240 1/6	must be ordered separately	1 RWA and 6 ventilation groups	K-18840-16-0-0
RZM240 2/2	must be ordered separately	2 RWA and 2 ventilation groups	K-18840-22-0-0
RZM240 2/4	must be ordered separately	2 RWA and 4 ventilation groups	K-18840-24-0-0
RZM240 X/X	must be ordered separately	RWA and ventilation groups can be freely combined	K-18840-XX-0-0
RZM480 module central control unit			
RZM480 1/4	must be ordered separately	1 RWA and 4 ventilation groups	K-18841-14-0-0
RZM480 1/7	must be ordered separately	1 RWA and 7 ventilation groups	K-18841-17-0-0
RZM480 2/6	must be ordered separately	2 RWA and 6 ventilation groups	K-18841-26-0-0
RZM480 X/X	must be ordered separately	RWA and ventilation groups can be freely combined	K-18841-XX-0-0

Order information – control centre extensions

Designation	Description	Order number
Weather module (WM)	for connecting wind/rain detectors	9-48555-00-0-0
Relay module RM 6	for the transmission of alarm and failure reports, e.g. to the building control system or fire alarm system	9-48554-00-0-0
CAN module	to connect several module central control units – one module is required for each connected central control unit – for plugging into the control module (CM)	9-49397-00-0-0
Software licence RZM	to extend functions	9-49398-00-0-0
USB cable	for the configuration of standard and service functions	9-48547-00-0-0

For self-configuration

Order information – modules: basic set

Consists of:	Order number	
	24 A	48 A
Power module (PM)	K-19061-00-0-0	K-19062-00-0-0
Control module (CM)		
Drive module (DM / DMX)		

Order information – modules: individual modules

Designation	Order number
Power module (PM)	included in the basic set
Control module (CM)	included in the basic set
Drive module (DM / DMX)	included in the basic set
Sensor module (SM)	9-49396-00-0-0

[1] Note: the central control unit combinations above are standard, factory-equipped central control units with pre-programmed standard functions. The modular design of the RZM allows the central control units to be adapted to individual project requirements – see "Order information – modules"

Accessories for smoke and heat exhaust ventilation systems



Manual alarm devices

Manual triggering devices (RWA push-buttons)

132

Automatic alarm devices

Smoke detector

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Heat detector

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Automatic ventilation components

Wind/rain detector

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Rain sensor

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Wind/rain evaluator, time switch

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Manual ventilation components

Ventilation push-button

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Further accessory components

Backup batteries

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Test kit, test log book

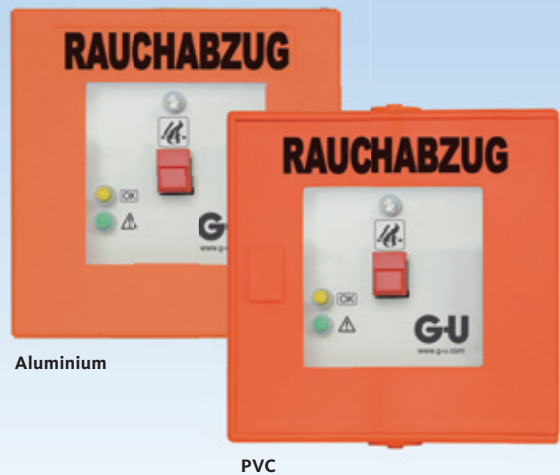
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Safety and catch stays

142 – 143

Manual alarm devices

Manual control devices



Available in the colours:



Product features

- Alarm triggered manually via the RWA central control unit in the event of fire
- Operating voltage: 24 V DC
- Push-button: EMERGENCY OPEN and reset: CLOSE
- LED status display for EMERGENCY OPEN (red), normal operation (green), fault (yellow)
- Protection class: IP 42
- Operating temperature: -10 °C to +50 °C
- Removable glass pane
- Dimensions (W x H x D): 125 x 125 x 36 mm
- Including keys
- Installation: in escape routes and corridors, clearly visible and freely accessible, installation height 1.4 m ± 20 cm above the floor

RWA push-button 'HSE'

Colour	Order number	
	Plastic housing	Aluminium housing
orange, similar to RAL 2004 (pure orange)	6-37311-00-0-9x	6-37312-00-0-9x
red, similar to RAL 3000 (fire red)	6-37311-00-0-9	6-37312-00-0-9
yellow, similar to RAL 1018 (zinc yellow)	6-37311-00-0-3	6-37312-00-0-3
grey, similar to RAL 7040 (window grey)	6-37311-00-0-1	6-37312-00-0-1
blue, similar to RAL 5005 (signal blue)	6-37311-00-0-0	6-37312-00-0-0

Accessories

Designation	Colour / material	Order number
Replacement key	PVC	9-48552-00-0-6
Replacement glass	–	9-42235-00-0-0
'Smoke outlet' adhesive label Languages: Mandarin, English, French, Italian, Dutch, Polish, Russian, Spanish, Czech, Turkish	–	K-19015-00-0-0
Frame for flush-mounted installation – Wall recess dimensions: 140 x 140 x 30 mm (W x H x D) – Frame dimensions: 171 x 171 x 26 mm (W x H x D)	Light grey (RAL 7035)	9-42236-00-0-0



Product features

- For automatic early detection of fire and to trigger the alarm via the RWA central control unit in the event of fire
- Intelligent evaluation and cut-off mode for disturbances to prevent false alarms
- Operating voltage: 9 – 33 V DC
- Fail-safe/alarm current: 100 µA / 20 mA
- Alarm LED display: red
- Protection class: IP 40
- Operating temperature: -10 °C to +60 °C
- Including mounting base
- Tested and DIBt-approved according to EN 54-7
- Dimensions (HxØ): 44 x 100 mm
- **Important:**
do not use in spaces with high build-up of dust, smoke or vapour

Smoke detector

Designation	Colour / material	Order number
RMD3 smoke detector	Plastic housing, white	K-18883-00-0-0



Test gas

- To perform a quick functional test on smoke detectors
- To spray directly in the smoke chamber
- Non-combustible
- Storage life: 3 years
- Content: 250 ml

Test gas

Designation	Order number
Test gas for smoke detectors	K-17497-00-0-0

Automatic alarm devices

Heat detector



Product features

- For automatic early detection of fire and to trigger the alarm via the RWA central control unit in the event of fire
- Intelligent evaluation and cut-off mode for disturbances to prevent false alarms
- Operating voltage: 9 – 33 V DC
- Fail-safe/alarm current: 100 µA / 20 mA
- Multi-coloured LED for alarm (red) and fault display (yellow)
- Protection class: IP 40
- Operating temperature: -10 °C to +60 °C
- Including mounting base
- Thermal measuring unit with evaluation following the differential and maximum process; tested in accordance with EN 54-5
- Dimensions (Hxø): 44 x 100 mm
- Important:
do not use in spaces with high build-up of dust, smoke or vapour

Heat detector		
Designation	Colour / material	Order number
WMD3 heat detector	Plastic housing, white	K-18884-00-0-0



Function

Wind velocity and rain detection and transmission to an evaluation unit or RWA central control unit for the closing of windows and deactivating the ventilation push-button function.

Consists of

- Wind sensor
Dimensions: 250 x 250 x 80 mm
- Rain sensor 24 V DC
Dimensions: 100 x 85 x 172 mm
- Bracket for pole or wall mounting
- Clamping ring
- Connecting cable, 4 m

Wind and rain detector

Designation	Order number
Wind and rain detector	K-15331-00-0-0

Automatic ventilation components

Rain sensor



Function

Rain sensor based on the conductive measurement principle, with heated sensor surface and integrated electronic evaluation unit with potential-free contact for signal transmission.

Consists of

- Rain sensor 24 V DC
Dimensions: 100 x 85 x 172 mm
Protection type: IP 65
- Status display
- Integrated heater
- 4 m connecting cable,
output approx. 150 mA

24 V AC/DC rain sensor	
Designation	Order number
24 V AC/DC rain sensor	9-39062-00-0-0



Product features

- Operating voltage: 230 V AC, 50 Hz, 5 A
- Separate connection of a normally-open contact possible (e.g. ventilation push-button, time switch)
- Switch-on delay for wind and rain, as well as switch-off delay for wind, to prevent constant on/off switching.
- 4 adjustable DIP switches for signal transmission via relay outputs (2 x 1 Um)
- Direct connection of drives (max. total current consumption 5 A)
- Switching threshold adjustable to wind speeds from 2.5 to 20 m/s
- Activity display indicating wind, rain, operating status
- Surface-mounted housing for top-hat rail 35 mm (6 TE)

WRAG 2 wind/rain evaluator

Designation	Housing dimensions (W x H x D)	Order number
WRAG 2 wind/rain evaluator	105 x 86 x 58 mm	9-42268-00-0-0
Relay for WRAG 2 for multiple contacts	–	9-42269-00-0-0



Time switch with day/week programme and power reserve

- Operating voltage: 12 – 240 V AC, 50/60 Hz
- For time-related opening and closing of ventilation sashes/leaves/flaps
- Potential-free changeover contact for connection to RWA central control units
- Contact rating: max. 16 A
- Suitable for combination with temperature-dependent control devices, e.g. for controlled night cooling (taking into account winter and summer time)
- Housing for top hat rail 35 mm

Time switch

Designation	Order number
Time switch	9-45612-00-0-0

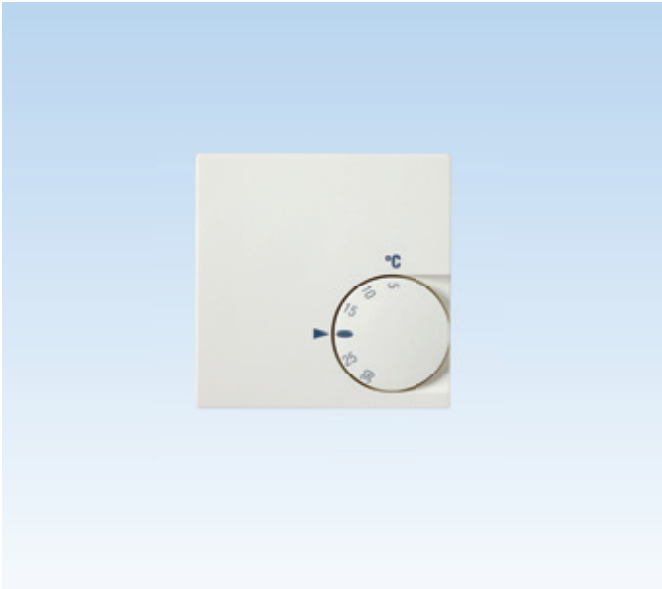
Automatic ventilation components

CO₂ sensor, room thermostat



CO₂ sensor MF

- For measuring the carbon dioxide concentration in the air (air quality) and, if necessary, for controlling the ventilation function
- Operating voltage: 24 V DC (± 5 %)
- Measuring range: 0 – 3000 ppm CO₂
- Impulse duration: 3.5 s
- Contact design: 2x closers, max. 230 V, 0.5 A
- Protection class: IP 30
- Surface-mounted plastic housing, white (W x H x D): 78 x 78 x 35 mm

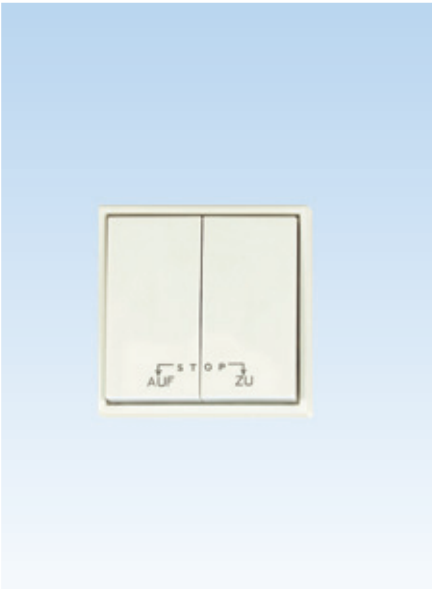


Room thermostat

- Automatic ventilation control based on the ambient temperature (via integrated thermostat)
- For connecting to the ventilation push-button input of RWA and/or ventilation central control units
- Operating voltage: 24 V DC (± 5 %)
- Adjustable; adjustment range: 0 – 30°
- Switch capacity: 230 V AC, 5 A
- Protection class: IP 30
- Surface-mounted plastic housing, white (W x H x D): 74.5 x 74.5 x 25 mm

CO ₂ sensor MF	
Designation	Order number
CO ₂ sensor MF	K-19040-00-0-0

Room thermostat	
Designation	Order number
Room thermostat	K-19041-00-0-0



Ventilation push-button

Surface-mounted version

- OPEN – CLOSE
- Housing dimensions (W x H x D):
80 x 80 x 44 mm
- Housing colour: pearl white, RAL 1013

Flush-mounted version

- OPEN – CLOSE
- For installation in flush-mounted boxes
ø 60 mm
- Housing dimensions (W x H x D):
80 x 80 x 35 mm

Ventilation push-button	
Version	Order number
Surface-mounted version	6-24372-00-0-0
Flush-mounted version	6-24373-00-0-0



Ventilation key switch

Flush-mounted version

- OPEN – STOP – CLOSE
- Prepared for profile half cylinder
- Housing dimensions (W x H x D):
80 x 152 x 35 mm

Ventilation key switch	
Version	Order number
Flush-mounted version	6-25838-00-0-0

Function

For manual opening or closing of electro-motor-driven windows, smoke flaps or light domes.

In RWA systems, the signals from smoke/heat detectors, manual control devices and external fire alarm systems have priority. The ventilation switch then becomes inactive.

Marking

Information signs



Information signs

- According to DIN 4066
- Aluminium
- Dimensions (W x H x D): 210 x 75 x 1 mm



Information signs

- Aluminium
- Dimensions (W x H x D): 210 x 75 x 1 mm

Information signs	
Designation	Order number
Information sign 'Smoke Extraction'	9-22277-00-0-0
Information sign 'Ventilation'	9-25546-00-0-0



Backup batteries

- To guarantee 72-hour operation in the event of a power failure



Test kit

- For operating 24 V DC/230 V AC drives
- Driving current 24 V / 230 V: max. 3 A / max. 1 A
- Digital display of maximum and instantaneous current
- Separate 24 V and 230 V power connections
- Push-to-lock switch and dead man's switch
- Integrated battery pack
- Plastic housing (W x H x D): 245 x 165 x 215 mm

Test log book (without illustrations)

- Acceptance protocol
- Documentation for smoke and heat exhaust ventilation systems
- Verification of maintenance carried out
- Checklists for the function test and commissioning

Backup batteries^[1]

Versions	For RWA central control unit	Number of ventilation groups	Order number
12 V, 2.3 Ah	RZ25	–	9-47475-00-0-0
12 V, 3.2 Ah	RZ50, RZ75	–	9-48529-00-0-0
12 V, 7.0 Ah	RZ100, RZ200	–	9-40285-00-0-0
12 V, 17.0 Ah	RZM240, RZM480	2 – 4	9-45327-00-0-0
12 V, 24.0 Ah	RZM240, RZM480	4 – 6	9-40287-00-0-0
12 V, 38.0 Ah	RZM240, RZM480	6 – 8	9-40288-00-0-0

[1] Batteries must always be ordered in pairs

Test kit / test log book

Designation	Order number
Test kit	K-17736-00-0-6
Test log book	K-18165-00-0-0

GU EURO-SOLID safety stay

for Tilt-Only timber, PVC and aluminium windows up to 60 kg



GU EURO-SOLID safety stay

As stipulated by the RAL directives:

In addition to the standard fanlight hardware, Tilt-Only sashes must be fitted with catch stays.

GU EURO-SOLID safety stays prevent damage that might arise from incorrect attachment of the opening stays. Moreover, they provide great convenience when cleaning as the sash is held in the desired position.

Application information

Size	Sash height	Opening angle Catch position	Number of stays based on the sash weight	
			1 stay	2 stays
01	270 – 350 mm	approx. 30°	15 kg	30 kg
02	351 – 500 mm	approx. 40 – 45°	15 kg	30 kg
03	501 – 800 mm	approx. 25 – 30°	30 kg	60 kg
04	801 – 1500 mm	approx. 15 – 20°	30 kg	60 kg

EURO-SOLID order information

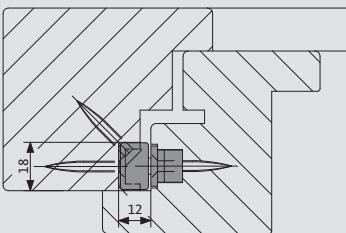
Size	PU	Order number
01	1	6-27995-01-0-8
02	1	6-27995-02-0-8
03	1	6-27995-03-0-8
04	1	6-27995-04-0-8
Drilling jig	1	K-14788-00-0-0

Order information

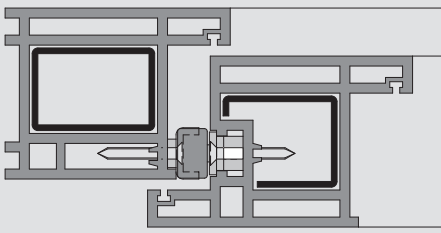
Set of profile-related accessories EURO-SOLID

Designation	PU	Order number
Tilt-Only timber window	20	K-14681-00-0-1
Packer for Euro-groove 7/8 x 4, 6/8 x 4 / timber	100	9-38819-00-0-1
Tilt-Only PVC window	–	on request
Tilt-Only aluminium window	–	on request

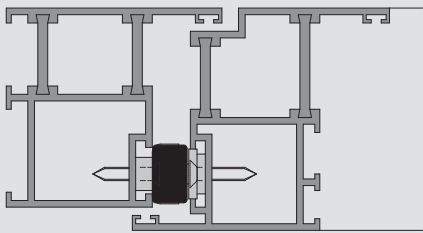
Installing the GU EURO-SOLID safety stay



Timber profile



PVC profile



Aluminium profile

GU catch stays

for Tilt-Only timber and aluminium windows up to 250 kg



GU catch stays

As stipulated by the RAL directives and ASR A 1.6 workplace regulations:

In addition to the drive system, Tilt-Only sashes must also be fitted with catch stays.

GU catch stays prevent damage that may be caused by incorrect attachment of the chain drives on the sash. They permanently connect the sash to the frame and therefore provide additional operating safety, whilst also preventing the sash from falling.

Application information (without locking drive)

Size	Travel	Min. sash height	Max. sash height
01	300 mm	320 mm	3000 mm
	400 mm	400 mm	2000 mm
00	500 mm	500 mm	3000 mm
	600 mm	800 mm	1300 mm

Product features

- For use on large and heavy windows up to 250 kg
- Safety catch function only (no cleaning function)
- Can be used together with locking drives ^[1]

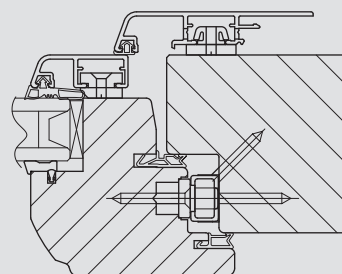
Order information – GU catch stays

Size	PU	Order number – Timber profiles	
01	2	K-18046-01-0-8	K-17915-01-0-8 ^[2]
00	2	K-18046-00-0-8	K-17915-00-0-8 ^[2]

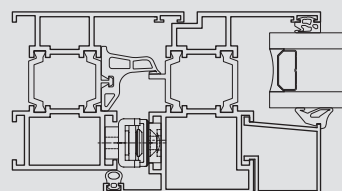
Order information – GU catch stays

Size	PU	Order number – Aluminium profiles	
01	2	K-17915-01-0-8	
00	2	K-17915-00-0-8	

Installation of GU catch stays



Timber profile



Aluminium profile

[1] The application information for use with locking drives can be found in the respective installation instructions

[2] Only for applications without vertical locking

Electrical ventilation systems



Electrical ventilation systems from Gretsch-Unitas.

Statutory measures regarding thermal insulation (e.g. the German Energy Saving Ordinance – EnEV) are leading to increasingly well-insulated building shells, thus largely preventing a climatic exchange through diffusion between the internal and external environments. Sophisticated and effective ventilation systems are therefore extremely important in creating a climate that is as natural as possible and that supports health, even in energy-efficient buildings. The Gretsch-Unitas Group offers you individual solutions for convenient, everyday room ventilation. Whether it be an inward or outward-opening Top-Hung or Tilt-Only sash, pitched, triangular, round or segmental arched windows – the ventilation systems from the GU Group leave nothing to be desired.



Electric drive and opening systems (230 V)

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Chain drives	150 – 175
Spindle drive	176 – 179
Rack and pinion drive	180 – 181
Fanlight opening systems	182 – 185

Electrical controllers and accessories (230 V)

Ventilation central control units and accessories	188 –195
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Electric drive and opening systems (230 V)



General information

Product overview

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Chain drives

Pull/push force 250 N – ELTRAL K25

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Pull/push force 300 N – ELTRAL K30

156 – 159

Pull/push force 300 N – ELTRAL KS 30/40

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Pull/push force 300 N – ELTRAL KS 30/40 radio

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Pull/push force 600 N – ELTRAL K60

168 – 175

Spindle drive

Pull/push force 800 N – ELTRAL S80

176 – 179

Rack and pinion drive

Pull/push force 450 N – ELTRAL Z45

180 – 181

Fanlight opening systems

Opening width up to 200 mm – VENTUS F 200

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Opening width up to 300 mm – VENTUS F 300

182 – 185

Electric drive and opening systems (230 V)

Product overview



With a range of different fanlight opening systems, chain drives and spindle drives, Gretscher-Unitas provides individual solutions for convenient, everyday room ventilation.

The window type does not matter: whether rectangular, inward-opening Top-Hung or Tilt-Only sashes, outward-opening Top-Hung windows, pitched, triangular, round or segmental arched windows – virtually any application is possible with the solutions from the GU Group.

Modern chain drives from Gretscher-Unitas allow for automatic and convenient room ventilation. Thanks to their appealing, compact and flat design, they are perfectly suited to windows of any type and architectural style.

An array of mounting styles enable virtually any installation situation on a variety of inward or outward-opening window types – Top-Hung, Tilt-Only, Turn-Only, Parallel-Projecting, lowering Top-Hung, Horizontal- or Vertical-Pivot, as well as skylights.

The intelligent, integrated electronics also enable the synchronous control of several drives.

Spindle drives ensure convenient, electro-motor-driven room ventilation on heavy and large skylights and facade openings.

The fanlight opening systems from Gretscher-Unitas make it possible to use timber, PVC or aluminium fanlights for simple everyday ventilation, even if they are out of reach. The advantage of controlling several sashes with one drive makes fanlight opening systems a cost-effective solution for customised fresh air supply.

