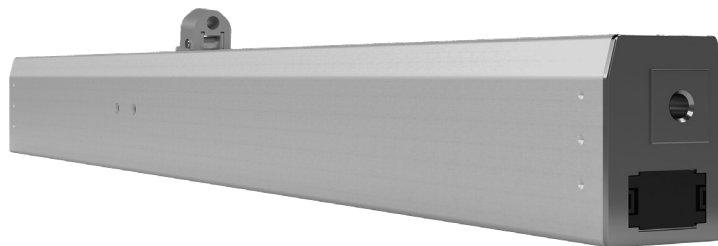


aumüller ■

Assembly and Commissioning Instructions

according to Machinery Directive 2006/42/EC (annex VI)



KS8 S12 24V DC CHAIN DRIVE FOR WINDOWS

CE



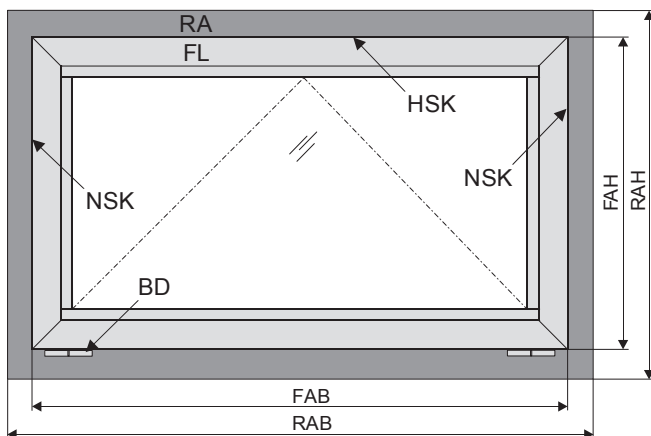
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Abbreviations

Index of abbreviations

These abbreviations are used consistently throughout these assembly & operating instructions. Unless stated differently, all dimensions indicated in this document are in mm. General tolerances in accordance with DIN ISO 2768-m.

A	drive
AK	connection cable / drive cable
AP	cover cap
BD	hinge
Fxxx	casement bracket
FAB	overall width of casement
FAH	overall height of casement
FG	casement weight
FL	casement
FÜ	casement overlap
HSK	main closing edge
Kxxx	frame bracket
L	construction length of drive
MB	central hinge
NRWG	NSHEV – natural smoke and heat exhaust ventilation
NSK	side closing edge
RA	frame
RAB	overall width of frame
RAH	overall height of frame
RWA	SHEV – smoke and heat exhaust ventilation
SL	snow load
→	opening direction



Target group

These instructions are intended for trained personnel and operators of systems for natural smoke ventilation (NRA / RWA) (natural smoke exhaust system / smoke and heat exhaust system) and natural ventilation via windows, who are knowledgeable of operating modes as well as the remaining risks of the system.

Warning and safety symbols in these Instructions:

The symbols used in the instructions shall be strictly observed and have the following meaning:

! DANGER Failure to comply with the warning notes results in irreversible injuries or death.

! WARNING Failure to comply with the warning notes can result in irreversible injuries or death.

! CAUTION Failure to comply with the warning notes can result in minor or moderate (reversible) injuries.

NOTE Failure to comply with the warning notes can lead to damage to property.



Caution / Warning
Danger due to electric current.



Caution / Warning
Risk of crushing and entrapment during device operation (is provided as a sticker with the drive).



Attention / Warning
Risk of damage to / destruction of drives and / or windows.

! WARNING

Once the assembly and commissioning has been completed, the installer of a machine „power-operated window and door“ shall hand these instructions over to the end-user. The end-user shall store these instructions in a safe place for further reference and use, if required.

! WARNING

This device is not intended for use by persons (including children) with physical, sensory or mental limitations or lacking experience and / or knowledge, unless they are supervised by a person who is responsible for the safety or were instructed by him on the usage of this equipment. Children should be supervised to ensure that they are not playing with this device.

Cleaning and operator's maintenance may not be performed by children without supervision.

Intended use

Area of application / Scope of application

This drive is intended for the electromotive opening and closing of windows in facade and roof areas.

The main task of this product, in combination with a window and a suitable external control unit, **is to evacuate hot smoke and combustion gases in case of fire**, to save human lives and protect material assets. Furthermore, with the electromotive operated window and a suitable external control unit, **the natural ventilation** of the building can be ensured.

NOTE

By attaching the drive to a movable element of the window a so-called "power-operated window" is created which, according to the Machinery Directive 2006 / 42 / EG, represents a machine.

Intended use according

The drive is intended for stationary installation and electrical connection at the window as part of a building.

The drive is in combination with an external Control Unit (e.g. from **AUMÜLLER**) released for its proper use at a power-operated window for the following use:

- Application for natural ventilation
 - with an installation height of the drive and the bottom side of sash of at least 2,5 m above the floor, **or**
 - with an opening width at the HSK of the driven part of < 200 mm by a simultaneous speed of < 15 mm/s at the HSK in closing direction.
- Application as NRWG (natural smoke and heat exhaust ventilator(s) for ventilation without dual purpose for ventilation in accordance with EN12101-2.

Pay attention to possible hazards on tilting or rotating windows, whose secondary closing edges are located at less than 2,5 m installation height above the floor, under consideration of the Control Unit and usage!

WARNING

We as manufacturers are well aware of our duties and responsibilities regarding the development, manufacturing and placing of safe window drives on the market and consistently implement them. Ultimately, however, we have no direct influence on the usage of our drives. Therefore, as a precaution, we point out the following:

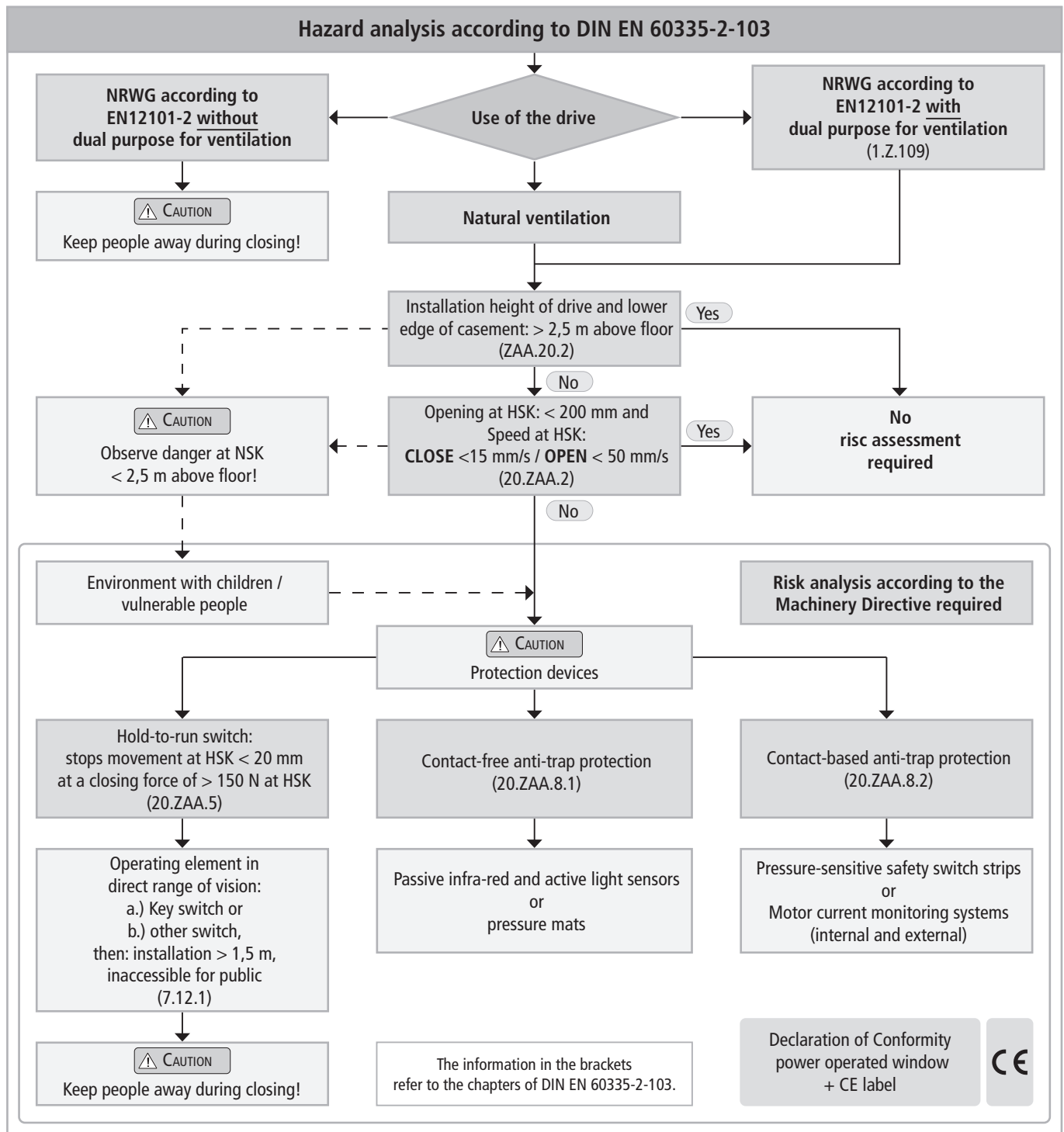
- The **constructor or his agent** (architect, specialist planner) **are obligated to evaluate the hazards to persons**, outgoing from the usage, installation position, opening parameters and from the external Control Unit of the power operated window, **already in the planning phase and to establish necessary protective measures**.
- The **constructor / manufacturer** of the machine "power-operated window" **must implement** the planned **protective measures** at the installation site or, if not yet established, **determine them** by it's own responsibility and detect or **minimize possible remaining risks**.

The need for a risk assessment at the installation site due to the reasonably foreseeable misuse.

A risk assessment in accordance with the Machinery Directive 2006 / 42 / EG for the usage of the power-operated window for natural ventilation is absolutely necessary under the following conditions:

- the installation height of the drive and lower edge of casement < 2,5 m above the floor **and one of the following conditions:**
- the opening width at the HSK > 200 mm, **or**
- the closing speed at the HSK is > 15 mm/s, **or**
- the opening speed at the HSK is > 50 mm/s, **or**
- the closing force at the HSK is > 150 N

The following flow chart can be applied, which also includes the protective measures in accordance with EN 60335-2-103/2016-05.

**Casement data**

Facade: bottom-hung window
top-hung window
side hung window

Roof: roof window / sky light

Opening direction: inward opening / outward opening

Profile material: aluminum, steel, plastic or wood.

NOTE

The casement measurements supplied are only for orientation purposes. It is imperative that the **force-path diagram** of the drives are observed.

When inspecting the drives for conformity with on-site requirements the following items must be observed:

- total weight of casement (glass + frame),
- additional loads: snow load / wind load (suction / pressure),
- casement size (FAB x FAH),
- side ratio FAB / FAH,
- installation / inclination angle,
- required opening area (geometric / aerodynamic),
- crosswind influences,
- driving force and stroke,
- mounting space at the window frame and casement frame.

Safety instructions

WARNING

It is important to follow these instructions for the safety of persons. These instructions shall be kept in a safe place for the entire service life of the products.

Risk of crushing and entrapment! Window can close automatically!



The integrated load cut-off stops the drive during closing and opening when the drive is overloaded.

The compressive force is absolutely sufficient to crush fingers in case of carelessness.

Area of application

The drive shall only be used according to its intended use. For additional applications consult the manufacturer or his authorized dealer.

Do not misuse the drive for other lifting operations!

WARNING

Do not allow children to play with this drive or its electric controls, including the remote control!

Always check whether the system complies with current regulations. Special attention must be paid to the opening width, the opening area, the opening time and the opening speed of the window, the temperature range of the drives / external devices and cables as well as the cross section of the connecting cables as function of the cable length and power consumption.



All devices must be permanently protected from dirt and moisture, if the drive is not explicitly suitable for use in wet areas (see technical data).

Installation

These instructions address expert and safety-conscious electricians and / or qualified personnel knowledgeable in electrical and mechanical drive installation.

The safe operation, avoidance of injury to persons and damage to property, as well as risks, is only guaranteed by proper installation and setting according to these installation instructions.

NOTE

All specifications for installation must be checked independently and, if necessary, adjusted at the installation site. The connection assignment, the electrical supply data (see product label) and performance limits (see technical data) as well as the mounting and installation instructions of the drive must be strictly observed and adhered to!



Never connect 24 V DC drives to 230 V AC mains voltage!

Danger to life!

Do not reach into the window rabbet or the operating element (chain or spindle) during installation and operation! Ensure that, based on the installation position and the opening movement of the casement, persons cannot be trapped between the driven part of the window and surrounding fixed components (e.g. wall).

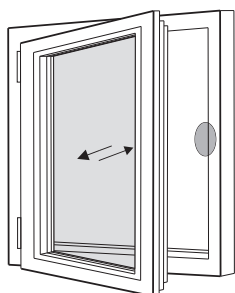
Mounting material

The required mounting material must fit with the drive and occurring load and, if necessary, supplemented.

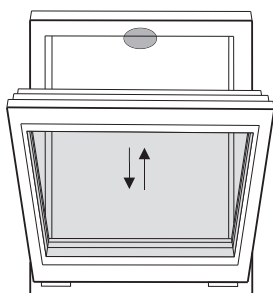
NOTE

Before installing the drive, check whether the casement is in good mechanical condition, the weight in balance and whether it opens and closes easily!

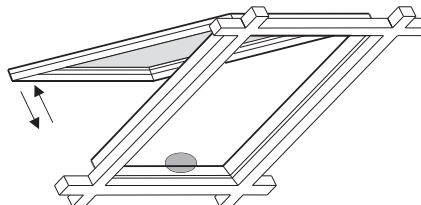
Danger spots by crush and shear points



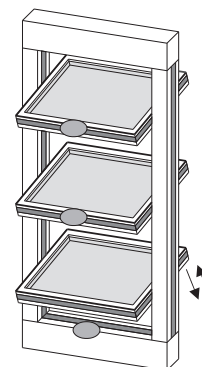
Side-hung



Bottom-hung



Roof windows / skylight domes



Louvre windows

○ Danger spots: crush and shear points according to DIN EN 60335-2-103

Crush and shear points

To avoid injuries, **crushing and shear points** between casement and frame must be secured **against entrapment up to an installation height of 2,5 meters above the floor** with appropriate measures. This can be achieved e.g. by using contact-based or contactless protective devices against entrapment, which stop the motion through contact or through interruption by a person. At a force higher than 150 N at the main closing edge the motion must stop within 20 mm. A warning symbol at the opening element must indicate this clearly.

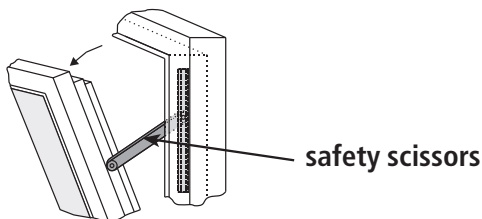
Unintentional or independent opening or falling

Casements are to be hinged or secured such way that in case one of the mounting elements fails it will not crash / slam down or move in an uncontrolled manner by e.g. using double suspensions, safety scissors, casement stays. Tilting windows shall be equipped with safety scissors or similar devices to avoid damages and risks of injury for persons through improper installation and operation. The safety scissors must be adjusted to the opening stroke of the drive (see technical data) to avoid blocking. The opening width of the safety scissors must be bigger than the drive stroke.



WARNING

The movable casement must be secured against unintentional or independent opening as well as falling down.



Routing cables and electrical connection

Routing or installing of electrical cables and connections may be performed only by specialist companies. Never operate drives, control units, operating elements and sensors at operating voltages and connections contrary to the specifications of the manufacturer.

All relevant national instructions shall be observed for the installation.



All-pole disconnecting devices shall be installed in the permanent electrical installation or external Control Unit for the drive.

The mains supply lines 230 V / 400 V AC shall be protected separately!



24V DC drives may only be connected to power supply sources that comply with SELV specifications.

NOTE

In the case of tandem / multiple operation of drives connected in series, the cross-section of the connection cable must be checked autonomously, depending on the total current consumption of the drive system.



WARNING

Damaged mains supply lines of drives with plug connectors may only be replaced by the manufacturer or qualified service / maintenance personnel!

Power cables which are fixed to the drive casing cannot be replaced. If the cable is damaged the device must be scrapped!

The types of cable, cable lengths and cross-sections shall be selected in accordance with the manufacturer's technical data. If necessary, the cable types shall be coordinated with the competent local authorities and energy supply companies. Low-voltage lines (24 V DC) shall be routed separate from the high-voltage lines. Flexible cables may not be flush-mounted. Freely suspended cables shall be equipped with strain reliefs.



Cables must be laid such way that they cannot be sheared off, twisted or bent during operation. Drive cables laid inside window profiles must be protected by insulating tubes with a sufficient temperature resistance. Through holes shall be equipped with cable sleeves!

Clamping points shall be checked for tightness of threaded connections and cable ends. Access to junction boxes, clamping points and external drive control boxes shall be ensured for maintenance work.

Commissioning, operation and maintenance

After the installation and after each modification in the set up all functions shall be checked with a trial run. It shall be ensured that drive and casement are set correctly and that security systems, if available, are functioning properly.

After the installation of the system is completed the end-user shall be instructed in all important operating steps. If necessary, he must be advised of all remaining risks / dangers.

The end-user shall be specifically instructed that no additional forces, except pushing and pulling forces in the opening and closing direction of the casement, may be applied to the spindle, chain or lever of the drive.

NOTE Post warning signs!

During the proper assembly of drives with mounting elements at a window, and the connection to an external control unit, the interfaces resulting from mechanical and electrical performance characteristics of single elements shall be observed.

Other persons must be kept away from the casement when a hold-to-run switch (pushbutton) is operated or when a window, which has been opened by a smoke and heat exhaust system, is closing!

 **CAUTION**

The operating element of hold-to-run switches must be installed within direct view from the window, but apart from moving elements. If the switch is not a key-operated switch it must be installed at a minimum height of 1,5 m and inaccessible to the public!

 **CAUTION**

Do not allow children to play with permanently mounted control devices and keep remote controls out of reach for children!

 **CAUTION**



During cleaning, maintenance work and while exchanging parts the drive must be completely disconnected from the power supply and secured against unintentional reactivation.

 **WARNING**

Do not actuate the drive or the casement when repair or re-setting works are performed!

Replacement parts, fasteners and controls

The drive shall only be operated with control devices from the same manufacturer. There is no liability, warranty or customer service if third-party parts are used. Exclusively original spare parts of the manufacturer shall be used for mounting elements or expansions.

Ambient conditions

The product may not be subjected to impacts or falls, or to vibrations, moisture, aggressive vapors or other harmful environments, unless the manufacturer released it for one or more of these environmental conditions.