Designation	Chain drives					Spindle drives / rack and pinion drives		VENTUS F 200 / F 300 fanlight opening system	
ELTRAL	K25	K30	KS 30/40	KS 30/40 radio	K60	S80	Z45	S 230 E S 230 L	300 E1
Operating voltage	230 V AC $\pm$ 15%	110/230 V AC $\pm$ 15%	110/230 V AC $\pm$ 15%	110/230 V AC $\pm$ 15%	230 V AC $\pm$ 15%	230 V AC $\pm$ 15%	230 V AC $\pm$ 15%	110/230 V AC $\pm$ 15%	230 V AC $\pm$ 15%
Pull/push force (N)	250 [1]	300	300	300	600	800	450	1200	3000
Nominal current (A)	0.2	0.16	0.12	0.16	0.2	0.12	0.25	0.15	0.1
Travel speed (mm/s)	8.0	11.2	9.0	10.0	10.0	7.0	5.5	0.9	1.0
Opening width / travel (mm)	200 300 400	300 – 500 variable adjustment	200 – 400 variable adjustment	200 – 400 variable adjustment	250 400	300 500 750	230 350 550 [2]	50 or 70 adjustable	40 – 70 adjustable
Protection class (IP)	32	32	30	30	32	54	44	50	54
Duty ratio (%)	30	30	30	30	30	30	20	20	100
Locking force (N)	3000	2000	1000	1000	3000	3500	2000	–	–
Operating temperature (°C)	-5 to +75	-5 to +65	-5 to +65	-5 to +65	-5 to +75	-5 to +75	-5 to +65	-5 to +75	-5 to +75
Suitable for skylights	–	■ [1]	■ [1]	■ [1]	■ [1]	■	■	–	–
Synchronous control	optional	optional	optional	–	optional	optional	[3]	–	–
Concealed installation	■	–	–	–	–	–	–	–	–
Dimensions LxHxD (mm)	Lx26x41	456x43x60	386x38x58	386x38x58	Lx40x56	Lx43x76	Lx54x115	210x36x76	270x55x102
Connecting cable	Silicone 3.0 m / 4-core	Silicone 2.0 m / 3-core (Solo) 2.5 m / 5-core (Synchro)	2.0 m / 3-core (Solo) 2.5 m / 5-core (Synchro)	2.0 m / 3-core	Silicone 5.0 m / 6-core	Silicone 1.0 m / 6-core	2.0 m / 3-core	Connec- tion plug for 2-core connecting cable	1.5 m / 4-core

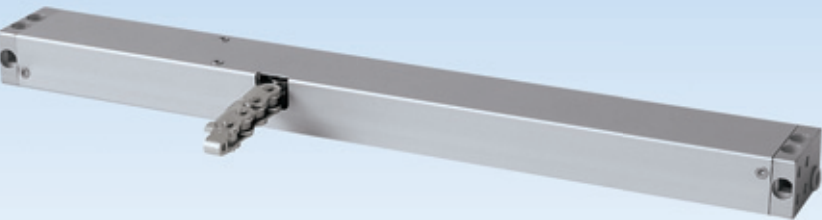
[1] Depending on travel / force-displacement curve

[2] Larger travel widths available on request

[3] Mechanical, up to 4 drives

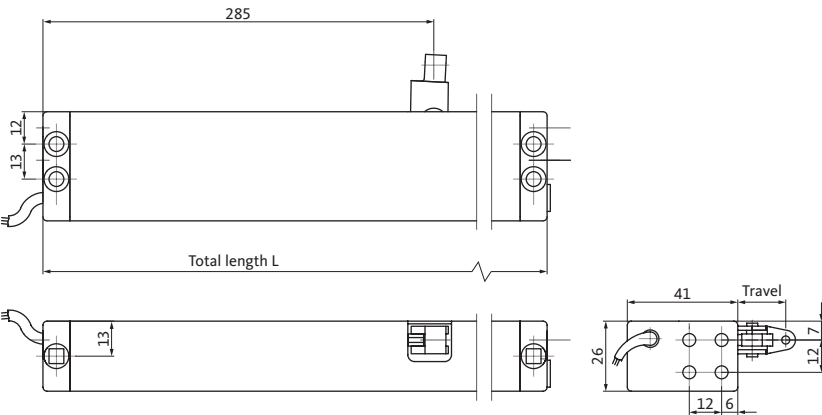
ELTRAL K25 chain drive

Pull/push force: 250 N



Product features

- Compact size
- Stainless steel chain
- Integrated microprocessor control unit
- Synchronised tandem operation
- Automatic limit stop switch
- Integrated overload cut-off
- Reduced closing speed (max. 5 mm/s) for the last 50 mm – corresponds to protection class SK3 ^[1]
- Suitable for small sash heights from 325 mm
- Anodised aluminium housing



Technical data

Drive	ELTRAL K25
Nominal voltage	230 V AC $\pm$ 15%
Pull/push force	250 N / 250 N ^[2]
Nominal current	0.2 A
Travel speed	8 mm/s
Locking force	3000 N
Connecting cable ^[3]	Silicone; 3 m; 4-core

Push force / runtime / total length

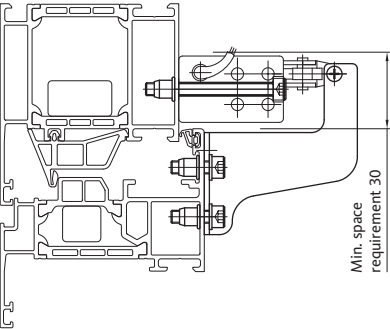
Travel [mm]	Push force [N]	Runtime [s]	Total length [mm]
200	250	25	475
300	250	38	520
400	200	50	570

[1] See pages 28/29 "Risk assessment for power-operated windows in accordance with Machinery Directive 2006/42/EC"
[2] Depending on travel | [3] Special cable lengths available on request

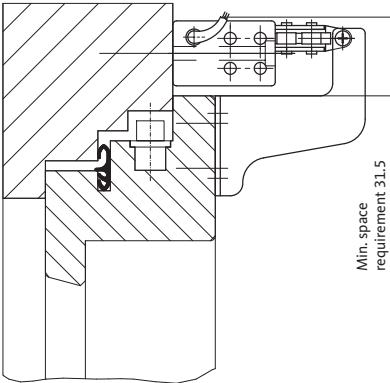
ELTRAL K25 chain drive			
Designation	Consists of	Travel	Order number
ELTRAL K25 – Solo	1 chain drive	200 mm	K-18310-20-0-1
		300 mm	K-18310-30-0-1
		400 mm	K-18310-40-0-1
Designation	Consists of	Travel	Order number
ELTRAL K25 – Synchro	2 chain drives	200 mm	K-18311-20-0-1
		300 mm	K-18311-30-0-1
		400 mm	K-18311-40-0-1

ELTRAL K25 chain drive

Mounting bracket sets – surface-mounted installation



Frame installation | Tilt-Only sash, inwards | Aluminium profile



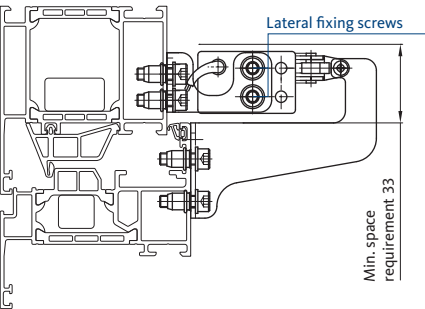
Frame installation | Tilt-Only sash, inwards | Timber profile

K25 mounting bracket set

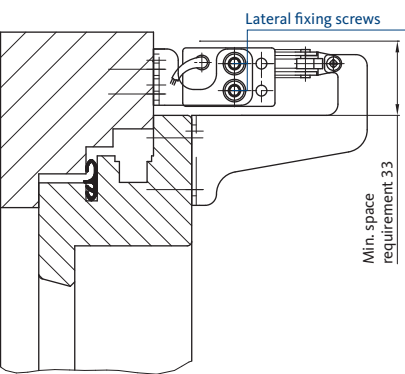
Direct frame installation (FI)
for Tilt-Only and Top-Hung sashes, inwards
without lateral mounting brackets

Versions / Order numbers	
Profile type	Order number
Aluminium ^[1]	K-17593-00-0-8
Timber / PVC ^[2]	K-17635-00-0-8

Minimum sash height depending on travel			
Travel [mm]	200	300	400 ^[3]
Minimum sash height [mm]	425	500	600



Frame installation | Tilt-Only sash, inwards | Aluminium profile



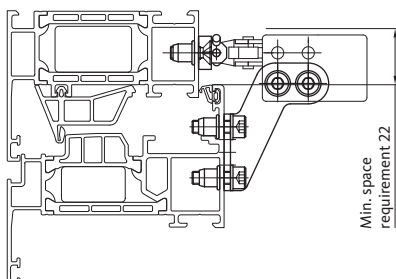
Frame installation | Tilt-Only sash, inwards | Timber profile

K25 mounting bracket set

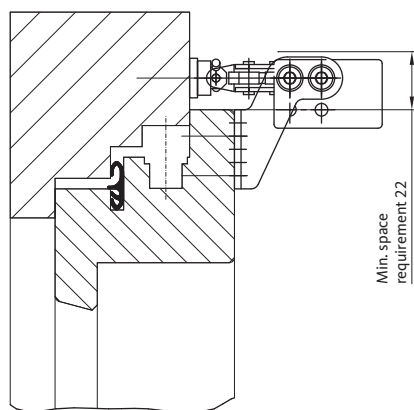
Frame installation (FI)
for Tilt-Only and Top-Hung sashes, inwards

Versions / Order numbers	
Profile type	Order number
Aluminium ^[1]	K-17594-00-0-8
Timber / PVC ^[2]	K-17636-00-0-8

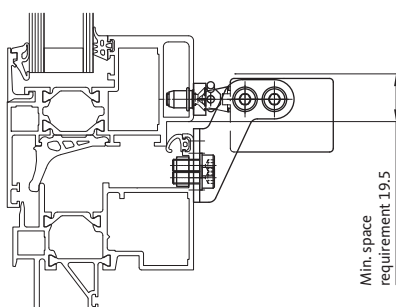
Minimum sash height depending on travel			
Travel [mm]	200	300	400 ^[3]
Minimum sash height [mm]			
Pivotable (1 lateral fixing screw)	250	350	550
Fixed (2 lateral fixing screws)	425	500	600



Sash installation | Tilt-Only sash, inwards | Aluminium profile



Sash installation | Tilt-Only sash, inwards | Timber profile



Frame installation | Top-Hung sash, outwards | Aluminium profile

K25 mounting bracket set

Sash installation (SI)

for Tilt-Only sash, inwards

Frame installation (FI)

for Top-Hung sash, outwards

Versions / Order numbers

Profile type	Order number
Aluminium ^[1]	K-17595-00-0-8
Timber / PVC ^[2]	K-17637-00-0-8

Minimum sash height depending on travel

Travel [mm]	200	300	400 ^[3]
Minimum sash height SI [mm]	325 ^[4]	450 ^[4]	550 ^[4]
Minimum sash height FI [mm]	325	450	–

K25 mounting bracket set with base plate

Frame installation (FI)

for Top-Hung sash, outwards

Versions / Order numbers

Profile type	Order number
Aluminium ^[1]	K-17706-00-0-8

Minimum sash height depending on travel

Travel [mm]	200	300	400
Minimum sash height [mm]	325	450	–

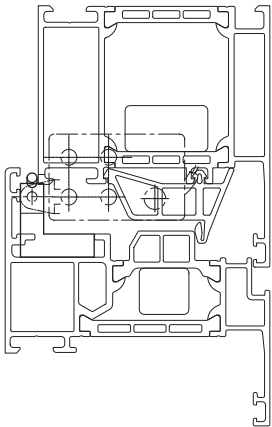
Note: for Synchro version, order 2 mounting bracket sets

[1] With fixing screws | [2] Without fixing screws | [3] Only for Tilt-Only sash, inwards (tensile load)

[4] Depending on profile; see profile-specific installation drawings

ELTRAL K25 chain drive

Mounting bracket sets – concealed installation



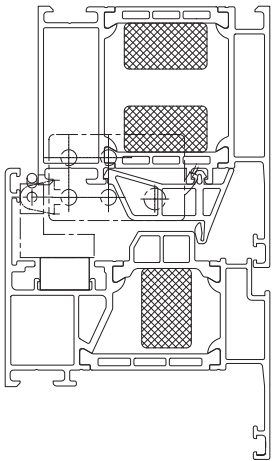
Concealed frame installation | Tilt-Only sash, inwards | Aluminium profile

S K25 mounting bracket set

Concealed frame installation (FI)
for inward-opening Tilt-Only sash
and outward-opening Top-Hung sash

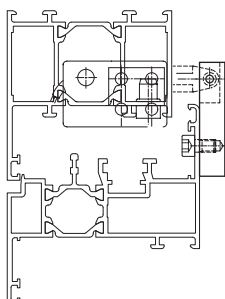
Versions / Order numbers	
Profile type	Order number
Aluminium ^[2]	K-17874-00-0-0

Minimum sash height depending on travel			
Travel [mm]	200	300	400 ^[1]
Minimum sash height [mm]	500	650	800



Packer
for mounting bracket set S K25 | K-17874-00-0-0

Versions / Order numbers	
Profile type	Order number
Aluminium	K-17875-00-0-0



Concealed frame installation | Tilt-Only sash, inwards | Aluminium profile

W K25 mounting bracket set

for aluminium profiles, general

Concealed frame installation (FI)

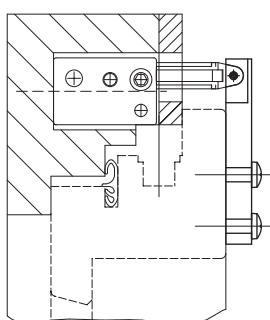
for inward-opening Tilt-Only sash
and outward-opening Top-Hung sash

Versions / Order numbers

Profile type	Order number
Aluminium ^[2]	K-17880-00-0-1

Minimum sash height depending on travel

Travel [mm]	200	300	400 ^[1]
Minimum sash height [mm]	500	650	800



Concealed frame installation | Tilt-Only sash, inwards | Timber profile

K25 mounting bracket set

for timber profiles, general

Concealed frame installation (FI)

for inward-opening Tilt-Only sash
and outward-opening Top-Hung sash

Versions / Order numbers

Profile type	Order number
Timber ^[3]	K-17909-00-0-1

Minimum sash height depending on travel

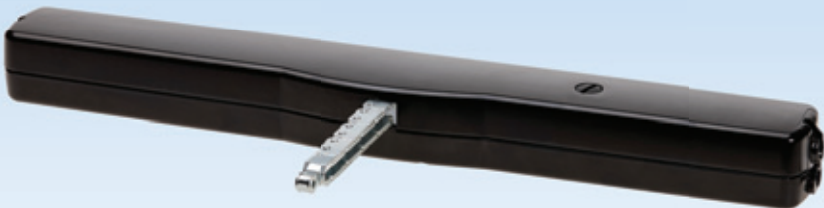
Travel [mm]	200	300	400 ^[1]
Minimum sash height [mm]	500	650	800

Note: further profile systems available on request

[1] Only for Tilt-Only sash, inwards (tensile load) | [2] With fixing screws | [3] Without fixing screws

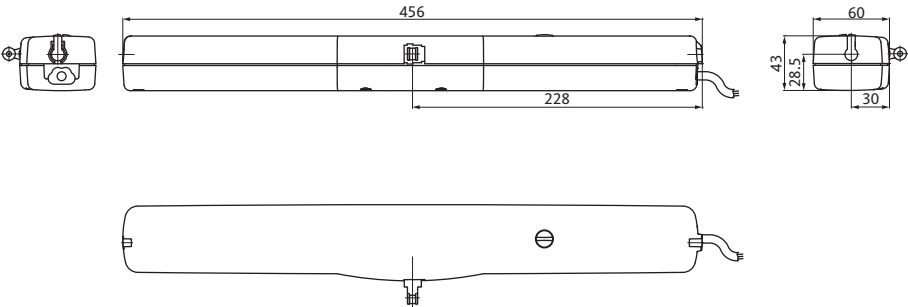
ELTRAL K30 chain drive

Pull/push force: 300 N



Product features

- Compact size
- Integrated microprocessor control unit
- Synchronised tandem operation
- Automatic limit stop switch
- Independent of overlap dimension
- Integrated overload cut-off
- Reduced closing speed (max. 5 mm/s) for the last 50 mm – corresponds to protection class SK3 ^[1]
- Suitable for small sash heights from 350 mm
- Variable travel adjustment
- Automatic gasket relief
- Painted aluminium housing



Technical data

Drive	ELTRAL K30
Nominal voltage	110/230 V AC ± 15%
Pull/push force	300 N / 300 N
Nominal current	0.16 A
Travel speed	11.2 mm/s
Locking force	2000 N
Connecting cable ^[2]	Silicone; 2 m, 3-core (Solo) / 2.5 m, 5-core (Synchro)

Push force / runtime / total length

Travel [mm]	Push force [N]	Runtime [s]	Total length [mm]
300	300	27	456
400	300	36	456
500	300	45	456

[1] See pages 28/29 "Risk assessment for power-operated windows in accordance with Machinery Directive 2006/42/EC"
[2] Special cable lengths available on request

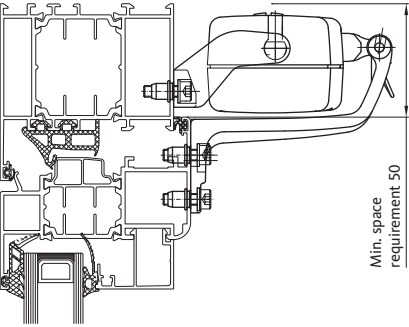
ELTRAL K30 chain drive			
Designation	Consists of	Travel	Order number
ELTRAL K30 – Solo	1 chain drive	300 mm	K-17834-00-0-*
		400 mm	
		500 mm	
Designation	Consists of	Travel	Order number
ELTRAL K30 – Synchro	2 chain drives	300 mm	K-17835-00-0-*
		400 mm	
		500 mm	

Note: Mounting bracket sets must be ordered separately (see following pages)

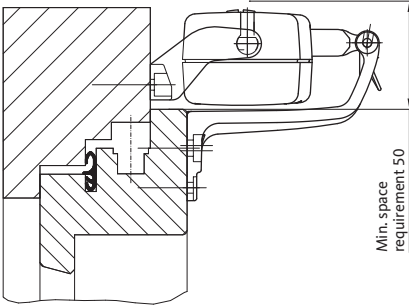
* = colour type: 1 = silver painted (RAL 9006), 6 = black painted (RAL 9005), 7 = white painted (RAL 9010)

ELTRAL K30 chain drive

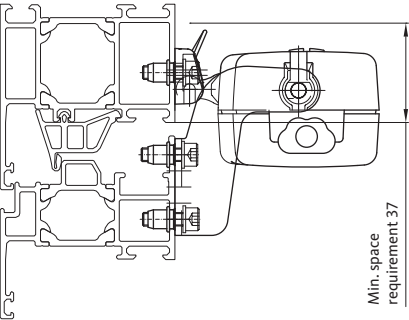
Mounting bracket sets



Frame installation | Tilt-Only sash, inwards | Aluminium profile



Frame installation | Tilt-Only sash, inwards | Timber profile



Sash installation | Tilt-Only sash, inwards | Aluminium profile

K30 mounting bracket set

Frame installation (FI)
for Tilt-Only and Top-Hung sashes, inwards

Versions / Order numbers	
Profile type	Order number
Aluminium / Timber / PVC ^[3]	K-18157-00-0-*

Minimum sash height depending on travel			
Travel [mm]	300	400	500
Minimum sash height [mm]	350	550	700

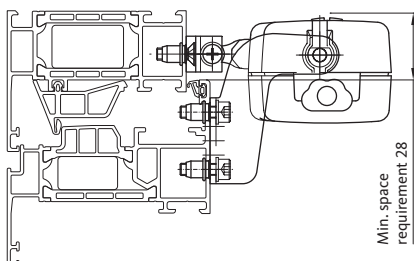
K30 mounting bracket set

Sash installation (SI)
for Tilt-Only sash, inwards

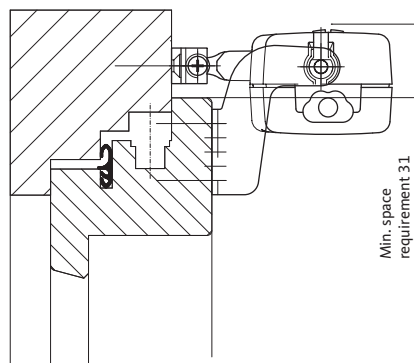
Frame installation (FI)
for Top-Hung sash, outwards ^[1]

Versions / Order numbers	
Profile type	Order number
Aluminium / Timber / PVC ^[3]	K-17841-00-0-*

Minimum sash height depending on travel			
Sash installation, Tilt-Only sash, inwards			
Travel [mm]	300	400	500
Minimum sash height [mm]	500	700	900
Frame installation, Top-Hung sash, outwards			
Travel [mm]	300	400	500
Minimum sash height [mm]	350	450	600



Sash installation | Tilt-Only sash, inwards | Aluminium profile



Sash installation | Tilt-Only sash, inwards | Timber profile

K30 mounting bracket set

Sash installation (SI)

for Tilt-Only sash, inwards

Frame installation (FI)

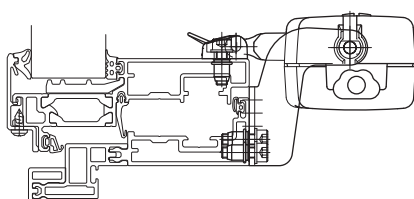
for Top-Hung sash, outwards^[2]

Versions / Order numbers

Profile type	Order number
Aluminium / Timber / PVC ^[3]	K-17843-00-0-*

Minimum sash height depending on travel

Sash installation, Tilt-Only sash, inwards			
Travel [mm]	300	400	500
Minimum sash height [mm]	500	700	900
Frame installation, Top-Hung sash, outwards			
Travel [mm]	300	400	500
Minimum sash height [mm]	350	450	600



Frame installation | Lowering Top-Hung sash, outwards | Aluminium profile

K30 mounting bracket set

Frame installation (FI)

for lowering Top-Hung sash, outwards^[2]

Versions / Order numbers

Profile type	Order number
Aluminium / Timber / PVC ^[3]	K-17840-00-0-*

Minimum sash height depending on travel

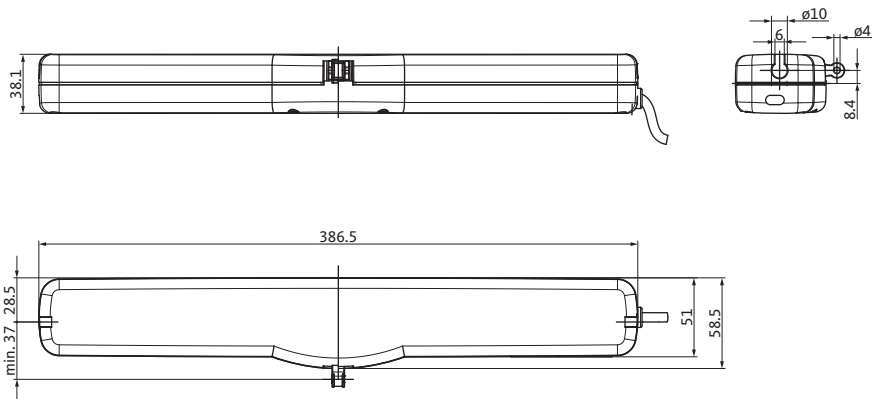
Travel [mm]	300	400	500
Minimum sash height [mm]	350	450	600

* = colour type: 1 = silver painted (RAL 9006), 6 = black painted (RAL 9005), 7 = white painted (RAL 9010)

[1] Overlap max. 4 mm | [2] Overlap min. 4 mm | [3] Without fixing screws

ELTRAL KS 30/40 chain drive

Pull/push force: 300 N



Product features

- Cost-effective and efficient entry model
- Compact size
- Integrated microprocessor control unit
- Synchronised tandem operation
- Automatic limit stop switch
- Independent of overlap dimension
- Integrated overload cut-off
- Suitable for small sash heights from 250 mm
- Variable travel adjustment in 3 stages
- Automatic gasket relief
- Quick and simple installation with the accompanying installation template
- Plastic housing

Technical data

Drive	ELTRAL KS 30/40
Nominal voltage	110 / 230 V AC $\pm$ 15%
Pull/push force	300 N / 300 N
Nominal current	0.12 A
Travel speed	9 mm/s
Locking force	1000 N
Connecting cable ^[1]	2 m, 3-core (Solo) / 2.5 m, 5-core (Synchro)

Push force / runtime / total length

Travel [mm]	Push force [N]	Runtime [s]	Total length [mm]
200	300	22	386.5
300	250	33	386.5
400	200	44	386.5

[1] Special cable lengths available on request

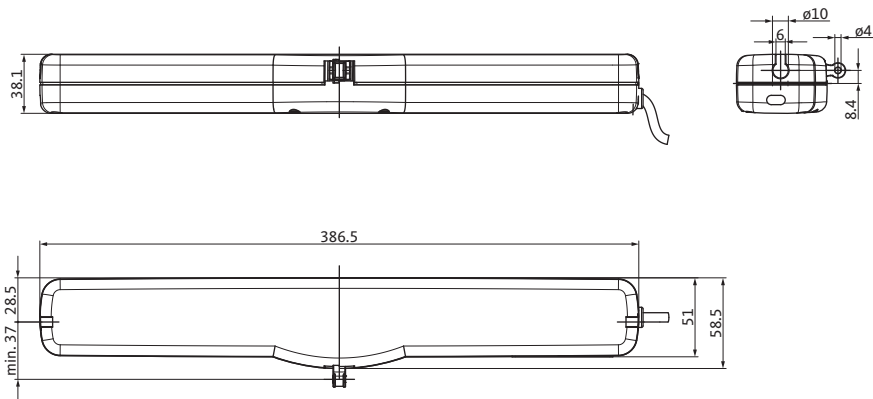
ELTRAL KS 30/40 chain drive			
Designation	Consists of	Travel	Order number
ELTRAL KS 30/40 – Solo	1 chain drive	200 mm	K-17433-00-0-*
		300 mm	
		400 mm	
Designation	Consists of	Travel	Order number
ELTRAL KS 30/40 – Synchro	2 chain drives	200 mm	K-17435-02-0-*
		300 mm	
		400 mm	

Note: mounting bracket sets for standard applications are included in the scope of delivery
Mounting bracket sets for special applications must be ordered separately (see following pages)

* = colour type: 1 = silver painted (RAL 7047), 6 = black painted (RAL 9004), 7 = white painted (RAL 9003)

ELTRAL KS 30/40 radio chain drive

Pull/push force: 300 N



Product features

- With integrated radio receiver
- Radio remote control and/or ventilation push-button
- Compact size
- Integrated microprocessor control unit
- Automatic limit stop switch
- Independent of overlap dimension
- Integrated overload cut-off
- Suitable for small sash heights from 250 mm
- Variable travel adjustment in 3 stages
- Automatic gasket relief
- Quick and simple installation with the accompanying installation template
- Plastic housing

Technical data	
Drive	ELTRAL KS 30/40
Nominal voltage	110 / 230 V AC $\pm$ 15%
Pull/push force	300 N / 300 N
Nominal current	0.16 A
Travel speed	10 mm/s
Locking force	1000 N
Connecting cable ^[1]	2 m, 3-core

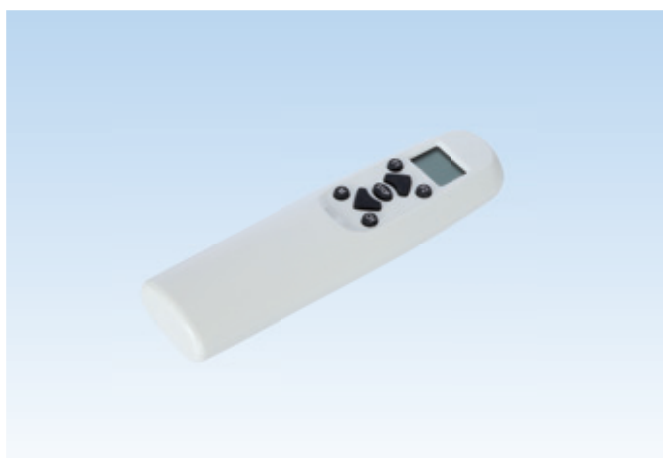
Push force / runtime / total length			
Travel [mm]	Push force [N]	Runtime [s]	Total length [mm]
200	300	20	386.5
300	250	30	386.5
400	200	40	386.5

[1] Special cable lengths available on request

ELTRAL KS 30/40 radio chain drive ^[1]

Designation	Consists of	Travel	Order number
ELTRAL KS 30/40 radio – Solo	1 chain drive	200 mm	K-19045-00-0-*
		300 mm	
		400 mm	

[1] The radio remote control must be ordered separately.



Radio remote control

- Multichannel radio remote control for individual and group control of ELTRAL KS 30/40 radio chain drives
- Microprocessor-controlled
- With display for
 - Functions
 - Transmission status
 - Battery charge status
- Transmission range approx. 50 m
- Dimensions (W x H x D): 38.5 x 145 x 22.5 mm

Order information

Designation	Order number
Radio remote control	K-19046-00-0-0

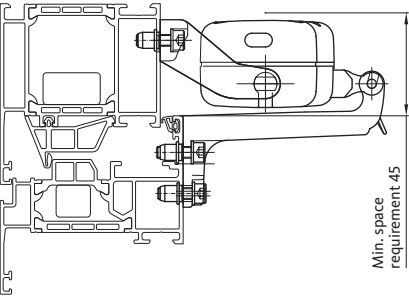
Note: mounting bracket sets for standard applications are included in the scope of delivery

Mounting bracket sets for special applications must be ordered separately (see following pages)

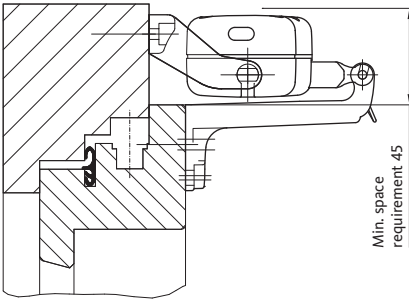
* = colour type: 1 = silver painted (RAL 7047), 6 = black painted (RAL 9004), 7 = white painted (RAL 9003)

ELTRAL KS 30/40 chain drive, KS 30/40 radio chain drive

Mounting bracket sets



Frame installation | Tilt-Only sash, inwards | Aluminium profile



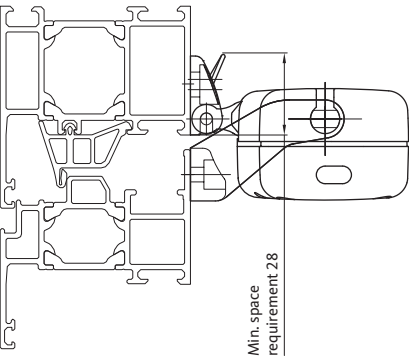
Frame installation | Tilt-Only sash, inwards | Timber profile

KS 30/40 mounting bracket set

Frame installation (FI)
for Tilt-Only and Top-Hung sashes, inwards

Versions / Order numbers	
Profile type	Order number
Aluminium / Timber / PVC ^[1]	contained in the scope of delivery

Minimum sash height depending on travel			
Travel [mm]	200	300	400
Minimum sash height [mm]	600	1100	1500



Sash installation | Tilt-Only sash, inwards | Aluminium profile

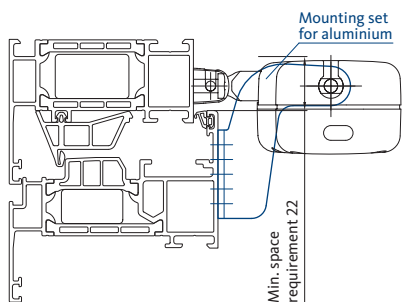
KS 30/40 mounting bracket set

Sash installation (SI)
for Tilt-Only sash, inwards

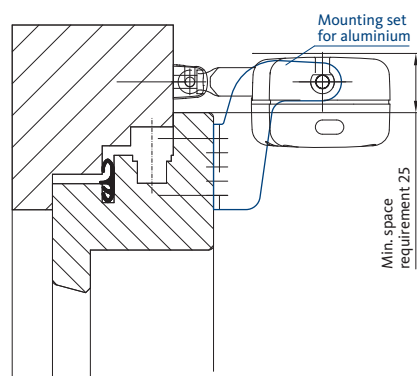
Frame installation (FI)
for Top-Hung sash, outwards

Versions / Order numbers	
Profile type	Order number
Aluminium / Timber / PVC ^[1]	contained in the scope of delivery

Minimum sash height depending on travel			
Travel [mm]	200	300	400
Minimum sash height SI [mm]	400	650	900
Minimum sash height FI [mm]	250	350	450



Sash installation | Tilt-Only sash, inwards | Aluminium profile



Sash installation | Tilt-Only sash, inwards | Timber profile

Mounting bracket set for aluminium

Sash installation (SI)

for Tilt-Only sash, inwards

Frame installation (FI)

for Top-Hung sash, outwards

Versions / Order numbers

Profile type	Order number
Aluminium / Timber / PVC ^[1]	K-17720-00-0-*

Minimum sash height depending on travel

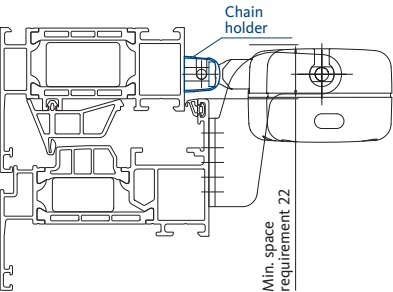
Travel [mm]	200	300	400
Minimum sash height SI [mm]	400	650	900
Minimum sash height FI [mm]	250	350	450

* = colour type: 1 = silver painted (RAL 7047), 6 = black painted (RAL 9004), 7 = white painted (RAL 9003)

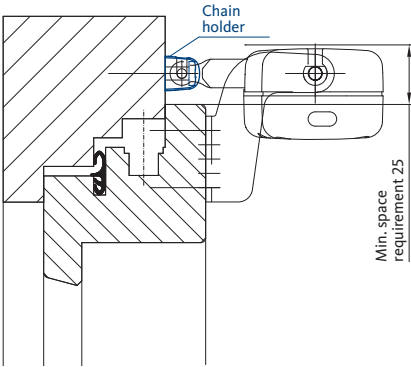
[1] Without fixing screws

ELTRAL KS 30/40 chain drive, KS 30/40 radio chain drive

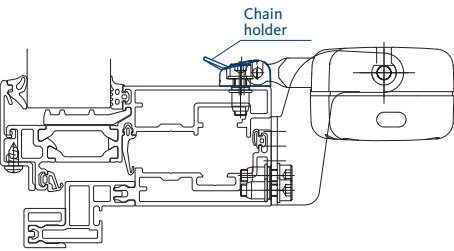
Mounting bracket sets



Sash installation | Tilt-Only sash, inwards | Aluminium profile



Sash installation | Tilt-Only sash, inwards | Timber profile



Frame installation | Lowering Top-Hung sash, outwards | Aluminium profile

Chain holder

Sash installation (SI)
for Tilt-Only sash, inwards

Frame installation (FI)
for Top-Hung sash, outwards

Versions / Order numbers	
Profile type	Order number
Aluminium / Timber / PVC ^[1]	K-17441-00-0-*

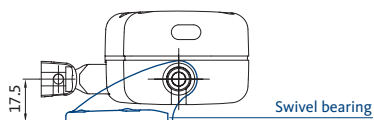
Minimum sash height depending on travel			
Travel [mm]	200	300	400
Minimum sash height SI [mm]	400	650	900
Minimum sash height FI [mm]	250	350	450

Chain holder

Frame installation (FI)
for lowering Top-Hung sash, outwards

Versions / Order numbers	
Profile type	Order number
Aluminium / Timber / PVC ^[1]	9-44272-00-0-*

Minimum sash height depending on travel			
Travel [mm]	200	300	400
Minimum sash height [mm]	250	350	450



Swivel bearing

Frame installation (FI)

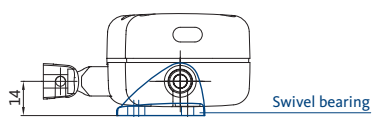
for Tilt-Only sash, outwards

Versions / Order numbers

Profile type	Order number
Aluminium / Timber / PVC ^[1]	K-17440-00-0-*

Minimum sash height depending on travel

Travel [mm]	200	300	400
Minimum sash height [mm]	600	1100	1500



Swivel bearing

Frame installation (FI)

for skylights

Versions / Order numbers

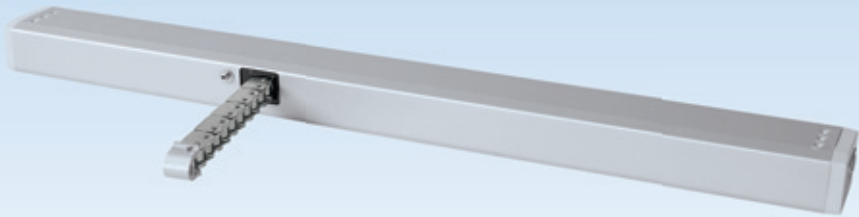
Profile type	Order number
Aluminium / Timber / PVC ^[1]	K-17735-00-0-*

* = colour type: 1 = silver painted (RAL 7047), 6 = black painted (RAL 9004), 7 = white painted (RAL 9003)

[1] Without fixing screws

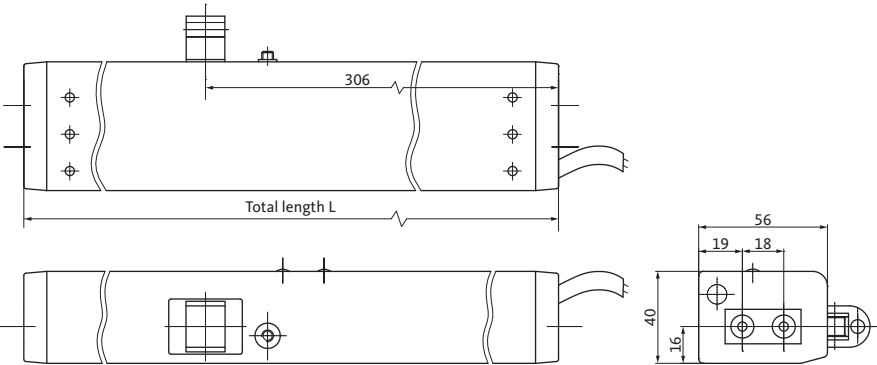
ELTRAL K60 chain drive

Pull/push force: 600 N



Product features

- Compact size
- Stainless steel chain
- Integrated microprocessor control unit
- Automatic limit stop switch
- Integrated overload cut-off
- Pivotal fixings allow for small sash heights from 350 mm
- Reduced closing speed (max. 5 mm/s) for the last 50 mm – corresponds to protection class SK3 ^[1]
- Emergency unlocking
- Anodised aluminium housing



Technical data

Drive	ELTRAL K60
Nominal voltage	230 V AC $\pm$ 15%
Pull/push force	600 N / 600 N
Nominal current	0.2 A
Travel speed	10 mm/s
Locking force	3000 N
Connecting cable ^[2]	Silicone; 5 m; 6-core

Push force / runtime / total length

Travel [mm]	Push force [N]	Runtime [s]	Total length [mm]
250	600	25	537
400	600	40	613

[1] See pages 28/29 "Risk assessment for power-operated windows in accordance with Machinery Directive 2006/42/EC"

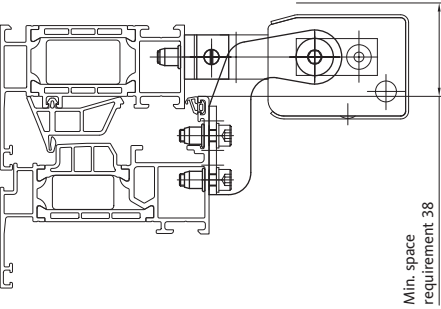
[2] Special cable lengths available on request

ELTRAL K60 chain drive			
Designation	Consists of	Travel	Order number
ELTRAL K60 – Solo	1 chain drive	250 mm	K-17649-25-0-1
		400 mm	K-17649-40-0-1

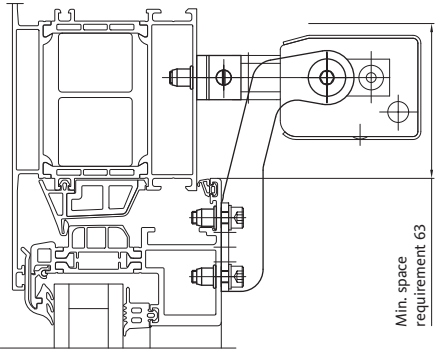
Note: Mounting bracket sets must be ordered separately (see following pages)

ELTRAL K60 chain drive

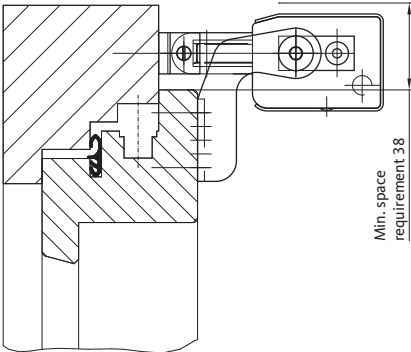
Mounting bracket sets



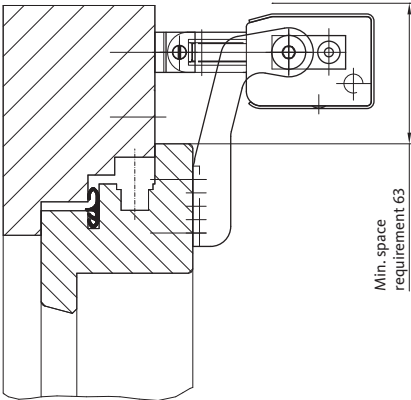
Sash installation | Tilt-Only sash, inwards | Aluminium profile | Short bracket



Sash installation | Tilt-Only sash, inwards | Aluminium profile | Long bracket



Sash installation | Tilt-Only sash, inwards | Timber profile | Short bracket



Sash installation | Tilt-Only sash, inwards | Timber profile | Long bracket

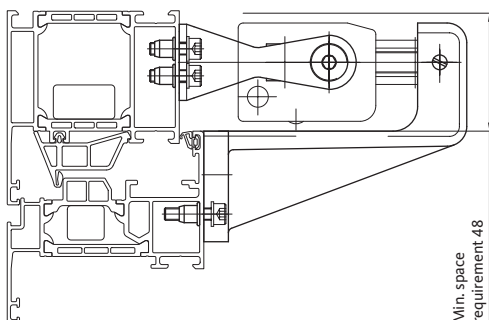
K60 mounting bracket set

Sash installation (SI)
for Tilt-Only sash, inwards

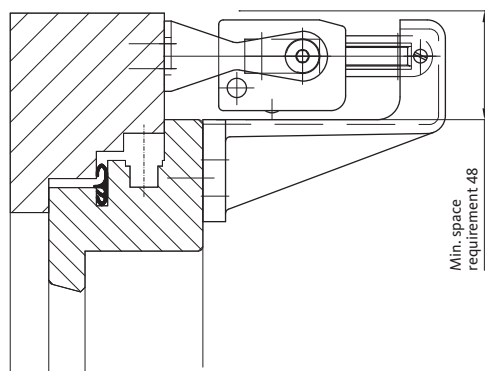
Frame installation (FI)
for Top-Hung sash, outwards

Versions / Order numbers	
Profile type	Order number
Aluminium ^[1] Short bracket	K-17596-00-0-8
Aluminium ^[1] Long bracket	K-17598-00-0-8
Timber / PVC ^[2] Short bracket	K-17638-00-0-8
Timber / PVC ^[2] Long bracket	K-17640-00-0-8

Minimum sash height depending on travel		
Travel [mm]	250	400
Minimum sash height [mm]		
Short bracket SI	450	750
Long bracket SI	250	400
Short bracket FI	350	900



Frame installation | Tilt-Only sash, inwards | Aluminium profile



Frame installation | Tilt-Only sash, inwards | Timber profile

K60 mounting bracket set

Frame installation (FI)

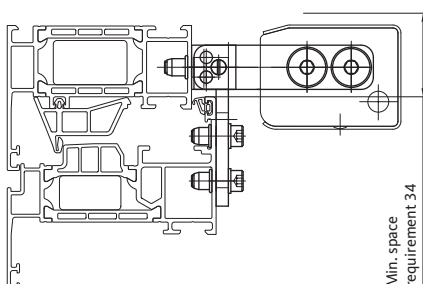
for Tilt-Only and Top-Hung sashes, inwards

Versions / Order numbers

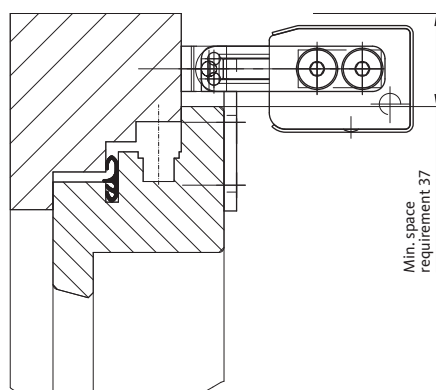
Profile type	Order number
Aluminium ^[1]	K-17661-00-0-8
Timber / PVC ^[2]	K-17662-00-0-8

Minimum sash height depending on travel

Travel [mm]	250	400
Minimum sash height [mm]	350	700



Sash installation | Tilt-Only sash, inwards | Aluminium profile



Sash installation | Tilt-Only sash, inwards | Timber profile

K60 mounting bracket set (folding bracket) ^[3]