• Operation:

Ambient temperature: -5 °C ... +60°C

Relative humidity: < 90% less 20°C;

< 50% less 40°C;

no formation of condensation

NOTE

Observe temperature range during installation!

We recommend the use of wind and rain sensors in order to avoid weather-related damages to drives, windows and buildings thru open window sashes.

NOTE

• Transport / Storage:

Storage temperature: -5°C ... +40°C

Relative humidity: < 60%

Accident prevention regulations and workmen's compensation insurance guidelines

For work on or in a building or building part the provisions and instructions of the respective accident prevention regulations (local workmen's compensation insurance guidelines) shall be observed and adhered to.

Declaration of Conformity and of Incorporation

The drive is manufactured and inspected in accordance with European guidelines. The respective Declaration of Conformity and of Incorporation is on hand.

In case that the use of the drive differs from the intended use, a risk evaluation for the power operated window shall be performed and a Declaration of Conformity according Machinery Directive 2006 / 42 / EG issued.

Data sheet KS8 S12 24V

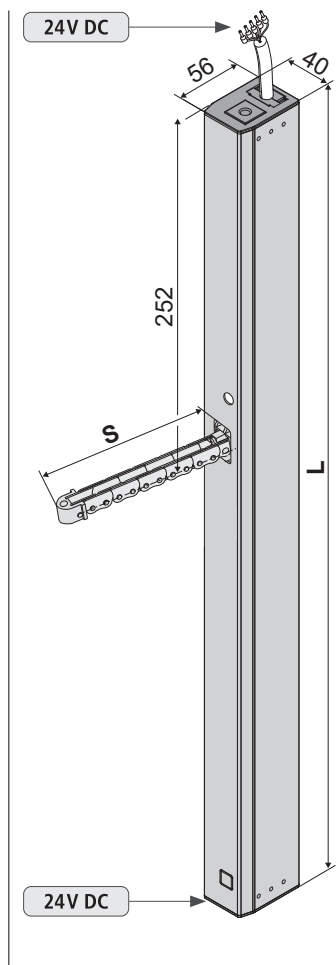
- Application: natural ventilation, SHEV, ferralux®-NSHEV
- Internal Intelligent Control Electronics S12
- Adjustable chain tension / Mechanical chain unlocking
- Programmable feedback limit position „OPEN“ and „CLOSE“ (max. 24 V, 500 mA)

Equipment:

- Additional **AUMÜLLER-Click plug set** for multi-drive operation

Options

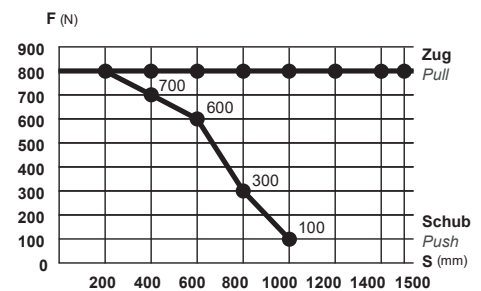
- Programmable special functions
- M-COM for automatic synchronised run of multi drive systems and automatic sequence control with locking drives (S3 / S12)



Technical data

U_N	Rated voltage	24V DC (19 V ... 28 V)
I_N	Rated current	1,9 A
I_A	Cut-off current	2,5 A
P_N	Rated power	46 W
DC	Duty cycle	5 cycles (ED 30 % - ON: 3 min. / OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... +60 °C
F_Z	Pulling force max.	800 N
F_A	Pushing force max.	

$s > 1000$ mm only for pulling application



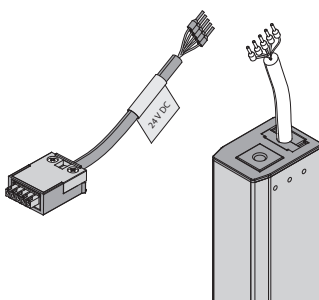
F_H	Pullout force	3.000 N (fastening depended)
	Chain	Stainless steel
	Connecting cable	non-halogen, grey 5 x 1,0 mm ² , ~ 3 m
v	Speed	Factory settings:

$s: 400$		9,0 mm/s		8,0 mm/s
$s: 600$		14,0 mm/s		8,0 mm/s
$s: 800$		18,5 mm/s		8,0 mm/s
$s: 1000$		22,0 mm/s		8,0 mm/s

Adjustment range: 5 - 22 mm/s

s	Stroke	Factory settings: see order data Adjustment range: 5 – 1000 mm
L	Length	see order data
	Sound pressure level	≤ 70 dB (A)

Option



AUMÜLLER chain drives have an integrated cable routing with connection sockets on both housing ends. This enables the following options:

- **Wire Click** (for 24 V DC) with various cable lengths
Part.-No.: **501289** - 3 m cable length / **501290** - 5 m cable length / **501291** - 10 m cable length
- Series connection of several drives into multi drive systems
- Power supply from both sides

Order Data

s [mm]	L [mm]	Version	Finish	PU / pcs.	Part.-No.
400	591	KS8 400 S12 24V	E6/C-0	1	522240
600	693	KS8 600 S12 24V	E6/C-0	1	522260
800	794	KS8 800 S12 24V	E6/C-0	1	522280
1000	896	KS8 1000 S12 24V	E6/C-0	1	522200

Options

Special model	PU / pcs.	Part.-No.
Drive housing painted/powder coated in other RAL colours		
Lump sum for coating		516030
Specify at order stage:	1 - 20	516004
	21 - 50	516004
	51 - 100	516004
	from 101	516004
Microprocessor programming S12		
Electronic stroke reduction 24V S12		524190
Programming drives 24V / 230V S12		524180
Optional accessories	PU / pcs.	Part.-No.
M-COM® Click Configuration module for synchronised multi-drive systems	1	524167
M-COM Click Configuration module for synchronised multi-drive systems	1	524177
Wire Click 24 V - 3 m - silicone, non-halogen, grey - 5 x 1,0 mm²	1	501289
Wire Click 24 V - 5 m - silicone, non-halogen, grey - 5 x 1,0 mm²	1	501290
Wire Click 24 V - 10 m - silicone, non-halogen, grey - 5 x 1,0 mm²	1	501291
Click plug set 24V - 1,0 mm²	1	533998
Parameterisation-Interface	1	524178

Explanations on the product label

The product label informs about:

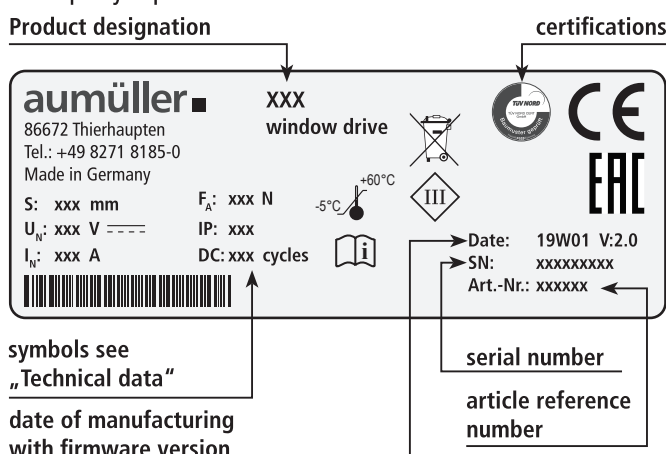
- manufacturer's address
- article reference number and name
- technical characteristics
- date of manufacturing with firmware version
- certifications
- serial number

NOTE

Never install and operate damaged products.

In the event of any complaints, please indicate the product serial number (SN) (see product label).

Exemplary representation



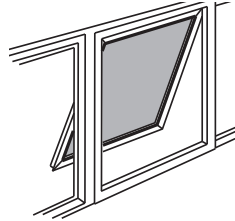
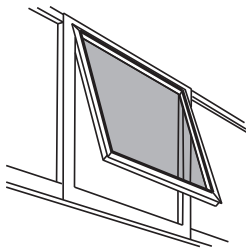
Areas of application and casement sizes

Areas of application and casement sizes:

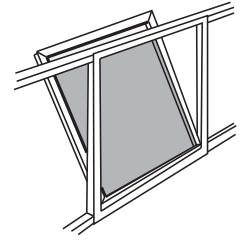
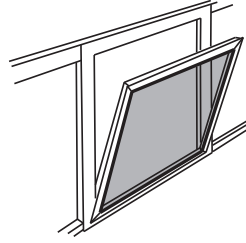
Mounting of drives up to a casement size of max. 4m² (depending on the system)

Solo application: align the casement bracket or chain to the center of the casement.

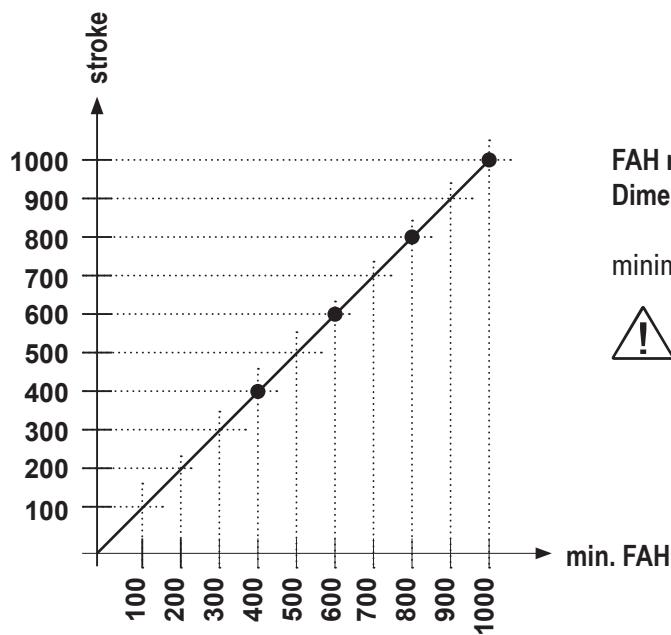
Tandem application: align the casement brackets or chains symmetrically.



Top-hung casement



Bottom-hung casement



FAH max. = 2500 mm

Dimensions depend on the frame bracket used

minimum space required on frame 52 mm



Top-hung casement up to stroke 800 possible.

INSTALLATION STEP 1: Inspection before the installation

WARNING

Important instructions for a safe installation. Observe all instructions, wrong installation may result in serious injury!

Storage of drives at the construction site

Protective measures against damages, dust, moisture or contamination shall be taken. Store drives intermediately only in dry and well ventilated rooms.

Inspection of drives before installation

Check drives and window before installation for good mechanical condition and completeness. The chains / spindles of the drives must be extendable or retractable easily. The casement must run smoothly and the weight must be in balance.

We recommend the use of our test kit for the inspection of drives with the rated voltage 24V= / 230V~ (see table below). Damaged products may not be operated under any circumstance.

NOTE

Test kit for drives

Order number:	533984
Application:	Test kit to test the running behavior and to support the commissioning of 24 V DC or 230 V AC window drives
Supply voltage:	230V AC
Drive voltage:	24V DC / 230V AC
Drive current:	max. 5 A
Fine fuse:	5.0 A slow-blow
Power Consumption:	1 W / 12 W (Battery level is maintained / charged)
Ambient temperature:	-15 °C ... + 40 °C
Degree of protection:	IP20 / IP65 (case open/closed)
Electrical protection:	Protection class 1, ES1 according to EN IEC 62368-1
Housing:	plastic (PP)
Dimensions (WxHxD):	400 x 300 x 168 mm
Weight:	approx. 5,3 kg
Controls:	3x switches / 2x push buttons
Display:	TFT-Display, colored
Scope of delivery:	1x test kit / 1x mains plug 4x safety banana plugs 1x operating manual (German, English)



The test procedure of drives may only be performed on a non-slip and secured mat or a test fixture. During the test run the test element must not be interfered with. The test may only be conducted by or under the supervision of expert personnel.

For testing chain drives the chain must be extended and retracted at an angle of approx. 90°. The spindle tubes of spindle drives in round housing tubes must be secured against independent spinning before starting the test to avoid deviations in the integrated position encoder.

Inspection of the intended use

The planned use of the drive must be checked for compliance with its intended use. If used otherwise the liability and warranty claim expires.

Predictable misuse

It is imperative that foreseeable misuse of drives is avoided! Here are a few examples:

- do not connect 24 V DC drives to a 230 V AC mains voltage,
- observe synchronous run and sequence control by drives with multiple interconnection (if existing),
- use drives only indoors,
- avoid additional force influences, e.g. transverse forces.

Testing mechanical requirements

Prior to the start of the installation check whether :

- the support surface and the profile static for the load transmission is sufficient,
- a support construction for the secure fastening of the drives is required,
- cold bridges (thermal separation) are avoidable at action points,
- there is sufficient space for the swivel movement of the drive.

If not, counter measures must be taken!



The support surface of the frame brackets or casement brackets must rest completely on the window or frame profile. There must be no tilting of the fastening elements during extension and retraction of the drives. A safe and solid fastening must be ensured at the window profile.

It is imperative that the sufficiently mechanical stiffness of the fastener type as well as of the swivel range of the drive is observed.

If this is not guaranteed another type of fastening or another type of drive must be selected.

CAUTION

INSTALLATION STEP 2: Installation prerequisite and Installation preparation

The following conditions must be fulfilled for the installation of the drives so they can be properly assembled with other parts and constructed to a complete machine at the window without impairing the safety and health of persons:

1. The design of the drive must fulfill the requirements.
2. The fastening accessories (casement brackets or frame brackets) must fit the window profile; the profile-dependent hole lay-out must be complied with.
3. The space required for the installation of the drive on the frame and casement profile must be sufficient.
4. The window must be in perfect mechanical condition before the installation. It should open and close easily.
5. The fastening material for the installation of the drive must fit the window material (see table).

Wood windows	Wood screws: i.e. DIN 96, DIN 7996, DIN 571 round head with slot, round head with cross, hex head, special type	
steel, stainless steel, aluminum windows	Self-tapping screws, thread screws, sheet-metal screws i.e. ISO 4762, ISO 4017, ISO 7049, ISO 7085, DIN 7500 cylinder head with hex socket, internal serration (Torx), Phillips head or external hex head blind rivet nut	
plastic windows	Screws for plastic i.e. DIN 95606, DIN 95607, ISO 7049, ISO 7085, DIN 7500 round head with cross, external hex head, Torx	Recommendation: if possible, screw through two cavity webs

Tools required

- Marker,
- Grains,
- Hammer,
- Screwdriver (slotted-head, cross or Torx)
size by site conditions,
- Hexagonal wrench size 3 / 4 / 5 / 6,
- Torque wrench,
- Power drill,
- Threadlock adhesive,
- possibly a tool for blind rivet nuts (size 6).

Check window data on site

- Measure FAB and FAH.
- Check / calculate weight of casement.
If unknown, it can be determined approximately with the following formula:

$$G \text{ (Casement weight) [kg]} = \frac{FAB \text{ [m]} \cdot FAH \text{ [m]} \cdot \text{Glass thickness [mm]} \cdot 2,5 \cdot 1,1}{\text{glass-density} \cdot \text{frame share}}$$

- Check / calculate the required drive force and compare with drive data. If unknown, it can be determined approximately with the following formula:

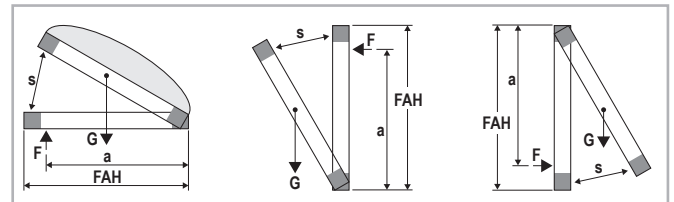
$$F \text{ [N]} = \frac{5,4 \cdot G \text{ [kg]} \cdot s \text{ [m]}}{a \text{ [m]}} \quad \text{Facade}$$

$$F \text{ [N]} = \frac{5,4 \cdot G \text{ [kg]} \cdot FAH \text{ [m]}}{a \text{ [m]}} \quad \text{Roof}$$

a = Distance of action point to hinges

F = Drive force

s = Stroke



Scope of delivery:

Prior to assembly, check items quantity in the delivery for completeness.

Accessories for chain drive	
	Assembly and Commissioning Instructions
	1 Countersunk screws M8 (2x)
	2 Brass washers (2x)
	3 Cover caps (2x)
	4 Chain unlocking key (1x)
	5 Wire Click (1x)
	6 Click plug set 24V - 1,0 mm² for multi-drive operation (1x)
	7 Warning sign sticker „Risk of entrapment“ (1x)

INSTALLATION STEP 3:

Adjusting the initial chain tension and smooth running

Adjust the initial chain tension on site (bottom-hung casements only)

The smooth running of the drive can be optimised under low load by screwing in the countersunk screw (clockwise). Countersunk screw is factory-installed from the inside of the housing tube. In this position the chain is fully tensioned.

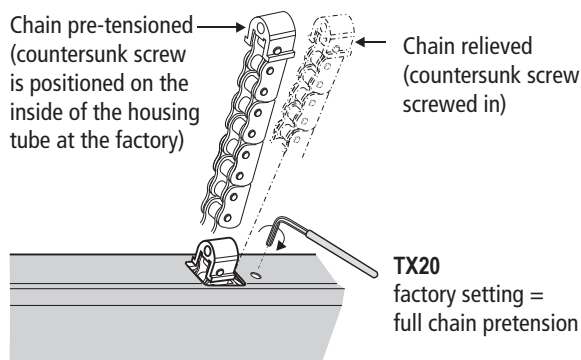


Bottom-hung casements only! Do not change the factory setting for other types of casements!

- By screwing in the countersunk screw (max. 9.5 mm = 14 full screw turns) the chain pre-tension is reduced.

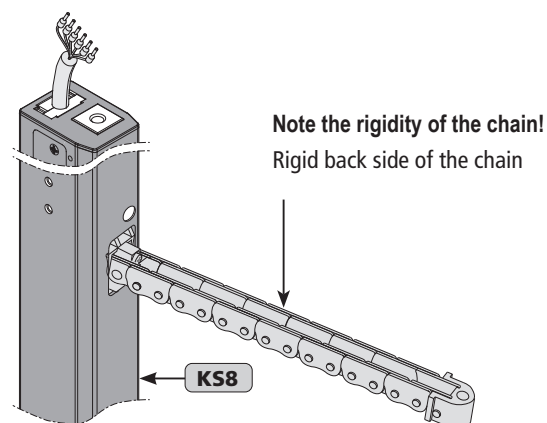


Optimise the smooth running carefully and check the chain tension. Otherwise, the chain can buckle (backlash) during operation in the thrust (push) direction.



Always note the force-path diagram (see chapter „Data sheet KS8 S12“) and rigidity of the chain, depending on the installed position!