Sash installation (SI)

for Tilt-Only sash, inwards

Frame installation (FI)

for Top-Hung sash, outwards

Versions / Order numbers

Profile type	Order number
Aluminium ^[1]	K-17659-00-0-1
Timber / PVC ^[2]	K-17660-00-0-1

Minimum sash height depending on travel

Travel [mm]	250	400
Minimum sash height [mm]	350	600

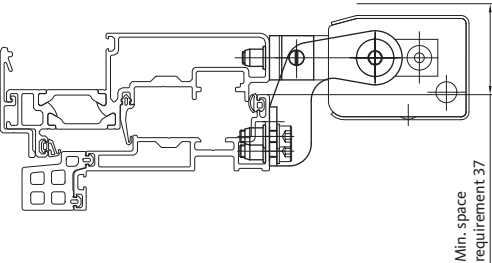
^[1] With fixing screws

^[2] Without fixing screws

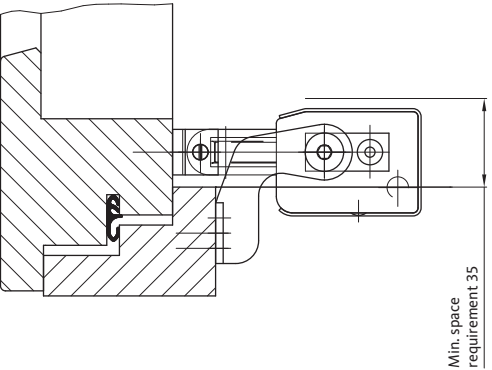
^[3] Suitable base plates can be found on page 174

ELTRAL K60 chain drive

Mounting bracket sets



Frame installation | Lowering Top-Hung sash, outwards | Aluminium profile



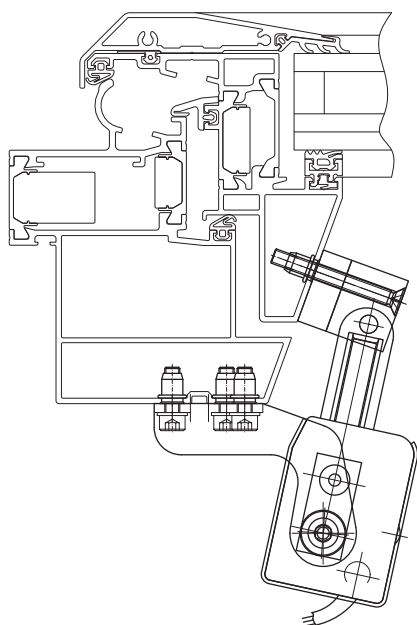
Frame installation | Lowering Top-Hung sash, outwards | Timber profile

K60 mounting bracket set

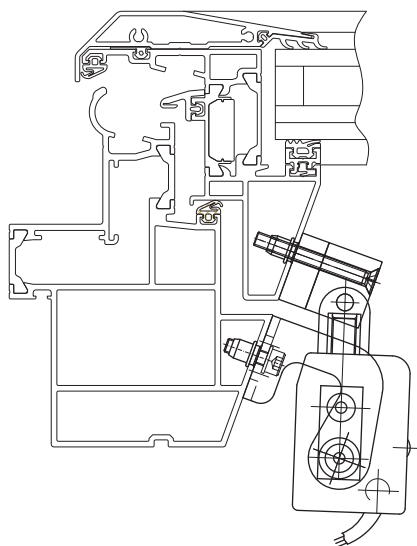
Frame installation (FI)
for lowering Top-Hung sash, outwards

Versions / Order numbers	
Profile type	Order number
Aluminium ^[1]	K-17597-00-0-8
Timber ^[2]	K-17639-00-0-8

Minimum sash height depending on travel		
Travel [mm]	250	400
Minimum sash height [mm]	350	900



Frame installation | Roof-lights | Aluminium profile | Long bracket



Frame installation | Roof-lights | Aluminium profile | Short bracket

S K60 mounting bracket set

Frame installation (FI)
for roof-lights

Versions / Order numbers

Profile type	Order number
Aluminium ^[1] Long bracket	K-18261-00-0-8
Aluminium ^[1] Short bracket	K-18262-00-0-8

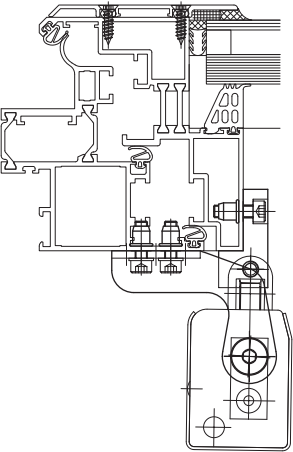
Minimum sash height depending on travel

Travel [mm]	250	400
Minimum sash height [mm]	350	900

[1] With fixing screws | [2] Without fixing screws

ELTRAL K60 chain drive

Accessories



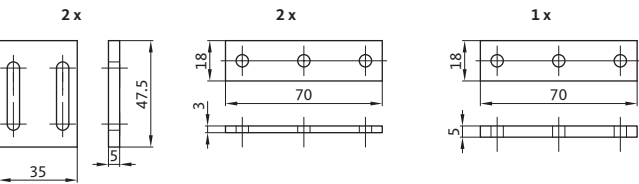
Frame installation | Roof-lights | Aluminium profile

W K60 mounting bracket set

Frame installation (FI)
for roof-lights

Versions / Order numbers	
Profile type	Order number
Aluminium ^[1]	K-17609-00-0-8

Minimum sash height depending on travel		
Travel [mm]	250	400
Minimum sash height [mm]	350	900

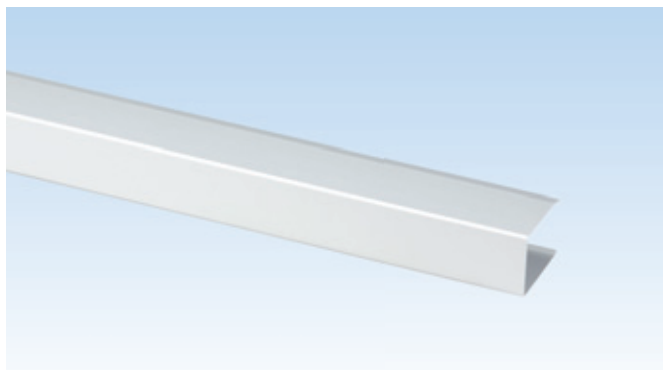


Base plate set ^[2]

for mounting bracket sets with an overlap
< 10 mm

Order numbers	
Order number	K-17653-00-0-1

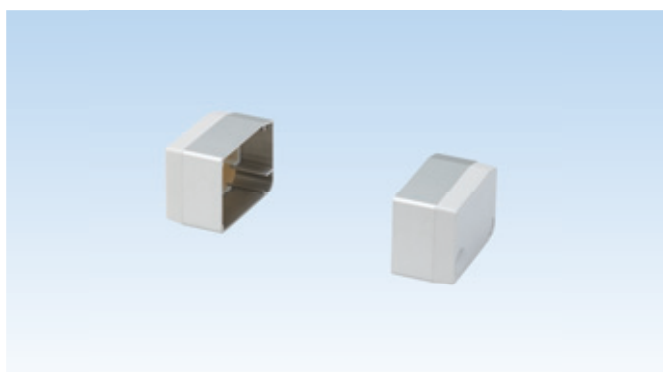
[1] With fixing screws
[2] 2 base plates are required for flush-mounted profiles



K60 cover profile

Versions / Order numbers

Length	Order number
1450 mm	9-42211-00-0-1
3000 mm	9-42212-00-0-1



Mounting kit for K60 cover profile

Consists of:

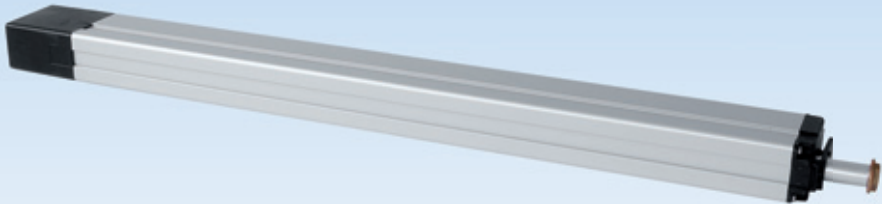
- 2 side covers (1x right / 1x left)
- 2 spacers
- 4 adhesive points
- 1 closing plug

Order numbers

Order number
K-17719-00-0-1

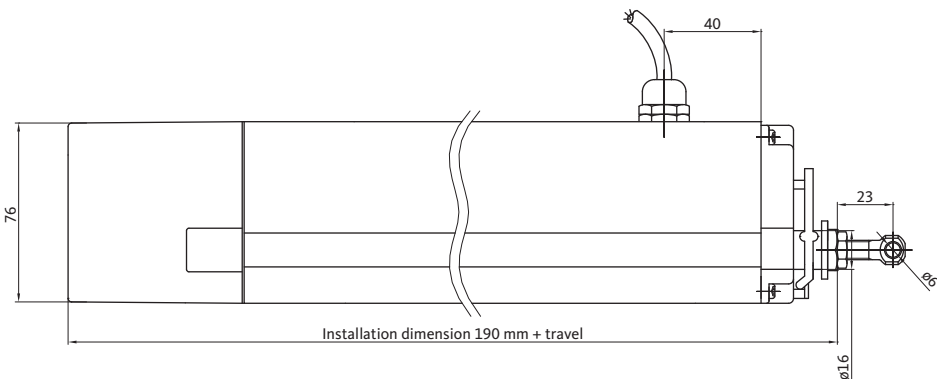
ELTRAL S80 spindle drive

Pull/push force: 800 N



Product features

- Compact size
- Synchronised tandem operation
- Automatic limit stop switch
- Integrated overload cut-off
- Anodised aluminium housing



Technical data

Drive	ELTRAL S80
Nominal voltage	230 V AC $\pm$ 15%
Pull/push force	800 N
Nominal current	0.12 A
Travel speed	7 mm/s
Locking force	3500 N
Connecting cable	Silicone; 1 m, 6-core

Push force / runtime / total length

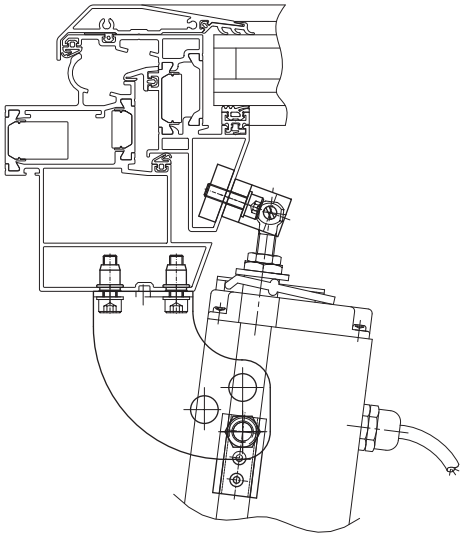
Travel [mm]	Push force [N]	Runtime [s]	Total length [mm]
300	800	43	490
500	800	71	690
750	800	107	940

ELTRAL S80 spindle drive			
Designation	Consists of	Travel	Order number
ELTRAL S80 – Solo	1 spindle drive	300 mm	9-42094-30-0-1
		500 mm	9-42094-50-0-1
		750 mm	9-42094-75-0-1

Note: Mounting bracket sets must be ordered separately (see following pages)

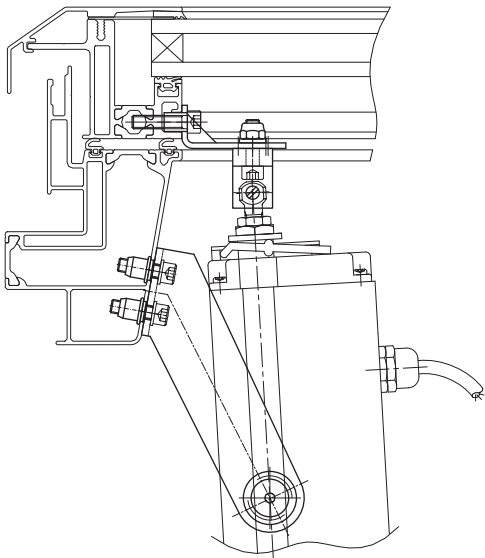
ELTRAL S80 spindle drive

Mounting bracket sets



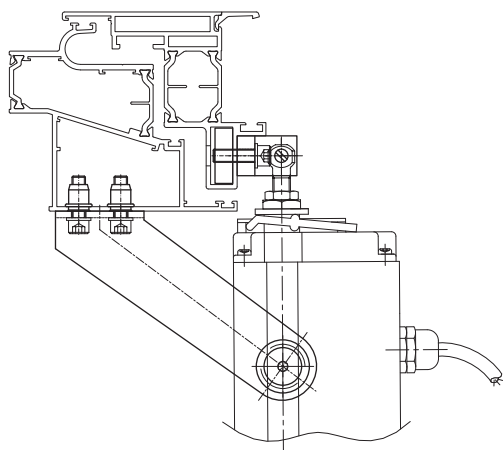
S/230 V mounting bracket set
for roof-lights

Versions / Order numbers	
Profile type	Order number
Aluminium ^[1]	K-17770-00-0-1



RS/230 V mounting bracket set
for roof-lights

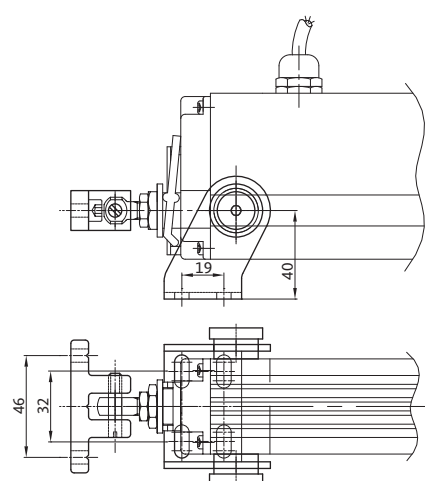
Versions / Order numbers	
Profile type	Order number
Aluminium ^[1]	K-17772-00-0-1



W/230 V mounting bracket set for roof-lights

Versions / Order numbers

Profile type	Order number
Aluminium ^[1]	K-17773-00-0-1



Mounting bracket set / general for roof-lights

Versions / Order numbers

Profile type	Order number
Aluminium ^[1]	K-17774-00-0-1

[1] Without fixing screws

ELTRAL Z45 rack and pinion drive

Pull/push force: 450 N

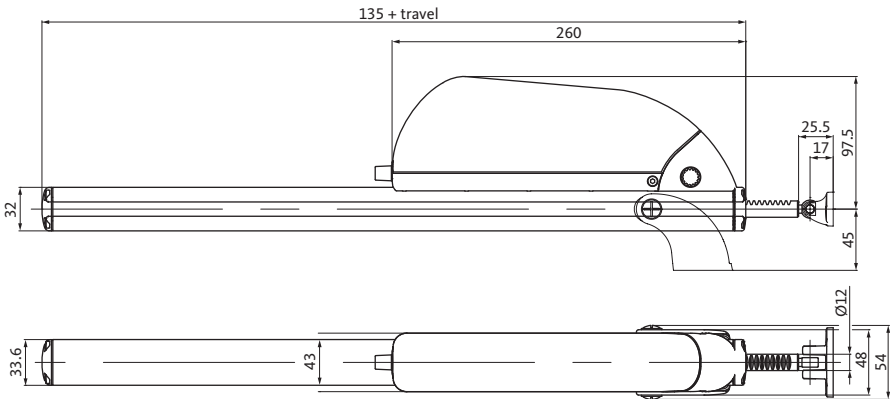


Product features

- Compact size
- Galvanised thrust tube
- Automatic limit stop switch
- Integrated overload cut-off

Note:

Wide window sashes require an additional locking point that can be obtained by connecting the drive with the rack and pinion follower by means of a mechanical connecting rod.



Technical data

Drive	ELTRAL Z45
Nominal voltage	230 V AC ± 15%
Pull/push force	450 N
Nominal current	0.25 A
Travel speed	5.5 mm/s
Locking force	2000 N
Connecting cable	2 m, 3-core

Push force / runtime / total length

Travel [mm]	Push force [N]	Runtime [s]	Total length [mm]
230	450	42	365
350	450	64	485
550	450	100	685

ELTRAL Z45 rack and pinion drive

Designation	Travel	Order number
ELTRAL Z45 rack and pinion drive	230 mm	K-18417-23-0-1
	350 mm	K-18417-35-0-1
	550 mm	K-18417-55-0-1

ELTRAL Z45 rack and pinion follower

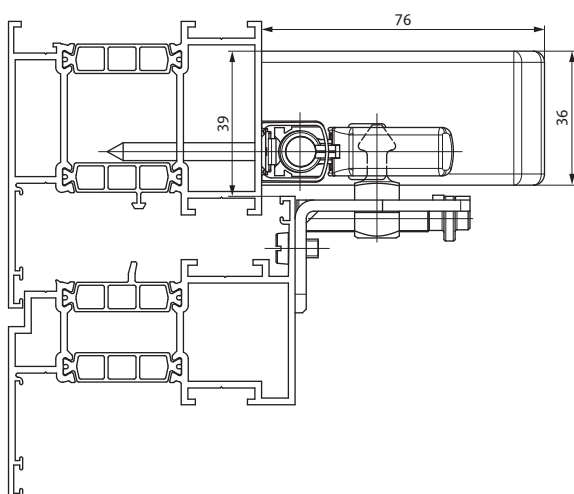
Designation	Travel	Order number
ELTRAL Z45 rack and pinion follower	230 mm	K-17844-23-0-1
	350 mm	K-17844-35-0-1
	550 mm	K-17844-55-0-1

Connecting rod

Designation	Length	Order number
Connecting rod	1000 mm	9-45469-10-0-1
	1500 mm	9-45469-15-0-1
	2000 mm	9-45469-20-0-1
	2500 mm	9-45469-25-0-1

VENTUS F 200 / F 300 fanlight opening system

Cost-efficient control of several sashes with one drive



VENTUS F 200 with S 230 E / S 230 L electric drive

Technical data | Electric drives

Drive system	ELTRAL S 230 E	ELTRAL S 230 L	ELTRAL 300 E1
Nominal voltage	110/230 V AC $\pm$ 15%	110/230 V AC $\pm$ 15%	230 V AC $\pm$ 15%
Nominal force	1200 N	1200 N	3000 N
Nominal current	0.15 A	0.15 A	0.1 A
Stroke (adjustable)	50 mm / 70 mm ^[1]	50 mm / 70 mm ^[1]	40 – 70 mm ^[2]
Speed	0.9 mm/s	0.9 mm/s	1.0 mm/s
Cut-off	electronic	Overload cut-off	Limit switch
Connection	Connector plug for 2-core connecting cable	Connector plug for 2-core connecting cable	1.5 m, 4-core
Dimensions (L x W x H)	210 x 36 x 76 mm	210 x 36 x 76 mm	270 x 55 x 102 mm

[1] Factory setting: 50 mm travel = 200 mm opening width (VENTUS F 200) | 70 mm travel = 300 mm opening width (VENTUS F 300)

[2] Factory setting = 40 mm travel

When installed with VENTUS F 200, the travel must be set to 50 mm (200 mm opening width)

When installed with VENTUS F 300, the travel must be set to 70 mm (300 mm opening width)

Product features

Fanlight opening system

- Cost-efficient control of several sashes with one drive
- Opening widths up to 200 mm/ 300 mm, for small sash heights from 300 mm/350 mm
- For sash weights up to 80kg/200 kg
- Ideally suited for windows offering limited mounting space
- High gasket pressure thanks to automatic and reliable locking of the stays
- Overlap dimensions 0 – 25 mm
- Customised ventilation thanks to continuously variable and lockable opening angles
- The stay can be easily unhinged for convenient window cleaning
- Two drive variants with different motor power depending on sash widths and weights:
ELTRAL S 230 / ELTRAL 300 E1

Electric drives

- Simple installation, horizontal or vertical (left or right)
- Adjustable travel for variable opening widths
- Automatic limit stop switch and overload cut-off
- Anodised aluminium housing

Permissible sash weights, heights and widths

VENTUS F 200 – operation with ELTRAL S 230 / ELTRAL 300 E1 electric drive										
Drive	Max. sash width (mm)	Min. sash width (mm)		Min. sash height (mm)		Max. sash weight (kg)	Max. weight of glazing (kg/m²)	Space required for drive (mm)		Max. number of stays
		Drive installation		Drive installation				lateral	top	
		lateral	top	lateral	top					
ELTRAL S 230	3600	400	620	300	300	80	40 [1]	39	39	4
ELTRAL 300 E1	3600	–	650	–	300	80	40 [1]	–	57	4
[1] Depending on "dimension S" (= distance from sash centre of gravity to middle of hinge) and sash width										

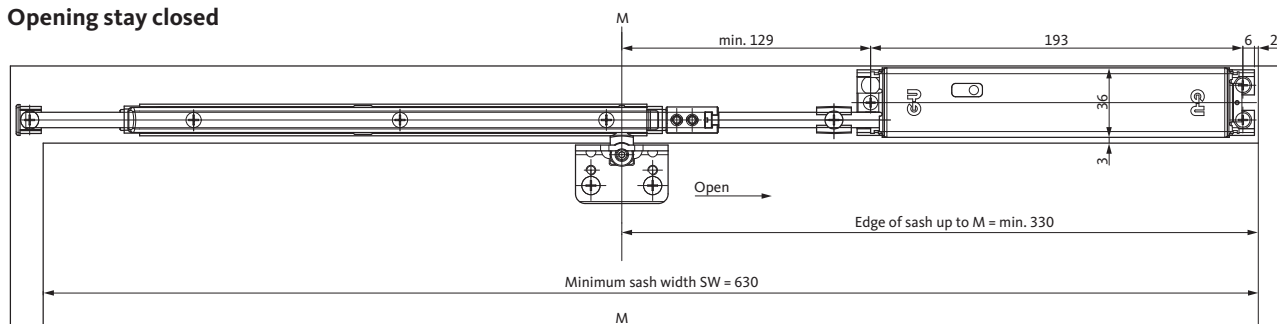
[1] Depending on "dimension S" (= distance from sash centre of gravity to middle of hinge) and sash width

VENTUS F 300 – operation with ELTRAL S 230 / ELTRAL 300 E1 electric drive										
Drive	Max. sash width (mm)	Min. sash width (mm)		Min. sash height (mm)		Max. sash weight (kg)	Max. weight of glazing (kg/m²)	Space required for drive (mm)		Max. number of stays
		Drive installation		Drive installation				lateral	top	
		lateral	top	lateral	top					
ELTRAL S 230	3600	620	850	468	350	200	70 [1]	39	39	4
ELTRAL 300 E1	6000	605	850	400	350	200	70 [1]	57	57	5
[1] Depending on "dimension S" (= distance from sash centre of gravity to middle of hinge) and sash width										