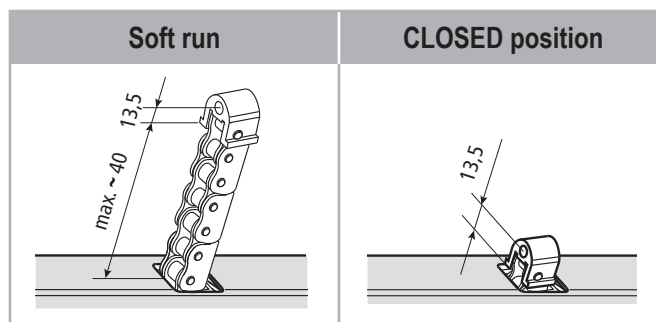
In inclined and vertical uses, ensure that the chain becomes rigid automatically. This is secured if the drive is installed with the motor side (cable outlet) at the top (e.g. for side-hung windows with drive installed at the main closing edge).



Soft run setting after manual unlocking of the chain

The drive has an electronic position detection. Just before the CLOSED position the chain retracts with reduced speed in the **soft run mode**, to protect the window and the drive.

- If the chain is unlocked manually and is completely pulled out by hand, on starting up ensure that the chain moves with reduced speed in soft run mode from approx. 40 mm before the CLOSED position.
- If necessary repeat this step several times.



Manual unlocking of chain

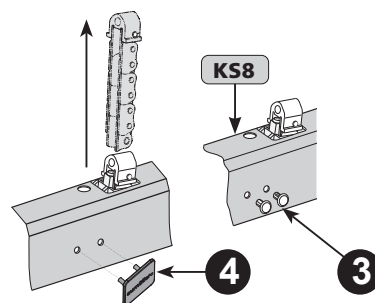
If soft run mode is **not** achieved on retracting the chain:

- Use the Chain unlocking key ④ to unlock both chains and completely pull them out manually.
- Re-close the drive completely electrically and note the soft run mode of app. 40 mm before the CLOSED position.
- Insert cover caps ③.

If the soft run mode begins too early, it is adjusted automatically by the drive's electronics the next time the window is closed.



The manual chain unlocking function may only be used for **installation** purposes!

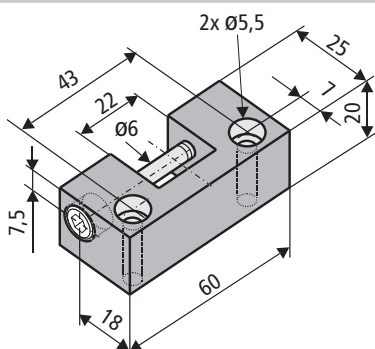
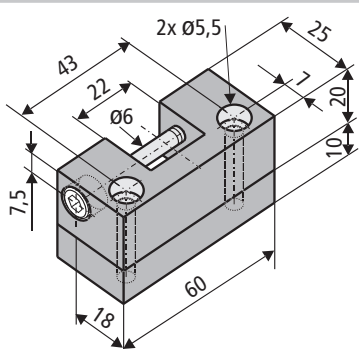
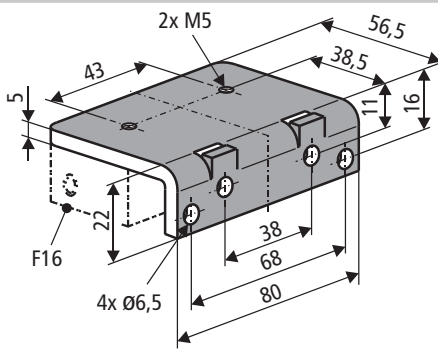
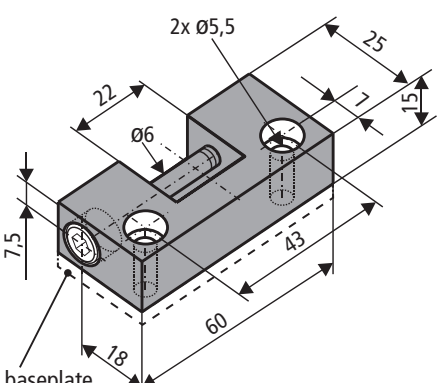
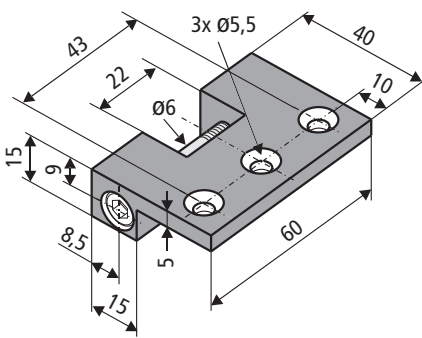
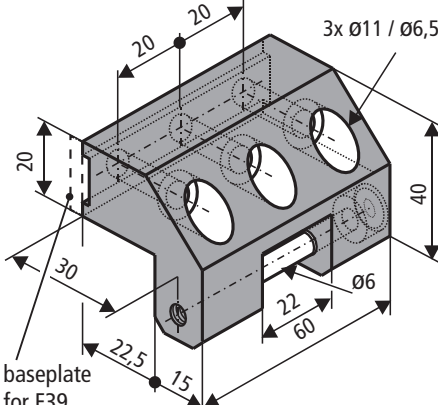
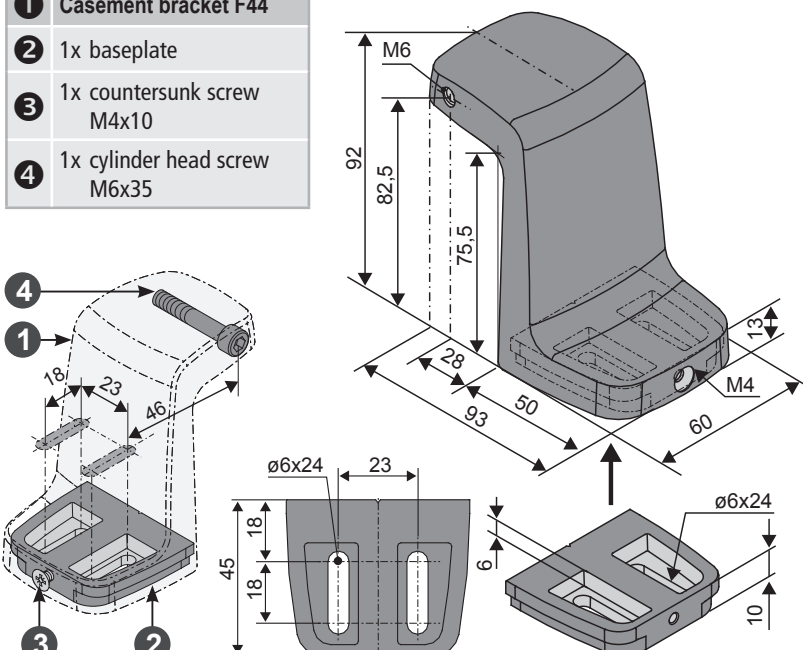
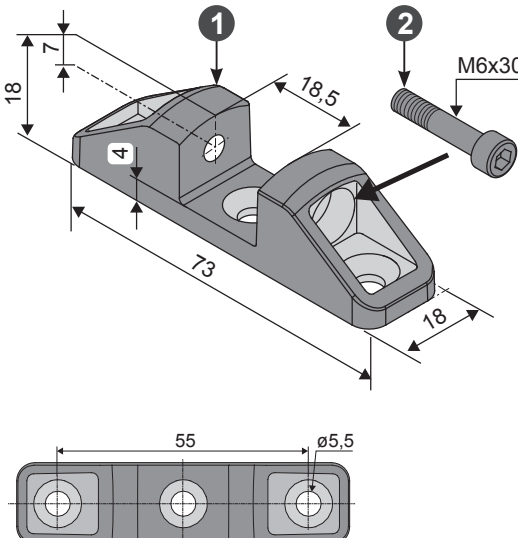


If the chain does not retract in soft run mode, the drive's transmission can be damaged, resulting in drive failure!



For multiple application the chains should always be pulled out of manually and moved in a CLOSE direction electrically with the same space interval.

INSTALLATION STEP 4: Determine the casement brackets

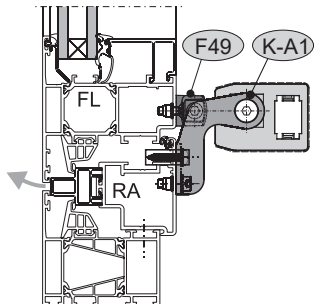
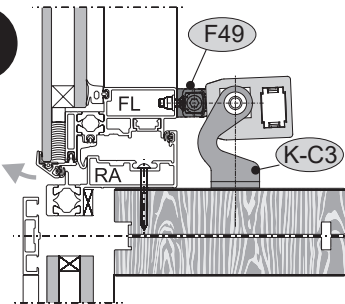
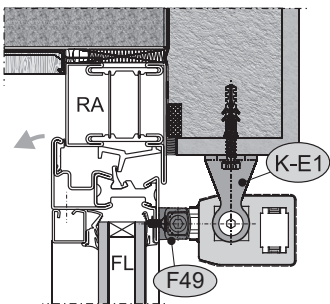
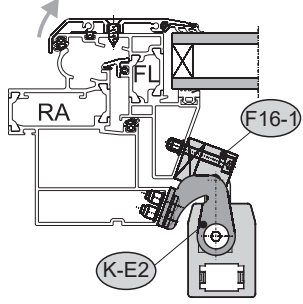
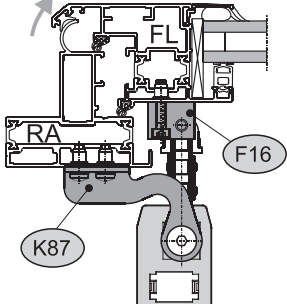
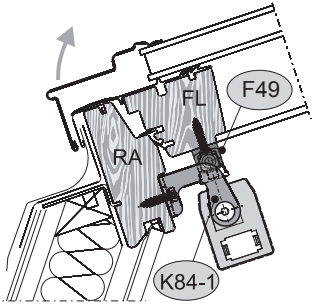
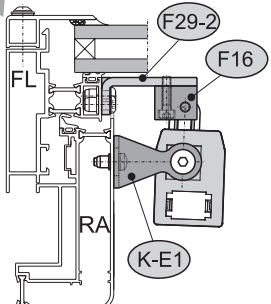
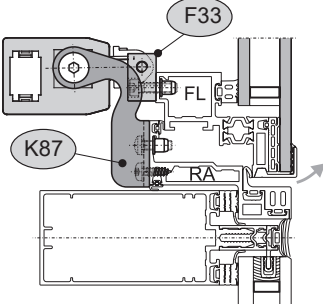
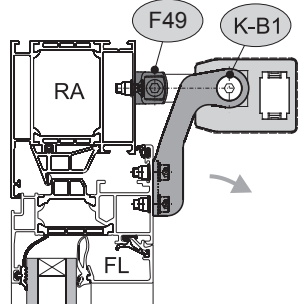
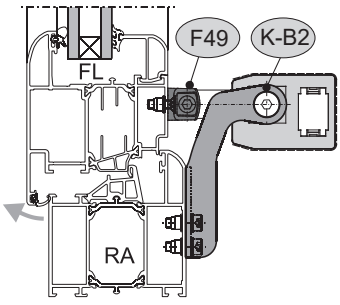
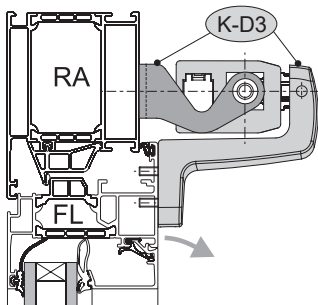
Casement bracket F16  use with K-A1, K-B1, K-B2, K-C3, K-E1, K-E2, K84-1, K87	Casement bracket F16-1  an Dachflächenfenster Schüco AWS 57RO	Casement bracket F29-2  use on roof windows Heroal 085 / 180 with F16	
Casement bracket F33  use with K-A1, K-B1, K-B2, K-C3, K-E1, K-E2, K84-1, K87	Casement bracket F38  use with K-A1, K-B1	Casement bracket F39  use with K-C3, K-E1, K-E2, K84-1	
Casement bracket F44 1 Casement bracket F44 2 1x baseplate 3 1x countersunk screw M4x10 4 1x cylinder head screw M6x35  use with K-C3			Casement bracket F49 1 Casement bracket F49 2 1x cylinder head screw M6x30  use with K-A1, K-B1, K-B2, K-C3, K-E1, K-E2, K84-1, K87, K125

INSTALLATION STEP 5: Determine the frame brackets

Frame brackets		
Frame bracket K-A1	Frame bracket K-B1	Frame bracket K-B2
use with F16, F33, F38, F49 Space required on window frame 35 mm	use with F16, F33, F38, F49 pace required on window frame 35 - 52 mm	use with F16, F33, F49 pace required on window frame 35 - 52 mm
Frame bracket K-C3	Frame bracket K-D3	Frame bracket K-E1
use with F16, F33, F39, F44, F49	pace required on window frame 50 mm	use with F16, F33, F39, F49
Frame bracket K-E2	Frame bracket K84-1	
use with F16, F16-1, F33, F39, F49	use with F16, F33, F39, F49	
Frame bracket K87	Frame bracket K125	
use on Schüco AWS 102 (friction hinged windows) Space required on window frame 35 mm	use with F14 und B1 (mounting angle) on the kerb (upstand) of dome rooflights	

Application examples

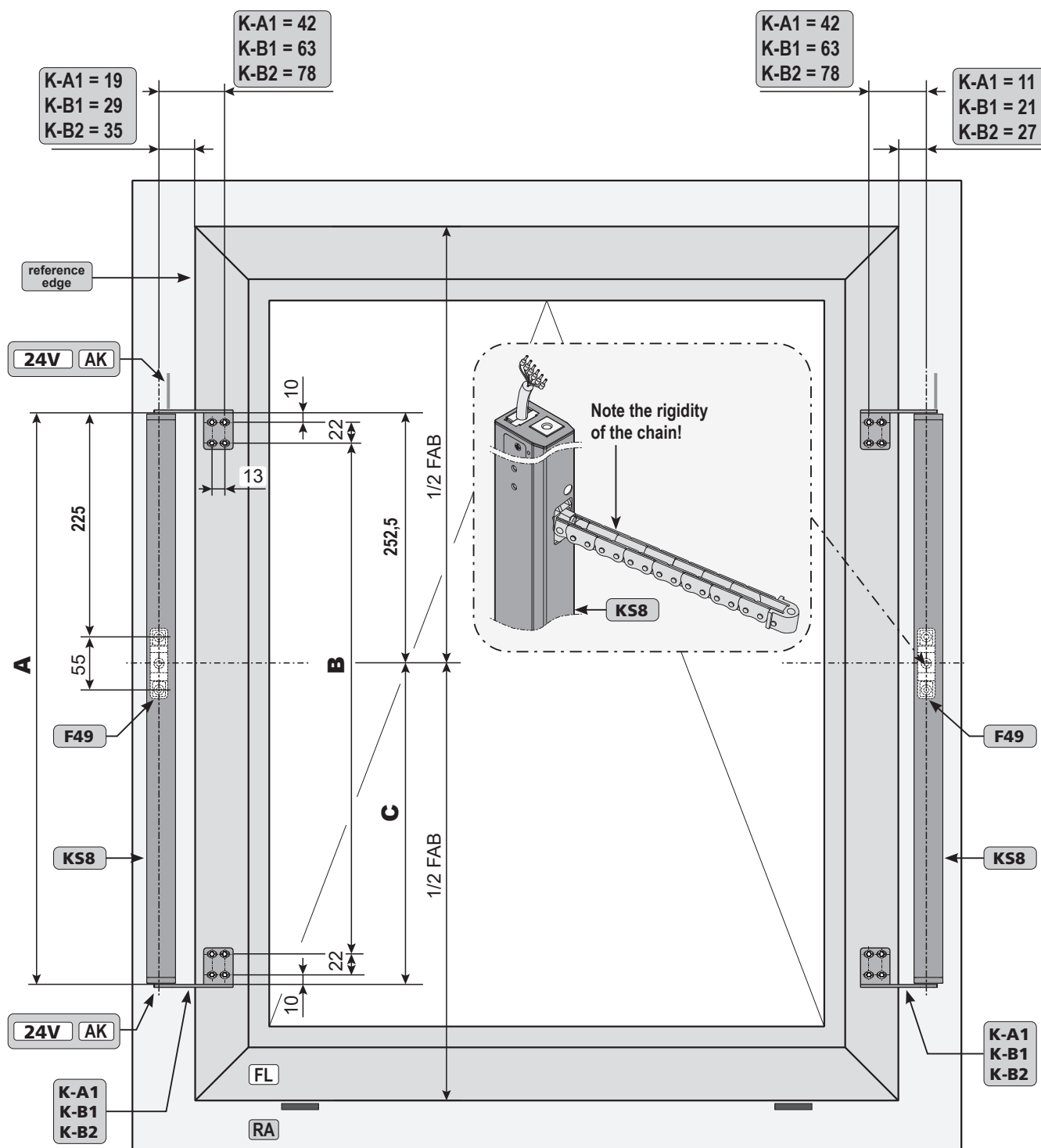
Application examples for different types of windows

Top-hung outward opening Frame mounting	Top-hung outward opening Transom mounting	Bottom-hung outward opening Transom mounting
A 	B 	B 
Detail of mounting on aluminium window	Detail of mounting on aluminium window	Detail of mounting on aluminium window
Roof Frame mounting	Roof Frame mounting	Roof Frame mounting
C 	D 	B 
Detail of mounting on aluminium window	Detail of mounting on aluminium window	Detail of mounting on wooden window
Roof Frame mounting	Friction hinged outward opening Frame mounting	Bottom-hung inward opening Casement mounting
C 	D 	A 
Detail of mounting on aluminium window	Detail of mounting on aluminium window	Detail of mounting on aluminium window
Top-hung outward opening Frame mounting	Bottom-hung inward opening Frame mounting	
A 	E 	
Detail of mounting on aluminium window	Detail of mounting on aluminium window	

INSTALLATION STEP 6: Hole layout for frame brackets and casement brackets

Assembly drive on the casement - auxillary closing edge - inward opening windows
Hole layout for the frame brackets K-A1 / K-B1 / K-B2 with casement bracket F49

NSK

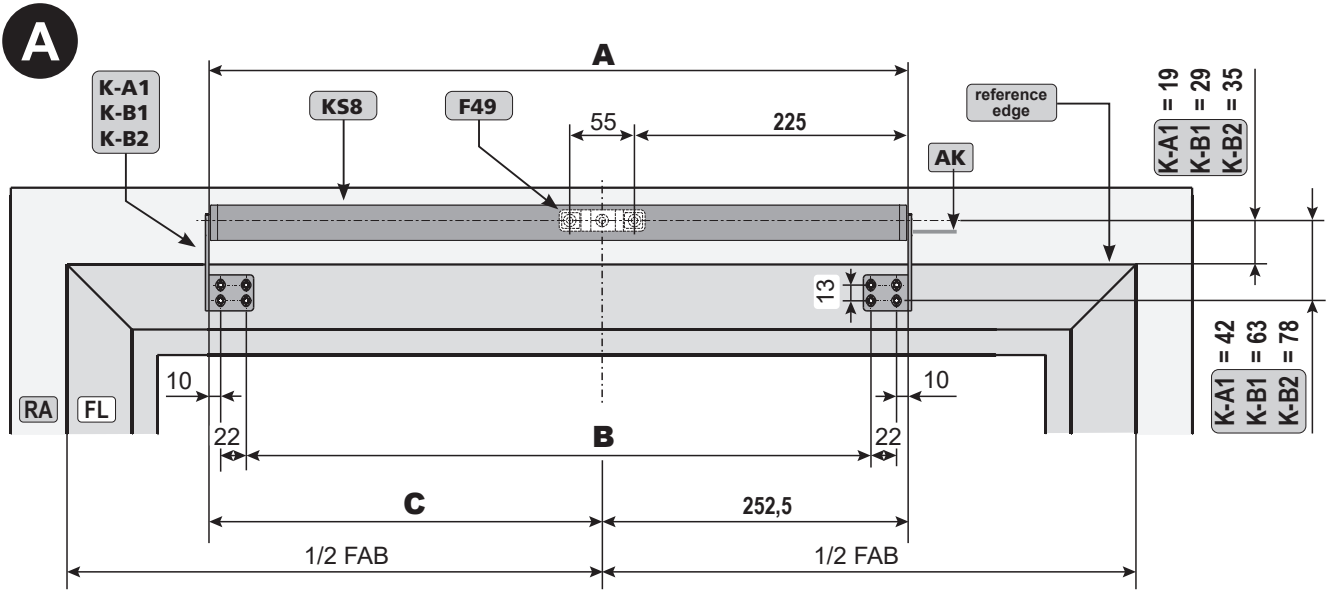


	stroke 400	stroke 600	stroke 800	stroke 1000
A	592	694	795	897
B	528	630	731	833
C	339,5	441,5	542,5	644,5

Hole layout: solo

Assembly drive on the casement - main closing edge - inward opening windows
Hole layout for frame brackets K-A1 / K-B1 / K-B2 with casement bracket F49

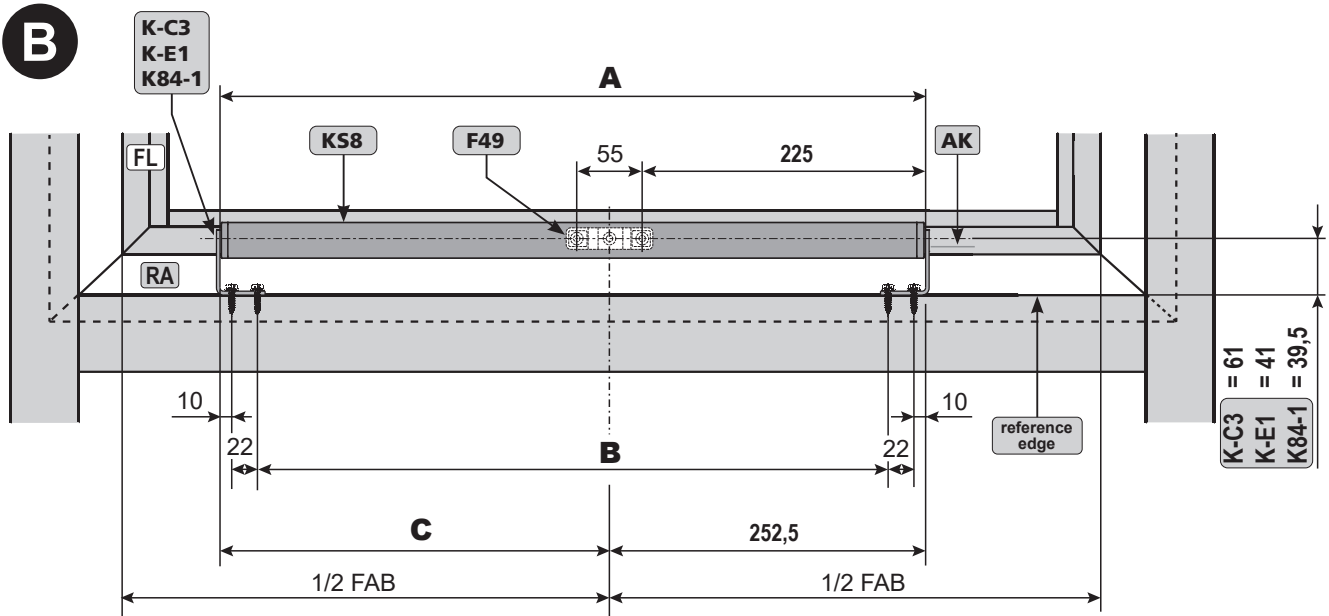
HSK



	stroke 400	stroke 600	stroke 800	stroke 1000
A	592	694	795	897
B	528	630	731	833
C	339,5	441,5	542,5	644,5

Assembly drive on the frame / transom - main closing edge - outward opening windows
Hole layout for frame brackets K-C3 / K-E1 / K84-1 with casement bracket F49

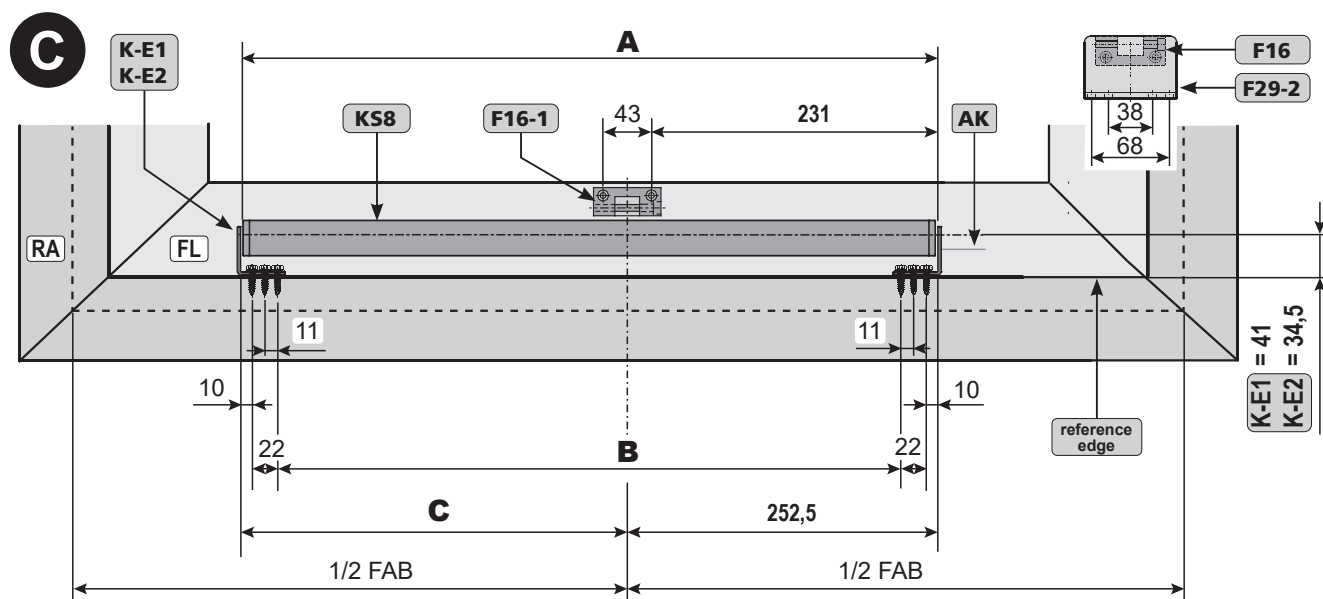
HSK



	stroke 400	stroke 600	stroke 800	stroke 1000
A	592	694	795	897
B	528	630	731	833
C	339,5	441,5	542,5	644,5

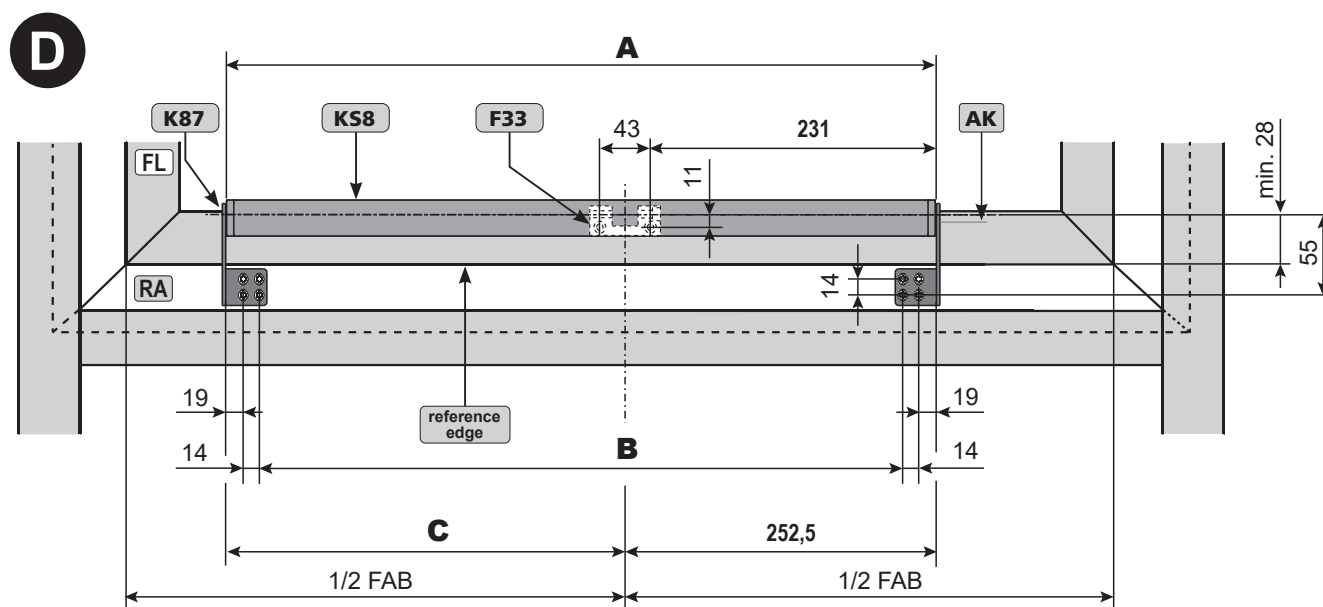
Hole layout: solo

Assembly drive on the frame / transom - main closing edge - outward opening windows
Hole layout for frame bracket K-E1 / K-E2 with casement bracket F16-1 / F16 + F29-2

HSK


	stroke 400	stroke 600	stroke 800	stroke 1000
A	592	694	795	897
B	528	630	731	833
C	339,5	441,5	542,5	644,5

Assembly drive on the frame - main closing edge - outward opening windows
Hole layout for frame bracket K-87 with casement bracket F16 / F33

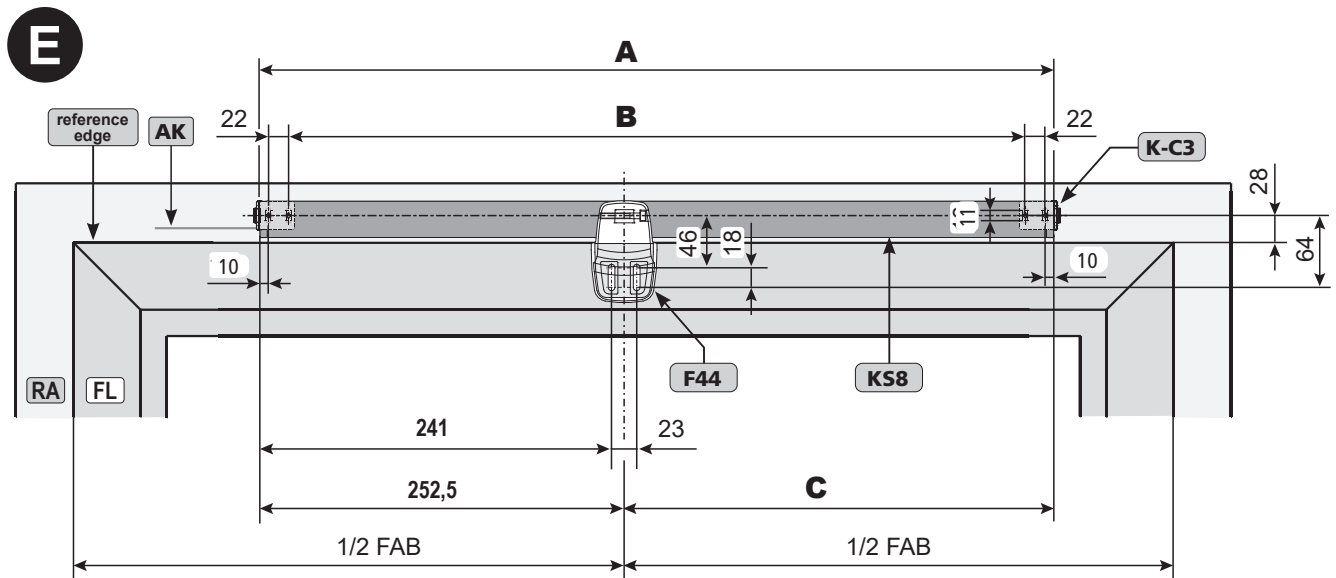
HSK


	stroke 400	stroke 600	stroke 800	stroke 1000
A	592	694	795	897
B	526	628	729	831
C	339,5	441,5	542,5	644,5

Hole layout: solo

Assembly drive on the frame - main closing edge - inward opening windows
 Hole layout for frame bracket K-D3 (K-C3 with casement bracket F44)

HSK

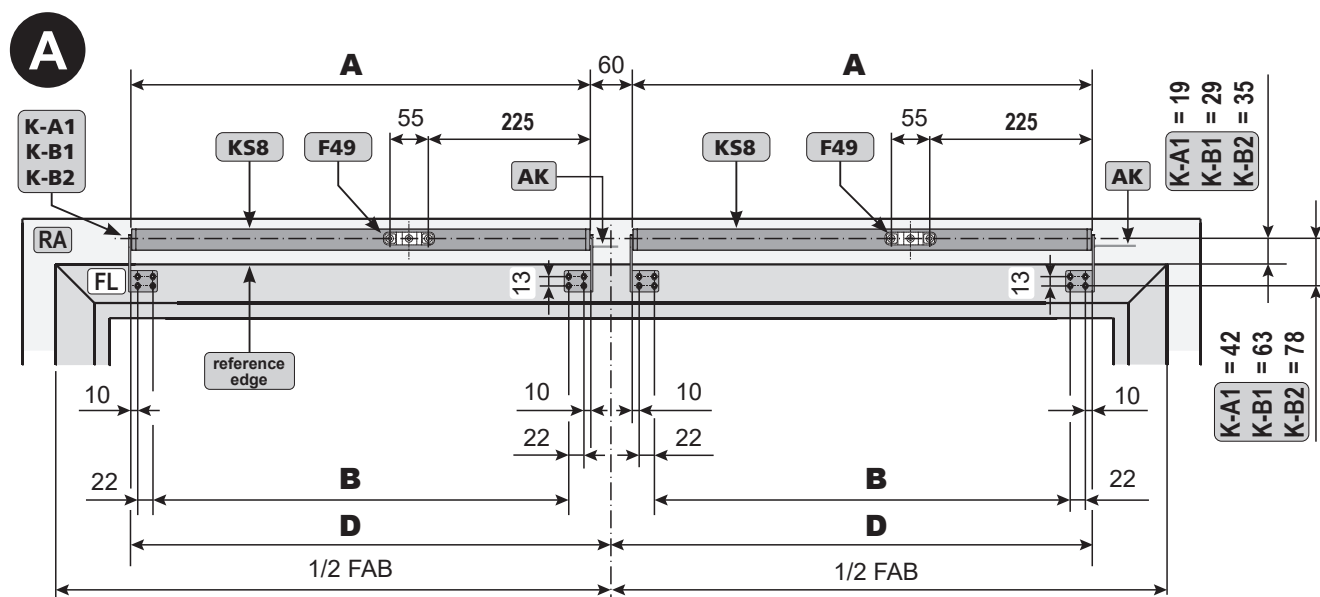


	stroke 400	stroke 600	stroke 800	stroke 1000
A	592	694	795	897
B	528	630	731	833
C	339,5	441,5	542,5	644,5

Hole layout: tandem

Assembly drive on the casement - main closing edge - inward opening windows
Hole layout for frame brackets K-A1 / K-B1 / K-B2 with casement bracket F49

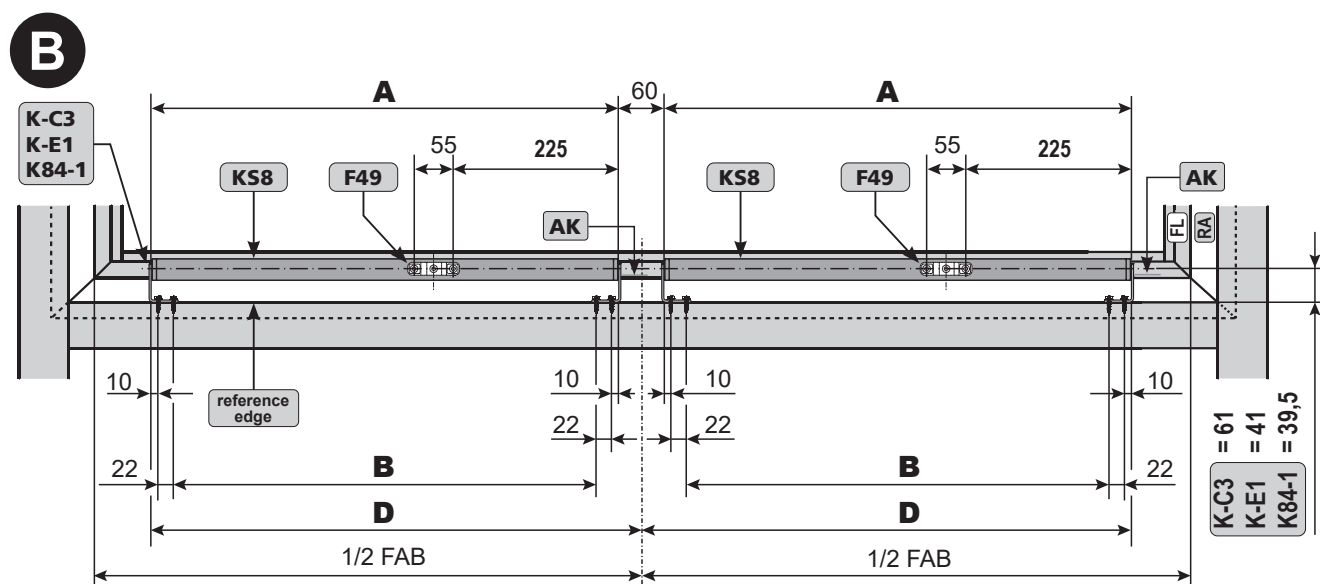
HSK



	stroke 400	stroke 600	stroke 800	stroke 1000
A	592	694	795	897
B	528	630	731	833
C	622	724	825	927