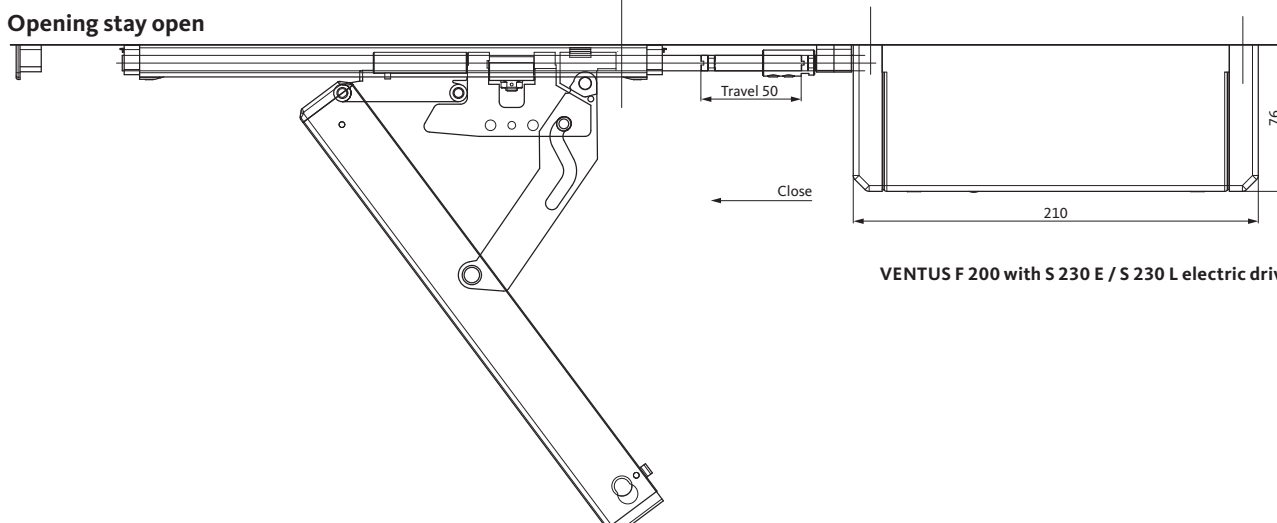
[1] Depending on "dimension S" (= distance from sash centre of gravity to middle of hinge) and sash width

Motor mounted at top (horizontal installation)

Opening stay closed



Opening stay open



VENTUS F 200 with S 230 E / S 230 L electric drive

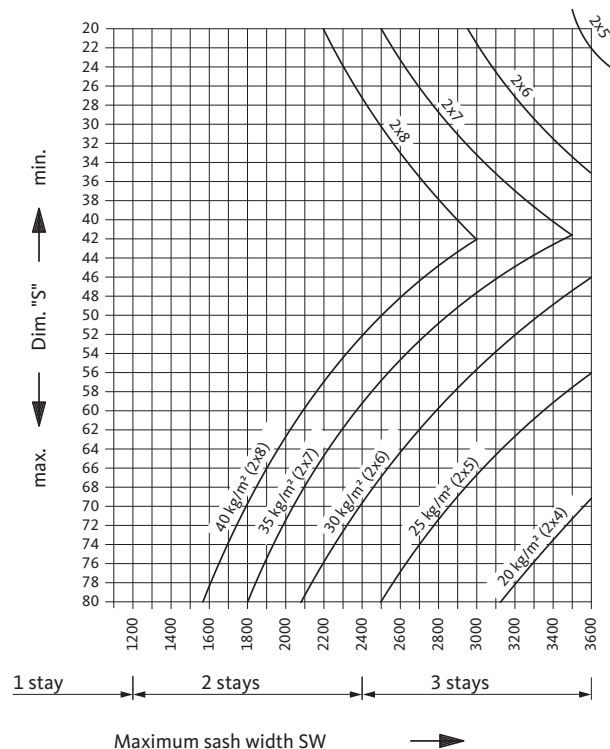
VENTUS F 200 / F 300 fanlight opening system

Range of application



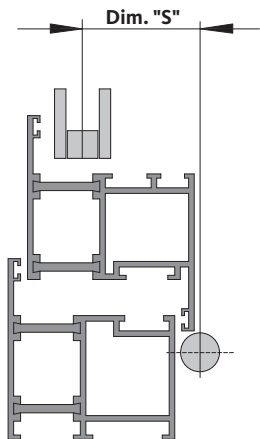
Range of application VENTUS F 200 fanlight opener*

with ELTRAL S 230 E / ELTRAL S 230 L / ELTRAL 300 E1



Dimension "S"

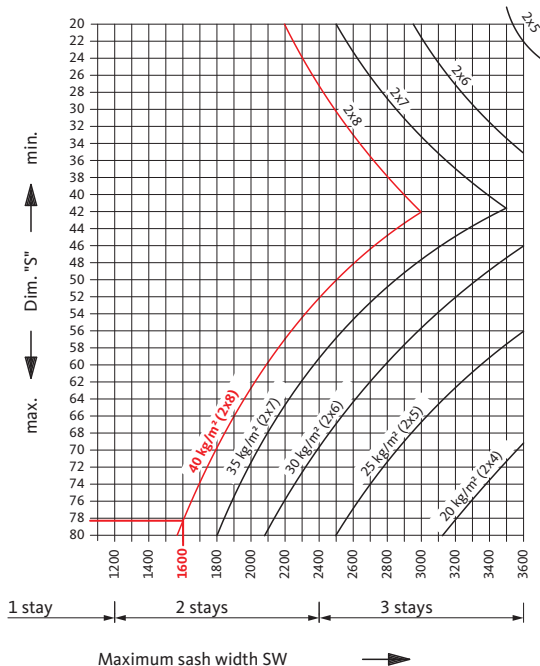
(= distance from sash centre of gravity to middle of hinge)



Calculation example with ELTRAL S 230 E

Example figures:	
Glazing	2 x 8 mm
Weight of glass	40 kg/m²
Sash width	1600 mm
Result:	
Dimension "S"	20 – 79 mm possible

Note: the overall sash weight must not exceed 80 kg.



* = The application areas of the VENTUS F 300 fanlight opening system can be found on page 106

Electric drives

Designation	Cut-off	For	Installation	PU	Order number
ELTRAL S 230 E with electronic adjustment of opening width	Overload cut-off	F 200 F 300	Vertical / horizontal installation	1	6-31732-00-0-*
ELTRAL S 230 L	Overload cut-off	F 200 F 300	Vertical / horizontal installation	1	6-31730-00-0-*
ELTRAL 300 E1	Cut-off via limit stop switch	F 200 F 300	Horizontal installation	1	9-31020-01-0-*

VENTUS F 200 / F 300 fanlight opener

Designation	Consists of	For	Installation	PU	Order number
Basic box without lever handle, without sash bracket		F 200	Vertical installation	1	K-15012-00-0-*
Basic box without lever handle, with angular sash bracket		F 300	Vertical installation	1	K-14320-00-0-*
Opening stay set without sash bracket ^[1]		F 200	Vertical / horizontal installation	10	K-15013-00-0-*
Opening stay box with angular sash bracket ^[1]		F 300	Vertical / horizontal installation	1	K-13999-00-0-*
Box of angular sash brackets		F 200	Vertical / horizontal installation	10	K-15225-00-0-*
Connecting parts set for ELTRAL S 230 E / S 230 L electric drive	Connecting rod, coupling, guide	F 200	Horizontal installation	1	K-14103-00-0-1
Connecting parts set for ELTRAL 300 E1 electric drive	Connecting rod, coupling	F 200	Horizontal installation	1	K-15216-00-0-1
Connecting parts set for ELTRAL S 230 E / S 230 L electric drive	Connecting rod, coupling, guide	F 300	Horizontal installation	1	K-14203-00-0-1
Connecting parts set for ELTRAL 300 E1 electric drive	Connecting rod, coupling	F 300	Horizontal installation	1	K-14202-00-0-1
Connecting rod ø 8 mm for ELTRAL S 230 E / S 230 L electric drive		F 200	Vertical installation	1	9-34764-00-0-1
End cap		F 200	Horizontal installation	1	9-34412-00-0-*
Connecting rod ø 12 mm for ELTRAL 300 E1 electric drive		F 300	Vertical installation	1	9-35331-00-0-1
End cap		F 300	Horizontal installation	1	9-34479-00-0-*
Designation	Length	For	Installation	PU	Order number
Horizontal rod ø 8 mm	600 mm	F 200	Vertical / horizontal installation	10	9-25476-06-0-1
	1850 mm			10	9-25476-18-0-1
	3300 mm			10	9-25476-33-0-1
	6000 mm			10	9-25476-60-0-1
Cover profile for horizontal rod	62 mm	F 200	Vertical / horizontal installation	10	9-33444-01-0-*
	800 mm			10	9-33444-06-0-*
	1800 mm			10	9-33444-18-0-*
	3050 mm			10	9-33444-33-0-*
	6000 mm			10	9-33444-60-0-*
Horizontal rod ø 10 mm Cover profile for horizontal rod	600 mm	F 300	Vertical / horizontal installation	1	K-14001-06-0-*
	1870 mm			1	K-14001-18-0-*
	3500 mm			1	K-14001-33-0-*
Alternative: horizontal rod ø 10 mm	6000 mm	F 300	Vertical / horizontal installation	1	9-23055-60-0-1
Alternative: cover profile for horizontal rod	6000 mm	F 300	Vertical / horizontal installation	1	9-34497-60-0-*

* = colour type: 1 = grey (RAL 7047), 6 = black (RAL 9005), 7 = white (RAL 9016) | [1] Required from the 2nd opening stay

Electrical controllers and accessories (230 V)



Ventilation central control units

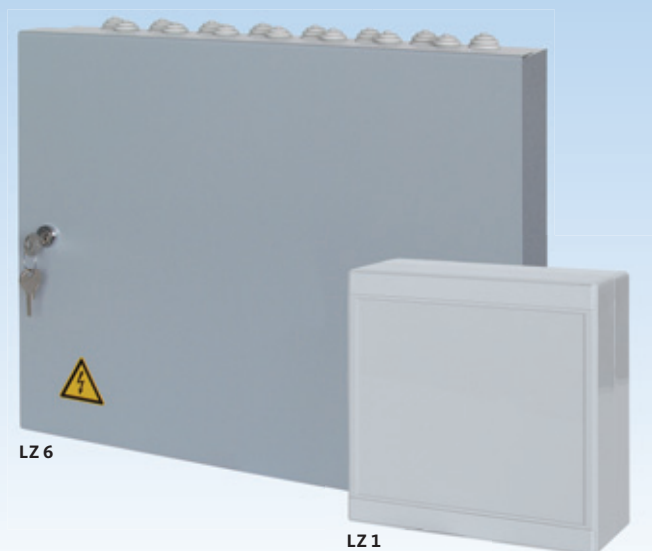
1 ventilation group – LZ 1	188 – 189
6 ventilation groups – LZ 6	188 – 189

Accessories

Rocker switch, rocker push-button, ventilation key switch	190
Wind/rain detector, rain sensor	191
Radio transmitter, radio actuator	192
Time switch, room thermostat	192
Power supply units	193
GU EURO-SOLID safety stay, GU catch stays	194 – 195

LZ 1 / LZ 6 ventilation central control unit

Customised ventilation group arrangements



Product features

- Control of 24 V DC drives for everyday ventilation
- Formation of up to 6 ventilation groups (depending on central control unit type)
- With central push-button function
- Several central control units can be connected in parallel
- 3 connections for switching contacts with ascending priority, e.g.:
 - 1st priority (P1) = superior building control system
 - 2nd priority (P2) = wind/rain detector
 - 3rd priority (P3) = ventilation push-button for dead man's and/or locking operating mode

Technical data

Type	LZ 1	LZ 6 / 24 A	LZ 6 / 30 A
Power supply	230 V AC ± 10%, 50 Hz	195-253 V AC, 50-60 Hz	
Output voltage	24 – 28 V DC	24 – 28 V DC	
Output current	2.5 A	24 A	30 A
Max. no. of groups/outputs	1 ventilation group	6 ventilation groups max. 4 A / group/output	6 ventilation groups max. 5 A / group/output
Parallel connection	Several LZ 1 ventilation central control units, also in conjunction with LZ 6 ventilation central control units	Several LZ 6 ventilation central control units, also in conjunction with LZ 1 ventilation central control units	
Terminal clamps			
– mains	max. 1.5 mm ²	max. 1.5 mm ²	
– drive	max. 2.5 mm ²	max. 6.0 mm ²	
Protection class	IP 30	IP 30	
Housing	PVC	sheet-steel (RAL 7035)	

Dimensions

Central control unit	Dimensions (W x H x D)
LZ 1 – surface-mounted version	180 x 130 x 60 mm
LZ 6 – surface-mounted version	455 x 370 x 150 mm

LZ 1 ventilation central control unit

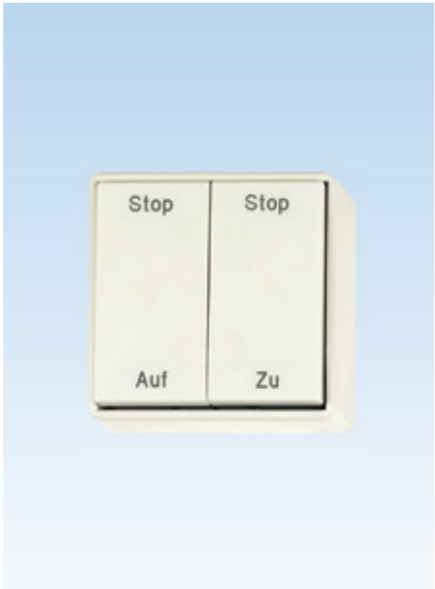
Designation	Output current	Design / type	Order number
LZ 1 ventilation central control unit	2.5 A	Surface-mounted version	K-19042-00-0-0

LZ 6 ventilation central control unit

Designation	Output current	Design / type	Order number
LZ 6 ventilation central control unit	24 A	Surface-mounted version	K-19043-00-0-0
	30 A		K-19044-00-0-0

Ventilation accessories

Rocker switch, rocker push-button, ventilation key switch



Rocker switch 'OPEN - STOP - CLOSE'

For manual opening or closing of electro-motor-driven windows, smoke flaps or light domes.

Surface-mounted version

- 1-core
- Housing dimensions (W x H x D):
80 x 80 x 44 mm
- Housing colour: pearl white, RAL 1013

Flush-mounted version

- 1-core
- For installation in flush-mounted boxes
ø 60 mm
- Frame colour: pearl white, RAL 1013



Rocker push-button 'OPEN - STOP - CLOSE'

For manual opening or closing of electro-motor-driven windows, smoke flaps or light domes.

Surface-mounted version

- 1-core
- Housing dimensions (W x H x D):
80 x 80 x 44 mm
- Housing colour: pearl white, RAL 1013

Flush-mounted version

- 1-core
- For installation in flush-mounted boxes
ø 60 mm
- Frame colour: pearl white, RAL 1013



Ventilation key switch

For manual opening or closing of electro-motor-driven windows, smoke flaps or light domes.

Flush-mounted version

- OPEN - STOP - CLOSE
- Prepared for profile half cylinder
- Housing dimensions (W x H x D):
80 x 152 x 35 mm

Rocker switch 'OPEN - STOP - CLOSE'	
Version	Order number
Surface-mounted version	6-25539-00-0-0
Flush-mounted version	6-22540-00-0-0

Rocker push-button 'OPEN - STOP - CLOSE'	
Version	Order number
Surface-mounted version	6-25220-00-0-0
Flush-mounted version	6-25219-00-0-0

Ventilation key switch	
Version	Order number
Flush-mounted version	6-25838-00-0-0

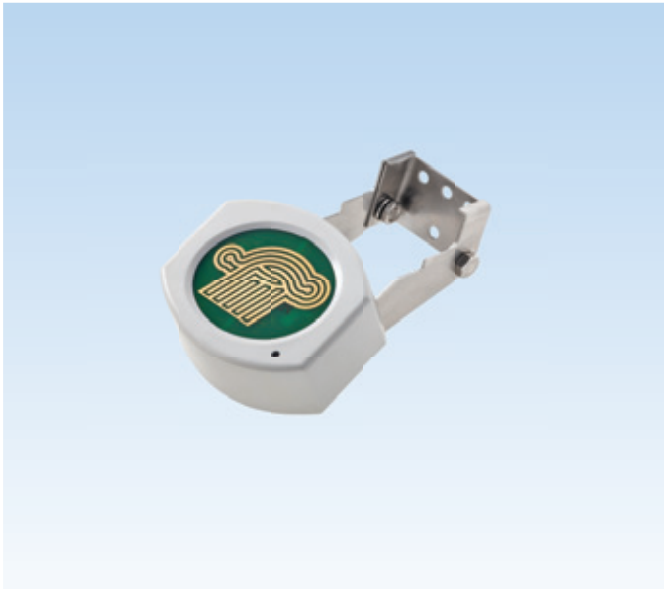


Wind and rain detector

Wind velocity and rain detection and transmission to an evaluation unit or RWA central control unit for the closing of windows and deactivating the ventilation push-button function.

Consists of

- Wind sensor
Dimensions: 250 x 250 x 80 mm
- Rain sensor 24 V DC
Dimensions: 100 x 85 x 172 mm
- Bracket for pole or wall mounting
- Clamping ring
- Connecting cable, 4 m



Rain sensor

Rain sensor based on the conductive measurement principle, with heated sensor surface and integrated electronic evaluation unit with potential-free contact for signal transmission.

Consists of

- Rain sensor 24 V DC
Dimensions: 100 x 85 x 172 mm
Protection type: IP 65
- Status display
- Integrated heater
- 4 m connecting cable, output approx. 150 mA

Wind and rain detector	
Designation	Order number
Wind and rain detector	K-15331-00-0-0

24 V AC/DC rain sensor	
Designation	Order number
24 V AC/DC rain sensor	9-39062-00-0-0

Ventilation accessories

Radio transmitter, radio actuator, time switch, room thermostat



42 FH radio transmitter

- For 230 V AC electric drive

42 FH radio transmitter	
Designation	Order number
42 FH radio transmitter	9-42496-00-0-0



FAJ 6 UP radio actuator

- In conjunction with 42 FH radio transmitter
- For installation in flush-mounted boxes
- 230 V AC, 50 Hz

FAJ 6 UP radio actuator	
Designation	Order number
FAJ 6 UP radio actuator	9-42495-00-0-0



Time switch

with day/week programme and power reserve

- Operating voltage: 230 V AC, 50 Hz
- For time-related opening and closing of ventilation sashes/leaves/flaps
- Potential-free changeover contact for connection to RWA central control units
- Contact rating: max. 16 A
- Suitable for combination with temperature-dependent control devices, e.g. for controlled night cooling (taking into account winter and summer time)

Time switch	
Designation	Order number
Time switch	9-45612-00-0-0



Room thermostat

- Automatic ventilation control based on the ambient temperature (via integrated thermostat)
- For connecting to the ventilation push-button input of ventilation central control units, operating voltage: 24 V DC ($\pm 5\%$)
- Adjustable; adjustment range: 0 – 30°
- Switch capacity: 230 V AC, 5 A
- Protection class: IP 30
- Surface-mounted plastic housing, white (W x H x D): 74.5 x 74.5 x 25 mm

Room thermostat	
Designation	Order number
Room thermostat	K-19041-00-0-0



Product features

- For the connection of 24 V DC spindle, chain and locking drives in surface-mounted plastic housing
- Power-up / connection possible (directional change)

Technical data

Designation	NT 2.5	NT 6.5
Supply voltage	230 V AC, 50 Hz	230 V AC, 50 Hz
Output voltage	24 V DC	24 V DC
Output current	2.5 A	6.5 A
Nominal power	54 VA	156 VA
Duty ratio	20%	30%
Protection class	IP 54	IP 54
Parallel connection	max. 8 power supply units	max. 8 power supply units

230 V AC / 24 V DC power supply units

Designation	Housing dimensions (W x H x D)	Order number
NT 2.5	94 x 130 x 81 mm	9-43994-00-0-0
NT 6.5	160 x 250 x 55 mm	9-43995-00-0-0

GU EURO-SOLID safety stay

for Tilt-Only timber, PVC and aluminium windows up to 60 kg



GU EURO-SOLID safety stay

As stipulated by the RAL directives:

In addition to the standard fanlight hardware, Tilt-Only sashes must be fitted with catch stays.

GU EURO-SOLID safety stays prevent damage that might arise from incorrect attachment of the opening stays. Moreover, they provide great convenience when cleaning as the sash is held in the desired position.

Application information

Size	Sash height	Opening angle Catch position	Number of stays based on the sash weight	
			1 stay	2 stays
01	270 – 350 mm	approx. 30°	15 kg	30 kg
02	351 – 500 mm	approx. 40 – 45°	15 kg	30 kg
03	501 – 800 mm	approx. 25 – 30°	30 kg	60 kg
04	801 – 1500 mm	approx. 15 – 20°	30 kg	60 kg

EURO-SOLID order information

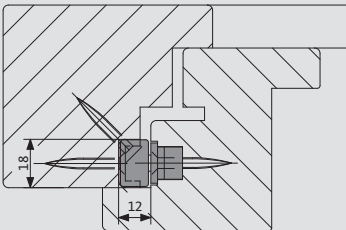
Size	PU	Order number
01	1	6-27995-01-0-8
02	1	6-27995-02-0-8
03	1	6-27995-03-0-8
04	1	6-27995-04-0-8
Drilling jig	1	K-14788-00-0-0

Order information

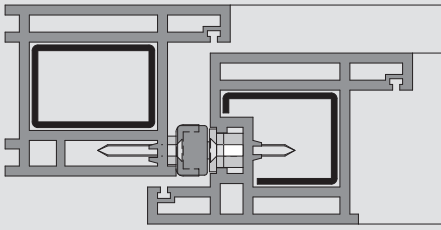
Set of profile-related accessories EURO-SOLID

Designation	PU	Order number
Tilt-Only timber window	20	K-14681-00-0-1
Packer for Euro-groove 7/8 x 4, 6/8 x 4 / timber	100	9-38819-00-0-1
Tilt-Only PVC window	–	on request
Tilt-Only aluminium window	–	on request

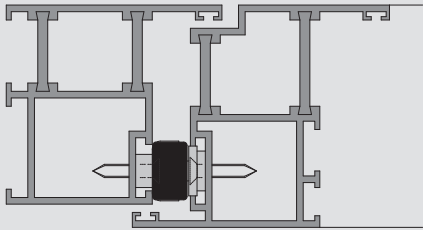
Installing the GU EURO-SOLID safety stay



Timber profile



PVC profile



Aluminium profile

GU catch stays

for Tilt-Only timber and aluminium windows up to 250 kg



GU catch stays

As stipulated by the RAL directives and ASR A 1.6 workplace regulations:

In addition to the drive system, Tilt-Only sashes must also be fitted with catch stays.