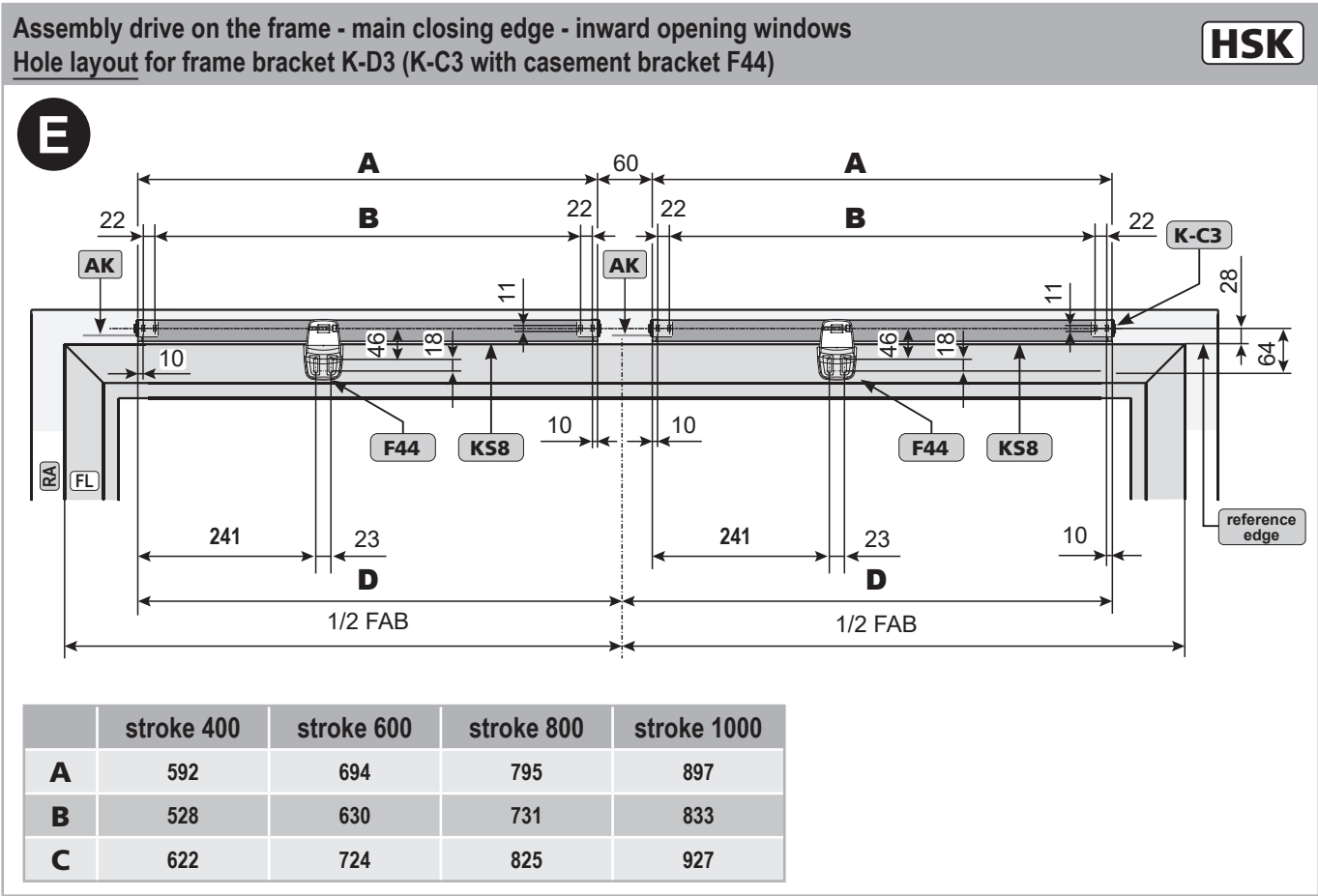
Assembly drive on the frame / transom - main closing edge - outward opening windows
Hole layout for frame brackets K-C3 / K-E1 / K84-1 with casement bracket F49

HSK



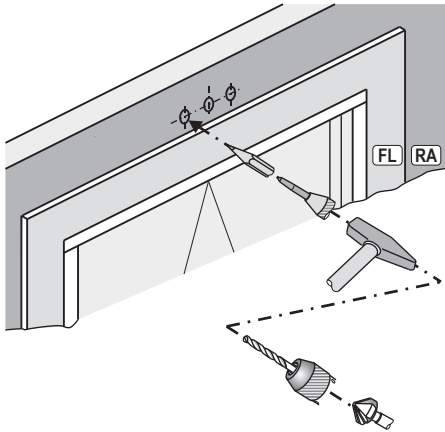
	stroke 400	stroke 600	stroke 800	stroke 1000
A	592	694	795	897
B	528	630	731	833
C	622	724	825	927

Hole layout: tandem



INSTALLATION STEP 7: Drilling holes for frame bracket and casement bracket

- Determine fastenings.
- Produce drill holes with appropriate cross-section. For the mounting dimensions please refer to the above-mentioned hole layout drawings (INSTALLATION STEP 4 - 6) or project-specific documents and drawings).



Do not drill into the drive.
Chips can accumulate in the drive!



Carefully clear away drilling swarfs to prevent seals from being damaged.
Avoid surface scratches, for example by using masking tape.

- Secure fasteners against loosening; i. e. by applying removable thread-locking compound such as "Loctite".

INSTALLATION STEP 8A: Swiveling drive mounting at the casement

- main closing edge or auxillary closing edge at inward-opening sash

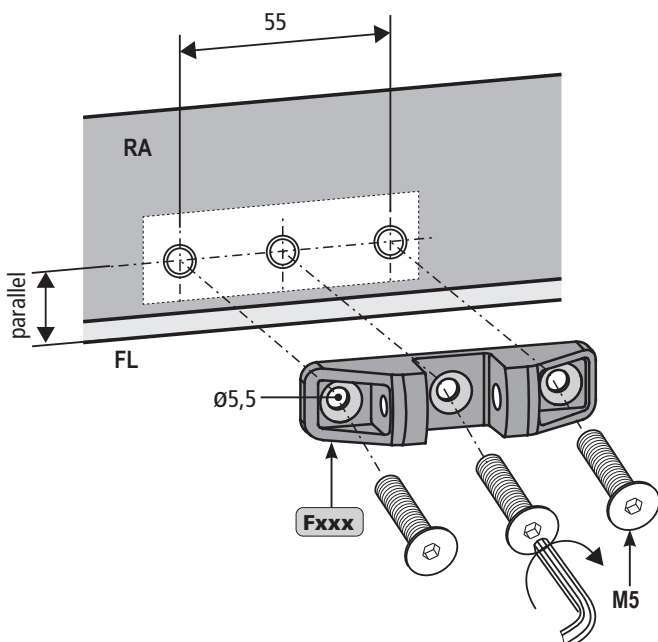
HSK

NSK

- Fit casement bracket Fxxx (M5).



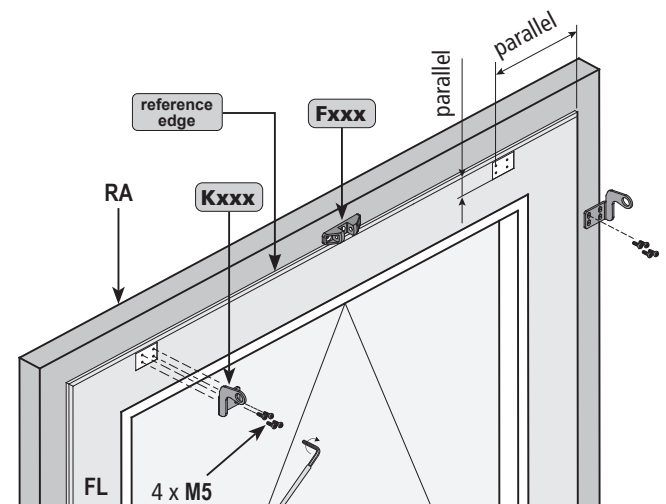
Make sure they are parallel to casement edge.
„Casement bracket“ center and „chain output“ must be in line.



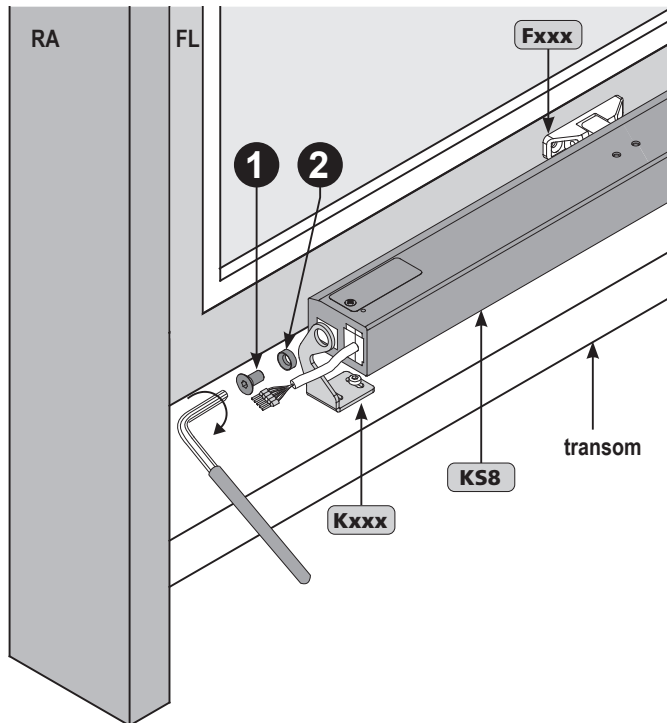
- Fit frame brackets Kxxx (M5).



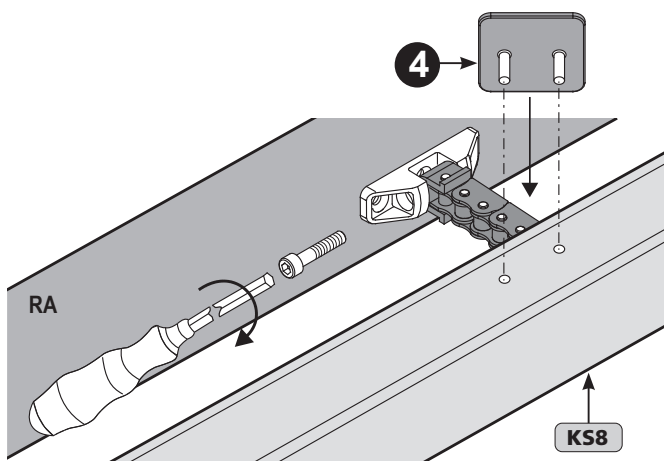
Make sure they are parallel to casement edge.



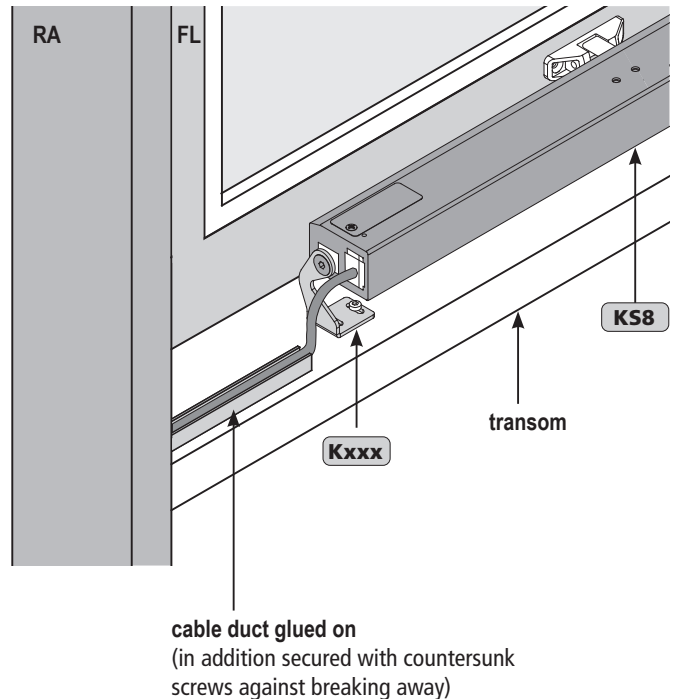
- Attach drive to the frame brackets **Kxxx**.
- Insert brass washers **2** and firmly tighten with countersunk screws M8 **1**. The drive must freely swivel between the brackets **Kxxx**.



- Insert the Chain unlocking key **4** in the hole.
- Pull out the chain manually (see „INSTALLATION STEP 3“).
- Connect chain with casement bracket. Pass shaft screw **M6** through and tighten.



- Route cable on the frame or mullion/transom. The drive and its connection cable are swivelling. As a consequence, foresee cable routing with a loop. Cable must be protected against damage (shearing-off, kinking, splitting).



Note softlauf modus!
(see **INSTALLATION STEP: Soft run mode**)



Check swiveling area! (**INSTALLATION STEP: Afety Check and Performing test run**).

Ensure that drive and connection cable can swivel freely.

INSTALLATION STEP 8C: **Swiveling drive mounting at the window frame**

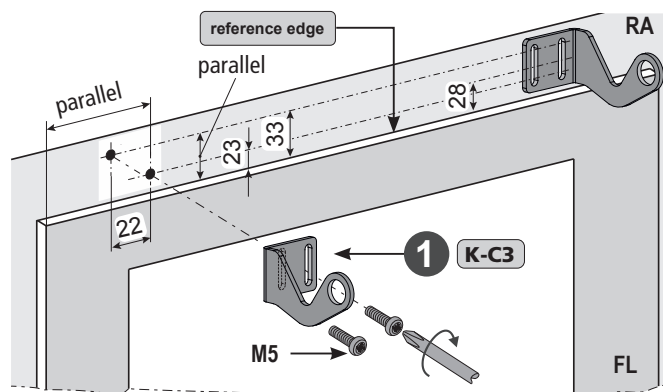
- main closing edge or auxillary closing edge
- inward opening windows

HSK

- Fasten frame bracket **K-C3 ①** with screws (**M5**).



Make sure they are parallel to casement edge.



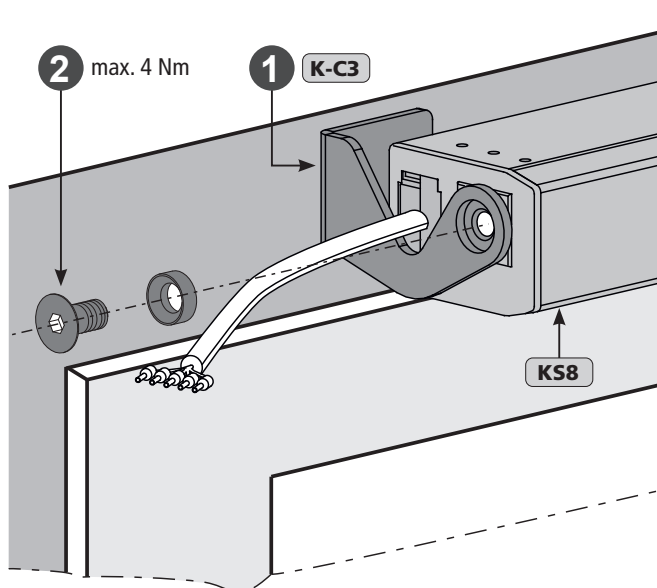
NOTE

If required, use washers corresponding to the used screws.

- Attach drive to the frame brackets **K-C3 ①**.
- Secure the drive with screws **②**.

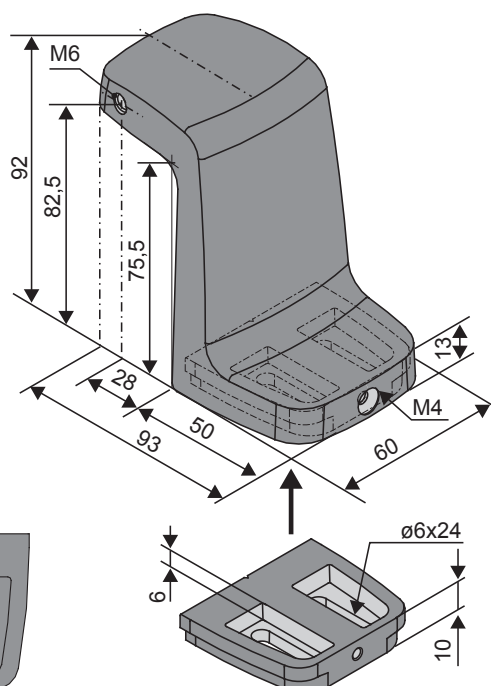
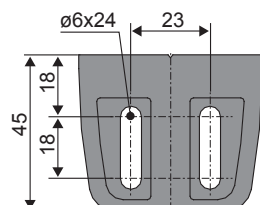
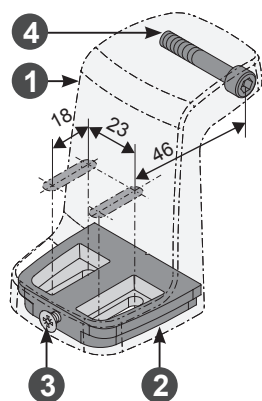


Drive should freely swivel - between frame brackets **K-C3 ①**.

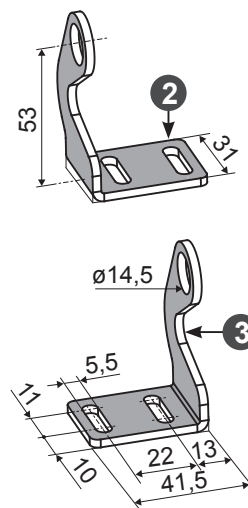


Casement bracket K-D3

- | | |
|----------|------------------------------|
| 1 | Casement bracket F44 |
| 2 | 1x baseplate |
| 3 | 1x countersunk screw M4x10 |
| 4 | 1x cylinder head screw M6x35 |

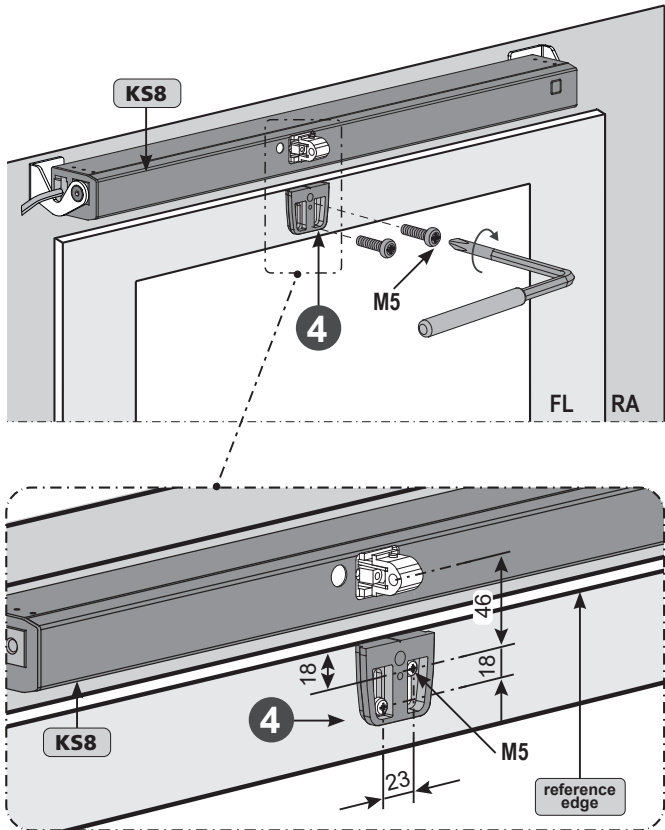


- | | |
|----------|------------------------------|
| 1 | Casement bracket K-C3 |
| 2 | 1x part left |
| 3 | 1x part right |

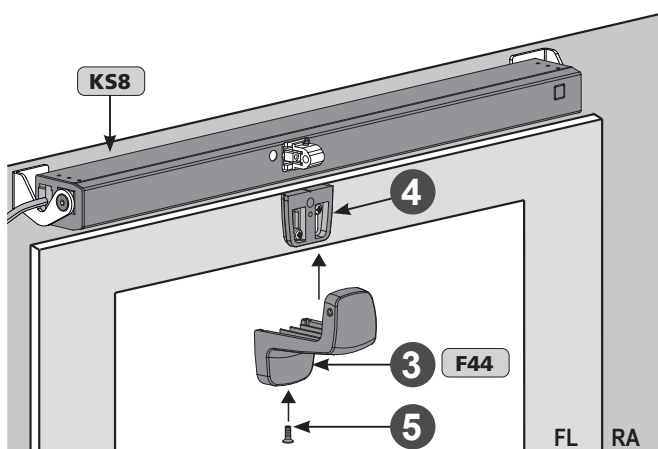


HSK **NSK**

- Screw the baseplate **4** from casement bracket **F44 3** onto casement (**M5**). If necessary, use washers.



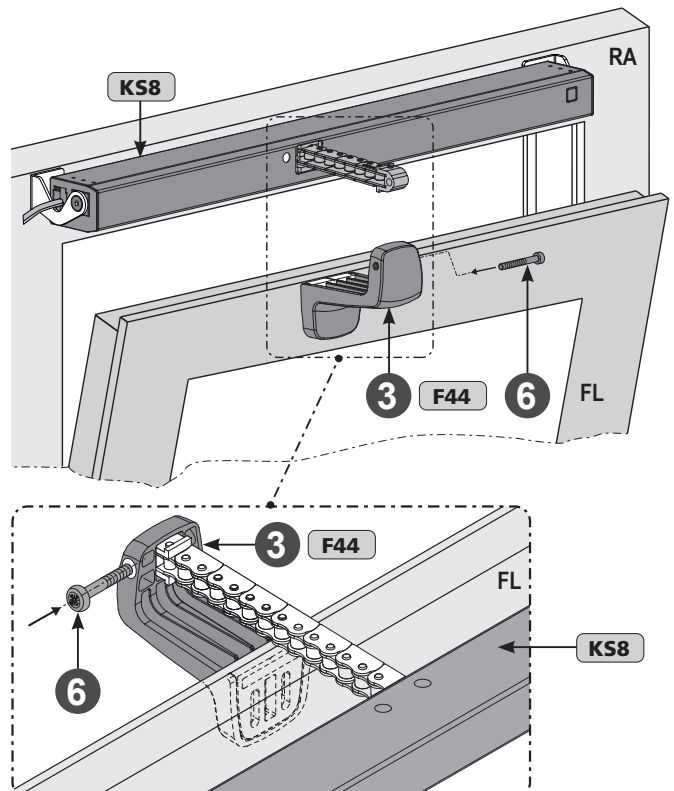
- Slide casement bracket **F44 3** on the baseplate **4** and secure with screw **5**.



- Connect control voltage (e.g. using a tester) and move out the chain approx. 100 mm.

NOTE For multi-drive operation actuate all drives together.

- Secure chain in the casement bracket **F44 3** with screw **6**.



Note softlauf modus!
(see **INSTALLATION STEP: Soft run mode**)

Pay attention to cable routing!
(see **INSTALLATION STEP: „Cable routing“**)

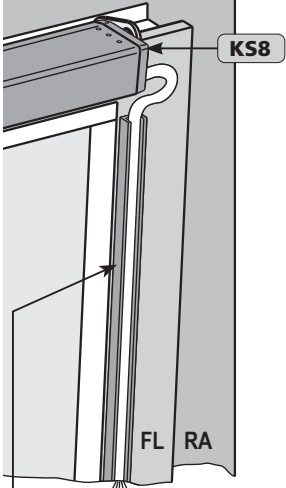
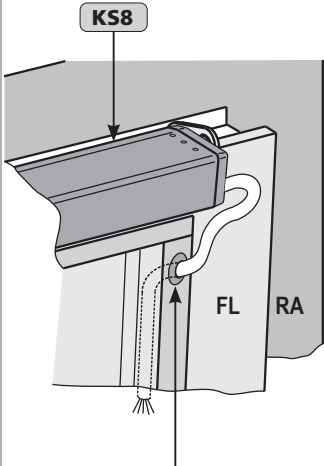
Check swiveling area! (**INSTALLATION STEP: Afety Check and Performing test run**).

Ensure that drive and connection cable can swivel freely.

HSK
NSK

INSTALLATION STEP 9: Cable routing on the window sash or frame

Cable routing on the window sash

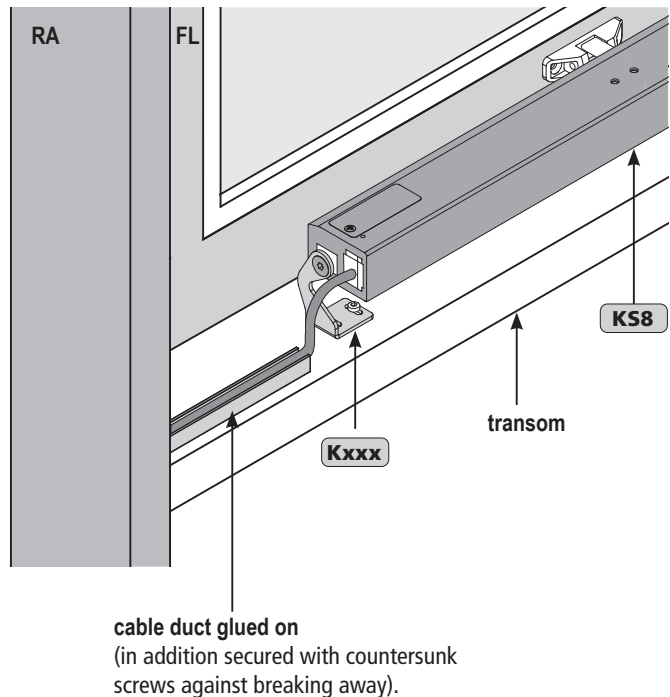
Cable on casement	Cable in glazing bead
 Cable duct glued on (in addition secured with countersunk screws against breaking away).	 Drill hole in glazing bead (cable bushing protects against damage to cable).
Connection cable routing on the casement: - The drive and its connection cable are swivelling. As a consequence, foresee cable routing with a loop. - Cable must be protected against damage (shearing-off, kinking, splitting), i.e. by using bushings.	



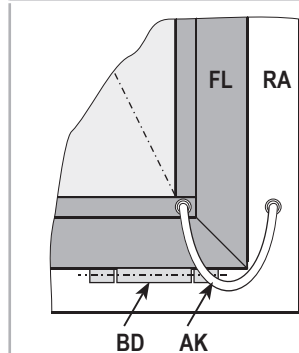
Upon removal of the glazing bead is the danger that the glass may fall.

Cable routing on the frame

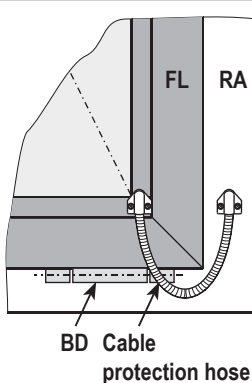
- Route cable on or in the casement. Cable must be protected against damage (shearing-off, kinking, splitting).



Cable crossover without protective cable hose



Cable crossover with protective cable hose



Connection cable routing on the hinge side:

- Make sure that during opening or closing procedure the cable will not be damaged by shearing-off, kinking, crushing.
- Protect cable feedthrough in profile e.g. by using cable bushings, cable transitions.

INSTALLATION STEP 10: Concealing the drive

The housing of the chain drive is covered using the cover profile kit (e.g. in case of change in colour).

In case of complete concealment (versions 2 and 3) the brackets are also partly covered and are hardly visible. Equally, it is possible to install the facing across the whole width of the window.

- Uniform appearance.
- Individual choice of colour (cover profile **AP** available in RAL colours).
- Adjustment to the frame dimensions, through the possibility of shortening the cover profile **AP**.
- Protection from dirt.

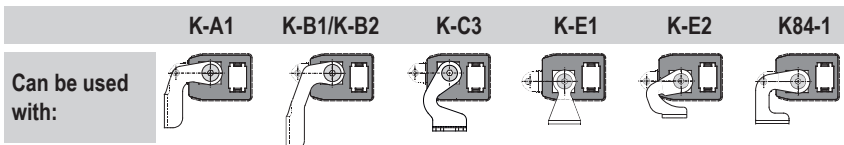
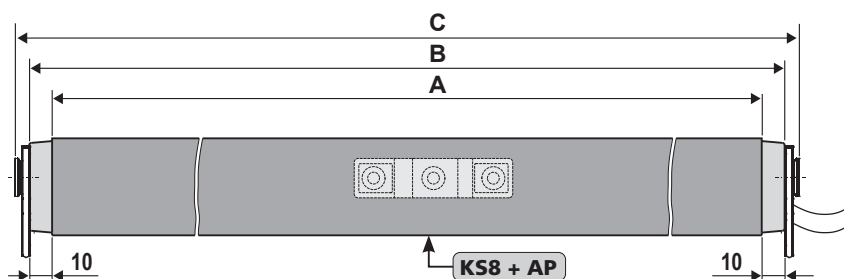
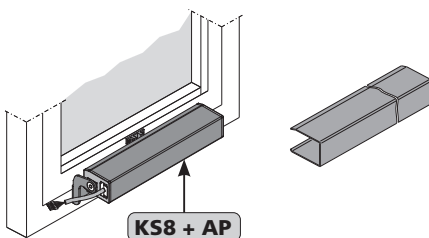
Concealment options for single use

Version 1 Concealment of the drive (e.g. due to colour change)

Completely visible brackets

Stroke	A	B	C
400	571	591	603
600	673	693	705
800	774	794	806
1000	876	896	908

Cover profile only

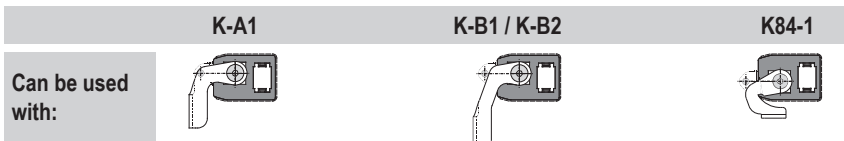
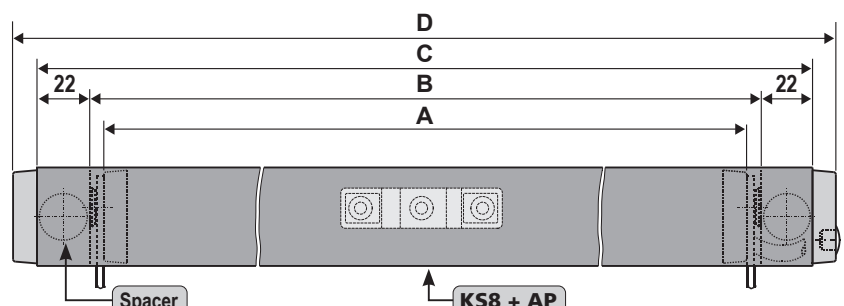
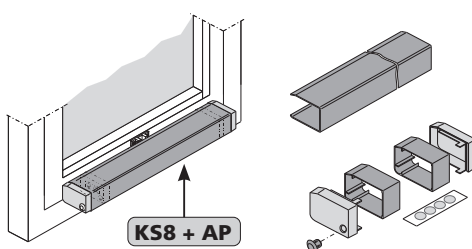


Version 2 Complete concealment of the drive

Partially visible brackets

Stroke	A	B	C	D
400	591	603	647	667
600	693	705	749	769
800	794	806	850	870
1000	896	908	952	972

Cover profile and installation kit

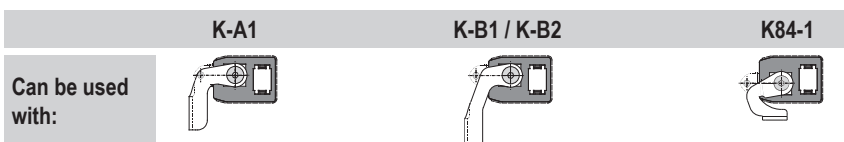
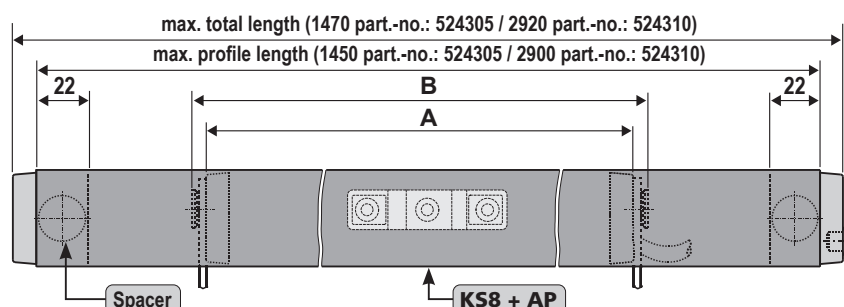
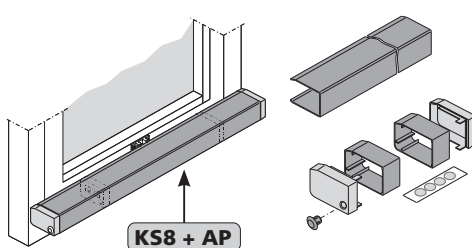


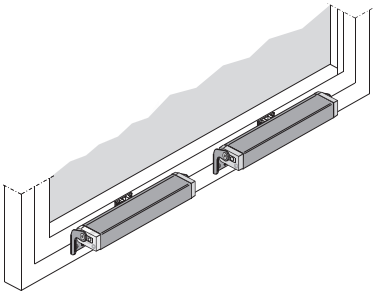
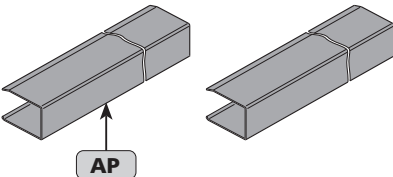
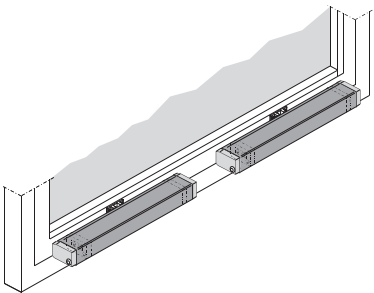
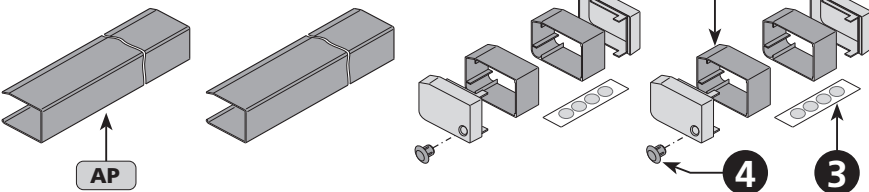
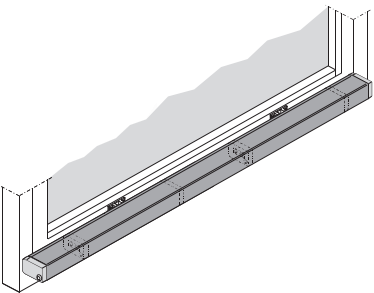
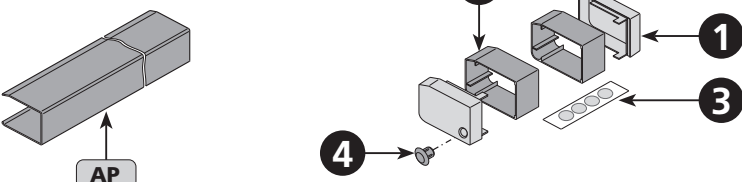
Version 3 Variable concealment (e.g. over the whole width of the window)

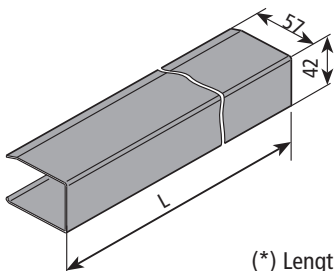
Partially visible brackets

Stroke	A	B
400	591	603
600	693	705
800	794	806
1000	896	908

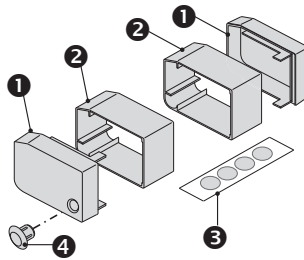
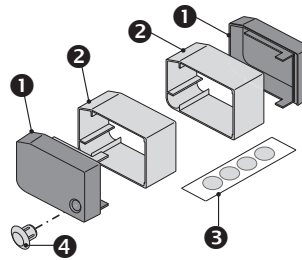
Cover profile and installation kit



Concealment options for multiple use		
Version 1	Concealment of the drive (e.g. due to colour change)	Completely visible brackets
	2x cover profile 	
Version 2	Complete concealment of the drive	Partially visible brackets
	2x cover profile and 2x installation kit 	
Version 3	Variable concealment (e.g. over the whole width of the window)	Partially visible brackets
	1x cover profile and 1x installation kit 	

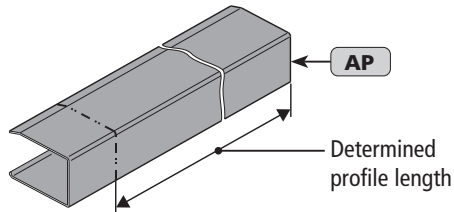
Cover profile	
Part.-No.:	524305 L = 1,45 m (*) 524310 L = 2,90 m (*) 524302 L = customized
Application:	Cover profile for surface mounted drives KS8 with frame bracket sets K-A1, K-B1, K-B2, K-C3, K-E1, K-E2, K84-1. Profile length adjustable to the length of the drives or of the window casement.
Material:	Aluminium + plastic (grey)
Feature / Equipment:	Incl. mounting aid for cover profile shortening on the job site + mounting set.
	