GU catch stays prevent damage that may be caused by incorrect attachment of the chain drives on the sash. They permanently connect the sash to the frame and therefore provide additional operating safety, whilst also preventing the sash from falling.

Application information (without locking drive)

Size	Travel	Min. sash height	Max. sash height
01	300 mm	320 mm	3000 mm
	400 mm	400 mm	2000 mm
00	500 mm	500 mm	3000 mm
	600 mm	800 mm	1300 mm

Product features

- For use on large and heavy windows up to 250 kg
- Safety catch function only (no cleaning function)
- Can be used together with locking drives ^[1]

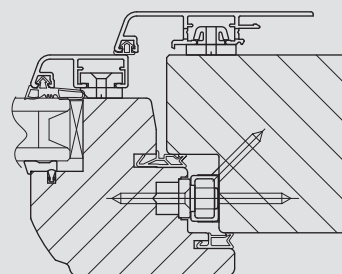
Order information – GU catch stays

Size	PU	Order number – Timber profiles	
01	2	K-18046-01-0-8	K-17915-01-0-8 ^[2]
00	2	K-18046-00-0-8	K-17915-00-0-8 ^[2]

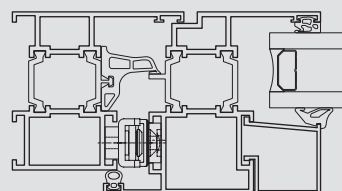
Order information – GU catch stays

Size	PU	Order number – Aluminium profiles	
01	2	K-17915-01-0-8	
00	2	K-17915-00-0-8	

Installation of GU catch stays



Timber profile



Aluminium profile

[1] The application information for use with locking drives can be found in the respective installation instructions

[2] Only for applications without vertical locking

Useful information



Photographer's Choice RF collection / Getty Images

Useful information

Installation and operating instructions / Documentation	200 – 202
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Protection classes (IP) according to DIN 60529	220
Duty ratio (EP) according to DIN VDE 0530-1 / Wind forces according to Beaufort	221
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Installation and operating instructions / documentation

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ELTRAL KS 30/40	209 – 210
ELTRAL K35	211
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Locking drives	
ELTRAL VAN	215
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ELTRAL VA35	217
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ELTRAL S80	218
ELTRAL S160	218
Fanlight opening systems	
VENTUS F 200	219
VENTUS F 300	219

Installation and operating instructions

Electric drive and opening systems (24 V and 230 V)



Electric drive and opening systems (24 V and 230 V)

Designation		Document type	Document no.
Chain drives			
ELTRAL K25	24 V	Installation and operating instructions	0.44928
ELTRAL K25	230 V	Installation and operating instructions	0.44929
ELTRAL K25 with VA	24 V	Installation and operating instructions	0.45091
ELTRAL K30	24 / 230 V	Installation and operating instructions	0.45380
ELTRAL KS 30/40 Solo	24 / 230 V	Installation and operating instructions	0.46790
ELTRAL KS 30/40 Synchro	24 / 230 V	Installation and operating instructions	M-00158
ELTRAL KS 30/40 radio	230 V	Installation and operating instructions	0.46857
ELTRAL K35	24 V	Installation and operating instructions	0.45841
ELTRAL K60	24 V	Installation and operating instructions	0.44936
ELTRAL K60 – 300 N	24 V	Installation and operating instructions	0.45500
ELTRAL K60	230 V	Installation and operating instructions	0.44937
Locking drives			
ELTRAL VAN	24 V	Installation and operating instructions	0.45649
ELTRAL VA25	24 V	Installation and operating instructions	0.45093
ELTRAL OA	24 V	Installation and operating instructions	0.45247
ELTRAL VA35	24 V	Installation and operating instructions	0.45094
ELTRAL VA-1 R/4; VA-1 L/4; ELTRAL VA-2/12; VA-2/20	24 V	Installation and operating instructions	0.45262
ELTRAL VA-1 R/4; VA-1 L/4; ELTRAL VA-2/12; VA-2/20	24 V	Installation and operating instructions	0.45322
Spindle drives / rack and pinion drives			
ELTRAL S60; S80; S100; S160	24 V	Installation and operating instructions	0.45092
ELTRAL S80	230 V	Installation and operating instructions	0.45289
ELTRAL Z45	230 V	Installation and operating instructions	0.46019
Fanlight opening systems			
ELTRAL S 24 L	24 V	Operating instructions	M-00078
ELTRAL 300/24	24 V	Connection diagram	0.40189
ELTRAL S 230 L	230 V	Operating instructions	M-00076
ELTRAL S 230 E	230 V	Operating instructions	M-00077
RWA opening systems			
RWA 1000 Solo	24 V	Installation and operating instructions	0.45244
RWA 1000 Synchro	24 V	Installation and operating instructions	0.45263
RWA 1050 Solo+Synchro	24 V	Installation and operating instructions	0.45245
RWA 1100 Solo	24 V	Installation and operating instructions	0.45288
RWA 1100 Synchro	24 V	Installation and operating instructions	0.45840
Door drive			
ELTRAL TA 60	24 V	Installation and operating instructions	0.45246



Electrical controllers (24 V and 230 V) / accessories		
Designation	Document type	Document no.
RWA compact central control units		
RZ25; RZ50; RZ75 24 V	Installation and operating instructions	0.46003
RZ100; RZ200 24 V	Installation and operating instructions	0.46622
RWA module central control units		
RZM 24 V	Installation and operating instructions	0.46624
Ventilation central control units		
LZ 230 V	Installation and operating instructions	0.45283
Accessories		
RWA push-button 'HSE'	Data sheet	0.46623
RMD3 smoke detector / WMD3 heat detector	Data sheet	0.46625
Wind and rain detector	Operating instructions	0.45284
Rain sensor	Operating instructions	0.45285
WRAG 2 wind/rain evaluator	Operating instructions	0.45265
Line termination module / interface module for FAS	Data sheet	0.46720
Time module for alarm time limit	Operating instructions	0.45291
BKS-NET coupling module	Data sheet	0.46729
USKM control module	Operating instructions	0.45320
Test kit	Operating instructions	0.45377

Documentation



Documentation		
Documentation	Document type	Document no.
Risk analysis	–	0.45948
RWA test log book	–	0.45839
Check list acceptance / RWA commissioning	–	0.45974
RWA checklist	–	0.45975
NSHEV planning document for aluminium	–	0.46021
NSHEV planning document for wood	–	0.46022



Installation drawings

Drive	Profile system	Window type, opening direction	Installation method	Mounting bracket	Drawing number
General profile systems					
ELTRAL K25 24 V	Timber / PVC	Tilt-Only sash, inwards	Frame installation	K-17635-00-0-8	0.44933
ELTRAL K25 24 V	Timber	Tilt-Only sash, inwards	Frame installation	K-17635-00-0-8	0.45059
ELTRAL K25 24 / 230 V	Timber	Tilt-Only sash, inwards	Frame installation	K-17636-00-0-8	0.45061
ELTRAL K25 24 / 230 V	PVC	Tilt-Only sash, inwards	Frame installation	K-17636-00-0-8	0.45065
ELTRAL K25 24 V	Aluminium	Tilt-Only sash, inwards	Frame installation	K-17593-00-0-8	0.44930
ELTRAL K25 24 V	Euro-groove	Tilt-Only sash, inwards	Frame installation	K-17593-00-0-8	0.45799
ELTRAL K25 24 V	Euro-groove	Tilt-Only sash, inwards	Frame installation	K-17594-00-0-8	0.45800
ELTRAL K25 24 V	Timber	Tilt-Only sash, inwards	Sash installation	K-17637-00-0-8	0.45039
ELTRAL K25 230 V	Timber	Tilt-Only sash, inwards	Sash installation	K-17637-00-0-8	0.45060
ELTRAL K25 24 V	PVC	Tilt-Only sash, inwards	Sash installation	K-17637-00-0-8	0.45062
ELTRAL K25 24 V	PVC	Tilt-Only sash, inwards	Sash installation	K-17635-00-0-8	0.45063
ELTRAL K25 230 V	PVC	Tilt-Only sash, inwards	Sash installation	K-17637-00-0-8	0.45064
ELTRAL K25 24 / 230 V	Timber	Tilt-Only sash, inwards	Concealed installation	K-17909-00-0-1	0.45593
ELTRAL K25 24 V	Euro-groove	Tilt-Only sash, inwards	Concealed installation	K-17880-00-0-1	0.45803
ELTRAL K25 24 V	Euro-groove	Tilt-Only sash, inwards	Sash installation	K-17595-00-0-8	0.45796
ELTRAL K25 24 V	Euro-groove	Top-Hung sash, outwards	Frame installation	K-17595-00-0-8	0.45811
ELTRAL K25 24 V	Aluminium	Top-Hung sash, outwards	Sash installation	K-17706-00-0-8	0.45084
ELTRAL K25 24 / 230 V	Timber / PVC	Tilt-Only sash, inwards Top-Hung sash, outwards	Sash installation	K-17637-00-0-8	0.44935
ELTRAL K25 24 / 230 V	Aluminium	Tilt-Only sash, inwards Top-Hung sash, outwards	Sash installation	K-17595-00-0-8	0.44932
Alcoa profile system					
ELTRAL K25 24 / 230 V	Alcoa	Tilt-Only sash, inwards	Frame installation	K-17594-00-0-8	0.46013
ELTRAL K25 230 V	Alcoa	Tilt-Only sash, inwards	Sash installation	K-17595-00-0-8	0.46037
Feal profile system					
ELTRAL K25 24 V	Feal T65i series	Tilt-Only sash, inwards	Concealed installation	K-17880-00-0-1	0.45650
Heroal profile system					
ELTRAL K25 24 V	Heroal	Tilt-Only sash, inwards	Frame installation	K-17593-00-0-8	0.45547
ELTRAL K25 24 V	Heroal	Tilt-Only sash, inwards	Frame installation	K-17594-00-0-8	0.46478
ELTRAL K25 230 V	Heroal	Tilt-Only sash, inwards	Sash installation	K-17595-00-0-8	0.46038
ELTRAL K25 24 V	Heroal	Tilt-Only sash, inwards	Concealed installation	K-17880-00-0-1	0.45592
ELTRAL K25 230 V	Heroal	Tilt-Only sash, inwards	Concealed installation	K-17880-00-0-1	0.45599
ELTRAL K25 24 V	Heroal	Horizontal/Vertical-Pivot sash	Frame installation	K-17593-00-0-8	0.45548

Installation drawings

ELTRAL K25 chain drive (24 V / 230 V)



Installation drawings

Drive		Profile system	Window type, opening direction	Installation method	Mounting bracket	Drawing number
Hueck profile system						
ELTRAL K25	24 V	Hueck	Tilt-Only sash, inwards	Frame installation	K-17593-00-0-8	0.45045
ELTRAL K25	24 V	Hueck	Tilt-Only sash, inwards	Frame installation, flush-mounted	K-17593-00-0-8	0.45046
ELTRAL K25	24 / 230 V	Hueck	Tilt-Only sash, inwards	Frame installation	K-17594-00-0-8	0.45053
ELTRAL K25	24 V	Hueck	Tilt-Only sash, inwards	Sash installation	K-17706-00-0-8	0.45042
ELTRAL K25	24 V	Hueck	Tilt-Only sash, inwards	Sash installation, flush-mounted	K-17595-00-0-8	0.45043
ELTRAL K25	230 V	Hueck	Tilt-Only sash, inwards	Sash installation	K-17706-00-0-8	0.45051
ELTRAL K25	24 V	Hueck	Tilt-Only sash, inwards	Concealed installation	K-17880-00-0-1	0.45595
ELTRAL K25	24 V	Hueck	Top-Hung sash, outwards	Frame installation	K-17595-00-0-8	0.45047
ELTRAL K25	230 V	Hueck	Top-Hung sash, outwards	Frame installation	K-17595-00-0-8	0.45054
ELTRAL K25	24 V	Hueck	Horizontal/Vertical-Pivot sash	Frame installation, fixed at top	K-17593-00-0-8	0.45049
ELTRAL K25	24 V	Hueck	Horizontal/Vertical-Pivot sash	Frame installation, fixed at bottom	K-17595-00-0-8	0.45050
ELTRAL K25	24 / 230 V	Hueck	Horizontal/Vertical-Pivot sash	Frame installation, fixed at top	K-17594-00-0-8	0.45056
ELTRAL K25	230 V	Hueck	Horizontal/Vertical-Pivot sash	Frame installation, fixed at bottom	K-17595-00-0-8	0.45057
ELTRAL K25	24 V	Hueck	Horizontal/Vertical-Pivot sash	Sash installation	K-17706-00-0-8	0.45044
ELTRAL K25	230 V	Hueck	Horizontal/Vertical-Pivot sash	Sash installation	K-17706-00-0-8	0.45052
ELTRAL K25	24 V	Hueck	Lowering Top-Hung sash	Frame installation	K-17595-00-0-8	0.45048
ELTRAL K25	230 V	Hueck	Lowering Top-Hung sash	Frame installation	K-17706-00-0-8	0.45055
Jansen profile system						
ELTRAL K25	24 V	Jansen	Tilt-Only sash, inwards	Sash installation	K-17595-00-0-8	0.45376
Reynaers profile system						
ELTRAL K25	24 / 230 V	Reynaers	Tilt-Only sash, inwards	Frame installation	K-17594-00-0-8	0.45035
ELTRAL K25	24 V	Reynaers	Tilt-Only sash, inwards	Frame installation	K-17593-00-0-8	0.45029
ELTRAL K25	24 V	Reynaers	Tilt-Only sash, inwards	Sash installation	K-17595-00-0-8	0.45027
ELTRAL K25	230 V	Reynaers	Tilt-Only sash, inwards	Sash installation	K-17595-00-0-8	0.45033
ELTRAL K25	24 V	Reynaers	Tilt-Only sash, inwards	Concealed installation	K-17880-00-0-1	0.45594
ELTRAL K25	24 / 230 V	Reynaers	Horizontal/Vertical-Pivot sash	Frame installation, fixed at top	K-17594-00-0-8	0.45037
ELTRAL K25	24 V	Reynaers	Horizontal/Vertical-Pivot sash	Sash installation	K-17595-00-0-8	0.45028
ELTRAL K25	24 V	Reynaers	Horizontal/Vertical-Pivot sash	Frame installation, fixed at top	K-17593-00-0-8	0.45031
ELTRAL K25	24 V	Reynaers	Horizontal/Vertical-Pivot sash	Frame installation, fixed at bottom	K-17595-00-0-8	0.45032
ELTRAL K25	230 V	Reynaers	Horizontal/Vertical-Pivot sash	Sash installation	K-17595-00-0-8	0.45034
ELTRAL K25	230 V	Reynaers	Horizontal/Vertical-Pivot sash	Frame installation, fixed at bottom	K-17595-00-0-8	0.45038
ELTRAL K25	24 V	Reynaers	Lowering Top-Hung sash	Frame installation	K-17706-00-0-8	0.45030
ELTRAL K25	230 V	Reynaers	Lowering Top-Hung sash	Frame installation	K-17706-00-0-8	0.45036

Installation drawings						
Drive		Profile system	Window type, opening direction	Installation method	Mounting bracket	Drawing number
Schüco profile system						
ELTRAL K25	24 / 230 V	Schüco	Tilt-Only sash, inwards	Frame installation	K-17594-00-0-8	0.44975
ELTRAL K25	24 / 230 V	Schüco	Tilt-Only sash, inwards	Frame installation, flush-mounted	K-17594-00-0-8	0.44976
ELTRAL K25	24 V	Schüco	Tilt-Only sash, inwards	Frame installation	K-17593-00-0-8	0.44985
ELTRAL K25	24 V	Schüco	Tilt-Only sash, inwards	Frame installation, flush-mounted	K-17593-00-0-8	0.44986
ELTRAL K25	24 V	Schüco	Tilt-Only sash, inwards	Sash installation	K-17595-00-0-8	0.44992
ELTRAL K25	24 V	Schüco	Tilt-Only sash, inwards	Sash installation, flush-mounted	K-17595-00-0-8	0.44993
ELTRAL K25	230 V	Schüco	Tilt-Only sash, inwards	Sash installation	K-17595-00-0-8	0.44982
ELTRAL K25	230 V	Schüco	Tilt-Only sash, inwards	Sash installation, flush-mounted	K-17595-00-0-8	0.44983
ELTRAL K25	24 V	Schüco	Tilt-Only sash, inwards	Concealed installation	K-17874-00-0-0 and K-17875-00-0-0	0.45596
ELTRAL K25	24 V	Schüco	Tilt-Only sash, inwards	Concealed installation	K-17874-00-0-0	0.45597
ELTRAL K25	24 V	Schüco	Top-Hung sash, outwards	Frame installation	K-17595-00-0-8	0.44987
ELTRAL K25	24 V	Schüco	Top-Hung sash, outwards	Frame installation	K-17595-00-0-8	0.44988
ELTRAL K25	230 V	Schüco	Top-Hung sash, outwards	Frame installation	K-17595-00-0-8	0.44977
ELTRAL K25	230 V	Schüco	Top-Hung sash, outwards	Frame installation	K-17706-00-0-8	0.44978
ELTRAL K25	24 / 230 V	Schüco	Horizontal/Vertical-Pivot sash	Frame installation, fixed at top	K-17594-00-0-8	0.44980
ELTRAL K25	24 V	Schüco	Horizontal/Vertical-Pivot sash	Frame installation, fixed at top	K-17593-00-0-8	0.44990
ELTRAL K25	24 V	Schüco	Horizontal/Vertical-Pivot sash	Frame installation, fixed at bottom	K-17595-00-0-8	0.44991
ELTRAL K25	230 V	Schüco	Horizontal/Vertical-Pivot sash	Frame installation, fixed at bottom	K-17595-00-0-8	0.44981
ELTRAL K25	24 V	Schüco	Horizontal/Vertical-Pivot sash	Sash installation	K-17595-00-0-8	0.44994
ELTRAL K25	230 V	Schüco	Horizontal/Vertical-Pivot sash	Sash installation	K-17595-00-0-8	0.44984
ELTRAL K25	24 V	Schüco	Lowering Top-Hung sash	Frame installation	K-17595-00-0-8	0.44989
ELTRAL K25	230 V	Schüco	Lowering Top-Hung sash	Frame installation	K-17595-00-0-8	0.44979

Installation drawings

ELTRAL K25 chain drive (24 V / 230 V)



Installation drawings

Drive	Profile system	Window type, opening direction	Installation method	Mounting bracket	Drawing number
Wicona profile system					
ELTRAL K25 24 / 230 V	Wicona	Tilt-Only sash, inwards	Frame installation	K-17594-00-0-8	0.45020
ELTRAL K25 24 / 230 V	Wicona	Tilt-Only sash, inwards	Frame installation, flush-mounted	K-17594-00-0-8	0.45021
ELTRAL K25 24 V	Wicona	Tilt-Only sash, inwards	Frame installation	K-17593-00-0-8	0.45011
ELTRAL K25 24 V	Wicona	Tilt-Only sash, inwards	Frame installation, flush-mounted	K-17593-00-0-8	0.45012
ELTRAL K25 24 V	Wicona	Tilt-Only sash, inwards	Sash installation	K-17595-00-0-8	0.45008
ELTRAL K25 24 V	Wicona	Tilt-Only sash, inwards	Sash installation, flush-mounted	K-17595-00-0-8	0.45009
ELTRAL K25 230 V	Wicona	Tilt-Only sash, inwards	Sash installation	K-17595-00-0-8	0.45017
ELTRAL K25 230 V	Wicona	Tilt-Only sash, inwards	Sash installation, flush-mounted	K-17595-00-0-8	0.45018
ELTRAL K25 24 V	Wicona	Tilt-Only sash, inwards	Concealed installation	K-17880-00-0-1	0.45598
ELTRAL K25 24 V	Wicona	Top-Hung sash, outwards	Frame installation	K-17595-00-0-8	0.45013
ELTRAL K25 230 V	Wicona	Top-Hung sash, outwards	Frame installation	K-17706-00-0-8	0.45022
ELTRAL K25 24 / 230 V	Wicona	Horizontal/Vertical-Pivot sash	Frame installation, fixed at top	K-17594-00-0-8	0.45024
ELTRAL K25 24 V	Wicona	Horizontal/Vertical-Pivot sash	Frame installation, fixed at top	K-17593-00-0-8	0.45015
ELTRAL K25 24 V	Wicona	Horizontal/Vertical-Pivot sash	Frame installation, fixed at bottom	K-17595-00-0-8	0.45016
ELTRAL K25 24 V	Wicona	Horizontal/Vertical-Pivot sash	Sash installation	K-17595-00-0-8	0.45010
ELTRAL K25 230 V	Wicona	Horizontal/Vertical-Pivot sash	Sash installation	K-17595-00-0-8	0.45019
ELTRAL K25 230 V	Wicona	Horizontal/Vertical-Pivot sash	Frame installation, fixed at bottom	K-17706-00-0-8	0.45025
ELTRAL K25 24 V	Wicona	Lowering Top-Hung sash	Frame installation	K-17595-00-0-8	0.45014
ELTRAL K25 230 V	Wicona (Wictec 50/60)	Lowering Top-Hung sash	Frame installation	K-17706-00-0-8	0.45023
ELTRAL K25 24 V	Wicona (Wicsky 3)	Lowering Top-Hung sash	Frame installation	K-17706-00-0-8	0.45068
ELTRAL K25 230 V	Wicona (Wicsky 3)	Lowering Top-Hung sash	Frame installation	K-17706-00-0-8	0.45026



Installation drawings

Drive	Profile system	Window type, opening direction	Installation method	Mounting bracket	Drawing number
General profile systems					
ELTRAL K30 24 / 230 V	Timber	Tilt-Only sash, inwards	Frame installation	K-18157-00-0-*	0.45519
ELTRAL K30 24 / 230 V	PVC	Tilt-Only sash, inwards	Frame installation	K-18157-00-0-*	0.45525
ELTRAL K30 24 V	Euro-groove	Tilt-Only sash, inwards	Frame installation	K-18157-00-0-*	0.45801
ELTRAL K30 24 / 230 V	Timber	Tilt-Only sash, inwards	Sash installation	K-17843-00-0-*	0.45545
ELTRAL K30 24 / 230 V	PVC	Tilt-Only sash, inwards	Sash installation	K-17843-00-0-*	0.45542
ELTRAL K30 24 V	Euro-groove	Tilt-Only sash, inwards	Sash installation	K-17843-00-0-*	0.45797
ELTRAL K30 24 V	Euro-groove	Top-Hung sash, outwards	Frame installation	K-17841-00-0-*	0.45812
Alumil profile system					
ELTRAL K30 24 / 230 V	Alumil	Tilt-Only sash, inwards	Frame installation	K-18157-00-0-*	0.45513
Heroal profile system					
ELTRAL K30 24 / 230 V	Heroal	Tilt-Only sash, inwards	Sash installation	K-17843-00-0-*	0.45546
Hueck profile system					
ELTRAL K30 24 / 230 V	Hueck	Tilt-Only sash, inwards	Frame installation	K-18157-00-0-*	0.45520
ELTRAL K30 24 / 230 V	Hueck	Tilt-Only sash, inwards	Sash installation	K-17843-00-0-*	0.45543
ELTRAL K30 24 / 230 V	Hueck	Top-Hung sash, outwards	Frame installation	K-17841-00-0-*	0.45521
ELTRAL K30 24 / 230 V	Hueck	Horizontal/Vertical-Pivot sash	Frame installation, fixed at top	K-18157-00-0-*	0.45523
ELTRAL K30 24 / 230 V	Hueck	Horizontal/Vertical-Pivot sash	Frame installation, fixed at bottom	K-17841-00-0-*	0.45524
ELTRAL K30 24 / 230 V	Hueck	Horizontal/Vertical-Pivot sash	Sash installation	K-17843-00-0-*	0.45544
ELTRAL K30 24 / 230 V	Hueck	Lowering Top-Hung sash	Frame installation	K-17841-00-0-*	0.45522
Reynaers profile system					
ELTRAL K30 24 / 230 V	Reynaers	Tilt-Only sash, inwards	Frame installation	K-18157-00-0-*	0.45526
ELTRAL K30 24 / 230 V	Reynaers	Tilt-Only sash, inwards	Sash installation	K-17843-00-0-*	0.45540
ELTRAL K30 24 / 230 V	Reynaers	Horizontal/Vertical-Pivot sash	Frame installation, fixed at top	K-18157-00-0-*	0.45528
ELTRAL K30 24 / 230 V	Reynaers	Horizontal/Vertical-Pivot sash	Frame installation, fixed at bottom	K-17843-00-0-*	0.45529
ELTRAL K30 24 / 230 V	Reynaers	Horizontal/Vertical-Pivot sash	Sash installation	K-17843-00-0-*	0.45541
ELTRAL K30 24 / 230 V	Reynaers	Lowering Top-Hung sash	Frame installation	K-17843-00-0-*	0.45527
Sapa profile system					
ELTRAL K30 24 / 230 V	Sapa	Top-Hung sash, outwards	Frame installation	see drawing	0.45759
ELTRAL K30 24 / 230 V	Sapa	Skylight	Frame installation	see drawing	0.45760

Installation drawings

ELTRAL K30 chain drive (24 V / 230 V)



Installation drawings

Drive	Profile system	Window type, opening direction	Installation method	Mounting bracket	Drawing number
Schüco profile system					
ELTRAL K30 24 / 230 V	Schüco	Tilt-Only sash, inwards	Frame installation	K-18157-00-0-*	0.45493
ELTRAL K30 24 / 230 V	Schüco	Tilt-Only sash, inwards	Frame installation, flush-mounted	K-18157-00-0-*	0.45494
ELTRAL K30 24 / 230 V	Schüco	Tilt-Only sash, inwards	Sash installation	K-17843-00-0-*	0.45490
ELTRAL K30 24 / 230 V	Schüco	Tilt-Only sash, inwards	Sash installation	K-17841-00-0-*	0.45491
ELTRAL K30 24 / 230 V	Schüco	Top-Hung sash, outwards	Frame installation	K-17843-00-0-*	0.45495
ELTRAL K30 24 / 230 V	Schüco	Top-Hung sash, outwards	Frame installation	K-17843-00-0-*	0.45496
ELTRAL K30 24 / 230 V	Schüco	Horizontal/Vertical-Pivot sash	Frame installation, fixed at top	K-18157-00-0-*	0.45498
ELTRAL K30 24 / 230 V	Schüco	Horizontal/Vertical-Pivot sash	Frame installation, fixed at bottom	K-17841-00-0-*	0.45499
ELTRAL K30 24 / 230 V	Schüco	Horizontal/Vertical-Pivot sash	Sash installation	K-17843-00-0-*	0.45492
ELTRAL K30 24 / 230 V	Schüco	Lowering Top-Hung sash	Frame installation	K-17840-00-0-*	0.45497
Wicona profile system					
ELTRAL K30 24 / 230 V	Wicona	Tilt-Only sash, inwards	Frame installation	K-18157-00-0-*	0.45530
ELTRAL K30 24 / 230 V	Wicona	Tilt-Only sash, inwards	Frame installation, flush-mounted	K-18157-00-0-*	0.45531
ELTRAL K30 24 / 230 V	Wicona	Tilt-Only sash, inwards	Sash installation	K-17843-00-0-*	0.45537
ELTRAL K30 24 / 230 V	Wicona	Tilt-Only sash, inwards	Sash installation, flush-mounted	K-17841-00-0-*	0.45538
ELTRAL K30 24 / 230 V	Wicona	Top-Hung sash, outwards	Frame installation	K-17841-00-0-*	0.45532
ELTRAL K30 24 / 230 V	Wicona	Horizontal/Vertical-Pivot sash	Frame installation, fixed at top	K-18157-00-0-*	0.45534
ELTRAL K30 24 / 230 V	Wicona	Horizontal/Vertical-Pivot sash	Frame installation, fixed at bottom	K-17841-00-0-*	0.45535
ELTRAL K30 24 / 230 V	Wicona	Horizontal/Vertical-Pivot sash	Sash installation	K-17843-00-0-*	0.45539
ELTRAL K30 24 / 230 V	Wicona	Lowering Top-Hung sash	Frame installation	K-17841-00-0-*	0.45533



Installation drawings						
Drive	Profile system	Window type, opening direction	Installation method	Mounting bracket	Drawing number	
General profile systems						
ELTRAL KS 30/40 24 / 230 V	Timber	Tilt-Only sash, inwards	Frame installation	see drawing	0.45219	
ELTRAL KS 30/40 24 / 230 V	PVC	Tilt-Only sash, inwards	Frame installation	see drawing	0.45372	
ELTRAL KS 30/40 24 / 230 V	Timber	Tilt-Only sash, inwards	Sash installation	see drawing	0.45207	
ELTRAL KS 30/40 24 / 230 V	PVC	Tilt-Only sash, inwards	Sash installation	see drawing	0.45211	
Alcoa profile system						
ELTRAL KS 30/40 24 / 230 V	Alcoa	Tilt-Only sash, inwards	Sash installation	see drawing	0.45422	
Alumil profile system						
ELTRAL KS 30/40 24 / 230 V	Alumil	Tilt-Only sash, inwards	Frame installation	see drawing	0.45512	
ELTRAL KS 30/40 24 / 230 V	Alumil	Tilt-Only sash, inwards	Sash installation	see drawing	0.45511	
Heroal profile system						
ELTRAL KS 30/40 24 / 230 V	Heroal	Tilt-Only sash, inwards	Sash installation	see drawing	0.45317	
Hueck profile system						
ELTRAL KS 30/40 24 / 230 V	Hueck	Tilt-Only sash, inwards	Frame installation	see drawing	0.45220	
ELTRAL KS 30/40 24 / 230 V	Hueck	Tilt-Only sash, inwards	Sash installation	see drawing	0.45208	
ELTRAL KS 30/40 24 / 230 V	Hueck	Tilt-Only sash, inwards	Sash installation, flush-mounted	see drawing	0.45209	
ELTRAL KS 30/40 24 / 230 V	Hueck	Top-Hung sash, outwards	Frame installation	see drawing	0.45221	
ELTRAL KS 30/40 24 / 230 V	Hueck	Horizontal/Vertical-Pivot sash	Frame installation, fixed at top	see drawing	0.45223	
ELTRAL KS 30/40 24 / 230 V	Hueck	Horizontal/Vertical-Pivot sash	Frame installation, fixed at bottom	see drawing	0.45224	
ELTRAL KS 30/40 24 / 230 V	Hueck	Horizontal/Vertical-Pivot sash	Sash installation	see drawing	0.45210	
ELTRAL KS 30/40 24 / 230 V	Hueck	Lowering Top-Hung sash	Frame installation	see drawing	0.45222	
Reynaers profile system						
ELTRAL KS 30/40 24 / 230 V	Reynaers	Tilt-Only sash, inwards	Frame installation	see drawing	0.45225	
ELTRAL KS 30/40 24 / 230 V	Reynaers	Tilt-Only sash, inwards	Sash installation	see drawing	0.45212	
ELTRAL KS 30/40 24 / 230 V	Reynaers	Horizontal/Vertical-Pivot sash	Frame installation, fixed at top	see drawing	0.45227	
ELTRAL KS 30/40 24 / 230 V	Reynaers	Horizontal/Vertical-Pivot sash	Frame installation, fixed at bottom	see drawing	0.45228	
ELTRAL KS 30/40 24 / 230 V	Reynaers	Horizontal/Vertical-Pivot sash	Sash installation	see drawing	0.45213	
ELTRAL KS 30/40 24 / 230 V	Reynaers	Lowering Top-Hung sash	Frame installation	see drawing	0.45226	

Installation drawings

ELTRAL KS 30/40 chain drive (24 V / 230 V)



Installation drawings

Drive	Profile system	Window type, opening direction	Installation method	Mounting bracket	Drawing number
Schüco profile system					
ELTRAL KS 30/40 24 / 230 V	Schüco	Tilt-Only sash, inwards	Frame installation	see drawing	0.45072
ELTRAL KS 30/40 24 / 230 V	Schüco	Tilt-Only sash, inwards	Frame installation, flush-mounted	see drawing	0.45073
ELTRAL KS 30/40 24 / 230 V	Schüco	Tilt-Only sash, inwards	Sash installation	see drawing	0.45069
ELTRAL KS 30/40 24 / 230 V	Schüco	Tilt-Only sash, inwards	Sash installation, flush-mounted	see drawing	0.45070
ELTRAL KS 30/40 24 / 230 V	Schüco	Top-Hung sash, outwards	Frame installation	see drawing	0.45074
ELTRAL KS 30/40 24 / 230 V	Schüco	Top-Hung sash, outwards	Frame installation	see drawing	0.45075
ELTRAL KS 30/40 24 / 230 V	Schüco	Horizontal/Vertical-Pivot sash	Frame installation, fixed at top	see drawing	0.45077
ELTRAL KS 30/40 24 / 230 V	Schüco	Horizontal/Vertical-Pivot sash	Frame installation, fixed at bottom	see drawing	0.45078
ELTRAL KS 30/40 24 / 230 V	Schüco	Horizontal/Vertical-Pivot sash	Sash installation	see drawing	0.45071
ELTRAL KS 30/40 24 / 230 V	Schüco	Lowering Top-Hung sash	Frame installation	see drawing	0.45076
Wicona profile system					
ELTRAL KS 30/40 24 / 230 V	Wicona	Tilt-Only sash, inwards	Frame installation	see drawing	0.45229
ELTRAL KS 30/40 24 / 230 V	Wicona	Tilt-Only sash, inwards	Frame installation, flush-mounted	see drawing	0.45230
ELTRAL KS 30/40 24 / 230 V	Wicona	Tilt-Only sash, inwards	Sash installation	see drawing	0.45214
ELTRAL KS 30/40 24 / 230 V	Wicona	Tilt-Only sash, inwards	Sash installation, flush-mounted	see drawing	0.45215
ELTRAL KS 30/40 24 / 230 V	Wicona	Top-Hung sash, outwards	Frame installation	see drawing	0.45231
ELTRAL KS 30/40 24 / 230 V	Wicona	Horizontal/Vertical-Pivot sash	Frame installation, fixed at top	see drawing	0.45233
ELTRAL KS 30/40 24 / 230 V	Wicona	Horizontal/Vertical-Pivot sash	Frame installation, fixed at bottom	see drawing	0.45234
ELTRAL KS 30/40 24 / 230 V	Wicona	Horizontal/Vertical-Pivot sash	Sash installation	see drawing	0.45216
ELTRAL KS 30/40 24 / 230 V	Wicona	Lowering Top-Hung sash	Frame installation	see drawing	0.45232



Installation drawings

Drive	Profile system	Window type, opening direction	Installation method	Mounting bracket	Drawing number
General profile systems					
ELTRAL K35 24 V	Timber	Tilt-Only sash, inwards	Frame installation	K-18439-00-0-*	0.46511
ELTRAL K35 24 V	Euro-groove	Tilt-Only sash, inwards	Frame installation	K-18205-00-0-*	0.45888 / Bl. 2
ELTRAL K35 24 V	Timber	Tilt-Only sash, inwards	Sash installation	K-18204-00-0-*	0.46589
ELTRAL K35 24 V	Euro-groove	Tilt-Only sash, inwards	Sash installation	K-18204-00-0-*	0.45887 / Bl. 2
ELTRAL K35 24 V	Euro-groove	Tilt-Only sash, inwards	Concealed installation	K-18217-00-0-*	0.45896 / Bl. 2
ELTRAL K35 24 V	Euro-groove	Tilt-Only sash, inwards	Concealed installation	K-18218-00-0-*	0.45897
ELTRAL K35 24 V	Euro-groove	Top-Hung sash, outwards	Frame installation	K-18204-00-0-*	0.46580
Raico profile system					
ELTRAL K35 24 V	Raico	Tilt-Only sash, inwards	Concealed installation	K-18219-00-0-*	0.45898
Schüco profile system					
ELTRAL K35 24 V	Schüco	Tilt-Only sash, inwards	Frame installation	K-18205-00-0-*	0.45888 / Bl. 1
ELTRAL K35 24 V	Schüco	Tilt-Only sash, inwards	Sash installation	K-18204-00-0-*	0.45887 / Bl. 1
ELTRAL K35 24 V	Schüco	Tilt-Only sash, inwards	Concealed installation	K-18217-00-0-*	0.45896 / Bl. 1
Wicona profile system					
ELTRAL K35 24 V	Wicona	Tilt-Only sash, inwards	Frame installation	K-18205-00-0-*	0.45945
ELTRAL K35 24 V	Wicona	Tilt-Only sash, inwards	Sash installation	K-18204-00-0-*	0.45944
ELTRAL K35 24 V	Wicona	Tilt-Only sash, inwards	Concealed installation	K-18217-00-0-*	0.45946

Installation drawings

ELTRAL K60 chain drive (24 V / 230 V)



Installation drawings

Drive	Profile system	Window type, opening direction	Installation method	Mounting bracket	Drawing number
General profile systems					
ELTRAL K60 24 / 230 V	Timber	Tilt-Only sash, inwards	Frame installation	K-17662-00-0-8	0.45129
ELTRAL K60 24 / 230 V	PVC	Tilt-Only sash, inwards	Frame installation	K-17662-00-0-8	0.45199
ELTRAL K60 24 / 230 V	Timber / PVC	Tilt-Only sash, inwards	Frame installation	K-17662-00-0-8	0.44949
ELTRAL K60 24 / 230 V	Aluminium	Tilt-Only sash, inwards	Frame installation	K-17661-00-0-8	0.44948
ELTRAL K60 24 V	Euro-groove	Tilt-Only sash, inwards	Frame installation	K-17661-00-0-8	0.45802
ELTRAL K60 24 / 230 V	Timber	Tilt-Only sash, inwards	Sash installation	K-17638-00-0-8	0.45126
ELTRAL K60 24 / 230 V	Timber	Tilt-Only sash, inwards	Sash installation, with long bracket	K-17640-00-0-8	0.45127
ELTRAL K60 24 / 230 V	Timber	Tilt-Only sash, inwards	Sash installation, with folding bracket	K-17660-00-0-1	0.45128
ELTRAL K60 24 / 230 V	PVC	Tilt-Only sash, inwards	Sash installation	K-17638-00-0-8	0.45185
ELTRAL K60 24 / 230 V	PVC	Tilt-Only sash, inwards	Sash installation, with long bracket	K-17640-00-0-8	0.45186
ELTRAL K60 24 / 230 V	Timber / PVC	Tilt-Only sash, inwards	Sash installation	K-17638-00-0-8	0.44941
ELTRAL K60 24 / 230 V	Aluminium	Tilt-Only sash, inwards	Sash installation	K-17596-00-0-8	0.44938
ELTRAL K60 24 / 230 V	Timber / PVC	Tilt-Only sash, inwards	Sash installation, with long bracket	K-17640-00-0-8	0.44943
ELTRAL K60 24 / 230 V	Aluminium	Tilt-Only sash, inwards	Sash installation, with long bracket	K-17598-00-0-8	0.44940
ELTRAL K60 24 / 230 V	Timber / PVC	Tilt-Only sash, inwards	Sash installation, with folding bracket	K-17660-00-0-1	0.44951
ELTRAL K60 24 / 230 V	Aluminium	Tilt-Only sash, inwards	Sash installation, with folding bracket	K-17659-00-0-1	0.44950
ELTRAL K60 24 V	Euro-groove	Tilt-Only sash, inwards	Sash installation	K-17596-00-0-8	0.45798
ELTRAL K60 24 / 230 V	Timber	Top-Hung sash, outwards	Frame installation	K-17639-00-0-8	0.45130
ELTRAL K60 24 / 230 V	Timber / PVC	Top-Hung sash, outwards	Frame installation	K-17639-00-0-8	0.44942
ELTRAL K60 24 / 230 V	Aluminium	Top-Hung sash, outwards	Frame installation	K-17597-00-0-8	0.44939
ELTRAL K60 24 V	Euro-groove	Top-Hung sash, outwards	Frame installation	K-17596-00-0-8	0.45813

Installation drawings						
Drive		Profile system	Window type, opening direction	Installation method	Mounting bracket	Drawing number
Heroal profile system						
ELTRAL K60	24 / 230 V	Heroal	Tilt-Only sash, inwards	Sash installation	K-17596-00-0-8	0.45401
Hueck profile system						
ELTRAL K60	24 / 230 V	Hueck	Tilt-Only sash, inwards	Frame installation	K-17661-00-0-8	0.45193
ELTRAL K60	24 / 230 V	Hueck	Tilt-Only sash, inwards	Frame installation, flush-mounted	K-17661-00-0-8	0.45194
ELTRAL K60	24 / 230 V	Hueck	Tilt-Only sash, inwards	Sash installation	K-17596-00-0-8	0.45177
ELTRAL K60	24 / 230 V	Hueck	Tilt-Only sash, inwards	Sash installation, flush-mounted	K-17596-00-0-8	0.45178
ELTRAL K60	24 / 230 V	Hueck	Tilt-Only sash, inwards	Sash installation, with long bracket	K-17598-00-0-8	0.45182
ELTRAL K60	24 / 230 V	Hueck	Tilt-Only sash, inwards	Sash installation, with folding bracket	K-17659-00-0-1	0.45180
ELTRAL K60	24 / 230 V	Hueck	Tilt-Only sash, inwards	Sash installation, flush-mounted, with folding bracket	K-17596-00-0-8	0.45181
ELTRAL K60	24 / 230 V	Hueck	Top-Hung sash, outwards	Frame installation	K-17596-00-0-8	0.45195
ELTRAL K60	24 / 230 V	Hueck	Horizontal/Vertical-Pivot sash	Frame installation, fixed at top	K-17661-00-0-8	0.45197
ELTRAL K60	24 / 230 V	Hueck	Horizontal/Vertical-Pivot sash	Frame installation, fixed at bottom	K-17596-00-0-8	0.45198
ELTRAL K60	24 / 230 V	Hueck	Horizontal/Vertical-Pivot sash	Sash installation	K-17596-00-0-8	0.45179
ELTRAL K60	24 / 230 V	Hueck	Lowering Top-Hung sash	Frame installation	K-17596-00-0-8	0.45196
Reynaers profile system						
ELTRAL K60	24 / 230 V	Reynaers	Tilt-Only sash, inwards	Frame installation	K-17661-00-0-8	0.45115
ELTRAL K60	24 / 230 V	Reynaers	Tilt-Only sash, inwards	Sash installation	K-17596-00-0-8	0.45111
ELTRAL K60	24 / 230 V	Reynaers	Tilt-Only sash, inwards	Sash installation, with long bracket	K-17598-00-0-8	0.45113
ELTRAL K60	24 / 230 V	Reynaers	Tilt-Only sash, inwards	Sash installation, with folding bracket	K-17695-00-0-1	0.45112
ELTRAL K60	24 / 230 V	Reynaers	Horizontal/Vertical-Pivot sash	Frame installation, fixed at top	K-17661-00-0-8	0.45117
ELTRAL K60	24 / 230 V	Reynaers	Horizontal/Vertical-Pivot sash	Frame installation, fixed at bottom	K-17596-00-0-8	0.45118
ELTRAL K60	24 / 230 V	Reynaers	Horizontal/Vertical-Pivot sash	Sash installation	K-17596-00-0-8	0.45114
ELTRAL K60	24 / 230 V	Reynaers	Lowering Top-Hung sash	Frame installation	K-17596-00-0-8	0.45116
Sapa profile system						
ELTRAL K60	24 / 230 V	Sapa	Skylight	Frame installation	see drawing	0.45761

Installation drawings

ELTRAL K60 chain drive (24 V / 230 V)