(*) Length without cover caps

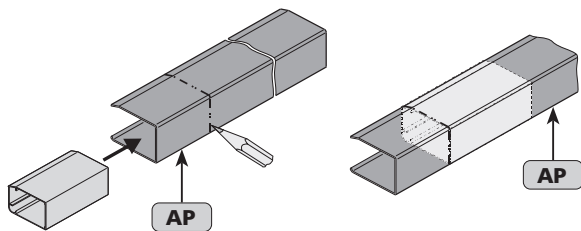
Installation kit for cover profile	
Part.-No.:	524300 Color grey 524303 Color black
Material:	Aluminium, Plastic (grey or black)
Feature / Equipment:	① 2x end cap ② 2x spacer ③ 4x stickers ④ 1x dummy plug
Installation kit Color: grey	Installation kit Color: black
	

Installing the cover profile

- Select the drive cover version.
- Determine the profile length. (For length measurements, please refer to the tables listed above in this chapter „Concealing the drive“ or the project-specific planning documents).



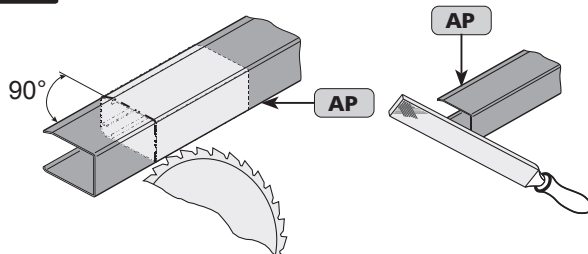
- Mark the required length.
- Push the mounting aid (piece of drive housing profile) into the cover profile AP.



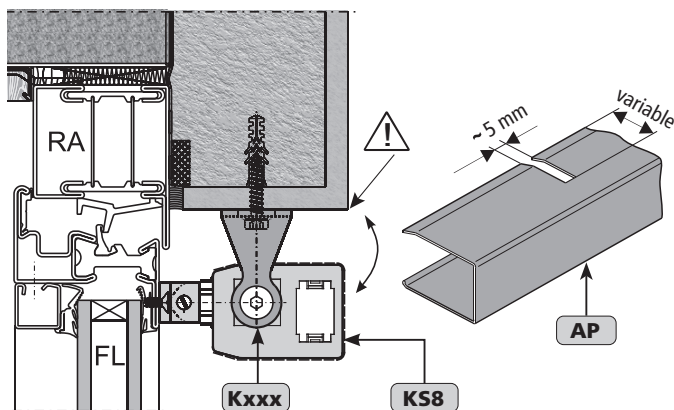
- Use a saw to shorten the cover profile AP to the required length.
- Deburr saw cut.



Ensure that you saw the profile perpendicular.



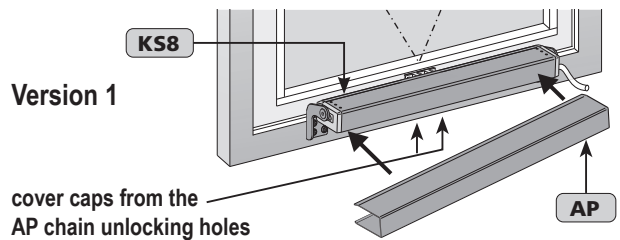
- Check the swivel area of the drive and if necessary cut out the cover profile AP in the area of the brackets.



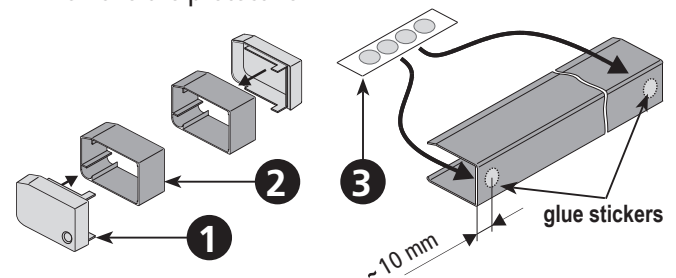
- If necessary, paint the cover profile AP with the required colour.

- Push on the cover profile AP cover profile so that it fits tightly. If necessary, remove the cover caps for the manual chain unlocking holes.

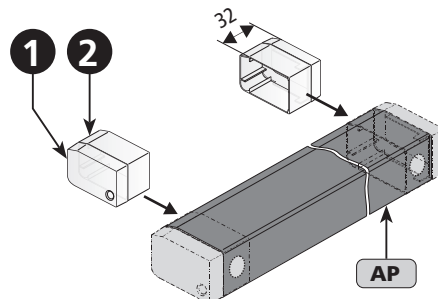
Version 1



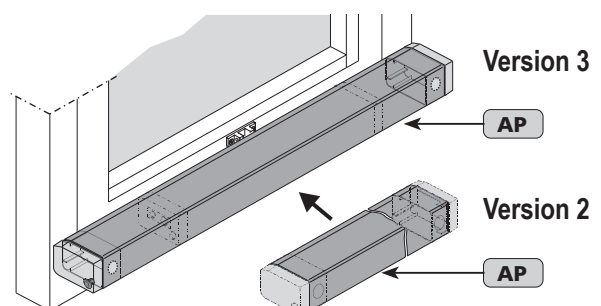
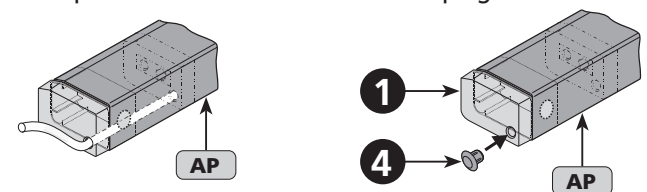
- Push end caps 1 onto the spacers 2 so that they are flush.
- Glue stickers 3 on both sides in the cover profile.
- Remove the protective film.



- Push the spacers 2 together with the end caps 1 into the profile from the front.
- Align so that they are flush.
- Press on all parts firmly in the area of the stickers 3.



- If necessary, feed the cable through the hole in the end cap or close off the hole with blind plugs 4.

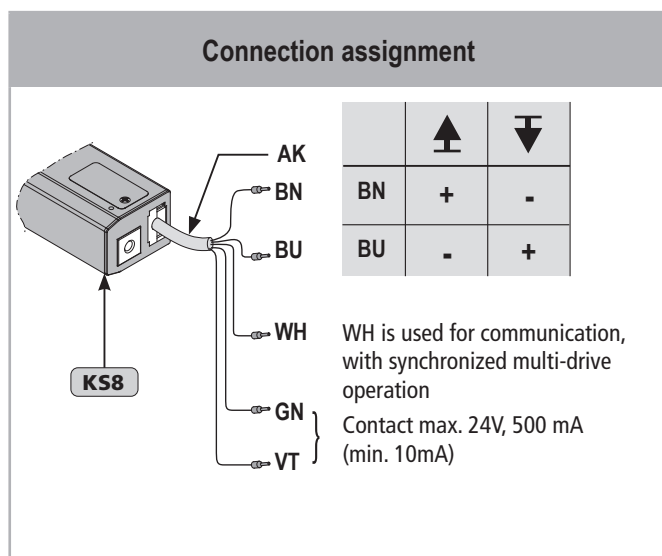


INSTALLATION STEP 11: Electric connection

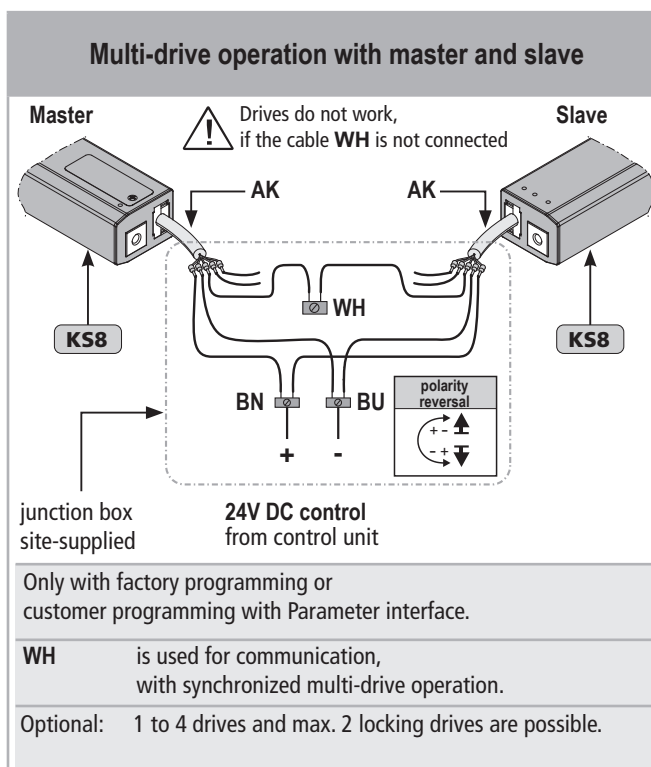


Make sure when establishing the connection that there is no voltage at the terminals!
Unused wires must be safely insulated!

The running direction of the 24V-drive may be changed by interchanging (polarity reversal) the wires „BN – (brown)“ - „BU – (blue)“.



Wire colour coding		Direction of travel
Colour	DIN IEC 757	
black	BK	
white	WH	
brown	BN	
blue	BU	
green / yellow	GN / YE	
green	GN	
violet	VT	
grey	GY	
		polarity reversal

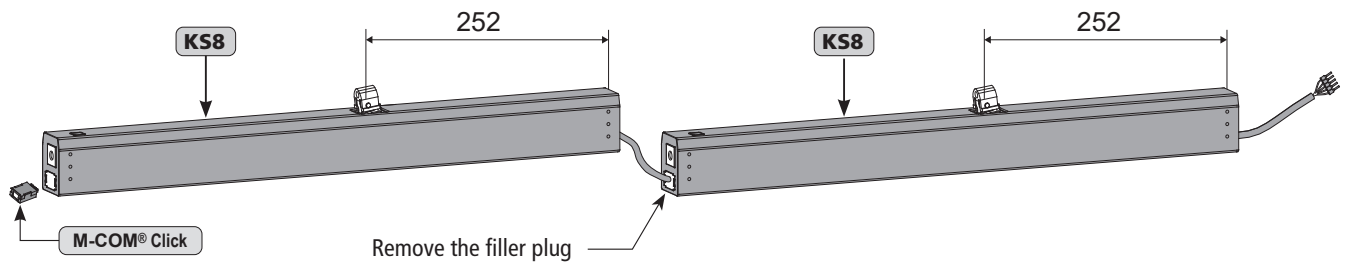


KS8 drives with M-COM® Click

Multi-drive operation with M-COM® Click - series connection

AUMÜLLER chain drives have an integrated cable routing with connection sockets on both housing ends. This allows for a series connection of two individual drives in multi-drive operations.

Individual configuration



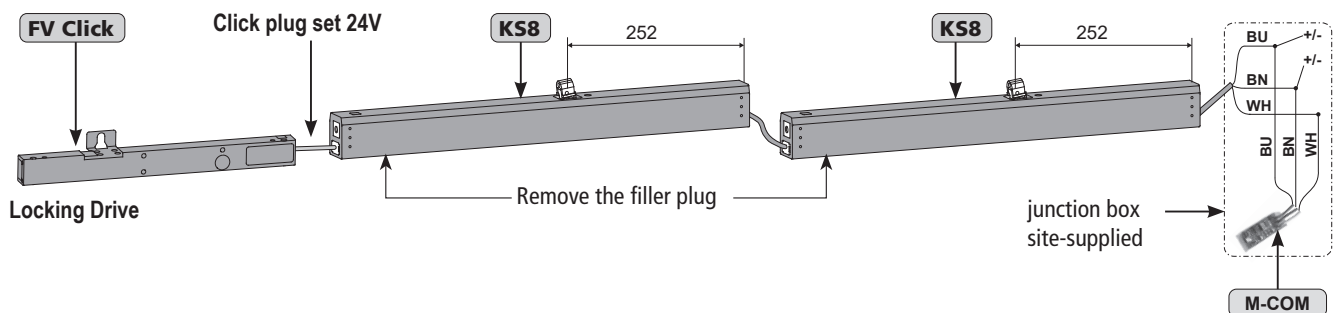
A maximum of **two individual drives** can be connected in series (looped through). Configuration is done by **M-COM® Click**.

KS8 drives + Locking drive with M-COM

Multi-drive operation with M-COM - series connection

AUMÜLLER chain drives have an integrated cable routing with connection sockets on both housing ends. This allows for a series connection of two individual drives + Locking Drive in multi-drive operations.

Individual configuration

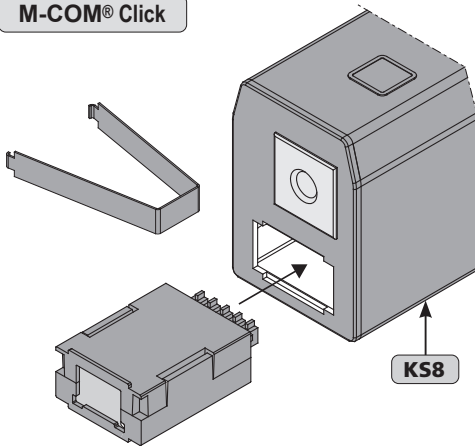


A maximum of **two individual drives + Locking Drive** can be connected in series (looped through). Configuration is done by **M-COM**.

Installation: M-COM® Click in the KS8 drive

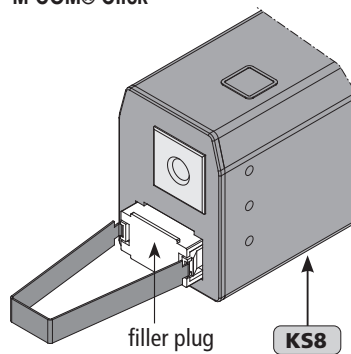
Installation: M-COM® Click in series connection

M-COM® Click



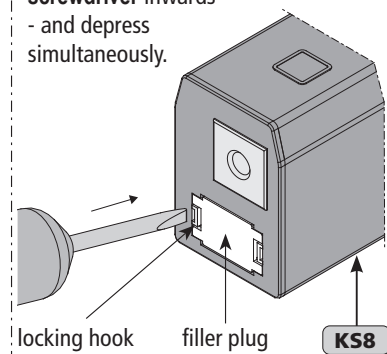
Remove the filler plug with tongs

Tongs included in the scope of delivery:
M-COM® Click



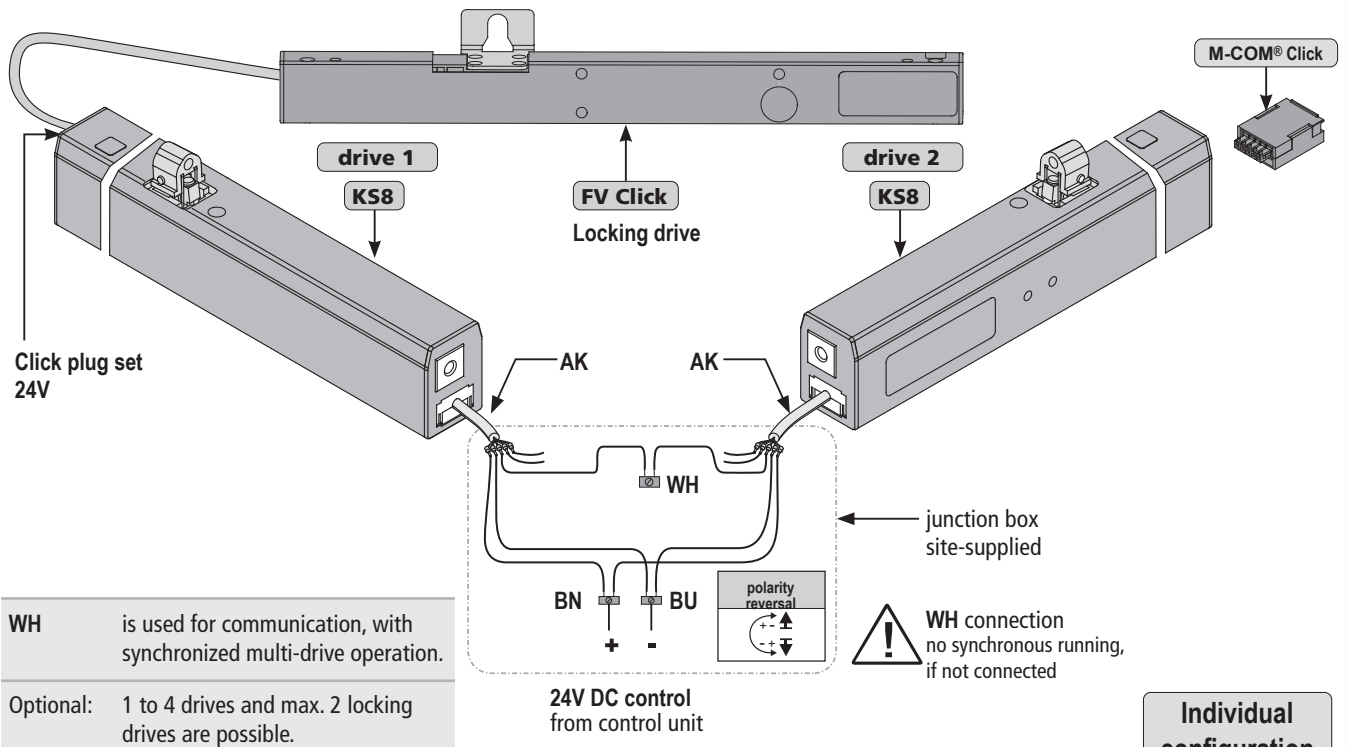
Remove the filler plug individually

Push locking hook with a
screwdriver inwards
- and depress
simultaneously.



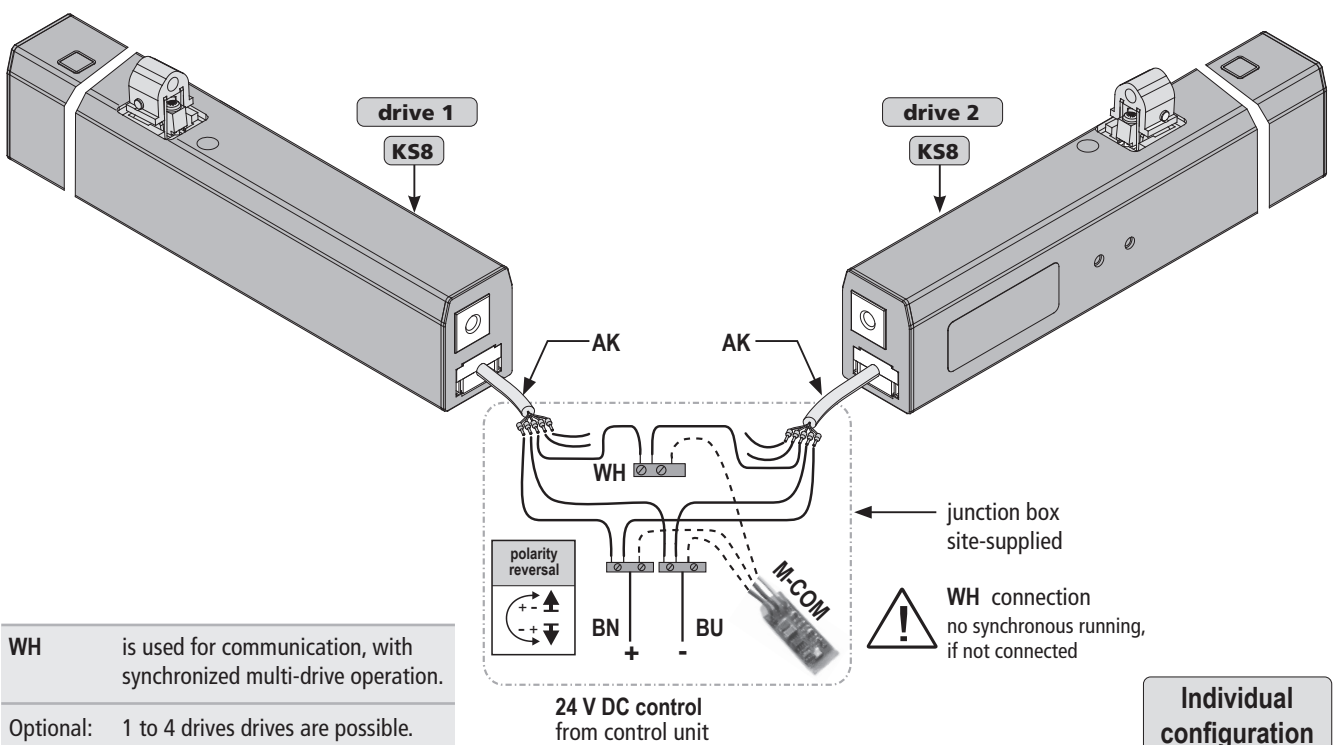
KS8 drives + Locking drive with M-COM® Click

Multi-drive operation with M-COM® Click



KS8 drives with M-COM

Multi-drive operation with M-COM

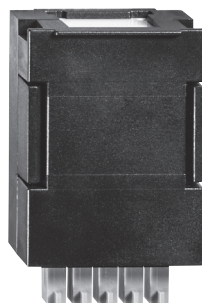


M-COM® Click (Main control unit)

Order number:	524167
Application:	Configuration module for the automatic configuration and monitoring of max. 4 opening and 2 locking drives type S12 / S3 in multi-drive systems.
Rated voltage:	24V DC (19 V ... 28 V)
Current consumption:	<12 mA
Drive type:	S12
Protection class:	IP30
Ambient temperature:	min. -5 °C ... + 70 °C
Dimensions:	40 x 26 x 15 mm
Connection:	for AUMÜLLER chain drives with Wire Click
Equipment:	Tongs for removing the M-COM® Click

Feature / Equipment:
able to configurate drive parameters by simple plug-on into the last drive of the multi-drive system.

Suitable for 24V- or 230V-drives, but it can only be used on the 24V-side.



Parameterisation-Interface

Part.-No:	524178
Application:	Hardware interface for parameterisation of AUMÜLLER drives with the AUMÜLLER software DC.
Rated voltage:	24V DC +/-20%
Configurable drives:	24V DC in version S12, S3 230V AC in version S12
Connections:	3x Pluggable screw terminals 1,0 mm² 1x USB port
Scope of delivery:	1x Interface 1x USB cable 1x Connection cable

Features / Equipment:
Power supply 24V DC is not included in the scope of delivery!



Any reconfiguration of a drive is entirely at the user's own risk and responsibility.

M-COM (Main control unit)

Order number:	524177
Application:	Configuration module for the automatic configuration and monitoring of max. 4 opening and 2 locking drives type S12 / S3 in multi-drive systems.
Rated voltage:	24V DC (19 V ... 28 V)
Current consumption:	<12 mA
Drive type:	S12
Protection class:	IP30 rubber jacket
Ambient temperature:	0 °C ... + 70 °C
Dimensions:	45 x 17 x 6 mm
Connecting wires:	3 wires 0,5 mm² x 50 mm

Feature / Equipment:
printed circuit board with connecting wires for integration in site-supplied junction box.



Wire Click

Order number:	501289 - 3 m cable length - 24 V DC 501290 - 5 m cable length - 24 V DC 501291 - 10 m cable length - 24 V DC
Application:	Unitary plug-solution for AUMÜLLER Click System.
Rated voltage:	24V DC (19 V ... 28 V)
Connecting cable:	non-halogen, grey 5 x 1,0 mm ²
Terminal:	to 1,5 mm ²

Feature / Equipment:

- Flexible cable length
- Connect multiple drives in series connection
- Torsion-plug
- Locking hooks prevent withdrawal of the plug under tensile load
- Strain relief according DIN EN 60335-1 by screwing the housing halves

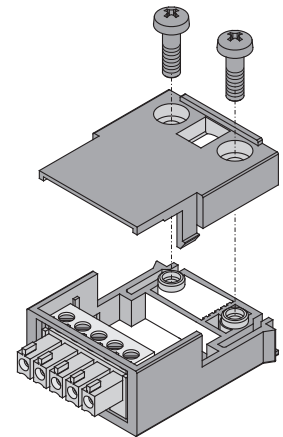


Click plug set 24V

Order number.:	533998
Application:	Additional connector head for Wire Click to connect multiple drives.
Cable:	5 x 1,0 mm ²
Terminal:	to 1,5 mm ²

Feature / Equipment:

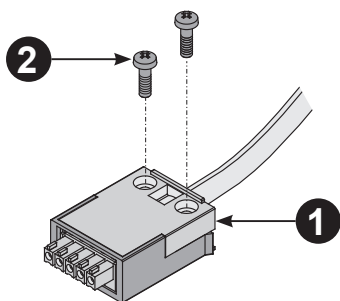
- Torsion-plug
- Locking hooks prevent withdrawal of the plug under tensile load
- Strain relief according DIN EN 60335-1 by screwing the housing halves



Wire Click - site-supplied customised construction

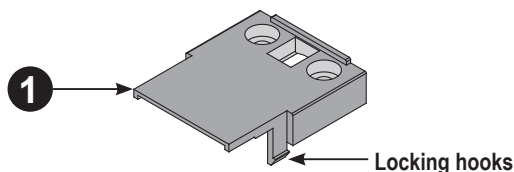
The **Wire Click** enabling the use of site-supplied cable. It simplifies assembly and the electrical connection of the drives.

- Loosen the screws ② and remove the housing cover ①.

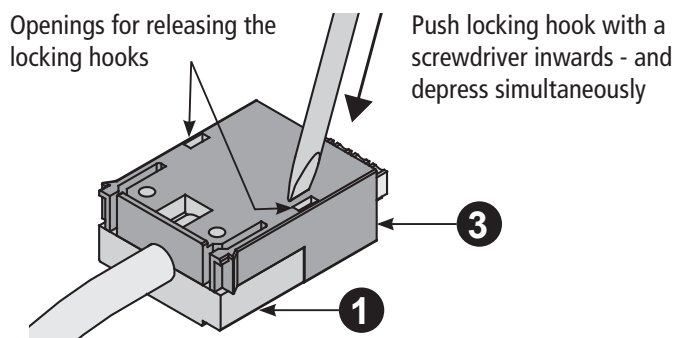


NOTE

Locking hooks - at the housing cover ① - prevent withdrawal of the plug under tensile load.



- On the underside of the plug housing ③ are two openings for releasing the locking hooks. Push locking hook with a screwdriver inwards - and depress simultaneously.

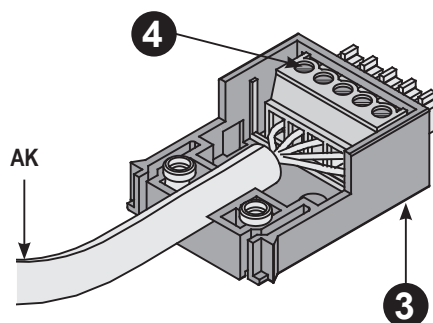


- Replace cable set - provided by the customer in place of connecting cable.
- Moung the housing cover ① with the both screws ②.

Terminals ④ to 1,5 mm².

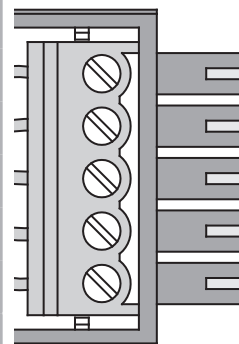
The performances (especially the fire behavior) of locally provided cables, must be checked on own responsibility on compliance with the application-specific local regulations!

NOTE



Connection assignment

Function	Colour	DIN IEC 757	
OPEN / CLOSE	blue	BU	
OPEN / CLOSE	brown	BN	
Data	white	WH	
Rel: NO	violet	VT	
Rel: NO	green	GN	



INSTALLATION STEP 12: Supply lines of Control Unit to the Drives

Observe current regulations and guidelines regarding the "Fire behavior of building materials-circuit integrity maintenance of electric cable systems" (E30, E60, E90) and the prescribed constructional regulations!

RECOMMENDATION

For safety reasons a cable of the next higher wire cross section should be selected.

Formula to calculate

the required wire cross-section of a supply line

24V

$$A_{\text{mm}^2} = \frac{I_{\text{A (total)}} * L_{\text{m (length supply line)}} * 2}{2,0V_{\text{(voltage drop)}} * 56 \text{ m} / (\Omega * \text{mm}^2)}$$

Calculation example

Available data:

- cut-off current per drive (i. e. 2 x 4.0A) from data sheet
- length to be bridged from the last window to the control unit (i. e. 10 meters)

$$A = \frac{(2 * 4,0A) * 10\text{m} * 2}{2,0V * 56\text{m} / (\Omega * \text{mm}^2)}$$

$$A = 1,42\text{mm}^2 \rightarrow 1,5\text{mm}^2 \text{ chosen}$$

Laying and connecting the drive cable

- Avoid extreme temperature differences in the installation area (danger of condensation).
- Set clamping point close to window and ensure accessibility.
- Ensure expansion possibilities of the drive and the drive cable.
- Consider the cable length and the cross sections of the drives supply lines.

INSTALLATION STEP 13: Safety check and Test run

Check the mounted system for its safety; perform test run and commissioning.

Safety test:

- Connect operating voltage.
- Check fastening (frame brackets, casement brackets) for firm fit or tightening.

Test run:

- Visual inspection of casement movements.
- Stop immediately by malfunction!
- Pay attention to collision with facade construction and correct installation, if required.

Risk evaluation:

Before operating a power-operated window to which window drives were mounted, which were sold by the manufacturer as incomplete machines according to installation declaration, the possible risk to hazard of persons must be determined, evaluated and minimized by taking appropriate technical measures in accordance with the Machinery Directive. Separate documents for performing a risk assessment can be downloaded from the homepage of

Firm AUMÜLLER AUMATIC GmbH
(www.aumueller-gmbh.de).

Operation of the power-operated window

When operating the power-operated window safety instructions must be observed, specifically those pertaining to commissioning, operation and maintenance.

Help in case of Malfunctions, Repairs and Maintenance

Professional repair of a defect drive can only be performed at the manufacturer's factory or manufacturer-certified specialist company. Unauthorized opening or manipulation of the drive terminates warranty.

1. Exchange defect drives or have them repaired by the manufacturer.
2. In case of problems during installation or normal operation the following table might be useful:

Problem	Possible causes	Possible solutions
Drive does not start	• Duration of mains power supply too short • Drive run direction not correct • Connecting cable not connected • Power supply / Control Unit voltage incorrect, too high or too low (see data sheet) • No mains supply to power supply unit / Control Unit (no voltage) • Drive has shut down on overload	• Adjust supply voltage as specified in the technical documentation • Check drive cables • Check all connection cables • Check power supply unit and replace if necessary • Connect power supply • First move drive in CLOSE position
Drive doesn't start after having been in operation several times	• Operating time has been exceeded, drive has been overheated • See possible solutions above associated with „Drive doesn't start“	• Wait until drive has cooled down and start again • See possible solutions associated with: "Drive doesn't start"
Drive doesn't close	• Closing edge safety mechanism has been triggered (if existing) • See possible solutions above associated with „Drive doesn't start“	• Release safety area for operation and reset closing edge safety mechanism • See possible solutions associated with: "Drive doesn't start"
Drive travels uncontrolled in open and close direction	• Residual ripple of power supply / control unit too high • Fault in power supply unit / control unit	• Adjust drive voltage to the required value of drive. (values see data sheet of drive) • Check output voltage of power supply unit or control unit
Drive closes, but after about 10 mm the drive open	• Close the window outside the 40 mm (Soft run mode).	• Drive mounted so, that the closing process takes place within the 40 mm (e.g. use spacer under the casement bracket).

Maintenance and Modification

To ensure continuous function and safety of the drive periodic maintenance by a specialist company is required at least once a year (as mandated by law and recommended by manufacturer). Operational readiness must be checked regularly. Frequent inspection of the system for imbalance and signs of wear or damages of cables and fastening elements must be performed.

During maintenance contaminations must be removed from the drive. Fastenings and clamping screws must be checked for tightness. Test runs during the opening and closing procedure of the devices must be performed.

The drive itself is maintenance-free. Defect devices may only be repaired in our factory. Only spare parts of the manufacturer may be used. When the connection cable of this device is damaged it must be replaced by the manufacturer or his customer service or a similarly qualified person to avoid endangerment.

It is recommended to conclude a maintenance contract. A sample maintenance contract can be downloaded from the homepage of

Firm AUMÜLLER AUMATIC GmbH
(www.aumueller-gmbh.de).

While cleaning the windows, drives may not have direct contact with water or cleaning agents. Drives must be protected from dirt and dust during the construction phase or renovations.

Maintenance process

1. Open or extend power-operated casement completely.
2. Completely disconnect the system from the mains and secure it against automatic or manual activation.
3. Check windows and fittings for damages.
4. Check all mechanical fastenings (if required, observe information on torques in installation instructions).
5. Check electric drives for damages and contaminations.
6. Check connecting cables (drive cable) for:
 - tightness of the cable screw
 - functionality of the strain relief
 - damages
7. Check the mobility of hinges and fittings and re-adjust or apply lubricant, e.g. silicone spray (observe the instructions of the manufacturer of this window system).
8. Check peripheral seal, remove contaminations or replace.
9. Perform cleaning to maintain functionality (e.g. clean extending elements of the drive, such as chains or spindles by damp wiping them with acid or lye-free agents and drying them and, if required, lubricate them with cleansing oil e.g., Ballistol).
10. Turn on operating voltage.
11. Open and close the power-operated window via the operating voltage (functional test).
12. If available, check and re-adjust protection systems of the safe guard fixture.
13. Check the intactness of the CE label at the power-operated system.
14. Check the intactness of warning instructions and labels at the respective drive.
15. Perform a risk assessment in accordance with Machinery Directive 2006 / 42 / EG, if required, e.g. after modifying the machine.

Demounting

The drives are demounted by reversing the steps, as for the installation. The adjustments are omitted.

1. Completely disconnect the system from the power supply before demounting a drive.
2. After demounting a drive the window must be secured against independent opening.

Dispose of parts according to the locally applicable legal provisions.

Disposal

The symbol of the „crossed-out dustbin“ means that you are legally obliged to collect these appliances separately and recycle them in an environmentally friendly manner. Do not throw old electrical appliances into the household waste! Information on return options can be found at: <https://www.aumueller-gmbh.de/umweltschutz>

Before disposing of old electronic devices, please delete all personal data stored on them, if available. Remove any device batteries or rechargeable batteries and put them in the old battery collection. Tape the poles beforehand to avoid a short circuit.

Dispose of the shipping and transport material, separated according to material, in the appropriate recycling bin.



Liability

We reserve the right to change or discontinue products at any time without prior notice. Illustrations are subject to change. Although we take every care to ensure accuracy, we cannot accept liability for the content of this document.

Warranty and Customer Service

In principal apply our:

„General Terms for the Supply of Products and Services of the German Electrical Industry (ZVEI)“.

The warranty corresponds with legal provisions and applies to the country in which the product has been acquired.

The warranty includes material and manufacturing defects incurred during normal use.

The warranty period for delivered material is twelve months.

Warranty and liability claims for personal injuries or material damages are excluded, if caused by one or more of the following:

- No proper incoming goods inspection.
- Improper use of the product.
- Improper installation, commissioning, operation, maintenance or repair of the product.
- Operating the product by defect and improper installed or not functioning safety and protection devices.
- Ignoring instructions and installation requirements in these instructions.
- Unauthorized constructional modifications at the product or accessories.
- Disaster situations due to effects of foreign bodies and Acts of God.
- Wear and tear.

Contact persons for possible warranty claims, for spare parts or accessories are the employees of the responsible branch office or the responsible person at

Firm AUMÜLLER AUMATIC GmbH.

Contact data are available at our homepage
(www.aumueller-gmbh.de)



Certificate and Declaration of Conformity

We declare under our sole responsibility that the product described under "Data sheet" is in conformity with the following directives:

- 2014/30/EU
Directive relating to Electro-Magnetic Compatibility
- 2014/35/EU
Low voltage Directive



We further declare that the drive is an incomplete machine within the meaning of the European Machinery Directive (2006/45/EG).

Technical file and declaration at firm:

AUMÜLLER AUMATIC GmbH
Gemeindewald 11
D-86672 Thierhaupten

Ramona Meinzer
Managing Director (Chairman)

Note:

The proof of the application of a quality management system is for company:

AUMÜLLER AUMATIC GmbH
according to the certification basis **DIN EN 9001** as well the "Declaration of Incorporation and Conformity" can be accessed via the QR code or directly on our homepage:
(www.aumueller-gmbh.de)



Translation of the original instructions (German)

Important note:

We are aware of our responsibility, which is why we present life-supporting and value-preserving products with greatest possible conscientiousness. Although we make every effort to ensure that the data and information are as correct and up-to-date as possible, we still cannot guarantee that they are free from mistakes and errors.

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Basically the General Terms and Conditions of **AUMÜLLER AUTOMATIC GmbH** apply to all offers, supplies and services.

The publication of these assembly and commissioning instructions supersedes all previous editions.

AUMÜLLER AUMATIC GMBH
Gemeindewald 11
86672 Thierhaupten

Tel. +49 8271 8185-0
Fax +49 8271 8185-250
info@aumueller-gmbh.de



www.aumueller-gmbh.de

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