Installation drawings

Drive	Profile system	Window type, opening direction	Installation method	Mounting bracket	Drawing number
Schüco profile system					
ELTRAL K60 24 / 230 V	Schüco	Tilt-Only sash, inwards	Frame installation	K-17661-00-0-8	0.45104
ELTRAL K60 24 / 230 V	Schüco	Tilt-Only sash, inwards	Frame installation, flush-mounted	K-17661-00-0-8	0.45105
ELTRAL K60 24 / 230 V	Schüco	Tilt-Only sash, inwards	Sash installation	K-17596-00-0-8	0.45098
ELTRAL K60 24 / 230 V	Schüco	Tilt-Only sash, inwards	Sash installation, flush-mounted	K-17596-00-0-8	0.45100
ELTRAL K60 24 / 230 V	Schüco	Tilt-Only sash, inwards	Sash installation, with long bracket	K-17598-00-0-8	0.45102
ELTRAL K60 24 / 230 V	Schüco	Tilt-Only sash, inwards	Sash installation, with folding bracket	K-17659-00-0-1	0.45099
ELTRAL K60 24 / 230 V	Schüco	Tilt-Only sash, inwards	Sash installation, flush-mounted, with folding bracket	K-17596-00-0-8	0.45101
ELTRAL K60 24 / 230 V	Schüco	Top-Hung sash, outwards	Frame installation	K-17596-00-0-8	0.45106
ELTRAL K60 24 / 230 V	Schüco	Top-Hung sash, outwards	Frame installation	K-17596-00-0-8	0.45107
ELTRAL K60 24 / 230 V	Schüco	Horizontal/Vertical-Pivot sash	Frame installation, fixed at top	K-17661-00-0-8	0.45109
ELTRAL K60 24 / 230 V	Schüco	Horizontal/Vertical-Pivot sash	Frame installation, fixed at bottom	K-17596-00-0-8	0.45110
ELTRAL K60 24 / 230 V	Schüco	Horizontal/Vertical-Pivot sash	Sash installation	K-17596-00-0-8	0.45103
ELTRAL K60 24 / 230 V	Schüco	Lowering Top-Hung sash	Frame installation	K-17597-00-0-8	0.45108
ELTRAL K60 24 / 230 V	Schüco AWS 57 RO	Skylight	Frame installation, narrow frame	K-18261-00-0-8	0.44944
Wicona profile system					
ELTRAL K60 24 / 230 V	Wicona	Tilt-Only sash, inwards	Frame installation	K-17661-00-0-8	0.45200
ELTRAL K60 24 / 230 V	Wicona	Tilt-Only sash, inwards	Frame installation, flush-mounted	K-17661-00-0-8	0.45201
ELTRAL K60 24 / 230 V	Wicona	Tilt-Only sash, inwards	Sash installation	K-17596-00-0-8	0.45187
ELTRAL K60 24 / 230 V	Wicona	Tilt-Only sash, inwards	Sash installation, flush-mounted	K-17596-00-0-8	0.45188
ELTRAL K60 24 / 230 V	Wicona	Tilt-Only sash, inwards	Sash installation, with long bracket	K-17598-00-0-8	0.45191
ELTRAL K60 24 / 230 V	Wicona	Tilt-Only sash, inwards	Sash installation, with folding bracket	K-17659-00-0-1	0.45189
ELTRAL K60 24 / 230 V	Wicona	Tilt-Only sash, inwards	Sash installation, flush-mounted, with folding bracket	K-17596-00-0-8	0.45190
ELTRAL K60 24 / 230 V	Wicona	Top-Hung sash, outwards	Frame installation	K-17596-00-0-8	0.45202
ELTRAL K60 24 / 230 V	Wicona	Horizontal/Vertical-Pivot sash	Frame installation, fixed at top	K-17661-00-0-8	0.45204
ELTRAL K60 24 / 230 V	Wicona	Horizontal/Vertical-Pivot sash	Frame installation, fixed at bottom	K-17596-00-0-8	0.45205
ELTRAL K60 24 / 230 V	Wicona	Horizontal/Vertical-Pivot sash	Sash installation	K-17596-00-0-8	0.45192
ELTRAL K60 24 / 230 V	Wicona	Lowering Top-Hung sash	Frame installation	K-17596-00-0-8	0.45203
ELTRAL K60 24 / 230 V	Wicona	Skylight	Frame installation	K-17609-00-0-8	0.44947
ELTRAL K60 24 / 230 V	Wicona (Wictec)	Skylight	Frame installation	K-17609-00-0-8	0.45124



Installation drawings

Drive	Profile system	Window type, opening direction	Installation method	Mounting bracket	Drawing number
General profile systems					
ELTRAL VAN 24 V	Timber	Tilt-Only sash, inwards	Concealed installation	see drawing	0.46761
ELTRAL VAN 24 V	Euro-groove	Tilt-Only sash, inwards	Concealed installation	see drawing	0.46560
ELTRAL VAN 24 V	Euro-groove	Top-Hung sash, outwards	Concealed installation	see drawing	0.46561
Heroal profile system					
ELTRAL VAN 24 V	Heroal	Tilt-Only sash, inwards	Concealed installation	see drawing	0.45952
ELTRAL VAN 24 V	Heroal	Horizontal/Vertical-Pivot sash	Concealed installation	see drawing	0.45951
Hueck profile system					
ELTRAL VAN 24 V	Hueck	Tilt-Only sash, inwards	Concealed installation	see drawing	0.45953
Reynaers profile system					
ELTRAL VAN 24 V	Reynaers	Tilt-Only sash, inwards	Concealed installation	see drawing	0.45955
Sapa profile system					
ELTRAL VAN 24 V	Sapa	Tilt-Only sash, inwards	Concealed installation	see drawing	0.46762
Schüco profile system					
ELTRAL VAN 24 V	Schüco	Tilt-Only sash, inwards	Concealed installation	see drawing	0.45954
Wicona profile system					
ELTRAL VAN 24 V	Wicona	Tilt-Only sash, inwards	Concealed installation	see drawing	0.45956

Installation drawings

ELTRAL VA25 locking drive (24 V)



Installation drawings

Drive	Profile system	Window type, opening direction	Installation method	Mounting bracket	Drawing number
General profile systems					
ELTRAL VA25 24 V	Euro-groove	Tilt-Only sash, inwards	Concealed installation	see drawing	0.45805
ELTRAL VA25 24 V	Euro-groove	Top-Hung sash, outwards	Concealed installation	see drawing	0.45814
Heroal profile system					
ELTRAL VA25 24 V	Heroal	Horizontal/Vertical-Pivot sash	Concealed installation	see drawing	0.45254
Hueck profile system					
ELTRAL VA25 24 V	Hueck	Tilt-Only sash, inwards	Concealed installation	see drawing	0.45255
Reynaers profile system					
ELTRAL VA25 24 V	Reynaers	Tilt-Only sash, inwards	Concealed installation	see drawing	0.45256
Schüco profile system					
ELTRAL VA25 24 V	Schüco	Tilt-Only sash, inwards	Concealed installation	see drawing	0.45257
ELTRAL VA25 24 V	Schüco	Horizontal/Vertical-Pivot sash	Concealed installation	see drawing	0.45258
Wicona profile system					
ELTRAL VA25 24 V	Wicona	Tilt-Only sash, inwards	Concealed installation	see drawing	0.45259



Installation drawings						
Drive		Profile system	Window type, opening direction	Installation method	Mounting bracket	Drawing number
General profile systems						
ELTRAL VA35	24 V	Timber	Tilt-Only sash, inwards	Sash installation	see drawing	0.45335
Hueck profile system						
ELTRAL VA35	24 V	Hueck	Tilt-Only sash, inwards	Sash installation	see drawing	0.45390
ELTRAL VA35	24 V	Hueck	Lowering Top-Hung sash	Frame installation	see drawing	0.45391
Reynaers profile system						
ELTRAL VA35	24 V	Reynaers	Tilt-Only sash, inwards	Sash installation	see drawing	0.45392
ELTRAL VA35	24 V	Reynaers	Lowering Top-Hung sash	Frame installation	see drawing	0.45393
Schüco profile system						
ELTRAL VA35	24 V	Schüco	Tilt-Only sash, inwards	Sash installation	see drawing	0.45260
ELTRAL VA35	24 V	Schüco	Lowering Top-Hung sash	Frame installation	see drawing	0.45261
Wicona profile system						
ELTRAL VA35	24 V	Wicona	Tilt-Only sash, inwards	Sash installation	see drawing	0.45394
ELTRAL VA35	24 V	Wicona	Lowering Top-Hung sash	Frame installation	see drawing	0.45395

Installation drawings

ELTRAL S80, S160 spindle drives (24 V / 230 V)



Installation drawings

Drive	Profile system	Window type, opening direction	Installation method	Mounting bracket	Drawing number
General profile systems					
ELTRAL S80/S160 24 V	General	Skylight	Frame installation	K-17766-00-0-1	0.45304
ELTRAL S80 230 V	General	Skylight	Frame installation	K-17774-00-0-1	0.45312
Hueck profile system					
ELTRAL S80/S160 24 V	Hueck 85E	Skylight	Frame installation	K-17765-00-0-1	0.45303
ELTRAL S80 230 V	Hueck 85E	Skylight	Frame installation	K-17773-00-0-1	0.45311
Schüco profile system					
ELTRAL S80/S160 24 V	Schüco RS 47 D	Skylight	Frame installation	K-17765-00-0-1	0.45300
ELTRAL S80/S160 24 V	Schüco AWS 57 RO	Skylight	Frame installation	K-17765-00-0-1	0.45300
ELTRAL S80/S160 24 V	Schüco RS 107 D	Skylight	Frame installation	K-18164-00-0-1	0.45301
ELTRAL S80 230 V	Schüco RS 47 D	Skylight	Frame installation	K-17770-00-0-1	0.45308
ELTRAL S80 230 V	Schüco AWS 57 RO	Skylight	Frame installation	K-17770-00-0-1	0.45308
ELTRAL S80 230 V	Schüco RS 106 D	Skylight	Frame installation	K-17774-00-0-1	0.45309
Wicona profile system					
ELTRAL S80/S160 24 V	Wicona Wictec	Skylight	Frame installation	K-17765-00-0-1	0.45303
ELTRAL S80 230 V	Wicona Wictec	Skylight	Frame installation	K-17773-00-0-1	0.45311



Installation drawings

Opening system	Description	Window type, opening direction	Installation method	Drawing number
VENTUS F 200	Standard	–	–	0.43700
VENTUS F 200	with ELTRAL S 24 L; S 230 E; S 230 L	Tilt-Only sash, inwards	Motor on side (vertical installation)	0.43791
VENTUS F 200	with ELTRAL S 24 L; S 230 E; S 230 L	Tilt-Only sash, inwards	Motor on top (horizontal installation)	0.43828
VENTUS F 200	with ELTRAL S 24 L; S 230 E; S 230 L	Top-Hung sash, outwards	Motor on side (vertical installation)	0.43831
VENTUS F 300	Standard	–	–	0.42700
VENTUS F 300	with ELTRAL S 24 L; S 230 E; S 230 L	Tilt-Only sash, inwards	–	0.42807
VENTUS F 300	with ELTRAL 300/24; 300 E1	Tilt-Only sash, inwards	–	0.42710

Protection classes (IP) according to DIN 60529



Protection classes (IP) according to DIN 60529

1st code number	Protection against solid foreign bodies	2nd code number	Protection against water
0	No protection against contact, no protection against solid foreign bodies	0	No protection against water
1	Protection against extensive contact with the hand, protection against foreign bodies with $\varnothing > 50\text{ mm}$	1	Protection against vertical water drips
2	Protection against contact with fingers, protection against foreign bodies with $\varnothing > 12\text{ mm}$	2	Protection against obliquely falling water drips from any angle of to 15° from the vertical
3	Protection against contact with tools, cables or similar with $\varnothing > 2.5\text{ mm}$, protection against foreign bodies with $\varnothing > 2.5\text{ mm}$	3	Protection against obliquely falling water drips from any angle of to 60° from the vertical
4	Protection against contact with tools, cables or similar with $\varnothing > 1.0\text{ mm}$, protection against foreign bodies with $\varnothing > 1.0\text{ mm}$	4	Protection against splashing water from all directions
5	Protection against contact, protection against interior dust deposits	5	Protection against water jet (nozzle) from any angle
6	Full protection against contact, protection against dust penetration	6	Protection against strong water jets (nozzle) from any angle
		7	Protection against water penetration with temporary immersion (30 minutes)
		8	Protection against water penetration with permanent immersion, requested following consultation between manufacturer and user
		9 K	Protection against high-pressure water penetration (8,000 – 10,000 kPa) from a nozzle or steam jet cleaning from any direction

Duty ratio (ED) according to DIN VDE 0530-1

Wind forces according to Beaufort



Duty ratio (ED) according to DIN VDE 0530-1

The duty ratio refers to the maximum permissible operating time of the drives, after which time there must be a rest period in order to avoid damaging or destroying the drives.

The duty ratio is specified in DIN VDE 0530-1.

For a period of use of 10 minutes and a duty ratio of 20 %, the operating time is 2 minutes and the rest period is 8 minutes.

Code number	Operating mode
S1	Continuous operation, constant load
S2	Brief operation, constant load
S3	Intermittent operation without the influence of the start process on the temperature
S4	Intermittent operation with the influence of the start process on the temperature
S5	Intermittent operation with the influence of the start process and stopping on the temperature
S6	Continuous operation with intermittent load
S7	Continuous operation with starting process and stopping
S8	Continuous operation with alternating load

Wind forces according to Beaufort – resulting wind loads

Wind force	Designation	m/s upper limit	km/h upper limit	Wind pressure [kN/m²]
1	light air	1,5	5,4	0,0016
2	light breeze	3,3	11,88	0,0077
3	gentle breeze	5,4	19,44	0,0207
4	moderate breeze	7,9	28,44	0,0444
5	fresh breeze	10,7	38,52	0,0814
6	strong breeze	13,8	49,68	0,1354
7	moderate gale	17,1	61,56	0,2079
8	fresh gale	20,7	74,52	0,3047
9	strong gale	24,4	87,84	0,4234
10	whole gale	28,4	102,24	0,5736
11	violent storm	32,6	117,36	0,7558
12	hurricane force	35	126	0,8712
13	50-year storm	41	147,6	1,1954

Essential information for installers and operators



General service notes

Builders and operators of RWA systems are legally obliged to take all necessary precautions in order to protect persons and material goods within the building. For this reason, special attention must be paid to commissioning, the function test and regular maintenance and repair.

Annual maintenance must be carried out by the manufacturer or experts (qualified personnel authorised by the manufacturer) in order to preserve the functionality. Systems must be treated according to the manufacturer's instructions with regard to product information and intended use, misuse, product performance, product maintenance, and information and instruction obligations.

Applicable regulations

- **The Model Building Regulation (MBO §3) and regional building regulations (LBOs)**
Building installations and other installations ..() must be arranged, constructed, modified and maintained in such a way as to ensure that public safety and order – in particular life, health, or natural resources – are not endangered.
- **DIN 18232, part 2**
In accordance with the manufacturer's specifications (as a rule once a year), RWA systems and their operation and control elements, opening devices, power supply lines and accessories must be tested for functionality and operating state, maintained and repaired if necessary. Maintenance work may only be carried out by specialist firms qualified to do so on RWA systems.
- **EN 12101-2: Smoke and heat control systems**
Regulations for natural smoke and heat exhaust ventilators (NSHEVs) as part of an RWA system
- **EN 12101-9 and EN 12101-10:**
Smoke and heat control systems
Control panels and power supplies
- **VdS Guidelines 2098 and 2257**
- **EN 54: Fire detection and fire alarm systems**
- **DIN 31051:2003-06: Servicing, inspection and maintenance of RWA systems**
- **VDE 0700-103: Antriebe für Tore, Türen und Fenster**
(Motors for gates, doors and windows)
- **DIN VDE 01000-10: Anforderungen und Definition von Elektrofachkräften**
(Requirements and definitions of qualified electricians)
- **VFF information sheet WP01, WP02, WP03**
- **BGR 232/2: Richtlinien für kraftbetätigte Fenster**
(Guidelines for power-operated windows)
- **Manufacturer's installation and operating instructions**

Furthermore, the regulations imposed by the responsible building supervision authorities, the trade supervisory authority, the fire brigade, the regional building regulations (LBO), the technical inspection ordinances of the German Federal States or special ordinances must be complied with.

The operator must perform at least one visual inspection in between these annual maintenance intervals, which must be documented in the test log book.

Note!

- Failure to carry out regular maintenance may result in legal ramifications for the builder or operator
- During maintenance, there is a risk of injury due to manual or automatic operation of the opening elements
- The maintenance intervals should be shortened accordingly for industrial sites that are subject to particularly heavy dirt or dust loads
- When exchanging consumable or replacement parts, it must be ensured that the interplay between the system components is correct and trouble-free (system compatibility). Only consumable or replacement parts with the corresponding approval (listed in the general ABP test certificate in accordance with DIN 18232) or original parts may be used
- According to the German Product Liability Act defining the liability of manufacturers for their products (§4 ProdHaftG), the following information about smoke and heat extraction systems must be observed. Non-compliance with this information releases the manufacturer from its liability

Intended use

Smoke and heat extraction systems play an important role as fixed components of a preventative fire protection system: evacuating fire gases, dangerous oxides and thermal energy into the atmosphere in case of a fire.

They consist of elements such as mechanisms for opening and closing windows, light domes and smoke flaps with the aim of

- keeping escape and rescue routes smoke-free in the event of a fire
- facilitating the fire fighting process

The non-use or disregard of the entries in the test log book constitutes misuse of the RWA system and may result in a risk to persons and considerable material damage to the building and its installations.

Essential information for installers and operators



Information for the operator

The RWA system must be kept in a constant operational state by the operator, and must be checked at least once a year to ensure that the interplay between all components is correct and trouble-free. Furthermore, maintenance must be carried out either by the operator or qualified personnel. As well as testing the detectors/ alarm devices, push-buttons and central control units, this test and maintenance must also include the maintenance of all drives, fixings and hardware of the opening system.

These tests and maintenance procedures may only be carried out by an expert authorised by the manufacturer. The scope, results and time of the tests and maintenance must be recorded. These records must be kept by the operator.

The following documents must be kept by the operator:

- Acceptance certificate / test log book
- Installation instructions / operating instructions
- "Function tests" checklists

The following points must be observed by the operator:

- Regular visual inspection to check that components are functioning correctly
- System must be kept in a constant operational state
- Annual testing
- Annual maintenance
- Documentation requirements
- Retention requirements for the documents



Building Rules List

The regional building regulations stipulate that the technical regulations, as introduced by the supreme building supervision authorities of the respective Federal State by way of public notification, must be observed. The Deutsche Institut für Bautechnik (German Institute for Building Technology – DIBt) is tasked with establishing the technical regulations for building products and designs in Building Rules Lists A, B and C, and publishing these in agreement with the supreme building supervision authorities of the respective Federal States.

The Building Rules List B, part 1, is reserved for building products that are put into circulation based on the German Building Products Act, and for which there are technical specifications, classes and performance levels depending on the intended use.

GU service

Tested safety



Successfully certified



The test institutes confirm in the test certificates and the product passport that the requirements of the relevant standards and directives have been complied with.

As well as good planning and consultation, another decisive factor is the functional reliability of the technically prepared system, in order for people and property in the building to be protected.

For this reason, special attention must be paid to commissioning and the function test.

The Gretsich-Unitas Group offers:

- Individual advice
- Qualified project handling
- Professional installation
- Reliable service

This ensures that commissioning takes place without unpleasant surprises. All required safety components are taken into account and need only be tested for proper functioning at the commissioning stage.

Safety in the building

The requirements on smoke and heat extraction systems are regulated in the Model Building Regulations (MBOs), regional building regulations (LBOs) and in the standards DIN 18232-2 and EN 12101-2 (NSHEV). Furthermore, there may be regulations imposed by the responsible building supervision authorities, the trade supervisory authority, the fire brigade, the technical inspection ordinances of the German Federal States or special ordinances which have to be complied with.

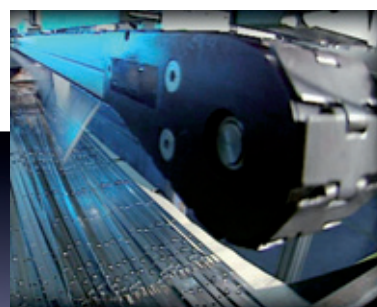


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Advice right from the planning stage



NSHEV system supplier



Security through quality manufacturing

More than 100 years of experience

Worldwide presence

System solutions in the project

Reducing the risk of damage by regular and prescribed maintenance

Regular, professional maintenance is the best guarantee of maintaining the value and functional safety of smoke and heat extraction systems over the years.

In Germany, GU Service GmbH & Co. KG can install smoke and heat extraction systems and electrical ventilation systems on request, and can take them into operation.

Aftersales service directly from the manufacturer with its own personnel, optimal product knowledge and use of original replacement parts ensures the greatest functional availability of opening and control systems. Short travel times are ensured through a comprehensive network of service installers.

Annual maintenance and inspection are essential for a correct, trouble-free interplay between all devices and long-term operating security. As well as testing the detectors/alarm devices, push-buttons and central control units, all drives, fastenings and hardware components on the opening system are tested.

The result and time of the checks and maintenance must be documented and stored at the owner's premises.

The service contract

A service contract for smoke and heat extraction systems offers many advantages:

- Early recognition of wear ensures operational and personal safety
- Unplanned service work is markedly reduced
- Regular inspection of safety components minimises the operator's potential liability risk
- Provision and updating of a system-specific inspection book
- Potential hazards resulting from a change in use are recognised and can be eliminated



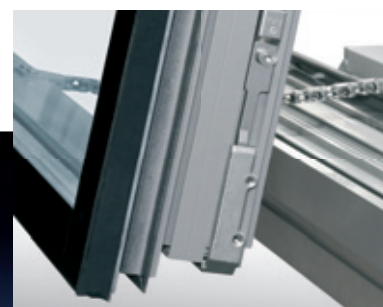
Correct installation and service

Gruppe Vier
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Logistics – just-in-time wherever you are

kab planungsbüro für
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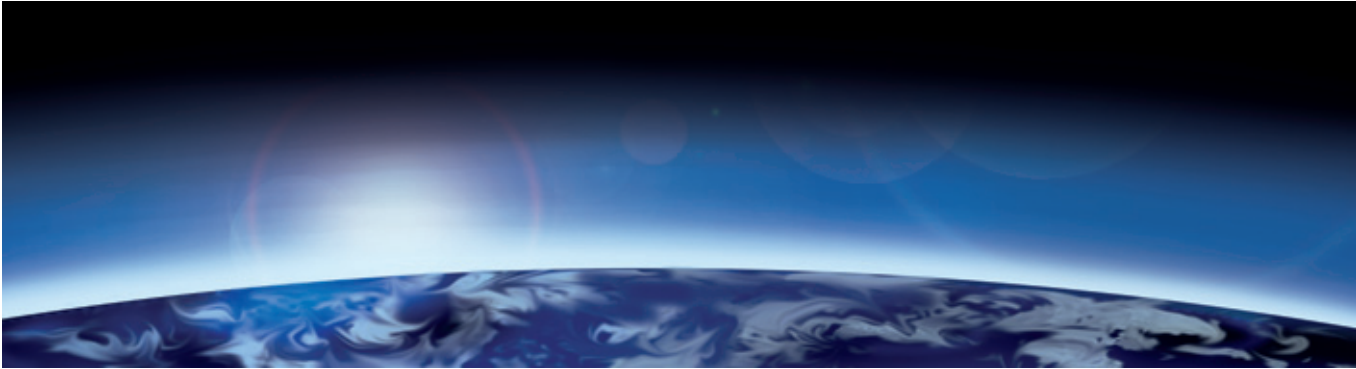
Guarantee and aftersales service

Special solutions development

Modular system technology

Products in stock around the globe

The GU Group Worldwide



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Quality: GU and BKS successfully certified

EN ISO 9001:2008 defines a company's structural, operational and quality management requirements.

In 1995, the AGQS e.V. accreditation association certified Gretch-Unitas GmbH Baubeschläge's successful implementation of a quality control system in compliance with EN ISO 9001:2008.

GU is committed to manufacturing high-quality hardware. The certification programme also confirms that the internal company processes – from development right through to sales and customer service – support this commitment.





Exclusion of liability

The information provided in this publication consists of product descriptions. This is general information based on our experience and tests and therefore does not take any specific application into account. No claims for compensation can be made on the basis of the product descriptions.

Although we have made every attempt to ensure the information provided here is accurate, it is non-binding. It should be adapted to the respective construction projects, usage and specific on-site demands.

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